

Using financial accounts – a central banking perspective

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Executive summary³

The development of financial accounts (FA) is high on the global policy agenda. These accounts have become an essential element of the Systems of National Accounts (SNA), drawing from the traditional description of real economic aggregates but augmented to present information on financial flows and positions. Several steps have been taken in recent years to refine important aspects of this framework, with the ultimate goal of building “integrated sectoral financial accounts”.

To this end, **two areas of focus** are important. One relates to collecting the statistics that are needed to “fill” standard economic accounts. Large data collections have been undertaken since the 2007–09 Great Financial Crisis (GFC) to build better-quality, more comprehensive and flexible data sets, which can greatly facilitate the actual compilation of FA. A second important issue is to highlight how these statistics can be useful; in particular, to show how the wealth of information provided by FA can support public policy.

These areas are of particular relevance for central banks, as both producers and users of data.

As producers, they have been highly involved in the statistical exercises launched to address the challenges highlighted by the GFC – and they are de facto in charge of the compilation of FA in most countries. As data users, central banks have a steadily increasing demand for information in order to understand, and act on, the financial system in pursuing monetary and financial stability policy objectives. FA represent a key opportunity to address these information needs.

Against this backdrop, a workshop on the “Use of financial accounts” was organised by the Central Bank of the Republic of Turkey (CBRT) with the BIS’s Irving Fisher Committee on Central Bank Statistics (IFC). Convening in March 2019 in Istanbul, Turkey, this workshop was attended by officials from central banks, international organisations and national statistical offices from almost 30 jurisdictions across the globe, as well as by representatives from other public agencies, the financial sector and academia. This proved a useful opportunity to take stock of the initiatives conducted by the central bank community and other parties to enhance the actual use of FA information in conducting financial stability and monetary policy.

Feedback from the workshop **highlighted the following points:**

- The system of financial accounts has become a **key building block** of economic statistics, reflecting the growing importance of finance in today’s life. Important steps have been taken in recent years to refine this framework. In particular, the various post-crisis initiatives for better-quality, more comprehensive and flexible granular data sets have proved instrumental.
- As a result, significant progress has been made in major advanced and emerging market economy countries. Yet many jurisdictions are still **struggling with FA compilation** in practice – which requires important human, IT and financial resources. These difficulties can be mitigated

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by setting up carefully defined steps for progressively enhancing compilation and by following a long-term prioritisation plan.

- Once initial compilation efforts have been made, the **focus should turn increasingly to the user side**. This is of particular relevance for central banks in their dual role of producers and users of data. From this perspective, FA may not be sufficiently explored despite their vast potential. In particular, this information can usefully support central bank work in, for example, statistical compilation, macroeconomic analysis and monitoring, forecasting, and monetary and financial stability.
- For instance, the FA framework has proved instrumental in **assessing financial intermediation** and the role of non-traditional providers of financial services. It also provides a wealth of information for the analysis of the financial positions of economic agents that use financial services. National experience shows that this can be particularly valuable when seeking to **understand the behaviour** of households and corporates as well as in detecting potential fragilities.
- A key issue is to make sense of the data collected and **ensure that the insights gained can support policy effectively** – by transforming data into information and then knowledge. The challenges include, first, to ensure that FA information is consistent with the other types of statistics available. Second is to facilitate the combination of micro- and macro-level statistics. And a final one is to make sure that statistics based on the residency concept remain relevant in an increasingly globalised economy.
- To **address these challenges**, it is important to enhance the interaction between users and compilers as well as to strengthen internal and external communication. In addition, the compilation of national, residency-based FA can be usefully complemented by the production of global flow-of-funds data, the development of database on multinational enterprises (MNEs), the setup of consistent distributional indicators, the linking of micro- and macro-data sets, and the provision of nationality statistics.
- The increased availability of FA is likely to **trigger new demands from users** that may be difficult to predict at the current stage, putting a premium on collecting and combining granular data in a flexible way.

The **related presentations**, referred to in this overview and included in this *IFC Bulletin*, focused on various aspects related to the use of FA. They covered (1) ongoing compilation exercises to develop the FA framework; (2) FA's effectiveness as a tool to support public policy in various areas, with a focus on central bank activities; (3) the richness of this framework to address issues of current relevance in the global financial system, namely the evolving patterns of financial intermediation and the assessment of economic agents' balance sheets and associated vulnerabilities; and (4) the main challenges faced, especially as regards the combination of the real and the financial sides of the national accounts, micro- and macro-level data integration, and the impact of globalisation.

1. The financial accounts framework

The SNA/FA framework

The FA framework is built on the SNA, which aims to establish internationally agreed practices for compiling comparable measures of economic activity. While these standards were originally devoted primarily to the measurement of the "real sphere" of the economy, various additions have been brought

in subsequent years, especially with the last version of the SNA (2008 SNA; see European Commission et al (2009)).

In this context, **significant efforts have been made to compile sectoral financial accounts that are correctly integrated**, in the sense "(...) that all the consequences of a single action by one agent are necessarily reflected in the resulting accounts, including the impact on measurement of wealth captured in balance sheets" (SNA 2008, #1.2). These accounts should cover (i) all the financial transactions observed in the economy and with the rest of the world (RoW); (ii) the balance sheet positions of economic agents (especially their financial assets, liabilities and net worth); and (iii) the financial interlinkages across sectors as presented in "from-whom-to-whom" (FWTW) tables – with these three elements constituting the core of what is usually understood in the concept of "financial accounts" (for an introduction, see van de Ven and Fano (2017)). The aim is to complement the description of real economic developments – ie the "current accounts", which basically show resources transactions across sectors – with a presentation of their financial counterparts – ie the "accumulation accounts and balance sheets" – to be presented in full consistency. A central element supporting the integration of these accounts in the SNA is its underlying "quadruple-entry bookkeeping" accounting system (Tissot (2016a)).

This statistical work did not originate in a vacuum, independently of the potential usage of the data collected. In fact, the goal of the developers of the SNA framework (from the outset, almost one century ago) was to prove its **serviceability for conducting economic policy**. For instance, the "Richard Stone Report" (United Nations (1947)) clearly stated that "this system of analysis has grown out of the needs of economic policy". At that time, the SNA was seen not only as a coordinating framework for monitoring developments in the economy as a whole, but also as a tool for supporting policy – because "it is the interrelationship of transactions that is important [in the case of] the formulation of economic policy".

