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## MODIFICATIONS TO THE CURRENT LIST OF FINANCIAL SOUNDNESS INDICATORS—BACKGROUND PAPER

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## Glossary

AT1	Additional Tier 1
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BTC	Joint Regional Training Center for Latin America in Brazil
CEF	The IMF-Middle East Center for Economics and Finance
CET1	Common Equity Tier 1
CPPI	Commercial Property Price Indices
CTP	Joint China-IMF Training Program
DC	Domestic Consolidation
DGI	Data Gaps Initiative
DTs	Deposit takers
ECB	European Central Bank
FSIs	Financial Soundness Indicators
FSICG	Financial Soundness Indicators Compilation Guide
FSIRG	Financial Soundness Indicators Reference Group
GFSR	Global Financial Stability Report
HHS	Households
IAIS	International Association of Insurance Supervisors
IAS	International Accounting Standards
ICs	Insurance Corporations
IOSCO	International Organization of Securities Commissions
ITP	Joint India-IMF Training Program
JAI	Joint Africa Institute
JPA	Joint Partnership for Africa
JVI	Joint Vienna Institute
LCR	Liquidity Coverage Ratio
MMFs	Money Market Funds
NAV	Net Asset Value
NFCs	Non-Financial Corporations
NPLs	Non-Performing Loans
NSFR	Net Stable Funding Ratio
OFCs	Other Financial Corporations
PFs	Pension Funds
QIS	Quantitative Impact Study
ROA	Return on Assets
ROE	Return on Equity
RPPI	Residential Property Price Indices
SDDS	Special Data Dissemination Standard
SRFs	Standardized Report Forms
STA	Statistics Department
STI	IMF-Singapore Regional Training Institute
TA	Technical Assistance

## INTRODUCTION

1. **This background paper provides the underpinning to the discussion in the main policy paper “*Modifications to the Current List of Financial Soundness Indicators (FSIs)*,” including the rationale for the amendments to the current FSI list and the introduction of new FSIs and the exclusion of certain FSIs in the revised FSI list.** It reports extensively on the work conducted by the IMF’s Statistics Department (STA) in close collaboration with a broad-based group of national and international experts, known as the Financial Soundness Indicators Reference Group (FSIRG), international standard setting bodies, and relevant IMF departments, and in consultation with all FSI-reporting countries and concerned international organizations. The revision of the current list of FSIs is in response to the global financial crisis, the adoption of the Basel III Accord, and the G-20 Data Gaps Initiative’s (DGI) call in Recommendation no. 2 to review the current FSI list.
2. **The paper draws from three position notes prepared by STA to implement an internationally-agreed work program on FSIs jointly developed with the FSIRG and the other above-mentioned parties.** The FSIRG and the FSI-reporting countries broadly supported the thrust of the three position notes, including the identified modifications to the current FSI list. Draft position notes were circulated for review to the FSIRG, as well as all FSI-reporting countries and concerned international organizations, and comments received were reflected in the final position notes. These position notes were posted on a dedicated FSIRG website, which is accessible by national authorities of all FSI-reporting countries. The final position notes provide the rationale for the identified modifications to the current FSI list, as explained below.

## DEPOSIT TAKERS

*This section discusses how the current FSIs will be affected by the introduction of the Basel III regulatory framework, and which new capital-based and other indicators will need to be included in the set of core and additional FSIs for deposit takers (DTs). It also addresses other relevant issues as agreed with the FSIRG.*

3. **The adoption of the new Basel III Accord was at the center of the FSIRG discussions at its November 2011 meeting.** Most participants indicated that their countries will implement Basel III on time or even earlier than the phased-in schedule developed by the Basel Committee on Banking Supervision (BCBS). In some instances, Basel II and Basel III will be implemented simultaneously for different types of institutions. Breaks in time series would thus be unavoidable, but not expected to be significant due to the considerable length of the transition period. The consensus was that, as Basel III is implemented, the definitions of existing capital-based FSIs will need to be reviewed and eventually revised to comply with the new regulatory framework.

## A. Capital-Based FSIs

### Basel III and Capital Measures

4. **Basel III has redefined the elements to be included in total regulatory capital, placing a greater emphasis on common equity.** In particular, the instruments included in Tier 1 and Tier 2 capital and the general definition of total regulatory capital will need to be amended. The corresponding sections of the *FSI Compilation Guide* (FSICG) will need to be revised accordingly in due course.

5. **On capital adequacy, the way of measuring the capital base has changed in favor of a narrower definition with very specific components of capital, compared with Basel II.** Tier 1 capital has been split into two components: Common Equity Tier 1 (CET1) and Additional Tier 1 (AT1) capital. Basel III states that “Tier 2 capital will be harmonized, and Tier 3 capital instruments, available to cover market risks, will be eliminated.”<sup>1</sup> The components of total regulatory capital will shift towards equity capital (Tier 1) and away from subordinated debt (Tier 2). A new Capital Conservation Buffer comprised solely of CET1 has been established above the regulatory minimum capital requirement with constraints on capital distribution when capital levels fall below a certain range. In addition, a new Countercyclical Capital Buffer is to be met by CET1 only, although the BCBS is reviewing the possibility of accepting “other fully absorbing capital beyond CET1.”

### Regulatory Capital

#### *Tier 1 Capital*

6. **Under Basel II, Tier 1 capital consists primarily of equity capital and freely available disclosed reserves.** A minimum of 4 percent capital ratio (Tier 1 to risk-weighted assets) is required.

7. **Under Basel III, Tier 1 capital is split into two components:** (i) CET1, consisting of common shares, retained earnings and accumulated other comprehensive income, and other disclosed reserves; and (ii) AT1, consisting of subordinated instruments with no maturity and neither secured nor covered by a guarantee of the issuer. The minimum CET1 capital ratio will increase from 3.5 percent in 2013 to 4.5 percent in 2015. The minimum total Tier 1 capital ratio will increase from 4.5 percent in 2013 to 6 percent in 2015. In most cases, regulatory adjustments will be applied when calculating CET1. Since **the new CET1 of Basel III corresponds broadly to Basel I and Basel II Tier 1 capital**, CET1 for the DT sector as a whole should be derived by aggregating Tier 1 capital calculated under Basel I and/or Basel II and CET1 calculated under Basel III for financial institutions using different Basel accords’ definitions.

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<sup>1</sup> BIS, 2011, p. 2, Para. 9.

**Tier 2 Capital**

**8. Under Basel II, Tier 2 capital consists of the following components:** undisclosed reserves, asset revaluation reserves on fixed assets and long-term holding of equities, general provisions up to 1.25 percent of risk-weighted assets,<sup>2</sup> some hybrid instruments and long-term (more than five years) unsecured subordinated debt. Tier 2 capital is limited to 100 percent of Tier 1 capital.

**9. Under Basel III, Tier 2 capital includes only the following:** long-term (more than five years) subordinated, non-guaranteed instruments issued by the bank, plus general provisions up to 1.25 percent of credit risk-weighted assets, and excess of total eligible provisions up to a maximum of 0.6 percent of credit risk-weighted assets.

**Total Regulatory Capital**

**10. Under Basel II, total regulatory capital includes Tier 1, Tier 2, and Tier 3 capital<sup>3</sup>.** The total capital adequacy ratio must be no lower than 8 percent.

**11. Under Basel III, Tier 3 capital is eliminated.** Hence, the new total regulatory capital will comprise only Tier 1 and Tier 2 capital, as defined under Basel III (see paragraphs 6-9). As with Basel II, the minimum total capital adequacy ratio must be no lower than 8 percent, but with a minimum of 6 percent constituted by Tier 1 capital.

**Capital Conservation Buffer**

**12. Basel III establishes a capital conservation buffer of 2.5 percent of risk-weighted assets above the regulatory minimum capital requirement,** which consists solely of CET1 and will be fully effective as of January 1, 2019. The capital conservation buffer is designed to ensure that banks build up capital buffers outside periods of stress, which can be drawn down as losses are incurred. When buffers have been exhausted, banks should rebuild them through reducing discretionary distributions of earnings. The capital conservation buffer will be phased-in between January 2016 and end-2018, with an initial requirement of 0.625 percent of risk-weighted assets and additional 0.625 percent each year to reach 2.5 percent in 2019.

<sup>2</sup> The 1.25 percent of risk-weighted assets applies (both in Basel II and Basel III) only to those assets calculated under the standardized approach. Lower limits apply to assets under the internal ratings-based approach.

<sup>3</sup> Tier 3 capital is used to support market risk, including foreign exchange risk and commodities risk. For short-term subordinated debt to be eligible as Tier 3, it needs, if circumstances demand, to be capable of becoming part of a bank's permanent capital and thus be available to absorb losses in the event of insolvency. It must, therefore, at a minimum: be unsecured, subordinated, and fully paid up; have an original maturity of at least two years; not be repayable before the agreed repayment date unless the supervisory authority agrees; and be subject to a lock-in clause which stipulates that neither interest nor principal may be paid (even at maturity) if such payment means that the bank falls below or remains below its minimum capital requirement. BIS, January 1996, p. 7-8, Para. 2

**13. As designed, the capital conservation buffer is to be a flexible requirement, which will affect the dividend distributions but not the operational capacity of banks.** Although the minimum capital adequacy ratio of Basel III will continue to be 8 percent of risk-weighted assets, the introduction of the capital conservation buffer will increase this minimum up to 10.5 percent in 2019.

### Countercyclical Capital Buffer

**14. A countercyclical capital buffer is to be implemented based on national authorities' assessments of the build-up of system-wide risks and the geographical credit exposure of internationally active banks.** When in place, the countercyclical capital buffer will be an extension of the conservation buffer. The countercyclical capital buffer regime will be phased-in in parallel with the capital conservation buffer between January 1, 2016 and end-2018.

### Leverage Ratio

**15. Basel III introduces a simple, transparent, and non-risk based leverage ratio, which serves as a supplementary measure to the risk-based capital requirements.** The capital measure for the leverage ratio is based on the new definition of Tier 1 capital. The denominator comprises all balance sheet assets (with an add-on for potential future exposures of derivatives and securities financing transactions) and off-balance sheet commitments, the latter including commitments, unconditionally cancellable commitments, direct credit substitutes, acceptances, stand-by letters of credit, trade letters of credit, failed transactions, and unsettled securities.

**16. The ratio is to be calculated as the average of the monthly leverage ratio over the quarter based on the definitions of capital (the capital measure) and total exposure (the exposure measure).** The leverage ratio is set at 3 percent. It will be tested during a parallel run period between 2013 and 2017, with a migration to Pillar 1 foreseen for 2018.<sup>4</sup> The BCBS is intending to collect data during the transition period to track the potential impact of using the total regulatory capital and CET1.

