Security-by-security data on holdings of securities: the importance for national and euro area accounts

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Introduction

Recent economic developments have highlighted important gaps in the statistical framework, both at national and international level. In particular, the crisis exposed gaps in information for financial stability (macro-prudential) analysis, revealed the lack of transparency in a number of financial markets, and emphasised the difficulties in assessing information on financial linkages within and between institutional sectors and countries, and the exposure of sectors to both domestic and foreign counterparties.

According to Sola and Strobbe (2010), the information available for these purposes refers mainly to highly aggregated data. The same applies for financial accounts statistics: data on overall holdings of securities of each resident sector are available for most countries, but they do not allow the identification of the institutional sector of the issuer of these securities (from-whom-to-whom view[4]). Such a detailed breakdown of securities holdings data has been requested by European System of Central Banks' (ESCB) users for a long time, not only for structural and economic analysis, but also for monetary analysis. For instance, to allow a better estimate of money and of its counterpart information on short-term (up to two years) debt securities issued by Monetary Financial Institutions (MFIs).

Against this background, the ESCB launched an initiative to collect micro-data on holdings of securities on the basis of a short-term approach, i.e. collect existing security-by-security information on a voluntary, best effort basis. In parallel, it also started the necessary work to develop a steady-state Security Holdings Statistics Database (SHSDB), which will bring together comprehensive information on holdings of securities by euro area residents on the basis of a European Central Bank (ECB) Legal act.

This study presents some estimates on the integrated compilation framework of financial accounts and securities holdings statistics, considering the breakdowns by holding and issuer sector and country. It illustrates how experimental data on securities holdings statistics can be combined with other euro area data sources to compile euro area accounts on a from-whom-to-whom approach. It also explains how these estimates can provide a better understanding of the financing and financial investment decisions of euro area sectors, as well as relationships with the euro area rest of the world.

The remainder of this paper is structured as follows: Section 2 briefly describes the data needs on holdings of securities; Section 3 introduces the approaches for the compilation of experimental data on securities holdings and the on-going developments towards a steady-state approach; Section 4 explains the importance of a micro-database on holdings of

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[4] Double-entry matrices that allow evaluating which institutional sectors are financing the economy, in terms of securities. These tables show the holdings of various financial instruments by the different institutional sectors, both on the asset and the liability side.

securities and its use in the compilation of sectoral accounts statistics (particularly of the euro area accounts); Section 5 provides empirical evidence on the use of these statistics; finally, Section 6 concludes and presents the steps ahead.

1. Data needs on holdings of securities

The importance of having accurate information on the exposure of economic sectors to specific classes of securities on a security-by-security basis has become more evident in recent years. Aggregated data cannot help in identifying risks to financial stability related to contagion mechanisms running at the level of individual financial institutions and generated by specific classes of securities. In addition, monitoring financial imbalances and balance sheet vulnerabilities of key financial intermediaries has become a need also for monetary policy purposes when assessing the medium to long term risks to price stability and the monetary policy transmission mechanism.

The lack of consistent and granular information on investors' holdings of securities, and on the related counterparts, for euro area countries, undermined the possibility to analyse in an effective and efficient manner inter-linkages between institutions, sectors and countries.

Security-by-security information on investors' portfolio is a crucial tool which allows combining securities held by institutional sectors with information on individual issuers across the world. Therefore, a detailed database on holdings of securities, linked with information on the issuer of each security would allow cross-classifying detailed data on holdings of securities by country and institutional sector, with the country and institutional sector of the issuers of these securities. This information provides a comprehensive data framework to monitor the build-up and evolution of financial imbalances and the links between financial and non-financial investors.[5]

Although euro area statistics disseminate aggregated data on financial positions and flows by euro area sectors, for the large majority of the cases information on a from-whom-to-whom basis is still lacking, particularly for securities. A detailed presentation of securities with counterpart information would enable a more comprehensive analysis of portfolio allocation decisions and the compilation of broader liquidity aggregates, which complement the classical monetary aggregates.[6]

Moreover, price changes have a considerable impact on net financial wealth and, consequently, on economic agents behaviour towards consumption and investment, and thus on the real economy. A from-whom-to-whom mapping of price changes is in this context also of great relevance to understand the channels of propagation of shocks and threats and is pivotal in research and analysis on the activity of the different economic and financial agents.

