

Chapter One

Introduction

1.1 The primary purpose of the *Compilation Guide on Financial Soundness Indicators (Guide)* is to provide guidance on the concepts and definitions, and sources and techniques, for the compilation and dissemination of the *Financial Soundness Indicators (FSIs)* identified by the IMF's Executive Board (see Table 1.1). The *Guide* is intended to encourage compilation of FSIs and promote cross-country comparability of these data, as well as assist compilers and users of FSI data, for the purpose of supporting national and international surveillance of financial systems.

1.2 FSIs are indicators of the current financial health and soundness of the financial institutions in a country, and of their corporate and household counterparts. They include both aggregated individual institution data and indicators that are representative of the markets in which the financial institutions operate. FSIs are calculated and disseminated for the purpose of supporting macroprudential analysis. This is the assessment and surveillance of the strengths and vulnerabilities of financial systems, with the objective of enhancing financial stability and, in particular, limiting the likelihood of failure of the financial system.

1.3 FSIs are a new body of economic statistics that reflect an amalgam of influences. This is evident from the conceptual framework described ahead. On the one hand, there are concepts drawn from prudential and commercial measurement frameworks, which have been developed to monitor individual entities. Other concepts are drawn from macroeconomic measurement frameworks, which have been developed to monitor aggregate activity in the economy. Given the flexibility provided by the *Guide*, these frameworks can be drawn upon to develop the data set out in the *Guide*. Advice is also provided on reconciling the data relevant for the *Guide* with these frameworks. However, some new data sources may need to be developed. In this regard, the *Guide* serves as a benchmark or reference point for future development work, and as a reference document for technical assistance to support the compilation efforts.

Table 1.1. Financial Soundness Indicators: The Core and Encouraged Sets¹

Core Set	
Deposit-takers	
<i>Capital adequacy</i>	Regulatory capital to risk-weighted assets Regulatory Tier 1 capital to risk-weighted assets Nonperforming loans net of provisions to capital
<i>Asset quality</i>	Nonperforming loans to total gross loans Sectoral distribution of loans to total loans
<i>Earnings and profitability</i>	Return on assets Return on equity Interest margin to gross income Noninterest expenses to gross income
<i>Liquidity</i>	Liquid assets to total assets (liquid asset ratio) Liquid assets to short-term liabilities
<i>Sensitivity to market risk</i>	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 ² Average daily turnover ratio in the securities market ²
Real estate markets	Real estate prices Residential real estate loans to total loans Commercial real estate loans to total loans

¹ A summary of the guidance outlined in the *Guide* for each FSI is provided in Appendix II.

² Or in other markets that are most relevant to bank liquidity, such as foreign exchange markets.

1.4 While the international community through the IMF Executive Board considers that fostering comparability of FSI data is a medium term objective, in discussions during the preparation of this *Guide* many commentators stressed the need for flexibility in the application of the guidance set out ahead. So, as experience is gathered on compiling this new set of macro statistics, users should be aware that data sourced from national prudential and commercial measurement frameworks will vary across countries, so limiting cross-country comparability of data. Looking ahead, the work of the Basel Committee on Banking Supervision (BCBS) on revising its Capital Accord to be more risk-sensitive could affect the calculation of FSIs primarily sourced from supervisory data, and subsequent editions of the *Guide* could accommodate such revisions.

1.5 It is also recognized that the compilation of FSI data is likely to require a relatively high level of technically skilled staff at the compiling agencies.

Background

1.6 By allocating funds for viable investment projects and providing payment services, healthy and robust financial systems help increase economic activity and welfare. However, experience has shown that financial systems are prone to instability and crisis that have the potential to disrupt financial activity and impose huge and widespread costs on the economy. With the liberalization of financial markets and the greater recognition of the importance of systemic effects of financial sector weakness, policy makers and others are paying increasing attention to the stability of national financial systems. So the long-established surveillance of individual institutions is being supplemented by the monitoring of risks to the stability of national financial systems arising from the collective behavior of individual institutions. This work is known as macroprudential analysis.

