Web appendix for Current accounts and financial flows in the euro area

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This web appendix accompanies the paper 'Current accounts and financial flows in the euro area'. It describes 1) data collection on the bilateral international investment position, 2) the methodology used to account for reporting inconsistencies in the source data, and 3) the construction of imputed bilateral financial flows between countries.

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1. Introduction

We combine the available data to construct a comprehensive dataset of bilateral financial *flows*. For classes of financial assets, where data on flows is not directly available, we first construct the data on bilateral cross-border *stocks* and then proceed to estimating the flows. In doing so, we face two major challenges. First, to be able to estimate bilateral financial flows, it is necessary to ensure the overall consistency of the data on stocks. This is because the available datasets often feature important internal inconsistencies, i.e. the reported liabilities of country A vis-à-vis a country B do not always correspond with the reported holdings of country A's assets in country B. The second challenge is to estimate bilateral financial flows from the available data on cross-border holdings of financial assets, accounting for the valuation effects.

2. Private bilateral stock data: data sources

We build the dataset of gross and net bilateral external financial positions by combining different data sources on specific classes of financial assets in a similar way to Milesi Ferreti, Strobbe and Tamirisa (2010) or Waysand, Ross and de Guzman (2010). We follow the usual categories from the Balance of Payments (BoP) statistics: portfolio investment, other investment (essentially loans), FDI and reserve assets.³ Our dataset excludes holdings of financial derivatives because bilateral figures are hardly ever available.⁴ Gross foreign assets in the data set are modelled to match the Balance of Payments Manual (BPM) 5 definition for portfolio and other investment, and the OECD definition of FDI (which is close to BPM 5 in concept and data).

Direct investment

Foreign direct investment (FDI) is the only financial account component for which bilateral financial flow statistics are available for a multitude of countries. This is crucial to the quality of our data set, since in most countries (and in particular offshore economies) FDI is subject to substantial valuation effects, and asset prices within this class are much less likely to co-move than in portfolio equity and debt assets. However, FDI stocks are required for computing valuation effects, and can be helpful to estimate bilateral financial flows that are not reported (mainly between non-OECD economies). We use OECD bilateral FDI statistics as the primary data source for FDI stocks data (complemented with similar Eurostat data for non-OECD EU members). As a complementary source, we rely on the CDIS Coordinated Direct Investment Survey (CDIS), which we use to impute for data gaps in the OECD source data, and to gauge FDI links among non-OECD members (Note, however, that CDIS data is only available as of 2009). Finally, the Dutch central bank DNB is a prime source: In contrast to most countries, the official Dutch Balance of Payment and FDI statistics excludes the offshore (SPE) sector of the economy. This implies that the Dutch bilateral FDI positions reported to the OECD are only a third of what its counterparts report as positions with the Netherlands. However, the DNB publishes bilateral

 $^{^3}$ For the sake of completeness, we also use the bilateral FDI positions as reported by the OECD. We do not use this , although the flow data is taken directly from the .

⁴ Moreover, financial derivatives are reported on a net basis only and these positions are relatively small compared to the net positions in other asset classes.

FDI stocks (though not flows) that take the SPE sector into account. Given the Netherlands' role as a global hub for cross-border FDI, taking into account this data proved crucial for deriving a complete set of FDI stock estimates.

The complementary data sources are used to impute for bilateral links of small magnitude that display data gaps in the early 2000s or are between non-OECD economies. If bilateral data reported by either partner before a certain year is not available (the most common case), then we use a geometric average of the aggregate OECD FDI statistic asset (on one side) and liability (on the other side) growth rate to extend the series backwards. The remaining cases of not available data (e.g. between Panama and Liechtenstein) are filled with zeros.

A major difficulty lies in the various definitions of FDI used among the data sources (the differing treatment of accounting for round-trip tax optimization flows offsetting FDI equity with FDI debt has major ramifications for gross flow data.) The Dutch FDI data uses a Eurostat interpretation of the Balance of Payments Manual 5, while the OECD definition is close that but not the same for operational reasons. (The OECD statistics account more thoroughly for bilateral FDI flows between affiliated subsidiaries of the same non-resident mother corporation.) IMF CDIS uses Balance of Payments Manual 6. In building the data set, we strive to adhere to the OECD definition, and treat the complementary data sources in order to make their aggregate/total recorded values comparable to the OECD ones.

Portfolio investment and other investment

The primary source for portfolio investment is the IMF Coordinated Portfolio Investment Survey (CPIS), which reports bilateral holdings of assets.⁵ In order to achieve a finer level of disaggregation, which is important for the reliability of the computation of financial flows, the portfolio investment is decomposed into portfolio equity and debt.⁶

As regards the bilateral other investment, we use the locational banking statistics compiled by the BIS.⁷ We dispose of four aggregates of private other investment data from BIS: "Loans & deposits" as well as 'total' other investment, for the bank and the non-bank sector of the economy. The 'loans and deposits' category is the most complete we have available, and displays less asset-liability mismatches than the total other investment data. Moreover, with the

⁵ Portfolio asset holdings tend to be much more reliable than portfolio liability statistics. This is due to the fact that national statistics providers survey investors on their portfolio allocation, but have difficulties to track who is ultimately holding their liabilities. For instance, the Bundesbank reports Belgium and Luxembourg to be the most important holders of German portfolio liabilities. But this stems from major clearing houses being situated in these countries, while the residence of the actual investor is frequently unknown.

⁶ Note that CPIS also offers assets by institutional sector. Unfortunately, the approach used here (equation (3)) would require the institutional sector of the asset (and thus the borrower) to estimate the valuation effect, and not the sector of the asset holder.

⁷ We are grateful to the BIS and its partner central banks for providing us with locational banking statistics. In order to guarantee the confidential nature of these data, this paper refrains from detailing bilateral other investment in such a manner that those data may be inferred.

data provided to us, we dispose of an almost complete set of loans & deposits data.⁸ In the buildup of the database for other investment, we therefore focus on building good estimates for private loans and deposits as well official funds (see below), which together account for the large majority of other investment assets and liabilities. We then force the remaining other investment to conform to residual other investment obtained from the IIP - and if data on bilateral residual other investment links are not available, we assume exposures proportional to private loans and deposits. It is less straightforward to obtain estimates of 'other investment' for the central bank and non-banking sector of the economy (see next section).

Notes on central bank reserves

To build a consistent matrix of bilateral portfolio liabilities, it is important to take into account central banks' holdings of portfolio debt. The IMF reports these holdings – as an aggregate of all foreign central banks - in the Survey of Securities held as Foreign Exchange Reserves (SEFER). Other types of reserve assets, i.e. monetary gold and IMF special drawing rights (SDRs), are relatively unimportant compared to the overall foreign asset positions in Europe and North America, and are therefore omitted from the analysis (similar to Waysand et al., 2010). The reserve assets of a central bank decompose into monetary gold and IMF special drawing rights (SDRs) on the one side, and the portfolio debt and other investment liabilities of other countries (in foreign currency) on the other side. In Europe and North America, gold and SDRs do hardly matter compared to the overall foreign asset positions, and are therefore omitted from the analysis (similar to Waysand et al., 2010). However, central banks' holdings of portfolio debt need to be taken into account to build a consistent matrix of portfolio liabilities. The IMF reports these holdings – as an aggregate of all foreign central banks – in the Survey of Securities held as Foreign Exchange Reserves (SEFER). Aggregate reserve flows for euro area central banks are allocated according to 'other investment' asset acquisition shares, though overall euro central bank reserves are relatively minor compared to total flows and stocks. In contrast, IMF CPIS aggregates the assets of (non-euro area) central banks as a separate region (apart from countries). This has implications for the financial links with several countries. In particular the Bank of Japan and the Swiss National Bank are presumed to hold important euro-denominated reserves. The financial links reported with these countries therefore omit an important part of their foreign assets.9

Use of national data sources in offshore finance

Even when focusing the analysis solely on the OECD/EU, the central difficult in order to obtain a complete data set is to model the offshore (SPE) sectors of European countries well. The difficulty lies in that most of these are mainly 'regular' economies, but have an SPE sector whose gross transactions can cloud their data and valuation effects. In the EU, the Netherlands and

⁸ Moreover, we are completely missing information on Italy – therefore, most of estimates for Italian flows is derived from partner country information. Moreover, information for a single year from several countries is missing. However, in those cases the countries still provide data by regional aggregate, which helps to impute in such cases.

