

**IMMEDIATE
ATTENTION**

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March 13, 2003

To: Members of the Executive Board

From: The Secretary

Subject: **Draft Compilation Guide on Financial Soundness Indicators—Volume II**

Attached for the **information** of the Executive Directors is Volume II of the draft Compilation Guide on Financial Soundness Indicators (FSIs).

As indicated for Volume I, it is intended that this paper will be published on the Fund's external website as soon as possible to solicit comments that the Fund staff can report for the Board meeting on FSIs tentatively scheduled for May 30, 2003. If no objections are received by **noon on Thursday, March 20, 2003**, the paper will be posted.

Questions may be referred to Mr. Enoch, STA (ext. 35372).

Att: (1)

Other Distribution:
Department Heads

**COMPILATION GUIDE ON
FINANCIAL SOUNDNESS INDICATORS**

Draft

Volume 2

March 2003

International Monetary Fund

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Part IV

Dissemination and Data Analysis

Chapter Twelve

Dissemination of FSI ratios and related data

Introduction

12.1 To enhance the transparency of their financial system, countries are encouraged to disseminate data on the core and other relevant FSI ratios on a frequent basis. This chapter provides a standard framework for the dissemination of the core and encouraged FSIs. It can be adapted to meet specific country circumstances. The chapter also provides additional frameworks for the dissemination of information that allows analysts to interpret the FSI data in the context of the specific country circumstances, including the structural features of the financial system. Dissemination of this additional information can be essential, because disseminating FSIs alone may not provide an adequate basis for their own interpretation due to the complexity of information they encapsulate, the range of data sources used in their construction, and the various accounting rules under which the data can be compiled.

12.2 Further, while FSIs provide a variety of information on the health and soundness of the financial system that are essential for macroprudential analysis, even with the additional information, they are not sufficient in their own right to provide a comprehensive analysis of the vulnerabilities of a country's financial system. Other factors that are important but outside the scope the *Guide* include the quality of supervision and of corporate governance, and the incentives facing financial corporations including the legal framework and the role of government in the financial system. It should be recognized that coming to a judgment on the strength and vulnerability of any financial system by combining these qualitative factors with the quantitative FSI data is not an exact method of analysis.

Dissemination Practices

12.3 As noted above, it is recommended that FSIs be disseminated on a frequent basis. The availability of information can vary between FSIs—for instance, information on inter-bank interest rates will be available more frequently than information on the geographic

distribution of lending. Nonetheless, countries are encouraged to release at least a core FSI dataset on a quarterly frequency, within one quarter of the reference date. Some FSIs may be available for dissemination more frequently.

12.4 The data covered in a core dataset can vary depending upon national circumstances but as a minimum it should include the core FSIs for domestically controlled deposit-takers on a cross-border basis.¹ Preferably the data on a quarterly frequency should cover institutions that account for a significant percentage, such as 90-95 per cent or more, of assets of the reporting population with complete coverage at least on an annual frequency. It is recognized that some structural information may also only be available on an annual basis.

12.5 When data are disseminated, provisional data should be clearly indicated, and any major revisions explained by way of notes to the published tables. Breaks in series, for example, due to changes in the reporting population, should be clearly identified and quantified where possible. Such explanations are particularly important given that the entrance or departure of a few institutions from the reporting sample could potentially have a significant impact on the ratios.

12.6 Given the wide-range of source data needed for compiling FSIs, data from various agencies (e.g., the central bank, statistical agency, and supervisory agency) are likely to be included. Nevertheless, as noted in Chapter 10, it is recommended that one agency takes lead responsibility for the dissemination of a full set of FSIs on one centralized website and/or in a paper publication. Such an approach facilitates access by users. The lead agency should be designated as the contact point for user queries on national FSIs.

¹ If the domestically controlled deposit-takers do not have any foreign deposit-taking subsidiaries and branches then the data for these deposit-takers should be on a domestically consolidated basis.

A framework for disseminating FSIs

12.7 Set out ahead is a dissemination framework based on three modules. These modules organize information into a series of tables to provide a coherent body of information. The three modules and their elements are:

Module 1

- **The core and encouraged FSIs:** Table 12.1 provides an illustrative presentation of the list of indicators on both a domestic-controlled cross-border and domestic consolidated-basis. It is recognized that alternative possibilities for the ordering of the list exist. Time series data are encouraged, with graphical presentations to facilitate the identification of trends in FSIs and complement the data series themselves.²
- **Financial sector overview:** The *Guide* sets out some structural indicators for deposit-takers, and other financial corporations. See Table 12.2. These indicators go beyond the agreed FSIs.
- **Sector-level income and expense and balance-sheet statements:** These statements provide the underlying data series used to calculate many FSI ratios. The *Guide* considers that disseminating these statements would support the analysis of the FSI datasets, although such dissemination goes beyond that the agreed FSIs. Such data can help gauge the magnitudes of the underlying amounts, enable interpretation of the ratios—especially whether intertemporal movements in ratios are caused by changes in the component elements of the numerator and/or denominator—and allow additional FSIs to be calculated as country circumstances require. The tables for disseminating the sector-level income and expense and balance sheet data are presented in Chapter 4: Table 4.1 (Deposit-takers), Table 4.2 (Other financial corporations), Table 4.3 (Nonfinancial corporations) and Table 4.4 (Households).

The core and encouraged FSIs

12.8 Table 12.1 provides an illustrative presentations of FSI data: (1) on a domestic-controlled, cross-border consolidated basis and, (2) on a domestic-basis (with data for deposit-takers and other corporations on a domestically-consolidated basis). See paragraphs 5.31 to 5.32 and 5.36 to 5.39 for guidance.

² Ideally, data series would extend back to cover at least one business cycle to facilitate interpretation of current FSIs.

12.9 The *Guide* requires that data be compiled and disseminated on a domestically-controlled, cross-border consolidated basis for the core indicators, all of which are highlighted in bold italics below. Beyond this, the *Guide* encourages the compilation of the other data series in the table. As noted in Chapter 5, national authorities may see a need to compile separate data on foreign-controlled deposit-takers; such information could be disseminated as an additional column in the table for deposit-taking FSIs, only.

Table 12.1: Financial Soundness Indicators

Ratios unless otherwise stated

	<i>Domestically controlled, cross-border (for soundness analysis) (required)</i>	<i>Domestic- based (for link with macroeconomy) (encouraged)</i>
(a) Deposit-takers^{1/}	(1)	(2)
<i>Capital-based^{2/}</i>		
<i>Regulatory Capital to risk-weighted assets</i>		3/
<i>Regulatory Tier 1 capital to risk-weighted assets</i>		3/
<i>Capital to assets</i>		
<i>Return on equity</i>		
<i>Nonperforming loans net of provisions to capital</i>		
<i>Large exposures to capital</i>		
(number of large exposures)		
(to large resident entities) ^{4/}		
(to connected borrowers) ^{5/}		
<i>Duration of assets (years and months)^{6/}</i>		
<i>Duration of liabilities (years and months)^{6/}</i>		
<i>Net open position in foreign exchange to capital^{7/}</i>		
Gross asset position in financial derivatives to capital		
Gross liability position in financial derivatives to capital		
Net open position in equities to capital		
<i>Asset-based</i>		
<i>Liquid assets to total assets</i>		
<i>Liquid assets to short-term liabilities</i>		
Customer deposits to total (noninterbank) loans		
<i>Return on assets</i>		
<i>Nonperforming loans to total gross loans</i>		
<i>Sectoral distribution of loans to total loans (percentages of total)^{8/}</i>		
<i>Deposit-takers</i>		
<i>Other financial corporations</i>		
<i>Nonfinancial corporations</i>		
<i>Households</i>		
<i>Nonprofit institutions serving households</i>		
<i>General government</i>		
<i>Nonresident</i>		
Residential real estate loans to total loans		
Commercial real estate loans to total loans		

Geographical distribution of loans to total loans
 (percentages of total) ^{9/}
 Domestic economy
 Advanced countries
 Regions excluding advanced countries
 Africa
 o/w Sub-Sahara
 Asia
 Europe
 o/w FSU including Russia
 Middle East
 Western Hemisphere
 Foreign currency denominated loans to total loans
 Foreign currency denominated liabilities to total liabilities

Income and Expense-based

Interest margin to gross income
 Trading foreign exchange gains (losses) to total income
Noninterest expenses to gross income
 Personnel expenses to noninterest expenses

(b) Other Financial Corporations

Assets to total financial system assets
 Assets to GDP n.a.

(c) Non Financial Corporations

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 n.a.

(d) Households ^{10/}

Household debt to GDP n.a.
 Household debt burden to income n.a.

(e) Domestic Real Estate Markets

Residential Real Estate Prices (annual percentage increase) n.a.
 Commercial Real Estate Prices (annual percentage increase) n.a.

(f) Domestic Security Market Liquidity

Average bid-ask spread in the security market
 (percentage of mid-point price) n.a.
 (please specify the instrument)
 Average turnover ratio in the securities market
 (please specify the instrument) n.a.

(g) Interest Rates

Spread between reference lending and deposit rate (basis points)

Spread between highest and lowest domestic interbank rate (basis points)

n.a

n.a. not applicable

1/ All series highlighted in bold and italics are core FSIs.

2/ For all the capital-based indicators except the regulatory capital FSIs, both a narrow and total capital measure can be adopted. Where applicable, Tier 1 capital should be used as the narrow measure.

3/ In most cases, such data might be only applicable to incorporated deposit-takers.

4/ Defined as claims of the largest deposit-takers on the largest entities in the resident economy, including government, to capital (see paragraph 6.35)

5/ Defined as claims on affiliated entities, including nonresident entities, to capital (paragraph 6.36).

6/ As noted in Chapter 6 an alternative approach to assessing interest rate risk of a portfolio of assets and liabilities is to use "gap" analysis (see Table 6.1).

7/ The measure of the net open position employed, whether total or on-balance sheet items only, should be made explicit when disseminating data.

8/ Supplementary information by type of industry could also be provided.

9/ Supplementary information by jurisdiction could also be provided, if significant.

10/ To be compiled on an aggregate-residence basis

Financial sector overview

12.10 Table 12.2 presents structural indicators for the domestic financial sector.

Table 12.2: Financial Sector Overview

	No. of instns.	No. of employees	No. of branches	Financial Assets			Market Concentration 1/	Claims on residents as a percentage of assets	Total Premium Income
				Billions (\$)	Percent	Percent of GDP			
Resident deposit-takers 2/									
Domestically controlled									n.a.
o/w government									n.a.
private									n.a.
Foreign controlled									
o/w subsidiaries									n.a.
branches									n.a.
Memo item:									
Cross-border consolidated 3/					n.a.	n.a.			n.a.
Other financial corporations2/									
Insurance Companies 4/			n.a.						
Nonlife insurance			n.a.						
Life insurance			n.a.						
Pension Funds 4/			n.a.						n.a.
Securities Dealers 4/			n.a.						n.a.
Investment Funds 4/			n.a.						n.a.
Other Financial Entities 4/			n.a.						n.a.

n.a. not applicable

1/ Number of institutions accounting for 75 percent or more of the financial assets of the sector.

2/ Identifying the names of the top five institutions in the sector and their share of financial assets is encouraged.

3/ Cross-border consolidation of deposit-taking business of domestically incorporated and controlled deposit-takers.

4/ A distinction by domestically-controlled and foreign-controlled is encouraged if there is significant foreign control ownership of domestic institutions

Module 2

- **Metadata** describing in detail the content and coverage of the FSIs and the accounting conventions and other national guidelines reflected in the data should be publicly available. In particular, deviations from the principles set out in the *Guide* should be clearly explained, and any differences in approaches among the datasets (including within and between sectors) disseminated should be highlighted. At the development stage, some FSIs may be calculated from data that itself has been created from various subgroup datasets that adopt different accounting principles. This approach, if used, should be highlighted in metadata.

12.11 Below are some illustrative points for items that could be covered in such metadata. This module is modeled on the approach in the IMF's Special Data Dissemination Standard and the General Data Dissemination System.

1. Coverage, Periodicity, and Timeliness of data

Data Category

Such as deposit-takers, nonfinancial corporations, etc.

Periodicity and Timeliness of Release

Frequently with which data are disseminated released and with what time delay. If some data series are released more frequently than others, this can be specified.

2. Access by the public

Dissemination Practices

Such as the mode(s) of disseminating FSIs, and the main centralized source for users wanting to access FSIs.

Contacts

Names, addresses, e-mail addresses, etc, for people to contact.

3. Integrity

Terms and Conditions

Such as information on the terms and conditions under which these data are produced and which agencies are involved in the process.

Revisions

Information about revision and advance notice of major changes in methodology.

4. *Quality of the disseminated data*

General Information

Accounting Framework: Descriptions of the underlying accounting framework(s) for source data.

Nature of the Basic Data: Data sources, consolidation methodology, institutional coverage, etc.

Compilation Practices: Information on samples and surveys, statistical adjustments, methods of verifying data, etc.

Accounting and Classification Principles: Time of recognition principles, valuation methods, classification of accounts, use of netting, etc. Deviation of principles from those in the *Guide* should be explained.

Other: Any other relevant information on compilation practices for the data that are disseminated, including information on significant changes in the reporting population.

Specific Information on FSIs Disseminated

12.12 A brief description of the definitions and the data sources for the numerator and denominator of each FSI, with cross-references to the general information section. Other specific information could include whether the denominator and numerator are available on the same periodicity of the release, and if not, how is this dealt with in the data disseminated.

Module 3

- **Peer group analysis of institutions and descriptive statistics on data concentration and dispersion.** Sector-level balance sheets and income statements can disguise important subcategory information. The use of peer groups and descriptive statistics are discussed in more detail in the next chapter.

12.13 In IMF discussions with both users and compilers of FSIs, the need for peer group (or subgroup) analysis, and dispersion analysis has been highlighted.

Chapter Thirteen

Peer group and descriptive statistics

Introduction

13.1. Sector balance sheets and income and expense data can disguise important trends. For example, the sector-wide capital to asset ratio for deposit-takers is essentially the average capital to asset ratio for the system (derived by the summation of all institutions capital divided by all institutions assets), and, if symmetrically distributed, would convey information about the middle capital asset ratio (the median) as well as the most frequently observed capital asset ratio (the mode). However, the ratio does not indicate whether the individual institutions' capital ratios are clustered in a narrow range around the average value, or are spread over a wide range. Moreover, if one highly capitalized deposit-taker offsets several other undercapitalized deposit-takers, the aggregate ratio may appear robust, masking significant vulnerabilities from weak deposit-takers whose failures could lead to contagion throughout the system. So in IMF discussions with both users and compilers of FSIs, the need for peer group analysis, and dispersion analysis has been highlighted.

13.2. A wide variety of meaningful peer groups can be created for comparison purposes, and to examine the dispersion and concentration of the institutions in the peer group or sector, descriptive statistics can be compiled. Such information can significantly affect the conclusions about vulnerabilities or strengths of the financial system. This chapter describes some types of peer groups that can be created, and discusses measures of concentration and of dispersion. Issues to address in developing these data are set out, such as the approach to weighting the contribution of the individual institutions, and some explanation of how to analyze the results is also provided. While going beyond the requirements of the agreed FSIs, some recommendations for peer groups and concentration measures to compile are provided. However, the chapter primarily sets out options and ideas for use by compilers and analysts. Indeed, the IMF staff would be interested in learning about country experience in using peer group and dispersion analysis.

Peer group analysis

13.3. A peer group is a statistical set of individual institutions that are grouped on the basis of specific analytically interesting criteria. Peer groups can be used to compare FSI ratios for (1) individual deposit-takers for which data are publicly available against the ratios for similar institutions, (2) peer groups with other domestic peer groups, or (3) peer groups across countries. Peer group analysis can be undertaken using either cross-border or domestically consolidated data.

Types of peer groups

13.4. Depending upon analytical needs, different types of peer groups may be constructed. Some might be on an ad-hoc basis. For example, recent entrants into the market, deposit-takers with low or high capital ratios, with low or high return on equity, with high levels of nonperforming loans, and/or deposit-takers that concentrate lending to particular types of borrowers. Other peer groups might be of a more permanent nature. For example, groups of similarly sized deposit-takers based on their total assets. Flexibility in approach across countries is likely.

13.5. By way of example, peer group data could be constructed for the following major groupings of deposit-takers:

- **Size of assets or revenues.** The size of institutions might affect market competitiveness or market power. Moreover, the condition of the peer group comprised of the largest deposit-takers is often important for understanding overall stability—such as the three or five largest deposit-takers, based on total assets—because these deposit-takers are the most likely to be systemically important and may exercise the greatest market power. Such a group has a small enough number of institutions that it can be constructed for most economies, and can facilitate international comparison.
- **Line of business,** such as distinguishing regular retail banks from mortgage banks.

- **By type of ownership**, such as distinguishing public controlled from private controlled deposit-takers.
- **Offshore deposit-takers** that can only transact with nonresidents.
- Deposit-takers by **region of the economy**.

13.6. From the above list, the *Guide* encourages, as a minimum, the compilation of core FSIs for peer groups based on the relative size of assets, such as percentiles (see paragraphs 13.37 to 13.38 ahead) or groupings of specific numbers of deposit-takers based on size. While peer group analysis may be less useful if large percentiles are chosen, the *Guide* discourages the dissemination of peer group data that might reveal information about specific institutions, unless the country normally requires deposit-takers to publicly disclose individual institution information.

Compilation of peer group data

13.7. A key choice in constructing peer group data is determining how data are to be compiled. Regardless of approach taken, constructing peer groups depends critically on the cost of compiling data and the ease of reorganizing the data according to analytical needs. To allow construction of peer groups, the *Guide* encourages compilers to maintain individual institution data in a database system that allows quick, low-cost data aggregation. Under such an approach, data series can potentially be compiled using the same principles and frameworks as the sector-level data. So, for instance, intra-group income and expense items, and possibly depending on data availability, intra-group equity holdings can be eliminated.

13.8. However, a decision is required as to whether data should be compiled on the basis that the peer group is a sub-group of the total population—that is, the data are the peer group's contribution to the total for the population—or compiled on a standalone basis—that is, the peer group is self-contained, with all institutions outside the group treated as entirely external to the group. There are advantages for adopting either approach but data compilation considerations may be decisive, particularly if ad-hoc groups are created.

13.9. In this regard, the standalone approach is likely to require less additional data than the sub-group approach. For instance, when aggregating data for all institutions in a peer group, intra-peer group interest income and expense will be eliminated in the net interest income line. But to also eliminate interest income and expense with institutions in the sector but not in the peer group, additional data will be required.

13.10. However, even the standalone approach will require additional data items if they are to be compiled in line with the sector-level approach. Some of this information might be obtainable from the data reported in Table 11.2 or 11.4 depending upon the consolidation approach adopted. For instance, intra-peer group holdings of equity could be eliminated to the extent that deposit-takers identify their holdings of equity on an individual deposit-taker basis. Nonetheless, particularly for ad-hoc groups, peer group data might well be compiled on an approximate best practice basis so allowing the identification of trends but, depending upon the degree of approximation and the scope of analysis, potentially masking relevant inter-relationships. It is encouraged that in such circumstances any relevant potential limitations of the data be identified for the user, such as capital and reserves not being fully adjusted for intra-peer group holdings.

Descriptive Statistics

13.11. In many ways, the use of concentration and dispersion measures is a research and analytical activity in which specific techniques are used based on the nature of the issue under review; the types of data available and the ease of using them; and the sensitivity of the data and limitations on revealing information on specific institutions. Although there are several common elements that will be discussed below, flexibility in selecting techniques should be maintained. This section provides a menu of diverse techniques that are useful in a variety of situations. However, in disseminating information to the public, some types of descriptive statistics may prove more useful, because they can describe concentration and dispersion without revealing information on individual institutions.

Measures of concentration

13.12. The **Gini index** estimates a numeric value for concentration (see the example ahead). It captures the information shown in a Lorenz curve, which is the difference between actual concentration and the hypothetical state in which no concentration exists. With no concentration, every unit has the same endowments (income, market share, volume of market trading, etc.), which generates a Gini index of zero. If only one unit is endowed with all income, assets, etc, and no other unit has any, there is perfect concentration and the Gini index is one. Commonly, Gini indices for personal income fall between 0.20 and 0.45. Gini indices are especially useful to track changes in concentration over time.

13.13. For example, for N deposit-takers, sorted from smallest to largest total assets.

$$\text{Gini} = \sum_{i=1}^N 2(X_i - Y_i)\Delta X_i$$

$$\text{where: } X_i = \frac{i}{N} * 100$$

Y_i = cumulative percentage share

$$\Delta X_i = X_i - X_{i-1}$$

Gini Index (Sorted smallest to largest)

Deposit-taker _i	Assets	Percent Share	Cumulative Actual Share Y_i	Cumulative Equal Share X_i	Difference $X_i - Y_i$	Difference*2 $(X_i - Y_i)*2$	(Difference*2) * .091 ¹ $((X_i - Y_i)*2)*(X_i - X_{i-1})$
11	20	2	2	9.1	7.1	14.2	1.291
10	20	2	4	18.2	14.2	28.4	2.583
9	20	2	6	27.3	21.3	42.6	3.875
8	40	4	10	36.4	26.4	52.8	4.803
7	50	5	15	45.5	30.5	61.0	5.549
6	50	5	20	54.6	34.6	69.2	6.296
5	80	8	28	63.7	35.7	71.4	6.496
4	90	9	37	72.8	35.8	71.6	6.514
3	130	13	50	81.9	31.9	63.8	5.804
2	200	20	70	91.0	21.0	42.0	3.820
1	300	30	100	100.0	0.0	0.0	0.000

47.030^{2/}

Gini Index

¹ The “equal share” percentage of the total. ² This index is scaled by a factor of 100.

13.14. The **Herfindahl Index**, H, is the sum of squares of the market shares of all firms in a sector (see the example ahead). Higher values indicate greater concentration. Assuming for simplicity, in the no concentration situation that 100 firms exist, and each has an identical 1 percent of the market, the value of $H = 100$. In contrast, with perfect concentration, in which one firm has 100 percent market share, $H = 10,000$. (That is, the contribution of the single monopoly firm is $100 \times 100 = 10,000$). A rule of thumb sometimes used is that H below 1,000 is considered relatively limited concentration, and H above 1,800 indicates significant concentration.

$$H = \sum_{i=1}^N (share_i)^2$$

13.15. As noted in Chapter 6, the *Guide* encourages dissemination of the Herfindahl Index. For ease of compilation, it is also possible to compile partial Herfindahl indices, such as one based on the shares of the total sector assets of the largest five deposit-takers.

Herfindahl Index			
Deposit-taker	Assets	Percent Share	Share²
1	300	30	900.0
2	200	20	400.0
3	130	13	169.0
4	90	9	81.0
5	80	8	64.0
6	50	5	25.0
7	50	5	25.0
8	40	4	16.0
9	20	2	4.0
10	20	2	4.0
11	20	2	4.0
Total	1000	100	1692
Herfindahl Index			
<i>(Top 5 = 1614)</i>			

Measures of Dispersion

13.16. Descriptive statistics on data dispersion provide measures of average values for groups of institutions, and the size and direction of asymmetry in the distribution of the

observations. The four main categories of these statistics are measures of (1) central tendency, (2) variability, (3) skewness, and (4) kurtosis. They can be useful for data analysis, for comparing multiple data sets, and for reporting final results of a survey.³ In disseminating information, graphical presentations, such as a simple scatter diagram, can be useful to provide users with information on the dispersion of data around the mean.

13.17. **Measures of central tendency** include:

- Mean (first moment of the distribution), or $\bar{X} = \sum_{i=1}^N \frac{x_i}{N} \Rightarrow \sum \left(x_i \cdot \frac{n_i}{N} \right)$. This is the arithmetic average of the data. Generalizing $\bar{X} = \sum (x_i \cdot \text{weight}_i)$.

Where,

x_i = value of observation i

n_i = number of observations with value x_i

N = total number of observations

$\frac{n_i}{N}$ = weight

\bar{X} = population mean

13.18. **Other measures of central tendency** include:

- *Median* is the middle observation in a data set. It is often used when a data set is not symmetrical, or when there are outlying observations.
- *Mode* is the value around which the greatest number of observation are concentrated, or the most common observation.

³ An issue arises as to whether dispersion analysis should be undertaken on a standalone basis or on a subgroup basis. As noted in the chapter, there are advantages with both approaches, although the standalone data may be more readily available, but to help understanding of any data disseminated, it is important to know the approach taken. For instance, the mean and variance for FSI ratios for peer groups can vary depending upon the basis on which the data are compiled.

13.19. **Measures of variability** describe the dispersion (or spread) of the data set:

- *Range* is the difference between the largest and the smallest observations in the data set. It has limitations because it depends on only two observations in the data set.

- *Variance* (second moment of the distribution, or $\sigma^2 = \sum_{i=1}^N \frac{(x_i - \bar{x})^2}{N}$) \Rightarrow
$$\sum \left[\frac{n_i}{N} \cdot (x_i - \bar{X})^2 \right]$$
 measures the dispersion of the data around the mean, taking into account all data points. Generalizing, $\sigma^2 = \sum [(x_i - \bar{X})^2 \cdot weight_i]$

Where,

σ = population standard deviation

- *Standard Deviation* (or $\sigma = \sqrt{\sigma^2}$) is the positive square root of the variance, and is the most common measure of variability. Standard deviation indicates how close observations are to the mean.

13.20. **Skewness** (third moment of the distribution, or μ_3) indicates the extent to which data are asymmetrically distributed about the mean: Positive skewness indicates a longer right hand-side (tail) of the distribution; negative skewness a longer left tail. One measure of skewness is based on the difference between the mean and the median, standardized by dividing by the standard deviation:

$$\text{Skewness} = \frac{\sum [(x_i - \bar{X})^3 \cdot weight_i]}{\sigma^3}$$

13.21. **Kurtosis** (fourth moment of the distribution, or μ_4) indicates whether the data are more or less concentrated toward the center; that is, the degree of flatness of the distribution near its center. The kurtosis of a normal distribution equals 3, so it is common to subtract 3, as above, to estimate “excess kurtosis” to evaluate whether the distribution has a

greater or lesser peak than the normal distribution. Positive excess kurtosis indicates that the distribution is more peaked than the normal distribution; negative excess kurtosis indicates a relatively flat distribution.

$$\text{Kurtosis} = \left(\frac{\sum [(x_i - \bar{X})^4 \cdot \text{weight}_i]}{\sigma^4} \right) - 3$$

Weighting options

13.22. In compiling dispersion data, an issue to address is whether data should be compiled on the basis that each observation has the same weight (equal weight approach) or is weighted by its relative contribution to the numerator and denominator (weighted-by-contribution approach). As noted above, the *Guide*'s approach at the sector level is in effect to weight-by-contribution.

13.23. In dispersion analysis, the equal-weight approach facilitates identification of whether weaknesses are concentrated in one or two deposit-takers or spread across a larger number of institutions and helps identify emerging weaknesses regardless of the size of the institution.

13.24. Nonetheless, variance, skewness, and kurtosis can be calculated using the weight of the contribution from each observation; for the variance the distance of each observation to the mean should be scaled by its weight in the overall average; and the skewness and kurtosis should measure the distribution of the weighted contribution of each observation to the mean, relative to a normal distribution. Compilation (and dissemination) of descriptive statistics on a weighted-by-contribution basis might reveal whether outliers are small or large from a sector perspective.

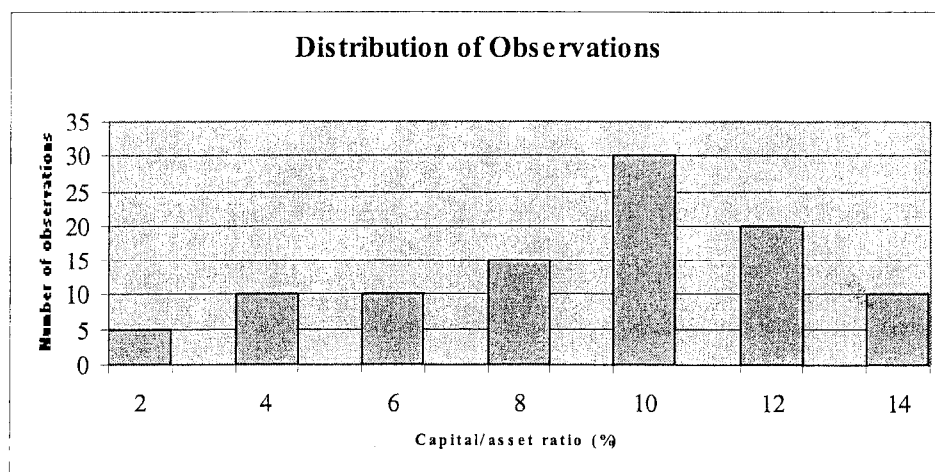
13.25. Because of their analytical usefulness, dispersion statistics could be disseminated on both bases, with any preferred approach based on data availability. However, if the equal-weight approach is adopted users should be made aware that the mean

under this approach might well be different from the FSI itself. Any such difference could be useful information in its own right.

Interpretation of descriptive statistics

13.26. How are dispersion statistics data to be interpreted? Set out in Figure 1 is an example of an economy that has 100 deposit-takers with capital asset ratios that are distributed as shown in the Figure. Table 13.1 provides dispersion statistics data on an equal-weight basis and Table 13.2 on a weighted-by-contribution basis.

Figure 1



Equal weight approach

Table 13.1

Mean	Median	Mode	Variance	Standard deviation	Skewness	Kurtosis
9.1	10.0	10.0	10.7	3.3	-0.5	-0.5

13.27. These statistics could be interpreted as follows: As the value of the mean is less than both the median and mode, this indicates that the distribution is asymmetric, with a leftward skew (i.e. a longer tail toward smaller values). This is confirmed by the negative

value for the measure of skewness. Further, the standard deviation indicates some significant dispersion around the mean. This is confirmed by the negative kurtosis, indicating a flat distribution (relative to a normal distribution).⁴

Weighted-by-contribution approach

Table 13.2

Weighted Mean	Standard deviation	Median	Mode	Skewness	Kurtosis
7.4	4.7	10.0	10.0	0.17	-1.51

13.28. The weighted-by-contribution approach produces different results from that of the equal-weight approach. As seen in Table 13.2, the mean is lower and standard deviation higher on a weighted-by-contribution basis. This is due to the big weights at the end of the tails, and large negative Kurtosis reflecting low peakedness (fat tails).

13.29. Figures 2 and 3 add to this analysis. The height of the columns in Figure 2 show the distribution of the individual institutions ratios by weight, that is the contribution of those deposit-takers to the sector-level FSI. The weights are presented in percentage terms and sum to unity. Figure 3 indicates both the weight—through the size of the bubble—and the number of institutions at each ratio—through the bubble’s height. These figures show that the outliers in the equal-weighted distribution take on increased significance in the weighted-by-contribution distribution. In this example, of the 100 deposit-takers in the system there are only 5 deposit-takers with ratios of 2 percent and 10 deposit-takers at 14 per cent but between them they account for half the weight—in other words, the outliers are relatively important.

⁴ The standard deviation for the population can be used to estimate the percentage of the population members that lie within a specified distance of the mean. Tcehbychev’s rule is commonly used for forming such estimates.

Figure 2

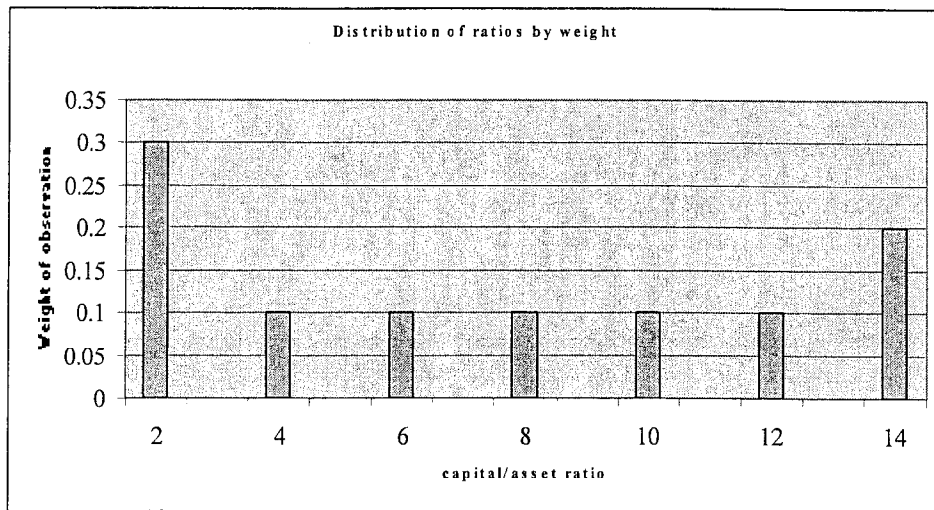
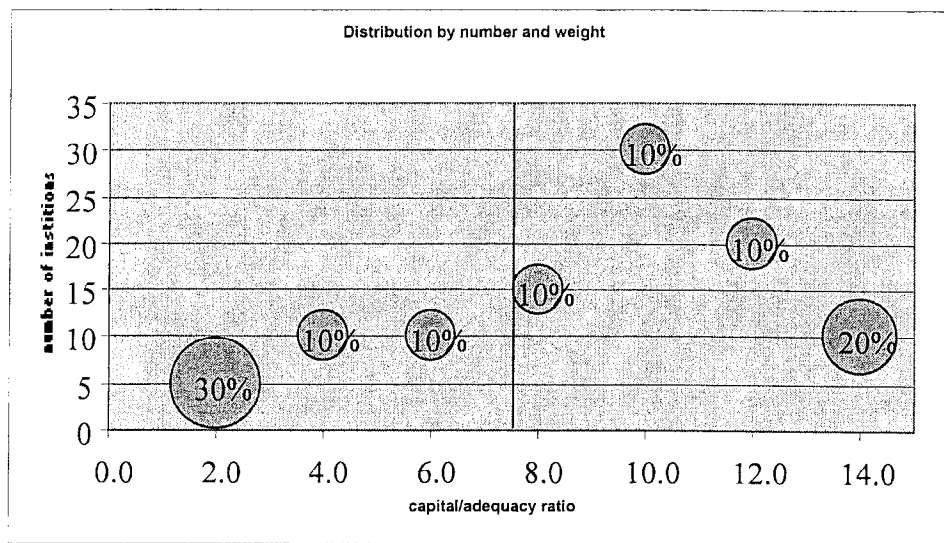


Figure 3



13.30. Another approach to weight-based analysis is to compare individual deposit-takers' (or peer groups) weight-by-contribution to specific FSIs with their relative size in terms of their contribution to sector assets. For instance, a deposit-taker generating large income flows through transactions in the financial market could make a significantly bigger contribution to the sector's income-based FSIs than its asset size would suggest. Such divergence over a period of time might raise the question as to whether the deposit-taker was

taking large risks to generate large income flows. Such a comparison might also be used as a tool to check the reliability of data submitted.