### Revised Capital-Based FSIs

**17. In line with the Basel III framework, the regulatory capital used to compile FSIs should explicitly defer to Basel III definitions.** The proposed revisions to the definitions of capital-based FSIs are discussed below. These revisions reflect the need to standardize, as far as possible, the definitions of the revised capital-based indicators to enhance cross-country comparability, while allowing flexibility in a very few specific cases, as indicated below, when good analytical reasons are presented by reporters for such flexibility.

<sup>4</sup> Bank level disclosure of the leverage ratio and its components will start in January 2015.

**Solvency indicators**

- 18. I01 – Total Regulatory Capital to Risk-Weighted Assets.** There will be no change beyond the move to the Basel III definition of total regulatory capital for jurisdictions that adopt Basel III. The indicator will use as the numerator total regulatory capital, which includes Tier 1 and Tier 2 capital as defined in Basel III.
- 19. I02 – Regulatory Tier 1 Capital to Risk-Weighted Assets.** There will be no change beyond the move to the Basel III definition of Tier 1 capital for jurisdictions that adopt Basel III. The inclusion of AT1 will increase the minimum Tier 1 capital requirement to 6 percent, while including the conservation buffer would bring this ratio to 8.5 percent (compared with the current minimum Tier 1 capital ratio of 4 percent).
- 20. I03 – Non-performing Loans (NPLs) Net of Provisions to Capital.** There will be no change beyond the move to the Basel III definition of total regulatory capital for jurisdictions that adopt Basel III. This indicator is intended to measure the potential impact on capital of NPLs. As the ratio I03 is a solvency-related indicator, the preferred definition of the denominator is the total regulatory capital, while allowing flexibility for countries to use balance sheet capital in the case where domestic consolidation (DC) is used as foreign-owned branches are not required to hold regulatory capital.
- 21. I12 – Net Open Position in Foreign Exchange to Capital.** The option of using Tier 1 capital is eliminated, leaving the denominator as total regulatory capital only. The ratio I12 is a solvency-related indicator.
- 22. I14 – Large Exposures to Capital.** The option of using Tier 1 capital is eliminated, leaving the denominator as total regulatory capital only. The ratio I14 is a solvency-related indicator, which is intended to identify vulnerabilities arising from the concentration of credit risk.
- 23. I16 – Gross Asset Positions in Financial Derivatives to Capital.** Total regulatory capital replaces Tier 1 capital. This indicator is aimed at measuring exposures relative to capital, and total regulatory capital is to be used as the denominator. Alternatively, as the numerator is a balance sheet item, balance sheet capital may also be used.
- 24. I17 – Gross Liability Positions in Financial Derivatives to Capital.** Total regulatory capital replaces Tier 1 capital. This indicator is aimed at measuring exposures relative to capital, and total regulatory capital is to be used as the denominator. Alternatively, as the numerator is a balance sheet item, balance sheet capital may also be used.
- 25. I25 – Net Open Position in Equities to Capital.** This indicator, intended to identify DTs' exposures to equity risk, is deleted from the revised list of FSIs as recommended by the FSIRG, given the limitation of source data needed for compiling the indicator. The reporting rate of this indicator has been very low.

## Leverage Indicators

**26. I13 – Capital to Assets.** This indicator is moved to the core set and its calculation is revised to use Tier 1 capital as numerator and total assets (financial and nonfinancial) as denominator. The option of using balance sheet capital is eliminated. This indicator should be replaced by the new Basel III leverage ratio for jurisdictions that adopt Basel III, once that indicator is active. Regulatory Tier 1 capital to assets is encouraged in the Special Data Dissemination Standard (SDDS) and required in the SDDS Plus. The implications of the changes introduced by Basel III for the definitions of FSIs included in the SDDS and SDDS Plus will be addressed in the Ninth Review of the Data Standards Initiative scheduled for early 2014 (See Box 1). These revisions reflect the following considerations: (i) the new Basel III regulatory focus on the leverage ratio; (ii) the costs and benefits of keeping the current indicator I13 after the new leverage ratio is included in the FSI set; and (iii) the need for maintaining a parsimonious approach to the number of indicators, thus including only one leverage ratio in the list of FSIs.

### Box 1. Dissemination of FSIs and the Fund's Data Standards Initiatives<sup>5</sup>

- **The Special Data Dissemination Standard (SDDS) was established in 1996.** Its purpose is to guide IMF members in the provision of economic and financial data and the dissemination of timely and comprehensive statistics in pursuit of sound macroeconomic policies and financial sector stability. As of September 2013, the SDDS has 71 subscribers.
- **In February 2012, at the Eighth Review of the Fund's Data Standards Initiatives, the Executive Board approved enhancements to the SDDS and established the SDDS Plus.** The SDDS Plus is the third and highest tier of these initiatives and is aimed at countries with systemically important financial systems, although it is open to all SDDS subscribers.<sup>6</sup>
- **The SDDS encourages the dissemination of the following seven FSIs with quarterly periodicity and quarterly timeliness:** i) regulatory Tier 1 capital to risk-weighted assets; ii) regulatory Tier 1 capital to assets; iii) nonperforming loans net of provisions to capital; iv) nonperforming loans to total gross loans; v) return on assets; vi) liquid assets to short-term liabilities; and vii) net open position in foreign exchange to capital. These seven FSIs were brought into the SDDS to help address data gaps stemming from credit, liquidity, leverage, and solvency risks facing financial systems. SDDS subscribers that choose to disseminate these data are to include release dates in their Advance Release Calendar and disseminate the data on their National Summary Data Page. Links to these can be found on the Fund's Dissemination Standards Bulletin Board (DSBB).<sup>7</sup>
- **The SDDS Plus requires the dissemination of the following seven FSIs with quarterly periodicity and quarterly timeliness:** the first six FSIs listed above (i-vi) and residential real estate prices. It does not require dissemination of the net open position in foreign exchange to capital. The SDDS Plus is in the process of implementation, with many countries expressing interest in adherence and is expected to be launched in Fiscal Year 2014.

<sup>5</sup> This Box was prepared by Ethan Weisman and Yoko Shinagawa.

<sup>6</sup> See [www.imf.org/external/np/pp/eng/2012/013112.pdf](http://www.imf.org/external/np/pp/eng/2012/013112.pdf). In March 2010, in line with the G-20 Data Gaps Initiative, the IMF Executive Board discussed how to broaden financial indicators in the SDDS, including FSIs (see <http://www.imf.org/external/np/pp/eng/2010/022210A.pdf>).

<sup>7</sup> <http://dsbb.imf.org/>

***Profitability Indicators***

**27. I07 – Return on Equity (ROE).** The option of using Tier 1 capital is eliminated, leaving the denominator as total balance sheet capital and reserves only. This indicator is intended to measure efficiency in using capital. Considering that balance sheet capital—defined as the difference between balance sheet assets and liabilities without any regulatory deductions—is the most common measure of capital used by the financial industry to compare profitability, balance sheet capital is most appropriate for the compilation of this indicator. Average balance sheet capital will continue to be used.

**New Capital-Based FSIs*****Solvency***

**28. Given the importance of the new CET1 within the Basel III proposals, a new CET1-based solvency FSI for DTs is introduced (CET1 to RWA)** for jurisdictions that adopt Basel III. The BCBS already collects this indicator. Hence, costs to countries of including this new indicator should not be significant. This new indicator will be complementary to the current indicator I02 and is to be part of the core set. For jurisdictions that do not adopt Basel III, this indicator is not to be reported.

***Leverage***

**29. The leverage ratio introduced by Basel III relies on the new definition of regulatory Tier 1 capital and on an exposure measure.** The latter includes on-balance sheet items (with an add-on for potential future exposures of derivatives and securities financing transactions) and off-balance sheet items.

**30. The new definition of the leverage indicator consistent with Basel III will be introduced for jurisdictions that adopt Basel III once the BCBS informs national supervisors to start monitoring this ratio.**<sup>8</sup> This new indicator will use regulatory Tier 1 capital as the numerator. Regarding the denominator, adopting fully the Basel III definitions will imply including also off-balance sheet items. Jurisdictions that do not adopt Basel III should continue compiling FSI I13,

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<sup>8</sup> For the leverage ratio, the monitoring period began on January 2011. The parallel run period will start on January 2013 and will run until January 2017. The disclosure period at bank level will start in January 2015. The Basel Committee will test a minimum Tier 1 leverage of 3 percent during the parallel period from January 1, 2013 to January 1, 2017. The BCBS is also conducting a quantitative impact study (QIS) on the Basel III framework which is focused on changes to bank capital ratios under the new capital and liquidity requirements. The QIS results are available for June 2011, December 2011 and June 2012. A BCBS progress report on Basel III implementation was published in April 2013.

which will be defined as Tier 1 capital to balance sheet assets. The leverage indicator will be included in the core set of FSIs.<sup>9</sup>

### **Capital Conservation buffer and Countercyclical Capital Buffer**

**31.** If Basel III is adopted, I02 should be calculated taking the entirety of CET1, which would include the capital conservation buffer and countercyclical buffers to the extent that deposit-takers are required to maintain them. The usefulness of specific indicators based solely on the capital conservation or countercyclical buffers will be diminished by the lack of comparability and their expected variability. The delayed phased-in period for the full introduction of the buffer would also detract from the potential usefulness of an indicator based on it. At this time, no specific capital conservation buffer- or countercyclical capital buffer-related indicators will be introduced to the FSI list.

## **B. Liquidity FSIs**

### **Basel III and Liquidity Standards**

**32. Basel III has introduced two internationally harmonized global liquidity standards as complements to capital adequacy requirements:** the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR). These two ratios comprise specific parameters, which are internationally “harmonized” with prescribed values. Nevertheless, certain parameters contain elements of national discretion to reflect jurisdiction-specific conditions. The home supervisory parameters should apply to all the entities being consolidated.