⁹ In contrast, the reserves of the Swedish Riksbank, the Bank of England, and the Federal Reserve are relatively small, and their impact on the bilateral financial positions is conceivably much smaller than the estimation errors that are inherent in the build-up of this database. Finally, the People's bank of China does not seem to report to SEFER, so financial links with China are particularly difficult to identify.

Ireland have the largest of such offshore sectors, while Austria, Hungary, Malta and Cyprus also have a formal SPE sector geared towards SPE. Belgium discontinued SPEs in 2004, but various tax code specialities help it to retain its position as a cross-border FDI hub akin to the Netherlands. For practical purposes Luxembourg can be regarded as a pure offshore economy in the context of this study, as the vast majority of its gross assets are likely no related to underlying Luxembourg economic activity.¹⁰ While also only serving as a hub, financial interactions with the UK and Switzerland are usually deeper in that they mostly involve transactions at arms-length rather than accounting entries.

Reporting mismatches in relation to these financial centres can have considerable implications on estimated stocks and flows. Apart from the Netherlands, none of this countries publishes bilateral FDI statistics for the SPE sector. However, all of the EU countries with de facto offshore sectors (bar Austria and Belgium) publish IIP and BoP statistics that account for the SPE sector apart from the national economy. We took into account such statistics from the Netherlands, Ireland, Hungary, and Cyprus, to allow for adjustment of valuation effects (which are sometimes an artefact of very large offshore transactions) and help to impute for data gaps for some smaller economies in the years 2001 to 2005.

3. Implied bilateral official stocks via ECB and assistance programs

One of the most important financial partners for euro area countries is the ECB. Flows with the ECB are recorded in the Balance of Payments (BoP) as flows with the euro area, but not as flows with individual member states. In order to abstract from the ECB, the following paragraphs detail how exposures vis-à-vis the ECB are attributed to individual euro area member states. Moreover, for Greece, Portugal, Ireland, and Spain during 2010-2012, official financial assistance funds are of great importance, and are likewise attributed to individual euro area member states (as is done in European national accounts).

TARGET2 balances

Among the 'other investment' stocks, a particular issue for the euro area countries is the treatment of their net asset holdings with the ECB (mainly TARGET2 balances). As data on TARGET2 balances is available publicly, we have to rely on estimates (which we take from eurocrisismonitor.com). Before computation, these estimates are scaled in order to add up to zero (which is of particular importance in the year 2008). We assign these to the implied bilateral balances among Eurosystem members as if the ECB's balances were an exchange-traded fund that allows for short positions. Each country with net TARGET2 liabilities is treated as an underlying asset of this fund. Each country with net TARGET2 assets is treated as holding a share of the fund. For instance, if Spain represents 21% of the sum of all countries with net

¹⁰ In addition our sample includes 17 'pure' offshore economies outside the EU. Moreover Hong Kong and in particular Singapore dispose of a (de facto) SPE sector, on which data, however, is much more scarce than for European countries.

liabilities to the ECB, then 21% of the German net claims on TARGET2 are assumed to be claims on Spain.

Securities Market Programme

In 2010-2012, the ECB ran a quantitative easing programme that focused on buying and holding bonds from Greece, Ireland, Portugal, Spain and Italy. Despite the bonds being acquired through open market operations, they remain in the portfolio liabilities of the originating countries. Since the ECB holds those bonds to maturity, and they are not offset within TARGET2 (other investment), they have to be accounted for separately. Figures representing 2012 by country show that SMP holdings by the ECB added up to more than EUR 200 bn notional amount. We use this information and combine it with anecdotic evidence from Trebesch and Zettelmayer (2013)¹¹ to derive the sequencing of bond purchases: 2010 saw almost all purchases of Greek, Portuguese and Irish bonds, and 2011 90% of purchases of Italian and Spanish bonds. Since disclosed information indicates that the bond's maturity is close to 4 years for all countries, we use market yields for a four-year zero-coupon bond to arrive at the market value of those bonds at purchase (since the IIP is accounted for in market values).

Financial assistance programs

We collected disbursements to euro area countries of financial assistance in the context of the financial crisis: to Greece from 2010, Portugal and Ireland from 2011, and Spain in 2012. Of these, most funds were under the European programs of 'Greek lending facility', EFSF and ESM. We use the guaranteed capital ratios of these vehicles to allocated the underlying capital to member states (as is done in European national accounts for gross government debt).¹² In contrast the EFSM (funded from the EU budget) and IMF funds are represented as lending from international organizations. Note that only euro area programmes are taking

Greek selective default and other Greek issues

The Greek 'private sector initiative' selective default did not have any major impact on the data (apart from valuation effects). However, it entailed a bank recapitalization programme which was mostly disbursed in the form of EFSF notes. Since EFSF is a Luxembourg entity under private law, this means that CPIS for 2012 show Greek portfolio assets in Luxembourg increasing by a third of Greek GDP. As this is a mere statistical artefact, while the underlying transfer of EFSF notes from Luxembourg to Greece was not recorded. Consequently, an other investment from Luxembourg to Greece was augmented by an offsetting entry for 2012

Finally, note that neither TARGET2 balances nor financial assistance are represented in the BIS locational statistics for other investment by definition. Total other investment may thus be simply obtained by adding up private other investment from BIS statistics with the TARGET2 balance.

 $^{^{11}}$ Trebesch and Zettelmayer (2013): ECB interventions in distressed sovereign debt markets: The case of Greek bonds, mimeo

¹² In addition, bilateral loans from UK, Sweden and Denmark to Ireland are accounted for.

4. Adjusting for inconsistent reporting of assets and liabilities

For both other investment and FDI stocks, most countries report bilateral assets and liabilities. The cross-border assets and liabilities reported by any two countries roughly match in most cases, but there are some important cases where major inconsistencies arise: for instance, in Waysand et al. (2010) France reports liabilities vs. Germany of USD 528 bn, whereas Germany reports assets in France of USD 418 bn. Such mismatches are mostly small but in some cases can run up to a substantial sum for at least one of the counterparties involved.

Some stylized facts from comparing stock data

In principle, estimated gross and net foreign asset data (with OECD and offshore countries) matches the published aggregate IIP statistics relatively well for most countries. For most financial centres such as the UK, a substantial part of gross assets and liabilities is attributed to the rest of the world. Nonetheless, a few odd facts merit a remark:

- According to CPIS, Luxembourg had portfolio debt liabilities that exceed the portffolio debt liabilities in the IIP statistics. After investigation we found Eurobond origination as the most likely cause. The pattern also holds for Netherlands (Ex SPE) and Singapore, the other big Eurobond domiciles. For estimation were therefore treat
- For Ireland and Luxembourg, between a third and one half of portfolio equity liabilities are not reported within the sample. Both countries are the prime centers for UCITS (European mutual funds), whose reported total assets (in the case of Luxembourg) are about at the same magnitude as total portfolio equity liabilities. It is not clear to what countries out of the sample these UCITS would be marketed.

A simple algorithm for 'consistensification' of stocks

But estimating flows requires consistent data (since flows are to be estimated only from the liability side). In order to do that, for instance for FDI, we proceed the following way.

- 1. For a benchmark year (2010) we compute a ranking of mismatches: 1) assets A reports to hold in B minus reported liabilities B reports to owe to A, divided by assets A reports to hold in B, 2) the reverse case, 3) 1 divided by (1), 4) 1 divided by (2), 5) The number of observations on the link between A and B that were not available in the original data.
- 2. Based on this ranking the first-ranked country is 'believed'. It's reported assets are taken as given
- 3. The second-ranked country is 'believed' on all items except for its links with the first-ranked country.
- 4. Subsequently, the data reported by each country is 'believed' as far as it concerns links with lower ranked countries.
- 5. This way, the consistent matrix is iteratively build by trusting data sources in a hierarchical way.

