

BEST PRACTICE GUIDELINE

From the Banking Regulation and Supervision Agency:

GUIDELINE FOR INTEREST RATE RISK MANAGEMENT

FIRST PART

Objective, Scope and Definitions

Objective and Scope

1. The objective of this guideline is to explain best practices expected from banks concerning interest rate risk management as part of the Article 35 entitled "the objective of risk management and the establishment of risk management system" of Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks published in the Official Gazette dated July 11, 2014 Nr:29057.

2. The guideline is prepared on the basis of the Article 93 of Banking Law Nr:5411 dated October 19,2005 and the Article 7/A entitled "Best Practice Guides" of Regulation on Procedures and Principles For Supervision by the Banking Regulation and Supervision Agency published in the Official Gazette dated July 22,2006 Nr:26236.

3. The management system of interest rate risk should be designed and implemented in accordance with the principles in this guideline including the following matters:

- a) Senior management surveillance,
- b) In-bank policy and procedures concerning risk management,
- c) The process of adequate risk measurement, monitoring and controlling,
- d) Controlling activities.

4. The institutions that are called as bank as part of the law, are subject to the principles in this guideline. It is expected to establish the matters in this guideline in accordance with the consolidated and unconsolidated structure by considering the size and complexity of bank's activities.

Definitions

5. Following terms used in this guideline shall have the meanings expressly designated to them below;

- a) Banking Book: All interest rate sensitive on and off balance sheet items other than the trading book.

- b) **Basis Risk:** The probability of loss arising from that one of the different interest rates which are used by bank as a basis on dual or multilateral operations, may increase or decrease before the other and this may have adverse effects on the net interest income or economic value of bank.
- c) **Core Deposit:** The stable part of current deposit and special current accounts which do not show sensitivity to different economic conjunctures and interest rate changes.
- ç) **Economic Value:** The present value of the expected cash flow of bank's assets minus the present value of the expected cash flows on bank's liabilities, plus or minus the present value of the expected cash flows on off-balance sheet positions.
- d) **Interest Rate Risk:** The probability of loss in the capital and earnings of the bank that may arise due to interest rate changes.
- e) **Optionality Risk:** The risk of loss in earnings or economic value of banks due to the existence of stand-alone or embedded options in financial instruments.
- f) **Risk Profile:** Risk profile defined in the Article 3 of the Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks,
- g) **Senior Management:** Senior management defined in the Article 3 of the Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks.
- ğ) **Top Management:** Top management defined in the Article 3 of the Regulation on Internal Systems and Internal Capital Adequacy Assessment Process of Banks,
- h) **Yield Curve Risk:** The risk of loss in earnings or economic value of banks caused by a change in the slope or shape of the yield curve.
- ı) **Repricing Risk:** The probability of loss arising from that the potential changes in interest rates may have adverse effects on the net interest income and economic value of bank according to the repricing structure of assets, liabilities and off-balance sheet positions.

SECOND PART

General Principles on the Management of Interest Rate Risk

Board and Senior Management Oversight of Interest Rate Risk

Principle 1. Banks should have the written strategy, policy and procedures concerning the interest rate risk management and these strategy, policy and procedures are entered into force by the approval of the board of directors. The board of directors ensure that senior management takes the necessary steps to monitor and control the risks consistent with the approved strategies and policies. Therefore the board of directors ensure that it should be informed regularly of the interest rate risk exposures of the bank in order to assess the monitoring and controlling of such risks by considering the levels of risks that are acceptable to the bank.

6. The board of directors should have adequate information in order to be able to assess the possible effects of interest rate risk consistent with its ultimate responsibility concerning risk management. The board of directors is responsible for the employment of staff that have enough knowledge required for measuring the interest rate risk. The board of directors should ensure that the necessary software infrastructure in information system of bank should be established with the aim of informing the relevant staff about the policies and procedures and this software infrastructure should be always available for the relevant staff.

7. The board of directors approve and regularly assess the activities, strategies and policies that affect the interest rate risk of bank and the policies concerning the management of interest rate risk. The level of responsibility and authority is clearly defined in policy text.

