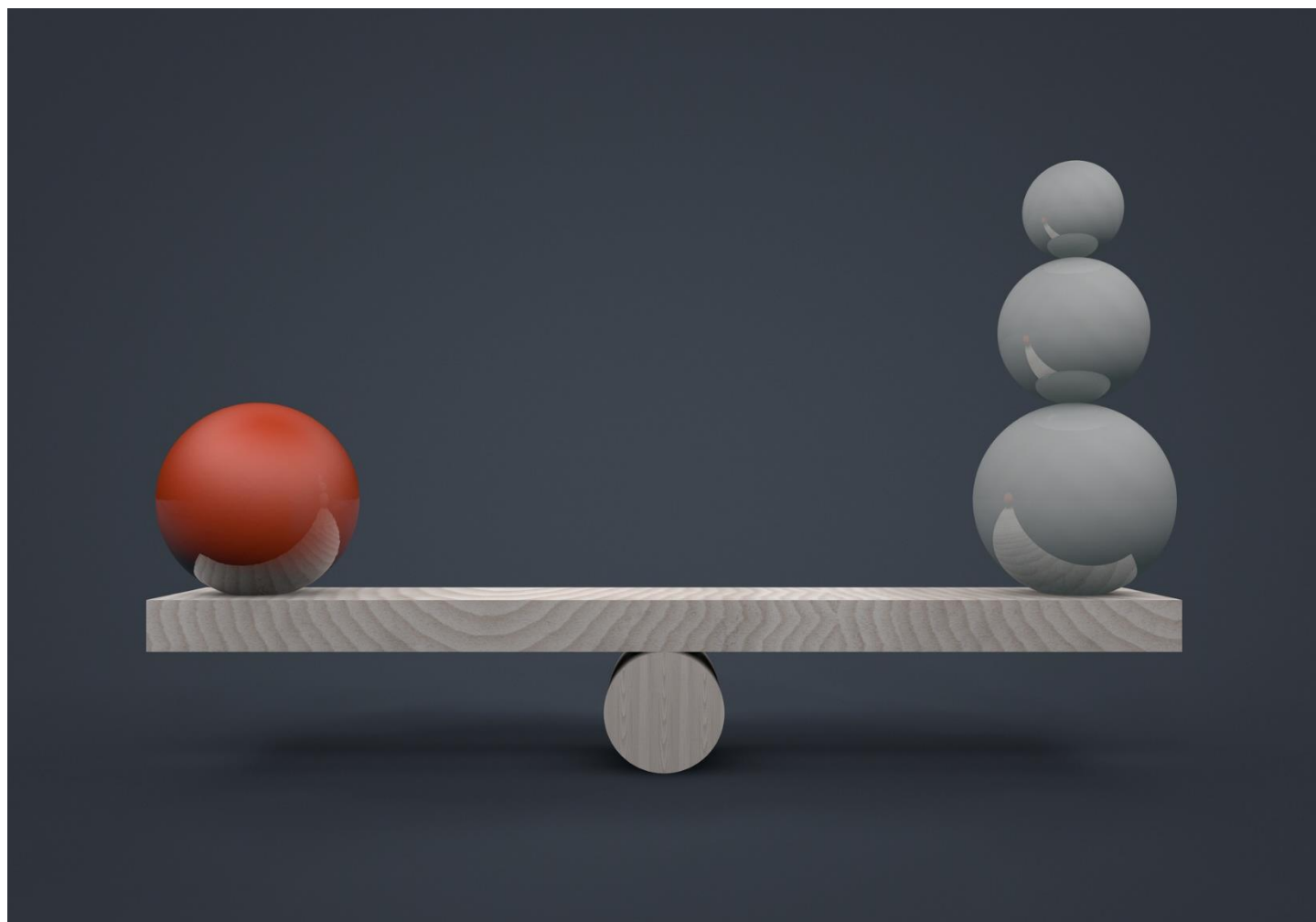


Managing RWAs under Covid-19 stress

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Introduction

A hypothetical exercise conducted by the Basel Committee on Banking Supervision (BCBS) for several banks, after the 2008-09 Global Financial Crisis, highlighted inconsistencies in estimates of risk-weighted assets (RWAs). The variability of RWAs under this exercise ranged from 300% for exposure to banks to over 600% for exposure to corporates.

