The IMF's work on financial soundness indicators[1]

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1. Introduction

The Asian Crisis in 1997–98 revealed major gaps in statistical coverage of the domestic financial sector and the external sector that permitted serious vulnerabilities to go undetected. Such gaps meant that national authorities lacked information needed to take timely and appropriate steps to improve conditions, and that the IMF did not have sufficient information for an effective oversight of the economies of its member countries. In response to this situation, the IMF launched several major statistical initiatives to improve coverage of potential financial and external vulnerabilities – the Template on International Reserves and Foreign-Currency Liquidity, External Debt Statistics, and Financial Soundness Indicators. This paper will focus on Financial Soundness Indicators, or FSIs, which are aggregate measures of the current financial health and soundness of the financial institutions in a country and of their corporate and household counterparties. It will briefly describe the history of the FSI project and the development of the FSI methodology; the results of an international coordinated compilation exercise undertaken by the IMF and participating member countries; some key methodological challenges; and possible next steps for taking forward the work of the IMF in this area.

2. History and development of the 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 to information for the sector was not necessarily straightforward. It 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 organisations, and standard 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 be collected. To gain further

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[1] This paper has benefited from inputs and comments from the FSI team in the Financial Institutions Division 2 of the Statistics Department: Andreas Georgiou (team leader), Florina Tanase, Xiu-zhen Zhao, and Agus Firmansyah.

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information, the IMF conducted, in mid-2000, a *Survey on the Use, Compilation, and Dissemination of Macroprudential Indicators*. The survey asked member 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 relating to 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 the *Compilation Guide: Financial Soundness Indicators* ("the Guide").[5]

The Guide provides guidance on the concepts and definitions, and sources and techniques for the compilation and dissemination of internally consistent, cross-country comparable sets of indicators that could provide information about the current soundness of the aggregate financial system. The methodology in the Guide was highly innovative, combining elements of macroeconomic frameworks, including monetary statistics, bank supervisory framework, and international financial accounting standards. For example, standards for defining the boundaries of the national financial system and the definitions of the sectors of the economy, the types of financial instruments, and the concept of sectoral consolidation were drawn from monetary statistics. The use of these definitions allowed for ready comparison of FSIs with macroeconomic information about national economies used for economic and policy analysis. Additionally, supervisory standards, as embodied in the work of the Basel Committee on Banking Supervision, provided the definitions of many of the measures of soundness or risk, such as the definition of capital adequacy, exposures to market risk, liquidity, currency exposures, earnings ratios, etc. Much material was also drawn from the International Accounting Standards (IASs), with their greater focus on accrual standards, use of market or fair value accounting, and rules on impairment and provisioning. An integrated underlying framework was developed, drawing on information on bank income, as well as on balance sheet positions.

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. (Please see box on core and encouraged FSIs, below). For comparability, countries were to attempt to apply the methodology in the Guide and to prepare data for a common time period – year-end 2005 for positions data and year 2005 for flows 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.

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[5] 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, and Spanish. Arabic and Chinese versions are forthcoming.

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 Nonperforming loans net of provisions to capital
Asset quality	Nonperforming 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 Noninterest expenses to gross income
Liquidity	Liquid assets to total assets (liquid asset ratio) 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 noninterest expenses Spread between reference lending and deposit rates Spread between highest and lowest interbank rate Customer deposits to total (noninterbank) 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	Assets to total financial system assets Assets to GDP
Nonfinancial 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	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.

Source: Compilation Guide: Financial Soundness Indicators.

As of April 2007, 52 CCE countries have finalised their FSI data and metadata, which are now posted on the IMF website (http://www.imf.org/external/np/sta/fsi/datarsl.htm). This site provides the common set of indicators, along with detailed metadata that describe the standards underlying the indicators and the compilation practices. The data and metadata are presented in a uniform manner using a standard format developed under the CCE to facilitate cross-country comparison. More than half of these countries are in Europe; nine are in the Western Hemisphere, and eight are in Asia and the Pacific. The rest are in the Middle East and Africa. Almost 90 percent of the countries reported all core FSIs and all of the rest, except one, reported at least 10 of the 12 core FSIs. Forty-four countries reported encouraged FSIs for deposit takers; the majority of countries reported seven to 12 FSIs, while only six countries reported all 13 encouraged FSIs for deposit takers. Fewer countries reported encouraged FSIs for other sectors.