8. The board of directors monitor whether senior management carries out the necessary activities for identifying, measuring, monitoring and controlling interest rate risk and take the necessary measures pursuant to the results of monitoring.

9.. The board should periodically review information that is sufficient in detail and timeliness to allow it to understand and assess the performance of senior management in monitoring and controlling these risks in compliance with the bank's board-approved policies.

10- The board of directors periodically review the adequacy of action plans and the results, measurement system and assumptions concerning stress tests.

Principle 2. Senior management ensure that the level of bank's interest rate risk is effectively managed, that the appropriate policies and procedures to control and limit these risks are established and that resources are available for controlling and assessing the interest rate risk.

11. Senior management establish the necessary processes in order to ensure to control and keep the risk within limits and to effectively manage the size of interest rate risk exposures and enable the necessary resources for these processes.

12. Senior management develop and enable the implementation of the policies and procedures concerning executive operations in order to ensure to take risks pursuant to the limits, policies and strategies approved by the board of directors.

13. Senior management is responsible for ensuring that the bank has adequate policies and procedures for managing interest rate risk on both a long-term and day-to-day basis. Senior management should clearly identify the lines of authorities and responsibilities for managing and controlling these risks. Senior management is also responsible for ensuring the followings:

- a) risk limits,
- b) establishing the adequate systems and standards for risk measurement,
- c) developing standards for valuing positions and measuring the portfolio performance,
- d) developing a comprehensive risk reporting and monitoring risk,
- e) establishing effective internal controls for risk

14. Senior management assess the possible effects of changes in the market and in significant risk factors on bank and establish the necessary reporting system and report sets in order to get information that it will need in these assessments.

15. Senior management periodically review the policies and procedures concerning the management of interest rate risk and report the necessary changes to the board of directors with their reasons.

16. Senior management ensure that there should be competent staff with technical knowledge and experience in order to identify, measure, monitor and control the interest rate risk. Senior management also establish the suitable work sharing by having sufficient competent staff to manage these activities in the temporary absence of key personnel.

17. Senior management periodically review assumptions, approaches, results of stress tests t and adequacy of action plans.

18. Senior management should design compensation plans in the manner that they should not encourage the excessive interest rate risk taking and general compensation policy should not contradict with interest rate risk strategy.

Risk Management Policies And Procedures

Principle 3. The interest rate risk policies and procedures consistent with bank's size and complexity of its activities are clearly determined. These policies and procedures are applied on consolidated and unconsolidated basis.

19. These policies and procedures include the matters on controlling interest rate risk, establishing limits and determining acceptable level of risk. Policies should define the specific actions necessary for exceptions to limits.

20 Policies and procedures should delineate lines of responsibility and accountability over interest rate risk management decisions and should clearly define authorised instruments, hedging strategies, and positiontaking opportunities.. It is necessary to separate the duties in key elements of risk management process to avoid potential conflicts of interest. Sufficient safeguards should exist to minimise the potential that individuals initiating risk-taking positions may inappropriately influence key control functions of the risk management process such as the development and enforcement of policies and procedures, the reporting of risks to senior management, and the conduct of back-office functions

21. The policies and procedures include overall exceptional practices concerning the authority hierarchy, limits and implementation of policies and procedures and other issues related to the permissions that need to be taken in this situations.

22. The policies and procedures of interest rate risk should be reviewed periodically. However in the case of material change in interest risk exposure of bank, policies and procedures should be reviewed immediately.

23. The decisions of significant risk management and hedging concerning the interest rate risk are approved by the board of directors or by a committee authorized by the board of directors

before implementing. Before using hedging or position taking strategies of a new product, banks should establish the adequate risk controlling systems and operational procedures. The board of directors or a specific committee of the board should approve major hedging or risk management initiatives in advance of their implementation. The followings should be considered while proposing new instruments or strategies:

- Description of relevant product or strategy,
- Identification of resources required to establish sound and effective interest rate risk management of the product or activity,
- Analysis of the reasonableness of the proposed activities in relation to the bank's overall financial condition and capital levels
- Procedures to be used to measure, monitor, and control the risks of the proposed product or activity.