1.7 The traditional focus of prudential data reporting and analysis is on the *microprudential* objective of limiting the likelihood of failure of individual institutions. *Macroprudential* analysis has a somewhat different set of data requirements due to its focus on identifying risks emerging in the financial system as a whole. For instance, while increased lending to the real estate market, or to the corporate sector, may be profitable to a bank in the short term, if such lending is mirrored in other banks, the resultant sharp expansion of the banking sector's exposure to real estate, or the corporate sector's debt to equity ratio might raise concerns from a macroprudential viewpoint. In such instances, risks considered exogenous to any one institution, are endogenous to the financial system.³

1.8 Further, the magnitude and mobility of international capital flows has made it increasingly important to monitor the strength of financial systems and their resilience to capital flow volatility. The financial sector is often the conduit between global financial markets and domestic borrowers and, as such, is sensitive to external capital markets

³ Crockett (2000) elaborates on these ideas.

conditions, as well as domestic developments. Moreover, weaknesses in domestic banks can have a pervasive influence on consumer and investor confidence, capital flows, and public finances, as well as on domestic financial intermediation.

1.9 Attention also needs to be given to balance sheet and profitability indicators of nonfinancial corporations. Financial weaknesses such as a high leverage ratio and/or low profitability of these corporations can directly affect the strength of the financial sector because of their impact on asset quality. Also, financially weak corporations can render an economy more susceptible, and less resilient, to external shocks. Governments also play an important role.⁴

1.10 The recognition of the importance of macroprudential analysis has increased the need for supporting data. This consideration led the IMF to undertake in 2000 a survey of its member countries and of regional and international agencies to identify those indicators considered to be most relevant to the macroprudential work of national and regional authorities, both as compilers and users of data. A summary of the results is presented in Appendix I. Also, in 1999, the IMF and the World Bank launched the Financial Sector Assessment Program (FSAP), designed to identify financial system strengths and vulnerabilities and to help to develop appropriate policy responses. This work has involved the use of FSIs, drawing upon available data sources in countries.

1.11 Using the results of the survey of member countries, the experience from FSAPs, and discussions with international agencies interested in this work, a list of key FSIs was developed and presented to the IMF's Executive Board in June 2001. From this meeting, the list of core and encouraged FSIs set out in Table 1.1 was agreed (agreed FSIs), based on various selection criteria.⁵ The list was modified by the Board in January 2004.⁶ To help prioritize future work, the core set is considered relevant for all countries, while the encouraged set might be developed as country circumstances require. At the same time, the Board encouraged the IMF's staff to produce the *Compilation Guide* to help compilers develop the agreed indicators, and undertake further development work in this field.

1.12 The *Guide* is a comprehensive document that explains not just how to compile the core and encouraged FSIs but also sets out the conceptual frameworks from which the data

⁴ IMF staff is separately developing fiscal indicators for the government sector.

⁵ The chosen criteria were (1) focus on the core markets and institutions, (2) analytical significance, (3) revealed usefulness through high scores in the survey results, (4) relevance in most circumstances, and (5) availability. The core set met all the chosen selection criteria, and provide data covering all main categories of bank risk, while the encouraged set met some but not all. See Sundararajan and others (2002), p. 66.

⁶ As a consequence, the large exposures FSI was moved from the core to encouraged set, and measures of duration were dropped from the list completely. These changes arose from advice given to the Executive Board by a group of experts that met in October 2003 to discuss the draft *Guide* and primarily reflected the problems in compiling these FSIs on a sector level basis rather than their relevance to macroprudential analysis.

series required to calculate the FSIs could be drawn. A summary of the guidance for compiling each FSI is provided in Appendix II. Also, in the process of consultation, some associated data series have been suggested that assist in the interpretation of FSIs, such as information on the structure of a country's financial system. However, in reading the *Guide* compilers should be aware that in terms of data requirements the priority is the core set of FSIs, followed by the encouraged FSIs. Also, while as far as possible the *Guide* draws on existing data systems, compiling FSIs most likely will add to the statistical burden. The extent of any additional costs will depend on a number of factors including the amount of data already available, the structure of the financial system, and the time horizon over which the data are developed.