13.31. Divergence between the relative balance sheet size of a deposit-taker and its contribution by weight to specific FSIs can be identified by constructing the following comparison ratio:

$$\text{Comparison ratio}_{i,j} = \frac{\text{Weight-by-contribution}_{i,j}}{\text{Weight-by-asset size}_j}$$

$$\text{Where, Weight by asset size} = \frac{\text{Asset size}_j}{\sum_{j=1}^N \text{Asset size}_j},$$

i is the ith FSI, j is the jth reporting institution, and N is the total number of reporting institutions.

13.32. A comparison ratio for deposit-taker_i and FSI_j of more (less) than unity indicates that, compared with the rest of the deposit-taking sector, deposit-taker_i has a larger (smaller) weight-by-contribution to the specific FSI than its balance sheet size suggests. A summary matrix of comparison ratios (deposit-taker_i and FSI_j) can be constructed.

Extensions of dispersion measures

13.33. Although the set of (core) descriptive statistics provides a useful overview of the distribution, they do not fully illuminate financially weak (strong) spots—that is the left (right) tail of the distribution.⁵ In other words, how many deposit-takers populate the left (right) tail and how are they distributed therein? Some possible extensions to the descriptive statistics in the *Guide* are explored below. The examples are provided on an equal-weight basis.

⁵ The terms “weak” and “strong” are relative concepts in this context. That is, they are used to convey weakness or strength relative to the mean, which itself may be weak or strong vis-à-vis a predetermined norm or benchmark (such as 8 percent for the capital adequacy ratio).

Option 1: Right and Left Tail Attributes

13.34. The measures of central tendency and variance set out in the *Guide* can be applied to the left and right tails of the distribution, as shown in Table 13.3 below. This provides some additional insight into the size of the skewness, especially if the size of the standard deviation for the left and right tails relative to their respective means are compared; the relatively large standard deviation for the left tail reveals there are a number of institutions with ratios significantly below 5.8. Nevertheless, further disaggregation of the data is needed to get at how many institutions are involved and how far to the left the distribution is skewed.

Table 13.3

	Mean	Median	Mode	Variance	Standard deviation	Skewness	Kurtosis
Total	9.1	10.0	10.0	10.7	3.3	-0.5	-0.5
Left tail	5.8	6.0	8.0	4.6	2.1		
Right tail	11.3	11.0	10.0	2.3	1.5		

Option 2: Ranges

13.35. One way of conveying additional information on the distribution is to show the number of institutions falling within specified ranges (or intervals), for example the number of institutions with FSI ratios between 2 and 4 (see Table 13.4). This can be supplemented with mean and variance information for each interval. While providing additional insight into the shape of the distribution, the usefulness of this approach is dependent upon the size of the intervals. Moreover, cross-country and cross-FSI comparisons can be complicated with this approach because interval size will likely differ across countries and FSIs.

Table 13.4

Range	2-4	5-8	9-11	12-14
Number	15	25	45	30
Mean	3.3	7.2	10.0	12.7
Standard deviation	1.0	1.0	0.0	1.0

13.36. Nevertheless, this approach might be well suited to indicators that have an accepted norm or benchmark, such as the Basel Capital Adequacy Ratio, for which the analysis could focus on the distribution of ratios to the left of the benchmark. This option may become more widely applicable as countries gain experience with FSIs and the calibration of benchmarks to local circumstances.

Option 3: Percentiles

13.37. The percentile distribution of individual deposit-takers' ratios goes some way to address concerns about cross-FSI country comparison of ranges. Percentile analysis involves arranging observations in ascending order and dividing the data into groups of equal number of observations. The values that serve as the dividing lines between groups are called percentiles. For example, Table 13.5 below shows that the 10th percentile corresponds to an observation of 4, and that the 20th percentile corresponds to an observation of 6.⁶

13.38. Combined with the mean and standard deviation for each percentile range (e.g. 0-10%, 10%-20%, 20%-30% etc.), these statistics can reveal areas of financial weakness.⁷ For instance, from Table 13.5, the extended left tail is clearly reflected in the

⁶ It is important to note this does not say all deposit-takers with ratios of 4% are in the bottom percentile; some deposit-takers with ratios of 4% may also populate the next percentile. Also, if the percentile value is not a multiple of $1/(n-1)$, where n is the number of observations arranged in ascending order, the value at the k^{th} percentile is determined by interpolation.

⁷ The mean and standard deviation can also be calculated for each percentile range on a cumulative basis (e.g. 0-10%, 0-20%, 0-30% etc), in which case the mean and standard deviation for the population will equal the mean and standard deviation for the entire percentile range.

spread of ratios across the first four percentile ranges. Moreover, the large standard deviation relative to the mean for the bottom percentile indicates that the tail extends below 4% for a number of institutions. By contrast, the standard deviation of zero for other percentile ranges indicates that all observations in each range are equal to the mean for that range.

Table 13.5

Percentile	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
FSI ratio \leq	4	6	8	9.2	10	10	10.6	12	12.2	14
Mean for percentile range	3.0	5.0	7.0	8.0	10.0	10.0	10.0	12.0	12.0	14.0
Standard deviation for percentile range	1.1	1.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

13.39. Nevertheless, as with any system that involves decomposition of aggregated data, the choice of approach can be constrained by confidentiality issues, such as not disclosing information that contains less than 3 institutions. Also the usefulness of this approach depends on the number of percentiles used.

Further extensions of dispersion measures

13.40. To extend the data analysis, both the variation in the distribution of FSI ratios and the persistence of individual deposit takers' FSI ratios through time can be observed.

Variation in the distribution⁸

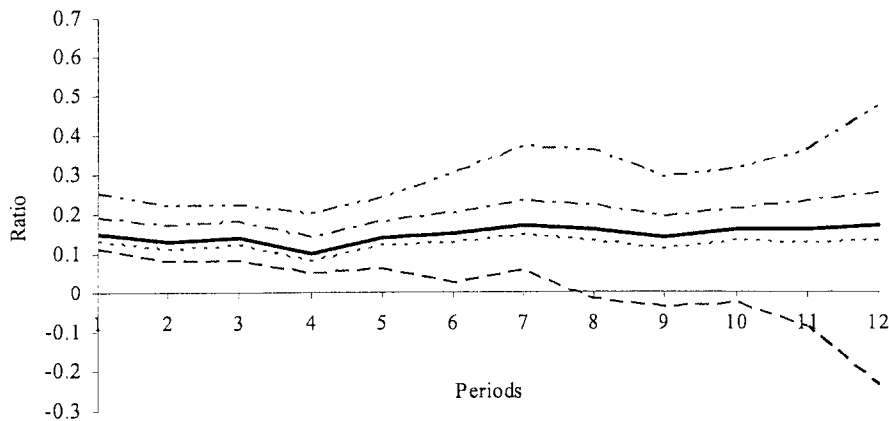
13.41. At different percentiles, the variation in the distribution of deposit-takers' rates of return over time can be observed, so facilitating an understanding of trends within the sector-level data.

13.42. Chart 1 provides an example using profitability data. An interpretation of the chart might be as follows: Until period 4, the rates of return at all percentiles tended to move in the same direction, but thereafter there was a noticeable variation in the distribution. While

⁸ Based on "Sytlistised facts on UK corporate financial health: evidence from micro-data," by Andrew Benito and Dgertjan Vlieghe, *Financial Stability Review*, June 2000, Bank of England.

the path of profitability of the median deposit-taker (i.e. the return on equity at the 50th percentile) was broadly unchanged, deposit-takers in the top percentile recorded an increasing rate of return (notably from 31 percent in period 10 to 47 per cent in period 12), while those in the bottom percentile recorded falling profitability (notably from -3.0 percent in period 10 to -24.9 per cent in period 12).

Chart 1: Percentiles of distribution of return on equity^(a)



(a) Percentiles are, from top to bottom, 90th, 75th, 50th (median), 25th, 10th.

Persistence

13.43. Inspection of particular percentiles is not informative about the “persistence” of an individual deposit-takers’ performance from one year to the next. One way of capturing this information is to construct a transition matrix (see Table 13.6) that shows the proportion of deposit-takers that move from one percentile to another over a period of time, for example one year or averaged over a number of years.

13.44. The principal diagonal (top left to bottom right) in a transition matrix gives the proportion of deposit-takers that persist in the same percentile over time. For example, Table 13.6 shows that 65.2% of the deposit-takers that populated the top percentile in period 1 also populated the top percentile in period 2. The remaining 34.8% of deposit-takers that populated the first percentile in period 1 now populate lower percentiles in period 2.

Table 13.6: Transition Matrix for one-year transitions between percentiles of the distribution of return on capital

%	Percentile 1 _{t=2}	Percentile 2 _{t=2}	Percentile 3 _{t=2}	Percentile 4 _{t=2}	Percentile 5 _{t=2}
Percentile 1 _{t=1}	65.2	21.1	6.4	3.1	4.2
Percentile 2 _{t=1}	20.0	50.5	22.6	5.4	1.5
Percentile 3 _{t=1}	7.9	21.6	46.9	20.7	2.8
Percentile 4 _{t=1}	4.1	7.4	21.7	52.3	14.5
Percentile 5 _{t=1}	4.7	2.5	3.9	18.7	70.1

13.45. An interpretation of Table 13.6 might be as follows. There is a relatively high degree of persistence, with typically more than half of the deposit-takers in a particular percentile remaining in that percentile the following period. Moreover, persistence among the very profitable deposit-takers (in the top percentile) and very unprofitable deposit-takers (in the bottom percentile) is greater than that for the three middle percentiles. Mobility from one percentile to the neighboring percentiles is greater than to the more distant percentiles.

Explaining the distribution of financial performance

13.46. Whereas describing the patterns observed in measures of financial health is relatively straightforward, explaining the patterns can be more difficult. Nevertheless, some insights can be provided by examining the characteristics of those entities in the tails of the distribution of these indicators, in effect, by combining peer group and percentile analysis.

13.47. For example, Table 13.7 considers the industrial composition of those nonfinancial companies that in the current period have the lowest level of profitability and highest levels of capital gearing (debt to equity ratio). For illustrative purposes, low profitability refers to levels below the 10th percentile while high capital gearing refers to a level above the 90th percentile for the sector as a whole. The table, based on the number of firms in each industry group expressed as a percentage of the total number of firms, compares the industrial distribution at the tails (rows 2 and 3) with that of the whole sector population (row 1). An interpretation of the data in Table 13.7 might be as follows: While

firms with lowest profitability are to be found in each of the broad industry groups, the extraction and transport and communications industries are over-represented relative to their presence in the sector as a whole. Among the companies with high capital gearing, again the transport and communication industry is over-represented.

Table 13.7: Analysis of tails of the distribution by industry classification (per cent).

Industry Group	1	2	3	4	5	6	7	8	Total
1. All firms in sample	5	6	15	12	10	18	20	14	100
2. Firms with low profitability (ROE)	2	16	10	10	4	9	37	13	100
3. Firms with high capital gearing	3	6	8	16	7	11	34	15	100

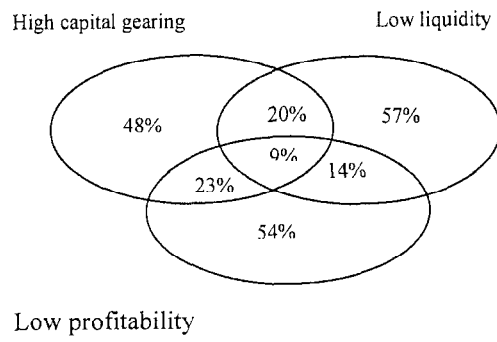
Note: Industry groups are one-digit non-financial, Standard Industrial Classification (SIC-1980) groups.

1. Energy & water supplies; 2. Extraction of minerals and ores other than fuels; manufacture of metals, mineral products & chemicals; 3. Metal goods, engineering & vehicles industry; 4. Other manufacturing; 5. Construction; 6. Distribution, hotels & catering; 7. Transportation and communication; 8. Other services

Interactions between indicators of financial health

13.48. From a financial soundness perspective, it may matter whether, for example, the companies with high debt levels are also making losses and/or have low liquidity. The overlaps between indicators can therefore be important to the analysis, not least because the interaction between indicators can amplify vulnerability to shocks. Chart 2 provides a stylized example of the overlaps between indicators for companies. One third of the companies (i.e. 32 percent) with the highest gearing also had the lowest profitability. In addition, nearly on third of companies (ie., 29 percent) with the highest gearing (although not the exact same population of those with low profitability) had the lowest liquidity.

Chart 2: Coincidence of Financial Soundness Indicators



Appendices

Appendix I

Survey on the Use, Compilation, and Dissemination of Macprudential Indicators¹

1. The *Survey on the Use, Compilation, and Dissemination of Macprudential Indicators* was conducted by the IMF in 2000. It was an important step in the IMF's program to develop a common set of FSIs.

Background

2. The objective of the survey was to obtain information on national needs and practices related to FSIs in order to (1) gauge the usefulness of specific indicators; (2) assess compilation and dissemination practices in order to help identify international best practices where possible; (3) evaluate whether the Special Data Dissemination Standard (SDDS) or other vehicles would be appropriate to encourage the public dissemination of FSIs; and (4) explore the analytical frameworks used by member countries in macroprudential analysis.

3. The survey had two parts. The first part, the *User Questionnaire*, gathered information from financial supervisors, financial policy officials, and the private sector on the usefulness of the FSIs and methods of macroprudential analysis. The second part, the *Compilation and Dissemination Questionnaire*, inquired about national practices in compiling and disseminating FSIs.

4. The FSIs included in the survey largely focused on information about depository corporations (banks), but included some key information on their corporate and household counterparties. This focus was determined in light of the importance of banking institutions and the generally greater amount of information available for banks compared to other types of institutions.

¹ A more detailed discussion of the survey and its results is provided in *Financial Soundness Indicators: Analytical Aspects and Country Practices*, V. Sundararajan, Charles Enoch, Armida San Joe, Paul Hilbers, Russell Krueger, Marina Moretti, and Graham Slack, IMF Occasional Paper 2002

5. Central banks in each economy received the survey, with a request that they coordinate its distribution, completion, and return to the IMF. They were asked to distribute the survey within their economy to whichever parties they judged could best provide representative information on needs and practices relating to FSIs, such as the supervisory agency, central government policy or analysis office, and private sector participants.

6. A total of 122 responses (74 percent of those receiving the survey), covering 142 countries and other jurisdictions, was received. The first part of the survey—*User Questionnaire*—was completed by all of the 122 respondents, while 93 respondents completed the second part—the *Compilation and Dissemination Questionnaire*. The high response rate to the survey is an indication of the importance being attached worldwide to issues relating to macroprudential analysis and the possible role of FSIs in such analysis. This view is bolstered by the evident effort made by respondents to answer the survey thoroughly and provide detailed comments.

Results

The most useful FSIs

7. Respondents judged all major categories of FSIs to be broadly useful. Indicators of *capital adequacy*, *asset quality (lending institutions)*, and *profitability* were deemed the most useful, followed by indicators of *liquidity* and *sensitivity to market risk*. Users in industrial economies in particular deemed the *liquidity* and *sensitivity to market risk* indicators less useful than the others. Several industrial economy respondents commented that the *liquidity* and *sensitivity to market risk* indicators were sophisticated and possibly difficult to construct to achieve precise results.

8. With the highest mark possible being 4, Table 1 presents the 13 FSIs with an average usefulness score of 3.5 or over. These FSIs include central elements of bank soundness: two of them—the Basel capital adequacy ratio and one of its components—relate to the capital base, which serves as a buffer to withstand shocks; while four of them measure profitability, which serves to sustain the capital base. The quality of banks' assets—as covered by data on

nonperforming loans, the distribution of assets, and asset liquidity—comprise the remainder of the very useful FSIs. This list is the basis of the core indicators provided in Chapter 1.

Table 1: FSIs by Type of Economy

(Very useful FSIs, with average usefulness ratings of 3.5 and higher)

FSI #	FSI	All countries	Industrial countries	Emerging countries	Developing countries
1.1	Basel capital adequacy ratio	3.8	3.7	3.9	3.6
1.1a	Ratio of Basel Tier I Capital to risk-weighted assets	3.6	3.6	3.6	3.5
2.4	Distribution of loans, by sector	3.6	3.5	3.6	3.5
2.5	Distribution of credit extended, by sector	3.5	3.3	3.6	3.6
2.8	Ratio of total large loans to own funds	3.5	3.2	3.6	3.6
2.9	Ratio of gross nonperforming loans to total assets	3.9	3.9	3.9	3.8
2.10	Ratio of gross nonperforming loans net of provisions to total assets	3.8	3.8	3.8	3.8
3.2	Ratio of profits to period-average assets (ROA)	3.6	3.5	3.8	3.6
3.3	Ratio of profits to period-average equity (ROE)	3.6	3.5	3.8	3.6
3.4	Ratio of net interest income to total income	3.5	3.3	3.6	3.6
3.8	Spread between reference lending and deposit rates	3.5	3.4	3.6	3.5
4.3	Ratio of liquid assets to total assets	3.5	3.2	3.6	3.5
4.4	Ratio of liquid assets to liquid liabilities	3.6	3.2	3.7	3.7

9. Table 2 presents the FSIs with an average usefulness scores of 3.0 to 3.4. These FSIs form the basis of the list of encouraged indicators set out in Chapter 1. They cover some of the elements of capital adequacy, the distribution of bank credit by risk weight category and by country, the financial conditions of the corporate and household sectors, some of the elements of operating income and expenses of banks, the maturity and duration of assets and liabilities, and other market risks.

Table 2: Group II FSIs by Type of Economy
(Useful FSIs, with average usefulness ratings of 3.0 to 3.4)

FSI #	FSI	All Countries	Industrial countries	Emerging countries	Developing countries
1.1b	Ratio of Basel Tier I + II Capital to risk-weighted assets	3.4	3.2	3.6	3.4
1.1c	Ratio of Basel Tier I + II + III Capital to risk-weighted assets	3.0	2.9	3.1	3.1
1.2	Distribution of Capital Adequacy Ratios (Number of institutions within specified capital adequacy ratio ranges)	3.3	3.3	3.4	3.1
1.3	Leverage Ratio (Ratio of total on-balance sheet assets to own funds)	3.2	2.9	3.3	3.3
2.1	Distribution of on-balance sheet assets, by Basel risk-weight category	3.4	3.2	3.5	3.4
2.4a	Loans for investment in commercial real estate	3.2	3.3	3.3	3.1
2.4b	Loans for investment in residential real estate	3.2	3.3	3.2	3.2
2.6	Distribution of credit extended, by country or region	3.1	3.2	3.2	2.8
2.7	Ratio of credit to related entities to total credit	3.4	3.0	3.6	3.5
2.11	Ratio of corporate debt to own funds ("debt-equity ratio")	3.4	3.4	3.5	3.3
2.12	Ratio of corporate profits to equity	3.3	3.1	3.4	3.2
2.13	Ratio of corporate debt service costs to total corporate income	3.2	3.2	3.4	3.0
2.14	Corporate net foreign currency exposure	3.2	3.2	3.4	2.9
2.15	Ratio of household total debt to GDP	3.0	3.2	3.0	2.8
3.5	Ratio of trading and foreign exchange gains/losses to total income	3.3	3.2	3.4	3.3
3.6	Ratio of operating costs to net interest income	3.4	3.0	3.6	3.6
3.7	Ratio of staff costs to operating costs	3.2	2.8	3.4	3.4
4.5	Average maturity of assets	3.4	3.0	3.4	3.6
4.6	Average maturity of liabilities	3.4	3.0	3.4	3.6
4.10	Ratio of customer deposits to total (noninterbank) loans	3.2	2.9	3.3	3.3
5.1	Ratio of gross foreign currency assets to own funds	3.1	2.7	3.2	3.2
5.2	Ratio of net foreign currency position to own funds	3.4	3.1	3.6	3.5
5.3	Average interest rate repricing period for assets	3.0	2.8	3.3	3.0
5.4	Average interest rate repricing period for liabilities	3.0	2.8	3.2	3.0
5.5	Duration of assets	3.2	3.0	3.4	3.0
5.6	Duration of liabilities	3.2	3.0	3.3	3.0
5.8	Ratio of net equity position to own funds	3.0	2.8	3.0	3.1

Additional indicators

10. The *User Questionnaire* also asked respondents to identify FSIs they considered useful but were not covered in the survey. The most frequently identified useful additional FSIs were asset prices. Among the asset prices suggested were the prices of real estate, both

commercial and residential, and equity prices, including the stock prices of the depository corporations subsector relative to the overall stock price index, and stock prices disaggregated by industry sectors. Also, to prevent the masking of relevant information through the aggregation process and to help in the identification of outliers, clustering of problems, or tiering in markets, there were calls for more information on the distribution or dispersion of observations. Several respondents identified the ratio of gross nonperforming loans to total loans as useful, in lieu of the FSI in the survey that used total assets as the denominator.

Importance of nondepository financial institutions

11. About 80 percent of the respondents reported that information on nondepository financial institutions, markets, and activities was important to the overall analysis of financial sector soundness. On nondepository financial institutions,² the majority of the respondents were most interested in information on insurance corporations and pension funds, followed by other financial intermediaries. Many of these institutions were viewed by respondents as playing an important role in financial intermediation and possibly in contagion. Several respondents mentioned the importance of specialized financial intermediaries such as venture capital funds for advanced economies; and microcredit institutions and development banks or funds for developing countries. Some respondents noted the importance of information on financial conglomerates, especially those that included insurance companies.

12. On financial markets, about 90 percent of those responding on the issue indicated that data on the securities markets (public and private debt and equity markets) were important.³ A few thought that information on foreign exchange markets (16 percent) and derivatives markets (6 percent) was also important.

² Defined as insurance corporations and pension funds; other financial intermediaries; and financial auxiliaries in line with the IMF's *Monetary and Financial Statistics Manual*.

³ The types of data mentioned included trading volumes, bid-ask spreads, and credit spreads.

13. Several respondents noted that borrower information (indebtedness and asset-liability mismatches) was useful as it provided some indication on emerging credit quality trends and risks in the corporate, household, or foreign sectors. Some respondents said that they paid particular attention to large corporations while a few others mentioned the importance of monitoring other financial activity, such as the functioning of payment, settlement, and clearing systems. In addition, some respondents emphasized that qualitative information—such as the thoroughness of supervision and the transparency of financial policies—was important to the overall assessment of financial sector stability.

Disaggregation of “depository corporations” into subsectors

14. Almost 60 percent of the respondents thought that more disaggregated information on depository corporations was needed, particularly breakdowns by ownership, function, exposure to risk (e.g., geographical, asset type, borrower type, etc.) and size. A few respondents felt that disaggregated data that highlighted distributions among banks or allowed for peer group analysis was also useful; one respondent felt that the breakdown of banks should be as fine as possible to enable distinctive activity patterns to be isolated. Several, however, stressed that the type of disaggregation would depend on the issue being analyzed.

15. Almost 30 percent of all respondents (about half of those who felt that more disaggregation was useful) mentioned that they analyzed or would like to analyze institutions by ownership characteristics (e.g., domestic versus foreign; private versus state-owned; and publicly held stock versus privately held equity). Of these respondents, almost all stated that a breakdown between domestic and foreign institutions was useful, with some saying that the domestic/foreign distinction was important because foreign institutions might operate under different regulatory and supervisory regimes. At the same time, a quarter of the respondents stated that a breakdown between private and state-owned institutions was important.

16. About 20 percent of the respondents said that disaggregation by function or exposure was useful. The functions most often mentioned were commercial banking, universal banking, and specialized banking (especially mortgage lending and to a lesser extent

development lending). About 80 percent of the respondents interested in disaggregation by exposure indicated that they would like information on internationally active banks. Sixteen percent wanted disaggregated information on offshore banks while another sixteen percent wanted information on banks disaggregated by their geographical market.

Systemically important institutions

17. Almost 60 percent of the respondents reported doing some evaluation of systemically important institutions. Supervisors tended to be more concerned about such institutions—two-thirds of them reported that they evaluated the condition of these institutions, as opposed to less than half of market participants and about half of the government policy or research analysts.

18. Most respondents reported using a measure of size (of assets and/or deposits) to ascertain the importance of an institution. Sometimes size was coupled with other criteria, for instance, exposure to certain risks (such as foreign exchange risk), complexity of transactions, or complexity of ownership structure. However, some respondents only mentioned risk exposure, or used legal or prudential definitions, while others evaluated all institutions by sector or a particular category--which indicated that all institutions within a particular classification (e.g., problem banks, deposit-taking institutions, institutions with insured deposits, commercial banks, international banks) were sometimes considered systemically important. This was often the case in countries with small, developing, or concentrated markets.

19. Many respondents said that the techniques used to evaluate the condition of systemically important institutions were similar to those used to evaluate other institutions. Most mentioned using the CAMELS framework or ratio analysis. Among the variables stressed by the respondents as important in their evaluations were interbank activity, liquidity, large exposures, foreign exchange exposure, consolidated positions for institutions which are part of a financial group, and risk management practices (including assessing internal models).

Benchmarks

20. Many respondents reported that specific norms, benchmarks, or thresholds were not used in macroprudential analysis. While some of them were considering using norms and benchmarks in the future, others preferred using comparisons with peer group countries to establish relative rankings.

21. Among those who reported using norms and benchmarks for FSIs, some highlighted their critical role in guiding interpretation of the indicators. For this purpose, benchmarks were constructed in a number of ways, including (1) historical averages, (2) bank supervisors' prudential thresholds applied at the aggregate level, (3) trigger points, (4) cross-country comparisons, and (5) criteria constructed from econometric studies.

Business surveys

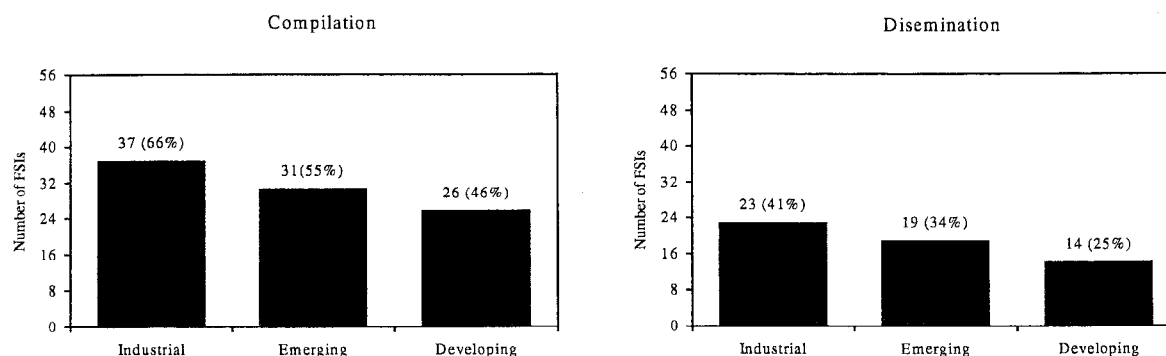
22. Overall, about half of all respondents reported that they made use of business survey results—qualitative or quantitative measures of business expectations and potential leading indicator of instability—to supplement macroprudential analysis.

Compilation and Dissemination Practice

23. Country practices on the compilation and dissemination of FSIs and their components were mixed. With only a few exceptions, compilation of FSIs themselves was quite limited, and dissemination of FSIs—especially outside the industrial countries—was scanty. However, compilation and dissemination of components of FSIs was more extensive.

24. The average number of FSIs compiled and disseminated by industrial, emerging, and developing countries are shown in Figure 1. Industrial countries compiled and disseminated the largest number of FSIs and emerging countries compiled and disseminated the second largest number of FSIs. Industrial and emerging countries compile on average more than half of the indicators specified in the survey.

Figure 1: Average Number of FSIs Compiled and Disseminated, by Type of Economy



Comparison of the number of FSIs compiled and disseminated indicates that around 60 percent of compiled FSIs were disseminated; this percentage was broadly the same for each type of economy. Divergence between the number of FSIs compiled and disseminated indicated that the private sector had access to a narrower range of financial soundness indicators than is available to national authorities. It also indicates that there is scope for increasing the number of publicly available indicators of financial sector soundness in all types of economies.

25. For almost all FSIs, users in countries subscribing to the SDDS rated the usefulness of FSIs nearly identically with users in industrial and emerging countries. Although subscribers' performance in the dissemination of components of FSIs was somewhat better, the overall results were broadly similar to those for the total population of respondents—that is, limited compilation and dissemination of FSIs by subscribers but the compilation and dissemination of components more extensive.

26. The survey also inquired about country practices regarding the periodicity of compilation and dissemination as well as users' needs in those areas. The periodicity of dissemination of FSIs varied considerably between the different categories of FSIs. No general pattern could be ascertained, and the number of responses was too low for valid conclusions to be made.

Concepts employed

27. The *Compilation and Dissemination Questionnaire* asked a series of quantitative and open-ended questions about accounting and statistical issues in order to assess the state of existing practices; possibly identify best practices that might be used as a basis for

development of international standards; and help identify strategies for improving the comparability of FSIs.

28. The responses highlighted a diversity of national practices, and revealed many reasons why FSIs might not be comparable across economies:

- Different, and often complex, standards exist for recognition of substandard claims and provisioning
- National definitions of regulatory capital differ, for instance as regards deductions and components of each tier of capital. Also, numerous countries indicated that they have not approved the use of Tier III capital within the base;
- Consolidation practices for foreign branches and subsidiaries differ (see section below). Within each country, some FSIs use global consolidations drawn from supervisory data, while other FSIs use national consolidations drawn from statistical sources. Overall, however, some international conformity in consolidation exists because of the rather widespread use of national consolidations;
- Valuation practices for financial instruments differ (see section below). Key issues include the limited use of market valuations for debt securities and shares, and diverse practices for on-balance-sheet recognition of derivatives, repurchase agreements, and securities lending;
- Different rules exist for revaluing foreign currency positions. Although there appears to be convergence in industrial countries toward use of market exchange rates in revaluing foreign-currency denominated positions, continued use of official rates in a number of emerging and developing countries might hinder the comparability of FSIs.

29. The list of issues above indicated that practices were diverse and that cross-country comparison of FSIs was challenging.

Consolidation

30. The survey sought information on country practices for consolidating information on foreign branches and subsidiaries of financial institutions into single accounting statements or statistical reports. A key issue is whether data were compiled using a national residence or global consolidation basis.

31. Strong differences in practices by type of economy were found. Respondents in developing countries adhered overwhelmingly to a national residence basis for most FSIs. This possibly reflects that banks headquartered in many developing countries have few or no nonresident branches or subsidiaries. It might also reflect limited supervisory infrastructures that could not effectively monitor and supervise nonresident operations. To some extent, this adherence to the use of national residence data was also reported by respondents in emerging countries. In industrial countries, supervisors used global consolidations most often, but also reported that both global consolidation and national residence data were available for numerous FSIs.⁴

32. Differences in practices by category of FSI were also found. These differences often reflect whether the primary source data were supervisory or statistical in nature. A summary of the practices by category of FSI is shown below.

Capital adequacy. In industrial and emerging countries, data were primarily from supervisory sources and generally on a global consolidation basis, although both global consolidation and residence bases were often available. In a number of emerging economies and many developing economies, only national residence basis was used. In terms of worldwide totals, both bases were available about equally, and for some FSIs up to one-quarter of respondents used both. A small

⁴ The availability of FSI data on both bases could have some important advantages. For example, one respondent noted, "The survey does not address the main statistical aspect, which is reconciliation between the home and host country approach, which will be viable if both supervisory and macroeconomic statistical data sources are used."

number of countries reported nonstandard consolidations in their data, such as including nonresident branches but not nonresident subsidiaries.

Asset quality (lending institutions). FSIs derived from monetary statistics were overwhelmingly on a national residence basis; FSIs derived from supervisory sources were most often on a global consolidation basis, but in many cases were on a national basis or were available on both bases.

Asset quality (borrowing institutions). FSIs were almost exclusively on a national residence basis because the underlying data were drawn from national macroeconomic statistical series.

Profitability and competitiveness. Data were most often on a national residence basis or were available on both bases. However, a number of countries had data only on a global basis. Within the profitability category, nonstandard consolidations were used by a number of countries.

Liquidity. National residence basis was most common, but the FSIs on liquid assets and average maturities of assets and liabilities were often on a global basis. Global consolidation is not relevant for some of the liquidity FSIs that refer solely to national conditions.

Sensitivity to market risks. National residence basis was most common. Global consolidations were used to some extent in supervisory data in industrial and emerging countries.

Valuation

33. For deposits and loans, historical valuations were most commonly used—in at least three quarters of all responses in supervisory data, and in about nine out of ten cases in statistical data. In contrast, for securities (other than shares) and shares and other equity, no valuation method clearly predominated, although market values was used more often than the other valuation approaches. For financial derivatives, market valuations were used most

often, with supervisors also reporting fairly common use of “other” valuations, which they sometimes indicated were hedge valuations. Historical valuations predominated in miscellaneous receivables and payables and in nonfinancial assets, but use of the other types of valuations was not uncommon.

34. On the translation of the value of foreign currency-denominated instruments into domestic currency equivalents, end-of-period exchange rates were used most often for all types of financial instruments. A large minority of emerging and developing countries reported that they used official exchange rates. Foreign-currency positions were revalued most often at the rate applying on the balance sheet closing date. However, revaluations of foreign-currency positions at other frequencies were not uncommon for securities (other than shares), shares and other equities, and financial derivatives.