24. Banks assess the adequacy of internal control system and risk management for the interest rate risk arising from the new products and services in advance of presentation of them. Banks establish policies and procedures and internal control activities concerning these products and services if necessary.

25. In identifying whether the interest rate risk exposure of bank is significantly affected because of a new product or service, the maturity of product or service, repricing period and repayment conditions are considered.

26. The written approaches of banks concerning the management and assessment of interest rate risk include, at a minimum, the followings:

- a) A clear description and definition for the differentiation between banking and trading book positions .
- b) The methods used for risk measurement and assessment and definition of economic value and position assessment and how these methods are used,
- c) The issues concerning stress testing and scenario analysis and the issues concerning the size, type and scope of different shocks used in internal calculation,
- d) Which approach, dynamic or/and static, is used in interest rate shocks,
- e) Predictions about pipeline transactions
- f) Aggregation of interest rate risks in which many foreign exchange rates are used,
- g) Issues concerning the management of basis risk.
- h) Which assets and liabilities are considered as interest sensitive including the capital and provisions,
- i) The identification of assets and liabilities that include embedded derivatives especially the prepayment option,
- j) The level of sensitivity that nonlinear (optional) products show before the little shocks and the issues concerning the usage of this sensitivity standards for larger shocks,

- k) The detail¹ level in the calculations including maturity segments,
- l) Procedures for reviewing and revising the policies in the event that there is a significant change in the interest rate risk profile of bank,
- m) The issues concerning interest rate risk mitigation techniques and controls established to enable the effectiveness of these techniques,
- n) The controls on exceptional operations and the reporting principles about this,

THIRD PART

Management of Risk Measurement Processes

Risk Measurement, Monitoring and Control

Principle 4. Banks establish interest rate risk measurement systems that include all significant sources of interest rate risk and, that assess the effects of interest rate changes on earnings and economic value and, that are consistent with the scope and complexity of their activities. The assumptions underlying the system should be clearly understood by risk managers and senior management.

27. Banks establish systems by considering the scope and complexity of their activities to ensure the assessment of the effects of interest rate changes on the earnings and economic value.

28. Risk measurement system should at a minimum;

- i. Assess all material interest rate risk associated with a bank's assets, liabilities and off balance sheet transactions of the bank including repricing risk, yield curve risk, basis risk and optionality risk,
- ii. be appropriate to the generally accepted financial approaches and risk measurement techniques,
- iii. ensure the adequate documentation about its assumptions and parameters,
- iv. consider the convexity factor together with all options including the embedded ones

29. As a general rule, a risk measurement system should consider interest rate risk positions arising from all bank activities caused by both trading and banking accounts of bank.

30. A bank's interest rate risk measurement system should address all material sources of interest rate risk including repricing, yield curve, basis, and option risk exposures. In many cases, the interest rate characteristics of a bank's largest holdings will dominate its aggregate risk profile. Interest rate risk measurement systems should also provide rigorous treatment of those instruments which might significantly affect a bank's aggregate position, even if they do not represent a major concentration. Instruments with significant embedded or explicit option characteristics should receive special attention.

¹ "Detail" is used in return for "granularity" in English.

Data Management

31. Workflow diagrams concerning the running of risk measurement system (data sources, calculation stages etc.) are put in writing. It is necessary to clearly document each stage of calculation made by these systems.

32. Banks establish management information systems to get the information necessary for interest rate risk measurement system in a reliable way. In this context, banks at a minimum get the following information for each financial instrument or portfolio that have significant size;

- i. Current account balance and contract interest rate,
- ii. Timing of cash flows, repricing periods and maturities,
- iii. The index used for floating rate products

In the event that it is necessary to use historical information in risk measurement system, banks should use at least five year information but if a more prudential result may be gotten, banks may use information of a shorter-term than five year.

33. Banks ensure that all cash flows and positions arising from on and off balance sheet accounts should be included in the risk measurement system on time. Each changes made manually or automatically in the information that take part in the interest rate risk measurement system as an input is recorded.

