

# Risk Management in Financial Institutions (RMFI)



**THE INSTITUTE OF BANKERS, BANGLADESH (IBB)**

DR Tower (12th Floor), 65/2/2 Bir Protik Gazi Golam Dostogir Road, (Box Culvert Road) Purana Paltan, Dhaka-1000  
Phone: 02-55112857-60, Fax : (8802) 55112856, E-mail : [ibb.diploma@gmail.com](mailto:ibb.diploma@gmail.com)

Web : [www.ibb.org.bd](http://www.ibb.org.bd) & [www.online.ibb.org.bd](http://www.online.ibb.org.bd)

# **Reading Material on Risk Management in Financial Institutions (RMFI)**

**Written, Compiled and Edited by**

**Mr. Md. Nehal Ahmed**

Professor and Director (Dhaka School of Bank Management)  
Bangladesh Institute of Bank Management (BIBM)

and

**Mr. Md. Jahangir Alam**

Senior Executive Vice President  
CAMLCO and Deputy CRO  
AB Bank Limited

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## **Acknowledgement**

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We acknowledge the kind cooperation and support of officials of BIBM library for their support in finding out the right book, journals and different kinds of publication which help us a lot to develop these materials to this level.

All the errors and mistakes in the materials are of the authors. We will be happy if these materials are of any help to the students, pursuing for banking professional degree and the bankers in practice. We will be happy to have any kind of suggestions and recommendations for further improvement in the days ahead.

## Foreword

The Institute Of Bankers, Bangladesh (IBB), established in 1973, has been working for developing the professional skills of the employees of all Banks and Financial Institutions operating in Bangladesh. In this regard, IBB conducts the Banking Professional examination, JAIBB (Junior associate of the Institute Of Bankers, Bangladesh) and AIBB (Associate of the Institute Of Bankers, Bangladesh) usually held twice in a year throughout the country.

The examinations are being conducted under standard syllabus covering various aspects of Banking profession. As banking is ever-evolving discipline, the syllabus for banking Professional examination is also required to be matched with the changing banking conditions. For the same purpose, A committee was formed under the leadership of Dr. Toufic Ahmad Choudhury former Director General, BIBM and comprising of Mr. Md. Ali Hossain Prodhania, Former Managing Director, Bangladesh Krishi Bank, Mr. Abul Kashem Md. Shirin, Managing Director & CEO, Dutch-Bangla Bank Ltd., Dr. Mohammad Haider Ali Miah, Former Managing Director & CEO, EXIM Bank of Bangladesh Ltd., Dr. Shah Md. Ahsan Habib, Professor, BIBM, Mr. Alamgir Morshed, CEO, IDCOL, Mr. Omar Faruque , CFCC Head, Standard Chartered Bank and Laila Bilkis Ara, Secretary General, IBB for updating and upgrading the syllabus of IBB Banking Professional examination.

The committee did the splendid job of formulating the new syllabus for both JAIBB and AIBB, which was later approved by the Syllabus and Examination Committee and Council Chairman of the institute (Honorable Governor, Bangladesh Bank). The same committee has also been entrusted to formulate standard reading materials by the subject matter specialists and practitioners under their (committee members) guidance in order to facilitate the examinees for consulting focused reading materials instead of so many (sometimes also irrelevant) books. This particular reading material on **Risk Management in Financial Institutions (RMFI)** has been prepared and compiled by Mr. Md. Nehal Ahmed and Mr. Jahangir Alam. We extend our gratitude and thanks to them for taking the trouble of writing the reading material.

All the reading materials of (both JAIBB and AIBB) will be gradually uploaded in the IBB e-library Web portal. The examinees/ readers/users are requested to send their opinion/ suggestion on any reading material and we will consider their opinion with great importance. Besides, the IBB will modify update the reading materials from time to time as per requirements of the examinees.

Finally, the Institute Of Bankers, Bangladesh takes this opportunity to express its gratitude to the learned members of IBB Council, the syllabus and examination review committee and reading material preparation committee for preparing syllabus and reading materials for IBB diploma examinations.

Laila Bilkis Ara  
Secretary General, IBB

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## **Module – A**

### **Introduction**

#### **1.1 Introduction**

Effective risk management is a precondition for sound bank/FI management that requires identifying, measuring and minimizing risks associated with different banking activities. Although deposit taking and lending continue to be the key business lines, many banks/FIs have expanded into other areas of risky financial markets. As such, banks/FIs always run the risk of insufficient liquidity and credit defaults. Moreover, banking business around the world has undergone noticeable changes over the last few decades. Globalization of business and financial services and increase in competition are among the major forces that led the banking industry to introduce cross border complex and innovative financial products. Furthermore, technology was adopted rapidly in banking business. As a result, risks carried by the banking system have also increased substantially over the years. Risk management can be regarded as an active, strategic, and integrated process that encompasses both the measurement and mitigation of risk, with the ultimate goal of maximizing the value of a bank, while minimizing the risk of bankruptcy (Schoreck, 2002).

A prudent bank/FI must undertake activities and take calculated risks to generate profit. The financial sector deregulation and globalization have brought changes in the traditional sources of income of banks and results in the proliferation of business activities by banks. Due to expansion of domestic and cross border banking activities, today banks/FIs have been facing a diverse range of risks. The most commonly observed risks associated with banking activities include credit risk, market risk, liquidity risk, and operational risk. Even, it is the exposure that determines the level of risk associated with a bank and risk management practices should be designed in line with the exposures. Banks have been adopting sophisticated risk-management practices in many instances on the basis of their risk exposures. Their efforts cover many components of risk namely, identification of risk the firm is exposed to, assessment and measurement of their magnitude, development and implementation of effective risk mitigation techniques, and setting aside sufficient capital for potential losses. The recent developments in the financial market and changes have created pressure on banks to control their risks in a more proactive manner.



Risk management practices have not been at the expected level mainly because of the approach of board and management and also as a result of the lack of efficiency and instrument in identifying, measuring and minimizing risks. Banks/FIs are continuously putting efforts on effective risk management both in developed and developing economies considering the growing complexities and exposures in banking activities. Moreover, there have been remarkable global initiatives to develop guidelines and principles to handle exposures of banks in recent years, and banks and regulators have been putting efforts to adopt all these. Though such complexity in banking activities and exposure is relatively low in most developing countries, sound risk management practices are not adequately found and effective risk management remains a challenge to the banking industry. To ensure expected return and to avoid unexpected losses from unforeseen events, an effective risk management framework should be in place in the banking industry (Habib et. al, 2013).

Risk management in banks/FIs across the world has changed substantially over the past decade. The regulation that emerged from the global financial crisis triggered a wave of change in risk functions. These included more detailed and demanding capital, leverage, liquidity, and funding requirements, as well as higher standards for risk reporting. The management of nonfinancial risks became more important as the standards for compliance and conduct tightened. Stress testing emerged as a major supervisory tool, in parallel with the rise of expectations for bank risk-appetite statements. Banks also invested in strengthening their risk cultures and involved their Board more closely in key risk decisions. They also sought to further define and delineate their lines of defense. Given the magnitude of these and other shifts, most risk functions in banks are still in the midst of transformations that respond to these increased demands. In 2007, no one would have thought that risk functions could have changed as much as they have in the last twelve years (McKinsey & Company, 2015).

A careful look at the risk management practices in the financial sector of Bangladesh reveals phase-wise development. A landmark development took place in 2003 to 2005 when BB introduced core risk management guidelines to address and manage key banking risks in a uniform way. The regulatory body since then kept on examining the risk management capacity and performance of the banks on a continuous basis and amended or extended the scope of

regulation whenever it was deemed to be necessary. Now the banking sector of Bangladesh is endowed with a reasonably rich set of sound and effective risk management policies and guidelines (Appendix-1) consistent with the international best practices. The development of a whole range of risk management capacity in Bangladesh is mainly regulation driven. Starting from developing the risk management infrastructure through formulating risk management guideline and setting risk governance standards, BB finally embarked on constituting a dedicated organizational structure to deal with various banking risks. According to the latest regulation, Risk Management Division (RMD) will be the nucleus of the risk management process (Siddique et. al, 2015). So, the achievement and progress in managing banking risks in the banking sector will largely depend on the effectiveness of the Risk Management Division.

## **1.2 Concept of Risk**

We may define ‘Risks’ as uncertainties resulting in adverse outcome, adverse in relation to planned objective or expectations. ‘Financial Risks’ are uncertainties resulting in adverse variation of profitability or outright losses. Insofar as profit or loss of business depends upon the net result of all cash inflows and cash outflows, uncertainties in cash inflows and/or outflows also create uncertainties in net cash flow or profits. Factors that are responsible for creating uncertainties (such as sales volume, sales price, purchase price and administrative and transportation expenses) in cash outflows and cash inflows are the risk elements or risk factors. Uncertainties associated with risk elements impact the net cash flow of any business or investment. Under the impact of uncertainties, variations in net cash flow take place. This could be favorable as well as unfavorable. The possible unfavorable impact is the “Risk” of the business. Lower risk implies lower variability in net cash flow with lower upside and downside potential. Higher risk would imply higher upside and downside potential. Zero Risk would imply no variation in net cash flow. Return on Zero risk investment would be low as compared to other opportunities available in the market.

### **Business Line from Risk Management Perspective**

From the risk management point of view banking business lines may be grouped broadly under the following major heads.

- The Banking Book
- The Trading Book
- Off-Balance Sheet Exposures.

**The Banking Book:** The Banking book includes all advances, deposits and borrowings, which usually arise from commercial and retail banking operations. All assets and liabilities in banking book have following characteristics.

- They are normally held until maturity, and
- Accrual system of accounting is applied.

Since, all assets and liabilities in the banking book are held until maturity, maturity mismatch between assets and liabilities results in excess or shortage of liquidity. This is commonly known as 'Liquidity Risk'. In addition, interest rates changes take place during the period such assets and liabilities are held in banking book. Therefore, interest rates on assets as well as liabilities change on their maturity. This affects net interest margin i.e. interest received net of interest paid. This is called 'Interest Rate Risk' Further, the asset side of the banking book generates credit risk arising from defaults in payments of principal and/or interest by the borrowers. This is called 'Default Risk' or 'Credit Risk'. In addition, banking book suffers from what is termed as 'Operational Risk'. These arise due to human failures or omission or commission, deficiencies in information system and system failure, inadequacy or non-adherence to internal processes, external events etc.

**The Trading Book:** The Trading book includes all the assets that are marketable i.e. they can be traded in the market. Contrary to the characteristics of assets and liabilities held in banking book, trading book assets have following characteristics:

- They are not normally held until maturity and positions are liquidated in the market after holding it for a period, and
- Mark to Market system is followed and the difference between market price and book value is taken to profit and loss account.

Trading book mostly comprise of fixed income securities, equities, foreign exchange holdings, commodities, etc., held by the bank on its own account. Derivatives that are held for trading in the market or over the counter (OTC) and for hedging exposures under trading book would also form the part of trading book. Trading books is subject to adverse movement in market prices until they are liquidated. This is termed as 'Market Risk'. Trading book may have market overseas as well if it is so permitted by laws of the land. This adds to the demand and hence adds to the market liquidity. Instruments having lower demand i.e. having lower trading volume are

exposed to 'Liquidation risk'. Trading book is also exposed to Credit Risk or Default Risk, which arises due to failure on the part on the counter party to keep its commitment. Trading book is also exposed to Operational risks.

**Off-Balance Sheet Exposures:** Off balance sheet exposures are contingent in nature. Where banks issue guarantees, letters of credit etc., banks face payment obligations contingent upon some event such as failure to meet payment obligations. These contingencies add to the revenue generation of banks. Banks may also have contingencies receivables. Here banks are the beneficiaries subject to certain contingencies. Derivatives are off-balance sheet market exposures. They are swaps, futures, forward contracts, foreign exchange contracts, options, etc.

Contingent exposure may become a part of the banking book or trading book depending upon nature of off-balance sheet exposures. Therefore, off balance sheet exposures may have liquidity risk, interest rate risk, market risk, default or credit risk and operational risk.