Note that the ranking can be slightly adjusted: OECD countries are always ranked before offshore financial centers (including the Netherlands, Luxembourg and Ireland in the case of FDI). This is due to the fact that those score well on the available data category (and are therefore ranked highly, in principle), but that any mismatches in the data are more likely to occur in accounting for offshore FDI flows, rather than the manufacturing sort.

5. Notes on the approach for estimating financial flows from the stock data

The main text highlights the intuition for constructing bilateral financial flows from bilateral stock data. If data were available for individual assets (and in high frequency), then one could identify each investor's (or country's) net acquisitions of the asset from the knowledge of just their exposure to the asset at the end of each period. The price changes of the asset must be the same for all investors. From aggregate data, the total valuation effect may thus be distributed to each investors holding at the beginning of the period. The investor's net acquisition then arise as the difference between exposure at the end of the period and exposure at the start times valuation effects.

There are two complications, though: First, bilateral IIP data is only available for broad asset classes. The main text motivates why per asset class, the valuation effects should be relatively similar for asset holding countries. Second, the investors might acquire new assets at different time points during the period – at each of these different time points, prices probably differ, which leads to different valuation effects for each investor's newly acquired assets during the period (but not for the stocks held at the beginning of the period). The available data, however, does not allow for disentangling valuation effects on different net acquisitions during the period. Instead, we assume the newly acquired assets to bear half of the valuation effect on the stocks during period t for estimating financial flows. Straightforward manipulation as described in the main text thus results into equation (A.1) for estimating individual financial flows (Note that the main text presents a simplified version in equation (1), which assumes no valuation effects to accrue to newly acquired assets, i.e. assuming all acquisitions to be performed at theend of each period.)

$$fa_{ij,t}^{l} = \left(p_{j,t}^{l}a_{ij,t}^{l} - p_{j,t-1}^{l}a_{ij,t-1}^{l} \frac{p_{j,t}^{l}A_{j,t}^{l} - \frac{1}{2}FA_{j,t}^{l}}{p_{j,t-1}^{l}A_{j,t-1}^{l} + \frac{1}{2}FA_{j,t}^{l}}\right) \left(\frac{2p_{j,t-1}^{l}A_{j,t-1}^{l} + FA_{j,t}^{l}}{p_{j,t-1}^{l}A_{j,t-1}^{l} + p_{j,t}^{l}A_{j,t}^{l}}\right)$$
(A.1)

Here, $a_{ij,t}^{l}$ denotes country i's holdings of asset *l* in country *j* at time *t*; $p_{j,t}^{l}$ denotes the price of asset *l* in country *j* at the end of period *t*; $fa_{ij,t}^{l}$ represents country *i*'s acquisitions of asset *l* in country *j* during time *t*.¹³ In the same vein, $A_{j,t}^{l}$ denotes total foreign holdings of the asset at the end of time *t*, while $FA_{j,t}^{l}$ represents total foreign acquisitions of the asset during *t*. The right-hand side of (A.1) holds the known quantities $p_{j,t}^{l}a_{ij,t}^{l}$, $p_{j,t}^{l}A_{j,t}^{l}$, and $FA_{j,t}^{l}$, and thus allows for directly estimating imputed financial flows. Computing bilateral asset holdings in such a manner yields a matrix of gross financial acquisitions between countries for each time period. The net financial flows are then simply computed by comparing the estimated gross financial flows between two partner economies. Note that the valuation effects are assumed to affect all

¹³ This equation assumes that all the new acquisitions or disposals are made at one point in time (the end) of the period t, i.e. valuation changes apply only to the initial stock of the asset. In reality, portfolio allocation changes will occur also throughout the period t and the asset price is likely to differ with each transaction. This would lead to additional valuation effects on the newly acquired stock of the asset.

investors equally in local currency. I.e. the items of equation A.1 are represented in the local currency of the domestic economy j.¹⁴

In view of the caveats mentioned above, the imputed financial asset flows (from the foreign country's *i* perspective) respectively liability flows (from the viewpoint of domestic country *j*) might differ from actual flows for the following reasons:

- 1) misreporting,
- 2) if country i's composition of sub-assets among class l differs from the average foreign investor, or
- 3) if country i's net purchases over the period t were structured in such a way that the assumed distribution of valuation effects does not hold.
- 4) Reclassification in asset reporting. For instance, an asset might change from portfolio equity to FDI in case of a share buy-out.

However, discrepancies between estimated and actual flows that are due to item 2 should in principle average out over all foreign holders of asset class *l*. Moreover, discrepancies arising from the acquisition timing assumption (item 3) should also net out over all foreign investors by definition.

6. Empirical estimation of imputed flow data

The dataset of bilateral financial asset and liability stocks constructed in this way is similar to the ones used in Lane and Milesi-Ferretti (2007) and Waysand et al. (2010). As emphasized above, the major difference is that we strive for consistency of asset and liability data. Thanks to this consistency, we can proceed to compute bilateral financial asset (credit) flows, and thus obtain bilateral liability (debit) flows at the same time.

The available scant data on bilateral financial flows from official sources is used to check the estimates and, if there are discrepancies, it is superimposed on the estimated data. The following text details some further issues related to the computation of specific types/classes of financial flows.

Flows of FDI

Foreign direct investment (FDI) transactions are the only financial flows that are regularly reported on a bilateral basis. The OECD reports FDI flows in both credit and debit terms for its Members and other partners, based on national sources and sometimes major inconsistencies between reported bilateral assets and liabilities. Eurostat provides some data on FDI flows by regional aggregate that strive to keep close to statistical manuals in order to avoid inconsistencies. Anecdotic evidence and revision histories suggest that FDI liabilities are better

¹⁴ Note that hardly any source provides country-by-country bilateral data on portfolio holdings that is decomposed into currency used. However, most countries in our sample have the bulk of their portfolio liabilities in a single currency. Admittedly, the case is more difficult for several central and eastern European economies as well as European offshore centers (however, special valuation effect assumption render such a distinction unnecessary for offshore centers – see below).

known than FDI assets, so FDI bilateral liability (debit) flows are taken as the basis for a consistent matrix. These data are complemented by FDI asset flows. Particular data points deemed unreliable (in particular from financial centers) are adjusted with the assistance of Eurostat aggregates where available. Finally, national data on the interlinkages between the UK, Germany, France and the Benelux countries are treated carefully to account properly for their complex web of FDI that is clouded by offshore financial flows and tax optimization strategies.

Portfolio and other investment flows

Where available, flow data is drawn from national sources (such as the Bundesbank, Banca d'Italia, or Central Bank of Luxembourg for some asset classes). However, most data is based on the computation of implied financial flows for the sub-classes of portfolio equity, portfolio debt, and other investment by institutional sector as described at the beginning of this section. Eurostat data on financial flows between EU countries and regional aggregates is used to validate data and adjust where necessary. The major challenges in validating data arise with portfolio equity: the usually large valuation changes in this class mean that in some cases asset flows according to equation (1) do not match the aggregates for portfolio aggregates reported by the originating countries well. Such cases could require proportional scaling according to the reported flows, which are however very scarce. We therefore leave portfolio equity flows unaffected by scaling for this version of the database. In contrast, the estimated financial flows on portfolio debt and other investment (which have considerably larger magnitudes) match comparatively well with available bilateral Eurostat data.¹⁵

Treatment of offshore financial centers

Valuation effects in offshore financial centers are relatively small compared to their gross financial flows, but their mis-estimation can have a large impact on the resulting estimates of net financial flows. In principle, offshore centers are treated like any other economy, with financial flows derived from valuation effects on the country's liabilities. Based on comparison with total aggregates the inflows into offshore centers are then scaled to match a proportion of the reported total. In the case, where BoP data (and thus valuation effects) are not available (in particular the Channel and Cayman Islands), the inflows are treated as stock changes in the holder country currency.