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[5] This was also recognised by the G-20 Finance Ministers and Central Bank Governors, which endorsed 20 recommendations to address the data gaps described in the report "The Financial Crisis and Information Gaps" (available at http://www.imf.org/external/np/g20/pdf/102909.pdf), prepared by the Financial Stability Board Secretariat and International Monetary Fund (IMF) staff. Most of these recommendations, directly or indirectly, call for more detailed information on securities holdings and issuances.

[6] The importance of the assessment of these inter-linkages on a from-whom-to-whom basis has been explored in recent literature. As described by Lavrador (2010) and Mink et al. (2012) from-whom-to-whom statistical information enriches considerably the approach of monitoring monetary transmission processes, general government debt and securities issues and holdings. A from-whom-to-whom framework allows exploring how the risk exposures and dependencies across sectors are influenced by developments in assets and liabilities of other sectors.

A meaningful risk analysis should bring together harmonised from-whom-to-whom information for all relevant financial instruments, including securities, both at euro area and national levels. In particular, the wide coverage of a securities holdings database in terms of the different financial instruments and detailed information on investor sector, country, main financers and counterparties, allow for the compilation of valuable statistical outputs which are of key importance for policy makers.

2. Experimental data on securities holdings and the steady-state approach

2.1 Experimental data

In 2009, the ESCB started assessing the possible approaches towards the collection of security-by-security data on holdings of securities, with the purpose of overcoming the existing data gaps. As a result, the ESCB developed a "short-term approach" for the collection of experimental data on holdings of securities (SHES project), reported by euro area (and some European Union) National Central Banks (NCBs). Based on the available data sources (security-by-security data on holdings of securities were already available for some statistics produced by the Eurosystem/ESCB) and without implementing a new data collection from reporting agents, the main objective of this approach was to set-up a framework for the compilation of quarterly estimates of euro area statistics on securities holdings. The reporting of data to this experimental database is on a best effort (voluntary) basis.

As explained by Sola and Strobbe (2010), security-by-security data are collected on a quarterly basis for a sample of securities, in the form of micro statistics. On the investor side, positions by investor country and institutional sector or sub-sector are reported.[7] This experimental data collection scheme aims at identifying the holdings of securities by all euro area investor sectors. Detailed data on securities holdings include stocks of short- and long-term debt securities, quoted shares and mutual fund shares. The methodological framework applied to this experimental database follows the national accounts statistical standards (SNA93, ESA95, supplemented by the BIS/ECB/IMF Handbook on Securities Statistics).

Furthermore, apart from the data available on holdings of securities by institutional sector, reference data with the classification of each security and its issuer were already available in the Centralised Securities Database (CSDB). This database stores information on the characteristics of individual securities and issuers, with the aim of providing complete, accurate, consistent and up-to-date information on all individual securities relevant for the statistical purposes of the ESCB. The attributes in the CSDB include type of instrument, name, sector or sub-sector, country of the issuer, issue date, redemption date, currency of denomination, issue price, redemption price and outstanding amount or market capitalisation (ECB, 2010; Mink et al., 2012).

The experimental database has been used as a testing platform that merges individual security data on holdings of securities identified by the International Securities Identification Number (ISIN code), with reference data from the CSDB, for the classification of financial instruments and issuer entities (including institutional sectors).

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[7] The main sectors and sub-sectors considered in the compilation of SHES are: Monetary Financial Institutions; Insurance Corporations and Pension Funds; Other Financial Intermediaries and Financial Auxiliaries; Non-Financial Corporations; and Households.

