



BANGKO SENTRAL NG PILIPINAS

OFFICE OF THE GOVERNOR

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Subject: Guidelines on the Management of Interest Rate Risk in the Banking Book and amendment of the Guidelines on Market Risk Management

The Monetary Board, in its Resolution No. 1087 dated 18 July 2019, approved the adoption of the guidelines for managing interest rate risk in the banking book (IRRBB) and amendments to the guidelines on market risk management, as follows:

Section 1. Section 151/4181Q of the Manual of Regulations for Banks (MORB)/Manual of Regulations for Non-Bank Financial Institutions (MORNBFI) shall be added as follows:

SEC. 151/4181Q MANAGEMENT OF INTEREST RATE RISK IN THE BANKING BOOK

Policy Statement. The Bangko Sentral recognizes that changes in the structure of banks'/QBs' balance sheets and movements in interest rates pose risks to earnings and economic value. In particular, excessive interest rate risk in the banking book (IRRBB) may result in a reduction in earnings or of capital. In this regard, the Bangko Sentral expects banks/QBs to implement a comprehensive approach to risk management that ensures timely and effective identification, measurement, monitoring and control of IRRBB. Banks/QBs shall be guided by the standards on IRRBB management set out below.

General Principles

The guidelines on managing IRRBB set forth in this Section shall apply to all banks/QBs. All banks/QBs must adequately identify their IRRBB exposures and take appropriate steps to measure, monitor and control the risk. In managing IRRBB, banks/QBs shall duly consider the overall impact of the bank's/QB's interest rate-sensitive assets, liabilities and off-balance sheet exposures over short-, medium- and long-term time horizons on their earnings and economic value. Banks/QBs shall ensure that the IRRBB management system is integrated into the overall risk management framework and strategic business planning process.

The Bangko Sentral shall evaluate the adequacy and effectiveness of a bank's/QB's IRRBB management framework taking into account the size, complexity and nature of the bank's/QB's business activities.

Definitions

1. *Interest rate risk in the banking book (IRRBB)* is the current and prospective risk to earnings and capital arising from adverse movements in interest rates that affect a bank's/QB's banking book positions. For purposes of these guidelines, three sub-types of IRRBB are identified: gap risk, basis risk, and option risk.
2. *Gap risk* arises from the term structure of banking book instruments, and refers to the risk arising from the timing of instruments' rate changes. The extent of gap risk depends on whether changes to the term structure of interest rates occur consistently across the yield curve (parallel risk) or differentially by period (non-parallel risk).
3. *Basis risk* refers to the impact of relative changes in interest rates for financial instruments that have similar tenors but are priced using different interest rate indices.
4. *Option risk* arises from optional elements embedded in a bank's/QB's assets, liabilities and/or off-balance sheet items or option derivative positions, where the bank/QB or its customer can alter the level and timing of their cash flows automatically or behaviorally.

Interest Rate Risk in the Banking Book Management Process

The management of IRRBB shall form part of the overall risk management framework. At a minimum, the process should:

1. **Identify IRRBB.** Identifying current and prospective risk involves understanding the IRRBB arising from a bank's/QB's existing and new business activities, as well as the impact of hedges or risk management initiatives on exposures.
2. **Measure IRRBB.** The measurement of IRRBB should enable banks/QBs to quantify IRRBB and determine its impact on earnings and economic value. Banks should have the appropriate systems and tools to enable the timely and comprehensive measurement of risk.
3. **Control IRRBB.** The control of IRRBB necessitates the establishment of internal policies on the extent of IRRBB that is acceptable to the Board on both solo and consolidated bases. The lines of authority and accountability should be clearly defined to ensure that IRRBB exposures remain reasonable and within the risk appetite statement of the board.
4. **Monitor IRRBB.** Monitoring IRRBB requires timely reviews of interest rate risk positions. Monitoring reports should be comprehensive, timely and accurate in order to provide sufficient basis for sound business decisions.

Interest Rate Risk in the Banking Book Management Framework

A sound management system for IRRBB shall cover the following basic elements:

- a. Active board and senior management oversight;
- b. Adequate risk management policies and procedures;
- c. Appropriate limits structure, risk measurement methodologies, and monitoring and management information systems; and
- d. Comprehensive internal controls and independent audits.

Banks/QBs with simple operations may generally employ fundamental risk management practices while complex institutions are expected to adopt more sophisticated risk management frameworks. Banking groups shall take a comprehensive perspective in measuring and controlling risk by understanding how financial subsidiaries can magnify or reduce their consolidated IRRBBs.

(1) Board and Senior Management Oversight¹

Responsibilities of the Board of Directors

The board of directors is ultimately responsible for the IRRBB assumed by the bank/QB and the processes used to manage it. In this regard, the board shall:

- (a) Obtain an understanding of the nature and the level of the bank's/QB's IRRBB, and its potential linkages with other major risks of the bank/QB (e.g., market, liquidity, credit and operational risks). The board should include members who have sufficient technical knowledge on financial instruments and risk management techniques. Collectively, the board should have the ability to question and challenge strategies and information on risk disclosed in management reports.
- (b) Establish the risk appetite for IRRBB and approve broad business strategies and policies relative to IRRBB. The risk appetite should be clearly articulated in terms of earnings, economic value, or both. The board should ensure that there is clear guidance regarding the acceptable level of IRRBB, given the bank's business strategies.
- (c) Identify and designate senior management personnel or expert individuals responsible for establishing and managing IRRBB positions with clear lines of authority. In the case of large institutions, such functions are usually delegated

¹ This section refers to a management structure composed of a board of directors and senior management. The Bangko Sentral is aware that there may be differences in some financial institutions as regards the organizational framework and functions of the board of directors and senior management. For instance, branches of foreign banks have boards of directors located outside of the Philippines that oversee multiple branches in various countries. In this case, "board-equivalent" committees are appointed. Owing to these differences, the notions of the board of directors and the senior management are used in these guidelines not to identify legal constructs but rather to label two decision-making functions within a financial institution.

to the Asset and Liability Committee (ALCO). A simple bank/QB² may not have an ALCO. In this case, the board should identify committees or units within the organization that shall be responsible for effectively performing asset and liability management. The board should also encourage discussions between its members and the senior management personnel, and between senior management personnel and other personnel of the bank/QB (e.g., between risk management and the strategic planning units) on the IRRBB management process to facilitate the evaluation of risks arising from future business.

