



澳門金融管理局
AUTORIDADE MONETÁRIA DE MACAU

Circular No. 051/B/2008-DSB/AMCM
(Date: 27/11/2008)

Guideline on Management of Interest Rate Risk

The Monetary Authority of Macao (AMCM), under the powers conferred by Article 9 of the Charter approved by Decree-Law No.14/96/M of 11th March and by Article 6 of the Financial System Act of Macao approved by Decree-Law No. 32/93/M of 5th July, establishes the following:

Introduction

1. Interest rate risk¹ is the exposure of a credit institution's financial condition to adverse movements in interest rates. Although interest rate risk can be an important source of profitability and shareholder value, excessive interest rate risk can pose a significant threat to a credit institution's earnings and capital base. An effective risk management process that maintains interest rate risk within prudent levels is therefore considered essential to the safety and soundness of credit institutions.
2. On the basis of the Basel Committee on Banking Supervision's (BCBS) paper of July 2004 "Principles for the Management and Supervision of Interest Rate Risk" (<http://www.bis.org/publ/bcbs108.htm>), this Guideline sets forth the key principles for the management of interest rate risk and the AMCM's supervisory approach. It applies to credit institutions incorporated in Macao as well as the Macao branches of credit institutions incorporated overseas.
3. As necessary, credit institutions may consult the above BCBS paper for detailed guidance on the risk management principles and on the various techniques used by banks to measure their exposures of earnings and of economic value to changes in interest rates.

Application of Risk Management Principles

4. The risk management principles set forth in this Guideline involve the application of the following four basic elements in the management of assets, liabilities, and off-balance-sheet (OBS) instruments:

¹ The Basel Committee on Banking Supervision has given explanations and illustrations on the sources and effects of interest rate risk. The primary forms of interest rate risk to which credit institutions are typically exposed include repricing risk, yield curve risk, basis risk and optionality. An extract of the Committee's paper is given at Appendix 1 of this Guideline.



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- (a) appropriate board and senior management oversight;
 - (b) adequate risk management policies and procedures;
 - (c) appropriate risk measurement, monitoring, and control functions; and
 - (d) comprehensive internal controls and independent audits.
5. The above elements are set out under ten principles in paragraphs 6 to 15 below. Credit institutions should apply these elements in managing interest rate risk taking into account the size, complexity, and nature of their activities as well as their level of interest rate risk exposures.

Board and senior management oversight of interest rate risk

6. In order to carry out its responsibilities, the board of directors² (the board) in a credit institution should approve strategies and policies with respect to interest rate risk management and ensure that senior management takes the steps necessary to monitor and control these risks consistent with the approved strategies and policies. The board of directors should be informed regularly of the interest rate risk exposure of the credit institution in order to assess the monitoring and controlling of such risk against the board's guidance on the levels of risk that are acceptable to the credit institution. (see Principle 1 in the BCBS's paper)
7. Senior management must ensure that the structure of the credit institution's business and the level of interest rate risk it assumes are effectively managed, that appropriate policies and procedures are established to control and limit these risks, and that resources are available for evaluating and controlling interest rate risk. (see Principle 2 in the BCBS's paper)
8. Credit institutions should clearly define the individuals and/or committees responsible for managing interest rate risk and should ensure that there is adequate separation of duties in key elements of the risk management process to avoid potential conflicts of interest. Credit institutions should have risk measurement, monitoring, and control functions with clearly defined duties that are sufficiently independent from position-taking functions of the credit institution and which report risk exposures directly to senior management and the board of directors. Larger or more complex credit institutions should have a designated independent unit responsible for the design and administration of the credit institution's interest rate risk measurement, monitoring, and control functions. (see Principle 3 in the BCBS's paper)

² In the case of branches of overseas incorporated credit institutions, the reference to "the board of directors / the board" in this Guideline refers to the management at the head office responsible for the operations of the branches. Where applicable, the term may also refer to the branches' local management which is duly authorized to perform the relevant tasks.



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Risk management policies and procedures

9. It is essential that credit institutions' interest rate risk policies and procedures are clearly defined and consistent with the nature and complexity of their activities. These policies should be applied on a consolidated basis and, as appropriate, at the level of individual affiliates, especially when recognising legal distinctions and possible obstacles to cash movements among affiliates. (see Principle 4 in the BCBS's paper)
10. It is important that credit institutions identify the risks inherent in new products and activities and ensure these are subject to adequate procedures and controls before being introduced or undertaken. Major hedging or risk management initiatives should be approved in advance by the board or its appropriate delegated committee. (see Principle 5 in the BCBS's paper)