The quality of the data transmitted is regularly monitored through internal ECB consistency checks. In addition, a cross-checking with alternative sources is performed, in order to assess the consistency of the experimental dataset. Moreover, combining euro area accounts data with international investment position data provides an additional comparison opportunity to evaluate the coverage and completeness of experimental data on holdings by participant countries and the Rest of the World.[8]

2.2 The steady-state approach

The ESCB has also started the development of a joint database on holdings of securities with a steady-state perspective, i.e. a comprehensive database where all euro area/EU holdings of securities could be pooled together. For this purpose, an IT project has been launched to set up a database for storing the securities holdings data, the Securities Holdings Statistics Database (SHSDB), which is expected to be up and running in 2014. Following the main concepts of the SHES, the SHSDB will pool together security-by-security holdings from euro area residents, to be collected via an ECB Regulation to cover all institutional sectors.

Quarterly security-by-security information on holdings of securities is expected to be collected systematically from euro-area custodians and financial end-investors. The aim will be to produce both detailed and timely regular and ad-hoc statistical aggregations, which enables the delivery of improved and more detailed (e.g. on counterparty sector) information on holdings of securities.

3. The use of securities holdings statistics in the euro area accounts

The ECB and Eurostat, in close collaboration with the relevant national statistical authorities (NSAs), are publishing quarterly euro area and European Union (EU) accounts by institutional sector (the European sector accounts) since June 2007.[9]

The euro area component of the accounts (hereinafter, the euro area accounts – EAA) provides a comprehensive overview of the euro area economy. It shows all "real" and financial transactions and (changes in) balance sheet positions of non-financial corporations, financial corporations, general government and households, as well as the interactions among them and between them and the (euro area) rest of the world.[10]

The EAA are not the simple sum of the national accounts of the euro area member countries. The most visible example of this fact being the compilation of the euro area rest of the world account, which entails the "consolidation" of the cross-border transactions and positions between euro area member states. Therefore, although the compilation process starts with the transmission of the national (financial and non-financial) accounts by euro area member states to the ECB/Eurostat, these are subsequently combined with other euro area data sources, namely the euro area balance of payments statistics and international investment position statistics (BoP/IIP), monetary and financial statistics, quarterly government data, and the ECB accounts (part of the euro area MFI sector).

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8 The term "Rest of the World" on a euro area perspective consists of all the countries outside the Eurosystem.

9 See the ECB website for more details on EAA: http://www.ecb.europa.eu/stats/acc/html/index.en.html.

10 The financial part of the accounts comprises a more detailed breakdown of the financial sector (monetary and financial institutions (MFIs), other financial institutions (OFIs), and insurance corporations and pension funds (ICPFs).

Furthermore, the financial and non-financial accounts are compiled in parallel and integrated in three dimensions. First, for each transaction category (financial and non-financial) and each financial balance sheet category, total uses must equal total resources and total (changes in) financial assets must equal total (changes in) liabilities, when summed over all institutional sectors and the rest of the world (the so-called horizontal consistency[11]). Second, for each sector and the rest of the world, the sum of all resources and changes in liabilities should be equal to the sum of all uses and changes in assets (so-called vertical consistency). In the current EAA statistics vertical consistency has been achieved for the general government and financial corporations institutional sectors, as well as for the rest of the world.[12] Third, the change in balance sheets (stocks) for each asset category is equal to the changes arising from transactions and from other flows (stock-flow consistency). Other flows comprise revaluations and other changes in volume.

Debt securities and shares and other equity are important financial instruments traded in the financial markets. They account to close to 40% of the financial assets of the euro area (as at end-2011). From a financial stability perspective, the importance of securities makes the new statistics relevant in assessing the stability of the financial system.

The data available in the existing experimental SHES database (please refer to Section 3) are not directly used in the compilation of the EAA statistics. While these data could be used in the compilation of major tradable instruments (debt securities, quoted shares and mutual fund shares), existing limitations justify the use of alternative data sources. Indeed, the short time frame (time series starting in 2009Q1), the lack of transactions data and the relative under-coverage (data reported on a best-effort basis) make the use of national financial accounts preferable in the estimation of total holdings of tradable securities by institutional sector. However, existing national SHS are in one way or the other used in the compilation of national financial accounts; therefore, indirectly used in the compilation of the EAA statistics.

