



IMF Working Paper

An Integrated Framework for Financial Positions and Flows on a From-Whom-to- Whom Basis: Concepts, Status, and Prospects

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Statistics Department

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Abstract

The global crisis of 2008 highlighted the need to understand financial interconnectedness among the various sectors of an economy and between them and their counterparties in the rest of the world. However, application of this kind of analysis has been hampered by the lack of adequate data. This paper sets the background for promoting internationally coordinated efforts for compiling and disseminating data on sectoral financial positions and flows on a from-whom-to-whom basis within the framework of the System of National Accounts. It draws on actual experiences in compiling these kinds of data and provides guidelines for their development in the future.

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I. INTRODUCTION

1. In the wake of the 2008 financial and economic crisis, the G-20 economies asked the Financial Stability Board (FSB) and the International Monetary Fund (IMF) to identify data gaps shedding light on economic and financial vulnerabilities, and make recommendations whose implementation by countries would close those gaps. The FSB and IMF came up with 20 recommendations covering a wide range of economic statistics.³ This paper focuses on the 15th of these recommendations, that G-20 member economies extend their national accounts by compiling financial and nonfinancial stocks and flows by economic sector.⁴ Academics, analysts, and policymakers have turned their attention to the balance sheets of the economic sectors, the principal focus of Recommendation 15, because financial and economic crises are characterized by abrupt revaluations or other changes in the capital positions of key sectors of the economy. The data of interest thus comprise not only the balance sheets but also the accumulation accounts for each economic sector within an economy, showing the level as well as the change in sectoral balance sheet positions broken down into three of the principal types of flow in the *System of National Accounts (SNA)*: changes in position arising from transactions, arising from revaluations, and arising from other changes in the volume of assets. Although sectoral balance sheets and accumulation accounts, integrated with sector current accounts showing production and income flows, are envisaged in the present and two previous national accounting standards, their implementation has been uneven among the members of the G-20.

2. The global crisis of 2008 also highlighted the need to understand financial interconnectedness among the various sectors of an economy and between them and their counterparties in the rest of the world. This kind of analysis has been most seriously hampered by the lack of adequate data among the G-20. Although some recent improvements in the development of statistical methodologies and data availability have supported the compilation of partial financial balance sheet and accumulation account data on a from-whom-to-whom basis, a fully integrated approach for financial positions and flows within the macroeconomic statistics framework is yet to be achieved. Thus, Recommendation 15 also implies, through its reference to compiling “flow of funds”

³ See “[The Financial Crisis and Information Gaps—Report to the G-20 Finance Ministers and Central Bank Governors](http://www.imf.org/external/np/g20/pdf/102909.pdf)”, 2009, <http://www.imf.org/external/np/g20/pdf/102909.pdf>.

⁴ Recommendation 15 states that “The IAG, which includes all agencies represented in the Inter-Secretariat Working Group on National Accounts, to develop a strategy to promote the compilation and dissemination of the balance sheet approach (BSA), flow of funds, and sectoral data more generally, starting with the G-20 economies. Data on nonbank financial institutions should be a particular priority. The experience of the ECB and Eurostat within Europe and the OECD should be drawn upon. In the medium term, including more sectoral balance sheet data in the data categories of the Special Data Dissemination Standard could be considered.” See: [The Financial Crisis and Information Gaps—Report to the G-20 Finance Ministers and Central Bank Governors](http://www.imf.org/external/np/g20/pdf/102909.pdf), p. 8. The IAG (Inter Agency Group on Economic and Financial Statistics) comprises the Bank for International Settlements, European Central Bank, Eurostat, IMF (chair), OECD, United Nations, and World Bank.

statistics, compilation of breakdowns of the financial positions and flows of each economic sector by its counterparty sectors. Datasets providing this kind of information are said to provide “from-whom-to-whom” financial statistics.

3. The *SNA* provides an integrated framework for developing financial positions and flows on a from-whom-to-whom basis because its underlying principles ensure that the linkages of the economic and financial actions of an economy are captured.⁵ However, the *SNA* standard presentation is not explicitly designed to show the inter-sectoral linkages, as traditionally it has focused primarily on answering “who does what,” but not “who does what with whom.” As the *SNA* is the internationally accepted methodology for the compilation of the national accounts, the lack of prominence it gives to the from-whom-to-whom principle for data compilation and presentation may be one of the reasons why these statistics are not more widely available.

4. Promoting the implementation of the *SNA* sectoral accounts with from-whom-to-whom inter-sectoral relationships for financial positions and flows thus is an important step in filling one of the most significant data gaps identified during the recent crisis. The integrated framework on a from-whom-to-whom basis allows answering questions like “*Who is financing whom, in what amount, and with which type of financial instrument?*” As regards the allocation of income, it also permits tracing who is paying/receiving income (e.g., interest) to/from whom. The from-whom-to-whom compilation approach also enhances the quality and consistency of data by providing more cross-checking and balancing opportunities.

5. The flexibility provided by the *SNA* in terms of the level of detail of data compilation and presentation should also allow the use of this framework to comply with the requirements of other analytical tools for the assessment of financial vulnerabilities and risks. One such tool is the IMF’s Balance Sheet Approach (BSA) that provides a breakdown of counterparty positions in financial assets and liabilities by maturity and currency.

6. Following this introduction, Section II of this paper elaborates how the *SNA* can provide an integrated framework for compiling financial positions and flows on a from-whom-to-whom basis and the links between the different domains of the macroeconomic accounts. Section III describes developments in accounting on a from-whom-to-whom basis. Section IV contains some preliminary thoughts on implementing this three-dimensional approach for compiling data on financial positions and flows and Section V concludes.

⁵ In 2008 the United Nations Statistical Commission approved the *System of National Accounts 2008* (2008 *SNA*). The final version of the 2008 *SNA* was released by the UN in September 2009 on its external website at <http://unstats.un.org/unsd/nationalaccount/sna2008.asp>.

II. THE *SNA* INTEGRATED ACCOUNTS

A. Depicting the Economy: Relationships between Economic Agents through Economic and Financial Flows and Financial Positions

7. Understanding the functioning of an economy requires a comprehensive picture of the economic actions covering all aspects of the economic and financial activities. The main economic activities take place in the spheres of production, income distribution and use, and accumulation. On a schematic form the economic cycle can be described as follows: the economic agents interact in the production of goods and services, the income generated in production is distributed among the participants in this process between capital and labor contributions, a redistribution of income among the economic agents is made through current transfers, income is used for consumption or saving, and savings plus net capital transfers received provide own sources for financing investment (“real” and financial). If own financing resources are lower than the funds needed for “real” investment, the deficit of funds is filled by acquiring financial liabilities and/or disposing of financial assets (net borrowing). Correspondingly, if own financing resources exceed the funds needed for “real” investment, the surplus is reflected on acquisitions of additional financial assets and/or the liquidation of liabilities (net lending).

8. Economic entities with a surplus of funds will acquire financial assets or redeem their liabilities or both. Entities with a deficit of financing will incur liabilities or be obliged to dispose financial assets to fill the financing gap. In other words, economic actions taken place in the “real” sphere of the economy have consequences in the “financial” sphere. A debtor/creditor relationship is established between entities with a financing gap (borrowers) and those with excess funds (the creditors). In the recent periods, the debtor/creditor relationships created within the financial markets in terms of flows and positions have grown substantially and become more complex.

9. The relationships between economic flows in the real and the financial spheres of the economy as well as the debtor/creditor relationships should be captured and presented using an integrated statistical framework that ensures the consistency of the data between nonfinancial and financial transactions and between economic entities (institutional units using the *SNA* terminology). Using fragmentary data from different sources may lead to partial and even wrong analytical assessments and conclusions.

