

Financial Soundness Indicators (FSIs) and Stress Testing

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Outline

1. Financial Soundness Indicators

- Definition
- Evidence
- Available Resources

2. Stress Testing

1. Financial Soundness indicators (FSIs)

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A bit of history...

IMF SURVEY **Macropprudential indicators**
Seminar discusses ways to assess soundness of financial system to improve surveillance

Accretion in Fast Data and disclosure might for creating measures to strengthen their financial system, increase transparency and address systemic issues affecting their financial system, a number of critical questions arise: How can the IMF strengthen its surveillance over countries' financial systems in the context of Article IV consultations? What indicators of the soundness and vulnerabilities of financial systems that is, macroprudential indicators can be used most effectively to monitor financial system stability? Should the international community establish guidelines and standards for the compilation of such indicators and, in general, aim for harmonization of efforts in this area?

In his opening statement, IMF Managing Director Michel Cardoso emphasized the role of IMF surveillance over countries' financial system and the role of improved monitoring of financial systems by the countries themselves in strengthening the international financial architecture. The IMF is refining its financial sector surveillance through the Financial Sector Assessment Program, which is jointly developing with the World Bank. The objective of the program is to recognize potential problems at an early stage and develop responses promptly to avoid costly systemic crises. Identification of a core set of macroprudential indicators will support these efforts.

The main issues were whether it would be possible to define a core set of macroprudential indicators that the IMF could use in its surveillance work and whether macroprudential indicators could be included in the

IMF's Special Data Dissemination Standard or similar data vehicles. In the individual presentations, participants reported their experiences in identifying, collecting, using, and disseminating macroprudential indicators. The private sector participants contributed valuable insights drawn from their work in monitoring systemic financial sector risks as a basis for investment decisions.

Assessing financial sector soundness

There was broad agreement among participants that knowledge in the area of macroprudential indicators is still limited. In particular, there is no consensus yet on a model for determining the vulnerability of a financial system or on a set of universally accepted macroprudential indicators. Using a single composite indicator was considered simplistic and even potentially misleading. Furthermore, analysis of financial sector vulnerability cannot rely on quantitative indicators alone. Qualitative information on institutional circumstances and informed judgments are also essential.

The meeting highlighted several important considerations that national authorities should bear in mind when monitoring and assessing financial sector vulnerabilities. These include the relative importance of macroeconomic variables and aggregated macroprudential data as well as the role of cyclical factors in interpreting changes in macroprudential conditions. Participants also emphasized that financial institutions tend to exhibit herding behavior based on herd-out expectations and tend to underestimate the likelihood of shocks.

Selecting and measuring indicators

On specific issues related to the selection and measurement of macroprudential indicators, participants broadly agreed on the need to improve the quality of accounting practices in many countries, assess non-bank financial institutions and the health of the corporate sector, address the limitations of aggregating macroprudential information to obtain macroprudential indicators, and develop benchmarks and norms for the indicators. In light of the complex questions raised about defining the scope of the work on macroprudential indicators, and ascertaining the technical feasibility of compiling them, the group supported undertaking a survey of national supervisors, statistical authorities, and data users.

In his summary, Stefan Ingves, Director of the Monetary and Exchange Affairs Department, noted that macroprudential analysis requires well-developed linkages between theory and practice, between supervi-

Ingves: Stress testing is important in for wind-tunneling approaches to macroprudential analysis.

Cardoso: National authorities should be encouraged to compile and disseminate macroprudential indicators.

September 27, 1999
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"How can the IMF strengthen its surveillance over countries' financial systems in the context of Article IV consultations?"

"What indicators of the soundness and vulnerabilities of financial systems (that is, macroprudential indicators) can be used most effectively to monitor financial system stability?"

"Should the international community establish guidelines and standards for the compilation of such indicators and, in general, aim for harmonization of efforts in this area?"

September 27, 1999

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Financial Soundness Indicators (FSIs)

“Indicators of strengths and vulnerabilities of a financial system”

Two questions:

- 1) Where to look at? What is the coverage?
- 2) How to assess *strengths and vulnerabilities*?

	Core set of FSIs	Encouraged set of FSIs
Sectoral Coverage	Banks	Banks Non-banks Markets Corporate sector Households

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Strengths and vulnerabilities

- For banks, focus is on:
 - Capital adequacy
 - Asset quality
 - Earnings and profitability
 - Liquidity
 - Sensitivity to market risk

Based on CAMELS framework used by supervisors for assessing soundness of *individual* banks.

- FSIs also cover nonbanks and some market indicators.

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2013 Revisions

- Revised and expanded in 2013 to account for growing role of shadow banking
- Bank indicators revised to reflect Basel III. Three new indicators added: Common-Equity-Tier 1 to RWAs, Liquidity Coverage Ratio, net stable funding ratio.
- Also added: credit growth to private sector,
- Real estate price developments added to core set

CORE SET	
FSI code	Core FSIs for Deposit Takers
I01	Regulatory capital to risk-weighted assets
I02	Regulatory Tier 1 capital to risk-weighted assets
I03 (NEW)	Common equity Tier 1 to risk-weighted assets [Solvency ratio]
I04	Capital to assets
I05	Non-performing loans net of provisions to capital
I06	Non-performing loans to total gross loans
I07 (NEW)	Provisions to non-performing loans
I08	Sectoral distribution of loans to total loans
I09	Return on assets
I10	Return on equity
I11	Interest margin to gross income
I12	Noninterest expenses to gross income
I13	Liquid assets to total assets
I14	Liquid assets to short-term liabilities ²⁹
I15 (NEW)	Available amount of stable funding to required amount of stable funding [Net stable funding ratio]
I16	Net open position in foreign exchange to capital

Additional Set for Deposit Takers

ADDITIONAL SET	
Additional FSIs for Deposit Takers	
I18	Large exposures to capital
I19	Geographical distribution of loans to total loans
I20	Gross asset position in financial derivatives to capital
I21	Gross liability position in financial derivatives to capital
I22	Trading income to total income
I23	Personnel expenses to noninterest expenses
I24	Spread between reference lending and deposit rates (base points)
I25	Spread between highest and lowest interbank rates (base points)
I26	Customer deposits to total (non-interbank) loans
I27	Foreign-currency-denominated loans to total loans
I28	Foreign-currency-denominated liabilities to total liabilities
I29 (NEW)	Credit growth to private sector

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Additional FSIs

- For Other Financial Corporations
- For Money Market Mutual Funds
- For Insurance Companies
- For Pension Funds
- For Nonfinancial Corporations
- For Households
- For Real Estate Markets

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Capital Adequacy

- Capital adequacy and availability ultimately determine the robustness of financial institutions to withstand shocks to their balance sheets.
 - Aggregate risk-based capital ratios (**regulatory capital/risk-weighted assets**) are the most common indicators of capital adequacy.
 - Simple leverage ratios (**capital/assets**), often complement this measure.
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Capital Adequacy and Basel III

BCBS Basel III framework strengthens quantity and quality of capital

Quality, level of capital: Greater focus on common equity. Minimum raised to 4.5% of risk-weighted assets.

Capital conservation buffer: Comprising common equity of 2.5% of risk-weighted assets, bringing the total common equity standard to 7%.

Countercyclical buffer: Imposed within a range of 0-2.5% comprising common equity, when authorities judge systematic risk is building.

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Capital Adequacy and Basel III

- BCBS Basel III framework: strengthen quantity and quality of capital
- **Leverage ratio:** A non-risk-based leverage ratio will serve as a backstop to the risk-based capital requirement. Also helps contain system wide buildup of leverage.