4. Key methodological challenges

As mentioned above, the FSI work employs an innovative conceptual framework that draws from statistical, supervisory, and business accounting frameworks to construct indicators relevant to assessing the current soundness of the financial system of countries. However, there remain some differences in views on the FSI methodology, and these differences have been reflected in the data and metadata reported by countries for the CCE. These methodological issues were discussed at the plenary meeting of the CCE on May 30–31, 2007 to review the results of, and experience from, the CCE. Nevertheless, the broad scope of the integrated FSI framework and its key elements remain firmly in place. This section will summarise three of the salient conceptual issues of the FSI framework, namely, the consolidation basis and consolidation adjustments, valuation of financial instruments, and recognition of current income and expenses.

4.1 Basis for consolidation (institutional coverage)

The first, and most controversial, issue is the standard to use as the *basis for consolidating* the data of individual reporting banks to obtain the sector-wide data. The Guide describes various consolidation approaches to cover different country circumstances and analytical needs. The *domestic consolidation (DC) basis* consolidates only the data for banks and their branches and subsidiaries that exist within the national boundaries of the country. These data allow linkage to national macroeconomic data and focus on the interactions between the national financial system and current national economic activity. In contrast, the *cross-border consolidation* encompasses the activity of the parent bank and its local and worldwide branches and subsidiaries. This is a supervisory perspective that focuses on the income and capital of the parent bank and the strengths and risks facing the global enterprise. The consolidation includes only banking institutions (*domestically controlled cross-border consolidation – DCCB*), which is the Guide's preferred approach, or, alternatively, it could be on a cross-sector basis (*domestically controlled cross-border and cross-sector consolidation – DCCBS*), which includes diverse types of financial institutions, following the approach of the Basel Committee. The cross-border consolidation could cover all domestically incorporated deposit takers (CBDI) to also capture resident foreign-controlled deposit takers, particularly when they play a significant role in the domestic financial system. The CBDI could also be on a cross-sector basis (CBCSDI). These data could then be disaggregated into separate FSIs for domestically controlled and foreign-controlled deposit takers.

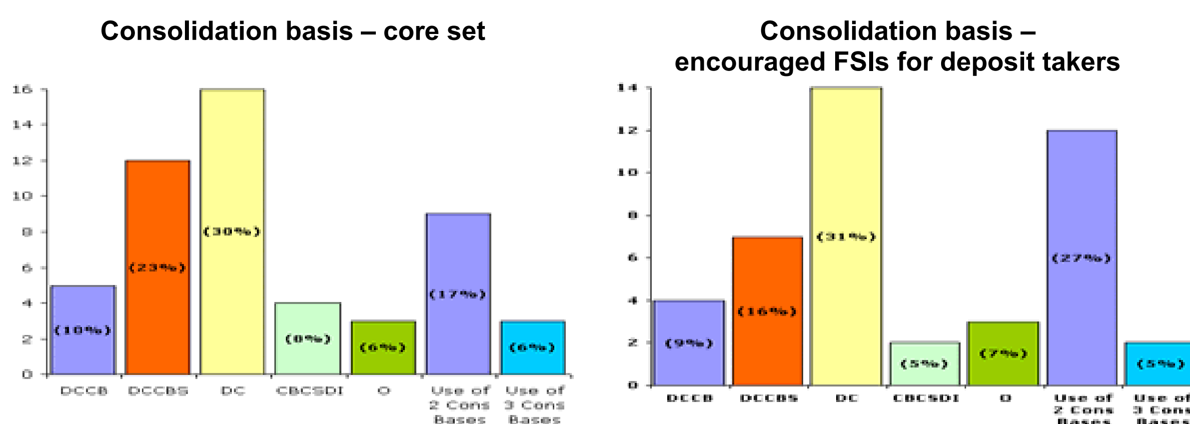
The Guide recommends that the DCCB basis be used to compile FSIs for the deposit takers. For the CCE, however, the countries could choose to use a consolidation basis other than the DCCB basis. The results of the CCE showed that, for the most part, the DC approach