**33. The LCR is intended to promote resilience to potential liquidity disruptions over a thirty-day horizon.** Following the LCR, high-quality liquid assets must equal or exceed highly-stressed one-month cash outflows. After an observation period, it will be introduced in January 2015. The LCR standard is defined by dividing the stock of high quality liquid assets to net cash outflows over a 30-day time period under stress. Individual banks should meet this standard permanently and hold a stock of unencumbered, high-quality liquid assets to face a severe stress scenario. The LCR is calculated using stock of high-quality liquid assets as numerator and total net cash outflows over the next 30 calendar days as denominator:

- *High-quality liquid assets* are those assets that can be easily and immediately converted into cash at little or no loss of value. Basel III sets out fundamental and market-related characteristics and operational requirements that high-quality liquid assets should possess or satisfy.
- *Total net cash outflows* are defined as the total expected cash outflows minus total expected cash inflows in the specified stress scenario for the subsequent 30 calendar days. Total expected cash outflows are calculated by multiplying the outstanding balances of liabilities and

<sup>9</sup> See paragraph 26 above for more details.

off-balance sheet commitments by the rates at which they are expected to run off or be drawn down. Total expected cash inflows are calculated by multiplying the outstanding balances of contractual receivables by the rates at which they are expected to flow in under the scenario up to an aggregate cap of 75 percent of total expected cash outflows.

**34. The NSFR has been developed to promote more medium and long-term funding of the assets and activities of banking institutions.** The NSFR measure is designed to act as a minimum enforcement mechanism to complement the LCR. The NSFR is defined as the available amount of stable funding relative to the amount of required stable funding as calculated by banks and this ratio must be greater than 100 percent. Basel III provides definitions and the framework for deriving the available amount of stable funding and the amount of required stable funding for calculating this ratio.

### Changes and Additions to the Liquidity FSIs

**35. Changes and additions to the liquidity FSIs can be summarized as follows:**

- **Liquidity coverage ratio (LCR):** This indicator will be included in the core set for jurisdictions that fully adopt Basel III LCR, and will replace I11 liquid assets to short-term liabilities. The LCR is added because it is intended to promote resilience to potential liquidity disruptions over a 30-day horizon, making it very useful for financial stability analysis and systemic risk monitoring. For jurisdictions that do not adopt Basel III, I11 FSI remains defined as liquid assets to short-term liabilities.
- **Net Stable Funding Ratio (NSFR):** This indicator will be included in the core set when jurisdictions adopt Basel III NSFR. This ratio provides important information on the funding structure of the DT sector over a one-year horizon and is designed to act as a minimum enforcement mechanism to complement the LCR. Jurisdictions that do not adopt Basel III do not report this FSI.

### C. Additional FSIs

**36. A new FSI for DTs, credit growth to the private sector will be added to the additional set of FSIs.** This indicator is intended to capture emerging systemic risks and can serve as a forward-looking indicator of potential assets quality problems and vulnerabilities in the DTs sector. The indicator will be calculated as annual growth rate of nominal loans to the private sector, which is defined to include private nonfinancial corporations (NFCs) and households (HHs).<sup>10</sup> Rapid credit expansion may, at times, exceed banks' capacity to assess risks, thereby leading to reduced asset quality and increased probability of a crisis event. Cross-country empirical studies of systemic bank distress (Bell and Pain, 2000) suggest that banking crises tend to be preceded by credit booms.

<sup>10</sup> Loans to the public non-financial corporates are not included, as those corporates are not a part of the private sector.

On this basis, this new indicator can provide signal of a need for further evaluation of the implications of credit growth for financial stability and macroeconomic developments. In particular, it may be needed to distinguish to what extent a rapid credit growth reflects improvements in access to finance and to what extent the growth reflects a loosening in risk management practices and supervision.

## D. Other issues

### “NPL Net of Provisions to Capital” (I03)

**37. The current *FSI Compilation Guide* recommends the use of a broader concept of loans for gross loans, NPLs, and NPLs net of specific provisions for compiling this FSI.** Thus, in the current *FSICG*, gross loans and NPLs should be measured at nominal value gross of specific provisions for loan losses.

**38. Fund staff proposes that national authorities continue to use the current definition of NPLs and provisions for loan losses in the *FSICG* when compiling FSI I03,** as this approach is consistent with supervisory concepts and definitions specifically for NPLs, and provisions for loan losses.

### Provisions to NPLs – new core FSI

**39. Currently, the indicator “provisions to NPLs” is included in the FSI tables of the Global Financial Stability Report (GFSR), and will be added to the revised list of core FSIs for DTs.** The data series for provisions are derived from the reported underlying data series used for the existing core indicator I03—NPLs net of provisions to capital.

### Data Aggregation for Supervisory-Based Capital

**40. Implementation of Basel III may co-exist at least temporarily with previous capital requirements (Basel II or even Basel I).** In the circumstances, the FSIRG requested guidance on data aggregation for supervisory-based capital. Staff’s recommended aggregation approach is summarized in Table 1.

<b>Table 1. Recommended Aggregation of Capital Components under Basel III and Basel II (and/or Basel I) for Deriving Sectoral Data</b>			
<b>Basel I</b>	<b>Basel II</b>	<b>Basel III</b>	<b>Sectoral data calculated by aggregation of capital data under different Basel standards</b>
Tier1	Tier1	CET1– supervisory deductions	Sectoral CET1=Basel I Tier 1 + Basel II Tier 1 + Basel III CET1
		Tier1 (CET1 + AT1)– supervisory deductions	Sectoral Tier 1=Basel I Tier 1 + Basel II Tier 1 + Basel III Tier 1
Tier 2	Tier 2	Tier 2 – supervisory deductions	Sectoral Tier 2=Basel I Tier 2 + Basel II Tier 2 + Basel III Tier 2
Tier 3	Tier 3		Sectoral Tier 3 (if applicable)=Basel I Tier 3 + Basel II Tier 3
Supervisory deductions	Supervisory deductions	Supervisory <sup>11</sup> deductions	Sectoral supervisory deductions=Basel I supervisory deductions + Basel II supervisory deductions + Basel III supervisory deductions
Basel I Total Regulatory Capital=Tier 1 + Tier 2 + Tier 3 (if applicable) – supervisory deductions	Basel II Total Regulatory Capital=Tier 1 + Tier 2 + Tier 3 (if applicable) – supervisory deductions	Basel III Total Regulatory Capital=Tier 1 (CET 1 + AT1) + Tier 2 – supervisory deductions	Sectoral Total Regulatory Capital=Sectoral Tier 1+Sectoral Tier 2+ Sectoral Tier 3 (if applicable) –Sectoral supervisory deductions

**41. Countries should clearly indicate in their metadata, if they conduct data aggregations for financial institutions within their jurisdictions using different Basel accords.** Information on the number of deposit-takers and percent share of capital compiled using each Basel accord would be useful and should be provided, if possible.

<sup>11</sup> Supervisory deductions apply to each component of the Total Regulatory Capital.

## Breaks in Time Series and Related Issues

**42. The introduction of the new Basel III concepts will result in time series breaks and thus the need to manage time series breaks.** Even if the label (Tier 1, Tier 2, and total regulatory capital) of the variables used to calculate the capital-based indicators do not change, the instruments included in them, and the supervisory deductions they are subject to, will change, affecting the comparability of historical series. Table 2 shows the status of capital definitions used by FSI-reporting countries as of end-July 2013 (according to the metadata posted by countries).

**43. To help with the conversion process, STA will publish a “frequently asked questions” note providing guidance to users on the changes and revisions.** Countries could refer to this note. Countries would need to clearly indicate breaks in the time series in the published data and metadata. In addition, STA will inform the FSIRG well ahead of the date on which the IMF’s FSI website will be changed to reflect the new FSI list and definitional changes.

Table 2. Capital Definitions Used by FSI Reporters, end-July 2013					
Indicator	Tier1	Balance sheet capital	Regulatory capital	Not reported	No metadata
I 003	8	39	29	0	4
I 007	10	62	6	0	2
I 012	10	19	33	17	1
I 013	13	49	8	8	2
I 014	7	8	29	36	0
I 016	6	26	6	38	4
I 017	6	27	6	38	3
I 025	4	7	16	51	2

## OTHER FINANCIAL CORPORATIONS

*This section discusses the current FSIs for OFCs, the envisaged split of the OFC sector into four main subsectors—money market funds (MMFs), insurance corporations (ICs), pension funds (PFs), and other OFCs, and new indicators for the OFC subsectors.*

### A. Splitting the OFC Sector

**44. As corporations comprising OFCs are very diverse, there is a need to disaggregate this sector into subsectors.** In this connection, the OFCs sector will be subdivided into four subsectors: (i) MMFs; (ii) ICs; (iii) PFs; and (iv) other OFCs, covering all residual OFCs not included in the previous three subsectors.<sup>12</sup>

**45. The split of the OFC sector into subsectors is broadly in line with the split supported by the FSIRG** (Table 3). The split between ICs and PFs was considered advisable given differences in their business models and varying importance across countries. National compilers may wish to compile FSIs for additional categories in the other OFC subsector separately for their own analysis and for publication if these categories (e.g., Special Purpose Vehicles, investment funds, trust funds) account for a significant share of their financial systems.

#	Subsector	Description
1	MMFs	MMFs are collective investment schemes that raise funds by issuing shares or units to the public. The proceeds are invested primarily in money market instruments, MMF shares or units, transferable debt instruments with a residual maturity of not more than one year, bank deposits and instruments that pursue a rate of return that approaches the interest rates of money market instruments.
2	ICs	ICs' principal function is to provide life and nonlife insurance to individual institutional units or group of units. For the purpose of compiling FSIs, both life and non-life ICs as well as those engaged in reinsurance, should be included in this subsector.

<sup>12</sup> In preparing FSI proposals for OFCs, IMF staff consulted bilaterally with the Bank for International Settlements (BIS), European Central Bank (ECB), Financial Stability Board, International Association of Insurance Supervisors (IAIS), and the International Organization of Securities Commissions (IOSCO).

3	PFs	PFs are established to provide retirement benefits for specific groups of employees. This subsector should include only those PFs that are constituted as separate from the units that have created them. Social security schemes, which are part of general government, should not be included in this subsector.
4	Other OFCs	This subsector is to cover all OFCs that are not included in those subsectors separately identified above—that is, MMFs, ICs, and PFs. Hence, other OFCs would include other nonbank financial intermediaries, such as SPVs, finance companies and financial leasing companies that are not classified as DTs for compiling FSIs, investment funds (other than MMFs), trust funds, hedge funds, and financial auxiliaries, etc.

## B. Revisions to the Current FSIs for OFCs

**46. The current set of FSIs includes two indicators for OFCs—assets to total financial system assets (I26) and assets to GDP (I27).** The numerator for both indicators is OFCs’ total financial assets. These FSIs are intended to measure the importance of OFCs within the domestic financial system and the domestic economy, respectively. Fund staff is of the view that these FSIs remain useful to monitor broad developments in the OFCs sector, especially in those countries where OFCs are still in an embryonic stage. Hence, these two FSIs for the OFCs sector will be kept as a whole and subsector splits added as shown in Table 4 below. For the purpose of compiling the two FSIs for the OFCs sector as a whole, the OFCs sector would include all financial corporations that are not classified as DTs, including MMFs, ICs, PFs, other financial intermediaries (other than MMFs, ICs, and PFs), and financial auxiliaries.

