# FOREIGN EXCHANGE RISK MANAGEMENT GUIDELINES: 2019



# **Bangladesh Krishi Bank**

Treasury Management Department Motijheel, Dhaka, Bangladesh

www.krishibank.org.bd

Third Revised Edition

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# PREFACE

Foreign Exchange Risk is dynamic with the introduction of new products, operations and size of the market. Hence, the necessity of managing the risk associated with the diversity of the market has added highest importance. Foreign Exchange Risk Management Guideline is intended to manage risk exposure in foreign exchange dealings. This Guideline consolidates policies, procedures, processes and functions of dealing room Front Office, Mid Office and Back Office in foreign exchange operations. The Guideline provides regulatory frameworks for foreign exchange transaction and reporting requirements related to exchange dealings. The Guideline articulates policy guidelines for foreign exchange dealings and sets therein the reporting lines for the functions rendered and reconciliation of Foreign Exchange Risk Management Guideline 2016 of Bangladesh Bank and as per the standard practices of foreign exchange operations. This Guideline is to be read in conjunction with all circulars, instructions and guidelines issued by Bangladesh Bank and Bangladesh Krishi Bank from time to time.

The second revised edition of the Manual was published in July, 2013. Now the Guideline has been revised again for operational convenience. In the revised edition of this Guideline comprehensive narration on process, policy and risk limit management in dealing room are briefly incorporated. This is done under the guidance of Bangladesh Bank and dealing room limit is fixed comparing with the operations of the bank and with other public banks, with the approval of the Bank's Board of Directors.

Foreign Exchange Operations are always expanding and the Guideline will be updated in future according to the requirement of the Dealing Room and in line with the regulatory instructions.

I would like to thanks to Risk Management Committee of Board of Directors for their support to update the Third Edition of Foreign Exchange Risk Management Guidelines.

Md. Ali Hossain Prodhania Managing Director Bangladesh Krishi\Bank

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#### **1.** Introduction

The Foreign Exchange Dealing Operation in Bangladesh Krishi Bank is performed through Dealing Room. The main function of foreign Exchange Dealing Room is to manage market risk. At the same time dealers have to look for increase of bank's profitability, avoid risk of exchange fluctuation, look for better investment of funds and maintain sound liquidity position. The job of dealer is to take into account market volatility and large scale of transactions.

That is why an effective controlling system is required over Foreign Exchange for core risk management in banking. In the following few pages the different aspects of Foreign Exchange Dealing Room functions, process, environment, security and policy of Bangladesh Krishi Bank have been spelt out.

# 1.1 Objectives

The objectives of the dealing room operation in foreign exchange are given below:

- A. To promote inter-bank foreign exchange dealings of the bank and to develop good fellowship with counter parties those are indispensable for foreign exchange dealings.
- B. To manage risk exposure in FX dealing in a manner so that the risk is minimized.
- C. To segregate dealing functions from settlement function so as to bring transparency and accountability in dealing activities.
- D. To do all that is necessary by the dealers, so as to uphold high accountability in dealing activities.
- E. To earn profit for the bank through dealing.
- F. To frame rules and policies regarding the above objectives.

# **1.2 Centralized Foreign Exchange and Money Market:**

Recently our Foreign Exchange dealing room and Money market activities have been centralized in Treasury Management Department as per Bangladesh Bank Guideline. Foreign exchange dealing and money market operations are heavily correlated and interdependent considering profitability and liquidity. Prudent management and efficient tradeoff between money market and foreign exchange can maximize Treasury's profitability. Our bank performs foreign exchange and money market activities simultaneously. A simplified organization chart for foreign exchange treasury operation is given in Annexure-I.

# **2.** Functions

Dealing room is designed for dealing in foreign exchange. At present the treasury functions are performed by three distinct offices under separate supervision, front office, back office and mid-office. Functions of these offices are as follows:

# 2.1 Functions of Front Office:

The reporting lines for the officers maintaining the treasury front office and back office are different. This structure is required only for effective control. These two offices would report their activities according to their existing structure and policy. The functions of front office are:

- Every morning meeting is to be held to discuss the market condition and other internal matters.
- Prepare and send the daily Exchange Rate sheet to the concerned branches/Offices.
- Ascertain the daily Exchange Position received from the Back Office.
- Deal is to be recorded in dealing register.
- Watch the movements of currencies in the local and international market.
- Verify all the reports coming from the Back office and different departments.
- Manage the daily liquidity of the bank as per the guidelines and central bank's reserve requirement.
- Call and visit other banks to establish and develop relationship with the dealing room and dealers.
- Helping the Mid Office for compliance to various internal and regulatory measures.

