CONSULTATION PAPER

P008-2019

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Proposed Implementation of the Final Basel III Reforms in Singapore

Monetary Authority of Singapore

Contents

1 Preface

1.1 The Monetary Authority of Singapore (MAS) seeks feedback on proposed revisions to the risk-based capital requirements and leverage ratio requirements for Singapore-incorporated banks. The proposed revisions take into account the final Basel III reforms published by the Basel Committee on Banking Supervision (BCBS), namely:

(a) "Basel III: Finalising post-crisis reforms"[1], containing revised standards for credit risk, credit valuation adjustment, operational risk, output floor and the leverage ratio, published in December 2017; and

(b) "Minimum capital requirements for market risk"[2], published in January 2019.

1.2 The Basel III reforms improve the robustness and comparability of risk-based capital requirements across banks, including by:

(a) enhancing the risk sensitivity of the standardised approaches;

(b) constraining the use of internal model approaches, including introducing a revised output floor based on the revised standardised approaches; and

(c) enhancing the measurement of the leverage ratio.

1.3 MAS proposes to revise the capital requirements for Singapore-incorporated banks to align with the Basel III reforms, and to implement these revisions from 1 January 2022. MAS sets out its policy proposals for implementation of specific aspects of the Basel III reforms in this document.

1.4 MAS invites comments from Singapore-incorporated banks and other interested parties.

Please note that all submissions received will be published and attributed to the respective respondents unless they expressly request MAS not to do so. As such, if respondents would like:

(a) their whole submission or part of it (but not their identity), or

[1] BCBS' press release: https:/www.bis.org/press/p171207.htm

[2] BCBS' press release: https:/www.bis.org/press/p190114.htm

(b) their identity along with their whole submission,

to be kept confidential, please expressly state so in the submission to MAS. MAS will only publish non-anonymous submissions. In addition, MAS reserves the right not to publish any submission received where MAS considers it not in the public interest to do so, such as where the submission appears to be libellous or offensive.

1.5 Please submit written comments by 8 July 2019 to:

Prudential Policy Department
Monetary Authority of Singapore
10 Shenton Way, MAS Building
Singapore 079117
Fax: (65) 62203973
Email: prudential_policy_dept@mas.gov.sg

1.6 Electronic submission is encouraged. We would appreciate that you use this suggested format for your submission to ease our collation efforts.

2 Credit Risk

2.1 The computation of the risk-weighted assets of credit risk consists broadly of the standardised approach for credit risk (SA(CR)) and the internal ratings-based approach for credit risk (IRBA). The key changes of the Basel III reforms include enhancing risk sensitivity of the framework and reducing reliance on external credit ratings for the SA(CR), constraining estimation of risk parameters for IRBA, and restricting the use of the Advanced-IRBA.

2.2 MAS intends to adopt the revised credit risk framework[3], with the following proposals on the exercise of national discretions and other specific areas.

Scope of exposures to banks

2.3 Under MAS Notice 637, bank exposures are defined as exposures to any bank licensed under the Banking Act, any finance company licensed under the Finance Companies Act, and any entity which is regulated by a bank regulatory agency in a foreign jurisdiction to carry on banking business as defined in the Banking Act.

2.4 **MAS proposes to treat exposures to Singapore merchant banks[4] as exposures to banks**, as they meet the Basel requirement for bank exposures to be claims on financial institutions that are licensed to take deposits from the public, and are subject to appropriate prudential standards and level of supervision.

2.5 In addition, under the Basel III reforms, exposures to financial institutions may be treated as exposures to banks, provided that they are subject to prudential standards and a level of supervision equivalent to those applied to banks (including capital and liquidity requirements).

2.6 **MAS proposes to treat exposures to the following financial institutions as exposures to banks:**

[3] Certain national discretions and other portions of the credit risk framework are not revised under the Basel III reforms. For these areas, the corresponding provisions in MAS Notice 637 will continue to apply, unless a revision is proposed in this consultation paper.

[4] i.e. merchant bank approved under section 28 of the Monetary Authority of Singapore Act (Cap 186).

(a) any predominantly banking designated financial holding company under the Financial Holding Companies Act; and

(b) any securities firm or other financial institution in a foreign jurisdiction which:

(i) is treated as a bank for regulatory capital purposes in that foreign jurisdiction; and

(ii) the bank has assessed to be subject to prudential standards (including capital and liquidity requirements) equivalent to those applied to banks in that jurisdiction.