- (d) Ensure that the organizational structure of the bank/QB facilitates effective decision-making and good governance. Responsibilities in key elements of the risk management process should be adequately segregated to avoid conflicts of interest. The IRRBB management functions should have clearly defined responsibilities that are sufficiently independent from risk-taking functions of the bank and should report IRRBB exposures directly to the board.
- (e) Approve significant strategies to hedge or manage IRRBB, including the instruments that are used to carry out the strategies.
- (f) Institute adequate systems and standards for measuring IRRBB, including the internal controls surrounding the development and updating of relevant key assumptions and stress scenarios.
- (g) Allocate adequate resources for the management of IRRBB. This includes ensuring that senior management and the relevant management committee have the technical capability and skills to understand and effectively manage IRRBB, and that management information systems that facilitate timely and comprehensive IRRBB reporting are continuously maintained.
- (h) Monitor the bank's/QB's performance and IRRBB profile and ensure that the level of IRRBB is maintained within the intended risk appetite and supported by adequate capital. The board shall review, at least quarterly, timely and sufficiently detailed reports to allow it to understand and assess the performance of senior management in monitoring and controlling IRRBB.

Responsibilities of Senior Management

Senior management is responsible for effectively executing business strategies within the IRRBB risk appetite approved by the board and for implementing the IRRBB risk management system. In this regard, senior management shall:

- (a) Implement a board-approved limits structure for IRRBB that incorporates appropriate processes on the resolution of limit breaches;

² The classification of a bank/QB as complex or non-complex/simple shall be in accordance with the criteria set out in item "(c)" of Section 131 of the MORB/item "(d)" of Section 4144Q of the MORNBFI.

- (b) Develop and implement IRRBB policies and procedures that translate the board's goals, objectives and strategies into operating standards, and ensure that these are transmitted to and well-understood by all concerned business units and personnel;
- (c) Identify appropriate systems and standards for the measurement of IRRBB;
- (d) Develop asset-liability management strategies that judiciously take into account potential yield curve shifts that can impact the bank's/QB's earnings and economic value;
- (e) Meet regularly, in the case of a committee designated to manage IRRBB exposures;
- (f) Adhere to the lines of authority and responsibility that the board has established for managing IRRBB exposures;
- (g) Inform the board of any new and emerging IRRBB concerns in a timely manner, based on the monitoring of trends and market developments that pose significant risk implications on the bank/QB's business model and risk profile.

More detailed expectations on the areas under the responsibility of senior management are discussed in the succeeding sections of the guidelines.

(2) Risk Management Policies and Procedures and Limits Structure

A bank's/QB's policies and procedures for IRRBB management shall be comprehensive, clearly defined, documented and duly approved by the board. Policies should clearly define the process for achieving targeted structural repricing gaps vis-a-vis the expected movement in interest rates, hedging strategies, and the models to be used to quantify IRRBB. IRRBB policies should be reviewed at least annually and revised as needed.

Limits shall be consistent with the risk appetite set by the board and the bank's/QB's overall approach for measuring IRRBB. The limits shall likewise be appropriate to the nature, size, complexity and capital strength of the bank/QB, as well as its ability to measure and manage these risks. Depending on the nature of a bank's/QB's activities and business model, sub-limits may also be identified for gap risks in individual currencies and booking units. The level of detail of risk limits should reflect the characteristics of the bank's/QB's IRRBB exposures. Banks/QBs with significant exposures to basis and option risk should consider establishing risk tolerances appropriate for these risks.

Aggregate risk limits should be applied on a consolidated basis and, as appropriate, at the level of individual financial subsidiaries. Limits should be developed with due regard to scenarios involving changes in interest rates and/or

term structures. The interest rate movements used in developing these limits should represent meaningful and forward-looking shock and stress situations, taking into account the time required by management to mitigate those risk exposures.

There should be systems in place to ensure that positions that exceed, or are likely to exceed limits, receive prompt management attention and are escalated to appropriate authorities without delay. Policies should clearly address details on who shall be informed, how the communication should take place and what actions should be taken in response to an exception. Limits can be designated as absolute in the sense that they should never be exceeded. Policies may also establish when, under specific circumstances, breaches of limits can be tolerated for a predetermined short period of time. Moreover, the actions taken to resolve actual or potential limit breaches should be properly documented.

As part of its new product policy, management should require new products and activities that have a material impact on its IRRBB to undergo a careful review to ensure that the risk management system is capable of handling the IRRBB associated with those new businesses. Proposals to use new instrument types or new strategies (including hedging) should also be assessed to ensure that the resulting risks are still aligned with the bank's/QB's overall risk appetite.

(3) Risk Measurement Methodologies, Monitoring and Management Information System (MIS)

A bank's/QB's internal measurement systems (IMS) should capture all material sources of IRRBB and assess the effect of interest rate changes on earnings and/or economic value. The measurement of IRRBB should be based on outcomes arising from an appropriate range of interest rate shocks and stress scenarios. Measurement systems and models used for IRRBB should cover each currency in which a bank/QB has material exposures. Currencies in which a bank/QB has material exposure are those that account for at least five percent of either its total banking book assets or total banking book liabilities.

(a) Earnings- and Economic Value- Based Measures

There are two complementary measures of the potential impact of IRRBB: (a) changes in expected earnings (earnings-based measures); and (b) changes in economic value (EV, or EVE when measuring the change in value relative to equity).

(i) Earnings-Based Measures

Earnings-based measures focus on the impact of changes in interest rates on future accrued or reported earnings. These are better suited for measuring the short- and medium-term vulnerabilities, i.e., those occurring within the next three years.

In order to calculate changes in expected earnings under different interest rate shocks and stress scenarios, a bank/QB should be able to project future earnings under both the expected economic scenario that informs its corporate plan and the interest rate shock and stress scenarios.

Depending on the complexity of its operations, a bank/QB will need to develop assumptions on client/market behavior and the bank's/QB's own management response to the evolving economic climate, such as:

- (aa) The volume and type of new/replacement assets and liabilities expected to be originated over the evaluation period;
- (bb) The volume and type of asset and liability redemptions/reductions over that period;
- (cc) The interest rate basis and margin associated with the new assets and liabilities, and with those redeemed/withdrawn; and
- (dd) The impact of any fees collected/paid for exercise of options.

Banks/QBs may likewise model earnings under the following assumptions:

- (aa) Run-off balance sheet: existing assets and liabilities are not replaced as they mature, except to the extent necessary to fund the remaining balance sheet;
- (bb) Constant balance sheet: total balance sheet size and shape is maintained by assuming like-for-like replacement of assets and liabilities as they run off; and
- (cc) Dynamic balance sheet: incorporates future business expectations, adjusted for the relevant scenario in a consistent manner.

