National Bank of the Republic of Macedonia
Supervisory Policy Manual

Title: MR-2 Foreign Exchange Risk Management

Date: FINAL

Purpose: To set out the approach which the NBRM will adopt in the supervision of licensed institutions' foreign exchange risk, and to provide guidance to licensed institutions on the key elements of effective foreign exchange risk management.

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Supersedes Previous Issue: None

Application: All licensed Institutions and Supervision Personnel

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1. Introduction

1.1. Foreign exchange risk is the current or prospective risk to earnings and capital arising from adverse movements in currency exchange rates. Foreign exchange risk can be separated into: 1)***Transaction risk*** which refers to the impact of adverse movements in currency exchange rates from actual foreign exchange transactions (trading exposure); 2) ***Translation risk*** which refers to the variability in accounting values that result from variations in exchange rates used to translate carrying values in foreign currencies to the base (domestic) currency; and 3) ***Economic foreign exchange risk*** which refers to changes in the competitive strength of the institution or its entities in the foreign market due to fundamental changes in exchange rates.

1.2. "Foreign exchange settlement risk" means the risk of financial loss (current and prospective risk to earnings and capital) to an institution when it pays for the currency it sold but does not receive the currency it bought in a foreign exchange transaction.

1.3. Foreign exchange risk or the risk of fluctuating exchange rates may be defined further as the level of actual or potential impairment to the institution's financial situation, i.e., threat to earnings and capital as a result of changing exchange rates upon an institution's open, non-hedged positions in various foreign currencies. Changes in values of foreign currency denominated balance sheet and off-balance sheet assets and liabilities will create a realized or unrealized gain or loss upon conversion to local currency equivalents. For management and control purposes, most financial institutions distinguish between positions arising from actual foreign exchange transactions (trading exposure) and the overall foreign currency translation exposure of the institution.

1.4. Exchange rate risk is a usual consequence of trading in a world in which foreign currency values move up and down in response to shifting market supply and demand. While institutions are exposed to a number of different types of risk in the conduct of their foreign exchange business, most of these risks also feature in domestic banking business. In principle, the only risk unusual to foreign currency business is the exchange rate risk, i.e., the risk that an institution may suffer losses as a result of adverse exchange rate movements during a period in which it has an open position, either spot or forward, or a combination of the two, in an individual foreign currency.

1.5. Within individual institutions, foreign currency money market and exchange trading operations may be combined or completely separate with regard to policies, procedures, reporting, and even dealing. However, they ultimately must be viewed together to evaluate liquidity and to insure compliance with overall institutional objectives and risk management strategy. This guidance discusses both functions as if they were performed by the same traders, processed by the same bookkeepers and managed by the same officers.

1.6. Foreign exchange activities can be divided into speculation, arbitrage and hedging.

- *Speculation* is the activity that leaves a currency position open to the risks of currency movements. Speculators (an Institution) take a position to "speculate" with the direction of the exchange rates. A speculator takes on a foreign exchange position on the expectation of a

favorable currency rate change. That is, a speculator does not take any other position to reduce or cover the risk of this open position.

- *Arbitrage* refers to the process by which an Institution attempts to make a profit by taking advantage of discrepancies among prices prevailing simultaneously in different markets. The simplest form of arbitrage in the foreign exchange market is *spatial arbitrage*, which takes advantage of the geographically dispersed nature of the market.
- *Hedging* is a way to transfer part of the foreign exchange risk inherent in all transactions, such as an export or an import, that involve two currencies. That is, by contrast to speculation, hedging is the activity of covering an open position. A hedger makes a transaction in the foreign exchange market to cover the currency risk of another position.

1.7. Foreign exchange risk occurs when an institution takes an open position in a currency. When an institution holds, buys, or agrees to buy more foreign currency than it sells, or agrees to sell more than it buys, an exposure is created which is known as an open position. Open positions are either long or short. When an institution buys more of a currency, either spot or forward, than it sells, it has a long position. Conversely, if more of a currency is sold than bought, a short position is created. Until an open position is covered by the purchase or sale of an equivalent amount of the same currency, the institution risks an adverse move in exchange rates. A long position in a depreciating currency results in exchange loss relative to book value. As the foreign currency depreciates, it is convertible into fewer units of local currency. Similarly, a short position in a currency that is appreciating results in an exchange loss relative to book value because; as the currency increases in value it costs more units of local currency to close the position.

1.8. Thus institutions have foreign exchange positions which arise from the following activities:

- Trading in foreign currencies through spot, forward and option transactions as a market maker or position taker, including the non-hedged positions arising from customer-driven foreign exchange transactions;
- Holding foreign currency positions in the banking book (e.g., in the form of loans, bonds, deposits or cross-border investments); or
- Engaging in derivatives transactions (e.g., structured notes, synthetic investments and structured deposits) that are denominated in foreign currency for trading or hedging purposes.

