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A map of the euro area financial system

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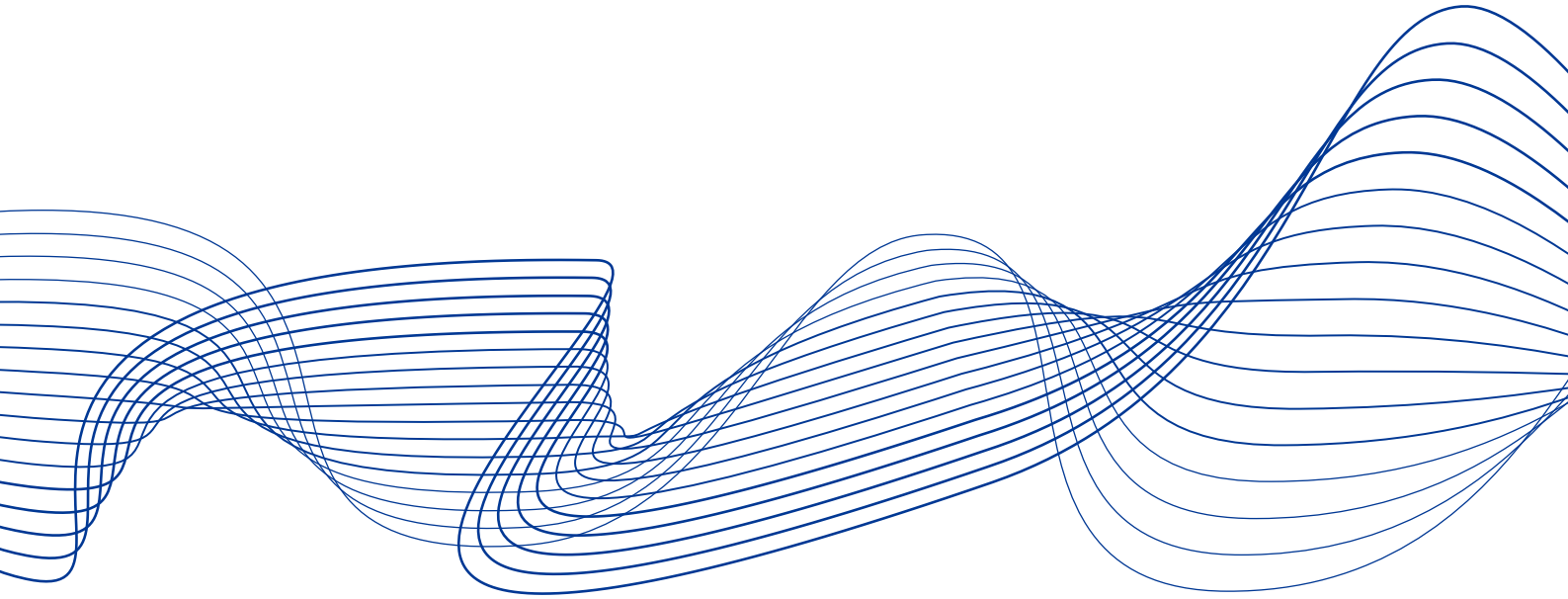

ESRB
European Systemic Risk Board
European System of Financial Supervision

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Abstract

We present a methodology based on quarterly sectoral accounts to build a map of the euro area financial system. The map can be used to visualise existing cross-sectoral interconnections and exposures, to analyse how the main bilateral positions have evolved over time, and to understand how past episodes of financial stress affected balance sheet structures and inter-sectoral flows. We find that the euro area financial system was essentially bank-centric when it entered the global financial crisis, and only afterwards has the importance of investment funds, government debt and central banks increased substantially. In particular, investment funds are used by euro area economic agents to gain exposure to the rest of the world and vice versa. We also document weak dynamics since the global financial crisis in lending between euro area banks and non-financial corporations. Next, we look at the financial system during the global financial crisis and the outbreak of the COVID-19 pandemic, a further four episodes of financial stress (sovereign debt crisis, the US taper tantrum, the Brexit referendum, the start of Russia's invasion of Ukraine) and the monetary policy tightening between 2005 and 2007. While there are differences across them, we unveil interesting common features. The map can be useful in determining which sectors are resilient enough to absorb losses and whether they can serve as transmitters of stress. Finally, turning to liquidity, bank deposits, money market fund shares and securities financing transactions are key to ensure a smooth supply of liquidity and should continuously be on the radar of policymakers.

Keywords: Interconnections, flow of funds, financial crisis, financial intermediation, liquidity

JEL codes: G01, G1, G20

Executive summary

This occasional paper presents a methodology based on quarterly sectoral accounts to build a map of the euro area financial system. In some cases, the map takes data from datasets compiled by the European System of Central Banks, which are broadly aligned with the methodology of the quarterly sectoral accounts. The map can be used to visualise existing cross-sectoral interconnections and exposures, to analyse how the main bilateral positions have evolved over time, and to understand how past episodes of financial stress affected balance sheet structures and inter-sectoral flows. Similar to a map showing geographical features (mountains, rivers, cities, etc.), our map depicts, at a high level of aggregation, the different participants in the financial system.

Our map of the financial system comprises the balance sheet of ten sectors of activity (households, non-financial corporations, government, central banks, banks, insurance corporations, pension funds, investment funds, money market funds and other financial institutions), plus an additional balance sheet for the rest of the world, using data on a non-consolidated basis. Given our interest in the financial sector, our map shows the main financial instruments on both sides of the balance sheet of each sector: cash, deposits, debt securities (i.e. bonds), (listed and unlisted) shares, and investment fund shares. We look at the outstanding amounts at the end of each period, as well as financial transactions reflecting acquisitions and disposals of assets and liabilities. On the understanding that a financial market is a place where sellers and buyers of a financial instrument meet, our map depicts five key financial markets: corporate bonds, government bonds, listed equity, repo markets and derivative markets. Data from national accounts also give us useful information on the exposure of euro area institutions to bond and equity markets in the rest of the world.

There are some limits to what our map of the financial system can achieve. These refer to the level of aggregation (as it does not allow for intra-sectoral or country-specific considerations), the presentation of information on a non-consolidated basis (which must be considered carefully when analysing the data), and the availability of information on exposures to and from the rest of the world (as sometimes there is not much granularity in the dataset). Several other methodological issues also had to be addressed before we could begin analysing the data.

Our map of the financial system takes a snapshot of Q2-2023, to assess the balance sheet of the different sectors and to identify the issuers and investors in the main financial markets. Furthermore, looking at the trend over time in the various balance sheet items shown on the map, we find that the euro area financial system was essentially bank-centric when it entered the global financial crisis, and only afterwards has the importance of investment funds, government debt and central banks in the financial system increased substantially. At the same time, lending links between euro area banks and non-financial corporations have shown weak dynamics since the global financial crisis, with loans to households playing an increasing role in the provision of credit by euro area banks. Besides, investment funds are used by euro area economic agents to gain exposure to the rest of the world and are also an important vehicle through which the rest of the world invests in the euro area economy. Broadly speaking, links between the euro area and the rest of the world have remained large, although a certain retrenchment can be observed since the global financial and sovereign debt crises, affecting mainly bank loans and deposits.

Our next step was to look at the dynamics of our map during two systemic upheavals (the global financial crisis and the outbreak of the COVID-19 pandemic) and a further four episodes of financial stress (the most acute phase of the sovereign debt crisis, the US taper tantrum, the Brexit referendum, and the start of Russia's invasion of Ukraine). We also considered the monetary policy tightening cycle between 2005 and 2007. While there are clear differences across these six episodes (seven if we include monetary policy tightening), we can also find some interesting common features:

1. Interbank deposits, reflecting mainly intragroup transactions, tend to increase in every episode.
2. Central banks play a stabilising role in each of the episodes, as shown by the sizeable changes in their exposures with banks, the rest of the world and governments.
3. In the most recent periods, financial transactions with derivatives (including also margin calls) have been large for banks and especially for pension funds.
4. Money market funds are always affected, albeit with different items of their balance sheet involved each time. This may have something to do with the role of money market funds as providers of liquidity for other parts of the system, and because demand for liquidity rises during these episodes of stress.
5. As for the rest of the world, different balance sheet items may have large financial transactions associated with them, depending on the nature of the financial stress.

Turning to liquidity in the financial system, bank deposits, money market fund shares and securities financing transactions are found to be key to ensure a smooth supply of liquidity and should be on the radar of policymakers. Bank deposits were at the core of the financial turmoil that affected several US regional banks in March 2023 and should be an area of increased policy attention by macroprudential authorities going forward. Money market funds have undergone several reforms in the United States and the European Union.[1] Looking forward, the change in the monetary policy stance (i.e. through quantitative tightening) can have an impact on markets of sovereign bonds, which are the financial instruments most commonly used in securities financing transactions. Disruptions in that market could spill over throughout the system.

This analysis can also be read as identifying the sectors most affected by the various crisis episodes, and which therefore act as the first line of defence in protecting the euro area financial system from a crisis. From a policymaking perspective, the map can be useful in determining whether these sectors are those resilient enough to absorb losses and whether they can serve as transmitters (or worse still, amplifiers) of stress.

[1] In the EU, the MMF Regulation (2017/1131) entered into force in January 2019. In July 2023 the European Commission decided not to review the MMF Regulation at that time.

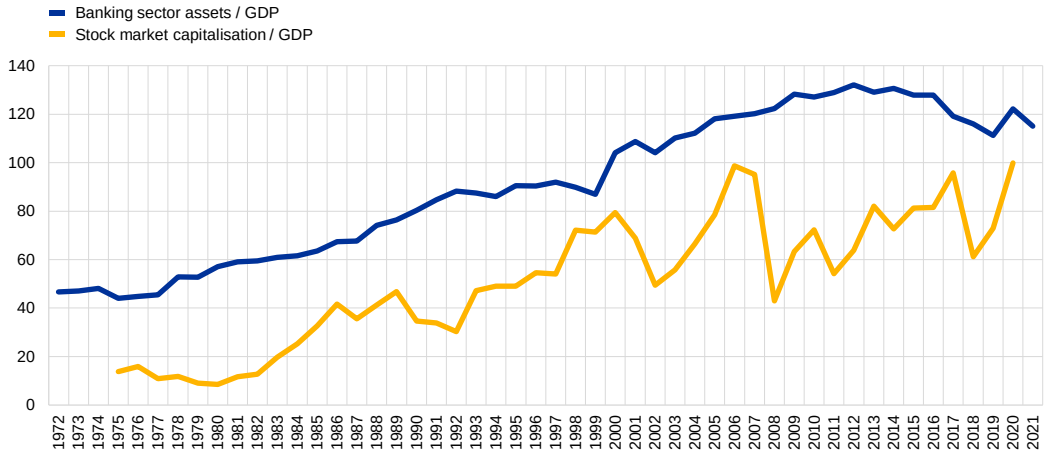
1 Introduction

The financial system has grown in importance and complexity in recent decades, with a growing number of interconnections. While there is no unique variable to gauge the size of the financial system, several derived indicators, such as the size of the banking sector as a share of gross domestic product (GDP) or stock market capitalisation as a share of GDP, can provide evidence of the increasing weight of finance in most advanced economies. Figure 1 below shows a steady increase in the median of these two ratios for the main advanced economies of the world.[2] The increase in size of the financial system has been accompanied by an increase in its complexity (Brunnermeier and Oehmke, 2009; Fredman, 2017; Botta et al., 2022). New financial instruments (such as collateralised debt obligations, or CDOs for short) and institutions (such as exchange-traded funds, or ETFs) have appeared, while information technologies have allowed faster and more intense communications across economic agents. Growing complexity poses a challenge for risk management (Goldin and Kutarna, 2017) and makes regulation of the financial system more difficult (Gai et al., 2019).

Figure 1

Size of the banking sector and stock market capitalisation as a share of GDP

(percentages)



Sources: World Bank Global Development Indicators and author's calculations.
Notes: Assets of the banking sector are defined as claims on the domestic real nonfinancial sector by deposit money banks, as reported to the IMF's International Financial Statistics. Stock market capitalisation is measured as the total value of all listed shares in a stock market. Median values for Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom and United States.

Understanding the balance sheet structures of sectors and the flows across them is important when it comes to monitoring systemic risk in an economy. Systemic risk in an economy can arise from unsustainable or risky balance sheet structures (showing, for example,

[2] See also Greenwood and Scharfstein (2013).

high leverage, concentration of exposures or large illiquid positions) and can spread quickly through the financial system via cross-sectoral interconnections and exposures. The global financial crisis, originating in the segment of US subprime mortgages, provides a clear example of this.[3] Therefore, getting a proper understanding of these interconnections and structures is important for macroprudential authorities when fulfilling their mandate.

The main objective of this occasional paper is to present a methodology based on quarterly sectoral accounts to build a map of the euro area financial system, which can then be used to monitor interconnectedness and risk dynamics. Quarterly sectoral accounts, based on national accounts, offer a coherent and methodologically sound framework for building a map of the financial system. Such a map can be used to visualise existing cross-sectoral interconnection and exposures, and to analyse the trend in the main bilateral positions over time. Our map can also be used to address more restricted "research questions" by offering a long time series and a broad overview of the developments. The three boxes provided in this occasional paper can be seen through this lens, i.e. as illustrations of how the map can be used.

The map can also be used to understand how past episodes of financial stress affected balance sheet structures and inter-sectoral flows. There is a large corpus of academic literature focused on the study of financial crises, which tangentially touches upon our map. The main way to identify a financial crisis remains the narrative approach, combining a narration of events with quantitative data, which we follow in our discussion of past crises.[4] We identify our periods according to the academic literature on event studies, thus facing the pitfall of all changes in the variables of interest being attributed to the event under consideration.[5] Despite these methodological limitations, we consider that our map can become a useful learning tool in helping authorities to understand the mechanisms underlying financial stress, thus enabling them to design the best possible policy response.

A further function of our map is to signal potential sources of vulnerabilities in the financial system, which can trigger the materialisation of systemic risk in the near future. Like a map showing geographical features (mountains, rivers, cities, etc.), our map is able to show the different participants in the financial system, alongside relevant features for financial stability, such as leverage or liquidity. However, there are limits to what the map can show: it has a regional scope (euro area) and considers sectors in the aggregate, making it more akin to a low resolution (or a schematic) map. However, what macroprudential authorities should be focusing on is precisely that "big picture" (i.e. the forest), and not on the details of each individual tree in the forest, which are better left to microprudential authorities.[6] Despite providing only a "big picture", the resulting map is rather complex and would benefit from exploring, at a later stage, different visualisations enabling users to optimally exploit the information contained in it.[7]

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3 See, among others, Lo (2012) and Thakor (2015).

4 For a short description of this corpus of academic literature, see Claessens and Kose (2013), and Sufi and Taylor (2021).

5 See MacKinlay (1997) for an initial introduction to event studies in economics and finance, and Cohen-Setton (2012) for further reflections on the main pitfalls of event studies.

6 On the metaphor of macroprudential authorities looking at the forest, see Viñals (2011).

7 These visualisations could be in the form of an interactive dashboard (such as those in the ECB Data Portal, **link**), interactive Chord diagrams (such as those used by the Bank of International Settlements, **link**) or of multilayer/multiplex network designs (such as those in Bardoscia et al., 2019; and Foglia et al., 2023).

While partially related to it, this occasional paper departs from the literature on network analysis in several ways. Since the global financial crisis, interest in network analysis has grown significantly with regard to the transmission of financial stress throughout the financial system.[8] Among others, Acemoglu et al. (2012) show that sizeable aggregate fluctuations may originate from idiosyncratic shocks to different sectors in the economy, Alves et al. (2013) focus on the European interbank market and find that it is resilient to shocks of smaller size, while Minoiu and Reyes (2013) apply network analysis to the global banking system and find that the global banking network is procyclical. Gai and Kapadia (2019) consider that the complex web of exposures and interlinkages across the financial system highlights the relevance of network analysis in the design of financial regulation and macroprudential policies. Ramírez (2020) studies the case of a network of interdependent financial institutions when there is uncertainty regarding its precise structure and finds that regulation that reduces the risk-taking incentives of a small set of institutions can improve welfare. Covi et al. (2021) use supervisory data on large exposures to build a network of euro area banks and define a methodology to capture the contagion channels of exogenous credit and funding shocks. They find that the shift from a less vulnerable state to a highly vulnerable state is a non-linear function of the combination of network structures and bank-specific characteristics. Jackson and Pernoud (2021) review the existing literature on the relationship between financial networks and systemic risk. Network analysis requires granular data on direct exposures between institutions and does not usually consider breakdowns of the instruments through which two institutions are exposed to each other. These are two decisive factors that differentiate this occasional paper from the academic literature on network analysis.

In the aftermath of the global financial crisis, there have been other attempts to map the structure of the financial system. In their seminal work, Pozsar et al. (2010) provide a detailed overview of the US shadow banking system and of its interaction with banks and broker dealers. They explain how developments, exposures and imbalances in that system triggered the global financial crisis. Moving a step closer to our methodology, Burrows et al. (2015) use national accounts (together with other data sources) to produce a map of the UK financial system and provide a set of recommendations for the future on how to enrich the flow of funds data and compile new statistics on debt exposures. Bookstaber and Kenett (2016) build a three-layered map (comprising short-term funding, assets and collateral flows) to show how risks can emerge and spread across the US financial system. They illustrate the use of the map for financial stability surveillance by looking at the difficulties encountered by Bear Stearns in 2007. Focusing on the euro area, Castrén and Kavonius (2009) use flow of funds data to create a sector-level network of bilateral balance sheet exposures of the financial system. They show how local shocks can propagate throughout the network and affect the balance sheets in other parts of the financial system. Besides, Bricco and Xu (2019) summarise the approach taken by the International Monetary Fund in assessing the interconnectedness of national financial systems, including cross-sectoral and cross-border interconnections. More recently, Acharya et al. (2024) use expanded data from the US financial accounts to investigate the links between banks and non-banks, focusing on the transformation of risks between the two sectors.

[8] Network analysis represents the interconnections of a large panel of institutions as a graph: the vertices of the graph represent a variable of relevance, and the presence of an edge between two vertices denotes the presence of some appropriate measure of dependence between the two variables.

Our map can provide insights to feed current macroprudential policy discussions in several areas. Together with a broader discussion on making financial regulation robust (see Gai et al., 2019), our map can be used as input in current policy discussions on, among other matters, the interlinkages that exist between banks and non-banks, the provision of financial services by non-banks to households and non-financial corporations, or liquidity at the system level (Bowman, 2023; Enria, 2023; Acharya et al., 2024; Financial Stability Board, 2024; Foulger, 2024). Box 1 below discusses the provision of lending services by non-banks to households and non-financial corporations, while Box 2 describes evidence from the map on the margin calls from derivative contracts held by non-financial corporations and pension funds, and how these sectors addressed them. Section 3.4 reads our map from a liquidity perspective.

This occasional paper is organised as follows. The next section describes the methodology used to create the map of the euro area financial system, which is then presented in Section 3. Section 4 discusses the dynamics observed in previous episodes of financial stress and Section 5 concludes. The Annex provides further information on the data points used to build our map, allowing others to replicate it for other jurisdictions.

2 Methodology

The map of the euro area financial system is based on who-to-whom data (quarterly sectoral accounts), compiled according to national accounts, or equivalent statistics compiled by the European Central Bank (ECB) for monetary policy purposes. Who-to-whom data (also known as flow of funds data) are based on financial accounts and enable users to track the net inflows and outflows to and from various sectors of a national economy. Financial accounts focus on the financial assets and liabilities in the balance sheet of the sectors of an economy, and how they change over a period. These changes result from changes in prices (i.e. revaluations) or in volumes (i.e. financial transactions). Non-financial assets and liabilities are excluded from financial accounts.

The System of National Accounts (SNA) is developed under the aegis of the United Nations and provides a coherent, consistent and integrated set of macroeconomic accounts for an economy, using internationally agreed concepts, definitions, classifications and accounting rules. In the EU, Eurostat has developed the European System of Accounts (ESA), which is based on the SNA and must be applied by EU Member States (Eurostat, 2013). National accounts are usually compiled by national statistical offices and by central banks. Six economic sectors are defined in the SNA: non-financial corporations, financial corporations, general government, households, non-profit institutions serving households, and the rest of the world. The SNA comprises current accounts, accumulation accounts and the balance sheets of the main economic sectors. Current accounts start with the value of production and describe how it is redistributed to other sectors or used for consumption or saving purposes. Accumulation accounts disclose transactions, revaluations and other changes in financial and non-financial assets and liabilities, while the balance sheet provides the opening and closing value for each sector.[9] According to the basic accounting identity, total assets should equal total liabilities plus (accumulated) net worth. Assets and liabilities under national accounts are valued at market prices at the balance sheet reporting date. This marks an important difference with respect to accounting standards such as IFRS or US GAAP, which usually only require financial assets to be valued at market prices.

Moreover, the European System of Central Banks (ESCB) compiles data from different types of financial institutions for the fulfilment of its monetary policy mandate. When building the map of the euro area financial system, we used data referring to banks (i.e. monetary financial institutions), insurance corporations, pension funds, investment funds, and money market funds (MMF). Only when there was a gap in the who-to-whom data did we use a dataset compiled by the ESCB. The compilation of these datasets is governed by a methodology similar to the one used in the ESA, especially as regards the definition of sectors, the perimeter of consolidation and the financial instruments in scope.[10]

The following subsections discuss, in further detail, some important methodological issues for the construction of our map. The first subsection provides a brief description of the scope of

[9] In theory, the closing balance sheet of an item should be equal to the opening balance sheet, plus transactions, revaluations and other flows. However, in practice, discrepancies can arise because different statistical sources are used to compute national accounts. For further information on the underlying methodology, see Eurostat (2013), and Lequiller and Blades (2014).

[10] See, for example, European Central Bank (2019).

the map, while the second discusses limitations in our map derived from the datasets used to build it. The third subsection enumerates several methodological issues that arose when mapping the data points necessary to build the map. The Annex provides the specific data points, in the format of the ECB Data Portal,[11] used to build the map.

2.1 Scope and description of the map

Our map of the financial system comprises the balance sheet of ten sectors of activity plus an additional one for the rest of the world, using data on a non-consolidated basis. These ten sectors comprise the real private non-financial sector (households and non-financial corporations), the public sector (government and central banks) and the financial sector, separately showing banks, insurance corporations, (private) pension funds, investment funds, MMFs and other financial corporations. Data is presented on a non-consolidated basis, which can be problematic when inter-sectoral subsidiaries exist. This means, for example, that the financial subsidiary (i.e. captive financial institution) of a large non-financial corporation appears classified as other financial institution. The geographical coverage of the data is limited to the euro area, with the rest of the world (non-euro area countries, also including EU members not part of the euro area) represented as a separate sector. When we also consider that the data are presented on a non-consolidated basis, this means that non-euro area subsidiaries of, for instance, large euro area banks are included in the rest of the world, even if ultimate ownership remains within the euro area.

The map of the financial system is built around the main items shown on the balance sheet for the various sectors of activity and for the rest of the world, focusing on financial transactions to assess changes over two periods. Given our interest in the financial sector, the main financial instruments on both sides of the balance sheet for each sector are shown: cash, deposits, debt securities (i.e. bonds), (listed and unlisted) shares, and investment fund shares. Non-financial assets are shown only for investment funds, non-financial corporations and households. For other sectors, they are included in “other assets”. Based on the static balance sheets in two consecutive periods, we can derive flows, which have two components: changes in volume (i.e. acquisitions and disposals of assets or liabilities), and changes in prices, as the SNA is based on market values for financial instruments. Our main interest is on financial transactions, although it may also be worth looking at those financial instruments that lose most of their value in periods of financial stress.

The map depicts five key financial markets: corporate bonds, government bonds, listed equity, repo markets and derivative markets. On the understanding that a financial market is a place where sellers and buyers of a financial instrument meet, our map focuses heavily on these key financial markets. Corporate bond markets are defined for the purposes of our map as those where bonds other than those issued by the government are traded. That would include bonds issued by non-financial corporations, other financial institutions, banks and insurance corporations. Data from national accounts also give us valuable information on the exposure of euro area institutions to bond and equity markets in the rest of the world, including, therefore, US Treasuries – considered the world’s safe asset – in the hands of euro area institutions.

[11] See **https://data.ecb.europa.eu/data**.

The repo and derivative markets are mapped using data to which the ESRB has been given access according to existing EU regulations. Repo markets are represented using data submitted to the ESRB in accordance with the Securities Financing Transactions Regulation.[12] Repurchase agreements are treated as secured loans according to the ESA (Eurostat, 2013), although there is no dedicated breakdown of them. Data on derivative markets are collected by the ESRB from trade repositories, according to EMIR.[13] All derivative transactions, including those not cleared through a central counterparty (CCP), where there is at least one European counterparty, financial and non-financial, should be covered by EMIR. Therefore, data on repo and derivative markets do not follow the SNA as they are collected under different methodological frameworks.

In this occasional paper, we present two versions of the map of the euro area financial system. The first presents all the relevant balance sheet items for all sectors, showing all interconnections between them (even if they are small). The thickness of the arrows represents the size of the exposure. The whole version of the map is better printed as an A3 file. To analyse dynamics in past episodes of financial turmoil, we build an abridged version of the map, showing only the main items in the balance sheet of each sector and discarding exposures of lesser importance.

2.2 Limits: what the map does not cover

Despite offering a broad view of the euro area financial system, there are limits to what our map of the financial system can achieve. These limitations (or constraints) refer to market prices for balance sheet items, the level of aggregation, the presentation of information on a consolidated basis, and the availability of information on exposures to and from the rest of the world.

As the map is based on quarterly sectoral accounts, the valuation at market prices of several balance sheet items included on our map may be problematic. According to the SNA, assets and liabilities in the balance sheet are valued at market prices at the date to which the balance sheet relates. For those financial instruments usually traded in financial markets (such as listed shares or debt securities), the computation of their market value is straightforward. However, issues can arise in the case of financial instruments not traded in financial markets, such as loans or unlisted shares, which happen to be one of the main items in the balance sheet of some of the sectors shown on the map. In the case of loans, “the values to be recorded in the balance sheets of both creditors and debtors are the nominal values irrespective of whether the loans are performing or non-performing” (Eurostat, 2013). Although the SNA provides some alternatives to compilers when it comes to estimating the market value of unlisted shares (such as the values of quoted shares where appropriate; the value of own funds; or discounting forecast profits by applying an appropriate market price-to-earnings ratio), the valuation at market prices of unlisted shares of non-financial corporations remains one of the main methodological issues for compilers of national accounts.

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12 See **Regulation (EU) 2015/2365 of the European Parliament and of the Council of 25 November 2015 on transparency of securities financing transactions and of reuse and amending Regulation (EU) No 648/2012** (Securities Financing Transactions Regulation, or SFTR).

13 See the **consolidated text of Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories**.

The map provides information on the structure of each sector at an aggregated level but does not allow for intra-sectoral considerations. Presenting the aggregated balance sheet of a sector of activity covering twenty countries inevitably masks relevant intra-sectoral developments. Meanwhile, the structure and dynamics of that sector may be substantially different across euro area countries. For instance, banks in one country may rely more on deposit funding, while banks in a different country might rely more heavily on wholesale market funding. Moreover, there may be different business models within each sector, which are not shown in the map. One such example would be life and non-life insurers, whose balance sheets are substantially different (and so are the risks to which they are exposed), although they are shown together as insurance corporations. A related issue concerns CCPs, which are financial market infrastructures that interpose themselves between the counterparties of a transaction in derivatives. They are not considered a separate sector by the ESA and are therefore classified according to their legal nature. Some of them have a banking licence and would appear as banks on our map, while others would appear as other financial institutions. In general, the map of the financial system does not present intra-sectoral flows (interbank exposures being one exception here).

The third limitation of the map concerns the use of data on a non-consolidated basis. The fact that data is not consolidated is particularly relevant in those cases where the same group has subsidiaries belonging to different sectors. As explained above, this situation can often arise in the case of large non-financial corporations that have a financial subsidiary to manage the funding, investments and cash of the whole group. This subsidiary is classified under national accounts as a captive financial institution, thus belonging to the sector of other financial corporations. This explains the sizeable interconnections between the sector of non-financial corporations and that of other financial institutions. The use of data on a non-consolidated basis also happens to be important in the case of non-euro area subsidiaries, which are included in the aggregation for the rest of the world. Interconnections between the euro area and the rest of the world must thus be read with this caveat in mind. Along similar lines, interbank exposures are also affected by the non-consolidated nature of the data, as they show exposures to other banks and to banks belonging to the same group.

Last but not least, data on the rest of the world is sometimes not granular enough and must be derived indirectly. Data showing the exposures of the euro area economy and financial system to the rest of the world can sometimes be hard to come by, meaning that we cannot replicate the same level of detail that we get for the euro area economy. For example, it is not possible to differentiate between corporate and government bonds held by euro area economic agents. This is an important differentiation, particularly as regards the use of US Treasuries by euro area financial institutions as instruments for managing liquidity. Besides, and as covered in further detail in the next section, data for the rest of the world must often be derived indirectly by subtracting exposures to the euro area from exposures to the entire world.

In a future step, the map could be extended by using data from the euro area balance of payments to complement the rest of the world sector. The ECB discloses data on the euro area balance of payments and international investment position by main counterpart countries, including other EU non-euro area countries, the United Kingdom and the United States. While prepared with a different methodology (Balance of Payments and International Investment Position Manual, Sixth

Edition, prepared by the IMF), this could be an interesting expansion of the map to address the shortcomings in the data for the rest of the world.

2.3 Drawing the map: practical considerations

The data points necessary to build the map of the euro area financial system are based on different datasets, compiled according to the national accounts or an equivalent methodology. Although the national accounts methodology is well-established, sound and consistent, several methodological issues arose when deciding on the data points to use for the map, as explained in the following paragraphs.