### **1.3 Risk Management Process**

Risk management process, is a systematic approach that aligns strategy, people, technology, processes and knowledge with the purpose of assessing, evaluating and managing the risk that an organization faces. The risk management process of a bank depends on accountability of several key players and each key player is plays different roles in the risk management process.

Risk is unavoidable, but it's not unknowable. While every financial institution faces its share of surprises and setbacks, many of the risks of doing business can be identified and mitigated with the help of thoughtful risk assessments.

A well-executed risk assessment digs into real-world risks and the specific controls an institution uses to mitigate their impact, allowing the board and management to make better, more insightful decisions. From big picture ideas to specific areas of concern, a good risk assessment looks at the good and bad in every situation to provide a thorough understanding of threats and opportunities.

The applications are broad. From observations on potential new products and services to setting budget priorities to pointing out areas in need of compliance reviews, a smart risk assessment gives the board and management a valuable viewpoint. It can uncover weaknesses in controls or risk scenarios when disaster planning, shed light on policies that act as controls, aid with vendor

selection and ongoing vendor management, and suggest improvements. But that's only when they are done correctly. Inconsistent and unreliable risk assessments can cause an institution to make poor decisions by providing inaccurate information. This happens when:

- Risk assessment processes aren't consistent across the organization, leading to varying definitions of risk in each department and more potential risk exposure.
- Employees fail to identify potential risks because they are afraid it will reflect negatively on their performance.
- Employees don't know what the parameters are.
- There is no ongoing process or reliable checkup to ensure that risk controls are valid throughout the risk lifecycle.

#### **1.4 Scope of Risk Management and Enterprise Risk Management (ERM)**

Risk management requires that the risks of a financial institution be identified, assessed and controlled. Enterprise risk management addresses a combination of credit risk, market risk, interest rate risk, liquidity risk and operational risk. Sound risk practices define who should be accountable for these risks and how the risk processes should be implemented.

Risk and return are two sides of the same coin. It is always easy to lend, and to obtain attractive revenues from risky borrowers. The price to pay is a higher risk than the prudent bank and higher potential losses. The prudent bank limits risks by restricting business volume and screening out risky borrowers. It saves potential losses but might suffer from lower market shares and lower revenues. However, after a while, careless risk takers find out that higher losses materialize, and could end up with a lower performance than the prudent lender. Banks that do not differentiate risks of their customers would suffer from adverse economics. Overpricing good risks would discourage good customers. Underpricing bad risks would attract bad customers. Discouraging the relatively good clients and attracting the relatively bad ones would result in adverse selection. Bank-wide management implies that metrics of income and risk at the global bank level be related to similar metrics at the business unit, book and transaction levels.

Policies set global limits and profit objectives at the enterprise level, which are allocated to business units. This top-down process requires that aggregate profit and limits be allocated a

lower level of the hierarchy in a consistent manner. The monitoring and the reporting of risks and performance is bottom-up oriented, starting from transactions, and ending up with aggregated risks and income. Both processes require a sound bank-wide allocation of earnings and of risks.

As funds are transferred to lending activities and from deposits collected, the earnings of business lines depend on internal, or transfer, prices. The transfer pricing system serves to allocate earnings across business lines and transactions and is required for reconciling aggregated earnings with the earnings of business lines, and down to the transaction level. A similar system should be implemented for allocating a share of the bank's risk to business units. Global limit systems define the hierarchy of limits and sublimit within the organization. But limit systems are distinct from measures of risk.

A key factor for risk aggregation is risk diversification. Because of diversification, risks do not add up arithmetically. Loosely speaking, the sum of individual risks is less than the arithmetic summation of risks. This well-known property of risks being sub additive is the source of the challenging problem of risk allocation. For risks to be aggregated bottom-up, and allocated top-down, a risk allocation mechanism is required. In general, the risk allocation issue is addressed by allocating the capital of the bank to portfolios and transactions and it involves an assessment of diversification effects.

Finally, earnings across transactions or portfolios are not comparable because they are in general exposed to different levels of risk. Performances need to be risk adjusted for being comparable across activities and comparable with the risk-adjusted profitability of the bank. The issue is resolved once earnings and risks are properly allocated, by adjusting earnings with the cost of risk based on the cost of capital backing the transactions.

This shows that three building blocks should be designed and assembled for addressing bank-wide risk management:

- Fund transfer pricing systems;
- Risk and capital allocation systems;
- Risk-adjusted performance measures;

These are the necessary components of risk systems for aligning the measures of earnings and risk and related management incentives, across all business lines of large organizations.

## **1.5 Risk Culture**

Risk management culture refers to common norms and values related with risk identification, management and assessment within the organization. Also, risk management culture is an organization-wide issue and has to be designed according to the risk attitudes and behaviors defined strategically in order to attain corporate objectives. Likewise, Risk culture is about understanding risks the financial institution faces and how they are managed. A sound and consistent risk culture throughout a financial institution is a key element of effective risk management.

Every banking institution should develop an integrated and institution-wide risk culture, based on a full understanding of the risks it faces and how they are managed, considering risk tolerance and appetite. Since the business of banks involves risk taking, it is fundamental that risks are appropriately managed. A sound and consistent risk culture throughout a financial institution is a key element of effective risk management.

A bank should develop its risk culture through policies, examples, communication, and training of staff regarding their responsibilities for risk. Every member of the bank should be fully aware of his or her responsibility regarding risk management. Risk management should not be confined to risk specialists or to control functions. Business and operational units, under the oversight of the management body, should be primarily responsible for managing risk on day-to-day basis, considering risk tolerance and risk appetite, and in line with bank's risk policies and procedures.

Risk culture and its impact on effective risk management must be a major concern for the board and senior management. A sound risk culture encourages effective risk management, promotes sound risk-taking and ensures that risk-taking activities beyond the institution's risk appetite are recognized, assessed, reported, and addressed in a timely manner. Weaknesses in risk culture are often the root cause for occurrence of significant risk events, financial institution failures, and financial crisis.

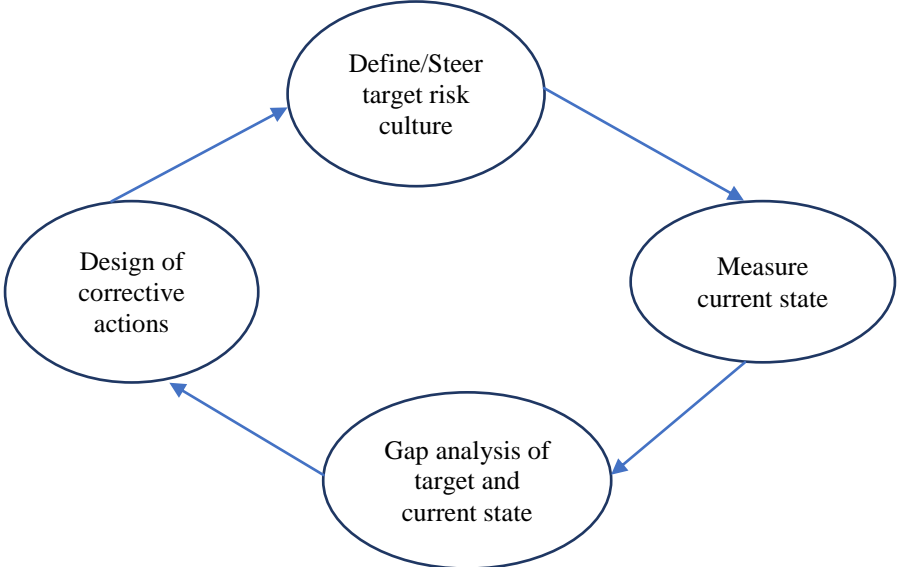
The top level of the bank sets the tone for the desired risk culture. The risk culture can be strengthened through:

- Enabling an open and respectful atmosphere in which employees feel encouraged to speak up when observing new or excessive risks;
- Clarifying the range of acceptable risks using an embedded risk appetite statement and various forms of communication and training; and,
- Aligning incentives with objectives and clarifying how breaches in policies/procedures will be addressed.

**Why Should We Care About Risk Culture?**

The foundation of financial institutions is trust. Since the financial crisis in 2008, public trust in the financial industry suffered and interest of both general public and financial industry in compliance, governance and risk culture has been steadily increasing (Google Trends - Interest over time: Risk culture, risk management & compliance).Regulators have reacted by increasing guidance on risk management and risk culture. To name a few relevant guidelines, Financial Stability Board has issued a framework for assessing risk culture and the Central Bank has issued guidelines on sound remuneration policies and a supervisory statement on governance and risk appetite.It is evident, that risk culture has become a point of interest in the financial industry. Issues in risk management and risk culture bare significant reputational risks and at its worst, might lead to significant loss of trust in the financial sector. A sound risk culture cannot prevent all undesirable behavior, but it can reduce both the frequency and impact of losses generated or influenced by unwanted behavior. A sound risk culture will also lead to increased public trust in financial institutions and the financial sector in general.In order to manage risk culture and be able to steer it, target risk culture needs to be defined, current state of risk culture needs to be measured and gaps between the target and current state of risk culture should be defined.

**Figure-1.1: Process for Managing Risk Culture**





Institutions possessing a clear view of desired risk culture, and an understanding of how their current risk culture differs from this target, will be better positioned to create and maintain a sound risk culture. Hence, defining and understanding what type of risk culture the organization is pursuing, is a crucial first step in managing risk culture. Next, current risk culture needs to be assessed and measured to understand where the most important improvement areas are and to track the progress of cultural change. Once the gaps between the target culture and current state have been defined, corrective measures should be designed to lead the transformation towards cultural awareness and desired cultural change.

## **1.6 Risk Strategy, Risk Appetite and Tolerance**

A bank's strategy details the long-term, and in some cases, short-term goals and objectives, as well as how progress toward their achievement is measured. Along with business goals, the bank should have risk goals and risk strategies which enable them to achieve the desired risk profile. The board of directors sets the strategies and the senior management is responsible for implementing those strategies and communicating them throughout the organization.

Risk appetite statement plays an important role in cascading the risk strategy down through the institution. It should include metrics and indicators in relation to specific risk types. The risk-appetite statement should be well-embedded and be consistent with the bank's capacity to take risk, taking into consideration the capital constraints, and potential profit and loss consequences. Risk appetite along with risk tolerance and risk threshold are to be set and approved by the Board. The risk appetite must reflect strategic planning of the bank which includes shareholder aspirations within the constraints of regulatory requirements, creditor and legal obligations.

A strategic plan is a document reflecting the mission and strategic goals of a bank, generally for a period of at least five years. A good strategic plan must be clear, consistent with goals, flexible, and adjustable to changes in the environment. A bank must have a board approved strategic plan for ensuring the substantial growth and lead the bank in an efficient and logical way. A strategic plan should contain, at least the following, but not limited to:

- i Analysis of the external environment in which the bank operates, including the PEST (Political, Economic, Social and Technological) analysis;
- ii Critical review of the institutional performance including SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis;
- iii Bank's strategic goals and objectives;
- iv Corporate Governance
- v Compliance with laws and regulations
- vi Strengthening Internal Control & Compliance and Review System
- vii Optimization of operating expenses
- viii Reducing Non-performing loans
- ix Increasing NPL recovery
- x Deposit growth with a view to optimizing cost of fund
- xi Lending growth with industry and business segment focus
- xii Maintaining adequate capital for absorbing all material losses
- xiii Maintaining optimum liquidity
- xiv Risk Appetite Statement for all material risks
- xv Human resources development
- xvi Automation and effective Management Information System (MIS)
- xvii Proactive risk management and governance

### **1.6.1 Definition of Risk Appetite**

Risk appetite is the level and type of risk a bank is able and willing to assume in its exposures and business activities, given its business objectives and obligations to stakeholders (depositors, creditors, shareholders, borrowers, regulators). Risk appetite is generally expressed through both quantitative and qualitative means and should consider extreme conditions, events, and outcomes. It should be stated in terms of the potential impact on profitability, capital and liquidity.

