

Good practices on market risk capital charge calculation and related risk management

HKMA completed a round of thematic reviews of AIs regarding their market risk capital charge (MRCC) calculation and the related risk management practices for the implementation of the Basel III final reform package (B3F). The reviews focused on how the AIs identified and measured residual risk add-on (RRAO) and standardized default risk charge (SA-DRC), and the associated controls to ascertain the completeness and accuracy of their MRCC calculation under the revised standards. This annex summarises the good practices and approaches that the HKMA observed from the reviews. AIs should review their MRCC calculation processes and market risk management frameworks in the light of these good practice and observations, and take steps to enhance them where appropriate.

I. New product approval process embedding MRCC

Key observations

Having a robust new product approval process (NPAP) is essential for an AI to identify and manage the risks associated with trading and holding financial instruments. All of the reviewed AIs have included evaluation of MRCC in their NPAP, and a number of them have showcased their proactive approach to risk management by updating such process timely to reflect the revised market risk capital standards under the B3F.

Good practices

1. *Comprehensive new product assessment* – Along the implementation of the B3F, some AIs have developed new assessment templates setting out clearly all the areas that need to be evaluated for a new product. These templates have enabled the AIs to have a consistent and systematic approach to risk assessment in their NPAP. In the context of MRCC calculation, these templates have incorporated specific assessment items corresponding to the revised standards such as risk classes, risk factors and sensitivities applicable to a new product, facilitating a thorough analysis hence robust calculation of the sensitivity-based method (SBM) capital charge under the B3F. As for the RRAO and SA-DRC, these templates also prescribed an evaluation of whether these capital charges would be applicable to a new product, and if so, how the relevant parameters would be determined in the case of RRAO. By using these templates, the AIs could reasonably assure themselves that all relevant aspects of MRCC have been considered in the NPAP.

II. Granular product taxonomy

Key observations

To support effective risk management and oversight, AIs use some form of product taxonomy to systematically classify financial instruments into different categories based on an array of considerations, such as risk class, instrument type and pricing

model used. The granularity and sophistication of the AIs' taxonomies ranged from a basic listing of the instruments that have been permitted for trading after going through the NPAP, to more comprehensive ones with detailed tagging of MRCC for each permitted instrument.

Product taxonomies need to be maintained and properly updated so that they would remain relevant and effective for risk management purposes. Most AIs have established policies and procedures for updating their taxonomies upon approval for a new product. Some AIs have also put in place frameworks for conducting regular reviews to verify the accuracy and ongoing appropriateness of their taxonomies having regard to changes that may affect the details of the taxonomies, such as the availability of new market data, advancements in modelling capabilities and modifications to regulatory requirements.

Good practices

2. *Well-structured taxonomy* – Many AIs have established well-structured product taxonomies with clear mapping of each permitted instrument to risk classes, risk factors, pricing models and various types of MRCC. Some AIs have taken this step further by including detailed mapping to RRAO risk weights in their taxonomies, along with explanations for the assigned risk weights. This level of granularity has not only supported the identification of gaps and inconsistencies in risk assessment amongst different instruments, but also served as a useful tool for verifying the completeness of MRCC calculation.
3. *Dynamic taxonomy* – While many AIs updated their taxonomies manually, several AIs have adopted a dynamic approach where the classification of instruments would be automatically performed and updated based on outputs of valuation and risk models. This approach has enabled the AIs to maintain more accurate and up-to-date taxonomies. These AIs have also reviewed and tested the automated classification processes regularly with a view to preserving the integrity and effectiveness of the taxonomies.

III. Robust proxy booking management

Key observations

AIs are generally expected to record transactions and price the relevant instruments based on their specific contractual terms. However, there may be cases where AIs would need to adopt “proxy booking” to cope with limitations on pricing models or market data, i.e. booking (and pricing) instruments that have contractual terms similar but not identical to those specified in the transaction term sheet. This practice may include the use of simplified payoff structures (e.g. for exotic derivatives), or substituting illiquid or unobservable model input parameters with alternatives for which market data are more readily available. Most AIs conducted analyses to substantiate the need for proxy booking and the chosen methods.

Good practices

4. *Comprehensive assessment and documentation* – The HKMA observed good

practices amongst the reviewed AIs which had incorporated comprehensive assessment of pricing model capability and data availability into their NPAP for determining whether proxy booking would be required for a new product. Should proxy booking was deemed necessary, these AIs conducted detailed analyses and tests to evaluate suitability of various potential proxy methods such that the selected approach could adequately capture the risks associated with the product. Some AIs also analysed the impact of the chosen method on the MRCC for the instrument. These analyses, together with the assumptions and rationale behind the selection, have been clearly documented.

5. *Conservative approach to MRCC calculation* – The use of proxy booking and the choice of proxy method for an instrument may present challenges to an AI in ascertaining whether the resulting MRCC is sufficient. This is because certain risks associated with the instrument may have been very difficult to capture or overlooked in the process, thereby leading to underestimation of the MRCC¹. Several AIs have adopted good practices to address this risk by conducting detailed analyses to assess the adequacy of their proxy methods (e.g. by comparing with other methods or changing the underlying assumptions), and applying conservative manual adjustments or add-ons to their MRCC as appropriate in order to satisfy themselves that the chosen approach was robust and the resulting MRCC was sufficient.
6. *Ongoing monitoring and review* – The need for proxy booking or the suitability of a selected proxy method for an instrument may change as an AI's pricing model capability improves or market conditions evolve. A key good practice observed amongst the reviewed AIs is their commitment to undertaking regularly evaluation of such need, and if so, the suitability of the chosen methods. As part of this regular exercise, some AIs also explored alternative methods which might provide a more accurate representation of risks and result in a more prudent MRCC for the instrument having regard to the latest market conditions. This ongoing oversight has enabled the AIs to assure themselves that their approach remained effective and appropriate over time.

¹ For instance, plain forwards are commonly used as the proxy in determining the risks hence MRCC for flexible forwards (i.e. forwards with time options). Since plain forwards do not have optionality, the vega and curvature risks associated with flexible forwards cannot be captured.