Question 1. MAS seeks comments on the proposal to include exposures to the following entities as exposures to banks:

(a) any Singapore merchant bank;

(b) any predominantly banking designated financial holding company under the Financial Holding Companies Act; and

(c) any foreign securities firm or other financial institution which:

(i) is treated as a bank for regulatory capital purposes in that foreign jurisdiction; and

(ii) the bank has assessed to be subject to prudential standards (including capital and liquidity requirements) equivalent to those applied to banks.

Risk-weighting for banks to be based on external ratings which incorporate implicit government support under the SA(CR)

2.7 Under the Basel III reforms, bank ratings must not incorporate assumptions of implicit government support[5], i.e. the notion that the government would act to prevent bank creditors from incurring losses in the event of default or distress. Where a rating which excludes implicit government support is unavailable, the bank exposure must be treated as unrated for risk-weighting purposes under the SA(CR). National supervisors may continue to allow banks to use external ratings which incorporate assumptions of implicit government support for up to a period of five years, from the date of implementation of the revised rules.

[5] Unless the rating refers to a public bank owned by its government.

2.8 **MAS proposes to exercise the national discretion to continue allowing banks to use external ratings which incorporate assumptions of implicit government support when the Basel III reforms are implemented in Singapore**. The bank rating methodologies of the three External Credit Assessment Institutions[6] recognised under MAS Notice 637 currently incorporate considerations of government support. Hence, formally-issued bank ratings which exclude implicit government support are not available currently. MAS will consult the industry on any reconsideration of the exercise of this national discretion, including where bank ratings excluding implicit government support become available.

Question 2. MAS seeks comments on the proposal to continue allowing banks to use external ratings which incorporate assumptions of implicit government support for the purpose of risk-weighting bank exposures under the SA(CR).

New asset class thresholds for corporate exposures

2.9 The Basel III reforms remove the use of the Advanced-IRBA for asset classes which, in the BCBS' consideration, cannot be modelled in a robust and prudent manner. This includes exposures to large corporates exceeding a threshold based on the total consolidated annual revenues of the group to which the corporate belongs ("large corporate threshold").

2.10 **MAS proposes to set the large corporate threshold in MAS Notice 637 at S$750 million[7].** As the reporting currency and the majority of the credit risk exposures of the banks are denominated in Singapore dollars, setting credit risk asset class thresholds in Singapore dollar terms will minimise undue re-classification of exposures due to currency movements.

2.11 Under the SA(CR), the Basel III reforms also introduce a threshold for corporate small- and medium-sized entities (SMEs) based on the consolidated annual sales of the group to which the corporate SME belongs. Unrated exposures to corporate SMEs will be assigned an 85% risk weight, instead of the 100% risk weight for unrated exposures to corporates. This new threshold under the SA(CR) is aligned to the existing threshold used

[6] Fitch Ratings, Moody's Investor Services and Standard & Poor's Ratings Services.

[7] MAS may adjust this threshold if there are significant changes in the EURSGD exchange rate before the finalisation of the revisions to MAS Notice 637.

under the IRBA to distinguish exposures to corporate SMEs, which are subject to lower capital requirements through the firm-size adjustment to the corporate risk weight formula.

2.12 **MAS proposes to set the corporate SME threshold under the SA(CR) at S$100 million**. This is consistent with the existing corporate SME threshold under the IRBA in MAS Notice 637.

> **Question 3.** MAS seeks comments on the proposal to:
> (a) set the new large corporate asset class threshold at S$750 million; and
> (b) set the new corporate SME threshold under the SA(CR) at S$100 million.

Firm-size adjustment for corporate SMEs under the IRBA

2.13 Under the Basel framework, IRBA exposures to corporate SMEs are subject to lower capital requirements through the firm-size adjustment to the corporate risk weight formula. MAS Notice 637 similarly provides for this treatment under the IRBA for corporate SMEs, which are determined by whether the consolidated group of which the entity is a part has reported annual sales of less than S$100 million.

2.14 **MAS proposes to allow banks to substitute total assets for total sales in calculating the corporate SME threshold for the application of the firm-size adjustment under the IRBA, in cases where total sales are not a meaningful indicator of firm size.** This implements a national discretion provided for under the Basel framework. For instance, the use of total assets may be more appropriate for entities with zero reported sales figures, such as personal investment companies and investment holding companies.

2.15 **The use of total assets will be conditional on the bank having in place policies that have been approved in writing by MAS**, setting out the circumstances or types of entities where the use of total assets is more appropriate than total sales to determine an entity's size. A bank must apply the total assets metric consistently for those types of entities identified in the policies.