### **1.6.2 Risk Appetite Objectives**

In support of the bank's mission, the risk appetite focuses mainly on the following five overarching risk management objectives:

- Upholding the highest ethical standards of conduct;
- Preserving the long-term financial resilience of the bank;
- Avoiding losses when investing public money;
- Ensuring compliance with legal and regulatory obligations;
- Maintaining a robust internal control environment and safeguarding operational continuity.

### **1.6.3 Risk Appetite Framework**

The science of developing and adopting a risk appetite framework (RAF) is still evolving at banks all over the world. Some banks have adopted a high-level, brief, and qualitative statement of RAF, while others have made it complex, lengthy, and quantitative. Risk appetite is the cornerstone of a successful risk management framework. **Risk appetite framework** should include the following criteria:

- Be reviewed and approved by the board of directors at least annually;
- Be in line with the organization's strategy, objectives and key stakeholders' demands;
- Cover all key risks, discussing risk preferences both in terms of risks that are sought out and risks that should be minimized;
- Clearly document risks as part of a risk register, including risk-specific definitions, risk owner, how and how often each risk will be measured, assumptions related to each risk, judgment on severity and likelihood, and speed at which risks could manifest;
- Recognize that losses occur and are part of business but include loss tolerances that are reflective of overall business objectives.
- Reflect the human and technological resources needed to measure and manage the bank's risks in a timely fashion.

### **1.6.4 Developing Risk Appetite Statement**

The Risk Appetite Statement provides a comprehensive summary of Risk Appetite parameters guiding the operations of the Bank. Its main purpose is to facilitate concise presentation and informed periodic review of the amount of risk the Bank is prepared to take in its key activities. It reflects market practice, enhances the quality of internal decision-making, and helps build Bank-wide risk awareness culture. It assists the Bank in communication with stakeholders, including

investors, donors and rating agencies, supporting continued access to funding and ability to pursue the Bank's objectives.

Developing a risk appetite statement is a complex endeavor and is both art and science. The steps in its development include:

- Start with the bank's overall strategic and financial objectives.
- Consider annual reports and financial statements, regulatory requirements, Peer group and industry-wise growth, bank's own portfolio growth, trend of NPL, profitability and capital, liquidity position, risk management culture and practices etc.
- Determine the bank's risk profile.
- Set tolerances for exposures and potential losses in consultation with the business line and related departments.
- Get board approval and communicate it throughout the organization.

In preparing Risk Appetite Statement (RAS), banks are required to set the loan growth target in line with its strategic objectives and mention it in both absolute amount and percentage form. For example, if a bank wants to make 20% loan growth in a particular year to achieve its strategic planning/objective, it should state the percentage of loan growth along with increased amount of loans. In this regard, banks have to mention at least previous three years' real performance along with the current year risk appetite, tolerance and limit. The expected loan growth/amount is also to be distributed in each sector, industry and regional area under the head of Risk Appetite, Risk Tolerance and Risk Limit/Threshold. Risk appetite should be measurable and subject to time consideration for periodic review and must have risk treatments. In case of interim review (if necessary), the revised appetite statement shall have to be approved by the board of directors and submitted to DOS of BB and communicated throughout the organization. However, repeated review of risk appetite statement is discouraged.

#### **1.6.5 Areas of Risk Appetite**

Banks shall prepare risk appetite statement covering all regulatory requirements related to risks, components of pillar II under Basel III, strategic planning and all other probable risks exist in the bank. For example, in setting appetite for liquidity risks they should look into the ratios laid down in the ALM guidelines and related circulars issued by BB. In addition, the banks shall

also consider the CRMR report in setting the above limits. Apart from the regulatory requirements, the banks should set Risk Appetite, Tolerance and limit for all the probable areas of risks. Possible areas for setting risk appetite are as follows:

- Overall growth of total loans and advances including off-balance sheet item
- Credit concentration(borrower/sector/geographical area wise)
- Gross and net NPL to total loans
- Cash recovery against classified loan/written off loan
- Amount of loan outstanding with acceptable rated customers (ECA score up to 3) to the amount lies with total rated customers
- Unsecured exposure\* to total exposure (funded)
- Rescheduled loans to total classified loans
- Written off loan to total classified loans
- Interest waiver as % of NPL
- Impact on Net Interest Income (NII) due to adverse change in interest rate
- Bucket-wise gap under simple sensitivity analysis for interest rate change
- Exchange Rate shock to operating income
- Value at Risk (VAR) for securities and FX
- Overdue accepted bills (payable and receivable) to total loans
- Net Open Position limit
- Exchange rate shock to operating income
- Liability concentration(Top-10 deposit suppliers to total deposit)
- Bucket-wise gap under structural Liquidity Profile (SLP)
- Liquidity ratios (at least for regulatory requirements) including Commitment Limit and Wholesale borrowing Guideline(WBG) Limit
- Loss due to overall operational risk
- Loss due to internal and external fraud
- Operational loss due to employment practice and workplace safety, clients, products, and business practice, damage to physical assets, business disruption and system failure, execution, delivery and process management
- Expected operational loss as % of operating income

- Operating expenses to operating income
- CRAR including CRAR after combined minor shock
- Credit rating of bank itself
- CAMELS rating
- Core risks rating
- Regulatory ratios

\* Unsecured exposure is the exposure against which no eligible collateral (defined by BB) is held.

Banks shall set risk limit for regulatory issues in line with the thresholds laid down by BB but they are encouraged to apply their own prudence for determining/fixing the maximum/minimum perimeter for those issues considering their risk-taking capacity, risk management practices etc. For example: bank having trouble with liquidity should follow more stringent/conservative measure and set the limit for AD ratio below the regulatory threshold.

## **1.7 Risk Assessment and Treatment**

Risk management process is the systematic application of management policies, procedures and practices to the assessment, treatment, controlling, and monitoring of risk. The process should be an integral part of management, be embedded in the culture and practices, and should be tailored to the business processes of the organization. Regardless of types of structure kept in place or strategies formulated by the bank, the risk management process should include proper risk assessment and treatment as described below.

### **1.7.1 Risk Assessment**

Risk assessment is the overall process of risk identification, analysis, and evaluation. Risk identification is the starting point for understanding and managing risks and/or crucial activities. Institutions should identify the nature of risk, sources of risk, cost of risk, areas of impacts, events, their causes, and their potential consequences. They must recognize and understand risks that may arise from both existing and new business initiatives. They should put in place adequate tools and techniques to identify risk because risks not identified at this stage will not be included in further analysis.

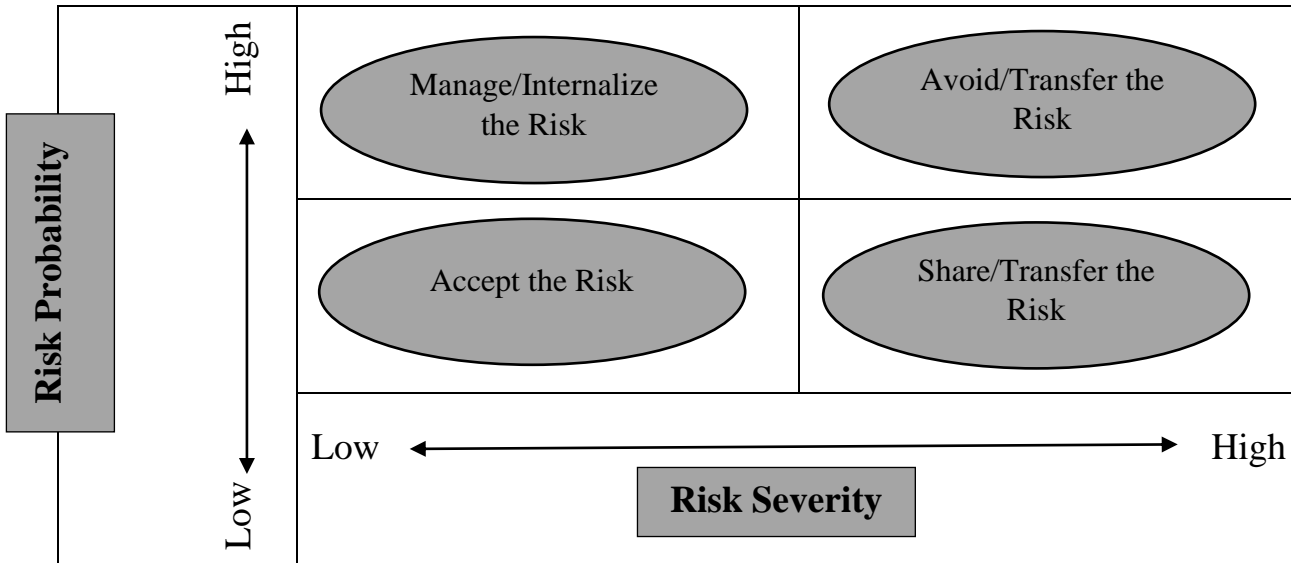
Risk analysis involves developing an understanding of the risk. It provides an input to risk evaluation and to decisions on the most appropriate strategies and techniques for risk treatment. The institution's risk analysis involves measuring risk by considering consequences of an unfavorable event and likelihood of such event occurring. Factors that affect consequences and likelihood should also be identified. Risk analysis can be undertaken with varying degrees of detail, depending on the nature of risk, severity of risk; and the information, data and resources available. Analysis should be quantitative and qualitative in nature. To the maximum possible extent, banks should establish systems/models that quantify their risks; however, in some risk categories, such as reputational and operational risks, quantification may be difficult and complex. When it is not possible to quantify risks, qualitative measures should be adopted to capture those risks.

Risk evaluation is undertaken to assist in making decisions, based upon the outcomes of risk analysis, about which risks need treatment and the priority for treatment implementation. Some risks need to be immediately addressed and should be brought to the attention of the competent authority promptly. Risk evaluation mainly involves comparing the level of risk found during the analysis process with the bank's risk appetite, risk tolerance level and regulatory limits. Based on this comparison, the need for appropriate treatment should be considered.

### **1.7.2 Risk Treatment**

One important aspect of the risk management framework is the risk treatment. Risk treatment is about considering options for treating risks, evaluating those options, preparing the risk treatment plans and implementing those plans to achieve the desired outcome. Figure-1.2 provides a two-dimensional map that can be used to classify risks and suitable strategies to manage them as a function of severity and probability of occurrence.

**Figure-1.2: Risk Severity / Risk Probability Map and Risk Management Strategies**



**Source:** Based on e-learning Manual, CERM Program, Frankfurt

**High Severity and Low Probability (bottom right box):** The chart suggests to share or transfer such a risk, rather than just bearing it and hoping for the best. The classic method for sharing a risk is insurance. Insurance works best in cases where the risk is rare, but catastrophic if it does materialize. Because the event is so severe, there is little temptation for an entity to willingly bring on the risk event or neglect basic precautions that could minimize the incidence of the risk. Thus, so called moral hazard is low.

**Low Severity and High Probability (top left box):** The high probability / low severity situation is treated most efficiently by managing down the probability as best as possible, while absorbing the losses that do materialize rather than trying to share or transfer them. Because transferring the risks in this case would not be cost effective.

**Low Severity and Low Frequency (bottom left box):** This is scenario where the bank should simply accept the risk. Otherwise, the mitigation effort could end up costing more money than could have been lost, if the risk occurred unmitigated. As an example, many companies have given up on controlling basic office supplies, like pens and paper. Such controls should have discouraged staff from over-consuming or taking supplies home. Yet, most companies have decided it's not worth the effort to stop pen and paper theft. Rather, it is better to use bank's logo



printed on the office supplies and let staff accidentally spread marketing message in the community.

***High Severity and High Probability (top right box):*** If possible, an entity should simply stay away from this activity. If the activity cannot be avoided, the solution would be to transfer it, i.e. contract it out to another entity. Ideally, that other entity would specialize in these types of high-risk activities and have the technologies and skills to mitigate the probability and the severity of the risk.

