



## Compiling financial accounts: a European perspective

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### Abstract

Financial accounts provide information on sectoral financial flows and balance sheets, allowing the monitoring of financial imbalances, leverage and the link between real and financial developments from a sectoral perspective. Financial interlinkages among the sectors, however, are typically absent or difficult to infer from the standard presentation of the accounts. Yet such interlinkages have become increasingly important for analysts, in the context of both monetary policy and financial stability. Who-to-whom accounts, which break down each asset and liability in the system by both creditor and debtor sectors, provide such a perspective. This article describes how the euro area financial accounts have recently been enhanced along this dimension, focusing on the primary data requirements and the compilation challenges faced. The analytical use of the who-to-whom statistics is illustrated with some applications.

**Keywords:** financial accounts; monetary policy; who-to-whom accounts.

### 1. Introduction

In the aftermath of the financial crisis, a revival of the interest of both academics and policy makers in sectoral balance sheet developments has taken place, thereby also providing an impulse to the further development of financial accounts. The accounts are the natural framework to examine the dynamics of leverage in the various sectors of the economy, as well as the link between sectoral financial imbalances and the real side of the economy. Of all possible extensions of the accounts, perhaps the most valuable is their presentation on a “who-to-whom” basis. Who-to-whom financial accounts reveal financial interlinkages among institutional sectors. This aspect of aggregate developments is now considered a fundamental ingredient of policy analysis by central banks and financial authorities, as monetary policy and financial stability are increasingly viewed as mutually interdependent.

This paper briefly describes the compilation of who-to-whom information for the euro area (Section 2) and presents two analytical use cases (section 3).

### 2. Euro area financial accounts on a who-to-whom basis

In 2014 ESA 2010 replaced ESA 95 as the national accounts standard in the EU. The ECB adopted a new Guideline on quarterly financial accounts to align to the new standard, but also to implement various enhancements, among which was the extension of the scope of who-to-whom breakdowns for both the euro area as well as individual EU countries<sup>1</sup>. Who-to-whom data for stocks and transactions of loans and deposits had already been available since 2010 reaching back to Q1 1999. With the new Guideline, they were extended to debt securities, quoted shares and fund share/units, with data back to

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<sup>1</sup> See ECB (2013) for details on the data collected. For a more schematic description of the reporting scheme, see Ahnert and Quirós (2015).



Q4 2013. Data for the euro area have been published for the first time in April 2016. Only unquoted shares, other equity, financial derivatives and other accounts are not yet available on this basis.

Who-to-whom accounts extend financial accounts by tracking counterparty information for both assets and liabilities in the system. For instance, the non-financial corporations (NFC) sector may hold debt securities recorded as an asset item on their balance sheet. In addition to the amount outstanding for the item, who-to-whom accounts further break it down by sector of the issuer of the debt. A similar breakdown applies to each recorded liability, so that e.g. loans received by NFCs are broken down by sector of the lender. This applies to all sectors in the system, yielding one table of creditor/debtor relationships for each financial instrument presented on a who-to-whom basis. In the euro area, the accounts are compiled for stocks, transactions, revaluations and other changes in volume.

The compilation of the euro area who-to-whom accounts involves the combination and confrontation of a multitude of data sources. A predetermined data hierarchy is used to resolve cases where more than one candidate source exists for the same statistical concept. At the top of the data selection hierarchy are the euro area aggregates of the monetary financial institutions (MFI) statistics and the euro area balance of payments (BOP). This is justified by their reliability relative to other competing sources, but also to respond the users' preference to minimize discrepancies with these statistics within the financial accounts. Other euro area-level statistics used include investment fund (IF) statistics and government finance (GFS) statistics. It should be noted that as regards total loan borrowing and total debt issuance by general government the highest priority is assigned to GFS sources.

Data at the level of individual euro area countries from the national quarterly financial accounts are also used as a source. The need to combine both euro area-level primary statistics and national financial accounts stems, on the one hand, from the fact that the rest of the world financial account for the euro area is not the simple summation of national rest of the world accounts<sup>2</sup>. This also extends to who-to-whom accounts, since they include the rest of the world as both creditor and debtor sectors. On the other hand, national financial accounts data are required to cover sectors for which euro area level statistics are either not available, are not sufficiently detailed or are difficult to align with the ESA methodological requirements. This is the case for large sections of the other financial intermediaries, non-financial corporations, pension funds, and households<sup>3</sup>.