BASEL III Capital Requirements

Minimum Risk-based Capital Ratio: 8%

Common Equity Tier	4.5%
Additional Tier 1 Capital	1.5%
Tier 2 Capital	2.0%

+ 2.5% Capital Conservation Buffer,
comprised of CET1

Countercyclical Capital Buffer up to
2.5%,
To be determined by national
authorities

Capital Adequacy and Basel III

Tier 1 capital: Common shares, equity capital and disclosed reserves considered freely available to meet claims against the bank.

Tier 2 capital: Financial instruments and reserves that are available to absorb losses but that might lack permanency, have uncertain values, entail costs if sold, or otherwise lack the full loss-absorption capacity of Tier 1 capital items.

Risk-weighted assets: Weighted total of each class of assets and off-balance sheet asset exposures, with weights related to the credit risk associated with each type of asset.

Capital Adequacy and Basel III

Basel Committee on Banking Supervision
BANK FOR INTERNATIONAL SETTLEMENTS

Basel III phase-in arrangements
(All dates are as of 1 January)

Phases	2013	2014	2015	2016	2017	2018	2019
Leverage Ratio		Parallel run 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015				Migration to Pillar 1	
Minimum Common Equity Capital Ratio	3.5%	4.0%	4.5%				4.5%
Capital Conservation Buffer				0.625%	1.25%	1.875%	2.5%
Minimum common equity plus capital conservation buffer	3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase-in of deductions from CET1*		20%	40%	60%	80%	100%	100%
Minimum Tier 1 Capital	4.5%	5.5%	6.0%				6.0%
Minimum Total Capital		8.0%					8.0%
Minimum Total Capital plus conservation buffer		8.0%		8.625%	9.25%	9.875%	10.5%
Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital		Phased out over 10 year horizon beginning 2013					

Asset Quality

Solvency Risk: often derives from decline in asset quality (often because of deterioration in borrowers' financial health).

- Non-performing loans (NPLs) / total gross loans

What is the capacity of bank capital to withstand losses from NPLs? Have banks delayed addressing asset quality problems?

- Non-performing Loans (net of provisions)/capital
-

Asset Quality

Lack of diversification in loan portfolio may make bank vulnerable to shocks:

- Sector (e.g. real estate): Loan concentration in a specific economic sector
- Region (e.g. country risk): Geographical distribution of loans

Concentration of credit risk in a small number of borrowers may also result from connected lending.

- Connected lending: share of capital lent to related parties.
-

Earnings and Profitability

- Banks' profitability serves as buffer:
 - Return on assets (ROA): $\text{Net income} / \text{average total assets}$
 - Return on equity (ROE): $\text{Net income} / \text{average total equity}$
 - Spread between lending and deposits rates
-

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Liquidity

Liquidity transformation is inherent to banking business model. (Maturity of liabilities typically lower than maturity of assets.)

A liquidity crisis has the potential to push solvent banks into insolvency.

-Liquid assets / total assets: how much balance sheet shrinkage could be absorbed before selling illiquid assets?

- Liquid assets/ short-term liabilities: short-term liabilities would have to be covered by asset sales if access to funding was lost.

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Liquidity and Basel III

BCBS Basel III framework: establish international global liquidity standard

The *liquidity coverage ratio (LCR)* will require banks to have sufficient high-quality liquid assets to withstand a 30-day stressed funding scenario specified by supervisors.

The *net stable funding ratio (NSFR)* is a longer-term structural ratio designed to address liquidity mismatches. It covers the entire balance sheet and provides incentives for banks to use stable sources of funding.

Liquidity and Basel III

Basel Committee on Banking Supervision
BANK FOR INTERNATIONAL SETTLEMENTS

Basel III phase-in arrangements
(All dates are as of 1 January)

Phases		2013	2014	2015	2016	2017	2018	2019
Liquidity	Liquidity coverage ratio – minimum requirement			60%	70%	80%	90%	100%
	Net stable funding ratio						Introduce minimum standard	

Sensitivity to Market Risk

Market risk: risk of losses arising from changes in market prices.

Indicator of sensitivity to *interest rate risk*: duration of assets and liabilities

- The greater the mismatch in duration or “average” life between assets and liabilities, the greater the interest rate risk, and the greater the likely impact of changes in interest rates on earnings and capital.

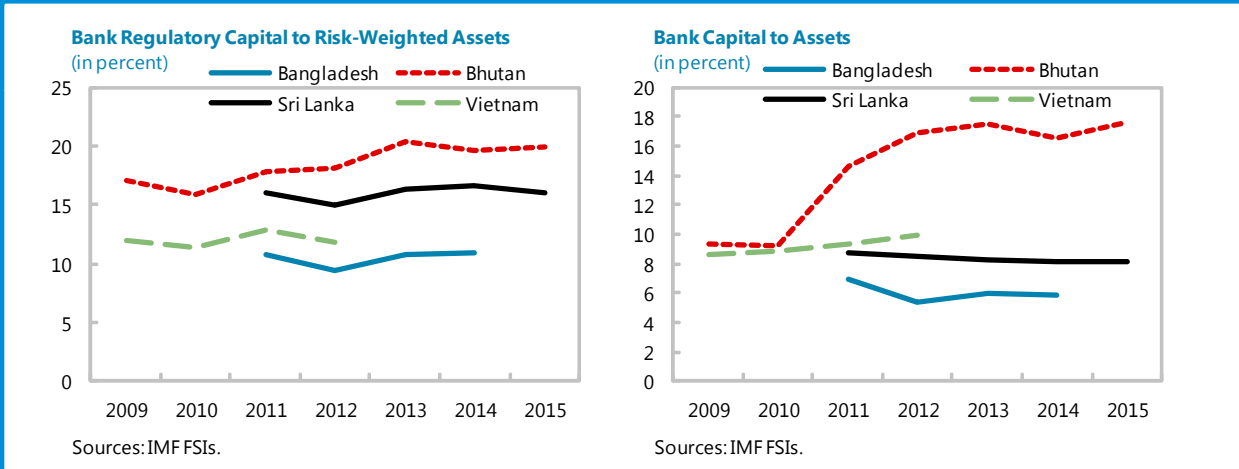
Sensitivity to Market Risk

Indicator of sensitivity to *exchange rate risk*: net open position in foreign exchange to capital

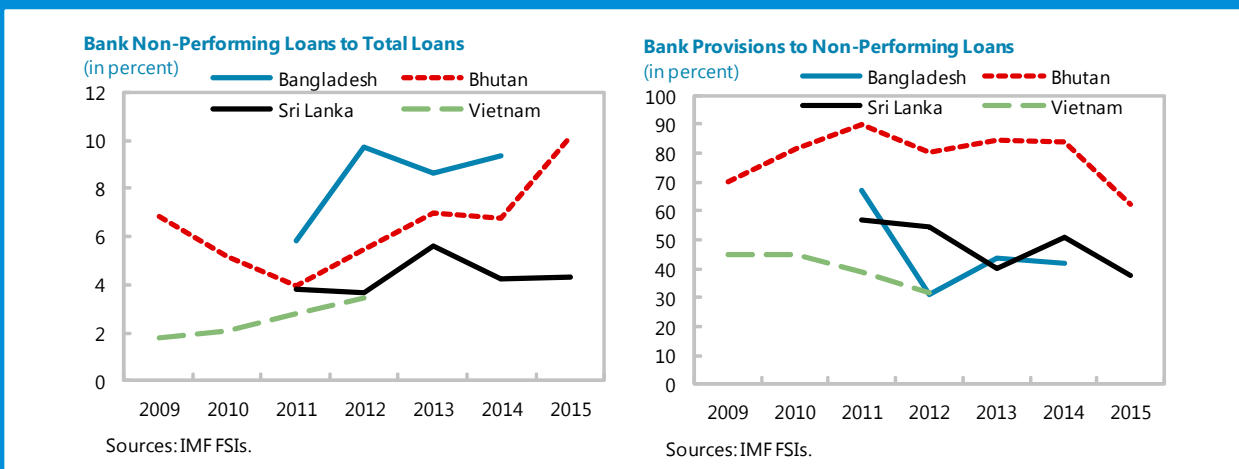
- Measures the mismatch (open position) of foreign currency asset and liability positions to assess the potential vulnerability of the deposit-taking sector’s capital position to exchange rate movements.