Banks/QBs are expected to use assumptions that are appropriate to the complexity, size and nature of its IRRBB exposures. For instance, a bank/QB that has material exposures to complex products or option risk shall measure IRRBB under a dynamic balance sheet approach.

(ii) Economic Value-Based Measures

An EV-based measure of IRRBB represents an assessment of the present value of expected net cash flows, discounted to reflect market rates. As fluctuations in interest rates will affect a bank's/QB's earnings, they will also affect its net worth. Changes in economic value can be measured using a variety of techniques which differ in terms of complexity and ability to capture different types of interest rate sensitivity (i.e., gap risk, basis risk and option risk).

In coming up with present values, the relevant risk-free rate shall be used to formulate discount factors. The resulting weighted net positions across tenors are aggregated to determine the EVE in each currency under different shock scenarios.

(b) Key Behavioral and Modeling Assumptions

Behavioral assumptions and parameters are vital to both earnings-based and economic value-based measures, such as those relating to:

- (i) Treatment of balances and interest flows arising from non-maturity deposits (NMDs), term deposits that are redeemable ahead of their maturities, and fixed rate loans with pre-payment options for the borrower;
- (ii) Expectations for the exercise of interest rate options (explicit and embedded) by both the bank/QB and its customers under specific interest rate shock and stress scenarios;
- (iii) Treatment of own equity in economic value measures;³ and
- (iv) The implications of accounting standards that apply to banking book positions.

Thus, senior management is expected to exercise sound judgment in coming up with assumptions. Expectations on the treatment of certain products are set out below:

- (aa) NMDs – Banks should determine appropriate assumptions for NMDs. This entails a qualitative and/or quantitative analysis of the depositor base in order to measure the proportion of core deposits (i.e., NMDs which are unlikely to reprice even when there are significant changes in interest rate environment) and non-core deposits. Assumptions should vary according to depositor characteristics (i.e., retail/wholesale) and account characteristics (i.e., transactional/ non-transactional, fixed rate/variable rate). Banks should distinguish between the stable and the non-stable parts of each NMD category using observed volume changes over a sufficient period of time, i.e., the past ten (10) years.
- (bb) Term deposits subject to early redemption risk – Banks may attract deposits with a contractual maturity term or with step-up clauses that enable the depositor in different time periods to modify the speed of redemption. The classification scheme for identifying these products, possible instances when redemption is subject to penalties, as well as other contractual features preserving the cash

³ Equity usually has a cost in the form of a dividend, and banks/QBs seek to stabilize the earnings that can be made on assets funded by equity. Since equity capital has no contractual price reset date, banks/QBs may determine their own strategies for managing the earnings volatility that arises from it using techniques similar to those for NMDs.

flows profile of the instrument, should be supported by adequate documentation.

- (cc) Fixed rate loans subject to prepayment risk – Banks/QBs should understand the nature of prepayment risk for their portfolios and make reasonable and prudent estimates of the expected prepayments. The assumptions underlying the estimates and possible cases where prepayment penalties or other contractual features affect the embedded optionality should be documented. Specifically, management must be capable of using those assumptions to assess the expected average prepayment speed under each identified scenario.

(c) Interest Rate Shock and Stress Scenarios

Banks/QBs should determine, by each material currency, a range of potential interest rate movements against which they will measure their IRRBB exposures. In choosing the appropriate scenarios, the board and senior management should consider the nature and sources of their IRRBB exposures and select the scenarios that provide meaningful estimates of risk. The scenarios should include a range of shocks that is sufficiently wide, possibly incorporating stress elements, to allow board and senior management to understand the risk inherent in the bank's/QB's balance sheet structure. The bank/QB should likewise consider the shape and level of the term structure and volatility of interest rates that are relevant to its business model, the time needed to take action to reduce or unwind unfavorable IRRBB exposures, and its ability to withstand losses in order to reposition the risk profile.

In devising the appropriate shocks and stress scenarios for IRRBB, banks/QBs should take the following into account:

- (i) Scenarios that identify parallel and non-parallel gap risk, basis risk and option risk. In many cases, static interest rate shocks may be insufficient to assess IRRBB exposure adequately. Banks/QBs should ensure that the scenarios are both severe and plausible, in light of the existing level of interest rates and the interest rate cycle;
- (ii) Instruments or markets where concentrations exist, because those positions may be more difficult to liquidate or offset in a stressful market environment;
- (iii) Possible interaction of IRRBB with related and other risks (e.g., credit risk, liquidity risk);

- (iv) Effect on net interest income of adverse changes in the spreads of new assets/liabilities replacing those assets/liabilities maturing over the horizon of the forecast;
- (v) Where a bank/QB has significant option risk, scenarios that capture the exercise of such options. Given that the market value of options also fluctuates with changes in the volatility of interest rates, banks/QBs should develop interest rate assumptions to measure their IRRBB exposures to changes in interest rate volatilities;
- (vi) The term structure of interest rates that will be incorporated and the basis relationship between yield curves and rate indices. Banks/QBs should also estimate how interest rates that are administered or managed by management (e.g., prime rates or retail deposit rates, as opposed to those that are purely market-driven) might change, and management should document how these assumptions are derived; and
- (vii) Forward-looking scenarios that incorporate changes in portfolio composition due to factors under the control of the bank/QB (e.g., the bank's/QB's acquisition and production plans) as well as external factors (e.g., changing competitive, legal or tax environments), new products for which only limited historical data are available, and new market information and emerging risks that are not necessarily covered by historical stress episodes.

Banks/QBs shall likewise develop and implement an effective stress testing framework for IRRBB as part of their broader risk management and governance processes.⁴ Stress tests for IRRBB should be commensurate to the nature, size, complexity, business model and overall risk profile of the bank/QB. The framework should include clearly defined objectives together with scenarios tailored to the bank's/QB's risk profile and must be supported by sound methodologies and well-documented assumptions. Stress test results should feed into the strategic decision-making and limit setting processes undertaken by the board and senior management.

Stand-alone thrift, rural and cooperative banks should, at the minimum, measure and assess the impact of a 100-, 200- and 300- basis point movement in interest rates to their net interest income for the succeeding 12-month period. Further, these banks should develop bank-specific stress scenarios, such as an increasing competition, that may result in changes in the interest rates that they offer on their loans and deposits.

⁴ The provisions on stress testing in these guidelines should be read in conjunction with Circular No. 989 dated 4 January 2018 on the Guidelines on the Conduct of Stress Testing Exercises.

