



REVISED STRESS TESTING GUIDELINES

PRESENTATION TO ISLAMIC BANKING INSTITUTIONS

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Outline

- ❑ Stress Testing-Overview
- ❑ Stress Testing-Framework
- ❑ Why Revise?
- ❑ What is in the ST Guidelines?
- ❑ Key Changes in the Guidelines
- ❑ Elements of Stress Testing Framework
- ❑ Sensitivity Analysis of **Banks and IBs/IBBs**
- ❑ Guidance on Scenario Analysis

Stress Testing - An Overview

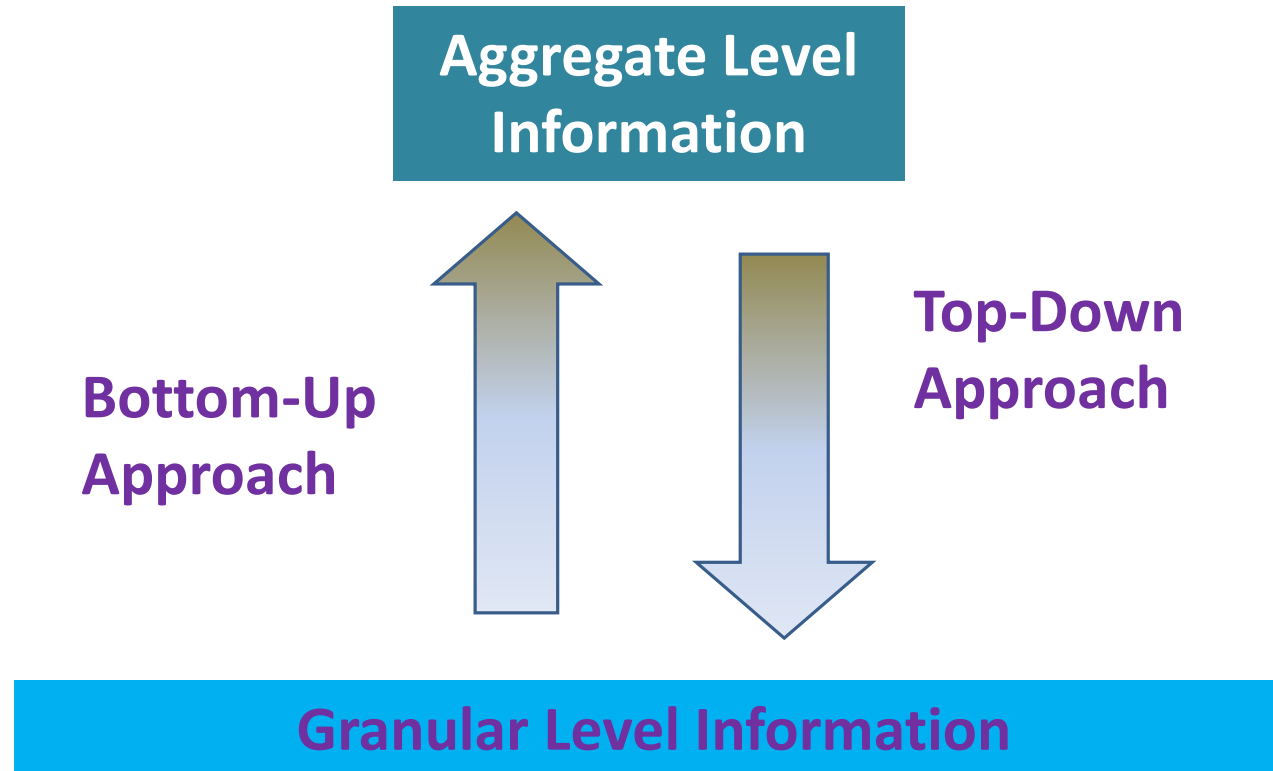
- ❖ Stress Testing examines potential impact of **adverse/exceptional but plausible** events on the health of banking system or individual institution
- ❖ Exceptional refers to events of high severity
- ❖ Plausible excludes improbable scenarios.