The case of Belgium, the Netherlands and the UK is more complicated, as these countries are important for offshore financing and corporate headquarters, as well as having sizeable financial liabilities in their own right. This means that valuation effects are deemed important, but clouded by important offshore financial flows whose attribution is not always certain. Where bilateral financial flows from their partners are available (either reported or refined by reported flows to country groups), precedence is therefore given to the flows ascribed to those countries, rather than those of the UK, the Netherlands or Belgium.

¹⁵ Valuation effects on debt assets are typically smaller than on equity. Moreover, valuation effects on national debt securities tend to be more homogeneous on all assets: rating floor effects imply that besides currency movements, the national government interest rate has an important impact on the valuation of all national debt liabilities.

Non-industrial countries

Data on non-OECD countries are subject to more data limitations. In most cases data are patchy, and can be mostly inferred through the assets and liabilities reported by OECD members. This is particularly relevant for financial flows with China. Data on some emerging countries is therefore presented in this paper, but not taken into account for interpretation of the analysis.¹⁶ Instead, they are aggregated with other non-allocated flows into the non-OECD/non-EU category.

7. Matching the data

We did numerous checks to see whether estimated flows are close to what countries report visà-vis regional aggregates. As an illustration, the following charts show estimated flows to and from the euro area for Spain. The black line displays data reported to Eurostat, whereas the red dotted line represents the aggregate of flow estimates. In several countries the match is much better, but the large countries face issues similar to Spain.

Total asset flows to EA17



¹⁶ Among OECD members, the reservation on central banks mentioned before also applies to Japan, Korea, and Switzerland. The bilateral financial flow data reported for these countries does not include their reserve asset acquisitions and therefore only portrays a subset of their cross-border financial flows.



FDI asset flows



Net FDI flows





Net other inv. flows

8. Annex: Tables

Table 1: Countries and country groups used in the tables

Country group	Entitiy	Description
	Germany	Germany
	Greece	Greece
	Spain	Spain
	France	France (including overseas departments)
Euro area (17 members)	Italy	Italy
includers)	Austria	Austria
	Portugal	Portugal
	Benelux	Belgium, Netherlands and Luxembourg
	Rest euro area	Ireland, Finland, Slovenia, Cyprus, Malta, Slovakia, Estonia
	Poland	Poland
	Sweden	Sweden
Non-euro area EU	United Kingdom	United Kingdom
	Rest of EU-27	Bulgaria, Czech Rep., Denmark, Hungary, Latvia, Lithuania, Romania
	ROW (non EU)	Non-EU-27 countries and territories
	USA	USA (includes Virgin Islands and Puerto Rico)
Non-EU OECD	Japan	Japan
members	Switzerland	Switzerland
	Rest of OECD	Remaining OECD members as of 2012
0.1	OFFSHORE	Bahamas, Bahrain, Barbados, Bermuda, Cayman Islands, Gibraltar, Guernsey, Isle of Man, Jersey, Lebanon, Liechtenstein, Macao, Mauritius, Former Dutch Antilles (Aruba, Bonaire, Curacao, Sint Maarten), Panama, and 'British West Indies' (Anguilla, Antigua & Barbuda, British Virgin islands, Montserrat, Saint Kitts & Nevis)
Others	Hong Kong	Hong Kong
	Rest of World	All other countries. Includes: Croatia, Singapore, as well as foreign-exchange reserves by all central banks, including those of the countries mentioned above (which is particularly relevant for Japan and Switzerland).
	Total	Total outflows/inflows according to balance of payments

Notes on tables:

All matrices are read left to top: I.e. each cell depicts the asset held by the 'row' country in the 'column' country. I.e. each row depicts gross bilateral assets for each country. Each column shows gross bilateral liabilities for each country.

- Debt flows: Estimated gross flows (net asset acquisitions) of portfolio debt and 'other' investment (excluding financial derivatives, including official flows and imputed flows via the ESCB).
- IIP stocks: Estimated gross foreign asset stock of direct, portfolio and 'other' investment (excluding financial derivatives).
- Debt stocks: Estimated gross debt foreign stock portfolio debt and 'other' investment (excluding financial derivatives).
- Target stocks: estimated imputed bilateral asset holdings based on estimated gross TARGET2 assets and liabilities

Note that asset acquisitions by all central banks are comprised within 'Rest of World' (which matters in particular for the Japanese and Swiss central banks). The net financial flows between countries may be derived by subtracting the transpose of this matrix.

The database is available online at www.zeugner.eu/studies/finflows/

Gross debt flows av. 04-06, bn EUR from \ to	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	3	42	24	26	15	4	19	27	2	4	75	11	45	22	-6	10	12	17	0	-12	295
Greece	1	-	0	0	0	0	0	1	0	0	0	7	1	7	0	0	-1	0	1	0	6	17
Spain	3	-1	-	8	5	2	2	7	3	1	0	17	0	35	4	0	-1	2	-2	0	31	82
France	21	3	30	-	33	6	2	37	19	0	0	83	3	84	29	3	5	12	25	-1	10	321
Italy	13	3	8	12	-	4	1	9	4	0	-1	28	0	10	-8	-2	1	1	-2	-1	17	87
Austria	12	1	2	3	5	-	0	3	7	1	0	4	7	14	1	0	1	2	3	0	5	54
Portugal	1	1	2	1	-1	0	-	1	0	0	0	1	0	6	1	0	0	1	1	0	3	14
Benelux	38	8	31	56	25	7	3	-	25	2	0	101	6	106	69	9	9	19	13	1	-22	401
Rest euro area	15	3	16	9	22	2	2	11	-	2	6	58	6	85	38	5	2	10	18	0	10	236
Poland	1	0	0	1	0	0	0	0	0	-	0	1	0	3	0	0	0	0	0	0	2	7
Sweden	4	0	1	0	0	0	0	2	7	0	-	8	5	6	5	0	0	6	5	0	-10	35
United Kingdom	19	1	38	99	0	2	-1	60	58	1	4	-	10	466	187	46	34	43	82	6	62	751
Rest of EU-27	6	0	1	2	0	1	0	2	2	0	6	6	-	11	0	0	0	3	1	0	7	37
ROW (non EU)	71	5	28	136	21	16	10	154	71	1	6	445	9	-	733	25	-13	95	7	31	0	1849
USA	-14	0	7	38	4	3	-1	22	19	1	5	147	-2	263	-	26	6	40	110	0	77	491
Japan	4	1	2	16	1	0	0	13	1	1	-1	34	1	89	30	-	1	7	70	1	-25	156
Switzerland	9	0	1	6	1	2	0	7	3	0	1	56	1	-22	-9	5	-	2	51	0	-74	61
Rest of OECD	14	2	4	9	2	1	1	12	5	0	1	25	3	92	52	2	4	-	-19	0	44	159
OFFSHORE	5	0	-18	28	-2	2	5	11	8	0	4	83	-1	-8	164	3	22	3	-	1	-43	275
Hong Kong	0	0	0	2	0	0	0	4	1	0	0	11	0	23	4	-2	2	10	2	-	7	43
Rest of World	22	1	27	33	10	5	5	71	29	-1	-6	55	7	0	426	-25	-54	12	3	29	-	649
Total	173	26	193	347	133	53	23	292	217	9	25	801	59	1314	1014	67	42	186	379	37	95	