Since the map of the financial system is based on different datasets, several considerations and quality checks have been implemented to ensure accuracy and credibility. The datasets used to create the map refer to the current twenty euro area countries, although sometimes with a fixed composition (twenty countries since the first observation) and other times with a changing composition (with the number changing as countries join the euro area). The quarterly sectoral accounts (QSA) have a fixed composition, in the sense that they include the twenty countries throughout the whole period, while Balance Sheet Items of banks (BSI), Insurance Corporations Assets and Liabilities (ICB), Investment Funds Balance Sheet Statistics (IVF), and Pension funds Regulation (PFBR) use a changing composition of the euro area. As a result, these datasets are not entirely compatible. However, it is important to consider that since 2007 Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia, Lithuania and Croatia have all joined the euro area, and at year-end 2022 they represented roughly 3.2% of the nominal GDP of the euro area. That makes the potential incompatibility across datasets rather limited. We also introduced a quality check to ensure that total assets equal total liabilities for the ten sectors included in the map of the financial system. This has been achieved for all sectors, except for banks, where the discrepancy in Q2-2023 is equivalent to 0.04% of the total balance sheet (around €16 billion out of a balance sheet of almost €38 trillion). Last but not least, for several data series we reviewed and resolved certain unexpected negative amounts and zero values.

To compute data on the balance sheet items of banks, several adjustments must be made to exclude amounts related to MMFs and central banks. National accounts define the sector of monetary financial institutions to include credit institutions (i.e. banks), MMFs and the central bank. In order to obtain the balance sheet items for banks – as central banks and MMFs are shown separately in the map – several adjustments and assumptions must be made. For example, it is assumed that MMFs do not hold cash, so all the cash reported by monetary financial institutions is allocated to banks. Similarly, it is assumed that (i) MMFs and central banks do not hold investment fund shares, (ii) central banks and MMFs do not grant loans to governments, (iii) MMFs do not have deposits on the liabilities side of their balance sheet (they have mainly MMF shares), (iv) central banks have only deposits from banks (not from MMFs), and (v) central banks and MMFs do not issue debt securities.

Most of the assets and liabilities for the rest of the world have been derived from amounts related to both the world and the euro area. Granular information on the rest of the world is not directly available in the ECB Data Portal. In most cases, it is possible to derive this information by

taking amounts for the world and then subtracting amounts related to the domestic economy (i.e. euro area). Furthermore, the rest of the world sector is mainly constructed from information taken from other sectors. For example, assets of a sector against the rest of the world are treated as liabilities of the rest of the world against that sector. Lastly, in the case of deposits held by the rest of the world with banks (assets for banks, liabilities for rest of the world), it has not been possible to obtain the information in any way and therefore deposits are included within other assets (liabilities). Here, it is also worth noting that MMF shares owned by the rest of the world have been included within external liabilities.

Other assumptions and adjustments refer to data for insurance corporations, investment funds, non-financial corporations and other financial institutions. Available data on government bonds held by insurance corporations consider only those with a maturity beyond two years. As insurance corporations tend to have business models with a long-term horizon, it can be assumed that they mainly have government bonds with a maturity beyond two years. In the case of investment funds, total assets reported in quarterly sectoral accounts are lower (by €1 trillion) than total assets reported in investment fund statistics. We used the latter, considering that the more targeted focus on this dataset may make it more accurate in the amounts disclosed. Regarding non-financial corporations, three assumptions are made: (i) there are no loans between non-financial corporations and central banks (a liability for non-financial corporations, asset for the central bank); (ii) non-financial corporations hold no deposits at central banks (an asset for non-financial corporations, a liability for the central bank); and (iii) investment fund shares issued by monetary financial institutions and held by non-financial corporations refer to MMF shares. In the case of other financial institutions, it is assumed that there are no loans with central banks (a liability of other financial institutions, an asset for the central bank).

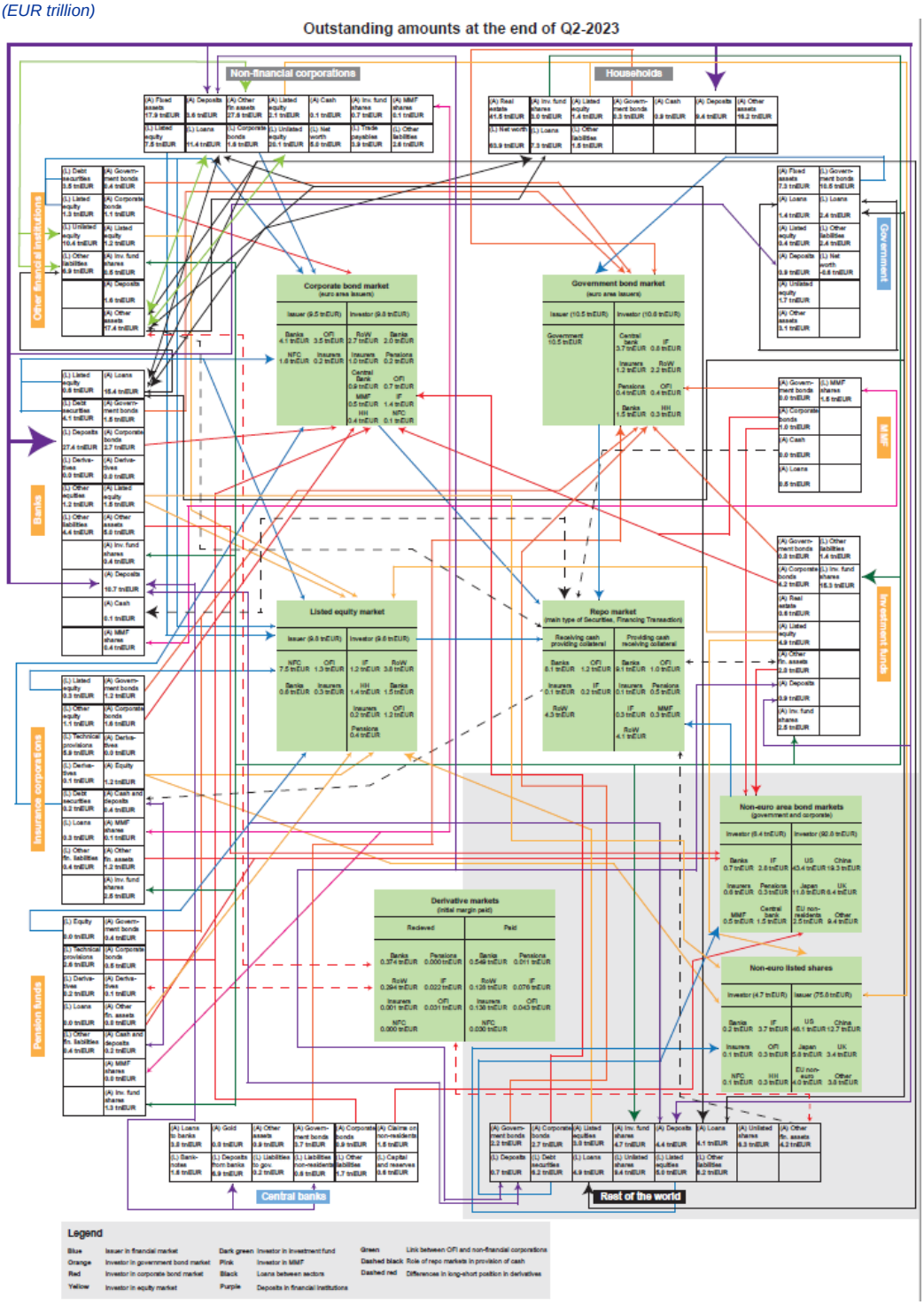
3 The structure of the euro area financial system

Figure 2 below shows a map of the euro area financial system at the end of the second quarter of 2023, which this section describes in further detail. The content of this section is purely descriptive, in the sense that we take a picture of the euro area financial system at the end of June 2023 and describe what we see across different dimensions. There is no prior hypothesis, nor any theoretical framework for financial intermediation we want to validate. We start by looking at the balance sheet structure of the different sectors represented on the map. We then continue with a comparative analysis of the different sectors, focusing on the five key markets shown separately on the map. Next, we discuss the largest financial items on the map. Lastly, the final subsection looks at liquidity in the euro area financial system.

Figure 2

Map of the financial system, euro area, Q2-2023

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Notes: Data on repo and derivative markets refer to June 2023. For information on the total size of the sectoral balance sheet, please refer to Section 3.1.

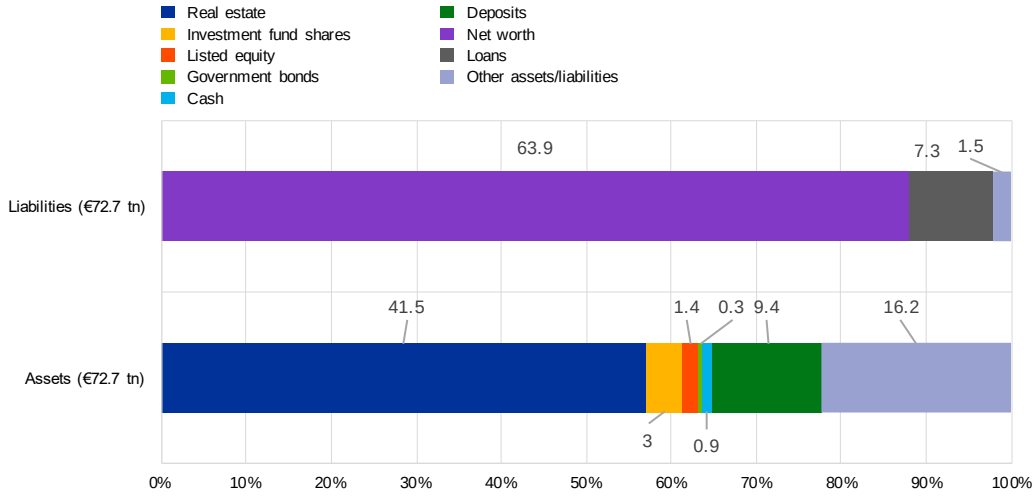
3.1 Sectoral balance sheets

Households have a large accumulated net worth in the aggregate, with bank deposits and bank loans being their main financial asset and liability, respectively (Figure 3). Accumulated net worth represents 88% of household liabilities, with bank loans being the main financial liability (10% of total liabilities). In the aggregate for the euro area, households hold a significant amount of real estate assets (€41.5 trillion), which accounted for 57% of their total assets in Q2-2023 (€72.7 trillion). Bank deposits remain the main type of financial asset (13% of total assets), followed by investment fund shares (4% of total assets) and listed shares (2% of total assets). These results reveal how households interact mainly with banks for their financial transactions, which are relatively small in comparison with the total size of their balance sheet. Of course, looking at disaggregated figures broken down by country and income level can show different structures and potential pockets of vulnerability.

Figure 3

Main balance sheet items of euro area households

(% of total assets and EUR trillion)



Source: Own elaboration, based on European Central Bank data.

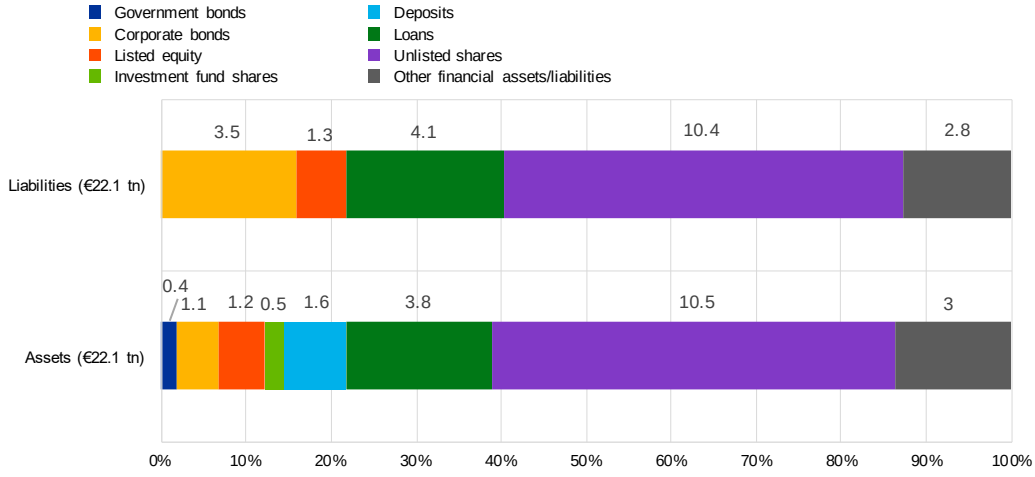
Interconnections between non-financial corporations and other financial institutions are strong and likely relate to how large non-financial corporations organise their funding. As mentioned earlier, the data shown on the map are presented on a non-consolidated basis, meaning that a subsidiary of a non-financial corporation belonging to another sector would be shown in a different sector. For instance, that would happen in the case of the financial subsidiary of a large non-financial institution, which is classified in national accounts as a captive financial institution and included within “other financial institutions”. This is reflected in the large amounts recognised on both sides of the balance sheet for “unlisted equity” and “loans” (Figure 4). Unlisted equity accounts for almost half of a total balance sheet of €22.1 trillion, either as an asset or as a liability. Captive financial institutions and money lenders account for the majority of unlisted shares shown on both

sides of the balance sheet of other financial institutions, suggesting the existence of large cross-holdings between them and non-financial corporations.

Figure 4

Main balance sheet items of euro area other financial institutions

(% of total assets and EUR trillion)



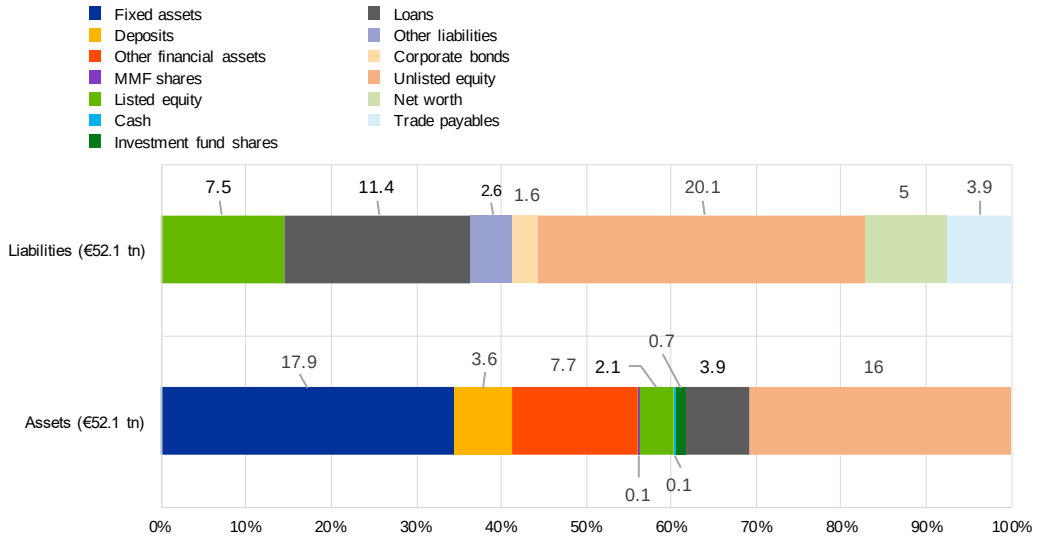
Source: Own elaboration, based on European Central Bank data.

Looking at non-financial corporations, loans remain their main source of funding (Figure 5). If we examine the liability structure of non-financial corporations and disregard unlisted shares, which may be there because many small- and medium-sized entities are not listed in financial markets or because they reflect the use of subsidiaries classified as other financial institutions, loans represent around 22% of total liabilities, with lower shares for listed equity (14% of total liabilities) and debt securities (3% of total liabilities). Loans are granted by banks (€4.7 trillion), other non-financial corporations (€3.9 trillion), rest of the world (€1.5 trillion) and other financial institutions (€1.3 trillion). From a market perspective, the combined figure for non-financial corporations and other financial institutions would make them the largest issuer in terms of euro area equity (90% of listed shares) and corporate bonds (54% of corporate bonds). On the asset side, fixed assets (€17.9 trillion) account for 34% of total assets (equal to €52.7 trillion), with unlisted shares (31% of total assets) and bank deposits being the main financial assets (7% of total assets). Listed shares and investment fund shares represent 3% and 1% of total assets. Unlike households, non-financial corporations have a higher share of financial liabilities (i.e. debt) in their balance sheet and engage in more complex financial transactions involving financial institutions other than banks.

Figure 5

Main balance sheet items of euro area non-financial corporations

(% of total assets and EUR trillion)



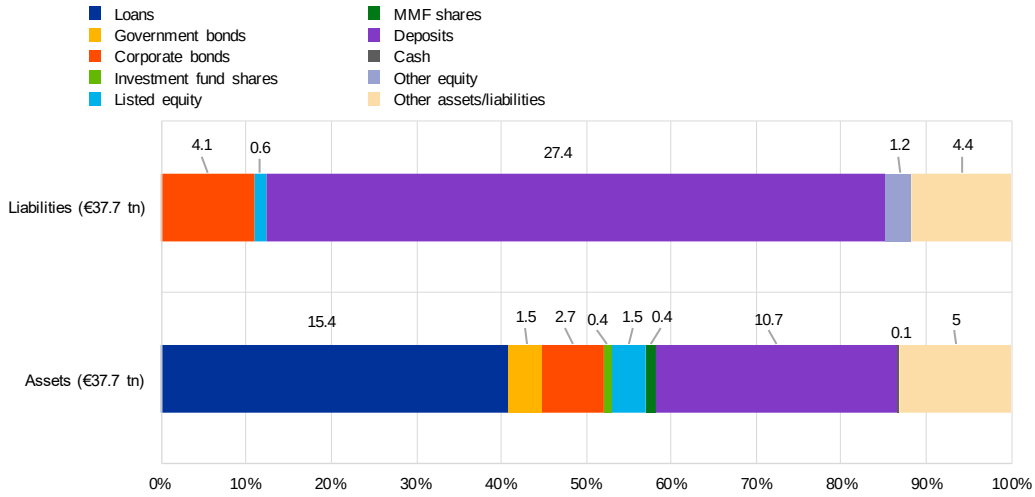
Source: Own elaboration, based on European Central Bank data.

The banking sector shows multiple interconnections with other sectors and a large balance sheet, which totalled €37.7 trillion in Q2-2023 (Figure 6). Banks held more than €27 trillion of deposits as liabilities, coming from all other sectors of the economy. Loans granted by euro area banks (around €11 trillion) are a key source of funding for the real economy (i.e. households and non-financial corporations). Interbank deposits, deposits with the central bank, and deposits with the rest of the world are also sizeable (€11 trillion; 28% of total assets). Banks are the main counterparty in repo and derivatives markets, the second largest investor in listed equity and corporate bond markets (in both cases, after the rest of the world) and the third largest investor in government bond markets, after the rest of the world and the central bank. By operating at the heart of the financial system, banks are able to link the real economy with the main financial markets (see, among others, Pagano et al., 2014).

Figure 6

Main balance sheet items of euro area banks

(% of total assets and EUR trillion)



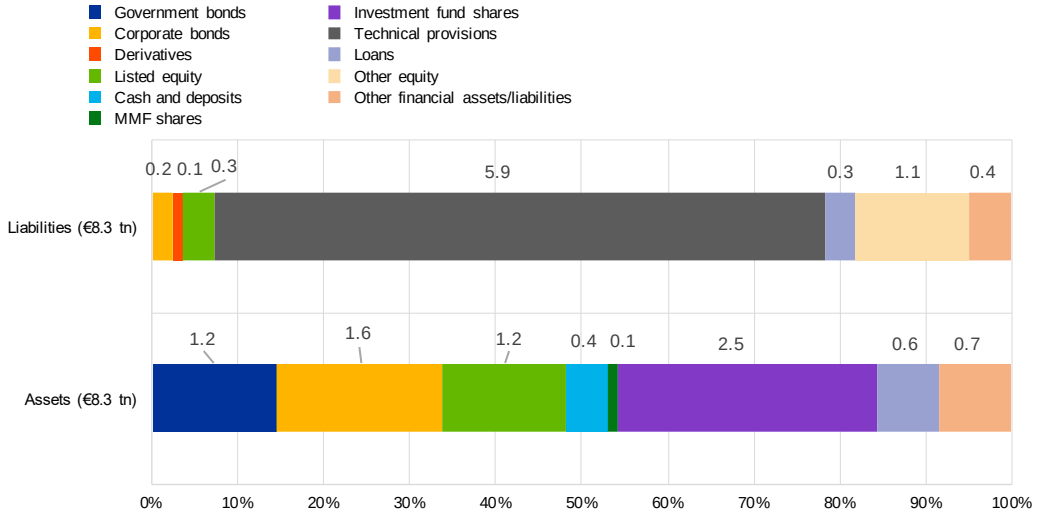
Source: Own elaboration, based on European Central Bank data.

Technical provisions are the main liability of insurance corporations, which also have a well-diversified asset side of their balance sheet (Figure 7). Due to the nature of the insurance business, technical provisions are the largest liability (71% of total liabilities, equal to €8.3 trillion), followed by (listed and non-listed) equity (17% of total liabilities). The assets of insurance corporations seem to be well diversified among investment fund shares (30% of total assets), other financial assets (14% of total assets), equity (14% of total assets), government bonds (14% of total assets) and corporate bonds (19%). Insurance corporations are also indirectly exposed to bonds and equity through their holdings of investment fund shares.

Figure 7

Main balance sheet items of euro area insurance corporations

(% of total assets and EUR trillion)



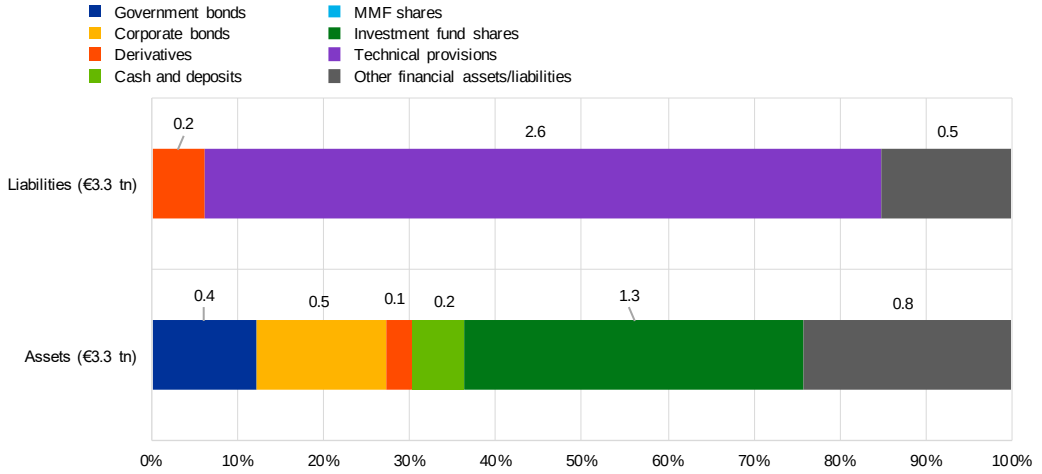
Source: Own elaboration, based on European Central Bank data.

Like insurance corporations, pension funds have sizeable technical provisions among their liabilities, and their assets are highly concentrated in investment fund shares (Figure 8). The business model of occupational pension funds is similar to that of life insurance corporations, so technical provisions are a key item in their balance sheet (81% of total liabilities, equal to €3.3 trillion at the end of Q2-2023). On the asset side, investment fund shares represent 41% of total assets, with lower exposures to other financial assets.

Figure 8

Main balance sheet items of euro area pension funds

(% of total assets and EUR trillion)



Source: Own elaboration, based on European Central Bank data.

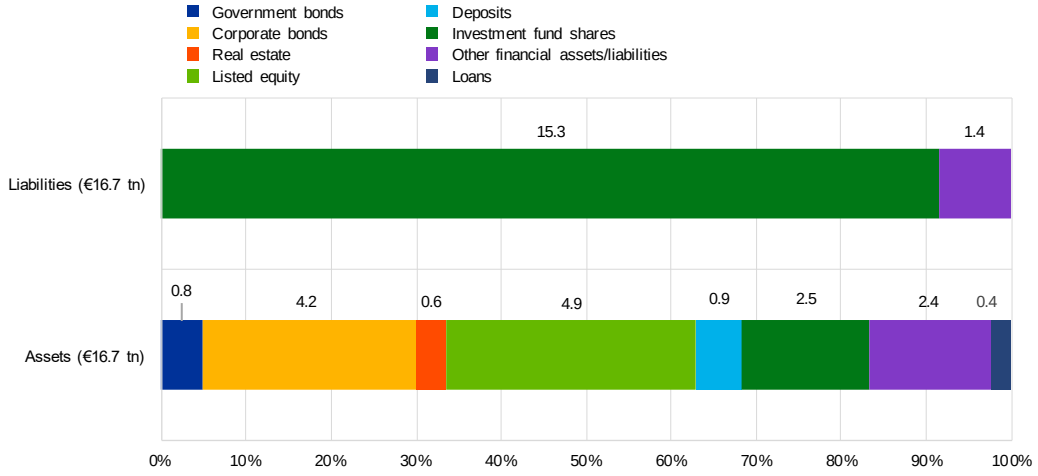
In terms of size, investment funds are the second largest financial sector after banks and are major investors in several markets (Figure 9). The balance sheet of investment funds totalled €16.7 trillion in Q2-2023, behind only banks in size. Investment fund liabilities mainly comprise investment fund shares, with equity, mixed and bond funds being the main types. Households, insurance corporations and pension funds are the main euro area investors in investment fund shares, gaining indirect exposure to financial instruments such as government bonds or equities.[14] Looking at the asset side, investment funds are large investors in corporate bonds, government bonds and listed markets in the euro area, with holdings of these instruments above €1 trillion. They also have €0.6 trillion invested in real estate and account for a relatively large share of investment fund shares (€2.5 trillion; 15% of total assets).

[14] Starting with data for Q4-2023, the euro area financial accounts include a look-through of the exposures of households to financial assets via investment funds (European Central Bank, 2024). This would be a promising avenue for future development of the map.

Figure 9

Main balance sheet items of euro area investment funds

(% of total assets and EUR trillion)



Source: Own elaboration, based on European Central Bank data.

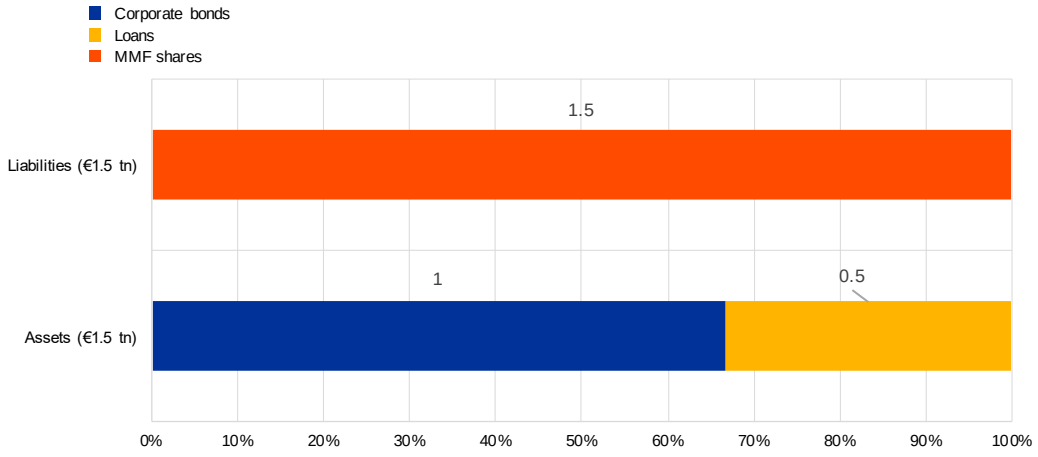
Investment funds are a key vehicle in the relationship between the euro area economy and the rest of the world. Investment funds seem to be the main vehicle used by euro area investors to gain exposure to non-euro area debt and equity markets, representing 44% and 79% of the total investment of euro area agents in these markets, respectively. Similarly, the rest of the world holds €4.7 trillion of investment fund shares, making it the second largest item on the asset side of the balance sheet of the rest of the world. This also implies that around one third of the investors in euro area investment funds are not from the euro area.

Money market funds (MMFs) are smaller in size and more specialised. The total balance sheet of euro area MMFs accounts for €1.5 trillion, with MMF shares being their main liability. Some sectors have minimal holdings of MMF shares, such as households. As shown in Figure 10, their main assets are corporate bonds (67% of total assets) and loans (33% of total assets).

Figure 10

Main balance sheet items of euro area money market funds (MMFs)

(% of total assets and EUR trillion)



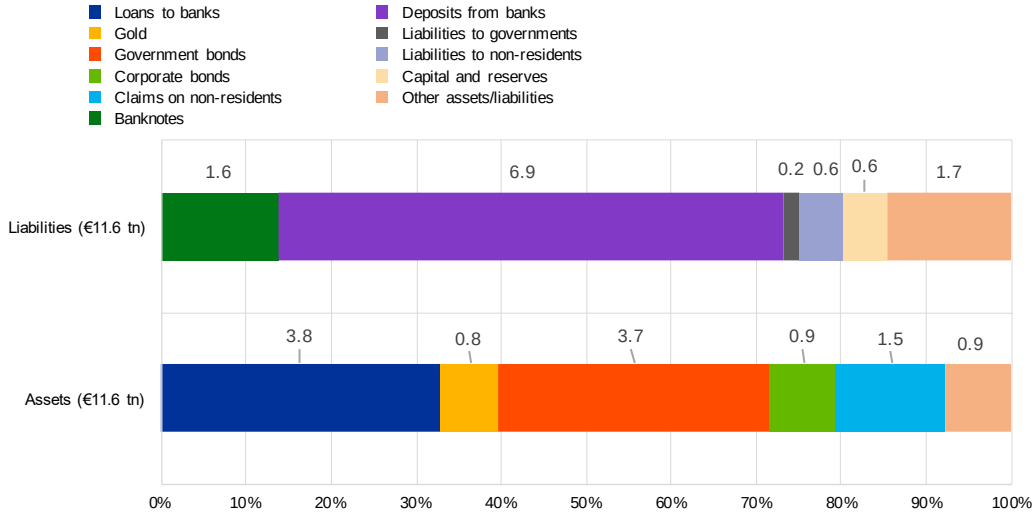
Source: Own elaboration, based on European Central Bank data.

The balance sheet of the central bank mainly reflects its decisions on monetary policy (Figure 11). The balance sheet of the central bank (€11.6 trillion at the end of Q2-2023) shows the most recent monetary policy decisions, with both government and corporate bonds featuring prominently on the asset side (32% and 8% of total assets, respectively) and banknotes appearing on the liability side. This shows that central banks are the main investor in the euro area government bond market, although their role has been declining since 2022. There are large loans and deposits to the banking sector (33% of total assets and 59% of total liabilities, respectively), which are also related to monetary policy operationalisation.