# 2.2 Functions of Mid Office:

It is consider by the leading banks practices for the FX treasury to have an independent risk management function that is involved at an appropriate level of decision making for new product approval, limit setting and any kind of strategy determinations. The functions of mid office are :

- Monitoring dealers' compliance to various internal and regulatory limits.
- Monitoring dealers' compliance to various counter parties limits.
- Reporting any limit excess and follow up for measures.
- Revisions of counter party limits, dealers' limit', stop-loss limit with the approval of the authority.

# 2.3 Functions of Back Office:

The back office of Bangladesh Krishi Bank checks FX dealing and minimizes potential errors and fraud. The functions of back office are as

- Preparation of exchange position.
- Preparation of daily position and reconciliation with front office.
- Recording of deals.

- Processing and sending deal confirmations.
- Receiving deal confirmations from counter parties and checking with record and follow-up.
- Preparation, verification and sending payment instructions.
- Preparation, checking and passing of vouchers.
- Ensuring accounting entries.
- Checking Nostro payments and receipts.
- Claim/pay good value date effect of the settlement.
- Managing discrepancies and disputes.
- Revaluation of all foreign exchange positions at a particular date.
- Justification of rate reasonably for all deals done.
- Daily calculation of exchange position for adherence to statutory maintenance.

# **3. PROCESS**

In a proper treasury setup, a trader strikes a deal in the market and maintains his/her own record for monitoring the exchange position. Within a reasonable time, s/he passes on the detailed information of the deal to the treasury back office. The back office arranges for the deal confirmation with the counterparty, arranges settlement, reconciles exchange positions and advises to treasury and runs the valuation on a periodic basis. The entire process is described in a detail flowchart as under:



**Figure 1: The Process Flowchart** 

In order to achieve the optimum level of efficiency, returns and most importantly controls, there are certain processes that the organization's management must put in place. The very basic ones of these which are related to our market are explained below:

# 3.1 Dealing Room:

Since the traders have access to global live prices of various products through their various communication tools, their desks are required to be access restricted. As a result, traders are typically housed inside a covered room known as the "dealing room" where the access is generally restricted only to the traders and the related personnel. Access to this dealing room should be restricted through electronic access control system.

# 3.2 Deal Recording:

The job nature of a trader is highly demanding and the environment of a dealing room is very fast moving. In such an environment when a trader continues to conclude deals, his/her focus remains on the market. As such there is a risk of a trader completely forgetting about a deal or part of a deal or making a mistake in recording that deal. To eliminate this risk, a trader must record the deal immediately after it is concluded.

# 3.3 Deal Ticket

A ticket or memo on which the detail of the deal is recorded is known as the deal slip or deal ticket. Deal ticket contains details of payment instructions, value dates, currencies, amounts etc. A dealer is to record details of all deals on deal slips immediately after execution of a deal. The deal slip must pass on to back office at early able for their further processing it. All deal slips must pre-number for control reason. The back office must monitor for any breakage in situation of the deal slips. Where pre-numbered deal slips are in place, any cancelled deal slip must also be forwarded to back office for appropriate recording. A typical format of deal ticket is shown in Annexure-II.

# 3.4 Deal Delay:

All deal done by dealers is required to process by back office, for which reason they need to be informed the details within certain time periods. The deal tickets must send to the treasury back office within shortest possible time. The timeliness of raising deals slip and passing them on to back office is not only sound business practice but also critical for monitoring of credit risk, price risk and regulatory compliance. The guidelines of deal capture standards are as follows:

Product	Deal ticket preparation time	Deal ticket reach time to Back office	
Spot FX	Within 15 minutes Within 30 minutes		
Forward FX	Within 10 minutes	Within 25 minutes	
FX swap	Within 15 minutes	Within 30 minutes	
FX depo	Within 15 minutes	Within 25 minutes	
Call/Notice Money	Within 10 minutes	Within 25 minutes	
Money Market Term	Within 10 minutes	Within 25 minutes	
Repo	By 12:30 p.m.	Within 30 minutes	
Reverse Repo	By 12:00 p.m.	Within 30 minutes	

**Table 1: Deal capture standards** 

# 3.5 Dealing room limits:

The issue of dealing room limits along with counterparty limits arises from the risk that a customer with whom an organization had a reciprocal agreement defaults. Credit risk is the risk that the counterparty of the financial transaction, here a foreign exchange contract.

may become unable to perform as per its obligation. The extent of risk depends on whether the other party's inability to pay is established before the value date or is on the same value date of the foreign exchange contract.