> **Question 4.** MAS seeks comments on the proposal to allow banks to substitute total assets for total sales in calculating the corporate SME threshold for the application of the firm-size adjustment under the IRBA, in cases where total sales are not a meaningful indicator of firm size. This is conditional on the bank having in place policies that have been approved in writing by MAS, and the bank applying the total assets metric consistently for those types of entities identified in the policies.

Approach for risk-weighting exposures secured by Residential Real Estate (RRE) and Commercial Real Estate (CRE) under the SA(CR)

2.16 The Basel III reforms require an exposure secured by RRE or CRE under the SA(CR) to be risk-weighted based on whether the exposure meets certain operational requirements, and whether the prospects for servicing the loans are materially dependent on the cash flows generated by the property securing the exposure rather than the independent capacity of the borrower from other sources ("materially dependent exposure"). For an exposure that meets the operational requirements and is not a materially dependent exposure, the risk weight depends on the loan-to-value ratio of the exposure as set out in risk weight tables, and applies to the entire amount of the exposure[8].

2.17 As an alternative to applying the risk weight tables[9], national supervisors have the discretion to require banks to split the amount of exposure into two parts and apply different risk weights to each part. In particular, a fixed risk weight is applied to the part of the exposure amount up to a certain proportion of the property value underlying the exposure, while the risk weight of the counterparty is applied to the residual part of the exposure amount.

2.18 **MAS proposes to require banks to risk-weight such RRE and CRE exposures based on the loan-to-value ratio of the exposure, and apply the risk weight to the entire amount of the exposure, i.e. not to exercise the national discretion to apply the alternative approach for risk-weighting such RRE and CRE exposures.** This reflects the view that each exposure should be treated as a whole loan, and is consistent with the current approach adopted in MAS Notice 637 for risk-weighting residential mortgage exposures.

Question 5. MAS seeks comments on the proposal to require banks to risk-weight RRE and CRE exposures (that meet operational requirements and are not materially

[8] Specified in paragraphs 64 and 70 of the standardised approach for credit risk text of "Basel III: Finalising post-crisis reforms" published by the BCBS in December 2017.

[9] The alternative approach for an exposure secured by RRE and CRE is specified in paragraphs 65 and 71 of the standardised approach for credit risk text of "Basel III: Finalising post-crisis reforms" published by the BCBS in December 2017.

dependent exposures) based on the loan-to-value ratio of the exposure and apply the risk weight to the entire amount of the exposure.

Treatment of Under Construction Residential Real Estate (RRE) under the SA(CR)

2.19 Under the Basel III reforms, the property securing an RRE exposure must be fully completed for the exposure to meet the operational requirements. For an exposure to an individual secured by RRE under construction or land upon which RRE would be constructed, national supervisors may apply the risk weights assuming the operational requirements are met (as specified in paragraph 64 of the standardised approach for credit risk text)[10], provided that:

(a) the sovereign or public sector entities involved have the legal powers and ability to ensure that the property under construction will be finished; or

(b) the property is a one-to-four family residential housing unit that will be the primary residence of the obligor and the exposure is not, in effect, indirectly financing Land, Acquisition, Development and Construction (ADC)[11] exposures.

2.20 **MAS proposes to exercise the national discretion to apply the relevant risk weights specified in paragraph 64 of the standardised approach for credit risk text for:**

(a) **an exposure to an individual secured by RRE under construction or land upon which RRE would be constructed in Singapore for:**

(i) Housing and Development Board flats[12];

(ii) RRE with more than 4 units i.e. covered under the Housing Developers (Control & Licensing) Act; and

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[10] This national discretion is applicable only for an RRE exposure, that is not a materially dependent exposure, to an individual. The relevant risk weights are set out in paragraph 64 of the standardised approach for credit risk text of "Basel III: Finalising post-crisis reforms" published by the BCBS in December 2017.

[11] An exposure to ADC is described in paragraph 74 of the standardised approach for credit risk text of "Basel III: Finalising post-crisis reforms" published by the BCBS in December 2017.

[12] For the purpose of applying this national discretion, an exposure to an individual secured by RRE which are Executive Condominiums (EC) and Design, Build and Sell Scheme (DBSS) flats are included.

(iii) **RRE that will be the primary residence of the obligor, with four or fewer units; and**

(b) **an exposure to an individual secured by RRE under construction or land upon which RRE would be constructed in a foreign jurisdiction, where approved by MAS on an exceptional basis.** This is consistent with the current treatment under MAS Notice 637 for residential mortgages secured by uncompleted residential properties in a foreign jurisdiction.

Question 6. MAS seeks comments on the proposal to exercise the national discretion for an exposure secured by RRE under construction or land upon which RRE would be constructed as set out in paragraph 2.20.