Presentation

The majority of respondents preferred the use of ratios and growth rates in presenting their FSIs. However, many respondents also felt that the preferred mode of presentation depended on the particular FSI in question and the type of analysis being conducted. For example, for sectoral aggregates, it was useful to have weighted averages as well as simple averages, accompanied by the frequency distribution of institutions according to range of values of the indicators.

In this connection, some respondents noted that measures of dispersion (standard deviations, histograms, Gini indices, etc.) could be particularly useful in presenting FSIs because they allowed the analyst to identify outliers, trends in concentration, or tiering in markets, etc., which could be relevant for the analysis of financial stability.

Appendix II

Summary of guidance for each Financial Soundness Indicator

This appendix brings together in summary form the guidance outlined in the *Guide* for each agreed Financial Soundness Indicator (FSI). The main purpose of this appendix is to support compilers by bringing together in one place the various elements of guidance relating to each FSI, not least to help them locate the relevant detailed advice in the main text. The summaries are of one page length or less, and there is some cross-referencing among them. Also for ease of reference, an index of the FSI summaries is provided

For many of the agreed FSIs, the *Guide* recommends that the data series be drawn from sectoral financial statements, and so, even though FSIs are described individually ahead, the compiler needs to remain aware of the broader context. In other words, the FSIs are a body of data with interrelationships that may not be apparent in the short summaries. Where relevant the appropriate lines in the sectoral financial statements (Tables 4.1, 4.2, 4.3 and 4.4 in Chapter 4) are referenced.

Each summary ahead has three sub-headings.

- **Definition:** Provides the definition of the FSI and, where appropriate, guidance on where the component series are defined in the *Guide*.
- **Issues for compilers:** Draws out specific issues of which the compiler should be aware.
- **Data sources:** Provides information on where the information can be obtained. Relevant to this sub-heading is Chapter 11, which provides a detailed discussion of sources of information and additional data series that might be required. Also relevant is Appendix III, which reconciles the *Guide*'s methodology and national and commercial accounting. As outlined in Chapter 11, it is not possible to generalize as to what information are available from supervisory sources, but they need to be explored in compiling cross-border consolidated data for deposit-takers.

For deposit-takers, it is assumed that data from supervisory sources are available on a consolidated basis, but the nature of the consolidation needs to be compared with the *Guide*'s recommendations (Chapter 5, particularly see paragraph 5.18). If countries decide that domestic-consolidated data (see paragraph 5.25) can also be sourced from supervisory

sources, the references under cross-border consolidated information also apply to domestic data but in general the summaries assume that national accounts-based information will source domestic-based data. In reviewing the summaries below and determining the need to collect new data, and hence an increased resource cost, authorities must make a judgment as to the likely impact and importance of the additional data series for compiling and monitoring FSI data.

Guidance on the accounting principles for use in compiling the underlying series required for each FSI are set out in Chapters 2, 3, and 4. In summary:

- The definitions of deposit-takers and other sectors are provided in Chapter 2 (paragraph 2.4 to 2.17)
- Transactions and positions should be recorded on an **accrual** basis of accounting, and only existing actual assets and liabilities recognized (paragraphs 3.3 to 3.9).
- The *Guide* prefers **valuation methods** that can provide the most realistic assessment at any moment in time of the value of an instrument or item. Market value is to be the basis of valuation of transactions, and for positions in traded securities. For positions in nontradable instruments, the *Guide* acknowledges that nominal value (supported by appropriate provisioning policies) may provide a more reliable measure of value than the application of fair value (see paragraphs 3.20 to 3.33).
- **Residence** is defined in terms of where an institutional unit has a center of economic interest (see paragraphs 3.35-3.36).
- Transactions and positions in **foreign currency** should be converted into a single unit of account based on the market rate of exchange (see paragraphs 3.44 to 3.48).
- Short-term **maturity** is defined as one year or less (or payable on demand), with over one year defined as long-term (see paragraphs 3.49 to 3.50).

Further, as the *Guide* recommends that for each corporate sector—deposit-takers, other financial corporations, nonfinancial corporations sector—data be compiled on a consolidated basis, the word “group” is used on a number of occasions in the summaries. For deposit-takers, and similarly for other corporate entities, a group in this context is a parent deposit-taker, its deposit-taking branches, and deposit-taking subsidiaries.

For deposit-takers, the *Guide* requires the compilation of data covering ***domestic-controlled deposit-takers*** on a cross-border consolidated basis (domestically controlled, cross-border

consolidated data) and encourages the compilation of data covering all *deposit-takers resident in the economy* (domestic and foreign controlled) on a domestically consolidated basis.

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Core Indicators: Deposit-takers

Regulatory capital to risk-weighted assets
<p>Definition</p> <p>This FSI measures the capital adequacy of deposit-takers using the definitions of regulatory capital and risk weighted assets from the Basel Committee on Banking Supervision (BCBS). Sector-wide regulatory capital is the numerator and is defined in paragraphs 4.65 to 4.70. Sector-wide risk-weighted assets is the denominator and is defined in paragraph 4.71. The FSI is defined in paragraphs 6.22-6.23.</p> <p>Issues for Compilers</p> <p>Data are based on supervisory concepts. To derive sector-wide regulatory capital, the consolidated regulatory capital of the deposit-taking groups in the reporting population are aggregated. To derive sector wide risk-weighted assets, the consolidated risk-weighted assets of the deposit-taking groups in the reporting population are also aggregated.</p> <p>Sources of Data</p> <p><i>Domestically controlled, cross-border consolidated and domestically consolidated data:</i> The availability of data reported to supervisory agencies will determine the scope of the data that can be disseminated. Consolidated regulatory capital and consolidated risk-weighted assets of each domestically controlled deposit-taking group in the reporting population should be available to supervisors.</p>

Regulatory Tier I Capital to Risk-Weighted Assets
<p>Definition</p> <p>This FSI measures the capital adequacy of deposit-takers based on the core capital concept of the BCBS. Sector-wide Tier I capital is the numerator and is defined in paragraph 4.67 and 4.70. Sector-wide risk-weighted assets is the denominator and is defined in paragraph 4.71. The FSI is defined in paragraph 6.24.</p> <p>Issues for Compilers</p> <p>Data are based on supervisory concepts. To derive sector wide Tier I capital, the consolidated Tier I capital of the deposit-taking groups in the reporting population are aggregated. To derive sector-wide risk-weighted assets, the consolidated risk-weighted assets of the deposit-taking groups in the reporting population are also aggregated.</p> <p>Sources of Data</p> <p><i>Domestically controlled, cross-border consolidated and domestically-consolidated data:</i> The availability of data reported to supervisory agencies will determine the scope of the data that can be disseminated. Consolidated Tier I capital and consolidated risk-weighted assets of each domestically controlled deposit-taking group in the reporting population should be available to supervisors.</p>

Nonperforming Loans to Total Gross Loans

Definition

This FSI is intended to identify problems with asset quality in the loan portfolio. It is calculated by taking the value of nonperforming loans (NPLs) as the numerator and the total value of the loan portfolio (including NPLs, and before the deduction of specific loan-loss provisions) as the denominator. NPLs and loans (lines 42 and 18(i) in Table 4.1) are defined in paragraphs 4.80, and 4.42 to 4.45 respectively. The FSI is defined in paragraphs 6.66 to 6.68.

Issues for Compilers

The *Guide* provides a definition of NPLs: loans are nonperforming when payments of principal and interest are past due by three months (90 days) or more, or interest payments equal to three months (90 days) interest or more have been capitalized (reinvested into the principal amount), refinanced, or rolled over (that is, payment delayed by agreement). In addition, NPLs should also include those loans with payments less than 90-days past due that are recognized as nonperforming under national supervisory guidance—that is, evidence exists to classify a loan as nonperforming even in the absence of a 90 day past due payment, such as if the debtor files for bankruptcy. After a loan is classified as nonperforming, it (and/or any replacement loan(s)) should remain so classified until written off or payments of interest and/or principal are received on this or subsequent loans that replace the original loan. Replacement loans include loans arising from rescheduling or refinancing the original loan(s) and/or loans provided to make payments on the original loan.

Loans data should exclude accrued interest on nonperforming loans and lending among deposit-takers in the reporting population that are part of the same group.

Sources of Data

Domestically controlled, cross-border consolidated data: Information on NPLs for the reporting population is typically available from supervisory sources, although national definitions of a NPL can vary. Similarly, information on loans might be available from supervisory sources, and is likely to be subject to the exclusions mentioned under issues for compilers. Supervisory data may need to be aggregated to get the numerator and denominator for this ratio.

Domestically consolidated data: National accounts data do not provide information on NPLs; additional data on NPLs would need to be collected for domestically consolidated data. Loans data should be available from monetary and financial statistics, but perhaps not subject to the exclusions mentioned under issues for compilers. Also, the *Guide*'s definition of deposit-takers might not be identical that the "other depository corporations" definition used for monetary and financial statistics. Box 11.1 explains how data collected using *MFSM* methodology can be utilized in compiling FSIs for deposit-takers.

Nonperforming loans net of provisions to capital

Definition: This FSI is intended to compare the potential impact on capital of NPLs, net of provisions, although the impact of NPL losses on capital is uncertain in most circumstances because for various reasons the lender might expect to recover some of the potential NPL losses. It is an indicator of asset quality, and is calculated by taking the value of NPLs less the value of specific loan provisions (lines 42 and 18 (ii)) in the Table 4.1) as the numerator, and capital as the denominator. The FSI is defined in paragraphs 6.30 to 6.32.

Issues for Compilers: The definition for NPLs is the same as provided for NPLs to gross loans. Provisions are defined as specific provisions, which are the outstanding amount of provisions made against the value of individual loans (including a collectively assessed group of loans) (see paragraph 4.47). The *Guide* relies on national practices in identifying specific provisions but recommends that such practices be clearly documented.

Capital is measured as total capital and reserves (line 30 in the sectoral balance sheet and defined in paragraph 4.59) and, for cross-border consolidated data, also Tier 1 capital (line 32, and defined in paragraphs 4.67 and 4.70). In the absence of Tier 1 data, funds contributed by owners and retained earnings (including those earnings appropriated to reserves) could be identified (line 30 (i), and defined in paragraph 4.61).

In measuring sector-wide capital, intra-sector equity investments are deducted from the overall capital in the sector so that capital and reserves held within the sector are not double counted. Also, in line with supervisory guidance, goodwill is deducted. See the text annex to Chapter 5.

Sources of data: *Domestically controlled, cross-border consolidated data:* Information on NPLs and specific provisions for the reporting population are typically available from supervisory sources, although national definitions of a NPL can vary. Similarly, information on capital and reserves data might be available from supervisory sources, although for total capital and reserves, the definition would need to be investigated to ensure compatibility with the *Guide's* guidance, such as deducting intra-sector equity investments. See Table 11.4 for possible adjustments required. Supervisory data should already be on a consolidated basis—although again coverage would require investigation—but data may need to be aggregated to get the numerator and denominator for this ratio.

Domestically consolidated data: National accounts data do not provide information on NPLs, so additional data would need to be collected. NPLs on lending among deposit-takers in the reporting population that are part of the same group (if any) are excluded. Specific provisions data would also need to be collected (adjusted for specific provisions on intra-sectoral loans, if any (paragraph 5.87)). For capital, data are available from national accounts sources, such as monetary and financial statistics subject to adjustment (see Box 11.1 and the capital and reserves entry in Appendix III). In addition to the deductions mentioned under issues for compilers, data should be reduced by the amount of any specific provisions (adjusted for provisions on intra-sectoral claims). Also, in the balance sheet, equity investments in subsidiaries and associates (and reverse investments) should be valued at the proportionate share in the subsidiary's or associate's capital and reserves and this could impact on total capital and reserves measured on a national accounts basis. The treatment of equity investments is discussed in Box 5.1 and the text annex to Chapter 5 provides a numerical examples of the adjustments at the sector-level (see in particular paragraphs 5.89 and 5.90). Information on the funds contributed by owners and retained earnings (including those earnings appropriated to reserves) measure may be collected separately or perhaps from monetary and financial statistics sources, if data are collected by component of capital and reserves as set out in the *MFSM* (paragraph 214), subject to the deductions and other adjustments mentioned above. See also Box 11.1 and Tables 11.1- 11.3.

Sectoral Distribution of Loans to Total Loans

Definition

This FSI provides information on the distribution of loans (including NPLs and before the deduction of specific loan-loss provisions) to resident sectors and to nonresidents. The numerators and denominator for this FSI are respectively lending to each of the institutional sectors (line 18 (i.i) and 18 (i.ii)), and gross loans (line 18 (i) in Table 4.1). The resident sectors are deposit-takers (see paragraphs 2.4 to 2.7), central bank (2.11), general government (2.15), other financial corporations (2.12), nonfinancial corporations (2.13), households (2.14), and nonprofit institutions serving households (2.16), together with nonresidents (3.35-3.36). Loans are defined in paragraphs 4.42 to 4.45. This FSI is defined in paragraphs 6.69 to 6.72.

Issues for Compilers

Sectoral analysis is primarily a concept used in the national accounts, attributing entities by the nature of their economic activity. Lending is attributed on the basis of the residence of the domestic reporting entity.

Loans data should exclude accrued interest on nonperforming loans and lending among deposit-takers in the reporting population that are part of the same group.

As all sectors are covered, the sum of the sectoral ratios should be unity.

Sources of Data

Domestically controlled, cross-border consolidated data: The availability of loans data by sector might vary depending on the supervisory practices. Lending by any foreign branches and/or deposit-taking subsidiaries of the reporting entity to residents of the economy for which the FSI data are being compiled is classified as lending to the relevant resident sector, while lending to residents of the local economy in which the subsidiary/branch is located is classified as lending to nonresidents. To derive sector-wide loans by sector, the consolidated data may need to be aggregated to get both the numerators and denominator.

Domestically consolidated data: Data on loans to the various sectors are available from monetary and financial statistics, subject to the adjustments mentioned above. Loans to deposit-taking branches and subsidiaries abroad are included in the data as lending to nonresidents.

Large Exposures to Capital

Definition

This FSI is intended to identify vulnerabilities arising from the concentration of credit risk. The *Guide* sets out three approaches to defining this FSI at the sector-level:

- the total number of large exposures of deposit-takers that are identified under the national supervisory regime (line 38 in Table 4.1).
- total exposure of the five largest deposit-takers to the five largest resident entities by asset size (including all branches and subsidiaries) in both the other financial corporations sector and nonfinancial corporations sector, together with that to the general government, as a percentage of the deposit-takers capital (line 51).
- total exposures of deposit-takers to affiliated entities (line 52) as a percentage of capital.

The FSI is defined in paragraphs 6.33 to 6.37.

Issues for compilers

For a supervisory viewpoint, large exposure are defined as one or more credit exposures to the same individual or group that exceed a certain percentage of regulatory capital, such as 10 percent. It is intended to be applicable at the level of the individual deposit-taker. The number of large exposures of deposit-takers is that identified under the national supervisory regime (see paragraph 4.72).

However, at the sector-level, lending by the largest deposit-takers to the largest entities in other sectors, such as the other financial corporations and nonfinancial corporations sectors, could have systemic consequences in the event of failure of the largest entities in the economy (paragraph 4.87). Also, experience has shown the potential significance of connected lending (paragraph 4.88).

Indications of a build-up of concentrated positions in sectoral or geographic distribution data could allow compilers to specify sectors and/or countries for which more detailed information might be required.

Regarding capital, issues for compilers are discussed in the *nonperforming loans net of provisions to capital* summary.

Sources of Data

Domestically controlled, cross-border consolidated data: Data on large exposures should be available from supervisory sources. The BCBS paper “*Measuring and controlling large credit exposures*” (1991) stresses the need for a satisfactory regime for the measurement and control of large exposures, including the need for appropriate levels of large exposure limits (to capital), with special attention paid to connected lending. Also, the BCBS paper noted the need to closely monitor risks arising from exposure to particular sectors and /or geographic areas. The extent to which national approaches to measuring large exposures meet the concepts in the *Guide* would require consideration. Regarding capital, data sources are discussed in the *nonperforming loans net of provisions to capital* summary.

Domestically consolidated data: Large exposures data are not available from national accounts based data, and might be obtained from supervisory sources or additionally requested (see Table 11.1). Regarding capital, sources of data are discussed in the *nonperforming loans net of provisions to capital* summary.

Return on Assets

Definition: This FSI is intended to measure deposit-takers' efficiency in using their assets. It is calculated by dividing net income (before extraordinary items and taxes) by the average value of total assets (financial and nonfinancial) over the same period. As a minimum, the denominator can be calculated by taking the average of the beginning- and end-period positions (e.g., at beginning and end month), but compilers are encouraged to use the most frequent observations available to calculate the average. Net income (before extraordinary items and taxes) (line 8 in Table 4.1), and its components are defined paragraphs 4.15 to 4.31; total assets (nonfinancial and financial assets) (line 14) are defined in paragraphs 4.34 to 4.35. The FSI is defined in paragraph 6.64 to 6.65.

Issues for Compilers: Net income is calculated on a basis closer to commercial accounting and supervisory approaches than to national accounting. That is, unlike the national accounts, in the *Guide* net income includes gains and losses on financial instruments, and gains and losses from the sales of fixed assets, which are measured as the difference between the sale value and the balance sheet value at the previous end-period (see Table 4.1).

Notably, compilers should be aware that the *Guide* recommends that interest income should not include the accrual of interest on nonperforming assets (paragraph 4.16); and encourages the inclusion of realized and unrealized gains and losses arising during each period on all financial instruments (financial assets and liabilities, in domestic and foreign currencies) valued at market or fair value in the balance sheet, excluding equity in associates, subsidiaries, and any reverse equity investments (paragraph 4.20).

At the sector-level, a number of adjustments are specified to eliminate the impact of intra-sector transactions on sectoral net income. These include the elimination of the following income items arising from claims on deposit-takers in the reporting population: the investing deposit-taker's prorated share of the earnings of associate deposit-takers; dividends receivable from other deposit-takers; and provisions for accrued interest on nonperforming claims and specific provisions on claims on other deposit-takers. A full list of adjustments is provided in Chapter 5 (paragraph 5.53).

In line with supervisory guidance, goodwill is deducted from capital and reserves. So goodwill is not classified as an asset (see paragraph 4.116) and given this, not amortized in the income account. Consistently, gains and losses on the sale of an associate or subsidiary (or there is a disinvestment of a reverse investment) are also excluded from income (paragraph 5.92).

Source of Data: *Domestically controlled, cross-border consolidated data:* The data for net income available to supervisory sources may depend upon the national commercial accounting practice, as might the extent to which they meet the definitions in the *Guide*. Nonetheless, it is likely that the need for the sector-wide adjustments set out above will require consideration (see Table 11.4 and paragraph 11.53). The available information may need to be aggregated to get both the numerator and denominator.

Domestically-consolidated data: For national accounts based data, there is a need to include those items classified as income items in the *Guide* but not in the national accounts within net income. Most notably gains and losses on financial instruments and provisions on nonperforming assets (see Table 11.1). Also, the sector-wide adjustments described above for net income and total assets including those transactions and positions with other deposit-takers in the reporting population that are part of the same group (see Tables 11.2 and 11.3) need to be considered. Information on goodwill may also be needed (Table 11.1).

Return on Equity

Definition: This FSI is intended to measure deposit takers' efficiency in using their capital. It is calculated by dividing net income (before extraordinary items and taxes) by the average value of capital over the same period. As a minimum, the denominator can be calculated by taking the average of the beginning- and end-period positions (e.g., at beginning and end month), but compilers are encouraged to use the most frequent observations available in calculating the average. Net income (before extraordinary items and taxes) (line 8 in Table 4.1), and its components are defined paragraphs 4.15 to 4.31; total assets (nonfinancial and financial assets) (line 14) are defined in paragraphs 4.34 to 4.35. The FSI is defined in paragraph 6.27 to 6.29.

Issues for Compilers and Sources of Data

Regarding net income, issues for compilers and sources of data are discussed in the *return on assets* summary.

Regarding capital, issues for compilers and sources of data are discussed in the *nonperforming loans net of provisions to capital* summary.

Interest Margin to Gross Income

Definition: This FSI is a measure of the relative share of net interest earnings—interest earned less interest expenses—within gross income. It is calculated by taking net interest income (line 3 in Table 4.1) as the numerator, and gross income (line 5) as the denominator. Net interest income and its components are defined in paragraph 4.15 to 4.17, while gross income is defined in paragraph 4.18. The FSI is defined in paragraphs 6.87 and 6.88.

Issues for Compilers

In the *Guide*, interest income should not include the accrual of interest on nonperforming assets (see paragraph 4.16). However, to avoid asymmetric reporting at the sector level, an adjustment should be made so that interest does accrue on nonperforming claims on other deposit-takers in the reporting population (paragraphs 5.55 to 5.57)

Gross income includes both net interest income and other gross income. Among other gross income items, the *Guide* encourages the inclusion of realized and unrealized gains and losses arising during each period on all financial instruments (financial assets and liabilities, in domestic and foreign currencies) valued at market or fair value in the balance sheet, excluding equity in associates, subsidiaries, and any reverse equity investments (paragraph 4.20). Also, at the sector-level, a number of adjustments are specified to eliminate the impact of intra-sector transactions on sectoral gross income. These are the elimination of the following income items arising from positions and transactions with other deposit-takers in the reporting population: fees and commissions receivable; the investing deposit-taker's prorated share of the earnings of associate deposit-takers; dividends receivable from other deposit-takers; other income receivable; and gains and losses on deposit-takers' ownership of equities of other deposit-takers. A description of these adjustments is provided in Chapter 5, starting at paragraph 5.53, and in Box 5.1.

Gains and losses on the sale of an associate or subsidiary (or there is a disinvestment of a reverse investment) are excluded from gross income (paragraph 5.92).

Source of Data

Domestically controlled, cross-border consolidated data: Consolidated data for net interest income and gross income should be available from supervisory sources but the extent to which they meet the definitions in the *Guide* could depend upon the national commercial accounting practice. It is likely that the need for the sector-wide adjustments set out above will require consideration (see Table 11.4 and paragraph 11.53). The available information may need to be aggregated to get both the numerator and denominator.

Domestically-consolidated data: From national accounts based sources, data on deposit-takers' net interest income should be available—Table 11.8 identifies the relevant line items in the 1993 SNA accounts—although to make adjustments for nonaccrual on nonperforming loans additional data may be needed. For gross income data, there may be a need for additional information so to include within gross income those items classified as income items in the *Guide* but not in the national accounts (see Table 11.1), and also to make the sector-wide adjustments described above (see Tables 11.2).

Noninterest (Operating) Expenses to Gross Income

Definition

This FSI measures the size of administrative expenses to gross income. The FSI is calculated by taking operating expenses (line 6 in Table 4.1) as the numerator, and gross income (line 5) as the denominator. Operating expenses are defined in paragraph 4.27, and gross income in paragraph 4.18. This FSI is defined in paragraphs 6.91 to 6.92.

Issues for Compilers

Operating expenses cover all expenses other than interest expense. Provisions are not included in operating expenses but are separately identified in the sectoral income and expense statement (line 7). To derive the sector-wide total, all noninterest expenses paid to other deposit-takers are excluded (see Table 11.2). These comprise fees and commissions payable; and other expenses payable. Also, no goodwill is amortized in the income and expense statement (paragraph 4.116).

Regarding gross income, issues for compilers are discussed in the *interest margin to gross income* summary.

Source of Data

Domestically controlled, cross-border consolidated data: The data for operating expenses and gross income available to supervisory sources may depend upon the national commercial accounting practice, as might the extent to which they meet the definitions in the *Guide*. Nonetheless, it is likely that the need for the sector-wide adjustments set out above will require consideration (see Table 11.4 and paragraph 11.53). Regarding gross income, sources of data are discussed in the *interest margin to gross income* summary. The available information may need to be aggregated to get both the numerator and denominator.

Domestically-consolidated data: From national accounts based sources, data on deposit-takers' operating expenses should be available—Table 11.8 identifies the relevant line items in the 1993 SNA accounts. The sector-wide adjustments for operating expenses need to be considered (see Tables 11.2). Regarding gross income, sources of data are discussed in the *interest margin to gross income* summary.

Liquid Assets to Total Assets

Definition: This FSI provides an indication of the liquidity available to meet expected and unexpected demands for cash. It is calculated by taking the core measure of liquid assets (line 39 in Table 4.1) as the numerator, and total assets (line 14) as the denominator. This ratio can also be calculated using the broad measure of liquid assets (line 40). Liquid assets are defined in paragraphs 4.74 to 4.77, and nonfinancial and financial assets (total assets) are defined in paragraphs 4.34 to 4.35. The FSI is defined in paragraphs 6.57 and 6.58.

Issues for Compilers

Assessing the extent to which an asset is liquid or not involves judgment and, particularly for securities, depends on the liquidity of secondary markets. The *Guide* distinguishes between core and broad liquid assets.

Core liquid assets comprise currency and deposits and other financial assets that are available either on demand or within three months or less, but deposit-takers' deposits (and other nontraded claims) with other deposit-takers included in the reporting population are excluded.

Broad liquid assets include those in the core measure plus securities that are traded in liquid markets (including repo markets) that can be readily converted into cash with insignificant risk of change in value under normal business conditions. Such securities include those issued by the government and/or the central bank in their own currency and high credit-quality private securities—both debt and equity securities. For instance, if a financial instrument is eligible for repurchase operations at the central bank then it can be classified as a liquid asset. Private sector securities with less than an investment grade should be excluded from liquid assets.

The issues for compilers for total assets are the same as in the *return on assets* summary.

Sources of Data

Domestically controlled, cross-border consolidated data: Data on liquidity should be available from supervisory sources. The BCBS paper "*Sound practices for managing liquidity in banking organizations*" (2000) stresses the need for good liquidity management by banks, including the need for effective measurement processes. The extent to which national approaches to measuring liquidity meet the concepts in the *Guide* would require consideration. In particular, for sector-wide total liquid assets, deposit-takers nontraded claims on other deposit-takers in the reporting population need to be eliminated before aggregation. The available information may need to be aggregated to get both the numerator and denominator.

Domestically consolidated data: While monetary statistics provide some data, such as deposits at the central bank, the liquid-asset concepts developed in the *Guide* are not covered in national accounts-based data and so additional data may need to be separately requested. Some approximation of the core measure might be available from the 1993 SNA's full sequence of accounts, and this is discussed in more detail in Appendix III under the entry for *liquid assets*.

Liquid assets to short-term liabilities

Definition

This FSI is intended to capture the liquidity mismatch of assets and liabilities, and provides an indication of the extent to which deposit-takers could meet the short term withdrawal of funds without facing liquidity problems. This FSI is calculated by taking the core measure of liquid assets (line 39 in Table 4.1) as the numerator, and the short-term liabilities (line 41) as the denominator. This ratio can also be calculated by taking the broad measure of liquid assets (line 40). Liquid assets are defined in paragraphs 4.74 to 4.77; and short-term liabilities in paragraph 4.79. The FSI is defined in paragraph 6.59 to 6.61)

Issues for compilers

Short-term liabilities are the short-term element of deposit-takers' debt liabilities (line 28) and the net (short-term, if possible) market value financial derivatives position (liabilities (line 29) less assets (line 21)). Preferably, short-term should be defined on a remaining maturity basis but original maturity is an alternative (defined in paragraphs 3.49-3.50).

It is recommended that the net (short-term) market value position (liabilities less assets) of financial derivative liabilities be included rather than the gross liability position because of the market practice of creating offsetting contracts, and the possibility of forward-type instrument switching from asset to liability positions and vice versa from one period to the next. Also, because of the potential importance to deposit-takers of financial derivatives in their liquidity analysis, the *Guide* provides a table (Table 6.4) that could be used to provide information on the expected cash flows underlying financial derivatives, and from the settlement of foreign currency spot positions.

The issues for compilers for liquid assets are the same as in the *liquid assets to total assets* summary.

Source of data

Domestically controlled, cross-border consolidated data: Short-term liabilities data on a remaining maturity basis might be available from supervisory sources. The extent to which the data meet the concepts in the *Guide*, particularly with regard to financial derivatives, would require consideration. Sources of data on liquid assets are discussed in the *liquid assets to total assets* summary.

Domestically consolidated data: Data on short-term liabilities for all debt instruments are generally not available in national accounts-based data on a remaining maturity basis, unlike original maturity. The *External Debt Statistics: Guide for Compilers and Users* does outline the presentation of remaining maturity data for banks on an external debt basis, only. Any data should exclude short-term liabilities among deposit-takers in the reporting population that are part of the same group. Data on financial derivative positions are available in national accounts based data (see Box 11.1) but not on a short-term basis. Sources of data on liquid assets is discussed in the *liquid assets to total assets* summary.

Duration of Assets and Liabilities

Definition

These FSIs (lines 53 and 54 in Table 4.1) are intended to identify the interest rate sensitivity of deposit-takers' portfolio of financial assets and liabilities. Duration is defined in paragraphs 3.51-3.52. These FSIs are not ratios but are expressed in terms of time; that is months or years and months.

Issues for Compilers

Duration is defined as the weighted average life of financial assets and liabilities, with the weights being the present value of each cash flow as a percentage of the total value of the asset or liability.

An alternative approach to assessing the interest risk of a portfolio of assets and liabilities is the average repricing period, which is discussed in paragraph 6.40 and illustrated in Table 6.1.

Sources of Data

Domestically controlled, cross-border consolidated data: Data on duration or the average repricing period might be available from supervisory sources; if not, the data might be additionally requested.

Domestically consolidated data: Data on duration or the average repricing period are not typically available from national accounts based sources, and might be obtained from supervisory sources or additionally requested (see Table 11.1).

Net open position in foreign exchange to capital

Definition

This FSI is intended to identify deposit-takers' exchange rate risk exposure compared with capital. A deposit-taker's open position in foreign exchange should be calculated by summing the foreign currency positions into a single unit of account as the numerator. Capital is the denominator. The FSI is defined in paragraphs 6.42 to 6.48. These paragraphs provide a detailed explanation as to how to measure the net open position in foreign exchange.

Issues for Compilers

The guidance in the *Guide* for measuring the net open position in foreign exchange is based on that recommended by the BCBS. So, deposit-takers' net open position is the sum of the net position in on-balance foreign currency debt instruments; net notional positions in financial derivatives; on-balance sheet holdings of foreign currency equity assets; net future foreign currency income and expenses not yet accrued but already fully hedged; foreign currency guarantees and similar instruments that are certain to be called and are likely to be irrecoverable; and depending upon the national commercial accounting practice, any other item representing a profit/loss in foreign currencies of the foreign currencies positions set out in a single unit of account. The *Guide* describes the sum of the first three items the "net open position in foreign exchange for on-balance sheet items."

Included among foreign exchange instruments for this FSI are foreign currency-linked instruments; that is, instruments where the amounts payable are linked to a foreign currency, although the payments are made in domestic currency (paragraph 3.46).

Regarding capital, issues for compilers are discussed in the *nonperforming loans net of provisions to capital* summary.

Source of data

Domestically controlled, cross-border consolidated data: Data on the net open position in foreign exchange is likely to be available from supervisory sources because of the supervisory interest in banks' exposure to foreign currency. The extent to which national approaches to measuring the net open position meet the concepts in the *Guide* would require consideration. Regarding capital, sources of data are discussed in the *nonperforming loans net of provisions to capital* summary.

Domestically consolidated data: The net open position in foreign exchange is not available from national accounts based data, and might be obtained from supervisory sources or additionally requested (see Table 11.1). Regarding capital, sources of data are discussed in the *nonperforming loans net of provisions to capital* summary.

Encouraged Indicators: Deposit-takers

Capital/Asset Ratio
<p>Definition</p> <p>This is a simple ratio of capital to total assets, without risk weighting; it measures the extent to which assets are funded by own funds and is a measure of capital adequacy of the deposit-taking sector. The FSI is calculated by taking capital as the numerator and assets (line 14 in Table 4.1) as the denominator. Total assets (nonfinancial and financial assets) are defined in paragraphs 4.34 to 4.35. The FSI is defined in paragraphs 6.25 to 6.26.</p> <p>Issues for Compilers and Sources of Data</p> <p>Regarding capital, issues for compilers, including the definitions of capital, and sources of data are discussed in the <i>nonperforming loans net of provisions to capital</i> summary.</p> <p>Regarding total assets, issues for compilers and sources of data are discussed in the <i>return on assets</i> summary.</p>

Geographical Distribution of Loans to Total Loans

Definition

This FSI provides information on the geographic distribution of gross loans, by region. It allows the monitoring of credit risk arising from exposures to a group of countries. The approach by which claims are distributed geographically is defined in paragraph 3.36 and gross loans (line 18 (i)) are defined in paragraphs 4.42 to 4.45. The FSI is defined in paragraphs 6.78 to 6.80. The suggested regional classification follows that in the IMF's World Economic Outlook and is illustrated in Table 12.1.

Issues for Compilers

Lending is attributed geographically on the basis of the residence of the domestic reporting entity. So, lending by any foreign branches and/or deposit-taking subsidiaries of the reporting entity to residents of the local economy in which they are located is classified as lending to nonresidents and allocated to the appropriate region of the world, while lending to residents of the economy for which the FSI data are being compiled is classified as lending to the domestic economy. If lending to any region or countries is particularly significant, further disaggregation—and identification of the country—is encouraged.

Regarding total loans, issues for compilers are the same as in the *nonperforming loans to total gross loans* summary.

Sources of Data

Domestically controlled, cross-border consolidated data: Supervisory sources might have available information on the geographic distribution of loans (see the sources of data entry in the *large exposures to capital* summary). The BIS's consolidated International Banking Statistics is a source for those countries that compile these BIS data. Otherwise data might be additionally requested. Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary.

Domestically consolidated data: Similarly to the supervisory sources, information on the geographic distribution of loans might not be available from national accounts sources, but the BIS's locational International Banking Statistics is a source for those countries that compile these BIS data. Otherwise data might be additionally requested. Any lending among deposit-takers in the reporting population that are part of the same group should be excluded, but loans to deposit-taking branches and subsidiaries abroad are included in the data as lending to nonresidents. Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary.