Indicator of *sensitivity of bank capital to equity prices*: net open position in equities to capital

Financial Soundness Indicators in the Region



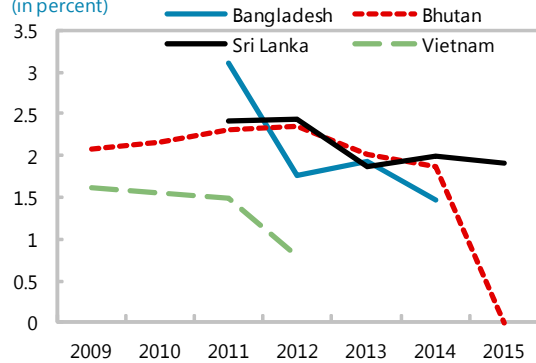
Financial Soundness Indicators in the Region



Financial Soundness Indicators in the Region

Bank Return on Assets

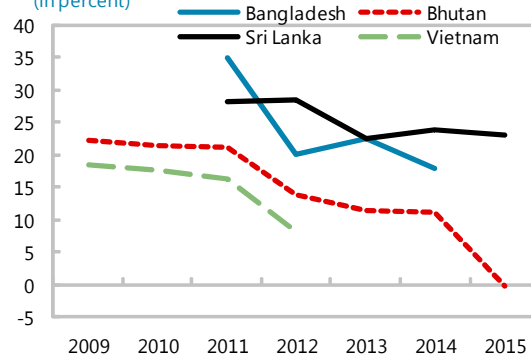
(in percent)



Sources: IMF FSIs.

Bank Return on Equity

(in percent)



Sources: IMF FSIs.

IMF Financial Soundness Indicators

FSIs only offer very partial, preliminary picture

Computed at the aggregate level... distribution may matter!

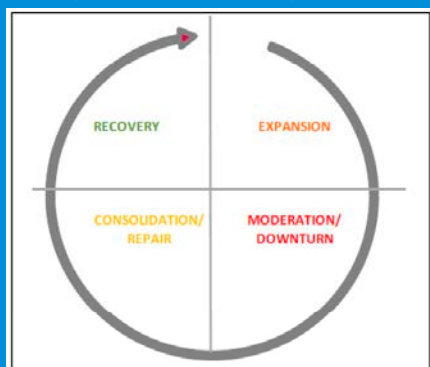
Many tools to assess the soundness of the financial sector.

- *Quantitative* measures (stress-testing, credit-to-GDP gap, systemic risks measures, etc.)
- *Qualitative* assessment and judgment!

IMF Financial Soundness Indicators

Example: use FSIs to create a heatmap on credit cycle and financial soundness

Stylized Credit Cycle



Chow (2013)

Indicator	Yes	On Alert	No
Credit Cycle			
Credit-to-GDP (x) and			
Credit-to-GDP 'gap' (y)			
Balance Sheet Risks			
Deposit-to-loan ratio (x)			
Share of FX loans/Total loans (x)			
Share of FX liabilities/Total			
Loss-Absorbing Buffers			
Asset quality			
[Level of NPL (x), Change in NPL (y)]			
Profitability			
[ROE (x), ROA (y)]			
Leverage (x)			

Iorgova (forthcoming)

Selected Evidence: contemporaneous

- Laeven and Valencia (2008) identify systemic banking crises

*“...in a systemic banking crisis, a country’s corporate and financial sectors experience a large number of defaults and financial institutions and corporations face great difficulties repaying contracts on time. As a result, **non-performing loans** increase sharply and all or most of the **aggregate banking system capital** is exhausted.”*

Selected Evidence: early warning

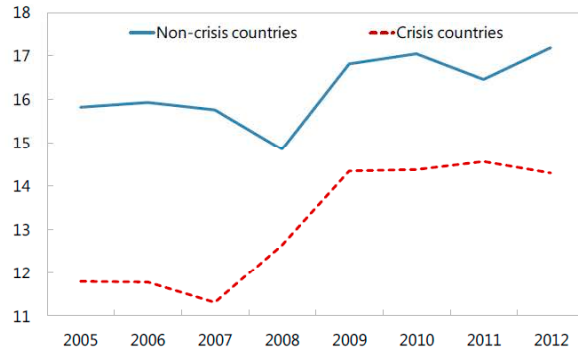
- Probability of banking crisis decreases with better capitalization and liquidity measures
 - Kato and others (2010): Probit model for 13 OECD countries using annual data (1980-2008)
 - Barrel and others (2010): Logit model for 14 OECD countries using annual data (1980-2008)

Selected Evidence: early warning

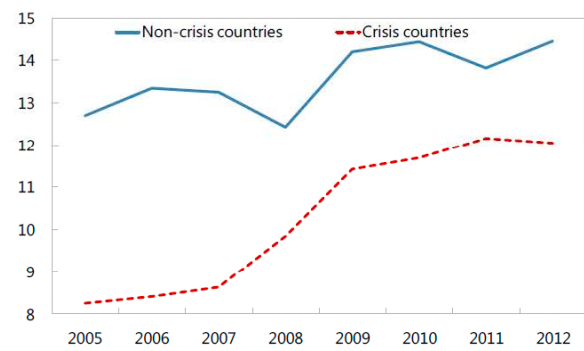
- Probability of crisis increases with lower ROE
 - Costa Navajas and others (2013): Logit model for 80 countries using annual data (2005-2012)
 - Cihak and others (2007): Logit model for 100 countries using annual data (1994-2004)

Selected Evidence on FSIs

Regulatory capital to risk-weighted assets



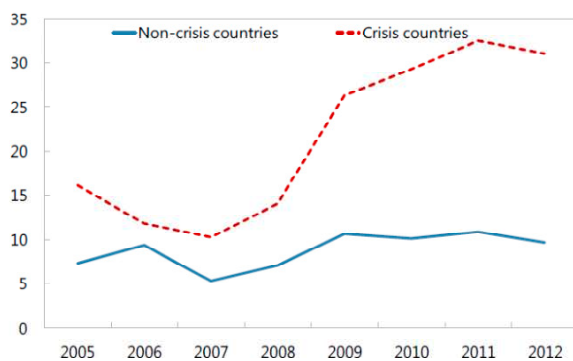
Regulatory Tier-1 capital to risk-weighted assets



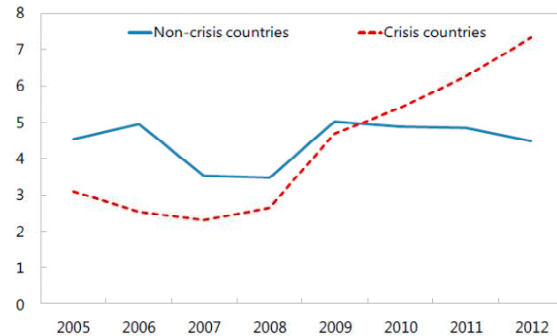
Costa Navajas and others (2013)

Selected Evidence on FSIs

Non-performing loans net of provisions to capital



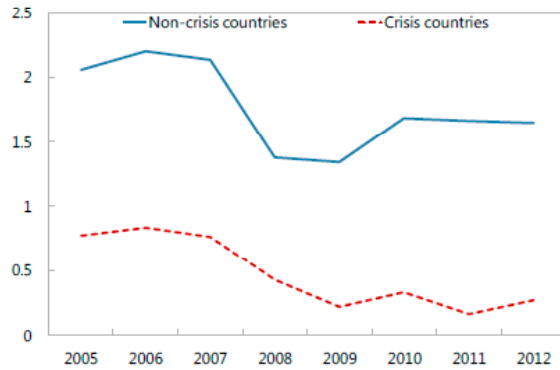
Non-performing loans to total gross loans