Valuation of Real Estate exposures under the SA(CR)

2.21 The Basel III reforms require that for the computation of the loan-to-value ratio for an RRE exposure or CRE exposure applied in risk-weighting, the value of the property must be maintained at the value measured at origination. National supervisors may require banks to revise the property value downwards, with any subsequent upward adjustments capped at the value measured at origination.

2.22 Currently, MAS Notice 637 requires banks to calculate the loan-to-value ratio as at the origination of the exposure and on an ongoing-basis thereafter for an exposure under the residential mortgage asset class under the SA(CR).

2.23 **MAS proposes to require banks to use the property value measured at origination for the computation of the loan-to-value ratio and to revise the property value downwards to reflect property valuations, and to cap any subsequent upward adjustments at the value measured at origination.** This approach is prudent and risk-sensitive, and is consistent with the Basel III reforms.

Question 7. MAS seeks comments on the proposal to exercise the national discretion to require banks to revise the property value downwards to reflect property valuations, and to cap any subsequent upward adjustments at the value measured at origination.

Determination of whether exposures secured by RRE and CRE are considered materially dependent on the cash flows generated by the property securing the loan under the SA(CR)

2.24 One key determinant for the risk weight of an exposure secured by RRE or CRE is whether the exposure is a materially dependent exposure.[13] The Basel III reforms provide several national discretions relating to the interpretation of whether an exposure should be treated as a materially dependent exposure.

2.25 The Basel III reforms require an exposure secured by income-producing RRE to an individual who has mortgaged more than a certain number of units to be treated as a materially dependent exposure. **MAS proposes to require banks to treat an exposure secured by income-producing RRE to an individual with mortgages on more than two income-producing RRE units with the bank as a materially dependent exposure.** For such an individual, the bank must treat all exposures secured by income-producing RRE as materially dependent exposures, including the first two exposures secured by income-producing RRE. An exposure secured by RRE to an individual where the individual is an owner-occupier of the property is treated as a non-materially dependent exposure.

2.26 **For an exposure secured by CRE, MAS proposes to require a bank to apply the risk weight for materially dependent exposures, where the servicing of the loan materially depends on the cash flows generated by the CRE portfolio owned by the obligor[14].** Assessing material dependence based on the CRE portfolio owned by the obligor addresses the risk that a property downturn may impair the obligor's ability to service the exposure if most of the obligor's income is derived from the cash flow generated by the portfolio of CRE.

2.27 **However, where the CRE portfolio owned by the obligor is sufficiently diversified, banks may exclude the cash flow generated by the CRE portfolio in the assessment of whether an exposure is a materially dependent exposure.** The risk characteristics of cash flow generated by the portfolio of CRE owned by an obligor

[13] An example provided in the Basel III reforms is that where more than 50% of the income used in the bank's assessment of the obligor's ability to service the loan is from cash flows generated from the underlying property, the exposure may be considered as a materially dependent exposure.

[14] This assessment based on the portfolio of CRE properties is additional to the assessment of whether an exposure secured by a CRE is considered a materially dependent exposure based on the cash flows generated by the underlying property of that exposure.

depends on the nature and composition of the properties within the portfolio, and a diversified portfolio may result in relatively stable cash flows. The bank is required to set internal policies to assess whether the cash flows generated by the portfolio of CRE owned by the obligor is sufficiently diversified and stable for the servicing of the obligor's loan. The bank should consider factors affecting the diversification of properties within the portfolio, including the type and geographic location of the properties.

Question 8. MAS seeks comments on the proposals to require banks to:

(a) treat an exposure secured by income-producing RRE to an individual with mortgages on more than two income-producing RRE units with the bank as a materially dependent exposure; and

(b) apply the risk weight for materially dependent exposures, where the servicing of the loan materially depends on the cash flows generated by the CRE portfolio owned by the obligor, except where the CRE portfolio owned by the obligor is sufficiently diversified.

Land acquisition, development and construction (ADC) exposures to RRE subject to a risk weight of 100% under the SA(CR)

2.28 The Basel III reforms require ADC exposures to be risk-weighted at 150%, other than ADC exposures to RRE which meet certain operational requirements, where the pre-sale or pre-lease contracts amount to a significant portion of total contracts or substantial equity at risk.

2.29 **MAS proposes to allow banks to apply a risk weight of 100% to an ADC exposure to RRE where the loan-to-value ratio is less than or equal to 80% (i.e. the equity at risk is more than 20%).** The computation of the loan-to-value ratio for this purpose is to be based on the gross development value of the development derived from a formal valuation by an independent accredited valuer.