Gross asset and liability positions in financial derivatives to capital

Definition

These FSIs are intended to provide an indication of the exposure of deposit-takers' financial derivative positions relative to capital. There are two FSIs under this heading. The first is calculated by taking the market value of financial derivative assets (line 21 in Table 4.1) as the numerator, and the second is calculated by taking the market value of financial derivative liabilities (line 29) as the numerator. Both FSIs take capital as the denominator. Financial derivatives are defined in paragraphs 4.53 to 4.55. The FSIs are defined in paragraphs 6.49 to 6.51.

Issues for Compilers

The coverage of financial derivatives comprises forwards (including swaps) and options.

Regarding capital, issues for compilers, including the definitions of capital, are discussed in the *nonperforming loans net of provisions to capital* summary.

Source of data

Domestically controlled, cross-border consolidated data: Data on the market value position of financial derivative assets and liabilities should be available from supervisory sources. Regarding capital, sources of data are discussed in the *nonperforming loans net of provisions to capital* summary.

Domestically consolidated data: The gross asset and liability positions in financial derivatives can be obtained from national accounts based data, specifically monetary and financial statistics, in the sectoral balance sheet. However, national accounts data are not on a consolidated basis, and any data should exclude financial derivative positions among deposit-takers in the reporting population that are part of the same group. So additional data might need to be separately requested (see Table 11.3). Regarding capital, sources of data are discussed in the *nonperforming loans net of provisions to capital* summary.

Trading and Foreign Exchange Gains and Losses to Gross Income

Definition

This FSI is intended to capture the share of deposit-takers' income from financial market activities, including currency trading. This FSI is calculated by taking gains or losses on financial instruments (line 4 (ii) of Table 4.1) as the numerator, and gross income (line 5) as the denominator. Gains and losses on financial instruments are defined in paragraph 4.20 to 4.25, and gross income is defined in paragraph 4.18. The FSI is defined in paragraphs 6.89 to 6.90.

Issues for Compilers

Compilers should be aware that the *Guide* encourages the inclusion of realized and unrealized gains and losses arising during each period on all financial instruments (financial assets and liabilities, in domestic and foreign currencies) valued at market or fair value in the balance sheet, excluding equity in associates, subsidiaries, and any reverse equity investments (paragraph 4.20). Traditionally in deposit-takers' accounts, this item has covered gains and losses recorded on assets and liabilities held for a short-time period as deposit-takers seek to take advantage of short-term fluctuations in market prices. The *Guide's* reasoning for its approach is set out in paragraph 4.22. The *Guide* acknowledges that coverage of gains and losses as encouraged may not be feasible for reporters at the time of writing, and that data collection systems may need to be developed.

Also, at the sector-level, gains and losses on deposit-takers' ownership of equities of other deposit-takers in the reporting population should be excluded (paragraph 5.69).

Regarding gross income, issues for compilers are discussed in the *interest margin to gross income* summary.

Source of Data

Domestically controlled, cross-border consolidated data: Data on gains and losses on financial instruments should be available to supervisory sources but the extent to which they meet the definitions in the *Guide* could depend upon the national commercial accounting practice. It is likely that the need for the sector-wide adjustments set out above will require consideration (see Table 11.4). Regarding gross income, sources of data are discussed in the *interest margin to gross income* summary. The available information may need to be aggregated to get both the numerator and denominator.

Domestically consolidated data: Data on gains and losses on financial instruments are potentially available from the revaluation account of the 1993 SNA, but at the present time collection of these data is relatively limited, hence additional data may need to be separately requested (Table 11.1). If revaluation data are used, data on gains and losses on sales of subsidiaries and associates need to be excluded (see Table 11.1). It is likely that the need for the sector-wide adjustments set out above will require consideration (see Table 11.2). Regarding gross income, sources of data are discussed in the *interest margin to gross income* summary.

Personnel Expenses to Noninterest Expenses

Definition

This FSI measures the incidence of personnel costs in total administrative costs. It is calculated by taking personnel costs (line 6 (i) in Table 4.1) as the numerator and operating expenses (line 6) as the denominator. Personnel costs and operating expenses are defined in paragraphs 4.27 and 4.28. The FSI is defined in paragraphs 6.93 to 6.94.

Issues for Compilers

There are no specific issues for compilers on personnel costs, except that the inclusion or not of stock options depends upon methodological work being carried on elsewhere.

Regarding noninterest costs, issues for compilers are discussed in the *noninterest (operating) expenses to gross income* summary.

Source of Data

Domestically controlled, cross-border consolidated data: The data for personnel costs available to supervisory sources may depend upon the national commercial accounting practice, as might the extent to which they meet the definitions in the *Guide*. Regarding noninterest costs, sources of data are discussed in the *noninterest (operating) expenses to gross income* summary. The available information may need to be aggregated to get both the numerator and denominator.

Domestically consolidated data: From national accounts based sources, data on personnel costs should be available—Table 11.8 identifies the relevant line items in the 1993 SNA accounts. See also the entry for *personnel costs including wage and salaries* in Appendix III. Regarding noninterest costs, sources of data are discussed in the *noninterest (operating) expenses to gross income* summary.

Spread Between Reference Lending and Deposit Rates

Definition

This FSI is the difference in basis points between the weighted average loan rates and weighted average deposit rates, excluding rates on inter-deposit-takers loans and deposits. To measure the spread, the *Guide* recommends as a minimum the calculation of the weighted average of all lending and deposit interest rates on loans and deposits (excluding inter-deposit-takers' loans and deposits) during a reference period in the portfolio of resident deposit-takers. The interest rate spread could also be calculated on a domestically controlled, cross-border consolidated basis, so providing an indication of profitability, but combining activity in different markets. The FSI is defined in paragraphs 8.5 to 8.10.

Issues for Compilers

A preferred method of calculating the weighted-average interest rate data is to divide the accrued amount of interest income on loans, and interest expense on deposits, reported by deposit-takers for a given period (numerator), by, respectively, the average position in loans, and deposits (denominator), for the same period. Positions should be averaged using the most frequent observations available.

Another approach to calculating average weighted interest rates for a given reference period is to use contracted interest rates (i.e., price data), using the loan amounts as weights.

Chapter Eight discusses these approaches and considers the merits of using end- and average-period interest rates; and of calculating interest rates on outstanding and new business. The treatment of interest on nonperforming loans; and lending at prescribed rates is discussed.

Source of Data

For the first method above, data on accrued amounts of interest on loans and deposits should be readily available from the accounting systems of deposit-takers, while typically data on deposit-takers positions in loans and deposits are regularly reported to central banks in balance sheet reports required for the compilation of monetary statistics.

Compiling information on contracted interest rates by type of loan and deposits may need separate information to be requested.

Spread Between Highest and Lowest Interbank Rate

Definition: This FSI measures the spread between the highest and lowest interbank rates charged to deposit-takers in the domestic interbank market. It is defined in paragraphs 8.22 to 8.25.

Issues for Compilers

There can be limitations with this indicator. The framework through which central banks provide liquidity to money markets influences the overall liquidity of these markets, while one outlier can change the value of the indicator substantially. In addition, a perceived increase in risk might also be reflected in informal limits on the quantities (rather than price) of funds that a deposit-taker could borrow in the interbank market. While the agreed FSI is a spread, there might also be analytical interest in the dissemination of the highest and lowest interest rates themselves; for instance, these rates could be compared with others in the financial markets.

Source of Data

The source of these data is usually interbank dealers or brokers. The data might be available to supervisory authorities or the statistical departments of central banks.

Customer Deposits to Total (non-interbank) Loans

Definition

This FSI is a measure of liquidity, in that it compares a stable deposit base to gross loans (excluding interbank activity). The FSI is calculated by taking customer deposits (line 24 (i) in Table 4.1) as the numerator, and non-interbank loans (line 18 (i.ii)) as the denominator. Customer deposits are defined in paragraph 4.39 to 4.41, and loans are defined in paragraphs 4.42 to 4.45. The FSI is defined in paragraphs 6.62 to 6.63.

Issues for Compilers

Assessing the extent to which a deposit is stable or not involves judgment, although experience suggests that some types of depositors are less likely to move their funds than others in response to a perceived weakness in an individual deposit-taker or in the banking system. The key factors that can be taken into account are type of depositor, the extent to which deposits are covered by credible insurance schemes, and remaining maturity.

The *Guide* recommends that the type of depositor be the primary factor in defining customer deposits both because of its relevance and general applicability. Thus, customer deposits include all deposits (resident or nonresident) except those placed by other deposit-takers and other financial corporations.

But it is recognized that there can be variations to this approach. First, large nonfinancial corporations might well manage their liquidity similarly to other financial corporations and so compilers might wish to exclude their deposits from the measure of customer deposits. On the other hand, customer deposits could also include those from the excluded sectors that have a remaining maturity of over one year.

Alternatively, customer deposits could be determined by type of deposit—that is, deposits known for their “stability” such as demand deposits, small scale savings, and time deposits, and/or covered by a (credible) deposit insurance scheme

Regarding total loans, issues for compilers are discussed in the *nonperforming loans to total gross loans* summary. Additionally, loans to other deposit-takers in the reporting population are excluded from this loans measure.

Sources of Data

Domestically controlled, cross-border consolidated data: Supervisory sources might have information that allow the compilation of a measure of customer deposits consistent with the *Guide*’s approach. Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary, while loans to other deposit-takers in the reporting population should be available to supervisors.

Domestically consolidated data: Data on customer deposits based on the sector approach are available from money and financial statistics sources as should the inter-bank loans data (subject to ensuring the appropriate sectoral coverage, see paragraph 2.4, footnote 7). Regarding total loans, data sources are discussed in the *nonperforming loans to total gross loans* summary.

Foreign Currency-Denominated Loans to Total Loans

Definition

This FSI measures the relative size of foreign currency exposures within gross loans. It is calculated by taking the foreign currency and foreign currency-linked element of gross loans (line 46 in Table 4.1) to residents and nonresidents as the numerator, and gross loans (line 18 (i)) as the denominator. Foreign currency loans are defined in paragraph 4.83. Loans are defined in paragraphs 4.42 to 4.45. For cross-border consolidated data, the determination of what is and what is not a foreign currency is determined by the residence of the domestic reporting entity. The FSI is defined in paragraphs 6.81 to 6.83.

Issues for Compilers

In the *Guide*, domestic currency is that which is legal tender in the economy and issued by the monetary authority for that economy or for the common currency area to which the economy belongs. Any currencies that do not meet this definition are foreign currencies to that economy (paragraph 3.45).

The currency composition of assets (and liabilities) is primarily determined by characteristics of the future payment(s). Foreign currency instruments are those payable in a currency other than the domestic currency; a subcategory of foreign currency instruments are those payable in a foreign currency but with the amounts to be paid linked to a domestic currency (domestic-currency linked instrument). Foreign currency-linked instruments are those payable in domestic currency but with the amounts to be paid linked to a foreign currency. Foreign currency linked loans are included in the numerator, as movements in the domestic exchange rate will impact on their value in domestic currency terms (paragraph 3.46).

In the special case where an economy uses as its only legal tender a foreign currency, this ratio could be compiled excluding borrowing in, and linked to, this currency.

The most appropriate exchange rate to be used for conversion of positions into the unit of account is the market (spot) exchange rate prevailing on the reference date to which the position relates. The midpoint between buying and selling rates should be used (paragraph 3.48).

Sources of Data

Domestically controlled, cross-border consolidated data: Data on foreign currency-denominated and foreign currency-linked loans might be available from supervisory sources because of the supervisory interest in banks' exposure to foreign currency. If not, data may need to be additionally requested. Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary. The available information may need to be aggregated to get both the numerator and denominator.

Domestically consolidated data: While some national accounts-based sources, in particular the monetary and financial statistics methodology, may identify data on foreign currency assets, data on foreign currency-denominated and foreign currency-linked loans may need to be additionally requested (see Table 11.1). If the data source is on an institutional unit basis, then foreign currency denominated and linked loans among deposit-takers in the reporting population that are part of the same group should be excluded. Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary.

Foreign Currency-Denominated Liabilities to Total Liabilities

Definition

This FSI measures the relative importance of foreign currency funding within total liabilities. The level of this ratio should be viewed along with the previous FSI: foreign currency loans to total loans. The FSI is calculated by taking the foreign currency liabilities (line 47 in Table 4.1) as the numerator, and total debt (line 28) plus financial derivative liabilities (line 29) less financial derivative assets (line 21) as the denominator. Foreign currency liabilities are defined in paragraph 4.83, while total debt is defined in paragraph 4.58 and financial derivatives in paragraphs 4.53 to 4.55. The FSI is defined in paragraphs 6.84 to 6.86.

Issues for Compilers

The definition of foreign currency and of foreign currency denominated and linked instruments, and of exchange rate conversion, is the same as set out in the issues for compilers for the *foreign currency-denominated loans to total loans* summary

For total liabilities it is recommended that the net market value position (liabilities less assets) of financial derivative liabilities be included rather than the gross liability position because of the market practice of creating offsetting contracts, and the possibility of forward-type instrument switching from asset to liability positions and vice versa from one period to the next. The FSI could also be calculated excluding financial derivative positions—that is calculating the ratio for debt positions only—particularly if a net financial derivative asset position (foreign currency and/or total) was significantly affecting the ratio.

In the special case where an economy uses as its only legal tender a foreign currency, this ratio could be compiled excluding positions in, and linked to, this currency.

Sources of Data

Domestically controlled, cross-border consolidated data: Foreign currency and total liabilities data might well be available from supervisory sources. The extent to which the data meet the concepts in the *Guide*, particularly with regard to financial derivatives, would require consideration. The available information may need to be aggregated to get both the numerator and denominator.

Domestically consolidated data: While some national accounts-based sources, in particular the monetary and financial statistics and external debt data, may identify data on foreign currency liabilities, data on foreign currency-denominated and foreign currency-linked liabilities may need to be additionally requested (see Table 11.1). Data on total liabilities should be available from national accounts sources, such as monetary and financial statistics (subject to ensuring the appropriate sectoral coverage, see paragraph 2.4, footnote 7). If the data source is on an institutional unit basis, then foreign currency denominated and linked loans among deposit-takers in the reporting population that are part of the same group should be excluded.

Net open position in equities to capital

Definition

This FSI is intended to identify deposit-takers' equity risk exposure compared with capital. It is calculated by taking a deposit-takers' open position in equities (line 48 in Table 4.1) as the numerator, and capital as the denominator. The FSI is defined in paragraphs 6.52 to 6.56. These paragraphs provide a detailed explanation as to how to measure the net open position in equities.

Issues for compilers

The guidance in the *Guide* for measuring the net open position in equity is based on that recommended by the BCBS. So, deposit-takers' net open position is the sum (positive if a long position is held and negative if a short position is held) of on-balance sheet holdings of equities and notional positions in equity derivatives.

The long and short positions in the market must be calculated on a market value basis. Own equity issued by the deposit-taker is excluded from the calculation, as is equity held in associates and, unconsolidated, subsidiaries (and reverse equity investments).

The notional positions in equity derivatives comprise the notional positions for futures and forward contracts relating to individual equities; futures relating to stock indices; equity swaps; and the market value of equity positions underlying the option.

Regarding capital, issues for compilers, including the definitions of capital, are discussed in the *nonperforming loans net of provisions to capital* summary.

Source of data

Domestically controlled, cross-border consolidated data: Data on the net open position in equities is likely to be available from supervisory sources. The extent to which national approaches to measuring the net open position meet the concepts in the *Guide* would require consideration. Regarding capital, sources of data are discussed in the *nonperforming loans net of provisions to capital* summary.

Domestically consolidated data: The net open position in equities is not available from national accounts based data, and might be obtained from supervisory sources or additionally requested (see Table 11.1). Regarding capital, sources of data are discussed in the *nonperforming loans net of provisions to capital* summary

Encouraged Indicators: Other financial corporations

Other Financial Corporations Assets to Total Financial System Assets

Definition

This FSI measures the relative importance of other financial corporations within the domestic financial system. Other financial corporations financial assets (line 3 in Table 4.2) is the numerator, and total financial system assets is the denominator. The latter is the total of financial assets owned by deposit-takers (line 16, Table 4.1), other financial corporations, nonfinancial corporations (line 17, Table 4.3), households (line 11, Table 4.4), and general government. Financial assets are defined in paragraph 4.35. The FSI is defined in paragraph 7.7.

Issues for Compilers

For total financial system assets, the coverage includes all entities resident in the domestic economy. Further, the *Guide* recommends that for each corporate sector—deposit-takers, other financial corporations, nonfinancial corporations sector—data be compiled on a consolidated basis, so claims on other resident entities classified in the same sector and part of the same sector group should be eliminated. Cross-sector claims should not be eliminated.

For completeness, financial assets of nonprofit institutions serving households (NPISH) (see paragraph 2.16) could also be included within total financial system assets, but in many instances these might be insignificant within the total.

Source of Data

Domestically-consolidated data: Data for total other financial corporations' financial assets and those for the other sectors in the economy can be sourced from national accounts based data, subject to the adjustments needed to exclude intra-group claims (see Tables 11.3, 11.5, and 11.7) To be able to make the adjustments, additional data might need to be requested.

Domestically controlled, cross-border consolidated data: For the larger entities, data might be drawn from published corporate financial statements and aggregated to get the numerator. However, the extent to which the resulting data were consistent with the concepts in the *Guide* would require consideration.

Other Financial Corporations Assets to Gross Domestic Product

Definition

This FSI measures the relative importance of other financial corporations to the size of the economy. Other financial corporations financial assets (line 3 in Table 4.2) is the numerator, and Gross Domestic Product (GDP) is the denominator. Financial assets are defined in paragraph 4.35. The FSI is defined in paragraph 7.8

Issues for Compilers

GDP is an aggregate measure of production in the economy, equal to the sum of the gross value added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs).

For other financial corporations' assets, issues for compilers are the same as in the *other financial corporations assets to total financial system assets* summary.

Sources of Data

GDP data are available from the national accounts sources.

For other financial corporations' assets, sources of data are the same as in the *other financial corporations assets to total financial system assets* summary. For this indicator, data are compiled on a domestically consolidated basis only.

Encouraged Indicators: Nonfinancial corporations

Total Debt to Equity
Definition <p>This FSI is a measure of corporate leverage—the extent to which activities are financed out of own funds. The FSI is calculated by taking debt (line 29 in Table 4.3) as the numerator, and capital and reserves (line 31) as the denominator. Debt is defined in paragraph 4.58, and capital and reserves are defined in paragraph 4.59. The FSI is defined in paragraphs 7.18 to 7.21.</p>
Issues for Compilers <p>Debt claims among nonfinancial corporations in the reporting population that are part of the same group should be excluded.</p> <p>In measuring sector-wide capital, all intra-sector equity investments are deducted from the overall capital in the sector so that capital and reserves held within the sector are not double counted (see Box 5.2). Also, in line with the approach for deposit-takers, goodwill is deducted.</p> <p>Equity investments in associates and unconsolidated subsidiaries (and reverse investments) are to be recorded in the investor's balance sheet (see paragraph 3.33) on the basis of the investor's proportionate share in the capital and reserves of the associate and unconsolidated subsidiary, and not at the market value of the traded equity.</p> <p>Going beyond the agreed FSI, the ratio could also be calculated with data that have different coverage. First, the FSI could be calculated excluding from the numerator debt owed to other nonfinancial corporations, as the resultant FSI would indicate the amounts owed to other sectors as a percentage of capital and reserves in the nonfinancial sector. Second, the ratio could be calculated taking the narrow measure of capital and reserves (line 31(i) and defined in paragraph 4.120) as the denominator if data are available</p>
Sources of Data <p><i>Domestically-consolidated data:</i> Data for nonfinancial corporations' debt and capital can be sourced from national accounts based data. However, additional data may be needed to make the adjustments noted above in the issues for compilers (see Tables 11.6 and 11.7).</p> <p><i>Cross-border consolidated data:</i> For the larger entities, data might be drawn from published corporate financial statements and aggregated to get both the numerator and denominator. However, the extent to which the resulting data were consistent with the concepts in the <i>Guide</i> would require consideration, and there may be a need to make sector-wide adjustments.</p>

Return on Equity

Definition

This FSI is commonly used to capture nonfinancial corporations' efficiency in using their capital. The FSI is calculated by taking earnings before interest and tax (EBIT) (line 34) as the numerator, and average value of capital and reserves (line 31) over the same period, as the denominator. As a minimum, the denominator can be calculated by taking the average of the beginning and end-period positions (e.g., at beginning and end month), but compilers are encouraged to use the most frequent observations available in calculating the average. EBIT is defined in paragraph 4.122 (and see also 4.106 to 4.110). Capital and reserves are defined in paragraph 4.59. The FSI is defined in paragraphs 7.22 to 7.26

Issues for Compilers

As with deposit-takers, income is calculated on a basis closer to commercial accounting and supervisory approaches than to national accounting. So the *Guide* encourages the inclusion of realized and unrealized gains and losses arising during each period on all financial instruments (financial assets and liabilities, in domestic and foreign currencies) valued at market or fair value in the balance sheet, excluding equity in associates, subsidiaries, and any reverse equity investments (paragraph 4.20), and gains and losses from the sales of fixed assets, which are measured as the difference between the sale value and the balance sheet value at the previous end-period.

Sector-wide adjustments are also specified to exclude intra-sectoral income from affecting the EBIT measure. Notably, dividends received and the parents' share of an associates' retained earnings (and similarly, arising from a reverse equity investment, an associates' share of a parents' retained earnings) are to be deducted from other income (net). Also excluded are any gains and losses on equity holdings in other nonfinancial corporations and sales of fixed assets to other nonfinancial corporations included in other income (net).

As data are on a consolidated basis, intra-transactions and positions among nonfinancial corporations in the reporting population that are part of the same group are excluded.

Regarding capital, issues for compilers, including the definitions of capital, are discussed in the *total debt to equity* summary.

Beyond the agreed FSI, the ratio could be calculated taking the narrow measure of capital and reserves (line 31(i) and defined in paragraph 4.120) as the denominator if data are available. Another additional approach would be to calculate the return on equity including purchased goodwill in the denominator, that is using a measure of capital and reserves closer to commercial accounting concepts.

Sources of Data

Domestically-consolidated data: Data can be sourced from national accounts based data. However, additional data may be needed to make the adjustments noted above in the issues for compilers (see Tables 11.6 and 11.7).

Cross-border consolidated data: For the larger entities, data might be drawn from published corporate financial statements and aggregated to get both the numerator and denominator. The concept of earnings before tax and interest is one used in analysis of corporate accounts. However, the extent to which the resulting data were consistent with the concepts in the *Guide* would require consideration, and there may be a need to make sector-wide adjustments.

Earnings to interest and principal expenses (Debt service coverage)

Definition

This FSI measures nonfinancial corporates' capacity to cover their debt service payments (interest and principal). It serves as an indicator of the risk that a firm may not be able to make the required payments on its debts. The FSI is calculated by taking earnings (net income) before interest and tax (EBIT) (line 34 in Table 4.3) plus interest receivable from other nonfinancial corporates (line 33) as the numerator, and debt service payments (line 35) over the same period, as the denominator. EBIT is defined in paragraph 4.122, interest receivable from other nonfinancial corporates in paragraph 4.121, and debt service payments are defined in paragraph 4.123. The FSI is defined in paragraphs 7.27 to 7.30.

Issues for Compilers

Debt service payments include those to other nonfinancial corporations (excluding payments among nonfinancial corporations in the reporting population that are part of the same group) so that gross payments are captured. Consequently, the numerator includes interest receivable (excluding those among nonfinancial corporations in the reporting population that are part of the same group) from other nonfinancial corporates so that the denominator and numerator have the same coverage. Nonetheless, the ratio could also be calculated excluding both interest receivable from, and debt service receipts from, other nonfinancial corporations (lines 33 and 36) from the numerator and denominator, respectively. The resultant FSI would provide a measure of debt service payments coverage of nonfinancial corporates to other sectors only.

Regarding EBIT, issues for compilers are discussed in the *return on equity* summary.

Source of Data

Domestically-consolidated data: While the external debt methodology covers debt service payments on external debt, it is likely that additional data on debt service payments may need to be separately requested, including on payments among nonfinancial corporations in the reporting population that are part of the same group (see Tables 11.6 and 11.7).

Cross-border consolidated data: For the larger entities, data might be drawn from published corporate financial statements and aggregated to get both the numerator and denominator. Debt service coverage, and particularly interest coverage, is a concept used in analysis of corporate accounts. However, the extent to which the resulting data were consistent with the concepts in the *Guide* would require consideration, and there may be a need to make sector-wide adjustments.

Corporate Net Foreign Exchange Exposure to Equity

Definition

This FSI measures the nonfinancial corporations exposure to foreign currency risk compared to its capital. The more exposed to foreign currency risk, the more a significant currency depreciation could put severe pressure on the financial soundness of nonfinancial corporations, and, as their customers, on deposit-takers. Nonfinancial corporations' net foreign exchange exposure for on-balance sheet items (line 37 in Table 4.3) is the numerator, and capital and reserves (line 31) is the denominator. The open position should be calculated as described for deposit-takers in paragraphs 6.43 and 6.44. The FSI is defined in paragraphs 7.31 to 7.33.

Issues for Compilers

The net foreign exchange position is to be measured using the same methodology as that described for deposit-takers in the *net open position in foreign exchange to capital* summary.

Given the potential difficulty in compiling data on off-balance sheet foreign currency exposures, the *Guide* encourages at least an initial focus on the *corporate net foreign exchange exposure for on-balance sheet items*, but the FSI could also be calculated using total corporate net foreign exchange exposure (line 38) as the numerator.

Regarding capital, issues for compilers, including the definitions of capital, are discussed in the *total debt to equity* summary. The ratio could be calculated taking the narrow measure of capital and reserves (line 31(i) and defined in paragraph 4.120) as the denominator if data are available.

Source of Data

Domestically-consolidated data: It is likely that additional data on the corporate net foreign exchange exposure may need to be separately requested, as it is not available from national accounts sources (see Table 11.6). Regarding capital, data sources are discussed in the *total debt to equity* summary.

Cross-border consolidated data: For the larger entities, data on the corporate net foreign exchange exposure might be available from published corporate financial statements for the larger firms and aggregated to get both the numerator and denominator, but the extent to which the resulting data were consistent with the concepts in the *Guide* would require consideration. Regarding capital, data sources are discussed in the *total debt to equity* summary.

Number of Applications for Protection from Creditors

Definition

<p>This FSI is a measure of bankruptcy trends, and is influenced by the quality and nature of bankruptcy and related legislation. It is a simple numerical addition of those nonfinancial corporations that have filed for protection from bankruptcy. The FSI is defined in paragraph 7.34.</p>
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Issues for Compilers

<p>For sector-wide data, the data provided should be the total number of nonfinancial corporations resident in the economy that have filed for protection in a particular period. Filings by foreign subsidiaries of resident entities should not be included.</p>
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Source of Data

<p>These data might be available from the national statistical office or the Department/Ministry of Commerce/Industry.</p>
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Encouraged Indicators: Households

Household Debt to GDP
Definition <p>This FSI measures the overall level of household indebtedness (commonly related to consumer loans and mortgages) as a share of GDP. This FSI is calculated by taking household debt (line 20 in Table 4.4) as the numerator, and GDP as the denominator. Debt is defined in paragraph 4.58. The FSI is defined in paragraph 7.37 to 7.38.</p>
Issues for Compilers <p>The data for households debt comprises debt incurred by resident households of the economy, only. GDP is an aggregate measure of production in the economy, equal to the sum of the gross value added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs).</p>
Sources of Data <p><i>Domestic data:</i> Information on household debt and GDP should be available from national accounts sources.</p>

Household Debt Burden to Income
Definition <p>This FSI measures the capacity of households to cover their debt payments (interest and principal). It is calculated by taking household debt service payments (line 24 in Table 4.4) as the numerator, and gross disposable income (line 6) over the same period, as the denominator. Household debt service payments are defined in paragraph 4.132 (see also 4.123), and gross disposable income is defined in paragraph 4.130. The FSI is defined in paragraph 7.39 to 7.40.</p>
Issues for Compilers <p>Obtaining data on the household sector is difficult. If different from the agency calculating FSIs, coordination with the agency compiling data on the household sector for inclusion in national accounts statistics is essential.</p>
Sources of Data <p><i>Domestic data:</i> Information on household disposable income should be available from national accounts sources. However, data on debt service payments might not be available from national accounts sources and so additional data may need to be separately requested (see paragraph 11.14).</p>

Encouraged FSIs: Market liquidity

Average Bid-Ask Spread in the Securities Markets

Definition

This FSI is the difference between the prices at which market participants are willing to buy (bid) and sell (ask) assets; it is a measure of market tightness—the general cost in a transaction irrespective of market price. It is calculated as the difference between the best (highest) bid and the best (lowest) ask price in the market, expressed as a percentage of the mid-point of the buy and sell price of the asset. Bid-ask spreads tend to be narrower in more liquid and efficient markets. The FSI is defined in paragraphs 8.28 and 8.45 to 8.46.

Issues for Compilers

Because of the link between market-based liquidity indicators and the indicator on deposit-takers' liquid assets, bid-ask spreads should be compiled, at a minimum, for financial instruments included in the wider measure of liquid assets. The natural starting point is to compile indicators for domestic government or central bank bills that are used by the national authorities to influence liquidity conditions in their domestic economy; and corporate securities if they are included in the definition of liquid assets.

Similarly, the tightness of the local foreign exchange markets may also be relevant if foreign-exchange denominated securities qualify as liquid assets.

The number of securities that can be traded at the best bid and best ask price provide an important context for interpreting the bid-ask spread, and the *Guide* encourages the dissemination of this information along with the best bid-ask spread (paragraph 8.48).

The bid-ask spread should be compiled on a daily basis or, at a minimum, on a weekly basis. The frequency of price observations can be on a tick-by-tick basis, but preferably at least two quotes per day should be taken (for example at 10.30 a.m. and 2.30 p.m.). If price observations are taken on a less than hourly basis, care is needed to avoid biases related to systematic volatility of intraday price quotes (paragraph 8.49).

The *Guide* provides other advice, on how to calculate the spread if the bid and offer quotes are in terms of yield rather than in terms of price (paragraph 8.47 and Box 8.1); and additional ways of calculating the bid-ask spread are provided that take into account the quantity of securities that can be traded at the quoted prices (paragraph 8.50).

Sources of Data

Major exchanges located in the domestic economy can be used as a source of data for compiling bid-ask spreads. Other sources can include dealer associations, central banks, and commercial databases, although compilers who approach a commercial database vendor will need to make their own judgments about whether the product being offered meets their needs. Coverage of all market makers, the likely primary source of the information, may not be necessary. It is recommended that the top five market makers or at least those accounting for a minimum of 75 percent of market turnover should be covered. Automated electronic market making can also be covered.

Average Daily Turnover in the Securities Markets

Definition

This FSI is the ratio of average daily trades to the outstanding stock of securities; it is a measure of market depth—the ability of a market to absorb large trade volumes without a significant impact on market prices. It is calculated as the number of securities bought and sold during a trading period divided by the average number of securities outstanding at the beginning and end of the trading period. The volume of all trades executed during official trading hours of the markets should be captured. The FSI is defined in paragraph 8.40.

Issues for Compilers

As regards the type of securities to cover and the periodicity of compilation, the same considerations apply as described in the issues for compilers in the *average bid-ask spread in the securities markets* summary.

There is a lack of data on foreign exchange market turnover outside of the triennial central bank survey of foreign exchange (and derivative market activity) conducted by the BIS.

Source of Data

Sources of data are the same as described in the *average bid-ask spread in the securities markets* summary.

Encouraged Indicators: Real Estate markets

Real Estate Prices

Definition: This FSI covers residential and commercial real estate price indices separately. At the time of writing, there is limited international experience in constructing representative real estate price indices, reflecting the difficulty of the task: real estate markets are heterogeneous, both within and across countries, and illiquid. So, the *Guide* describes a range of techniques whose application can be based on local needs, conditions, and resources rather than recommending a single set of indices or compilation methods. The need to prepare inventories of residential and commercial properties to provide a baseline for compilation of price indices is noted (paragraph 9.8).

The *Guide* discusses two major methods for constructing real estate price indices: the Laspeyres real estate price index (see paragraphs 9.14 to 9.18) and the hedonic or price adjusted regression price index (see paragraphs 9.19 to 9.21).

Issues for Compilers

The Laspeyres index calculates the weighted average change in prices over a period for a fixed basket of real estate in some base period. The hedonic regression price index derives the price series for a standard real estate unit by regressing and removing the price influence of multiple specific quality factors that affect actual sales prices. But such an approach is complex and expensive in terms of data demands, and requires professional knowledge of compiling such measures.

The *Guide* also describes the “unit value index” which, although not a price index, is probably the most widely available price measure for real estate and sometimes provides useful information about large changes in prices. However, this index can be seriously biased by a few transactions with extreme values, changes in the mix of transactions, or changes in the quality of the units being transacted (paragraph 9.11).

Commercial real estate has specific features that can influence the task of compilation, including the great diversity of types of commercial real estate, which may be specialized because of the specific business of the occupant. On the other hand, the commercialized nature of the product permits many properties to be characterized as a commodity, consisting of a square footage of commercial space (see paragraphs 9.23 to 9.26).

Source of Data

Transactions data (including prices) for real estate may be available from the national or local registries of such information. These registries are responsible for recording the transfers of property ownership in their locality; when ownership changes hands, they update their records. Another source of transactions data are real estate agents, that bring together buyers and sellers of real estate. Data from these two sources may assist in the construction of a price index, particularly if the data are available over time for real estate of a similar or common type. Financial institutions active in lending to the real estate market may also be a source of information.

Residential Real Estate Loans to Total Loans

Definition

This FSI is intended to identify deposit-takers' exposure to the residential real estate sector, with the focus on household borrowers. It is calculated by taking residential real estate loans as the numerator (line 43 in Table 4.1), and gross loans (line 18 (i)) as the denominator. Residential real estate loans are defined in paragraph 4.81 and loans are defined in paragraphs 4.42 to 4.45. The FSI is defined in paragraph 6.73 to 6.75.

Issues for Compilers

For the compilation of this FSI, the consistent application by deposit-takers of a definition of residential real estate is central: houses, apartments and other dwellings (such as houseboats and mobile homes), and any associated land, intended for occupancy by individual households.

An additional approach is to take household borrowing for real estate as the numerator (line 25 in Table 4.4). While strictly not all real estate lending to households is collateralized by residential real estate, the latter predominates.