Once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four major categories;

- **Risk Transfer:** Risk Transfer means that the expected party transfers whole or part of the losses consequential to risk exposure to another party for a cost. The insurance contracts fundamentally involve risk transfers. Apart from the insurance device, there are certain other techniques by which the risk may be transferred.
- **Risk Avoidance:** Avoid the risk or the circumstances which may lead to losses in another way, includes not performing an activity that could carry risk. Avoidance may seem the answer to all risks, but avoiding risks also means losing out on the potential gain that accepting (retaining) the risk may have allowed. Not entering a business to avoid the risk of loss also avoids the possibility of earning the profits.
- **Risk Retention:** Risk retention implies that the losses arising due to a risk exposure shall be retained or assumed by the party or the organization. Risk retention is generally a deliberate decision for business organizations inherited with the following characteristics. Self-insurance and Captive insurance are the two methods of retention.
- **Risk Control:** Risk can be controlled either by avoidance or by controlling losses. Avoidance implies that either a certain loss exposure is not acquired or an existing one is abandoned.

## **1.8 Risk Governance and Organization**

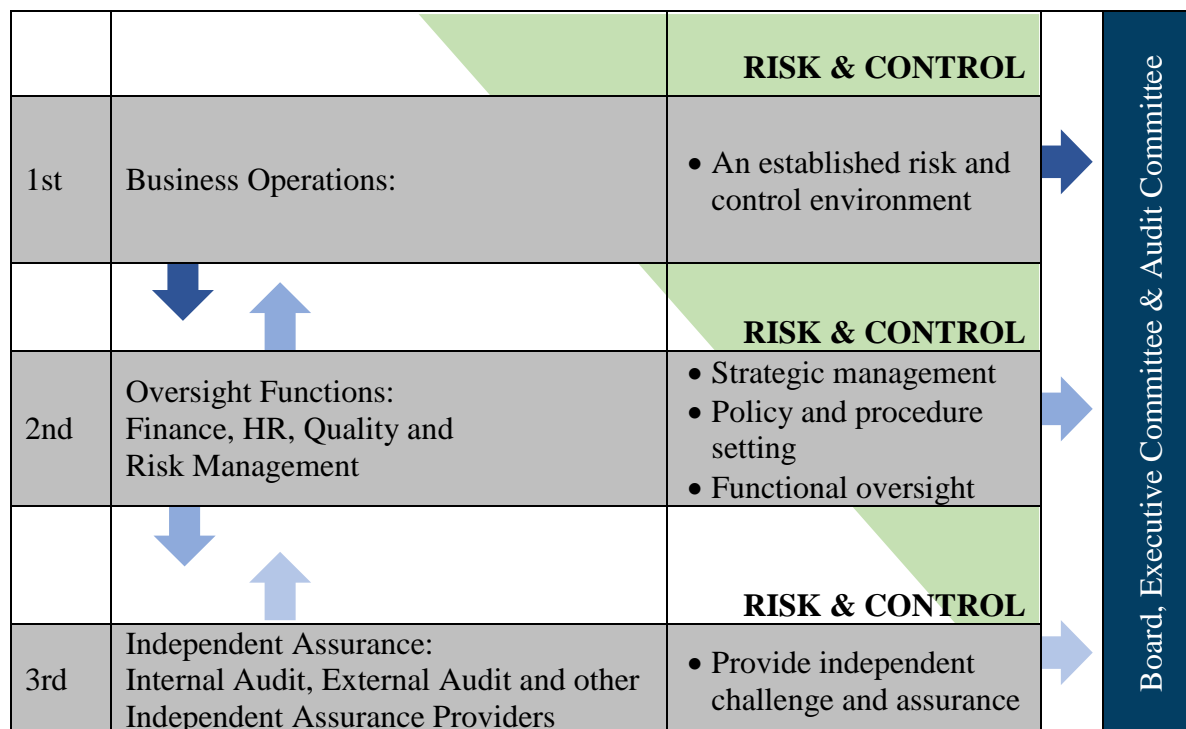
Risk governance refers to the structure, rules, process, and mechanisms by which decisions about risks are taken and implemented. It covers the questions about what risk management

responsibilities lie at what levels and the ways the board influences risk-related decisions; and the role, structure, and staffing of risk organization. As per the Bangladesh Bank Risk Management Guidelines, Bank have to follow a three-lines-of defense model.

Sound internal governance is a must for establishing an effective risk management framework. Board should take the necessary initiatives for implementing a strong risk management culture within the organization. For this purpose, the Board should establish a management structure based on clear lines of responsibility, accountability and reporting. The Board should set the bank's risk appetite through the approval of risk management policy. The senior management should focus on implementing the risk management framework as approved by the Board. Senior management must ensure that all its business activities are adequately staffed having necessary experience and technical skills.

Sound risk governance often relies on three lines of defense: First line – the first level of the control environment is the business operations which perform day to day risk management activity; Second line – Oversight functions in the company such as finance, HR and risk management set directions, define policy and provide assurance; and Third line – Internal and external audit are the third line of defense, offering independent challenge to the levels of assurance provided by business operations and oversight functions. Depending on the bank's nature, size and complexity, and the risk profile of a bank's activities, the degree of formality of how these three lines of defense are implemented will vary. The framework is given in figure-3.

**Figure-1.3: Three Lines of Defense (3LD) Framework for Risk Management**



**Source:** KPMG, 2009

**First Line of Defense:** Business line management is responsible for ensuring that a risk and control environment is established as part of day-to-day operations. Business line management is responsible for identifying and managing risks in the products, activities, processes and systems for which they are accountable. It is important that appropriate segregation of duty and proper delegation of authority is maintained (Anwar, 2013). Line management should thus be adequately skilled to create risk definitions and make risk assessments. The risk profile needs to proactively reviewed, updated and modified for changes to the business environment and emerging risk changes. The first line of defense provides management assurance and informs the audit committee by identifying risks and business improvement actions, implementing controls and reporting on progress (KPMG, 2009).

The first line of defense provides that the business and operation units of the institution have in place effective processes to identify, assess, measures, monitor, mitigate, and report on their risks. Each unit operates in accordance with the risk policies and delegated mandates. The units

are responsible for having skills, operating procedures, systems, and controls in place to ensure their compliance with risk policies and mandates.

***Second Line of Defense:*** A separate independent risk management function is the second line of defense, which is very much essential to assist management to understand and manage various risks. The function generally complements the business line's risk management activities. It is the responsibility of the independent risk management function to assist in initiating policies, procedures and standards and coordinate with various businesses/ risk management activities. The independent unit must assess, monitor, and report different risks as a whole, and ensure that the management of risk in banks is as per approved strategies/ policies (Anwar, 2013).

The second line of defense related to the appropriate Internal Control framework put in place to ensure effective operations, including the following:

- adequate control of risks
- prudent conduct of business
- reliability of financial and non-financial information reported or disclosed (both internally and externally); and
- compliance with laws, regulations, supervisory requirements, and the institution's internal policies and procedures.

The Internal Control framework encompasses risk control function and compliance function, will cover the whole organization, including the activities of all business, support, and control units. The risk management unit, headed by a Chief Risk Officer has the responsibility for recommending and monitoring the bank's risk appetite and policies, and for following up and reporting on risk related issues across all risk types.

***Third Line of Defense:*** Independent validation and verification is the third line of defense in the governance structure. It serves as a challenge function to the other two lines of defense. Internal audit or any independent group of qualified staff may conduct these independent reviews. Those performing these reviews must be competent and appropriately trained and not involved in the development, implementation and operation of the framework. The audit function should also provide assurance to the Board regarding effectiveness of the risk management framework. Senior management should seriously investigate the findings of audit to set up a risk culture in the bank (Anwar, 2013)

The third line of defense consists of the bank's internal audit which performs independent periodic reviews of the first two lines of defense, provides assurance and informs strengths and potential weaknesses of the first two lines. Internal control system plays an important role in risk management of a financial institution. With comprehensive internal control structure in place, management will be better able to contain risks within the level commensurate with the Bank's risk appetite, risk tolerance, risk limit and strategy. An effective internal control system enforces the official lines of authority and provides for appropriate separation of duties. A major part of the internal control structure is the establishment of limits such as limits on liquidity, officer limits, limits on non-performing assets etc.

## **1.9 Inherent Risk, Control and Residual Risk**

### **1.9.1 Inherent Risk**

Inherent risk is the risk that exists naturally when there are no safeguards in place to avoid trouble. Inherent risk can be expressed as the potential impact of an event on the institution times the probability of the harmful event occurring. If an event is unlikely to happen and would not cause much impact, the inherent risk is low. However, if the risk is very likely to happen and also can result in a severe impact, the inherent risk is extremely high. As a financial institution, it is critical to identify inherent risks and put appropriate safeguards in place to mitigate them.

Technology comes with a great deal of inherent risk. A cyber breach would be catastrophic, and it is very likely to happen if there are no firewalls, intrusion detection software, or antivirus software in place to prevent it. Since the inherent risk of conducting transactions online is so high, financial institutions need to carefully assess these risks whenever adding new software, vendors, procedures, or employees.

Employees can be a source of inherent risk. The more people that work in a financial institution, the more risk there is that someone will make an error, commit fraud, or damage the institution's reputation. To mitigate these inherent risks, institutions must thoroughly vet new employees. They also may limit new employees' access to only the banking data they need to do their jobs.

Vendors also present inherent risk. Whether it is a software vendor, a vendor that supplies paper products, or a vendor that supplies cleaning services, it is important to assess the inherent risk of giving that vendor access to specific parts of the bank and its processes. Vendor management software can help to mitigate these risks.

Every financial institution must deal with inherent risk. The key to avoiding the harmful impact that would happen if these risks became a reality is to identify and assess the risks and put plans and processes in place to avoid catastrophe. Inherent risk scores represent the level of risk an institution would face if there weren't controls to mitigate it. For example, think of the risk of a cyberattack if the institution didn't have any defenses in place.

One way to look at inherent risk is through the following formula:

$$\text{Inherent risk} = \text{Impact of an event} * \text{Probability}$$

This formula demonstrates the relationship between an event's impact and its probability when determining inherent risk. The impact is an estimate of the harm that could be caused by the risk. For example, a cyber breach could have a catastrophic impact. Probability is how likely a risk is to occur. For example, a cyber breach seems a very likely occurrence when there's no firewalls, anti-virus software or intrusion detection software to prevent it.

### **1.9.2 Control**

A control's impact is the expected value of its risk mitigation. A control can be viewed as very important, important or not very important. For example, a firewall can be very important for keeping out hackers because it covers the entire institution. A control's effectiveness is the probability that the control will function as intended based on assessments. When it comes to firewalls, monitoring reports can show evidence of the firewall fending off specific attacks, but it may also indicate that occasionally a new attack has made some inroads. When assessing effectiveness, make sure controls are regularly monitored for trends to help understand if they are performing as expected.

To compare risks and controls, it's necessary to have a scoring system. The way that scale is structured can influence risk and control scores. Some institutions use a three-point scale of high, medium and low. Others use a five-point scale since it offers more nuance. For example, risk can

be rated on a scale from 1 to 5 with 1 representing a low risk and 5 representing the highest possible level of risk. Others use terms like catastrophic, significant, moderate, minor, and insignificant. Similarly, controls can be ranked on a scale of 1 to 5 with 1 representing controls that do the least to reduce risk and 5 representing those that are the most effective. Others use terms to assess the probability that a control will be effective. These can include “certain,” “likely,” “possible,” “unlikely” and “remote.”

### **1.9.3 Residual Risk**

Residual risk is the risk that remains after controls are considered. In the case of a cyber breach, it's the risk that remains after considering deterrence measures. This score helps the organization review its risk tolerance against its strategic objectives. It's all about understanding the relationship between risk and controls. This relationship can be demonstrated with the following formula:

$$\text{Residual risk} = \text{Inherent risk} * \text{Control effectiveness}$$

Residual risk is greatest when the inherent risk is high and the controls for mitigating the risk aren't effective. It decreases when controls are effective.