10. The *SNA* constitutes the comprehensive system of macroeconomic statistics for capturing integrated and consistent information on the economic actions by all resident entities in an economy. Residents interact between them and also with nonresidents. The *SNA* not only registers the economic actions within an accounting period but also the capital and financial stocks of the economic entities, that is, their balance sheets.

11. The *SNA* follows the residence approach to record flows and positions of institutional units, grouped into sectors and subsectors, resident in an economy between

them and with nonresidents. It may not be able to provide proper risk-based measures for macroprudential analysis and for financial stability purposes particularly when cross-border operations (through branches and subsidiaries) controlled by home country entities grow in significance.

12. In the wake of the financial crisis of 2008 the need has been identified for the development of statistics on a worldwide-group-consolidated basis—showing also the cross-border financial activities of corporate groups including potentially intra-group flows and positions as formulated in the Recommendations 13 and 14 of the G-20 report mentioned earlier.⁶

13. Large groups of financial or nonfinancial corporations or conglomerates exist whereby a parent corporation controls several subsidiaries, some of which may control subsidiaries of their own, and so on. Therefore, the concept of a corporate group deviates from the grouping or aggregating of institutional units to an institutional sector as the corporate group concept puts together institutional units based on the concept of control. Such an approach complements the macroeconomic analysis based on the *SNA* approach.

B. What the *SNA* Offers to Ensure the Integrated Framework?

14. The *SNA* offers the following attributes to ensure that it provides an integrated framework for capturing and presenting macroeconomic statistics on a residency basis:

- a. The *SNA* includes all resident institutional units grouped into subsectors and sectors and nonresident institutional units grouped into the rest of the world;
- b. The *SNA* includes all economic flows and stocks of resident institutional (sub) sectors and between residents and nonresidents;
- c. The *SNA* applies a consistent set of accounting principles, concepts, and classifications; and
- d. The *SNA* uses uniform accounting structures for all resident institutional units grouped into subsectors and sectors and for the rest of the world.

15. A brief description of each of these attributes is given below.

Institutional units and sectors and subsectors

16. Institutional units, according to the *SNA*, are the economic units that can engage in transactions and can own assets and incur liabilities on their own behalf. Institutional units are grouped together into institutional sectors, based on their functions, behaviour and

⁶ See the paper mentioned in footnote 3.

objectives. The *SNA* distinguishes five main institutional sectors (nonfinancial corporations, financial corporations, general government, households, and nonprofit institutions serving households). It also provides for a hierarchical classification for further dividing the sectors into subsectors.

17. However, it should be borne in mind that if data on detailed institutional sectors are to be compiled on financial positions and flows on a from-whom-to-whom basis, the breakdown of the data by sector and subsector is an important feature for analyzing creditor/debtor relationships. A further breakdown of the main *SNA* institutional sectors may therefore be necessary. The further subsectoral breakdowns of the financial corporations may be of importance given that they are at the centre of the analysis of financial risks, vulnerabilities and spillovers arising from their role in financial intermediation, the size of their assets holdings and liabilities, and the variety of financial instruments in their portfolios.

Economic flows and stocks

18. The *SNA* uses a set of economic flows and stocks for describing the economic and financial activities of resident economic entities and of the rest of the world.

19. Economic flows are classified into transactions and other economic flows. Transactions cover economic actions between two economic entities by mutual agreement. The *SNA* also considers some economic actions undertaken within an economic unit as a transaction (e.g., an increase in inventories of own produced output by a producer unit).

20. Economic flows that are not a result of transactions are called “other economic flows” in the *SNA* terminology. These flows are of two types: other changes in the volume of assets and liabilities, and revaluations. Other changes in the volume of assets and liabilities reflect changes affecting the wealth of an economic entity as a result of the appearance or disappearance of assets/liabilities (losses from natural disasters; write off of a debt by the creditor). Revaluations (also known as holding gains and losses) reflect changes in the value of assets and liabilities due to changes in their prices, including exchange rates.

21. The balance sheet records stocks of nonfinancial assets and financial assets and liability positions. The stocks/positions are changed through transactions and other economic flows. Although the *SNA* recommends a standard classification of financial assets and liabilities for flows and positions that provides the basis for the comparison of data across countries, it also recognizes that further breakdowns of assets and liabilities may be required to meet specific analytical needs and country specific circumstances. In particular, remaining maturity and currency breakdowns have become more important for analyzing maturity and currency mismatches.

Accounting principles

22. Accounting principles determine the bookkeeping conventions and entries, time of recording, and valuation.

Double and quadruple entry accounting

23. As in business accounting, entries for an entity follow the double entry principle to register a transaction. Thus, for the entity undertaking the action there should be one entry as a debit and one as a credit for exactly the same value, ensuring vertical consistency of all transactions for this entity. It follows that when there is a transaction between two institutional units the double entry accounting principle implies that four entries are required in the accounts (two for each institutional unit carrying out the transaction) leading to a quadruple entry system. The quadruple entry accounting ensures vertical consistency (debits and credits for all transactions for an institutional unit are equal), horizontal consistency (debit entries of a transaction type for all entities are equal to the credit entries of that transaction type for all counterpart entities), and consistency in the counterparty relationship.

24. The quadruple entry accounting provides the underlying basis for developing data on a from-whom-to-whom basis.⁷ However, the *SNA* accounting structure (as described below) is not built to make explicit the relationship between two parties in a transaction as it aggregates (for each sector or the economy as a whole)⁸ all transactions of the same kind without distinguishing with whom these transactions take place.

Time of recording

25. One implication of the quadruple entry accounting principle is that entries related to a transaction and other economic flow should be recorded at the same time in the various accounts of the system for all counterparties involved. The *SNA* uses the accrual principle of accounting, that is, transactions between institutional units are to be recorded when claims and obligations arise, are transferred, transformed, or extinguished.

⁷ The principle of quadruple entry also allows to record transactions involving more than two parties. Cases in example are the trade of securities or other negotiable financial instruments on secondary markets and the assumption of guaranteed debt by the guarantor. In both cases three parties are involved—the two transactors as creditors and the debtor in the first case; and the guarantor, the original debtor and the creditor in the second case.

⁸ Financial transactions between resident units are balanced by definition, that is, total (net) acquisition of assets is equal to total (net) incurrence of liabilities, therefore for the economy net acquisition of financial assets minus net incurrence of liabilities represent the net lending (borrowing) to the rest of the world. Transactions between residents and nonresidents are shown in the accounts of the rest of the world, which records the financial transactions at consolidated level of financial assets and liabilities without a breakdown by creditor sector or debtor sector.

Valuation

26. The quadruple entry principle also implies that entries for a transaction as well as financial positions should be recorded at the same value for the counterparties involved. Thus, a financial asset and its liability counterpart are recorded for the same amount in the debtor and the creditor accounts. Transactions are recorded at the current market prices at the time the transaction takes place and positions are recorded at the point of time the balance sheet refers to.

Concepts and classifications

27. The *SNA* concepts and definitions are drawn from economic theories and are applied consistently throughout the system. The *SNA* integrated accounts (transactions, other flows and balance sheets) are built on the systematic classification of the following three pillars: (i) institutional units and (sub) sectors, (ii) transactions and other flows, and (iii) assets and liabilities.

Accounting structure

28. The accounting structure of the *SNA* is used to organize and present data on transactions, other economic flows, and stocks of assets and liabilities for the sectors and subsectors of an economy and the rest of the world.

29. The sequence of accounts on current transactions records consistently the production, distribution, and use of income, with savings as a final balancing item. The sequence of current accounts is followed by the accumulation accounts. While all changes in assets, liabilities, and net worth are included in the accumulation account, the corresponding positions are shown in the balance sheet. The balance sheet comprises three elements: (i) nonfinancial assets; (ii) financial assets and liabilities positions; and (iii) net worth as the balancing item between assets and liabilities. Drawing up a balance sheet makes it possible to focus on the net worth of a sector or subsector of an economy and how it changes over time. Accordingly, the change in net worth is composed of saving, net capital transfers receivable, holding gains less holding losses, and other (net) changes in the volume of assets or liabilities. Table 1 below shows how transactions, other flows, and positions are presented in the *SNA*.