The compilation of who-to-whom tables proceeds in a fairly similar fashion for all instruments. For instance, deposits are mostly compiled from the counterparty detail available in MFI and BOP statistics, with some gaps covered by national financial accounts. The loans tables are also mostly determined by MFI and BOP statistics, again with the exceptions of some gaps. Securities are compiled following a similar approach, except for two specificities. Unlike for loans and deposits, MFIs do not report on the counterpart sector to their liabilities in the form of marketable securities. This must be sourced from the national financial accounts, which in turn obtain it from the various security-by-security databases on holdings available at national central banks (NCBs) and/or from the ECB's security holdings statistics (SHS)<sup>4</sup>. In addition, MFI statistics do not provide stocks of

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<sup>2</sup> Transactions between a German and a French institutional unit are treated as domestic transactions within the euro area accounts and have no impact on the euro area rest of the world account. In contrast, both the French and the German national financial accounts will register such transactions as part of their respective rest of the world accounts. See Girón and Teixeira Da Silva (2011) for an in-depth discussion.

<sup>3</sup> Harmonized euro area level statistics for insurance corporations started to be compiled by the ECB in 2016 from data collected under Regulation ECB/2014/50. As only one quarterly observation is available (Q3 2016), the compilation of the euro area financial accounts still falls back on national financial accounts data.

<sup>4</sup> For more information on securities holdings statistics, see European Central Bank (2015)



security holdings at market value, so that their compilation also falls back on the national financial accounts.

Who-to-whom accounts are fully consistent with the rest of elements in the financial accounts system. With creditor sectors in rows and debtor sectors in columns, each column total coincides with total liabilities for each sector in a given instrument, while each row sum coincides with total assets. This helps analysts link different aspects of related phenomena. Internal consistency also provides a high-dimensional system of linear restrictions to be fulfilled that serves as a powerful check on the quality of the input data. To be sure, a number of reconciliation adjustments are always required from the compiler so as to obtain an internally consistent set of who-to-whom accounts. Adjustments of a significant order and systematic direction can point to problem areas in the source statistics, upon which corrective work can then be undertaken.

### 3. Analytical use of who-to-whom statistics : two examples

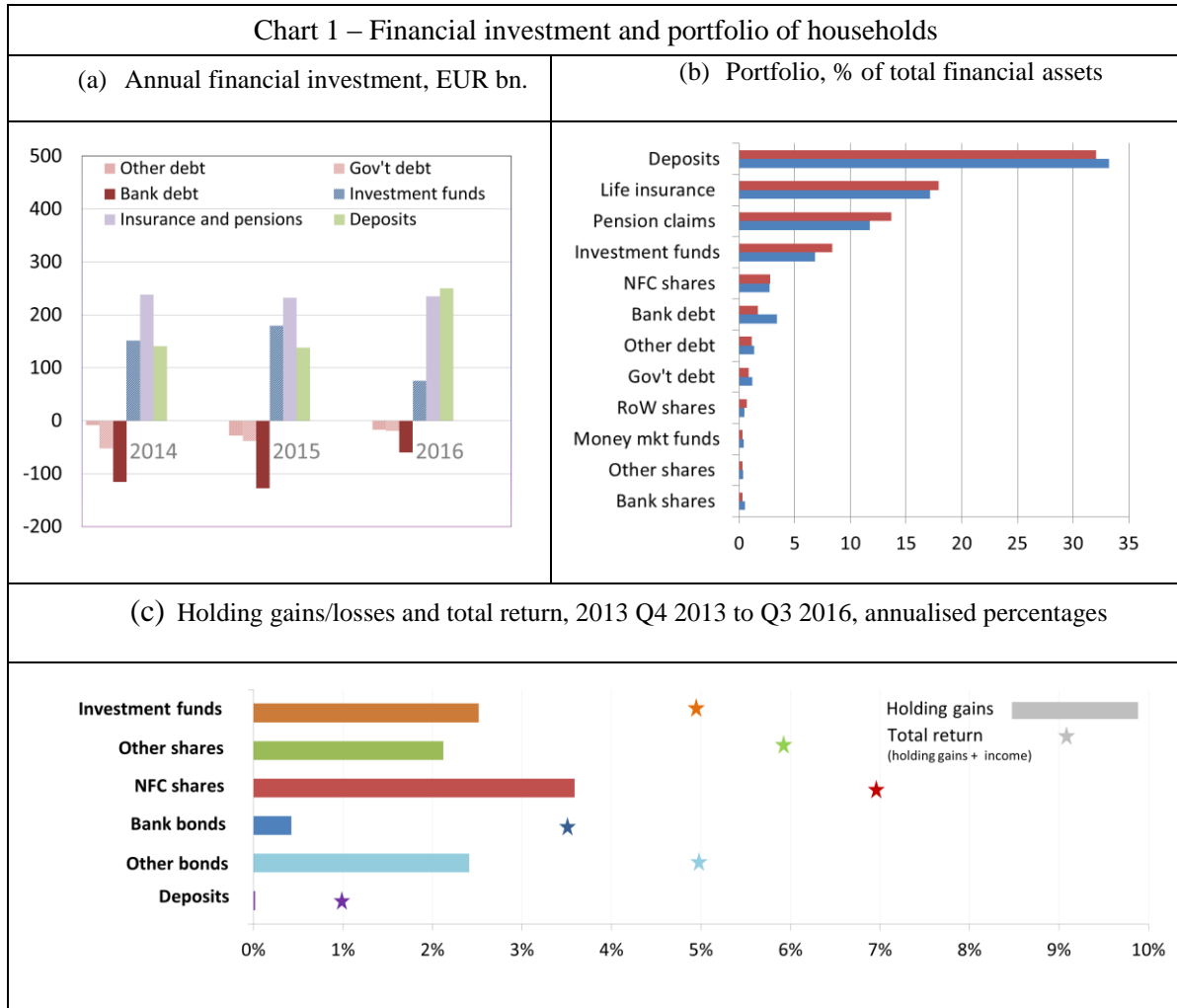
#### 3.1. Household financial investment and portfolio