### **1.10 Indicative Questions**

1. Briefly describe the risks involved in banking book, trading book and off-balance sheet exposure.
2. Considering the severity and probability of occurrence, how risk should be treated?
3. What is risk appetite? Why is developing risk appetite statement help in mitigating the risk?
4. Define risk culture? Why should risk culture be given due importance?
5. Mention some areas where bank should have their own risk strategy.

## **Module – B**

### **Risk Identification and Assessment**

#### **2.1 Process of Risk Management**

Management of risks begins with identification and its quantification. It is only after risks are identified and measured we may decide to accept the risk or to accept the risk at a reduced level by undertaking steps to mitigate the risk, either fully or partially. In addition, pricing of the transaction should be in accordance with the risk content of the transaction. Hence management of risks may be sub-divided into following five processes.

- Risk identification
- Risk Measurement
- Risk Mitigation
- Risk Pricing
- Risk Monitoring and Control

Further, approach to manage risks at transaction level - i.e. at branch level where business transactions are undertaken and at aggregate level i.e., sum total of at transactions undertaken at all the branches - differs. This is because of risk diversification that takes place at aggregate level. Aggregated risk of the organization as a whole is called 'Portfolio Risk'.

**2.1.1 Risk identification:** Nearly all transactions undertaken would have one or more of the major risks i.e., liquidity risk, interest rate risk, market risk, default or credit risk and operational risk with their manifestations in different dimensions. Although all these risks are contracted at the transaction level, certain risks such as liquidity risk and interest rate risk are managed at the aggregate or portfolio level. Risks such as credit risk, operational risk and market risk arising from individual transactions are taken cognizance of at transaction level as well as at the portfolio level. In essence, risk identification consists of identifying various risks associated at the transaction level and examining its impact on the portfolio and capital requirement. Risk content of a transaction is also instrumental in pricing the exposure.

**2.1.2 Risk Measurement:** Risk management relies on quantitative measures of risk. The risk measures seek to capture variations in earnings, market value, losses due to default etc. (referred



to as target variables), arising out of uncertainties associated with various risk elements. Quantitative measures of risks can be classified into three categories,

- Based on sensitivity
- Based on Volatility
- Based on Downside Potential

**Sensitivity:** Sensitivity captures deviation of a target variable due to unit movement of a single market parameter. For example, change in market value due to 1% change in interest rate would be a sensitivity-based measure. Other examples of market parameters could be exchange rates and stock prices. The interest rate gap is the sensitivity of the interest rate margin of the banking book. Duration is the sensitivity of investment portfolio or trading book. Usually, market risk models use sensitivities fairly widely. This measure suffers from couple of drawbacks. First, it is only with reference to one market parameter and does not consider impact of other parameters, which may also change simultaneously. Secondly, sensitivities depend on prevailing conditions and change as market environment changes.

**Volatility:** It is possible to combine sensitivity of target variables with the instability of the underlying parameters. The volatility characterizes the stability or instability of any random variable. It is a common statistical measure of dispersion around the average of any random variable such as earnings, mark-to-market values, market value, losses due to default etc. Volatility is the standard deviation of the values of these variables. Standard deviation is the square root of the variance of the random variable. Volatility helps us to capture possible variations around the average of target variable, both upside and down side. Using historical observations on the target variable, it is possible to estimate upside and downside potential of the target variable with a reasonable accuracy.

**Downside Potential:** Risk materializes only when earnings deviate adversely. Volatility captures both upside and downside deviations. Downside potential only captures possible losses ignoring profit potential; It is the adverse deviation of a target variable.

The downside risk has two components- potential losses and probability of occurrence. Potential losses may be estimated but difficulty lies in estimating probabilities. Hence, downside risk measures require prior modeling of the probability distribution of potential losses. Worst-case

scenario serves to quantify extreme losses but has low probability of occurrence. Downside risk is the most comprehensive measure of risk as it integrates sensitivity and volatility with the adverse effect of uncertainty. This is the measure that is most relied upon by banking and financial service industry as also the regulators. The value at risk (VaR) is a downside risk measure.

**2.1.3 Risk Mitigation:** Since risks arise from uncertainties associated with the risk elements, risk reduction is achieved by adopting strategies that eliminate or reduce the uncertainties associated with the risk elements. This is called "Risk Mitigation" While they help in reducing adverse impact on profits, it limits upside potential as well. Nevertheless, one achieves stability in his net cash flow and risks stand reduced. In banking, we come across a variety of financial instruments and number to techniques that can be used to mitigate risks. The techniques to mitigate different types of risk are different. For mitigating credit risk banks have been using traditional techniques such as collateralizations by first priority claims with cash or securities or landed properties, third party guarantees etc. Banks may buy credit derivatives to offset various forms of credit risk. For mitigating interest rate risk banks use interest rate swaps, forward rate agreements or financial future. Similarly, for mitigating forex risks banks use forex forward contract, forex options or futures and for mitigating equity price risk, equity options.

**2.1.4 Risk Pricing:** Risks in banking transactions impact banks in two ways. Firstly, banks have to maintain necessary capital, at least as per regulatory requirements. The capital required is not without costs. The cost of capital arises from the need to pay investors in Bank's equity and internal generation of capital necessary for business growth. Each banking transaction should be able to generate necessary surplus to meet this cost. The pricing of transaction must take that in to account. Secondly, there is a probability of loss associated with all risks. This also needs to be factored into pricing. Risk Pricing implies factoring risks into pricing through capital charge and loss probabilities. Pricing, therefore, should consider the following

- Cost of Deployable Funds
- Operating Expenses
- Loss Probabilities
- Capital Charge

It may be noted that pricing is transaction based. This is one of the key reasons for risk measurement at transaction level.

**2.1.5 Risk Monitoring and Control:** The approach to risk management centers on facilitating implementation of risk and business policies simultaneously in a consistent manner. Modern best practices consist of setting risk limits based on economic measures of risk while ensuring best risk adjusted return keeping in view the capital that has been invested in the business. It is a question of taking a balanced view on risks and returns and that within the constraints of available capital. In order to achieve the above objective, banks put in place the following:

- An organizational structure.
- Comprehensive risk measurement approach
- Risk Management policies adopted at the corporate level.
- Guidelines and other parameters used to govern risk taking

The banks establish an adequate system for monitoring and reporting risk exposures and assessing the bank's changing risk profile. The bank's senior management or board of directors should, on a regular basis, receive reports on the bank's risk profile and capital needs. These reports should allow senior management to:

- Evaluate the level and trend of material risks and their effect on capital levels.
- Evaluate the sensitivity and reasonableness of key assumptions
- Assess bank's risk profile on a continuous basis and make necessary adjustments to the bank's strategic plan accordingly.

The bank's internal control structure is essential to process. Effective control of the process includes an independent review and, where appropriate, the involvement of internal or external audits. The bank's board of directors has a responsibility to ensure that management establishes a system for assessing the various risks, develops a system to relate risk to the bank's capital level, and establishes a method for monitoring compliance with internal policies. The board should regularly verify whether its system of internal controls is adequate to ensure well-ordered and prudent conduct of business. The banks conduct periodic reviews of its risk management process to ensure its integrity, accuracy, and reasonableness. Identification of large exposures and risk concentrations, accuracy and completeness of data inputs into the bank's assessment process and stress testing and analysis of assumptions and inputs are all a part of control and monitoring processes.

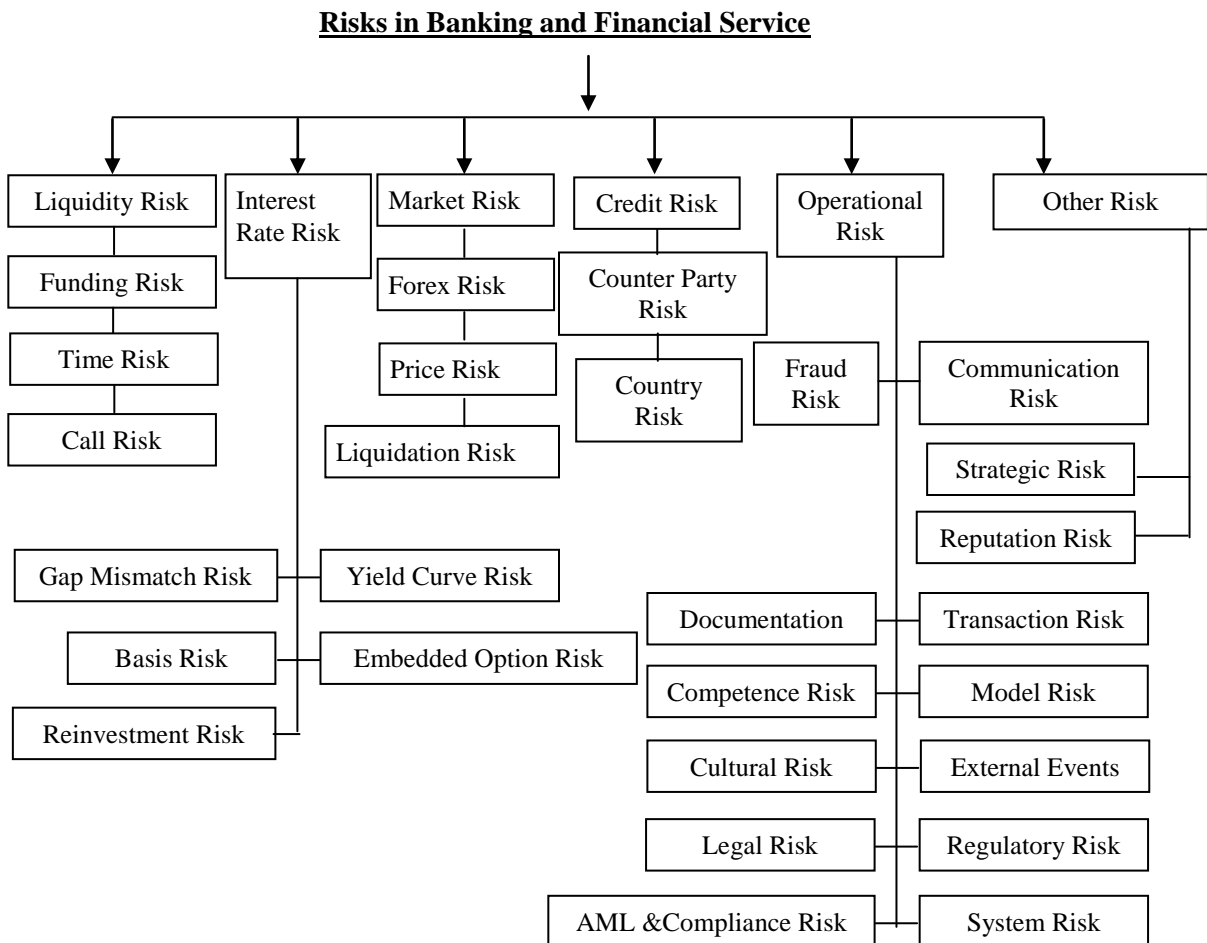
## 2.2 Categorization of Risk

In order to get a better understanding of risk, it is important to look at the various types of risks faced by an organization. Risks can be classified in different ways according to their source. As this categorization of risk is more for the sake of convenience, there may be a certain amount of overlap. From a managerial perspective, risk can be classified into three broad categories:

- Risks that need to be avoided
- Risks that should be transferred
- Risks to be actively managed

From a functional perspective, risks can be divided into the following types:

- Financial Risks
- Non-Financial Risks



### 2.2.1 Financial Risks

Financial risk is the possibility of losing money in a business venture or investment. There are several types of financial risks, such as credit risk, liquidity risk, interest rate risk and market risk. A financial risk is a potential loss of capital to an interested party.

**Liquidity Risk:** The liquidity risk of banks arises from funding of long-term assets by short-term liabilities, thereby making the liabilities subject to rollover or refinancing risk. Funding liquidity Risk is defined as inability to obtain funds to meet cash flow obligations. For banks, funding liquidity risk is crucial. The liquidity risk in banks manifest in different dimensions:

- **Funding Risk:** This arises from the need to replace net outflows due to unanticipated withdrawal/non-renewal of deposits (wholesale and retail).
- **Time Risk:** This arises from the need to compensate for non-receipt of expected inflows of funds i.e. performing assets turning into non-performing assets.
- **Call Risk:** This arises due to crystallization of contingent liabilities. This may also arise when a bank may not be able to undertake profitable business opportunities when it arises.