Table 1. Flows and Positions as Presented in the SNA

		Transactions	Other flows	Positions
Current account		Production of goods and services, generation, distribution, redistribution, and use of income		
Accumulation account	Capital account	Net acquisition of nonfinancial assets, saving and capital transfers		
	Financial account	Net acquisition of financial assets and net incurrence of liabilities		
	Revaluation account		Revaluation of assets and liabilities	
	Other changes in the volume of assets account		Other changes in volume of assets and liabilities	
Balance sheet				Nonfinancial assets; financial assets and liabilities; and net worth as a balancing item

30. Flows and positions as presented in the *SNA* are somewhat incomplete as they cover only the flow accounts and balance sheets by (sub) sector without detailed data by counterparty (sub) sector. That is, although they show which institutional sectors are acquiring assets, and what financial assets they are transacting in, they do not identify the sectors which incur the corresponding liabilities. Similarly, while they enable net borrowing sectors to be identified, and show how they borrow, the accounts do not show which sectors took up and hold the financial instruments. For a full understanding of financial positions and flows, it is important to know not just what types of liabilities a sector uses to finance its economic and financial activities, but also which sectors are providing the financing. In addition, it is often necessary to analyze financial transactions between subsectors of a sector, particularly for financial corporations and general government.

31. Chapter 27 of the *2008 SNA* provides some inputs to an integrated framework of financial positions and flows on a from-whom-to-whom basis. It describes that detailed flow of funds accounts are based on three-dimensional tables. Such a table records transactions or financial asset and liability positions cross-classified by type of asset, creditor sector and debtor sector.

C. The *SNA* and the From-Whom-to-Whom Basis for Financial Positions and Flows

32. The *SNA* favours the presentation of the accounts by institutional sector and also provides the conceptual framework to present financial positions and flows on a from-whom-to-whom framework.⁹ The main reason why the *SNA* is not overly explicit on a from-whom-to-whom presentation of the data is the reporting burden it poses on compilers, in particular for securities and other negotiable financial instruments.

33. The *Handbook on Securities Statistics* prepared by the Bank for International Settlements, International Monetary Fund, and European Central Bank, in particular its Part 2 on debt securities holdings, covers the conceptual framework for positions and flows as outlined in the *SNA* but also extends this approach by reflecting the from-whom-to-whom relationships.¹⁰ It presents the relationships between the resident sectors as creditors and residents and nonresidents as debtors, and between nonresidents as creditors and residents as debtors of financial instruments. While this approach is useful for monetary and fiscal policy formulation, it is also crucial to have information on consolidated data at the level of corporate groups for financial stability purposes.

34. From a statistical point of view, the construction of the accounts on a from-whom-to-whom basis is an important compilation tool for enhancing the quality and consistency of the data. It allows for the cross-checking of the information from both debtor and creditor sides, thus allowing for a full consistency in terms of values and timing for recording transactions, other flows, and positions.

Application of the *SNA* framework for presenting inter-sectoral linkages

35. The *SNA* has not given a primary emphasis to the compilation of the accounts on a from-whom-to-whom basis. However, its underlying principles and framework allow for compiling such accounts. Moreover, the *SNA* itself provides, albeit on a secondary plan, some references to the compilation of the accounts on a three dimensional basis, that is, including the from-whom-to-whom information. In the case of the financial accounts it calls this presentation “detailed flows of funds.”

36. From-whom-to-whom accounts permit tracing the debtor/creditor relationships between institutional sectors, i.e. they can be used to show transactions, revaluations, other changes in financial assets and liabilities, and balance sheet positions cross-classified by debtor sector and creditor sector.

⁹ See Chapter 27 of the 2008 *SNA* on the *Links to monetary statistics and the flow of funds*.

¹⁰ See Bank for International Settlements, International Monetary Fund, and European Central Bank *Handbook on Securities Statistics*, Part 1 and Part 2, <http://www.imf.org/external/np/sta/wgsd/hbook.htm>.

37. Table 2 shows the integrated framework of accounts on a from-whom-to-whom basis by institutional sector and the rest of the world in a matrix format. For an economy, it shows transactions, revaluations, other changes in the volume of assets and liabilities, and positions for a financial instrument acquired/held by residents, grouped into (sub) sectors, and nonresidents vis-à-vis institutional units as debtors, broken down by residency and by institutional sector (cells of Table 2 shaded grey).

Table 2. From-whom-to-whom Transactions between Five Resident Sectors and the Rest of the World for One Financial Instrument, Nonconsolidated

Creditor by residency and by resident sector Debtor by residency and by resident sector		Residents					Nonresidents	All Creditors
		Nonfinancial Corporations	Financial Corporations	General Government	Households	Nonprofit Institutions Serving Households		
Residents	Nonfinancial Corporations							
	Financial Corporations							
	General Government							
	Households							
	Nonprofit Institutions Serving Households							
Nonresidents								
All Debtors								

38. For residents, the presentation of nonconsolidated data is recommended. This means that intra-sectoral positions, transactions, revaluations, and other changes in the volume of assets and liabilities are not eliminated (cells shaded grey with diagonal lines). The financial assets of nonresidents issued by nonresidents are not covered (black cell). These are not relevant from a national economy's perspective.

39. Holdings of financial instruments by nonresidents (vis-à-vis resident sectors as debtors) are shown as positions in the rest of the world balance sheet, and acquisitions by nonresidents of financial instruments issued by residents are shown as financial transactions in the rest of the world financial account. Revaluations or other changes in the volume of assets and liabilities are reflected in the rest of the world accumulation accounts (cross-hatched cells in the nonresidents column of Table 2). For economies where the role of the global financial markets is important, information on counterparty economies and nonresident sectors becomes highly desirable.

The from-whom-to-whom financial account of an institutional sector or of the rest of the world is an extension of the nonconsolidated financial account (matching debtor and creditor sectors). Similarly, the from-whom-to-whom financial balance sheet of a sector or of the rest of the world is an extension of the nonconsolidated financial balance sheet (again matching debtor and creditor sectors). Deriving the from-whom-to-whom financial account and balance sheet makes it also possible to draw up from-whom-to-whom revaluation accounts and other changes in the volume of assets and liabilities by (sub) sector. The information on revaluations has substantive analytical value, as it allows quantifying the effects of asset price movements for a specific financial instrument by sector vis-à-vis other sectors.

III. DEVELOPMENTS IN ACCOUNTING ON A FROM-WHOM-TO-WHOM BASIS

A. Experiences in the Compilation and Use of Flow of Funds

40. Although official statistics for some countries, mainly advanced economies, disseminate data on financial positions and flows, for the large majority of cases, information on a from-whom-to-whom basis is lacking. A review of data availability in G-20 economies recently conducted by the IMF's Statistics Department reveals that Australia disseminates financial transactions and positions with a breakdown by counterparties within an integrated framework. A few G-20 economies (Japan and the U.S.) disseminate financial accounts and financial balance sheets with significant details for instruments and subsectors that make it possible to identify the debtor/creditor relationships in many cases.

41. The euro area accounts also show some detailed from-whom-to-whom data for loans and deposits. This also applies for the quarterly sector accounts compiled by many European countries (e.g., Austria, France, Germany, Italy, Portugal, Spain, and the U.K.).

42. Some clarification of the term "flow of funds" would be useful. It is evident that the term "flow of funds" is used with different meanings among the data compilers and users. Sometimes the term is used to describe the financial transactions only, while in other cases flow of funds refer to both financial transactions and positions. Most countries use this term to compile data on resources and uses of funds for sectors of an economy. For example, Indonesia, Mexico, and South Africa, which compile the financial account by institutional sector, refer to these sectoral financial accounts as flow of funds. The U.S. refers to both the sectoral financial accounts and the balance sheets as the flow of funds accounts. Many countries (e.g., European countries) adhere strictly to the *SNA* terminology.