Stress Testing- An Overview

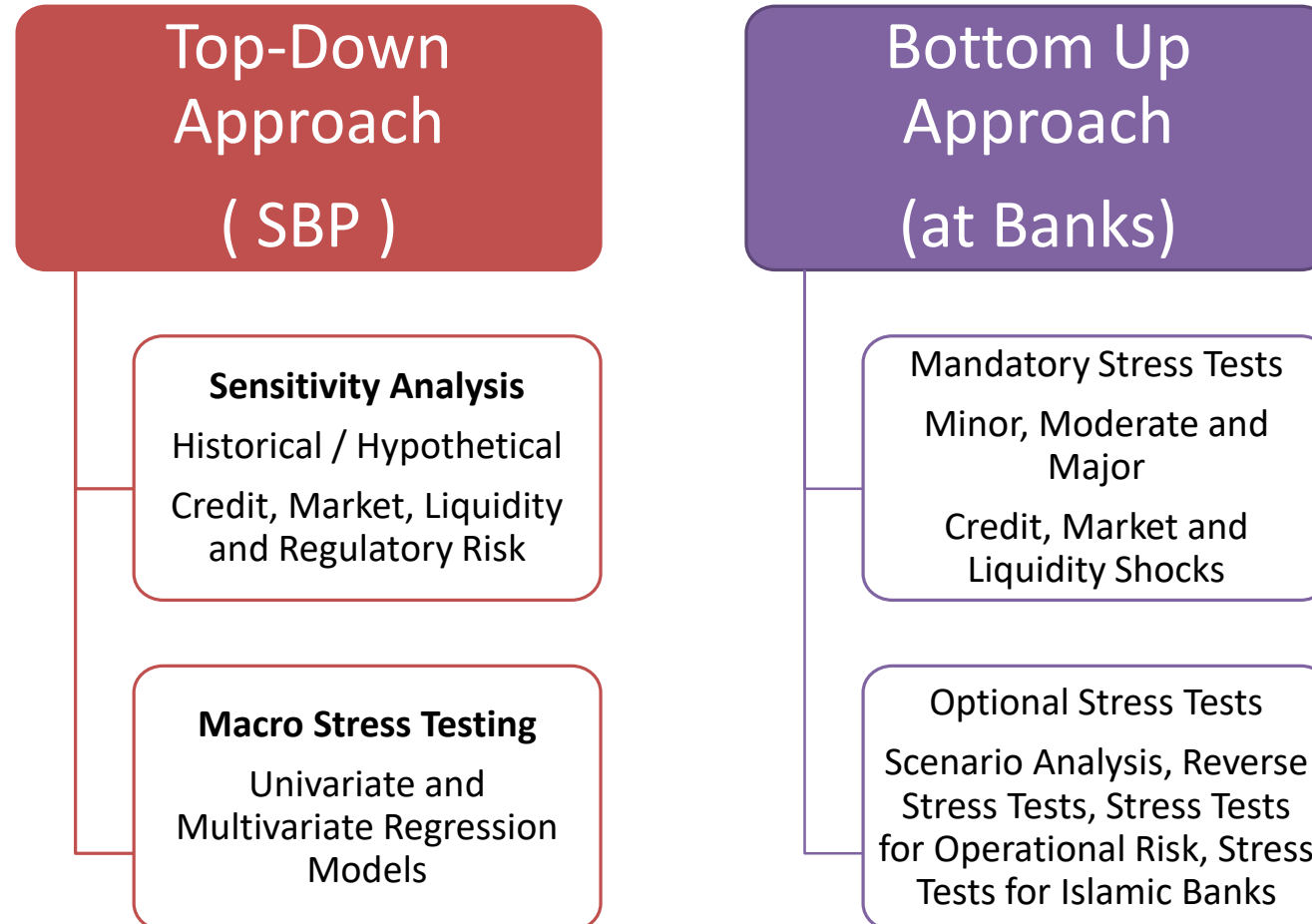
- ❖ Assists in **identifying vulnerabilities** and in developing an **institution's risk profile**
- ❖ Classification of objectives:
 - Micro-prudential Tool- Idiosyncratic risk
 - Macro-prudential Tool- Systemic risk
- ❖ Used by Central Banks, multilateral Institutions, Individual financial Institutions