Particulars	Designation	Currency
Dealing room limit	BKB	USD 10.00 million or equivalent FC
		For NCBs USD 5.00 million or equivalent FC
Counter Party Limit	BKB	For FCBs USD 3.00 million or equivalent FC
		For PCBs USD 3.00 million or equivalent FC
Currency wise	Dealer (SPO/PO)	USD 2.00 million or equivalent FC
maximum deal size	Dealer (SO)	USD 1.00 million or equivalent FC
maximum dealing	Dealer (SPO/PO)	USD 5.00 million or equivalent FC
limit per day	Dealer (SO)	USD 3.00 million or equivalent FC
Maximum stop-loss	Dealer (SPO/PO)	USD 1,200.00 or equivalent FC
limit per deal	Dealer (SO)	USD 1,000.00 or equivalent FC
Maximum stop-loss	Dealer (SPO/PO)	USD 2,000.00 or equivalent FC
limit per day	Dealer (SO)	USD 1,500.00 or equivalent FC
Overnight/after hour	Dealer (SPO/PO)	USD 1.00 million or equivalent FC
trading limit		

Table 2: Dealing room limit

#### 3.6 Triggers

A trigger is a level of position at which an organization decides that the management should be informed with regard to either a market value of a position or an unusual trading volume etc. This is a predetermined level given by the management which may be changed with the changing circumstances. If the trigger point is reached, the management should be informed.

Designation	Trigger Level
Head of Treasury/ Chief Dealer	USD 1,500
Senior Principal Officer	USD 1,200
Principal Officer	USD 1,000
Senior Officer	USD 1,000

#### Table 3: Trigger Level

#### 3.7 Daily Treasury Risk Report:

The treasury back-office/Bank Risk Unit is required to summarize all daily positions particularly the end-of-day positions on a report format for the information of the senior management. Such report should ideally contain information about outstanding open position against limit, different currency-wise outstanding exchange position (against limits if applicable), outstanding foreign exchange forward gaps in different tenors, tenorwise MCO report, interest rate exposures of the balance sheet, counterparty credit limits usage, day's P&L against trigger & stop loss limit. A sample format of a daily treasury report for the senior management has been drawn.

#### 3.8 Conversation Language:

All dealing related conversations taking place in the treasury must be in an understandable and commonly spoken language for operational clarity. To elaborate, all conversations on the Dealing System must be in English and all conversions over telephone must be restricted to Bengali and/or English.

#### 4. Dealing Environment

#### 4.1 Mandatory Leave and Training:

The dealing functions are extremely sensitive and stressful involving wholesale and large amounts with exposures to adverse market movements. There is also risk of mistakes not being unearthed. As a result, for a particular trader's functions to be run by a different trader, all traders are required to be away from their desks for a certain period of time at one stretch during a year.

During this period, traders are expected not to contact with their colleagues in the treasury area and the bank should not to contact the trader for any reason. This should be monitored and reported to top management. Any exceptions, including contacting a trader on block leave, should be done with prior approval of treasurer. Traders going on leave should ensure all relevant information is handed over to their backup.

Training should be organized for the treasury personnel. Only trained personnel should be engaged in treasury activities.

#### 4.2 Position Reconciliation:

All traders' positions must be reconciled with the positions provided by the treasury backoffice. This must be done daily prior to commencement of the day's business and before closing the day's business. Un-reconciled positions may lead to real differences in actual positions exposing the organization to adverse market changes and real losses. Traders should reconcile their dealing recorded on daily blotter (electronic or otherwise) prior to close of business as a good practice. Trades done using e-platforms should be reconciled against communications from e-platform provider by back office. A typical format of foreign exchange position blotter is shown in Annexure-III.

# 4.3 Code of Conduct

Due to the special nature of job that traders engage in, they are expected to act in a professional and ethical manner.

# 5. Electronic System and Data Safeguards

Traders use various systems including spreadsheets for managing their day to day business. All such systems should ideally be password protected for the reason of data safety. To protect the data and maintain discipline, the following measures need to be ensured:

The system access given to traders should be periodically reviewed by the Treasurer to see if their job descriptions and dealing mandate justify the system access. Redundant access rights should be removed.

Dealers should not share individual passwords unless the system provider is unable to give individual password (Like Reuters).

The Generic files used by Traders (example: Excel file to prepare Daily Rate sheet or to price forwards) should be password protected and be designed according to a standard format endorsed by the Treasurer. The IT department of the bank may assist in protecting the specific cells of the file that contain formula. Any changes/updates to the files should be logged.

An authorized list should be maintained for entities where e-mail communication is sent regularly using common e-communication platforms (Yahoo mail/hotmail/Gmail). This list should be regularly updated. However, this does not apply to communications to the Regulators/ BAFEDA.

Confidential information should not be sent to third party over common e-mail without prior authorization.

# **5.1 Dealing Room Access log**

Dealing rooms are restricted areas where the access should be controlled for unauthorized persons. If possible, access doors with electronic swipe cards should be setup. Access rights should be periodically checked and updated as needed.