(d) Model Risk Governance

The validation of IRRBB measurement methods and assessment of corresponding model risks should be governed by a policy on model risk. Guidelines should specify management roles and designate the personnel responsible for the development, implementation and use of models. These should also specify model oversight responsibilities as well as internal policies for key processes such as initial and ongoing validation procedures, results evaluation, approval, version control, exception management, escalation, modification and decommissioning.

The model validation framework should incorporate: (i) evaluation of methodological soundness; (ii) model monitoring which includes process verification and benchmarking; and (c) outcome analysis that involves back-testing of key parameters. Prior to model usage, model inputs, assumptions, methodologies and outputs including those that were developed by third-party vendors should be subject to independent validation. The results of this validation should be presented to the board for approval. Subsequently, the model should be subject to periodic review and process verification to ensure its continuing relevance and the accuracy of model output.

(e) Risk Monitoring

Measurement outcomes of IRRBB and hedging strategies should be reported to the board on a regular basis, at relevant levels of aggregation, whether on a consolidated basis for a banking group or on a per currency basis for banks/QBs having material positions on different currencies.

Reports submitted to the board should clearly compare current exposure with policy limits and should also disclose the results of the periodic model reviews and back-testing. While the types of reports prepared for the board will vary based on the bank's/QB's business model, these should, at a minimum include the following:

- (i) Summaries of aggregate IRRBB exposures highlighting the assets, liabilities, cash flows, and strategies that are driving the level and direction of risks;
- (ii) Reports on the results of the bank's/QB's risk metrics assessed in relation to the set limits and earnings or capital;
- (iii) Key modelling assumptions reflecting management's judgments (e.g., NMD characteristics, prepayments on fixed rate loans and currency aggregation) to disclose the limitations of the model;
- (iv) Results of stress tests, including assessment of sensitivity to key assumptions and parameters; and
- (v) Summaries of the reviews of IRRBB policies, procedures and adequacy of the measurement systems, including any findings of

internal and external auditors and/or other equivalent external parties (such as consultants).

(f) Management Information Systems

A bank's/QB's MIS should allow it to retrieve accurate IRRBB information in a timely manner. The MIS should capture interest rate risk data on all the bank's/QB's material IRRBB exposures. There should be sufficient documentation of the major data sources used in the bank's/QB's risk measurement process. Data inputs should be automated to the extent possible to reduce administrative errors. Data mapping should be periodically reviewed and tested against an approved model version. A bank/QB should monitor the type of data extracts and set appropriate controls.

Where cash flows are slotted into different time buckets (e.g., for gap analyses), the slotting criteria should be stable over time to allow for a meaningful comparison of risk figures over different periods.

(4) Internal Controls and Audit⁵

A bank/QB shall have adequate internal controls in place to protect the integrity of its IRRBB risk management processes. Approval processes, exposure limits, independent reviews and other mechanisms should be designed and implemented to provide the board and senior management with reasonable assurance that risk management objectives are being achieved.

Independent reviews should address significant changes that may affect the effectiveness of controls (including changes in market conditions, personnel, technology and structures of compliance with exposure limits), and verify that there are appropriate escalation procedures in place to resolve limit exceptions. When revisions or enhancements to internal controls are warranted, there should be an internal review mechanism in place to ensure that these are implemented in a timely manner.

Supervisory Framework. The Bangko Sentral shall employ a risk-based approach in assessing the level and trend of a bank's/QB's IRRBB and the adequacy and effectiveness of its IRRBB management process. This shall be done through a combination of on-site examinations and off-site reviews. This aims to ensure that a bank's/QB's earnings and capital are adequate relative to the size of its exposures.

The Bangko Sentral shall consider the following:

- a. The complexity of IRRBB risk management systems relative to the risk posed by assets, liabilities and off-balance sheet activities;

⁵ Refer also to Sections 162 and 163 for the frameworks on Internal Control System and Internal Audit, respectively.

- b. The level of IRRBB in relation to earnings and capital;
- c. The effectiveness of hedging strategies used by management to manage IRRBB; and
- d. The adequacy and effectiveness of risk governance.

Universal and commercial banks are expected to demonstrate that their internal capital is commensurate with the level of IRRBB, taking into account the impact on internal capital of potential changes in the institution's economic value and/or future earnings resulting from changes in interest rates.

A significant change in NII relative to a bank's/QB's earnings and capital will not necessarily result in supervisory or enforcement action. It shall be subject to further evaluation by the Bangko Sentral, with particular consideration given to the factors driving the significant IRRBB. The Bangko Sentral may issue directives, as necessary, taking into consideration the business model of the bank/QB, its strategic plans and market conditions.

Supervisory enforcement actions. Consistent with Section 002/4009Q of the MORB/MORNBF, the Bangko Sentral may deploy enforcement actions to promote adherence with the requirements set forth in these guidelines and bring about timely corrective actions. If a bank's/QB's risk exposures are not well-managed, the Bangko Sentral may direct the bank/QB to increase its capital, reduce its IRRBB exposures and/or strengthen its risk management system. The Bangko Sentral may likewise issue directives to limit the level of or suspend any business activity that has adverse effects on the safety and soundness of the bank/QB, among others. Sanctions may likewise be imposed on the bank/QB and/or its directors, officers and/or employees."

Section 3. The provisions of Section 144/4175Q are hereby replaced in their entirety by the following:

Sec. 144/4175Q MARKET RISK MANAGEMENT

Policy Statement. The Bangko Sentral recognizes that developments in financial products and markets take place rapidly and that banks/QBs may engage in such products and markets in various roles, such as that of an investor or a market-maker. In this regard, the Bangko Sentral expects banks/QBs to implement a comprehensive approach to risk management that ensures timely and effective identification, measurement, monitoring and control of market risks. Market risk should be reviewed together with other risks to determine a BSFI's overall risk profile.

General Principles

The requirements for sound market risk management under these guidelines apply to the trading book exposures of all banks/quasi-banks (QBs). Before transacting in financial markets or instruments or implementing any financial structure or strategy, a bank/QB shall ensure that:

- a. It has the necessary authority to engage in such activities;
- b. The board, management and risk-taking units possess relevant knowledge, expertise and/or experience;
- c. Adequate policies, processes, and systems are in place to effectively identify, measure, monitor, and control the attendant risks under both normal and stressed conditions; and
- d. An appropriate level of capital is held to support these activities.

A bank/QB shall ensure that the market risk management system is integrated into its overall risk management framework.

Market Risk Management Process

A bank's/QB's market risk management process should be consistent with its general risk management framework and should be commensurate with the level of risk assumed. Although there is no single market risk management system that works for all banks/QBs, a bank's/QB's market risk management process should:

- a. *Identify Market Risk.* Identifying current and prospective market risk exposures involves understanding the market risk arising from a bank's/QB's existing and new business initiatives. A bank/QB should have procedures in place to identify and address the risk posed by new products and activities prior to initiating the new products or activities.

