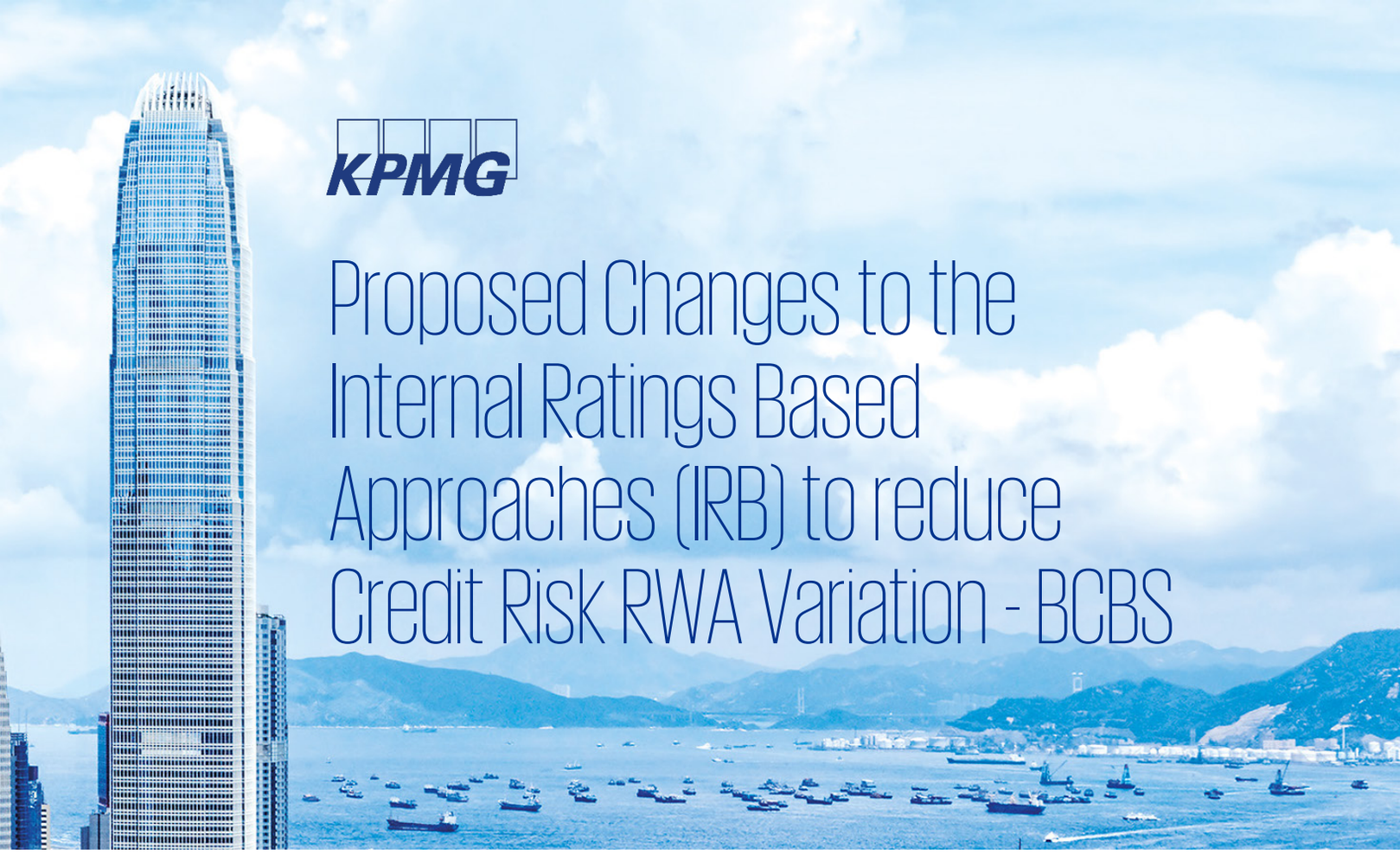

Proposed Changes to the Internal Ratings Based Approaches (IRB) to reduce Credit Risk RWA Variation - BCBS

In March 2016, the Basel Committee on Banking Supervision ("BCBS") released a Consultative Document detailing proposed changes to the existing Internal Ratings Based (IRB) framework for credit risk weighted assets. The proposed changes are part of a broader regulatory reform initiative to reduce RWA variability that the committee will finalize by the end of 2016. **What are the key proposals and potential impacts on Banks in Hong Kong?**

IRB approaches will no longer be allowable for certain types of exposures, and model-parameter floors plus new specifications on risk parameter estimations for remaining IRB exposures will be introduced to reduce variability in RWA

The committee is also considering an **aggregate floor** on RWA which in this version of the consultative document could range from **60% to 90%** of that calculated under the new Standardised Approach (SA). Only after a comprehensive impact study and further comments on the current proposal (due by June 24 2016) will the committee finalize the reforms to IRB.