43. Among the G-20 emerging market economies, some partial information (sectors and instruments) on the flow of funds (financial flows) on a from-whom-to-whom basis is available for only a couple of countries.

44. Partial information on financial positions and flows by sector and corresponding counterparty, although available in many cases for financial institutions, is not fully

integrated within a macroeconomic statistics framework, such as the *SNA*. Thus, commonly existing information on financial positions and flows showing creditor/debtor relationships can be found on a wide range of statistics compiled by central banks showing the interactions of the financial sector with other sectors of the economy and the rest of the world. Thus, for example, data on loans extended by the financial sector and deposits incurred by them are collected and compiled with information on counterparty sectors. These data may usually not be compiled following standard *SNA* classifications of financial instruments and sectors in some cases, therefore undermining their usefulness for integration within the sectoral accounts of the *SNA*.

45. A broad implementation of the from-whom-to-whom framework for financial positions and flows within an integrated framework of macroeconomic accounts has not yet been materialized. However, G-20 advanced economies seem to be in a good position to lead the development of these statistics by further extending the financial accounts and balance sheets already compiled and disseminated based on the *SNA/European System of Accounts (ESA)* methodology. Reaching an agreement on harmonized terminology among countries is also necessary so as to avoid confusion.

B. The Balance Sheet Approach

46. The balance sheet approach (BSA) is an analytical framework for ascertaining how balance sheet weaknesses contribute to the origin and propagation of financial crisis.¹¹ Instead of focusing on the analysis of flows, the BSA focuses on the examination of stocks of assets and liabilities in a country's sectoral balance sheets. It starts with an analysis of sectoral vulnerabilities. Weaknesses of one sector can spill over to other sectors and can have an impact on the whole economy since financial difficulties of a debtor represent difficulties for its creditors. This approach of analyzing the origins and propagation of financial crisis has gained momentum since the financial account crisis of the 1990s. In fact, the IMF has been involved in the development of data sources and using the BSA in its surveillance work. Chart 1 shows a simplified version of the BSA matrix. As the liabilities in the BSA matrix are consolidated sectoral data, the matrix's diagonal (shaded boxes) of intra-sectoral holdings remains empty.

¹¹ See IMF Working Papers: (1) *A Balance Sheet Approach to Financial Crisis, 2002*, by Mark Allen, Christoph Rosenberg, Christian Keller, Brad Setser, and Nouriel Roubini (<http://www.imf.org/external/pubs/cat/longres.aspx?sk=16167.0>); and (2) *Using Balance Sheet Approach in Surveillance: Framework and Data Sources and Availability, 2007*, by Johan Mathisen and Anthony Pellechio (<http://www.imf.org/external/pubs/cat/longres.aspx?sk=19800.0>).

Chart 1. A Simplified BSA Presentation of Inter-sectoral Positions of Financial Assets and Liabilities

		Holder of the liability (Creditor)	Government sector (incl. central bank)	Financial sector	Nonfinancial Sector	Rest of the world	Total
Issuer of the liability (Debtor)							
Government sector (incl. central bank)							
Domestic currency							
Total other liabilities							
short term							
in foreign currency							
in domestic currency							
medium and long term							
in foreign currency							
in domestic currency							
Financial sector							
Total liabilities							
deposits and other short term							
in foreign currency							
in domestic currency							
medium and long term							
in foreign currency							
in domestic currency							
Equity (capital)							
Nonfinancial sector							
Total liabilities							
short term							
in foreign currency							
in domestic currency							
medium and long term							
in foreign currency							
in domestic currency							
Equity (capital)							
Rest of the world							
(all in foreign currency)	Total liabilities						
	currency and short term						
	medium and long term						
	Equity						

Source: A Balance Sheet Approach to Financial Crisis, 2002, by Mark Allen, Christoph Rosenberg, Christian Keller, Brad Setser, and Nouriel Roubini, IMF Working Paper WP/02/210, p. 45.

47. In assessing balance sheet risks, the BSA framework considers four types of balance sheet mismatches that can trigger a financial crisis. These mismatches are (a) currency mismatches (liabilities in foreign currency and assets in domestic currency—capital losses and default risk from devaluation of exchange rate); (b) maturity mismatches (assets are long-term and liabilities are short-term causing risk of defaults associated with difficulties on debt rollover and increase in short-term interest rates); (c) capital structure mismatches (excessive reliance in debt instead of equity); and (d) solvency risk (assets not enough to cover liabilities).

48. The BSA refers to the *SNA* balance sheets but is limited to analyzing only positions (stocks) of financial assets and liabilities. It shows for each financial instrument included, the sector incurring the liability (the debtor) and the sector acquiring the counterpart asset (the creditor). In other words, it corresponds to the “detail” flow of funds in the *SNA*. The main

source data for the compilation of the BSA are the Standardized Report Form (SRFs) for monetary and financial statistics reported monthly to the IMF's Statistics Department (STA). As of 2011, 32 countries report data for the monetary authorities, depository corporations (DCs) and other financial corporations (OFCs). Reports covering only the monetary authorities and the DCs are received from 126 countries (including the countries in the euro zone). Other data sources for completing a BSA include the international investment position (IIP), the Coordinated Portfolio Investment Survey (CPIS), the Quarterly External Debt Statistics (QEDS), and the Joint External Debt Hub (JEDH).

49. The sector breakdown of the BSA matrices consist of the general government, financial sector and its subsectors, the nonfinancial corporations, other resident sectors, and the rest of the world. The currency denominations and the maturity (original) breakdowns of assets and liabilities play an important role in the classification of assets and liabilities in the BSA. The classification of financial instruments by category follows the *SNA* but the new breakdowns by subcategory are recommended, data availability of which are not always ensured.

Compilation of the BSA

50. The BSA matrices are compiled monthly for a selected number of countries based solely on the monetary and financial statistics, although users can extend the coverage of the BSA using additional source data, usually available on a lower frequency. The main source data are the SRF reports received electronically by the IMF. Three different SRF reports are used to collect data, respectively, from (a) the central banks, (b) other deposit-taking corporations, and (c) OFCs. Data on financial assets and liabilities are collected for the main categories of financial instruments used in the *SNA* with a breakdown by currency (national and foreign currency) and original maturity. The standard sectors considered are the central bank, other deposit-taking corporations, OFCs, general government (separate data for central, state and local government), nonfinancial corporations (separate data for public and private nonfinancial corporations), other resident sectors (households and nonprofit institutions serving households) and nonresidents (rest of the world). These data provide satisfactory creditor/debtor positions between the financial corporations subsectors and other sectors of the economy and the rest of the world.

51. In the monthly data, positions between general government and the other resident sectors of the economy are incomplete because the creditor and debtor positions between general government, the nonfinancial corporations, and other resident sectors are not available on a monthly basis. The positions between general government and the rest of the world can be extracted from the IIP, the QEDS, and the CPIS, which are available at a lower frequency.

52. Data on positions between the nonfinancial corporations and other sectors of the economy are also incomplete, as data on the positions held by this sector against general government and other resident sectors are usually not available. Stocks of liabilities of the

nonfinancial sector held as financial assets by the rest of the world are available from the IIP, the QEDS, and the JEDH, while data on their holding of financial assets against the rest of the world are available from the IIP and the CPIS.