Question 9. MAS seeks comments on the proposal for an ADC exposure to RRE to be subject to a risk weight of 100%.

Scope of residential mortgage asset sub-class under the IRBA

2.30 Similar to the SA(CR) under the Basel III reforms, the rules under IRBA allow national supervisors to exclude from the residential mortgage asset sub-class an exposure secured by income-producing RRE, where the exposure is to an individual who has mortgaged more than a certain number of units. Such an exposure must instead be classified under the corporate asset sub-class.

2.31 **To be aligned with the proposal under the SA(CR), MAS proposes to require banks to classify an exposure secured by income-producing RRE to an individual with mortgages on more than two income-producing RRE units with the bank under the corporate asset sub-class.** For such an individual, a bank must classify all exposures secured by income-producing RRE under the corporate asset sub-class, including the first two exposures secured by income-producing RRE. An exposure secured by RRE to an individual where the individual is an owner-occupier of the property is classified under the residential mortgage asset sub-class.

Question 10. MAS seeks comments on the proposal to require banks to classify an exposure secured by income-producing RRE to an individual with mortgages on more than two income-producing RRE units with the bank under the corporate asset sub-class.

LGD floor for exposures in the residential mortgage asset sub-class under the IRBA

2.32 Under MAS Notice 637, an exposure under the residential mortgage asset sub-class under the IRBA is currently subject to an LGD floor of 10%, applied at each sub-segment of exposures. Under the Basel III reforms, the LGD floor is set at 5%, applied at the individual exposure level.

2.33 **MAS proposes to retain the LGD floor at 10%, to be applied at the individual exposure level.** The LGD floor of 10% is more prudent, and serves to sustain banks' resilience to risks arising from the property market. Furthermore, the application at the individual exposure level is aligned with other LGD parameter floors under the Basel III reforms.

Question 11. MAS seeks comments on the proposal to retain the LGD floor at 10%, to be applied at the individual exposure level.

Phase-in arrangement for equity risk weights

2.34 The Basel III reforms removed the use of IRBA for exposures to equities. Under the SA(CR), banks will be required to apply risk weights of 400% to speculative unlisted equity exposures, and 250% to all other equity exposures.

2.35 **MAS proposes to adopt the BCBS' phase-in arrangement for the new equity risk weights under the SA(CR)**, as set out in the table below:

With effect from	1 Jan 2022	31 Dec 2022	31 Dec 2023	31 Dec 2024	31 Dec 2025	31 Dec 2026
Speculative unlisted equity exposures	100%	160%	220%	280%	340%	400%
All other equity exposures	100%	130%	160%	190%	220%	250%

Question 12. MAS seeks comments on the proposal to adopt the BCBS' phase-in arrangement for the new equity risk weights under the SA(CR).

Definition of commitments under the SA(CR) and the IRBA

2.36 The Basel III reforms introduce a new definition of commitment: any contractual arrangement that has been offered by the bank and accepted by the client to extend credit, purchase assets or issue credit substitutes. It captures arrangements that can be unconditionally cancelled by the bank at any time without prior notice to the obligor, as well as arrangements that can be cancelled by the bank if the obligor fails to meet conditions set out in the facility documentation, including conditions that must be met by the obligor prior to any initial or subsequent drawdown under the arrangement.

2.37 **MAS proposes to adopt the new definition of commitment in full.** The new definition will replace the existing provisions in MAS Notice 637, which state that "commitments should be recognised by a Reporting Bank, and recorded as an exposure for regulatory capital purposes, on the date at which the loan contract or agreement is entered into by the Reporting Bank", as they are essentially the same.

2.38 The Basel III reforms allow national supervisors to exempt from the definition certain arrangements for corporates and corporate SMEs, where such counterparties are closely monitored on an ongoing basis, provided that the following conditions are met:

(a) the bank receives no fees or commissions to establish or maintain the arrangements;

(b) the client is required to apply to the bank for the initial and each subsequent drawdown;

(c) the bank has full authority over the execution of each drawdown, regardless of fulfilment by the client of the conditions set out in the facility documentation; and

(d) the bank's decision on the execution of each drawdown is only made after assessing the creditworthiness of the client immediately prior to drawdown.

2.39 **MAS proposes to exercise the national discretion to exempt certain arrangements for corporates and corporate SMEs from the definition of commitments, where such arrangements are closely monitored on an ongoing basis and meet the four conditions.**

> **Question 13.** MAS seeks comments on the proposal to adopt the new definition of commitments in full, including exercising the national discretion to exempt certain arrangements for corporates and corporate SMEs which meet the above four conditions.