1.9. Foreign exchange risk thus applies to positions in both the trading book and the banking book. Excessive foreign exchange risk can pose a significant threat to an institution's earnings and capital adequacy. They should therefore address the risk arising from foreign exchange operations and exposures in three ways:

- Maintaining an effective system of internal control to identify, measure, monitor and control the extent and nature of the risk;
- Setting appropriate limits on such risk exposures to avoid any risk concentration; and
- Holding adequate capital against the possibility of loss. The capital requirements for foreign exchange risk exposures of institutions are captured under the market risk capital adequacy regulation.

1.10. Institutions should also be aware of the potential impact of interrelationships between foreign exchange risk and other risks in their portfolios. For example, adverse changes in exchange rates and interest rates are usually correlated under adverse market conditions and may increase the counterparty (or settlement) risk of individual market participants. Also, maturity mismatches between foreign currency positions constitute a source of liquidity risk to institutions. If an institution has an overnight short position and an equivalent one-year long position in the same foreign currency, a matched foreign exchange position is reflected. This position, however, creates a maturity mismatch (i.e., maturity gap).

1.11. ***Net Open Positions.*** An institution has a net position in a foreign currency when its assets, and its liabilities, in that currency are not equal. An excess of assets over liabilities is called a net "long" position and liabilities in excess of assets, a net "short" position. A long position in a currency which is depreciating will result in an exchange loss relative to book value because, with each day, that position (asset) is convertible into fewer units of local currency. Similarly, a short position in a currency that is appreciating represents an exchange loss relative to book value because, with each day, satisfaction of that position (liability) will cost more units of local currency.

1.12. ***Maturity Gaps.*** Exchange risk may exist, even though the institution has no net open position (assets equaling liabilities). Gaps are the result of unmatched forward maturities creating days or longer periods of uneven cash inflows and outflows. For example, a maturity spread of an institution's assets, liabilities, and future contracts may reflect a prolonged period over which substantial amounts of a particular currency will be received well in advance of any scheduled offsetting payments (positive gap). The institution must decide whether:

- To hold the currency in its nostro accounts.
- To invest or place it short-term.
- To sell it (spot or forward) for delivery at the time the gap begins and to repurchase it (spot or forward) for delivery at the time the gap ends.
- To use any combination of those alternatives.

1.12.1. Institutions control maturity gaps by establishing limits on the volume of mismatches in its total foreign exchange position. The decision whether to close a gap when it is created, or leave it until a later date, is usually based upon analysis of the money market interest rates, and spot and forward exchange rates.

1.12.2. An institution should identify its liquidity position and its liquidity needs in each currency by use of asset-liability maturity gap schedules for each of the major currencies in which it is exposed.

1.13. Institutions often use the following transactions/instruments to offset the risks in positions or structural exposures:

- *Spots*. A spot deal (where one currency is bought or sold for another at an agreed rate) which is settled in two working days following its conclusion.
- *Forwards.* A forward deal (where one currency is bought or sold for another at an agreed rate) which is settled in more than two working days following its conclusion. A forward

transaction is similar to a spot transaction. The settlement date, however, is deferred much further into the future. No cash moves on either side until that settlement date. That is, the forward market involves contracting today for the future purchase or sale of foreign currency.

- *Currency swaps.* A currency swap is an agreement to buy or sell a specified amount of one currency for another currency and a simultaneous agreement to sell back or buy back the given amount of currency within an agreed time interval at an exchange rate agreed for the first operation (buy or sell) and for the second operation (sell or buy).
- *Options.* There are call and put options. Call options are contracts giving the owner ("buyer") the right, but not the obligation, to purchase a quantity of foreign currency at a fixed price (strike price) for a limited interval of time. Put options give the buyer the right to sell. The seller of the option is called the writer. The buyer pays an amount called a "premium" to the seller for the put or call option. A currency option is the right, but not an obligation on the part of an option holder to demand, on its maturity day or within a specified time, that the option writer convert the respective amount of an agreed currency into another agreed currency at a fixed rate agreed beforehand (the so-called strike price), with the value date being two working days from the option maturity date.

2. Elements for Effective Risk Management Process

2.1. General

2.1.1. The first step in establishing and developing an effective foreign exchange risk management system is the creation of an adequate framework for its implementation, including:

- Supervisory Board and Board of Directors Oversight
- Written Policies and Procedures
- Organizational Structures for Managing Foreign Exchange Risk
- Establishing Suitable Management Information Systems; and
- Independent Audit

2.1.2. Effective control of foreign exchange risk requires a comprehensive risk management process that ensures the timely identification, measurement, monitoring, and control of risk. The formality of this process may vary, depending on the size and complexity of the institution.

2.2. Supervisory Board and Board of Directors Oversight

2.2.1. Effective Supervisory Board (Board) and Board of Directors (Directors) oversight of an institution's foreign exchange risk activities is the foundation of an effective risk management process. It is the responsibility of the Board and Directors to understand the nature and level of foreign exchange risk being taken by the institution and how that risk fits within overall business strategies and the mechanisms used to manage that risk. The Board and Directors should be promptly advised of any large losses arising from foreign exchange risk (or any possibility of such losses). Larger or more complex institutions should have the Asset/Liability Committee (ALCO) or other appropriate committee, responsible for the design and administration of foreign exchange risk management. The Board or Directors should assign responsibility for managing foreign exchange risk to individuals or units with

appropriate experience and expertise. The responsible personnel should have an adequate understanding of all sources of foreign exchange risk inherent throughout the institution. There should also be adequate segregation of duties in key elements of the risk management process to avoid potential conflicts of interest.

