

Global Flow of Funds: Mapping Bilateral Geographic Flows

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Abstract

The main purpose of this paper is to map, conceptually, financial interlinkages which are reflected in the balance of payments and international investment position statistics and in the “rest-of-the-world” account of the national accounts. These datasets provide valuable information for the analysis of interconnectedness across borders, global liquidity flows, and global financial interdependencies. The paper sets out the concepts and existing data sources. The Balance Sheet Approach is used to break down the rest of the world by components of the international investment position (IIP). An external statistics’ matrix (metadata) exercise shows what external sector financial data are available by IIP concept. The main outcome is a prototype template of stock and flow data, geographically broken down by national/regional economies.

Key Words: Interconnectedness, interdependencies, balance sheet approach, bilateral balance of payments flows.

1. Motivation

This paper reflects ongoing work carried out by the IMF’s Statistics Department to construct a global flow of funds mapping domestic and external capital stocks, geographically broken down, bilaterally by (potentially) the 25 jurisdictions that the IMF identified as hosting systemically-important financial sectors. The mapping set out in this paper should be seen as demonstrating a “proof of concept” and is not yet an attempt at constructing global flow of funds data.

This work has been carried out in consultation with, and piloted on, seven economies with systemically important financial centers, namely: the euro area, Hong Kong, Japan, Singapore, Switzerland, the United Kingdom and the United States.

Rapid financial globalization has brought benefits from a more efficient intermediation of funds, but it has also increased vulnerabilities from the impact of external shocks into domestic economies and sectors. The speed with which illiquidity in financial markets was spread cross-borders during the recent global crisis showed how easily shocks in one country are transmitted and amplified. The transmission mechanisms involved intermediaries, notably global systemically important financial institutions and multinational companies, operating in a relatively small number of key financial centers. Against this backdrop, appropriately constructed global flow of funds would provide valuable information for the analysis of

¹ The views expressed herein are those of the authors and should not be attributed to the IMF, its Executive Board, or its management.

interconnectedness across borders, global liquidity flows, and global financial interdependencies.

The paper is organized in the following way. The data sources are first reviewed. These include monetary and financial statistics, government finance statistics, balance of payments and IIP statistics, and the “rest-of-the-world” account of the national accounts.

Two metadata matrices are then discussed which summarize the concepts and draw out what data are available and identify the major data gaps. These two matrices cover the domestic flow of funds and the external flow of funds.

The domestic flow of funds matrix is based on the Balance Sheet Approach (BSA), with the rest of the world sector data drawn from the IIP. The external statistics’ flow of funds matrix presents metadata on what external sector financial stock data are available by IIP category drawing on IMF and Bank for International Settlements (BIS) data sources. The IIP is the link between the domestic and external matrices.

The main outcome is a prototype matrix of stock data, geographically broken down by national/regional economies that could be used as a framework for regular monitoring of global flow of funds. The matrix could be extended to flow data.

It is important to recognize that the global flow of funds can only be constructed in a meaningful way if concepts, definitions and classifications underlying these statistics are standardized across economies. Fortunately, this is the case, as these standards are laid down in, for example, the IMF’s *Monetary and Financial Statistics Manual 2000*; the *2008 System of National Accounts*; the IMF’s *Balance of Payments Manual, sixth edition (BPM6)*; and the IMF’s *Government Finance Statistics Manual 2001*.

2. Data Sources

IMF data sources

Data from IMF’s Monetary Statistics, the Government Finance Statistics Yearbook and IIP are used to derive the BSA matrix. The monetary data that most IMF member countries report through the IMF’s comprehensive Standardized Report Forms (SRFs) provide a country’s/region financial corporations’ stock positions with residents and nonresidents.²

In the external statistics’ matrix, the datasets with bilateral counterpart country details collected by the IMF are: (i) *Foreign direct investment*: The Coordinated Direct Investment

² The standardized report forms (SRFs) are used by most IMF member countries to report monetary data to the IMF. The benefits of the SRFs include: (i) improvement in cross-country comparability of monetary data; (ii) higher quality of monetary data given that the definitions and concepts in SRFs are based on the *Monetary and Financial Statistics Manual* (<http://www.imf.org/external/pubs/ft/mfs/manual/index.htm>) and its accompanying *Compilation Guide* (<http://www.imf.org/external/pubs/ft/cgmfs/eng/index.htm>); (iii) improvement in the timeliness of monetary data; and (iv) fewer discrepancies in the data in the various Fund reports and publications.

Survey (CDIS) provide bilateral counterpart country details on “inward” direct investment positions (i.e., direct investment into the reporting economy) cross-classified by economy of immediate investor, and data on “outward” direct investment positions (i.e., direct investment abroad by the reporting economy), cross-classified by economy of immediate investment, as well as mirror data for all economies; and (ii) *Portfolio investment*: The Coordinated Portfolio Investment Survey (CPIS) provide bilateral counterpart country details covering holdings of asset stock positions by reporting economies and derived (mirror) liabilities for all economies. For data on *Reserve assets*: the Data Template on International Reserves and Foreign Currency Liquidity and Currency Composition of Official Foreign Exchange Reserves (COFER) provide country level data³ and the Survey of Securities Held as Foreign Exchange Reserves (SEFER) provides counterpart country data for all SEFER reporters as a group.