Eligible protection providers

2.40 The Basel III reforms expand the list of eligible protection providers for credit risk mitigation purposes to include prudentially regulated financial institutions, i.e. a legal entity supervised by a regulator that imposes prudential requirements consistent with international norms.

2.41 **MAS proposes to include as eligible protection providers**:

(a) any entity holding a capital markets services licence under the Securities and Futures Act, except entities that provide credit rating services and venture capital fund managers;

(b) any entity licensed to carry on insurance business under the Insurance Act;

(c) any qualifying CCP, i.e. one which meets the requirements set out in paragraph 1.2 of Annex 7AJ of MAS Notice 637; and

(d) any securities firm or insurance company in a foreign jurisdiction which the bank has assessed to be subject to prudential regulation in line with international norms.

2.42 In addition, **MAS proposes to include as eligible protection providers the entities mentioned in paragraphs 2.4 and 2.6, i.e. any entity to which an exposure of the bank would be treated as a bank exposure.**

Question 14. MAS seeks comments on the proposal to include as eligible protection providers:

(a) any entity holding a capital markets services licence under the Securities and Futures Act, except entities that provide credit rating services and venture capital fund managers;

(b) any entity licensed to carry on insurance business under the Insurance Act;

(c) any qualifying CCP, i.e. one which meets the requirements set out in paragraph 1.2 of Annex 7AJ of MAS Notice 637;

(d) any securities firm or insurance company in a foreign jurisdiction which the bank has assessed to be subject to prudential regulation in line with international norms; and

(e) any entity to which an exposure of the bank would be treated as a bank exposure.

3 Market Risk

3.1 Market risk capital requirements are currently calculated using either the standardised approach for market risk (SA(MR)) or the internal models approach for market risk (IMA).

3.2 The key changes of the Basel III reforms include:

(a) fundamentally revising the SA(MR) and the IMA to improve risk sensitivity and to address weaknesses observed in the crisis; and

(b) introducing a simplified standardised approach for market risk (Simplified SA) for banks with small and simple market risk portfolios.

3.3 MAS intends to adopt the revised market risk framework, with the following proposals on the exercise of national discretions.

Default Risk Charge under Revised SA(MR)

3.4 One component of capital requirements under the revised SA(MR) is the default risk charge, which addresses the jump-to-default risk of issuers of credit and equity instruments held in the trading book.

3.5 The revised SA(MR) includes a national discretion to allow claims on sovereigns, public sector entities (PSEs) and multilateral development banks (MDBs) that would receive a 0% risk weight under the revised SA(CR) if they were held in the banking book, to be subject to a 0% default risk weight when computing the default risk capital requirements.

3.6 **MAS proposes to exercise this national discretion to assign a 0% default risk weight to claims on sovereigns, PSEs and MDBs that would receive a 0% risk weight under the revised SA(CR) when computing the default risk capital requirements**[15]. As default risk is fundamentally credit risk, a claim in the banking book that would receive a 0% credit risk weight under the revised SA(CR) should similarly receive a 0% default risk charge if held in the trading book instead.

Question 15. MAS seeks comments on the proposal to exercise the national discretion to assign a 0% default risk weight under the revised SA(MR) to claims on sovereigns, PSEs and MDBs that would receive a 0% risk weight under the revised SA(CR).

Use of the Simplified SA

3.7 The BCBS developed the Simplified SA as a version of the current SA(MR) that is recalibrated by applying multipliers to capital requirements calculated under each risk class[16]. MAS will implement the Simplified SA by applying the BCBS-prescribed multipliers to the version of the SA(MR) currently implemented in MAS Notice 637.

3.8 **MAS proposes to permit banks that maintain small and simple market risk portfolios to use the Simplified SA upon approval by MAS, and for the size and**

[15] MAS does not propose changes to the scope of claims on sovereigns, PSEs and MDBs that would receive a 0% risk weight under the revised SA(CR) from that in the current SA(CR).

[16] The multipliers will be 1.3 for the interest rate risk class, 3.5 for the equity risk class, 1.9 for the commodity risk class, and 1.2 for the foreign exchange risk class.

complexity of a bank's trading book portfolio to be assessed on the following considerations:

(a) the bank's market RWA, both in absolute terms and as a proportion of the bank's total RWA, compared to other Singapore-incorporated banks;

(b) the complexity of market risk exposures undertaken by the bank[17];

(c) whether the bank is designed as a global systemically important bank at the Singapore-incorporated bank's level of consolidation;

(d) whether the bank or any of its subsidiaries use the IMA to determine capital requirements for any trading desks; and

(e) whether the bank or any of its subsidiaries hold any correlation trading positions.