Stress Testing Framework

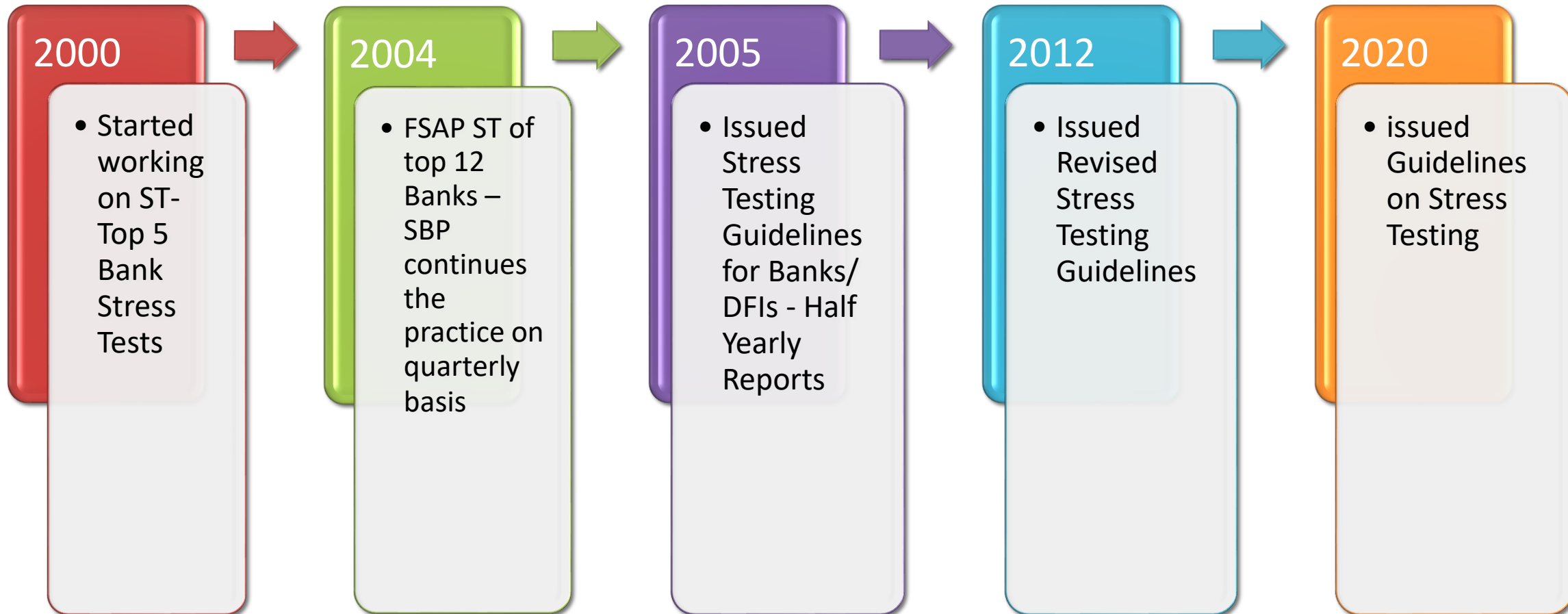
❖ Two Approaches



Stress Testing framework at SBP



Stress Testing Framework at SBP



Why Revise?

❖ Revision needed as:

- Financial supervisory and regulatory environment continues to evolve
- International Changes:
 - Bank for International Settlements (BIS) revised ST principles in 2018
 - IFSB issued Technical Guidance (TN-2) in 2016 on Stress Testing for institutions offering Islamic financial services (IIFs).
- Framework for Domestic Systemically Important Banks (D-SIBs) was issued in April, 2018

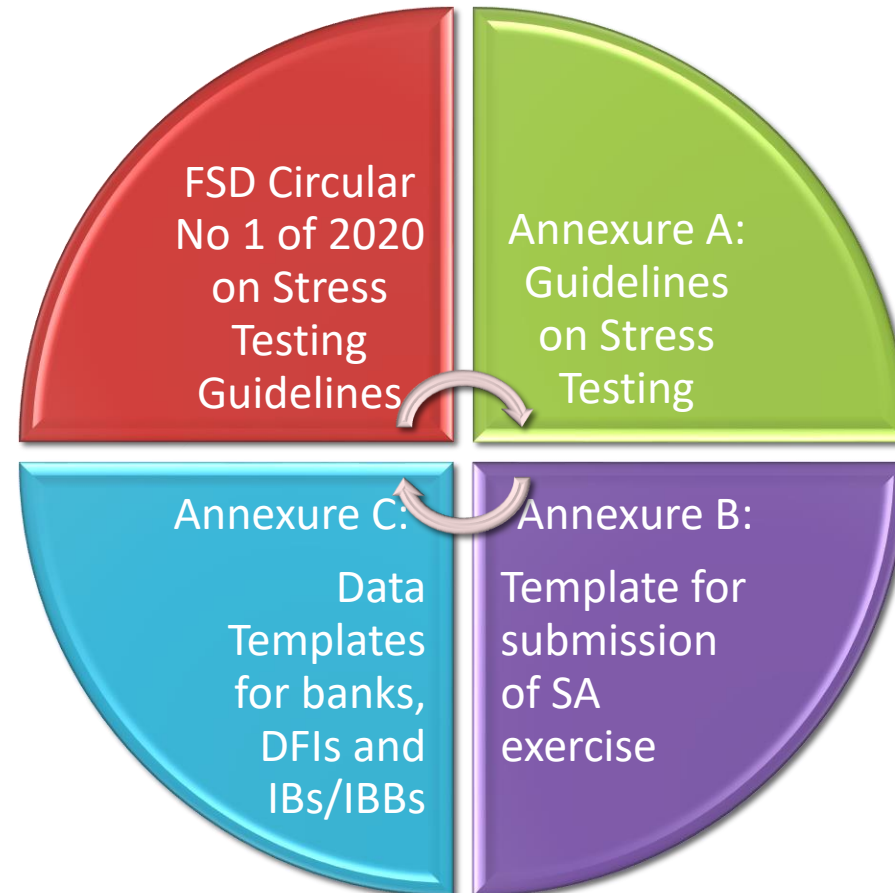
Why Revise?

