



Balance Sheet Analysis: A New Approach to Financial Stability Surveillance

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The aftermath of the 2007-2009 Global Financial Crisis (GFC), along with the increasing complexities associated with global financial integration, underscored the need for additional financial surveillance tools to better capture financial frictions that could amplify shocks within and across the institutional sectors of the economy.² The world economy's history of financial and economic crises not only urged economic leaders to revisit the roots and causes of financial crises; but, more importantly, prompted policymakers to review the pitfalls of existing conventional tools and measures.³ Even the complex and sophisticated economic models that experts used in predicting credit crunches proved to be insufficient in conveying information of potential credit risks and looming financial crisis. It is in this light that in recent years, new and unconventional analytical frameworks have moved to the forefront of financial policy advice.

One such analytical tool that has gained increased attention, especially in the area of financial stability surveillance, is the International Monetary Fund's (IMF) *balance sheet analysis framework*. The balance sheet analysis framework examines the heterogeneity of the economic sectors' financial positions and facilitates financial stability analysis by identifying potential balance sheet weaknesses across sectors. From this viewpoint, episodes of financial distress are expected to arise when there is a substantial fall in the demand for financial assets as well as excessive build-up of

financial liabilities in one or sectors (Allen, et al., 2002).

This article aims to elicit a broader understanding and appreciation of the balance sheet analysis framework. An overview of the framework for balance sheet analysis is outlined in Section 2. Section 3 discusses information that could be extracted from balance sheet analysis and its usefulness as a financial stability surveillance tool. Finally, Section 4 identifies data sources and compilation challenges in the Philippine context.

The Framework

The overarching data framework for balance sheet analysis are the balance sheet approach (BSA) and the sectoral balance sheet (SBS) accounts. The BSA was developed by the IMF in 2002 following the capital account crises in the 1990s and early 2000s. Initially, it found limited acceptance as a financial surveillance tool and as a complementary tool to conventional "flow-based" analyses (IMF, 2015). However, after the recent GFC, the use of BSA along with the SBS gained traction and prominence in the area of financial stability and policy analysis.

The BSA is a sectoral approach to financial stability analysis that compiles the *aggregate balance sheet* (i.e., total assets and liabilities) of each sector in the economy.⁴ The following diagram shows the composition of the major sectors in the economy.

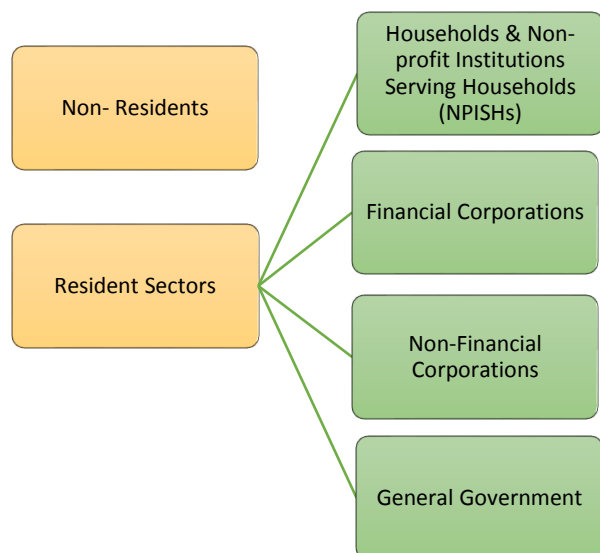
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² The institutional sectors of the economy are broadly categorized into two (2), namely, resident and non-resident sectors. Resident sectors comprise of financial corporations, non-financial corporations, general government and household sectors. Non-resident sectors are commonly referred to as rest of the world sector.

³ Bourke made a compendium on the bibliography of the global financial and economic crises, which is accessible at the European University Institute library.

⁴ Over 40 countries, including most emerging market countries, have the required data coverage for the detailed BSA, but advanced economies have better quality of reporting BSA (Source: IMF, 2015)

Figure 1: Classification of Key Economic Sectors



The financial corporations sector is further broken down into the central bank, other depository corporations and other financial corporations sub-sectors.⁵ Meanwhile, the non-financial corporations sector consists of the public and private (other) non-financial corporations sub-sectors. Finally, the general government sector includes the national government (NG), local government units (LGUs) and social security institutions (SSIs).