Experimental SHS data and other recently available euro area data sources have, however, made the compilation of experimental from-whom-to-whom data for the above mentioned tradable securities possible in the context of the EAA. Indeed, experimental SHS, investment funds statistics (IF) and additional BoP/IIP details, in combination with other existing statistics (e.g., monetary financial institutions balance sheet information - BSI) allows the compilation of equally experimental euro area from-whom-to-whom stock matrices for debt securities, quoted shares, and mutual fund shares. As Mink et al. (2012) put it, the construction of the euro area accounts on a from-whom-to-whom basis is an important compilation tool for enhancing the quality and consistency of the data. It allows for the cross-checking of the information from both debtor and creditor sides, thus allowing for a full consistency in terms of values and timing for recording transactions, other flows, and positions.

The scope of the experimental EAA from-whom-to-whom tables for securities is determined by the scope of the experimental SHS, and therefore is limited to stocks, starting in the first quarter of 2009. The compilation process is defined in such a way that the from-whom-to-whom detail is fully consistent with the total holdings and issuances by institutional sector as officially published in the EAA statistics, 120 days after the end of the reference quarter.

The methodology underlying the compilation of experimental euro area from-whom-to-whom tables for securities is at this stage rather simple, mostly based on weights derived from

[11] For instance, for a certain instrument type, the sum of the net acquisitions by all sectors and the rest of the world must be equal to the sum of the net issuances by all sectors and the rest of the world.

[12] Contrary to the BoP statistics, the EAA statistics do not show “Errors and omissions”, i.e., it shows vertical consistency for the rest of the world.

experimental SHS and other data sources,[13] since estimates are produced for stock (strictly positive numbers).

The compilation would however need to be considerably more elaborated if attempted for the overall matrices at once and also when considering transactions. For the latter, it is worth mentioning that a combination of positive and negative observations makes the reconciliation between the EAA totals and the interior of the matrices a more challenging exercise in technical terms.

Efficiency and timeliness considerations are often listed as reasons to base the compilation of EAA statistics as much as possible on existing euro area data sources; instead of requiring national authorities to compile and report comprehensive national accounts.[14] The outstanding ECB plans to compile comprehensive EAA 90 days after the end of the reference quarter fit for monetary policy purposes, requires a slight change in the EAA compilation paradigm. For securities, this will imply a more intensive use of timely steady-state SHS data in the estimation of holdings of securities by sector and the CSDB for the corresponding total issuances.

While the final use of the experimental euro area from-whom-to-whom stock matrices is currently rather limited, it serves a multitude of other relevant statistical purposes. For example, it provides very valuable references for the development of interest income matrices and the breakdown of other flows into other volume changes and revaluations using modelling approaches.

4. First experimental from-whom-to-whom estimates

To test the overall feasibility of compiling euro area from-whom-to-whom tables for securities in the context of the EAA statistics, the ECB developed experimental euro area from-whom-to-whom aggregates for selected securities on the basis of existing information.

These data provides rather detailed structural information, which helps identifying individual sectoral investment and financing decisions and analysing credit exposures. This provides concrete evidence on the empirical assumption of a high interconnectedness of financial markets and institutions.

While initial estimates reassured the feasibility of the overall project, several developments are deemed necessary to ensure better quality and a full integration of SHS with EAA. This is envisaged in the SHS development towards a steady-state approach, which will not only improve the overall quality of the existing (stock) data but will also bring data on transactions.

This section presents selected estimates derived from this experimental exercise. Due to their nature, the estimates should be taken with care and seen from a statistical angle, instead of taken at face value for economic analysis.

4.1 Debt securities

In the current economic crisis, one of the most valuable pieces of information is the exposure of the various sectors to government debt. While a static view (stocks) already provides very good insights to the overall sectoral risks and on the consequences of certain decisions, a

[13] In practice, the process is slightly more complicated because of data selection and reliability considerations.