Establishing Scenarios and Determining Assumptions

34. The size of interest rate risk is a function of the sensitivity of positions basically to the changes in interest rate and the magnitude of interest rate changes. In establishing the necessary scenarios for risk measurement within the context of interest rate risk measurement system, the possible changes in interest rates are taken into account.

35. Banks use multiple scenarios including the possible interactions (for example yield curve risk and basis risk) in different interest rates, as well as in the changes of interest rates' general level. For example, banks may use simulation techniques to decide the possible changes in interest rates. Statistical analysis has a key role in the assessment of correlation assumptions about basis risk and yield curve risk.

36. In establishing scenarios, banks take into consideration the possible changes in customers' behaviors because of the factors considered as part of the scenario and the changes expected to happen in bank activities in the future.

37. In estimating the level of interest rate risk independently from the usage of earnings and economic value approach, banks consider the expectations concerning the possible action of interest rate in the future. Within the context of scenarios, banks should not be limited with the shocks determined in Agency regulations as interest rate shock on the basis of currency.

38. In determining the results of interest rate risk management systems, it has great importance that assumptions underlying the system should be clearly understood by risk managers and senior management. Especially, it is necessary to use advanced simulation techniques carefully

and not to consider them as black-box. Basic assumptions should be understood by risk managers and senior management and should be reviewed at least annually. All these assumptions should be put in writing and the importance of them should be understood. In determining the sensibility of instruments that have complex nature to interest rate, banks may use various assumptions. Banks should pay great attention to documentations that will be made for perpetual instruments and review them regularly.

39. Banks pay attention to two important issues while measuring the interest rate risk. These are positions which are behavioral and have different contractual maturity and positions of different currencies. There is a possibility that the positions arising from the deposit accounts should be withdrawn at any moments in contractual maturities or regardless of the maturity. These factors cause difficulty in measuring the interest rate risk effect, because if the interest rates change, the timing of cash flows as well as the value of positions also changes. Concerning the banks' assets, mortgage related instruments and prepayments of mortgage loans cause uncertainty about the timing of these positions' cash flows.

40. Banks are exposed to interest rate risks in different currencies because they have positions in different currencies. Because the yield curves vary according to currency, banks should measure the risk exposures separately for the significant currencies in their portfolios. Banks that have different currency risk exposures, determine the overall risk by considering the correlation between risks arising from different currencies and interest rates of these currencies in their risk measurement processes. Banks that utilize the correlation assumptions in order to determine the overall risk effects, should review the stability and accuracy of these assumptions regularly. Banks also assess the possible risk effects in the event of a change in these correlations.

41. All the assumptions used in interest rate risk measurement system are comprehensively justified, are approved by risk management unit and senior management and are reviewed at least annually. Bank management should not make excessively optimistic assumptions in interest rate risk measurement. In the measurement of interest rate risk, banks at a minimum make assumptions about the following basic issues:

- a) The issues that the contractual maturity of positions is different from their behavioral maturity (for example, issues about core deposit),
- b) The uncertainty in the timing of cash flows arising from the prepayments in the credits which have prepayment opportunity (credits provided in return for mortgage etc),
- c) The predictions of correlations that will be used in identification of overall effect that may arise because of positions in different currencies.

42. Core deposit will be measured only on the basis of current deposits and separately for each currency. The assumed maturity of core deposits cannot be more than three year. The measurements are reviewed annually and the assumptions and current techniques concerning core deposits are kept available for audit by reporting in detail.

Principle 5. As part of the interest rate risk measurement system earnings and economic value approaches can be used in risk measurement. In this context;

- a) Banks consider the possible changes in the bank's net interest income and non-interest income/expense that is sensitive to interest rate because of changes in interest rates in earnings approach.**
- b) Banks analyze the effects of changes in interest rates on bank's equities with a long-term point of view in the economic value approach.**

43. In measuring the possible changes in the bank's net interest income and non-interest income/expense that is sensitive to interest rate because of changes in interest rates in earnings approach, the net interest income risk that may arise after bank's assets, liabilities and off-balance sheet positions are placed to the maturity segments, is determined by multiplying the variables of the assumed interest rate change of deficit in each maturity segments and how long this deficit will continue. Banks should consider all the positions both that may cause cash flow in a year behaviorally and that have one-year maturity in earnings approach.