C. Other IMF Initiatives in Collecting Data on a From-Whom-to-Whom Basis

The Coordinated Portfolio Investment Survey (CPIS)

53. The purpose of the CPIS is to collect information on the stock of cross-border holdings of portfolio investment in securities (equity securities, and short- and long-term debt securities).¹² The CPIS is conducted annually since 2001 and collects data from about 75 countries on their year-end portfolio investment positions on the targeted financial instruments with a breakdown by country of issuer. The coverage of the CPIS corresponds to the coverage of the portfolio investment in the IIP. The concepts and principles underlying the CPIS are those contained in the sixth edition of the *Balance of Payments and International Investment Position Manual (BPM6)*; data are collected by immediate counterpart economy.

54. The data collected permit the presentation at the level of each financial instrument on a from-whom-to-whom basis showing the holders of the assets vis-à-vis the issuer countries. The results of the survey show a continuous increase in the value of cross-border portfolio investment.

55. The CPIS contains a number of encouraged items. In particular, data are currently requested on portfolio investment liabilities. Also, the CPIS contains several detailed splits of data, including on the domestic sector of holder of securities, and on the currency composition of the securities held. Thus, the CPIS identifies securities held by resident sectors with a breakdown of the resident holding sectors [monetary authorities, banks, other financial institutions (insurance corporations and pension funds, investment funds, and others), general government, and nonfinancial sector (nonfinancial corporations, households, and other)].

56. In response to requests from data users, a number of enhancements to the CPIS are expected to be implemented starting with data for 2013. Such enhancements are expected to include increased frequency (i.e., semi-annual CPIS data collections), timeliness (i.e., acceleration in the collection and re-dissemination of data), and scope (i.e., collection on a voluntary basis of information on the sector of the issuer of securities, and on short or negative positions).

¹² For the CPIS Guide, data, and metadata, please visit the IMF website at <http://www.imf.org/external/np/sta/pi/cpis.htm>.

Coordinated Direct Investment Survey (CDIS)

57. The IMF conducted for the first time a CDIS¹³ in 2009. This survey is conducted in conjunction with its interagency partners, including the OECD, the Eurostat, the ECB, and the United Nations Conference on Trade and Development. The CDIS is conducted annually since 2010, starting with data for end-2009. Data for the most recent year are released before end-December of the following year, and revised data are released in July. Participation in the CDIS is voluntary and 92 economies currently participate in the survey.

58. The purpose of the CDIS is to improve the quality of direct investment position statistics in the IIP and by immediate counterpart economy. Specifically, the objectives of the CDIS are to collect comprehensive and harmonized data, with geographic detail of counterpart country, on direct investment positions. The concepts, coverage, valuation, and classification of data collected in the CDIS are consistent with the *BPM6* and the fourth edition of the *OECD Benchmark Definition of Foreign Direct Investment*.

59. The CDIS database presents detailed data on “inward” direct investment position (i.e., direct investment into the reporting economy) cross-classified by economy of immediate investor, and data on “outward” direct investment position (i.e., direct investment abroad by the reporting economy) cross-classified by economy of immediate investment. All participants in the CDIS provide data on their inward direct investment and most participants also provide data on their outward direct investment. The CDIS database contains breakdowns of direct investment position data, including, in most instances, separate data on equity and debt positions, as well as “mirror” data for all economies (i.e., data on direct investment positions obtained from counterpart economies' data).

D. Bank for International Settlements' Locational International Banking Statistics

60. The Bank for International Settlements (BIS) compiles quarterly data on gross balance sheet positions of banks in major banking centers against entities (banks and nonbanks) located in other countries worldwide.¹⁴ The statistics cover separate data on cross-border claims and liabilities in all currencies, and claims and liabilities vis-à-vis residents in foreign currency.¹⁵

¹³ At its meeting in November 2009 in Shanghai, People's Republic of China, the IMF Committee on Balance of Payments Statistics agreed that the CDIS should be undertaken on an annual basis. As a consequence, the IMF will be asking for preliminary data as of end-2010 to be reported by September 30, 2011. For CDIS Guide, data, and metadata, please visit the IMF website: <http://www.imf.org/external/np/sta/cdis/index.htm>.

¹⁴ For the locational international banking statistics guide and data, please visit the BIS website at <http://www.bis.org/statistics/bankstats.htm>.

¹⁵ The BIS also collects and publishes consolidated banking statistics on banks' on-balance sheet financial claims on the rest of the world. The quarterly data cover contractual lending by the head office and all its branches and subsidiaries on a worldwide consolidated basis, i.e., net of inter-office accounts. Total claims are
(continued...)

61. Data are based on the residency and nonconsolidated concepts, consistently with the balance of payments and IIP statistics. There is however a deviation from these statistics in that the locational statistics also include bank's foreign currency positions vis-à-vis residents.

62. The locational international banking statistics provide information on international claims and liabilities for more than 40 of the most important banking centers by country of residence of the counterparties, by major individual currencies, and sectors (only banks and nonbanks). Financial assets and liabilities are presented for three aggregated categories: (a) loans and deposits; (b) holdings and own issues of debt securities; and (c) other assets and liabilities. The latter two categories mainly cover portfolio and direct investment.

63. The statistics, aggregated at the country/financial center level are reported by central banks and monetary authorities in the countries and financial centers that conduct large volumes of international lending and borrowing or deposit-taking. The statistics provide a measure of the role of banks in intermediating international capital flows, a measure of the external debt owed to banks as reported from the creditor side, and a measure of the importance of financial centers and offshore banking activity.

E. ECB's Experience in Euro Area Accounts on a From-Whom-to-Whom Basis

64. The reasons for collecting and compiling financial positions and flows on a from-whom-to-whom basis (by debtor/creditor)¹⁶ for euro area aggregates are mainly analytical. Three examples of such a data framework should be presented in this context. From-whom-to-whom statistical information enriches considerably the approach of monitoring (a) monetary transmission processes; (b) general government debt; and (c) securities issues and holdings.

Monitoring monetary transmission processes by integrating money in a from-whom-to-whom framework

65. The integration of monetary aggregates and its counterparts in a from-whom-to-whom framework is derived from the consolidated financial transactions and balance sheets of the resident money-issuing sector vis-à-vis the resident money-holding sectors.¹⁷ An initial

broken down by remaining maturity, sector (banks, nonbank private sector, and public sector), as well as vis-à-vis country. Two sets of statistics are compiled. The first set collects data on an immediate borrower basis, i.e., claims are attributed to the country where the original risk lies. The second set collects data on an ultimate risk basis, i.e., claims are attributed to the country where the final risk lies. Currently, central banks in 30 countries report their aggregate national consolidated data to the BIS, which uses them as the basis for calculating and publishing global data. For more information, please visit the BIS website at <http://www.bis.org/statistics/constats.htm>.

¹⁶ The 2008 SNA uses the term "flow of funds" (see 2008 SNA, Chapter 27).

¹⁷ See ECB, Monthly Bulletin, various issues and statistical section.

set of source data available are the balance sheets of monetary financial institutions (MFI) from which monetary aggregates and the main counterparts to broad money are to be calculated. These balance sheet statistics comprise often rather detailed breakdowns of various financial instruments, such as deposits, loans, and debt securities by maturity and counterpart sector. Based on these data, a from-whom-to-whom presentation of deposits and loans has already been implemented in the quarterly euro area accounts. Balance of payment statistics and statistics on securities issuance by general government and by financial and nonfinancial corporations complement this dataset.

66. The corresponding financial accounts and balance sheets derived from these source data, with a breakdown of the financial corporations sector, of the financial asset and liability categories, and of the counterparts, allow the identification of broad money. This helps in analyzing monetary developments in the widest possible financial framework and in a way which permits them to be related more easily to the economic developments recorded in the production, income, and capital accounts.