was used, followed by the DCCBS and DCCB basis, respectively. Twelve of the CCE countries used multiple consolidation bases (all 12 countries used a cross border consolidation basis and nine countries used the DC basis). The choice of the consolidation basis in part reflected differences in practices between countries, depending on the sophistication of their financial systems – smaller, less complex economies may need only national data, but financial centre economies need information on the global activity of their banks. It also reflected the attempts made by some countries to move their practice closer to the Guide.

As an increasing number of countries are preparing to implement Basel II and IASs,[6] some countries have proposed exploring ways to use these two international standards as bases for compiling FSI data in order to minimise the compilation and reporting burden.

Figure 1

Consolidation basis used by countries for the CCE



DCCB: Domestically controlled cross-border consolidation basis; DCCBS: Domestically controlled cross-border and cross-sector consolidation basis; DC: Domestic consolidation basis; CBCSDI: Cross-border and cross-sector for domestically incorporated deposit takers; O: other consolidation basis.

Source: FSI metadata submitted by the CCE-participating countries.

4.2 Consolidation adjustment

Because FSIs are indicators for the sector as a whole, all interbank balance sheet positions and income flows, except debts and financial derivatives between unrelated deposit takers, are to be eliminated from the sector-wide data to avoid double-counting of the sector's income and capital. Debts and financial derivatives between unrelated deposit takers in the reporting population are not to be eliminated as they are useful for assessing the contagion risks. The Guide (paragraph 5.1) underscores the significance of these consolidation adjustments in compiling FSIs. Furthermore, it states (paragraph 5.52) that the relevance of each adjustment will depend upon national circumstances. Some adjustments might be generally applicable whereas others may not. Compilers should make a judgment on the costs and benefits of the collection of new data. If available evidence suggests that an

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[6] Basel II and IASs apply different consolidation bases. Basel II suggests that the group consolidation should cover all banking activities and other relevant financial activities, excluding insurance activities conducted within a group, while under IASs the group consolidation should cover the parent and all of its subsidiaries, regardless of whether they are financial or nonfinancial entities.

adjustment is not relevant or would be insignificant, the benefits of collecting such information may not outweigh the potential costs to reporters and to the compiling agency.

The results of the CCE showed that while most countries carried out intra-group consolidation adjustments (albeit with less than full consolidation adjustments for some FSIs), intra-sector (inter-group) consolidation adjustments were not made, or were only partially made, by many countries (about two-thirds of the CCE reporting countries). The EU countries commented in a joint statement that, from a statistical point of view, intra-sector consolidation adjustments are appropriate, but noted practical issues, including lack of data for carrying out such adjustments.[7]

4.3 Valuation of financial assets and liabilities

The intention of the Guide is to obtain the most realistic current value of the sector's financial assets and liabilities and capital. Realistic and current valuation is stressed because it provides the best estimate of the actual worth of financial instruments and their availability to provide a buffer against financial risk. This requires that current market or fair values of tradable instruments be used rather than historical valuations, that interest and other accruals be on a current basis, and that any impairment in the realisable value of financial instruments be accurately reflected in current valuations, either through application of market or fair values, or by appropriate provisioning. Concerns about the FSI approach have been that additional volatility will be introduced into the income statement and balance sheet if some held-to-maturity instruments are valued at market/fair value for FSI purposes. It is further noted that the IASs permit amortised cost valuations for held-to-maturity instruments. In contrast, the underlying principle in the Guide is that the volatility is a real reflection of market movements and is an important item of information in itself, and that the current market valuation provides the best actual measure of the condition of the firm and its resilience in the face of economic stress. It may be noted that the new International Financial Reporting Standard 7, paragraph 25, requires disclosure of the fair value of each class of financial assets and liabilities whenever they differ markedly from carrying values. Moreover, the Consolidated Financial Reporting Framework of the Committee of European Banking Supervisors collects fair value information on all financial instruments carried on the balance sheet at amortised cost (loans and receivables, held-to-maturity investments, and financial liabilities measured at amortised cost).