Regarding total loans, issues for compilers are the same as in the *nonperforming loans to total gross loans* summary.

Sources of Data

Domestically controlled, cross-border consolidated data: Data on residential real estate loans may need to be additionally requested, if not available from supervisory sources. The available information may need to be aggregated. Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary.

Domestically consolidated data: Residential real estate loans may be available from monetary and financial statistics sources that provide an industrial classification of lending by type of economic activity (Box 6.1). Otherwise, additional data may need to be separately requested (see Table 11.1). Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary.

Commercial Real Estate Loans to Total Loans

Definition

This FSI measures banks' exposure to the commercial real estate market. It is calculated by taking loans that are collateralized by commercial real estate, loans to construction companies, and to companies active in the development of real estate as the numerator (line 44), and gross loans (line 18(i)) as the denominator. Commercial real estate loans are defined in paragraph 4.81 and loans are defined in paragraphs 4.42 to 4.45. The FSI is defined in paragraphs 6.76 to 6.77.

Issues for Compilers

As with residential real estate loans, the consistent application by deposit-takers of a definition of what constitutes commercial real estate lending is central. Commercial real estate lending among deposit-takers in the reporting population that are part of the same group is excluded.

Regarding total loans, issues for compilers are the same as in the *nonperforming loans to total gross loans* summary.

Sources of Data

Domestically controlled, cross-border consolidated data: Data on commercial real estate loans may need to be additionally requested, if not available from supervisory sources. The available information may need to be aggregated. Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary.

Domestically consolidated data: Commercial real estate loans may be available from monetary and financial statistics sources that provide an industrial classification of lending by type of economic activity (Box 6.1). If so, lending among resident deposit-takers that are part of the same group should be excluded. Otherwise, additional data may need to be separately requested (see Table 11.1). Regarding total loans, sources of data are the same as in the *nonperforming loans to total gross loans* summary.

Appendix III

Reconciliation between the *Guide*'s methodology and national and commercial accounting

This Appendix explains how the concepts outlined in Chapter 3 and the line-item series defined in Chapter 4 can be reconciled with similar concepts developed in the *1993 SNA* (national accounts), and the International Accounting Standards (2000).¹

Overview

The framework of national accounts in the *1993 SNA* provides for the construction of a range of tables that begin with production, income, and accumulation accounts as well as balance sheets showing the stock of financial and nonfinancial assets and liabilities for the financial, nonfinancial, household, and general government sectors of an economy. The full sequence of accounts is set in pages 601 to 674 in the *1993 SNA*.

For each group of assets and liabilities, and for net worth, changes between the opening and closing balance sheets results from transactions and other flows recorded in the so-called accumulation accounts. As explained ahead, many of the data series used in constructing FSIs for the other depository corporations' (deposit-takers in the terminology of the *Guide*), the other financial corporations (OFC) subsector, the nonfinancial corporations sector, and the household sector can be obtained from this national accounts framework, or related frameworks such as the monetary statistics. The derivation of FSI data series from the *1993 SNA* framework are set out in Tables 11.8-11.10.

Business accounting is designed to assess the financial condition of individual productive units, measure their economic result, and determine interested parties'—mainly the shareholders and tax authorities—entitlement to that result. There is a focus on two concepts: solvency—the value of net assets (or equity) held by an entity—and profitability—a measure

¹ Also, account has been taken of IAS 40, which came into effect on January 1, 2002.

of value added by the entity in the during the reporting period.² It relies on specific norms and standards (e.g., as set out in International Accounting Standards (IAS)) to achieve its objectives with fairness, accuracy, and transparency. The International Accounting Standards (2000) prepared by the International Accounting Standards Board (IASB) are utilized in drafting this Appendix.

At the time of writing, the international accounting standards consist of 39 separate standards, numbered IAS 1 to IAS 41 (IAS 25 has been withdrawn and IAS 15 is no longer binding). The references below are to those standards and to the relevant paragraph numbers within the quoted standard. Unlike in the *1993 SNA*, there is no standardized set of tables for the presentation of commercial accounts. Further, while financial statements prepared in accordance with IAS should, at a minimum, present line items in accordance with IAS 1, for banks and similar financial institutions there is a specific standard (IAS 30), and hence the likelihood of more published detail.

Income and expense account

Interest income and expense

In both the *1993 SNA*, and the international accounting standards, it is recommended that interest accrue continuously on debt instruments, consistent with the approach in the *Guide*.

As in the *Guide*, in the *1993 SNA* interest accrues at the contractual rate of interest—the effective rate on issuance. Lines 1(i) and 2 in Table 4.1, lines 4 and 5 in Table 4.3, and part of line 2 in Table 4.4, in concept equate in the *1993 SNA*'s full sequence of accounts to line D.41 in the Primary Income Account and, if financial services indirectly measured (FSIM)³ is calculated for deposit-takers, part of the Production Account (line P. 11) for deposit-takers;

² The *1993 SNA* also has a concept of value added that is relates to the production process.

³ FSIM measures the output of the deposit-taking sector arising from the margins earned from the borrowing and lending of funds. See *1993 SNA*, paragraphs 6.124 to 6.131.

part of the Production Account, intermediate consumption, (line P.2) for enterprises; and part of the Use of Income Account, final consumption (line P.31) for households.

In IAS, interest income is defined as one type of revenue (besides royalties and dividends) arising from the use by others of an enterprise's assets (IAS 18.29-31) (also IAS 32.30-31); interest income is recognized on a time proportion basis based upon the effective yield on the asset, which is defined as the rate of interest required to discount the stream of future cash receipts expected over the life of the asset to equate to the *initial* carrying amount of the asset. Interest income includes the amount of amortization of any discount or premium arising from a difference between the issue price and the par value.⁴ If debt instruments are traded, and market prices established, then for creditors, there is a difference of approach between the *Guide* and the IAS standard in that the effective rate of interest on acquisition may be different from that on issuance. The greater the variability of market prices, the more significant this difference could be.

For creditors, interest on nonperforming assets is treated differently in the 1993 SNA and in IAS. In the 1993 SNA, creditors (and debtors) should continue to accrue interest on nonperforming assets unless the asset is written off. In contrast, IAS 39.116 states that impaired assets should be written down to their estimated recoverable amount, and creditors should base the calculation of interest income on the rate of interest that was used to discount the future cash flows for the purpose of measuring the recoverable amount.

In Sound Practices for Loan Accounting and Disclosure (1999) number 11, the BCBS recommends that when a loan is identified as impaired, a bank should cease accruing interest in accordance with the terms of the contract. Interest on impaired loans should not contribute to net income if doubts exist concerning the collectability of loan interest or principal. However, in some countries, when impaired loans are carried at the present value of expected

⁴ Since loans are issued at par, the effective rate for loans is the same as the contractual rate. If the issue price of the asset is different from par, the effective yield would be different from the stated interest (coupon) rate.

future cash flows, interest may accrue at the effective rate implicit in the present value calculation.

The *Guide* follows BCBS in that interest on nonperforming assets should not contribute to net interest income.

Fees and commissions receivable/payable

In the *1993 SNA*, fees and commissions receivable reflect the value of services provided (for deposit-takers, *1993 SNA* paragraph 6.123). In the *1993 SNA*'s full sequence of accounts, line 4 (i) in Table 4.1 in concept equates to the fees and commissions included in the line P.11 in the Production Account.

In IAS, fees and commissions are a form of revenue defined in IAS 18.20 and IAS 18 Appendix 14. The latter distinguishes fees that are an integral part of the effective yield of an instrument from those that are earned on services provided—such as for servicing a loan—and those that are earned on the execution of a significant act—such as commission on the allotment of shares to a client. Fees that are an integral part of the effective yield of a financial instrument—and hence affect the rate at which interest accrues—include commitment fees to originate or purchase a loan where it is probable that the enterprise will enter into a specific lending arrangement, and origination fees relating to the creation or acquisition of a financial instrument that is held by the enterprise as an investment. Such fees are regarded as an integral part of generating an ongoing involvement with the financial instrument, and as such are deferred and recognized as an adjustment to the effective yield. The *Guide* differs from IAS in that it does not adjust the effective yield of an instrument for these fees but records them under fees and commissions.

Gains/losses on financial instruments (including foreign exchange)

Unlike in the *Guide*, trading gains or losses do not appear in the distribution and use of income accounts of the *1993 SNA*. Nonetheless, in concept this line can equate to AF.2 (currency and deposits—partial coverage of foreign currency gains and losses), AF.3

(securities other than shares), AF.5 (shares and other equity) excluding equity investments in associates and subsidiaries, and AF. 7 (financial derivatives) of the Revaluation Account of the 1993 SNA's full sequence of accounts. Holding gains and losses in the 1993 SNA are all changes in the value of financial assets and liabilities due to changes in market prices and exchange rate movements. The change in value is measured as the difference in the unit of account between the value of an asset or liability at the end of the accounting period and its value at the start of the accounting period or, if acquired during the period, the value at which it was first entered in the balance sheet, or, if sold during the period either the value at the start of the accounting period, or, if purchased during the period, the value when purchased. Within an accounting period, the 1993 SNA concept of holding gains/losses thus encompasses in general both realized and unrealized gains/losses. As line 4 (ii) in Table 4.1 excludes some, and line 6 in Table 4.3 excludes all, unrealized gains and losses, additional data would need to be requested to extract the required information from the 1993 SNA data. Line 6 in Table 4.3 also includes the equivalent to the foreign exchange component of AF in the revaluation account.

For banks and similar financial institutions, IAS 30.15 states that gains and losses from the following are normally reported, on a net basis: (a) disposals and changes in the carrying amount of dealing securities; (b) disposals of investment securities; (c) dealings in foreign exchange. These items are consistent with the *Guide* coverage (although unlike the *Guide*, IAS 30.15 makes no reference to financial derivative instruments). Further, IAS 39.103-108 discusses the gains and losses on financial instruments. A gain or loss on a financial asset or liability held for trading should be included in net profit or loss; a gain or loss on an available for sale financial asset can be treated similarly, or recognized in equity through the statement of changes in equity until the financial asset is sold, collected or otherwise disposed of, or until it is determined to be impaired at which point the cumulative gain or loss should be included in net profit and loss for the period. For financial assets and liabilities carried at amortized cost, a gain or loss is recognized in net profit or loss when the financial asset or liability is derecognized or impaired. Separate guidance is provided for hedging instruments. Clearly, given the different treatment of gains and losses depending on the classification of

the instrument leads to a difference with the approach in the *Guide*, however the treatment of instruments held for trading and one of the alternative treatments for available-for-sale financial assets is in line with the *Guide*'s recommendations. .

IAS 21.15 explains the treatment of foreign exchange differences related to "monetary items," which are in turn defined as money held and assets and liabilities to be received or paid in fixed or determinable amounts of money. The standard states that foreign exchange differences arising on the settlement of monetary items at rates different from those at which they were initially recorded during the period, or reported in previous financial statements, should be recognized as income or expense in the period in which they arise, with two exceptions.

The first exception, set out in IAS 21.17, is exchange differences arising on a monetary item that in substance forms part of an enterprise's net investment in a foreign entity. Such exchange differences should be classified as part of equity in the enterprise's financial statements until the disposal of the net investment, at which time they should be recognized as income or expenses (depending on whether the cumulative amount of the exchange differences which have been deferred and which relate to the foreign entity reflect a gain or a loss (IAS 21.37)).

The second exception, set out in IAS 21.19, is exchange differences arising on a foreign currency liability accounted for as a hedge of an enterprise's net investment in a foreign entity. Such exchange differences should also be classified part of equity in the enterprise's financial statements until the disposal of the net investment, at which time they should be recognized as income or expenses (depending on whether the cumulative amount of the exchange differences which have been deferred and which relate to the foreign entity reflect a gain or a loss (IAS 21.37)).

Both of these exceptions are consistent with the *Guide*'s approach of excluding gains and losses on those foreign exchange instruments related to equity holdings in subsidiaries, although the *Guide* does not recommend inclusion of gains and losses of earlier periods in present period earnings, when these instruments are disposed of.

Rent, rental, and royalty income receivable

In the 1993 SNA, as in this *Guide*, this item covers income from rents on land or subsoil assets; rentals from buildings, other structures, and equipment; and royalty income from other produced and nonproduced assets. So, part of line 4 (iii) in Table 4.1, line 6 in Table 4.3, and part of line 2 in Table 4.4 in concept most closely equates in the 1993 SNA's full sequence of accounts to line D.45 in the Allocation of Primary Income Account (rents), and P.11 in the Production Account (rental and royalty income—classified as services⁵). In concept, line D.45 only covers rent on land and subsoil, but the 1993 SNA does acknowledge (paragraph 7.131) that in practice a single payment may cover rent on land and rentals on buildings. If a split can be made then under the 1993 SNA, rentals receivable are classified as the provision of services (line P.11 in the Production Account). There is no specific standard for rent in IAS except in so far as it is mentioned generally in the IAS Framework paragraph 74 that rent is part of the revenues of an enterprise. In IAS 40.66 (d)(i) rental income from investment property should be included in the income statement.

Prorated share of income from associates and subsidiaries

In the 1993 SNA, for foreign affiliates, the reinvested earnings element within the “other income” line (4 (iii)) in Table 4.1, line 6 in Table 4.3 equates to line D.43. There is no equivalent concept for resident affiliates. The dividends element of the prorated share of income is covered below.

In IAS 28.3, under accounting by the equity method, the income statement reflects the investor's share of the results of the operations of the investee. This is applicable to associates, the subject of IAS 28, and is one of the three approaches that can be adopted for unconsolidated, subsidiaries (IAS 27.30). IAS permits the use of the equity method for jointly controlled ventures, if the assets and liabilities of the joint venture are not proportionately consolidated with the venturer's financial statement. (IAS 31.32-34).

⁵ A corporation consuming these services would record them as intermediate consumption (P2) in the Production Account.

Dividends declared

The concept in the *1993 SNA*, and IAS 18.30, is the same as in the *Guide*, that is, property income to be distributed to shareholders in the entity, to be recognized as income when the shareholder's right to receive payment is established. Dividends within the "other income" line (4 (iii)) in Table 4.1, line 6 in Table 4.3, and dividends within "property income receivable," line 2, in Table 4.4, in concept equates to Lines D.421 and D.422 (Resources) in the Allocation of Primary Income Account in the *1993 SNA*'s full sequence of accounts. Dividends paid or payable in Table 4.1 (line 12) and in Table 4.3 (line 11) also equate to D.421 and D. 422 (Uses).

Net gains/losses from sales of fixed assets

In the *1993 SNA*, net gains or losses from the sale of fixed assets is the change in the value of fixed assets due to changes in their market price. These gains and losses are included in line AN.11 (holding gains and losses in respect of fixed assets) in the Revaluation Account in the *1993 SNA*'s full sequence of accounts. The change in price is measured as the difference between the value of the fixed asset at the end of the accounting period and its value at the start of the accounting period or, if acquired during the period, the date on which it was first entered in the balance sheet. This *1993 SNA* concept thus encompasses both realized and unrealized gains/losses. Since net gains/losses on fixed assets within line 4 (iii) in Table 4.1 and line 6 in Table 4.3 covers only realized gains during the period, additional data would need to be requested to extract the required information from the *1993 SNA* data.

IAS 16.56 states that gains or losses "from the retirement or disposal of an item of property, plant, and equipment should be determined as the difference between the estimated net disposal proceeds and the carrying amount of the asset and should be recognized as income or expense in the income statement." This concept is the same as in the *Guide*, although the *Guide* recommends market valuation of fixed assets, while IAS 16 favors historic value. IAS 40 introduced in 2001 permits enterprise to use either the model in IAS 16 or a fair market model for investment property (not owner-occupied property). Under IAS 40, if an enterprise

chooses the fair value model, all changes in fair value are recognized in the income statement (IAS 40.28).

Other income

In the *1993 SNA*, miscellaneous current transfer, such as compensation payments received are include in D.75. IAS 8.18 covers income from litigation settlements.

Personnel Costs including wage and salaries

In the *1993 SNA*'s full sequence of accounts, with the exception of "stock options," the concept of personnel costs in line 6 (i) of Table 4.1 and implicit in line 2 of Table 4.3 equates to D.1, Compensation of Employees in the Generation of Income account, and D.623, unfunded employee social insurance benefits in the Secondary Distribution of Income account. Wages and salaries from employment (line 1 in Table 4.4) equates to line D.11 in the same account. In the *1993 SNA*, (paragraphs 7.21 to 7.47) compensation of employees is defined as the total remuneration, in cash or in kind, payable by an employer to an employee in return for work done during the accounting period. Included is remuneration payable to workers away from work for short periods. Compensation of employees can be broken down into:

- (a) wages and salaries in cash and in kind;
- (b) employers' social contributions, actual and imputed, for such items as post employment benefits.

The *1993 SNA* does not explicitly cover compensation in the form of options to buy the shares of the entity at some future time at an agreed price (stock options).

The IAS 19.4 has a similar concept to the *1993 SNA*, defining employee benefits as including:

- (a) short-term employee benefits such as wages and salaries, and social security contributions. These benefits cover paid annual leave and paid sick leave, profit

sharing and bonuses, and nonmonetary benefits such as medical care, housing, cars, and free or subsidized goods or services;

(b) post-employment benefits such as pensions, other retirement benefits, post employment life insurance, and post employment medical care;

(c) other long-term employee benefits, including long service leave or sabbatical leave, long-term disability benefits;

(d) termination benefits;

(e) equity compensation benefits, including stock options (although no guidance is provided on recognition nor measurement).

Item (a) above is close to the concept of wage and salaries in cash and in kind in the *1993 SNA*, except for social security contributions, which are included in employers' social contributions in the *1993 SNA*.

Depreciation

In the *1993 SNA*'s full sequence of accounts, the concept of depreciation within line 6 (ii) of Table 4.1, and line 2 of Table 4.3, equates to line K.1 (Consumption of Fixed Capital, CFC). In the *1993 SNA* (paragraphs 6.179-180), CFC is defined as the amount of fixed assets used up, during the period under consideration, as a result of normal wear and tear and foreseeable obsolescence. CFC should be estimated on the basis of the stock of fixed assets, valued at the purchasers' price of the current period, and the probable average economic life of the different categories of those goods. CFC can be calculated according to the straight line method by which the value of a fixed asset is written off at a constant rate over the whole lifetime of the asset or depending on the pattern of decline in the efficiency of a fixed asset, according to a geometric depreciation method (*1993 SNA* paragraphs 6.193-6.197).

IAS 16.41-48 has a similar treatment for depreciation. It states that the depreciable amount of an item of property, plant, and equipment should be allocated on a systematic basis over its

useful life. The depreciation method used should reflect the pattern in which the asset's economic value is consumed by the enterprise. These methods could include the straight line method, the diminishing balance method, and the sum-of-the-units methods. Straight line depreciation, as noted above, results in a constant charge over the useful life of the asset. The diminishing balance method results in a decreasing charge over the useful life of the asset. The sum-of-the-units method results in a charge based on the expected output of the asset. IAS 4.7 states that the useful life of a depreciable asset should be estimated after considering (a) the expected physical wear and tear; (b) obsolescence; and (c) legal or other limits on the use of the asset.

The main difference between CFC and the IAS treatment of depreciation is in the valuation of the fixed assets, which tends to be at historical cost under IAS but is required to be the current purchasers' price for the CFC. CFC should also be distinguished from business accounting of depreciation for tax purposes. However, IAS also states that the depreciation method should be reviewed periodically and, if there has been significant change in the expected pattern of economic benefits, there should be a change in the depreciation charge for the current and future periods (IAS16.52). So, the difference in treatments between CFC and IAS can be narrowed.

If there is unforeseen obsolescence, such as through the introduction of new technology, or unforeseen damage, short of the events covered under extraordinary items, the losses are recorded in this item. This is consistent with IAS 16.50 and such losses equate with K.9 in the 1993 SNA (excluding exceptional losses in inventories, which like depreciation is covered in the line "cost of sales" in Table 4.3).

Other operating expenses (such as plant and equipment expenses including rentals, advertising costs, premiums paid for deposit insurance, etc.)

These expenses are all those related to the ordinary operations of the entity other than those otherwise identified elsewhere in this appendix. In the 1993 SNA's full sequence of accounts, the on-going expenses of operating an enterprise, that is covered within line 6 (ii) in Table 4.1 and line 2 in Table 4.3, are included within line P.2, intermediate consumption, together

with D.71, net non-life insurance premiums, and D.75 miscellaneous current transfers. Unlike the *Guide*, they do not include estimated costs related to product warranties.

In the IAS Framework 70, 78-79, expenses are defined to encompass expenses that arise in the course of the ordinary activities of the enterprise, although these are not defined in detail. Expenses arising from product warranties are described in IAS Framework 98, and more fully in IAS 37.24. In concept, the IAS approach is consistent with the approach taken in the *Guide* for these expenses. IAS 8.18 covers expenses arising from litigation settlements.

Rentals payable on buildings, other structures, and equipment are included under this item, along rents paid on land and subsoil assets, and royalties payable on the use of other produced and nonproduced assets. See the entry above the entry for rents, rental, and royalty income receivable.

Taxes other than income taxes

In the 1993 SNA's full sequence of accounts, those taxes included in line 6 (ii) of Table 4.1 and line 2 in Table 4.3 equate to taxes on production, line D.29, and other current taxes, line D.59. These taxes are compulsory, unrequited payments in cash and kind levied in respect of the production, such as taxes on payroll or work force; and on the ownership or use of land or buildings and on other assets and net wealth, as described in paragraphs 7.70 and 8.53-54 of the 1993 SNA.

The IAS has no specific definitions for taxes that are not levied on income.

In the 1993 SNA's full sequence of accounts, operating subsidies from general government included in line 6 (ii) of Table 4.1 equate to subsidies on production, line D.39. In the IAS 20.29 explains that government grants related to income could be presented as a credit in the income statement or deducted in reporting the related expenses. Either method is regarded by the IAS as acceptable. These grants are defined in IAS 20.3 as assistance by government in the form of a transfer of resources.

Loan loss provisions

The 1993 SNA does not have a concept of provisions for loan losses—line 7(i) in Table 4.1. However, the writing off of bad debts by creditors (K.10) provides some coverage of loan (and other claims) losses. The distinctions made in the *Guide* for loan loss provisions follows IAS. The *Guide* relies on national practice in identifying provisions.

IAS 30.45 states that for banks, provisions for specific loans (specific provisions) that is losses that have been specifically identified, and provisions for potential losses not specifically identified (general provisions) but which experience indicates are present in the portfolio of loans and advances, should be recognized as expenses. Under IAS 30.51, local circumstances or legislation may require or allow a bank to set aside amounts for general banking risks, including future losses or other unforeseeable risks. However, such amounts set aside should be accounted for as appropriations of retained earnings and not expenses in determining net profit or loss for the period. A bank may also be required or allowed to set aside amounts for contingencies. Such amounts also do not qualify for recognition as provisions (IAS 37), but should be recognized as appropriations of retained earnings (IAS 30.51) in order not to distort net income and equity.

Other financial asset provisions

As with loans, the 1993 SNA does not address the concept of provisions for securities nor for any other financial assets—line 7 (ii) in Table 4.1.⁶ IAS discusses provisions for losses on financial assets in IAS 39.109-111, where it is stated that when the carrying amount of the impaired asset is greater than its recoverable amount—estimated by discounting the expected future cash flows using the financial instrument’s original effective interest rate—the carrying amount of the asset should be reduced to its estimated recoverable amount either

⁶ Indeed, both the *Guide* and the 1993 SNA recommends that securities be valued at market value, and with, in the *Guide*, gains and losses reported under gains and losses on financial instruments, so eliminating the need for provisions on securities, unless such an approach to gains and losses is not feasible for reporters at this time.

directly or through use of an allowance account, with the loss included in net profit or loss for the period.

This concept is not identical to the *Guide* because the market value of investment securities is to be recorded on the balance sheet. Provisions for securities maybe less or greater than the change in the market value, depending on the view on recoverable amounts on securities taken by deposit-takers.

Bad debt recoveries

IAS 39.114 recommends that if there is an improvement in the debtor standing such that the amount of impairment or bad debt loss decreases, such a reversal should be included in net profits or loss for the period and that one approach is adjusting an allowance account. This approach is consistent with that for line 7 of Table 4.1, which allows for provisions to be reduced if there was an overprediction of expected losses in an earlier period.

Extraordinary items

In the 1993 SNA's full sequence of accounts, the concept of extraordinary items in line 9 in Table 4.1 and line 8 in Table 4.3 equates to Line K.7 (Catastrophic losses); and K.8 (Uncompensated seizures). IAS 8.11-15 defines an extraordinary item as an event or transaction that is clearly *distinct from the ordinary activities* of an enterprise, and includes them in the net profit or loss for the period (IAS 8.10). Such items are determined by the nature of the event or transaction in relation to the business ordinarily carried out by the enterprise rather than by the frequency with which such events are expected to occur. For example, losses sustained as a result of an earthquake may qualify as an extraordinary item for many enterprises but not for insurance enterprises that insure against such risks. IAS 8.14 suggests that extraordinary items for most enterprises include an earthquake or other natural disaster and the expropriation of assets. The intention is that the concept in the *Guide* is consistent with that in the IAS.

Income tax expense

In the 1993 SNA's full sequence of accounts, line 10 in Table 4.1 and line 9 in Table 4.3 equate to taxes on income, line D.51. Consistent with the *Guide*, the 1993 SNA defines these taxes as those assessed on the incomes, profits, and capital gains of individuals, households, corporations and nonprofit institutions (paragraph 8.52). IAS 12's definition of income tax is in line with this concept i.e., "income taxes include all domestic and foreign taxes which are based on taxable profits." (IAS 12.2).

Revenues from sales of goods and services (Nonfinancial corporations)

In the 1993 SNA's full sequence of accounts, line 1 in Table 4.3 equates to line P.1 (Gross Output) less output for own final use (P.12) (P1-P12 equals P. 11), less the value of changes in the inventories of goods produced as outputs (finished goods element of P52) However, as noted in the 1993 SNA (paragraph 6.43) in the normal situation, the available data are accounting data on sales, and the national accountant is required to adjust sales for changes in inventories to arrive at the data for production. Also, in the 1993 SNA the system for recording transactions by retailers and wholesalers is not to record purchases of goods for resale but rather to measure the margin on goods purchased for resale (paragraph 3.30).

IAS 18.14 and 18.20 recognizes the sale of goods when the enterprise has transferred to the buyer the significant risks and rewards of ownership of the goods and the amount of revenue can be reliably estimated; and recognizes the rendering of services when the amount of revenue can be reliably estimated and the stage of completion of the transaction at the balance sheet date can be measured reliably. This is consistent with the change of ownership concept in the *Guide*.

Current transfers (Households)

In the 1993 SNA's full sequence of accounts, line 3 in Table 4.4 equates to lines D.62 (Social benefits), and D.7 (Other current transfers) in the Secondary Distribution of Income Account. Social benefits include pensions and unemployment benefit (1993 SNA paragraphs 8.75-

8.83), and other current transfers (*1993 SNA* paragraph 8.84), such items as settlements of insurance claims. The concept in the *Guide* is the same as in the *1993 SNA*. IAS does not have a specific definition of current transfers.

Other income (Households)

In the *1993 SNA*'s full sequence of accounts, line 4 in Table 4.4 equates to operating surplus, B2, and mixed income, B3 in the Generation of Income account for households

Taxes, social contributions, and other current transfers made (Households)

For income taxes see the entry above. In addition, line 5 in Table 4.4 includes social security taxes and, in the *1993 SNA*'s full sequence of accounts, these taxes equate to lines D.6112 and D.6113, social contributions. IAS 12 defines income tax expense but IAS does not have a specific definition for social security taxes.

Other current transfers made equate to line D.7 (uses) and social benefits other than social benefits in kind (line D.62) in the *1993 SNA*'s full sequence of accounts. As these transfers relate to households they are not covered in the IAS.

Gross disposable income (households)

In the *1993 SNA*'s full sequence of accounts, the concept in the *Guide* is intended to equate to line B.6 in the secondary distribution of income account, gross of any consumption of fixed capital.

Balance sheet

Assets, Liabilities, and Net Worth

In the *1993 SNA*, economic assets are stores of value over which ownership rights are enforced by institutional units, individually or collectively, and from which economic

benefits⁷ may be derived by its owner by holding it, or using it, over a period of time. Financial assets differ from other assets in the System in that there is a counterpart liability on the part of another institutional unit.⁸ Assets and counterpart liabilities that meet the definition are recognized on-balance sheet.

In terms of specific assets and liabilities identified, the *Guide* is very close to the *1993 SNA*, differing only in the presentation of capital on the liabilities side of the balance sheet. Capital and reserves in the *Guide* is the residual interest after taking account of all assets and liabilities, and so is a wider concept than equity and other shares in the *1993 SNA*, as it also includes the *1993 SNA*'s concept of net worth (total assets less total liabilities).

IAS F.49 defines an asset as a resource controlled by an enterprise as a result of past events and from which future economic benefits are expected to flow to the enterprise. It defines a liability as a present obligation of the enterprise arising from past events, the settlement of which is expected to result in an outflow from the enterprise of resources embodying economic benefits. The definition of assets and liabilities in IAS 32.5 provides an overview of the categorization of financial assets and liabilities: financial assets comprise (a) cash, (b) a contractual right to exchange financial instruments with another enterprise under conditions that are potentially favorable, (c) an equity instrument of another enterprise, and (d) an equity instrument of another enterprise; financial liabilities comprise contractual obligations to (a) deliver cash or another financial asset to another enterprise, or (b) to exchange financial instruments with another enterprise under conditions that are potentially unfavorable. Equity is defined as the residual interest in the assets of the enterprise after deducting all its liabilities.

There are potential differences with the *Guide* as to what is and what is not an asset or liability. For example, unlike the *Guide*, IAS considers that unpatented know-how may meet

⁷ The economic benefits of financial assets can include primary incomes derived from the use of the asset and the possibility of holding gains.

⁸ By convention, monetary gold and SDRs are financial assets with no counterpart liability.

its definition of an asset if, by keeping such knowledge secret, the enterprise controls the benefits that are expected to flow from it (IAS F. 57). Similarly, if an enterprise, for good or normal business practice, as a matter of policy rectifies products after the warranty period has expired, the expected costs are liabilities (IAS F.60). But under IAS, on-balance sheet recognition also depends on whether the value of the asset or liability can be measured reliably (IAS F. 89 and 91). Assets and liabilities that meet the IAS definition, but for which value cannot be measured reliably, are captured off-balance sheet. Thus the need for reliable valuation brings the IAS definition of on-balance sheet recognition of assets and liabilities close to the *Guide*.

In the IAS the presentation of assets and liabilities is less prescriptive, and even more dependent upon the activity of the individual enterprise than the *Guide*, and different from the 1993 SNA. Also, the presentation of instruments is different between the asset and liability sides of the balance sheet, and the focus is more on the liquidity of the enterprise than in the *Guide* or 1993 SNA.

Non-Financial Assets

In the 1993 SNA's full sequence of accounts, line 15 in Table 4.1, line 2 in Table 4.2, line 14 in Table 4.3 and line 8 in Table 4.4 equate to non-financial assets (AN) in the balance sheet (excluding purchased goodwill, part of A.N.22).

In the IAS, these lines are closely equivalent to the sum of items identified in IAS 1.66 as property, plant, and equipment, inventories, and intangible assets.

In line with the definition of nonfinancial produced assets adopted in the *Guide*, property, plant, and equipment is defined in IAS 16.6 to include tangible assets that (i) are held by an enterprise for use in the production or supply of goods or services, for rental to others, or for administration purposes; and (ii) are expected to be used during more than one period.

Excluded from the scope of the IAS are (i) forests and similar regenerative natural resources—only classified as an asset in the *Guide* if they are cultivated assets; and (ii) mineral rights, the exploration for and the extraction of minerals, oil, natural gas, and similar

non-regenerative resources (IAS 16.2)—because these activities are so specialized that they give rise to accounting issues that may need to be dealt with in a different way (IAS 38.6).

Inventories are defined in IAS 2 consistently with the *Guide*, and include assets that are (i) held for sale in the ordinary course of business; (ii) in the process of production for such sale; or (iii) in the form of materials or supplies to be consumed in the production process or in the rendering of services (IAS 2.4).

Intangibles are defined in IAS 38 as identifiable nonmonetary assets without physical substance held for use in the production or supply of goods or services for rental to others, or for administrative purposes (IAS 38.7). This definition is broadly consistent with the *Guide* but, as noted above, could be interpreted more widely to include “assets,” such as unpatented know-how, when the value of the benefits arising from these “assets” can be reliably measured. Intangibles do not include goodwill (IAS 38.10), which is recognized as an asset in IAS when the cost of acquisition exceeds the acquirer’s interest in the fair value of the assets and liabilities acquired as at the date of the exchange transaction (IAS 22.41). The *Guide* does not recognize goodwill as an asset.

Non-Financial Produced Assets

In the 1993 SNA’s full sequence of accounts, line 15 in Table 4.3 equate to nonfinancial produced assets (AN.1) in the balance sheet.

In the IAS, these lines equate to the sum of items identified in IAS 1.66 as property, plant and equipment that is produced—that is, excluding land (IAS 2)—inventories (IAS 16), that part of intangible assets (IAS 38) that are produced, such as computer software, and valuables, if included in IAS.

Non-Financial Produced Fixed Assets

In the 1993 SNA’s full sequence of accounts, line 15 (i) in Table 4.3 equates to nonfinancial produced fixed assets (AN.11) in the balance sheet.

In IAS, produced fixed assets equates to the sum of items identified in IAS 1.66 as property, plant and equipment that is produced—that is, excluding land—and that part of intangible assets that are produced, such as computer software.

Inventories

In the 1993 SNA's full sequence of accounts, line 15 (ii) in Table 4.3 equates to inventories (AN.12). In IAS, this line equates to the item identified in IAS 1.66 as inventories (IAS 16) in the balance sheet.

Non-Financial Non-Produced Assets

In the 1993 SNA's full sequence of accounts, line 16 in Table 4.3 equate to nonfinancial nonproduced assets (AN.2) in the balance sheet.