Figure 11

Main balance sheet items of euro area central banks

(% of total assets and EUR trillion)



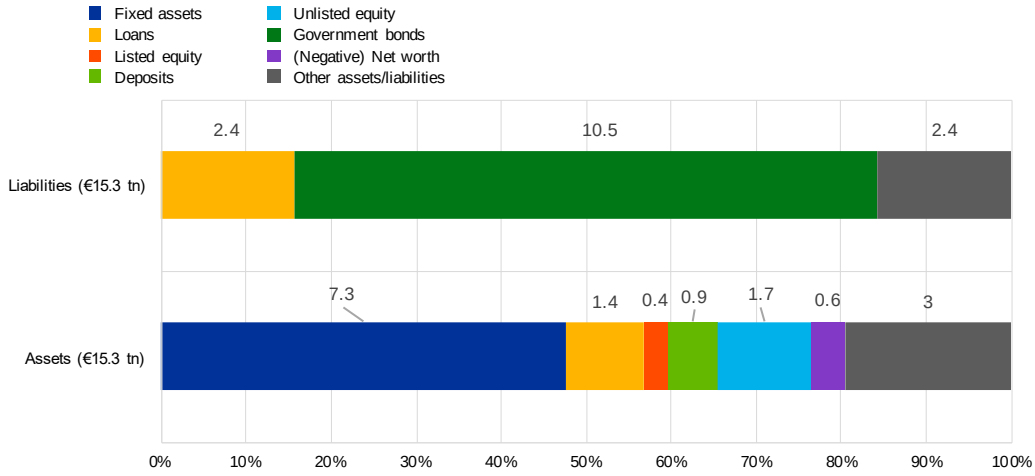
Source: Own elaboration, based on European Central Bank data.

The balance sheet of the government is dominated by government bonds, which amount to €10.5 trillion EUR (Figure 12). Government bonds are the main item appearing on the balance sheet of the government sector (71% of total liabilities, equivalent to €15.3 trillion), with other assets and liabilities reflecting the wide assortment of activities carried out by the government.

Figure 12

Main balance sheet items of euro area governments

(% of total assets and EUR trillion)



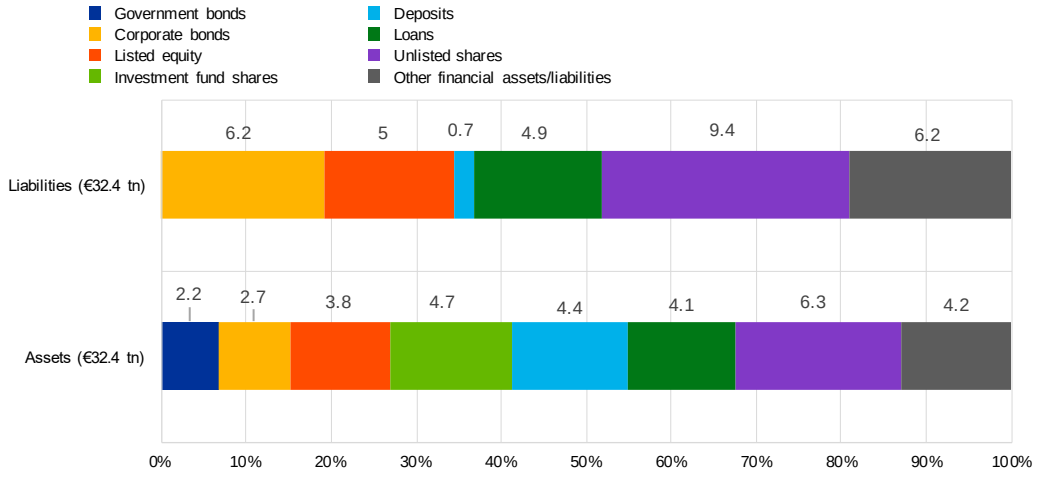
Source: Own elaboration, based on European Central Bank data.

As an open economy, the euro area is heavily exposed to the rest of the world through various instruments (Figure 13). Euro area economic agents also invest in the rest of the world, mainly through deposits, debt securities, loans, and (listed and unlisted) shares, which are shown as liabilities of the rest of the world in Figure 13. Euro area institutions lent €4.9 trillion to the rest of the world in Q2-2023, through banks (€1.7 trillion), other financial institutions (€2 trillion, representing 53% of the total loans granted by the sector) and non-financial corporations (€1.2 trillion).[15] Financial assets of the rest of the world (liabilities of the euro area) were broadly diversified in Q2-2023 into (listed and unlisted) shares, investment fund shares, deposits, bonds and loans. The rest of the world happens to be the main investor in the euro area equity market and the second largest investor, after the central bank, in corporate and government bond markets. The rest of the world also lends to euro area institutions, mainly non-financial corporations and other financial institutions.

Figure 13

Main balance sheet items of the rest of the world

(% of total assets and EUR trillion)



Source: Own elaboration, based on European Central Bank data.

3.2 Main financial markets

As a complementary approach to the institution-based method, our map can also be read by looking at issuers and investors in the financial markets it depicts. The previous section has briefly described the balance sheet of the sectors represented on the map. The following paragraphs describe the euro area financial system from the perspective of the key financial markets shown on the map: corporate bonds, government bonds, listed equity, repos and derivatives. In doing so, it places financial markets at the centre and considers issues related to the supply and demand of the various financial instruments.

[15] In the case of non-financial corporations, this could reflect transfers to an entity within the same group located outside the euro area.

The government bond market is the largest market in the euro area and can be characterised as having only one issuing sector and the largest investor unwinding its positions. In Q2-2023, the government bond market traded a total of €10.5 trillion in government bonds, with governments naturally being the only issuers in the sector. On the other side, the central bank, as the main investor, has been gradually unwinding its holdings following a change in its monetary policy stance. The rest of the world is the second largest investor, with banks and insurers having investments of over €1 trillion. Government bonds are also used in repo markets to obtain collateral, so they are an important tool for economic agents to obtain liquidity.

The corporate bond market is slightly smaller in size and has a wider variety of investors; however, its assets are not widely used as collateral in repo markets. In Q2-2023, corporate bonds amounted to around €9.5 trillion, issued by banks (€4.1 trillion), other financial institutions (€3.5 trillion), non-financial corporations (€1.6 trillion) and insurance corporations (€0.2 trillion). The rest of the world is the main investor in this market (€2.7 trillion), followed by banks (€2.0 trillion) and investment funds (€1.4 trillion). Despite the size of the market, corporate bonds are hardly used to obtain liquidity in repo markets.

Euro area listed equity markets has a size over €9 trillion, with non-financial corporations being the main issuers. Non-financial corporations are the main issuers in the listed shares market (€6.5 trillion EUR; 77% of the total), followed by other financial institutions (€1.3 trillion; 13% of the total). Meanwhile, banks and insurers issue €0.6 trillion and €0.3 trillion, respectively. Listed shares account for 14%, 6%, 2% and 4% of the total liabilities shown on the balance sheets of non-financial corporations, other financial institutions, banks and insurance corporations, respectively. On the investors side, the rest of the world is the largest investor (€3.8 trillion). Among euro area sectors, banks, investment funds, households and other financial institutions each held more than €1 trillion of listed shares.

Banks are the key players in repo markets, where financial instruments are exchanged for cash. Repo markets can be used to obtain liquidity over a short-term horizon by pledging financial instruments as collateral. Government bonds are massively used for that purpose (91% of the total), with corporate bonds and equities playing minor roles (6% and 3%, respectively).[16] Looking at both sides of the markets – those receiving cash and providing collateral and those providing cash and receiving collateral – we can observe that insurance corporations have matching exposures of €0.1 trillion on both sides. Banks are the biggest players in the market and are also fairly evenly balanced: they hold €8.1 trillion as receivers of cash and €9.1 trillion as providers of cash. Looking at other sectors, pension funds, MMFs and investment funds have a net position as providers of cash while the rest of the world and other financial institutions have a net position as receivers of cash.

Based on initial margins, pension funds and the rest of the world show the largest imbalance in their positions in derivative markets, signalling that they are taking significant risk.[17] Initial margins rather than notional amounts are used to approximate the exposure of sectors to derivative markets, as notional amounts are not based on real exchanges of money between the counterparties. Amid the financial turmoil that followed the outbreak of the COVID-19 pandemic in

16 See Committee on the Global Financial System (2017) and European Securities and Markets Authority (2024).

17 In terms of derivative classes, interest rate swaps remain the main one (European Securities and Markets Authority, 2023).

spring of 2020, Patel and Spence (2022) discussed how using notional amounts is less meaningful than market values.[18] Using initial margins implies that currency forwards, which represent around 14% of derivatives trading in the EU and do not require margin payments, are excluded from the scope of our analysis.[19] Looking at the margins paid and received by the different sectors, banks show the largest volumes(€374 billion and €549 billion, respectively), while insurance corporations and the rest of the world also have sizeable initial margins in excess of € 100 billion. The difference between the margins paid and received can be seen as an approximation of the risk taken in those markets. In this regard, pension funds, insurance corporations, investment funds, non-financial corporations and the rest of the world show large imbalances and could be the sectors most severely affected in the event of changes in the overall risk environment. Other financial institutions also report imbalanced positions, albeit of a much smaller size.[20]

Turning to markets in the rest of the world, euro area investors represent around 6% of the total market. Starting with listed share markets, euro area investors account for €4.7 trillion, with an estimated market size of €101.6 trillion.[21] Investment funds are the main investors (79%), with smaller exposures among households, insurance corporations, banks, other financial institutions and non-financial corporations. In non-euro area bond markets (which include government and corporate debt), euro area investors have a position of €6.4 trillion out of an estimated total market size of €92.8 trillion. Investment funds are also among the largest investors (44% of the total), with the central bank, banks, insurance corporations, MMFs and pension funds also holding significant positions (23%, 11%, 9%, 8% and 5%, respectively). These numbers include holdings of US Treasuries, which are considered the world's main safe haven asset.[22] According to data from the US Treasury, euro area countries held around $1.3 trillion in US Treasury securities at the end of October 2023.[23]

Some of the exposures to markets in the rest of the world are large in relation to the size of the sector. MMFs have 35% of their balance sheet invested in non-euro area bond markets, while pension funds have 10% of their assets invested in the same markets. The position of investment funds in non-euro area bond and equity markets represents 17% and 22% of their total balance sheet. Notably, these positions are larger than their exposures to euro area bonds and equity markets, suggesting that investment funds are used by euro area investors to gain exposures to the rest of the world.

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18 See also European Systemic Risk Board (2023b).

19 According to European Securities and Markets Authority (2023), currency derivatives represented around 14% of the total EU derivatives markets at the end of 2022, and currency forwards represented, in turn, 72% of the notional amounts of currency derivatives.

20 A significant portion of derivatives is cleared through CCPs, which are not separately disclosed in the European System of Accounts (see Section 2.2). As a result, the exposure of each sector to banks and other financial institutions may also reflect exposures to CCPs. In the aggregate, though, exposures to CCPs seem to be limited. According to European Securities and Markets Authority (2023), which uses a different classification by sectors, CCPs represented 6.5% of total exposures in terms of notional amounts during 2022.

21 Data on the size of the bond and equity markets from the rest of the world are taken from SIFMA (2022), referring to the end of 2021. Amounts are reported in euro using the exchange rate on 31 December 2021.

22 However, the data we are using do not allow us to obtain a direct estimation of holdings of US Treasuries among euro area sectors.

23 See **https://ticdata.treasury.gov/resource-center/data-chart-center/tic/Documents/slt_table5.html**.

3.3 Largest financial items

Investment fund shares are the largest financial item on the euro area balance sheet, with banks also holding large items on both sides of their balance sheet. Table 1 below shows the largest financial items, excluding residual categories (i.e. other assets and other liabilities) and unlisted shares,[24] across the euro area financial system, as of Q2-2023.[25] Investment fund shares amounted up to €15.3 trillion in Q2-2023, followed by government bonds issued by euro area governments, which exceeded €10 trillion, and bank deposits from households, which were slightly above €9 trillion. Other large items include those relating to links between banks and the real economy (households and non-financial corporations) as well as bank deposits held at the central bank. The rest of the world is present through holdings of debt securities and listed shares issued outside the euro area.

Table 1

Largest financial items, Q2-2023

Sector	Item	Asset/Liability	Counterparty	Amount
Investment funds	Investment fund shares	Liability		€15,292 bn
Government	Government bonds	Liability		€10,549 bn
Banks	Deposits	Liability	Households	€9,099 bn
Non-financial corporations	Listed shares	Liability		€7,530 bn
Banks	Deposits	Asset	Banks	€6,982 bn
Central banks	Deposits	Liability	Banks	€6,876 bn
Banks	Loans	Asset	Households	€6,654 bn
Rest of the world	Debt securities	Liability		€6,187 bn
Insurance corporations	Technical provisions	Liability		€5,934 bn
Rest of the world	Listed shares	Liability		€5,037 bn
Banks	Loans	Asset	Non-financial corporations	€4,683 bn

Source: Own elaboration, based on European Central Bank data.

The course these items have taken since 2003 provides interesting insights into the transformation of the euro area financial system. First, given that our time series spans over 20 years, the reported amounts are deflated using the GDP deflator for the euro area.[26] At the start of our sample, 2003, government bonds and interbank deposits were the largest items (Figure 14). They followed a similar trend until the global financial crisis, when interbank deposits decreased

[24] Unlisted shares as liabilities of non-financial corporations mainly comprise those shares not listed in a financial market as well as intragroup ownership relationships within the corporate sector and with captive financial institutions classified as other financial institutions. Not having a breakdown of these categories that goes sufficiently back in time, we have opted for excluding unlisted shares from this analysis.

[25] The largest non-financial item is the net worth of households, at €64 trillion, followed by real estate assets of households at €41 trillion.

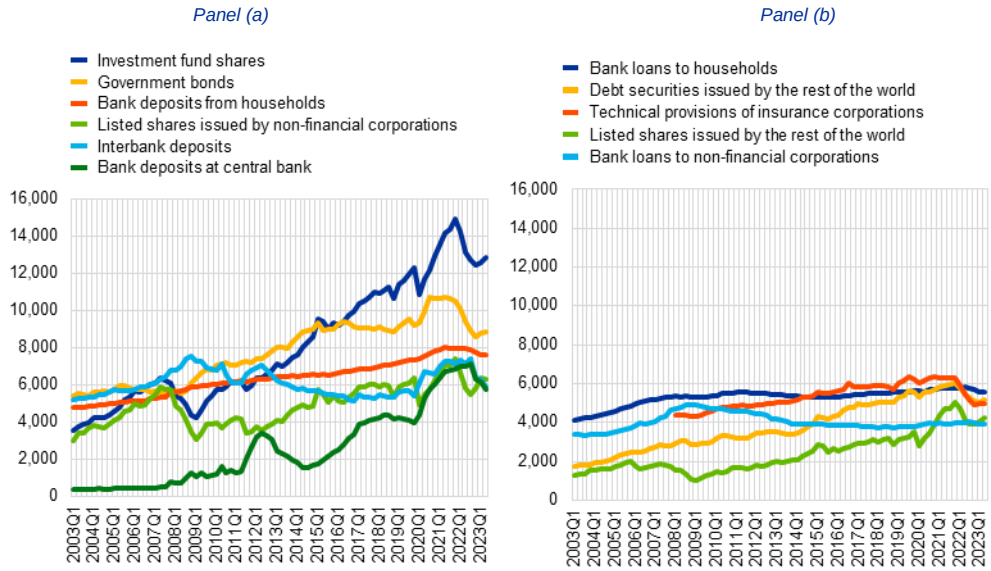
[26] See **https://fred.stlouisfed.org/series/NAGIGP01EZQ661S**.

and government bonds continued to climb. From 2015 onward, investment funds shares are the largest item, having risen sharply since the global financial crisis.[27] Some of these items (such as listed shares issued by non-financial corporations) depict a pattern of growth interrupted by the global financial crisis and the change in monetary policy stance in 2022, while others have remained mostly flat or trended downwards since the global financial crisis (for example, bank loans to households). It is also worth noting the sharp increase in bank deposits held at the central bank since 2012.

Figure 14

Largest balance sheet items of a financial nature on the map of the euro area

(EUR billion)



Source: Own elaboration, based on European Central Bank data.
Notes: Amounts are deflated using the GDP deflator for the euro area. The deflator for Q1-2023 has also been used for Q2-2023, as the Q2 deflator was not published at the time of writing this occasional paper.

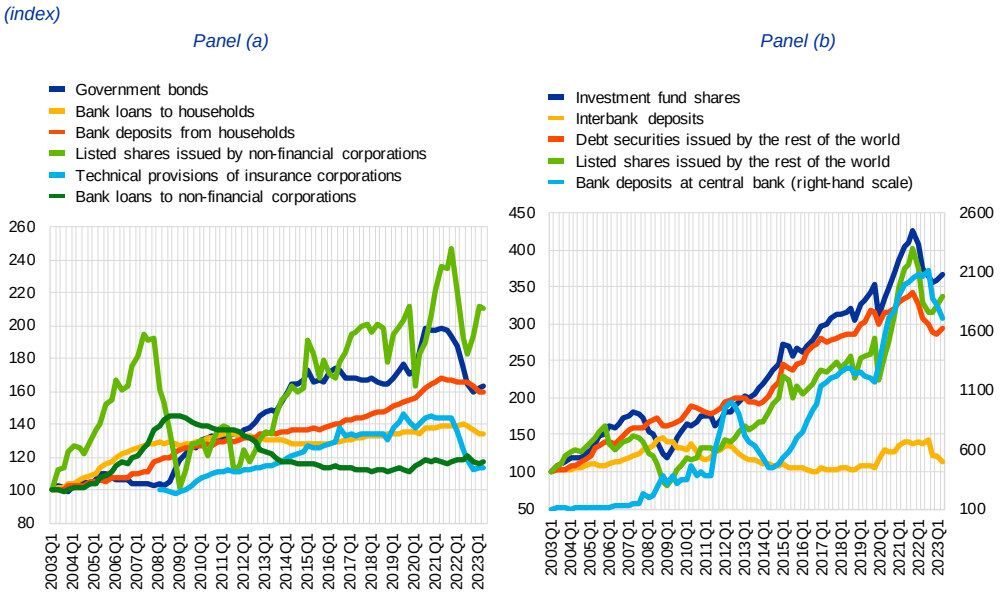
Furthermore, the balance sheet items related to exposures between the financial system and the real economy have not grown substantially over the last years. Panel (a) of Figure 15 shows the trend in the time series of the items most closely related to activities in the private real economy (indexed to 100 for the first observation), while Panel (b) shows the other time series, which largely relate to the financial sector, the rest of the world and government debt. The contrast is clear: none of the series in Panel (a) has doubled in size since 2003. Technical provisions of insurance corporations and bank loans to non-financial corporations show particularly weak dynamics over the period. Box 1 further below takes a closer look at the potential substitution of bank lending to households and non-financial corporations by other sectors. Meanwhile, Panel (b) displays three- or four-fold increases for investment fund shares and debt securities and listed shares issued by the rest of the world and held by euro area economic agents. This suggests an

[27] Starting with data for Q4-2023, the euro area financial accounts include a look-through of the exposures of households to financial assets via investment funds (European Central Bank, 2024). This would be a promising avenue for future development of the map.

increased exposure of the euro area to the rest of the world as well as a decisive role of investment funds in channelling savings into investments. A comparison in the dynamics of interbank deposits and central bank deposits reveals an increased use of central bank facilities.

Figure 15

Largest financial balance sheet items in the map of the euro area, index



Source: Own elaboration, based on European Central Bank data..
Notes: 2003-Q1=100, except for technical provisions of insurance corporations, where 2008-Q1=100. Indexes based on deflated amounts.

Box 1
The provision of credit to households and non-financial corporations

The map of the euro area financial system can be used to assess whether bank loans to households and non-financial corporations have, at the margin, been replaced by loans from other sectors. Among others, Beck et al. (2023) report a diminishing role played by bank loans in the provision of credit to non-financial corporations, as well as an increase in the share of loans to households in the portfolios of European banks. Using the available breakdowns in the quarterly sectoral accounts, we can track the evolution of loans on the liability side of the balance sheet of households and non-financial corporations.

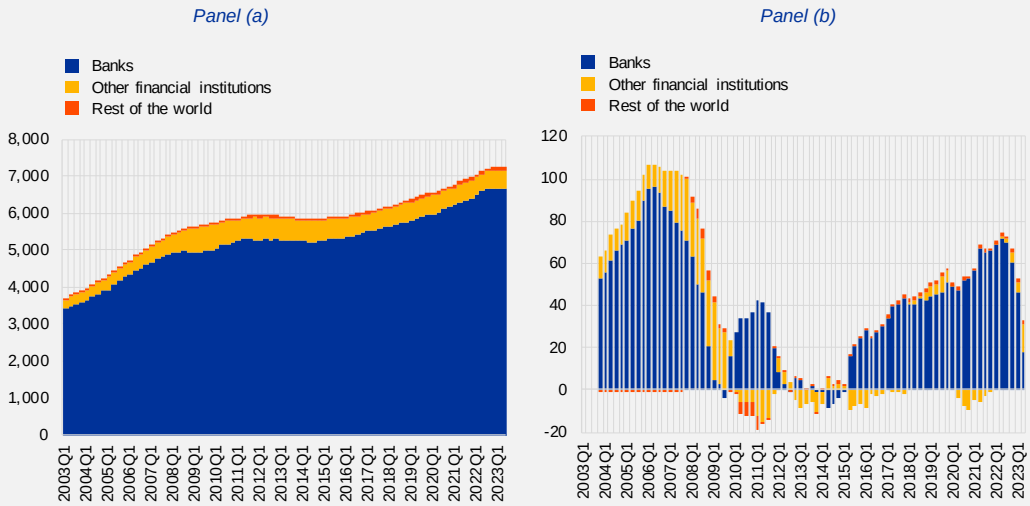
Banks dominate the provision of credit to households (Figure A). Looking at outstanding amounts at the end of the period (i.e. stocks), bank loans to households represent more than 90% of total household loans since 2003, with only minor changes. Loans from other financial institutions or from the rest of the world are marginal in the aggregate. However, financial transactions involving loans from other financial institutions were relatively large in the years leading up to the global financial crisis (up to €40 billion) and were still present in 2008 and 2009, when bank lending to households remained frozen. Since then, financial transactions involving loans originated by

other financial institutions or the rest of the world have remained relatively small when compared with those originated by banks.

Figure A

Loans on the liability side of the balance sheet of euro area households, outstanding amounts (Panel (a)) and financial transactions (Panel (b))

(EUR billion)



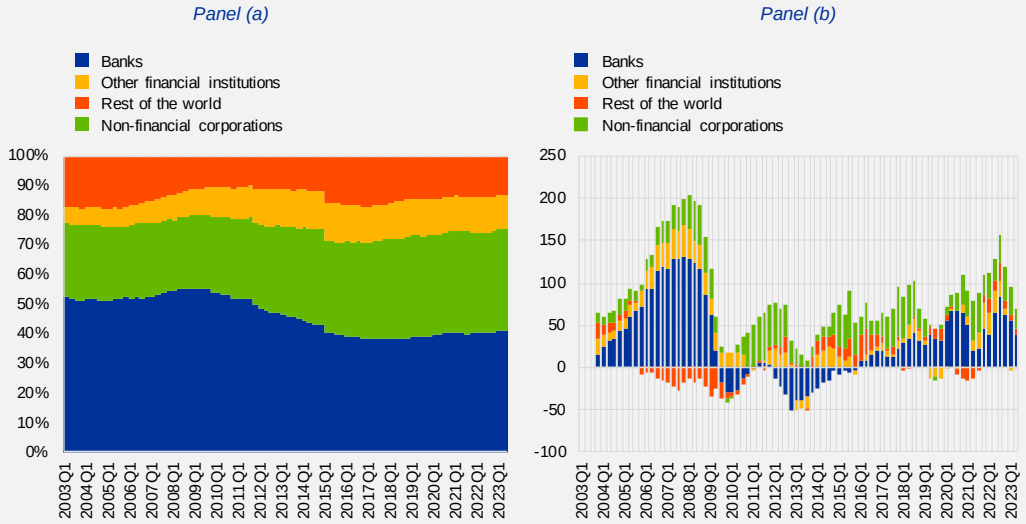
Source: Own elaboration, based on European Central Bank data.
Notes: Panel (a) shows data that is not deflated. Panel (b) shows the four-period moving average of financial loan transactions to households.

The importance of the banking sector in the provision of loans to non-financial corporations has declined since the global financial crisis (Figure B). Loans originated by euro area banks represented approximately 50% of the total loans granted to non-financial corporations until 2009-2010, with intra-sectoral loans representing an additional 30%. Loans from other financial institutions were marginal, with the rest of the world accounting for around 15% of the total. However, this picture changed in the wake of the global financial crisis, with bank loans representing around 40% of total loans to non-financial corporations and intra-sectoral loans around 35%. The relative importance of loans from the rest of the world has remained stable around 15%, with loans from other financial corporations now accounting for 10% of the total loans to non-financial corporations. If we look at financial transactions (Panel (b) of Figure B), those involving intra-sectoral loans have remained relatively stable since 2003, even during the global financial crisis. Conversely, financial transactions involving bank loans were negative between 2010 and 2015, recovering afterwards (although still a far cry from the amounts observed in 2006, 2007 or 2008). Interestingly, lending from the rest of the world fell off in the years prior to the global financial crisis, while bank lending was peaking. In general, financial transactions involving loans from other financial institutions and the rest of the world have remained relatively constrained since 2015.

Figure B

Loans on the liability side of the balance sheet of euro area non-financial corporations, share of total loans to non-financial corporations (Panel (a)) and financial transactions (Panel (b))

(Panel (a): %; Panel (b): EUR billion)



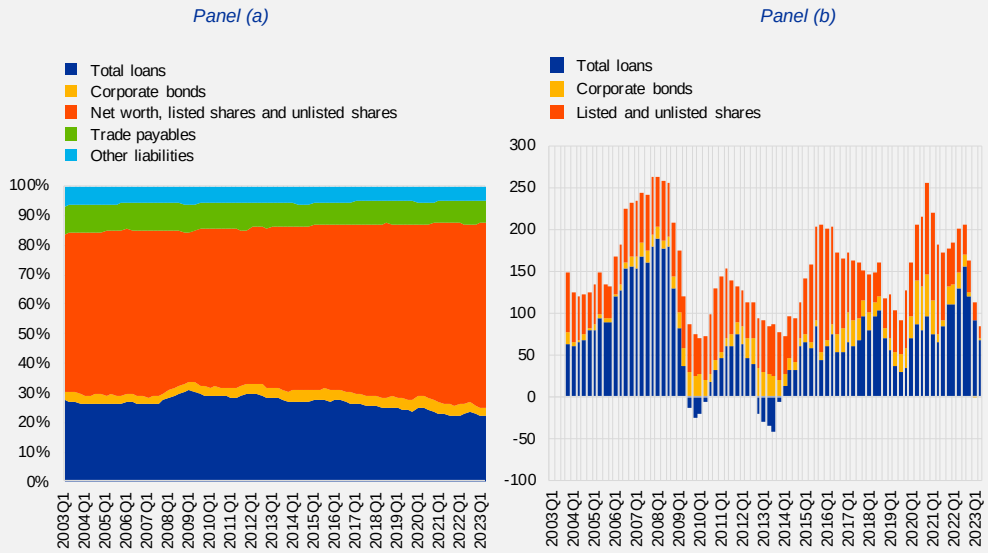
Source: Own elaboration, based on European Central Bank data.
Note: Panel (b) shows the four-period moving average of financial transactions involving loans to non-financial corporations.

In the aggregate, euro area non-financial corporations have been steadily becoming less reliant on loans, with corporate bonds remaining only a minor source of funding. As shown in Panel (a) of Figure C, the relative importance of loans in the balance sheet of non-financial corporations has been slowly yet continuously decreasing since the global financial crisis, at the expense of higher own funds (listed shares, unlisted shares and net worth). As items in the quarterly sectoral accounts are valued at market prices, this could simply reflect favourable market dynamics for non-financial corporations. Looking at financial transactions in Panel (b) of Figure C, being thus not affected by market prices, we obtain a similar picture. Financial transactions involving corporate bonds remain relatively small, with listed and unlisted shares increasing substantially since the global financial crisis, taking over from loans, where the trend was more static.

Figure C

Main liabilities in the balance sheet of euro area non-financial corporations, share of total assets (Panel (a)) and financial transactions (Panel (b))

(Panel (a): %; Panel (b): EUR billion)



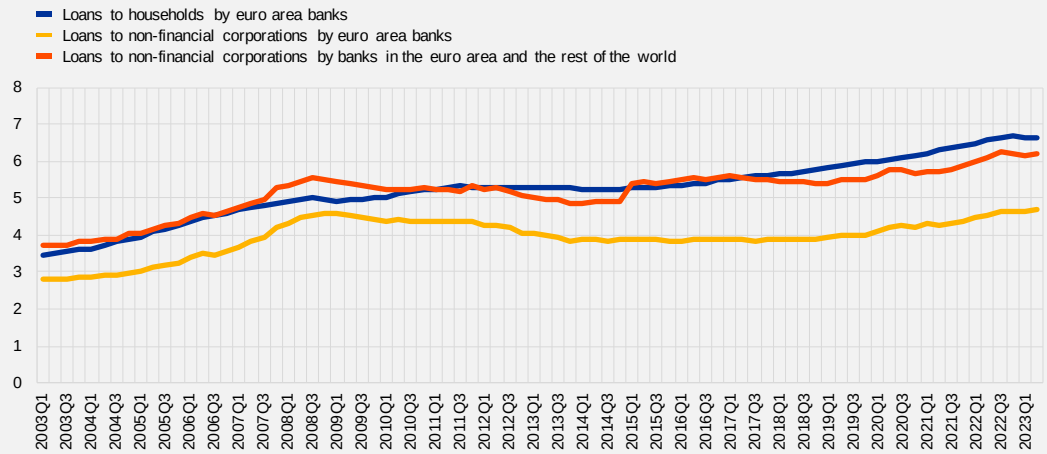
Source: Own elaboration, based on European Central Bank data.
Note: Panel (b) shows the four-period moving average of financial transactions involving loans to non-financial corporations.