In the analysis of money demand, households play a central role as they are typically the main source of both consumption and saving in an economy. Since money is a financial asset to households, the determinants of their overall financial investment (transactions) and financial portfolio (stocks) are of relevance to the study of the sector's demand for money. A finer detail on the composition of the portfolio of households, in addition, permits to better gauge the expected effects to household wealth from specific shocks or monetary policy actions, as well as the sector's risk appetite. The monetary policy use of who-to-whom data is further helped when revaluations can be distinguished from other volume changes in the data, as only the former can be interpreted as shocks to wealth. This is of particular importance in the construction of scenarios where such shocks may be posited to emanate from a specific debtor sector.

The financial investment of euro area households<sup>5</sup> over the three years to the third quarter of each year from 2014 to 2016 is depicted in Chart 1a. One notable feature is a strong divestment by households from debt securities. Who-to-whom data permit a better assessment of this development, highlighting MFI debt as the main driver, followed by government securities. By using the who-to-whom column totals (i.e. the total issuance by sector), an analyst can link this development to the fact that overall issuance by MFIs was significantly below its norm over the period<sup>6</sup>. Thus, supply factors might in fact explain a great deal of household's retrenchment from the asset class. In turn, divestment from government debt would presumably be more demand-led, as debt issuance by government actually increased for the period. It is also noteworthy how euro area inflows into deposits almost doubled in 2016, whilst those into investment funds halved. This followed adverse events in the financial markets in the preceding year.

<sup>5</sup> The data presented also include non-profit institutions serving households.

<sup>6</sup> Net debt issuance by the MFI sector amounted to approximately EUR -800 bn. over the three years to 16Q3, equivalent to the redemption of approximately 15% of total debt securities outstanding by the sector. Banks in the euro area shifted from net issuance to very significant net redemptions mostly as a result of the longer-term refinancing deployed by the ECB as one of its non-standard monetary policy measures.



The portfolio shares of the sector are shown in Chart 1b. The largest share corresponds to deposits, followed by life insurance and pension claims. Investment funds follow in importance and provide a degree of diversification that households could not achieve by holding securities directly. Direct holdings of NFC shares and bank debt are nevertheless still of significance. The preponderance of deposits within the portfolio protects households from the price volatility of other investments, although in the last three years this has come at a significant ex-post opportunity cost.

The euro area who-to-whom accounts permit the separation between revaluations and other volume changes. Chart 1c offers an illustration by depicting the holding gains and losses to households from selected assets over the three years to 2016 Q3. An estimation of the income streams from each asset class is also included to facilitate their comparison in terms of total return<sup>7</sup>. Households obtained their best return from shares issued by non-financial corporations (3.5% per year in holding gains, and a total return of 6.8% when including dividends). Non-bank (mostly government) bonds offered almost a 5% total return, notwithstanding their moderate ex-ante risk profile. The lowest return corresponded to bank deposits, the largest asset class in the portfolio, which yielded only 1% in interest income.

<sup>7</sup> Official statistics on dividend and interest income on a who-to-whom basis are still not available for the euro area. Thus, the income component within the total return calculation has been estimated by the authors by combining data from the euro area non-financial accounts with data from commercial data providers.