Some key aspects of the *Guide*

1.13 From the work undertaken, it is clear that the range and type of FSIs compiled and disseminated differ among countries, but that given their pivotal role in all national economies, FSIs for the deposit-takers—particularly the core set—are considered central to any analysis of the current health and soundness of a national financial system. This is reflected in the *Guide*. Also, because of the importance of the credit quality of their assets to the profitability and soundness of deposit-takers, information on their main customers—particularly the corporate and household sectors—is relevant for such analysis. The need for FSIs for other financial corporations will vary depending upon their importance within the economy.

1.14 FSIs need to cover several aspects of financial health and soundness. In a financial system, capital strength is important for all types of institutions, especially as a “cushion” against unexpected losses. In monitoring the financial soundness of financial institutions, important considerations are also the quality and composition of their assets, and exposures to financial risk. Information on income and expenses is also critical—without sufficient income generation, no entity is financially healthy or sound. For nonfinancial corporations, the focus is on their liabilities and their ability to meet their financial obligations as they fall due. In short, FSIs are intended for use in monitoring the development of positions (and exposures) and flows that could indicate increased financial sector vulnerability and to help assess the potential resilience of the sector to adverse circumstances.

1.15 Because most FSIs are in the form of ratios, definitions are required for the underlying series used to calculate FSIs. Further, in considering the definitions for these individual series, it is apparent that many are derivable from information contained in balance sheets and income statements. So for all sectors including deposit-takers and nonfinancial corporations, the *Guide* starts from the presumption that, as far as possible, the underlying series should be drawn from internally consistent financial statements that encompass an income and expense statement and a balance sheet. Calculating FSI ratios from data series derived from internally consistent financial statements enhances the analytical usefulness of the indicators, and contributes to the quality control of published data due to the well-established inter-linkages between financial statement items.

1.16 In developing guidance on definitions, the *Guide* draws upon the *System of National Accounts 1993 (1993 SNA)* (see Commission of the European Communities and others, 1993) and related manuals,⁷ and the international accounting standards (IASs), developed by the International Accounting Standards Board (IASB). Both these international measurement systems have developed their guidance within the context of internally consistent financial statement frameworks. For deposit-takers, the work of the BCBS is also drawn upon. While there are many similarities between the international measurement systems, the conceptual approach in the *Guide* allows for flexibility in order to accommodate differences between them and meet the needs of macroprudential analysis. Further, Appendix IV explains how the guidance in the *1993 SNA* and IAS corresponds with the requirements of the *Guide*. The *Guide* also provides methodological guidance on measurement issues that are new at the international, or even national level, such as for real estate prices and certain financial market information.

1.17 Despite the reliance to the extent possible on existing measurement systems, the needs of macroprudential analysis are different from those the existing systems are addressing, and this is reflected in the framework developed.

1.18 For deposit-takers, macroprudential analysis monitors the profitability, capital strength, quality and composition of assets, and exposures to financial risks faced by the sector as a whole. Supervisors have similar interests but at the level of the individual institution. Further, some supervisors adapt accounting guidance to meet the needs of individual institutions, whereas the consistent application of accounting rules across all entities in the sector is essential to avoid asymmetries in the macro-based data.