These findings confirm the smaller role played by banks in the provision of credit to non-financial corporations, although a fully-fledged analysis would be required to holistically assess the potential substitution of credit. In line with Beck et al. (2023), we find that euro area banks play a diminishing role in the provision of credit to non-financial corporations, while lending to households remains dominated by banks. Figure D shows how the gap between euro area bank loans to households and non-financial corporations almost disappeared during the global financial crisis and has increased substantially afterwards. In the red line, we also consider loans granted to euro area non-financial corporations by banks in the rest of the world, an alternative not available to euro area households. Figure D, while showing aggregated information, tends to support the structural shift in the provision of credit by euro area banks in Beck et al. (2023), with a stronger role played by households (mortgages and consumer finance). This analysis could be deepened to understand the potential substitution of loans to non-financial corporations by euro area banks. We could also look more closely at the role of equity and debt securities, of other non-financial corporations and of other financial institutions (particularly, captive financial institutions) as funding sources of euro area non-financial corporations. This box has offered some initial insights, which would probably require more granular data (at least, with a breakdown by size of non-financial corporations) moving forward.

Figure D

Loans to euro area households and non-financial corporations

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Note: Non-deflated amounts.

Most of the largest financial items in the euro area relate to liabilities, which must be carefully assessed in any financial stability assessment. Returning to Table 1 above, it is possible to find items that constitute the main funding source for an entire sector. Investment fund shares and government bonds are the most obvious examples, although technical provisions are the main liability of insurance corporations, listed shares are the main liability of non-financial corporations and household deposits are the main liability of banks. This may suggest that, while financial institutions can diversify their assets to some extent, concentration on the liability side of their balance sheet is larger, making them vulnerable through this channel.

3.4 Liquidity in the euro area financial system

The materialisation of liquidity risk can raise systemic risk concerns. It is easier to recognise liquidity than to define it (Crockett, 2008). Liquidity can be defined as the ease with which an asset, or security, can be converted into ready cash without affecting its market price (i.e. how easy it is to liquidate an investment). Liquid assets would be those with little credit risk that can be immediately turned into cash, with low liquidation cost (Ahnert and Macchiavelli, 2022).[28] In times of uncertainty and/or volatility, liquidity tends to evaporate as it is harder to find willing counterparties to trade a given financial asset (Buiter et al., 2023).[29] More broadly, there seem to be two necessary conditions for liquidity: (i) a market with a sufficient number of buyers and sellers, and (ii) trust

[28] Without aiming to be exhaustive, other definitions of liquidity and/or liquid assets can be found in Lybek and Sarr (2002), Allen and Bolton (2004), Banque de France (2008), Carney (2008) and Nikolau (2009).

[29] In terms of institutions, market-makers should always be willing to trade, but following the global financial crisis, this task has moved away from banks to non-banks (Adrian et al., 2017), which usually turn into liquidity absorbers (rather than providers) in stress periods (Malceniece et al., 2019).

between counterparties and on the price information embedded in prices. Liquidity risks can be considered by looking at financial markets where liquid financial instruments are traded and by looking at how institutions manage their liquidity needs ("balance sheet liquidity"). Following Banque de France (2008) and Carney (2008), two related concepts are market liquidity and funding liquidity. Market liquidity refers to how readily a financial asset can be bought or sold without causing a significant movement in its price, and funding liquidity refers to the ability to raise funds in money markets at reasonable premia.[30] Institutions typically keep a share of liquid assets in their balance sheet to (i) be able to cover maturing (short-term) liabilities and (ii) have a buffer when the unexpected occurs. Conceptually, liquidity can raise systemic risk concerns when a sufficiently large number of institutions have insufficient liquid assets to meet their short-term liabilities (some of which may have emerged as a result of an unexpected event) and need to sell other assets (at a loss) or ask for central bank support not to default on their obligations. Or, as described by Allen and Bolton (2004), crises can occur because the supply of liquidity is low, which, in turn, can lead to low asset prices, which can cause economic agents to go bankrupt, which, in turn, can lead to more assets being liquidated.[31] The "dash-for-cash" in March 2020 provides a recent example of liquidity creating concerns at the level of the system, with non-banks and margin calls from derivative contracts playing an important role.[32]

Looking at our map, bank deposits, repo markets, listed equity, MMF shares and investment fund shares are important when assessing liquidity risk in the financial system. Cash, as issued by the central bank, is the most liquid asset in the financial system. Moreover, certain financial instruments are considered liquid assets because they can be easily converted into cash (even at a small loss): bank (overnight) deposits, listed equity, MMF shares and investment fund shares. Leaving aside bank (overnight) deposits (which are already considered private money), holders of other financial instruments may have to rely on their holdings for liquidity management purposes, not for pure investment purposes, and they can be expected to sell these assets at short notice should they encounter any liquidity pressures. The main point here would be how deep the underlying markets (i.e. listed equity markets, and the assets in which MMFs and investment funds invest) are. Distinguishing the holdings of listed equity, MMF shares and investment fund shares for pure investment purposes goes well beyond the scope of this analysis. Lastly, economic agents in possession of debt securities – mainly government bonds – can go to repo markets and post them as collateral in exchange for cash. From this standpoint, government bonds are a channel through which economic agents can obtain liquidity.

The following paragraphs describe the main liquid assets present in the euro area financial system, relating each of them to potential sources of illiquidity and, ultimately, systemic crises. Complementing the descriptions of our map already provided in terms of sectors (Section 3.1), financial markets (Section 3.2) and the largest financial items (Section 3.3), now we look at the map of the euro area financial system in terms of the financial instruments most closely related to liquidity. The following paragraphs focus on bank deposits, listed shares, MMF shares, investment fund shares, and repo markets, considering also how margin calls are able to create liquidity

30 See also Lybek and Sarr (2002) and Nikolau (2009).

31 The concepts of liquidity and solvency are closely interrelated, with a large body of academic literature having addressed this subject (see, for example, Rochet and Vives, 2004; Bernanke, 2013; Pierret, 2015; Ceccheti and Kashyap, 2018; and Schmitz et al., 2019).

32 For a detailed description of this episode, see Financial Stability Board (2020).

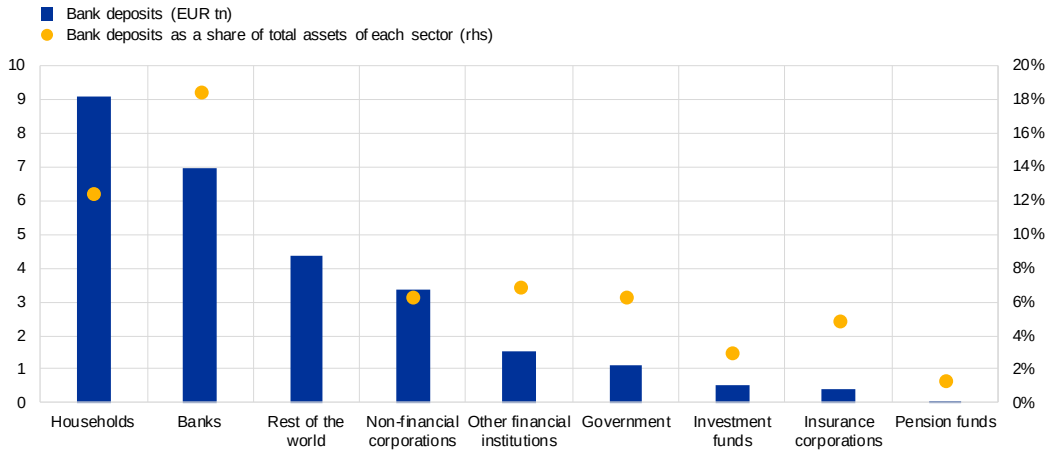
tensions across the system. We discuss how each financial instrument would behave in times of stress, potentially leading to systemic crises, and offer recent examples of tensions in that area.

Given the extensive use of bank deposits as a liquid asset, large outflows of bank deposits to meet liquidity needs of other sectors can threaten the solvency of a bank. Every single sector in the economy holds a significant amount of bank deposits, which they consider as equivalent to cash (Figure 16). Household deposits amount to €9 trillion, with interbank deposits slightly above €7 trillion and deposits from the rest of the world exceeding €4 trillion. Bank deposits represent more than 10% of the assets of each sector for households and for banks. Looking at bank deposits from the perspective of a bank, they need to have liquid assets themselves in order to cope with deposit outflows in normal times. When deposit outflows reach a certain size (i.e. in the event of a bank run), banks may need to rely on the repo markets to raise liquidity or to sell assets, with the central bank as a last resort. The banking turmoil that unfolded in the United States in March 2023 provides a recent example of how deposit runs can call into question the solvency of banks, even if their capital ratios are well beyond the minimum capital requirements.[33] Banking regulation, particularly after the global financial crisis, targets deposit outflows from different angles, through liquidity requirements, the existence of deposit guarantee schemes or the consideration of interest rate risk in the banking book.

Figure 16

Bank deposits across sectors

(EUR trillion and %)



Source: Own elaboration, based on European Central Bank data.
Notes: Deposits with banks also include intragroup deposits. There is no data on the total size of the balance sheet of the rest of the world.

Investors in euro area listed equity markets are quite diversified, and individually they may not be capable of moving prices. Listed equity markets do not seem to have a dominant domestic investor capable of triggering large movements in the price of the underlying assets

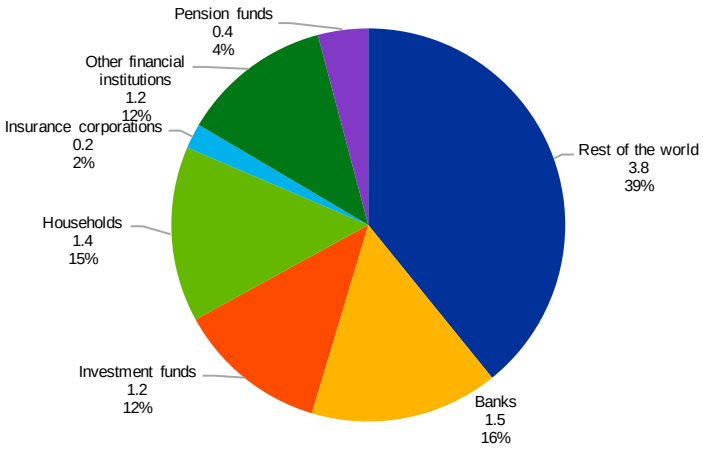
[33] For a more formal discussion on the interaction between bank solvency and liquidity, see, among others, Diamond and Rajan (2005).

(Figure 17). Banks are the largest euro area investors, with €1.5 trillion, followed by households (€1.4 trillion), investment funds (€1.2 trillion) and other financial corporations (€1.2 trillion). Only the rest of the world, with a position of €3.8 trillion, could be large enough to influence asset prices through its buying/selling decisions. However, within the rest of the world, there is considerable heterogeneity, so it seems unlikely that all investors would decide to buy/sell at the same time. However, listed equity markets are not immune to price fluctuations, so investors seeking to sell their assets to meet demand for liquidity may do so at a loss, particularly in the presence of fire sales.

Figure 17

Investors in euro area listed equity markets, Q2-2023

(EUR trillion and %)



Source: Own elaboration, based on European Central Bank data.

MMFs and investment funds may incur liquidity risk if they invest in illiquid assets and need to sell them to meet redemption requests from investors. MMF shares and investment fund shares may be seen by certain types of investors as being liquid assets, which they can therefore sell off rapidly should they encounter any liquidity demands. To meet these demands, MMFs and investment funds can use their cash reserves or pledge collateral in the repo markets to obtain cash. Only when they have exhausted these sources of liquidity may they resort to selling the underlying assets, some of which may not be liquid and may take time to sell (or may have to be sold at a loss). Alternatively, they may choose to incur new liabilities (usually in the form of short-term loans). In the case of MMFs, the short maturity of their assets may mitigate these liquidity tensions in most situations, though not always, as was observed during the global financial crisis or the events that unfolded in March 2020.[34] Ghio et al. (2023) find that MMF outflows could be linked to the margin calls received by non-bank financial intermediaries in 2020. Investment funds also tend to hold shares of other investment funds as cash equivalents, which could cause spillover effects during an episode of market stress. Looking at the types of investment funds, real estate funds and bond funds would be those investing in the less liquid assets, representing 7% and 23%

[34] See European Systemic Risk Board (2021).

of the total sector in the euro area, respectively. Unsurprisingly, these two types of investment funds have been the subject of recent policy work by the ESRB (European Systemic Risk Board, 2023a).

Turning to potential triggers of episodes of illiquidity, margin calls made as a result of exposures in derivatives may trigger liquidity tensions, with less financially sophisticated investors being particularly vulnerable.[35] In derivative markets, margin calls are made when the price of a derivative moves beyond a certain threshold, requiring the counterparty on the losing side of the contract to bring liquid assets to the clearing house (i.e. the CCP). These margin calls can be rather large during periods of financial stress, as observed during the global financial crisis and following the outbreak of the COVID-19 pandemic or the onset of Russia's invasion of Ukraine.[36] If they affect less sophisticated investors without access to central bank facilities and with large net positions (long positions minus short positions), they may not be able to gather the necessary liquid assets to respond to the margin calls, potentially triggering a larger crisis. In the euro area economy, pension funds and the rest of the world have large net positions, mainly on interest rate swaps. Looking specifically at pension funds, only a few of them based in the Netherlands are active in derivative markets and they are rather sophisticated in their management of liquidity. They smoothly navigated margin calls exceeding €80 billion in the early months of 2022 (DNB, 2022). Box 2 takes a closer look at movements in financial assets of non-financial corporations and pension funds that could be associated with margin calls from derivative positions. As regards the rest of the world, the main risk would be a closing of positions, meaning that euro area market participants would not be able to find a counterparty in these markets and might be unable to hedge some of their risks.

Box 2
Margin calls affecting non-financial corporations and pension funds

Russia's invasion of Ukraine triggered acute tensions in energy derivative markets and large margin calls soon reached market participants. Given the prominent role played by Russia in the supply of energy to the EU, the onset of its invasion of Ukraine and the subsequent sanctions imposed on the Russian economy led to increased activity and instability in the energy derivative markets. Margin calls were made in response to the ensuing price fluctuations, which were significant, and market participants had to deliver added liquidity to CCPs. As shown in Panel (a) of Figure E, this situation affected a group of non-financial corporations for which trading in derivative markets was not their core activity.

The turn in the monetary policy stance also generated losses among some participants in interest rate swaps, affecting mainly pension funds. After a long period of low interest rates, central banks in advanced economies changed their monetary policy stance in the first half of 2022 and began to hike interest rates. This movement affected the market value of interest rate swaps, with some institutions (predominantly pension funds) being subject to large margin calls to cover their riskier position. This can be seen in Panel (b) of Figure E.

35 In addition to margin calls on existing derivative contracts, initial margins for new contracts are expected to increase as well during times of financial stress, thus increasing the price of hedging risks in general.

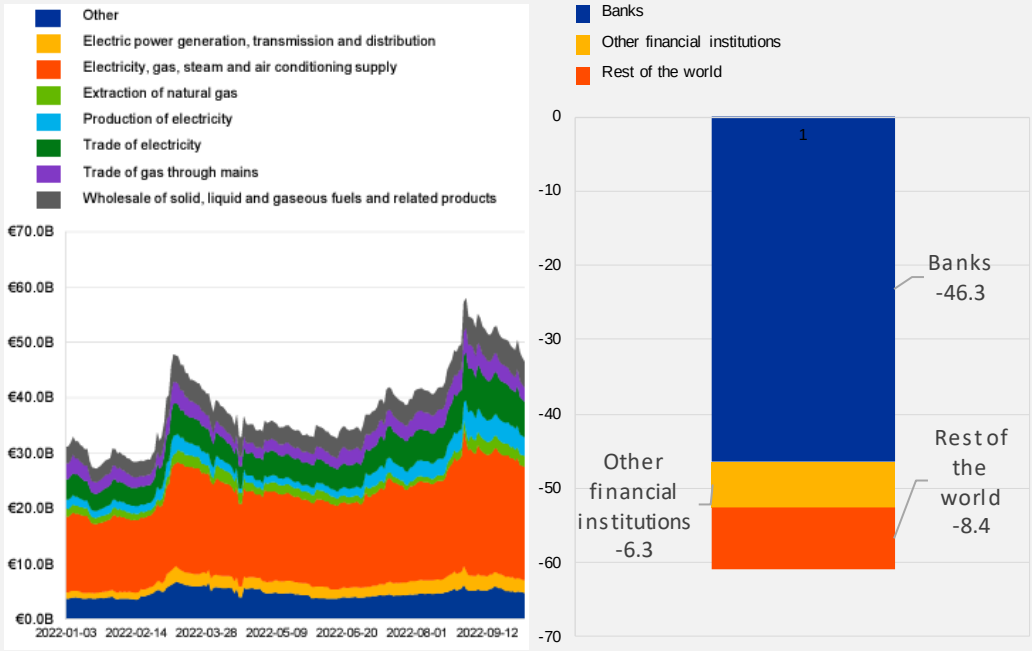
36 On margin calls during the outbreak of the COVID-19 pandemic, see European Systemic Risk Board (2020).

Figure E

Net initial margin paid by EU non-financial corporations for energy and commodity derivatives by NACE code (Panel (a)) and net value changes of interest rate swaps held by pension funds (Panel (b))

(EUR billion)

Panel (a) *Panel (b)*



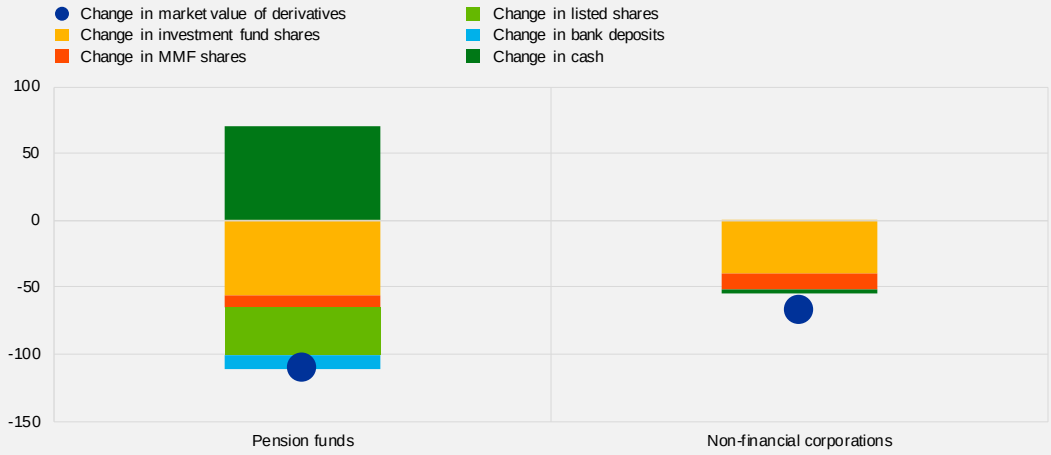
Sources: ESRB response to ESMA's Final Report on Emergency measures on collateral requirements, including draft Regulatory Technical Standards amending Commission Delegated Regulation (RTS) 153/2013 (Panel (a)), and EMIR and ESRB Secretariat calculations (Panel (b)).
Notes: The last observation for energy and commodity derivatives is 4 October 2022. Panel (b) shows the net aggregate valuation changes between May 2022 (pre rate hike) and May 2023 of positions held by EU pension funds in interest rate swaps.

To respond to these large margin calls, pension funds had to sell off some of their most liquid assets (Figure F). According to the data shown on our map of the financial system, the market value of derivatives held by pension funds fell by €111 billion between the last quarter of 2021 and the second quarter of 2022. This change in market value can be seen as a proxy for the margin calls that pension funds received over the same period. In the same period and probably as a response to these margin calls, holdings of MMF shares dropped by €9 billion (20% of the outstanding amount at the end of 2021). Meanwhile, financial transactions with investment fund shares and listed shares reached -€58 billion and -€35 billion, respectively, in the first two quarters of 2022. Bank deposits also decreased by €11 billion EUR (17% of the outstanding amount at the end of 2021), while cash almost doubled, from €76 billion to €148 billion, probably as a reserve against further margin calls.

Figure F

Changes in market value of derivative and selected liquid items in the balance sheet of pension funds and non-financial corporations between Q4-2021 and Q2-2022

(EUR billion)



Source: Own elaboration.
Notes: Changes in derivatives, MMF shares, bank deposits and cash reflect the difference between outstanding amounts at Q2-2022 and Q4-2021. Changes in investment fund shares and listed shares (only for pension funds) are computed from financial transactions over the same period.

Similar dynamics can be observed for non-financial corporations, likely in response to stress in energy derivative markets (Figure F). Between the last quarter of 2021 and the second quarter of 2022, the market value of derivatives in the balance sheet of non-financial corporations fell by €67 billion.[37] Over the same period, investment fund shares held by non-financial corporations decreased by €40 billion and MMF shares by €12 billion. As non-financial corporations have a much larger balance sheet than pension funds, it is not possible to observe variations in other items that could be linked to the response to the additional margin calls being received by non-financial corporations operating in energy derivative markets.

Stress in government bond markets can spread to repo markets, which play a key role in providing liquidity to the euro area. Government bonds are the main financial asset pledged as collateral in repo markets (not only euro area, but also US Treasuries), representing more than 90% of the total assets in this market. Adverse developments in global government bond markets may also affect repo markets, for example, by lowering the value of the assets used as collateral (thus requiring more of them to get the same amount of cash), or by generating mistrust, which then leads to a retrenchment of those sectors that provide cash in repo markets (rest of the world, MMFs). In these circumstances, those sectors that rely on repo markets to raise cash (banks, insurance corporations and investment funds) may find themselves in a difficult situation during a period of financial stress. For example, Hüser et al. (2023) document different behaviours among non-bank financial institutions in repo markets during the outbreak of the COVID-19 pandemic.

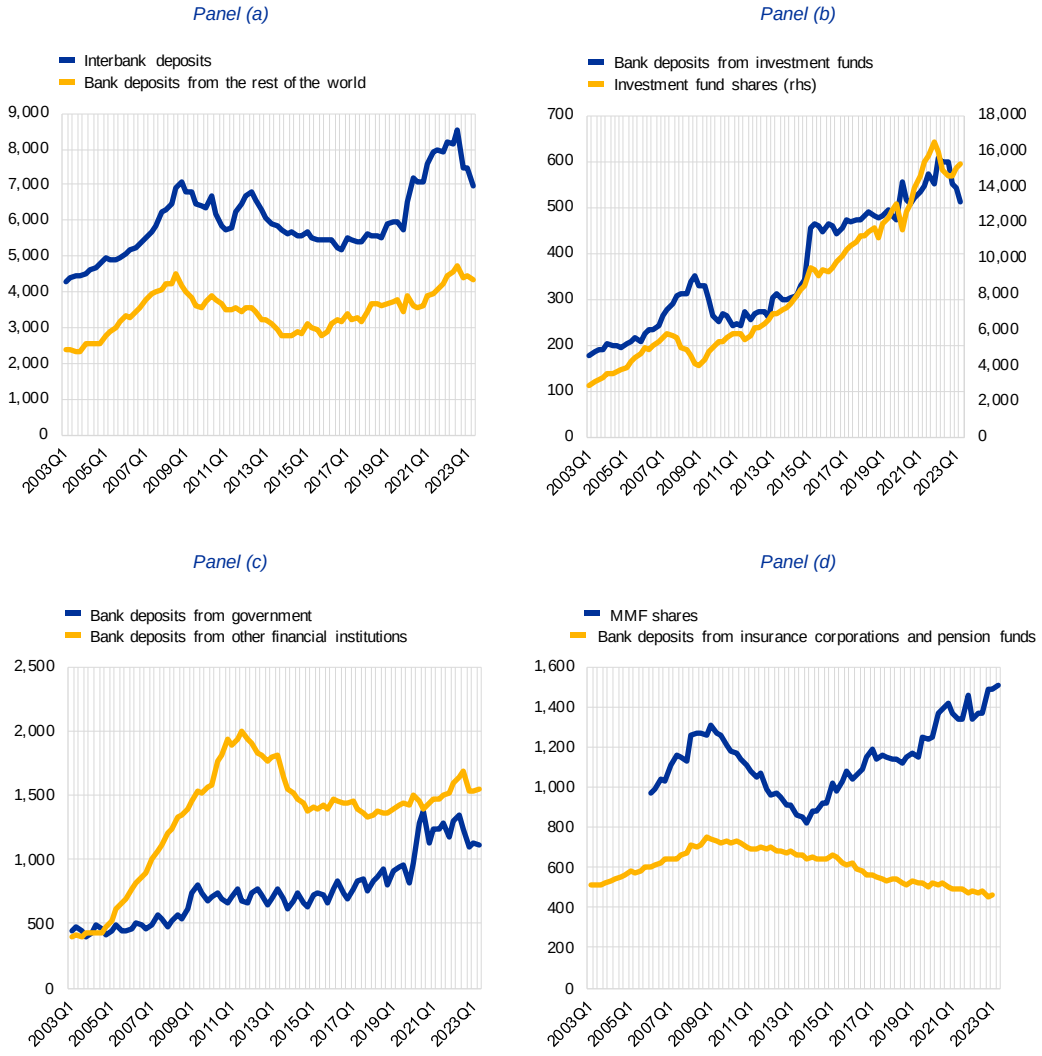
[37] Our map does not disclose information on the derivatives held by non-financial corporations. Instead, this information has been taken from the euro area accounts published by the ECB.

The trend in bank deposits, MMF shares and investment fund shares since 2023 provides some interesting insights. Figure 18 shows the outstanding amounts of bank deposits at the end of each quarter, broken down by sector. Panel (a) shows a diverging trend in interbank deposits (with a continuous increase, interrupted only by gentle declines during periods of stress) and in deposits from the rest of the world (where the pace of increase has been more modest). The behaviour we can observe in deposits from the rest of the world is consistent with the retrenchment of EU banks from global markets (see, among others, Emter et al., 2018; Argimón et al., 2020). Panel (b) looks at two items related to investment funds: bank deposits of investment funds and investment fund shares. While they are of different sizes, the time series mirror each other closely. The Panel (c) shows the trend in bank deposits by governments and other financial institutions. Panel (d) displays bank deposits from insurance corporations and pension funds. The notable decline here is likely indicative of different practices used by insurance corporations and pension funds when managing their liquidity. Panel (d) also depicts MMF shares, which declined significantly following the global financial crisis and have recovered since 2014.

Figure 18

Trend in bank deposits, MMF shares and investment fund shares since 2003

(EUR billion)



Source: Own elaboration, based on European Central Bank data.

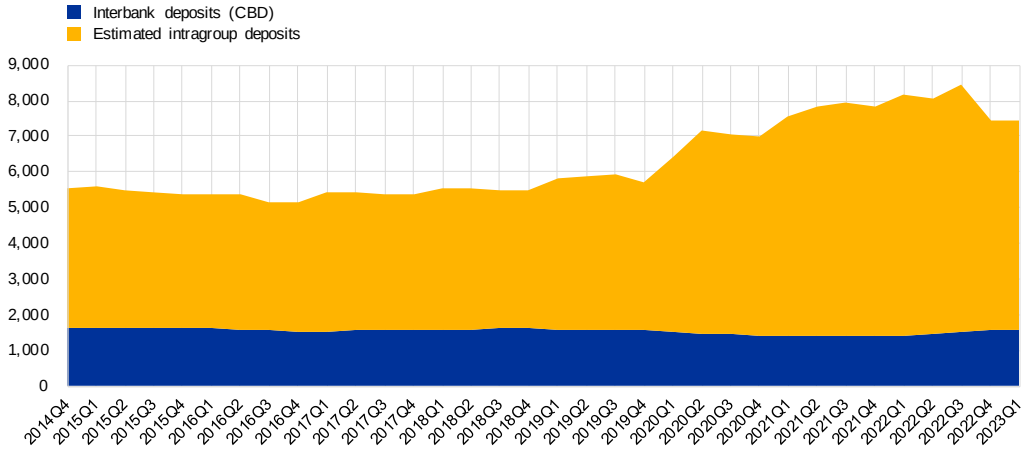
The increase in interbank deposits seems to have been mainly caused by intragroup deposits, suggesting an increased interconnectedness among entities belonging to the same banking group. The data we use in our map are unconsolidated, meaning that the data also reflect transactions between institutions belonging to the same group. As a result, interbank deposits include those between different banks as well as those between banks belonging to the same group (i.e. intragroup deposits). We use the Consolidated Banking Data of the ECB, which offers data on a consolidated basis for banks in the EU based on their financial statements to

gauge the amount of interbank deposits across different banks.[38] According to this dataset, interbank deposits have remained fairly stable since 2014, at between €1.4 trillion and €1.7 trillion (Figure 19). That would be in line with the findings of increased fragmentation and lack of activity in European interbank markets in the aftermath of the global financial crisis (see, for example, Alves et al., 2013; Mayordomo et al., 2015). Intragroup interbank deposits (the yellow area in Figure 19) are then estimated as the difference between interbank deposits reported on the map and interbank deposits reported in the ECB Consolidated Banking Data.

Figure 19

Interbank deposits and estimated intragroup deposits

(EUR billion)



Sources: ECB Consolidated Banking Data (CBD) and authors' calculations.
Notes: CBD data cover the euro area and represent domestic banking groups and stand-alone data. Estimated intragroup deposits are the difference between total interbank deposits as computed for our map and interbank deposits from the CBD. Last observation is Q1-2023.

[38] More precisely, we use the aggregate for domestic and stand-alone banks in the ECB Consolidated Banking Data to get closer to the consolidation level in the Quarterly Sectoral Accounts. Given the typically short maturities of interbank deposits, there should be no significant discrepancies between the valuation used for accounting purposes (and reported in the ECB Consolidated Banking Data) and the market values reported in the Quarterly Sectoral Accounts.