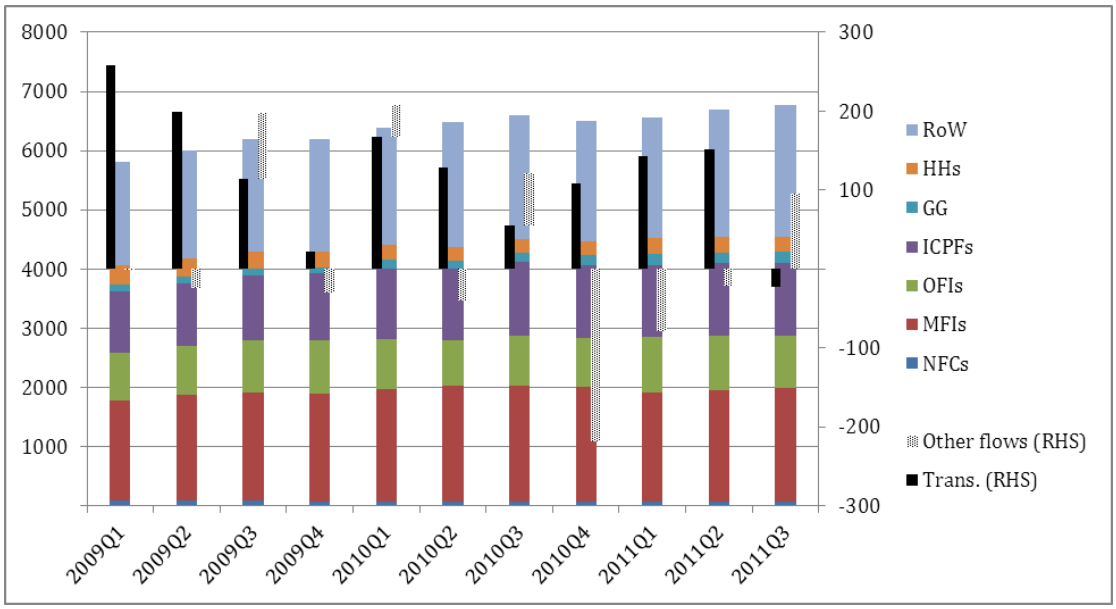
[14] It is important to recall that the new responsibilities in the area of macro-prudential surveillance that have been entrusted to the ECB call for the availability of comprehensive national data, in addition to high quality euro area/EU aggregates.

more dynamic approach relying on quarterly transactions would shed additional light on investment decisions and therefore better picture the development of financial conditions.

In this context, Chart 1 provides an overview of the sectoral exposures to government debt securities over the period from 2009Q1 to 2011Q3. In addition, it shows (RHS - right hand scale) net issuances of government debt securities (transactions) and other changes in stocks (other flows, mostly price changes or revaluations) to better explain total changes in stocks.

Chart 1

Sectoral holdings of debt securities issued by general government (*EUR billions*)[15]



Source: ECB

As expected, the total amount of debt securities issued by general government (GG) has steadily increased over the period under analysis, mostly explained by positive net issuances. Indeed, the slight decreases observed in the total amount of outstanding government debt securities in 2009Q4 and 2010Q4 were fully explained by large negative revaluations (price effects).

On the counterpart sector allocation, one observes a decrease in the holdings of households (HHs), which was compensated by a similar increase in the holdings of non-residents (RoW). Moreover, although not very significant in absolute terms, the increase in the intra-government holdings of debt securities was quite remarkable over the period. This may reflect additional acquisitions by social security funds in the context of increased difficulties to place new sovereign debt in open market operations by some Member States.