In IAS, these lines are closely equivalent to that nonproduced part of the item identified in IAS 1.66 as property, plant and equipment—that is, land—and intangible assets that are non-produced, such as patents and leases and other transferable contracts relating to nonfinancial assets (IAS 38), and goodwill. IAS can also include the value of non-patented know how, if measurable reliably.

Residential and commercial real estate

Residential and commercial real estate, line 9 in Table 4.4, is not explicitly identified in either the 1993 SNA, nor IAS. Nonetheless, in the 1993 SNA, dwellings, and other buildings and structures are described in paragraphs 10.69 to 71 and included within nonfinancial produced assets (AN1), and land is described in paragraphs 10.59 to 60, and included within nonfinancial nonproduced assets (AN.2) in the balance sheet. In IAS, real estate is included within the item identified in IAS 1.66 as property, plant and equipment (IAS 16.35).

Financial Assets

In the 1993 SNA's full sequence of accounts, line 16 in Table 4.1, line 3 in Table 4.2, line 17 in Table 4.3 and line 11 in Table 4.4 equate with financial assets (AF) in the balance sheet.⁹

In IAS, there is a need to distinguish between deposit-takers and other corporate entities. For deposit-takers, IAS 30 sets out the assets that should be covered in their financial statements. These include cash and balances at the central bank; treasury bills and other bills eligible for rediscounting at the central bank; placements with, and loans and advances to, other banks; other money market placements; loans and advances to customers; government and other securities held for dealing purposes; and investment securities (IAS 30.19). IAS is clear that financial statements should include but are not limited to these items. For instance, in the IAS 30 list no reference is made to financial derivatives, which under IAS 39 should be recognized on balance sheet (IAS 39.10 and 39.27). Also, in some instances IAS1 is relevant, such as tax assets (see immediately ahead). With these exceptions, while presented differently, the definition of the items and their coverage of financial assets is closely equivalent with the *Guide*.

For other entities, IAS1.66 is relevant, and like for deposit-takers presents assets on a liquidity basis. While IAS does not prescribe the order or format in which items are to be presented, it does regard the list of items presented as so different in nature or function that they deserve separate presentation on the balance sheet, and should be presented, along with sub-totals necessary to present fairly the enterprise's financial position. The coverage of assets is again close to the *Guide*, but the classification and definition of items is not so close. The financial assets identified by IAS 1.66 are cash and cash equivalents—cash on hand, demand deposits, and short-term, highly liquid investments that are readily convertible to know amounts of cash and which are subject to an insignificant risk of change in value (IAS

⁹ To be strictly in conformity with the *Guide*, interest should not accrue on nonperforming assets. However, it is proposed in Chapter 4 that if loan data are only available for deposit-takers inclusive of such interest, the amount of accrued interest on nonperforming loans be reported and included together with specific provisions for loan losses. In principle, the same approach should be taken for other assets.

7.6); trade and other receivables—assets created by the entity providing money, goods or services directly to a debtor (IAS 39.10); investments accounted for using the equity method—relates to investments in associates (IAS 28) and unconsolidated subsidiaries (IAS 27.30); tax assets (IAS 12.5)—not assets in the *Guide*, except to the extent that taxes have been overpaid and a refund for the general government is owed; and other financial assets—which includes securities.

Liabilities

In the 1993 SNA's full sequence of accounts, line 23 in Table 4.1, line 11 in Table 4.2, line 24 in Table 4.3, and line 17 in Table 4.4 equates with liabilities (AF) in the balance sheet.

As with assets, with IAS it is necessary to distinguish deposit-takers from other corporate entities. For deposit-takers, IAS 30 sets out the liabilities that should be reported in their financial statements as follows: deposits from other banks; other money market deposits; amounts owed to other depositors; certificates of deposit; promissory notes and other liabilities evidenced by paper; and other borrowed funds. As with assets, the list should include but not be limited to these items e.g., derivatives and tax liabilities are not covered in the IAS 30 list.

For other corporate entries, as with assets, IAS 1.66 is relevant. The liabilities that should be presented are trade and other payables—short-term liabilities; non-current interest bearing liabilities—long-term liabilities; tax liabilities—liabilities in the *Guide* if tax amounts actually owed to general government but unpaid; and provisions. The latter are recognized when an enterprise has a present obligation as a result of a past event, it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. These provisions include such items as product warranties, clean-up cost for environmental damage, etc. (IAS 37.19). The *Guide* prefers that provisions for estimated costs related to product warranties be included as a cost of sales and as a general reserve in capital. As with assets, the IAS does not prescribe the order or format in which items are to be presented but regards the list of items so different in nature or

function that they deserve separate presentation on the balance sheet, and should be presented, along with sub-totals in such a presentation as is necessary to present fairly the enterprise's financial position.

Currency and Deposits

In the 1993 SNA's full sequence of accounts, on the asset side, line 17 in Table 4.1, line 4 in Table 4.2, line 18 in Table 4.3 and line 12 in Table 4.4 equate with financial assets AF.2 in the balance sheet. On the liability side, line 24 in Table 4.1 and line 12 in Table 4.2 equate with liabilities AF.2 in the balance sheet.

In IAS, for deposit-takers the closest equivalent for assets, is the sum of items identified cash and balances with the central bank, and placements with other banks (IAS 30.19, and 30.21 for the separate identification of placements with other banks). For other sectors, the closest equivalent is cash—cash on hand and demand deposits—and, perhaps, some element of cash equivalents—short-term highly liquid investments (IAS 7.6), although overdrafts can be recorded as part of cash and cash equivalents in IAS (IAS 7.8) rather than as loans as recommended in the *Guide*.

In IAS, deposit-takers currency and deposits liabilities equates to the sum of deposits from other banks, and amounts owed to other depositors in IAS 30.19.

Loans

In the 1993 SNA's full sequence of accounts, on the asset side, line 18 (i) in Table 4.1, line 5 in Table 4.2 equate with loans (AF.4) in the balance sheet. Similarly, on the liability side, line 25 in Table 4.1, line 13 in Table 4.2, line 25 in Table 4.3 and line 18 in Table 4.4 equate to loans (AF.4) in the balance sheet.

In IAS, for deposit-takers on the asset side, loans most closely equates to the sum of loans and advances to customers and loans and advances to other banks (i.e., other than the central bank) (IAS 30.19). Placements with other banks should be separately identified (IAS 30.21) and excluded from the item “placements with, and loans and advances to, other banks” to

provide information on loans. On the liability side, loans would be a sub-item within other borrowed funds. In IAS, specific and general provisions for loan losses can be deducted from the carrying amount of the appropriate category of loans (IAS 30.45). However, deposit-takers should disclose the aggregate amount of provisions for loan losses at the balance sheet date (IAS 30.43c). Loans are defined in IAS 39.10.

For other corporate entities, on the asset side, loans will be a sub-item of other financial assets. On the liability side, overdrafts can be included within cash and cash equivalents (IAS 7.8), while loans are also to be included within non-current interest bearing liabilities (IAS 1.66).

On two specific issues, the treatment of securities repurchase agreements (repos) in IAS is consistent with the collateralized loan approach in the *Guide* (see IAS 39.10 and IAS 39.35-39). Also, the IAS treatment of financial leases is substantially the same as loans (IAS 32 A6) is consistent with their classification in the *Guide* as loans.

Interbank loans

In the 1993 SNA's full sequence of accounts, in concept Line 18 (i.i) in Table 4.1 equates with loans to deposit-takers (AF.4 S.122) in the balance sheet.

In IAS, this line equates to loans and advances to other banks, and excludes placements with other banks (IAS 30.19). In other words, compared with the item in IAS 30.19, placements with other banks should be separately identified (IAS 30.21) and excluded from the item "placements with, and loans and advances to, other banks" to provide information on loans.

Non-interbank loans

In the 1993 SNA's full sequence of accounts, Line 18 (i.ii) in Table 4.1 equates with loans (AF.4) less loans to deposit-takers (AF.4 S.122) in the balance sheet. In IAS, this line equates to loans and advances to customers (IAS 30.19).

Sectoral and geographical distribution of loans

Line 18 (i) in Table 4.1 can be attributed by institutional sector. In the 1993 SNA's full sequence of accounts, in concept the sectoral detail equates to items AF.4 S.1 through S.2.

The 1993 SNA does not specify identification of the geographical location of the debtor, except for the resident and nonresident distinction.

IAS 14 establishes principles for reporting financial information by business and geographic segment. Business segments are determined by the type of products or services produced (IAS 14.9), and so could be considered broadly similar to the industrial classification of lending—one of the possibilities provided in the *Guide*. The geographic segment is based on providing goods and services within a particular economic environment, and could be a single country, a group of two or more countries, or a region within a country (IAS 14.9). A country attribution would facilitate the region attribution of lending described in the *Guide*. Also, sectoral and geographic analysis of concentrations of credit risk should be disclosed in accordance with IAS 30.40 and IAS 32.74-32.76. IAS 30.41 suggesting that geographical areas may comprise individual countries or groups of countries, or regions within a country; customer disclosures may deal with sectors such as governments, public authorities, and commercial and business enterprises.

Specific provisions for loan losses

As with nonperforming loans, the 1993 SNA does not have a concept equivalent to specific provisions (line 18 (ii) in Table 4.1). Loan values are not adjusted for provisions in the 1993 SNA, so until the loans are written-off provisions for impaired assets are implicitly and indistinguishably included as part of net worth (B.90) in the 1993 SNA's full sequence of accounts.

In IAS 30.43c, the aggregate amount of the provision for losses on loans and advances by banks at the balance sheet date should be disclosed, in order that users of financial statements know the impact that losses on loans and advances have on the financial position (IAS

30.47). Unlike the *Guide*, both specific and general loan loss provisions are included in the disclosure (IAS 30.45). (The difference arises because in the *Guide*, the FSI of loans less provisions, nets specific provisions only, whereas in IAS both specific and general provisions are netted against the value of loans.)

Debt securities

In the 1993 SNA's full sequence of accounts, on the asset side, line 19 in Table 4.1, line 6 in Table 4.2, line 19 in Table 4.3, and line 13 in Table 4.4 in concept equates with securities other than shares (AF.3) in the balance sheet. Similarly, on the liability side, line 26 in Table 4.1, line 14 in Table 4.2, line 26 in Table 4.3 in concept equates with securities other than shares (AF.3) in the balance sheet.

For deposit-taker on the assets side, line 19 in Table 4.1 in concept equates to the sum of treasury bills and other bills eligible for discount at the central bank, other money market placements, and the debt securities element of government and other securities for dealing purposes, and investment securities (IAS 30.19).¹⁰ Separate identification of debt securities from within these latter two items may not be provided in the main financial statements, but in accordance with IAS 32.60(c) supplementary information should indicate which of the enterprise's financial assets are not exposed to interest rate risk, such as some investments in equity securities. This supplementary information used in conjunction with items on government and other securities for dealing purposes, and investment securities may permit the identification of holdings of debt securities, depending on the level of detail provided in the published accounts (see also IAS 32.64).

For deposit-takers on the liability side, line 25 in Table 4.1 in concept equates to the sum of certificates of deposit, other money market deposits, and promissory notes and other

¹⁰ In accordance with IAS 32. A20-21, a preferred share that provides for redemption for a fixed or determinable amount on a fixed or determinable future date or at the option of the holder meets the definition of a debt security if the issuer has an obligation to transfer financial assets to the holder of the preferred share. This is consistent with the *Guide*'s definition of a debt instrument as being one on which future payments of interest and/or principal are required.

liabilities evidenced by paper (IAS 30.19), and the debt securities element of “other borrowed funds.”

For other corporate entities, on the asset side, debt securities in concept equate to the debt securities element of cash equivalents, and financial assets not otherwise identified. Unless further sub-classification is required, debt securities might not be identifiable from IAS.

Insurance technical reserves

In the 1993 SNA's full sequence of accounts, on the assets side, line 8 in Table 4.2 equates to AF.6 in the balance sheet. Similarly on the liability side, line 15 equates to AF.6 in the balance sheet. IAS does not make any disclosure requirements specific to insurance technical reserves, but in accordance with IAS 1.67, additional items should be presented on the balance sheet, when such a presentation is necessary to present fairly the enterprise's financial position. IAS 39.5 notes that a project is underway on accounting for rights and obligations arising under insurance contracts.

Trade Credit

In the 1993 SNA's full sequence of accounts, on the asset side, line 21 in Table 4.3 in concept equates with trade credit and advances AF.81 in the balance sheet. Similarly on the liability side, line 27 in Table 4.3 in concept equates with AF.81 in the balance sheet.

In IAS, on the asset side, line 20 in Table 4.3 in concept equates most closely with trade and other receivables, and, on the liabilities side, with trade and other payables (IAS1.66).

Shares and other equity

In the 1993 SNA's full sequence of accounts, on the asset side, line 20 in Table 4.1, line 7 in Table 4.2, line 20 in Table 4.3, and line 14 in Table 4.4 in concept equates with AF.5 in the balance sheet in the balance sheet. However, in practice there may be a difference depending upon how equity investments in associates and, unconsolidated subsidiaries are valued. This issue is briefly discussed in terms of foreign affiliates in paragraph 13.74.

In IAS, in concept for deposit-takers, line 20 in Table 4.1 equates to the equity securities element of government and other securities held for dealing purposes, and investment securities (IAS 30.19). Separate identification of equity securities from within these latter two items may not be provided in the main financial statements, but in accordance with IAS 32.60(c) supplementary information should indicate which of the enterprise's financial assets are not exposed to interest rate risk, such as some investments in equity securities. For other corporates, equity securities are included within investments accounted for using the equity method, and other financial assets (IAS 1.66). Accounting by the equity method, refers to investments in associates (IAS 28.6), and unconsolidated subsidiaries (IAS 27.30), essentially valuing such investments at the investor's share of net assets of the investee (IAS 28.3).

Financial derivatives

In the 1993 SNA's full sequence of accounts, on the asset side, line 21 in Table 4.1, line 9 in Table 4.2, line 22 in Table 4.3, and line 15 in Table 4.4 in concept equate with financial derivatives AF.7 in the balance sheet. On the liabilities side, line 29 in Table 4.1, line 18 in Table 4.2, line 30 in Table 4.3, and line 21 in Table 4.4 in concept equate with AF.7 in the balance sheet.¹¹

In IAS 39.10, financial derivatives are defined and, with one exception for commodity derivatives (see ahead), this definition, while expressed differently, is consistent with that in the *Guide* (see also IAS 32.9-10). Further, IAS 39.10 makes clear that financial derivatives instruments are to be recognized as financial instruments. While IAS does not make specific recommendations for the separate identification of positions in financial derivatives, under IAS 39.27, financial derivatives are recognized on-balance sheet.¹² On commodity

¹¹ See *The New International Standards for the Statistical Measurement of Financial Derivatives: Change to the Text of the 1993 SNA*, (2000), IMF.

¹² Under IAS 39.23, inter alia, if an instrument with an embedded derivative is not valued at fair value and changes in that value reported in net profit and loss, the embedded derivative should be separately recognized. In the *Guide*, there are no circumstances under which an embedded derivative is separately identified.

derivatives, whereas the *Guide* includes such derivative contracts within its definition, in IAS there is some flexibility in that if the contract specifies settlement in cash according to a formula, such contracts are classified as financial derivatives, otherwise not. This is because IAS does not recognize contracts to deliver goods and services as financial instruments. (IAS 32.A9-17)

Other assets

In the 1993 SNA's full sequence of accounts, line 22 in Table 4.1, line 10 in Table 4.2, line 23 in Table 4.3, and line 16 in Table 4.4 in concept equates with the sum of insurance technical reserves AF.6 and other accounts receivable AF.8 (excluding trade credits (AF.81) for nonfinancial corporates as it is separately identified in the *Guide*) in the balance sheet.

In IAS, these lines are most closely reconcilable with the trade and other receivables (IAS 1.66 and 39.10), although the trade credit element for nonfinancial corporations is separately identified in the *Guide*, and tax assets (IAS 1.66). However, unlike the *Guide*, when the future economic benefit is the receipt of goods or services—such as if expenses have been prepaid—rather than the right to receive cash or another financial asset (such as prepaid expenses), such benefits are not recognized as a financial asset (IAS 32.12). Nonetheless, if taxes paid exceed the amounts due for the period, the excess should be regarded as an asset (IAS 12.12). Under certain circumstances, unlike the *Guide*, the IAS recognizes deferred tax assets (IAS 12.24)—essentially when it is probable that taxable profits will be available against which tax benefits arising from past losses can be utilized. With regard to obligations under insurance contracts, IAS 32 explicitly excludes them from financial instruments (IAS 32.1) except for certain reinsurance and investment contracts issued by insurance companies (IAS 32.3). IAS 38 notes that contracts involving insurance companies is specialized and give rise to accounting issues that need to be dealt with in a different way (IAS 38.6).

Other liabilities

In the 1993 SNA's full sequence of accounts, line 27 in Table 4.1, line 16 in Table 4.2, line 28 in Table 4.3 and line 19 in Table 4.4 in concept equates with other accounts payable, AF.8

(excluding trade credits (AF.81) for nonfinancial corporates as it is separately identified elsewhere), and possibly insurance technical reserves AF.6 (except for such liabilities of other financial institutions, which is separately identified elsewhere) in the balance sheet. In IAS, these lines most closely correspond with the trade credit and other payables (excluding those elements include under other items), and tax liabilities to the extent that they are amounts owed on profits already earned (IAS 12.5).

Debt

In the *1993 SNA*'s full sequence of accounts, line 28 in Table 4.1, line 17 in Table 4.2, line 29 in Table 4.3, and line 20 in Table 4.4 equate to the sum of liabilities in the form of deposits (AF.2), securities other than shares (AF.3), loans (AF.4), liabilities for insurance technical reserves (AF.6), and other accounts payable (AF.8) in the balance sheet.

In IAS, for deposit-takers debt is the sum of items deposits from other banks, other money market deposits, amounts owed to other depositors, certificates of deposit, promissory notes and other liabilities evidenced by paper, other borrowed funds, (IAS 30.19), and tax liabilities (IAS 1.66), to the extent that they are amounts accrued and unpaid on profits already earned. For other corporate entities, their debt is the sum of trade and other payables, non-current interest-bearing liabilities, and tax liabilities, to the extent that they are amounts accrued and unpaid on profits already earned. (IAS 1.66)

Capital and reserves

In the *1993 SNA*'s full sequence of accounts, line 30 in Table 4.1, line 19 in Table 4.2, line 31 in Table 4.3, and line 22 in Table 4.4 in concept closely equates with the sum of shares and other equity (AF.5) and net worth (B.90) in the balance sheet. There is a difference in that in the *Guide*, unlike the *1993 SNA*, the level of capital and reserves is affected by specific provisions against loans, and, where applicable, other assets, and the exclusion of purchased goodwill. Also, to avoid double counting of deposit-takers' capital and reserves at the sector-level, intra-sector equity investments are excluded. Additionally, a difference may arise from the different valuation approaches used to value equity investments in domestic

associates and subsidiaries between the *Guide* and the 1993 *SNA*. The sub-categorization of capital and reserves in the *Guide* for deposit-takers and nonfinancial corporations is derived from the IMF's *Monetary and Financial Statistics Manual (MFSM)*, page 34, and not the 1993 *SNA*. However, beyond the differences with the 1993 *SNA* mentioned above, there are differences in coverage between the *Guide* and the *MFSM* at the sub-categorization level e.g., unlike the *MFSM*, the *Guide* excludes general provisions from net income (and so potentially from retained earnings) and includes them in capital and reserves.

In IAS, capital and reserves most closely correspond in concept to total equity, which is the difference between assets and liabilities (and as seen above, there are some differences in coverage of these instruments between the *Guide* and IAS). Equity is the sum of issued capital, retained earnings, reserves representing appropriations of retained earnings, and reserves representing capital maintenance adjustments (IAS F. 65). Under IAS 1.74, information on issued capital should be disclosed. Capital maintenance adjustments are distinguished between financial and physical capital maintenance and are equivalent to holdings gains and losses on financial instruments that are not recorded in the income statement. The minority interest that may arise from consolidating a subsidiary is that part of the net assets of a subsidiary attributable to interests which are not owned directly or indirectly through subsidiaries, by the parent (IAS 27.6). In accordance with IAS 27, Consolidated Financial Statements and Accounting for Investments in Subsidiaries, a financial instrument classified as an equity instrument by a subsidiary is eliminated on consolidation when held by the parent, or presented by the parent in the consolidated balance sheet as a minority interest separate from the equity of its own shareholders.

Selected memoranda series

Liquid assets

The *Guide*'s concept of liquid assets as assets that are readily available to an entity to meet a demand for cash do not have equivalence in the 1993 *SNA*. So, lines 39 and 40 in Table 4.1, and lines 40 and 41 in Table 4.3 does not conceptually equate to any 1993 *SNA* line or lines. Nonetheless, from the 1993 *SNA*'s full sequence of accounts, an approximation of the core

measure is possible from the sum of currency (AF.21), transferable deposits (AF.22), (very) short term loans (AF.41), and other accounts receivable (AF.8), while adding holdings of short-term (less than one year maturity) securities other than shares (AF.31), and perhaps holdings for shares and other equity (AF.5) provides an approximation of the wider measure. For deposit-takers the *Guide* excludes from liquid assets any nontraded claims on other deposit-takers. These measures of liquid assets will differ from the *Guide* in that (a) the following assets are not covered (i) nontransferable deposits of less than 3 months maturity, and (ii) long-term holdings of securities traded on liquid markets; and (b) the following assets should be excluded but are covered (i) non-tradable short-term securities other than shares, (ii) other non-tradable assets of more than 3 months maturity.

IAS focuses more closely on liquidity than *1993 SNA*. For deposit-takers from IAS 30.19, the following items equate most closely to liquid assets in line 40 in Table 4.1: cash and balances at the central bank, treasury bills and other bills eligible for rediscounting with the central bank, government and other securities held for dealing purposes, and market placements excluding with other banks. However, any money market placements of more than 3 months maturity that cannot readily be converted into cash should be excluded. On the other hand, investment securities that are traded on liquid markets should be included. Further, IAS 30.30–39 requires the disclosure of an analysis of assets (and liabilities) into relevant maturity groupings based on the remaining period at the balance sheet date to the contractual maturity date—five maturity bands are suggested, the first two of which include assets with remaining maturities of 3 months or less.

For other corporate entities, the closest equivalence to the concept of liquid assets in the *Guide* is cash and cash equivalents—assets held for the purpose of meeting short-term cash commitments rather than for investment or other purposes (IAS 7.7). For an investment to qualify as a cash equivalent it must be readily convertible to a known amount of cash and be subject to an insignificant risk of changes in value. Therefore, an investment normally qualifies as a cash equivalent only when it has a short maturity of, say, three months or less from the date of acquisition (IAS 7.6 and 7.7). Equity investments are excluded unless they are in substance cash equivalents. (IAS 7.7) However, bank borrowings in the form of

overdrafts which are repayable on demand can be included (deducted) as a component of cash and cash equivalents (IAS 7.8)—in contrast with the *Guide* which classifies overdrafts as a liability item. Cash and cash equivalents along with trade receivables with three months or less to maturity, are close in concept to the core measure of liquid assets in the *Guide*. Such instruments are covered within other financial assets (IAS 1.66).

Short-term liabilities

The definition of short-term, and of liabilities, is the same in *1993 SNA* as in the *Guide*, but while in the *1993 SNA*'s full sequence of accounts short-liabilities in the form of securities other than shares (AF.31) and loans (AF.41) are identified, this is not the case for deposits, other accounts payable, and financial derivatives.

IAS has a similar, but not identical, over- and under-one year maturity distinction to the *Guide* (IAS 1.60 and the glossary), (unless the enterprise's operating cycle is different from a one year, in which instance the boundary with long-term is different). Disclosure of information on current liabilities in accordance with IAS 1.60 provides a measure of short-term liabilities that is broadly consistent with the *Guide*'s definition. Also, a bank should disclose an analysis of liabilities (and assets) into relevant maturity groupings based on the remaining maturity at the balance sheet date to the contractual maturity date, in accordance with IAS 30.30. While maturity bands are not specified, IAS 30.33 suggests distinguishing financial liabilities that have a maturity of 1 year or less.

Nonperforming loans

As with liquid assets, the *1993 SNA* does not have a concept equivalent to nonperforming loans—line 42 in Table 4.1. From the *1993 SNA*'s full sequence of accounts, such loans are indistinguishably included as part of loans, AF.4. Thus, the stock of nonperforming loans cannot be derived from *1993 SNA*.

IAS 39.110 provides guidance on identifying assets that may be impaired that is broadly consistent with the approach in the *Guide*. Whereas the *Guide* places more focus on a past

due payments time limit, guidance of impairment in IAS 39 covers both actual breaches of contract, although no overdue date is recommended, and other evidence of impairment. Further, IAS 30.43d recommends that a bank should disclose the aggregate amount included in the balance sheet for loans and advances on which interest is not being accrued and the basis used to determine the carrying amount of such loans and advances should be disclosed.¹³ The basis used to determine when to stop accruing interest may vary across enterprises, and may differ from the 90 day guidelines suggested in the *Guide*.

Foreign-currency-denominated assets and liabilities

The 1993 SNA does not define foreign currency assets and liabilities (although it may be available to economic statisticians from the source data used to construct the national accounts).

Under IAS 32.43i, IAS requires disclosure of information that assists users of financial statements in assessing the extent of risks associated with, inter alia, currency risk—the risk that the value of financial instruments will fluctuate due to changes in foreign exchange rates. However, the standards do not prescribe either the format or level of detail of the information to be disclosed (IAS 32.44-45).

Net open position in foreign exchange

The 1993 SNA does not provide any equivalent concept. Under IAS 30.40, a bank should disclose the amount of significant net foreign currency exposure.

Large Exposures

Large exposures is a series used in the calculation of one FSI. The 1993 SNA does not have a concept of large exposures because it is concerned with aggregate economic statistics rather

¹³ There appears a difference between IAS 30 and 39 in that IAS 39 recommends continuing accrual of interest on impaired loans at the discount rate used to value an impaired assets (IAS39.116), whereas IAS 30 discusses loans on which interest has stopped accruing.

than with the credit risks faced by individual institutional units. Under IAS 30.40, a bank should disclose any significant concentration of its assets, liabilities and off-balance sheet items. Such disclosure should be made in terms of geographical areas, customer or industry groups or other concentration of risk which are appropriate in the circumstances of the bank. IA 32.74 notes that identification of significant concentrations is a matter for the exercise of judgment by management taking into account the circumstances of the enterprise and its debtors. Disclosure of concentrations of credit risk includes a description of the shared characteristic that identifies each concentration and the amount of the maximum credit risk exposure associated with all recognized and unrecognized financial assets sharing that characteristic (IAS 32.76).

Arrears

In the 1993 SNA's full sequence of accounts, there is no separate identification of arrears (line 63 in Table 4.1), although such an item can be included as memorandum item (1993 SNA 11.101). Arrears are not discussed in IAS.

Appendix IV

Numerical Examples

Introduction

This appendix provides a series of numerical examples to illustrate key compilation and methodological concepts described in the *Guide*, and to provide guidance on how to calculate FSIs. The examples are grouped together in three sections:

- I **A base data set** of income and expense and balance sheet statements is provided to illustrate how the agreed FSIs can be calculated.
- II **Accounting rules**, for (1) gains and losses on financial instruments, and (2) interest income on nonperforming.
- III **Consolidation and associated sector level issues**, comprising (1) an extended base set of data, (2) sector-wide consolidation of capital and (3) accounting for goodwill in sector wide capital.

While the focus of the examples is on the deposit-taking sector, they can apply to other corporate sectors.

I Base Data Set

Background

To illustrate the principles involved, a base set of data for income and expense, balance sheet, and associated memorandum items is provided ahead, that is used to calculate a data set of FSIs. The data sets provided are constructed consistent with the guidance in Chapter 4 and Chapter 6. Nonetheless, some simplifying assumptions are made to put to one side the consolidation issues (and the additional data needs) relating to interbank positions and flows that are described in Chapter 5. These simplifying assumptions are relaxed in the later examples on consolidation (in section III).

The basic data set of financial accounts

In this example, the economy has three deposit-takers. There are no financial relations among them, nor do they have foreign branches or investments in foreign subsidiaries and associates.¹ End-period financial statements (income and balance sheet accounts) for the three resident deposit-takers are presented in Tables 1 and 2, together with the aggregated income and balance sheet statements.

Among the deposit-takers, it can be seen that deposit-taker 2 is the largest in terms of total assets, followed by deposit-taker 1. All three deposit-takers extend loans to residents of the local economy, but the sectoral allocation differs. Each deposit-taker also extends some loans to nonresidents; a geographical distribution is reported as an addendum to the balance sheet. Deposits from (nonbank) residents in the local economy is the main form of funding, but deposit-takers 2 and 3 have also raised some significant amounts through the issuance of debt securities. Financial derivative instruments are used by all three deposit-takers but are limited to interest rate swaps. On the income and expense side, deposit-taker 1's performance is weaker than other deposit-takers, reporting zero net income for the period.

Computation of a base data set of FSIs

Using the guidance in Chapter 6 and the base data set of financial accounts, Table 3 presents the agreed FSIs at the sector level and, for illustrative purposes, for each bank individually. Also, where relevant the value of the numerator and denominator for each FSI is shown. Because of the lack of financial relations among the three resident deposit-takers, the sector-level FSIs can be calculated using the aggregated balance sheet and income data shown in Tables 1 and 2, without the need for sector-level consolidation adjustments discussed in Chapter 5. Furthermore, since the deposit-takers have no foreign operations, the construction of FSIs on a domestic basis is sufficient for this economy.

¹ As noted earlier, these assumption are unlikely to hold in practice as deposit-takers are expected to have financial relations with other deposit-takers in the reporting population.

Table 1: Income and expense statements^{1/}

(\$ millions, unless otherwise stated)				
	Deposit-taker 1	Deposit-taker 2	Deposit-taker 3	Aggregation
	A	B	C	A+B+C
1. Interest income	400	800	300	1,500
(i) Gross interest income	400	800	300	1,500
(ii) Less provisions for accrued interest on nonperforming assets	-	-	-	-
2. Interest expense	100	140	100	340
3. <i>Net interest income (= 1 minus 2)</i>	300	660	200	1,160
4. Non-interest income	250	700	400	1,350
(i) Fees and commissions receivable	110	300	200	610
(ii) Gains or losses on financial instruments	50	100	100	250
(iii) Other income	90	300	100	490
5. <i>Gross income (= 3 plus 4)</i>	550	1,360	600	2,510
6. Operating expenses	500	600	150	1,250
(i) Personnel costs	300	300	100	700
(ii) Other expenses	200	300	50	550
7. Provisions (net)	50	80	10	140
(i) Loan loss provisions	50	80	10	140
(ii) Other financial asset provisions	-	-	-	-
8. <i>Net income (Before extraordinary items and taxes) (= 5 minus (6+7))</i>	-	680	440	1,120
9. Extraordinary items	-	-	-	-
10. Income tax	-	272	176	448
11. <i>Net income after tax (= 8 minus (9 +10))</i>	-	408	264	672
12. Dividends payable	-	300	140	440
13. <i>Retained earnings (= 11 minus 12)</i>	-	108	124	232

1/ For a description of the line items refer to Chapter 4.

Table 2: Balance Sheets^{/1}

(\$ millions, unless otherwise stated)	Deposit Taker 1	Deposit Taker 2	Deposit Taker 3	Aggregation
	A	B	C	A+B+C
14. Total assets (= 15+16 = 31)	12,450	18,201	7,450	38,101
15. <i>Non-Financial Assets</i>	500	500	300	1,300
16. <i>Financial Assets</i> (=17 to 22)	11,950	17,701	7,150	36,801
17. Currency and deposits	200	200	100	500
18. Loans (after specific provisions)	9,200	13,900	5,350	28,450
(i) Gross loans	9,250	14,400	5,600	29,250
(i.i) Interbank loans	1,000	900	600	2,500
(i.i.i) Resident	-	-	-	-
(i.i.ii) Nonresident	1,000	900	600	2,500
(i.ii) Non-interbank loans	8,250	13,500	5,000	26,750
(i.ii.i) Central bank	-	-	-	-
(i.ii.ii) General government	400	5,000	2,000	7,400
(i.ii.iii) Other financial corporations	500	2,000	-	2,500
(i.ii.iv) Nonfinancial corporations	7,000	2,000	-	9,000
(i.ii.v) Other domestic sectors	350	2,500	2,500	5,350
(i.ii.vi) Nonresidents	-	2,000	500	2,500
(ii) Specific provisions	50	500	250	800
19. Debt securities	2,250	3,000	1,300	6,550
20. Shares and other equity	100	301	200	601
21. Financial derivatives	200	200	200	600
22. Other assets	-	100	-	100
23. <i>Liabilities</i> (= 28 +29)	11,050	16,501	6,850	34,401
24. Currency and deposits	10,200	11,700	5,150	27,050
(i) Customer deposits	10,200	11,200	3,650	25,050
(ii) Interbank deposits	-	500	1,500	2,000
(ii.i) Resident	-	-	-	-
(ii.ii) Nonresident	-	500	1,500	2,000
(ii) Other currency and deposits	-	-	-	-
25. Loans	200	300	150	650
26. Debt securities	400	3,000	1,500	4,900
27. Other liabilities	250	801	50	1,101
28. <i>Debt</i> (= 24+25+26+27)	11,050	15,801	6,850	33,701
29. Financial derivatives	-	700	-	700
30. Capital and reserves	1,400	1,700	600	3,700
(i) Narrow capital	1,160	1,160	500	2,820
31. Balance sheet total (=23+30 = 14)	12,450	18,201	7,450	38,101
Memorandum series				
<i>Other series required to calculate the agreed FSIs</i>				
<i>Supervisory series</i>				
32. Tier 1 Capital	900	1,200	500	2,600
33. Tier 2 Capital	300	604	316	1,220
34. Tier 3 Capital	-	-	-	-
35. Supervisory deduction	-	-	-	-
36. Total net capital resources (item 32 to item 34 minus item 35)	-	-	-	-
37. Risk-weighted assets	8,500	12,800	4,220	25,520
38. Number of large exposures	3	2	1	6

Series that provided a further analysis of the balance sheet

39.	Liquid assets (core)	1,000	2,500	500	4,000
40.	Liquid assets (broad measure)	1,750	2,700	700	5,150
41.	Short-term liabilities	6,000	10,050	2,000	18,050
42.	Nonperforming loans	93	360	140	593
43.	Residential real estate loans	350	1,000	2,000	3,350
44.	Commercial real estate loans	-	2,000	-	2,000
45.	Geographic distribution of loans	See addendum	See addendum	See addendum	See addendum
46.	Foreign currency loans	1,000	3,000	600	4,600
47.	Foreign currency liabilities	1,200	2,500	1,500	5,200
48.	Net open position in equities	100	301	200	601
49.	Net open position in foreign currency for on-balance sheet items	(200)	500	(900)	(600)

Balance sheet-related series

50.	Total net open position in foreign currency	(200)	500	(900)	(600)
51.	Exposures of largest deposit-takers to largest entities in the economy	700	500	-	1,200
52.	Exposures to affiliated entities	-	-	-	-
53.	Duration of assets (years)	4.2	7.4	8.8	6.8
54.	Duration of liabilities (years)	2.1	5.1	3.6	3.6

Additional series

55.	Shares and other equity investments in deposit-takers in the reporting population	-	-	-	-
(i)	Associates	-	-	-	-
(ii)	Other deposit-takers	-	-	-	-
56.	Other nonperforming assets	-	-	-	-
57.	Net liabilities of branches of foreign deposit-takers to their parents	-	-	-	-
58.	Assets transferred to special purpose entities	-	-	-	-
59.	Guarantees	10	50	55	115
	Resident	10	30	25	65
	Nonresident	-	20	30	50
60.	Credit commitments	-	80	68	148
	Resident	-	20	23	43
	Nonresident	-	60	45	105
61.	Gross loans to public sector	450	6,000	2,000	8,450
62.	Loan loss reserves	20	20	20	60
63.	Arrears	-	-	-	-

Addendum

Geographic distribution of loans

Total Loans to non-residents	1,000	2,900	1,100	5,000
Advanced countries	500	2,000	600	3,100
Regions excluding advanced countries				
Africa	250	200	-	450
o/w Sub-Sahara				
Asia	250	700	500	1,450
Europe				
o/w FSU including Russia				
Middle East				
Western Hemisphere				

1/ For a description of the line items refer to Chapter 4.