Summary of Key Proposals

Remove IRB Approaches

For Difficult to Model or Low Default Portfolios (Large Corp., FI, Spec. Lending, Equities)

- This development will allow Banks to continue to use IRB for material portfolios and estimates of RWA using IRB should be more reliable.
- We see this as a positive development as it removes the headache Banks have had with identifying consistent robust techniques to model IRB for these asset classes.

Parameter Floors

For IRB Modelled Parameters (PD, LGD, EAD) Floors are Introduced

- Floors range from 5bps to 10bps for PD, and between 0% to 50% for LGD, 50% of off-balance sheet exposure for EAD estimation plus all on balance sheet exposure.
- We also see this as a positive development to increase reliability of the IRB estimates and reduce RWA variability.

Parameter Estimation

Limit the Range of Acceptable Practices for Modelled PD, LGD, EAD

- The proposals for PD approaches may not have a substantial impact compared to the current approaches. There are more concrete proposals for LGD estimation changes.
- We also see this as a positive development to increase reliability and credibility of the IRB estimates as it would reduce RWA variability.

Proposed Treatments for IRB Exposures

Size of Obligor

Proposed IRB

Corporates

ONLY FIRB IF:

Total Assets* < EUR 50bn
and Annual Revenue* > EUR 200m

- PD Floor: 5bps
- LGD (U): 45% - 75%
- LGD (S): New Weighted Average Approach
- EAD: Supervisory CCF's

Middle Market / Non-Retail SME

IRB IF:

Annual Revenue* ≤ EUR 200m

- PD Floor: 5bps (FIRB)
- LGD (U) Floor: 25% (AIRB)
- LGD (S) Floor: 0% - 20% (AIRB)
- EAD: 50% of O/B x SA CCF (AIRB)

Retail - Mortgages

AIRB

New Floors Apply

- PD Floor: 5bps
- LGD (S) Floor10%

Retail - Other

AIRB

New Floors Apply

- QRRE Transactors:
  PD Floor 5bps LGD (U) Floor 50%
- QRRE Revolvers:
  PD Floor 10bps LGD (U) Floor 50%
- All Other Retail Products:
  PD Floor 5bps LGD (U) Floor 30%
- LGD (S) Floor: 0% Financial, 15% Receivables, 15% real estate, 20% all other physical

Current IRB to New SA

Very Large Corporates

NO MORE IRB IF:

Total Assets* > EUR 50bn

Use SA External Ratings

Banks & Non-Bank FI's

NO MORE IRB

Use SA External Ratings or Risk Weight Table

Equities

NO MORE IRB

Use SA 250% Risk Weight

Specialized Lending

NO MORE MODELLED IRB

Use SA or IRB Slotting only

TBD

Sovereign

TBD

Still under debate

* Proposal: Audited financial statement average of previous 3 years or from origination and updated every 3 years.

Difficult to model and low default portfolios previously allowed to use IRB approaches (Large Corporates, Banks, Equities, and SL) all go to the new Standardized Approach.

Criteria used by BCBS to assess internal model suitability

The BCBS has considered the costs and benefits of using internal credit risk models to estimate RWA. In doing so, the committee has used the following criteria to assess if a portfolio is suitable for internal modelling:

Criterion	Description
Data	• The availability and quality of loss data in order to model the risk of a given portfolio / product
Modelling Techniques	• Generally accepted and robust modelling techniques that can be used and reliably validated
Information Advantage	• Whether or not the bank has unique information that can increase the reliability of the internal ratings compared to available market information