The expansion of FA has been much more recent compared with the "real side" of the SNA – extending only over the past few decades, with the notable exception of the US financial accounts, which cover the period since 1950s on a quarterly basis. But a key driver for this development was equally to ensure its usefulness for public authorities, especially policymakers dealing with the functioning of the financial system – including the central banks that are usually tasked with ensuring monetary and financial stability. The need to focus on the usefulness of these data was clearly recognised when the GFC occurred, as policymakers realised that "the increased availability of sectoral financial accounts and balance sheets would advance the analysis of the systemic risks and vulnerabilities" – an analysis that had clearly proved itself inadequate at that time.⁴

Ongoing compilation initiatives

In fact, the recent **expansion of FA was clearly spurred by the consequences of the GFC**, with the decision to launch various and important data collections especially in the context of the G20-endorsed Data Gaps Initiative (DGI), as recalled in the *FSB presentation*. The DGI's first phase (2009–15) focused on the formulation of a strategy "to promote the compilation and dissemination of the balance sheet approach, flow of funds, and sectoral data more generally". This initial, conceptual work triggered in 2015 the decision to foster FA compilation as a way to promote "the regular collection and dissemination of comparable, timely, integrated, high quality, and standardized statistics for policy use" during the second phase of the DGI covering 2016–21 (IMF and FSB (2015)).

In this context, G20 countries were required to "compile and disseminate, on a quarterly and annual frequency, sectoral accounts flows and balance sheet data, based on the internationally agreed template

⁴ See Financial Stability Board and International Monetary Fund (2009), esp. #52, p 23.

(...) and develop from-whom to-whom matrices for both transactions and stocks to support balance sheet analysis”⁵ (recommendation #8). The result of these compilation efforts is, for instance, available for more than 30 countries (including non-G20 ones) on the OECD website.⁶ FA information is also an important item in the IMF SDDS initiative (as an encouraged item), while the SDDS Plus standard⁷ requires “a minimum set of internationally comparable sectoral financial balance sheets with a set of subsectors and the standard financial asset and liability instrument classification derived from the SNA”.

In addition, and as analysed in the *OECD presentation*, **several other recommendations of the DGI also support the development of the FA framework**, at least to some extent. These recommendations focus on:

- The collection of financial information covering specific entities (eg #5 shadow banking), transactions (eg #5 securities financing transactions (SFT), such as repos; #6 derivatives transactions), and instruments (eg #7 debt securities).
- The compilation of statistics on international financial flows and positions (eg #10 International Investment Position (IIP); #11 international banking statistics; #12 Coordinated Portfolio Investment Survey (CPIS), #13 Coordinated Direct Investment Survey (CDIS); #14 cross-border exposures of non-bank corporations).
- The measurement of public balance sheets (eg #15 government finance statistics; #16 public sector debt).
- The collection of asset prices (eg #17 residential and #18 commercial property prices).
- The computation of distributional information (eg #3 concentration and distribution measures for Financial Soundness Indicators (FSI); #9 household distributional information).
- Organisational aspects (eg #19 international data cooperation and communication; #20 promotion of data-sharing).

Moreover, there are important synergies with other global initiatives to enhance the measurement of economic activity, for instance as regards the analysis of the digital economy or the promotion of the global Legal Entity Identifier (LEI).⁸

Much has been already achieved, and national experience shows that **FA can provide useful insights even when they are at the initial stage of their development**. Certainly, several countries around the world are still facing important problems in compiling FA, with issues such as short data length, poor timeliness and difficulties in integrating the various accounts. As emphasised in the *Conference’s opening remarks*, one successful way to address these difficulties is to set up well defined steps for progressively enhancing their compilation. Looking at the example of Turkey, even the limited information available at the start of the FA project in 2012 quickly proved its usefulness – despite the

⁵ With so-called core templates that comprise “target” and “encouraged” items, comprising three elements: current and capital accounts, financial accounts and balance sheets (with instrument and sector breakdowns) and stocks of non-financial assets (by asset type and sector). There are in addition specific requirements in terms of frequency and timeliness, as well as more advanced ambitions for shadow banking and interconnectedness (FWTW tables), at least to cover the main sectors and instruments.

⁶ See www.oecd.org/sdd/fin-stats/.

⁷ The Special Data Dissemination Standard (SDDS) was established by the IMF in 1996 to guide countries that have, or that might seek, access to international capital markets in the dissemination of economic and financial data to the public (IMF (2013)). The Special Data Dissemination Standard Plus (SDDS Plus) was established in 2012 and goes beyond the focus of the SDDS by putting an emphasis on countries that have systematically important financial sectors that are integral to the working of the international monetary system (IMF (2015)). All SDDS subscribers can, and are encouraged to, adhere to the SDDS Plus.

⁸ See FSB (2012) for an overview of the LEI initiative.

shortness of the time series and the fact that the data were available with long lags, on an annual basis, and for only a few sectors with limited coverage. Second, the Turkish FA were progressively refined at a later stage, with the move to a quarterly frequency, the extension of sectoral coverage, and then the compilation of FWTW tables. Currently, the focus has turned towards the provision of longer time series, the improvement of data awareness and the further compilation of “encouraged” breakdowns that were of a lower priority at the start of the project.

A key element behind the success of such a step-by-step approach is to develop a **consistent long-term plan to prioritise the various actions** involved, as argued in the *CBRT presentation*. Reflecting this, the ECB has a medium-term FA strategy with five main objectives – namely, addressing globalisation challenges; increasing the serviceability of FA data; enhancing household analysis; improving information on non-bank financial intermediation (NBFi); and understanding interconnectedness at the macro level. Various related work streams have been defined to achieve these strategic objectives, reflecting the cost/serviceability trade-off, prioritisation needs, the need for close cooperation with primary statistics compilers, and developments in raw data and metadata. For instance, the “addressing globalisation challenges” objective regroups initiatives related to foreign-controlled non-financial corporations (NFCs); balance of payments (BoP)/RoW consistency; more granular functional split in RoW flows; government finance; other financial institutions (OFIs) etc.

2. FA as an analytical tool to support the conduct of central bank policies

In general, **FA offer the users of economic and financial information several benefits**, namely, their consistency over time, sectors and countries, the identification of the links between economic agents and their operations (eg production, distribution of income, and financing of spending), the impact on their balance sheets etc. As regards central banks more specifically, and as underscored by the *CBRT presentation*, national experience shows that FA can usefully support their work in various areas, such as statistical compilation, macroeconomic analysis and monitoring, forecasting, and monetary and financial stability.