4 Dynamics of the euro area financial system in key past periods

This section looks at past episodes of particular relevance in shaping dynamics on the map of the euro area financial system, with the aim of trying to find a pattern in them. It is purely descriptive in nature, as we do not intend to offer new insights into the events leading to each of the episodes or to answer any questions that remain open. Each episode of financial stress has its own corpus in the academic literature, and we do not intend to contribute further in that regard. Therefore, we offer a brief description of each episode of financial stress, rather than a detailed account of all the events that unfolded in each case, so as to "set the scene" in broad terms for the subsequent discussion. We look at two types of episodes of financial stress: events of a systemic scale (more precisely, the collapse of Lehman Brothers in Q3-2008 and the outbreak of the COVID-19 pandemic in Q1-2020) and episodes of a limited scale (Brexit referendum in Q2-2016, onset of Russia's invasion of Ukraine in Q1-2022, the taper tantrum in the United States in Q2-2013, and the peak of the sovereign debt crisis from Q4-2010). We also look at the last hiking cycle in the euro area (2005-2007), due to its relevance in the current macroeconomic context of tightening monetary policy. In fact, we start with this, as it also provides a useful overview of the dynamics and imbalances in the financial system that led to the global financial crisis, which reached its peak with the collapse of Lehman Brothers. At the risk of sounding repetitive, our ultimate objective is to find any financial transactions that always come to the fore during these episodes, and which would be worth monitoring moving forward. This could also provide valuable hints on where to strengthen or improve existing regulation. By focusing on financial transactions, we do not consider price changes, which could also influence the trend in certain balance sheet items over time. Particularly during periods of financial stress, the prices of certain financial instruments can move upwards or downwards significantly, thus determining the amounts reported on a balance sheet at market values. In turn, the realisation of losses during periods of financial stress could also lead to a rebalancing of portfolios by institutions, which we are able to observe from data on financial transactions. Last but not least, and given our focus on the financial system, balance sheet items not touching upon the financial system, such as net worth of households or the fixed assets of non-financial corporations, are not considered.

4.1 Previous episode of monetary policy tightening

In response to an economic expansion featuring stronger real GDP growth and inflation above target, the ECB raised its key interest rates several times between December 2005 and July 2007, by a total of 225 basis points. In the third quarter of 2005, euro area economic activity strengthened, showing GDP growth of 0.8% quarter on quarter (after 0.2% in the first and 0.6% in the second quarters of 2005), coupled with rising prices that lifted headline inflation to 2.3% HICP in November 2005. As a result, the Governing Council decided in December 2005 to increase the key ECB interest rates by 25 basis points, bringing the policy rate to 1.25%.[39] The first interest

[39] See **ECB press release of 1 December 2005 – Monetary policy decisions**.

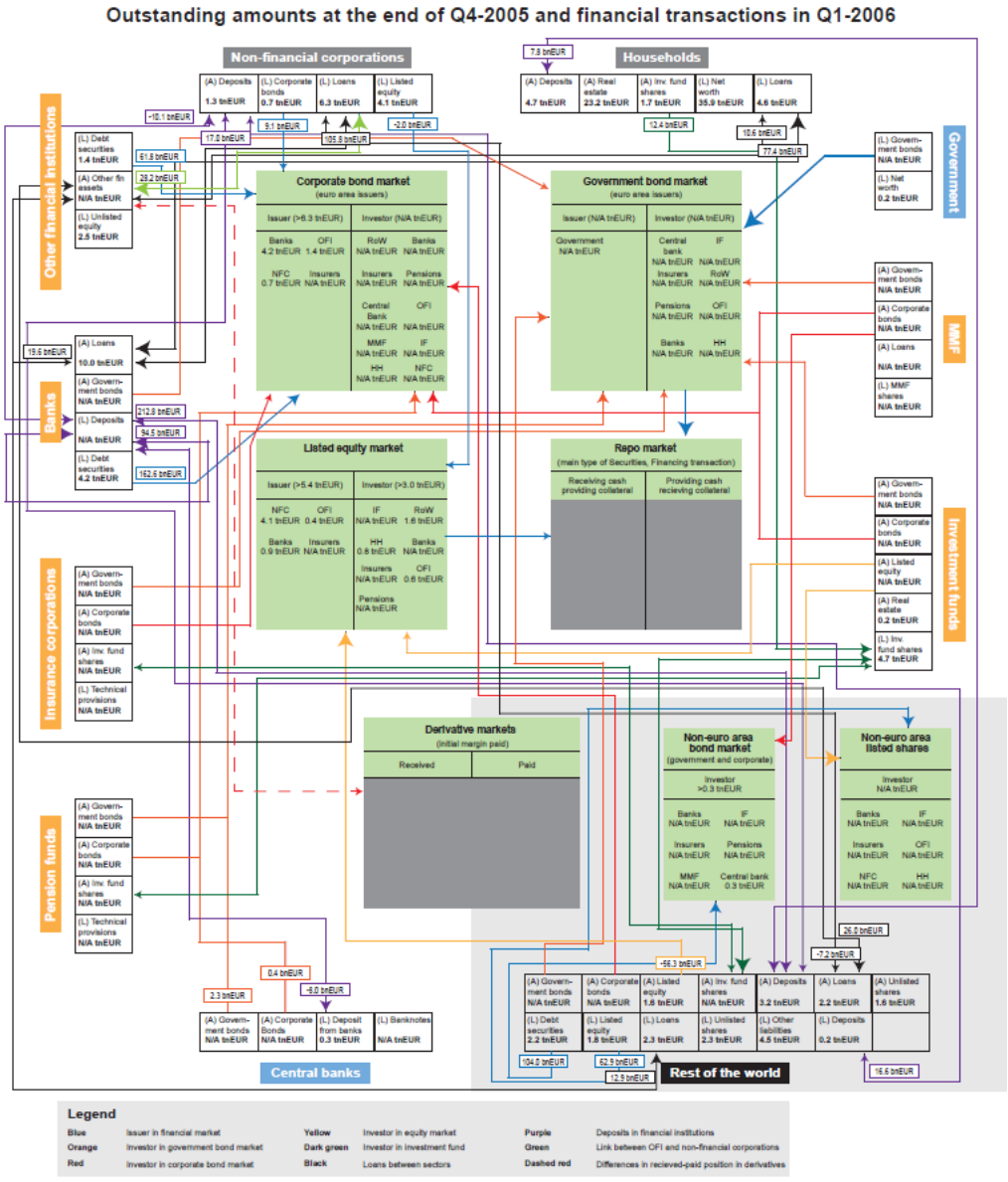
rate hike was followed by eight further hikes of 25 basis points each, resulting in the deposit facility rate to peak at 3.25%. In this period, we observe both increased economic activity together with the first sign of financial stress, which would unravel from the second half of 2007 onwards.

From Q4-2005 to Q2-2007, the upturn in economic activity can be seen through strong credit dynamics together with higher net worth among households and non-financial corporations (Figure 20). Looking at financial transactions from Q4-2005 to Q2-2007, the increase in economic activity is evidenced by financial transactions involving bank loans, especially to households (€611 billion) and non-financial corporations (€852 billion). Despite the prevailing cycle of monetary policy tightening, credit expanded strongly during these quarters. We also saw large increases of household net worth (€5,516 billion) and household real estate assets (€4,152 billion), as well as a sizeable increase in the net worth of non-financial corporations (€580 billion). Bank deposits also broadly increased, most notably in deposits from the rest of the world (€970 billion) and from households (€435 billion). Looking at debt securities, banks substantially increased their holdings of corporate bonds from the rest of the world (€717 billion). Other items that saw large transactions during this period are investment funds shares (€688 billion), corporate bonds issued by banks (€855 billion) and interbank deposits (€874 billion). On the negative side, the largest transactions involved household investment fund shares (-€56 billion), non-financial corporations loans from the rest of the world (-€125 billion), and central banks deposits from the government (-€29 billion). These negative financial transactions are rather small when compared with the positive financial transactions, highlighting once again the anomaly of an exuberant financial system under a tightening cycle in monetary policy. Lastly, it should be noted that before Q4-2016, there is limited or no data on financial transactions for insurance corporations, investment funds and pension funds, which explains, at least partially, why these sectors are not mentioned.

Figure 20

Simplified map of the financial system, euro area, financial transactions in Q1-2006

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Note: No data on repo and derivative markets.

In relative terms, the largest transactions involved banks, other financial institutions, and households. Taking the transactions as a share of the outstanding stocks in the previous period (i.e. Q3-2005), the largest financial transactions in relative terms for banks involve bank deposits from other financial institutions (61.56%), bank deposits at the central bank (43.21%), bank deposits from the rest of the world (32.33%), and bank loans to the rest of the world (32.16%). For other financial institutions, their largest transactions, in relative terms, involved their loans to non-

financial corporations (66.17%), bank deposits (61.56%), corporate bonds issued (48.42%), and loans to the rest of the world (45.21%). These point to significant increases in activity in these two sectors of the financial system. Looking at the real economy, household financial transactions were also significant, including household loans from other financial institutions (41.07%), household deposits to the rest of the world (52.13%), and cash (24.16%). Non-financial corporations engaged in large transactions involving loans from other financial institutions (66.17%) and bank loans (26.87%). The stronger link between non-financial corporations and other financial institutions points to a change in how large non-financial corporations managed their financial needs.

In the quarters following Q2-2007, the first signs of financial stress began to appear, and the global financial crisis was soon unleashed, with more financial stress between banks and central banks. In the third and fourth quarters of 2007, interbank deposits, loans from central banks to banks, and bank deposits at the central bank increased substantially, reflecting further financial stress. In the first and second quarters of 2008 these transactions were at lower absolute amounts compared to the previous quarters but again increased significantly in the third quarter of 2008 (as Lehman Brothers collapsed; see Section 4.2.1). Bank deposits of households and other financial institutions continued to increase in the quarters following Q2-2007, while bank loans to households, non-financial corporations, other financial institutions, and the rest of the world headed downwards.

4.2 Large systemic events

The two main systemic events to have struck the financial system in the last twenty years have been the collapse of Lehman Brothers and the outbreak of the COVID-19 pandemic. Due to data availability constraints, we consider only events from 2005 onwards, excluding other episodes which could also be interpreted as having a systemic scale (such as the attacks of 11 September 2001). These two systemic events had different origins, as the collapse of Lehman Brothers happened within the financial system, while the outbreak of the COVID-19 pandemic originated in the real economy and then spread to the financial system. This may explain the differences in the observed dynamics of the euro area financial system.

4.2.1 Lehman Brothers collapse (Q3-2008)

The collapse of Lehman Brothers on 15 September 2008 can be seen as the most dramatic event in the global financial crisis, which began in 2007.[40] Following several days of rumours about the financial soundness of Lehman Brothers and the collapse of other US financial institutions (such as Bear Stearns), Lehman Brothers filed for bankruptcy on 15 September 2008. The same day, Bank of America announced an agreement to purchase Merrill Lynch and central banks around the world increased the size of their liquidity support facilities. The next day, 16 September 2008, the Fed took control of AIG to avoid its collapse and US MMFs “broke the buck”, causing runs. Stock indexes fell sharply around the world, with the Dow Jones Index dropping more than 4% several times in the second half of September. Over what remained of September, central

[40] The chronology presented in this paragraph is based on Wiggins et al. (2019).

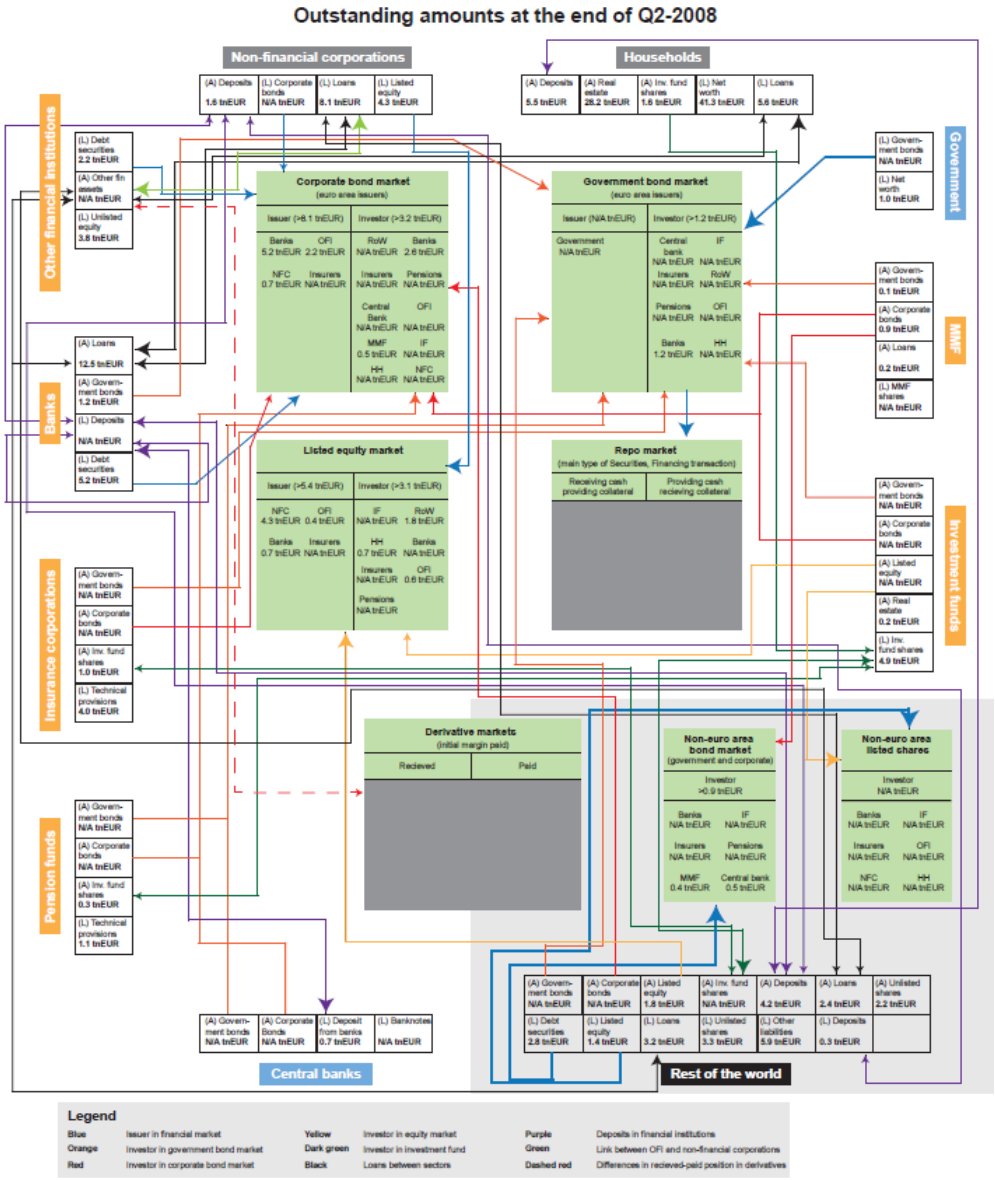
banks from around the world announced various measures to shore up the financial system and to bail out Washington Mutual, Wachovia (merged with Wells Fargo), Bradford and Bingley, Fortis, Glitnir (Iceland) and Dexia. This was a period of immense uncertainty and acute financial stress around the world. The approval of the Troubled Asset Relief Program (TARP) authorising expenditures of $700 billion to support US banks by the US Congress in October 2008 was ultimately successful in calming the situation.

At that time, the largest exposures in the euro area financial system involved banks and the real economy (Figure 21). Leaving aside fixed assets owned by non-financial corporations and households as well as their net worth and unlisted shares issued, the largest exposures between sectors at that time were interbank deposits (€6.4 trillion), other liabilities of the rest of the world (€5.9 trillion), debt securities issued by banks (€5.2 trillion), household deposits with banks (€5.2 trillion), government bonds issued (€5.1 trillion), bank loans to households (€4.9 trillion) and bank loans to non-financial corporations (€4.5 trillion EUR). Due to data availability constraints, it is not possible to replicate the whole map in Q3-2008, so the residual items of “other assets” and “other liabilities” show large amounts in some cases.. For example, other assets of banks were reported at €5.4 trillion. In any case, what emerges from that picture is a bank-centric euro area financial system.

Figure 21

Simplified map of the financial system, euro area, Q2-2008

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Note: No data on repo and derivative markets.

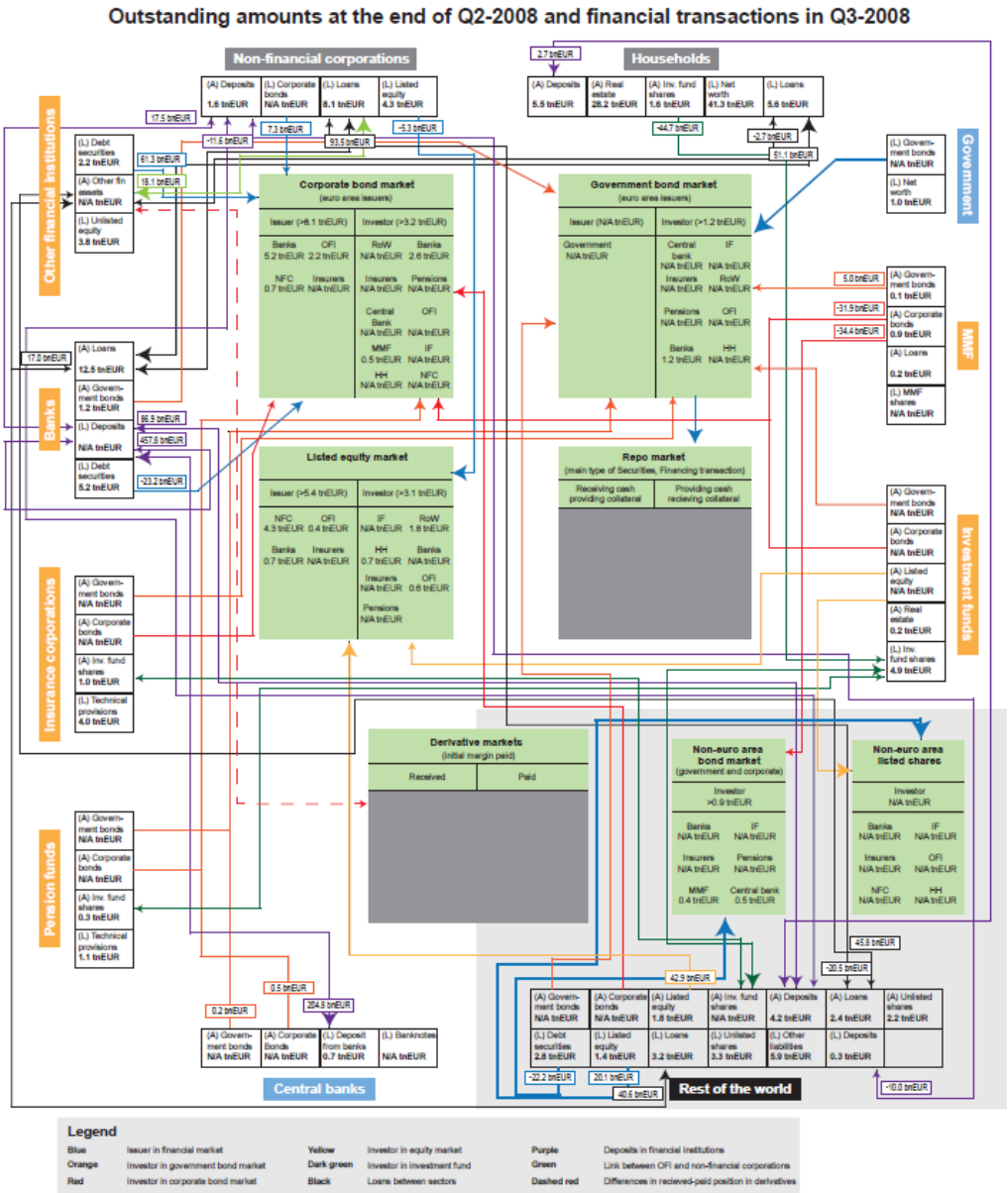
Some of the largest transactions in that quarter reflected the support given by central banks to the banking system (Figure 22). Financial transactions involving loans from the central bank to banks and deposits held by banks at the central bank increased substantially in that quarter, reaching €301 billion and €205 billion, respectively. Meanwhile, transactions involving central bank liabilities with the rest of the world amounted to €105 billion. Transactions with interbank deposits came to €458 billion in that quarter alone. There was still a positive flow of bank loans to non-

financial corporations and to households (€94 billion and €51 billion, respectively), albeit smaller than in previous quarters. Government transactions remained quiet, in line with previous quarters, signalling that it was mainly the central banks that were providing support to the banking system.

Figure 22

Simplified map of the financial system, euro area, transactions, Q3-2008

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Note: No data on repo and derivative markets.

The largest negative transactions involved other assets and liabilities of banks as well as bank loans to the rest of the world and investment fund shares, although there were also notable withdrawals of MMF shares and large movements of corporate bonds. Given the limited availability of data for the period before 2013 in quarterly sectoral accounts, it is not possible to further analyse the drivers of the large negative transactions reported in Q3-2008 in relation to other assets and liabilities of banks (-€255 billion and -€134 billion, respectively). There were also notable negative transactions involving bank deposits from the rest of the world (-€18 billion), which got much larger in the following quarters (-€344 billion in Q4-2008) and are probably connected to exposures to the US financial system, and in the amount of investment fund shares (-€102 billion), suggesting large redemptions by investment fund investors. It is also worth noting the reduction in the amount of MMF shares held by the rest of the world (-€32 billion), which was offset by negative transactions with debt securities issued by the rest of the world (-€34 billion). There was also a broad increase in the use of loans by MMFs (€27 billion). Looking at holdings of corporate bonds among sectors reporting this information, the rest of the world reported a significant increase, while MMFs and banks reported a reduction in Q3-2008. For government bonds, the limited information available shows an increase in holdings by central banks and MMFs, and an almost equal reduction in holdings by banks.

In relative terms, there were large transactions involving deposits across different sectors and a reduction of transactions with the rest of the world. The largest relative transactions (as a share of outstanding amounts in Q2-2008) involved bank deposits held at the central bank, deposits held by the rest of the world at the central bank, and central bank loans to banks (76.51%, 61.96% and 31.10%, respectively). We would also note the increase in other liabilities of investment funds (30.69%) and in MMF loans to the rest of the world and to banks (16.11% and 15.93%, respectively), along with interbank deposits (7.09%). On the flip side, the largest negative transactions in that period mainly involved the rest of the world:[41] deposits of investment funds with the rest of the world (-15.22%), holdings by MMFs of corporate bonds issued by the rest of the world (-8.21%), MMF shares held by the rest of the world (-7.25%), and deposits of non-financial corporations with the rest of the world (-5.96%). That could signal a retrenchment of transactions with the rest of the world in view of the ongoing acute financial stress.

Some of the dynamics observed in Q3-2008 persisted throughout the following quarters, such as those involving banks and the rest of the world, MMF shares, and loans and deposits between banks and the central bank. For example, negative financial transactions involving bank loans to the rest of the world continued well into 2011, in some cases exceeding €200 billion, and bank deposits with the rest of the world also fell (-€344 billion in Q4-2008). These movements confirm the decline in the cross-border activities of EU banks in the aftermath of the global financial crisis (Emter et al., 2018; Argimon et al., 2020). Moving to other sectors, financial transactions involving investment fund shares were particularly large in negative terms in the last quarter of 2008 (-€168 billion), but turned positive during 2009, while MMF shares showed negative financial transactions until Q4-2011, with a total outflow of €206 billion from Q3-2008 (almost 25% of the outstanding amount in Q2-2008). Loans and deposits between the central bank and banks

[41] Financial transactions involving government deposits at central banks represented -29.36% of the outstanding amount, which was rather small in absolute terms (just above €55 billion).

continued to increase over the following quarters, becoming smaller in size around 2010 and then increasing substantially during the euro area sovereign debt crisis of 2011 and 2012.

4.2.2 Outbreak of the COVID-19 pandemic (Q1-2020)

In March 2020, the spread of the COVID-19 pandemic and the related measures taken by governments resulted in a sharp decline in economic activity, creating substantial stress in the financial system.[42] Stock markets around the world reached historical levels in the second half of February 2020, while, simultaneously, authorities implemented targeted lockdowns to contain the spread of the virus. In the first days of March, central banks issued communications stating their preparedness to act if needed, while financial market participants shifted towards safer instruments (such as US Treasuries). On 11 March 2020, the World Health Organization declared COVID-19 a pandemic and more countries announced lockdowns. The first signs of financial stress started to become visible around that time. There was very high demand for cash and cash equivalents by non-financial corporations and households (for precautionary reasons), redemptions from investment funds and MMFs, margin calls due to increased volatility in derivative markets and the unwinding of leveraged positions by non-banks. In the following days, liquidity conditions deteriorated substantially (including even the most liquid markets), volatility increased and many asset prices collapsed. On 16 March 2020, the S&P 500 suffered its largest drop since 1987 and the VIX hit an all-time high. Market conditions slowly returned to normality thereafter, but only after several support programmes had been launched by central banks.

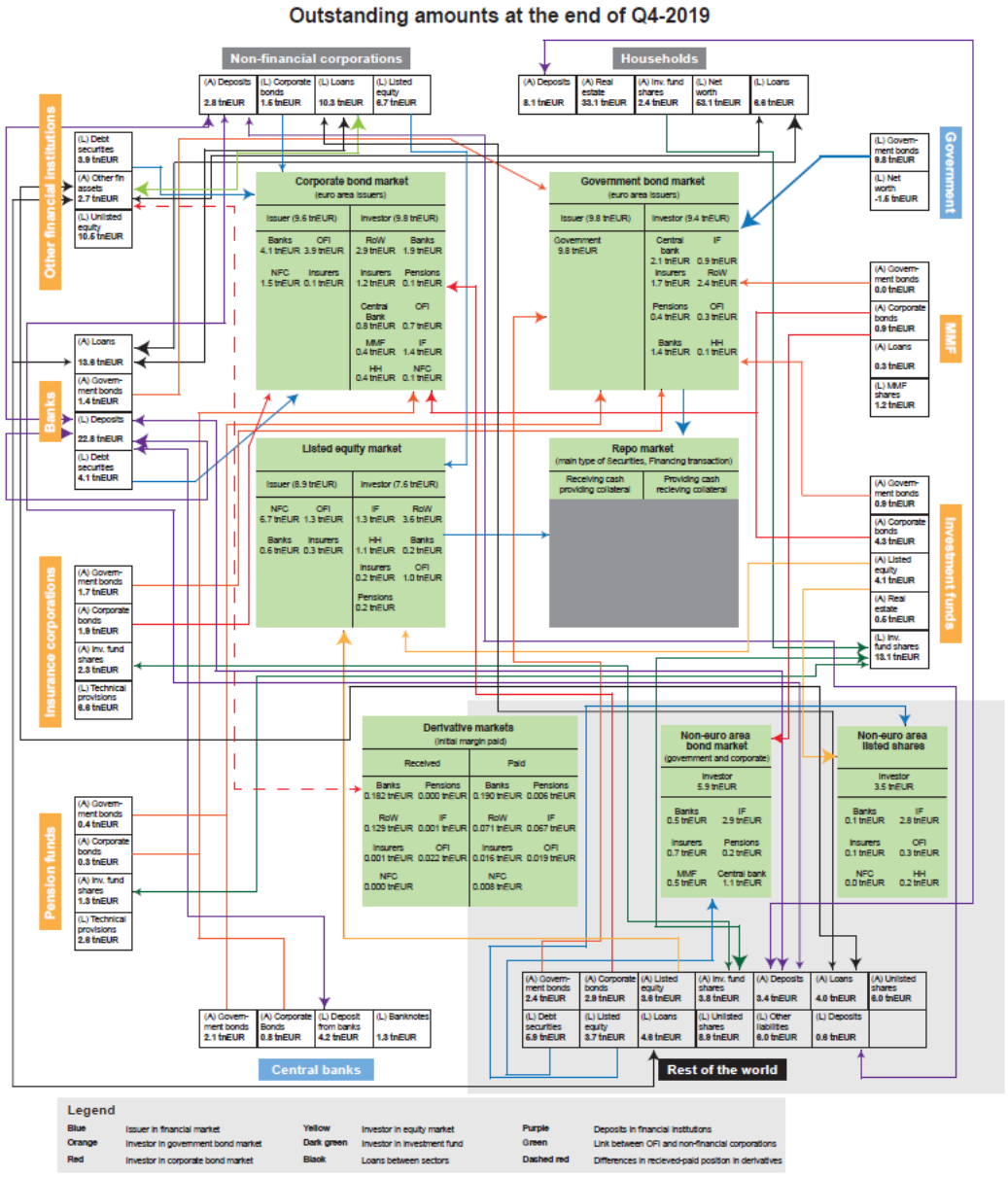
At the end of 2019, banks were still at the core of financial transactions with the real economy, while the balance sheet of investment funds and the central bank had grown substantially (Figure 23). Leaving aside other non-financial items such as household net worth or unlisted shares of non-financial corporations, investment fund shares were the largest item on the balance sheet of the euro area economy, at €13.0 trillion. Banks were still the main force regarding transactions with households, with deposits and loans amounting to €7.8 trillion and €6.0 trillion, respectively. Interbank deposits were at €5.7 trillion and bank loans to non-financial corporations came to €4.0 trillion. Reflecting the growth of the investment fund sector, investment funds held €2.9 trillion of corporate bonds and €2.8 trillion of listed shares issued by the rest of the world. In the wake of the global financial and the sovereign debt crises, the balance sheet of the central bank had grown significantly, with €3.0 trillion in loans to banks, €2.1 trillion in government bonds and €4.2 trillion in deposits from banks.

[42] This paragraph is based on Financial Stability Board (2020).

Figure 23

Simplified map of the financial system, euro area, Q4-2019

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Notes: Data on derivative markets refer to February 2020. No data on repo markets.