<b>Table 4. FSI 26 and FSI 27 for the OFCs Sector and its Subsector Splits</b>
<b>FSI 26 OFC assets (percent of total financial system assets)</b>
MMF assets (percent of total financial system assets)
IC assets (percent of total financial system assets)
PF assets (percent of total financial system assets)
Other OFC assets (percent of total financial system assets)
<b>FSI 27 OFC assets (percent of GDP)</b>
MMF assets (percent of GDP)
IC assets (percent of GDP)
PF assets (percent of GDP)
Other OFCs assets (percent of GDP)

## C. New FSIs for the OFC Subsectors

**47. The framework for measuring the financial soundness of the OFC subsectors follows broadly that for the DT sector,** which is intended to cover aspects of, where applicable, capital

adequacy, asset quality, earnings and profitability, and liquidity conditions. The methodology for compiling new FSIs for OFCs will be developed and included in the revised *FSICG*.

**48. Fund staff has adopted a parsimonious approach in proposing new FSIs for OFCs,** given differences in the level of development in the OFCs subsectors across countries, variations in data reporting practices, and limited data availability in many countries. The new FSIs for OFCs are included in the *additional* FSI set.

**49. The consolidation basis to be used for compiling the new FSIs for OFCs subsectors should follow that used for compiling the current indicator I26,** which could be either on a cross-border consolidated basis or a domestic consolidated basis, depending on data availability and on whether there exist significant branches and/or subsidiaries' activities abroad.

### **New FSIs for MMFs**

**50. The systemic relevance of MMFs varies across countries.** In some jurisdictions, MMFs can be characterized by their investment objectives and types of investors. As with other mutual funds, investors in MMFs are considered as shareholders and they are often entitled to receive the value of each share with its accumulated income. In these cases, MMFs determine their price, by dividing the net asset value (NAV) of the fund by the number of shares of the fund. However, there are also constant NAV MMFs in which the yield is predetermined and does not vary with prices of the underlying assets. Investments in MMFs are typically not covered by deposit insurance.

**51. MMFs typically invest in high-quality and low-duration income instruments, such as commercial papers, certificates of deposits, and repurchase agreements.** Despite the relatively high quality of the invested instruments, the maturity and the issuing sectors of these instruments can have impact on the asset quality.

**52. MMFs provide short-term funding to DTs and, therefore, a run on MMFs could have an impact on DTs' short-term liquidity.** Constant NAV MMFs could be prone to runs if a significant shortfall emerges between the value of the underlying assets and the obligations. The liquidity problems might be exacerbated if DTs also have investments in MMFs as DTs may withdraw funds from their share accounts with MMFs as a consequence of the potential loss perception (feedback loop). The maturity transformation through MMFs is also relevant for financial stability analysis as some of MMFs' assets have maturities more than 90 days while balances in their share accounts may be withdrawn on demand.

**53. Based on the above considerations, two FSIs for MMFs are added to assess their asset quality and liquidity** (Table 5).

<b>Table 5. New FSIs for MMFs</b>	
Assets quality	<i>Sectoral distribution of investments (percent of total investments)</i> Central bank DTs OFCs General government NFCs Non residents
Liquidity	<i>Maturity distribution of investments (percent of total investments)</i> 1-30 days 31-90 days >90 days

**54. The new asset quality indicator provides information on MMFs' assets distributed by debtor sectors.** This FSI is useful as different debtors have different risk profiles. Changes in the distribution would also capture MMFs' asset reallocation based on yields and/or risk perception. Additionally, this FSI captures a financial link between MMFs and DTs.

**55. The new liquidity indicator is aimed at assessing the level of liquidity by monitoring the asset maturity.** For calculating this FSI, remaining maturity would be recommended. A large concentration of assets with maturity more than 90 days could signal potential liquidity vulnerabilities.

#### **New FSIs for ICs<sup>13</sup>**

**56. The new FSIs for ICs are to cover three categories of financial soundness**—capital adequacy, reinsurance issues, and earning and profitability (Table 6).

<b>Table 6. New FSIs for ICs</b>	
Capital	Shareholder equity to invested assets
Reinsurance issues	Total premium income minus premium ceded by primary insurers to total premium income
Earnings and profitability	Return on assets (ROA) Return on equity (ROE)

<sup>13</sup> New FSIs for ICs were discussed and agreed with the IAIS Secretariat in January 2013.

**57. Capital is one of the key indicators of ICs’ financial soundness, which measures the corporations’ capital strength to absorb losses.** One indicator will be added to measure capital—shareholders equity to invested assets ratio—intended to measure the level of capital that is available to meet potential losses from ICs’ investments.

**58. ICs may also arrange reinsurance.** This is insurance provided by one insurer (usually specializing in reinsurance) to another whereby the reinsurer agrees, in exchange for a premium, to indemnify the latter for losses on one or more contracts which it has issued. Reinsurers may themselves arrange reinsurance, known as “retrocession.”

**59. On reinsurance issues, a risk retention ratio (total premium income minus premium ceded by primary insurers to total premium income) will be added to measure the risk that is passed on to reinsurance companies.** Low and declining levels of this ratio may signal the presence of financial difficulties of primary insurers and would warrant a closer look at the concerned insurance company.

**60. Low profitability may signal fundamental problems for ICs and may be considered as a leading indicator for solvency problems.** In this regard, two new FSIs are added to assess earnings and profitability: (i) ROA—intended to measure ICs’ efficiency in using their assets; and (ii) ROE—intended to measure ICs’ efficiency in using their capital.

**New FSIs for PFs**

**61. PFs play an important role in the financial system in certain countries and have a potential impact on the stability of financial markets in several ways,** most significantly through their investment behavior. PFs hold a large proportion of financial assets and, therefore, any sizable reallocation of their assets (e.g., between fixed income and equities) could have macro-financial implications.

**62. On liquidity, it is important to assess the adequacy of liquid assets to cover future pension payments.** This may be measured by the proposed ratio of liquid assets to estimated pension payments in the next year. Moreover, in revising the FSICG considerations will be given to the fact that most pension schemes receive regular cash inflows, which to some extent reduces the liquidity risk.

**63. Like other types of financial corporations, profitability is a key determinant of PFs’ strength to withstand shocks.** The proposed ROA ratio would measure the efficiency of PFs in using their assets. Table 7 summarizes the new indicators for PFs.

<b>Table 7. New FSIs for PFs</b>	
Liquidity ratio	Liquid assets to estimated pension payments in the next year
Earnings and profitability	ROA

## New FSIs for other OFCs

**64. Other OFCs are engaged in a broad range of financial intermediary and financial auxiliary activities.** This subsector may include very different types of institutions, as illustrated in Table 3 above. Given limited data availability in many countries and likely serious data comparability issues, other OFCs will not be split further, as noted previously. Nevertheless, national compilers will be encouraged to calculate FSIs for additional categories in the other OFCs subsector separately for their own analysis and publication if these categories accounted for a significant share of their financial systems.

# NON-FINANCIAL CORPORATIONS, HOUSEHOLDS, AND REAL ESTATE MARKETS

*This section discusses FSIs and changes and revisions for non-financial corporations (NFCs), households (HHs), and real estate markets.*

## A. Changes to FSIs for NFCs

**65. “Earnings to interest expenses” is added as a new indicator while keeping the current FSI I30 “earnings to interest and principal expenses.”**<sup>14</sup> This would avoid data covering earnings to interest expenses being reported under the label “earnings to interest and principal expenses” in cases where data on principal expenses are not available.

**66. “Liquidity ratio” is added as a complementary indicator to assess liquidity conditions in NFCs.** This indicator is defined as the ratio of liquid assets to total assets, the same ratio as the liquidity asset ratio for deposit-takers.<sup>15</sup> This ratio is a proxy for the “current ratio,”<sup>16</sup> as there are difficulties/costs of compiling short-term liabilities on a remaining maturity basis.

**67. “External debt to equity” and “foreign currency debt to equity” ratios are added as supplementary ratios to FSI I28 “total debt to equity.”** These two new ratios would be very

<sup>14</sup> Regarding I30, the FSIRG’s views differed on: (i) what would be the drawbacks of redefining I30 as “earnings to interest expenses” from “earnings to interest and principal expenses;” and (ii) whether the redefined indicator would be simpler and more meaningful. Some participants from countries where data on principal expenses are not available favored the redefined I30 (“earnings to interest expenses”). Other participants preferred the indicator as it is now (“earnings to interest and principal expenses”). Several participants also proposed alternative indicators, such as “earnings to short-term liabilities” or “NFC debt to GDP.”

<sup>15</sup> The *FSI Guide* defines “liquid assets” as currency and deposits, with a broader measure including securities traded in liquid markets (paragraphs 4.78-4.80).

<sup>16</sup> The current ratio is defined as a ratio of current (or short-term) assets to current (or short-term) liabilities. The current ratio is a commonly used liquidity measure in financial/investment analysis that evaluate the company’s ability to pay short-term obligations.

useful for macroprudential analysis, as they would allow the monitoring of NFCs' exposures by residency of creditors, as well as indicate the extent to which NFCs rely on foreign currency borrowing.<sup>17</sup> Data on external debt may be available from the external debt statistics, which along with data from the International Investment Position may also provide information on foreign currency debt to the extent it is owed to nonresidents. Data on foreign currency debt from the central bank, resident DTs, and OFCs are available from the SRFs.

**68. “NFC debt to GDP” is added.** This indicator is intended to measure NFCs' leverage relative to GDP and should be analyzed together with the current I28 “total debt to equity.” Both underlying data series for this new indicator are used for existing FSIs.

**69. ROA is added.** ROA along with the existing I29 ROE provide an indication on management's effectiveness in deploying resources. Furthermore, ROA may better capture NFCs' profitability in cases where NFC debt is converted into equity, thus diluting the meaningfulness of the ROE ratio over time.

**70. FSI I32 “number of bankruptcy proceedings initiated” is dropped.** The comparability of this indicator is limited as it is influenced by the quality and nature of national bankruptcy and related legislation along with the size of the financial system, all of which may vary significantly across countries.<sup>18</sup>

**71. FSI I31 “Net foreign exchange exposures to equity” is dropped.** This indicator is only reported by a very small number of reporters—it is the least reported FSI.

