

# COVID-19: stress testing for Financial Institutions sector



## Background

For some time now, the financial services sector across the global has been under pressure with respect to deteriorating asset quality, liquidity squeeze, redemption pressures and event risks. To add to it, the current COVID-19 outbreak has the potential to significantly disrupt the operating environment for FIs. It is already estimated that the recent outbreak could cost the global economy up to USD1 trillion this year.<sup>1</sup> With major sectors like aviation, supply chain, tourism, oil and energy facing a slower than anticipated activity, the situation for the year ahead looks grim.

In scenarios such as this, stress testing becomes the ultimate tool to test the resilience of an FI. Not only does this help in understanding the vulnerabilities in the portfolio, but also helps manage further deterioration in credit. Further it also enables design of alternate plans to ensure funding stability and avoid a liquidity crunch scenario.

## Stress testing methodology



### Stress the loan portfolio

- Determine the stress scenarios (travel bans, supply chain shocks, oil price dips, stock market crash) and **forecasts of macroeconomic variables**
- Stress underlying **cash flows and debt service ratios** of the obligors

### Simulate impact on loan provisions and capital ratios

- Test for the **statistical significance and stability** of the ECL components at varying confidence intervals post adjustment to COVID-19 related tail risk scenarios
- The plausible downside risk can be quantified using the **extreme value theory or tail risk modelling**
- Simulate for **stage transfers due to increase in credit risks**. Calculate ECL and RWA impact at loan level.

### Simulate impact on loan provisions and capital ratios

- Based on aggregated impact on RWA and ECL, identify vulnerable credit sectors.
- Assess contagion impact for **large corporates that are highly integrated**. Identify the key buyer/suppliers (**2<sup>nd</sup> order**) and subsequent buyers/sellers (**3<sup>rd</sup> order**) dependent on the large corporate
- Assess the contagion risk through **joint distribution models/ stress propagation network models**. Identify exposure and loss estimates therein

### Simulate impact on loan provisions and capital ratios

- Based on the stress test results, identify **weaker customers and sectors**.
- Define **relief measures** based on regulatory rules and risk appetite.

1. Coronavirus: Can policymakers avert a trillion-dollar crisis? United Nations conference on Trade and Development, 09 March 2020

## How can we help?

- Develop stress test templates for credit, market and liquidity risks for COVID-19 stress;
- Quantify impact of COVID-19 on Expected Credit Loss(ECL), Risk Weighted Assets (RWA), Net Interest Income (NII), Earnings at Risk (EaR) using advanced statistical techniques.
- Deploy our easy-to-use and flexible tactical tool for conducting stress testing and evaluating its impact on Profit & Loss (P&L) and Regulatory capital
- Prescribe thresholds to determine management trigger points and provide solutions for resolution.



## KPMG FRM in India's stress testing tactical tool

### Tool

**Credit Risk**    **Market Risk**    **Liquidity Risk**

**Scenario Definition**

**Baseline**    Drop in GDP by 2%, Markets crash by 30% in the last 3 months of FY 20, followed by a slow recovery of 20% over the next 3 months. Worst hit sectors include Aviation and Tourism.

**Adverse**    Drop in GDP by 2%, Markets crash by 40% in the last 3 months of FY 20, followed by a slow recovery of 20% over the next 3 months. Worst hit sectors include Aviation and Tourism, Auto, Infrastructure Lending, Oil & Energy, MSME portfolio also above.

**Severely Adverse**    Drop in GDP by 2.5%, Markets crash by 40% in the last 3 months of FY 20, followed by a slow recovery of 20% over the next 3 months. Worst hit sectors include Aviation and Tourism, Oil & Energy, Auto, Infrastructure Lending, MSME as well as Retail portfolio also above sector of stress includes utility and CO2 credits.

**Bank Specific-1**    Combined with the Baseline scenario specifications stated above, bank has a large portfolio exposure in terms of Bank Guarantees issued to large Corporates. The portfolio is skewed to Oil & Energy sector. Bank forecasts at least 20% devaluation and subsequent nonpayment of these BGs.

**Macro Forecasts**

MacroVariable	Scenario	Q1	Q2	Q3	Q4	Q5	Q6
GDP Growth (%)	Baseline	(0.50)	(1.00)	(1.00)	0.50	0.75	1.00
	Severe	(1.00)	(1.50)	1.50	0.50	0.75	1.00
	Severe Adv	(1.50)	(1.00)	(1.00)	0.50	0.75	1.00
	Bank Specific	(0.50)	(1.00)	(1.00)	0.50	0.75	1.00
Unemployment Rate	Baseline	4.00%	4.50%	4.75%	4.75%	4.00%	3.00%
	Severe	5.00%	5.50%	5.75%	4.75%	4.00%	3.50%
	Severe Adv	5.25%	5.00%	4.75%	4.75%	4.50%	4.00%
	Bank Specific	4.00%	4.50%	4.75%	4.75%	4.00%	3.00%

Update    Run

**Key features include:**

- Flexible interface to read the required shock factors as input.
- Adjustable format to input regulatory and hypothetical scenarios.
- Adaptability to portfolio
- specific risk characteristics.

### Output

**Projected Cash Balance (INR)**

**Impact Assessment**

Shock	Liquidity Ratio	
	Pre Shock	Post Shock
Moderate	5%	176.53%
Medium	10%	176.16%
Severe	20%	175.42%
Internal	15%	175.79%

**Shock 1**    Withdrawal of part of the stable funds of individuals

**Key features include:**

- Capability to comprehend impact on cash flows and requirement of immediate liquidity buffer; impact on the entity's balance sheet under stress etc.

### Dashboard

**Post Shock Impact on CRAR**

**Stress Testing Impact**

**Key features include:**

- Intelligent dashboard to gauge the impact of stressed conditions.
- Graphical comparison of the impact on liquidity, capital adequacy, solvency and profitability.

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