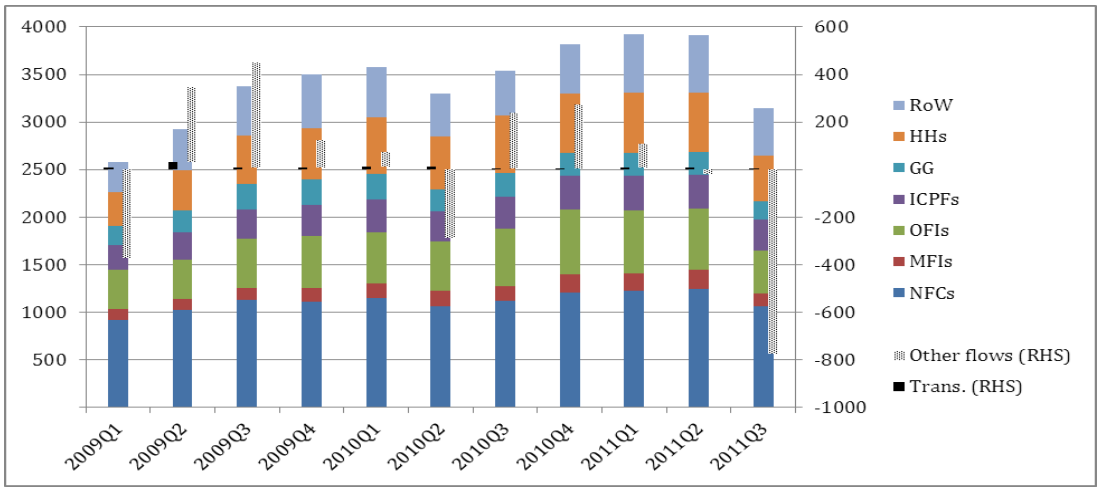
[15] RoW-Rest of the world; HHs-Households; GG-General Government; ICPFs-Insurance Corporations and Pension Funds; OFIs-Other Financial Intermediaries; MFIs-Monetary and Financial Institutions; NFCs-Non Financial Corporations.

4.2 Quoted shares

Chart 2 provides an overview of the sectoral exposures to quoted shares issued by non-financial corporations (NFCs) over the period from 2009Q1 to 2011Q3. It also shows (RHS - right hand scale) net issuances (transactions) and other changes in stocks (other flows, mostly price changes or revaluations) to better explain total changes in stocks. In comparison to debt securities, these estimates are of a lower quality, mostly because of the difficulty to distinguish between the various equity components within the International Investment Position (IIP).[16]

Chart 2

Sectoral holdings of quoted shares issued by non-financial corporations (*EUR billions*)



Source: ECB

Quoted shares issued by NFCs are mostly held by other NFCs, Other Financial Intermediaries (OFIs), HHs and the RoW. The volatility of the stock is extremely high mirroring the on-going stock market volatility. Indeed, although positive all over the period, the weight of transactions on changes in stocks is rather negligible, also reflecting the unattractive pricing conditions to raise new capital.

4.3 Mutual fund shares

Out of the three instruments for which experimental from-whom-to-whom matrices were developed, mutual funds shares is by far the one with more comprehensive data sources, even overlapping in certain areas, mostly owing to the recent availability of comprehensive investment funds statistics and to the data arising from the regular exercise to compile M3 by sector (including an estimate of money market fund shares by counterpart sector). The overlapping data sources, in particular as regards total mutual funds shares issued by OFIs, still shows methodological differences between EAA and IF statistics.

