Financial soundness indicators (FSIs): framework and implementation

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1. Introduction

The financial turmoil of the late 1990s highlighted the need for macroprudential analysis. This was seen as important for identifying vulnerabilities in the financial system as a whole, including vulnerability to international capital flow reversals as well as to shocks to the corporate and household sectors. The recent turbulence in subprime mortgage markets, which that has adversely affected the balance sheets of banks and other financial corporations and has led to a credit and liquidity squeeze, has again pointed to the need for improved information on the soundness of financial systems. The paucity of data in this area, and a lack of dissemination and cross-country comparability have been recognized as key stumbling blocks.

In response, the IMF has worked closely with national agencies and regional and international institutions to develop a set of Financial Soundness Indicators (FSIs). FSIs are aggregate measures of the current financial health and soundness of the financial institutions in a country and of their corporate and household counterparties. This paper will cover the development of FSI methodology; the results of an internationally coordinated compilation exercise (CCE) undertaken by the IMF and participating member countries; a comparison of the data needed for FSIs with the data available in monetary statistics; and the next steps in the work on implementation of FSIs for all IMF member countries.

2. Development of FSI methodology

The FSI project grew out of the need for better data and tools to monitor financial risks and vulnerabilities of national financial systems. This was a new area of work. The IMF has been collecting monetary statistics from countries, but these statistics do not focus on the compilation of soundness and risk information. Information about bank soundness is available to national supervisors; however, it focuses on the soundness of individual banks. Translating this type of individual bank information into information for the sector as a whole was not necessarily straightforward, and called for a careful investigation of the types of information needed to assess aggregate soundness and risk, as well as of data availability. The IMF began this process in 1999 by calling a meeting of a group of experts and officials of countries, regional and international organizations, and standards setters. They confirmed that there was an urgent need for this type of information and identified a number of important indicators that should be compiled. However, they concluded that there was no generally accepted model that identified the types of information to collect.

To gain further information, in mid-2000 the IMF conducted a *Survey on the Use, Compilation, and Dissemination of Macroprudential Indicators*. The survey asked member

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countries about the types of indicators they needed, the availability of the data, and the standards they used for compiling the data. There was a very strong response from over 100 countries, allowing the IMF to identify a core set of financial soundness indicators that all countries should compile, and an encouraged set of important indicators that countries might choose to compile depending on national circumstances. The survey also provided important information about accounting and compilation practices for the indicators. On the basis of the survey information and after several rounds of extensive consultation with experts from international agencies, standard setting bodies, and member countries, the IMF completed and published its *Compilation Guide: Financial Soundness Indicators (Guide)*.[2]

The *Guide* provides guidance on the concepts and definitions, and sources and techniques for the compilation and dissemination of internally consistent, cross-country comparable set of indicators that could provide information about the current soundness of the aggregate financial system. The methodology in the *Guide* aimed to combine elements of macroeconomic frameworks (including monetary statistics), bank supervisory frameworks (as embodied in the work of the Basel Committee on Banking Supervision), and international financial accounting standards (to a great extent referring to the International Financial Reporting Standards (IFRS)).

3. The coordinated compilation exercise

With the completion of the *Guide*, the focus shifted to promoting compilation of the indicators. The IMF launched a coordinated compilation exercise (CCE) with voluntary participation of 62 systemically important countries. The CCE aimed at (1) developing the capacity of member countries to compile FSIs important to the surveillance of their financial systems; (2) promoting cross-country comparability of FSIs; (3) coordinating efforts by national authorities to compile FSIs; and (4) disseminating the FSI data along with metadata, to increase transparency and strengthen market discipline. The participating countries agreed to compile the 12 core FSIs and could choose to also compile some or all encouraged FSIs (see Table 1 on core and encouraged FSIs above). For comparability, countries were asked to apply the methodology in the *Guide* and to prepare data for a common time period – year-end 2005 for position data and year 2005 for flow data. In addition, the participating countries were requested to prepare detailed metadata (textual descriptions of the data), including information on data sources and compilation methodology.

A total of 58 out of the 62 countries have finalized their FSI data and metadata, which can be found on the IMF website.[3] To facilitate cross-country comparisons, the data and metadata are presented in the website in a uniform manner using a standard format, and extensive query and search facilities for the metadata are made available to data users.