Risk measurement, monitoring, and control functions

11. It is essential that credit institutions have interest rate risk measurement systems that capture all material sources of interest rate risk and that assess the effect of interest rate changes in ways that are consistent with the scope of their activities. The assumptions underlying the system should be clearly understood by risk managers and management of the credit institution. (see Principle 6 in the BCBS's paper)
12. Credit institutions must establish and enforce operating limits and other practices that maintain exposures within levels consistent with their internal policies. (see Principle 7 in the BCBS's paper)
13. Credit institutions should measure their vulnerability to loss under stressful market conditions - including the breakdown of key assumptions - and consider those results when establishing and reviewing their policies and limits for interest rate risk. (see Principle 8 in the BCBS's paper)
14. Credit institutions must have adequate information systems for measuring, monitoring, controlling, and reporting interest rate exposures. Reports must be provided on a timely basis to the credit institution's board of directors, senior management and, where appropriate, individual business line managers. (see Principle 9 in the BCBS's paper)

Internal controls

15. Credit institutions must have an adequate system of internal controls over their interest rate risk management process. A fundamental component of the internal control system involves regular independent reviews and evaluations of the effectiveness of the system and, where necessary, ensuring that appropriate revisions or enhancements to internal controls are made. The



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results of such reviews should be available to the AMCM. (see Principle 10 in the BCBS's paper)

AMCM's supervisory approach

16. The AMCM expects credit institutions to apply the above principles in the management of their interest rate risk. The relevant management processes include the development of a business strategy and the establishment of relevant controls for identifying, measuring, monitoring and controlling interest rate risk exposures and such processes are subject to appropriate board and senior management oversight.
17. The AMCM will in the course of its onsite examination and offsite review make reference to these principles in evaluating the adequacy and effectiveness of a credit institution's interest rate risk management. Specifically, a credit institution should satisfy the AMCM that its interest rate risk measurement systems can meet the following criteria, which amplify the key requirements set out in paragraph 11 (or Principle 6) above:
 - (a) the systems should accurately incorporate all interest rate sensitive on- and off-balance sheet holdings.
 - (b) the systems should be capable of measuring risk using both an earnings and economic value approach³. (see Annex 1 of the BCBS's paper for an overview of the techniques commonly used by banks.)
 - (c) commensurate with the nature and complexity of a credit institution's holdings, data inputs are adequately specified with regard to rates, maturities, re-pricing, embedded options, and other details to provide a reasonably accurate portrayal of changes in economic value or earnings.
 - (d) the systems' assumptions for transforming positions into cash flows are reasonable, properly documented, and stable over time. Material changes to assumptions should be documented, justified, and approved by management.
 - (e) the interest rate risk measurement systems should be integrated into the credit institution's daily risk management practices. Outputs should be used in characterizing the level of interest rate risk to senior management and board of directors.
 - (f) an appropriate interest rate shock has been properly incorporated into the systems.

³ See paragraph 20. The monitoring of interest rate risk in the banking book for supervisory purposes will base on risk as measured by the economic value approach.



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18. The AMCM will also evaluate credit institutions' level of interest rate risk on a regular basis. Apart from the standardised report which is mentioned under paragraph 20 below, the AMCM may also need to obtain information contained in credit institutions' internal management reports such as maturity / repricing gaps, earnings and economic value simulation estimates, and the results of stress tests, etc. Such information is considered useful for identifying and monitoring those credit institutions that have significant repricing mismatches.
19. The AMCM expects credit institutions that undertake significant interest rate risk in the course of their business strategies to have allocated sufficient capital to support such risk, although there is not at present a mandatory capital charge specifically for interest rate risk in the banking book⁴. Hence, in accordance with the directives given under the second pillar⁵ of the Basel II Framework, those credit institutions incorporated in Macao whose interest rate risk in the banking book leads to an economic decline of more than 20% of their capital following a standardised interest rate shock of 200 basis points will be required by the AMCM to either reduce their risk or hold a specific additional amount of capital, or a combination of both.
20. To facilitate the AMCM's monitoring of interest rate risk exposures across institutions, credit institutions should report on a quarterly basis their interest rate risk exposures in a standardised report form as given in Appendix 2 of this Guideline. Under this report form, a credit institution should categorise its interest sensitive assets, liabilities and OBS positions into 15 different time bands. The net positions in different time bands will be weighted by specific factors that are designed to reflect the sensitivity of the positions to an assumed parallel shift of 200 basis points throughout the time spectrum, and on a proxy of modified duration of positions situated at the middle of each time band and yielding 5%. The overall weighted position of a credit institution will then be used by the AMCM in determining the significance of such credit institution's interest rate risk exposures.
21. Moreover, in light of the BCBS's recommendation on market discipline⁶, the AMCM may require credit institutions to release to the public information on the level of interest rate risk and their policies for its management. The objective of this disclosure requirement is to facilitate market participants' assessment of credit institutions' interest rate risk profiles.

⁴ The capital treatment for interest rate risk in the trading book has been set out in the market risk supervisory regime.

⁵ See Part 3: The Second Pillar – Supervisory Review Process, “International Convergence of Capital Measurement and capital Standards: A Revised Framework”, June 2006 (available on the BIS website at <http://www.bis.org/publ/bcbs128.htm>)

⁶ See Part 4: The Third Pillar – Market Discipline, “International Convergence of Capital Measurement and Capital Standards: A Revised Framework”, June 2006.