#### 5.2 Risk Limit Management

The Risk unit of the Bank provides Risk Limits (VaR, EaR, PV01 etc.) according to Regulations, Internal Policy and Risk appetite for dealing room, which are approved by management. A detailed policy on compliance with all such limits and escalation procedure should be in place for the dealing room. The risk exposure should be calculated daily by Middle Office/Risk unit/Finance and communicated to Management. Risk Management limits may include and are not restricted to:

#### **PV01 limit:**

Price Value of a Basis Point - the p/l that results from 1 basis point movement in product price. The FX Forward Positions are evaluated using the PV01 limits. The Dealing room is assigned an overall PV01 limit and individual PV01 limits for each currency the dealing room is authorized to deal in FX Forward purchase and sale. Net open forward position of the unit has to be within the PV01 and the bank's NOP limit.

#### Value at Risk Limit:

Value at Risk, commonly referred to by its acronym VAR, is a statistical measure of the worst probable loss on a position or portfolio of positions that can be expected over a specified period of time to a given level of confidence.

#### **Straddle Gap/MCO Limit:**

Banks, based on their annual FX inflow/outflow and balance sheet strengths, may choose to limit FX forward exposure for certain tenors. For example, Management may authorize a next FX exposure of US\$ 30 million up to three months, but US\$ 20 million for 1 year.

#### **Out of Market Rate (OMR) Tolerance limit:**

Banks should have a tolerance limit set on daily deal rate deviations from market rate. For example, if a bank sets the OMR Tolerance Limit at 1% of the daily market range, any deal rate that crosses that limit should be reported to management and explanation should be obtained from dealing room.

The calculation procedures of VAR in detail are described in Annexure-V.

#### 6. Nostro Account Reconciliation

Banks maintain various Nostro accounts in order to conduct operations in different currencies including BDT. The senior operations manager of the organizations set limits for handling Nostro account transactions that include time limits for the settlements of transactions over the various Nostro accounts and the time and amount limits for items that require immediate investigation after receipt of the account statements. In defining these limits, consideration must be given to the transit and processing times of the various types of transactions.

The time and amounts limits, if exceeded, require referral to the operations manager for appropriate action. Persons reconciling Nostro accounts are to be independent of originating, responding to, authorizing or booking transactions and must not reconcile the same accounts for a continuous period of more than twelve months. However, after the lapse of at least the next monthly reconcilement process immediately following the twelve month period, these persons can be reassigned with the same duties.

The process of matching open items must be performed each time statements are received and must ensure a true match (e.g. dates, amounts and transaction identity). All matches must be cross-referenced between "our accounts" and the statement. Entries that make up a partial or incomplete match are to be suitably cross-recorded so that a clear audit trail is provided. The current "our account" records and statements are to be maintained under control and custody of persons in charge of reconcilements.

As frequently as deemed necessary but not less than once a month, a "reconcilement balancing report" must be prepared for each "our account" which must include the "our account" balance, the related statement balance and a listing of all open items (all differences and unprocessed items).

Tracers must be sent if the open item exceeds the established time or amount limits. The operations manager must review all reconcilement balancing reports to evaluate the status and progress of eliminating open items and to ensure that investigation and follow-up efforts are satisfactory and tracers are sent on a timely basis. The operations manager establishes limits for monthly accrual of interests on overdrafts in "our accounts" maintained with other branches and correspondents. Overdraft interest for "our accounts" must be calculated for each day the branch is in overdraft in accordance with its records.

At least quarterly, a comprehensive review of all "our accounts" must be made by an officer independent of transaction processing and authorization functions to ensure that each account continues to be operated with a valid business purpose and that reconciliations and other controls continue to be in place and are effective.

# 6.1 Internal Audit:

Considering the complexities of the foreign exchange business, a process for an internal audit has widely been accepted as a check point to review the adequacy of the key control issues. A review may be conducted at least twice annually. This function can include checking for adherence to various limits, compliance requirements, statutory management, etc.

In addition to regular audits at specified intervals, a concurrent audit process can be put in place to ensure the treasury's functioning in an appropriate manner on a day-to-day basis. The concurrent audit control is automatically put in place with the implementation of a properly functioning Mid Office.

The Nostro account reconciliation flowchart is given in Annexure-IV.

# 7. POLICY

All financial activities involve a certain degree of risk and particularly, the financial institutions of the modern era are engaged in various complex financial activities requiring them to put proper attention to every detail. Risk is defined as an event that can cause financial, physical or reputational loss or can commit the bank to an uncertain future.

The success of the trading business depends on the ability to identify and manage effectively the various risks encountered in the trading environment, and the organization's policies and processes require development over time to ensure that this is done in a controlled way.