2.2.2. The Board is responsible for defining the level of foreign exchange risk the institution may be exposed to in its operations. This means adoption of a foreign exchange risk management policy and establishment of the lines of responsibility for effective monitoring and control of foreign exchange risk.

2.2.3. The Board must establish and guide the institution's strategic direction and tolerance for foreign exchange risk, and identify the senior managers who have the authority and responsibility for managing this risk.

2.2.4. The Board will monitor the institution's performance and overall foreign exchange risk profile, ensuring that foreign exchange risk is maintained at prudent levels and is supported by adequate capital. In assessing the institution's capital adequacy for foreign exchange risk, the Board should consider the current and potential foreign exchange risk exposure as well as other risks that may impair capital.

2.2.5. The Board must ensure that Directors implement sound fundamental principles that facilitate the identification, measurement, monitoring, and control of foreign exchange risk. The Board should direct senior managers to submit a comprehensive written report to the Board on the management of exposure to foreign exchange risk at least once a year, and to submit such other reports at such intervals as the Board may require.

2.2.6. The formality of Directors and Board oversight mechanisms will differ depending on the foreign exchange activities conducted by the institution. However, the Board and Directors must provide adequate resources (financial, technical expertise, and systems technology) to implement appropriate oversight mechanisms.

2.2.7. Primary responsibility for the safety of an institution's day-to-day foreign exchange operations rests with the institution's Directors and managers. In particular, Directors are responsible to set appropriate limits to the risks taken by an institution in its foreign exchange business and to ensure that there are proper internal control procedures covering this area of an institution's activities.

2.2.8. Directors and senior managers must:

- Develop and implement procedures and practices that translate the Board's goals, objectives, and risk tolerances into operating standards that are well understood by all personnel and that are consistent with the Board's intent;
- Ensure adherence to the lines of authority and responsibility that the Board has established for measuring, managing, and reporting foreign exchange risk exposures;

- Oversee the implementation and maintenance of management information and other systems that identify, measure, monitor, and control foreign exchange risk; and
- Establish effective internal controls (including an appropriate audit function) over the foreign exchange risk management process.

2.3. **Written Policies and Procedures**

2.3.1. An institution's policies should provide a framework for the management of risk. All employees that are in some way associated with foreign exchange transactions should be guided by written policies to ensure proper identification, quantification, evaluation, and control of risks. The policies, procedures and limits should be properly documented, drawn up after careful consideration of the foreign exchange risk associated with different types of products, reviewed and approved by management at the appropriate level, and circulated to all relevant departments and units. It is important to supplement such policies and procedures with ethical rules and standards which should be observed by employees engaged in foreign exchange trading. These rules and standards should address issues concerning potentially problematic trading practices, such as trading at illiquid hours and spreading of rumors and false information.

2.3.2. Policies should define dealing limits and reporting requirements as well as accounting, audit and control systems to provide proper surveillance over those limits and exceptions. Written policies and procedures approved by the Board should clearly identify the following:

- Descriptions of the financial products, type of services offered, and business strategies;
- Methods and costs for funding foreign exchange positions;
- Definition of jobs and responsibilities for dealing and operational functions;
- Foreign exchange currency position and counterparty limits;
- Trading limits and limit exception approval;
- Reporting process;
- Procedures for measuring, monitoring and control of foreign exchange risk;
- Operational controls - Internal control procedures; and
- Profitability expectations and tolerance for losses.

2.3.3. As a minimum requirement on internal controls relating to foreign exchange operations, procedures should include:

- Prompt and accurate registration of every foreign currency transaction, either for a customer or for the institution, on a deal ticket by a commercial employee (front office);
- Immediate booking of all foreign exchange transactions by an employee of the back office;
- Strict separation of duties between front- and back-office operations;
- Prompt authorization of deal tickets (back office should check whether the deal ticket is authorized by the right employee);
- Timely recording of transactions on a deal ticket. (A deal ticket records information about the transaction. The layout of a foreign exchange deal ticket usually contains the following as a minimum: (1) Transaction date, (2) Settlement date, (3) Currency and

amount purchased, (4) Currency and amount sold, (5) Exchange rate, (6) Payment instructions, both for purchased currency and sold currency, (7) Method of arrangement (e.g., by telephone, through the Dealing System (Reuters or other), or through a broker), and (8) Deal reference number. Each ticket should be pre-numbered and missing deal tickets should be investigated. The back office should also check on the mathematical correctness of the deal slip; use of correct exchange rate, adherence to limits set by the institution, client or counterparty, etc.);

- Completion of deal tickets by the back office of settlement information (through which correspondent bank the transaction is settled); and
- Prompt confirmation of deals - especially for off-balance sheet foreign exchange transactions. (The back office should check whether the confirmation of the counterparty is received in time and that the information reconciles with the deal slips. When confirmations are not received, follow up requests should be sent.).