1.19 The sector focus and the consistent application of accounting rules are applicable for other macro-based data such as the national accounts, monetary aggregates, and the Bank for International Settlement's (BIS's) international banking statistics (IBS). However, there are differences in analytical focus. National accounts data are focused on production, income and its distribution and use, and the financial claims and liabilities generated. Compared with these datasets, the FSI framework focuses more on capital strength and profitability making essential the avoidance of double counting capital, and activity based on that capital, at the sector level. So, macroprudential analysis favors consolidation of group accounts, whereas national accounts data focus on the gross output and activity of individual entities within groups. Further, the build up of claims and liabilities among deposit-takers is of macroprudential interest, not least to monitor the potential for contagion, whereas monetary aggregates focus on deposit-takers' claims and liabilities vis-à-vis other sectors and so eliminate such intra-sectoral positions.

1.20 Furthermore, it is worth noting that compared with other measurement systems, the extent of institutional coverage for macroprudential purposes is not clearly determined.

⁷ Including the IMF's *Monetary and Financial Statistics Manual (MFSM)* (see IMF, 2000).

While the *Guide* requires the compilation of FSIs on a consolidated group basis to support soundness analysis, this can involve consolidating the activities of branches and subsidiaries with those of the parent entity regardless of location—more akin to the commercial accounting and supervisory approaches for individual entities. Data on domestically located operations might be separately distinguished if authorities believe it would contribute materially to their financial stability analysis (e.g., in order to illustrate the linkage with other macroeconomic information). Chapter 5 discusses these approaches in more detail.

1.21 More generally, the *Guide* recognizes that the analysis of FSIs must take into account country specific circumstances.⁸ Most relevant to any assessment is the structure of a country's financial system, for instance, the number of deposit-takers, extent of cross-border ownership, the extent of government ownership, relative size of other financial institutions, and extent to which security markets are used to raise capital. All these factors can influence the interpretation of FSIs. So, guidance is provided on the types of information on financial system structure that could be disseminated, both to help provide context for the analysis of FSIs—including through peer group and dispersion analysis—and to provide information relevant for policy makers and other users. Also important is the strength of a country's financial infrastructure, such as the level of development of financial markets and payment systems. The *Guide* provides some advice on the type of information on the structure of the financial system that could be disseminated.

1.22 Also, in developing the framework for use in compiling data, consultations with experts raised some points that go beyond the requirements of the agreed FSIs. First, the framework developed should be flexible to allow for future growth as analytical needs evolve; the idea of developing sectoral financial statements for macroprudential purposes is consistent with this concern. Second, some additional series were recommended to be included that meet specific financial soundness needs, such as information on contingent liabilities and the value of assets transferred to special purpose entities; these ideas are included in Appendix III. Third, as far as possible, the framework should draw on and take account of the related statistical needs of international and regional agencies; Fund staff has consulted with other agencies in the process of producing this *Guide*.

1.23 The *Guide* recognizes the importance of disseminating FSI data for use by market participants, policy analysts in foreign countries, and other users. The dissemination of data on a frequent basis allows new developments to be identified at an early stage and facilitates comparisons and analysis of data over time. Also, it is vital that any dissemination of data be supplemented with the provision of metadata (information about data) so that users can understand the methodology underlying the available information. Chapter 12 discusses these issues in more detail.

⁸ For this reason and due to the limited experience to date, the *Guide* does not provide numerical benchmarks for each FSI. Moreover, the *Guide* is not the appropriate vehicle for presenting such information.

1.24 Finally, experience demonstrates that FSIs are only one input into macroprudential analysis. Also relevant are indicators that provide a broader picture of economic and financial circumstances, such as asset prices, credit growth, Gross Domestic Product (GDP) growth (including its components), inflation, and the external position; the institutional and regulatory framework for an economy, in particular through assessments of compliance with international financial sector standards; the outcome of stress tests;⁹ and, as mentioned above, the structure of the financial system and strength of the financial infrastructure. More generally, FSI data can potentially complement the use of early warning systems and contribute to crisis prevention.