Contd.

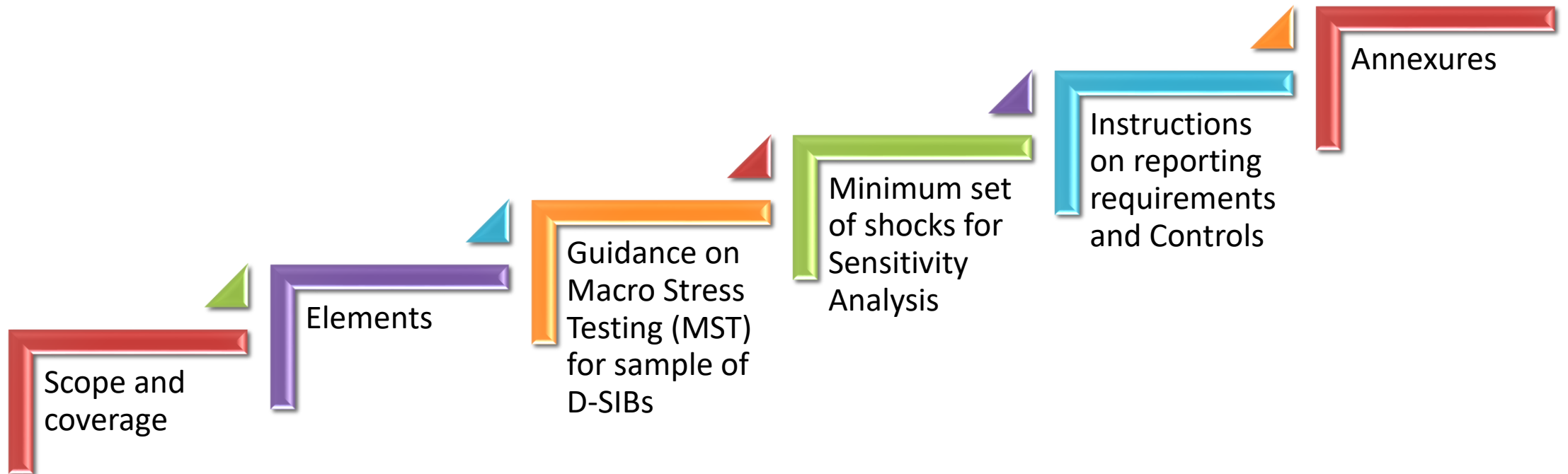
❖ Revision needed as:

- Islamic banking has grown in size and complexity
- Micro-Finance Banks segment also on the rise and focus from financial inclusion perspective
- Planned switch to Risk Based Supervision (RBS) framework requires a forward-looking approach towards identification of relevant financial risks.

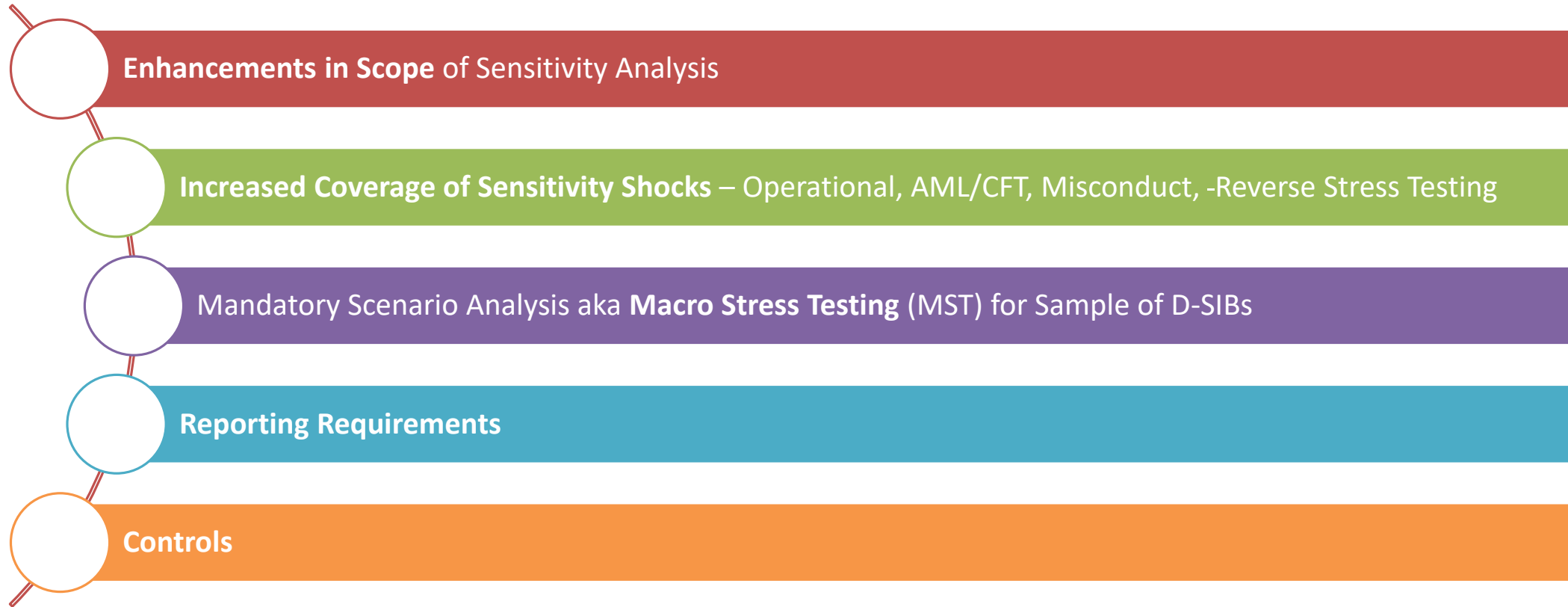
What is in the ST Guidelines?