Table 3: Financial Soundness Indicators¹

	Deposit Taker 1		Deposit Taker 2		Deposit Taker 3		Sector-Level	
Capital-based ²								
Regulatory Capital to risk-weighted assets *	14%		14%		19%		15%	
Numerator	1,200		1,804		816		3,820	
Denominator	8,500		12,800		4,220		25,520	
Regulatory Tier 1 capital to risk-weighted assets *	11%		9%		12%		10%	
Numerator	900		1,200		500		2,600	
Denominator	8,500		12,800		4,220		25,520	
Capital to assets	7%	11%	7%	9%	7%	8%	7%	10%
Numerator	900	1,400	1,200	1,700	500	600	2,600	3,700
Denominator	12,450	12,450	18,201	18,201	7,450	7,450	38,101	38,101
Return on equity*	-	-	57%	40%	88%	73%	43%	30%
Numerator	-	-	680	680	440	440	1,120	1,120
Denominator	900	1,400	1,200	1,700	500	600	2,600	3,700
Nonperforming loans net of provisions to capital *	5%	3%	-12%	-8%	-22%	-18%	-8%	-6%
Numerator	43	43	(140)	(140)	(110)	(110)	(207)	(207)
Denominator	900	1,400	1,200	1,700	500	600	2,600	3700
Large exposures to capital*								
Number	3		2		1		6	
(to large resident entities)	78%	50%	42%	29%	-	-	46%	32%
Numerator	700	700	500	500	-	-	1,200	1,200
Denominator	900	1,400	1,200	1,700	500	600	2,600	3,700
(to connected borrowers)	-	-	-	-	-	-	-	-
Numerator	-	-	-	-	-	-	-	-
Denominator	900	1,400	1,200	1,700	500	600	2,600	3,700
Duration of assets (years) *	4.20		7.40		8.80		6.80	
Duration of liabilities (years)*	2.10		5.10		3.60		3.60	
Net open position in foreign exchange to capital *	-22%	-14%	42%	29%	-180%	-150%	-23%	-16%
Numerator	(200)	(200)	500	500	(900)	(900)	(600)	(600)
Denominator	900	1,400	1,200	1,700	500	600	2,600	3,700
Gross asset position in financial derivatives to capital	22%	14%	17%	12%	40%	33%	23%	16%
Numerator	200	200	200	200	200	200	600	600
Denominator	900	1,400	1,200	1,700	500	600	2,600	3,700
Gross liability position in financial derivatives to capital	-	-	58%	41%	-	-	27%	19%
Numerator	-	-	700	700	-	-	700	700
Denominator	900	1,400	1,200	1,700	500	600	2,600	3,700
Net open position in equities to capital	11%	7%	25%	18%	40%	33%	23%	16%
Numerator	100	100	301	301	200	200	601	601
Denominator	900	1,400	1,200	1,700	500	600	2,600	3,700
Asset-based								
Liquid assets (core) to total assets *	8%		14%		7%		10%	
Numerator	1,000		2,500		500		4,000	
Denominator	12,450		18,201		7,450		38,101	
Liquid assets (core) to short-term liabilities *	17%		25%		25%		22%	
Numerator	1,000		2,500		500		4,000	
Denominator	6,000		10,050		2,000		18,050	
Customer deposits to total (noninterbank) loans	124%		83%		73%		94%	
Numerator	10,200		11,200		3,650		25,050	
Denominator	8,250		13,500		5,000		26,750	
Return on assets*	-		4%		6%		3%	
Numerator	-		680		440		1,120	
Denominator	12,450		18,201		7,450		38,101	
Nonperforming loans to total gross loans *	1%		3%		3%		2%	
Numerator	93		360		140		593	
Denominator	9,250		14,400		5,600		29,250	
Sectoral distribution of loans to total loans (percentages of total)*								
Deposit-takers	11%		6%		11%		9%	
Other Financial Corporations	5%		14%		-		9%	
Nonfinancial Corporations	76%		14%		-		31%	
Households	4%		17%		45%		18%	
Nonprofit institutions serving households	n/a		n/a		n/a		n/a	
Government	4%		35%		36%		25%	
Nonresident	-		14%		9%		9%	

Residential real estate loans to total loans	4%	7%	36%	11%
Numerator	350	1,000	2,000	3,350
Denominator	9,250	14,400	5,600	29,250
Commercial real estate loans to total loans	-	14%	-	7%
Numerator	-	2,000	-	2,000
Denominator	9,250	14,400	5,600	29,250
Geographical distribution of loans to total loans (percentages of total)				
Domestic economy	89%	80%	80%	83%
Advanced countries	5%	14%	11%	11%
Regions excluding advanced countries	-	-	-	-
Africa	3%	1%	0%	2%
o/w Sub-Sahara	-	-	-	-
Asia	3%	5%	9%	5%
Europe	-	-	-	-
o/w FSU including Russia	-	-	-	-
Middle East	-	-	-	-
Western Hemisphere	-	-	-	-
Foreign currency denominated loans to total loans	11%	21%	11%	16%
Numerator	1,000	3,000	600	4,600
Denominator	9,250	14,400	5,600	29,250
Foreign currency denominated liabilities to total liabilities	11%	15%	23%	15%
Numerator	1,200	2,500	1,500	5,200
Denominator	10,850	16,301	6,650	33,801

Income and Expense-based

Interest margin to gross income*	55%	49%	33%	46%
Numerator	300	660	200	1,160
Denominator	550	1,360	600	2,510
Trading foreign exchange gains (losses) to gross income	9%	7%	17%	10%
Numerator	50	100	100	250
Denominator	550	1,360	600	2,510
Noninterest expenses to gross income *	91%	44%	25%	50%
Numerator	500	600	150	1,250
Denominator	550	1,360	600	2,510
Personnel expenses to noninterest expenses	60%	50%	67%	56%
Numerator	300	300	100	700
Denominator	500	600	150	1,250

/1 For the specification of the FSIs refer to Chapter 6.

/2 Two sets of ratios are shown for those using capital. The first set use Tier 1 Capital, and the second set use Total Capital.

II Accounting Rules

1. *Treatment of gains and losses on financial instruments in the income and expense statement*

In the *Guide*, it is recommended that gains and losses on financial instruments that are valued at market or fair value in the balance sheet be included in the income and expense statement in the period they arise. Numerical examples are provided ahead to illustrate the application of the *Guide*'s recommendation and highlight the asymmetries that can arise at the sector level in the absence of consistent reporting of such gains and losses.

Example 1

This example, set out in Tables 4 and 5, illustrates the *Guide*'s approach to recording unrealized gains and losses on traded instruments, and highlights the impact over time of adopting a different approach.

In this example, deposit-takers 1 and 2 purchase a traded financial asset during period 1 at a purchase price of 100. Deposit-taker 1 revalues the asset at its market price at the end of each period and records unrealized losses during periods 2 and 3 in the income statement. The asset is sold during period 4 and deposit-taker 1 records a gain of 5 during this period. This approach is in line with the *Guide*'s recommendations. So as can be seen in Table 4, lower retained earnings are recorded in the periods 2 and 3, as unrealized losses arise, with a small gain in the period of sale.

Deposit-taker 2 also revalues the asset at market prices at the end of each period but only records realized gains (losses) in the income statement. Unrealized gains (losses) are recorded in a valuation adjustment in the capital and reserves account—the counter-entry to the increase in the value of the instrument in the balance sheet. The asset is sold during period 4 at a (cumulative) loss of 25 lowering retained earnings in that period. As can be seen in Table 4 the loss that accumulated over several periods is only recognized by deposit-taker 2

in the fourth quarter, a period when the value of the instrument rose. The losses in the preceding periods were not reflected in income.

Table 4: Recording gains and losses on traded instruments (1)

	Price	Deposit-taker 1		Deposit-taker 2	
		Δ Net income	Capital position (total)	Δ Net income	Capital position (total)
End period 1	100		1700		1700
End-period 2	90	-10	1690		1690
End-period 3	70	-20	1670		1670
End-period 4	75	5	1675	-25	1675

For deposit-taker 2, Table 5 describes the impact on selected FSIs of not recording unrealized gains (losses) in the income statement compared with following the *Guide's* recommendation. So, for instance in period 2, deposit-taker 2's return on assets is **higher** because income is higher than if an unrealized loss had been recorded in income.

Table 5: Recording gains and losses on traded instruments (2)

	Deposit-taker 2		
	Period 2	Period 3	Period 4
Return on equity	Higher	Higher	Lower
Return on assets	Higher	Higher	Lower
Interest margin to gross income	Lower	Lower	Higher
Trading gains (losses) to gross income	Higher	Higher	Lower
Noninterest expenses to gross income	Lower	Lower	Higher

Example 2

This example, set out in Table 6, illustrates how the exclusion of unrealized gains and losses on traded instruments from the income statement disguises the nature of a deposit-takers' activity.

Deposit-takers 1 and 2 both purchase a traded instrument, both revalue the instrument at its market price but whereas deposit-taker 1 records unrealized gains and losses in the income statement as recommended by the *Guide*, deposit-taker 2 does not. As both deposit-takers have other income sources of 5 each period, the consequence is that deposit-taker 1 has net income that is both higher and more volatile than that of deposit-taker 2. The relative importance of the business in traded instruments to the earnings of deposit-taker 1 and the potential for greater volatility can be monitored each period. In contrast, deposit-taker's 2 net income disguises the extent to which deposit-taker 2 has invested in a potentially volatile instrument, increasing the potential for "surprises" in the future.

Table 6: Recording gains and losses on traded instruments (3)

	Deposit-taker 1		Deposit-taker 2
	Δ Net income	of which trading gains (losses)	Δ Net income
End period 1			
End-period 2	30	25	5
End-period 3	40	35	5
End-period 4	-15	-20	5

Example 3

This example, set out in Table 7, illustrates the problems of intra-sectoral consistency if deposit-takers adopt different approaches to recording realized and unrealized gains and losses on traded instruments.

In the example, both deposit-taker 1 and 2 purchase a traded financial asset during period 1 with a purchase price of 100, and in the first two columns the two deposit-takers record gains (losses) on the asset in accordance with the recommendations of the *Guide*. So both deposit-takers record the same entries in their respective income statements and balance sheets regardless of whether the asset is sold (as deposit-taker 2 does in period 4) or retained (as deposit-taker 1 does), and regardless of whether the asset is held in the trading or investment book. At the sector level, changes in net income reflect unrealized losses (gains) of both deposit-takers in the period they occur, as well as a weakening capital position for the sector.

In contrast, assume deposit-taker 2 records only realized gains (losses) in the income statement (shown as 2' in the fourth column of Table 7). On selling the asset in period 4, deposit-taker 2' records a loss of 25 in its income statement for that period. However, deposit-taker 1 reflected such losses in earlier periods, when they arose, and so asymmetries arise when aggregating data to produce sector-level data on net income, undermining the coherence of the sector-level data (fifth column).

Further, assume that like 2', deposit-taker 1 also records only realized gains (losses) in the income statement, but does not sell the asset (shown as 1' in the sixth column). Even though both deposit-takers are using the same recording approach, there are asymmetries in the measurement of net income at the sector level—one deposit-taker reflects a loss, the other records nothing—between the two deposit-takers, again undermining the coherence of the sector-level data (seventh column).

Table 7: Recording gains and losses on traded instruments (4)

	Price	Deposit-taker 1		Deposit-taker 2		Sub-sector Total (Deposit-taker 1 + 2)		Deposit taker 2'		Sub-sector Total (Deposit-taker 1 + 2')		Deposit taker 1'		Sub-sector Total (Deposit-taker 1' + 2')	
		Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income
End period 1	100														
End-period 2	90	-10		-10		-20				-10					
End-period 3	70	-20		-20		-40				-20					
End-period 4	75	5		5		10		-25		-20				-25	
End-period 5	70	-5		-5		-5				-5					

The impact on the data, and so of any analysis, of these different approaches is clear in the sector-level data. For instance, when both deposit-takers follow the *Guide*'s recommendations, at the end of the third quarter and into the fourth losses are ending and there is a small recovery in income as market prices rebound. In contrast, when one deposit-taker only records gains and losses when realized, the losses recorded in the fourth quarter remain of the same magnitude as the third, even with a small rebound in market prices. When both deposit-takers record gains and losses only when they are realized, there is no evidence of any worsening performance until the fourth quarter, increasing the possibility of a surprise when the losses are taken.

Example 4

This example, set out in Table 8, illustrates the problems that can arise for sector-level data if a deposit-taker records gains and losses on its own traded debt differently from another deposit-taker that owns the debt.

Deposit-taker 2 purchases a traded debt instrument issued by deposit-taker 1 in period 1. Both deposit-takers revalue the instrument at its market price and record unrealized gains and losses in the income statement each period, in line with the recommendations of the *Guide*. Consequently, both deposit-takers record equal and opposite entries in their respective income statements, ensuring that net income (and capital) at the sector level is unaffected by the claims of one deposit-taker in the reporting population on another.

In contrast, assume that deposit-taker 1 does not record unrealized gains (losses) on its debt liability (deposit-taker 1' in the fourth column of the table). Consequently, there are asymmetric recording approaches and so the sector's net income is boosted because the sector has recorded a gain in value arising from claims on itself (fifth column).

Table 8: Recording gains and losses on traded instruments (5)

	Deposit-taker 1		Deposit-taker 2		Sub-sector Total (Deposit takers 1 and 2)	Deposit-taker 1'		Sub-sector Total (Deposit-taker 1' and 2)
	Price	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income	Δ Net income
End-period 1	90							
End-period 2	100	-10	10	0				10
End-period 3	110	-10	10	0				10
End-period 4	115	-5	5	0				5

2. *Treatment of interest on nonperforming loans*

The *Guide* recommends that interest accrues continually on loans unless the loan is nonperforming. Numerical examples are provided ahead that illustrate the application of the *Guide*'s recommendations on interest accrual on loans, particularly those that are nonperforming.

Example 1: Base case

As a reference point, Table 9 sets out the entries under interest income in the income statement and loans in the balance sheet statement of a creditor deposit-taker when a loan performs as contracted through to maturity. Each month the amount of interest that has accrued is recorded as interest income in the income statement, with the counterentry increasing the outstanding value of the loan recorded in the balance sheet. As a payment of interest is made—quarterly in this example—in the balance sheet, cash balances of the deposit-taker increase by 3 and the outstanding loan amount decreases by 3 to 100. If the deposit-taker “only” compiles data on a quarterly frequency, the only entries would be the accrual of interest of 3 and an increase in cash balances of 3.

Table 9: Treatment of interest on nonperforming loans (1)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Income and Expense												
Interest Income	1	1	1	1	1	1	1	1	1	1	1	1
(i) Gross interest income	1	1	1	1	1	1	1	1	1	1	1	1
(ii) Less provisions for accrued interest on nonperforming assets												
Loan loss provisions												
Balance sheet (assets)												
Loans (after specific provisions)												
(i) Gross loans	101	102	100	101	102	100	101	102	100	101	102	100
(ii) Specific provisions	101	102	100	101	102	100	101	102	100	101	102	100
Memo: Cash interest payments by debtor			3			3			3			3

Example 2: Loan is classified as nonperforming but interest is subsequently received

Table 10 sets out the entries under interest income and loan loss provisions in the income statement and loans in the balance sheet statement when a deposit-taker classifies a loan as nonperforming but on which payments are subsequently received. The contractual arrangements for the loan are the same as in example 1 above.

In this example, the end-first period interest payment is missed by the debtor, so the end-period outstanding loan amount in the balance sheet is 103. The loan continues to accrue interest in the second period, but again the end-period payment is missed resulting in an end-period loan amount outstanding of 106. At the start of the third period, with payment of interest over 90 days overdue, the loan is classified as nonperforming. On reviewing the loan, the deposit-taker considers that neither the 6 of interest that has accrued in the first two quarters nor all the amount originally advanced will be paid. So, a loan loss (specific) provision of 66 is made in July reducing the loan amount outstanding (after specific provisions).

As the loan is nonperforming, accrual of interest ceases and the loan is placed on a cash basis—that is, no interest income is recorded until payment is made. Nevertheless, for consistency of recording between the debtor and creditor, gross interest income continues to

be recorded at the contractual rate of interest fully offset in the creditor's income statement by a provision for accrued interest on nonperforming assets.

At the end of the third quarter, the overdue interest for the 6 months to June is paid along with the interest of 3 for the third quarter. The payment increases the deposit-takers' cash balances by 9, with the counterentries: a negative loan loss provisions of 6, partially reversing the provision of July; a negative provision for accrued interest on nonperforming loans income statement of 2, reversing the provision against interest accrued recorded in the first two months of the third quarter; and gross interest income in September of 1.

Once the interest payment is made, the expectation is that the debtor will continue to make interest payments according to the loan contract, so the accrual of interest resumes in the fourth quarter. Nonetheless, the deposit-taker remains doubtful that all the amount advanced will be repaid and so a specific provision of 60 remains.

Table 10: Treatment of interest on nonperforming loans (2)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Income and Expense												
Interest Income	1	1	1	1	1	1	0	0	3	1	1	1
(i) Gross interest income	1	1	1	1	1	1	1	1	1	1	1	1
(ii) Less provisions for accrued interest on nonperforming assets							1	1	-2			
Loan loss provisions							66		-6			
Balance sheet												
Loans (after specific provisions)	101	102	103	104	105	106	40	40	40	41	42	40
(i) Gross loans	101	102	103	104	105	106	106	106	100	101	102	100
(ii) Specific provisions							66		60			
Memo: Cash interest payments by debtor			0			0			9			3

Example 3: Loan is classified as nonperforming but part-payment of interest is expected

Table 11 sets out the entries under interest income and loan loss provisions in the income statement and loans in the balance sheet statement when a deposit-taker identifies a loan as nonperforming but on which part-payment of interest is expected.

In the first quarter, interest accrues and is paid in accordance with the loan contract. At the end of the quarter the outstanding loan value is 100. The deposit-taker reviews the loan and determines that there is evidence that the loan will not fully perform in the future and only partial payments of interest of 1.5 per quarter are expected. So 0.5 is recorded for provisions for accrued interest on nonperforming assets in April and May. The balance sheet value of the loan at the end of each month includes the accrual of interest income less the provision for accrued interest on nonperforming assets. Unexpectedly, interest is paid in accordance with loan contract at the end of the second quarter. So the entries in April and May for provisions for accrued interest income on nonperforming assets are reversed in June. At the end of the quarter, the outstanding loan value is 100.

Despite the payment at the end of the second quarter, the deposit-taker continues to expect payment of 1.5 per quarter and so continues to include 0.5 per month in provisions for accrued interest on nonperforming assets. The deposit-taker is correct and at the end of the third quarter the debtor pays 1.5. The balance sheet value of the loan at the end of each month continues to include the accrual of interest income less the provision for accrued interest on nonperforming assets. During the third quarter interest accrued of 1.5 and this was paid, so the outstanding loan amount at the end of the quarter is again 100.

In the fourth quarter, the deposit-taker decides that the loan interest payments are expected to cease so accrual of interest ceases—the loan is placed on a cash basis in October. Entries are made in provisions for accrued interest on nonperforming loans to the full amount of the contracted rate of accrual per month. The balance sheet value of the loan at the end of each month is unchanged at 100 because no interest is accrued. Unexpectedly, full payment of interest, including past due, is made by the debtor in December. So the accumulated provisions for accrued interest on nonperforming loans are reversed—3.5, and 4.5 is recorded for interest income in the quarter. The outstanding loan amount at the end of the quarter remains at 100.

Table 11: Treatment of interest on nonperforming loans (3)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Income and Expense												
Interest Income	1	1	1	0.5	0.5	2	0.5	0.5	0.5	0	0	4.5
(i) Gross interest income	1	1	1	1	1	1	1	1	1	1	1	1
(ii) Less provisions for accrued interest on nonperforming assets				0.5	0.5	-1	0.5	0.5	0.5	1	1	-3.5
Loan loss provisions												
Balance sheet												
Loans (after specific provisions)	101	102	100	100.5	101.0	100	100	101	100	100	100	100
(i) Gross loans	101	102	100	100.5	101.0	100	100	101	100	100	100	100
(ii) Specific provisions												
Memo: Cash interest payments by debtor			3			3			1.5			4.5

III Consolidation and associated sector level issues

Unlike the base case, within a financial system, deposit-takers are likely to have interrelations. So, the examples ahead illustrate the derivation of sector-level consolidated data when such inter-relations exist.

I. *Extended Base Set*

(a) *Domestically consolidated data*

The base case is extended to include interrelations among the three deposit-takers. These transactions and positions are reflected in Tables 12 and 13, which follow the same format as that set out in Tables 11.2 and 11.3 of the *Guide*.

Tables 14 and 15 presents the end-period financial statements (income and balance sheet accounts) for the three domestic deposit-takers specified in the base case. The first three columns replicate the data in the base case set,² while the remaining columns illustrate the derivation of sector-level data when inter-relations exist. The derivation is shown in two steps in order to demonstrate that consistent with the *Guide*'s recommendations, while all

² Although the balance sheet of deposit-taker 2 incorporates interbank loans and deposits with resident deposit-takers (see shaded cells in Table 15).

intra-group flows and positions are eliminated, *inter*-group positions in debt and financial derivatives are not (see Box 5.1). For clarity, an intermediate step that aggregates the group consolidated data for banks in the population is also shown in the table.

Table 12: Interbank Positions and Flows

(\$ millions, unless otherwise stated)	Domestic Deposit-takers		
	Bank 1	Bank 2	
	<i>Other deposit takers</i>	<i>Associates</i>	<i>Other deposit-takers</i>
1. Shares and other equity ^{1/}	20	301	
2. Shares and other equity ^{3/}			
3. Non-interest income (excluding trading gains and losses):			
o/w Fees and commissions		15	15
Dividends receivable	7	71.4	
Prorated share of retained earnings		63.2	
Gains or losses on sale of fixed assets to other deposit-takers			
4. Gains and losses on equity investments in other deposit-takers	5		
5. Nonperforming loans to deposit-taker in the reporting population ^{4/}			
Current period			
Provisions for accrued interest			
Specific provisions			8
Outstanding position			
Provisions for accrued interest			
Specific provisions			8

^{1/} Valued as the proportionate share of the parent deposit-takers' stake in subsidiaries/associates capital and reserves (similar for reverse investments), or as the market value of any equity stake in other deposit-takers. The associate investment is attributed to funds contributed by owners together with retained earnings (including those earnings appropriated to reserves)—a measure of narrow capital.

^{2/} As valued in the balance sheet if different from line 1.

^{3/} These items might not be significant in some economies and hence may not be relevant. If there are other nonperforming asset claims on other deposit-takers in the reporting population, the data series as in item 5 are required for these assets.

Table 13: Other intra-group positions and flows

(\$ millions, unless otherwise stated)

	Domestic deposit-takers	
	Other group entities	
	Deposit taker 2	Deposit taker 3
Balance Sheet		
Liabilities to:		
Deposits	10	
Loans		100
of which: <i>foreign currency denominated</i>		
<i>foreign currency linked</i>		
Debt securities		1000
Financial derivatives	100	
Other liabilities		
Foreign-currency denominated liabilities		
Foreign currency linked liabilities		
Income and expense statement		
Interest income receivable		
Memorandum items relating to claims		
Liquid assets claims (core)		
Liquid assets claims (broad)		
Nonperforming loans		
Short-term claims		
Other nonperforming assets		
Arrears		
Guarantees		
Credit Commitments		

(i) Consolidated Group Data

The derivation of consolidated group data involves the elimination of *all* intra-group transactions and positions. The fourth column in Tables 14 and 15 shows the consolidated group data for deposit-taker 2 and its subsidiary, deposit-taker 3. The adjustments made to eliminate intra-group transactions and positions are described below. The boxes that contain the data series that have been adjusted are highlighted with a bold outline.

Income and Expense Statement

- **Fees and commissions** of 15 receivable/payable between deposit-taker 2 and deposit-taker 3 are eliminated from the group's income and expenses as such fees and commissions are intra-group transactions.
- Deposit-taker 2 recognizes 134.6 of non-interest income as it's **share of the net income** of deposit-taker 3. This amount is recorded as 71.4 of dividends payable and 63.2 of retained earnings by deposit-taker 3. To eliminate double counting in the group data, these amounts are eliminated: 134.6 from noninterest income, and 71.4 from dividends payable and 63.2 from retained earnings.

Balance sheet

- Deposit-taker 2 has **deposit liabilities** of 10 to deposit-taker 3. These deposits are eliminated on consolidation from the group's currency and deposit liabilities to and claims on resident banks.
- Deposit-taker 3 has **loan liabilities** of 100 to deposit-taker 2. These loans are eliminated on consolidation from the group's loans to and loans from resident banks.
- Deposit-taker 3 also has liabilities of 1,000 to deposit-taker 2 in the form of **debt securities** issued. These are eliminated on consolidation from the group's assets and liabilities.

- Deposit-taker 2 has an **equity investment** of 301 in deposit-taker 3, valued according to the prorated share in the capital and reserves of the associate. On consolidation, 301 is eliminated from shares and other equity on the asset side and capital and reserves on the liability side of the group's balance sheet. If the capital and reserves for deposit-takers 2 and 3 were simply aggregated there would be double counting of capital.
- Deposit-takers 2 has liabilities of 100 to deposit-taker 3 in the form of **financial derivatives**. These derivatives are eliminated on consolidation from the group's assets and liabilities.

Table 14: Income and expense statements^{/1}

(\$ millions, unless otherwise stated)

	Deposit Taker 1	Deposit Taker 2	Deposit Taker 3	Step 1: Group Consolidated Data D (=B+C+/-Group Consolidated Adjustment)	Aggregated Group Consolidated Data E (=D+A)	Step 2: Sector Level Consolidated Data F (=E +/- Sector Consolidated Adjustment)
	A	B	C			
1. Interest income	400	800	300	1,100	1,500	1,500
(i) Gross interest income	400	800	300	1,100	1,500	1,500
(ii) Less provisions for accrued interest on nonperforming assets	-	-	-	-	-	-
2. Interest expense	100	140	100	240	340	340
3. <i>Net interest income (= 1 minus 2)</i>	300	660	200	860	1,160	1,160
4. Non-interest income	250	700	400	950	1,200	1,173
(i) Fees and commissions receivable	110	300	200	485	595	580
(ii) Gains or losses on financial instruments	50	100	100	200	250	245
(iii) Other income	90	300	100	265	355	348
5. <i>Gross income (= 3 plus 4)</i>	550	1,360	600	1,810	2,360	2,333
6. Operating expenses	500	600	150	735	1,235	1,220
(i) Personnel costs	300	300	100	400	700	700
(ii) Other expenses	200	300	50	335	535	520
7. Provisions (net)	50	80	10	90	140	132
(i) Loan loss provisions	50	80	10	90	140	132
(ii) Other financial asset provisions	-	-	-	-	-	-
8. <i>Net income (Before extraordinary items and taxes) (= 5 minus (6+7))</i>	-	680	440	985	985	981
9. Extraordinary items	-	-	-	-	-	-
10. Income tax	-	272	176	448	448	448
11. <i>Net income after tax (= 8 minus (9 +10))</i>	-	408	264	537	537	533
12. Dividends payable	-	300	140	369	369	362
13. <i>Retained earnings (= 11 minus 12)</i>	-	108	124	169	169	172

/1 For a description of the line items refer to Chapter 4.

Table 15: Balance Sheets^{1/}

	Deposit Taker 1	Deposit Taker 2	Deposit Taker 3	Step 1: Group Consolidated Data D (=B+C+/- Group Consolidated Adjustment)	Aggregated Group Consolidated Data E (=D+A)	Step 2: Sector Level Consolidated Data F (=E+/- Sector Consolidated Adjustment)
	A	B	C			
14. Total assets (= 15+16 = 31)	12,450	18,201	7,450	24,140	36,590	36,578
15. <i>Non-Financial Assets</i>	500	500	300	800	1,300	1,300
16. <i>Financial Assets (=17 to 22)</i>	11,950	17,701	7,150	23,340	35,290	35,278
17. Currency and deposits	200	200	100	290	490	490
18. Loans (after specific provisions)	9,200	13,900	5,350	19,150	28,350	28,358
(i) Gross loans	9,250	14,400	5,600	19,900	29,150	29,150
(i.i) Interbank loans	1,000	900	600	1,400	2,400	2,400
(i.i.i) Resident	300	150	-	50	350	350
(i.i.ii) Nonresident	700	750	600	1,350	2,050	2,050
(i.ii) Non-interbank loans	8,250	13,500	5,000	18,500	26,750	26,750
(i.ii.i) Central bank	-	-	-	-	-	-
(i.ii.ii) General government	400	5,000	2,000	7,000	7,400	7,400
(i.ii.iii) Other financial corporations	500	2,000	-	2,000	2,500	2,500
(i.ii.iv) Nonfinancial corporations	7,000	2,000	-	2,000	9,000	9,000
(i.ii.v) Other domestic sectors	350	2,500	2,500	5,000	5,350	5,350
(i.ii.vi) Nonresidents	-	2,000	500	2,500	2,500	2,500
(ii) Specific provisions	50	500	250	750	800	792
19. Debt securities	2,250	3,000	1,300	3,300	5,550	5,550
20. Shares and other equity	100	301	200	200	300	280
21. Financial derivatives	200	200	200	300	500	500
22. Other assets	-	100	-	100	100	100
23. <i>Liabilities (= 28 +29)</i>	11,050	16,501	6,850	22,141	33,191	33,191
24. Currency and deposits	10,200	11,700	5,150	16,840	27,040	27,040
(i) Customer deposits	10,200	11,200	3,650	14,850	25,050	25,050
(ii) Interbank deposits	-	500	1,500	1,990	1,990	1,990
(ii.i) Resident	-	10	-	-	-	-
(ii.ii) Nonresident	-	490	1,500	1,990	1,990	1,990
(ii) Other currency and deposits	-	-	-	-	-	-
25. Loans	200	300	150	350	550	550
26. Debt securities	400	3,000	1,500	3,500	3,900	3,900
27. Other liabilities	250	801	50	851	1,101	1,101
28. <i>Debt (= 24+25+26+27)</i>	11,050	15,801	6,850	21,541	32,591	32,591
29. Financial derivatives	-	700	-	600	600	600
30. Capital and reserves	1,400	1,700	600	1,999	3,399	3,387
(i) Narrow capital	1,160	1,160	500	1,359	2,519	2,507
31. Balance sheet total (=23+30 = 14)	12,450	18,201	7,450	24,140	36,590	36,578

1/ For a description of the line items refer to Chapter 4.

(ii) Sector-level consolidated data

The sixth column in Tables 14 and 15 presents the sector-level consolidated income and balance sheet data for the banking system. These data are derived by aggregating deposit-taker1's data with the group consolidated data (covering the activities of deposit-takers 2 and 3), and eliminating certain transactions and positions between the deposit-taker 1 and the group; as noted earlier, positions in debt instruments and financial derivatives among unrelated deposit-takers are not eliminated (see Chapter 5) in the sector-level data. The data eliminated at the sector-level on consolidation are described ahead. The boxes that contain the data series that have been adjusted are highlighted with a bold outline.

Income and Expense Statement

- **Fees and commissions** of 15 receivable/payable between deposit-taker 2 and deposit-taker 1 are eliminated in the sector-level consolidated data otherwise gross income of the sector is overstated.
- Deposit-taker 1 made a gain of 5 on holdings of **equity investments** in other resident deposit takers. Because of the asymmetric valuation of capital on the two sides of the balance sheet, these gains are not offset by counterpart losses for the issuing bank. Thus, to avoid overstating net income for the sector, these gains are eliminated from gains and losses on financial instruments and retained earnings at the sector-level. Examples that illustrate the *Guide's* recommendation for the measurement of sector-wide capital are provided ahead.
- Deposit-taker 1 has **dividends** of 7 receivable from other resident deposit taker, which is eliminated from non-interest income (other income) and dividends payable in the sector-level consolidated data.
- Deposit-taker 2 has expensed 8 in **specific provisions** against loans to deposit-taker 1. This provision is eliminated from sector-level provisions and retained earnings data.