In 2017, Basel III was updated (2017 [Reforms](#)) to reduce RWA variability and included guidelines to level the field for banks using two different approaches – standardised and internal model. The BCBS enhanced the robustness and risk sensitivity of the standardised approach, while setting an output floor with a limit on capital benefit a bank can obtain by using the internal model. This helped banks build significant resilience to financial shocks.

However, the Covid-19 pandemic has dealt a fresh blow to the financial systems across the globe. Unarguably, banks can now expect an increase in the severity of regulatory stress tests in the upcoming guidelines.

This paper intends to assist banks prepare for the impending additions in regulations and presents a streamlined process to calculate RWA under the stressful impact of the pandemic.

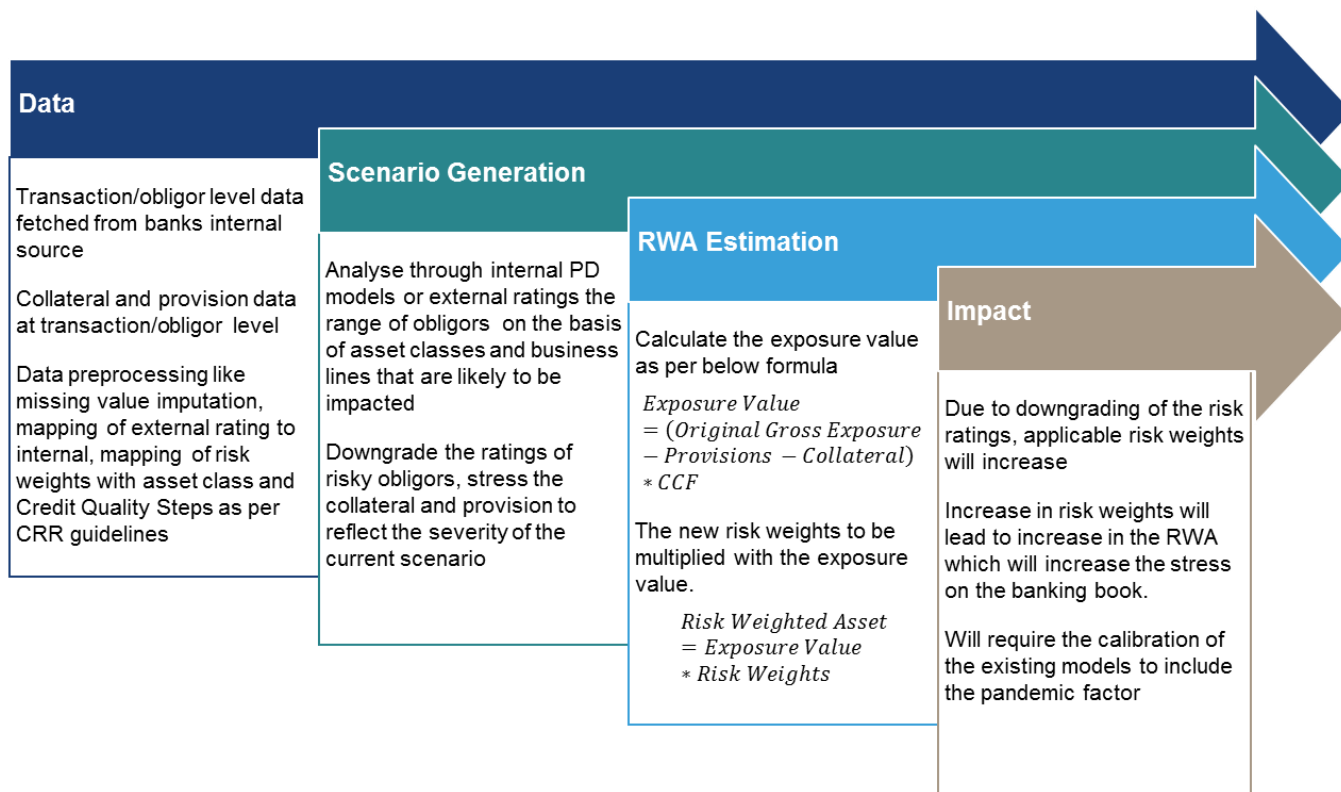
Increase in RWAs under stress scenarios can be used internally to analyse capital calculation and prepare for upcoming regulatory stress tests.