Table 2: Estimated gross debt flows, average 2004-06, EUR bn

Gross debt flows av. 07-09, bn EUR from \ to	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	12	12	46	-5	8	6	45	52	3	5	-21	7	36	23	1	-13	4	5	3	7	198
Greece	-2	-	0	-1	0	0	0	3	12	0	0	14	1	3	0	0	0	0	1	0	1	31
Spain	-2	1	-	5	7	0	3	-1	1	0	0	5	0	4	2	0	0	1	0	0	0	21
France	18	11	20	-	21	6	9	27	7	2	3	-10	6	13	-5	9	0	6	-6	6	-2	130
Italy	-10	1	3	6	-	1	2	-3	12	0	1	6	1	-4	-2	-1	-6	1	-2	1	9	17
Austria	-4	0	0	1	0	-	0	-1	4	0	0	-3	9	14	1	0	1	1	-2	0	11	19
Portugal	-2	1	3	0	0	0	-	-1	7	0	0	1	0	2	0	0	0	0	-1	0	4	12
Benelux	-18	5	6	22	-12	-3	5	-	14	2	3	-5	5	111	21	-9	-18	4	-12	6	113	128
Rest euro area	7	9	-1	14	-1	0	2	6	-	1	4	56	7	62	23	1	1	5	-6	0	37	163
Poland	0	0	0	0	0	0	0	-1	-1	-	0	0	0	0	0	0	0	0	0	0	1	-2
Sweden	1	0	0	0	0	0	0	-1	3	1	-	-2	5	19	0	0	0	5	-3	0	16	25
United Kingdom	13	1	26	7	3	-4	2	14	17	0	-2	-	-1	32	18	0	4	8	31	0	-29	109
Rest of EU-27	6	1	0	4	0	1	0	1	5	0	3	-1	-	9	2	1	0	2	0	0	2	28
ROW (non EU)	88	18	49	129	48	8	0	37	31	8	21	149	26	-	285	18	35	155	10	21	0	1138
USA	13	0	7	11	3	-4	1	39	-3	1	-4	3	1	-65	-	-3	-6	46	67	3	-181	-5
Japan	5	1	0	-7	1	0	1	-16	2	0	3	15	0	60	35	-	-2	23	-19	2	17	62
Switzerland	2	1	1	6	0	4	0	-41	4	1	3	6	7	7	1	-2	-	5	-35	1	34	-3
Rest of OECD	-5	-2	1	0	-1	-1	0	-3	2	0	6	-1	2	80	19	-1	0	-	17	0	44	75
OFFSHORE	-11	1	-4	-1	-2	-1	-6	-3	0	0	3	32	0	12	19	6	2	12	-	1	0	49
Hong Kong	2	0	0	9	-1	0	0	0	0	0	0	5	0	5	4	1	1	4	1	-	-7	18
Rest of World	55	17	36	73	42	8	2	48	26	7	9	72	14	0	54	-5	40	48	-3	13	-	556
Total	69	57	110	192	56	14	25	113	165	18	37	172	66	400	214	-3	2	175	33	36	78	

Table 3: Estimated gross debt flows, average 2007-09, EUR bn

Gross debt flows av. 10-12, bn EUR from \ to	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	23	52	38	71	10	7	6	-24	2	3	10	-8	37	-8	0	2	10	-1	-1	23	214
Greece	1	-	1	0	1	0	0	17	-9	0	0	-8	-1	3	-2	0	0	0	-2	0	7	5
Spain	-5	7	-	-16	-5	-2	0	-16	-4	0	-1	9	-1	24	-4	0	1	-4	-6	0	25	-21
France	-28	-2	-7	-	-2	-1	-8	7	-5	0	3	25	-3	22	3	2	0	-1	-16	-5	30	-6
Italy	-7	6	1	-8	-	-3	-1	-13	-6	0	-1	8	0	-8	-13	0	-1	0	0	0	7	-28
Austria	-5	1	1	0	1	-	0	-1	-5	1	1	-1	-4	5	-2	0	0	1	-1	0	6	-7
Portugal	-2	0	0	-2	1	0	-	-1	-8	0	0	4	0	3	-1	0	0	0	-4	0	8	-6
Benelux	42	5	14	4	-1	5	0	-	-12	2	7	-15	0	195	38	0	7	13	6	4	123	243
Rest euro area	3	-1	2	0	-1	0	0	3	-	0	2	-29	5	52	16	-1	-1	4	0	0	31	35
Poland	0	0	0	0	0	0	0	0	0	-	0	0	0	2	0	0	0	0	0	0	2	2
Sweden	2	0	0	0	0	0	0	2	12	2	-	-1	2	10	-1	0	1	7	1	0	2	28
United Kingdom	40	-14	0	-13	-11	1	1	17	-27	0	-1	-	10	100	-45	34	-4	7	-21	0	116	92
Rest of EU-27	3	-1	0	-1	1	0	0	4	2	0	0	3	-	-2	1	-1	0	-1	0	0	-3	8
ROW (non EU)	85	-3	-58	48	-5	-9	3	71	57	9	13	157	5	-	439	158	37	228	-3	76	0	1309
USA	6	0	-6	-20	-2	0	0	-1	6	2	6	16	0	32	-	60	-8	113	-77	13	-73	35
Japan	-7	-2	-2	15	-3	0	-1	9	1	1	3	1	0	200	38	-	0	33	59	10	39	192
Switzerland	4	-1	-2	-5	-1	-13	-1	-18	-4	1	1	3	-3	23	5	-4	-	6	-26	1	39	-16
Rest of OECD	7	0	0	3	1	0	0	3	7	1	0	4	1	92	55	5	0	-	-5	3	23	107
OFFSHORE	-2	-1	-3	-16	-1	-1	-6	0	-10	0	-1	-44	3	8	-82	-10	-10	-1	-	3	42	-139
Hong Kong	0	0	0	-7	0	0	0	-3	-1	0	0	-16	0	83	-1	5	-2	-4	4	-	82	56
Rest of World	58	-5	-34	70	10	4	0	78	49	4	0	190	3	0	289	87	59	35	-1	44	-	939
Total	110	17	19	42	60	0	-10	93	-37	15	23	160	4	881	286	175	43	220	-88	73	530	

Table 4: Estimated gross debt flows, average 2010-12, EUR bn

Gross financial stocks 2003, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	28	115	232	143	77	32	601	114	16	32	410	63	1291	328	56	72	85	82	9	629	3121
Greece	5	-	0	8	2	2	0	9	6	0	0	22	7	24	5	0	4	0	3	1	8	84
Spain	73	6	-	71	66	4	34	142	19	1	2	68	4	301	60	4	16	37	33	0	146	785
France	240	26	149	-	192	21	38	415	78	11	18	260	16	1093	256	67	54	69	86	14	511	2520
Italy	98	15	35	91	-	8	8	308	55	3	5	99	6	439	93	12	30	54	34	1	183	1136
Austria	76	6	5	16	15	-	2	34	21	8	3	24	28	101	20	3	6	8	17	1	39	333
Portugal	15	1	16	16	13	1	-	22	8	1	0	13	15	78	6	0	1	1	25	0	43	198
Benelux	866	43	191	480	338	54	38	-	222	24	83	507	90	1893	896	88	87	202	241	47	279	4775
Rest euro area	123	9	47	87	93	13	8	113	-	4	52	239	29	489	213	19	16	51	43	3	136	1295
Poland	2	0	0	2	0	1	0	3	1	-	1	3	1	7	2	0	0	0	1	0	4	19
Sweden	28	1	6	17	7	1	1	58	42	4	-	53	32	154	77	7	10	28	4	1	26	402
United Kingdom	415	33	152	337	235	23	49	672	205	5	67	-	44	2625	969	273	163	240	322	62	488	4754
Rest of EU-27	39	1	4	12	5	4	1	34	12	3	29	39	-	121	38	3	8	21	9	1	40	302
ROW (non EU)	1110	24	389	1210	317	175	84	2309	637	42	184	3323	172	-	4743	1037	554	1671	294	473	0	18749
USA	314	6	92	281	74	17	9	710	116	7	72	1041	42	3125	-	317	192	779	862	65	827	5819
Japan	185	5	20	134	72	10	2	149	36	1	18	209	8	1465	632	-	18	121	311	49	207	2185
Switzerland	131	2	16	86	25	24	2	265	25	1	12	234	8	501	179	19	-	38	155	4	96	1320
Rest of OECD	52	1	21	38	12	4	8	76	27	1	23	153	14	1001	443	36	26	-	172	16	207	1329
OFFSHORE	110	3	83	103	24	9	44	340	63	2	10	424	12	862	964	61	104	78	-	141	453	3025
Hong Kong	14	0	1	21	1	2	0	35	6	0	3	94	1	652	58	57	9	70	203	-	245	820
Rest of World	90	5	133	376	61	97	16	666	349	30	39	1064	80	0	1592	437	195	451	250	191	-	6121
Total	2876	192	1085	2404	1377	371	290	4650	1404	120	468	4956	498	16219	6831	1457	1011	2335	2851	604	4564	l