The CCE revealed the status of countries' capacity and practices in compiling FSIs, provided information about the extent of adherence to the recommendations of the *Guide*, identified areas where the methodology recommended in the *Guide* should be amended, and helped ascertain countries' technical assistance needs in compiling and disseminating FSIs.[4]

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2 The *Guide* was released in electronic format in 2004 and issued as an official IMF publication in 2006 (http://www.imf.org/external/pubs/ft/fsi/guide/2006/index.htm). It has been translated into French, Russian, Spanish, and Chinese. An Arabic version is forthcoming.

3 http://www.imf.org/external/np/sta/fsi/datarsl.htm

4 A more detailed discussion of the experience with the CCE is described in *Financial Soundness Indicators – Experience with the Coordinated Compilation Exercise and Next Steps – Background Paper*, posted on the IMF website.

Table 1

Financial soundness indicators: the core and encouraged sets

Core Set	
Deposit takers	
Capital adequacy	Regulatory capital to risk-weighted assets Regulatory Tier 1 capital to risk-weighted assets Non-performing loans net of provisions to capital
Asset quality	Non-performing loans to total gross loans Sectoral distribution of loans to total loans
Earnings and profitability	Return on assets Return on equity Interest margin to gross income Non-interest expenses to gross income
Liquidity	Liquid assets to total assets Liquid assets to short-term liabilities
Sensitivity to market risk	Net open position in foreign exchange to capital
Encouraged set	
Deposit takers	Capital to assets Large exposures to capital Geographical distribution of loans to total loans Gross asset position in financial derivatives to capital Gross liability position in financial derivatives to capital Trading income to total income Personnel expenses to non-interest expenses Spread between reference lending and deposit rates Spread between highest and lowest interbank rate Customer deposits to total (non-interbank) loans Foreign currency denominated loans to total loans Foreign currency denominated liabilities to total liabilities Net open position in equities to capital
Other financial corporations	OFCs' financial assets to total financial assets OFCs' financial assets to GDP
Non-financial corporations sector	Total debt to equity Return on equity Earnings to interest and principal expenses Net foreign exchange exposure to equity Number of applications for protection from creditors
Households	Household debt to GDP Household debt service and principal payments to income
Market liquidity	Average bid-ask spread in the securities market[1] Average daily turnover ratio in the securities market[1]
Real estate markets	Residential real estate prices Commercial real estate prices Residential real estate loans to total loans Commercial real estate loans to total loans

[1] Or in other markets that are most relevant to bank liquidity, such as foreign exchange markets.

The CCE results showed that data availability for deposit takers, which are central to financial soundness analysis, is better than for other sectors. All countries compiled the core FSIs, which focus on deposit takers. Encouraged FSIs for deposit takers were also compiled more often than FSIs for other sectors. FSIs for households and non-financial corporations were least compiled. The CCE also revealed that there is diversity of methodologies for compiling FSIs among CCE participating countries, which may be attributed to factors such as (1) different supervisory and accounting practices across CCE participating countries; (2) data availability; (3) availability of resources to collect additional data needed to compile FSIs following the *Guide's* recommendations; and (4) different views of countries on the compilation methodology that is best suited for their analytical needs. The diversity of methodologies used to compile FSIs further emphasized the importance of adequate metadata. The extensive metadata prepared during the CCE permit the construction of peer groups of countries for more meaningful comparisons.

The diversity of compilation methodologies used by CCE participating countries implied methodological departures from the *Guide*. The main deviations were on consolidation basis,[5] the elimination of certain positions and flows between institutions included within a certain population (intergroup consolidation adjustments), and on certain accounting issues under the IFRS.

In view of the experience of the CCE, amendments to the recommendations of the *Guide* in specific areas were deemed necessary. These amendments were discussed by the IMF Executive Board in November 2007 and summarized in a standalone document, *Amendments to the Financial Soundness Indicators: Compilation Guide*, posted on the IMF website.[6] The areas that were amended refer by and large to the major methodological departures discussed above. In particular, the *Guide's* original recommendation for a domestically controlled cross-border consolidation basis for deposit takers has been amended. The new recommendation is the (1) cross-border, cross-sector consolidation basis for all domestically incorporated deposit takers and/or (2) the domestically controlled, cross-border and cross-sector consolidation basis.[7] The *Guide* has ceased to recommend consolidation adjustments of intergroup positions and flows, although it leaves this option open if countries want to make these adjustments. The *Guide* now defers to the IFRS as the standard on most accounting issues, except on matters such as consolidation basis and accounting of loans and provisions. It has also been clarified that the *Guide* explicitly defers to Basel I and II for compiling supervisory-based data while acknowledging that there could be national variations in implementation. Finally, certain definitions of FSIs and underlying series have been modified.