Costa Navajas and others (2013)

Selected Evidence on FSIs

Return on assets



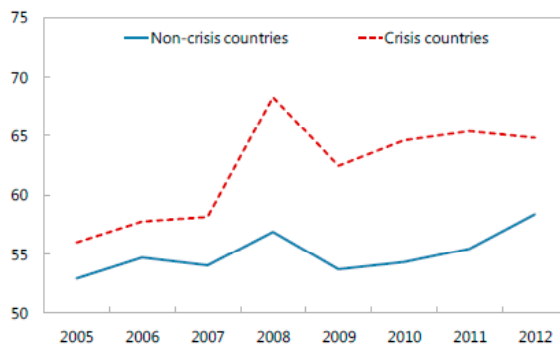
Return on equity



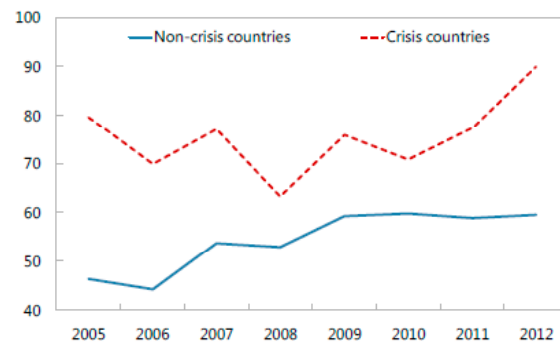
Costa Navajas and others (2013)

Selected Evidence on FSIs

Non-interest expenses to gross income



Liquid assets to short-term liabilities



Costa Navajas and others (2013)

Selected Evidence on FSIs

- “Excessive” credit growth and asset prices (i.e. housing prices) are good predictors of financial distress
 - Methodologies: noise-to-signal ratios/ Probit-Logit models
 - Examples:
 - Borio and others (2002, 2009)
 - Mendoza-Terrones (2008)
 - GFSR (2011)
 - Dell’Ariccia and others (2012)
-

Selected Evidence on FSIs

- GFSR Chapter 3, April 2009: “micro” case study
 - *Were FSIs able to distinguish between institutions that would eventually require government assistance from those that did not?*
 - *Sample: 36 commercial and investment banks across the world*
 - *Sample split into non-intervened banks, intervened commercial banks, and U.S. intervened investment banks during 1998:Q1-2008:Q1 and 2005:Q1-2007Q2*
-

Case Study

Table 3.1. Selected Indicators on Fundamental Characteristics in Financial Institutions

	Nonintervened Banks		Intervened Commercial Banks		Intervened U.S. Investment Banks	
	1998:Q1–2008:Q1	2005:Q1–2007:Q2	1998:Q1–2008:Q1	2005:Q1–2007:Q2	1998:Q1–2008:Q1	2005:Q1–2007:Q2
Capital adequacy (in percent)						
Capital/assets	14.5	19.4	17.9***	20.3	17.3**	19.4
Common equity/assets	3.7	4.4	6.0***	5.7***	3.7	3.7**
Tier 1 capital/risk-weighted assets	4.9	10.8	8.1***	9.0
Tier 1 and 2 capital/risk-weighted assets	7.3	15.8	11.0***	12.5
Asset quality (in percent)						
Nonperforming loan ratio	2.3	2.3	1.4***	1.0**	n.a.	n.a.
Provision for loan losses/loans	0.1	0.1	0.2***	0.2***	n.a.	n.a.
Leverage						
Debt to common equity	7.5	7.6	8.1***	9.0***	13.3***	13.7***
Short-term debt ¹	0.4	0.5	0.7***	0.7***	0.7***	0.7***
Liquidity						
Loans/deposits	1.1	1.3	1.2	1.3	n.a.	n.a.
Loans/assets	0.6	0.5	0.5***	0.5***	n.a.	n.a.
Earning and profit (in percent)						
Return on assets	1.2	1.2	1.9***	1.6***	3.9***	4.3***
Return on equity	3.6	4.8	4.1	5.3	4.1	5.3
Stock market performance						
Price/earnings ratio	15.5	12.6	16.8	12.0	15.6	13.1
Earnings per share	0.6	1.0	0.6	0.9	1.3***	2.4***
Book value per share	14.8	21.7	14.1	18.3***	34.0***	50.5***

Sources: Thomson Reuters; and IMF staff estimates.

Note: A *t*-test is performed to determine whether two samples are likely to have come from the same two underlying populations that have the same mean. The intervened commercial banks and the U.S. investment banks are compared to the nonintervened banks. *, **, and *** represent the statistically significant differences at the 10, 5, and 1 percent levels, respectively.

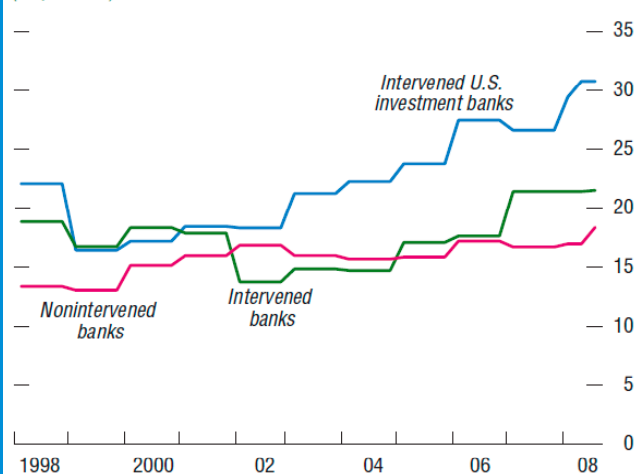
¹Short-term and other debt payable within one year.

Case Study

Results:

- Capital adequacy ratios were unable to clearly identify institutions requiring intervention.

Figure 3.1. Capital-to-Assets Ratio (In percent)



Sources: Thomson Reuters; and IMF staff estimates.

Note: The ratios of nonintervened banks, intervened banks, and intervened U.S. investment banks are the average of all institutions in each category.

Case Study

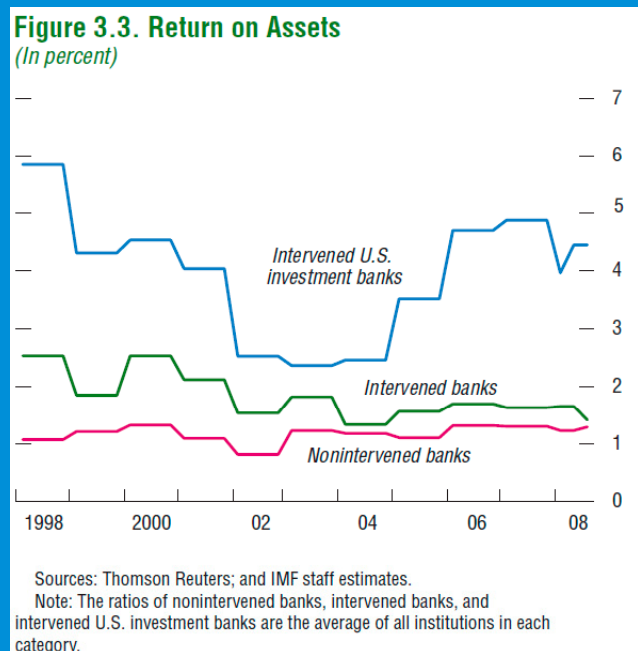
Results:

- Liquidity ratios are not very informative of the differences between intervened and non-intervened financial institutions.
- NPL / total loans for the intervened commercial banks were lower than for the non-intervened commercial banks.