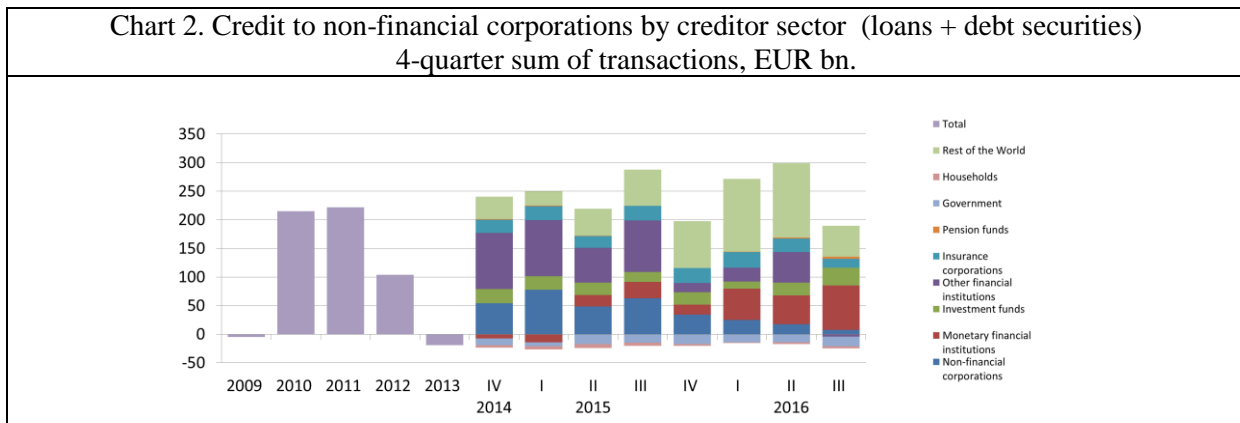


### 3.2 Funding of non-financial corporations

Credit to NFCs plays a very important role in the transmission of monetary policy to the real economy. Since monetary policy may have a different impact on the supply of credit by different creditor sectors, information on the counterparties to NFCs credit enhances the analysis of its transmission mechanism. The availability of this information is also key in the identification of certain complex funding patterns, such as those taking place intra-group and/or by way of finance subsidiaries.

The euro area financial system is largely bank-based in comparison to, for instance, the US. Supply restrictions to bank credit may prompt a substitution of capital market funding for bank loans by the euro area NFC sector<sup>8</sup>. The recent extension of who-to-whom information to debt securities permits to trace the source of overall credit to the sector at all times, irrespective of funding instrument.

As shown in Chart 2, total credit flows to the sector more than halved in 2012, even turning negative in 2013. This development was due to a drastic reduction in bank loans, which is thought to have been driven at least in part by supply restrictions, exacerbating the effects of already subdued credit demand. With weak bank lending continuing into 2015, the NFC sector increased its recourse to the capital markets, issuing debt securities both directly and indirectly via financial subsidiaries. The large credit flows from the other financial institutions sector (OFI) sector in the four quarters to Q4 2015 are, to a significant degree, related to this indirect issuance<sup>9</sup>. In the same period, intra-sector credit flows (credit between NFCs resident in the euro area) also significantly contributed to the external funding of NFCs. It is though that most intra-sector flows correspond to intra-group lending. Their growth reflects at least in part the redistribution within corporate groups of funds raised from debt issued by group entities with better access to capital markets.



In the four quarters to Q3 2016 credit flows from MFIs begin to normalize. In addition, the rest of the world becomes a major contributor to overall credit to the sector, mostly in the context of FDI relationships. Intra-sector credit and credit from OFIs, in turn, substantially decline.

<sup>8</sup> Capital market debt funding is accessible primarily for large firms in the euro area. SMEs remain dependent on bank credit, unless they are affiliates of a large corporation.

<sup>9</sup> Some large corporations issue indirectly via a financial subsidiary. These subsidiaries reside in jurisdictions with convenient tax, regulatory or legal regimes. The funds raised are then used to fund operational entities within the group across national borders. The finance subsidiary is classified as part of the OFI sector, whilst the operational entities are classified as non-financial corporations. As a result, indirect issuance is captured as a flow of loans from the OFI sector to the NFC sector.



#### 4. Conclusions

Who-to-whom accounts are an extension of financial accounts for which both creditor and debtor sectors are simultaneously identified for positions and transactions in the system. The compilation of the accounts requires the pooling and confrontation of data from various different sources, as well as their transformation to national accounts standards. Beyond the analytical usefulness of the accounts, their compilation also acts as a useful check on the quality of the input data used, with large departures from who-to-whom accounting identities often signaling areas for improvement.

The accounts are often regarded as an important tool for the monitoring of financial interlinkages among sectors within a macro-prudential context. Yet the richer detail available from who-to-whom accounts can also be of benefit to other policy areas. As an illustration, this paper has presented two use cases for the euro area focusing on issues more directly relevant to monetary policy, such as the financial investment of households and the funding of non-financial corporations.

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