2.3.4. In developing written procedures institutions should ensure that:

- Policies, procedures and limits are properly documented, provide for adequate identification, measurement, monitoring, and control of the risks posed by all significant activities, and reviewed and approved by management at the appropriate levels;
- Policies clearly delineate accountability and lines of authority for each activity and product area;
- Compliance monitoring procedures exist that internally, by an independent function, check for adherence to all policies, procedures and limits within the institution; and
- Policies, procedures, and limits are consistent with the institution's stated goals and objectives, and the overall financial strength of the institution.

2.3.5. Institutions should identify the foreign exchange risks inherent in new services and activities and ensure that these are subject to adequate procedures and controls before being introduced or undertaken. Analysis that weighs the risks against potential returns and the organizational goals is also necessary. Institutions should pay special attention to new products and strategies that are apparently not compatible or associated with their core business activities. Such new activities may carry non-conventional risks and require substantial system changes and implementation costs. New activities should not be launched until the required systems are in place. New hedging or risk management initiatives (e.g., use of options for hedging) that are not already covered by an institution's foreign exchange policies should be approved in advance by the Board or Board committee.

2.4. **Foreign Exchange Risk Measurement**

2.4.1. Institutions should have foreign exchange risk measurement systems that encompass all significant causes of such risk. The systems should evaluate the effect of foreign exchange rate changes on profitability and capital adequacy within the context and complexity of their activities. Measurement systems should enable institutions at least the following:

- Evaluate all foreign exchange risk by maturity, on both a gross and net basis, arising from the full range of an institution's assets, liabilities and off-balance sheet positions, including instruments with embedded or explicit foreign exchange options;

- Calculate comprehensive risk factor sensitivities (e.g., by-tenor (vega)) for the purpose of capturing the non-linearity nature of price risk of options-related positions;
- Use accurate and timely data (in relation to rates, embedded options and other details) on current positions;
- Monitor foreign exchange settlement risk in real-time (or close to real-time) in order to ensure that settlement limits will not be exceeded; and
- Maintain documentation of the assumptions, parameters and limitations on which the measurement systems are based. Material changes to assumptions should be documented, well supported and approved by Directors.

2.4.2. Value-at-risk results and other similar methodologies for measuring potential foreign exchange risk lag behind and underestimate the movements in foreign exchange rates. This is one of the well-known weaknesses of the value-at-risk methodology. However, the NBRM recommends that institutions consider using value-at-risk (and other such methodologies) to measure aggregate foreign exchange risk. Additionally, in cases where institutions have material exposures to currencies with low historical volatility, they should conduct stress tests on those exposures to measure foreign exchange risk. In setting the limits of those exposures, institutions should have regard to the stress-testing results and should not rely solely on the historical volatility of the currencies.

2.5. Organizational Structures for Managing Foreign Exchange Risk

2.5.1. The organizational structure through which foreign exchange activities are conducted will depend on the culture of the organization, the size and complexity of the business operations in question, the type of risk being taken and the materiality of possible adverse outcomes. This requires defining an appropriate organization, which will ensure the fulfillment of the foreign exchange risk management policies and establishing clear definitions of the tasks and responsibilities of management bodies and respective organizational units.

2.5.2. There should be distinct separation of duties and responsibilities between the trading and the accounting operations. Defined levels of authority help ensure that an institution's foreign exchange activities are undertaken appropriately and that exposures do not exceed the limits established under Board and management policies. This also means that Directors are actively involved in foreign exchange activities and monitoring.

2.5.3. The many opportunities for greater profit or personal financial gain, whether by speculating beyond loosely controlled limits, concealing contracts because of poor confirmation procedures, or by simple fraud, may be too tempting even to the most trusted employees. Therefore, sound continuing safeguards (internal controls) are critical, along with periodic audits and examinations.

2.5.4. It is important that institutions have clear separation of activities in the following organizational units involved in or closely associated with foreign exchange activities:

- *Foreign Exchange Dealing Room.* Dealers' job descriptions should clearly state the experience required, professional responsibilities, and risk-taking authority. The

instructions to dealers should, moreover, prohibit the conduct of business (including business within the same banking group) at exchange rates which are unrepresentative of the prevailing level in the market. Dealers should be strictly required to record each transaction on a dated and sequentially-numbered form and to pass it promptly to the accounting department.

- *Accounting (back office).* The accounting department should receive without delay all the information from the dealers that is necessary to ensure that no deal goes unrecorded. All foreign exchange contracts, whether spot or forward, should be promptly confirmed in writing. The accounting records controlling dealing activities should be maintained by staff independent of the dealing room. These records should contain the information necessary to verify open commitments, cash movements, support entries to the general ledger, and to generate management reports. Bookkeeping rules should be in writing and be approved by management. These rules should clearly indicate on which accounts the institutions' own positions are booked and which accounts are used to book client positions. Although the organizational structure may vary among institutions, dealing support operations (accounting) should report to high-level management outside of dealing functions. In addition, foreign exchange accounting should be organized in such a way that the institution's management is continuously in possession of a full and up-to-date picture of the institution's position in individual currencies and with individual counterparties.
- *Risk Control Unit (middle office).* The role and structure of the risk control unit (also referred to as market risk management at institutions with significant trading activities) should be commensurate with the extent and complexity of the foreign exchange activities. Risk control units should regularly evaluate risk-taking activities by assessing risk levels and the adequacy of risk management processes. These units should also monitor the development and implementation of control policies and risk measurement systems. Risk control personnel should periodically communicate their observations to senior management, the ALCO and the Board. Staff in these areas should have a complete understanding of all foreign exchange transactions and products. A strong risk control function is a key element in assisting Board members and Directors in fulfilling their oversight responsibilities.