Case Study

Results:

- Return on assets (ROA) for intervened institutions are higher than those in the non-intervened commercial banks.



FSI, Policies, and Cycles

Better bank “financial soundness” can help mitigate volatility of financial cycles.

But trying to improve financial soundness in the midst of a downturn can do the opposite—further aggravating the contraction of credit.

Che and Shinagawa (2014):

- Better initial scores in certain financial soundness indicators (FSIs) associated with milder, shorter downturns
 - Improving FSIs during a downturn worsens credit contraction.
- need to be mindful about timing of regulating changes in banks' FSIs.

IMF webpage

- “*FSI Compilation Guide*” with details on concepts and definitions
- Data and metadata available for IMF FSI-reporters
- Data for extended set of countries (133, including FSI reporters and non-reporters)



IMF webpage

Financial Soundness Indicators (FSIs)

Latest Update Date: 10/07/2015

[At a Glance](#) [By Country](#) [By Indicator](#) [Query](#) [Documents](#) [Data and Metadata Tables](#) [GFSR FSI Tables](#) [FAQs](#)

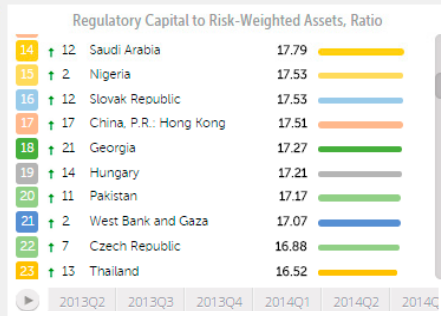
The Financial Soundness Indicators (FSIs) were developed by the IMF, together with the international community, with aim of supporting analysis and assessing strengths and vulnerabilities of financial systems.

The Statistics Department of the IMF, disseminates data and metadata on selected FSIs provided by participating countries. For a description of the various FSIs, as well as the consolidation basis, consolidation adjustments, and accounting rules followed, please refer to the concepts and definitions document in the document tab.

Reporting countries compile FSI data using different methodologies, which may also vary for different points in time for the same country. Users are advised to consult the accompanying [metadata](#) to conduct more meaning cross-country comparisons or to assess the evolution of a given FSI for any of the countries.



G-20 Countries - FSI-1 and FSI-2				
	Date Latest Data Point Available	Consolidation Basis	Regulatory Capital to Risk-Weighted Assets	Regulatory Tier 1 Capital to Risk-Weighted Assets
Argentina	2015Q2	DC	14.5	13.6
Australia	2015Q2	DCCBS	13.1	11.2
Brazil	2015Q2	CBCSDI	16.3	12.9
Canada	2015Q2	CBCSDI	14.1	12.0
China, P.R.: Mainland	2014A1	CBCSDI	13.2	10.8
France	2013Q4	CBCSDI	15.4	13.4
Germany	2015Q2	Other	18.1	15.5
India	2015Q1	o-o-o-o-o	12.0	10.2



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Summing up

- FSIs: indicators of strengths and vulnerabilities of a financial system
 - Simple to understand
 - Universal and broadly available
- But they should be handled with care...
 - Low frequency
 - Aggregate indicators may mask risks
 - Sometimes they lag, not lead
 - Currently, poor coverage for nonbanks

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2. Stress Testing

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Stress Testing



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Stress Testing

- Borrowed notion from engineering:
“technique of testing a structure or system beyond normal operating capacity, often to breaking point, to confirm specifications are met, determine breaking limits or examine models of failure”
- Finance:
 - Assess the resilience of a financial institution (or the financial system) to **large but plausible** shocks
 - Consider individual or combined shocks
 - Can integrate macroeconomic effects

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Evolving use and expectations