4. Monetary statistics and FSIs: a comparison

FSIs for deposit takers are compiled from sectoral financial statements (which include an income and expense statement, a balance sheet, and extensive memorandum items) that have been put together explicitly for the purpose of compiling these indicators. These

5 Consolidation basis refers to the nature of the groupings of related institutions that comprise the population of institutions, for which FSIs are compiled. These groupings do not necessarily imply that the financial statements of the institutions that comprise them are consolidated (ie the data of these institutions could be reported on a solo basis and then simply aggregated for the compilation of FSIs).

6 http://www.imf.org/external/pubs/ft/fsi/guide/2008/pdf/071408.pdf

7 Cross-sector coverage would be limited to exclude subsidiaries of deposit takers that are insurance companies and non-financial corporations.

statements provide data with specific definitions and incorporate specific accounting principles. Therefore, utilizing alternative sources of data for deposit takers – such as the sectoral balance sheet for other depository corporations (ODCs) from monetary statistics – permits the compilation of only a fraction of core and encouraged FSIs for deposit takers because of the outright absence of certain types of data from such statistics. Moreover, even when an item in a monetary statistics presentation is broadly similar in concept to a certain FSI-underlying series, there are often significant departures from FSI standards regarding definitions and accounting.

The table below broadly summarizes the main differences between data in sectoral financial statements that are put together explicitly for the compilation of FSIs (as recommended by the *Guide*, including its recent amendments) and data available in the sectoral balance sheet for ODCs that are put together in the first instance for producing monetary statistics.

Table 2

MFS and FSIs: main methodological differences

Main areas of differences	FSIs (sectoral financial statements)	Monetary statistics (sectoral balance sheet for ODCs)
Data sources	Balance sheet and income statement	Balance sheet
Consolidation basis	(i) Domestically controlled, cross-border, cross-sector consolidation basis and/or (ii) Cross-border, cross-sector consolidation basis for all domestically incorporated entities[1]	Domestic consolidation basis[2]
Definition of deposit taker	(i) Parent institutions in the population include all institutions that are legally considered as banks (ie are subject to banking law), even if their liabilities are not part of broad money (ii) Money market funds are excluded from the coverage of parent deposit takers	(i) Parent institutions in the population do not include institutions legally considered as banks if their liabilities are not part of broad money (ii) Money market funds are included in the population if their liabilities are part of broad money
Intragroup consolidation adjustments (positions and flows)[3]	All intragroup consolidation adjustments for positions and flows are carried out	No intragroup adjustments are carried out for balance sheet positions, except those between parents and branches
Valuation of assets	Held-to-maturity investments are valued at amortized cost using the effective interest method	Held-to-maturity investments are valued at market or fair value
Recording of total assets	Total assets are net of specific provisions	Total assets are recorded on a gross basis (provisions for losses on impaired assets are not netted out)

[1] Cross-border, cross-sector consolidation basis for all domestically incorporated entities: this includes the data of domestically controlled entities and of local subsidiaries of foreign entities in the sectors that are domestically incorporated, along with the data of these entities' branches and subsidiaries, which can be either domestic or foreign residents, including subsidiaries in other sectors. Domestically controlled, cross-border, cross-sector consolidation basis: this includes the data of domestically controlled and incorporated entities, their branches (domestic and foreign), and all their subsidiaries (domestic and foreign) that are classified in the same sector as well as in other sectors. [2] Domestic consolidation basis: this includes the data of resident entities along with those of their branches and subsidiaries in the same sector that are resident in the domestic economy. [3] Intragroup consolidations adjustments refer to the elimination of positions and flows between parents, subsidiaries, and their branches that comprise the groupings defined by a given consolidation basis.

5. Next steps in the IMF's FSI work

In the November 2007 IMF Executive Board meeting, the Executive Directors made a positive assessment of the CCE and underscored the importance of continued IMF engagement with regard to FSIs. In this context, the Directors saw clear value in the regular collection and dissemination of FSIs by the IMF, with the creation of a centralized public FSI database that would be available to member countries, international institutions, and markets. Directors agreed that countries should be encouraged – but not required – to report FSIs to the IMF, with flexible periodicity. In coordination with other IMF departments, the IMF Statistics Department is in the process of preparing for implementing the regular collection and dissemination of FSIs by the IMF. The initiation of regular submissions to the IMF (starting with countries that participated in the CCE) is currently expected to take place at the end of the first quarter of 2009, with dissemination following soon thereafter.