44. In measuring the impact of interest rate risk on both earnings and economic value, banks use a range of techniques. These techniques may vary from simple gap analysis to static simulations that are made by using current positions and to complex dynamic modeling techniques that may affect future business decisions.

45. The simplest technique used for measuring the interest rate risk of bank is to monitor the interest sensitive assets, liabilities and off-balance sheet instruments of bank by separating into maturity segments: if they are fixed-rate according to their maturity, if they are floating-rate according to their pricing date. In this technique, banks may use simple indicators that determine the sensibility of both incomes and economic value to interest against the changing interest rates. This approach used in order to assess interest rate risk that threaten the current earnings is called "gap analysis ". The size of deficit in a maturity band (that is,assets minus liabilities plus OBS exposures that reprice or mature within that time band) is an indicator of bank's repricing risk exposure.

46. A maturity/repricing schedule can also be used to evaluate the effects of changing interest rates on a bank's economic value by applying sensitivity weights to each time band. Typically, such weights are based on estimates of the *duration* of the assets and liabilities that fall into each time band, where duration is a measure of the percentage change in the economic value of a position that will occur given a small change in the level of interest rates. Duration-based weights can be used in combination with a maturity/repricing schedule to provide a rough approximation of the change in a bank's economic value that would occur given a particular set of changes in market interest rates. Banks also take into consideration the effects of convexity and products like options whose yield structure is non linear to measurements.

47. Many banks (especially those using complex financial instruments or otherwise having complex risk profiles) employ more sophisticated interest rate risk measurement systems than those based on simple maturity/repricing schedules. These *simulation techniques* typically involve detailed assessments of the potential effects of changes in interest rates on earnings and economic value by simulating the future path of interest rates and their impact on cash flows. In *static simulations*, the cash flows arising solely from the bank's current on- and off-balance sheet positions are assessed. In a *dynamic simulation* approach, the simulation builds in more

detailed assumptions about the future course of interest rates and expected changes in a bank's business activity over that time. These more sophisticated techniques allow for dynamic interaction of payments streams and interest rates, and better capture the effect of embedded or explicit options.

48. Regardless of measurement system, the effectiveness of each technique depends on the validity of underlying assumptions and the accuracy of basic methods used in modeling the interest rate risks. In designing the interest rate risk measurement systems, banks should pay attention that the detail level of interest sensitive positions should be proportional to complexity and risk inherent in those positions. For example, in gap analysis, the accuracy of interest rate risk measurement is based on the number of maturity bands. The separation of positions/cash flows into large maturity bands cause to make some assumptions about aggregation. Banks pay attention that such assumptions should not cause a significant effect on the results.

FOURTH PART

Management of Monitoring Processes

Principle 6. Banks determine interest rate risk limits appropriate to the internal risk management policies and implement these limits.

49. The objective of interest rate risk management is to try to keep interest rate risk within certain limits by considering the possible changes in interest rates. To reach this aim, banks develop guidelines for risk taking and interest rate risk limit determination system. This system should set boundaries for the level of bank's interest rate risk. The system should also have the resilience of establishing these limits on the basis of portfolios, activity unit and business lines. Limit determination systems should give a warning in the event of exceeding the determined limits and the board should intervene immediately. A reasonable limit system should enable the board to control interest rate risk, to generate discussions about risks and chances and to monitor actual risks before the predetermined risk tolerance.

50. A bank's limits should be consistent with its overall approach to measuring interest rate risk. The interest rate risk limits that are acceptable for the bank should be determined by the board of directors and should be reviewed regularly. These limits should be established in conformity with the bank's size, nature and capital adequacy in addition to the bank's ability to manage and measure its risk. Limits can be defined on the basis of business line, activity units and instrument types depending on the bank's assets and general complexity structure. The detail of risk limits should reflect the portfolio features and the types of bank's interest rate risk exposures.