RWAs for wholesale and securities financing transaction portfolios

The scope for RWA estimation covers the standardised approach for wholesale (on and off balance sheet items) and counterparty credit risk (derivatives and securities financing transaction or SFT) portfolios. The methodology to generate a stress scenario for the pandemic entails a notch-down approach of obligors' ratings, i.e. decreasing the ratings of obligors as deemed appropriate. Using a series of calculations and mapping tables across asset classes, ratings, credit quality steps and risk weights, the notch-down would increase the net exposure value and RWA amount.

The required data fields are: original gross exposure of each obligor, collateral posted by obligors, provisions calculated for each obligor, ratings (external/ internal) of each transaction, staging of each transaction, credit conversion factor as per counterparty credit risk (CRR) guidelines, exposure type (off/ on balance sheet item, derivative and SFT), country of risk/domicile, asset class and risk weights.

Stress scenario generation and capital allocation methodology



The process flow of generating the stress scenarios and estimating RWAs ensures seamless integration into the bank's current system.

To assess the severity of the pandemic scenario, banks have to stress their macroeconomic and financial variables using appropriate shock values. Additional variables related to geography, industry or historical epidemic/ pandemic data points may also have to be included in the analysis. Stressed variables can be used to generate a scenario equivalent to the current situation to assess the impact on the required capital for future regulatory and/or internal stress tests.

Banks need to take longer periods of historical data series of the variable to include the full economic cycle. They can use their own models or vendor models to calibrate the variables. If there is lack of data or the statistical approach fails to capture the impact of the current scenario, expert judgement can be used to support the scenario by an appropriate narrative.

Owing to Covid-19, the current stress on the banking book is expected to be more severe than banks are usually prepared for. RWAs are expected to increase, thereby raising the capital requirements of banks. However, if the associated risk is quantified correctly using a streamlined method, banks will be able to calculate the increase in capital by an appropriate amount and assess the impact properly in addition to being better prepared for such debacles in the future.

This section proposes a tried and tested scenario generation approach, consistent with the current pandemic situation to calculate the stress RWA amount.

Data requirements

Variables	Sourcing Notes
Original gross exposure of each obligor	This could be at the transaction-level data or netted at the obligor level, might vary from bank to bank
Ratings of the obligor (one obligor can have multiple ratings based on the exposure)	Bank's internal rating mapped to external agency rating
IFRS 9 staging	Assigning performing and non-performing stages. Series of management overlays and assumptions required to assign a stage, as it has a direct impact on the calculation of provisions
Provisions as per IFRS 9 stage	Calculated on the basis of expected loss at the obligor level
Collateral for applicable positions	Collateral posted by the obligor. Exposure could be over-collateralised, therefore a flooring of net exposure would be required before calculating the risk weight
Risk weights as per CRR guidelines	Depending on asset classes and internal rating, a mapping table is created to assign risk weights using internal ratings, credit quality steps (CQS), asset class and risk weights
Credit conversion factor as per CRR guidelines	Regulatory CCF is used in the calculations (provided in CRR guidelines)
Asset classes	Bank's internally defined asset classes and mapped to the European Banking Authority's (EBA)-defined asset classes

Important points to consider in data selection

The current creditworthiness of the obligors and how it will deteriorate under the pandemic effect should be assessed carefully. The nature of exposure and the risk associated with it should be considered to segregate risky and secured exposures. Therefore, the selection of obligors with high risk should not be solely based on the associated PD (past-due) values derived from existing models, but also on idiosyncratic factors arising from the stress scenario.