**Interest Rate Risk:** Interest Rate Risk (IRR) is the exposure of a Bank's financial condition to adverse movements in interest rates. IRR can be viewed in two ways: Its impact on the earnings of the bank or on the economic value of the bank's assets, liabilities and OBS positions. Interest Rate Risk can take different forms.

- **A Gap or Mismatch Risk** arises from holding assets and liabilities and off-balance sheet items with different principal amounts, maturity dates or re-pricing dates, thereby creating exposure to unexpected changes in the level of market interest rates.
- **Yield Curve Risk:** In a floating interest rate scenario, banks may price their assets and liabilities based on different benchmarks, i.e. treasury bills' yields, fixed deposit rates, call money rates, MIBOR. In case the banks use two different instruments maturing at different time horizon for pricing their assets and liabilities, any non-parallel movements in yield curves would affect the NII.
- **Basis Risk** is the risk that the interest rate of different assets, liabilities and off-balance sheet items may change in different magnitude is termed as basis risk.
- **Embedded Option Risk:** Significant changes in market interest rates create the source of risk to banks profitability by encouraging prepayment of cash credit/demand loans/term

loans and exercise of call/put options on bonds/debentures and/or premature withdrawal of term deposits before their stated maturities. The result is reduction of projected cash flow and income for the bank.

- **Reinvestment Risk:** Uncertainty with regard to interest rate at which the future cash flows could be reinvested is called reinvestment risk. Any mismatches in cash flows would expose the banks to variations in NII as the market interest rates move in different directions.

**Market Risk:**Market risk is the risk of adverse deviations of the mark-to market value of the trading portfolio, due to market movements, during the period required to liquidate the transactions This results from adverse movements the market prices of interest rate instruments, equities, commodities and currencies.

- **Price Risk:** Market Risk is also referred to as Price Risk. Price risk occurs when assets are sold before their stated maturities. In the financial market, bond prices and yields are inversely related. The price risk is closely associated with the trading book, which is created for making profit out of short-term movements in interest rates.
- **Forex Risk** is the risk that a bank 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.
- **Market Liquidity Risk** arises when a bank is unable to conclude a large transaction in a particular instrument near the current market price.

**Credit Risk:**Credit Risk is most simply defined as the potential of a bank borrower or counterparty to fail to meet its obligations in accordance with agreed terms. For most banks, loans are the largest and most obvious source of credit risk.

- **Counterparty Risk:** This is a variant of credit risk and is related to non-performance of the trading partners due to counterparty's refusal and /or inability to perform. The counterparty risk is generally associated with trading rather than standard credit risk.
- **Country Risk:** This is also a type of credit risk where non-performance by a borrower or counter-party arises due to constraints or restrictions imposed by a country.

### 2.2.2 Non-Financial Risks

**Operational Risk:** Operational risk is the risk of loss resulting from inadequate or failed internal process, people and system or from external events. Strategic risk and reputation risk are not a part of operational risk. Operational risk may loosely be comprehended as any risk which is not categorized as market or credit risk. Scope of operational risk is very wide. It includes Fraud risk, Communications risk, Documentation risk, Competence risk, External events risk, legal risk, Regulatory risk, Compliance risk, System risk and so on. Two of these, which are frequently used namely, transaction and compliance risk been defined below:

- **Transaction risk** is the risk arising from fraud, both internal and external, failed business processes and the inability to maintain business continuity and manage information.
- **Compliance risk** is the risk of legal or regulatory sanction, financial loss or reputation loss that bank may suffer as a result of its failure to comply with any or all of the applicable laws, regulations, codes of conduct and standards of good practice.

### 2.2.3 Other Risk

- **Strategic Risk:** Strategic Risk is the risk arising from adverse business decisions, improper implementation of decisions, or lack of responsiveness to industry changes.
- **Reputation Risk:** Reputation Risk is the risk arising from negative public opinion. This risk may expose the institution to litigation, financial loss, or a decline in customer base.

## 2.3 Risk Assessment Techniques

Risk assessment is a general term used across many industries to determine the likelihood of loss on an asset, loan, or investment. Assessing risk is essential for determining how worthwhile a specific investment is and the best process(es) to mitigate risk. It presents the upside reward compared to the risk profile. Risk assessment is important in order to determine the rate of return an investor would need to earn to deem an investment worth the potential risk.

- Risk assessment is the process of analyzing potential events that may result in the loss of an asset, loan, or investment.
- Companies, governments, and investors conduct risk assessments before embarking on a new project, business, or investment.

- Quantitative risk analysis uses mathematical models and simulations to assign numerical values to risk.
- Qualitative risk analysis relies on a person's subjective judgment to build a theoretical model of risk for a given scenario.
- While a stock's past volatility does not guarantee future returns, in general, an investment with high volatility indicates a riskier investment.

### **2.3.1 Types of Risk Assessment Techniques**

Risk assessment enables corporations, governments, and investors to assess the probability that an adverse event might negatively impact a business, economy, project, or investment. Risk analysis provides different approaches investors can use to assess the risk of a potential investment opportunity. Two types of risk analysis an investor can apply when evaluating an investment are quantitative analysis and qualitative analysis.

**Quantitative Analysis:** A quantitative analysis of risk focuses on building risk models and simulations that enable the user to assign numerical values to risk. An example of quantitative risk analysis would be a Monte Carlo simulation. This method - which can be used in a variety of fields such as finance, engineering, and science - runs a number of variables through a mathematical model to discover the different possible outcomes.

**Qualitative Analysis:** A qualitative analysis of risk is an analytical method that does not rely on numerical or mathematical analysis. Instead, it uses a person's subjective judgment and experience to build a theoretical model of risk for a given scenario. A qualitative analysis of a company might include an assessment of the company's management, the relationship it has with its vendors, and the public's perception of the company.

**Other Risk Assessment Methods:** Another example of a formal risk assessment technique includes conditional value at risk (CVaR), which portfolio managers use to reduce the likelihood of incurring large losses. Mortgage lenders use loan-to-value ratios to evaluate the risk of lending funds. Lenders also use credit analysis to determine the creditworthiness of the borrower.



### **2.3.2 Risk Assessment for Banks/FIs**

In a risk assessment, a bank assesses the processes underlying its operations against a library of potential threats and vulnerabilities and consider their potential impact. Risk Control Self-Assessment (RCSA), typically evaluates inherent risk (the risk before controls are considered), the effectiveness of the control environment, and residual risk (the risk exposure after controls are considered). Scorecards build on RCSAs by weighting residual risk to provide a means of translating the RCSA output into metrics that give a relative ranking of the control environment.

## **2.4 Likelihood and Potential Impact**

Risk Likelihood is a qualitative assessment that explains how likely a Risk will occur. Qualitative assessments are based on opinions; it is difficult to put an exact number on the assessment. Risk Likelihood means the possibility of a potential risk occurring, interpreted using qualitative values such as low, medium, or high. This is in comparison with quantitative assessments, which use data and numbers. When using a quantitative assessment, we typically speak about Risk Probability and percentage. In other words, the probability is the anticipated percentage of possibilities that an outcome will take place based on a parameter of values.

### **2.4.1 Describing the Risk Likelihood with the Ordinal scale**

An ordinal scale is a way of ranking items in order of magnitude, or size. In other words, it is a scale that allows us to put things in order from smallest to largest (or vice versa). When it comes to Risk Likelihood, you can use an ordinal scale to rank the likelihood of something happening on a scale from 1 to 5. Using an ordinal scale has several benefits. First, it is easy to understand and use. Second, it can be helpful in making decisions, since we can rank different options in order of magnitude. Finally, it is easy to communicate ordinal scale rankings to others. There are two ways to use an ordinal scale for Risk Likelihood:

- Rank the likelihood of something happening with numbers, for example, 1 to 5.
- Use a more descriptive ranking system with names, for example, low to high.

### **2.4.2 Why is Risk Likelihood Significant for Risk Management?**

Risk Likelihood helps to identify and prioritize risks in Risk Management. Knowing what the Likelihood is of several Risks, enables prioritization. Together with the Risk Severity, the Risk Likelihood is part of the Risk Matrix (or Risk Diagram), a tool used to help identify, assess, and

prioritize risks. Risk Severity (or Risk Impact) signals the Risk’s negative consequence on a project. The Risk Matrix typically has four sections, each representing a different Risk Magnitude.

		Likelihood				
		A	B	C	D	E
Severity	1	1	1	0	0	1
	2	0	4	2	0	0
	3	0	3	4	1	0
	4	0	0	1	6	0
	5	0	0	0	3	6

Furthermore, we can also calculate the Risk Magnitude (or risk index) by multiplying the Risk Likelihood by the Risk Severity. The formula: Risk Magnitude = Severity × Likelihood. We could then say that a low risk <5 would be acceptable, while a risk magnitude of 15 or above unacceptable. It is important to consider the consequences and the likelihood of risk in the context of the size, complexity, objective of the activity of a banking company is pursuing. It is important to note that the likelihood/frequency and also the impact/consequence will vary from bank to bank.

**Table-2.1: Likelihood Scale**

Rating	Likelihood (The potential for problems to occur in a year)
5	<b>Almost Certain:</b> will probably occur, could occur several times per year
4	<b>Likely:</b> high probability, likely to arise once per year
3	<b>Possible:</b> reasonable likelihood that it may arise over a five-year period
2	<b>Unlikely:</b> plausible, could occur over a five to ten-year period
1	<b>Rare:</b> very unlikely but not impossible, unlikely over a ten-year period

Not assessing Risk Likelihood correctly can have severe consequences. If we underestimate the Likelihood of an event, we may not take the necessary precautions to avoid it. On the other hand, if we overestimate the Likelihood of an event, we may take unnecessary precautions that waste time and money.

**2.4.3 Potential Impact**

Analyzing the likelihood and consequences of each identified risk and deciding which risk factors will potentially have the greatest effect and should, therefore, receive priority with regard to how they will be managed. The level of risk is analyzed by combining estimates of likelihood and consequences. The purpose of risk analysis is to identify what could go wrong (likelihood) and what is the consequence (loss or damage) of it occurring.

**Table 2.2 – Loss or Damage Impact Scale**

<b>Rating</b>	<b>Potential Impact(In terms of the objectives of the Bank)</b>
<b>5</b>	<b>Catastrophic:</b> most objectives may not be achieved, or several severely affected
<b>4</b>	<b>Major:</b> most objectives threatened, or one severely affected
<b>3</b>	<b>Moderate:</b> some objectives affected, considerable effort to rectify requires medical attention and has some impact on overall health of the bank and also may impact on the economy the bank is operating in
<b>2</b>	<b>Minor:</b> easily remedied, with some effort the objectives can be achieved
<b>1</b>	<b>Negligible:</b> very small impact, rectified by normal processes

## **2.5 Selection of Significant Risks for the Enterprise**

Enterprise risk management (ERM) is a methodology that looks at risk management strategically from the perspective of the entire firm or organization. It is a top-down strategy that aims to identify, assess, and prepare for potential losses, dangers, hazards, and other potentials for harm that may interfere with an organization's operations and objectives and/or lead to losses. ERM can help devise plans for almost any type of business risk. Business risk threatens a company's ability to survive, and these risks may be further classified into different risks discussed below. In general, ERM most commonly addresses the following types of risk:

- **Compliance risk** threatens a company due to a violation of external law or requirement. An example of compliance risk is a company's inability to produce timely financial statements in accordance with applicable accounting rules such as GAAP.
- **Legal risk** threatens a company should the company face lawsuit or penalty for contractual, dispute, or regulatory issues. An example of legal risk is a billing dispute with a major customer.
- **Strategic risk** threatens a company's long-term plan. For example, new market participants in the future may supplant the company as the lowest-cost provider of a good.