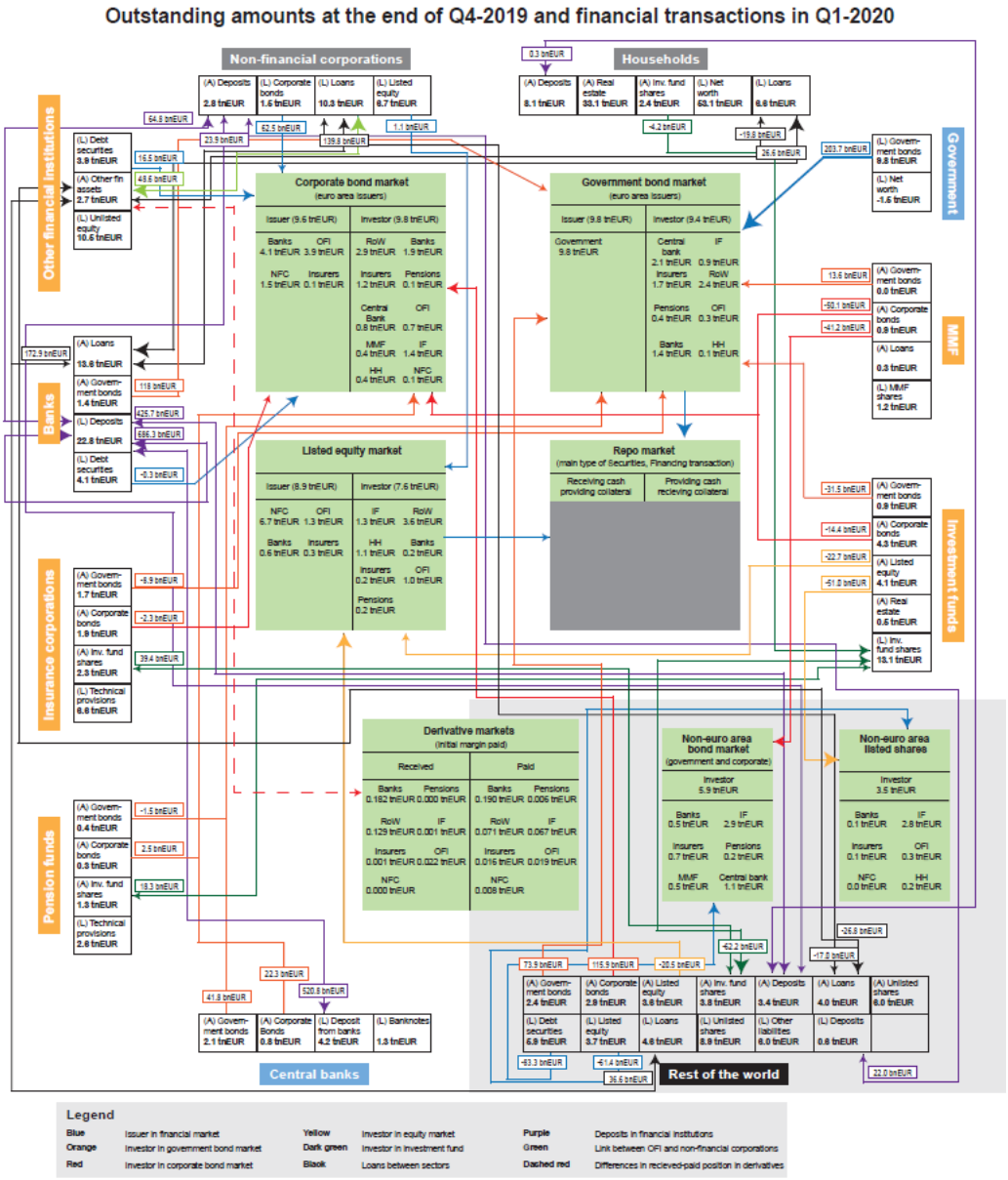
The largest transactions in Q1-2020 mainly concerned banks, central banks and the rest of the world (Figure 24). Financial transactions on interbank loans amounted to €686 billion, representing more than 10% of the outstanding amount at the end of 2019. The support provided by central banks to address market turmoil can be observed through financial transactions involving central bank loans to banks of €668 billion, deposits held by banks at the central bank of €521 billion and, to a lesser extent, central bank liabilities to the rest of the world of €148 billion. Financial

transactions involving bank loans with non-financial corporations totalled €140 billion, a level last seen in Q2-2008, and probably reflected the use of credit lines among non-financial corporations to address the uncertainty caused by the COVID-19 pandemic. Positive financial transactions involving deposits at banks were found for all sectors, most notably for the rest of the world (€426 billion) and government (€158 billion).

Figure 24

Simplified map of the financial system, euro area, transactions, Q1-2020

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Notes: Data on derivative markets refer to February 2020. No data on repo markets.

Moving to negative financial transactions in Q1-2020, the largest ones mainly involved investment funds and, to a lesser extent, the rest of the world. Investment fund shares reported financial transactions of -€134 billion, mainly explained by bond funds and equity funds (transactions of -€146 billion and of -€58 billion, respectively). At the same time, financial transactions involving other liabilities of investment funds totalled €157 billion, offsetting the movement seen in investment fund shares. Looking at institutional sectors, investment funds and the rest of the world were behind the negative financial transactions involving investment fund shares, with financial transactions of -€79 billion EUR and -€62 billion, respectively. Pension funds redeemed investment fund shares of equity funds (financial transactions of -€37 billion), but acquired €17 billion in shares of bond funds. Investment funds also lowered their exposure to debt securities and listed equity issued by the rest of the world, by €113 billion and €51 billion, respectively. Financial transactions with MMF shares were slightly positive in the aggregate (€6 billion), while non-financial corporations reduced their exposure by €21 billion.

Looking at financial transactions in relative terms, pension funds and MMFs were involved in some of the biggest ones. The largest positive financial transactions involved MMF loans to banks (58.10%), other liabilities of pension funds (52.65%), central bank liabilities with the rest of the world (30.64%), investments held by pension funds in other investment funds (30.07%), and MMF holdings of government bonds (27.39%). Meanwhile, the largest negative financial transactions involved derivative assets and liabilities of pension funds (-22.81% and -39.44%, respectively), holdings of MMF shares by non-financial corporations (-38.16%), investments held by pension funds in hedge funds (-24.29%), and equity of pension funds (-13.43%). It is worth noting the large relative negative financial transactions of pension funds investing in mixed and equity funds (-8.49% and -13.46%, respectively). MMFs also reported large negative financial transactions with corporate bonds (-11.89%). Combined with an increase in holdings of government bonds among MMFs, this could provide evidence of a flight-to-safety by MMFs.

While some of the dynamics observed in Q1-2020 reversed in the following quarters, others persisted or even became stronger. Financial transactions that reversed their trend in Q2-2020 included those involving deposits held by the rest of the world at banks (from €277 billion to -€173 billion), other liabilities of investment funds (from €157 billion to -€189 billion), investment funds shares (from -€134 billion to €193 billion) and holdings by investment funds of corporate bonds issued by the rest of the world (from -€113 billion to €101 billion). Most of the movements by pension funds regarding investment fund shares were reverted in Q2-2020, as well as the shift in investments by MMFs. However, certain financial transactions intensified following the turmoil that unfolded in March 2020, pointing to a strong role played by the public sector, in a broad sense, in the economy (for example, transactions involving central bank loans to banks stayed above €600 billion, deposits held by banks at central banks came to €729 billion, and government bonds issued reached €626 billion), and the accumulation of liquid assets for precautionary reasons (bank deposits in the hands of households and non-financial corporations of €225 billion and €268 billion, respectively). Most of these positions were still not fully unwound in Q2-2023.

4.3 Episodes of financial stress

In addition to the episodes of systemic importance, other episodes of financial stress have created significant constraints in the euro area financial system. These past episodes triggered a sharp adjustment of prices in financial markets and led to illiquidity across several asset classes. While they impacted the euro area economy, they did not cause a systemic impact comparable to what happened following the collapse of Lehman Brothers or the outbreak of the COVID-19 pandemic. They can also provide valuable insights into the mechanisms and channels through which illiquidity can spread throughout the financial system. In this section, we consider the peak of the sovereign debt crisis between Q4-2011 and Q2-2012, the taper tantrum in the United States in Q2-2013, the Brexit referendum of Q2-2016, and the onset of Russia's invasion of Ukraine in Q1-2022.

4.3.1 Sovereign debt crisis (Q4-2011 to Q2-2012)

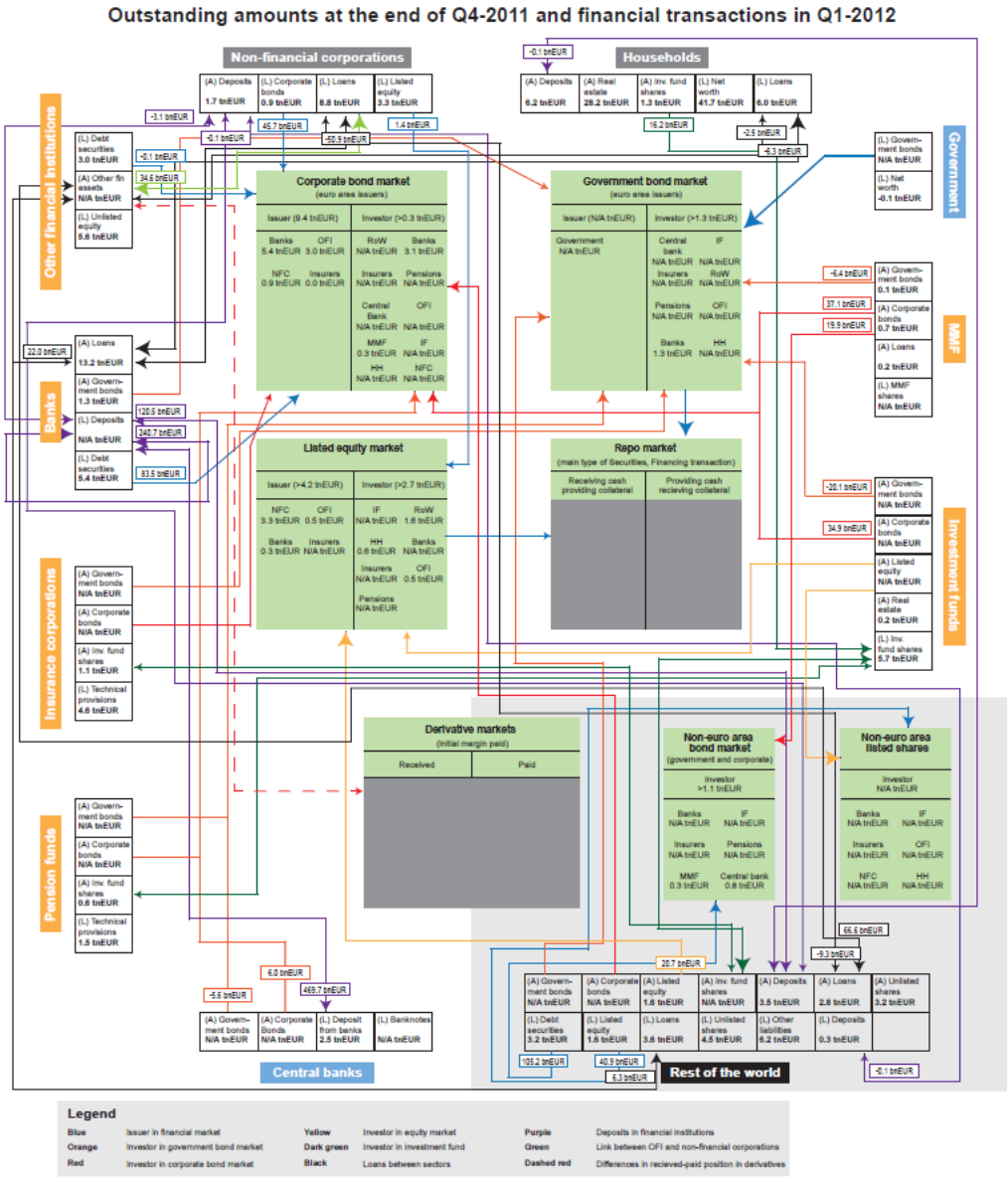
The euro area sovereign debt crisis reached its peak in November 2011 and only began to ease after July 2012. The spread between the Italian and the German 10-year government bonds reached its widest point in November 2011 (486 basis points), amidst the resignation of Silvio Berlusconi as Prime Minister. At that time, Greece, Portugal and Ireland were receiving assistance from the EU and the IMF, and stress was spreading towards Italy and Spain. Spain would ultimately accept financial assistance from the EU and the IMF to recapitalise its banking sector in June 2012. At that time, Italian government bond spreads widened substantially, coming close to the previous peak (471 basis points). Only after Mario Draghi, President of the ECB, made a public commitment to do whatever it took to save the euro area, did the situation within the financial markets finally ease.

Financial transactions between banks and the central bank were particularly high around that time due to the cracks appearing in the EU financial system (Figure 25). Financial transactions between Q4-2011 and Q2-2012 involving interbank deposits, central bank loans to banks, bank deposits at the central bank and central bank liabilities to the rest of the world amounted to €1,092 billion, €937 billion, €776 billion and €100 billion, respectively. These figures illustrate the extent to which banks had to come to the central bank amid the financial turmoil. On the negative side, there were large transactions involving deposits held by the rest of the world at banks (-€186 billion), other liabilities of investment funds (-€105 billion) and bank loans to non-financial corporations (-€90 billion), reflecting lower levels of activity between the banking system and the rest of the world and also the real economy (i.e. non-financial corporations).

Figure 25

Simplified map of the financial system, euro area, financial transactions in Q1-2012

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Note: No data on repo and derivative markets.

Large financial transactions in relative terms took place throughout these three quarters, reflecting the prevailing instability. Central bank liabilities with the rest of the world involved financial transactions equal to 54.87%, -11.89% and 14.79% of outstanding amounts in Q4-2011, Q1-2012 and Q2-2012. Financial transactions between banks and the central bank were also significant at that time: bank deposits at central banks came to 24.78%, 30.11% and 0.66% of outstanding amounts in the three quarters, while central bank loans to banks stood at 16.53%,

15.92% and 4.72% of outstanding amounts. Other items also saw large financial transactions in relative terms, such as holdings of government bonds by MMFs (9.83%, -7.41% and -11.23% of outstanding amounts), deposits of investment funds with the rest of the world (-10.63%, -0.93% and 11.64% of outstanding amounts), and other deposits held by financial institutions with the rest of the world (-9.79%, 13.59% and 26.72% of outstanding amounts).

The largest transactions between banks and the central bank only reverted in the second half of 2012. Interbank deposits fell by €1,134 billion between Q3-2012 and Q1-2013. Similarly, financial transactions involving central bank loans to banks and central bank deposits at banks amounted to -€414 billion and -€433 billion, respectively. However, other items continued their trend, such as deposits held by the rest of the world at banks (showing aggregate negative financial transactions of -€694 billion until the end of 2013).

4.3.2 US taper tantrum (Q2-2013)

A remark made by Ben Bernanke on 22 May 2013 referring to the pace of bond purchases by the Fed led investors to sell their bonds. The taper tantrum could be seen as a shift in the expectations of market participants regarding the normalisation of monetary policy in the United States, including asset purchases. Following a flow of positive economic news in the early months of 2013, Ben Bernanke, then Chair of the Fed, announced to the US Congress that the Fed was planning to moderate the pace of its asset purchases at some future date. A similar remark was made at a press conference on 19 June 2013. As a result, bond investors started to sell their bonds, thus increasing their yields. By 21 June, the yield on 10-year US Treasuries had risen from around 2.20% to roughly 2.55%. There were also strong movements in the exchange rate of the US dollar against other major currencies and, in general, increased volatility in financial markets.[43]

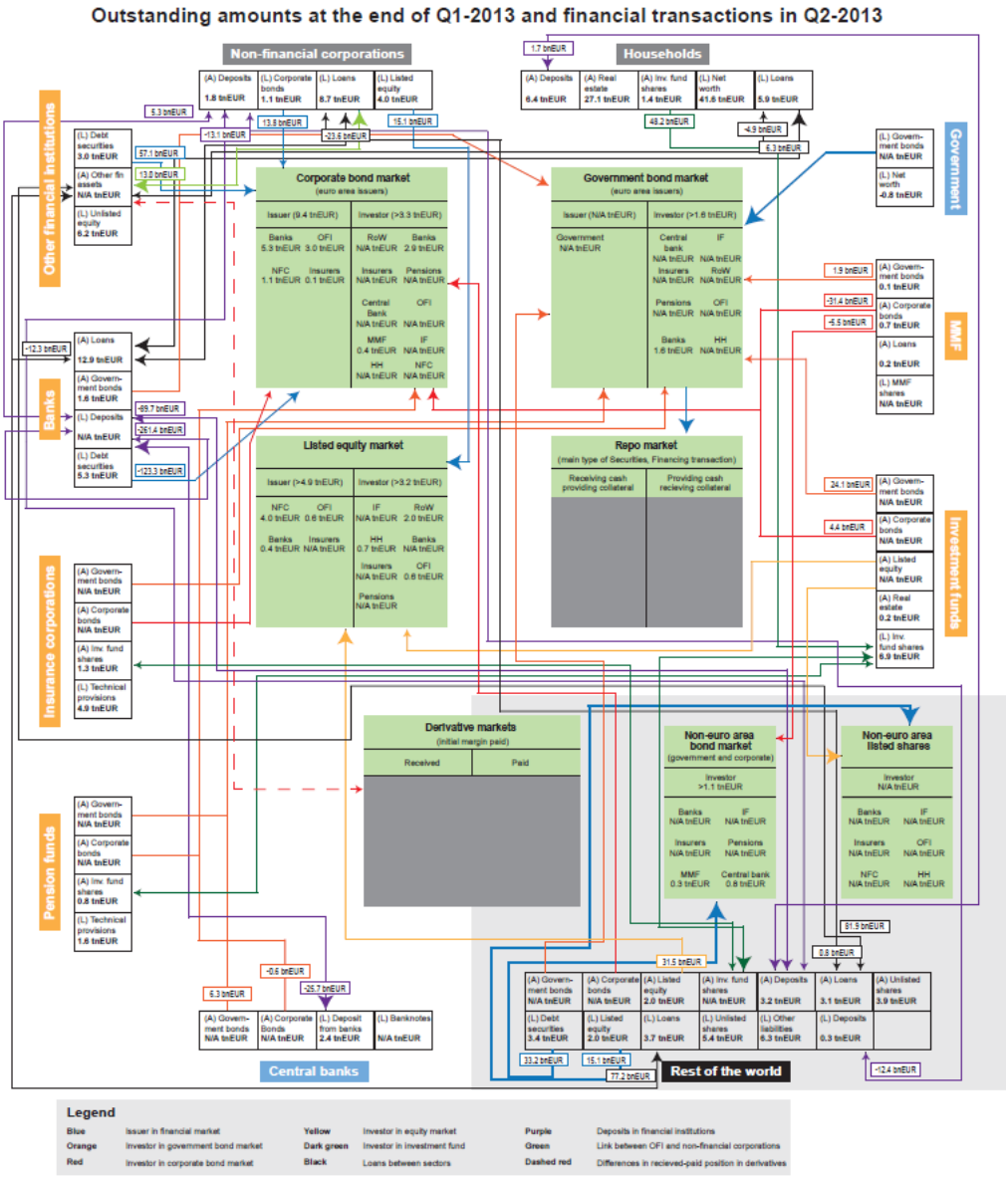
Leaving aside residual items in the balance sheet, there were several movements involving corporate bonds issued by the rest of the world that might well have been connected to the taper tantrum in the United States (Figure 26). Many items on the balance sheet of economic sectors first became available in Q4-2013, so for the periods before that time, residual items on the balance sheet (other assets and other liabilities) were abnormally large, which also led to the reporting of large transactions in absolute terms. Looking at corporate and government bonds, Q2-2013 saw an increase in corporate bonds issued by the rest of the world and held by banks (€76 billion) and by other financial institutions (€39 billion). Financial transactions involving bank deposits from the rest of the world amounted to -€90 billion, while corporate bonds issued by banks fell by €123 billion. The negative transactions observed with interbank deposits of €261 billion are consistent with the amounts reported in previous quarters. Looking at the rest of the world sector, there were increases in the holdings of corporate bonds of €48 billion, while financial transactions involving deposits with banks amounted to -€80 billion.

[43] See Neely (2014).

Figure 26

Simplified map of the financial system, euro area, financial transactions in Q2-2013

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Note: No data on repo and derivative markets.

In relative terms, the largest financial transactions involved deposits on the positive side and MMFs on the negative side. The largest positive financial transactions were predominantly deposits held by other financial institutions with the rest of the world (17.07% of outstanding amounts), by investment funds with the rest of the world (13.13% of outstanding amounts), by governments at the central bank (11.20% of outstanding amounts), and by governments at banks (10.77% of outstanding amounts). On the other side, banks substantially reduced their holdings of

MMF shares (financial transactions of -7.54% of outstanding amounts), while financial transactions involving other MMF liabilities were at -30.66% of outstanding amounts. To respond to these decreases in their liabilities, MMFs reduced their cash holdings by 11.35% and their bank loans by 10.16%. In the aggregate, financial transactions involving MMF shares were -5.96% of outstanding amounts, a decline not seen since Q4-2009 and Q4-2010.

Large transactions involving corporate bonds and deposits reversed in the next quarter, but those related to MMFs did not. In Q3-2013, financial transactions involving corporate bonds held by banks and other financial institutions changed direction, with comparable amounts to those observed in Q2-2013. Financial transactions involving deposits reversed in Q3-2013, while financial transactions involving MMF shares remained negative (-2.07% in Q3-2013 and -2.91% in Q4-2013), with banks reducing their holdings of MMF shares by an additional €23 billion.

4.3.3 Brexit referendum (Q2-2016)

The results of the Brexit referendum on 23 June 2016 triggered financial stress across European financial markets.[44] Victory for those opting to leave the EU triggered large declines in the main stock indexes. On 24 June 2016, the FTSE lost more than 8% during the first 90 minutes of trading and was down 3% at the end of the session. Meanwhile, the US Dow Jones Industrial Average fell by around 2.5% in less than half an hour. Bank share prices were particularly affected across the EU, with share prices of the five largest British banks falling by 21% on average. In currency markets, the pound sterling fell 10% against the US dollar, to reach its lowest level, and 7% against the euro. The financial markets ultimately managed to recoup most of these losses during the month of July.

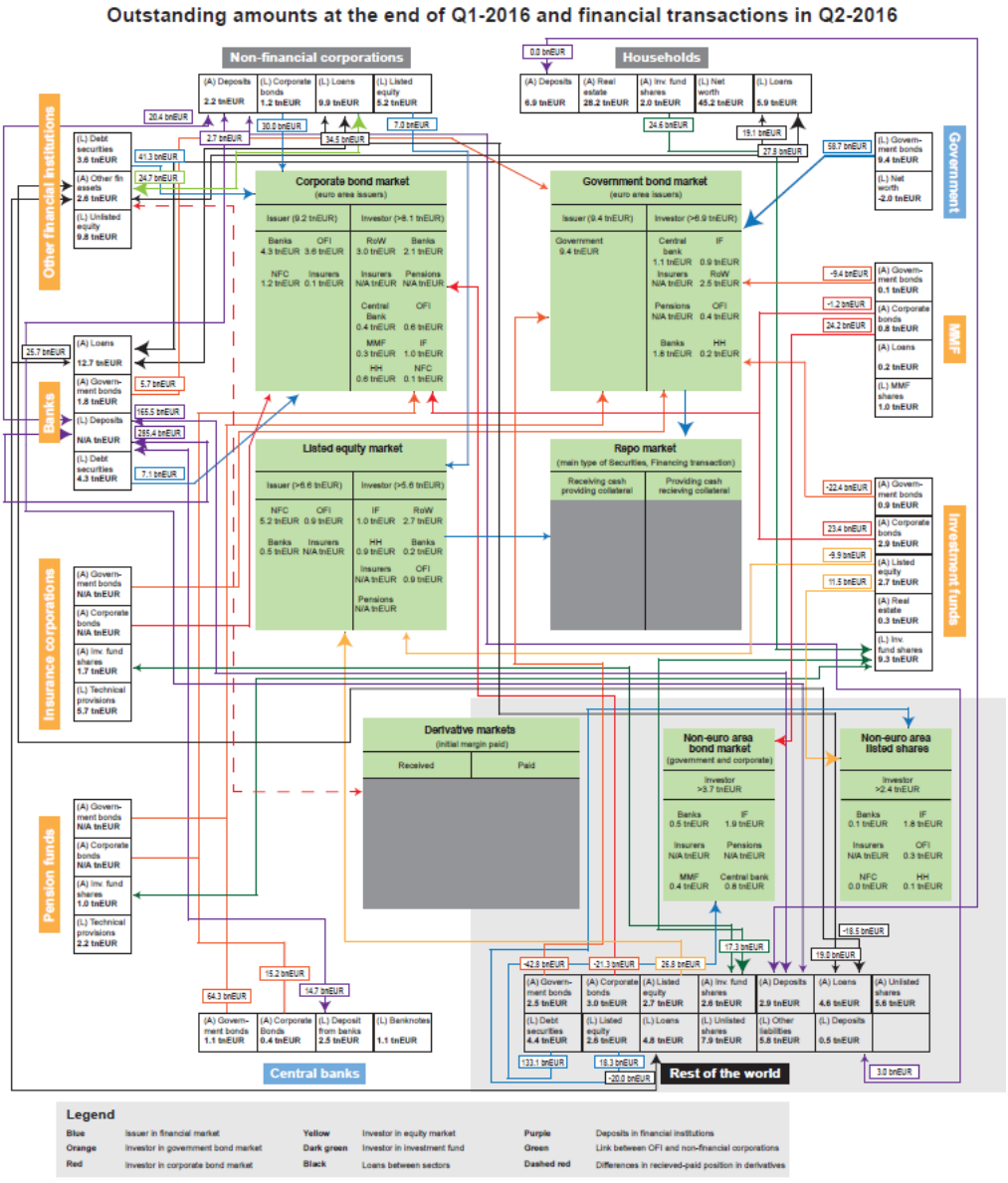
The largest transactions in Q2-2016 mainly involved banks and the rest of the world (Figure 27). In addition to the usual financial transactions involving flows to and from the real economy (such as household net worth), there was a large increase in interbank deposits (€285 billion) and in bank deposits by the rest of the world (€166 billion). Other large financial transactions, such as those involving investment fund shares or bank deposits among households, were in line with the values observed in previous quarters. Aside from other assets and liabilities of banks (where the figures are likely affected by data availability constraints), there were no large negative transactions during that quarter. It is also worth noting the changes in the holdings of government bonds by the rest of the world (-€43 billion) or in bank deposits by other financial institutions (-€28 billion).

[44] See also Breinlich et al. (2018).

Figure 27

Simplified map of the financial system, euro area, financial transactions in Q2-2016

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Note: No data on repo and derivative markets.

In relative terms, the largest transactions mainly involved the central bank and MMFs. Central banks experienced large positive transactions involving deposits from the government (29.42% of outstanding amounts) and deposits from the rest of the world (9.07% of outstanding amounts). In the case of MMFs, large relative transactions were both positive, involving other liabilities (40.67% of outstanding amounts) and loans from the rest of the world (27.32% of outstanding amounts), and negative, involving other assets (-17.47% of outstanding amounts) and

holdings of government bonds (-14.30% of outstanding amounts). Another notable transaction involved derivative liabilities held by banks, with a decline of 15.28% of their outstanding amount.

Interestingly, despite the limited duration of the financial stress that followed the Brexit referendum, some of the largest transactions were also replicated in the following quarters. These include an increase in bank deposits held by the rest of the world, in debt securities issued by the rest of the world, in investment funds shares and in holdings of government bonds by the rest of the world. Interbank deposits, which grew substantially in Q2-2016, reported relatively small financial transactions in Q3-2016, probably signalling calmer market conditions.

4.3.4 Russia's invasion of Ukraine (Q1-2022)

In late February 2022, Russia launched an invasion of Ukraine, which has had major implications for the global economy on numerous fronts.[45] At that time, the global economy was still recovering from the COVID-19 pandemic and remained vulnerable. The impact of Russia's invasion of Ukraine can be seen in at least three areas. First, as Russia was at that time the main provider of natural gas to many EU countries, the invasion intensified the increase in energy prices, creating significant stress within the commodity derivative markets. These spiralling energy prices also contributed to rates of inflation not seen in 40 years across advanced economies. Given the prominent role played by both Russia and Ukraine in the commodities markets, the invasion caused significant tensions in other markets, such as corn. Second, the sanctions imposed on the Russian economy and the restrictions on trade with Russia also happened to affect several EU economies that previously had close ties with Russia. For example, Sberbank Europe was liquidated in March 2022.[46] Third, Russia's invasion of Ukraine increased geopolitical risks, created a period of high volatility in financial markets and caused stock indexes around the world to post losses, particularly in the immediate aftermath of the invasion. While the impact on financial markets has now partially reversed (equity indexes are again above pre-invasion levels), the impact on the macroeconomic scenario is likely to remain over the long term.

In the first quarter of 2022, the largest transactions in absolute terms mainly involved the rest of the world with banks and MMFs as counterparties (Figure 28). On the positive side, there were transactions involving interbank deposits (€532 billion), deposits held by the rest of the world at banks (€228 billion), corporate bonds issued by the rest of the world and owned by banks (€160 billion), other assets of investment funds (€110 billion) and bank deposits from government (€107 billion). The largest negative transactions included those relating to banks (deposits at the central bank, -€67 billion) and other sectors (such as other liabilities of insurance corporations, -€45 billion). MMFs saw large declines in several items of their balance sheet: corporate bonds issued by the rest of the world (-€89 billion), MMF shares (-€67 billion) and MMF shares held by the rest of the world (-€52 billion). It is interesting to note the shift from MMFs to banks in the exposures towards the rest of the world.