Lessons from the global crisis

Gaps in risk identification, propagation, and coverage

Shock sizes too moderate

ST as crisis management tools

U.S. SCAP, EU EBA gave stress tests a new (public) role

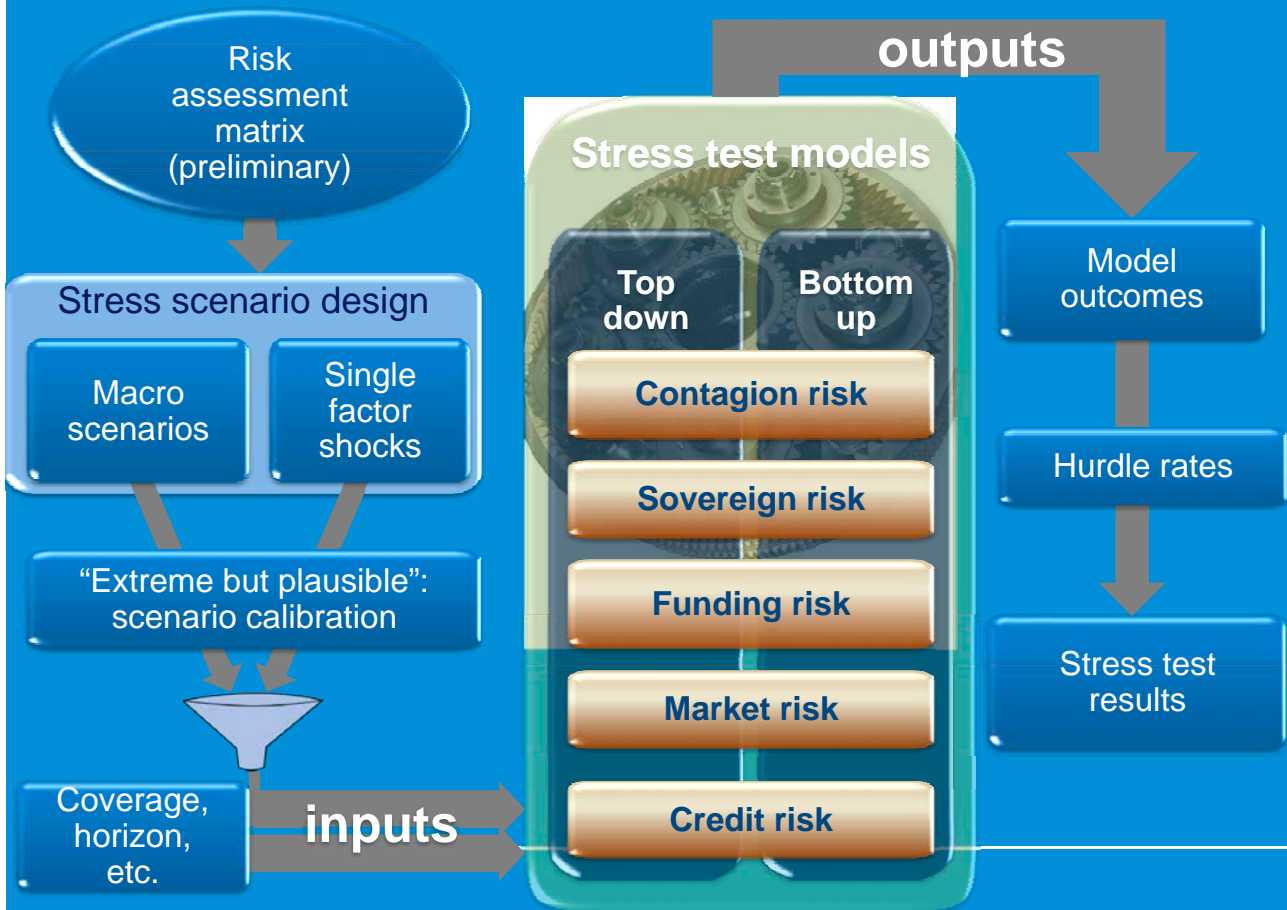
Results linked to interventions

Macroprudential focus

Increased emphasis on systemic risk oversight

Macroprudential ST an integral part of oversight

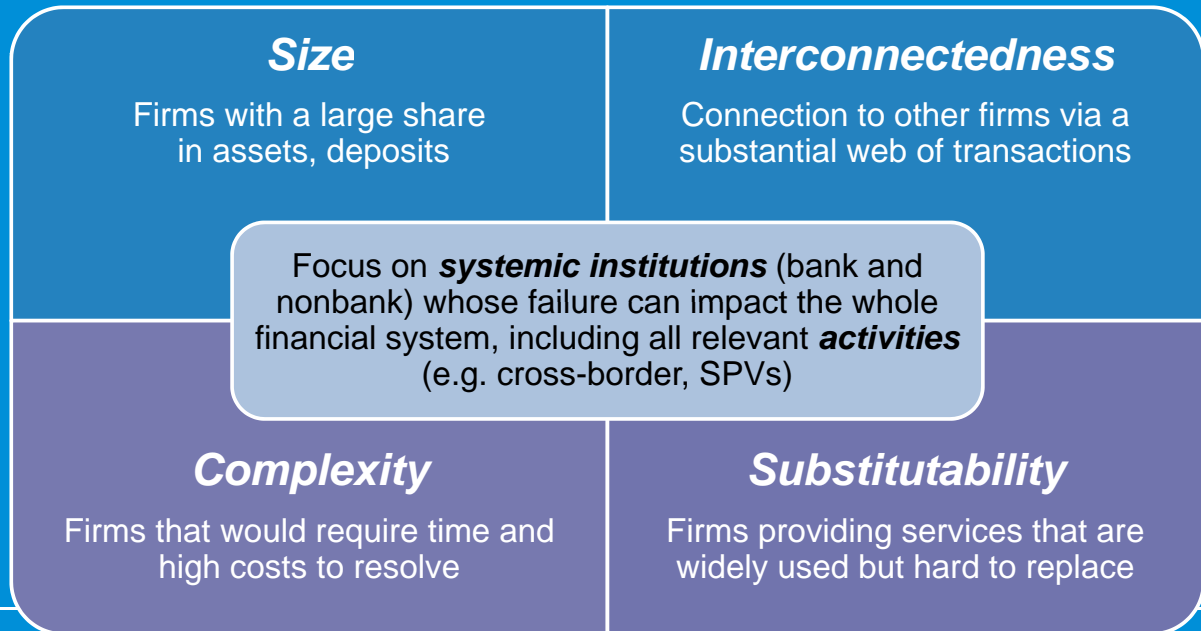
Stress test workflow



“Best practice” principles

- Define appropriately the institutional perimeter for the tests
- Identify all relevant channels of risk propagation
- Include all material risks and buffers
- Make use of the investors’ viewpoint in the ST design
- Focus on tail risks
- Beware of the “black swan”
- Communication: Speak smarter, not just louder

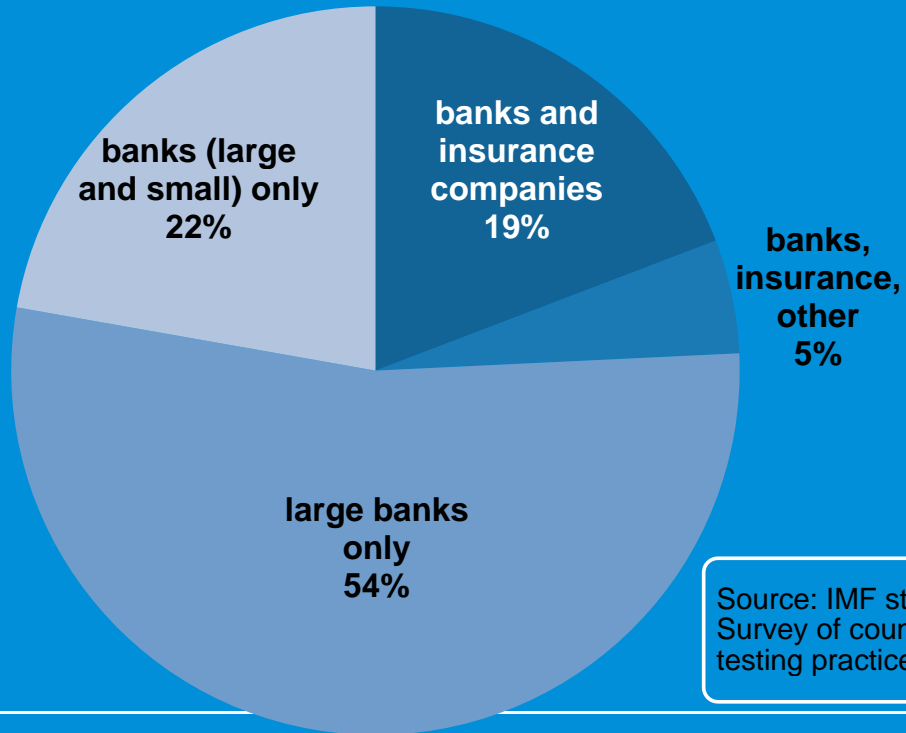
Principle: Appropriate perimeter



Principle: Appropriate perimeter

- Know your system: major players, business models, transactions, key counterparties
 - Identify systemically important institutions to cover in the tests, including relevant nonbanks and financial market infrastructures.
 - Gain a basic understanding of the structure of financial conglomerates, and cover any banking or non-banking activities that may have a major impact in a stress scenario.
-