51. The responsible senior manager should immediately be informed about the limit exceptions. There should be a clear policy about informing the senior management and the actions of senior management in such a situation. The significant matter is that the absolute definition of these limits should be clearly done and it should be determined whether these limits may be exceeded under some special conditions or not and if it is possible, the tolerance limits should be identified. In this context, it may be a significant factor to be conservative while determining these limits.

52. Regardless of aggregation levels, risk limits should be in conformity with the integrated approach that the bank utilize in order to measure interest rate risk. Limits should consider the possible effects of changing market interest rates on bank's earnings and economic value.

53. In determining the contribution of non-interest incomes to their interest rate risk exposures, banks may determine limits over net income as they determine over net interest income. These limits enable to control the fluctuations in bank's profitability under the different interest rate scenarios

54. The nature of limit that will show the interest rate effect on the bank's economic value should be in conformity with the size and nature of bank's position. For the banks that deal with traditional banking activities, relatively more simple limits may be adequate. However, more complex banks may need more detailed limits.

55. Interest rate risk limits can be adjusted according to certain scenarios that include the movements in market interest rates. The interest rate movements used in determining these limits, should consider the historic rate volatility and time required to address exposures. Limits may be based on measurements such as "Earnings at risk²" and "economic value at risk³" that are obtained from the statistical distribution of interest rates. In addition, these scenarios consider all the possible components of interest rate risk such as repricing risk, yield curve risk, basis risk and optionality risk. The simple scenarios that examine the parallel movements in interest should not be adequate in identifying such risks.

Principle 7. Banks measure the effects of losses that may arise under certain stress conditions including that the assumptions considered in interest rate risk measurement may not reflect the truth. These measurements are taken into account in reviewing and establishing interest rate risk policies and limits.

56. In establishing stress scenarios, the following basic issues are considered:

- i. The changes in general level of interest rates,
- ii. The changes in relations between different interest rates (basis risk),
- iii. The changes in the shape and slope of yield curve,
- iv. The changes in the liquidity of significant financial markets,
- v. The changes in the volatility of market interest rates.

57. Stress scenarios should include conditions under which key business assumptions and parameters break down and impact of position where concentrations exist. To establish interest rate risk scenarios only depending on the past interest rate changes is not adequate for risk measuring.

58. Banks establish reverse stress tests to determine parallel interest rate shocks that may cause economic value of equity decrease more than economic value limits set by the Agency and bank and report these stress tests to the board of directors and senior management.

² This is used in return for the term "earnings at risk" in English.

³ This is used in return for the term "economic value at risk" in English.

59. Senior management should periodically review the design and results of stress tests and make adequate contingency plans.

60. In the issues concerning stress tests, banks considers the principles and procedures in " the Guideline for Stress-testing to be used by Banks in Capital and Liquidity Planning" in addition to the principles and procedures in this guideline.

Principle 8. Banks establish adequate information systems to measure, monitor , control and report interest rate risk. Banks report the results of risk monitoring and measuring concerning interest rate risk to the board of directors, senior management and relevant business line managers in time.

61. Risk measurement reports concerning interest rate risk are periodically prepared and include current exposure, relevant limits, past forecast and actual results . These reports are prepared at least quarterly on consolidated and unconsolidated basis.

62. By considering the requirements of management levels, the reports presented to the board of directors, senior management and relevant business line managers as part of the risk measurement and monitoring results concerning interest rate risk at a minimum include the following issues:

- a) The summary of overall risk level,
- b) Bank's compliance level with with policies, procedures and limits,
- c) Basic assumptions such as prepayment and behavioral information of current deposits used in measurements,
- d) Stress tests results including assessment of conditions in which basic assumptions and parameters are in valid and the adequacy of bank's equities as part of these results,
- e) The current audit and control results carried out by the units within the context of internal systems about the interest rate risk policies and management and independent audit results,
- f) The impacts of risks on capital level, the conformity of capital adequacy with bank's target , potential capital needs and action plans.

FIFTH PART

Management of Control Processes

Controlling Activities

Principle 9. Banks establish adequate and effective internal control system for interest rate risk management process. Internal control system should include an independent review and assessment that will be carried out by internal audit unit to measure the effectiveness of system regularly and to ensure the improvement of internal control if necessary.