- **Operational risk** threatens the day-to-day activities required for the company to operate. An example of operational risk is a natural disaster that damages a company's warehouse where inventory is stored.
- **Security risk** threatens the company's assets if physical or digital assets are misappropriated. An example of security risk is insufficient controls overseeing sensitive client information stored on network servers.
- **Financial risk** threatens the debt or financial standing of a company. An example of financial risk is translation losses by holding foreign currency.

## 2.6 Key Risk Indicators (KRIs), Risk Register and Risk Rating

### 2.6.1 Key Risk Indicators (KRIs)

Key Risk Indicators are measures to indicate the potential presence, level or trend of a risk. It can indicate whether a risk has occurred or is emerging, a sense of the level of the risk exposure, the trending of and/or changes in the risk exposure. KRIs provide information about a risk situation that may or may not exist and as such serves as a signal for further action. (Susan Hwang (Partner, Deloitte & Touche LLP), Identifying and Communicating Key Risk Indicators. (p. 126. In: Fraser & Simkins (eds.): Enterprise Risk Management, 2010.)

#### Significant areas where Banks/FIs are Exposed to (in terms of Risk Concern):

<b>A. Operational and IT Security Risk</b>	<b>B. Reputational Risk (A Dimension of Operational Risk)</b>
1. Internal Fraud 2. External Fraud 3. Workplace Safety 4. Disaster and Public Safety 5. Execution, Delivery and Process Management 6. Infrastructure Failures 7. System Downtime 8. Technology Failures	9. Negative Media Report 10. Number of Customer Complaints 11. News on Regularity Penalty 12. News on Non- Compliance 13. News on IT Failures or Cyber Attacks 14. BASEL Disclosure 15. Cash in-availability in ATM Machines 16. Overdue Accepted Bill 17. Core Risk Rating 18. External Rating
<b>C. Effective Corporate Governance</b>	<b>D. ICC and AML (A Broad Dimension of Operational Risk)</b>
19. Commitment and Mandate 20. Board's Oversight	30. No. of Branches audited 31. No. of Dept./Div. audited

21. Goals and Strategy	32. No. of Irregularities
22. Guideline and Policy Placement	33. Amount involved for Major Irregularities
23. Senior Management Oversight	34. No. of Reports Received
24. Effective Functional Unit	35. No. of Compliance Issue
25. Empowerment and Accountability	36. No. of pending compliance issue
26. Independent Monitoring (Audit)	37. STR Reported
27. Establishment of 3 Lines Defense	38. CTR Reported
28. Review and Improvement	39. AML/CFT Training
29. Stress Test Result	40. High Risk Customers
	41. PEPs

<b>E. Credit Risk</b>	<b>F. Liquidity and Market Risk</b>
42. Total LDOs Trend	65. Total Deposit Trend
43. SMA Trend	66. High Cost Deposit
44. CL Trend	67. Top-10 Deposit Suppliers
45. CL to Total LDOs	68. Borrowing (other Banks & FI)
46. BL to Total CL	69. MCO (%)
47. Top-20 Defaulters Trend	70. LCR (Liquidity Coverage Ratio)
48. Cash Recovery Against CL	71. NSFR (Net Stable Funding Ratio)
49. Sectorial Loan Concentration (Industry, Trading etc.)	72. ADR
50. Geographical Loan Concentration	73. Liquidity GAP under SLP
51. Industry-wise Loan Concentration (RMG, Steel)	74. Undrawn Commitment
52. Single Borrower Limit	75. Statutory Liquidity Requirement (SLR)
53. Top-20 Borrowers Trend	76. Cash Reserve Ratio (CRR)
54. Top-20 Borrowers to Total LDOs	Wholesale Borrowing Guidelines (WBG)
55. Large Loan Trend	77. Market Price Trend (Shares and Securities)
56. Large Loan to Total LDOs	78. Cost Price Trend (Shares and Securities)
57. OBS to Total Assets	79. Impact on earnings due to 1% change of interest rate in relation to RSA and RSL
58. Trend of Written off Loans	80. Net Open Position
59. Loan Rescheduling Trend	81. Value at Risk (VaR)
60. Loan Restructuring Trend	82. Leverage Ratio
61. New Loan Sanctioned	83. Stop loss limit
62. Large New Loan Sanctioned	84. Placement to OBU
63. Loans Taking Over	
64. Documentation Error	

<b>G. Capital Adequacy</b>	<b>H. Profitability Risk</b>
85. Total Asset Trend	90. Interest Income Trend
86. Risk Weighted Asset (RWA)	91. Interest Expense Trend

87. Minimum Capital Requirement	92. Net Interest Income (NII)
88. CET-01 Capital	93. Non- Interest Income Trend
89. Capital to Risk-Weighted Asset Ratio (CRAR)	94. Operating Expense Trend
<b>I. HR Utilization</b> <b>(A Dimension of Operational Risk)</b>	95. Other Income Trend
107. HR Turnover	96. Total Operating Income Trend
108. Service Quality	97. Provision and Tax
109. Manpower Variation based on Age Group	98. Net Income After P&T
110. Manpower Variation based on Hierarchy	99. Return on Asset (ROA)
111. Training and Development	100. Return on Equity (ROE)
112. Employee Morale	101. Net Interest Margin (NIM)
113. Job Enrichment, enlargement and rotation	102. Net Gain or Loss (Shares)
	103. Net Gain or Loss (Foreign Exchange)
	104. Budget Variance
	105. COF (Cost of Fund)
	106. Yield on Advances

### 2.6.2 Risk Register

The Risk Register is the main depository of key risks and controls identified across the organization's departments and business units. These identified risks are the result of systematic e.g. Risk Control Self-Assessment (RCSA) or ad-hoc risk assessments performed at a given point in time across all departments or specifically for a business line. The characteristics and size of a risk register will depend fundamentally on the size of the company and the complexity of its business model. Minimum components of risk register should be as follows:

1.	Date:	As the risk register is a living document, it is important to record risk identification date, target date and completion dates for treating risks
2.	Risk Number:	A unique identifying number of the risk
3.	Risk Description:	A brief description of the risk, its causes and impact
4.	Existing Controls:	A brief description of the controls that are currently in place for the risk
5.	Consequence:	The consequence (severity or impact) of rating for the risk, using scales (e.g. 1-5 with 5 being most severe)
6.	Likelihood:	The likelihood (probability) rating for the risk, using scales (e.g. 1-5, with 5 being most likely)
7.	Overall risk score:	Determined by multiplying likelihood (probability) times consequence (impact) for a scale ranging from 1-25

8	Risk Ranking:	A priority list which is determined by the relative ranking of the risk by their overall risk score
9	Trigger	Something which indicates that a risk is about to occur or has already occurred
10	Management Action:	Action which is to be taken if the risk found adverse
11	Risk Owners:	The person(s) for whom the risk is being generated or is supposed to look after the situation before the risk is generated (mainly business line personnel).

### 2.6.3 Risk Rating

Risk Rating is assessing the risks involved in the daily activities of a business and classifying them (low, medium, high risk) based on the impact on the business. It enables a business to look for control measures that would help in curing or mitigating the impact of the risk and, in some cases negating the risk altogether. When the risk cannot be mitigated or negated, the business has to accept that the risk is open and there are no control functions to curb the impact. It depends on the likelihood of the risk event occurring and the severity of the impact on the business and its employees.

#### Categories of Risk Rating

Risk is rated on the impact on the business, which can be economical or reputational, and its likelihood of occurring shortly. This is the common pattern of risk across businesses.

1. **Low:** A low-rated event is one with little / no impact on the business activities and the reputation of the firm.
2. **Low/Medium:** Risk events that can impact on a small scale are rated as low/medium risk.
3. **Medium:** An event resulting in risks that can cause an impact but not a serious one is rated as medium.
4. **Medium/High:** Severe events can cause a loss of business, but the effects are below a risk rated as high.
5. **High:** A major event that can cause reputational and economic damage, resulting in huge business and client base losses.

### **Advantages of Risk Rating**

6. Studying the risk involved in a business activity helps in taking appropriate measures to either curb the effects of the risk or eliminate the risk.
7. Event risk helps in a better understanding of the risk and working towards enhancing the current procedures.

### **Disadvantages of Risk Rating**

8. This is an assumption of the impact it can have on the business, which, if not done diligently, can cause economic and reputational damage to the organization, resulting in loss of business.
9. This is a complex process and requires a high level of experience and thoughtfulness to foresee potential risks that can impact the smooth functioning of the business.

## **2.7 Indicative Questions**

1. Briefly discuss the steps in risk management process.
2. How risk can be categorized?
3. What are the different types of financial risks? Explain
4. How do non-financial risk factors affect the banking business?
5. What is risk likelihood? Why is risk likelihood significant for risk management?
6. Mention some broad risk categories of KRIs. Why is the development of KRIs important for banking risk management?



## **Module C**

### **Risk Management Responsibilities and Checklist**

Banks/FIs risk management system shall include policies, procedures, limits, and controls in its foundation. This foundation provides adequate, timely, and continuous identification, assessment, measurement, monitoring, mitigation, and reporting of risks posed by its activities at the business line and institution-wide levels. The success of risk management in banks will depend on the effectiveness of the risk management system providing the foundation and arrangements that are put in place throughout the organization at all levels. The system should be comprehensive enough to capture all the material risks to which the institution is exposed. It should facilitate processes for assessment and necessary treatment of these risks. The minimum standards of a sound risk management system include the following elements.

#### **3.1 Elements of Sound Risk Management System**

The key elements of a sound risk management system for effective business operations should encompass the following:

- a) Active involvement of board and senior management;
- b) Adequate organization, policies and procedures;
- c) Appropriate management information systems; and
- d) Comprehensive internal controls and limits.

It should not be understood that risk management functions are only limited to the Risk Management Division/Department (RMD). Business lines are primarily responsible for the risks they are taking. Because the line personnel can understand the risks of their activities, any lack of accountability on their part may hinder sound and effective risk management.

#### **3.2 Criteria for Ensuring Sound Risk Management**

For ensuring successful risk management across the organization, the following features should, at least, be present in the bank:

- a) Submission of consolidated report to the Board and senior management team incorporating different types of risks, risk mitigation measures, comparison of risk levels with limits, the level of capital required for absorbing large losses, and suggestions for restoring capital;
- b) Consistency between the risks taken by the management and the risks perceived by the Board;
- c) Active, firm-wide risk management approach that includes all business lines;
- d) Developing in-house expertise relying on various sources/factors including market data, credit ratings, published analyses, etc.;
- e) Alignment of treasury functions with risk management;
- f) Active management of contingent liabilities;
- g) Using both firm-specific and market-wide stress scenarios for liquidity management;
- h) Efficient and effective management of asset and liability;
- i) Taking the stress testing result into consideration to understand the impact of adverse scenario on the bank's profitability or capital;
- j) Independent risk management function with sufficient authority, logistic support and continuous communication with business lines;
- k) Experienced and expert personnel for performing risk management activities;
- l) Giving importance to the risk management officials' opinion.

### **3.3 Role of Bank Supervisor and Regulator Board Oversight**

Regulators' efforts are typically focused on maintaining public confidence in the banking sector and on creating a level playing field for financial institutions and providers of financial services. In terms of financial risk management regulators' responsibilities center around improving quality at entry through strict licensing and minimum capital requirements and capital adequacy rules, toughening the fiduciary responsibilities and standards of bank owners, directors, and management personnel, providing guidelines on risk management and related policies, setting statutory guidelines with respect to risk positions, and evaluating compliance and overall risk management in a bank or banking system. Most regulators also conduct research on the latest developments in the field of risk management.

The board of directors has the ultimate responsibility for the risks taken by the bank. Therefore, it must define the risk appetite, risk tolerance and risk limit, and set risk strategies. The board is responsible for understanding the nature of risks significant to the bank and for ensuring that the management is taking necessary steps to implement those strategies and manage accompanying risks. To perform the risk oversight role properly, board members shall have a clear understanding of the types of risks inherent in business lines and take appropriate steps to ensure continued awareness of any changes in the level of risks. Board shall approve the strategies and significant risk management policies developed by senior executives and review them on regular basis. While performing their oversight function, board of directors should not be involved in day-to-day activities of risk management. They shall make it clear to the bank's management that risk management is not an impediment to the conduct of business nor a mere supplement to a company's overall compliance program but is, instead, an integral component of the company's strategy, culture and value generation process.