2.6. Risk Monitoring and Control of Foreign Exchange Trading Operations

2.6.1. The high level of risks commonly associated with foreign exchange trading (in particular proprietary trading) deserves close monitoring by institutions regardless of the size of operations. In particular, senior management should understand fully the risks involved. The operations should be in line with the institution's core business strategy with justification of the costs for controlling such operations. To support such operations, there should be adequate capital, qualified people and suitably designed reporting and monitoring systems. It is also more appropriate for trading to be performed in a team environment, as this will discourage any unauthorized or unethical activity.

2.6.2. There should be effective segregation of duties between trading, risk measurement and monitoring, settlement and accounting functions. The front office (or the dealing room) and

the middle and the back office (comprising of a single department or multiple units responsible for financial control, risk management, settlement and accounting, etc.) functions should be separated physically. Staff in these functions should clearly understand their roles, responsibilities and reporting obligations. Access to the dealing room should be restricted to authorized personnel only. In addition, undue influence of the front office staff on the middle/back office operations should be prevented.

2.6.3. A comprehensive framework of limits to control foreign exchange risk exposures should be established for different levels of seniority, both for management and traders. Dealing transactions in the trading room should be time-stamped and, for dealings made by telephone, voice-recorded. Use of wireless communication devices (such as mobile phones) for official business in the trading room should generally be discouraged. Where the use of such devices is allowed by institutions on an exception basis, they should have a clear written policy specifying the circumstances under which the use of such devices can be authorized by management.

2.6.4. Trading positions should be determined and monitored frequently by the middle office, with timely reporting to management throughout the trading day. Management should also be kept apprised of the potential for losses if market prices were to move unexpectedly. Prior approval of senior management for transactions in excess of delegated trading limits must be obtained. The middle office should regularly reconcile positions of traders to ensure that these are within assigned limits. Internal reports comparing actual positions against internal limits should be routinely prepared for management. The middle office should revalue traders' positions regularly, with independent verification of revaluation rates and yield curves, for risk management and accounting purposes.

2.6.5. To prevent manipulation, operating systems should have direct market data feeds, instead of routing through traders' terminals. The back office should confirm all dealing transactions promptly with counterparties. To ensure data integrity, the back office should secure an independent source of client and counterparty data. On an annual basis, all counterparties' open transactions should be confirmed. Any irregularities in transactions, such as a large number of offsetting transactions, identified by the middle/back office should be reported promptly to senior management and investigated. Generally, all transactions should be executed at current market rates. Off-market or historical rate rollover transactions should not normally be permitted, as these transactions may be used to hide a loss or extend a profit or loss position. Any such transactions should be subject to prior approval and stringent monitoring procedures.

2.6.6. Institutions engaging in foreign exchange options trading should ensure that the traders and middle/back office staff have the necessary expertise for such activities. In addition, operational control for options trading can be strengthened if the middle/back office conducts independent reviews of the options positions. Compensation for traders should be in line with the market. Such arrangements should be carefully designed to avoid giving incentives to traders for taking excessive risk. Trading performance in terms of the amount of profits

earned should not be the sole factor for determining annual compensation. The uninterrupted leave policy should be strictly enforced. During the leave period, traders on leave should be strictly barred from trading and any remote access rights. After-hours or off-premises dealing should be restricted to specially designated traders only and be closely monitored.

2.7. **Foreign Exchange Risk Limits**

2.7.1. Exchange rate risk refers to loss due to adverse exchange rate movements. A system of limits should be in place regarding foreign exchange activities. Risk limits serve as a means to control exposures to the various risks associated with foreign exchange activities. The institution's foreign exchange open positions should be subject to a hierarchy of internal limits, including institution-wide, and trading limits should be established for differing levels of seniority, both for management and traders. The limits should be reviewed at least annually or whenever the volatility of currencies increases suddenly and in an extraordinary manner. The size of internal limits will vary among institutions given their individual circumstances. These circumstances include crucial factors like the institution's expertise and the integrity of its risk management and trading systems. Given that such limits are a means of containing the risk of loss, the key limits for an institution should capture exposures on a consolidated basis. The institution should establish foreign exchange risk limits for the following:

- Individual currencies;
- Aggregate of all currencies;
- Counterparty;
- Different organizational units;
- Option limits (e.g., delta, gamma, vega, and rho);
- Settlement risk of all counterparties;
- Open position for a dealer; and
- Maximum loss by trader ("stop loss" limits), organizational unit, and branch.