63. Banks should have internal control in adequate number and quality that ensure the accurate operation of interest rate risk management processes. These controls should be an integral part of the bank's overall system of internal control. Internal control activities ensure to integrate interest rate risk management processes into the whole bank. Such internal control activities are expected to raise the effectiveness of bank's operations, the reliability of financial and legal reporting, the adaptation to legislation and institutional policies. Within the context of interest rate risk management, an internal control system include a sound control environment, an adequate process for identifying and measuring risks, establishing checkpoints in policies, procedures and methodologies, adequate information systems and continuously reviewing that whether the system operates in conformity with established policies and procedures or not.

64. In establishing control policies and procedures, banks pay special attention to mechanism that meet the objectives of approval processes, risk limits, agreements, reviews and interest rate risk management. Most factors of a sound risk management, especially those risk measurement, monitoring and controlling functions, are also a part of an effective internal control system. However, the banks should ensure the efficiency and adequacy of internal control activities which is not a direct component of risk management.

65. Regular review and evaluation is one of the important components of controls concerning interest rate risk management process. Review and assessment include the utility and conformability of established procedures as well as the staff's conduct according to policies and procedures. The reviews and assessment process should also enable to monitor and manage limit exceeding effectively and examine significant changes that may prevent the efficiency of controls especially those market conditions, staff, technology and risk limits. Senior management ensure that the staff that take part in review and evaluation processes should be independent from the functions and business lines of review. At the end of the review and assessment process, if it is decided that internal controls should be revised or improved, banks should establish the mechanism to ensure that these are implemented in a timely manner.

66. In reviews and assessments, banks also examine the findings of past review and assessments, the adequacy of actions that the bank take about limit exceeding and the conformity of these actions with policies and procedures.

67. The review about interest rate risk measurement should include the current assumptions, parameters and methodologies. The reviews aim at understanding, testing and documenting of

measurement process, evaluate the accuracy and reliability of system and include offers about minimizing the identified weaknesses. In the event that measurement system include many systems and processes, banks should also test whether the integration and consistency among these processes are ensured or not. The results of reviews are reported to senior management or the board of directors and banks immediately take the necessary measures concerning the identified problems.

68. The frequency and extent to which a bank should re-evaluate its risk measurement methodologies and models depend, in part, on the particular interest rate risk exposures created by holdings and activities, the pace and nature of market interest rate changes, and the pace and complexity of innovation with respect to measuring and managing interest rate risk.

69. Banks should have measurement, monitoring and control functions that are reviewed regularly. The staff carried out the independent review should ensure that risk measurement system include all the important components of interest rate risk management arising from on and off balance sheet positions. Reviewing process, at a minimum, includes the following factors:

About the quantity of interest rate risk management;

- a) The volume of banking products and their price-sensitivity,
- b) The sensitivity of capital and earnings to changes in yield curve,
- c) The accuracy and relevancy of modelling assumptions,
- d) The adequacy of current methodology about reflecting risk profile of bank,
- e) The sensitivity of earnings and economic value against the different forms of interest rate risk including basis and optionality risk,

About the quality of interest rate risk management;

- f) The appropriateness of internal measurement system with the nature, size and complexity of bank and its activities,
- g) The accuracy of internal measurement system and ensuring its conformity and using the outputs getting from this system in the daily risk management activities and decision processes,
- h) The process of updating or reviewing the policies in the event of a significant change in the market risk profile of bank,
- i) The consistency, accuracy and reliability of information and information sources,
- j) The management information system infrastructure used in monitoring and reporting processes,
- k) The independence of risk management unit,
- l) To take part in the risk control process actively by senior management

- m) To document the internal policies, controls, processes and assumptions, the accuracy and reliability of information getting and aggregation processes and the presence of qualified staff that take part in risk management process.

SIXTH PART

Other Issues

70. Interest phrases mentioned in this Guide refers to the profit share for the funds provided by the participation banks specified in the Article 48 (2) of Banking Law and demand deposit mentioned in this Guide refers to the private current account.