What is in the ST Guidelines?



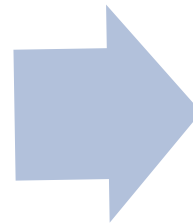
Key Changes to the Current Guidelines



Key Changes-Applicability of Sensitivity Shocks-IBs/IBBs and MFBs

2012 Guidelines

Sensitivity analysis applicable to Banks/DFIs.
Provided broader guidance to IBIs for conducting optional ST



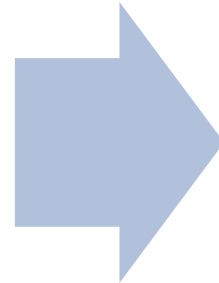
Revised

Tailored set of shocks designed for **IBs/IBBs** and **MFBs**, in addition to Banks/DFIs.

Key Changes-Enhancements in Coverage

2012 Guidelines

Mandatory sensitivity shocks covered credit, market and liquidity risks.



Revised

Addition of operational shocks (AML/CFT violations, Cybersecurity breaches)

Changes in the calculation methodology of interest rate and exchange rate shocks

Inclusion of NSFR as a metric to measure liquidity risk

Additional shock in the spirit of reverse stress testing and a shock to collateral value

Key Changes-Increase in # of SA Shocks

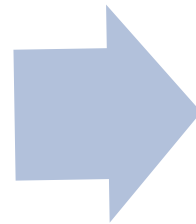
	Credit	Operational	Market	Liquidity
Banks (excluding Islamic Banks)	8 [6]	3	5 [6]	5 [4]
DFIs	6 [4]	3	5 [6]	1 [1]
IBs/IBBs	6	4	5*	3
MFBs	4	3	3	4

* Including two integrated scenarios i.e. scenario accounts for both credit and market risks.

Key Changes-Mandatory Scenario Analysis for Sample of D-SIBs

2012 Guidelines

Banks with a share of more than **4 % in industry assets** **encouraged** to conduct scenario analysis (MST)



Revised

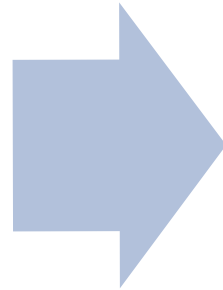
MST **Mandatory** for Sample of D-SIBs* with **annual** submission [using econometric modelling techniques] of results

* See BPRD Circular No. 04 dated April 13, 2018 for details on criteria for classification as “sample of D-SIBs”

Key Changes- Reporting Requirements

2012 Guidelines

Banks/DFIs submit **quarterly** stress testing **data** and **results** to SBP via DAP.



Revised

Banks/DFIs/IBs/IBBs will submit only **required data** to SBP **via DAP**.

No quarterly submission of SnA results for Banks and DFIs after Q3C20

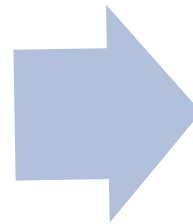
IBIs and MFBs to submit SnA results for four quarters, starting Q4-CY20

Scenario Analysis (**MST**) results to be submitted to SBP **annually** as a part of the **ICAAP**

Key Changes-Controls

2012 Guidelines

Stress testing results
submitted to SBP



Revised

Own **in-house** stress testing based
on revised shocks

On-site: Review by inspection
teams on test check basis

Off-site: Engagement by OSED

Elements of Stress Testing Framework

Elements of Stress Testing Framework

❖ Objectives

➤ Risk Management Tool

- The ST exercise should be forward looking and used for informed-decision making

➤ Supervisory/Institutional Considerations

❖ Governance Structure

- BoD is responsible for establishment and oversight of ST framework, while RMC is responsible for its design and implementation