67. The *money-issuing sector* is assumed to consist of the central bank, resident deposit-taking corporations, and resident money market funds, together comprising the MFI subsector. Moneyholders are the remaining resident sectors, including the remaining subsectors in the financial corporations sector and all subsectors of general government. (This is a simplification—in reality, central government may have monetary liabilities, and its holdings of monetary instruments issued by MFIs may be excluded from the monetary aggregates.) Holdings of money by the money-issuing sector itself are consolidated. The rest of the world sector is assumed to be money-neutral, i.e., neither the liabilities of nonresidents, nor nonresidents' holdings of money issued by resident money issuers, are counted in money.

68. *Monetary variables* are considered to comprise (a) currency (issued by the central bank); (b) transferable deposits held with MFIs; (c) deposits redeemable at a period of notice of up to and including three months (i.e., short-term savings deposits) held with MFIs; (d) deposits with an agreed maturity of up to and including two years (i.e., short-term time deposits) held with MFIs; and (e) repurchase agreements, money market fund shares or units, and debt securities with an original maturity of up to and including two years issued by MFIs. These monetary variables may also cover structured securities and structured deposits.

69. Depending on the coverage, various *monetary aggregates* may be derived: (a) a narrow monetary aggregate M1 comprising currency and transferable deposits held with MFIs; (b) an intermediate monetary aggregate M2 comprising M1 and short-term savings deposits and short-term time deposits held with MFIs; and (c) a broad monetary aggregate M3 comprising M2 and marketable instruments as listed in (e) above (see Annex I). In a further step sectoral monetary aggregates may be derived such as M3 held by households.

Monitoring general government gross debt in a from-whom-to-whom framework

70. Data on general government gross debt are used to monitor fiscal developments within the euro area. General government gross debt or Maastricht debt excludes, as gross consolidated debt, any government debt held as a financial asset by government units. It comprises the financial instruments currency and deposits, debt securities, and loans.

71. Maastricht debt provides debt data with a breakdown by holder or creditor. They are split into debt held by residents of an economy within the euro area or within the EU and by nonresident holders. Holdings of debt by residents are calculated as the sum of the debt held by the central bank, other monetary financial institutions, other financial institutions, and other residents. A memo item covers the debt held by nonresidents inside the euro area. In addition to their breakdown by instrument and holder, debt is also presented by original and residual maturities and by currency denomination.

Monitoring securities issues and holdings in a from-whom-to-whom framework

72. The from-whom-to-whom framework allows for a detailed presentation of financing and financial investment via securities, which has a number of uses within the ECB, especially in the context of monetary policy and financial stability analysis. It sheds light on the sectoral compositions of assets and liabilities, and on potential strengths and vulnerabilities in portfolios.¹⁸

73. The complexity of from-whom-to-whom tables for securities is determined by the detail of the breakdowns chosen for securities (by subcategory) and for the creditors and debtors (by residency, sector, and subsector). Combining these breakdowns leads to a rather large number of from-whom-to-whom relationships, especially as the data may need to be shown as positions and flows. Accordingly, a selection by security subcategory, sector, and subsector is essential.

74. At the ECB, a centralized security-by-security database (CSDB) has been set up by the European System of Central Banks (ESCB) to further improve the quality of flow and position data on securities for policy purposes. The CSDB is a micro database that stores information on individual securities, from which statistics can be compiled flexibly to serve diverse needs. The CSDB covers various categories of financial instruments, such as debt securities, equity securities and investment fund shares or units. Information stored on an instrument is broken down into attributes that describe selected characteristics of the instrument. The selection of attributes may vary depending on the purpose of the database. Attributes useful for statistical applications include the international securities identification number (ISIN), name of the issuer, residence of the issuer, the sector and subsector of issuer,

¹⁸ See Bank for International Settlements, International Monetary Fund, and European Central Bank *Handbook on Securities Statistics*.

issue date, redemption date, the type of security, the currency of denomination, the issue price, the redemption price, the outstanding amount or the market capitalisation, and the coupon payments and dates.

75. The production of statistics from the CSDB can be presented as a three-stage process. First, it involves the inputs by collecting and purchasing data on individual securities from a range of sources, such as central banks, government agencies, commercial data providers and securities exchanges (in their capacity as custodians). Second, it covers data quality management. The individual security data collected from different sources are received into the database, merged, and stored. Checks for completeness, plausibility and consistency are then performed, and where errors are detected, observations are corrected. Third, it involves the storing of individual security data according to various classification criteria.

76. There is a project ongoing to link the CSDB dealing with securities issues statistics to securities holdings statistics for resident holders grouped by sector and subsector, as well as for nonresident holders. For this purpose, information provided by respondents (as holders or custodians) is linked at the individual security level to the data stored in the CSDB. The link is often made using the ISIN, but also referring to information on the debt securities holders and holdings: (a) the holder by residency and institutional sector and subsector and also by large and complex financial or nonfinancial group; and (b) the amount of holdings in currency.

77. Current reporting schemes on securities holdings are mainly based on two groups of agents having access to such type of information: (a) custodians (as well as centralized securities depositories); and (b) direct reporters. In most cases, data are collected from custodians on a security-by-security basis. This also refers to the collection of data on the securities holdings of residents from nonresident custodians to allow the breakdown of holdings by the residency of the issuer to be derived. Direct reporters provide security-by-security data on their holdings with various breakdowns: by type of instrument, maturity, residence of issuer, etc.

78. Establishing an integrated compilation framework for securities issues and securities holdings statistics which provides timely and high-frequency data with breakdowns by type of financial instrument, currency denomination, maturity, issuing country, and sector or subsector is rather demanding and cost intensive. Accordingly, the ESCB has agreed that it will still take a couple of years to use it for the regular production of securities statistics, starting with financial balance sheet data.

IV. APPLYING THE FROM-WHOM-TO-WHOM FRAMEWORK FOR FINANCIAL POSITIONS AND FLOWS

A. Collecting and Compiling Data on a From-Whom-to-Whom Basis

79. A set of accounts that show by sector and type of financial instrument the transactions, other economic flows, and the positions of financial assets and liabilities vis-à-vis the counterpart sector, whether resident or cross-border, reflect more accurately the reality of the interconnected global economy, and provide more useful information for opportunely dealing with the financial positions and flows that can originate a crisis.

80. Especially in the context of requirements related to multilateral surveillance, financial stability, and policy coordination, sectoral accounts on a from-whom-to-whom basis are a powerful tool to provide comparable data for G-20 countries and other economies. Such indicators reflecting imbalances may cover data on the current account derived consistently from the rest of the world, data on deficit and debt derived from general government, or data on private savings, and debt derived from the nonfinancial corporations and household sector accounts.

81. Transactions on a from-whom-to-whom basis permit to understand how surpluses by one sector are allocated among different financial instruments and sectors and cross-border, or how sectors with deficits meet their financial needs in terms of financial instruments used and sectors providing it, including the rest of the world. They also reflect the increasing activities in the financial markets for the sake of financial returns and speculative gains. Not less important is to identify changes in balance sheets that result from revaluations and other changes like mergers and acquisitions.

82. The compilation of the *SNA* accounts for financial positions and flows on a from-whom-to-whom basis will fill some important data gaps in the currently available macroeconomic statistics. This, however, requires further investments in new data collection systems as described above for securities databases.

83. The collection of more detailed data from markets and institutional sectors has to be weighed against the response burden to the statistical units, confidentiality constraints, and the cost of collecting and processing the additional source data. As a result, compromises need to be established in the level of aggregation of the data to be collected as well as of the data sources to be used.