BIS data sources

The BIS International Banking Statistics (IBS) provide bilateral geographic details for loans, deposits, and other assets and liabilities. The BIS locational data provides quarterly information on claims and liabilities of banks vis-à-vis banks and nonbanks located in other countries worldwide. They are based on the economy of location or residence of the creditor bank and can also be used to mirror data for non-reporting countries. They are used in the external statistics’ matrix.

3. Metadata for global flow of funds

The BSA matrix (Figure 1) shows for the non-resident sector each financial instrument stocks of the issuer of a liability (the debtor) on the horizontal axis, and stocks of the holder of a liability (the creditor) on the vertical axis. The SRF data which have been used in this mapping exercise for the financial sector originate from balance sheet data of the central bank, other depository corporations, and other financial corporations in the national/regional economy. Data are reported on a monthly basis; for other financial corporations, the reporting is mostly quarterly.

Data on instruments from the IIP are mapped to the matrix. In particular, IIP data are used to supplement the data for non-residents vis-à-vis: (i) general government; (ii) financial corporations’ sector; and (iii) nonfinancial corporations’ sector. Assets in the IIP are recorded as liabilities of non-residents and liabilities as nonresident claims. Data on government debt securities are sourced from the Government Finance Statistics Yearbook (GFSY) and mapped to residents and non-residents.

For convenience, assets and liabilities in Figure 1 are shown for one segment of the balance sheet, namely, the stocks of financial assets and liabilities of the non-resident sector vis-à-vis the reporting economy (covered in the IIP) and a net financial position is calculated for each instrument as the difference between the asset and liability positions.

³ COFER country level data are reported to the IMF on a strictly confidential basis.

Figure 1. Balance Sheet Matrix: Net inter-sectoral asset and liability positions for the non-resident sector

Net Intersectoral Asset and Liability Positions												
Reporting Country												
Issuer of liability (debtor)	Year											
	General Government			Financial Sector			Nonfinancial Corporations			Rest of the World		
Holder of liability (creditor)	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.	Claims	Liabilities	Net pos.
	Nonresidents											
Currency and deposits	+	+	+	√	√	√	+	+	+			
Securities other than shares	+	+	+	√	√	√	+	+	+			
Loans	+	+	+	√	√	√	+	+	+			
Shares and Other Equity 1/	+	+	+	√	√	√	+	+	+			
Insurance technical reserves	+	+	+	√	√	√	+	+	+			
Financial derivatives	+	+	+	√	√	√	+	+	+			
Other accounts receivable 2/	+	+	+	√	√	√	+	+	+			

Source: Standardized report forms for monetary and financial data

1/ Shares and other equity: Market Value, by holding sector data are not classified in this version of the BSA. Many countries have yet to supply these data.

2/ Includes trade credit/advances & settlement accounts

+ : Data supplemented with IIP and GFS reported data

The external statistics' matrix (Annex 1) provides a concept framework for cross-border stocks, by counterpart country and sector. It shows what external sector financial assets and liabilities' stock data are available broken down by: country; sector of investor and investee; maturity; and currency. The frequency of the data expected is: quarterly/annual IIP; annual CDIS; annual CPIS and semi-annual CPIS enhancements; monthly Data Template on International Reserves and Foreign Currency Liquidity; quarterly COFER; annual SEFER; and quarterly BIS IBS. New data sources including the planned enhancements in the CPIS, the *BPM6* presentation, and the enhanced reporting of the BIS locational banking statistics, will help fill some of the gaps in the matrix.

The external statistics' matrix goes in tandem with the capture of bilateral country flow of funds. The outcome is a prototype matrix of stock data, geographically broken down, by national/regional economies that could be used as a framework for regular monitoring of global flow of funds. The matrix could be extended to flow data.

4. Conclusions

The proposed approach to mapping global flow of funds is a new initiative that draws on data sources across statistical domains to show what could be possible to achieve with available data. The work is still in the early development stage, but has the potential to cover both national/regional and cross-border (by country and sector) stocks and flows, enabling monitoring of both national/regional and international capital flows and the relationship between the national/regional financial flows and international capital flows. Global flow of funds constructed in this way would thus provide valuable information to support informed decision-making and policy accountability, in pointing to possible channels of external shocks into national economies and sectors.