Statistical compilation

Central banks’ role in the compilation of official statistics has clearly expanded in the recent decades, reflecting both the increased importance of finance in the economy and the large post-crisis data collection efforts. In practice, they are directly in charge of the compilation of FA in most countries, while National Statistical Offices (NSOs) have been dealing rather with the compilation of the “real accounts” (although there are important exceptions to this general picture). In doing so, central banks benefit from the increasingly detailed information collected on the financial system, including at the level of specific institutions, transactions or instruments. In particular, and depending on national circumstances, they now have at their disposal very large and granular loan-by-loan and security-by-security databases – representing the bulk of what is considered as “big data” by central banks (Schubert (2016); IFC (2017)). Information on derivatives transactions reported by trade repositories (TRs) is another example of the detailed data sets that are increasingly required by central banks (IFC (2018a)). Such granular information can greatly support FA compilation; for instance, detailed securities holdings statistics can ease the compilation of FWTW tables, since they provide information of the owners of the debt securities issued by debtors.

In turn, the development of FA can **support the other statistical compilation tasks** of central banks, for instance, to make existing partial estimates more exhaustive, detect data gaps, and integrate various, often disparate information sources in a consistent way. This reflects the fact that FA are based on a well defined conceptual framework, comprising comprehensive definitions and measures. The

rigour of this approach is ensured by a number of so-called identities, such as the budget identity, which provides consistency for each sector between the non-financial and financial transactions; the transaction identity, which ensures for each transaction consistency between receipts and payments; and the balance sheet identity, so that financial positions at the beginning and the end of each periods are compatible. Lastly, the information collected is designed to be coherent across countries, a precondition for developing meaningful comparisons and country aggregations.

However, compilers of statistics in central banks have to deal with a **number of shortcomings**. First, FA information can be quite complex, not sufficiently timely, subject to important revisions, and often available only in short time series; these can represent important impediments to policy use. Second, this framework may not be always consistent with the other statistics at hand for analysis (especially supervisory-type statistics when the central bank is in charge of prudential supervision), with the risk of sending inconsistent messages. Third, the actual implementation of the international standards of the SNA has to face in practice domestic exceptions and limitations.

Macroeconomic analysis and monitoring

The SNA has proved instrumental to **facilitate the analysis of the functioning of the economy as a whole** and its implications in terms of sectoral developments. The development of the FA as an increasingly important part of this SNA framework has gone hand in hand with an enhanced description of the financial sector, the economic transactions of all agents and their associated balance sheet positions. This is obviously of key interest for policymakers such as central bankers, who monitor financial developments on which to base their policy actions. As highlighted in the *ECB presentation*, FA-based information can in particular provide insights on various aspects of the national economy, supporting sectoral balance sheets assessments, financial structure analysis, and fiscal monitoring alike. At a more global level, harmonised FA concepts allow for insightful cross-country comparisons, supporting policy impact assessments as well as structural national analyses (eg the comparative size of the financial system, relative importance and composition of financial intermediation). This is obviously a key advantage for a supranational institution such as the ECB that deals with multiple domestic systems.

Another analytical advantage of the FA is the description of the **interactions between the financial and the real sides** of the economy. In particular, this helps to track the financial flows that result from saving/investment decisions in each sector and their balance sheet implications eg in terms of wealth/debt creation. Examples of central banks' use of these data include the analysis of the interactions between the current account position of the country and the specific financing needs of the domestic sectors; the measurement of the acquisition of assets throughout the economy and the tracking of the sources of funds used in their acquisition by economic agents; the role of financial intermediaries in transferring funds between borrowers and savers etc. For instance, the Central Bank of the Russian Federation (CBRF) uses FA-based information on sectoral lending/borrowing to analyse shifts in growth patterns and the evolution of economic cycles – noting that government liabilities typically increase during recessions while NFCs issue less debt.

Lastly, FA-based aggregates are increasingly **combined with micro-level insights**, representing a useful complement for authorities that need to both monitor macro aggregates and zoom in on specific areas. One of the main elements of the ECB FA medium-term strategy is to enhance the use of FA (or "serviceability") by developing micro-data-based enhancements to the aggregates compiled. Other important aspects considered from this perspective are timeliness and the provision of backdated series.

Forecasting

FA-based information is the key to a better understanding of the economy's functioning. This knowledge can greatly facilitate **macroeconomic forecasting exercises that are based on the modelling of economic agents' behaviour**. In the United States, for instance, the indicator of household sector worth derived from the FA is used in the Federal Reserve's modelling of household consumption and hence for its GDP forecasts.

The FA framework is also effective in supporting short-term forecasts, including **nowcasting exercises**. In particular, it can facilitate the work of forecasters who need to integrate partial estimations/new incoming data in a coherent way. This information can be quite complex, since a large number of economic series can be potentially used, with data provided for various frequencies, with different publication lags and revision processes, and disparate time spans.

Central bank experience has underlined the benefits of FA as an encompassing framework for incorporating most of the information available to enhance their regular monitoring of economic activity. In addition, an increasing number of central banks are relying on **big data analytics**/sophisticated statistical techniques to facilitate the digestion and summarising of incoming high-frequency data points, as well as their continuous incorporation into forecasting exercises before the release of the related official indicators – see, for instance, the US GDP and inflation nowcasting exercises conducted at the Federal Reserve Banks of New York and Cleveland (Bok et al (2017); Knotek and Zaman (2014)), or the nowcasting models (the “economist robot”) developed at the Bank of Finland⁹ that make use of the information provided by a large and diverse group of economic indicators.

Monetary stability

FA have proved to be a powerful analytical tool for supporting policies aimed at price stability, which basically rely on the **overall assessment of monetary conditions** and related economic dynamics. FA provide important contextual information, for instance, on NFC financial conditions, households' portfolio choices, housing investment and mortgage financing, and trends in the financial sector – various elements that have to be carefully considered when setting policy rates.

FA also support multiple analyses related to **how monetary policy operates**, eg to better assess its transmission mechanisms, the distributional consequences of policy decisions, and the impact of the new quantitative tools developed after the GFC (Domanski et al (2016)). For instance, the FA framework has been used by the ECB to identify among the various economic sectors the most important counterparties for its public sector asset purchase programme.