2.7.2. When setting foreign exchange limits, management should consider:

- Level of earnings and capital available to adsorb potential losses;
- Board's tolerance for risk;
- Institution's commitment and ability to service clients requiring foreign currency-related products;
- Size, depth and liquidity of each product or convertible currency;
- Limits set by the NBRM; and
- Experience of the dealers and support staff.

2.7.3. An institution should establish a system that at any time will control and monitor compliance with NBRM laws and regulations on foreign exchange positions and exposure limits. The institution must maintain the open foreign exchange position within the limits stipulated under Item 3 of the "Decision on determining and calculating the institution's open foreign exchange positions." The limits are as follows:

- The open foreign exchange position by different currencies (Net Open Position) may not exceed 20% of the institution's guarantee capital, except for the open foreign exchange position of the Euro, which may not exceed 30% of the institution's guarantee capital.
- The open aggregate foreign exchange position may not exceed 50% of the institution's guarantee capital.
- The open foreign exchange position by currency and the open aggregate foreign exchange position may reflect negative balance of 10% of the institution's guarantee capital.

2.7.4. Definitions and methods of calculating the institution's open foreign exchange positions by different currencies and the open aggregate foreign exchange position are stipulated in the "Decision on determining and calculating the institution's open foreign exchange positions" (Official gazette of the Republic of Macedonia No 103/2001).

2.7.5. Limit approvals are the responsibility of the Board or a delegated committee, such as ALCO. Internal limits should never exceed the limits indicated in NBRM regulations.

2.7.6. An institution's foreign exchange dealers should have clear instructions both with regards to general trading principles and limits (by individual currencies, counterparties and maturities) on open positions, on the size of individual contracts and on exposures with individual counterparties. At times, especially when markets are volatile, dealers may exceed their limits. While such exceptions may be justified, they must be reported to Directors and approved by authorized personnel. The seriousness of limit exceptions may depend upon management's approach toward setting limits. The institution should have procedures established for cases of unauthorized limit overruns.

2.7.7. Foreign Exchange limits should be monitored by an independent unit on a continuous basis. The Board should review the limits whenever there are major changes in the size and scope of the institution's activities; market conditions; or reductions in the institution's earnings or capital since the limits were established. To ensure consistency between limits and business strategies, the Board should annually approve limits as part of the overall budget process

2.8. **Stress-testing**

2.8.1. Institutions measure their vulnerability to loss arising from foreign exchange operations using various market stress conditions. This evaluation tests the institution's capacity to withstand stressed situations in terms of profitability, liquidity and capital adequacy. At a minimum, the stress tests should cover major currencies to which institutions are exposed. The effects of large exchange rate movements, including a sharp reduction in liquidity, of individual currencies should be considered when setting stress scenarios. Stress scenarios should be commensurate with the nature of the institution's portfolios and risk profile. Institutions should also take into account the stress-testing results when evaluating their adequacy of capital and reviewing their business strategies, policies and limits for foreign exchange risk.

2.8.2. Stress scenarios should shed light on the impact of adverse events on foreign exchange positions that display both linear and non-linear price characteristics (i.e., options and instruments that have options-like characteristics). Possible stress scenarios include but not limited to:

- Historical scenarios such as market shocks that have happened in the past;
- Unanticipated foreign exchange or capital controls in countries where the institution concentrates business activities;
- Abrupt depreciation or appreciation of individual currencies;
- Exchange rate fluctuations due to downgrades of sovereign ratings;
- Changes in key business assumptions and parameters such as the correlation among currencies; and
- Default of long-term assets denominated in foreign currencies.

2.9. **Management Information Systems**

2.9.1. An accurate, informative and timely management information system (MIS) for foreign exchange risk is essential for all institutions; both in keeping senior management and, where appropriate, individual business line managers well informed and to facilitate compliance with Board policy. The Board and Directors must receive adequate information on the structure of the balance sheet in foreign currencies, and foreign exchange operations and activities to properly fulfill their responsibilities.

2.9.2. An institution's MIS should ensure timely and accurate measuring, monitoring and controlling of foreign exchange risk, allowing management and other responsible individuals to make appropriate and timely decisions. Reports should include indicators on market risk as well as operational risk arising from foreign exchange operations. For the purpose of market risk monitoring, senior managers should receive independent daily reports of risk positions and traders' profit and loss. Repeated sharp movements in individual traders' profit and loss warrant close attention and remedial actions, if necessary. As for monitoring of operational risk, indicators such as the number and ageing of unconfirmed transactions and un-reconciled accounts should be reviewed and closely watched.

2.9.3. An institution's audit and control functions should routinely assess compliance with Board-approved limits and identify any exceptions to established standards. Directors should ensure that the institution has mechanisms to detect and adequately address exceptions to limits and guidelines.

2.9.4. Properly designed reports are the most important supervisory tool available to management. They must be prepared in a concise, uniform, and accurate manner and submitted on a timely basis. The frequency and composition of Board and management reporting should depend upon the nature and significance of foreign exchange activities. At a minimum, institutions should generate the following foreign exchange risk reports:

- Net overnight positions by currency, including maturity distribution, by currency, and foreign currency assets, liabilities and exchange contracts;
- Daily net position reports for each applicable currency;

- Profit and loss, totals and comparison to previous day's;
- Market value of off-balance sheet products; and
- Aggregate exposure versus limits.