1.25 Stress testing, in particular, is a tool that when used in combination with FSIs can enhance their usefulness in several ways. First, estimated FSIs are typically the output of stress tests and, in some cases, an “intermediate” input also. For example, the impact of a macroeconomic shock is usually measured as the impact on the capital ratio FSIs. Second, stress tests can provide information on the linkages between different FSIs—in stress tests that make use of banks’ credit risk models, the “shock” is worked through nonperforming loans (NPLs), providing a direct measure of the linkage between changes in the NPL-based FSIs and the capital ratio FSIs. Further, stress tests provide a complementary, but more direct, way to assess certain types of risks that are hard to measure precisely using FSIs, including the risk of interbank contagion.

Structure of the *Guide*

1.26 The *Guide* is presented in four parts. They are (1) conceptual framework—covering Chapters 2 to 5, (2) specification of FSIs—covering Chapters 6 to 9, (3) compilation and dissemination of FSIs—covering Chapters 10 to 12, and (4) analysis of FSIs—Chapters 13 to 15. There are also a number of appendices.

1.27 The *Guide* is provided to encourage compilation and dissemination of the FSIs agreed by the Executive Board. Part II provides specific guidance on how to calculate the individual FSIs in the list, but before a compiler is in a position to use such guidance, certain definitional issues need to be addressed: the definition of each sector, the accounting principles underlying data compilation, the definitions of the individual series that are used to calculate the ratios, and the scope of coverage within the sector. These are the issues covered in Part I. In Part III, the *Guide* provides advice on practical compilation and dissemination issues that are likely to face the compiler as they put together this body of data, while Part IV provides information on the analytical use of FSIs.

1.28 More specifically, chapters of each part address the following issues:

⁹ Stress tests are techniques used to assess the vulnerability of portfolios to major changes in the macroeconomic environment or to exceptional but plausible events.

Conceptual framework

- Chapter 2 identifies and defines the main institutions and markets that typically constitute a financial system.
- Chapter 3 provides accounting principles for FSIs.
- Chapter 4 provides an accounting framework and sectoral financial statements from which the series required to calculate FSIs could be identified and defined.
- Chapter 5 explains how data can be aggregated and consolidated.

Specification of financial soundness indicators

- Chapter 6 defines each of the agreed indicators for deposit-takers.
- Chapter 7 defines each of the agreed indicators for other sectors.
- Chapter 8 defines the indicators for financial markets.
- Chapter 9 provides advice on the compilation of data on real estate prices.

Compilation and dissemination of financial soundness indicators

- Chapters 10 and 11 provide an overview of the compilation of FSIs.
- Chapter 12 presents a framework for the dissemination of FSIs.

Analysis of financial soundness indicators

- Chapter 13 discusses FSIs and macroprudential analysis.
- Chapter 14 looks at the analytical use of specific FSIs.
- Chapter 15 discusses peer group and descriptive statistics.

Appendices

1.29 Appendix I summarizes the survey of countries conducted in 2000 to understand more about countries' needs for, and compilation practices relating to, FSIs. Appendix II summarizes in tabular form the detailed information on each agreed FSI contained in the *Guide*. Appendix III provides additional definitions of FSIs and related data series. Appendix IV provides information on how to derive FSI series from both the national accounts and commercial accounting frameworks. Appendix V provides a set of numerical examples. Appendix VI discusses provisioning, interest rate risk, and stress testing issues on

which at the time of drafting there was not an international consensus or best practice to draw upon. Finally, Appendix VII provides a glossary of terms.

Terminology

1.30 Different methodologies can use different terms for the same item or instrument. So it is necessary to note that the terms used by the *Guide* are consistent with those used in the agreed list of FSIs. So whereas supervisors might use phrases such as “allowance” and “impaired assets,” the *Guide* uses the phrases “provision” and “nonperforming loans,” respectively. Other terms are drawn from the *1993 SNA*—particularly for those items in the sector accounts that the *1993 SNA* also covers—and from supervisory sources. In a few instances, the text notes alternative terms for the same item/instrument at the appropriate point in the text.