Proposed Parameter Estimation Practices for IRB

PD Proposed Parameterization Changes

All IRB Exposures

NEW REQUIREMENTS

- New requirements on the stability of internal ratings derived from PD, namely they should remain stable through the business cycle
- Data used to estimate PD should include mix of 'good' and 'bad' years with minimum weighting of downturn years of 1 in 10
- At a minimum each rating grade must have an estimated PD
- Remove 'Seasoning' in the adjustment or calibration and include as a risk factors into the PD model

LGD Proposed Parameterization Changes

Corporates FIRB - Unsecured

NOT CHANGED

- LGD (u): Senior exposures 45% - Subordinated exposures 75%

Corporates FIRB – Partially or Fully Secured

NEW WEIGHTED AVERAGE LGD CALCULATION

- $\text{LGD} = LGD(u) \times \frac{E(u)}{E\cdot(1+He)} + LGD(s) \times \frac{E(s)}{E\cdot(1+He)}$
- Simpler approach with new haircuts applied to determine downturn LGD (s) for secured exposures
- Increase haircuts for Receivables and CRE/RRE to 50%
- All other haircuts use new SA Approach
- New LGD (s):
- Eligible Financial Collateral still 0%
- Receivables now 20%
- CRE / RRE now 20%
- Other Physical now 25%
- No more 30% minimum collateralisation requirements
- Grossing-up exposure values extended

Corporates & Retail AIRB - Unsecured

NEW ADD-ON COMPONENT

- LGD will be the sum of long-run average LGD for each exposure plus a downturn LGD add-on
- Downturn add-on is separately modelled and the committee may consider an additional floor; or supervisor specified add-on

Corporates & Retail AIRB - Partially or Fully Secured

NEW WEIGHTED AVERAGE FLOOR CALCULATION

- $Floor = LGD(u\ floor) \times \frac{E(u)}{E} + LGD(s\ floor) \times \frac{E(s)}{E}$
- Banks can still model LGD for fully or partially secured exposures, but a weighted average floor will be applied to internal modelled estimates
- This formula will not apply to mortgage portfolios.
- LGD (u) floor and LGD (s) floor are proposed in the document

Exposure AIRB – Collateral Not Modelled

NEW APPROACH FOR COLLATERAL EFFECT

- For AIRB exposures where unsecured is modelled and collateral not modelled, the committee to apply formula:
- $\text{LGD} = LGD(u) \times \frac{E(u)}{E\cdot(1+He)} + LGD(s) \times \frac{E(s)}{E\cdot(1+He)}$
- LGD (u) is modelled by the bank
- LGD (s) is determined as under the new FIRB approach

EAD Proposed Parameterization Changes

Exposures FIRB

UPDATED CCF DEFINITIONS

- Use updated CCF definitions in new SA approach

Corporates & Retail AIRB

NEW CONSTRAINTS

- Must not be subject to100% CCF under new SA approach
- Updated constraints and requirements on modelling EAD/CCF
- Clarifications on the definitions of 'commitment' and 'unconditionally cancellable'

Maturity (M) Proposed Parameterization Changes

Exposures FIRB

NOT CHANGED

- Remains at the fixed 2.5 year parameter under FIRB

Corporates & Retail AIRB

NEW CONSTRAINTS

- Based on the expiry date of the facility
- Use of repayment date on current drawdown prohibited

Credit Risk Mitigation (CRM) Proposed Parameterization Changes

Exposures FIRB

ONLY FULL SUBSTITUTION ALLOWED & NEW CONSTRAINTS

- For the covered portion of the exposure the PD of the guarantor replaces PD of the obligor
- Other options on PD replacement removed
- Double Default approach removed
- No more own estimates for collateral haircuts

Corporates & Retail AIRB

NEW CONSTRAINTS

- 'Conditional Guarantees' are now prohibited
- New definitions on 'Unconditional Guarantees' to remain eligible credit risk mitigants
- Double Default approach removed
- Only first-to-default derivatives will remain eligible

Potential Impacts on RWA Density

Illustrative Examples

FIRB Very Large Corporate Unsecured[1]

	EAD	M	PD[2]	LGD	RWA%	RWA $mn	Change in RWA Density %
Current	$1 bn	2.5 Years	.03%	45%	14.44%	$144 mn	38.47%
	EAD				RWA%[3]	RWA $mn	
Proposed	$1 bn				20.00%	$200 mn	