Balance sheet

- The group consolidated data of deposit-taker 2 and 3 shows **loans to other resident deposit-takers** of 50. These and any other *inter*-group positions in debt instruments and financial derivatives are not eliminated in the sector-level data.
- Deposit-taker 2 has a stock of 8 in specific **provisions** against loans to deposit-taker 1. Following the elimination of such provisions in the income statement, these provisions are also eliminated from the stock of specific provisions in the sector-level balance sheet data. The counter-adjustment is higher retained earnings in capital and reserves.
- Deposit-taker 1 has a **portfolio equity investment** of 20 in other resident deposit-takers. To avoid double counting of capital, the market value of this equity investment is deducted from shares and other equity on the assets side and from capital and reserves in the sector-level consolidated data. This adjustment is illustrated in the examples ahead covering the *Guide*'s recommendation for the measurement of sector-wide capital.

(b) *Cross-border consolidated data*

In addition to the interrelations among resident banks introduced above, it is further assumed that deposit-taker 2 has a foreign deposit-taking subsidiary and that deposit-taker 1 has a foreign branch. Further, deposit-taker 2's foreign subsidiary has a portfolio equity investment in deposit-taker 1.

The inter-group positions and flows are set out in Table 16, which follows the same format as Table 11.4. The cross-border group consolidated income and balance sheet statements for deposit-taker's 1 and 2 are shown the first and second columns respectively of Tables 17 and 18. Deposit-taker 3's financial statements are subsumed within deposit-taker 2's group consolidated financial statements.

Table 16: Inter-Group Positions and Flows (Cross-border consolidated data)

(\$ millions, unless otherwise stated)	<i>Other domestically incorporated, domestically controlled deposit-takers, their subsidiaries^{1/} and branches</i>	
	Deposit-taker 1 Group	Deposit-taker 2 Group
1. Shares and other equity ^{2/}	20	50
2. Shares and other equity ^{3/}		
3. Non-interest income (excluding trading gains and losses):		
o/w Fees and commissions		15
Dividends receivable	7	
Prorated share of retained earnings		
Gains or losses on sale of fixed assets to other deposit-takers		
4. Gains and losses on equity investments in other deposit-takers	5	-10
5. Nonperforming loans to deposit-takers in the reporting population ^{4/}		
Current period		
Provisions for accrued interest		
Specific provisions		8
Outstanding position		
Provisions for accrued interest		
Specific provisions		8

1/ Including deposit-takers branches of separately incorporated subsidiaries.

2/ Valued as the proportionate share of the parent deposit-takers' stake in subsidiaries/associates capital and reserves (similar for reverse investments), or as the market value of any equity stake in other deposit-takers.

3/ As valued in the balance sheet if different from line 1.

4/ These items might not be significant in some economies and hence may not be relevant. If there are other nonperforming asset claims on other deposit-takers in the reporting population, the data series as in item 5 are required for these assets.

The adjustments made to eliminate inter-group transactions and positions to derive sector level cross-border consolidated data are described below. The boxes that contain the data series that have been adjusted are highlighted with a bold outline.

Income and Expense Statement

- Deposit-taker 2's group receives 15 in **fees and commissions** from deposit-taker 1's group. These inter-group fees and commissions receivable/payable are eliminated from the sector-level data.
- Deposit-taker 1 made **gains of 5 on equity investments** in deposit-taker 2's group, while deposit-takers 2's group made losses of 10 on equity investments in deposit-taker 1's group. These inter-group gains and losses are eliminated from gains and losses on financial instruments and retained earnings in the sector-level consolidated data.
- Deposit-taker's 1 group received 7 in **dividends** from deposit-takers 2's group. These inter-group payments are eliminated from other income, and dividends payable, in the sector-level data.
- Deposit-taker 2's group has expensed 8 in **specific provisions** on loans to deposit-takers 1's group. These expenses are eliminated from loan loss provisions and retained earnings in the sector-level data.

Table 17: Income and expense statements^{/1}

(\$ millions, unless otherwise stated)

	Deposit-taker 1 Group Consolidated Data	Deposit-taker 2 Group Consolidated Data	Sector Level Consolidated Data
	A	D	C (=A+D +/- InterGroup Consolidated Adjustment)
1. Interest income	500	1,200	1,700
(i) Gross interest income	500	1,200	1,700
(ii) Less provisions for accrued interest on nonperforming assets	-	-	-
2. Interest expense	100	440	540
3. <i>Net interest income (= 1 minus 2)</i>	400	760	1,160
4. Non-interest income	250	700	933
(i) Fees and commissions receivable	110	535	630
(ii) Gains or losses on financial instruments	50	(100)	(45)
(iii) Other income	90	265	348
5. <i>Gross income (= 3 plus 4)</i>	650	1,460	2,093
6. Operating expenses	525	935	1,445
(i) Personnel costs	320	600	920
(ii) Other expenses	205	335	525
7. Provisions (net)	125	90	207
(i) Loan loss provisions	125	90	207
(ii) Other financial asset provisions	-	-	-
8. <i>Net income (Before extraordinary items and taxes) (= 5 minus (6+7))</i>	-	435	441
9. Extraordinary items	-	-	-
10. Income tax	-	448	448
11. <i>Net income after tax (= 8 minus (9 +10))</i>	-	(13)	(7)
12. Dividends payable	-	377	370
13. <i>Retained earnings (= 11 minus 12)</i>	-	(389)	(376)

/1 For a description of the line items refer to Chapter 4.

Table 18: Balance Sheets^{1/}

	Deposit-taker Group 1 Cross- border Consolidated Data	Deposit-taker Group 2 Cross- border Consolidated Data	Sector Level Cross-border Consolidated Data
	A	B	C (=A+B +/-Inter Group Consolidated Adjustment)
14. Total assets (= 15+16 = 31)	13,300	35,469	48,707
15. <i>Non-Financial Assets</i>	500	1,300	1,800
16. <i>Financial Assets</i> (=17 to 22)	12,800	34,169	46,907
17. Currency and deposits	200	540	740
18. Loans (after specific provisions)	10,050	27,670	37,728
(i) Gross loans	10,250	28,070	38,320
(i.i) Interbank loans	1,000	1,550	2,550
(i.i.i) Resident	300	50	350
(i.i.ii) Nonresident	700	1,500	2,200
(i.ii) Non-interbank loans	9,250	26,520	35,770
(i.ii.i) Central bank	-	20	20
(i.ii.ii) General government	400	11,000	11,400
(i.ii.iii) Other financial corporations	500	5,000	5,500
(i.ii.iv) Nonfinancial corporations	7,000	2,000	9,000
(i.ii.v) Other domestic sectors	1,350	6,000	7,350
(i.ii.vi) Nonresidents	-	2,500	2,500
(ii) Specific provisions	200	400	592
19. Debt securities	2,250	5,300	7,550
20. Shares and other equity	100	259	289
21. Financial derivatives	200	300	500
22. Other assets	-	100	100
23. <i>Liabilities</i> (= 28 +29)	11,900	32,700	44,600
24. Currency and deposits	11,200	26,940	38,140
(i) Customer deposits	11,200	24,850	36,050
(ii) Interbank deposits	-	2,000	2,000
(ii.i) Resident	-	-	-
(ii.ii) Nonresident	-	2,000	2,000
(ii) Other currency and deposits	-	90	90
25. Loans	200	350	550
26. Debt securities	400	3,500	3,900
27. Other liabilities	100	1,310	1,410
28. <i>Debt</i> (= 24+25+26+27)	11,900	32,100	44,000
29. Financial derivatives	-	600	600
30. Capital and reserves	1,400	2,769	4,107
(i) Narrow capital	1,160	1,890	2,988
31. Balance sheet total (=23+30 = 14)	13,300	35,469	48,707

1/ For a description of the line items refer to Chapter 4.

Balance sheet

- Deposit-taker 2's group has accumulated a stock of **specific provisions** of 8 against loans to deposit-takers 1's group. Following the elimination of such provisions in the income statement, this stock of specific provisions are eliminated from the sector level balance sheet data, resulting in higher data for loans after specific provisions. The counter-adjustment is higher sector-level retained earnings in capital and reserves.
- Deposit-taker 1's group has **portfolio equity investments** of 20 in deposit-taker 2's group 2, and deposit-taker 2's group has a portfolio equity investments of 50 in deposit-taker 1's group. To avoid double counting of capital, the market value of these equity investments is deducted from shares and other equity on the assets side and from capital and reserves in the sector-level consolidated data. This adjustment is illustrated in the examples ahead covering the *Guide*'s recommendation for the measurement of sector-wide capital.

2. *Deriving sector-wide capital*

Accurately measuring sector-wide capital is central to monitoring the soundness of the deposit-taking institutions. So, it is important not to overestimate or underestimate the actual amount of capital resources available to the deposit-taking sector. In particular, the *Guide* recommends that any double counting of capital arising from inter-deposit-taking sector equity investments be eliminated. The numerical examples ahead illustrate how such elimination is undertaken for equity investments other than in subsidiaries and associates under different scenarios.

As in the other examples it is assumed that there are three deposit-takers. Also, in the first period (i) deposit-taker 1 owns five of deposit-taker 2's 60 outstanding shares, and (ii) deposit-taker 2's shares have a stated or par value of 2 per share, which is also their market value. So at end-period 1, deposit-taker 1's equity holdings are valued at 10, and deposit-taker 2's capital is valued at 120, all funds contributed by owners (FC). To facilitate

exposition, in the examples ahead, deposit-taker 1's holdings are explicitly shown in deposit-taker 2's accounts as FC(DT 1), while funds contributed by owners outside the sector are shown as FC(Other).

Example 1: Base case

Following the guidance in the *Guide*, Table 19 illustrates that sector-wide capital is not the aggregation the capital of the each of the three deposit-takers because some capital is obtained from within the sector: deposit-taker 1's ownership of 10 of deposit-taker 2's capital. The capital contribution by deposit-taker 1 to 2 must be eliminated by subtracting its market value from aggregated total capital (with the counterentry being the elimination of the deposit-taker 1's equity investment in 2 from sector-wide assets). Therefore:

$$\text{Sector-wide capital (Period 1)} = 40_{(\text{DT 1})} + 120_{(\text{DT 2})} + 40_{(\text{DT 3})} - 10_{\text{FC(DT 1) [MARKET VALUE]}} = 190.$$

Table 19: Consolidation of sector-wide capital: Base case

Period 1							
Deposit-taker 1				Deposit-taker 2			
Cash	40	Deposits	20	Loans	220	Deposits	100
Loans	10	Capital	40			Capital	120
DT 2 Equity	10	o/w FC (Other)	40			o/w FC(Other)	110
Purchase Value	10					o/w FC (DT1)	10
(@\$2/share)							
Deposit-taker 3				Consolidated Sector-Wide Balance Sheet			
Cash	40	Deposits	20	Cash	80	Deposits	140
Loans	20	Capital	40	Loans	250	Capital	190
		o/w FC (Other)	40			o/w FC (Other)	190

Where: FC = Funds contributed by owners
 FC(Other) = Funds contributed by non-deposit-takers
 FC(DT 1) = Funds contributed by deposit-taker 1

Note that deposit-taker 1's ownership of 2's equity is eliminated from funds contributed, FC(DT 1), and the consolidated sector-wide balance sheet consists only of capital resources from outside the sector.

Example 2: Consolidation of intra-deposit-takers' equity: Unrealized valuation gains (1)

In period 2, the net income and retained earnings of deposit-taker 2 are 120. The capital resources (net assets) of deposit-taker 2 thus double, and the market bids up the share price to 4 per share, doubling the market price of period 1 and reflecting retained earnings. On its equity investment, deposit-taker 1 experiences an unrealized valuation gain of 10, increasing net income and retained earnings; deposit-taker 1 also marks up the value of its equity investment in the balance sheet to 20. In the example, neither deposit-taker 1 nor 3 generates any other net income.

Sector-wide capital in period 2 is calculated excluding the market value of deposit-taker 1's equity investment in deposit-taker 2. From deposit-taker 1's perspective, the market value is composed of 10 in purchase value and 10 in valuation gain (and is deducted from narrow capital³). By component, 10 is deducted from funds contributed and 10 from retained earnings.:

Sector-wide capital (Period 2)

$$\begin{array}{ccccccc}
 = 50 & + & 240 & + & 40 & - & 10 & - & 10 & = & 310. \\
 \text{(DT 1)} & & \text{(DT 2)} & & \text{(DT 3)} & & \text{(FC(DT 1))} & & \text{(RE (DT 1))} & & \\
 & & & & & & \text{[MARKET VALUE]} & & & &
 \end{array}$$

Similar to sector-wide capital, an adjustment is required to sector-wide income. Aggregating the net income of the three deposit-takers results in net income in period 2 of 70 (consisting of 10 in deposit-taker 1's unrealized gain and 60 in deposit-taker 2's net income). However, 10 of the net income represents a valuation gain of the sector on itself. The *Guide* recommends that all unrealized gains/losses on intra-sectoral equity investments be excluded

³ When Tier 1 data are not available, funds contributed by owners together with retained earnings (including those earnings appropriated to reserves) could be identified as a narrow measure.

from the income account (an exception to the *Guide's* general guidelines on the treatment of valuation changes on financial instruments).

So compared with end-period 1, sector-wide capital has increased by 120, reflecting the retained earnings of deposit-taker 2. The valuation gain experienced by deposit-taker 1 adds to its retained earnings and capital, but does not contribute any additional capital resources to the sector as a whole because it represents a valuation gain of the sector on itself.

Table 20 sets out the entries in the sector accounts:

Table 20: Consolidation of sector-wide income and capital: Unrealized valuation gains (1)

Period 2

Deposit-taker 1				Deposit-taker 2			
Cash	40	Deposits	20	Cash	120	Deposits	100
Loans	10	Capital	50	Loans	220	Capital	240
DT 2 Equity	20	o/w FC (Other)	40			o/w FC (Other)	110
Purchase Value	10	RE (Other)	10			FC (DT1)	10
(@\$2/share)						RE	120
Unrealized Gain	10						

Deposit-taker 3				Consolidated Sector-Wide Position			
Cash	40	Deposits	20	Cash	200	Deposits	140
Loans	20	Capital	40	Loans	250	Capital	310
		o/w FC (Other)	40			o/w FC (Other)	190
						RE	120

Where: RE = Retained Earnings

Example 3: Consolidation of intra-deposit-takers' equity: Unrealized valuation gains (2)

In Table 20, the increase in value of deposit-taker 2's share price reflected higher retained earnings. What if the rise in the value of the share price was due to market movements unconnected with an increase in retained earnings? In Table 21, as in Table 20, deposit-taker 2's retained earnings are 120 in period 2, but in this example deposit-taker 2's share price rises to 20 per share. This increase in share price results in a valuation gain, and higher

retained earnings, for deposit-taker 1 of 90 (see Table 21). But as the unrealized gain arises from the sector's claim on itself, there are no new capital resources for the sector as a whole. So the sector-wide adjustments are the same as in the previous example: the market value of deposit-taker 1's equity investment in deposit-taker 2's is deducted from sector-wide capital and the associated valuation gains from sector-wide net income.

Table 21: Consolidation of sector-wide income and capital: Unrealized valuation gains (2)

Period 2							
Deposit-taker 1				Deposit-taker 2			
Cash	40	Deposits	20	Cash	120	Deposits	100
Loans	10	Capital	130	Loans	220	Capital	240
DT 2 Equity	100	o/w FC (Other)	40			o/w FC (Other)	110
Purchase Value	10	RE	90			FC (DT1)	10
(@\$2/share)						RE	120
Unrealized Gain	90						
Deposit-taker 3				Consolidated Sector-Wide Position			
Cash	40	Deposits	20	Cash	200	Deposits	140
Loans	20	Capital	40	Loans	250	Capital	310
		o/w FC (Other)	40			o/w FC (Other)	190
						RE	120

Example 4: Consolidation of intra-deposit-takers' equity: Realized valuation gains (1)

In this example, in period 2 deposit-taker 1 realizes the valuation gains on its equity investment in deposit-taker 2 through a sale to another sector (Table 22). Otherwise the assumptions are the same as in the first valuation example above (Table 20). At end-period 2, deposit-taker 1's cash position has increased by 20 while its retained earnings have increased by 10. Because of the sale of deposit-taker 1's shares in deposit-taker 2 to the outside sector the capital resources of all the deposit-takers now come from outside the sector. Therefore,

$$\text{Sector-wide capital (Period 2)} = \underset{\text{(DT 1)}}{50} + \underset{\text{(DT 2)}}{240} + \underset{\text{(DT 3)}}{40} = 330$$

In other words, sector-wide capital in period 2 is now simply an aggregation of the capital of the three deposit-takers since there are no intra-sectoral equity investments.

Table 22: Consolidation of sector-wide income and capital: Realized valuation gains (1)

Period 2A							
Deposit-taker 1				Deposit-taker 2			
Cash	60	Deposits	20	Cash	120	Deposits	100
Loans	10	Capital	50	Loans	220	Capital	240
		o/w FC (Other)	40			o/w FC (Other)	110
		RE	10			FC (DT1)	10
						RE	120
Deposit-taker 3				Consolidated Sector-Wide Position			
Cash	40	Deposits	20	Cash	220	Deposits	140
Loans	20	Capital	40	Loans	250	Capital	330
		o/w FC (Other)	40			o/w FC (Other)	210
						RE	120

However, for income an adjustment is required for sector-level data. If the income data for the three deposit-takers were aggregated, sector wide net income would be 130 (deposit-taker 2's net income of 120 and deposit-taker 1's realized gain of 10). On the other hand, sector-wide capital has increased by 140: deposit-taker 2's net income of 120, and 20 arising from the sale of deposit-taker 1's equity investment in 2 to another sector. As the *Guide* treats all such transactions in deposit-takers' equity as equity financing transactions—transactions that can increase/decrease capital without having to go through the income account—so the deposit-taker 1's realized gains/losses on deposit-taker 2's equity must be excluded from the income account. Consequently, sector-wide net income and retained earnings is 120, equal to deposit-taker 2's net income, while sector-wide capital increases by 140, reflecting 20 in financing from the outside sectors, achieving consistency in the relationship between net income and capital.

Why does the *Guide* treat transactions in deposit-takers equity as financing transactions? It is because from a *sector wide perspective*, it is immaterial whether the deposit-taker transacting in deposit-taker's equity is the original issuer of the equity operating in the primary market

(in which case, the transaction would clearly be classified as financing) or a buyer/seller operating in the secondary market. All sales/purchases of deposit-taker's equity vis-à-vis an outside sector are exchanges of sector equity for capital resources with another sector. It follows that if the transaction has occurred at a price higher than that initially recorded in the deposit-taker's books (sale price of 4 per share as opposed to 2 per share in deposit-taker 2's books), the gain to deposit-taker 1 has the nature of additional paid in capital, which should be classified under funds contributed by owners.

In Table 22, the realized gain is recorded as an increase of 10 in the retained earnings of deposit-taker 1, because that is the accounting treatment from the individual deposit-taker's perspective. But from a sector-wide perspective, there is a deduction of 10 from sector-wide retained earnings for reasons explained above.

Example 5: Consolidation of intra-deposit-takers' equity: Realized valuation gains (2)

In this example, in period 2 deposit-taker 1 realizes the valuation gains on its equity investment in deposit-taker 2 through a sale to another deposit-taker, deposit-taker 3 (Table 23). Otherwise the assumptions are the same as in the first valuation example above (Table 20). At end-period 2, deposit-taker 1's cash position has increased by 20 while its retained earnings have increased by 10. In contrast to the previous example, the sale has not resulted in ownership of deposit-takers' equity changing sectors; ownership of deposit-taker 2's shares remains within the deposit-taking sector, and the only change is that deposit-taker 3 rather than 1 owns them.⁴ Deposit-taker records the share value at 20—5 shares at 4 per share.

Sector-wide capital in period 2 is calculated excluding the market value of deposit-taker 3's equity investment in deposit-taker 2. From the sector-wide viewpoint, in period 2, for completeness 10 is deducted from funds contributed and 10 from retained earnings, and this is set out below. However, as funds contributed and retained earnings are not presented

⁴ Strictly speaking, the sale means that deposit-taker 3 rather than 1 has the claim on the 10 of funds contributed to deposit-taker 2 by its owners.

separately in the *Guide*, simply 20 should be deducted from sector-wide total (and narrow) capital and reserves.

Sector-wide capital (Period 2)

$$= 50 \quad + \quad 120 \quad + \quad 40 \quad - \quad 10 \quad - \quad 10 \quad = 190$$

(DT 1) (DT 2) (DT 3) (FC(DT 3)) (RE (DT 1))
[MARKET VALUE]

Table 23: Consolidation of sector-wide income and capital: Realized valuation gains (2)

Period 2

Deposit-taker 1				Deposit-taker 2			
Cash	60	Deposits	20	Cash	120	Deposits	100
Loans	10	Capital	50	Loans	220	Capital	240
		o/w FC (Other)	40			o/w FC (Other)	110
		RE	10			FC (DT3)	10
						RE	120
Deposit-taker 3				Consolidated Sector-Wide Position			
Cash	20	Deposits	20	Cash	200	Deposits	140
Loans	20	Capital	40	Loans	250	Capital	310
DT 2 Equity	20	o/w FC (Other)	40			o/w FC (Other)	190
Purchase Value	20					RE	120
(@\$4/share)							

Sector-wide capital is the same as in period 2 for the unrealized valuation gain examples. The realization of the valuation gain by a sale to another deposit-taker has not changed total sector-wide capital because no additional capital has been obtained from outside sectors. In essence, the deposit-taking sector has “gained” from selling its equity at a price higher than purchased (deposit-taker 1 has a realized gain of 10) but has similarly “lost” because as a sector it has bought equity at a price higher than originally recorded in its books (deposit-taker 3 has purchased the equity at 4 per share rather than the initial sale price of 2 per share).

An adjustment is required for sector-level income data. If the income data for the three deposit-takers were aggregated, sector wide net income would be 130 (deposit-taker 2’s net income of 120 and deposit-taker 1’s realized gain of 10), but sector wide capital has only

increased by 120 (deposit-taker 2's net income). As the *Guide* treats all transactions in deposit-takers' equity as equity financing transactions—transactions that can increase/decrease capital without having to go through the income account—so the deposit-taker 1's realized gains/losses on deposit-taker 2's equity must be excluded from the income account. Consistency is achieved in the relationship between net income and capital—sector-wide net income is 120 and this is reflected in an increase of 120 in sector-wide capital, compared with period 1 (example in Table 19).

In summary, from the four valuation examples above, it can be seen that:

- The market value of intra-deposit-takers' equity investment should be eliminated from the asset side of the deposit-taking sectors' balance sheets, and from total (and narrow) capital and reserves.
- All realized and unrealized gains/losses from deposit-takers ownership of and transactions in equity of other deposit-takers must be excluded from sector-wide income.

3. *Accounting for goodwill in sector-wide capital*

Example 1: Purchase with Cash

In this example, there are three deposit-takers in the economy. Deposit-taker 1 has 1000 shares outstanding at a market value of 10 per share; deposit-taker 2 has 400 shares outstanding at 5 per share; and deposit-taker 3 has 500 shares outstanding at 5 per share. Then deposit-taker 1 buys all of deposit-taker 2's shares with cash at the market value of 5 per share (total cost 2000), becoming a 100 percent owner of deposit-taker 2. The net asset value of deposit-taker 2 is 1500. The difference between the net asset value and the price paid is goodwill (500). This amount is not recorded as an asset by deposit-taker 1.

Table 24 presents the balance sheets of deposit-takers 1 and 2 prior to the purchase, the balance sheet of deposit-taker 1 after purchase, the balance sheet of deposit-taker 3, and the

sector-wide balance sheet. In line with *Guide* recommendations, the balance sheets are all assumed to be marked-to-market, including for fixed assets.

After purchase, cash declines by 2,000 in the balance sheet of deposit-taker 1, offset by a prorated claim on a subsidiary (1,500), and 500 of goodwill, which is deducted from assets and from capital and reserves. On consolidation at the sector-level deposit-takers 1's prorated claim on the subsidiary is eliminated from assets with the counter-adjustment in the capital of the subsidiary (deposit-taker 2).

Table 24: Goodwill and sector wide capital: Purchase with cash

	Positions Prior to Purchase (at market value)				Eliminated in Consolidation	Sector wide Position DT1(after purchase) +DT2+DT3
	Deposit -taker 1	Deposit -taker 2	Deposit-taker 1 (after purchase)	Deposit- taker 3		
Balance sheet						
<i>Assets</i>						
Cash	4,000	500	2,000	400		2,900
Other assets	8,000	1,500	8,000	3,200		12,700
Prorated claim on subsidiary			1,500		-1500	0
Total Assets	12,000	2,000	11,500	3,600		15,600
<i>Liabilities and Capital</i>						
Liabilities	2,000	500	2,000	600		3,100
Capital	10,000	1,500	9,500	3,000	-1500	12,500
Total Liabilities and Capital	12,000	2,000	11,500	3,600		15,600

Example 2: Purchase by issuing new shares

In this example, the assumptions are as in example 1 except that deposit-taker 1 purchases the 400 of shares of deposit-taker 2 by issuing 200 of its own shares to the owners of deposit-taker 1 at the market price of 10 per share.

In this example, Table 25, the cash on the balance sheet of deposit-taker 1 does not fall following purchase and deposit-taker 1's prorated claim on deposit-taker 1,500 increases assets, with a corresponding increase in capital of the 2,000 of equity issued less the 500 of goodwill deducted. The rational is that while deposit-taker 1 has issued 2,000 of equity it has

“only” purchased 1,500 of assets (net). On consolidation at the sector-level, deposit-taker 1’s prorated claim on the subsidiary is eliminated from assets and on the debit side of the balance sheet, with the counter-adjustment in the capital of the subsidiary (DT2). Goodwill is eliminated from the debit side of deposit-taker 1’s balance sheet, with the counter-adjustment in capital. However, because equity rather than cash was used for the purchase, the overall balance sheet (and capital) is 2,000 greater than in the example in Table 24.

Table 25: Goodwill and sector wide capital: Purchase by issuing shares

	Positions Prior to Purchase (at market value)				Eliminated in Consolidation	Sector-wide position DT1 (after purchase) +DT2+DT3
	Deposit-taker 1	Deposit-taker 2	Deposit-taker 1 (after purchase)	Deposit-taker 3		
Balance sheet						
<i>Assets</i>						
Cash	4,000	500	4,000	400		4,900
Other assets	8,000	1,500	8,000	3,200		12,700
Prorated claim on subsidiary			1,500		-1500	0
Total Assets	12,000	2,000	13,500	3,600		17,600
<i>Liabilities and Capital</i>						
Liabilities	2,000	500	2,000	600		3,100
Capital	10,000	1,500	11,500	3,000	-1,500	14,500
Total Liabilities and Capital	12,000	2,000	13,500	3,600		17,600

Appendix V

Glossary of Terms for Financial Corporations

This appendix provides more detailed definitions of certain types of institutions in the financial corporations sector than is provided in Chapter 2.¹

Insurance Corporations and Pension Funds

Insurance corporations consist of incorporated, mutual, and other entities whose principal function is to provide life, accident, sickness, fire, and other types of insurance to individual units or groups of units through the pooling of risk. Because of the different risks to be managed, insurance companies can be subdivided into nonlife (casualty) insurance companies, and life insurance companies, which includes commercially provided pension and annuity services. For nonlife insurance companies, payment to a policy holder depends on an event occurring that triggers a claim. In contrast, for life insurance companies there is a certainty that a claim will occur, and the payment of premiums may be viewed as a savings, that are withdrawn when claims are made. Usually the expectation is that there is a considerable lapse of time between the initiation of a life insurance policy, and the payment of a claim.

Pension funds are those that are constituted in such a way that they are separate institutional units from the units that create them. They are established for the purpose of providing benefits on retirement for specific groups of employees and, perhaps, their dependents. These funds have their own assets and liabilities, and engage in financial transactions on the market on their own account. As with life insurance policies, pension fund liabilities tend to be of a long term nature.

¹ These definitions are drawn from national accounts sources. For instance see paragraphs 96 to 101 of the *MFSM*.

Pension funds are organized, and directed by private or government employees, or jointly by individual employers and their employees. They are funded by the employees and/or employers through regular contributions and from income earned from financial assets. In the *Guide*, pension funds do not include pension arrangements for the employees of private or government entities that do not maintain a separately organized fund, nor do they include arrangements organized by nongovernmental employees and for which the reserves of the fund are simply added to that employer's own reserves or invested in securities issued by that employer.

While maintaining a pool of liquid assets, because of the long-term nature of their liabilities, pension funds and insurance companies (particularly life insurance companies), usually invest in longer term security market instruments, both bonds and equities. This investment behavior helps support the development of capital markets, both in terms of breadth and depth, and so broadens the financing base for borrowers.

Security dealers

Securities dealers include individuals or firms that specialize in security market transactions by (1) assisting firms in issuing new securities through the underwriting and market placement of new security issues and (2) trading in new or outstanding securities on their own account. Only underwriters and dealers that act as financial intermediaries are classified in this category. Security brokers and other units that arrange trades between security buyers and sellers but do not purchase and hold securities on their own account are classified as financial auxiliaries.

By their nature, security dealers facilitate both primary and secondary market activity in securities. In particular, these institutions can help provide liquidity to markets, both by encouraging borrower and investor activity—not least through the provision of information on market conditions—and through their own trading activity.

Investment Funds

Investment funds are institutional units, excluding pension funds, that consolidate investor funds for the purpose of acquiring financial assets. Examples are mutual funds, including money market funds, investment trusts, unit trusts, and other collective investment units. Investors usually purchase shares in the fund that represent a fixed proportions of the fund.

In investment funds, professional fund managers make the selection of assets, thereby providing individual investors with an opportunity to invest in a diversified and professionally managed portfolio of securities without the need of detailed knowledge of the individual companies issuing the stocks and bonds. Usually, the type(s) of investment undertaken are specified, and the fund's managers must adequately inform investors about the risks and expenses associated with investment in specific funds, not least because depending on the types of investment undertaken, the value of fund can be highly variable.

The liquidity of investment pools can vary considerably. In many countries, investment pools are illiquid or have limited liquidity. Such funds are more likely to be investing in longer term securities. In others, shares issued by investment pools are as (or nearly as) liquid as deposits and other liabilities issued by depository corporations. Money market funds are included in this latter category, and because of the liquidity of their liabilities, they tend to invest in short-term debt instruments such as certificates of deposit and commercial paper.

Other financial intermediaries

Finance companies are primarily engaged in the extension of credit to nonfinancial corporations and households. Many finance companies are captive subsidiaries that raise funds to be used by the parent corporations. Captive finance companies that are separate institutional units and that do not issue deposits or close substitutes for deposits should be classified as other financial intermediaries. Finance companies that are not separate should be included as part of the parent corporations in the appropriate subsector.

Financial leasing companies engage in financing the purchase of tangible assets. The leasing company is the legal owner of the goods de jure, but ownership is effectively conveyed de facto to the lessee, who incurs all benefits, costs, and risks associated with ownership of the assets.

Vehicle companies are financial entities created to be holders of securitized assets or assets that have been removed from the balance sheets of corporations or government units as part of the restructuring of these units. Many are organized as trusts or special purpose vehicles created solely to hold specific portfolios of assets or liabilities.

Specialized financial intermediaries include financial holding corporations, companies that provide short-term financing for corporate mergers and takeovers (but do not take deposits), export/import finance firms, factors or factoring companies, venture capital and development capital firms, and pawnshops that predominantly engage in lending rather than retailing.

Financial auxiliaries

Financial auxiliaries consist of those resident corporations and quasi-corporations that engage primarily in activities closely related to financial intermediation but which do not themselves perform an intermediation role.

Public exchanges and securities markets are organized exchanges and entities such as security depository companies, accounting and clearing houses, and other companies providing exchange-related services. Depositories and electronic clearing systems operated by financial corporations fall into this category, as do national self-regulatory organizations that regulate or supervise exchanges and related units.

Brokers and agents are individuals or firms that arrange, execute, or otherwise facilitate client transactions in financial assets. Included are brokers and agents handling the purchase and sale of securities or other financial contracts for clients, and financial advisory services that provide specialized services to brokers and their customers. Because many brokerage firms also trade in financial securities or financial derivatives on the firm's own account, it

can be difficult to distinguish the brokers and agents from the underwriters and dealers classified as financial intermediaries. By convention, this grouping includes only brokers and agents that clearly specialize in brokerage and related activities but not intermediation activities generally undertaken by underwriters and dealers.

Foreign exchange companies comprise units that buy and sell foreign exchange in retail or wholesale markets.

Financial guarantee corporations insure customers against losses to specified financial corporations or against financial loss on specific contracts. Guarantors must have the financial capability to fulfill potential obligations. They also typically agree—usually for a fee—to insure that investors receive payment on securities or other financial contracts. In addition, the financial guarantee corporations grouping includes specialized corporations that protect depositors and investors against the failure of individual financial corporations. Distinguishing precisely between financial guarantee corporations and insurance corporations is difficult. Guarantee corporations

- do not have a definable pool of assets constituting insurance technical reserves,
- do not carry positions off balance sheet,
- may not be regulated as insurance corporations, and
- may be limited to specific types of financial transactions.

In borderline cases, these units should be classified as insurance corporations.

Insurance and pension auxiliaries include agents, adjusters, and salvage administrators. The unique nature and, in some countries, the large scale of activity justify the separate identification of these units.

Other financial auxiliaries comprise all other auxiliaries not classified elsewhere. The grouping includes independent units affiliated with the government and established to regulate financial institutions. The 1993 SNA recommends classifying these units as part of the central bank subsector. However, these units are not intermediaries, and the activities of

some units (such as securities commissioners or insurance regulators) have little relationship to well recognized central bank activities. Therefore, the *Guide* recommends classification of these units in the financial auxiliaries subsector. Also classified in this category are financial units that facilitate issuance and trading in financial derivatives but do not actually issue derivatives, and representative offices of foreign depository corporations that do not accept deposits or extend credit, even though they promote and facilitate transactions of the nonresident parent company.

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