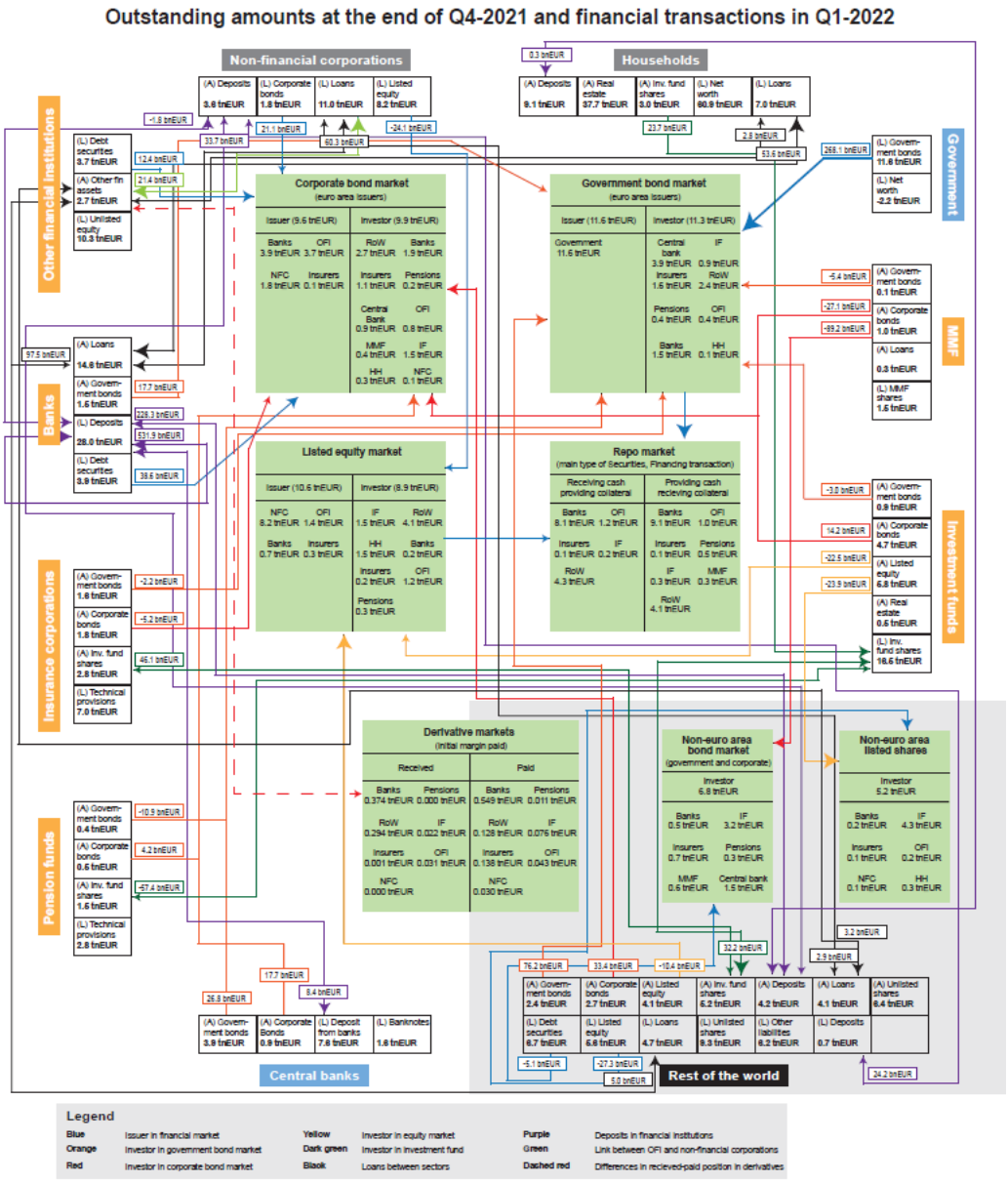
45 For further reference, see Guénette et al. (2022) and Izzeldin (2023).

46 See **https://www.srb.europa.eu/en/content/sberbank-europe-ag-croatian-and-slovenian-subsidiaries-resume-operations-after-being-sold**.

Figure 28

Simplified map of the financial system, euro area, financial transactions in Q1-2022

(EUR trillion)



Source: Own elaboration, based on European Central Bank data.
Note: Data on repo and derivative markets refer to February 2022.

Leaving aside transactions in residual categories (other assets and other liabilities), the largest transactions in relative terms related to deposits, derivatives and MMF shares. The largest positive transactions in relative terms referred to other assets and other liabilities, as these categories should be small in absolute terms and could be highly volatile. Aside from these, it is possible to identify significant positive transactions in deposits held the rest of the world in other

financial institutions (15.60% of outstanding amounts) and in non-financial corporations (15.00% of outstanding amounts) as well as deposits by governments in banks (12.27% of outstanding amounts) and by investment funds in banks (9.41%). Other large positive transactions included bank holdings of corporate bonds issued by the rest of the world (30.47% of outstanding amounts) and cash held by pension funds (10.39% of outstanding amounts). On the negative side, we find transactions involving bank derivative assets (-60.70% of outstanding amounts), pension fund derivative liabilities (-36.18% of outstanding amounts), pension fund derivative assets (-24.71% of outstanding amounts) and loans of pension funds (-24.59% of outstanding amounts). Next, we find several items related to MMFs: cash held by MMFs (-18.97% of outstanding amounts), MMF shares held by non-financial corporations (-19.31% of outstanding amounts) and MMF shares held by pension funds (-15.43% of outstanding amounts). The reductions in MMF shares held by pension funds and non-financial corporations could be related to margin calls from central counterparties in derivative markets, which were under significant stress at that time, as explained earlier in Box 2. To meet these margin calls, non-financial corporations and pension funds unwound their positions in MMFs and made a deposit with the rest of the world (as these derivatives were cleared mainly outside the euro area).

In the subsequent quarters, some of the observed behaviours persisted, particularly those affecting MMF shares and derivatives. In the following quarters, there were limited increases in interbank deposits and corporate bonds issued by the rest of the world, likely signalling a heightened sense of stability. However, derivative assets and liabilities continued to report significant transactions (pension funds derivative assets and liabilities, bank derivative liabilities), which persisted throughout 2022 in the case of pension funds. These movements could also be linked to the change in monetary policy stance. Meanwhile, there were more limited decreases in holdings of MMF shares by non-financial corporations and pension funds, although they were able to increase their cash holdings.

4.4 Discussion of main findings

The seven episodes considered in this section are heterogeneous across different dimensions. Some of them, such as the global financial crisis, were endogenous to the financial system, while others, like the referendum on Brexit, the COVID-19 pandemic or the start of Russia's invasion of Ukraine, originated outside the financial system and their effects were felt later in the financial system. Looking at their origin, some of them originated in the euro area (e.g. the sovereign debt crisis) and others outside the euro area and the EU (e.g. the taper tantrum). The discussion in the previous section has shown the related imbalances and vulnerabilities as well as the financial transactions by different sectors.

If we look for common patterns, Table 2 below shows interesting dynamics in MMFs, interbank deposits, derivatives and the rest of the world. In Table 2, an "A" refers to large financial transactions in absolute amounts, and an "R" in relative terms. The signs plus and minus indicate the sign of the transaction (positive or negative). It is difficult to define a concrete threshold beyond which a financial transaction needs to be reflected in Table 2, so instead we use our

judgement on the top 20 financial transactions, excluding non-financial items.[47] From there, we can observe how interbank deposits, reflecting mainly intragroup transactions, tend to increase in every episode.[48] Similarly, following the global financial crisis, central banks have become more closely involved with banks, the rest of the world and governments. In the most recent periods, financial transactions with derivatives have been important for banks and, mainly, pension funds. Table 2 also shows that MMFs always tend to be affected in episodes of stress, albeit with different balance sheet items involved each time. This may relate to their role as providers of liquidity for other parts of the system, and because during these episodes of stress there are more liquidity demands than in normal times. Similar behaviours can be found for the rest of the world, where, depending on the nature of the financial stress, different balance sheet items likely have large related financial transactions.

47 Table 2 is an attempt to summarise the wealth of information conveyed in Sections 4.1, 4.2 and 4.3 and, as result of the necessary simplifications and assumptions, must be read as a high-level summary rather than as a fully-fledged assessment.

48 Contingent interbank assets or liabilities do not meet the definition of an asset or liability in the ESA and are, therefore, excluded from our map and from Table 2.

Table 2

Items registering larger positive and negative financial transactions in periods of stress

		Assets of	Liabilities of	Lehman collapse	Outbreak of COVID-19	Sovereign debt crisis	US taper tantrum	Brexit referendum	Invasion of Ukraine
Investment fund shares	Shares	---	Investment funds	A-	A-				
Other liabilities of investment funds	Other	---	Investment funds	R+	A+	A-			
Bank derivative liabilities	Derivatives	---	Bank					R-	
Bank derivative assets	Derivatives	Bank	---						R-
Derivative liabilities of pension funds	Derivatives	---	Pension funds		R-				R-
Corporate bonds issued by banks	Bonds	---	Bank				A-		
Bank loans to the rest of the world	Loan	Bank	Rest of the world	A-		A-			
Interbank loans	Loan	Bank	Bank	A+	A+	A+	A-	A+	A+
Bank deposits at central bank	Deposit	Bank	Central bank	A+	A+	A+			A-
MMF shares held by banks	Shares	Bank	MMF	R+			R-		
Bank loans to non-financial corporations	Loan	Bank	Non-financial corp.		A+	A-			
Listed shares issued by the rest of the world and held by banks	Shares	Bank	Rest of the world		R-				
Debt securities issued by the rest of the world and held by banks	Bonds	Bank	Rest of the world				A+		A+
Bank deposits from investment funds	Deposit	Bank	Investment funds						R+
Loans from central bank to banks	Loan	Central bank	Bank	A+	A+	A+			
Bank deposits from governments	Deposit	Government	Bank		A+		R+		R+
Government deposits at central bank	Deposit	Government	Central bank				R+	R+	
Deposits of investment funds with the rest of the world	Deposit	Investment fund	Rest of the world	R-		R+	R+		
Debt securities issued by the rest of the world and held by investment funds	Bonds	Investment fund	Rest of the world		A-				
Listed shares issued by the rest of the world and held by investment funds	Shares	Investment fund	Rest of the world		A-				
MMF corporate bonds issued by the rest of the world	Bonds	MMF	Rest of the world	R-					A-
MMF loans to banks	Loan	MMF	Bank	R+	R+		R-		
MMF loans to the rest of the world	Loan	MMF	Rest of the world	R+				R+	
MMF holdings of government bonds	Bonds	MMF	Government		R+	R-		R-	
Corporate bonds held by MMFs	Bonds	MMF	---		R-				
Cash holdings by MMFs	Cash	MMF	---				R-		R-
MMF shares held by non-financial corporations	Shares	Non-financial corp.	MMF		R-				R-
Deposits of non-financial corporations with the rest of the world	Deposit	Non-financial corp.	Rest of the world						R+
Deposits of other financial institutions with the rest of the world	Deposit	Other financial inst.	Rest of the world			R+	R+		R+
Debt securities issued by the rest of the world and held by other financial institutions	Bonds	Other financial inst.	Rest of the world				A+		
Derivative assets of pension funds	Derivatives	Pension funds	---		R-				R-
Pension fund loans	Loan	Pension funds	---						R-
Cash held by pension funds	Cash	Pension funds	---						R+
MMF shares held by pension funds	Shares	Pension funds	MMF						R-
MMF shares held by the rest of the world	Shares	Rest of the world	MMF	R-					A-
Central bank liabilities with non-residents	Other	Rest of the world	Central bank	A+	A+	A+		R+	
Bank deposits from the rest of the world	Deposit	Rest of the world	Bank		A+	A-	A-	A+	A+
Debt securities held by the rest of the world	Bonds	Rest of the world	---				A+		
Government bonds held by the rest of the world	Bonds	Rest of the world	Government					A-	

Source: Own elaboration.

To complement the assessment of each episode, it is necessary to consider also the level of resilience of the financial sector. Building on the concept of macroprudential stance (European Systemic Risk Board, 2019), resilience can be defined as the capacity of the financial system to withstand shocks while continuing to provide its products and services to the real economy. Resilience would encompass the loss-absorbing capacity of each institution, the public safety net and potential institutional features, including regulation, to increase or diminish it. Resilience is an elusive concept to measure as there may be several features and considerations to be taken into account.[49] Although providing an accurate estimate of resilience of the euro area financial system is beyond the scope of our work, Box 3 provides an initial assessment of leverage and liquidity in the euro area financial system; two concepts that are partially embedded in the definition of resilience.

Box 3
Leverage and liquidity in the euro area financial system

The loss-absorbing capacity of the financial sector embedded in the definition of resilience can be partially measured by considering leverage and the holdings of liquid assets. One way to assess the losses that a given sector can absorb is to look at the asset side of its balance sheet and consider how many liquid assets it has. These assets could be easily converted into cash and used to offset those losses. An alternative would be to look at the liability side and consider own funds (comprising items such as listed shares, unlisted shares, other equity and net worth), or, alternatively, debt. Leverage, defined in broad terms as own funds divided by total assets, is an indicator based on the liability side of the balance sheet.

Leverage in the financial system is heavily influenced by the market prices of equity instruments. Panel (a) of Figure G shows the ratio of equity instruments on the liability side of the balance sheet of financial corporations, including the central bank, to total assets. The dynamics of the ratio are different if market prices are excluded by considering only financial transactions.[50] In the latter case, leverage increased continuously until the global financial crisis (2009), then fell until 2018 and has moved upwards since then to reach the pre-2009 levels once again. Market prices of equity instruments increase the value of those instruments and reduce the leverage ratio shown as the blue line in Panel (a) of Figure G. In this case, leverage did not pick up before the global financial crisis, although it also peaked in 2009, before starting a sharp decline until 2019.

Holdings of liquid assets within the euro area financial system show a declining trend until 2020, with a small rebound thereafter. Panel (b) of Figure G portrays a decline in the share of liquid assets, defined as the sum of cash and deposits, to total assets of euro area financial corporations from the global financial crisis until the outbreak of the COVID-19 pandemic. Thereafter, there was a small increase followed by a decline in the most recent quarters. Incorporating MMF and investment fund shares since 2015 renders a parallel but higher trajectory.

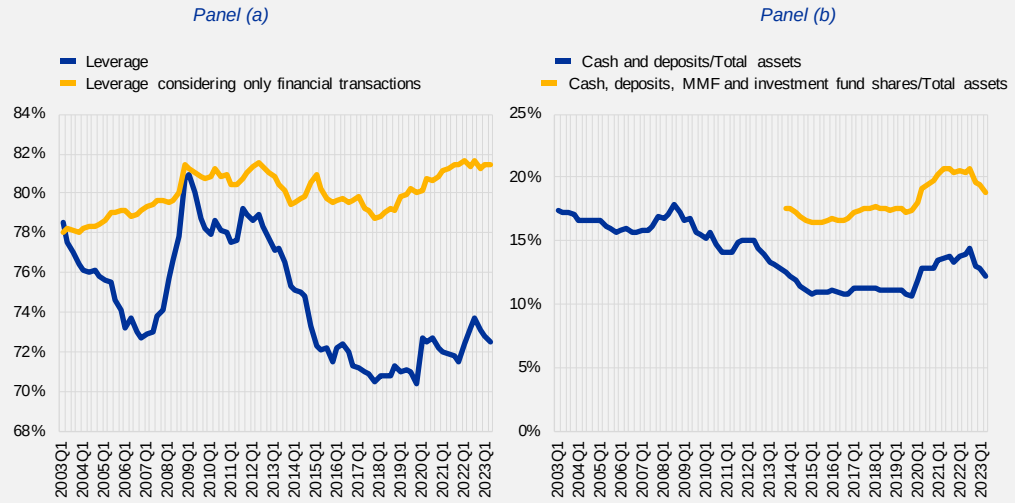
[49] See European Systemic Risk Board (2019) for a detailed discussion.

[50] For further details, see Sánchez Serrano (2022).

Figure G

Leverage and liquidity in the euro area financial system

(%)



Source: Own elaboration, based on European Central Bank data.
Notes: The two panels above refer to the aggregate balance sheet of financial corporations, including banks, central bank, MMFs, insurance corporations, other financial institutions, and pension funds. In Panel (a), leverage is defined as 1 – (equity instruments recognised as liabilities/total assets). The blue line considers the outstanding amounts reported at the end of the period for equity instruments, while the yellow line is based on the outstanding amounts considering only financial transactions, excluding revaluations and other price changes. In Panel (b), data on holdings of MMF and investment fund shares are available from Q4-2013.

In order to make a more accurate assessment of resilience in the euro area financial system, a wider set of information would need to be considered. Our map, based on quarterly sectoral accounts, can provide only an initial and incomplete overview of the level of resilience in the financial system. As it happens, two important components of resilience, namely the support of the safety net and the impact of institutional features, are clearly outside the scope of our map. Furthermore, as a result of limited data availability, which for some sectors starts only after 2015, the definition of sectors (for example, banks and the central bank are often reported together) and the valuation method used for balance sheet items (at market prices), quarterly sectoral accounts are not well suited for assessing the resilience of the financial sector over time.[51] To achieve a more accurate assessment of resilience, one would need to work with more granular information on the access that each sector has to the safety net, the regulatory framework in place or the amount of resources that can be mobilised at low cost to absorb losses. We leave this task for future endeavours.

[51] For instance, data on monetary financial institutions other than the central bank start only in 2015, while data for insurance corporations and pension funds have been reported separately since the end of 2013.

5 Conclusions

Despite some methodological constraints, building a map of the financial system is useful for understanding the structure of the euro area financial system and its behaviour over time. By using data from quarterly sectoral accounts and other datasets for banks, insurance corporations, pension funds and investment funds, we have been able to build a map of the euro area financial system at the sectoral level, while highlighting interconnections across the different components of the economy. In this task, we have used 229 data points and have overcome several methodological constraints. Overall, these constraints do not outweigh the benefits of having a stylised view of the euro area financial system, which also allows for an analysis of its evolution over time (in some instances, from 2003).

Beyond providing a description of the sectors and the main financial markets in the economy, our analysis reveals the structural changes that the financial system has undergone since the global financial crisis. Our map of the financial system enables us to take a snapshot of it at a given point in time, assess the balance sheet of the various sectors and see the issuers and investors active in the main financial markets. Furthermore, looking at the trend over time, the euro area financial system was basically bank-centric when it entered the global financial crisis. Since then, the importance of investment funds, government debt and central banks in the financial system has increased substantially, while lending links between banks and the real economy have remained fairly stable.[52] Investment funds are used by euro area economic agents to gain exposure to the rest of the world and are also an important vehicle through which the rest of the world invests in the euro area economy. While the euro area still maintains fairly strong relations with the rest of the world, a certain retrenchment can be observed since the global financial and sovereign debt crises, affecting mainly bank loans and deposits.

Bank deposits, MMF shares and securities financing transactions play an important role in supplying liquidity to the system, illustrating their importance for macroprudential policy. From our analysis of liquidity, bank deposits, MMF shares and securities financing transactions are found to be key to ensure a smooth supply of liquidity, even during times of financial stress. Therefore, these elements are relevant for macroprudential policy in helping to ensure that episodes of illiquidity do not end up creating systemic events. Indeed, bank deposits were heavily caught up in the financial turmoil affecting several regional banks in the United States in March 2023. Similarly, MMFs have undergone several reforms in the United States and the EU, in an attempt to remedy various identified vulnerabilities in the sector. Furthermore, the importance of government bonds in securities financing transactions, as revealed in our map,[53] and the ongoing process of quantitative tightening would call for further attention by macroprudential authorities, because disruptions in sovereign debt markets could spill over throughout the system via securities financing transactions. Last but not least, data from the most recent episodes of financial stress

[52] This phenomenon has occurred globally. According to data from the Financial Stability Board (2023), the total assets of the non-bank sector in advanced economies amounted to $192.4 billion at the end of 2022, with banks' assets totalling $123.7 billion. In 2008, these amounts were $93.8 billion and $89.8 billion, respectively. For a discussion on the importance of banks in the EU financial system, see Pagano et al. (2015).

[53] See also European Securities and Markets Authority (2024).

reveal the important role played by margin calls in triggering liquidity pressures in the system, with the potential to become systemic.

Looking at past episodes of financial stress can reveal important insights for macroprudential authorities. We have looked at the dynamics of our map during the main systemic events of the last fifteen years (the global financial crisis and the outbreak of the COVID-19 pandemic) and a further four episodes of financial stress (the most acute phase of the sovereign debt crisis, the US taper tantrum, the Brexit referendum and the start of Russia's invasion of Ukraine). We have also considered the monetary policy tightening cycle between 2005 and 2007. While there have been evident differences across these six events (seven including monetary policy tightening), there have also been some common features, which may be relevant for macroprudential authorities moving forward. While the COVID-19 pandemic provides a good example of an unexpected exogenous shock affecting the financial system, the global financial crisis was endogenous to the financial system, revealing several imbalances that had built up over time and which subsequently led to an ambitious regulatory reform.

The insights provided by our map, coupled with a further examination of how regulatory interventions influenced the various intermediaries and markets, can help to refine and enhance the efficacy of future regulatory responses. In general, regulatory intervention is capable of changing the structure of the financial system, with activities (and risks) moving to the less regulated parts. The regulatory reform implemented after the global financial crisis focused on banks, increasing their resilience and making them subject to liquidity requirements, among other enhancements. Reflecting on the extent to which the regulatory reform has increased bank resilience to financial stress is useful. The increase in bank resilience could also explain the growth of other non-bank financial intermediaries since 2009, signalling how our map can be useful in (i) understanding how regulation could be tailored in the future to the most vulnerable parts of the system, and (ii) identifying potential spillover effects to other parts of the financial system. In turn, this could enhance the robustness of financial regulation.[54]

From a different perspective, our map of the financial system reveals those sectors that could act as the first line of defence when a crisis materialises. Our analysis of past key systemic events and episodes of financial stress can also be read as pointing to the sectors most affected by the different crisis episodes. Considering future crises with a similar impact to past ones and discarding large structural changes in the euro area financial system, these sectors could be seen as the first line of defence of the euro area financial system against a crisis. These would be the first sectors to take losses and the stress they endure could spill over to other parts of the system. From a policymaking standpoint, the map can be useful in determining whether these sectors are those resilient enough to absorb losses and whether they can serve as transmitters (or even worse, amplifiers) of stress. For instance, banks would have enough capacity to absorb large losses due to the size of their balance sheet, but their strong interconnections with other parts of the system (through deposits and lending) would make them potential transmitters of financial stress. Meanwhile, MMFs would have a more limited capacity to absorb losses (due to their smaller size), but their potential to transmit stress through the system should also be more limited.

[54] For a discussion on robust financial regulation, see Gai et al. (2019).

Last but not least, we have created a useful tool for analysis and policymakers that can be replicated at national level. To that purpose, the Annex contains the data series from the ECB Data Portal we used to build the map. That should make it possible to replicate our analysis or, if the geographical scope of the data points is changed, to replicate it more locally for specific euro area countries. Furthermore, data from the euro area balance of payments could be used to expand the information about the rest of the world, once the appropriate methodological analysis has been performed. That would mark the first extension of the map.

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Annex. Data points used to build the map of the euro area financial system

Outstanding amounts data

Sector	Item	A/L	Counterparty	Type	Formula
Banks	Cash	A			QSA.Q.N.I9.W0.S12T.S1.N.A.LE.F21.T._Z.XDC._T.S.V.N._T
Banks	Corporate bonds	A			(BSI.M.U2.N.A.A30.A.1.U2.0000.Z01.E)-(BSI.Q.U2.N.A.A30.A.1.U2.2100.Z01.E)+(BSI.Q.U2.N.F.A30.A.1.U2.2100.Z01.E)-(BSI.Q.U2.N.F.A30.A.1.U2.1000.Z01.E)-(BSI.Q.U2.N.F.A30.A.1.U2.2200.Z01.E)
Banks	Corporate bonds	A	RoW		(QSA.Q.N.I9.W0.S12K.S1.N.A.LE.F3.L._Z.XDC. _T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)-(BSI.Q.U2.N.F.A30.A.1.U4.0000.Z01.E)
Banks	Corporate bonds	L			(QSA.Q.N.I9.W0.S12K.S1.N.L.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S12K.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)
Banks	Deposits	A	Banks		(QSA.Q.N.I9.W2.S12K.S12K.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(BSI.M.U2.N.C.L20.A.1.U2.1000.Z01.E)
Banks	Deposits	A	Central bank		BSI.M.U2.N.A.A20.A.1.U2.1100.Z01.E
Banks	Deposits	L	HH		(QSA.Q.N.I9.W2.S12K.S1M.N.L.LE.F2M.T._Z.XDC. _T.S.V.N._T)
Banks	Deposits	L	NFC		QSA.Q.N.I9.W2.S12K.S11.N.L.LE.F2M.T._Z.XDC. _T.S.V.N._T
Banks	Deposits	L	IF		QSA.Q.N.I9.W2.S12K.S124.N.L.LE.F2M.T._Z.XDC.T.S.V.N._T
Banks	Deposits	L	RoW		QSA.Q.N.I9.W1.S12K.S1.N.L.LE.F2M.T._Z.XDC. _T.S.V.N._T
Banks	Deposits	L	Banks		(QSA.Q.N.I9.W2.S12K.S12K.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(BSI.M.U2.N.C.L20.A.1.U2.1000.Z01.E)
Banks	Deposits	L	Government		QSA.Q.N.I9.W2.S12K.S13.N.L.LE.F2M.T._Z.XDC. _T.S.V.N._T
Banks	Deposits	L	OFI		QSA.Q.N.I9.W2.S12K.S12O.N.L.LE.F2M.T._Z.XDC. T.S.V.N._T
Banks	Deposits	L	Insurer		(QSA.Q.N.I9.W2.S12K.S12Q.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(PFBR.Q.U2.S.S129.A1N1.T.1.W0.S1._T.EUR)
Banks	Deposits	L	Pensions		PFBR.Q.U2.S.S129.A1N1.T.1.W0.S1._T.EUR
Banks	Derivatives	A			(QSA.Q.N.I9.W0.S12T.S1.N.A.LE.F7.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12T.S1.N.L.LE.F7.T._Z.XDC._T.S.V.N._T)
Banks	Derivatives	L			(QSA.Q.N.I9.W0.S12T.S1.N.L.LE.F7.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12T.S1.N.L.LE.F7.T._Z.XDC._T.S.V.N._T)
Banks	Government bonds	A	Government		(BSI.Q.U2.N.A.A30.A.1.U2.2100.Z01.E)-(BSI.Q.U2.N.F.A30.A.1.U2.2100.Z01.E)
Banks	Inv. fund shares	A	IF		QSA.Q.N.I9.W0.S12T.S1.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T
Banks	Listed shares	A			QSA.Q.N.I9.W2.S12K.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T
Banks	Listed shares	A	RoW		(QSA.Q.N.I9.W0.S12K.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)
Banks	Unlisted shares	A			(QSA.Q.N.I9.W0.S12T.S1.N.A.LE.F51._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12K.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)

Banks	Listed shares	L		QSA.Q.N.I9.W0.S12K.S1.N.L.LE.F511._Z._Z.XDC. _T.S.V.N._T
Banks	Loans	A	HH	(QSA.Q.N.I9.W2.S12K.S1M.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S1M.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Banks	Loans	A	NFC	(QSA.Q.N.I9.W2.S12K.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Banks	Loans	A	RoW	(QSA.Q.N.I9.W0.S12K.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S12K.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Banks	Loans	A	OFI	(QSA.Q.N.I9.W2.S12K.S12O.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S12O.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Banks	Loans	A	Government	(QSA.Q.N.I9.W2.S12K.S13.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S13.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Banks	MMF shares	A	MMF	(BSI.Q.U2.N.F.L30.A.1.U2.0000.Z01.E)-(QSA.Q.N.I9.W2.S11.S12K.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)-(ICB.Q.U2.X.S128.A61.T.1.W0.S12K._T.EUR)-(PFBR.Q.U2.S.S129.A61.T.1.W0.S1._T.EUR)
Banks	Other assets	A		(BSI.M.U2.N.A.T00.A.1.Z5.0000.Z01.E)-(BSI.Q.U2.N.F.T00.A.1.Z5.0000.Z01.E)-(QSA.Q.N.I9.W0.S12T.S1.N.A.LE.F21.T._Z.XDC._T.S.V.N._T)-(BSI.M.U2.N.A.A30.A.1.U2.0000.Z01.E)+(BSI.Q.U2.N.F.A30.A.1.U2.1000.Z01.E)+(BSI.Q.U2.N.F.A30.A.1.U2.2200.Z01.E)-(BSI.Q.U2.N.R.A30.A.1.U4.0000.Z01.E)-(QSA.Q.N.I9.W2.S12K.S12K.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)+(BSI.M.U2.N.C.L20.A.1.U2.1000.Z01.E)-(BSI.M.U2.N.A.A20.A.1.U2.1100.Z01.E)-(QSA.Q.N.I9.W0.S12T.S1.N.L.LE.F7.T._Z.XDC._T.S.V.N._T)-(BSI.Q.U2.N.A.A30.A.1.U2.2100.Z01.E)+(BSI.Q.U2.N.F.A30.A.1.U2.2100.Z01.E)-(QSA.Q.N.I9.W0.S12T.S1.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12K.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12T.S1.N.A.LE.F51._Z._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S12K.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1M.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1M.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12K.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12K.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S12O.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S12O.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S13.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S13.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(BSI.Q.U2.N.F.L30.A.1.U2.0000.Z01.E)+(QSA.Q.N.I9.W2.S11.S12K.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)+(ICB.Q.U2.X.S128.A61.T.1.W0.S12K._T.EUR)+(PFBR.Q.U2.S.S129.A61.T.1.W0.S1._T.EUR)
Banks	Other equity	L		(QSA.Q.N.I9.W0.S12T.S1.N.L.LE.F51._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12K.S1.N.L.LE.F511._Z._Z.XDC._T.S.V.N._T)