The uniqueness of the BSA matrix is that it shows the following information: (i) sector's transactions with the counterparties (*from whom-to-whom*); (ii) currency breakdown (i.e., domestic and foreign); and (iii) maturity structure (i.e., short and medium-to-long term). The horizontal axis of the BSA matrix reports the sector's liabilities to other sectors while the vertical axis presents the sector's assets or claims on other sectors.

⁵ In the Philippine case, the other depository corporations include the universal/commercial, thrift and rural banks, and other deposit-taking institutions (i.e., non-stock savings and loan associations and non-banks with quasi-banking functions). The other financial corporations include the private and public insurance companies, other financial institutions that are either affiliates or subsidiaries of the banks that are supervised by the Bangko Sentral ng Pilipinas (BSP) (i.e., investment houses, financing companies, credit card companies, securities dealer/broker and trust institutions), pawnshops, government financial institutions and the rest of private other financial institutions (not regulated by the

While the BSA compiles only aggregate assets and liabilities, the SBS statistics reports the disaggregation of financial assets and liabilities. Recognizing the importance of generating and compiling SBS for an in-depth financial vulnerability analysis within and among sectors, the IMF introduced the SBS in 2012. The SBS completes and deepens the balance sheet analysis framework. It is one of the prescribed nine (9) data categories included in the Special Data Dissemination Standard (SDDS) Plus.⁶ SBS data for *financial assets and liabilities* is prescribed for dissemination to better understand the financial linkages within, between and among the institutional sectors of the economy (IMF, 2013).

The SBS is actually an expanded and extended version of the BSA, except that the SBS data do not require the reporting of financial instruments by maturity. The compilation of the SBS statistics involves two major requirements, namely, economic sectorization (Figure 1) and financial instruments classification. The SBS accounts are organized into asset and liability categories based on the 2008 System of National Accounts (SNA) classification. The major categories of financial instruments are: (i) monetary gold and special drawing rights (SDRs); (ii) currency and deposits; (iii) debt securities; (iv) loans; (v) equity and investment fund shares; (vi) insurance, pension, and standardized guarantee schemes; (vii) financial derivatives and employee stock options; and (viii) other accounts receivable/payable. The monetary gold and SDRs are transactions between the central bank and non-residents only.

The compilation of the SBS provides a comprehensive overview of the country's sectoral accounts through a presentation of the

BSP) that are supervised by the Securities and Exchange Commission (SEC).

⁶ The SDDS Plus was introduced to enhance the scope of economic and financial statistical database being disseminated and provided to the public by member countries. The SDDS Plus completes the three (3) tiers of the International Monetary Fund's (IMF) data standards initiatives. The first tier is the SDDS and the second tier is the General Data Dissemination Standard (GDDS). The Philippines is already a subscriber to the SDDS, an indication that the country has met a "good statistical citizenship" status since its subscription in 1996.

breakdown of financial instruments by sector and sub-sector for *at least five (5) instruments* both on assets and liabilities. These financial instruments are: (i) monetary gold and SDRs; (ii) currency and deposits; (iii) debt securities; (iv) loans; and (v) equity and investment fund shares. In terms of periodicity, the SBS is required to be reported by the SDDS Plus adherents on a quarterly basis and should be disseminated to the public within one quarter after the end of the reference period.⁷

Financial Stability Surveillance Tool

The 2011 report of the International Evaluation Office (IEO) identified balance sheet fragilities in the household and financial sectors as key factors in the GFC. The build-up of financial stress in the balance sheets of these sectors started to amplify and transmit shocks to other domestic sectors and eventually spilled over to the global economy.

The anatomy of the balance sheet analysis framework allows analysts and policymakers to evaluate potential balance sheet weaknesses, enabling them to formulate better and active financial policy responses. This framework displays four (4) types of balance sheet mismatches, which if left unmonitored, can spread shocks to the economy.