Principle: Appropriate perimeter

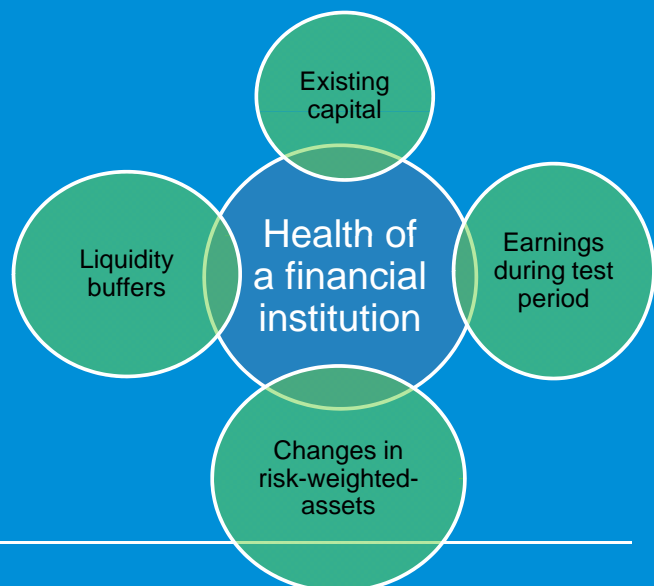


Principle: All material risks & buffers

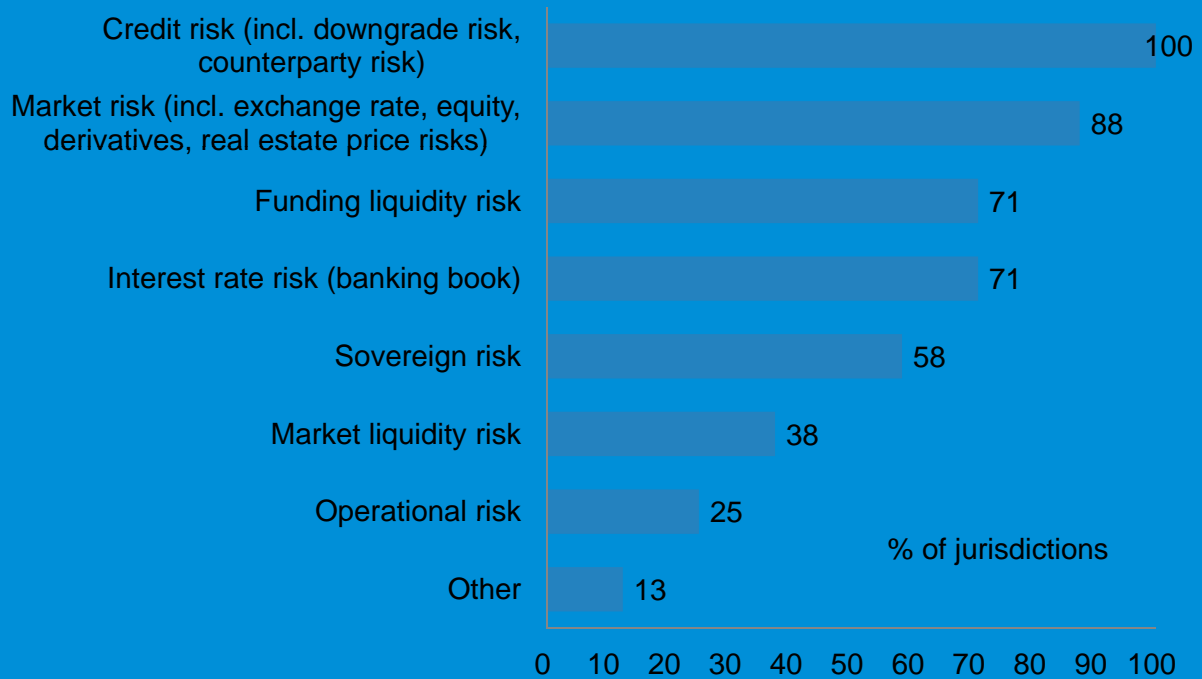
Firms faces various risks (many missed in pre-crisis stress tests)



Resilience also depends on buffers and business and policy reactions



Risks included in tests

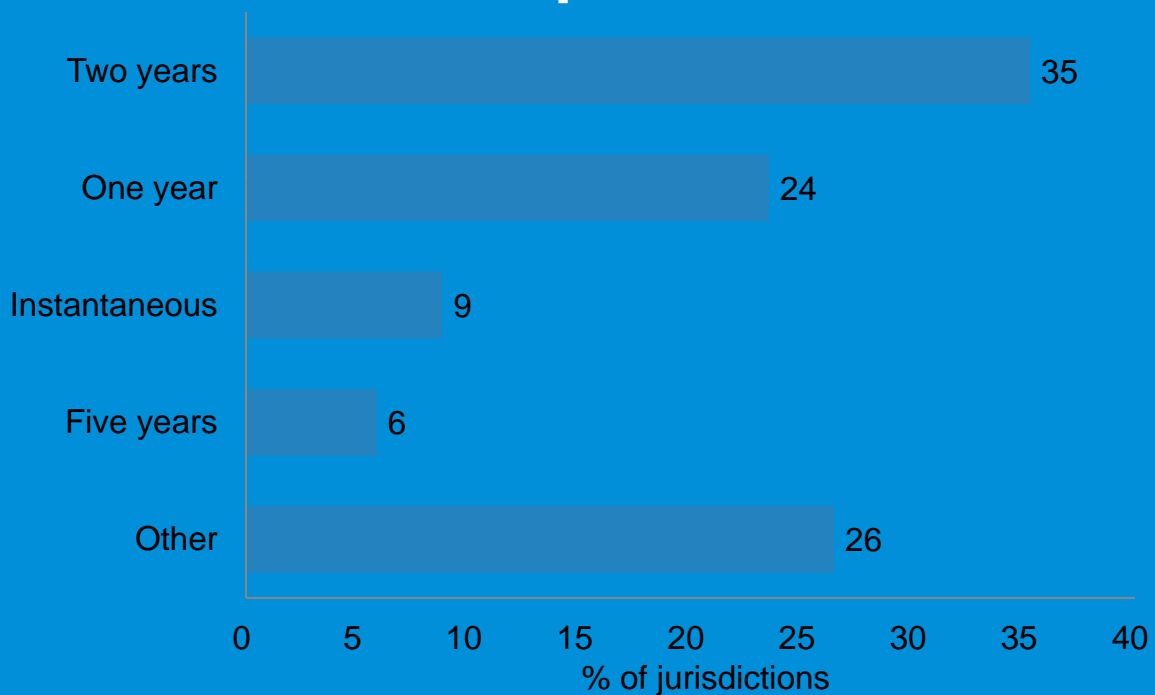


Source: IMF staff, Survey of country stress testing practices, 2012

Principle: All material risks & buffers

- Before undertaking ST, understand key activities, markets, exposures, and counterparties
- Be as comprehensive as possible in including potential sources of risk in ST: think the unthinkable
- Assess and project buffers during the test period conservatively

Test period



Source: IMF staff, Survey of country stress testing practices, 2012

Principle: Focus on tail risks

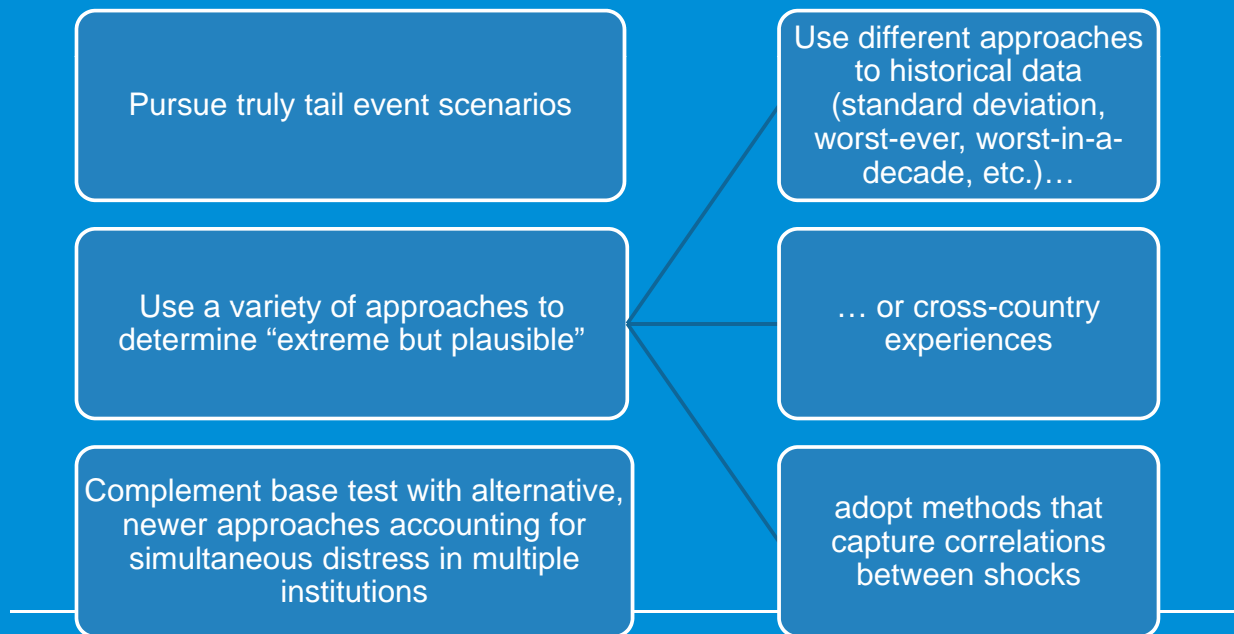
Lessons from the crisis

- In principle: low probability shocks (“extreme but plausible”)
- In practice: shocks in pre-crisis tests were often too mild

How extreme is “extreme but plausible”?