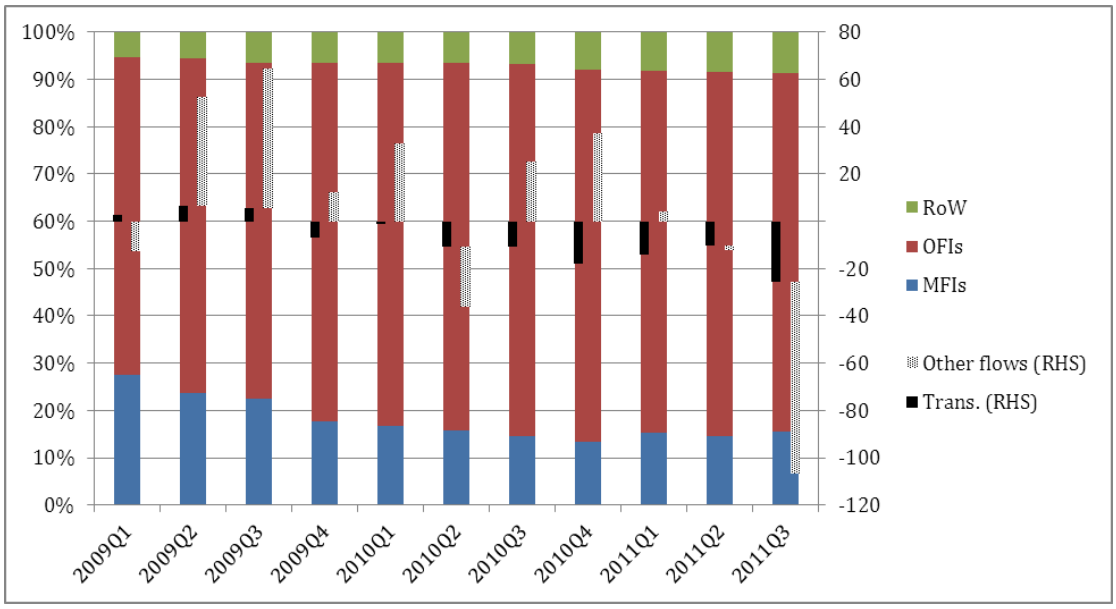
Chart 3 provides an overview of HHs' exposure to mutual funds shares broken down by issuing sector over the same 2009Q1-2011Q3 period. It also shows (RHS - right hand scale)

[16] In fact, because of this difficulty the breakdown of shares and other equity is currently not disseminated in the context of the EAA.

net acquisitions (transactions) and other changes in stocks (other flows, mostly price changes or revaluations) to better explain the portfolio decision of households as regards mutual funds shares.

Chart 3

Households' holdings of mutual funds shares by issuing sector (*Percentage (%), EUR billions*)



Source: ECB

The most striking development from Chart 3 is the clear drop in the weight of mutual funds shares issued by MFIs (i.e. money market funds - MMFs) in the overall mutual fund shares portfolio of HHs, until the end of 2010. This may be explained by the uncertainty over the soundness and liquidity of some money market funds following the sub-prime crises. Another interesting fact is the increase in the holdings of mutual fund shares issued by non-residents. This may reveal both, a move to offshore centres for fiscal reasons and/or a preference for investments in foreign currency.

5. Conclusions and way forward

A detailed database on holdings of securities would directly or indirectly (via the EAA) satisfy most of the outstanding user needs regarding data on securities. This would provide both, very detailed micro (security-by-security) data and the means for the compilation of macro aggregates. The former would assist on detailed analysis by individual issuer and holder, while the latter would allow a detailed assessment of the inter-linkages between countries and sectors.

The existing experimental securities holdings statistics proved that these objectives can be achieved in the steady-state approach. Although on the basis of rather tight confidentially limitations, the ad-hoc use of the security-by-security data has already been possible in the context of the on-going financial and economic crisis. Moreover, the experimental from-whom-to-whom tables for debt securities, quoted shares and mutual funds shares, as presented in Section 5, have also provided a first overview of the inter-linkages between institutional sectors in the euro area and vis-à-vis these sectors and the rest of the world.

The full value of comprehensive securities holdings statistics would, however, only materialise with the introduction of the steady-state approach in 2014. This would additionally provide detailed data on holdings of monetary instruments by sector, to be used in the compilation of M3 by institutional sector, and on the exposures to debt instruments by residual maturity or currency. In fact, given the flexibility of such detailed security-by-security database, several geometries of aggregates and analysis would be possible, without addressing additional data requests to reporting agents.

The steady-state approach would also facilitate the expected quantum leap in the timeliness of the EAA, by providing core (stock and transactions) data for the compilation of holdings by institutional sector 90 days after the end of the reference quarter, as requested for monetary policy purposes. It will also allow the compilation of from-whom-to-whom tables in the EAA context, also comprising information on revaluations. The integration of these data would, however, bring new challenges to the EAA compilation when attempted for the overall matrices at once within a rather tight timeline.

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