Financial stability

The FA framework provides detailed information on the accumulation of liabilities by economic agents and the financial instruments involved, facilitating the **assessment and quantification of vulnerabilities and exposures** to specific sectors and/or particular financial instruments and the related propagation mechanisms. This represents the bread and butter of financial stability risk analyses, especially for the risk assessment and surveillance exercises that sit at the core of central banks' mandates – for both those directly in charge of micro financial supervision and those focusing mainly

⁹ Including one dynamic factor model (so-called factor augmented vector autoregressive (Itkonen (2016)) and one large Bayesian VAR model (Itkonen and Juvonen (2017)) dealing with, respectively, around 70 and 50 individual series – compared to standard “bridge models” for nowcasting that are typically based on a limited number of economic statistics such as confidence survey indicators (Carnot et al (2011)).

on financial stability issues and macro financial supervision. Hence, many central banks have developed FA-based indicators on financial soundness, network analysis, and vulnerability and system risk. These approaches have brought several benefits.

First, the FA framework allows **the main risks at stake** in the financial system to be identified, in terms of vulnerabilities to potential shocks – such as a sudden shift in financial prices or a sharp rise in interest rates. For instance, the *Bank of Portugal presentation* showed that FWTW information was a key starting point when there was the need to identify financial system exposures during the euro area sovereign crisis in the early 2010s.

Second, FA provide a tool for **quantifying the risks** involved, in particular by measuring the consequences of system-wide propagation mechanisms and cross-sector spillovers (de Almeida (2015)). For instance, to calibrate the impact of a change in sovereign bond yields on economic agents' balance sheets, which can be direct – ie a decline in the value of the government debt securities in holders' portfolios – and also indirect – ie equity losses transmitted from one economic agent to another due to cross-sector holding relationships. In the Portugal case, the FWTW matrix was instrumental to simulating these contagion effects in an iterative way and tracking the progressive impact of asset devaluation through the financial network. It also helped to elucidate the mechanisms at play, and in particular to identify the importance (or "centrality") of specific counterparties in this network – for instance, to highlight the central role played by specific financial institutions in propagating shocks through the financial system.

Third, the internationally harmonised concepts supporting FA-based information is an important advantage for analysing financial stability risks with a **global systemic nature**. A global perspective is key when seeking to (i) incorporate the impact of worldwide developments in the assessment of risks faced by the domestic financial sectors; (ii) analyse the interplay between external and internal vulnerabilities; and (iii) assess cross-border contagion effects, especially in closely integrated regions such as Europe. One example relates to the European macroeconomic imbalance procedure introduced in 2011, when authorities recognised the need for globally consistent information to track how balance sheet fragilities – such as a large current account deficit or a real estate bubble – in one country could be transmitted across borders (European Commission (2016)).

3. Zooming in on specific financial policy issues

Financial intermediation

An important avenue for using FA relates to the **assessment of financial intermediation**. First, this framework allows for the identification of the respective roles of internal (ie savings) and external (ie change in liabilities) sources of funding for the various sectors in the economy. Second, it provides a comprehensive map of the financial links between these sectors (and with the RoW), helping to monitor financial intermediaries that are less regulated than more traditional sectors such as commercial banks or the insurance industry – for which public authorities in charge of oversight have access to specific supervisory information. Policy attention has focused on the role played by non-bank financial intermediaries – broadly defined as the system of credit intermediation involving entities and activities outside the regular banking system. This area regroups various types of entity that play an important role in credit intermediation – namely, broker-dealers, finance companies, hedge funds, mutual funds, other investment funds, trust companies etc. Their activities can incur inherent risks, especially when they are spurred by too much risk-taking and regulatory arbitrage. This was a key feature of the GFC, when excessive risks in the mortgage securitisation chain spread contagion effects to the rest of the financial system, especially banks.

Certainly, **new service providers** can be beneficial for the functioning of the financial system, by promoting financial inclusion, stimulating competition, fostering greater efficiency in the provision of banking services, and providing more opportunities for risk diversification. As underlined in the *presentation by the Central Bank of Morocco*, non-bank financing can be an attractive alternative to bank credit for many firms and households looking for funds – especially for those with restricted access to the traditional banking system, say poor households or very small enterprises (IFC (2018b)). NBFIs have thus expanded significantly in developing countries, where many economic agents can be financially excluded. In Morocco, for instance, NBFIs assets have multiplied by almost 2.5 during the last decade, led by the increased role played by investment funds in providing funding and collecting savings, in particular following the liberalisation of the 1990s.

By providing a **full picture of the financial transactions occurring in the economy**, the FA framework helps to identify the contribution of the respective providers of funding (eg between monetary financial institutions (MFIs) and OFIs), monitor those that are outside the regulatory scope, and detect potential regulatory loopholes. Not surprisingly, recommendation # 8 of the DGI initiative related to FA clearly emphasises the need to compile “data for the other (non-bank) financial corporations sector”. In Morocco, important efforts have also been made to integrate the NBFIs sector into monetary and financial statistics, starting with the inclusion of microcredit associations in 2012 and, more recently, real estate funds. These enhanced statistics have been instrumental in helping the central bank to analyse structural changes in the financial system, including the financing structure of the new intermediaries, the type of agent relying on their funding, and their interconnections with the banking system. This information has proved particularly useful for the Coordination and Systemic Risk Monitoring Committee when conducting financial stress tests and computing contagion and vulnerability indices.

FA-based balance sheet information is also a key input for the **FSB regular monitoring exercises of non-bank intermediation** (FSB (2020)). In particular, it is used to compute specific risk metrics to monitor the new providers of financial services, for instance to assess the relative importance of credit and financial assets in their balance sheet, their off-balance sheet exposures, the repartition of their short- vs long-term liabilities, their equity cushion etc. FA data on the different types of transaction and instruments involved in financial intermediation can also help identify specific liquidity, maturity, currency or credit risks. Furthermore, and as underlined in the *Bank of Portugal presentation*, this information also allows a comprehensive framework to be set up that helps to capture interconnectedness between various parts of the financial sector and possible contagion effects. To this end, the FSB has computed indicators of system-wide interconnectedness to gauge exposures between financial subsectors – say, between banks, OFIs, pension funds and insurance corporations – based on estimates of funding and borrowing flows derived from FWTW tables. Lastly, exposures to the RoW, and use of funding from the RoW, can also be computed to monitor cross-border interconnectedness due to the activities of non-traditional financial intermediaries.

However, FA-based approaches are, by construction, conducted at a related **high level of aggregation** – broadly speaking, the non-bank financial sector. Yet the policy focus has shifted to particular institutions that represent specific financial stability risks. In fact, the NBFIs universe can be quite large and varied, comprising various investment funds, securitisation vehicles, mutual funds and other financial institutions that can quickly emerge as providers of financial services, in particular by leveraging on digital innovation (ie fintech; see IFC (2020)). Within this universe, policy attention has focused in on activities that raise (i) systemic risk concerns, in particular due to maturity/liquidity transformation, leverage and imperfect credit risk transfer, and/or (ii) regulatory arbitrage concerns.