Identifying market risk also includes identifying bank's/QB's desired level of risk exposure based on its ability and willingness to assume market risk. A bank's/QB's ability to assume market risk depends on its capital base and the skills/capabilities of its management team. In any case, market risk identification should be a continuing process and should occur at both the transaction and portfolio level.

- b. *Measure Market Risk.* Once the sources and desired level of market risk have been identified, market risk measurement models can be applied to quantify a bank's/QB's market risk exposures. However, market risk cannot be managed in isolation. Market risk measurement systems should be integrated into the bank's/QB's general risk measurement system and results from models should be interpreted alongside other risk exposures. Further, banks/QBs with more complex financial market activities should have more sophisticated tools to measure market risk exposures arising from such activities.
- c. *Control Market Risk.* Quantifying market risk exposures helps a bank/QB align existing exposures with the identified desired level of exposures. Controlling market risk usually involves establishing market risk limits that are consistent with a bank's/QB's market risk measurement methodologies. Limits may be implemented through an outright prohibition on exposures above a pre-set threshold, by restraining activities or deploying strategies that alter the risk-

return characteristics of on- and off- balance sheet positions. Appropriate pricing strategies may likewise be used to control market risk exposures.

- d. *Monitor Market Risk.* Ensuring that market risk exposures are adequately controlled requires the timely review of market risk positions and exceptions. Monitoring reports should be frequent, timely and accurate. For large, complex banks/QBs, consolidated monitoring should be employed to ensure that management's decisions are implemented for all geographies, products, and legal entities.

Definition and Sources of Market Risk

Market risk is the risk to earnings or capital arising from adverse movements in factors that affect the market value of instruments, products, and transactions in an institution's trading book portfolio, both on- and off-balance sheet. Market risk arises from market-making, dealing, or position-taking in instruments and structures, or through strategies that are sensitive to movements in interest rates, foreign exchange rates, credit spreads, and equities and commodities prices.

Interest rate risk is the current and prospective risk to earnings or capital arising from movements in interest rates.

Foreign exchange (FX) risk refers to the risk to earnings or capital arising from adverse movements in foreign exchange rates.

Credit spread risk refers to the risk to earnings or capital arising from changes in the credit risk premia of financial instruments.

Equity risk is the risk to earnings or capital arising from movements in the value of an institution's equity-related holdings.

Commodity risk is the risk to earnings or capital due to adverse changes in the value of an institution's commodity-related holdings.

Sound Market Risk Management Practices and Market Risk Management Framework

A sound market risk management system should cover the following basic elements:

- a. Active and appropriate board and senior management oversight;
- b. Adequate risk management policies and procedures;
- c. Appropriate risk measurement methodologies, limits structure, monitoring and management information systems; and
- d. Comprehensive internal controls and independent audits.

The specific manner in which a bank/QB applies these elements in managing its market risk shall depend upon the complexity and nature of its activities, as well as the level of market risk exposure assumed. What constitutes adequate market risk management practices may therefore vary considerably.

Banking groups (banks and their subsidiaries/affiliates) should monitor and manage market risk exposures on a consolidated and comprehensive basis. At the same time, however, banks/QBs should fully recognize any legal distinctions and possible obstacles to risk transfers among affiliates and adjust their risk management practices accordingly. While consolidation may provide a comprehensive measure in respect of market risk, it may also underestimate risk when positions in one affiliate are used to offset positions in another affiliate. This is because a conventional accounting consolidation may allow theoretical offsets between such positions from which a bank/QB may not in practice be able to benefit because of legal or operational constraints. The potential linkages of the bank's/QB's trading positions with other risks such as IRRBB, liquidity risk, credit risk and operational risk must be sufficiently understood. For instance, when engaging in FX trading, banks/QBs may also be exposed to other risks such as liquidity and credit risks related to the settlement of FX contracts. An integrated approach to risk management shall ensure that the interlinkages of risks are adequately managed.

(1) Active and appropriate board and senior management oversight

Effective board and senior management oversight of a bank's/QB's market risk activities is critical to a sound market risk management process. It is important that the board and senior management are aware of their responsibilities with regard to market risk management and understand how market risk fits within the organization's overall risk management framework.

Responsibilities of the board of directors

The board of directors has the ultimate responsibility for understanding the nature and the level of market risk taken by the bank/QB. In order to carry out its responsibilities, the board shall:

- (a) Approve business strategies for the trading book and establish the bank's/QB's appetite for market risk. There should be a clear pattern of board reviews, discussions and deliberations on the objectives, strategies and policies with respect to market risk management. In addition, there should be documentary evidence of such.
- (b) Identify senior management with the authority and responsibility for managing market risk and ensure that they take the necessary steps to monitor and control market risk, consistent with the approved strategies and policies. The Bangko Sentral should be able to discern a clear hierarchal structure with straightforward assignments of responsibility and authority.

- (c) Monitor the bank's/QB's performance and overall market risk profile, ensuring that the level of market risk is maintained within tolerance and at prudent levels, and supported by adequate capital. The board should be regularly informed of the market risk exposure of the bank/QB and any breaches of established limits for their appropriate action. Reports should be timely and clearly presented. In assessing a-bank's/QB's capital adequacy relative to market risk, the board should consider the bank's/QB's current and potential market risk exposure.
- (d) Ensure that the bank/QB implements sound fundamental principles that facilitate the identification, measurement, monitoring and control of market risk. The board of Directors should encourage discussions among its members and senior management, as well as between senior management and others in the bank/QB, regarding the bank's/QB's market risk exposures and management process.
- (e) Ensure that adequate technical and human resources, are devoted to market risk management. While not all board members are expected to have detailed technical knowledge of complex financial instruments, legal issues or sophisticated risk management techniques, they have the responsibility to ensure that they understand the risks that the bank/QB is exposed to and that there are personnel who have the necessary technical skills to evaluate and control market risk. This responsibility includes ensuring that personnel responsible for the management of market risk receive continuous training and that the internal audit function has adequate competent technical staff.

Responsibilities of senior management

Senior management is responsible for ensuring that market risk is adequately managed on both a long-term and day-to-day basis. In managing the bank's/QB's activities, senior management shall:

- (a) Develop and implement policies, procedures and practices that translate the board's goals, objectives and risk tolerances into operating standards that are well understood by personnel and that are consistent with the board's intent. Senior management should also periodically review the organization's market risk management policies and procedures to ensure that they remain appropriate and sound.
- (b) Ensure adherence to the lines of authority and responsibility that the board has established for measuring, managing, and reporting market risk exposures.
- (c) Maintain an appropriate limits structure, adequate systems for measuring market risk, and standards for measuring performance.