The key risk areas of a financial institution can be broadly categorized into:

- Market Risk
- Liquidity Risk
- Credit Risk
- Operational risk
- Legal, Regulatory and Compliance Risk
- Reputational Risk
- Strategic Risk

The bank is exposed to a number of different risks between FX trade execution and final settlement. The risks vary depending on the type of pre-settlement and settlement arrangements.

# 7.1 Market Risk

A bank's board (independent risk management function in case of foreign banks) would determine an overall risk appetite and exposure limit in relation to its market risk strategy. Based on these tolerances the senior management should establish appropriate risk limits. Risk limits for business units, should be compatible with the institution's strategies, risk management systems and risk tolerance. The limits should be approved and periodically reviewed by the BoDs and/or independent risk management function, with changes in market conditions or resources prompting a reassessment of limits.

Institutions need to ensure consistency between the different types of limits. Some commonly used market risk limits are:

• Gap or Maturity Limits: These limits are put in place to monitor and manage exposures arising from the differences in maturity dates or re-pricing dates of transactions. For example, there may be gap limits for each maturity band of 3 months, 8 months, 9 months, one year, etc. to avoid maturities concentrating in a particular maturity band. Such limits can be used to reduce the volatility by staggering the maturity and/or re-pricing and thereby smoothing the effect of changes in market factors affecting price. Maturity limits are required to monitor and manage the liquidity risks as well as re-pricing risks.

• Notional or volume trigger: A trigger that needs to be monitored based on the notional amount of the total outstanding FX contracts. This helps to guard against any unusual transaction pattern in the dealing room. This trigger does not capture any price risk or market volatility risks.

• Stop loss limits: These limits are established to avoid unrealized loss in a position from exceeding a specified level. When these limits are reached, the position must either be liquidated or hedged. Typical stop loss limits include those relating to accumulated unrealized losses for a day, a week or a month. This limit can be given to individual dealers or to a trading desk as a whole.

• Value at Risk limits (VAR): VAR is generally accepted and widely used tool for measuring market risk inherent in trading portfolios. It follows the concept that reasonable expectation of loss can be deduced by evaluating market rates, prices observed volatility and correlation. VAR summarizes the predicted maximum loss (or worst loss) over a target horizon within a given confidence level. The calculation procedures of VaR in detail are described in Annexure-V.

Generally there are three ways of computing VAR

- Parametric method or Variance covariance approach
- Historical Simulation
- Monte Carlo method

Banks need to set limits, including operational limits, for the different trading desks and/or traders which may trade different products, instruments. Limits need to be clearly understood, and any changes clearly communicated to all relevant parties. Risk Taking Units must have procedures that monitor activity to ensure that they remain within approved limits at all times.

Limit breaches or exceptions should be made known to appropriate senior management without delay. There should be explicit policy as to how such breaches are to be reported to top management and the actions to be taken.

#### 7.2 Liquidity Risk

Liquidity risk is considered a major risk for any financial institutions as well as banks. It is a risk of a financial institution not being able to meet its funding obligations (including in foreign exchange) when due either from own sources, wholesale market sources or from the sources of the lender of the last resort. The condition of funding from the wholesale market depends upon the liquidity in the market. Accordingly an institution short of liquidity may have to undertake transaction at heavy cost resulting in a loss of earning or in worst case scenario the liquidity risk could result in bankruptcy of the institution if it is unable to undertake transaction even at current market prices. Given that, banks should put in place appropriate liquidity limits which the board or management or the independent risk management department considers as appropriate based on various market conditions and forecasts.

The prerequisites of an effective liquidity risk management include an informed board, capable management and staff having relevant expertise and efficient systems and procedures. It is primarily a duty of the BoD's to understand the liquidity risk profile of the bank and the tools used to manage liquidity risk. The board needs to ensure that the bank has necessary liquidity risk management framework and that the bank is capable of managing any uncertain liquidity scenarios.

At the basic level, banks may utilize flow measures to determine their future funding requirements including in foreign exchange. A cash flow projection estimates a bank's inflows and outflows and thus net deficit or surplus (GAP) over a time horizon. This will help banks to better position themselves even in crisis situations.

#### 7.3 Compliance Risk

Compliance risk is the current and prospective risk to earnings or capital arising from violations of, or nonconformance with, laws, rules, regulations, prescribed practices, internal policies, and procedures, or ethical standards. Compliance risk also arises in situations where the laws or rules governing certain bank products or activities of the Bank's clients may be ambiguous or untested. This risk exposes the institution to fines, payment of damages, the voiding of contracts, etc. Compliance risk can lead to diminished reputation, reduced franchise value, limited business opportunities, reduced expansion potential, and an inability to enforce contracts.