1. Assumption: total assets exceed EUR 50bn and thus the new standardized approach applies
2. Assumption: internal modeled PD is .03% which based on observed averages of internal modelled PD for HK bank's top two internal rating grades
3. Assumption: counterparty is externally rated AA- by a rating agency and thus the 20% Risk Weight applies as per the New SA CR approach

AIRB Very Large Corporate Unsecured

	EAD	M	PD	LGD[1]	RWA%	RWA $mn	Change in RWA Density %
Current	$1 bn	2.5 Years	.03%	30.00%	9.63%	$96 mn	107.70%
	EAD				RWA%[2]	RWA $mn	
Proposed	$1 bn				20.00%	$200 mn	

1. Assumption: internal modeled LGD is 30% which is based on observed averages of internal modelled LGD for HK bank's top two internal rating grades
2. Assumption: counterparty is externally rated AAA to AA- by a rating agency and thus the 20% Risk Weight applies as per the New SA CR approach

FIRB Corporate Partially Secured[1]

	EAD	M	PD[2]	LGD[3]	RWA%	RWA $mn	Change in RWA Density %
Current	$50 mn	2.5 Years	.03%	45.00%	14.44%	$7.2 mn	24.72%
	EAD	M	PD[2]	LGD[4]	RWA%	RWA $mn	
Proposed	$50 mn	2.5 Years	.050%	41.25%	18.01%	$9.0 mn	

1. Assumption: corporate meets the new threshold requirements to remain on FIRB
2. Assumption: internal modelled PD is .03% for top two internal rating grades, the new PD floor requirement is applied .05%
3. Assumption: minimum post haircut collateralization requirement of 30% under FIRB not met and thus the 45% unsecured LGD is applied
4. Assumption: LGD is calculated using the new proposed weighted average approach, supervisory haircut of 50% is applied on a 15mn CRE eligible collateral

AIRB Corporate Partially Secured[1]

	EAD	M	PD[2]	LGD[3]	RWA%	RWA $mn	Change in RWA Density %
Current	$50 mn	2.5 Years	.03%	30.00%	9.62%	$4.8 mn	36.05%
	EAD	M	PD[2]	LGD[3]	RWA%	RWA $mn	
Proposed	$50 mn	2.5 Years	.050%	30.00%	13.10%	$6.5 mn	

1. Assumption: corporate meets the new threshold requirements to remain on AIRB
2. Assumption: internal modelled PD is .03% for top two internal rating grades, the new PD floor requirement is applied .05%
3. Assumption: Internal modelled LGD is 30% (including downturn requirements), this is higher than the new weighed average LGD floor and thus 30% is applied

AIRB Bank Exposure

	EAD	M[1]	PD[2]	LGD[3]	RWA%	RWA $mn	Change in RWA Density %
Current	$50 mn	1.5 Years	.03%	30.00%	6.57%	$3.3 mn	204.30%
	EAD				RWA%[4]	RWA $mn	
Proposed	$50 mn				20.00%	$10 mn	

1. Assumption: Maturity modelled at 1.5 years
2. Assumption: internal modeled PD is .03% which based on observed averages of internal modelled PD for banks top two internal rating grades
3. Assumption: internal downturn LGD is estimated at 30.00%
4. Assumption: counterparty is externally rated AA- by a rating agency and thus the 20% Risk Weight applies as per the New SA CR approach

AIRB Mortgage[1]

	EAD	M	PD[2]	LGD	RWA%	RWA $mn	Change in RWA Density %
Current	$5 mn	-	.75%	11.00%	11.36%	$.567 mn	32.07%
	EAD				RWA%[3]	RWA $mn	
Proposed	$5 mn				15.00%	$750 mn	

1. Assumption: Residential Mortgage Loans (RML's)
2. Assumption: internal modeled PD is .75% which based on observed averages in the HK market for internal modelled PD for residential mortgages
3. HKMA required 15% Risk Weight Floor on all Residential Mortgage Loans due to be implemented by June 2016

Key challenges facing AIs

The changes proposed by the BCBS in its recent consultative paper should come as no surprise to AIs. There have been concerns that modelled IRB estimates for certain types of exposures may be unreliable, and cause the variation in RWA seen across banks and jurisdictions. Furthermore, in an attempt to limit any such variation, regulators have been quite adamant that RWA floors and model output floors will be part of the finalized approach.