- (d) Oversee the implementation and maintenance of management information and other systems to identify, measure, monitor, and control the bank's/QB's market risk.
- (e) Establish effective internal controls over the market risk management process.
- (f) Ensure that adequate resources are available for evaluating and controlling market risk. Senior management of banks/QBs, including branches of foreign banks, should ensure that analysis and market risk management activities are conducted by competent staff with technical knowledge and experience consistent with the nature and scope of the bank's/QB's activities. There should be sufficient depth in staff resources to manage these activities and to accommodate the temporary absence of key personnel and the normal succession process.

In evaluating the quality of oversight, the Bangko Sentral shall evaluate how the board and senior management carry out the above functions/ responsibilities. Further, sound management oversight is highly related to the quality of other areas/elements of bank's/QB's risk management system. Thus, even if board and senior management exhibit active oversight, the bank's/QB's policies, procedures, measurement methodologies, limits structure, monitoring and information systems, controls and audit must be considered adequate before the quality of the board and senior management can be considered at least "satisfactory."

Lines of responsibility and authority

Banks/QBs should clearly define the individuals and/or committees responsible for managing market 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.

Management should ensure that sufficient safeguards exist to minimize the potential that individuals initiating risk-taking positions may inappropriately influence key control functions of the market risk management process. Banks/QBs should therefore have risk measurement, monitoring, and control functions with clearly defined duties that are sufficiently independent from position-taking functions of the bank/QB and which report risk exposures directly to the board of directors.

The nature and scope of safeguards to minimize potential conflicts of interest should be in accordance with the size and structure of a bank/QB. Larger or more complex banks/QBs should have a designated independent unit responsible for the design and administration of the bank's/QB's market risk measurement, monitoring and control functions.

(2) Adequate risk management policies and procedures

A bank's/QB's market risk policies and procedures should be clearly defined, documented and duly approved by the board of directors. Policies and procedures should be consistent with the nature and complexity of the bank's/QB's activities. All market risk policies should be reviewed at least annually and revised as needed. Management should likewise define the specific procedures to be used for identifying, reporting and approving exceptions to policies, limits, and authorizations.

Policies and procedures should delineate lines of responsibility and accountability and should clearly define authorized instruments, hedging strategies, position-taking opportunities, and the market risk models used to quantify market risk. Market risk policies should also identify quantitative parameters that define the acceptable level of market risk for the bank/QB. Where appropriate, limits should be further specified for certain types of instruments, portfolios, activities and business units/desks. Banks/QBs are likewise expected to implement sound policies and processes for allocating exposures between the trading and banking books.

It is important that banks/QBs identify market risk, as well as other risks, inherent in new products and activities and ensure these are subject to adequate procedures and controls prior to introduction. Specifically, new products and activities should undergo a careful pre-acquisition review to ensure that the bank/QB understands their market risk characteristics and can incorporate them into its risk management process. Major hedging or risk management initiatives should be approved in advance by the board or its appropriate delegated committee.

Proposals and the subsequent new product/activity review should be formal and written. For purposes of managing market risk inherent in new products/activities, proposals should, at a minimum, contain the following features:

- (a) Description of the relevant product or strategy;
- (b) Use/purpose of the new product/activity;
- (c) Identification of the resources required and unit/s responsible for establishing sound and effective market risk management of the product or activity;
- (d) Analysis of the reasonableness of the proposed products or activities in relation to the bank's/QB's overall financial condition and capital levels; and
- (e) Procedures to be used to measure, monitor, and control the risks of the proposed product or activity.

(3) Appropriate risk measurement methodologies, limits structure, monitoring, and management information system

Market risk measurement models/methodologies

It is essential that banks/QBs have market risk measurement systems that capture all material sources of market risk and assess the effect of changes in market risk factors in ways that are consistent with the scope of their activities.

Depending upon the size, complexity, and nature of activities that give rise to market risk, the ability to capture all material sources of market risk in a timely manner may require a bank's/QB's market risk measurement system to be interfaced with other systems, such as the treasury system or loan system. The assumptions underlying the measurement system should be clearly understood by risk managers and senior management.

Market risk measurement systems should:

- (a) Assess all material market risk associated with a bank's/QB's assets, liabilities, and off-balance sheet positions;
- (b) Utilize generally accepted financial concepts and risk measurement techniques; and
- (c) Have well-documented assumptions and parameters.

There are a number of methods/ techniques for measuring market risks. Complexity ranges from simple marking-to-market or valuation techniques to more advanced static simulations using current holdings to highly sophisticated dynamic modeling techniques that reflect potential future business activities. In designing market risk measurement systems, banks/QBs should ensure that the degree of detail regarding the nature of their positions is commensurate with the complexity and risk inherent in those positions. For example, simple banks/QBs should have the ability to regularly mark-to-market or revalue their investment portfolio while complex banks are expected to use more sophisticated techniques.

Regardless of the measurement system used, the Bangko Sentral will expect the bank/QB to ensure that input data are timely and correct, assumptions are adequately supported and valid, the methodologies used produce reasonable results and the results can be easily understood by senior management and the board.

- (a) **Model input.** All market risk measurement methodologies require various types of inputs, including hard data, readily observable parameters such as asset prices, and both quantitatively and qualitatively-derived assumptions.

The integrity and timeliness of data is a key component of the market risk measurement process. The Bangko Sentral expects that adequate controls will be established to ensure that all material positions and cash flows from on- and off- balance sheet positions are incorporated into the measurement

system on a consistent and timely basis. Inputs should be verified through a process that validates data integrity. Assumptions and inputs should be subject to control and oversight review. Any manual adjustments to underlying data should be documented, and the nature and reasons for the adjustments should also be clearly understood.

- (b) **Measurement assumptions.** Critical to model accuracy is the validity of underlying assumptions, particularly the parameters used in the model. For instance, the validity of correlation assumptions used to aggregate market risk exposures is important as breakdowns in correlations may significantly affect the validity of model results. Key assumptions should therefore be thoroughly documented and subjected to rigorous review prior to their implementation. Any significant changes should likewise be reviewed and approved in advance by the board of directors.
- (c) **Model risk governance.** The assessment of model risks related to market risk measurement models should be included in a formal policy that is reviewed and approved by the board. The policy should specify management roles and designate the personnel responsible for the development, implementation, use and oversight of models.