All Banks should be fully conversant with compliance regulations relevant to their foreign exchange business. All audit recommendations arising from internal and external audits or from regulators must be regularly reviewed by departmental executives to ensure that recommendations covering their area of operations have been implemented and maintained.

#### 7.4 Reputational and Fraud Risk

Reputational risk should be regarded as a generic term embracing the risks, from any source, that can negatively impact reputation of the organization, and not as a category of risk in its own right. Regulatory noncompliance, loss of customer data, unethical employee behavior, or an unexpected profit warning can all damage the reputation and stakeholder confidence which may eventually result in a credit downgrade as well.

# 7.5 Credit Risk

An investor is at risk if a borrower defaults on a financial obligation. This can be divided into two categories. A bank should have a clear cut guidelines regarding selection of counterpart to minimize the credit risk. The bank can use the ratings of independent credit rating agencies or use their important financial ratios to judge the credit worthiness of counterparty to ensure safety of funds.

# 7.6 Operational Risk

Operational Risk is defined as the risk of losses resulting from inadequate or failed internal process, people and systems, or from external events. Operational Risk can arise from both internal and external factors, some of which are as below:

<u>Internal</u>

- Operational errors
- Non-compliance with banking regulations, legal requirements, etc.
- Non-compliance with internal guidelines
- Infrastructure failure, including technological ones
- Launching new products without adequate operational support
- Late or incorrect payments
- Staff fraud
- Inadequate or incorrect documentation etc.

#### External

- Adverse legal judgments
- Deliberate external fraud attempts against the Bank
- Money laundering
- Outsourced activities
- Natural disaster, fire, theft, etc.

The bank should properly identify, assess, monitor and control its operational risks, should ensure that its systems support appropriate risk management controls, and have sufficient capacity, scalability and resiliency to handle FX volumes under normal and stressed conditions.

# 7.7 Settlement risk:

Foreign exchange settlement risk arises when a bank in a foreign exchange transaction pays the currency it sold but does not receive the currency it bought. Due to counterparty default, operational problems, market liquidity constraints and other factors, foreign exchange settlement risk may take place in the foreign exchange market which involves both credit risk and liquidity risk. The risk may be greater if there is an adverse price fluctuation between the contract price and the market price. From the point of view of credit risk dimension if a bank cannot make the payment of the currency it sold conditional upon its final receipt of the currency it bought, it may face the possibility of losing the foremost value of the transaction. Usually the duration of settlement is an intraday phenomenon in some cases it may be even longer i.e. overnight/over weekend or can last for several days. The receiving bank may be in liquidity risk if unsettled funds are required to meet obligations to other parties and this may be severe if the unsettled amount is larger or the alternative source of fund may be lift up at short notice in the unreceptive market. An important dimension of foreign exchange settlement risk is the systematic risk aspect which relates with the size of the bank's foreign exchange exposures and their capital as a result of failure of counterparty could lead to that banks insolvency.

A bank's procedures for managing its foreign exchange settlement risk should be according to the range and scope of its activities. FX settlement risk management should initiate from the highest levels of the organization, with a policy on it from the bank's board of directors which should be an integral and consistent part of the bank's overall policy towards counterparty risk. It should be regularly reviewed and modified to take into account of new circumstances and changes in the scale and nature of the bank's FX operations or in the method of settlement used.

All banking organizations must have prudent counterparty limits for foreign exchange settlement exposures. An FX settlement limit should be established for counterparty i.e. the maximum exposure the bank is willing to take with a particular counterparty should be determined. The limit structure will depend on each organization's credit risk policies as well as target market criteria. Limits set by the bank should strictly be followed in case of foreign exchange settlement risk exposures for counterparty. In case of any planned excess of settlement limit occurring, prior approval from appropriate credit management personnel is required. Exposure measures should be updated promptly as new deals are struck or when exposures from existing trades last longer than expected. Banks should develop effective monitoring system which enables them to observe developments in real time in case of not to exceed the settlement limits with large exposures for the better management of foreign exchange settlement risks. Even a bank should put additional emphasis on those exposures which are large or with less credit-worthy counterparties or in case of a series of fails indicates an underlying credit-worthiness problem. In general a review by the credit management personnel should take place for necessary corrective actions if any unauthorized limit excess still occurs despite these precautions.

#### 8. CONCLUSION

The descriptions on the above pages depict a trader's job as a highly demanding one requiring high degree of skills and specialization in their respective areas. Certain key positions in the treasury back-office also require high level of skills and expertise.

The traders of an organization are responsible for risk management of the organization's overall balance sheet as well as managing the capital which is a highly responsible function where the best possible decisions are expected to be made in split-second.