2.9.5. Additionally, management should consider generating and reviewing reports that cover the following issues:

- Movements in currency exchange rates;
- Changes in the credit quality of counterparties - their ability to meet foreign exchange obligations;
- Changes in the economic and political outlook; and
- Major new product developments or business initiatives.

2.9.6. Institutions are required to submit to the NBRM open foreign exchange positions by currencies and open aggregate foreign exchange positions, i.e.:

- ODP-d report as of 10th and 20th of the current month, within two working days after the date of an open foreign exchange position.
- ODP-d report and an ODP-m report at the end of every month and to submit no later than the 8th of the following month.

2.10. Internal Controls and Independent Audit

2.10.1. All institutions should establish effective internal control and risk management processes for foreign exchange. Internal controls should be reviewed by independent parties, including internal or external auditors. The reviews should, among other things, ensure:

- Accuracy and completeness of recording all transactions;
- Effective segregation of duties between trading, settlement and accounting functions; and
- Effective and accurate reporting of limit and other exceptions.

2.10.2. The internal audit department should routinely value the adequacy and efficiency of the internal control system, adherence to internal policies and procedures, and compliance with laws and regulations. The internal audit function will enable the institution to achieve established goals, introduce a systematic disciplinary method for assessment, and improve the efficiency of the foreign exchange risk management processes. Particular attention should be drawn to irregularities in profit and loss, abnormal trading patterns or trends (e.g., unusually large gross positions) and frequent limit exceptions. Internal auditors should ensure that such incidents are properly investigated. It is important that the internal audit function ensure that all foreign exchange activities are reported to senior management in a timely manner and are consistent with strategies approved by senior management and the Board.

2.10.3. Internal audits are to be conducted by qualified professionals possessing sufficient expertise consistent with the level and complexity of activities and degree of risk assumed by the institution. Audits should supplement, and not be a substitute for, an effective risk control function.

2.10.4. Auditor's reports should indicate the extent to which the auditor tested compliance with established internal controls and accounting entries, as well as compliance with institutional policy. The auditor should also make a determination as to whether the institution's controls are adequate for the level of risks. Reports should contain any recommendations for additional controls, or the deletion of existing controls. Any material deficiencies disclosed by the audit should be promptly reported in writing to the Board or a designated committee.

2.10.5. The scope of audit coverage is commensurate with the level of risk and volume of activity. The audit should include:

- Appraising the adequacy of operations, compliance, and accounting systems and the effectiveness of internal controls. The audit should determine the existence and effectiveness of internal controls covering all aspects of the management and operations of foreign exchange risk;
- Testing compliance with policies, procedures, and limits;
- Evaluating the reliability and timeliness of information reported to senior managers, Directors, the Board and the NBRM;
- Tracing and verifying information provided on risk exposure reports to the underlying data sources;
- Appraising the effectiveness and independence of the risk management process; and
- Monitoring adherence to the measures for overcoming any identified weaknesses or problems.

3. Supervisory Review of Foreign Exchange Risk Management

3.1. In supervising foreign risk, the NBRM adopts an approach that focuses on the processes and internal controls established by the institution. Prudent management of foreign exchange risk, through the establishment of proper strategies, organization, systems and controls, is the primary responsibility of the Board and Directors of all institutions. They are expected to put in place adequate risk management systems to identify, measure, monitor and control foreign exchange risk. The Board and Directors must be committed to risk management for processes to be effective.

3.2. Supervisors determine the adequacy and effectiveness of an institution’s foreign exchange risk management process, the level and trend of risk exposure, and the adequacy of capital relative to risk exposures and risk management processes. Supervisors further assess the existence of internal control systems, that these systems function effectively and that both internal and external reporting is as far as possible safeguarded against falsification.

3.3. NBRM will assess the adequacy and effectiveness of an institution’s foreign exchange risk management system by determining:

- Whether the institution’s foreign exchange transactions are conducted in a safe and sound manner;
- The adequacy of Board and Directors supervision of foreign exchange transactions;
- Whether the Board and Directors have established an effective risk management process;

- Compliance with laws, regulations, regulatory guidelines, and established policies and procedures; and
- Effective corrective action when policies, practices, procedures, or internal controls are deficient or when violations of law, regulation or noncompliance with regulatory guidelines are noted.

3.4. Factors considered when evaluating the quantity of foreign exchange risk are:
- Complexity and level of foreign exchange risk identified on the balance sheet, i.e., foreign currency assets, liabilities and off-balance sheet positions;
- Size of un-hedged open foreign exchange positions;
- Predictability of cash flows and whether they are closely matched or hedged; and
- Volatility of earnings or capital caused by translation adjustments.

3.5. In evaluating the quality of foreign exchange risk management the following factors will be reviewed:
- Internal regulatory framework – policies and procedures for foreign exchange operations and foreign exchange risk management;
- Compliance with foreign exchange risk policies and procedures;
- Management's understanding of all aspect of foreign exchange risk – management's knowledge and ability to identify and manage sources of foreign exchange risk;
- Managements respond to changes in market conditions;
- Risk measurement tools and methods;
- Management information systems;
- Independence of measuring exposures and monitoring risk from risk-taking activities; and
- Quality of the audit function pertaining to foreign exchange risk.