Banks	Other liabilities	L		(BSI.M.U2.N.A.T00.A.1.Z5.0000.Z01.E)-(BSI.Q.U2.N.F.T00.A.1.Z5.0000.Z01.E)-(QSA.Q.N.I9.W0.S12K.S1.N.L.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12K.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S11.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S124.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12K.S1.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S12K.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)+(BSI.M.U2.N.C.L20.A.1.U2.1000.Z01.E)-(QSA.Q.N.I9.W2.S12K.S13.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S12O.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S12Q.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12T.S1.N.L.LE.F7.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12T.S1.N.L.LE.F51._Z._Z.XDC._T.S.V.N._T)
Central banks	Currency in circulation	L		BSI.M.U2.N.C.L10.X.1.Z5.0000.Z01.E
Central banks	Corporate bonds	A		(BSI.M.U2.N.C.A30.A.1.U2.0000.Z01.E)-(BSI.M.U2.N.C.A30.A.1.U2.2100.Z01.E)
Central banks	Deposits	L	Banks	BSI.M.U2.N.C.L20.A.1.U2.1000.Z01.E
Central banks	Capital and reserves	L		BSI.M.U2.N.C.L60.X.1.Z5.0000.Z01.E
Central banks	Gold and SDRs	A		QSA.Q.N.I9.W0.S121.S1.N.A.LE.F1._Z._Z.XDC._T.S.V.N._T
Central banks	Government bonds	A	Government	BSI.M.U2.N.C.A30.A.1.U2.2100.Z01.E
Central banks	Deposits	L	Government	BSI.M.U2.N.C.L20.A.1.U2.2110.Z01.E
Central banks	Loans	A	Banks	BSI.M.U2.N.C.A20.A.1.U2.1000.Z01.E
Central banks	Other assets	A		(BSI.M.U2.N.C.T00.A.1.Z5.0000.Z01.E)-(BSI.M.U2.N.C.A30.A.1.U2.0000.Z01.E)-(BSI.M.U2.N.C.A20.A.1.U2.1000.Z01.E)-(BSI.M.U2.N.C.AXG.A.1.U4.0000.Z01.E)
Central banks	Other claims on non-residents	A	RoW	BSI.M.U2.N.C.AXG.A.1.U4.0000.Z01.E
Central banks	Other liabilities	L		(BSI.M.U2.N.C.T00.A.1.Z5.0000.Z01.E)-(BSI.M.U2.N.C.LXG.A.1.U4.0000.Z01.E)-(BSI.M.U2.N.C.L10.X.1.Z5.0000.Z01.E)-(BSI.M.U2.N.C.L60.X.1.Z5.0000.Z01.E)-(BSI.M.U2.N.C.L20.A.1.U2.1000.Z01.E)-(BSI.M.U2.N.C.L20.A.1.U2.2110.Z01.E)
Central banks	Other liabilities to non-residents	L	RoW	BSI.M.U2.N.C.LXG.A.1.U4.0000.Z01.E
Government	Deposits	A	Banks	(QSA.Q.N.I9.W2.S12K.S13.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(BSI.M.U2.N.C.L20.A.1.U2.2110.Z01.E)
Government	Fixed assets	A		QSA.Q.N.I9.W0.S13.S1._Z.D.LE.N11N._Z._Z.EUR._Z.S.V.N._T
Government	Government bonds	L	Government	(QSA.Q.N.I9.W0.S13.S1.N.L.LE.F3.T._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)

Government	Listed shares	A		QSA.Q.N.I9.W0.S13.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T
Government	Loans	A	Government	(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Government	Loans	A	NFC	(QSA.Q.N.I9.W2.S13.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S13.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Government	Loans	L	Government	(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Government	Loans	L	RoW	(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)
Government	Loans	L	Banks	(QSA.Q.N.I9.W2.S12K.S13.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S13.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Government	Net worth	L		(QSA.Q.N.I9.W0.S13.S1.N.A.LE.F._Z._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S13.S1._Z.D.LE.N11N._Z._Z.EUR._Z.S.V.N._T)-(QSA.Q.N.I9.W0.S13.S1.N.L.LE.F._Z._Z.XDC._T.S.V.N._T)
Government	Other assets	A		(QSA.Q.N.I9.W0.S13.S1.N.A.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S13.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)+(BSI.M.U2.N.C.L20.A.1.U2.2110.Z01.E)-(QSA.Q.N.I9.W0.S13.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S13.S1.N.A.LE.F51M._Z._Z.XDC._T.S.V.N._T)
Government	Other liabilities	L		(QSA.Q.N.I9.W0.S13.S1.N.L.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S13.S1.N.L.LE.F3.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S13.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S13.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S13.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
Government	Unlisted shares	A		QSA.Q.N.I9.W0.S13.S1.N.A.LE.F51M._Z._Z.XDC._T.S.V.N._T
HH	Cash	A		QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F21.T._Z.XDC._T.S.V.N._T
HH	Deposits	A	Banks	QSA.Q.N.I9.W2.S12K.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T
HH	Deposits	A	Government	QSA.Q.N.I9.W2.S13.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T
HH	Deposits	A	NFC	QSA.Q.N.I9.W2.S11.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T
HH	Deposits	A	RoW	(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)
HH	Government bonds	A	Government	(QSA.Q.N.I9.W2.S1M.S13.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S1M.S13.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)
HH	Inv. fund shares	A	IF	QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F52._Z._Z.XDC. _T.S.V.N._T
HH	Listed shares	A		QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F511._Z._Z.XDC. _T.S.V.N._T
HH	Loans	L	Banks	(QSA.Q.N.I9.W2.S12K.S1M.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S1M.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)

HH	Loans	L	OFI	(QSA.Q.N.I9.W2.S12O.S1M.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12O.S1M.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
HH	Loans	L	RoW	(QSA.Q.N.I9.W1.S1M.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S1M.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)
HH	Net worth	L		(QSA.Q.N.I9.W0.S1M.S1.N.N.BF90.F._Z._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S1M.S1._Z.D.LE.NYN._Z._Z.EUR._Z.S.V.N._T)
HH	Unlisted shares	A		QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F51M._Z._Z.XDC. _T.S.V.N._T
HH	Life insurance and pension entitlements	A	Insurers	QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F62._Z._Z.XDC. _T.S.V.N._T
HH	Pension entitlements	A		QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F6M._Z._Z.XDC. _T.S.V.N._T
HH	Other assets	A		(QSA.Q.N.I9.W0.S1M.S1._Z.D.LE.NYN._Z._Z.EUR._Z.S.V.N._T)-(QSA.Q.N.I9.W0.S1M.S1._Z.D.LE.NUN._Z._Z.EUR._Z.S.V.N._T)+(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F21.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S13.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S13.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S11.S1M.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S1M.S13.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S1M.S13.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F51M._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F62._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S1M.S1.N.A.LE.F6M._Z._Z.XDC._T.S.V.N._T)
HH	Other liabilities	L		(QSA.Q.N.I9.W0.S1M.S1.N.L.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1M.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S1M.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S1M.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S1M.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1M.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1M.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)
HH	Real estate	A		QSA.Q.N.I9.W0.S1M.S1._Z.D.LE.NUN._Z._Z.EUR. _Z.S.V.N._T
Insurers	Cash and deposits	A		ICB.Q.U2.X.S128.A10.T.1.W0.S1._T.EUR
Insurers	Corporate bonds	A		(ICB.Q.U2.X.S128.A30.S.1.U2.S1._T.EUR)+(ICB.Q.U2.X.S128.A30.Y12.1.U2.S1._T.EUR)+(ICB.Q.U2.X.S128.A30.Y2_.1.U2.S1._T.EUR)-(ICB.Q.U2.X.S128.A30.Y2_.1.U2.S13._T.EUR)
Insurers	Corporate bonds	A	RoW	(ICB.Q.U2.X.S128.A30.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A30.S.1.U2.S1._T.EUR)-(ICB.Q.U2.X.S128.A30.Y12.1.U2.S1._T.EUR)-(ICB.Q.U2.X.S128.A30.Y2_.1.U2.S1._T.EUR)
Insurers	Corporate bonds	L		ICB.Q.U2.X.S128.L30.T.1.W0.S1._T.EUR
Insurers	Derivatives	A		ICB.Q.U2.X.S128.A70.T.1.W0.S1._T.EUR

Insurers	Derivatives	A			ICB.Q.U2.X.S128.L70.T.1.W0.S1._T.EUR
Insurers	Governmen t bonds	A	Government		ICB.Q.U2.X.S128.A30.Y2_.1.U2.S13._T.EUR
Insurers	Inv. fund shares	A	IF	Bond	ICB.Q.U2.X.S128.A622.T.1.W0.S124._T.EUR
Insurers	Inv. fund shares	A	IF	Equity	ICB.Q.U2.X.S128.A621.T.1.W0.S124._T.EUR
Insurers	Inv. fund shares	A	IF	Mixed	ICB.Q.U2.X.S128.A623.T.1.W0.S124._T.EUR
Insurers	Inv. fund shares	A	IF	Real estate	ICB.Q.U2.X.S128.A624.T.1.W0.S124._T.EUR
Insurers	Inv. fund shares	A	IF	Hedge funds	ICB.Q.U2.X.S128.A625.T.1.W0.S124._T.EUR
Insurers	Inv. fund shares	A	IF	Other	ICB.Q.U2.X.S128.A626.T.1.W0.S124._T.EUR
Insurers	Inv. fund shares	A	IF		ICB.Q.U2.X.S128.A60.T.1.W0.S1._T.EUR
Insurers	Listed shares	A			ICB.Q.U2.X.S128.A51.T.1.U2.S1._T.EUR
Insurers	Listed shares	A	RoW		(ICB.Q.U2.X.S128.A51.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A51.T.1.U2.S1._T.EUR)
Insurers	Unlisted shares	A			ICB.Q.U2.X.S128.A52.T.1.W0.S1._T.EUR
Insurers	Listed shares	L			ICB.Q.U2.X.S128.L51.T.1.W0.S1._T.EUR
Insurers	Unlisted shares	L			ICB.Q.U2.X.S128.L52.T.1.W0.S1._T.EUR
Insurers	Loans	L			ICB.Q.U2.X.S128.L20.T.1.W0.S1._T.EUR
Insurers	MMF shares	A	MMF		ICB.Q.U2.X.S128.A61.T.1.W0.S12K._T.EUR
Insurers	Other equity	A			ICB.Q.U2.X.S128.A53.T.1.W0.S1._T.EUR
Insurers	Other equity	L			ICB.Q.U2.X.S128.L53.T.1.W0.S1._T.EUR
Insurers	Other assets	A			(ICB.Q.U2.X.S128.T00.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A10.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A30.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A70.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A60.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A51.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A52.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.A61.T.1.W0.S12K._T.EUR)-(ICB.Q.U2.X.S128.A53.T.1.W0.S1._T.EUR)
Insurers	Other liabilities	L			(ICB.Q.U2.X.S128.T00.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.L30.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.L51.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.L52.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.L20.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.L70.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.L53.T.1.W0.S1._T.EUR)-(ICB.Q.U2.X.S128.L40.T.1.W0.S1._T.EUR)

Insurers	Technical provisions	L			ICB.Q.U2.X.S128.L40.T.1.W0.S1._T.EUR
IF	Corporate bonds	A			(IVF.Q.U2.N.T0.A30.A.1.U2.0000.Z01.E)-(IVF.Q.U2.N.T0.A30.A.1.U2.2100.Z01.E)
IF	Corporate bonds	A	RoW		IVF.Q.U2.N.T0.A30.A.1.U4.0000.Z01.E
IF	Deposits	A	Banks		(QSA.Q.N.I9.W2.S12K.S124.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)
IF	Deposits	A	RoW		(QSA.Q.N.I9.W0.S124.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S1.S124.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)
IF	Government bonds	A	Government		IVF.Q.U2.N.T0.A30.A.1.U2.2100.Z01.E
IF	Inv. fund shares	A	IF		QSA.Q.N.I9.W2.S124.S124.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T
IF	Inv. fund shares	L		Bond	IVF.M.U2.N.20.L30.A.1.Z5.0000.Z01.E
IF	Inv. fund shares	L		Equity	IVF.M.U2.N.10.L30.A.1.Z5.0000.Z01.E
IF	Inv. fund shares	L		Mixed	IVF.M.U2.N.30.L30.A.1.Z5.0000.Z01.E
IF	Inv. fund shares	L		Real estate	IVF.M.U2.N.40.L30.A.1.Z5.0000.Z01.E
IF	Inv. fund shares	L		Hedge funds	IVF.M.U2.N.50.L30.A.1.Z5.0000.Z01.E
IF	Inv. fund shares	L		Other	IVF.M.U2.N.60.L30.A.1.Z5.0000.Z01.E
IF	Inv. fund shares	L			IVF.Q.U2.N.T0.L30.A.1.Z5.0000.Z01.E
IF	Inv. fund shares	L	IF		QSA.Q.N.I9.W2.S124.S124.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T
IF	Inv. fund shares	L	RoW		QSA.Q.N.I9.W1.S124.S1.N.L.LE.F52._Z._Z.XDC._T.S.V.N._T
IF	Inv. fund shares	L	HH		QSA.Q.N.I9.W2.S1M.S124.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T
IF	Inv. fund shares	L	NFC		QSA.Q.N.I9.W2.S11.S124.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T
IF	Inv. fund shares	L	OFI		QSA.Q.N.I9.W2.S12O.S124.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T
IF	Inv. fund shares	L	Insurers		ICB.Q.U2.X.S128.A60.T.1.W0.S1._T.EUR
IF	Inv. fund shares	L	Pensions		PFBR.Q.U2.S.S129.A62.T.1.W0.S1._T.EUR
IF	Inv. fund shares	L	Banks		QSA.Q.N.I9.W2.S12K.S124.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T
IF	Listed shares	A			QSA.Q.N.I9.W2.S124.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T
IF	Listed shares	A	RoW		(QSA.Q.N.I9.W0.S124.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S124.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)
IF	Loans	A			QSA.Q.N.I9.W0.S124.S1.N.A.LE.F4.T._Z.XDC._T.S.V.N._T
IF	Loans	L			QSA.Q.N.I9.W0.S124.S1.N.L.LE.F4.T._Z.XDC._T.S.V.N._T

IF	Other liabilities	L		(IVF.Q.U2.N.T0.T00.A.1.Z5.0000.Z01.E)-(IVF.Q.U2.N.T0.L30.A.1.Z5.0000.Z01.E)-(QSA.Q.N.I9.W0.S124.S1.N.L.LE.F4.T._Z.XDC._T.S.V.N._T)
IF	Real estate	A		IVF.Q.U2.N.T0.A60.A.1.Z5.0000.Z01.E
IF	Other assets	A		(IVF.Q.U2.N.T0.T00.A.1.Z5.0000.Z01.E)-(IVF.Q.U2.N.T0.A30.A.1.U2.0000.Z01.E)-(IVF.Q.U2.N.T0.A30.A.1.U4.0000.Z01.E)-(QSA.Q.N.I9.W2.S12K.S124.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S124.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S1.S124.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S124.S124.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S124.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S124.S1.N.A.LE.F4.T._Z.XDC._T.S.V.N._T)-(IVF.Q.U2.N.T0.A60.A.1.Z5.0000.Z01.E)
MMF	Cash	A		(BSI.Q.U2.N.F.A70.X.1.Z5.0000.Z01.E)+(BSI.Q.U2.N.F.A42.A.1.U2.1000.Z01.E)
MMF	Corporate bonds	A		(BSI.Q.U2.N.F.A30.A.1.U2.1000.Z01.E)+(BSI.Q.U2.N.F.A30.A.1.U2.2200.Z01.E)
MMF	Corporate bonds	A	RoW	BSI.Q.U2.N.F.A30.A.1.U4.0000.Z01.E
MMF	Government bonds	A		BSI.Q.U2.N.F.A30.A.1.U2.2100.Z01.E
MMF	Other assets	A		(BSI.Q.U2.N.F.T00.A.1.Z5.0000.Z01.E)-(BSI.Q.U2.N.F.A20.A.1.U4.0000.Z01.E)-(BSI.Q.U2.N.F.A20.A.1.U2.1000.Z01.E)-(BSI.Q.U2.N.F.A70.X.1.Z5.0000.Z01.E)-(BSI.Q.U2.N.F.A42.A.1.U2.1000.Z01.E)-(BSI.Q.U2.N.F.A30.A.1.U2.1000.Z01.E)-(BSI.Q.U2.N.F.A30.A.1.U2.2200.Z01.E)-(BSI.Q.U2.N.F.A30.A.1.U4.0000.Z01.E)-(BSI.Q.U2.N.F.A30.A.1.U2.2100.Z01.E)
MMF	Loans	A	RoW	(BSI.Q.U2.N.F.A20.A.1.U4.0000.Z01.E)
MMF	Loans	A	Banks	(BSI.Q.U2.N.F.A20.A.1.U2.1000.Z01.E)
MMF	MMF shares	L	Banks	(BSI.Q.U2.N.F.L30.A.1.U2.0000.Z01.E)-(QSA.Q.N.I9.W2.S11.S12K.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)-(ICB.Q.U2.X.S128.A61.T.1.W0.S12K._T.EUR)-(PFBR.Q.U2.S.S129.A61.T.1.W0.S1._T.EUR)
MMF	MMF shares	L	NFC	QSA.Q.N.I9.W2.S11.S12K.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T
MMF	MMF shares	L	Insurers	ICB.Q.U2.X.S128.A61.T.1.W0.S12K._T.EUR
MMF	MMF shares	L	Pensions	PFBR.Q.U2.S.S129.A61.T.1.W0.S1._T.EUR
MMF	MMF shares	L	RoW	BSI.Q.U2.N.F.LXG.A.1.U4.0000.Z01.E
MMF	MMF shares	L		BSI.Q.U2.N.F.L30.A.1.U2.0000.Z01.E
MMF	Other liabilities	L		(BSI.Q.U2.N.F.T00.A.1.Z5.0000.Z01.E)-(BSI.Q.U2.N.F.LXG.A.1.U4.0000.Z01.E)-(BSI.Q.U2.N.F.L30.A.1.U2.0000.Z01.E)
NFC	Cash	A		QSA.Q.N.I9.W0.S11.S1.N.A.LE.F21.T._Z.XDC. _T.S.V.N._T
NFC	Corporate bonds	L		QSA.Q.N.I9.W0.S11.S1.N.L.LE.F3.T._Z.XDC. _T.S.V.N._T

NFC	Deposits	A	Banks	QSA.Q.N.I9.W2.S12K.S11.N.L.LE.F2M.T._Z.XDC. _T.S.V.N._T
NFC	Deposits	A	RoW	(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S11.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)
NFC	Fixed assets	A		QSA.Q.N.I9.W0.S11.S1._Z.D.LE.N11N._Z._Z.EUR. _Z.S.V.N._T
NFC	Inv. fund shares	A	IF	QSA.Q.N.I9.W0.S11.S1.N.A.LE.F52._Z._Z.XDC. _T.S.V.N._T
NFC	Listed shares	A		QSA.Q.N.I9.W0.S11.S1.N.A.LE.F511._Z._Z.XDC. _T.S.V.N._T
NFC	Listed shares	L		QSA.Q.N.I9.W0.S11.S1.N.L.LE.F511._Z._Z.XDC. _T.S.V.N._T
NFC	Loans	L	OFI	(QSA.Q.N.I9.W2.S12O.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12O.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
NFC	Loans	L	Banks	(QSA.Q.N.I9.W2.S12K.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
NFC	Loans	L	RoW	(QSA.Q.N.I9.W1.S11.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S11.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)
NFC	Loans	L	NFC	(QSA.Q.N.I9.W2.S11.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S11.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
NFC	Loans	A	NFC	(QSA.Q.N.I9.W2.S11.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S11.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
NFC	MMF shares	A	MMF	QSA.Q.N.I9.W2.S11.S12K.N.A.LE.F52._Z._Z.XDC. _T.S.V.N._T
NFC	Net worth	L		(QSA.Q.N.I9.W0.S11.S1._Z.D.LE.N11N._Z._Z.EUR._Z.S.V.N._T)+(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.L.LE.F._Z._Z.XDC._T.S.V.N._T)
NFC	Other financial assets	A		(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F21.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S11.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S11.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S12K.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F81.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F51M._Z._Z.XDC._T.S.V.N._T)
NFC	Other liabilities	L		(QSA.Q.N.I9.W0.S11.S1.N.L.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.L.LE.F3.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.L.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.L.LE.F51M._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.L.LE.F81.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S11.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S11.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
NFC	Trade payables	L		QSA.Q.N.I9.W0.S11.S1.N.L.LE.F81.T._Z.XDC. _T.S.V.N._T

NFC	Trade receivables	A		QSA.Q.N.I9.W0.S11.S1.N.A.LE.F81.T._Z.XDC. _T.S.V.N._T
NFC	Unlisted shares	A		QSA.Q.N.I9.W0.S11.S1.N.A.LE.F51M._Z._Z.XDC. _T.S.V.N._T
NFC	Unlisted shares	L		QSA.Q.N.I9.W0.S11.S1.N.L.LE.F51M._Z._Z.XDC. _T.S.V.N._T
OFI	Corporate bonds	A		(QSA.Q.N.I9.W2.S12O.S1.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12O.S1.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S13.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S13.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)
OFI	Corporate bonds	A	RoW	(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S1.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S1.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)
OFI	Corporate bonds	L		(QSA.Q.N.I9.W0.S12O.S1.N.L.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S12O.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)
OFI	Deposits	A	Banks	QSA.Q.N.I9.W2.S12K.S12O.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T
OFI	Deposits	A	RoW	(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S1.S12O.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)
OFI	Governmen t bonds	A	Government	(QSA.Q.N.I9.W2.S12O.S13.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12O.S13.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)
OFI	Inv. fund shares	A	IF	QSA.Q.N.I9.W2.S12O.S124.N.A.LE.F52._Z._Z.XDC. _T.S.V.N._T
Other financial institution s	Listed shares	A		QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T
OFI	Listed shares	L		QSA.Q.N.I9.W0.S12O.S1.N.L.LE.F511._Z._Z.XDC._T.S.V.N._T
OFI	Loans	A	NFC	(QSA.Q.N.I9.W2.S12O.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12O.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
OFI	Loans	A	HH	(QSA.Q.N.I9.W2.S12O.S1M.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12O.S1M.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
OFI	Loans	A	RoW	(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
OFI	Loans	L	RoW	(QSA.Q.N.I9.W1.S12O.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S12O.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)
OFI	Loans	L	Banks	(QSA.Q.N.I9.W2.S12K.S12O.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12K.S12O.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
OFI	Loans	L	NFC	(QSA.Q.N.I9.W2.S11.S12O.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S11.S12O.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)

OFI	Other assets	A			(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S12O.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S124.N.A.LE.F52._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F51M._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S11.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S11.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S1M.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12O.S1M.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12O.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S12O.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S1.S12O.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)
OFI	Other liabilities	L			(QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.L.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.L.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S12O.S1.N.L.LE.F51M._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12O.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12O.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S12O.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S12K.S12O.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S12O.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S12O.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
OFI	Unlisted shares	A			QSA.Q.N.I9.W0.S12O.S1.N.A.LE.F51M._Z._Z.XDC. _T.S.V.N._T
OFI	Unlisted shares	L			QSA.Q.N.I9.W0.S12O.S1.N.L.LE.F51M._Z._Z.XDC. _T.S.V.N._T
Pensions	Cash	A			(PFBR.Q.U2.S.S129.A1N.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.A1N1.T.1.W0.S1._T.EUR)
Pensions	Corporate bonds	A			(PFBR.Q.U2.S.S129.A30.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.A30.T.1.U4.S1._T.EUR)-(PFBR.Q.U2.S.S129.A30.T.1.W2.S13._T.EUR)-(PFBR.Q.U2.S.S129.A30.T.1.U5.S13._T.EUR)
Pensions	Corporate bonds	A	RoW		PFBR.Q.U2.S.S129.A30.T.1.U4.S1._T.EUR
Pensions	Deposits	A	Banks		PFBR.Q.U2.S.S129.A1N1.T.1.W0.S1._T.EUR
Pensions	Derivatives	A			PFBR.Q.U2.S.S129.A70.T.1.W0.S1._T.EUR
Pensions	Derivatives	L			PFBR.Q.U2.S.S129.L70.T.1.W0.S1._T.EUR
Pensions	Governmen t bonds	A	Government		(PFBR.Q.U2.S.S129.A30.T.1.W2.S13._T.EUR)+(PFBR.Q.U2.S.S129.A30.T.1.U5.S13._T.EUR)
Pensions	Inv. fund shares	A	IF	Bond	PFBR.Q.U2.S.S129.A622.T.1.W0.S1._T.EUR
Pensions	Inv. fund shares	A	IF	Equity	PFBR.Q.U2.S.S129.A621.T.1.W0.S1._T.EUR
Pensions	Inv. fund shares	A	IF	Mixed	PFBR.Q.U2.S.S129.A623.T.1.W0.S1._T.EUR
Pensions	Inv. fund shares	A	IF	Real estate	PFBR.Q.U2.S.S129.A624.T.1.W0.S1._T.EUR

Pensions	Inv. fund shares	A	IF	Hedge funds	PFBR.Q.U2.S.S129.A625.T.1.W0.S1._T.EUR
Pensions	Inv. fund shares	A	IF	Other	PFBR.Q.U2.S.S129.A626.T.1.W0.S1._T.EUR
Pensions	Inv. fund shares	A	IF		PFBR.Q.U2.S.S129.A62.T.1.W0.S1._T.EUR
Pensions	Listed shares	A			PFBR.Q.U2.S.S129.A51.T.1.W0.S1._T.EUR
Pensions	Net worth	L			PFBR.Q.U2.S.S129.B90.T.1.W0.S1._T.EUR
Pensions	Equity	L			PFBR.Q.U2.S.S129.L50.T.1.W0.S1._T.EUR
Pension funds	Loans	L			PFBR.Q.U2.S.S129.L20.T.1.W0.S1._T.EUR
Pensions	MMF shares	A	MMF		
Pensions	Other assets	A			(PFBR.Q.U2.S.S129.A00.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.A70.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.A62.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.A61.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.A1N.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.A30.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.A51.T.1.W0.S1._T.EUR)
Pensions	Other liabilities	L			(PFBR.Q.U2.S.S129.A00.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.L70.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.B90.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.L50.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.L20.T.1.W0.S1._T.EUR)-(PFBR.Q.U2.S.S129.L40.T.1.W0.S1._T.EUR)
Pensions	Technical provisions	L			PFBR.Q.U2.S.S129.L40.T.1.W0.S1._T.EUR
RoW	Corporate bonds	A			(QSA.Q.N.I9.W1.S1.S1.N.L.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S1.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)
RoW	Debt securities	L			(QSA.Q.N.I9.W1.S1.S1.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S1.S1.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)
RoW	Deposits	A	Central bank		BSI.M.U2.N.C.LXG.A.1.U4.0000.Z01.E
RoW	Deposits	A	Banks		(QSA.Q.N.I9.W1.S12K.S1.N.L.LE.F2M.T._Z.XDC. _T.S.V.N._T)-(BSI.M.U2.N.C.LXG.A.1.U4.0000.Z01.E)
RoW	Deposits	L	NFC		QSA.Q.N.I9.W1.S11.S1.N.A.LE.F2M.T._Z.XDC. _T.S.V.N._T
RoW	Deposits	L	IF		QSA.Q.N.I9.W1.S124.S1.N.A.LE.F2M.T._Z.XDC. _T.S.V.N._T
RoW	Deposits	L	OFI		QSA.Q.N.I9.W1.S12O.S1.N.A.LE.F2M.T._Z.XDC. _T.S.V.N._T
RoW	Government bonds	A	Government		(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F3.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)
RoW	Inv. fund shares	A	IF		QSA.Q.N.I9.W1.S124.S1.N.L.LE.F52._Z._Z.XDC. _T.S.V.N._T
RoW	Listed shares	A			QSA.Q.N.I9.W1.S1.S1.N.L.LE.F511._Z._Z.XDC. _T.S.V.N._T
RoW	Listed shares	L			QSA.Q.N.I9.W1.S1.S1.N.A.LE.F511._Z._Z.XDC. _T.S.V.N._T
RoW	Loans	A	Government		(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)

RoW	Loans	A	NFC	(QSA.Q.N.I9.W1.S11.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S11.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)
RoW	Loans	A	OFI	(QSA.Q.N.I9.W1.S12O.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S12O.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)
RoW	Loans	L	OFI	(QSA.Q.N.I9.W1.S12O.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S12O.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
RoW	Loans	L	Banks	(QSA.Q.N.I9.W1.S12K.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S12K.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)
RoW	Loans	L	NFC	(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W2.S11.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)
RoW	Other assets	A		(QSA.Q.N.I9.W1.S1.S1.N.L.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1.S1.N.L.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12K.S1.N.L.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S124.S1.N.L.LE.F52._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1.S1.N.L.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1.S1.N.L.LE.F51M._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S13.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S11.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S11.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12O.S1.N.L.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12O.S1.N.L.LE.F4.L._Z.XDC._T.S.V.N._T)
RoW	Other liabilities	L		(QSA.Q.N.I9.W1.S1.S1.N.L.LE.F._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1.S1.N.A.LE.F3.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1.S1.N.A.LE.F3.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S11.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S124.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12O.S1.N.A.LE.F2M.T._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1.S1.N.A.LE.F511._Z._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12O.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12O.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12K.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S12K.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W0.S11.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S11.S1.N.A.LE.F4.L._Z.XDC._T.S.V.N._T)+(QSA.Q.N.I9.W2.S11.S1.N.A.LE.F4.S._Z.XDC._T.S.V.N._T)-(QSA.Q.N.I9.W1.S1.S1.N.A.LE.F51M._Z._Z.XDC._T.S.V.N._T)
RoW	Unlisted shares	A		QSA.Q.N.I9.W1.S1.S1.N.L.LE.F51M._Z._Z.XDC. _T.S.V.N._T
RoW	Unlisted shares	L		QSA.Q.N.I9.W1.S1.S1.N.A.LE.F51M._Z._Z.XDC. _T.S.V.N._T

Notes: Concerning sectors and counterparties, HH stands for households, NFC for non-financial corporations, IF for investment funds, OFI for other financial institutions, MMF for Money Market Fund and RoW for rest of the world. A refers to Asset and L to liabilities.

Transaction data

Transaction data are computed using the same data points as for outstanding amounts but changing the reference from closing balance sheet to transactions. For the QSA data this is done by changing “LE “to “F”, while for BSI, IVF, PFBR, ICB it is done by changing “1” to “4”. There is an exception for five series where the corresponding transaction series does not exist. This includes the following five data series.

- QSA.Q.N.I9.W0.S13.S1._Z.D.LE.N11N._Z._Z.EUR._Z.S.V.N._T
- QSA.Q.N.I9.W0.S1M.S1._Z.D.LE.NYN._Z._Z.EUR._Z.S.V.N._T
- QSA.Q.N.I9.W0.S1M.S1.N.N.BF90.F._Z._Z.XDC._T.S.V.N._T
- QSA.Q.N.I9.W0.S1M.S1._Z.D.LE.NUN._Z._Z.EUR._Z.S.V.N._T
- QSA.Q.N.I9.W0.S11.S1._Z.D.LE.N11N._Z._Z.EUR._Z.S.V.N._T

As an alternative the change in outstanding amount between two periods is used as an estimate.

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All remaining errors are ours.

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For specific terminology please refer to the **ESRB glossary** (available in English only).

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