84. An IMF-OECD Conference of sectoral accounts experts was conducted during February 28–March 2, 2011 at IMF Headquarters.¹⁹ The main objective of the Conference

¹⁹ The papers presented at the conference and the summary report are available at <http://www.imf.org/external/np/seminars/eng/2011/sta/index.htm>.

was to seek consensus on the strategy for expanding the dissemination and reporting of annual and quarterly sectoral accounts by G-20 economies and non-G-20 advanced economies. It agreed on the basic outline of a reporting template for sectoral national accounts and balance sheets and the timeframes and priorities for implementation. The template will serve a basis for a minimum set of internationally comparable sectoral accounts. The template guidance includes four building blocks: (i) minimum sector and subsector breakdowns; (ii) transactions breakdowns of the current and capital accounts; (iii) financial instrument classification (including debt on remaining maturity and currency composition); and (iv) classification of nonfinancial assets. There is an agreement on the compilation of sectoral accounts and sectoral financial positions and flows on a quarterly frequency with a timeliness of one quarter. The relevant international organisations (European Central Bank, Eurostat, OECD, IMF, BIS) are following-up on these recommendations in a co-ordinated fashion. As far as possible the agreed work on sectoral accounts and balance sheets are to be integrated with the implementation of the *2008 SNA* planned to be completed by 2014 in many economies.

B. Steps in Implementing the From-Whom-to-Whom Data

85. As a condition for assuring international comparability, the accounts on financial positions and flows should be compiled and disseminated using an agreed minimum set of categories of assets/liabilities and institutional sectors. Depending on their own analytical needs and data availability, countries may compile the data at more disaggregated levels reflecting their own institutional settings or for particular financial instruments. For international comparability, the classification of sectors should be the main institutional sectors as defined in the *2008 SNA*, with the minimum breakdown of financial instruments corresponding to the main classification of financial instruments in the *2008 SNA*.

86. Considering the difficulties that countries are likely to face in compiling exhaustive accounts, implementation could occur in steps. First, the accounts for the main institutional sectors by financial instrument category are likely to be implemented. With the development of data sources a further breakdown of the financial corporations' accounts by subsector may follow.

87. In a further step, from-whom-to-whom data may be collected and compiled for selected financial instruments like loans, deposits or insurance and pension entitlements. Most challenging will be to provide such detailed data for securities and other negotiable financial instruments due to secondary market transactions.

88. The compilation of sectoral accumulation accounts and balance sheets requires dedicated staff of compilers and analysts plus resources for the collection and processing of data. A suitable institutional arrangement may vary depending on various circumstances. The compilation of the integrated framework for financial positions and flows on a from-whom-to-whom-basis has implications for the internal allocation of responsibilities within each country. The division of work among different institutions depends on a country's specific

institutional arrangements for the compilation of the integrated national accounts statistics. Different agencies may be involved; each responsible for a specific part of the accounts in close interaction, thus ensuring full coverage and assuring consistency. Roles, responsibilities, and coordination mechanism must be ensured through explicit and formal mechanisms.

89. Technical assistance and training will be required particularly for those countries that have not yet implemented complete sectoral accounts. Training may adopt a regional format, thus maximizing the benefits of the resources used. Given existing resource constraints for technical assistance, an implementation based on selected pilot countries may be necessary.

90. Due to data confidentiality, the collection of financial positions and flows on a from-whom-to-whom basis may be sometimes problematic, particularly when higher level of details is requested.

91. As a first step, the presentation of sectoral financial positions and flows can follow simplified tables showing creditors' flows and positions by residency of debtors and by financial instruments (and a similar table for debtors' financial positions and flows). At a later stage, tables showing from-whom-to-whom data can be compiled. Tables 2A and 2B in Annex II provide a proposal of such an approach.

V. CONCLUDING REMARKS

92. This paper sets the background for promoting internationally coordinated efforts for compiling and disseminating data on sectoral financial positions and flows on a from-whom-to-whom basis using an integrated framework. The compilation of these data would fill a serious data gap as revealed by the global crisis of 2008: information shedding light on the financial interconnectedness among the various sectors of an economy and between them and their counterparties in the rest of the world.

93. The paper elaborates the main attributes of the integrated macroeconomic accounts of the *2008 SNA*, which allows it to serve as the framework for compiling sector accounts, including financial positions and flows on a from-whom-to-whom-basis. In particular, the *SNA* integrated framework ensures four consistency rules as follows: (i) vertical consistency (total of all debit entries and that of all credit entries of an institutional unit (sector) are equal), (ii) horizontal consistency (debit entries of a transaction type for all units are equal to the credit entries of that transaction type for all units), (iii) counterpart consistency (an entry arising from an exchange has a counterpart entry of the same value and at the same time in the account of the counterparty), and (iv) stock-flow consistency (changes between opening and closing stocks are fully accounted in transactions, other volume changes and revaluations). The core accounting structure of the *2008 SNA* for financial positions and flows focuses on showing *who does what* rather than *who does what with whom*. This paper recommends that prominence be given in the *SNA* to the from-whom-to-whom basis as the

main underlying principle for compiling and disseminating sectoral financial positions and flows.

94. The advantage of using sectoral accounts compiled within the integrated *SNA* framework, contrary to using fragmentary data from different sources, is that such framework ensures data consistency for all entities and for all economic flows and positions and, thus allows for a systematic understanding of the relationships between economic flows in the real and the financial spheres, financial interconnectedness, and linkages among the various economic functions (e.g., between production, consumption, savings, and accumulation).

95. The current situation on the availability of data on financial positions and flows on a from-whom-to-whom basis is at an early stage. Given the importance to fill these data gaps the authors propose that as a condition for achieving international comparability, the accounts on financial positions and flows should be compiled and disseminated using an agreed minimum set of categories of assets/liabilities and institutional sectors. Following the IMF-OECD Conference in 2011, international agreement has been reached on the minimum and encouraged set of these classifications.²⁰

96. The paper suggests that considering the difficulties that countries are likely to face in compiling comprehensive accounts, implementation could occur in steps depending on current statistical development status, resource requirement, and analytical and policy needs. The following steps may provide some guidelines:

- a. Traditional financial transactions and positions by main sectors;
- b. Further details for financial corporations by subsectors and for general government, other economic flows may also be considered;
- c. From-whom-to-whom financial positions and flows for subsectors of financial corporations and possibly general government;
- d. From-whom-to-whom financial positions and flows for specific instruments (loans, deposits, some important negotiable instruments); and
- e. Fully integrated financial positions and flows on a from-whom-to-whom basis by sectors (subsectors) – starting from aggregated subsector and instrument details towards more disaggregated subsector and instrument details.

²⁰ See presentation “Sectoral Accounts, Balance Sheets and Flow of Funds: Progress and Future Plans” by Manik Shrestha at the meeting of the OECD Working Party on Financial Statistics in October 2011 for details of these classifications in designing a data reporting template.
<http://www.oecd.org/dataoecd/17/59/48909444.ppt>

ANNEX I. INTEGRATING MONEY AND CREDIT IN A FROM-WHOM-TO-WHOM FRAMEWORK

1. There are practical challenges which may have to be tackled when integrating money into the framework for financial positions and flows on a from-whom-to-whom basis. The definitions of money and of money-issuing, money-holding and money-neutral sectors are not necessarily based on the classification of financial assets and institutional sectors described in Section III. Maturity thresholds, valuation methods and recording principles for accrued interest in monetary statistics generally coincide with those recommended for use in the *SNA*.

2. Table A1 shows in *italics* the moneyholders' financial transactions in assets, which represent monetary claims on the money-issuing sector (resident MFIs). The outstanding money stock may be identified in a similar way in the financial balance sheet.