3.9 MAS will also reserve the right to revoke approval for a bank to use the Simplified SA, where the bank's market risk portfolio grows in size and complexity.

Question 16. MAS seeks comments on its proposed considerations in assessing whether to grant approval for a bank to use the Simplified SA.

4 Operational Risk

4.1 The Basel III reforms introduce a revised standardised approach as the sole approach for calculating operational risk capital requirements. This replaces all the current approaches for operational risk capital requirements, including the model-based advanced measurement approach. The revised standardised approach is based on the following components: (a) the Business Indicator Component (BIC), which is calculated by multiplying the Business Indicator (BI) by a set of marginal coefficients[18]; and (b) the Internal Loss Multiplier (ILM), which is a scaling factor that is based on a bank's average

[17] For example, whether the bank is exposed to significant non-linear risks arising from options, especially from exotic options.

[18] The BI marginal coefficients are: 12% for the first bucket with a BI less than or equal to S$1.5 billion; 15% for the second bucket with BI more than S$1.5 billion but less than or equal to S$45 billion; and 18% for the third bucket with BI more than S$45 billion. MAS may adjust the BI ranges if there are significant changes in the EURSGD exchange rate before the finalisation of the revisions to MAS Notice 637.

historical losses and the BIC. The minimum operational risk capital is calculated by multiplying the BIC and the ILM.

4.2 MAS intends to adopt the revised operational risk framework, with the following proposals on the exercise of national discretions.

Use of historical loss data for capital calculation

4.3 National supervisors have the discretion to exclude internal loss data in the capital calculation and instead set the operational risk capital requirement equal to the BIC. **MAS proposes not to implement the loss component in the calculation of the operational risk capital charge (i.e., ILM is set to one) for all banks.**

4.4 This reflects the view that operational loss history is not a good proxy for future operational losses. History losses do not capture evolving risks, and do not take into account mitigating measures implemented by a bank subsequent to an operational risk event. MAS may impose supervisory measures under Pillar 2 which can be better targeted to address any operational risk management concerns.

> **Question 17.** MAS seeks comments on the proposal to exclude internal loss data in the capital calculation, and to set the operational risk capital requirement equal to the BIC.

Loss data standards

4.5 The Basel standards require all banks with a BI greater than €1 billion, or which use internal loss data in the calculation of operational risk capital, to disclose their annual loss data for each of the ten years in the ILM calculation window. This includes banks in jurisdictions that have opted to set ILM equal to one.

4.6 **MAS proposes to require all banks with a BI greater than S$1.5 billion to disclose[19] their annual loss data, and meet the loss data standards set out under the**

[19] The disclosure requirements, "Pillar 3 disclosure requirements – updated framework" published by the BCBS in December 2018 can be found at https://www.bis.org/bcbs/publ/d455.pdf. MAS will consult on the disclosure requirements on a later date.

Basel III reforms[20]. The loss data standards ensure better quality Pillar 3 disclosure by enhancing the quality and integrity of the data.

Question 18. MAS seeks comments on the proposal to require all banks with a BI greater than S$1.5 billion to disclose their annual loss data and meet the minimum loss data standards.

5 Output Floor

5.1 Under the Basel III reforms, banks are subject to an output floor based on the standardised approaches that is applied to total risk-weighted assets. The output floor will help to reduce excessive variability of risk-weighted assets and enhance the comparability of risk-weighted capital ratios by ensuring that banks' capital requirements do not fall below a certain percentage of capital requirements under standardised approaches.

5.2 The approach for calculating the risk-weighted assets for capital requirements is the higher of: (a) the total risk-weighted assets computed using the bank's supervisory approved approaches (including both standardised and internally-modelled based approaches); and (b) 72.5% of the total risk-weighted assets computed using only the standardised approaches. When the latter, also referred to as the output floor, is higher than the former, it is used to determine the bank's capital requirements.

Output floor phase-in arrangements

5.3 **MAS proposes to adopt the BCBS' phase-in arrangement for the output floor calibration**, as set out in the table below:

With effect from	1 Jan 2022	1 Jan 2023	1 Jan 2024	1 Jan 2025	1 Jan 2026	1 Jan 2027
Output floor calibration	50%	55%	60%	65%	70%	72.5%

[20] Paragraphs 19 to 31 of the operational risk text of "Basel III: Finalising post-crisis reforms" published by the BCBS in December 2017.

5.4 Further, the Basel III reforms provide national supervisors the discretion to cap a bank's total RWA resulting from the application of the floor (floored RWA) at 125% of the bank's total RWA before the application of the floor.