In view of these challenges, and also as part of the DGI initiative, there are ongoing international initiatives to elaborate a **template to collect more granular information** to support the assessment of shadow banks. As recalled in the *OECD presentation*, this means compiling additional, more detailed

statistics in terms of subsectors, instruments and exposures that require a more granular approach than the FA aggregates currently computed. Attention has focused first on defining further breakdowns in the financial corporations sector in the SNA, by breaking down existing subsectors such as money market funds (MMFs), OFIs, insurance corporations, and captive financial institutions. Second, there are initiatives to improve the granularity of the reporting of financial instruments. For instance, the assessment of liquidity risk would benefit from a clear identification of repurchase agreements and securities lending. Similarly, the analysis of maturity risk would be facilitated by the distinction between remaining maturity and original maturity, and credit risk transfer could be better captured by the comparison of market and nominal values for securities, the identification of non-performing loans, the provision of breakdowns between domestic and foreign currencies, and the assessment of off-balance sheet exposures arising from derivatives transactions and contingent liabilities.

Several **central banks are making progress** to enhance the details available in FA information. For instance, the Federal Reserve Board is expanding the measurement of debt securities at market values. Similarly, in its FA strategy, the ECB aims to collect more information (by sectors and instruments), with a focus on non-banks and pension funds (eg with a split between defined benefits and defined contributions schemes) and by “looking through” institutional investors so as to better identify the ultimate holders of financial assets. Yet one difficulty is that the demand for more granular information is constrained by limitations on sharing data among producers. In Morocco, for instance, the supervision of the NBF sector – and related access to granular information – is split between three distinct bodies. The challenges may be even more important at the international level, noting that shadow banks appear to be concentrated in specific places but can operate across national borders.

As regards the FSB monitoring exercises mentioned above, the starting point provided by FA-based information is complemented with a more micro approach to look at the characteristics of individual entities. To this end, the FSB has defined three main types of aggregate in analysing NBF. First, the broad monitoring universe of non-bank financial intermediation (MUNFI), which comprises in particular insurance corporations, pension funds, OFIs and financial auxiliaries and represents about half of the stock of global financial assets – a stock estimated at \$379 trillion at end-2018 (for the jurisdictions surveyed by the FSB). Second, the OFIs, which comprise all financial institutions that are not central banks, banks, insurance corporations, pension funds, public financial institutions or financial auxiliaries; these represent about one third of total financial assets. Third, **the “narrow measure” of NBF**, which includes the types of non-bank financial entity involved in credit intermediation activities that may pose bank-like financial stability risks. This narrow definition relates to what is usually referred to as the shadow banking sector, which represented about 14% of total financial assets.¹⁰ Its identification by the FSB is based on the classification of the following five economic functions: (i) collective investment vehicles features that make them susceptible to runs, such as open-ended fixed income funds, credit hedge funds and MMFs (72% of the narrow measure); (ii) non-bank financial entities engaging in loan provision that is dependent on short-term funding, such as finance companies, with elevated maturity transformation (7%); (iii) market intermediaries that depend on short-term funding or secured funding of client assets, such as broker-dealers (9%); (iv) entities involved in the facilitation of credit creation, such as financial guarantors and credit insurers (with a share in the narrow measure estimated at less than 1% but likely to be underestimated, given the difficulty in capturing their off-balance sheet exposures); and (v) securitisation-based credit intermediation (9%).

¹⁰ The term “shadow banking” has been replaced by “NBF” since the 2018 FSB monitoring report. Note that the narrow measure comprises some assets that cannot be allocated across the five economic functions as defined by the FSB.

Balance sheet effects and vulnerabilities

Obviously, the FA framework provides a wealth of information with which to **analyse the financial positions of economic agents** that use financial services as part of their activities. National experience shows that this can be particularly insightful for elucidating the behaviour of households and corporates as well as in detecting potential fragilities.

As regards **households**, the first *presentation by the Bank of Italy* showed how data compiled in the FA represent the cornerstone for the measurement of household aggregate wealth (comprising financial and real assets net of liabilities) and the analysis of its various drivers. In particular, it allows for the impact of changes in asset prices to be disentangled from “real” financial flows due to evolving saving and investment patterns. Moreover, the FA framework provides insights on the composition of household wealth, in particular as regards the allocation of financial assets by instruments (eg deposits, debt securities, equity, insurance and pension schemes), the sustainability of their liabilities (eg calculation of debt service ratios for households),¹¹ and the types of risk they are taking, including via indirect participation in institutions such as MMFs – noting that the FA framework allows for “looking through” investments in financial intermediaries to identify the final owners of the assets they manage.

This information can be very useful in assessing the state of household balance sheets and the implications. For example, the evolution of wealth can influence consumption patterns through wealth effects, and its composition can shed light on agents’ risk aversion and the characteristics (and risks) of their portfolios (eg relative importance of equity and debt instruments). The composition of household balance sheets can also provide interesting insights for structural analysis, for instance to assess the degree of financial deepening in the economy (eg difference between financial and real wealth) or the respective role of market-based versus intermediated financing – for instance to identify the importance of unquoted shares in Italy, reflecting the weight of family-owned small or medium-sized enterprises (SMEs).

Turning to **NFCs**, the second *presentation by the Bank of Italy* showed how flow-of-funds data can help elucidate the factors driving their behaviour. The corporate sector traditionally tends to run deficits in order to finance investment spending and is thus a net borrower. But this stylised fact has been questioned in many advanced economies since the mid-1990s, as a growing number of NFCs have accumulated large financial surpluses with an increase in corporate payouts (ie cash or stock dividends paid to investors), thereby becoming net lenders to the rest of the economy. FA-based information has been instrumental to shed light on the main forces driving these shifts. In particular, cross-country comparisons suggest that foreign direct investment (FDI) is positively associated with firms’ financial saving and that, in fact, globalisation affects the organisation of the production within countries, by increasing the ease of investing abroad.