The Bangko Sentral expects banks/QBs to periodically review or reassess their modeling methodologies and assumptions. The frequency of review will depend on the model, but complex models should be reviewed at least once a year, and each time changes are made or a new product or activity is introduced. Model review could also be prompted by changes in the bank/QB or the market that should be reflected in the model. The review should be performed by a unit that is independent from the one that developed or uses the model. Revisions to models should be performed in a controlled environment by authorized personnel and changes should be made or verified by a control function. Written policies should specify when changes to models are acceptable and how those revisions should be accomplished.

There should likewise be internal policies for key processes such as initial and ongoing validation, results evaluation, approval, version control, exception management, escalation, modification and decommissioning. The model validation framework should enable the bank/QB to evaluate the sensitivity of the model to material sources of model risk. It should incorporate the following elements: (i) the evaluation of methodological soundness, which include tests of internal logic and mathematical accuracy and the development of empirical support for assumptions; (ii) model monitoring, which includes process verification and benchmarking; and (iii) outcome analysis involving the back-testing of key parameters.

Prior to model usage, model inputs, assumptions, methodologies and outputs, including those that were developed by third-party vendors, should be subject to independent validation. The results of the validation exercise should be

presented to the board for approval. Subsequently, the model should be subject to periodic review and process verification to ensure the continuing relevance and accuracy of model output.

Backtesting should be conducted by parties independent of those developing or using the model. Policies should address the scope of the back-testing process, frequency of back-testing, documentation requirements, and management responses. Complex models should be back-tested continually while simple models can be back-tested periodically. Significant discrepancies should prompt a model review.

- (d) Stress testing.⁶ The underlying statistical models used to measure market risk summarize the exposures that reflect the most probable market conditions. Regardless of size and complexity of activities, FIs are expected to supplement their market risk measurement models with stress tests. Stress tests are simulations that show how a portfolio or balance sheet might perform during extreme events or in highly volatile markets.

Stress testing should be designed to provide information on the kinds of conditions under which the bank's/QB's strategies or positions would be most vulnerable. They must therefore be tailored to the risk characteristics of the bank/QB.

In addition, stress scenarios should include conditions under which key business assumptions and parameters break down and should take into account the risk of a significant deterioration in market liquidity. The assumptions used for stress testing illiquid instruments and instruments with uncertain contractual maturities are particularly critical to achieving an understanding of the bank's/QB's risk profile. When conducting stress tests, special consideration should be given to instruments or markets where concentrations exist. Banks/QBs should consider also "worst case" scenarios in addition to more probable events.

Further, the Bangko Sentral will expect banks/QBs with material market risk exposure, particularly from derivatives and/or structured products, to supplement their stress testing with an analysis of their exposure to "interconnection risk." While stress testing typically considers the movement of a single market factor (e.g., interest rates), interconnection risk considers the linkages across markets (e.g., interest rates and foreign exchange rates) and across the various categories of risk (e.g., credit and liquidity risks). For example, stress from one market may transmit shocks to other markets and give rise to otherwise dormant risks, such as liquidity risk. Evaluating interconnection risk involves assessing the total or aggregate impact of singular events.

⁶ The provisions on stress testing should be read in conjunction with Circular No. 989 dated 4 January 2018 on the Guidelines on the Conduct of Stress Testing Exercises.

Guidelines for performing stress testing should be detailed in the risk management policy statement. Management and the board of directors should periodically review the design, major assumptions, and the results of such stress tests to ensure that appropriate contingency plans are in place.

- (e) Reporting. Reports should be provided to senior management and the board as a basis for making decisions. Report content should be clear and straightforward, indicating the purpose of the model, significant limitations, the quantitative level of risk estimated by the simulation, a comparison to board approved limits, and a qualitative discussion regarding the appropriateness of the bank's/QB's current exposures relative to earnings and capital as well as market and macroeconomic conditions. Sophisticated simulations should be used carefully so that they do not become "black boxes" producing numbers that have the appearance of precision but may not be very accurate when their specific assumptions and parameters are revealed.

Market limits structure

The bank's/QB's board of directors should set the institution's tolerance for market risk and communicate that tolerance to senior management. Based on these tolerances, senior management should establish appropriate risk limits, duly approved by the board, to maintain the bank's/QB's exposure within the set tolerances over a range of possible changes in market risk factors such as interest rates.

Limits represent the bank's/QB's actual willingness and ability to accept real losses. In setting risk limits, the board and senior management should consider the nature of the bank's/QB's strategies and activities, past performance, and management skills. Most importantly, the board and senior management should consider the level of the bank's/QB's earnings and capital and ensure that both are sufficient to absorb losses equal to the proposed limits. Limits should be approved by the board of directors. Furthermore, limits should be flexible to changes in conditions or risk tolerances and should be reviewed periodically.

A bank's/QB's limits should be consistent with its overall approach to measuring market risk. Market risk limits may include limits on net and gross positions, volume limits, stop-loss limits, value-at-risk limits and other limits that capture either notional or (un)expected loss exposures.

Depending on the nature of a bank's/QB's holdings and its general sophistication, limits can also be identified for individual business units, portfolios, instrument types, or specific instruments. The level of detail of risk limits should reflect the characteristics of the bank's/QB's holdings including the various sources of market risk the bank/QB is exposed to.

The Bangko Sentral also expects that the limits system will ensure that positions that exceed predetermined levels receive prompt management attention.

Limit exceptions should be communicated to appropriate senior management without delay, and the actions taken to resolve them should be properly documented. Policies should include how senior management will be informed and what action should be taken by management in such cases. Particularly important is whether limits are absolute in the sense that they should never be exceeded or whether, under specific circumstances, breaches of limits can be tolerated for a predetermined short period of time. The circumstances leading to a tolerance of breaches should be clearly described.

Market risk monitoring and reporting

An accurate and timely management information system is essential for managing market risk exposures. Further, an effective information system that aids in the identification, aggregation, monitoring and reporting of risk exposures both helps to inform management and supports compliance with board policy.

Reports detailing the market risk exposure of the bank/QB should be reviewed by the board on a regular basis. While the types of reports prepared for the board and for various levels of management will vary based on the bank's/QB's market risk profile, they should be prepared regularly and at a minimum include the following:

- (a) Summaries of the bank's/QB's aggregate exposures;
- (b) Reporting of risk measures, with clear comparisons of current exposure to policy limits and past forecasts or risk estimates with actual results, the latter to identify any modeling shortcomings;
- (c) Summary of key assumptions;
- (d) Results of stress tests, including those assessing breakdowns in key assumptions and parameters; and
- (e) Summaries of the findings of reviews of market risk policies and procedures, and the adequacy of the market risk measurement systems, including any findings of internal and external auditors and/or other equivalent external parties.