❖ Resource Adequacy

❖ Data and IT Infrastructure

Sensitivity Analysis of Banks and IBs/IBBs

Sensitivity Analysis of Banks

Credit Shocks

- Eight Shocks (C1-C8)
- Types:
 - Downgrade of the overall advances portfolio
 - Reduction in the value of collateral
 - Sector specific shocks to the loan portfolio
 - Critical levels of infection ratio

Operational Shocks

- Three Shocks (O1-O3)
- Types:
 - AML/CFT violations
 - Cybersecurity breaches
 - Other general operational losses such as fraud, litigation losses or a natural disaster

Market Shocks

- Five Shocks (M1-M5)
- Types:
 - Adverse movements in the interest rates
 - Variations in the exchange rate
 - Variations in the stock (equity) market

Liquidity Shocks

- Five Shocks (L1-L5)
- Types:
 - Withdrawals of deposits and/or unsecured borrowings
 - Shock to Liquidity Coverage Ratio
 - Shock to Net Stable Funding Ratio

Sensitivity Analysis of IBs and IBBs

Credit Shocks

- Six Shocks (C1-C6)
- Types:
 - Shock to overall, sector- and segment-wise financing portfolios
 - credit concentration and decline in value of underlying collateral
 - Critically high NPFs to financings ratio

Operational Shocks

- Four Shocks (O1-O4)
- Types:
 - AML/CFT violations
 - Cyber security breaches
 - Sharia non-compliance
 - General operational failures

Market Shocks

- Three Shocks (M1-M3)
- Types:
 - Decrease in value of inventories, trading book assets and foreign currencies

Liquidity Shocks

- Three Shocks (L1-L3)
- Types:
 - withdrawal of different types of retail and wholesale deposits
 - withdrawal of UPSIA-related deposits for five consecutive days
 - Shock to Proxy Liquidity Coverage Ratio

Integrated Shocks

- Two Shocks (ICM1 and ICM2)
- Types:
 - Integration of shock to financing portfolio and inventory price shock
 - Integration of shock to segment-wise financing portfolio and decline in value of trading book assets



Guidance on Scenario Analysis

Guidance on Scenario Analysis

❖ Objectives

- Aligned with the institution's overall risk management framework
- Approved by BoD and formally documented in coherent manner
- Should cover institution-wide analysis to portfolio/sector level assessments

❖ Risk Coverage Scenario

- Should identify all material and relevant risks through a comprehensive risk identification exercise – credit, market, liquidity and operational risks
- Should focus financial implications of macroeconomic adversities on balance sheet
- Should take care of underestimation of risks on aggregate level

Guidance on Scenario Analysis

❖ Models and Methodologies

- Level of sophistication should be commensurate with the objectives
- Maintain inventory of models and adequately account for feedback effects, model risks and target risks
- Base on quarterly data and cover projection horizon of eight quarters
- Document and present selected models, assumptions, judgments and performance before RMC of the BoD along with results

Guidance on Scenario Analysis

❖ Construction of Scenarios

- Cover at least three scenarios, besides Reverse Stress Testing (RST)
 1. Baseline scenario
 2. Historical Adverse scenario
 3. Hypothetical Stressed scenario
- Develop consistent and plausible narrative for all scenarios differing in terms of severity – moderate, adverse and severely adverse
- Document scenarios and assumptions involved

Guidance on Scenario Analysis

❖ Review and Challenge

- The MST framework should be critically reviewed and challenged by RMC at least once in every three years
- Review process should ensure incorporation of MST results in decision-making process
- Should account for the outcomes of the review and update the processes accordingly

Guidance on Scenario Analysis

❖ Results Communication and Feedback

- The detailed results with methodologies should be presented annually before BoD, in addition to RMC
- Submission to SBP under ICAAP document on annual basis
 - A. Objectives, scope and governance structure*
 - B. Narratives and calibrations for all scenarios
 - C. Methodologies including assumptions, data, models, statistical software and working files.
 - D. Results including, pre- and post-shock levels of risk indicators
 - E. Minutes of RMC and BoD meetings held for the presentation of MST results including all comments, views, suggestions and plans for remedial actions.