Firms’ balance sheet information can also usefully support **sectoral analyses** of economic development. In the case of Russian NFCs, FA data have helped to identify their specific financing patterns – eg relative composition of equity shares, bank loans and debt securities in their liabilities, in turn supporting the assessment of the sectoral dynamics of corporate investment. Furthermore, the *Central Bank of the Russian Federation presentation* showed how various risk indicators based on balance sheet data can be developed to capture fragilities in terms of solvency risk (eg ratio of short-term liabilities to financial assets), liability/asset mismatch risks (eg in terms of currency composition, maturity profile, and capital instrument structure), and external risk (eg the significance of external debt).

¹¹ For instance, FA inputs are used by the BIS to compute debt service ratios for the private non-financial sector for a number of countries; see www.bis.org/statistics/dsr.htm?m=6%7C380%7C671.

4. Challenges

As for all types of statistics, a key objective for central banks is to **make sense of the data that are relevant** for policy and to facilitate evidence-based decision-making – putting a premium on transforming data into information and then information into knowledge (Drozdova (2017)). While new IT tools and techniques can facilitate such a transformation, there are a number of difficulties when attempting to use FA for policy purposes. **Three main challenges** can be identified from this perspective: the first is to ensure that FA information is correctly compiled so that it is consistent (or “integrated”) with the other types of statistics available on the economy; the second is to facilitate the combination of micro- and macro-level statistics, not least so as to be able to dig into aggregates when more detailed information needs arise; and the third challenge is how this information based on domestic concepts can remain relevant in an increasingly globalised economy.¹²

Compiling integrated sectoral financial accounts

As highlighted in the *CBRT presentation*, FA compilation is “a long journey in time”. A first issue is that there are **many gaps to be addressed**, with important building blocks missing in many countries, for instance as regards the ability of quarterly accounts, IIP details (eg currency composition), the identification of the OFI sector, the measurement of assets (eg collection of property prices) etc. Since government plays a key role in today’s economies, one particularly important data gap to address in many countries relates to public finances. In particular, the calculation of government debt is often influenced by national specificities, and attention can focus on the central government, the general government or even the public sector particularly in economies where authorities and firms have strong interconnections. Moreover, the selection of debt instruments can differ between the narrow, Maastricht-type measure of debt and the wider set of instruments considered in the SNA.¹³ Moreover, debt statistics do not usually capture the full government liabilities, particularly those that are implicitly related to pay-as-you-go public pension schemes as well as to guarantees to the NFC sector. Estimates by the OECD show that the size of “public” debt can vary between about 35 and 130 percentage points of GDP for a country like Canada, depending on the metric used.

In view of these difficulties, countries may prefer to **start the FA compilation journey progressively**, by first reviewing and analysing the various concepts and definitions involved, learning from best practices, and focusing on ensuring consistency between existing data sets. To make further progress, data compilers should be pragmatic and set priorities when deciding which missing blocks in the FA framework should be filled first – by designing actions adapted to domestic circumstances instead of relying on a hypothetical one-size-fits-all plan. As an example, the CBRT approach has been to develop “process tables” for priority sectors. This work was complemented with “coherence indicators” to assess the differences between the various accounts compiled from different sources and/or methods (eg accrual versus cash basis). Attention then progressively shifted to more complex objectives, especially FWTW matrices, the incorporation of more granular data sets, and the development of fully integrated tables, particularly between the non-financial and financial accounts.

¹² The challenges highlighted here refer to the policy use of FA. Needless to say, there are also important difficulties related to the actual design of the FA/SNA framework (eg to capture sustainability issues, well-being considerations, and the impact of digitisation and the role of data), which are addressed by ongoing international statistical initiatives.

¹³ For these reasons, and to facilitate international as well as cross-sectors comparisons, BIS credit indicators rely on the concept of core debt, which comprises loans, debt securities, and currency and deposits at both nominal and market values; see Dembiermont et al (2015) and www.bis.org/statistics/about_credit_stats.htm?m=6%7C380.

A second lesson is to **foster good coordination between the various agencies** producing the multiple types of data set that are used for FA compilation. One example relates to the difference observed in many jurisdictions for the measurement of the country's net lending/borrowing position derived from the financial versus non-financial accounts. Resolving this discrepancy in Turkey has required intense collaboration between the CBRT and the NSO (TurkStat), with the regular exchange of information and the organisation of technical workshops for all those involved in SNA compilation. Another important avenue for improving external sector statistics is to develop the use of "mirror data", ie of different sources capturing the same concept from alternative perspectives (including across countries; Pradhan and Silva (2019)). Because of the need to check consistency at a very detailed level, such inter-agency cooperation may require compilation teams to work together and reciprocal data access to be set up, so that observed discrepancies can be investigated with sufficient granularity. But there can be significant obstacles to effective data-sharing arrangements both within institutions (such as central banks, when these are in charge of FA compilation) as well as among national authorities (eg between central banks and NSOs (IFC (2016a)). In addition, there is a need for an adequate infrastructure to support the timely standardised transmission of data through agreed formats such as SDMX.¹⁴

A third issue is that the **viewpoint of economic agents can differ** and may therefore not be in line with the one derived from the SNA framework. A key example relates to the transfer of risks between firms (IAG (2015)). First, the measuring of risk transfers and the assessment of ultimate risk-bearing entities is prone to uncertainties. For instance, it is not always straightforward to determine whether a firm issuing debt benefits from a guarantee provided by another one. Moreover, looking through corporate parent relationships may be difficult in the absence of a consistent system of identifier (LEIROC (2016)). As an example, the extent to which a parent company is legally responsible for the liabilities of its controlled affiliates can depend on several factors, including whether the local entity is a branch or subsidiary and the nature of the guarantee provided by the parent to the affiliate (eg implicit versus legally binding commitment). Furthermore, these factors are "time-dependent" as they may play out differently depending on circumstances. For instance, a parent company may be willing to cover the liabilities of an affiliate in "normal times" – say for reputational issues – but may react otherwise if the liabilities exceed a certain threshold – for instance, if they exceed the equity stake of the parent company invested in the country (in case of failure, the parent may prefer to lose all its equity rather than cover the full liabilities of the affiliate). Hence, the parent's balance sheet could look different depending on the specific state of the economy. Another example relates to households' view of their future public pension entitlements, which may not be in line with the liabilities recognised in the balance sheets of public authorities. In the United States, for instance, significant changes have been made in the FA framework in recent years to enhance the description of household retirement assets and pension entitlements (eg claims on pension funds or sponsors). Clarifying these issues is obviously of particular importance in view of today's ageing populations.