First is the *maturity mismatch risk*. As presented in section 2 of this article, the BSA matrix requires the reporting of aggregate assets and liabilities by maturity. Maturity structure matters as it shows the risk of a mismatch between financial assets and liabilities. This mismatch creates roll-over and/or interest rate risks for the debtor. Roll-over risk occurs when the debtor has to pay for its debt obligations in cash because the maturing debts can no longer be refinanced. Meanwhile, interest rate risk arises especially when longer-maturity liabilities carry variable interest rate (Allen, *et.al.*, 2002).

Second is the *currency mismatch*. The BSA and SBS disclose information on the type of currency used in the financial transactions of

the economic sectors. This type of mismatch occurs when there is a disparity in the currencies in which assets and liabilities are denominated. A case in point is when liabilities are denominated in foreign currency while assets are denominated in domestic currency. Risk for currency mismatch increases in the event of a devaluation (or currency depreciation).⁸

Third is the *capital structure mismatch*. The private non-financial corporations sector is usually the most vulnerable sector in this type of mismatch. Capital structure mismatch risk occurs when corporates rely extensively on debt rather than equity to finance their investments. An important indicator that can be derived or calculated from the balance sheet for this type of risk assessment is the debt-to-equity ratio.⁹

Fourth is the *solvency risk*.¹⁰ The structure of the balance sheet could show potential solvency problems if liabilities are greater than assets, leading to a negative net worth. This creates solvency issues to the debtor and credit problems to the creditor.

In addition, as the SBS and BSA matrices present the counterparty transactions (from whom-to-whom), policy-makers are able to identify the concentration of financial vulnerabilities according to sectors and/or sub-sectors, thus, providing them a baseline scenario in formulating policy decisions.

Despite the remaining data gaps and constraints facing both the compilers and users of economic and financial data, the objectives and significance imparted by the balance sheet analysis framework is clear. Indeed, this framework provides a wealth of information that will both strengthen financial stability surveillance and support evidence-based policy responses.

⁷ The SDDS Plus adherents pertain to IMF member countries that signify their intention to join the SDDS Plus.

⁸ *Ibid.*

⁹ Excessively high ratios may signal difficulties for corporations to meet their debt obligations. Hence,

having enough “equity buffer” to cover for their debt is desirable and favorable.

¹⁰ A sector is insolvent if the present value of its future income flows is not enough to cover for its liabilities as well as its contingent liabilities.

Data Sources and Compilation Challenges

In the Philippines, the generation and dissemination to the public of the BSA and SBS are not yet officially in place.¹¹ This section discusses the status of the country's balance sheet statistics (i.e., inventory of available data and remaining data gaps).

The sources and availability of sectoral data plays a crucial role in implementing the balance sheet analysis framework. The data sources for the different sectors are diverse, which makes the framework rather challenging. The following briefly outlines the data sources for the sectors of the economy:

1. *Financial corporations.* The introduction of standardized report forms (SRFs) by the IMF in 2005 is considered a milestone achievement of the international statistical community in bridging the gaps for financial sector data. In the Philippines, the 1SR and the 2SR (report forms for central bank and other depository corporations, respectively) are already part of the statistics generated regularly by the Department of Economic Statistics (DES). However, the 4SR (report form for other financial corporations) is still a work in the pipeline and is set for public dissemination by 2019.¹²

2. *Non-financial corporations.* Data for the public non-financial corporations is culled either from the Commission on Audit's (COA) annual audit reports or directly from the respective corporations' financial statements. For the private (other) non-financial corporations, the Securities and Exchange Commission (SEC) and the Philippine Stock Exchange (PSE) are the sources of data.

3. *General government.* The data sources for this sector comprise of the COA, Bureau of the Treasury (BTr), Bureau of Local Government Finance (BLGF), Social Security

System (SSS) and Government Service Insurance System (GSIS).

4. *Household.* Unlike the financial, corporate or general government sector, financial data on the household sector is very limited. In the absence of official statistics on household sector balance sheet in the Philippines, the DES has initiated the development and compilation of data related to the household sector *through counterparty data sources*.¹³

5. *Non-residents (rest of the world).* The data used to capture cross-border financial positions include the International Investment Position (IIP), along with the Coordinated Portfolio Investment Survey (CPIS) and Coordinated Direct Investment Survey (CDIS) as supplementary data sources. Another data source that is being used is the quarterly external debt statistics.