Table 5: Estimated gross IIP stocks, end of 2003, EUR bn

Gross financial stocks 2006, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	38	241	332	222	158	45	824	217	34	48	642	111	1570	477	42	106	139	135	11	619	4440
Greece	9	-	1	7	2	2	1	15	11	1	0	44	12	42	8	0	3	3	6	1	19	144
Spain	80	5	-	131	91	11	46	214	40	5	4	145	17	405	78	4	17	58	27	2	213	1187
France	337	41	247	-	311	46	48	656	220	16	25	464	37	1789	367	106	91	115	181	11	880	4198
Italy	152	27	59	146	-	26	10	475	91	8	4	111	9	620	102	12	27	61	50	2	319	1691
Austria	124	10	16	27	34	-	3	57	57	18	4	39	70	176	29	3	10	16	29	1	67	613
Portugal	19	3	31	24	14	2	-	44	15	2	1	21	4	91	11	1	1	3	29	0	46	270
Benelux	994	81	388	769	477	87	56	-	351	52	121	948	172	3096	1235	148	140	345	315	62	770	7509
Rest euro area	171	21	126	142	189	25	38	218	-	14	77	454	58	860	394	59	28	101	114	9	144	2381
Poland	5	0	0	4	1	2	0	9	3	-	1	6	3	18	3	0	4	1	1	0	9	52
Sweden	45	2	16	23	11	2	1	91	101	3	-	87	58	231	97	13	12	62	22	2	22	668
United Kingdom	471	38	277	636	256	49	39	769	393	13	105	-	81	4608	1820	331	165	445	710	97	916	7609
Rest of EU-27	54	3	8	23	8	9	4	48	26	5	56	61	-	259	56	9	16	35	15	2	120	557
ROW (non EU)	1458	57	438	1997	476	279	115	4046	974	45	288	5259	250	-	7049	1440	831	2371	95	858	0	28324
USA	334	14	137	469	125	28	7	868	213	17	112	1639	54	5833	-	589	313	1138	1421	102	2141	9718
Japan	214	8	28	209	80	12	2	206	50	6	21	266	13	1750	768	-	25	159	481	58	118	2725
Switzerland	165	4	19	125	30	33	3	311	39	3	13	217	16	795	200	35	-	60	326	5	145	1747
Rest of OECD	100	10	41	82	24	9	15	177	61	3	38	261	31	1525	756	58	44	-	144	24	298	2175
OFFSHORE	123	5	29	188	27	16	62	420	94	3	34	754	14	652	1540	71	167	116	-	254	38	3951
Hong Kong	14	1	2	28	1	3	0	65	13	0	4	127	3	1086	76	49	15	110	377	-	450	1335
Rest of World	202	13	140	711	121	158	19	1882	466	12	53	1781	112	0	2695	500	239	523	90	391	-	10107
Total	3613	323	1804	4076	2022	678	400	7347	2459	214	720	8065	872	25406	10710	2028	1421	3489	4471	1032	7333	

Table 6: Estimated gross IIP stocks, end of 2006, EUR bn

Gross financial stocks 2009, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	74	281	401	198	164	65	921	346	47	57	527	133	1542	375	45	78	136	145	17	685	4694
Greece	6	-	1	5	1	1	1	30	52	2	0	71	17	63	8	0	2	6	10	2	30	245
Spain	69	8	-	131	105	12	59	210	34	6	5	147	24	436	95	2	17	87	27	5	196	1237
France	408	73	313	-	362	61	75	859	183	26	37	453	46	1420	324	133	84	132	167	37	490	4262
Italy	127	23	100	164	-	46	20	379	120	11	5	110	14	453	101	3	26	74	13	1	195	1533
Austria	110	9	16	32	33	-	4	51	73	18	6	34	96	261	28	1	9	24	22	1	142	709
Portugal	14	6	38	21	15	2	-	37	36	2	2	24	2	100	12	0	1	3	27	0	56	297
Benelux	886	84	436	895	440	75	77	-	422	64	149	852	173	4174	1051	105	247	401	364	89	1789	8596
Rest euro area	163	44	114	171	181	22	57	291	-	18	87	540	90	1051	439	44	30	119	145	9	244	2808
Poland	4	0	1	4	0	2	0	11	2	-	0	3	3	22	2	0	5	2	1	0	12	52
Sweden	46	1	14	22	8	1	1	114	109	6	-	74	81	253	93	9	16	84	12	2	35	728
United Kingdom	489	32	303	566	220	33	42	882	414	15	93	-	66	4027	1508	241	173	431	559	74	938	7081
Rest of EU-27	70	4	9	32	10	11	4	62	42	6	71	49	-	365	58	7	18	46	22	2	204	727
ROW (non EU)	1812	102	618	2134	466	353	91	4642	1222	79	293	4852	463	-	7806	1530	811	3077	259	975	0	31585
USA	342	11	151	442	94	26	7	986	234	19	74	1530	54	5856	-	451	312	1447	1656	115	1728	9677
Japan	259	6	28	201	81	12	6	217	50	9	25	243	14	2270	838	-	20	265	549	67	351	3242
Switzerland	179	6	25	160	19	39	3	352	54	5	19	237	28	824	200	29	-	83	234	7	239	1918
Rest of OECD	104	4	54	99	26	7	11	173	74	4	59	313	45	2161	918	66	63	-	214	42	623	2897
OFFSHORE	81	7	16	176	21	14	42	390	104	5	36	648	25	815	1486	105	177	160	-	266	247	4005
Hong Kong	20	2	2	56	1	2	0	60	20	0	2	125	3	1233	84	55	17	108	444	-	502	1501
Rest of World	433	61	275	699	143	228	11	2296	650	37	61	1534	283	0	2875	603	190	680	181	461	-	11701
Total	3811	454	2178	4277	1958	755	484	8321	3015	300	788	7514	1195	27325	10493	1900	1485	4287	4793	1196	8705	

Table 7: Estimated gross IIP stocks, end of 2009, EUR bn

Gross financial stocks 2012, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	139	442	551	424	202	78	1150	330	68	70	560	110	1876	433	79	96	192	145	15	806	5890
Greece	7	-	3	5	3	1	1	81	28	1	0	45	13	48	5	0	5	10	7	2	16	234
Spain	55	25	-	86	73	7	57	167	48	15	4	179	21	482	89	2	24	109	10	8	160	1137
France	323	51	270	-	364	62	44	1029	229	30	48	513	44	1690	380	175	106	145	109	27	664	4612
Italy	117	37	86	147	-	41	16	421	147	14	5	150	15	441	80	4	27	65	13	3	214	1601
Austria	106	7	13	36	40	-	3	67	62	24	8	34	88	313	30	1	13	42	23	1	168	762
Portugal	9	5	36	15	17	2	-	51	19	2	1	34	1	83	10	0	1	2	16	0	53	273
Benelux	1062	106	442	1036	422	91	80	-	565	84	205	1015	195	5557	1491	111	365	544	342	123	2411	10691
Rest euro area	208	28	89	185	168	20	35	357	-	21	106	580	122	1546	563	42	33	153	167	10	546	3432
Poland	3	0	1	4	1	1	0	22	6	-	1	8	6	28	2	0	4	3	1	0	18	79
Sweden	70	0	10	24	7	2	1	151	141	14	-	88	94	359	127	12	21	123	20	3	46	954
United Kingdom	628	17	233	609	195	42	47	1207	519	20	117	-	85	4844	1780	404	234	530	557	119	1022	8362
Rest of EU-27	73	1	8	31	13	12	1	107	72	8	74	56	-	423	85	6	18	50	27	6	214	862
ROW (non EU)	2426	41	567	2389	434	340	118	5668	1573	121	425	5680	529	-	11246	2320	1144	4620	333	1524	0	41498
USA	377	5	111	417	96	28	6	1376	295	34	127	1974	73	7832	-	701	357	2233	2072	198	2042	12518
Japan	279	0	20	320	66	14	1	302	60	12	38	313	18	3354	1167	-	26	430	815	108	500	4488
Switzerland	165	2	22	171	21	16	2	423	81	9	25	279	34	1172	304	29	-	128	198	16	449	2372
Rest of OECD	144	2	46	123	34	10	2	284	123	7	75	398	50	3262	1446	104	80	-	254	55	927	4163
OFFSHORE	79	6	7	184	5	12	21	359	80	6	37	621	32	882	1383	83	172	204	-	414	395	4101
Hong Kong	24	1	1	39	2	2	0	75	17	0	2	101	2	1873	92	76	12	107	616	-	936	2103
Rest of World	855	4	331	763	156	224	40	2652	842	50	91	1724	301	0	4724	1015	463	891	258	700	-	16084
Total	4585	434	2171	4746	2104	787	434	10279	3664	419	1035	8672	1304	36065	14189	2842	2056	5959	5648	1807	11587	