4.4 Recognition of income and expenses

The recognition of income and expenses in general, and the recording of specific income items, such as gains and losses on financial instruments, in particular, are important for compiling income-based FSIs. The intention of the Guide is to capture the relative importance of the current income from the financial assets and liabilities recorded at market or fair value. In contrast to the Guide, IAS39 suggests that some unrealised gains and losses on available-for-sale instruments, and the effective portion of the gain or loss on a cash flow hedge or hedge of a net investment in a foreign operation – and potentially on a hedge for the foreign currency risk of a firm commitment – be recognised directly in equity, a procedure that underestimates gains and losses on financial instruments and net income as defined in the Guide. In addition, under IASs, interest income and expense comprises interest and other income (fees, commissions, and similar charges) directly related to interest-earning loans and other assets used in calculating effective interest rates according to IAS 39.

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[7] This comment was provided in the note attached to the letter from the ECB's Directorate General Statistics, dated September 26, 2006, to the IMF's Statistics Department.

Accordingly, in contrast to the Guide, noninterest income does not include fees and commissions receivable that are directly related to loans, while the interest margin includes such fees and commissions.

5. Future work on FSIs

The results of the CCE were reviewed and discussed at the end of May 2007 in a meeting of regional and international organisations and financial sector standards setters,[8] and at a meeting of countries participating in the CCE. The discussions in these meetings covered the data and metadata produced by countries participating in the CCE, the experiences of the national compilers, methodological and compilation issues, possible changes to the list of indicators, and the feasibility of setting up an ongoing system to compile and disseminate FSIs. The views and conclusions from these meetings will be reflected in a paper to be submitted to the IMF's Executive Board for discussion before the end of 2007[9]. In particular, the paper will report the CCE participating countries' views and experiences in compiling FSIs and the lessons learned in carrying out the exercise. The paper will address whether the goals of the CCE were achieved, along with potential follow-up initiatives. Issues related to follow-up initiatives include (1) approaches to expanding the number of countries compiling FSIs, including modes of technical cooperation; (2) the potential for greater convergence towards the Guide's recommendations, and fostering greater FSI data comparability; (3) addressing the challenges of compiling FSIs in accordance with the Guide in the context of evolving accounting and supervisory standards; (4) modification to the core and encouraged FSIs; (5) amendments to the advice provided in the Guide; and (6) the potential for inclusion of FSIs in the IMF's data dissemination initiatives such as the Special Data Dissemination Standard.

Decisions on the future work of the IMF on FSIs will be largely shaped by the implementation of the IMF's Medium-Term Strategy that focuses on enhanced financial sector surveillance amidst new budget realities for the institution that require work prioritisation, belt-tightening, and streamlining. Regardless of the form and nature of the follow-up initiatives on FSIs, one thing is certain: the data and metadata produced by countries under the CCE and disseminated by the IMF have significantly advanced the knowledge and experience in this new field of statistics, and have set a good foundation for the regular compilation of FSIs by these countries.

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[8] These institutions comprised the Reference Group of the CCE, which was established to provide views on emerging issues in the CCE.

[9] The IMF Executive Board met on November 7, 2007 to review the experience with the work program on FSIs and discuss proposals for taking forward the work on FSIs. Public information notice on the meeting is posted on the IMF website at http://www.imf.org/external/np/sec/pn/2007/pn07135.htm.