## B. Changes to FSIs for HHs

**72. Despite becoming an increasingly important sector, the reporting rate of the FSIs for HHs has been low.** In particular, FSI I34 (“Household debt service and principal payments to income”) has a very low rate of reporting, which can be largely attributed to the limitations faced by many national compilers in collecting household data outside the banking sector, as they lack the legal authority to request information.

**73. Against this backdrop, the following additions and revisions are made to FSIs for HHs:**

- HH debt to gross disposable income of HHs is a new indicator intended to assess debt sustainability of the HHs sector. Countries are encouraged to compile the numerator using national accounts data. A growing or high ratio may signal vulnerabilities. This indicator should be analyzed together with the current I33 and I34.

<sup>17</sup> If data on “external debt to equity” is available, “domestic debt to equity” is a residual. Likewise, if data on “foreign currency debt to equity” is available, “domestic currency debt to equity” is a residual.

<sup>18</sup> This indicator could be useful at national level for various types of analytical work, such as, trend analysis. Countries would be encouraged to compile and disseminate time series of this indicator at the national level if it is considered analytically useful.

- For the current I33 (HH debt to GDP), countries are encouraged to compile the numerator using the national accounts data, which provide a broader coverage of HH debt. Countries that do not have HH debt data from national accounts sources, may use data from banking sector sources for the numerator and indicate so in the metadata.
- For the current I34 (HH debt service and principal payments to income), countries are encouraged to compile the ratio using available data from national accounts sources. Countries that do not have data on the numerator (debt service and principal payments) from national accounts sources, may use data from banking sector sources for the numerator and indicate so in the metadata.

**74. The FSIRG also suggested adding “HH equity to HH real estate value,” and “mortgage loan to home value.”** However, these indicators will not be introduced at this stage as discussed below.

- *“HH equity to HH real estate value,”* HH equity would be defined as the HHs’ current real estate market value less the value of HHs’ outstanding mortgage loans. Although this indicator may provide useful information on HHs’ and DTs’ exposure to real estate market, it may not be feasible for most countries to compile at this stage, as compilation of such data at the sectoral level may prove very costly. In addition, several factors may affect the reliability of the measurement and cross-country comparability of the indicator, such as how the HH equity is measured for the whole economy, in particular in countries where there is lack of active secondary housing markets. Moreover, the indicator could be difficult to interpret. As house prices rise HHs would have more equity thus may borrow more, so risks would rise. However, it is not evident in the indicator because the ratio may be little changed or unchanged even though HHs are leveraging up. Nevertheless, countries that have sufficient source data for compiling such indicator are encouraged to do so for their own analysis and dissemination.
- *“Mortgage loan to home value”* indicator is used as a macro-prudential policy tool to reduce leverage in the real estate market in an increasing number of countries. This FSI would allow policy makers to monitor trends in this leverage and could be calculated by using new mortgage loans granted during a reference period as the numerator and the house value as the denominator. However, its compilation at the sectoral level may be costly and not be feasible for most countries. Importantly, it is a partial indicator, an average that might be hard to interpret, particularly if it is volatile from period to period as a consequence of a changing mix of properties purchased, and is unlikely to be comparable across countries. Thus, household debt to GDP FSI is considered a more comprehensive and reliable measure of rising household debt, and should be encouraged along with the development of data on nonfinancial assets of the household sector within the sectoral accounts. Nevertheless, national compilers that have sufficient source data are encouraged to compile a mortgage loan to home value FSI for their own analysis and dissemination.

## C. FSIs for Real Estate Markets

**75. For macroprudential analysis, it is highly desirable to have indices of real estate prices, because DTs may have large exposures (both direct and indirect) to the real estate market.**

Hence, they may be affected by the potential volatility of real estate price movements. At the same time, it is important to monitor DTs' portfolio concentration on real-estate lending as DTs' direct exposure to risks may arise from such lending.

**76. The current set of FSIs includes, in the additional set of FSIs, four indicators for real estate market as follows:**

- *I37—Residential real estate price index;*
- *I38—Commercial real estate price index;*
- *I39—Residential real estate loans to total loans; and*
- *I40—Commercial real estate loans to total loans.*

**77. Regarding I37 and I38, the FSIRG reaffirmed their importance while noting compilation difficulties.** Concerns were also expressed about the quality of these indicators given that in many countries real estate price indices are produced not by an official statistical agency but by commercial sources.

**78. In the context of the G-20 DGI (Recommendation no. 19), a Handbook on Residential Property Price Indices (RPPI) has been published, Inter-Secretariat Working Group on Price Statistics, chaired by EUROSTAT.<sup>19</sup>** The *RPPI Handbook* provides guidelines on RPPI compilation to foster the development of homogeneous real estate statistics. The BIS has been collecting data on the RPPI from 48 countries, and these data (with various frequencies) are available on the BIS website. As of end-July 2013, 29 countries report I37 (residential real estate price index) to the IMF, of which 26 countries are BIS RPPI reporters.

**79. Work has also commenced on the development of a Handbook on Commercial Property Price Indices (CPPI) to address statistical issues related to commercial estate prices.** The *CPPI Handbook* is expected to be published by the end of 2015.

**80. The current FSIs for real estate market will be retained as they remain useful for monitoring broad developments in real estate markets and for macroprudential analysis.** Furthermore, **the RPPI will become a core indicator**, and the other three real estate indicators should remain in the additional set.

<sup>19</sup> [http://epp.eurostat.ec.europa.eu/portal/page/portal/hicp/methodology/hps/rppi\\_handbook](http://epp.eurostat.ec.europa.eu/portal/page/portal/hicp/methodology/hps/rppi_handbook)

## References

Bank for International Settlements, 2011, "Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems."

Bell, J., and D. Pain, 2000. "Leading Indicator Models of Banking Crises—A Critical Review." *Financial Stability Review* (Bank of England) 9 (December): 13-29

International Monetary Fund, 2001, "Financial Soundness Indicators: Policy Paper"  
<http://www.imf.org/external/np/mae/fsi/2001/eng/pp.pdf>

International Monetary Fund, 2003a, Public Information Notice (PIN) No. 03/71 June 13, 2003,  
<http://www.imf.org/external/np/sec/pn/2003/pn0371.htm>

International Monetary Fund, 2003b, "Financial Soundness Indicators," Policy Paper, SM/03/175,  
<http://www.imf.org/external/np/sta/fsi/eng/2003/051403.pdf>

International Monetary Fund, 2005, "Progress on the Financial Soundness Indicators Work Program," SM/05/215, <http://www.imf.org/external/np/sta/fsi/eng/2005/061405.htm>

International Monetary Fund, 2007a, Public Information Notice (PIN) No. 07/135  
November 20, 2007, <http://www.imf.org/external/np/sec/pn/2007/pn07135.htm>

International Monetary Fund, 2007b, "Financial Soundness Indicators: Experience with the Coordinated Compilation Exercise and Next Steps,"  
<http://www.imf.org/external/np/pp/2007/eng/101807a.pdf>.

## Appendix I. FSIRG Composition

<b>FSIRG Members</b>	
<b>ARGENTINA</b> Central Bank of Argentina	<b>LUXEMBOURG</b> Central Bank of Luxembourg
<b>ARMENIA</b> Central Bank of Armenia	<b>MALAYSIA</b> Central Bank of Malaysia
<b>AUSTRALIA</b> Reserve Bank of Australia	<b>MAURITIUS</b> Bank of Mauritius
<b>BRAZIL</b> Banco Central do Brasil	<b>MEXICO</b> Comisión Nacional de Valores of México
<b>CANADA</b> Bank of Canada Statistics Canada	<b>PHILIPPINES</b> Bangko Sentral ng Pilipinas
<b>CHINA</b> People's Bank of China China Banking Regulatory Commission	<b>PORTUGAL</b> Banco de Portugal
<b>CHILE</b> Central Bank	<b>ROMANIA</b> National Bank of Romania
<b>COLOMBIA</b> Superintendencia Financiera de Colombia	<b>RUSSIAN FEDERATION</b> Bank of Russia
<b>DENMARK</b> Dermarks Nationalbank	<b>SAUDI ARABIA</b> Saudi Arabian Monetary Agency
<b>GERMANY</b> Deutsche Bundesbank	<b>SOUTH AFRICA</b> South African Reserve Bank
<b>FRANCE</b> Bank of France	<b>SPAIN</b> Banco de España
<b>INDIA</b> Reserve Bank of India	<b>SWITZERLAND</b> Swiss National Bank
<b>INDONESIA</b> Bank Indonesia	<b>TUNISIA</b> Banque Centrale de Tunisie
<b>ITALY</b> Banca D'Italia	<b>TURKEY</b> Bankacýlýk Düzenleme Ve Denetleme Kurumu Banking Regulation and Supervision Agency
<b>JAPAN</b> Bank of Japan	<b>UNITED KINGDOM</b> Bank of England
<b>LEBANON</b> Central Bank of Lebanon	<b>UNITED STATES</b> US Federal Reserve Board

<b>Other FSIRG Members</b>	
<b>ECB</b> , European Central Bank	<b>BCEAO</b> , Banque Centrale des Etats de l'Afrique de l'Ouest
<b>IOSCO</b> , International Organization of Securities Commissions	<b>COBAC</b> , Commission Bancaire de l'Afrique Centrale
<b>IAIS</b> , International Association of Insurance Supervisors	<b>IDB</b> , Inter American Development Bank
<b>ECCB</b> , Eastern Caribbean Central Bank	<b>IFSB</b> , Islamic Financial Services Board
<b>ADB</b> , Asian Development Bank	<b>OECD</b> , Organisation for Economic Co-operation and Development
<b>ASBA</b> , Association of Supervisors of Banks of the Americas	<b>The World Bank</b>
<b>BEAC</b> , Banque des Etats de l'Afrique Centrale	