It is the senior management's responsibility to ensure appointment of the appropriate and deserving personnel as treasury and treasury-back office staff. They should also on a continuous basis, identify the traders training and development requirement and arrange for the same. The management should also put in place an overall trading policy for its treasury defining the scopes, policies, risk-limits as well as their control mechanisms as well as set up and review individual dealer mandates.

A trader's job is extremely stressful requiring them to devote high degree of continuous concentration and remain alert all the time. Also, due to the current global nature of a treasury's business, today's traders require working for extended as well as non working hours. Many of the banks operating in the local market keep their dealing rooms operative for business reasons on holiday. Bearing this in mind, most advanced dealing rooms pay a special dealing allowance to its traders.

The management must appreciate that the nature of a treasury environment is ever changing where new market dynamics, products and as a result, new risks are evolving on a continuous basis. An organization's internal policies and structures must be designed in such a manner that identification of new risk and control areas is possible at the earliest where control mechanisms can be implemented prior to taking up any significant risk.

**Annexure-I** Simplified Organization Chart for Foreign Exchange Treasury Operations



#### **Annexure-II**

<u>FX Deal Ticket</u> Bangladesh Krishi Bank 83-85, Motijheel C/A Dhaka-1000

No. 0001/2019	
Foreign Exchange Deal Slip	Date:
Counterparty:	
We Have Purchased/ Sold:	
Currency:	
Amount:	
Against Sale/ Purchase of:	
Currency:	
Amount:	
Deal Rate:	
Value Date:	
We Receive Payment at:	
Their Payment at:	
Special Instruction:	

Dealer's Signature

Note: There is no manual deal ticket raised where the front office and back office use integrated dealing and settlement systems.

#### **Annexure-III**

#### <u>FX Position Blotter</u> Bangladesh Krishi Bank 83-85, Motijheel C/A Dhaka-1000

#### **FX POSITION BLOTTER**

Date:

Currency: USD				
				Net
Counterparty	Purchase	Sale	Comments	Position

Currency: GBP				
				Net
Counterparty	Purchase	Sale	Comments	Position

Currency: EUR					
Counterparty	Purchase	Sale	Comments	Net Position	
Currency: JPY	Currency: JPY				
Counterparty	Purchase	Sale	Comments	Net Position	

#### **NET OPEN POSITION:**

Note: Bangladesh Krishi Bank can add/ delete currencies according to their own requirement in the same format.



# Annexure-V

#### Value at Risk (VaR) analysis

#### Value at Risk:

Value at Risk, commonly referred to by its acronym VAR, is a statistical measure of the worst probable loss on a position or portfolio of positions that can be expected over a specified period of time to a given level of confidence. The calculation of VAR requires a number of inputs:

I. Market value of the positionII. Daily volatility of the currenciesIII. Holding periodIV. Level of confidence

#### Market Value of Position:

The market value of position, expressed in US Dollars, is the base point from which expected losses are calculated. In other words, adding or subtracting (depending on whether the position is long or short) the VAR on a position to the market value will give the worst probable market value of the position.

#### **Daily Volatility:**

Foreign Exchange volatility is calculated from the daily movements in the foreign exchange rate over a specified historic time period. A key assumption in the calculation of historic volatility is that recent events play a more significant role in determining likely rate movements in the future than events, say that took place a year ago. As a result, recent rate movements are usually given higher weightage in the calculation of volatility. An alternative method commonly used in the market is to limit the historic period used to calculate volatility, and not apply any weighting. A third method is to use implied volatility i.e. the actual volatility traded in the market.

Whatever method is used, the risk manager should be aware of the difference between implied and historic. If the difference is significant, might be necessary to tune the calculation of historic volatility to bring it in line with implied.

Historic volatility is calculated by simply taking the Standard Deviation of the daily changes in the rates for the historic time period selected. To compare historic to implied volatility, the daily volatility needs to be converted to an annualized basis. This is done by multiplying the daily volatility by the square root of the number of trading days in a year (say 290).

#### **Holding Period:**

The holding period for VAR refers to the liquidity of the position i.e. how long it will take to liquidate the position in terms of number of trading days. The majority of positions (regardless of size) in freely floating currencies should be able to be liquidated within a twenty-four hour period. For these currencies, the holding period will therefore be set to one day. However, positions in currency that is not liquid may take several days to unwind, which may depend on

the size of the position or general market conditions. In these cases, the holding period should be extended appropriately.

#### Level of Confidence:

The level of confidence selected determines the probability and frequency that there will be a rate movement in excess of the predicted (i.e. VAR) amount.

Market volatility is quoted to one standard deviation, thereby inferring that once in every five trading days the calculated worst probable loss will be exceeded. At two standard deviations, this raised to one in every forty trading days. At three standard deviations this is increased to once in every two hundred days.