Annex 1: Bilateral stocks: External assets and liabilities matrix: concepts

External Assets (Stock data)

Concept	Country breakdown	Sector of Investor	Sector Investee	Frequency	Maturity	Currency
FDI Assets	CDIS (net figures) (1)	CDIS partial data for net (1) debt for resident financial intermediaries and all other residents	None, potential enhancement	Annual CDIS and annual/quarterly IIP	IIP BPM6 AAPD (additional analytical position data), only for intercompany debt (BPM6 table A9-1-1a) with breakdown of which one year or less	IIP BPM6 AAPD with currency breakdown, but only for intercompany debt (BPM6 table A9-1-1a) (2)
PI Equity	CPIS	IIP (3) and CPIS encouraged item by sector of resident holder (4)	CPIS enhancements: PI holdings by sector of nonresident issuer (5)	Annual CPIS , semiannual CPIS enhancements, and annual/quarterly IIP	Not applicable	CPIS encouraged item: PI holdings by currency (6).
Debt Securities LT	CPIS				CPIS, IIP	CPIS encouraged item: PI holdings by currency (6). IIP BPM6 AAPD (BPM6 table A9-1-1a), but data in this table refer to all debt claims, with no breakdown for PI (2)
Debt Securities ST	CPIS				CPIS, IIP	
OI Banks	BIS IBS loans, deposits, other assets	IIP. BIS IBS data	BIS IBS data (Sector of investee: total and non banks)	Annual/quarterly IIP and quarterly BIS IBS	IIP (7)	IIP BPM6 AAPD (BPM6 table A9-1-1a) with currency breakdown, for all debt claims (no breakdown for OI (2)). BIS IBS data by five major currencies
OI Other	BIS IBS mirror data with non bank sector as reported by banks	IIP. BIS IBS mirror data with non bank sector as reported by banks	BIS IBS mirror data with non bank sector as reported by banks (Sector of investee: banks)	Annual/quarterly IIP and quarterly BIS IBS mirror data	IIP (7)	IIP BPM6 AAPD (BPM6 table A9-1-1a) with currency breakdown, for all debt claims, with no breakdown for OI (2). BIS IBS mirror data by five major currencies
Reserves	SEFER	Reserves Data Template (RDT) and IIP	None, potential enhancement	Monthly RDT, quarterly/annual IIP, quarterly COFER, and annual SEFER.	IIP and SEFER (debt securities long and short term).	COFER. RDT section IV and country notes. IIP BPM6 AAPD (BPM6 table A9-1-1a).

External Liabilities (Stock data)

Concept	Country breakdown	Sector of Investor	Sector Investee	Frequency	Maturity	Currency
FDI Liabilities	CDIS (net figures) (1)	None, potential enhancements	CDIS partial data for net (1) debt for resident financial intermediaries and all other residents	Annual CDIS and annual/quarterly IIP	IIP BPM6 AAPD, only for intercompany debt (BPM6 table A9-1-2a), with breakdown of which one year or less	IIP BPM6 AAPD with currency breakdown, but only for intercompany debt (BPM6 table A9-1-1a) (2)
PI Equity	CPIS encouraged item (PI liabilities by economy of nonresident holder), CPIS Derived	Mirror CPIS encouraged data on assets by sector of the holder	IIP (3)	Annual CPIS encouraged liabilities data, semiannual CPIS enhancements, annual CPIS derived, quarterly/annual IIP.	Not applicable	None, potential enhancement
Debt Securities LT					CPIS encouraged liabilities and derived, IIP	IIP BPM6 AAPD (BPM6 table A9-1-2a) with currency breakdown, for all debt liabilities (no breakdown for PI (2))
Debt Securities ST						
OI Banks	BIS IBS loans and deposits, and other liabilities	BIS IBS data broken down into total and non banks	IIP (3). BIS IBS data as reported by banks	Annual/quarterly IIP and quarterly BIS IBS	IIP (7).	IIP BPM6 AAPD (BPM6 table A9-1-2a) with currency breakdown, for all debt liabilities (no breakdown for OI (2)). BIS IBS data by five major currencies
OI Other	BIS IBS mirror data with non bank sector as reported by banks	BIS IBS mirror data with non bank sector as reported by banks	IIP (3). BIS IBS mirror data with non bank sector as reported by banks	Annual/quarterly IIP and quarterly BIS IBS mirror data	IIP (7).	IIP BPM6 AAPD (BPM6 table A9-1-2a) with currency breakdown, for all debt liabilities (no breakdown for OI (2)). BIS IBS mirror data with non bank sector as reported by banks by five major currencies

(1) Net figures refer to assets on Direct Investment Enterprises (DIE) minus liabilities to DIE (deducting reverse investment)

(2) Currencies: Domestic, foreign (further broken down into USD, Euro, Yen, other), and unallocated.

(3) In BPM6, IIP sectoral breakdown is as follows: Central bank, DTC except central bank, General Government, Other sectors (further broken down into OFC and nonfinancial corporations, households, and NPISH)

(4) CPIS current breakdown by sector of the resident holder is as follows: monetary authorities, banks, other financial institutions (of which: Insurance, mutual funds, other), general government, non financial sector (of which: nonfinancial companies, households, other).

(5) CPIS enhancements include the sector of the nonresident issuer with the following breakdowns: financial corporations, further broken down into deposit taking corporations and other; general government; other.

(6) Currencies: USD, Euro, British Pound, Japanese Yen, Swiss franc, Other

(7) There is no maturity breakdown for the instrument Currency and deposits in BPM5 IIP presentation. For the rest of the instruments there is maturity breakdown. In BPM6 presentation, there is maturity breakdown for all instruments.