Table 8: Estimated gross IIP stocks, end of 2012, EUR bn

Gross debt stocks 2003, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	26	86	142	107	54	28	285	71	8	19	328	42	917	158	37	42	61	70	5	520	2088
Greece	5	-	0	8	2	2	0	7	3	0	0	21	5	19	4	0	4	0	3	1	6	70
Spain	60	6	-	55	62	3	19	74	14	0	2	49	3	150	36	1	8	15	31	0	55	491
France	166	25	108	-	154	19	34	210	44	3	14	164	8	589	109	31	24	32	68	10	283	1505
Italy	82	14	23	65	-	7	5	100	16	1	4	74	3	323	52	4	16	47	22	0	151	686
Austria	59	6	4	13	14	-	2	22	15	7	2	20	18	78	12	2	3	7	13	0	36	253
Portugal	15	1	9	15	13	1	-	14	7	1	0	12	1	76	5	0	1	1	25	0	43	163
Benelux	577	32	111	267	278	48	27	-	99	10	47	360	40	567	263	37	27	92	99	7	19	2441
Rest euro area	104	8	41	68	84	12	7	62	-	2	25	182	24	362	143	8	4	41	33	0	125	974
Poland	2	0	0	1	0	1	0	3	1	-	1	2	0	7	2	0	0	0	1	0	4	17
Sweden	16	1	2	7	3	1	0	10	10	2	-	25	21	47	21	2	2	12	3	0	8	143
United Kingdom	343	29	85	235	201	17	35	295	125	3	37	-	34	1921	651	215	133	148	259	22	406	3274
Rest of EU-27	32	1	2	7	4	3	1	17	6	1	21	29	-	65	19	0	2	10	6	0	26	186
ROW (non EU)	801	12	220	790	202	151	61	1125	306	33	107	2548	111	-	3523	715	294	933	54	171	0	12156
USA	152	2	9	121	28	9	4	111	29	2	29	553	15	1566	-	85	56	316	523	7	553	2604
Japan	168	5	15	115	67	9	1	107	28	1	16	166	6	1127	425	-	10	90	285	40	158	1711
Switzerland	80	1	4	53	8	20	1	126	9	0	6	202	5	312	95	10	-	18	135	1	50	823
Rest of OECD	36	1	9	17	8	3	1	20	10	0	11	76	7	422	148	14	14	-	119	7	70	571
OFFSHORE	90	2	80	94	19	8	43	103	29	0	6	392	9	374	863	53	102	50	-	8	87	2037
Hong Kong	13	0	1	20	1	2	0	26	3	0	3	65	1	305	50	53	8	62	18	-	106	432
Rest of World	48	0	80	201	23	87	6	572	183	30	30	997	60	0	1103	399	93	317	30	106	-	4365
Total	2046	160	669	1502	1075	304	215	2163	702	70	272	3717	302	9226	4157	950	548	1319	1742	216	2707	

Table 9: Estimated gross debt stocks, end of 2003, EUR bn

Gross debt stocks 2006, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	35	205	204	176	121	40	337	139	18	29	531	74	1110	233	18	65	100	122	6	534	2986
Greece	9	-	1	7	2	2	1	10	5	1	0	43	8	33	4	0	2	1	6	1	16	117
Spain	63	5	-	79	73	10	25	97	25	2	3	97	4	247	53	1	6	25	24	1	131	723
France	216	36	191	-	247	40	43	329	107	5	17	302	18	<i>922</i>	174	47	31	75	143	7	412	2436
Italy	117	26	46	99	-	20	8	127	33	2	3	84	6	476	61	3	12	53	16	0	285	1001
Austria	100	10	13	22	31	-	3	31	40	14	2	31	47	85	19	1	4	13	22	1	9	410
Portugal	18	3	15	20	12	2	-	17	11	1	1	18	2	82	8	1	1	3	27	0	42	200
Benelux	657	59	225	437	356	70	39	-	176	19	55	627	67	1096	438	57	36	150	139	10	223	3837
Rest euro area	140	18	109	94	169	21	14	106	-	9	43	344	43	606	262	23	11	76	87	1	138	1707
Poland	5	0	0	4	1	2	0	4	2	-	1	5	1	13	3	0	2	0	1	0	8	37
Sweden	27	1	8	8	4	1	1	15	41	1	-	45	38	84	25	1	1	34	18	0	4	273
United Kingdom	373	31	217	485	203	41	30	463	282	8	60	-	59	3346	1288	199	110	290	523	41	798	5498
Rest of EU-27	39	3	4	13	5	5	1	23	13	1	41	38	-	108	19	1	3	18	11	0	55	292
ROW (non EU)	1050	26	215	1199	276	148	86	1743	567	22	146	4088	128	-	5382	781	425	1122	94	237	0	17735
USA	109	2	28	168	35	10	1	145	85	4	41	904	16	2775	-	144	73	435	815	7	1267	4288
Japan	191	7	20	182	71	10	2	144	36	5	15	206	10	1239	483	-	13	106	431	44	36	2009
Switzerland	101	3	5	63	8	25	2	155	16	1	6	166	5	463	75	21	-	24	281	1	48	1005
Rest of OECD	74	9	20	47	15	6	3	54	31	1	14	145	15	651	301	19	24	-	63	7	136	983
OFFSHORE	101	2	25	176	19	15	61	138	51	0	20	669	7	509	1409	54	163	63	-	10	52	3034
Hong Kong	13	1	2	26	1	2	0	42	6	0	4	79	2	398	62	42	14	96	24	-	155	569
Rest of World	157	0	76	356	62	61	11	965	307	10	34	1721	65	0	2088	378	112	234	59	166		6862
Total	2508	246	1210	2488	1487	462	284	3200	1405	102	389	6053	485	14240	7003	1010	682	1794	2811	301	4347]

Table 10: Estimated gross debt stocks, end of 2006, EUR bn

Gross debt stocks 2009, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	70	241	296	162	129	62	460	286	29	40	438	92	1181	237	31	38	92	135	12	586	3436
Greece	5	-	1	5	1	1	1	19	42	2	0	70	11	52	7	0	2	2	9	2	26	205
Spain	52	7	-	93	97	9	34	93	27	2	4	95	4	217	60	2	5	28	24	2	90	724
France	283	68	251	-	301	57	68	413	124	11	28	325	26	857	155	96	29	82	127	28	293	2764
Italy	85	21	54	113	-	21	13	119	75	1	4	94	6	351	75	1	15	65	9	0	147	919
Austria	80	8	14	26	29	-	4	29	53	13	4	29	64	136	20	1	4	15	15	1	54	462
Portugal	13	6	23	18	13	1	-	15	32	2	2	21	1	78	8	0	1	2	25	0	40	223
Benelux	524	70	242	511	299	61	53	-	211	24	56	583	71	1423	379	32	37	141	102	12	655	4061
Rest euro area	136	42	96	133	158	19	20	119	-	11	49	455	66	756	322	26	17	87	68	0	223	2046
Poland	4	0	1	2	0	1	0	2	1	-	0	3	0	13	1	0	1	1	1	0	10	26
Sweden	30	0	7	10	3	1	0	12	43	2	-	41	58	85	26	2	1	44	7	0	2	290
United Kingdom	402	29	240	440	192	28	35	494	310	9	55	-	48	3043	1117	174	131	263	459	26	793	5246
Rest of EU-27	57	4	6	20	5	7	1	26	24	2	48	33	-	121	24	3	3	24	12	0	53	351
ROW (non EU)	1448	87	410	1628	357	197	74	1719	619	49	186	3823	225	-	6007	1040	450	1563	138	313	0	20332
USA	146	2	46	191	39	5	2	202	98	6	28	992	12	2808	-	141	57	562	937	16	1040	4521
Japan	232	6	21	175	75	11	5	127	36	8	21	193	10	1575	554	-	6	174	446	48	189	2336
Switzerland	106	5	9	94	6	30	2	154	26	2	12	181	16	428	74	18	-	36	198	3	79	1051
Rest of OECD	59	2	23	47	13	4	2	53	27	1	29	142	24	822	347	18	23	-	95	8	256	1175
OFFSHORE	66	5	13	163	5	11	41	124	50	0	27	579	8	473	1394	89	174	92	-	13	78	2933
Hong Kong	20	2	1	53	1	1	0	37	3	0	2	82	2	452	69	49	16	89	23	-	195	646
Rest of World	429	59	231	609	141	109	9	877	344	32	53	1450	141	0	2228	522	143	436	64	222		8097
Total	2727	405	1518	2998	1538	506	354	3376	1812	156	461	5805	660	14869	7096	1206	703	2236	2753	393	4809	