Integrating micro data

Another challenge relates to the **reconciliation of aggregated-type information presented in the FA with the more granular data** collected from various statistical sources. A key point is that policymakers are becoming increasingly interested in the distribution of economic aggregates across classes of households – noting that the repartition of assets and liabilities can vary markedly across income and wealth deciles – and corporates – for instance, depending on their size (eg SMEs) or their degree of foreign ownership (eg FDI affiliates). Moreover, the GFC clearly highlighted the need to capture

¹⁴ Statistical Data and Metadata eXchange standard; see IFC (2016b).

developments at the level of individual firms or even of single transactions and, at the same time, take due consideration of broader macro-financial evolutions (IFC (2016c)) – in other words, “to see the forest as well as the trees within it” (Borio (2013)). There has therefore been a greater focus on micro data, as a way to go “beyond the aggregates”, as highlighted during the Eighth ECB Statistics Conference on “Central Bank Statistics: moving beyond the aggregates” in July 2016 (Tissot (2019)).

Certainly, users’ demand for complementing general economic indicators with more granular insights is not new, and the 2008 SNA clearly states the importance of considering the skewed distribution of income and wealth across households. But it recognises that getting this information is “not straightforward and not a standard part of the SNA” (2008 SNA, #24.69) and that “there would be considerable analytical advantages in having microdatabases that are fully compatible with the corresponding macroeconomic accounts” (2008 SNA, #1.59). In particular, the FA framework should be complemented with more granular information at the entity/transaction/instrument level, allowing for “drill down” analyses.

More granularity calls for **more flexible statistical frameworks** to adapt to evolving user requirements and to address them in a timely fashion. To this end, sectoral information derived from the SNA framework should be adequately linked with the underlying micro data sources (La Cava (2015)). Indeed, the second phase of the DGI explicitly asks for new statistical frameworks to combine micro- and macro-level data sets, recognising that “*policy makers are requesting improved collection of data on financial institutions and markets, including more granular data to help straddle the divide between micro and macro analysis*” (FSB and IMF (2015); #23, p 15). The implication for the statistical compilation system is to provide both generic tables computed on a systematic basis and the possibility of easily connecting the aggregates with the (micro-level) source data. Yet an important difficulty is that the original granular information is often inconsistent, so that in practice adequate “bridge tables” have to be developed to translate indicators that are not primarily collected for statistical purposes into SNA concepts.¹⁵ Typically, these adjustments will aim at amending definitions, correcting for exhaustiveness and discontinuity, and conducting so-called balancing adjustments (Eurostat (2014)).

Developing these **micro-macro linkages** can also greatly facilitate the actual compilation of macro FA aggregates, especially by making a better use of the vast amount of information available as a result of the various administrative processes set up in response to legislation and regulations (Bean (2016)). Central banks’ attention has in particular focused on the large financial data sets collected at the levels of specific instruments, such as loan-by-loan data sets (see the EU AnaCredit¹⁶ project) and security-by-security databases (see the SHS and the CSDB¹⁷ organised at the ECB). This type of granular information can serve as useful primary statistics for FA compilation, as argued in the *US central bank presentation*. For instance, FA measurement of the market value of US residential real estate has benefited from big data-type information – ie property counts derived from the census and average prices from automated valuation models. Another example of such integration has been to combine the (macro-level) household balance sheets data available in the US FA with the (micro-level) triennial survey of consumer

¹⁵ For a presentation on the use of administrative sources and the concept of “bridge tables”, see eg Eurostat (2019).

¹⁶ AnaCredit, which is an initiative developed by the ECB, stands for analytical credit data sets. It provides information on individual bank loans in the euro area; see www.ecb.europa.eu/stats/money_credit_banking/anacredit/html/index.en.html.

¹⁷ The Securities Holdings Statistics (SHS), collected on a security-by-security basis, provide information on securities held by selected categories of euro area investors, broken down by instrument type, issuer country etc; see www.ecb.europa.eu/stats/financial_markets_and_interest_rates/securities_holdings/html/index.en.html. The Centralised Securities Database (CSDB) aims to hold complete, accurate, consistent and up-to-date information on all individual securities relevant for statistical purposes; see ECB (2010).

finance¹⁸ to produce quarterly household wealth indicators with distributional information. The advantage is combine the benefits of the FA framework – eg data available with higher frequency (quarterly), timelier, more consistent with international standards – and the richness of the granular household demographic information of the survey.

Addressing economic and financial globalisation

Globalisation poses multiple challenges for statisticians compiling FA and for users of this information.¹⁹ Indeed, one of the five objectives of the ECB medium-term FA strategy is to address these globalisation challenges, with a focus on three categories: data sources, methodology and tools. As regards data sources, it is increasingly difficult for national statisticians to get relevant information on global economic activities, especially those performed by MNEs; for instance, to properly measure the localisation of their intangible assets and of their (taxable) profits.²⁰ Turning to methodology, the compilation of most standard macroeconomic indicators is affected by (real and even more so financial) globalisation, making them difficult to interpret, for instance, when assessing the global value chains of MNEs and tracking the associated financial flows and exposures (BIS (2017)). Lastly, there is a need for adequate analytical tools to monitor what is going on at the global level and the implications for domestic economies; for instance, to shed light on interconnectedness, spillovers and contagion patterns across national boundaries. As a result, current analytical frameworks such as the SNA run the risk of being both less meaningful as a means of capturing globalisation and less relevant – see the recent “quantum change” in the measurement of GDP growth in Ireland (where a number of multinational corporations attracted by low corporation tax rates have relocated their economic activities, and their underlying intellectual property), with an impressive rate reported for 2015 (OECD (2016)).

These challenges raise several types of difficulty. A first one relates to **statistical compilation**, for instance, to ensure that external sector statistics – covering eg BoP/IIP – are fully consistent with the domestic economy view provided by the SNA framework. The *ECB presentation* recalled that central banks are devoting a lot of effort to ensure such consistency, with countries encouraged to have a single compilation system for both BOP/IIP and FA. Another issue is to ensure statistical **harmonisation across countries**, a necessary condition for performing comparative analyses and computing meaningful regional and/or international aggregates. One example relates to wealth comparisons: while financial assets are internationally relatively more comparable, the measurement of real wealth could still benefit from further harmonisation across countries – a key priority since real assets are more important than financial ones in most cases. A third difficulty relates to the **relevance of the concept of residency** underlying the SNA framework. Economic agents are usually assigned to a given geographical area (the domestic economy), even though their actions can be decided by other, non-domestic entities controlling them. This can lead to important shortcomings when analysing traditional economic indicators: for instance, domestic data are insufficient to capture the full international exposures of a domestic firm operating through various affiliates including those located outside national borders.