Addressing the data gaps in the corporate (i.e., private nonfinancial corporations) and household sector database have always been a daunting task for the international statistical community and such gaps often hamper the breadth of balance sheet analysis. The compilation of an economy-wide BSA and SBS matrices can only be completed by filling in those data gaps.

The quarterly reporting for the BSA and SBS is one of the major data constraints faced by a number of countries. Often, the sectoral balance sheet data that provide detailed information to fill-up the BSA and SBS matrices are reported on an annual basis only. There are available quarterly unaudited financial statements for some of the sectors but the information provided by these reports are incomplete and do not meet even the minimum requirements of the BSA and SBS.

Another compilation issue that limits the maximum use of balance sheet analysis

¹¹ The generation of data on sectoral balance sheet will be spearheaded and consolidated by the Philippine Statistics Authority (PSA). However, the work on SBS was momentarily discontinued as the PSA is currently undergoing reorganization. Meanwhile, the BSP has started the groundwork for the compilation of the financial sector portion of the SBS.

¹² For more information on preliminary groundwork on OFCs (4SR), see Armas, J. (2014). "Other Financial

Corporations Survey: Framework, Policy Implications and Preliminary Groundwork."

¹³ The use of household sector statistics is for internal research purposes of the BSP's Monetary Policy Sub-Sector (MPSS) only as the PSA is the agency that will release the official statistics for household sector via the dissemination of the SBS.

framework arises from: (i) the diversity of functions or regulatory needs of those statistical agencies supervising/regulating the institutional sectors/sub-sectors; and (ii) the structure of the balance sheets submitted by most corporations to their supervising agencies (i.e., designed for tax or prudential regulatory purposes only). In this regard, these report formats fall short of the analytical research needs of external, monetary and financial statistics compilers and analysts.

The BSP, as the compiler of monetary, financial and external statistics, has put forth a number of initiatives to address the information deficiencies or data gaps in the compilation of the BSA and SBS. The BSP has started the preliminary groundwork on the construction of the 4SR for the other financial corporations to complete the financial corporations sector survey.¹⁴ The following are some of the major undertakings done by the BSP to facilitate the development of the 4SR. First, to reinforce the collaboration between the BSP and other concerned agencies, a Memorandum of Agreement (MOA) with these agencies was drafted.¹⁵ This MOA will serve as a legal basis for the BSP to request new data requirements from these agencies. Second, a working group with representatives from each agency was formed in 2015 to ensure that the project implementation activities are carried out to deliver the expected output. Third, the BSP developed and proposed quarterly reporting templates to facilitate the compilation of 4SR and Other Financial Corporations Survey (OFCS). Fourth, the BSP is conducting information sessions and technical workshops for the concerned stakeholders.

¹⁴ The financial corporations sector survey is a consolidation of the depository corporations survey and other financial corporations survey.

¹⁵ The MOA is being executed with the following agencies: SEC, Insurance Commission (IC) and

Governance Commission for Government Owned-or-Controlled Corporations (GCG). The MOA has been approved by the Monetary Board last 14 January 2016 and is expected to be signed by all agencies by end-February 2016.



References

- Allen, M.; Rosenberg, C.; Keller, C.; Setser, B.; & Roubini, N. (2002). A Balance Sheet Approach to Financial Crisis. IMF Working Paper, 4.
- Bourke, T. (2016). Bibliography of Global Financial and Economic Crisis. European University Institute.
- European Commission, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and World Bank. (2009). *The 2008 System of National Accounts*. New York.
- Heath, R. (2013). Why are the G-20 Data Gaps Initiative and the SDDS Plus Relevant for Financial Stability Analysis. *IMF Working Paper*, 1-28.
- International Monetary Fund. (2013). *Guide for Adherents and Users: The Special Data Dissemination Standard (SDDS) Plus*. Washington, D.C.: International Monetary Fund.
- International Monetary Fund. (2015). Balance Sheet Analysis in Fund Surveillance. p.12.