Reporting Requirements and Controls

❖ Results Submission

- Sample of D-SIBs
 - Results of MST and RST as of December 31 as a part of ICAAP document
 - Submission on annual basis by May 31 of the following year
- Banks and DFIs
 - Continue to conduct SA analysis for internal consumption
 - No submission of SA results required
- IBs/IBBs and MFBs
 - Submit results of SA analysis for four quarter with first submission based on end Q4CY20 statistics.
 - Submission on prescribed templates within 15 working days after quarter end

❖ Data Submission

- Banks, DFIs, IBS/IBBs are required to submit quarterly data as per revised template within 15 working days after quarter end

❖ All results and data shall be submitted on SBP's Data Acquisition Portal (DAP)

Reporting Requirements and Controls

❖ Controls

- All institutions are required to:
 - Present results of ST exercises before RMC
 - Utilize these for preparing contingency plans, if necessary
 - Bring to the notice of BoD, if material vulnerabilities exist
- SBP inspection teams may;
 - Review the implementation of ST processes
 - Random checks of results
 - Minutes of RMC and/or BoD meetings
 - Steps taken to address identified vulnerabilities
- SBP will conduct in-house ST exercises and may engage with vulnerable institutions for mitigation plans, if required.

ANNEXURE

Description of Shocks

Sensitivity Analysis Shocks – IBs/IBBs

❖ Credit Shocks*

- **C1** – A) Increase in NPFs by 10% in SS category and its translation into other classification categories(DF, Loss) under different modes of financings (Murabaha, Ijara and Musharaka etc.); B) reduction in value of banking book assets; and C) financing and investments are financed by UPSIA.
- **C2** – Increase in NPFs for different sectors of economy (textile, automobile etc.)
- **C3** – Increase in NPFs for different segments (corporate, SME and consumer finance etc.)
- **C4** – Default of top performing borrowers/groups, selected based on amount of exposure
- **C5** – Depletion in forced sale value of collateral (FSV) leading to increase in risk weighted assets
- **C6** – Critical Infection Ratio - shock in the spirit of reverse stress testing

Sensitivity Analysis Shocks – IBs/IBBs Contd.

❖ Operational Shocks

- **01** – Losses/penalty due to Anti Money Laundering and Combating the Financing of Terrorism (AML/CFT) violations
- **02** – Losses due to cybersecurity breaches
- **03** – Losses due to Sharia-Non Compliance
- **04** – General losses due to, e.g., penalty from regulators, cybercrime, IT breaches, fraud, litigation, natural disaster or any other adverse operational event

Sensitivity Analysis Shocks – IBs/IBBs Contd.

❖ Market Shocks

- **M1** – Reduction in value of inventories held under different modes of financing leads to losses
- **M2** – Reduction in market value of Sukuk, ICI Schemes and stock market equities
- **M3** – Foreign exchange risk

❖ Integrated credit and market

- **ICM1** – Increase in NPFs under different modes of financings, decrease in value of banking book assets (C1) and reduction in market value of inventories (M1)
- **ICM2** – Increase in NPFs for different segments (corporate, SME and consumer finance etc.) (C3) and reduction in market value of sukuk, ICI Schemes and stock market equities (M2)

Sensitivity Analysis Shocks – IBs/IBBs Contd.

❖ Liquidity Shocks

- **L1** – Significant withdrawal of wholesale, retail and financial institutions' deposits
- **L2** – Withdrawal of UPSIA deposits for consecutive five days
- **L3** – Shock to Proxy Liquidity Coverage Ratio



ANNEXURE

FSR 2019 - Results

Financial Stability Review 2019

Horizon: Five Year: Q1CY20 to Q4CY24

Two Scenarios:

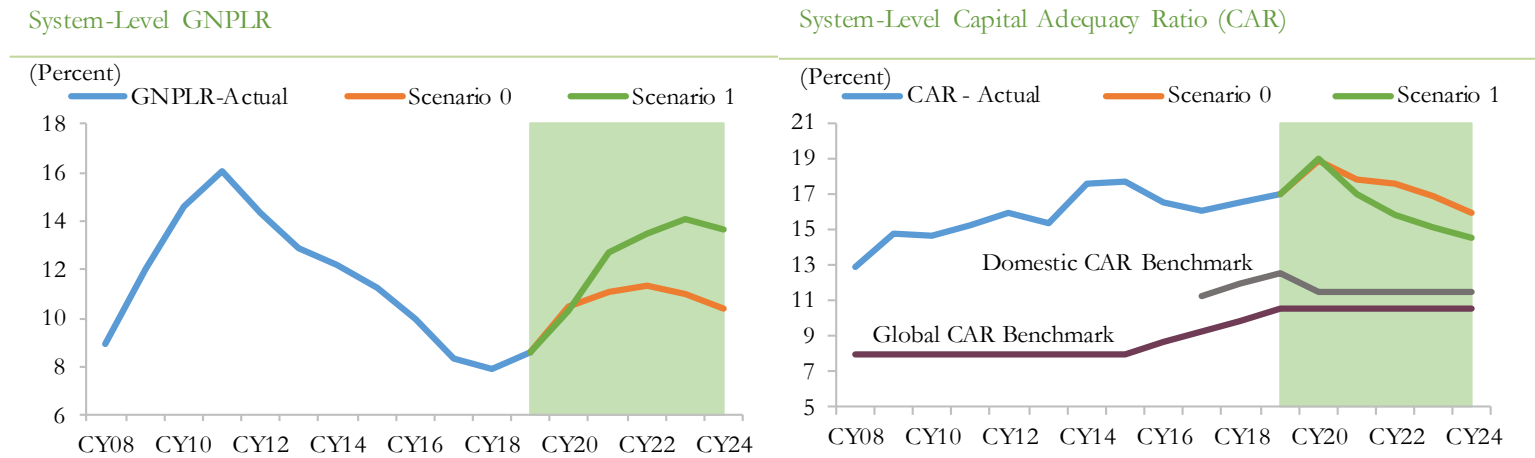
- **Baseline Scenario:**
 - Domestic and global outbreak of COVID-19 to end by FY20
- **Stress Scenario:**
 - A protracted and widespread outbreak of COVID-19 at home and abroad with re-emergence of virus in 2021.
 - A sharp decline in domestic and global economic growth