- Typically based on history
 - but “extreme” shocks calibrated during a benign period may be very mild
 - and what if there is no history at all?
- Small shocks may cause severe impact
 - non-linear reactions, correlated shocks , correlated default of multiple financial institutions

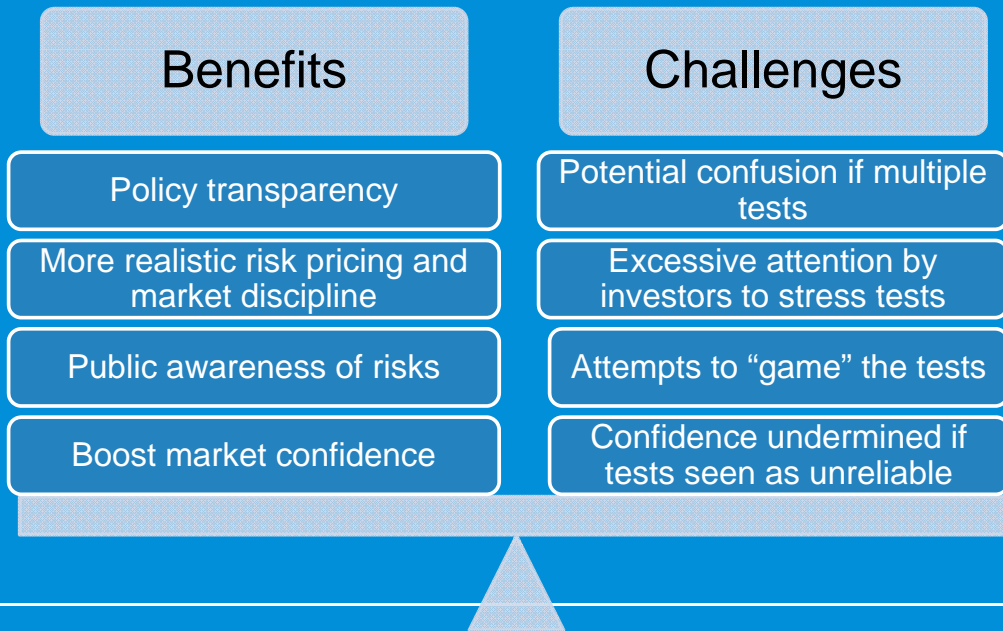
Principle: Focus on tail risks



Principle: Focus on tail risks

- In practice, most central bank ST: based on own history
 - historical worst, multiples of the worst, standard deviations, percentiles, worse than historical worst
- Some target specific likelihood: 1-5 %
- 70 % consider scenario with joint movement of multiple risk factors
 - macrofinancial scenarios (macro vars + asset price assumptions)
 - distressing credit and market risk parameters

Principle: Speak smarter, not just louder



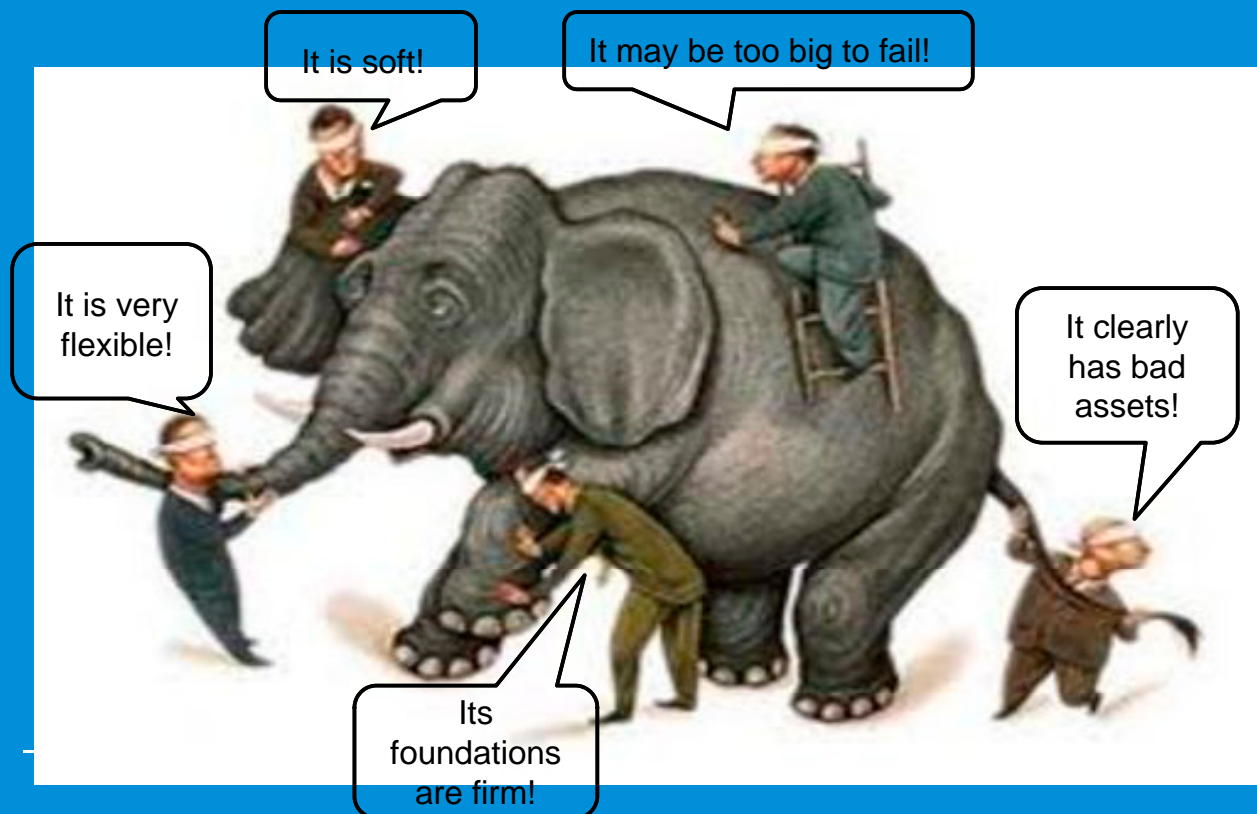
ST principles: summary

In-depth knowledge of the system is a pre-condition for effective stress tests (principles 1-3)

Stress tests need to focus on tail risks and be informed by market expectations; communication of results needs to meet these expectations (principles 4-6)

Stress tests do not predict the future; they need to be used in conjunction with other tools (principle 7).

Combining ST with other perspectives



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Additional Slides

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Hands-on example: credit risk

- Simplified example based on the FSAP tests in smaller/less complex systems
 - Fictional data similar to those in the FSAP
-

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Hands-on example: credit risk

Initial Balance Sheet		Bank SB1
Performing loans	#1	1099
NPLs	#2	1014
Provisions held	#3	521
Regulatory capital	#4	81
RWA	#5	1030
CAR (pre-shock)	#6 = #4 / #5	7.9%
NPLs (gross) to total (net) loans	#7 = #2 / (#1 + #2 - #3)	63.7%

Hands-on example: credit risk

- Shock: 5% of performing loans become NPLs ($0.05 * 1099 = 55$)
- Out of that increase, assume bank provisions 40% ($0.4 * 55 = 22$)
- Capital then decreases by 22!

Hands-on example: credit risk

Stressed Balance Sheet		Bank SB1
Performing loans	#1	$0.95 * 1099$
NPLs	#2	$1014 + 0.05 * 1099$
Provisions held	#3	$521 + 0.4 * 0.05 * 1099$
Regulatory capital	#4	$59 = 81 - 0.4 * 0.05 * 1099$
RWA	#5	1030
CAR (pre-shock)	#6 = #4 / #5	5.7%
NPLs (gross) to total (net) loans	#7 = #2 / (#1 + #2 - #3)	68%