¹⁸ The Survey of Consumer Finances (SCF) is conducted every three years by the Board of Governors of the Federal Reserve System and includes information on US families’ balance sheets, pensions, income and demographic characteristics; see www.federalreserve.gov/scf/scf.htm.

¹⁹ For a review of the current issues and new challenges related to external sector statistics, see eg IFC (2018c).

²⁰ For a discussion of the most acute challenges posed by the global business model of MNEs, such as the location of corporates’ intellectual property products (IPPs) and the growing use of special purpose entities (SPEs) as offshore financing vehicles, see IFC (2019b).

What should be the statisticians' responses to address these globalisation challenges? A first, relatively straightforward one is to **exploit all the possibilities offered by the SNA framework**, for instance, by identifying clearly the contributions of direct investors and foreign-controlled affiliates in each economy. FA provide a useful framework for such approaches, as they allow the NFC sector between domestically and foreign-owned firms to be disentangled, and cross-border assets and liabilities to be assessed via detailed instrument and currency breakdowns.

A second response is to aim for a better representation of **FA-type information at the global level** so as to assess the full network between economic agents, for instance, by developing so-called global flow of funds network charts, ie a worldwide FWTW matrix that encompasses the different types of economic sector and their geographical repartition (Zhang and Xiuzhen (2019)). Such information would be very valuable when seeking to assess and understand the interactions between economic sectors located in different jurisdictions, in turn facilitating the monitoring of the global financial system, international risk exposures, and country-to country and sector-to-sector interconnectedness.

A third approach would be to develop so-called **nationality-based statistics**. To do so, one needs to identify the control structure of firms and assign a nationality to each – with nationality being defined as the country of residence of the entity controlling this firm (Tissot (2016b)). Going one step further, one could consider not only the nationality of the institutional units resident in a given country but also their balance sheets on a consolidated basis – by including all the activities performed by corporate groups of a given nationality, independently of the location of their controlled affiliates; see IAG (2015). For instance, the international banking statistics of the BIS provide a “locational” perspective that combines information on the residency as well as on the nationality of the reporting banks located in a given jurisdiction. In addition, these statistics are also presented on a “consolidated” basis, ie by aggregating across all jurisdictions the affiliates controlled by a national banking group. A similar dual approach has been followed for the compilation of the BIS international debt securities statistics.²¹

Such a nationality-based perspective can **usefully complement the domestic view provided by the “traditional”, residency-based FA/SNA framework**. On the real side, the monitoring of global, “border-less” corporate indicators could help to track global value chains and also shed light on MNEs' role in channelling investment across borders. On the financial side, the BIS banking statistics, for example, have helped to shed light on the functioning of the global financial system and the development of financial stress during the GFC.

One key lesson is that external financial conditions can have a key impact on the balance sheets of domestic agents, through the direct effect of cross-border capital flows on domestic credit and the indirect determination of the full spectrum of asset prices, including for real assets. This underlines the **role of global liquidity**, a concept detailed in the *BIS presentation*, which seeks to gauge the ease of financing in global financial markets to assess the provision of liquidity by financial institutions to securities markets (through their trading activities) and borrowers (through their lending activities). Changes in such global liquidity conditions can reflect the interactions between market participants as well as the impact of prudential and macroeconomic policies, with important implications for economic growth and financial stability alike.²² For instance, excess liquidity could be associated with the build-up of the types of domestic vulnerability (eg leverage, surging asset prices, and various asset/liability mismatches) that are often associated with unusually rapid increase in private debt. Of particular importance from this perspective is the international component of credit – in the form of cross-border

²¹ For an overview of these various BIS statistical data sets, see BIS (2015), as well as the data available on www.bis.org/statistics/about_banking_stats.htm.

²² See the BIS global liquidity indicators (GLIs) available on www.bis.org/statistics/about_gli_stats.htm?m=6%7C333%7C689.

lending and local lending denominated in foreign currencies – which has often provided the marginal source of financing in the run-up to past financial crises.

Looking forward

Significant progress has already been achieved on the compilation of FA across major advanced and emerging countries, even though important work remains to be done, as highlighted during the workshop. A clear message is that, once initial compilation efforts are complete, **the focus should turn more to the user side**. From this perspective, there is a general feeling that FA information is still not fully explored, despite its potential usefulness.

One way to **promote a more effective use of FA data is to enhance the interaction between users and compilers**. For instance, users can benefit from compilers' knowledge on the definitions, availability and the quality of the data. On the other hand, compilers can modify the presentation of their statistics to make them more user-friendly, for instance, by enhancing their visualisation with new IT tools. Efforts should also focus on improving data timeliness and reliability. Timeliness could be increased by making more use of micro data and nowcasting techniques to replace the data sources that have long lags, not least by leveraging on artificial intelligence (AI) and machine learning techniques (IFC (2019a)). As regards reliability, increased transparency through the provision of methodological documentation and metadata information would be helpful – not least to ensure users' awareness that more rapidly available data can be subject to more frequent revisions.

Another important avenue is to **strengthen the internal and external communication** of FA data. In Russia, the CBRF has focused its internal communication efforts on the setup of business intelligence (BI) systems (eg dashboards), for instance, to provide FA-based insights on the respective roles of specific types of financial instrument (IFC (2019c)). External communication has been strengthened too, with the expansion of published indicators and the reduction of publication time lags. Turning to Turkey, the CBRT has developed blogs to communicate on specific statistical news derived from the FA framework, such as household indebtedness, the total debt of resident sectors etc. Moreover, FA-based information is published in various dedicated reports eg financial stability and inflation reports. Similarly, the ECB has also enhanced its related publications, for instance with the launch of a quarterly household sector report.

Third, instead of fundamentally changing the whole FA framework, ways can be explored to **complement it with additional sets of information**, in particular by aggregating institutional sectors across countries, producing global flow-of-funds data, setting up a global database on MNEs, developing distributional indicators, explicating the underlying micro-macro data linkages, and complementing FA-type residency-based information with nationality statistics. Rather than completely changing the framework, this calls for “enhancing” FA, so that more information of the “memo items” type is presented.

Of course, this is a never-ending process, since the increased use of FA is likely to trigger new demands from users. While these demands are difficult to predict, one key requirement is likely to be for greater **data granularity and availability**. For central banks as key producers of information on the financial system, this calls for a careful review of how statistics are produced, a process that needs to be flexible enough to adapt to evolving user needs.

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