Resilience Testing - Overall and segments of banking sector

- Banks are segmented on the basis of their asset size, viz., **Small, Medium** and **Large**.
- **Purpose:** To assess how the cross-sectional heterogeneity affects the resilience of banks under two scenarios.

Financial Stability Review 2019

Resilience Analysis: System Level



Source: SBP Calculations

❖ **Baseline Scenario:** GNPLR 1.77%; CAR 1.12% by CY24

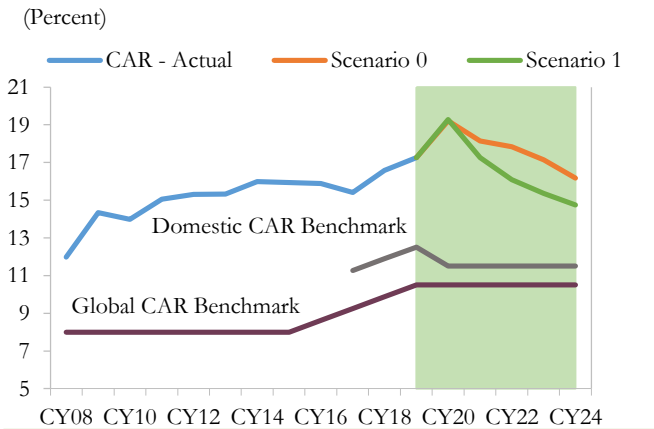
❖ **Stress Scenario:** GNPLR 5.04%; CAR 2.53% by CY24

Conclusion: Banking sector remains resilient to the assumed shocks over the simulation period.

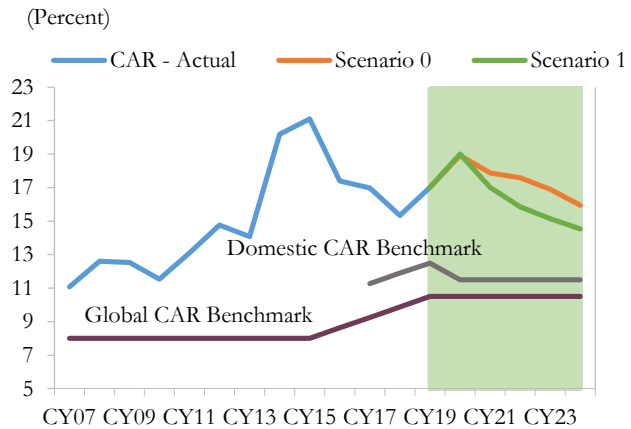
Financial Stability Review 2019

Resilience Analysis: Segment Level

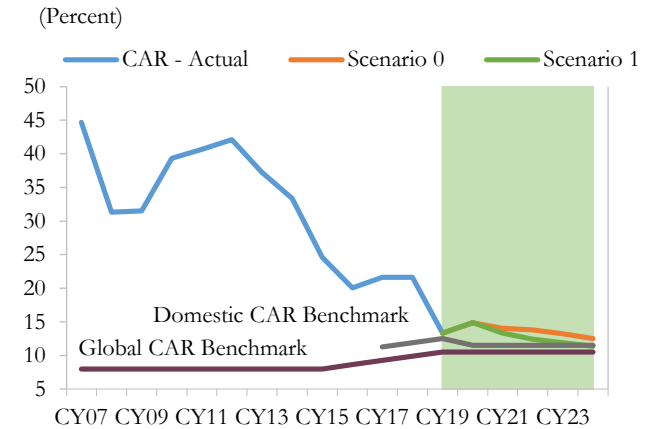
Projected CAR of Large Banks



Projected CAR of Medium Banks



Projected CAR of Small Banks



Large Banks: Remain resilient

Medium Banks: Remain resilient

Small Banks: Fall short of minimum capital adequacy benchmark by Q4CY24 under *stress scenario only*.