5.5 **MAS proposes not to exercise this national discretion to cap banks' floored RWAs**, as the phase-in floor calibration is expected to be sufficient for banks to make the transition.

Question 19. MAS seeks comments on the proposal to:
(a) adopt the BCBS' phase-in arrangement for the output floor calibration; and
(b) not exercise the national discretion to cap floored RWAs at 125% of RWAs before the application of the floor.

6 Leverage Ratio

6.1 The leverage ratio of a bank is currently calculated as the bank's Tier 1 capital divided by the bank's exposure measure, expressed as a percentage, as set out in the "Basel III leverage ratio framework and disclosure requirements" published by the BCBS in January 2014. MAS requires Singapore-incorporated banks to meet a minimum leverage ratio requirement of 3%, at both bank-group and bank-solo levels, consistent with the Basel standards. The minimum leverage ratio requirement acts as a simple, transparent, non-risk based supplementary measure to the risk-based capital requirements, to constrain banks from undertaking excessive leverage.

6.2 The Basel III reforms included refinements to the definition of the leverage ratio exposure measure, to improve its capture of exposure and consistency with the risk-based framework. MAS proposes to align with the Basel III reforms with the following proposals for the implementation of specific aspects.

Measurement of derivative exposures

6.3 Under the Basel III reforms, derivative exposures are measured by applying a modified version of the standardised approach for measuring counterparty credit risk exposures (SA-CCR), to remove recognition of credit risk mitigation (referred to as the modified SA-CCR).

6.4 **MAS proposes to require derivative exposures to be measured in the leverage ratio exposure measure using the modified SA-CCR, from 1 January 2022.** This will harmonise the measurement of derivative exposures between the leverage ratio and the risk-based framework, which will improve the effectiveness of the leverage ratio as a backstop to the risk-based capital requirements.

6.5 **MAS also proposes to allow banks the option to adopt the modified SA-CCR for the calculation of their leverage ratio earlier than 1 January 2022, conditional on their simultaneous or prior adoption of the SA-CCR under the risk-based framework**[21]**.** This would allow banks to avoid the operational cost of maintaining two parallel systems for measuring derivative exposures (i.e. SA-CCR for risk-based framework, CEM for leverage ratio) in the interim period prior to 1 January 2022.

Question 20. MAS seeks comments on:

(a) the proposed requirement for derivative exposures to be measured in the leverage ratio exposure measure using the modified SA-CCR from 1 January 2022; and

(b) the proposed option for banks to adopt the modified SA-CCR earlier than 1 January 2022.

Treatment of Cash Pooling Arrangements

6.6 Cash pooling arrangements involve treasury products whereby a bank combines the credit and/or debit balances of multiple participating accounts into a single balance[22]. Balances of the participating accounts may be physically pooled into a single master account periodically.

6.7 The current definition of the leverage ratio exposure measure in MAS Notice 637 does not specify how a bank's exposure to cash pooling transactions should be calculated (i.e. on a gross basis or a net basis). **MAS proposes to provide that the calculation of exposures to cash pooling transactions may be calculated on a net basis where the following conditions are met, otherwise the exposures shall be calculated on a gross basis**:

[21] This means that a Singapore-incorporated bank that has yet to adopt the SA-CCR under the risk-based framework (i.e. still relying on the transitional arrangements under Section 5 of Annex 7O of MAS Notice 637) shall not be allowed to adopt the modified SA-CCR under the leverage ratio prior to 1 January 2022.

[22] This product is typically offered to corporate groups to facilitate liquidity management across multiple entities.

(a) the balances of the participating accounts are physically pooled into a single account at least daily; or

(b) all the following conditions are met:

(i) the bank has a legally enforceable right to physically pool the individual balances of participating account into a single account, and the bank has the discretion and is in a position to exercise this right at any time;

(ii) the bank is not liable for the balances of any participating account on an individual basis;

(iii) there are no maturity mismatches among the individual account balances, unless the balances of all participating accounts in the transaction are overnight or on demand;

(iv) the bank charges or pays interest and/or fees based only on the net balance of all participating accounts in the transaction; and

(v) the bank notifies MAS of the frequency of physical pooling of individual balances of participating accounts, and MAS does not deem this frequency as inadequate.

6.8 MAS also welcomes comments on current market practices of the frequency of physical pooling in cash pooling transactions, including how this frequency is influenced by accounting practices.

Question 21. MAS seeks comments on the proposed calculation of exposures to cash pooling transactions in the leverage ratio exposure measure.

Annex A

LIST OF QUESTIONS

Monetary Authority of Singapore