Downgrading the obligors' risk rating is an appropriate approach to reflect the impact of the stress scenario. Banks with sophisticated models and risk management systems can use their own internal ratings and then stress these to assess the impact of the scenario, while those without an internal rating system can use external ratings provided by rating agencies such as S&P, Moody's and Fitch. These banks can then map the external ratings with their internal master scale for risk assessment. They can be further mapped to the CQS (a six-point scale). If the external ratings reflect a bank's internal ratings, then only external ratings can be used without mapping to the internal ratings. The table below can be used to map the external ratings to the CQS¹:

¹ <https://eba.europa.eu/sites/default/documents/files/documents/10180/2736783/8964d9e2-4902-4df5-9668-8489fcd1f8e0/JC%202019%2011%20%28Final%20Report%20Revised%20Draft%20ITS%20Mapping%20CRR%29%20%28002%29.pdf>

CQS	S&P		Moody's		Fitch	
	Long-term ratings	Short-term ratings	Long-term ratings	Short-term ratings	Long-term ratings	Short-term rating
1	AAA to AA	A-1+	AAA to AA	P-1	AAA to AA	F1+
2	A	A-1	A	P-2	A	F1
3	BBB	A-2, A-3	Baa	P-3	BBB	F2, F3
4	BB	B, C, R, SD/D	Ba	NP	BB	B, C, RD, D
5	B	-	B	-	B	-
6	CCC, CC, R, SD/D	-	Caa, Ca, C	-	CCC, CC, C, RD, D	-

The scenario can be generated by downgrading the external/ internal ratings of the obligors as per their risk assessment, i.e. ratings of high risk obligors can be downgraded by three or more notches, that of medium risk obligors by two notches and low risk obligors by one notch. For ratings downgrade, banks can use their in-house or vendor models with appropriate adjustments to reflect the current scenario. Existing models can be calibrated by including demographic variables, country of exposure and historical pandemic data points.

Once the required variables are available, appropriate weightage needs to be assigned to them to downgrade the ratings. The downgrade in ratings will increase the CQS of the obligors, leading to high risk weights. The relationship between risk weight and CQS is tabled below²:

Asset class	CQS					
	1	2	3	4	5	6
Central government or central banks	0	20	50	100	100	150
Regional governments or local authorities	20	50	50	100	100	150
Public sector entity	20	50	100	100	100	150
Multilateral development banks	20	50	50	100	100	150
International organisations	0	0	0	0	0	0
Institutions	20	50	50	100	100	150
Corporates	20	50	100	100	150	150
Retail	75	75	75	75	75	75
Exposures secured by mortgages on immovable property	100	100	100	100	100	100
Items associated with particularly high risks	150	150	150	150	150	150
Covered bonds	10	20	20	50	50	100
Exposures to institutions and corporates with a short-term credit assessment	20	50	100	150	150	150
CIU	20	50	100	100	150	150
Equity	100	100	100	100	100	100
Other items	100	100	100	100	100	100

Weights indicated in percent

² [https://eba.europa.eu/sites/default/documents/files/documents/10180/501983/3b700c1c-f136-405d-a4b3-b22ea0a062af/CELEX_32013R0575R\(02\)_EN_TXT.pdf](https://eba.europa.eu/sites/default/documents/files/documents/10180/501983/3b700c1c-f136-405d-a4b3-b22ea0a062af/CELEX_32013R0575R(02)_EN_TXT.pdf)

RWA estimates

The net exposure value is calculated by the following formula:

$$\text{Exposure value} = (\text{Original gross exposure} - \text{provisions} - \text{collateral}) * CCF$$

Multiplied with applicable risk weights to provide the RWA amount.

$$RWA = \text{Exposure value} * \text{risk weights}$$

Although it can be assumed that highly secured obligors such as central government or central banks are less likely to get affected by the current stress scenario and may retain their ratings, it might vary from bank to bank.