Based on the normal distribution of rate changes, the percentage of the distribution, defined by the number of Standard Deviation (\_), Level of Confidence will define the probability of a rate movement occurring outside the worst probable rate. The approximate relationship between Confidence Level and Standard Deviation is as follows:

 $1\sigma_{=}90\%$  Confidence Level

 $2\sigma_{=}95\%$  Confidence Level

 $3\sigma_{=} 99\%$  Confidence Level

However, since the concern is only with the half of the distribution that may cause a loss on a position, the Confidence Levels are raised as follows:

 $1\sigma_{=}90\%$  Confidence Level

 $2\sigma$ = 99.5% Confidence Level

 $3\sigma$  = 99.5% Confidence Level

These Confidence Levels in turn can be expressed as frequency of occurrence (how frequently our expectation of worst probable rate movement will be exceeded in terms of number of trading days).

90% Confidence Level = 1 in 5 days

99.5% Confidence Level = 1 in 10 days

99.5% Confidence Level = 1 in 200 days

Market volatility is quoted to one standard deviation, thereby inferring that once in every five trading days the calculated worst probable loss will be exceeded. At two standard deviations, this raised to one in every forty trading days. At three standard deviations this is increased to once in every two hundred days.

#### CALCULATION FOREIGN EXCHANGE VAR:

#### **Gross VAR:**

Gross VAR is calculated as follows, using the inputs discussed above: Gross VAR = Market value of the position X Daily Volatility X Level of confidence X

#### Net VAR:

Net VAR reduces the Gross VAR calculated on a portfolio of positions by taking into account the way foreign exchange rates move in relation to each other. As with volatility, this Portfolio Effect (using the Marckowitz's Portfolio Theory) or Correlation is also calculated from the same historic period. Correlations range from +1 to -1. A +1 correlation indicates that two currencies move identically to each other against the US dollar. A -1 correlation indicates that two currencies move in diametrically opposite directions to each other against the US dollar. A zero correlation means there is no relationship between the ways the currencies move.

For example, studies reveal that there is positive correlation between Euro and Swiss Franc, which indicates that a long Euro position is hedged by the short CHF position. The Gross VAR calculated on each position can therefore be reduced proportionately. Just as the loss is limited, so is the profit potential in EUR/CHF position is limited.

The following table shows how positive and negative correlations between currencies affect Net VAR calculation:

Position A	Position B (Any	Correlation	Correlation term sign
(Any currency)	currency)		(Effect on Net Var)
Short (+)	Short (+)	Negative (-)	Negative (-)
Long (-)	Long (-)	Negative (-)	Negative (-)
Short (+)	Long (-)	Positive (+)	Negative (-)
Long (-)	Short (+)	Positive (+)	Negative (-)
Short (+)	Short (+)	Positive (+)	Positive (+)
Long (-)	Long (-)	Positive (+)	Positive (+)
Short (+)	Long (-)	Negative (-)	Positive (+)
Long (-)	Short (+)	Negative (-)	Positive (+)

The correlation term sign indicates whether the portfolio effect will be added or subtracted in the Net VAR calculation. It should be noted that the Net VAR calculation cannot increase the aggregate of the Gross VAR on each position, rather reduces it to the extent of the correlation.

It should also be noted that a zero correlation does not mean that Net VAR will equal aggregate Gross VAR. There will be a reduction in Gross VAR on the basis that even a random movement between currency rates may to some extent reduce risk.

#### Annexure-VI Definitions

Counter-party: The other entity/bank or party with whom a transaction is concluded.

**Exchange Position:** Exchange position refers to the position of foreign currency (FCY) to be reported as per prescribed format of Bangladesh Bank which indicates the total FX assets and liabilities and differences thereof.

**Inter-bank Transactions:** Inter-bank Transactions refer to transactions between counterparties (banks and/ or other financial institutions) which participate in the inter-bank market.

**Limit and Sub-Limit:** Limit and Sub-Limit express the approved aggregate value for particular currency (currency limit) either booked as asset or as liability.

**Open Position Limit:** Open Position Limit indicates the limit approved by Bangladesh Bank for maximum long and short aggregate currency position in equivalent USD.

**Revaluation:** Through this process, the LCY equivalent of the FCY assets and liabilities of the balance sheet (book value) are valued at market price using the prevailing exchange rate and any difference is accounted for.

**Value TOM:** Deals where the Settlement date is one working day after the transaction date i.e. the settlement of the transaction is T+1 working day. The term "TOM" here is used in a short form for "tomorrow".

**Value Spot:** Deals where the Settlement date is two working days after the transaction date i.e. the settlement of the transaction is T+2 working days, except USD/CAD where spot is T+1 working day.