## Appendix II. FSI Courses, Workshops, and Seminars, 2007–13

No.	Title and Location	Duration	Dates
1	Central Bank of Russia (Tula) (FSIs Course for Russia, the Baltics, and other FSU countries)	2 weeks	September 17–28, 2007
2	STI—FSIs Course	2 weeks	November 12–23, 2007
3	BTC—FSIs Course	2 weeks	December 3–14, 2007
4	East AFRITAC—FSIs Workshop	1 week	June 9–13, 2008
5	PFTAC—FSI Course	4 days	September 8–11, 2008
6	CTP—People’s Bank of China FSIs Course	2 weeks	September 15–26, 2008
7	RTP—Arab Monetary Fund FSI Course	2 weeks	June 21–July 2, 2009
8	STI—FSIs Course	2 weeks	August 10–21, 2009
9	JPA—FSIs Course	2 weeks	March 15–26, 2010
10	BTC— FSIs Course	2 weeks	April 26–May 7, 2010
11	Mauritius (Enhanced Data Dissemination Initiative)— Opening Workshop Module 3 (FSIs)	3 days	August 23–25, 2010
12	CTP—People’s Bank of China FSIs Course	2 weeks	September 13–17, 2010
13	ECB—FSIs Course	3 days	November 16–18, 2010
14	JVI—FSIs Course	2 weeks	December 6–17, 2010
15	Regional Training Program—Arab Monetary Fund FSI Course	2 weeks	February 6–17, 2011
16	Zambia (EDDI)—Workshop Module 3 (FSIs)	3 days	July 11–13, 2011
17	STI—FSIs Course	2 weeks	August 1–12, 2011
18	JA-JP—FSIs Course	2 weeks	September 19–30, 2011
19	India (ITP)—FSIs Course	2 weeks	March 12–23, 2012
20	BTC—FSIs Course	2 weeks	July 2–13, 2012

21	India (ITP)—FSIs Course	2 weeks	August 6–17, 2012
22	CTP—People’s Bank of China FSIs Course	2 weeks	September 10–21, 2012
23	CEF—FSIs Course in Kuwait City	1 week	April 7–11, 2013
24	JPA—FSIs Course for English-speaking African countries	1 week	September 2–6, 2013
25	Indonesia—JSA <sup>20</sup> FSIs Workshop	1 week	October 21–25, 2013
26	JVI—FSI Course	1 week	October 28–November 1, 2013

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<sup>20</sup> The Government of Japan, through the Administered Account for Selected Fund Activities—Japan

## Appendix III. FSI-Reporting Countries and Data Coverage

(As of July 31, 2013)

	Country Reporters	Start date of the time series	Frequency of reporting	Number of core FSIs posted	Number of additional FSIs posted
<b>African Department</b>					
1	Kenya	March 2006	Quarterly	12	11
2	Mauritius	March 2009	Quarterly	12	10
3	Seychelles	December 2006	Monthly	11	7
4	South Africa	January 2008	Monthly for most of the FSIs	12	13
5	Uganda	March 2010	Quarterly for most of the FSIs	12	9
<b>Asia Pacific Department</b>					
6	Australia	December 2005	Quarterly	11	23
7	Bhutan	March 2009	Quarterly	12	11
8	Brunei	December 2009	Quarterly	12	10
9	China, P.R.: Mainland	December 2010	Annual	12	0
10	Hong Kong SAR	December 2008	Quarterly	12	12
11	India	December 2008	Quarterly	12	13
12	Indonesia	December 2005	Quarterly	12	19
13	Japan	September 2009	Semi-annual	11	0
14	Korea, Republic of	December 2008	Quarterly for most of the FSIs	12	23
15	Malaysia	December 2005	Quarterly	12	1
16	Philippines	June 2008	Quarterly	12	7
17	Singapore	December 2008	Quarterly	11	6
18	Sri Lanka	December 2011	Quarterly	11	9
<b>European Department</b>					
19	Austria	December 2006	Quarterly	12	17
20	Belarus	December 2010	Quarterly	12	2
21	Belgium	December 2006	Semi-annual for most of the FSIs	12	14
22	Bosnia and Herzegovina	December 2000	Quarterly	12	3
23	Bulgaria	2008	Annual	12	10
24	Croatia	June 2006	Quarterly for most of the FSIs	12	19
25	Cyprus	December 2008	Quarterly	12	13
26	Czech Republic	March 2007	Quarterly	12	12
27	Denmark	December 2010	Quarterly	12	22

28	Estonia	December 2008	Quarterly	12	11
29	Finland	December 2007	Quarterly for most of the FSIs	9	16
30	France	December 2008	Semi-annual for most of the FSIs	11	19
31	Germany	December 2008	Quarterly for most of the FSIs	12	25
32	Greece	September 2008	Quarterly	12	21
33	Hungary	December 2008	Quarterly	12	0
34	Ireland	December 2005	Quarterly for most of the FSIs	10	12
35	Israel	December 2002	Quarterly for most of the FSIs	12	23
36	Italy	June 2005	Semi-annual	12	24
37	Kosovo	July 2010	Monthly for most of the FSIs	12	10
38	Latvia	December 2008	Quarterly for most of the FSIs	12	18
39	Lithuania	December 2008	Quarterly	12	12
40	Luxembourg	December 2008	Quarterly for most of the FSIs	12	13
41	Macedonia, FYR	March 2006	Quarterly for most of the FSIs	12	8
42	Malta	March 2005	Quarterly	12	20
43	Moldova	March 2009	Quarterly	11	9
44	Netherlands	March 2008	Quarterly	11	14
45	Norway	December 2008	Quarterly	12	11
46	Poland	December 2008	Quarterly	12	23
47	Portugal	December 2005	Quarterly	11	21
48	Romania	December 2007	Quarterly for most of the FSIs	12	20
49	Russian Federation	December 2008	Quarterly for most of the FSIs	12	12
50	Slovak Republic	December 2008	Quarterly	12	14
51	Slovenia	December 2008	Quarterly	12	0
52	Spain	December 2005	Semi-annual for most of the FSIs	9	16
53	Sweden	December 2006	Quarterly	12	4
54	Switzerland	2008	Annual	12	13
55	Turkey	December 2005	Quarterly for most of the FSIs	12	23
56	Ukraine	December 2005	Quarterly	12	10
57	United Kingdom	December 2008	Semi-annual for most of the FSIs	12	22
<b>Middle East and Central Asia Department</b>					
58	Afghanistan	June 2010	Quarterly	11	11
59	Algeria	2009	Annual	11	6
60	Armenia	January 2005	Monthly	12	18
61	Georgia	March 2002	Quarterly	12	16
62	Kazakhstan	March 2008	Quarterly	10	11
63	Lebanon	December 2010	Quarterly for most of the FSIs	12	9
64	Pakistan	December 2005	Quarterly	12	0

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65	Uzbekistan	December 2010	Quarterly	10	1
66	West Bank and Gaza	December 2008	Quarterly	11	8
<b>Western Hemisphere Department</b>					
67	Argentina	December 2005	Quarterly	12	9
68	Brazil	March 2005	Quarterly	12	17
69	Canada	March 2005	Quarterly	11	17
70	Chile	January 2001	Monthly	10	6
71	Colombia	January 2005	Monthly	11	10
72	Costa Rica	January 2008	Monthly	12	0
73	Ecuador	January 2007	Monthly	10	4
74	El Salvador	January 2005	Monthly	12	7
75	Honduras	December 2006	Monthly	9	5
76	Mexico	January 2005	Monthly	11	13
77	Paraguay	January 2005	Monthly	11	7
78	Peru	December 2010	Quarterly	12	9
79	United States	2005	Quarterly for most of the FSIs	11	20
80	Uruguay	December 2008	Only once	12	9

## Appendix IV. Frequency of FSI Reporting to the IMF

(In number of reporting countries<sup>1</sup>)

	Description	Monthly		Quarterly		Annual/Semiannual/Other <sup>2</sup>		Total	
		Jul-11	Jul-13	Jul-11	Jul-13	Jul-11	Jul-13	Jul-11	Jul-13
	<b>Number of reporting countries</b>								
	<b>Core FSIs for deposit takers</b>								
<b>I001</b>	<b>Regulatory capital to risk-weighted assets</b>	9	12	34	55	20	13	63	80
<b>I002</b>	<b>Regulatory Tier 1 capital to risk-weighted assets</b>	9	11	34	55	20	13	63	79
<b>I003</b>	<b>Nonperforming loans net of provisions to capital</b>	9	12	33	55	20	13	62	80
<b>I004</b>	<b>Nonperforming loans to total gross loans</b>	9	12	32	55	20	12	61	79
<b>I005</b>	<b>Sectoral distribution of loans to total loans</b>	3	7	32	53	17	11	52	71
<b>I006</b>	<b>Return on assets</b>	9	12	32	53	22	14	63	79
<b>I007</b>	<b>Return on equity</b>	9	12	32	52	22	15	63	79
<b>I008</b>	<b>Interest margin to gross income</b>	9	12	32	54	21	14	62	80
<b>I009</b>	<b>Noninterest expenses to gross income</b>	9	12	32	54	21	14	62	80
<b>I010</b>	<b>Liquid assets to total assets</b>	9	12	33	56	18	10	59	78
<b>I011</b>	<b>Liquid assets to short-term liabilities</b>	8	11	33	55	17	10	58	76
<b>I012</b>	<b>Net open position in foreign exchange to capital</b>	6	8	25	48	13	7	45	63
<b>Additional FSIs Deposit takers</b>									
<b>I013</b>	<b>Capital to assets</b>	9	11	32	50	13	11	54	72
<b>I014</b>	<b>Large exposures to capital</b>	3	3	18	31	9	10	30	44
<b>I015</b>	<b>Geographical distribution of loans to total loans</b>	1	1	22	33	8	3	31	37
<b>I016</b>	<b>Gross asset position in financial derivatives to capital</b>	4	4	21	30	11	8	35	42
<b>I017</b>	<b>Gross liability position in financial derivatives to capital</b>	4	4	21	29	11	8	35	41
<b>I018</b>	<b>Trading income to total income</b>	7	7	26	41	13	11	46	59
<b>I019</b>	<b>Personnel expenses to noninterest expenses</b>	8	11	27	45	14	11	49	67
<b>I020</b>	<b>Spread between reference lending and deposit rates (base points)</b>	4	5	20	31	7	7	31	43