3.6. The supervisory review process includes judgment as to whether or not the institution has the capability to adequately handle the existing level of foreign exchange volume and exposures. This judgment is, by necessity, subjective; however, it takes into consideration asset size, capital base, customer volume of foreign exchange activities, depth and experience of traders, and management's understanding of and commitment to trading.

4. Foreign Exchange Settlement Risk

4.1. Foreign exchange settlement risk involves both credit risk and liquidity risk. In a transaction that failed to settle, an institution faces the possibility of losing the full principal value of the transaction. The unsettled funds may also expose the institution to liquidity pressures if such funds are needed to meet other obligations. Settlement risk exists for any traded product but the size of the foreign exchange market makes foreign exchange transactions generally the greatest source of settlement risk for institutions. Foreign exchange settlement failures can arise from counterparty default, operational problems, market liquidity constraints and other factors.

4.2. Institutions should ensure that there are prudent limits to control the settlement risk of individual counterparties. Foreign exchange settlement exposures should be subject to an adequate credit

control process, including credit evaluation of the maximum exposure the institution is willing to accept for a particular counterparty ("foreign exchange settlement limit"). Such limits should be subject to the same procedures used for deciding limits on other exposures of similar duration and size to the counterparty. As an example, if the foreign exchange settlement exposure to a counterparty lasts overnight, the limit may be assessed in relation to the institutions willingness to lend directly to this counterparty on an overnight basis. Limits should be based on the level of credit risk that is prudent and should not be set at an arbitrary, high level just to facilitate trading with a counterparty.

4.3. Any planned excesses of settlement limits should be subject to approval by the appropriate credit management personnel in advance of the excess occurring. The amount of exposures pending settlement should be updated promptly when new deals are struck or when events (such as fails) mean that the exposures from a limit has not yet been reduced to reflect other deals recently struck. Or it may be because, when the time comes for the deal to be settled, unexpected events (such as the failure of other transactions to settle) cause exposures to be higher than planned. Institutions should take steps to minimize these possibilities when existing trades last longer than expected. Effective monitoring of the outstanding exposure is crucial to the management of foreign exchange settlement risk.

4.4. Institutions should put additional emphasis on those exposures that are particularly large or with less creditworthy counterparties, or where there has been a series of fails that may indicate an underlying credit-worthiness problem. However, if, despite these precautions, unauthorized excesses or settlement failures do still occur, a review by the credit management personnel should take place shortly thereafter so that any necessary corrective action can be taken.

4.5. To have effective management of foreign exchange settlement risk, institutions are expected to have:

- Measurement systems that provide appropriate estimates of foreign exchange settlement exposures on a timely basis;
- Systems that monitor closely any limit excesses and unusual settlement activity;
- Stress tests to evaluate their capacity to withstand stressed situations such as settlement delay, individual counterparty failures and disruption of payment systems; and
- Procedures including contingency plans for dealing with settlement failures and other problems.

4.6. The methods and procedures employed by institutions should be commensurate with the range and scope of their activities. The NBRM will assess the adequacy of such methods and procedures as part of its ongoing supervision. Institutions are expected to design stress scenarios that are appropriate to the nature and complexity of their foreign exchange operations. For example, an institution may estimate the potential loss or impact on its cash flows arising from:

- The delay in settlement of its transactions for a specified period of time;
- The default of one or more of its major counterparties upon settlement; or
- A temporary disruption of payment systems due to information technology problems.

4.7. Institutions are encouraged to take various steps to reduce their foreign exchange settlement risk. Institutions can reduce the duration of their settlement exposures by improving unilateral payment cancellation deadlines by, for example, negotiating better cancellation cut-off times with correspondents and improving internal processing (e.g., identifying receipts of funds sooner or shortening the time for conducting institutions own reconciliations). Institutions should give strong consideration to using payment versus payment (PvP) arrangements to reduce their foreign exchange settlement risk. Through the use of PvP settlement, the two legs of a foreign exchange transaction are settled simultaneously. This eliminates the settlement risk arising from the two legs of a foreign exchange transaction being settled in different time zones.

4.8. Contingency planning should be an integral part of an institution's foreign exchange settlement risk management process. Each institution should set down a contingency plan that specifies procedures for reacting in a prompt and balanced manner to failed transactions or other settlement problems. Adequate contingency planning in foreign exchange settlement risk includes ensuring timely access to key information, such as payments made, received or in process, and developing procedures for obtaining information and support from correspondent institutions. Institutions should have a contingency plan in place to ensure continuity of their foreign exchange settlement operations if the main production site becomes unusable. This plan should be documented and supported by contracts with outside vendors, where such vendors provide services to the institution that are necessary either to its normal foreign exchange settlement or to its contingency plan. Because in many cases the action taken will be similar, contingency planning for foreign exchange settlement problems should be coordinated with the planning for other problems (such as payment system or trading room failures).