Table A1. Money in the Framework for Financial Transactions on a From-Whom-to-Whom Basis

Type of claim and debtor (MFI)	Creditor	Financial Corporations		General government	Households and NPISH	Money-holders (total)	Rest of the world
		Nonfinancial corporations	MFIs 1/				
Currency and deposits							
- short term 2/		<i>50</i>	60	<i>5</i>	<i>10</i>	<i>150</i>	60
- long term		<i>10</i>	20	<i>0</i>	<i>0</i>	<i>30</i>	10
Debt securities							
- short term 3/		<i>10</i>	30	<i>5</i>	<i>5</i>	<i>20</i>	30
- long term		<i>5</i>	10	<i>0</i>	<i>0</i>	<i>10</i>	10
Money market fund shares or units		<i>5</i>	5	<i>2</i>	<i>0</i>	<i>20</i>	0
Equity and remaining investment fund shares		<i>0</i>	5	<i>5</i>	<i>0</i>	<i>5</i>	2
Financial derivatives and employee stock options		<i>2</i>	10	<i>10</i>	<i>0</i>	<i>0</i>	10
Other accounts receivable/payable		<i>1</i>	2	<i>2</i>	<i>0</i>	<i>0</i>	2
Money		<i>65</i>		<i>12</i>	<i>15</i>	<i>190</i>	
Domestic nonmonetary liabilities (total)		<i>18</i>		<i>17</i>	<i>0</i>	<i>80</i>	
External liabilities of MFIs (total)							124
<p>1/ MFIs cover the central bank, deposit-taking corporations, and money market funds.</p> <p>2/ Short-term deposits cover transferable deposits, deposits redeemable at a period of notice of up to and including three months (i.e., short-term savings deposits) and deposits with an agreed maturity of up to and including two years (i.e., short-term time deposits) held with MFIs.</p> <p>3/ Short-term debt securities cover debt securities with an original maturity of up to and including two years issued by MFIs.</p>							

3. In Table A2, credit as the counterpart to money is shown. The credit counterpart reveals how the change in money is related to lending by money issuers (MFIs) to other residents in all forms, including by the acquisition of securities issued by MFIs. This counterpart comprises part of the assets of the money-issuing sector, namely loans to, the acquisition of securities issued by, and other forms of lending to, all other resident sectors, including other entities (i.e., not MFIs) in the financial corporations sector.

4. Another part of the assets of the money-issuing sector, net of liabilities to nonresidents, constitutes the external counterpart, the net external assets of the money-issuing sector (in balance sheet terms), or changes in them (corresponding to transactions in the financial account).

Table A2. Credit as the Counterpart to Money in the Framework for Financial Transactions on a From-Whom-to-Whom Basis

Debtor Type of claim and creditor (MFI)	Nonfinancial corporations	Financial corporations		General government	Households and NPISH	Moneyholders (total)	Rest of the world
		MFIs 1/	Other financial corporations				
Currency and deposits		80					30
Debt securities	60	40	10	40		110	60
Loans	60		6	20	120	206	45
Money market fund shares or units		5					0
Equity	5					5	
Remaining investment fund shares or units		5	10			10	5
Insurance, pension and standardized guarantee schemes			3	0		3	0
Financial derivatives and employee stock options	2	10	0	0	0	2	5
Other accounts receivable/payable	0	2	0	0	0	0	5
Domestic credit (total)	127		29	60	120	336	
External assets (total)							150
Net external assets (external counterpart)							26 (=150-124)

1/ MFIs cover the central bank, deposit-taking corporations, and money market funds.

5. The transactions and positions of the rest of the world correspond (after some rearrangements) to the balance of payments and IIP. Net external assets of MFIs, summarizing the money-issuing sector's transactions with the rest of the world, link to money through the MFI accounting framework. The balance of payments identity may then be exploited to show how the money-holding sectors' transactions with the rest of the world relate to changes in money, since the money issuers' balance of payments transactions must equal all other resident sectors' balance of payments transactions with reverse sign (for this purpose it is desirable that errors and omissions in the balance of payments have been eliminated when compiling the sector accounts and balance sheets; otherwise they may be attributed to the money-holding sectors).

ANNEX II. A PROPOSAL FOR PRESENTATION OF SECTORAL ACCOUNTS

1. As a first step, tables may be designed to follow the residence of creditor approach. Such tables show institutional units as creditors which hold financial instruments; institutional units are allocated to an economic sector. The holdings are part of the balance sheet (asset portfolio) of this sector, whereas transactions in financial instruments are part of the economic sector's financial account. The financial instruments holdings of resident sectors are shown (with a breakdown by the residency but without a breakdown of the resident sector of debtors), and the financial instruments issued by residents and acquired by nonresidents are also shown. The following proposed Table 2A reflects the approach and shows the financial instrument categories according to *System of National Accounts 2008*.
2. Some amendments to this table may be made by splitting the financial corporation sector into some subsectors like money-issuing corporations, insurance corporations and pension funds and other financial corporations. A breakdown of some financial instrument categories like deposits, loans or debt securities by original maturity may also be feasible at this stage.
3. The tables on the from-whom-to-whom basis show positions and flows for financial instruments acquired by resident sectors and by nonresidents, with a breakdown by institutional sector for resident debtors (the cells of Table 2B shaded light grey). Furthermore, acquisitions by nonresidents of financial instruments issued by residents are shown (penultimate column) and also financial instruments issued by nonresidents and acquired by resident sectors (penultimate row marked non-residents). However, acquisitions by nonresidents of financial instruments issued by nonresidents are not covered (black cells).
4. For residents, the presentation of nonconsolidated data on financial instruments acquisitions is recommended, covering intra-sectoral flows and positions (diagonal cells of Table 2B shaded in dark grey).
5. The collection and compilation of such from-whom-to-whom data has to follow a step-by-step approach based on the availability of corresponding source data. A first step is usually to integrate such data from monetary statistics, balance of payments or government finance statistics providing usually detailed data on nonnegotiable financial instruments like deposits, loans, trade credit or insurance and pension entitlements.
6. In a further step, from-whom-to-whom data may be derived by sector and subsector for securities based on detailed source data taken from financial statements or from securities databases.

Table 2A. Financial Instruments Classified by Creditor Sector and Residency of Debtor²¹

Creditor Debtor by residency and by financial instrument category		Residents					Nonresidents	All creditors
		Nonfinancial corporations	Financial corporations	General government	Households and nonprofit institutions serving households	All residents		
Residents	Monetary gold and SDRs							
	Currency and deposits							
	Debt securities							
	Loans							
	Equity and investment fund shares or units							
	Insurance, pension and standardized guarantee schemes							
	Financial derivatives and employee stock options							
	Other accounts receivable/ payable							
Nonresidents	Monetary gold and SDRs							
	Currency and deposits							
	Debt securities							
	Loans							
	Equity and investment fund shares or units							
	Insurance, pension and standardized guarantee schemes							
	Financial derivatives and employee stock options							
	Other accounts receivable/ payable							
All debtors	Monetary gold and SDRs							
	Currency and deposits							
	Debt securities							
	Loans							
	Equity and investment fund shares or units							
	Insurance, pension and standardized guarantee schemes							
	Financial derivatives and employee stock options							
	Other accounts receivable/ payable							

²¹ A similar table may be compiled which shows financial instruments classified by debtor sector and residency of creditor.

Table 2B. Financial Instruments Acquisitions in a From-Whom-to-Whom Framework by Residency and Resident Sector of Creditor and by Residency and Resident Sector of Debtor

Debtor by residency and resident sector and by financial instrument			Residents				Non-residents	All creditors
			Nonfinancial corporations	Financial corporations and subsectors	General government	Households and nonprofit institutions serving households		
Residents	Nonfinancial corporations	Monetary gold and SDRs						
		Currency and deposits						
		Debt securities						
		Loans						
		Equity and investment fund shares or units						
		Insurance, pension and standardized guarantee schemes						
		Financial derivatives and employee stock options						
		Other accounts receivable/payable						
	Financial corporations and subsectors	Monetary gold and SDRs						
		Currency and deposits						
		...						
	General government	Monetary gold and SDRs						
		Currency and deposits						
		...						
	Households and nonprofit institutions serving households	Monetary gold and SDRs						
		Currency and deposits						
		...						
	Nonresidents		Monetary gold and SDRs					
		Currency and deposits						
		...						
All debtors		Monetary gold and SDRs						
		Currency and deposits						
		...						

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