## MODIFICATIONS TO THE CURRENT FSI LIST

<b>I021</b>	<b>Spread between highest and lowest interbank rates (base points)</b>	2	2	10	18	5	1	17	21
<b>I022</b>	<b>Customer deposits to total (noninterbank) loans</b>	9	11	27	43	11	8	47	62
<b>I023</b>	<b>Foreign-currency-denominated loans to total loans</b>	8	10	24	45	11	7	43	62
<b>I024</b>	<b>Foreign-currency-denominated liabilities to total liabilities</b>	8	10	22	44	12	7	42	61
<b>I025</b>	<b>Net open position in equities to capital</b>	3	3	11	23	7	3	21	29
<b>Additional FSIs for Other financial corporations</b>									
<b>I026</b>	<b>OFC's financial assets to total financial assets</b>	1	2	13	21	6	8	21	31
<b>I027</b>	<b>OFC's financial assets to gross domestic product</b>	1	2	12	19	7	11	20	32
<b>Additional FSIs Nonfinancial corporations</b>									
<b>I028</b>	<b>Total debt to equity</b>	0	0	8	9	7	11	15	20
<b>I029</b>	<b>Return on equity</b>	0	1	6	7	7	11	13	19
<b>I030</b>	<b>Earnings to interest and principal expenses</b>	0	0	2	5	5	6	7	11
<b>I031</b>	<b>Net foreign exchange exposure to equity</b>	0	0	0	0	2	3	2	3
<b>I032</b>	<b>Number of bankruptcy proceedings initiated</b>	0	0	7	11	5	3	12	14
<b>Additional FSIs Households</b>									
<b>I033</b>	<b>Household debt to gross domestic product</b>	0	1	13	20	7	8	20	29
<b>I034</b>	<b>Household debt service and principal payments to income</b>	0	0	6	7	4	5	10	12
<b>Additional FSIs Market liquidity</b>									
<b>I035</b>	<b>Average bid-ask spread in the securities market</b>	0	0	9	13	1	1	10	14
<b>I036</b>	<b>Average daily turnover ratio in the securities market</b>	1	1	9	16	2	2	12	19
<b>Additional FSIs Real estate markets</b>									
<b>I037</b>	<b>Residential real estate prices (Percentage change/last 12 months)</b>	0	3	10	19	8	7	18	29
<b>I038</b>	<b>Commercial real estate prices (Percentage change/last 12 months)</b>	0	0	4	7	3	3	7	10

<b>I039</b>	<b>Residential real estate loans to total gross loans</b>	2	3	21	33	8	6	31	42
<b>I040</b>	<b>Commercial real estate loans to total gross loans</b>	1	1	15	25	4	4	20	30

Source: IMF Statistics Department

1/ For July 2011 the number of FSIs reporters was 63.

For July 2013 the number of FSIs reporters was 80.

2/ "Other" refers to indicators reported only once.

## Appendix V. Current FSI List

Indicator Name	Description
<b>DTs: Core Set</b>	
Regulatory capital to risk-weighted assets	This FSI is calculated using total regulatory capital as the numerator and risk-weighted assets as the denominator. Data are compiled in accordance with the guidelines of either Basel I or Basel II. It measures the capital adequacy of DTs. Capital adequacy and availability ultimately determine the degree of robustness of financial institutions to withstand shocks to their balance sheets.
Regulatory Tier 1 capital to risk-weighted assets	The data for this FSI are also compiled in accordance with the guidelines of either Basel I or Basel II. It measures the capital adequacy of DTs based on the core capital concept of the Basle Committee on Banking supervision (BCBS).
NPLs net of provisions to capital	This FSI is calculated by taking the value of NPLs less the value of specific loan provisions as the numerator and capital as the denominator. Capital is measured as total capital and reserves in the sectoral balance sheet; for cross-border consolidated data, total regulatory capital can also be used. This FSI is a capital adequacy ratio and is an important indicator of the capacity of bank capital to withstand losses from NPLs.
NPLs to total gross loans	This FSI is calculated by using the value of 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. This FSI is often used as a proxy for asset quality and is intended to identify problems with asset quality in the loan portfolio.
Sectoral distribution of loans to total loans	This FSI is calculated using lending to each of the institutional sectors reported in the sectoral balance sheet of the DTs as the numerators and total gross loans as the denominator. This FSI is an asset quality ratio. It provides information on the distribution of loans (including NPLs and before the deduction of specific loan-loss provisions) to resident sectors and to nonresidents. Lack of sectoral diversification in the loan portfolio signals the potential existence of an important vulnerability in the financial system.

ROA	This FSI is calculated by dividing net income before extraordinary items and taxes (as recommended in the FSI Guide) by the average value of total assets (financial and nonfinancial) over the same period. This FSI is an indicator of bank profitability and is intended to measure DTs' efficiency in using their assets.
ROE	This FSI is calculated by dividing net income before extraordinary items and taxes by the average value of capital over the same period. Capital is measured as total capital and reserves as reported in the sectoral balance sheet; for cross-border consolidated data, Tier 1 capital can also be used. This FSI is a bank profitability indicator and is intended to measure DTs' efficiency in using their capital.
Interest margin to gross income	This FSI is calculated by using net interest income as the numerator and gross income as the denominator. It is a profitability ratio, which measures the relative share of net interest earnings—interest earned less interest expenses—within gross income. In the case of banks with low leverage, this FSI will tend to be higher.
Noninterest expenses to gross Income	This FSI is a profitability ratio, which measures the size of administrative expenses within gross income—that is, it measures the efficiency of DTs' use of resources.
Liquid assets to total assets (liquid asset ratio)	This FSI is calculated by using the core measure of liquid assets as the numerator and total assets as the denominator. The ratio can also be calculated using the broad measure of liquid assets as the numerator. This FSI is a liquid asset ratio, which provides an indication of the liquidity available to meet expected and unexpected demands for cash. The level of liquidity indicates the ability of the deposit-taking sector to withstand shocks to their balance sheet.
Liquid assets to short-term liabilities	This FSI is calculated by using the core measure of liquid assets as the numerator and short-term liabilities as the denominator. The ratio can also be calculated by taking the broad measure of liquid assets as the numerator. This FSI is a liquid asset ratio and is intended to capture the liquidity mismatch of assets and liabilities, and provides an indication of the extent to which DTs can meet the short-term withdrawal of funds without facing liquidity problems.
Net open position in foreign exchange to capital	The net open position in foreign exchange should be calculated based on the recommendation of the BCBS.

	<p>Capital should be total regulatory capital or Tier 1 capital as net open position in foreign exchange is a supervisory concept. This FSI is an indicator of sensitivity to market risk, which is intended to show DTs' exposure to exchange rate risk compared with capital. It measures the mismatch of foreign currency asset and liability positions to assess the vulnerability to exchange rate movements.</p>
<b>DTs: Additional Set</b>	
Capital to assets	<p>This FSI is the ratio of capital to total assets, without the latter being risk weighted. Capital is measured as total capital and reserves as reported in the sectoral balance sheet; for cross-border consolidated data, Tier 1 capital can also be used. It indicates the extent to which assets are funded by other than own funds and is a measure of capital adequacy of the deposit-taking sector. It complements the capital adequacy ratios compiled based on the methodology agreed to by the BCBS. Also, it measures financial leverage and is sometimes called the leverage ratio.</p>
Large exposures to capital	<p>This FSI is calculated by using the value of large exposures as the numerator and capital as the denominator. From a supervisory point of view, large exposures 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. Capital should be total regulatory capital or Tier 1 capital. This is an asset quality ratio, which is intended to identify vulnerabilities arising from the concentration of credit risk.</p>
Geographical distribution of loans to total loans	<p>This FSI is calculated by using loans distributed geographically (by region, country, or jurisdiction) as the numerators and total gross loans as the denominator. The suggested regional classification follows that used in the IMF's World Economic Outlook. This FSI is an asset quality ratio, which monitors credit risk arising from exposures to particular (groups of) countries, and helps to assess the impact of adverse events in these countries on the domestic financial system. It is a measure of concentration risk of the DTs.</p>
Gross asset position in financial derivatives to capital	<p>This FSI is calculated by using the market value of financial derivative assets as the numerator and capital as the denominator. Capital is measured as total capital and reserves as reported in the sectoral balance sheet;</p>

	for cross-border consolidated data, Tier 1 capital can also be used. This FSI is an asset quality ratio and is intended to provide an indication of the exposure of DTs' financial derivative asset positions relative to capital.
Gross liability position in financial derivatives to capital	This FSI is calculated by using the market value of financial derivative liabilities as the numerator and capital as the denominator. Capital is measured as total capital and reserves as reported in the sectoral balance sheet; for cross-border consolidated data, Tier 1 capital can also be used. This FSI is an asset quality ratio and is intended to provide an indication of the exposure of DTs' financial derivative liability positions relative to capital.
Trading income to total income	This FSI is calculated by using gains or losses on financial instruments as the numerator and gross income as the denominator. It is an indicator of earnings and profitability, which is intended to capture the share of DTs' income from financial market activities, including currency trading—that is, it measures the DTs' reliance on market-related activity to generate profits.
Personnel expenses to noninterest expenses	This FSI is an indicator of earnings and profitability. It provides an indication of efficiency as a high or increasing ratio could undermine profitability.
Spread between reference lending and deposit rates	This FSI is the difference (expressed in basis points) between the weighted average loan rate and the weighted average deposit rate, excluding rates on loans and deposits between DTs. It is an indicator of earnings and underlying profitability of the deposit-taking sector. It can also be used as a gauge of competitiveness within the sector.
Spread between highest and lowest interbank rate	This FSI measures the spread between the highest and lowest interbank rates (SIRs) charged to DTs in the domestic interbank market. The Guide encourages weekly compilation of SIRs, using end-period rates for loans of the same maturity (overnight or weekly). This is a liquidity indicator. The dispersion in interbank rates is a very useful indicator of liquidity problems and bank distress. A high dispersion in interbank rates may signal that some institutions are perceived by their peers as vulnerable.

Customer deposits to total (noninterbank) loans	This FSI is sometimes used to detect liquidity problems—a low ratio might indicate potential liquidity stress in the banking system and perhaps a loss of depositor and investor confidence in the long-term viability of the sector.
Foreign-currency-denominated loans to total loans	This FSI is calculated by using the foreign currency and foreign-currency-linked part of gross loans to residents and nonresidents as the numerator and total gross loans as the denominator. It is an asset quality indicator, which measures the relative size of foreign currency loans within gross loans and therefore monitors exposures to both credit and currency risk.
Foreign-currency-denominated liabilities to total liabilities	This FSI is calculated using the foreign currency liabilities as the numerator and total debt plus financial derivative liabilities less financial derivative assets as the denominator. It is an asset quality indicator, which measures the relative importance of foreign currency funding within total liabilities. A high reliance on foreign currency borrowing (particularly of short-term maturity) may signal that DTs are taking greater risks.
Net open position in equities to capital	This FSI is calculated by using DTs' net open position in equities as the numerator and capital as the denominator. Capital should be total regulatory capital or Tier 1 capital. This FSI is an indicator of sensitivity to market risk, which is intended to identify DTs' equity risk exposure compared with capital.
<b>OFCs: Additional Set</b>	
Assets to total financial system assets	This FSI is calculated using OFCs' financial assets as the numerator and total financial system assets as the denominator. The latter is the total of financial assets owned by DTs, OFCs, nonfinancial corporations, HHs, the general government, and the central bank. This FSI measures the relative importance of OFCs within the domestic financial system.
Assets to GDP	This FSI is calculated using OFCs' financial assets as the numerator and gross domestic product as the denominator. It measures the importance of OFCs compared to the size of the economy.