(4) Risk controls and audit⁷

Adequate internal controls ensure the integrity of a bank's/QB's market risk management process. These internal controls should be an integral part of the institution's overall system of internal control and should promote effective and efficient operations, reliable financial and regulatory reporting, and compliance with relevant laws, regulations, and institutional policies.

Policies and procedures should specify the approval processes, exposure limits, reconciliations, reviews, and other control mechanisms designed to provide a reasonable assurance that the institution's market risk management objectives are achieved. Many attributes of a sound risk management process, including risk

⁷ Refer also to Sections 162 and 163 of the MORB for the frameworks on Internal Control Framework and Internal Audit, respectively.

measurement, monitoring, and control functions, are actually key aspects of an effective system of internal control. Banks/QBs should ensure that all aspects of the internal control system are effective, including those aspects that are not directly part of the risk management process.

An important element of a bank's/QB's internal control system is regular evaluation and review. The Bangko Sentral expects that banks/QBs will establish a process to ensure that its personnel are following established policies and procedures, and that its procedures are actually accomplishing their intended objectives. Such reviews and evaluations should also address any significant change that may impact the effectiveness of controls, and that appropriate follow-up action was implemented when limits were breached. Management should ensure that all such reviews and evaluations are conducted regularly by individuals who are independent of the function they are assigned to review (e.g., the internal or external auditor, or other equivalent external parties) and that the resulting reports are made available to the Bangko Sentral. When revisions or enhancements to internal controls are warranted, there should be a mechanism in place to ensure that these are implemented in a timely manner.

The internal audit function should likewise review the model risk management process as part of its annual risk assessment and audit plans. The audit activity is not intended to duplicate model risk management processes but should review the integrity and effectiveness of the risk management system and the model risk management process.

Supervisory enforcement actions. Consistent with Section 002/4009Q of the MORB/MORNBFI, the Bangko Sentral may deploy enforcement actions to promote adherence with the requirements set forth in these guidelines and bring about timely corrective actions. If a bank's/QB's risk exposures are not well-managed, the Bangko Sentral may direct the bank/QB to increase its capital, reduce its trading book exposures and/or strengthen its risk management system. The Bangko Sentral may likewise issue directives to limit the level of or suspend any business activity that has adverse effects on the safety and soundness of the bank/QB, among others. Sanctions may likewise be imposed on the bank/QB and/or its directors, officers and/or employees."

Section 4. The definitions of market risk and interest rate risk under Part III of Appendix 69/Q-42 of the MORB/MORNBFI are hereby amended as follows:

"III. Guidelines for Risk Management

For purposes of the discussion of risk, the BSP will evaluate banking risk relative to its impact on capital and earnings. xxx

xxx

Types and Definition of Risk

1. Credit risk xxx
2. Market risk is the risk to earnings or capital arising from adverse movements in factors that affect the market value of both on and off-balance sheet instruments, products, and transactions in an institution's overall portfolio. Market risk arises from market-making, dealing, or position-taking in instruments, structure or strategies the income from which are sensitive to movements in interest rates, foreign exchange rates, credit spreads and equities and commodities prices.
3. Interest rate risk in the banking book (IRRBB) is the current and prospective risk to earnings and capital arising from adverse movements in interest rates that affect banking book positions. IRRBB has three sub-types that relate to the level and structural characteristics of interest rates: (a) *gap risk* which arises from the term structure of banking book instruments, and describes the risk arising from the differences in timing of instruments' rate changes; (b) *basis risk* that describes the impact of relative changes in interest rates for financial instruments that have similar re-pricing tenors but are priced using different interest rate indices; and (c) *option risk* which arises from option positions or from options embedded in a bank's/QB's assets, liabilities and/or off-balance sheet items that alter the level and timing of their cash flows.
4. Liquidity risk xxx
5. Operational risk xxx

Section 5. The disclosure requirements under Appendix 59 on the Risk-Based Capital Adequacy Framework for the Philippine Banking System are likewise amended as follows:

"Part IX. Disclosures in the Annual Reports and Published Balance Sheets

1. X x x
2. X x x

A. Capital structure and capital adequacy

3. X x x

B. Risk exposures and assessments

Credit Risk

X x x

Market Risk

X x x

Operational Risk

X x x

Interest Rate Risk in Banking Book

10. Aside from the general disclosure requirements stated in paragraph 4, the following information with regard to interest rate risk in the banking book have to be disclosed in banks' Annual Reports:

a) Qualitative Disclosures

- i) A description of how the bank defines IRRBB for purposes of risk control and measurement;
- ii) A description of the bank's overall IRRBB management and mitigation strategies. Examples are: monitoring of economic value of equity (EVE) and net interest income (NII) in relation to established limits, hedging practices, conduct of stress testing, outcomes analysis, the role of independent audit, the role and practices of the asset and liability committee (ALCO), the bank's practices to ensure appropriate model validation, and timely updates in response to changing market conditions;
- iii) The periodicity of the calculation of the bank's IRRBB measures, and a description of the specific measures that the bank uses to gauge its sensitivity to IRRBB;
- iv) A description of the interest rate shock and stress scenarios that the bank uses to estimate changes in the economic value and in earnings;
- v) A high-level description of how the bank hedges its IRRBB, as well as the associated accounting treatment;
- vi) A high-level description of key modelling and parametric assumptions used in calculating the change in (Δ) NII and Δ EVE;

b) Quantitative Disclosure

- i) Average (monthly average for the year) and longest repricing maturity assigned to non-maturity deposits; and
- ii) End-of-period Δ EVE and Δ NII using the bank's internal measurement system."

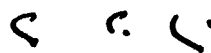
Section 6. Appendix 70/Q-45 of the MORB/MORNBFI is hereby deleted.

Section 7. The following transitory provision shall be incorporated as footnote to Section 151/4181Q as follows:

Banks/QBs shall complete a gap analysis of the requirements of Sec. 151/4181Q vis-à-vis their existing risk management systems within six (6) months from the effectivity of this Section. The results of the gap analysis shall be documented and made available for review by the Bangko Sentral. Banks/QBs are expected to develop or make appropriate changes to their policies and procedures on the management of interest rate risk in the banking book by 1 January 2021.

Section 8. Effectivity. This Circular shall take effect fifteen (15) calendar days following its publication either in the Official Gazette or in a newspaper of general circulation.

FOR THE MONETARY BOARD:



BENJAMIN E. DIOKNO
Governor

6 August 2019