However, an area of contention is on the aggregate IRB output floor, which is intended to prevent banks' IRB-modeled RWAs from dropping below a fixed percentage of the new standardized approach for credit risk. This most recent consultative paper mentions that the range could be calibrated anywhere between 60% to 90%. Given the potential capital impact, this is something that the industry will need to watch quite closely. Additionally, the proposed changes will likely reduce the incentives for banks to move to the more risk sensitive advanced approaches for credit risk capital measurement.

The BCBS proposal would eliminate IRB for low default and difficult to model portfolios. For middle market and SME type exposures the proposal still allows for the IRB approach, which is a relatively positive development. However, once the new rules come into effect, the AIs will still need to update processes, systems, models, and RWA engines. Given the many other credit related regulatory changes on the horizon (e.g. IFRS 9, SA-CR, SA-CCR, Large Exposure Management, etc.) there could be a crunch on resources and IT departments.

RWA and Capital impacts will vary widely from one asset class to another. In general, the biggest impact is likely to be on those asset classes for which use of IRB will be disallowed. To make the issue more complex, under the proposed approach, external ratings would be used to derive the risk weights for Large Corporates, banks, and other FIs. The issue in Asia is that not every corporate exposure may have an external rating from an external credit assessment institution (ECAI), and thus a 100% risk weight would be required. This may impact banks' incentives to model credit risk for these types of exposures.

The proposal also would change the credit valuation adjustment (CVA) risk framework, which is intended to measure counterparty credit risk. The proposal would eliminate the IMA approach for CVA, meaning banks must use either the SA-CVA or the BA-CVA approach. Furthermore, the BCBS paper retains the IMM-CCR but will now introduce a floor based on the new SA-CCR approach.

The BCBS intends to carry out a QIS in 2016 where they will test out all of the aforementioned floors and parameter changes. In particular, it was indicated the QIS will test:

- A higher LGD floor on residential mortgages (the current proposed floor is 10%)
- Appropriateness of a 0% LGD floor for exposures fully secured by financial collateral
- Considerations on appropriateness of overall calibrations and potential to cause incentive shifts
- Consistency of floors to ensure that they do not lead to significantly higher risk weights than under the standardized approach

AIs will need to put in place appropriate policies, procedures, processes and systems to ensure compliance with the new requirements.

Key impacted areas include:

Exposure Classification	Collateral Management	IRB Models	RWA Density	Internal Rating Systems	Regulatory Reporting

What AIs need to do now

In order to be well prepared for the expected introduction of the new IRB and new SA requirements for credit risk assets, AIs should consider performing the following tasks:

- Undertake an impact analysis to determine which portfolios and product types are likely to have the biggest RWA impacts; in particular exposures that are no longer permitted to use IRB and use SA
- Assess whether or not the AI should still consider building internal models and adopting IRB
- Perform a materiality assessment and review of all existing IRB portfolios and models to assess if any changes are needed on parameter estimations, modelling techniques, data preparation and data management, design of new models or validation of existing models
- Conduct a review of the current Collateral and CRM process to asses changes needed to process and systems, particularly for the newly required constraints, floors, and estimation approaches on LGD
- Conduct a review of the readiness for the new rules and prepare a transition plan to implement the proposed new requirements in order to better mitigate capital, business and operational impacts

How KPMG can assist

Our Financial Risk Management and Advisory teams are well placed to support AIs as they prepare for these new requirements, including:

- **Capital and RWA impact analysis**
- **PMO and staff secondments**
- **Data cleansing & standardisation**
- **Credit Risk RWA reviews & testing**
- **IFRS 9 Expected Credit Loss Modelling**
- **Validation of credit risk models**
- **Design and build of IRB risk models**
- **Assist preparation for internal models applications with HKMA**
- **Model review and verification analysis**
- **Design policies, procedures & internal controls for credit risk management**
- **Advise on credit risk data architecture & system design**
- **Training**

> ***"Given the number of credit risk related regulatory proposals banks are expected to implement in the near future, it is critical that AIs now start assessing the impact holistically for IFRS 9, New IRB, SA CCR, and SA CR."***

– Michael Monteforte, Director, Financial Risk Management Advisory

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