<b>NFCs: Additional Set</b>	
Total debt to equity	This FSI is calculated by using debt as the numerator and capital and reserves as the denominator. It is a measure of corporate leverage—the extent to which activities are financed out of own funds.
ROE	This FSI is calculated by using earnings before interest and tax as the numerator and the average value of capital and reserves over the same period as the denominator. It is a profitability ratio, which is commonly used to capture nonfinancial corporations' efficiency in using their capital.
Earnings to interest and principal expenses	This FSI is calculated by using earnings (net income) before interest and tax plus interest receivable from other nonfinancial corporations as the numerator and debt service payments over the same period as the denominator. It measures nonfinancial corporations' 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.
Net foreign exchange exposure to equity	This FSI is calculated by using nonfinancial corporations' net foreign exchange exposure for on-balance-sheet items as the numerator and capital and reserves as the denominator. It measures nonfinancial corporations' exposure to foreign currency risk compared to their capital. The larger the exposure to foreign currency risk, the greater the stress on the financial soundness of nonfinancial corporations from a significant currency depreciation, and, as a consequence, on DTs.
Number of bankruptcy proceedings initiated	This FSI is a simple numerical addition of the cases where bankruptcy proceedings are actually initiated during the period. It is a measure of bankruptcy trends, but it is influenced by the quality and nature of national bankruptcy and related legislation.
<b>HHs: Additional Set</b>	
Household debt to GDP	The data for HHs debt comprise debt incurred by resident HHs of the economy only. This FSI measures the overall level of HHs indebtedness (commonly related to consumer loans and mortgages) as a share of GDP.

Household debt service and principal payments to income	This FSI is calculated by using HHs debt service payments as the numerator and gross disposable income over the same period as the denominator. It measures the capacity of HHs to cover their debt payments (interest and principal).
<b>Market Liquidity: Additional Set</b>	
Average bid-ask spread in the securities market <sup>1</sup>	This FSI 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 an asset—a benchmark domestic government or central bank debt security in the first instance. Bid-ask spreads tend to be narrower in more liquid and efficient markets. This FSI is a measure of market tightness—the relative cost of engaging in a transaction irrespective of the absolute level of the market price of the items being sold.
Average daily turnover ratio in the securities market	This FSI 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 the end of the trading period. The Guide recommends that turnover be calculated in the first instance for a benchmark domestic government or central bank debt security. This FSI is a measure of market depth—the ability of a market to absorb large trade volumes without significant impact on market prices.
<b>Real Estate markets: Additional Set</b>	
Residential real estate prices	This FSI covers residential real estate price indices. Currently, there is limited international experience in constructing representative real estate price indices as real estate markets are heterogeneous, both within and across countries, and illiquid. A rapid increase in real estate prices, followed by a sharp economic downturn, can have a detrimental effect on financial sector soundness by affecting credit quality and the value of collateral.
Commercial real estate prices	As with residential real estate prices, there is currently limited international experience in constructing representative real estate price indices for the commercial sector.
Residential real estate loans to total loans	This FSI is an asset quality ratio, which is intended to identify DTs' exposure to the residential real estate sector, with the focus on household borrowers. A high

	concentration of the loan portfolio in real estate signals the potential existence of an important vulnerability in the financial system.
Commercial real estate loans to total loans	This FSI is calculated by using in the numerator loans collateralized by commercial real estate, loans to construction companies, and loans to companies active in the development of real estate; and gross loans as the denominator. It is an asset quality ratio, which measures banks' exposure to the commercial real estate market, and carries the same vulnerability risks as residential real estate loans to total loans associated with a high ratio.

## Appendix VI. Changes to the Current FSI List

FSI Code	Revised List of FSIs	Changes/Comments
<b>Core FSIs for Deposit Takers</b>		
<b>I01</b>	Regulatory capital to risk-weighted assets	“Regulatory capital” to be redefined in line with Basel III.
<b>I02</b>	Regulatory Tier 1 capital to risk-weighted assets	“Tier 1 capital” to be redefined in line with Basel III.
<b>I03</b>	Nonperforming loans net of provisions to capital	“Capital” to use total regulatory capital except for DC-based FSIs.
<b>I04</b>	Nonperforming loans to total gross loans	No change.
<b>I05</b>	Sectoral distribution of loans to total loans	No change.
<b>I06</b>	Return on assets	No change.
<b>I07</b>	Return on equity	“Equity” to use balance sheet capital and reserves only.
<b>I08</b>	Interest margin to gross income	No change.
<b>I09</b>	Noninterest expenses to gross income	No change.
<b>I10</b>	Liquid assets to total assets	“Liquid assets” to be redefined in line with Basel III for jurisdictions that adopt Basel III.
<b>I11</b>	Liquid assets to short-term liabilities	Liquidity coverage ratio to be introduced for jurisdictions that adopt Basel III. <sup>21</sup>
<b>I12</b>	Net open position in foreign exchange to capital	“Capital” to use total regulatory capital.
<b>I13</b>	Capital to assets <sup>22</sup>	Move to the core set. “Capital” to use regulatory Tier 1 capital.
<b>New</b>	Solvency indicator (CET1 to RWA)	Underlying series to be defined in line with Basel III for jurisdictions that adopt Basel III
<b>New</b>	Net stable funding ratio	Underlying series to be defined in line with Basel III for jurisdictions that adopt Basel III.
<b>New</b>	Provisions to NPLs	Underlying series to be defined in the revised FSICG.

<sup>21</sup> LCR will replace this indicator, when Basel III will be fully adopted (see paragraph 35).

<sup>22</sup> Basel III leverage ratio will be introduced when the BCBG informs national supervisors to start monitoring this ratio (see paragraph 31).

<b>Additional FSIs for Deposit Takers</b>		
<b>I14</b>	Large exposures to capital	“Capital” to use total regulatory capital only.
<b>I15</b>	Geographical distribution of loans to total loans	No change.
<b>I16</b>	Gross asset position in financial derivatives to capital	“Capital” to use total regulatory capital or balance sheet capital as an alternative.
<b>I17</b>	Gross liability position in financial derivatives to capital	“Capital” to use total regulatory capital or balance sheet capital as an alternative.
<b>I18</b>	Trading income to total income	No change.
<b>I19</b>	Personnel expenses to noninterest expenses	No change.
<b>I20</b>	Spread between reference lending and deposit rates (base points)	No change.
<b>I21</b>	Spread between highest and lowest interbank rates (base points)	No change.
<b>I22</b>	Customer deposits to total (noninterbank) loans	No change.
<b>I23</b>	Foreign-currency-denominated loans to total loans	No change.
<b>I24</b>	Foreign-currency-denominated liabilities to total liabilities	No change.
<b>I25</b>	Net open position in equities to capital	Deleted
<b>New</b>	Credit growth to private sector	Underlying series to be defined in the revised FSICG.
<b>Additional FSIs for Other Financial Corporations</b>		
<b>I26</b>	OFC assets (percent of total financial system assets) <ul style="list-style-type: none"> <li>• MMF assets (percent of total financial system assets)</li> <li>• IC assets (percent of total financial system assets)</li> <li>• PF assets (percent of total financial system assets)</li> <li>• Other OFC assets (percent of total financial system assets)</li> </ul>	Additional breakdowns.
<b>I27</b>	OFC assets (percent of GDP) <ul style="list-style-type: none"> <li>• MMF assets (percent of GDP)</li> <li>• IC assets (percent of GDP)</li> <li>• PF assets (percent of GDP)</li> <li>• Other OFC assets (percent of GDP)</li> </ul>	Additional breakdowns.
<b>New</b>	Capital adequacy ICs	Underlying series to be defined in the revised FSICG.

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<b>New</b>	Reinsurance issues ICs	Underlying series to be defined in the revised FSICG.
<b>New</b>	Earnings and profitability ICs <ul style="list-style-type: none"> <li>• Return on assets</li> <li>• Return on equity</li> </ul>	Underlying series to be defined in the revised FSICG.
<b>New</b>	Liquidity ratio PFs	Underlying series to be defined in the revised FSICG.
<b>New</b>	Earnings and profitability PFs	Underlying series to be defined in the revised FSICG.
<b>New</b>	Sectoral distribution of investments for MMFs	Underlying series to be defined in the revised FSICG.
<b>New</b>	Maturity distribution of investments for MMFs	Underlying series to be defined in the revised FSICG.
<b>Additional FSIs for Nonfinancial Corporations</b>		
<b>I28</b>	Total debt to equity	Add two supplementary ratios: external debt to equity and foreign currency debt to equity.
<b>New</b>	Return on assets	Add this indicator.
<b>I29</b>	Return on equity	No change.
<b>I30</b>	Earnings to interest and principal expenses	No change.
<b>New</b>	Earnings to interest expenses	Add this indicator with a view to addressing data limitation for compiling I30 in some countries, and to monitor interest coverage.
<b>I31</b>	Net foreign exchange exposure to equity	Deleted
<b>I32</b>	Number of bankruptcy proceedings initiated	Deleted
<b>New</b>	Liquidity indicators <ul style="list-style-type: none"> <li>• Current ratio</li> <li>• Liquidity ratio</li> </ul>	Underlying series to be defined in the revised FSICG.
<b>New</b>	NFC debt to GDP	Underlying series to be defined in the revised FSICG.
<b>Additional FSIs for HHs</b>		
<b>I33</b>	Household debt to gross domestic product	SNA data may be used, or banking data for the numerator in the absence of SNA data.
<b>I34</b>	Household debt service and principal payments to income	SNA may be used, or banking data for the numerator in the absence of SNA data.
<b>New</b>	Household debt to household disposable income	Underlying series to be defined in the revised FSICG.

<b>Additional FSIs for Market Liquidity</b>		
<b>I35</b>	Average bid-ask spread in the securities market	Deleted. Such information of high frequency is available from commercial sources.
<b>I36</b>	Average daily turnover ratio in the securities market	Deleted. Such information of high frequency is usually available from commercial sources.
<b>Additional FSIs for Real Estate Markets</b>		
<b>I37</b>	Residential real estate prices (Percentage change/last 12 months)	No change.
<b>I38</b>	Commercial real estate prices (Percentage change/last 12 months)	No change.
<b>I39</b>	Residential real estate loans to total gross loans	No change.
<b>I40</b>	Commercial real estate loans to total gross loans	No change.