Table 11: Estimated gross debt stocks, end of 2009, EUR bn

Gross debt stocks 2012, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA	Poland	Sweden	UK	Rest of EU	Non-EU	USA	Japan	Switzerland	Rest OECD	OFFSHORE	Hong Kong	ROW	Total
Germany	-	136	388	438	382	152	75	561	242	40	52	422	65	1313	240	64	38	122	133	8	614	4172
Greece	7	-	3	5	3	1	1	71	15	1	0	45	8	37	3	0	5	6	4	1	15	195
Spain	32	24	-	48	64	4	32	55	20	6	2	120	2	240	45	1	8	30	7	4	65	567
France	197	47	216	-	300	58	38	499	150	13	39	375	24	1069	183	132	40	84	80	14	462	2950
Italy	70	36	50	99	-	14	11	98	62	2	3	133	6	282	48	1	13	51	10	1	126	833
Austria	65	6	11	28	35	-	3	31	38	17	6	28	52	166	20	0	5	19	12	0	81	457
Portugal	8	5	22	13	16	2	-	15	14	1	1	32	1	67	7	0	1	1	14	0	43	193
Benelux	640	100	230	595	284	77	43	-	200	31	83	676	75	1528	527	31	54	191	121	22	489	4468
Rest euro area	171	28	76	148	146	17	12	131	-	10	52	459	95	1097	392	18	13	99	69	1	485	2422
Poland	2	0	0	3	1	1	0	3	1	-	1	4	1	14	1	0	1	0	0	0	11	29
Sweden	45	0	4	11	3	0	0	20	70	3	-	49	63	124	24	2	3	69	11	0	9	386
United Kingdom	537	15	170	480	160	37	40	800	315	10	69	-	62	3557	1315	338	189	306	425	49	770	6085
Rest of EU-27	59	1	4	19	8	9	0	42	47	2	49	29	-	135	30	1	5	23	12	0	61	401
ROW (non EU)	1971	32	370	1858	334	205	107	1782	754	78	260	4352	258	-	8025	1678	595	2504	134	544	0	25842
USA	141	1	32	145	44	7	2	256	86	18	53	1199	18	3288	-	334	41	985	794	56	998	5208
Japan	247	0	15	292	61	13	1	188	43	11	32	248	9	2330	760	-	7	290	683	84	229	3212
Switzerland	80	1	3	95	3	7	1	140	28	4	17	204	17	569	102	10	-	59	157	6	204	1136
Rest of OECD	89	1	19	59	22	5	1	76	55	3	34	167	23	1226	561	35	26	-	90	16	369	1651
OFFSHORE	64	4	4	172	3	9	21	131	22	1	29	524	17	483	1264	66	167	97	-	23	141	2756
Hong Kong	22	1	1	35	0	1	0	29	2	0	2	53	1	761	76	68	11	85	37	-	473	897
Rest of World	833	4	271	699	151	130	36	790	449	40	69	1715	155	0	3276	890	309	646	99	351	-	10915
Total	3307	408	1519	3381	1685	543	315	3936	1857	213	<i>592</i>	6483	694	18286	8874	1992	934	3163	2759	636	5642	

Table 12: Estimated gross debt stocks, end of 2012, EUR bn

Gross implied TARGET2 stocks 2010, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA
Germany	-	62	36	20	0	20	43	10	120
Greece	0	-	0	0	0	0	0	0	0
Spain	0	0	-	0	0	0	0	0	0
France	0	0	0	-	0	0	0	0	0
Italy	0	1	0	0	-	0	1	0	1
Austria	0	0	0	0	0	-	0	0	0
Portugal	0	0	0	0	0	0	-	0	0
Benelux	0	21	12	7	0	7	14	-	40
Rest euro area	0	4	2	1	0	1	3	1	-

 Table 13: Estimated implied bilateral TARGET2 holdings, 2010 and 2012

Gross implied TARGET2 stocks 2012, bn EUR creditor \ borrower	Germany	Greece	Spain	France	Italy	Austria	Portugal	Benelux	Rest of EA
Germany	-	65	222	49	168	25	43	25	60
Greece	0	-	0	0	0	0	0	0	0
Spain	0	0	-	0	0	0	0	0	0
France	0	0	0	-	0	0	0	0	0
Italy	0	0	0	0	-	0	0	0	0
Austria	0	0	0	0	0	-	0	0	0
Portugal	0	0	0	0	0	0	-	0	0
Benelux	0	22	77	17	58	9	15	-	21
Rest euro area	0	6	21	5	16	2	4	2	-

			Entities in full s	ample		Memora	andum items (part of ROW)
Entity		Entity		Entity		Entity	
Code	Entity name	Code	Entity name	Code	Entity name	Code	Entity name
AT	Austria	РТ	Portugal	HR	Croatia	RU	Russia
BE	Belgium	RO	Romania	BS	Bahamas	BR	Brazil
BG	Bulgaria	SE	Sweden	BH	Bahrain	ZA	South Africa
CY	Cyprus	SI	Slovenia	BB	Barbados	IN	India
CZ	Czech Republic	SK	Slovakia	BM	Bermuda	ID	Indonesia
DE	Germany	UK	United Kingdom	KY	Cayman Islands	MY	Malaysia
DK	Denmark	AU	Australia	GI	Gibraltar	TH	Thailand
EE	Estonia	CA	Canada	GG	Guernsey	PH	Philippines
GR	Greece	CL	Chile	IM	Isle of Man	TW	Taiwan
ES	Spain	IS	Iceland	JE	Jersey	SA	Saudi Arabia
FI	Finland	IL	Israel	LB	Lebanon	AR	Argentina
FR	France	JP	Japan	MO	Macao	CN	China (excl. HK, MO, TW)
			Korea, Republic				
HU	Hungary	KR	Of	MU	Mauritius	VE	Venezuela
IE	Ireland	MX	Mexico	AN	Former Netherlands Antilles	CO	Colombia
IT	Italy	NZ	New Zealand	PA	Panama	EG	Egypt
LT	Lithuania	NO	Norway	WS	Samoa	MA	Morocco
LU	Luxembourg	СН	Switzerland	UK_CARIB	'British West Indies' (BIS definition)*	AE	United Arab Emirates
LV	Latvia	TR	Turkey	AD	Andorra	QA	Qatar
MT	Malta	US	United States	LI	Liechtenstein	OM	Oman
					International Organizations & Non-Euro		
NL	Netherlands	нк	Hong Kong	INTO_CB	Central Banks	KW	Kuwait
PL	Poland	SG	Singapore	ROW	Rest of world	RS	Serbia

Table 14: Country codes in online database

* Anguilla, Antigua & Barbuda, British Virgin Islands, Montserrat, and St. Kitts & Nevis