While downgrading the risk ratings, banks have to carefully assess the vulnerability of creditworthiness of obligors to the ongoing stress scenario. Therefore, feedback and overlays of senior management are highly recommended.

Apart from ratings, the stress scenario will also impact collateral and provision values. Owing to market conditions, collateral values are expected to decrease, whereas banks have to increase their provision for risky obligors. If the collateral is in the form of equity, then a haircut equivalent to the change in the underlying equity can be applied to stress the collateral. The market value of the collateral present in liquid form (cash) should not change under the stress scenario.

Impact

The impact of the pandemic will vary depending on the exposure type, size, leverage, credit quality and geographical distribution. Some of the major challenges for banks are listed below:

- An increase in expected credit loss owing to deterioration in the credit quality of obligors. Therefore, banks may have to calibrate their credit risk models to incorporate the pandemic impact
- An increase in RWAs and provisions, which would require a streamlined system to efficiently re-calculate assets
- Businesses are expected to face liquidity crunch and delay the repayment of financial commitments. This could, in turn, impact financial institutions because of an increase in defaults and increase in capital allocation
- Reassessment of anti-money laundering/combating the financing of terrorism (AML/CFT) frameworks based on the current scenario owing to rising cases of financial fraud
- The EBA and other regulators may increase the severity of their stress tests to incorporate Covid-19-related shocks

CRISIL's experience in RWA calculation

CRISIL has immense experience in the credit risk and stress testing space. Our dedicated and skilled team has helped leading banks across the globe implement the RWA model and subsequent changes ensuring they meet internal and regulatory timelines. We also have a suite of automated platforms/ tools including:

- IFRS 9/CECL model development/validation tool
- Scenario generation and stress testing
- Model monitoring tool
- Scenario expansion management tool
- Operational risk tool
- AML tool

Our strong expertise and experience in the banking sector have helped us bring about industry best practices across projects related to risk and finance.

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CRISIL is a leading, agile and innovative global analytics company driven by its mission of making markets function better.

It is India's foremost provider of ratings, data, research, analytics and solutions with a strong track record of growth, culture of innovation, and global footprint.

It has delivered independent opinions, actionable insights, and efficient solutions to over 100,000 customers through businesses that operate from India, the US, the UK, Argentina, Poland, China, Hong Kong and Singapore.

It is majority owned by S&P Global Inc, a leading provider of transparent and independent ratings, benchmarks, analytics and data to the capital and commodity markets worldwide.

About Global Research & Risk Solutions

Global Research & Risk Solutions is the world's largest and top-ranked provider of high-end research and analytics services. We are the world's largest provider of equity and fixed income research support to banks, and the foremost provider of end-to-end risk and analytics services to trading and risk management functions at world's leading financial institutions. We provide corporate research and analytics solutions to operations, strategy, and sales and marketing teams of corporations globally. Coalition provides analytics and business intelligence to 14 leading global investment banks. We operate from 8 research centers in Argentina, China, India and Poland, working with clients across time zones and languages. Being part of CRISIL enables us to attract and retain top quality talent. We have over 2,300 employees, 75% of whom hold advanced degrees in finance, accounting and management. We employ the largest number of CFAs and CFA aspirants in India. We have won top honours at the World HR Congress on Talent Management and HR Project for the year 2015. We have also won the NASSCOM Exemplary Talent Practices Award (NExT Practices) for skill development for two years in succession in 2011 and 2012. The award recognizes us as a firm that has the vision to proactively invest in its people and get them future-ready.

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