### **3.3.1 Role of Board of Directors**

The board of directors of the bank shall give utmost importance on sound risk management practices. They will take every possible initiative to keep various risks (credit, market, liquidity, operational risks etc.) within tolerable level. For this purpose, the board will play the following role:

- a) Establishing organizational structure for enterprise risk management within the bank and ensuring that top management as well as staffs responsible for risk management possess sound expertise and knowledge to accomplish the risk management function properly;
- b) Assigning sufficient authority and responsibility to risk management related officials;
- c) Ensuring uninterrupted information flow to RMD for sound risk management;
- d) Continuously monitoring the bank's performance and overall risk profile through reviewing various reports;
- e) Ensuring the formulation, review(at least annually) and implementation of appropriate policies, plans and procedures for risk management;
- f) Defining and reviewing the risk appetite, risk tolerance, limit etc. in line with strategic planning;

- g) Making sure maintenance of adequate capital and provision to absorb losses resulting from risk;
- h) Ensuring that internal audit reviews the credit operations, foreign exchange operations and securities portfolio management functions etc. to assess the effectiveness of internal control system;
- i) Monitoring the function of Board Risk Management Committee.

**3.3.2 Role of Board Risk Management *Committee* (BRMC)  
(in addition to but not excluding the role in the related BRPD circular)**

- a) Formulating and reviewing (at least annually) risk management policies and strategies for sound risk management;
- b) Monitoring implementation of risk management policies & process to ensure effective prevention and control measures;
- c) Ensuring construction of adequate organizational structure for managing risks within the bank;
- d) Supervising the activities of Executive Risk Management Committee (ERMC) ;
- e) Ensuring compliance of BB instructions regarding implementation of core risk management;
- f) Ensuring formulation and review of risk appetite, limits and recommending these to Board of Directors for their review and approval;
- g) Approving adequate record keeping & reporting system and ensuring its proper use;
- h) Holding at least 4 meetings in a year (preferably one meeting in every quarter) and more if deemed necessary;
- i) Analyzing all existing and probable risk issues in the meeting, taking appropriate decisions for risk mitigation, incorporating the same in the meeting minutes and ensuring follow up of the decisions for proper implementation;

- j) Submitting proposal, suggestions & summary of BRMC meetings to board of directors at least on quarterly basis;
- k) Complying with instructions issued from time to time by the regulatory body;
- l) Ensuring appropriate knowledge, experience, and expertise of lower-level managers and staff involved in risk management;
- m) Ensuring sufficient & efficient staff resources for RMD;
- n) Establishing standards of ethics and integrity for staff and enforcing these standards;
- o) Assessing overall effectiveness of risk management functions on yearly basis. Banks are encouraged to preserve video recording of the BRMC meetings for verification by the team from Bangladesh Bank (DOS) involved in monitoring risk management activities. The team may meet the members of BRMC and ERM of the bank from time to time to get a closer perspective of risk management culture and practice.

### **3.4 Senior Management Oversight**

While the overall responsibility for risk management rests with the board of directors, it is the responsibility of senior management to transform the strategic directions set by the Board into operational policies, procedures, and processes for effective risk management. The senior management should be fully aware of the activities undertaken by the bank that could expose it to various risks. It should possess necessary knowledge and skills to be able to align the risk levels with the board's strategies through risk assessment and treatment. Top management should be aware of the financial institution's risk profile on an ongoing basis and should regularly report it to the board or a board level committee for review.

It has to ensure that the policies are embedded in the culture of the bank. It is also responsible for implementing risk management strategies and policies and ensuring that procedures are put in place to manage and control the risks in accordance with those policies keeping in view the strategic direction and risk appetite specified by board. For effective oversight of risk management, management shall provide the members of the board with sufficient information to enable them to understand the bank's risk profile, how risks are assessed and prioritized by the management team, risk response strategies, implementation of risk management procedures and infrastructure, and the strength and weaknesses of the overall system. To serve this

purpose, management will oversee the development, implementation and maintenance of an appropriate Management Information System (MIS) that identify, measure, monitor and control bank's various risk. Through effective communications between the board and senior management, members of the board should be confident that the bank's executives understand the risks that the enterprise faces and are accomplished in their day-to-day management of enterprise risk.

### **3.4.1 Role of Executive Risk Management Committee (ERMC) & its Functions**

Bank shall form ERMC comprising of CRO (as the Chairman), Head of ICC, CRM/CAD, Treasury, AML, ICT, ID, Operation, Business, Finance, Recovery and Head of any other department related to risk if deemed necessary. RMD will act as secretariat of the committee. The ERMC, from time to time, may invite top management (CEO, AMD, DMD, Country heads or senior most executives), to attend the meetings so that they are well aware of risk management process. The responsibilities/ Terms of Reference of ERMC will include, but limited to:

- a) Identifying, measuring and managing bank's existing and potential risks through detailed risk analysis;
- b) Holding meeting at least once in a month based on the findings of risk reports and taking appropriate decisions to minimize/control risks;
- c) Ensuring incorporation of all the decisions in the meeting minutes with proper dissemination of responsibilities to concerned divisions/departments;
- d) Minimizing/controlling risks through ensuring proper implementation of the decisions;
- e) Reviewing risks involved in new products and activities and ensuring that the risks can be measured, monitored, and controlled adequately;
- f) Submitting proposals, suggestions & summary of ERMC meetings to CEO, BRMC on regular basis;
- g) Implementing the decisions of BRMC and board meetings regarding risk issues;
- h) Assessing requirement of adequate capital in line with the risk exposures and ensuring maintenance of the same through persuading senior management and board;
- i) Determining risk appetite, limits in line with strategic planning through threadbare discussions among the members;

- j) Contributing to formulation of risk policies for business units;
- k) Handling “critical risks” (risks that require follow-up and further reporting);
- l) Following up reviews and reports from BB and informing BRMC the issues affecting the bank’s operation.
- m) Ensuring arrangement of Annual Risk Conference in the bank.

### **3.4.2 Chief Risk Officer (CRO)**

In banking institution, the Chief Risk Officer (CRO) is responsible for ensuring intense and effective risk management across the organization. The CRO works to ensure that the bank is compliant with rules, regulations, and reviews factors that could negatively affect the bank’s objectives. According to the Basel Committee on Banking Supervision, CRO has been referred as an independent senior executive with distinct responsibility for the risk management function and the institution's comprehensive risk management framework across the entire organization.

#### **3.4.2.1 Appointment of CRO**

Bank shall appoint Chief Risk Officer (CRO) who will act as the head of Risk Management Department. Appointment, dismissal and other changes to the CRO position should be approved by the board or its risk management committee. If the CRO is removed from his/her position, this should be disclosed publicly. The bank should also discuss the reasons for such removal with its supervisor. CRO’s performance and compensation should be reviewed and approved by the board or its risk management committee. Bank shall consider the following criteria as a minimum for appointing CRO:

- 1) Senior executive having mainstream banking experience preferably covering
  - i. Core risk management
  - ii. Internal Control and Compliance
  - iii. Capital management
  - iv. Branch banking
  - v. Core banking system
  - vi. Risk based certification
- 2) Minimum three years hands on working experience in risk management
- 3) The position of the CRO should be equal to or at-least one grade higher than the other department heads for effective risk management.

It is to be mentioned that CRO should not be given dual responsibility, more specifically the responsibility of Chief Operating Officer, Chief Financial Officer, Chief of the internal audit function or any other function.

### **3.4.2.2 Responsibilities & Functions**

To bring better transparency, synergy and prudence into risk management structure in the bank, the role and responsibilities of the CRO is of paramount significance. The CRO leading the independent risk management department shall have sufficient stature, authority and seniority. He or she shall have direct access to the Board of Directors and make direct reports to the Board or its Risk Management Committee. He or she is to be directly supervised by the Board Risk Management Committee (BRMC). CRO should not have any reporting relationships with business verticals of the bank and should not be given any business targets. CRO shall provide all the key risk issues prevailing in the bank to BRMC meetings and a copy to the CEO for acknowledgement. The CRO must have access to any information necessary for performing his/her duties. In this context board and CEO/MD will provide full support to him/her. CRO of a bank shall undertake the following responsibilities, but not limited to, in order to ensure transparency in managing risks at all levels:

- To oversee the development and implementation of the bank's risk management functions;
- To support the Board of Directors/BRMC in its development of the bank's risk appetite and for translating the risk appetite into a risk limits structure;
- To actively engage with the management in the process of setting risk appetite and limits for the various business lines with a view to achieve bank's overall strategic planning and monitoring their performance relative to risk-taking and limit adherence;
- To contribute and participate in key decision-making processes (i.e. strategic planning, capital and liquidity planning, new products and services, compensation design and operation);
- To manage the implementation of all aspects of the risk function, including implementation of processes, tools and systems to identify, measure, manage, monitor and report risks;
- To assist in the development of and manage processes to identify and evaluate business risks and control them;
- To manage the process for developing risk management policies and procedures, risk limits and approval authorities;



- To monitor major and critical risk issues independently with full empowerment;
- To communicate views of the board and senior management throughout the bank;
- To adopt proper financial protection measures through risk transfer, risk avoidance, and risk retention programs;
- To provide opinion regarding extent of risk in case of credit proposal for big amounts (to be set by the bank) before submission to EC/board for sanctioning;
- To monitor portfolio health and ensure good quality asset growth;
- To ensure proper compliance of BB's recommendations regarding risk issues including all core risks;
- To provide a methodology to identify and analyze the financial impact of loss to the organization, employees, the public, and the environment;
- To disseminate information and strategies to personnel regarding emerging risk issues and industry specific risks;
- To implement environmental and social (E&S) safeguard for the asset portfolio;
- To oversee the information security aspects for the bank;
- To ensure arrangement of ERMC meeting on monthly basis wherein top management team shall address, discuss and resolve risk issues across the bank;
- To ensure proper disclosure of key performance indicators of the bank via Pillar III of Basel III accords;
- To remain aligned and acquainted with other countries' economic and financial positions;
- To organize Annual Risk Conference (at-least one day-long) with the participation of all the branch managers and deputy branch managers including the officials related to risk issues;
- Ensuring adequate internal and external training on risk management issues for increasing efficiency of RMD officials.

### **3.4.3 Risk Management Division (RMD)**

Banks must have an independent full-fledged risk management department/division. The Risk Management Division/Department (RMD) shall be headed by the Chief Risk Officer (CRO). It should have separate desks within the risk management department for overseeing each key risk area. The main functions of the department include, but not limited to, the following:

- managing the process for developing risk policies and procedures;

- coordinating with business users/units to prepare functional specifications;
- preparing and forwarding risk reports; and
- assisting in the implementation of all aspects of the risk function.

The risk management function shall be functionally and hierarchically independent from business and other operation functions. The officials who take and own risks should not be given responsibility for monitoring and evaluating their risks. Safeguards against conflict of interest should be put in place to maintain independence of the risk management function. Sufficient resources should be provided to Risk Management Department where the personnel possess needed experience and qualifications, including market and product knowledge and command of risk discipline. Likewise, adequate budget should be allocated to this function to enable it carry out its crucial function effectively.

According to the business size and nature of activity, the bank will form various desks under the Risk Management Department to perform its assigned activities. However, necessary desks under the division should be as follows:

- 1) Credit Risk
- 2) Market Risk
- 3) Liquidity Risk
- 4) Operational Risk
- 5) Risk Research and policy development

It is noted that there is a negative relationship between capital and bank risk, i.e. when the capital increases, the bank risk decreases. Hence, there must be a close relationship and communication between Basel Implementation Unit (BIU) and RMD.

#### **3.4.3.1 Role of Risk Management Division/Department (RMD)**

The RMD needs to manage and measure risks on the basis of the bank's approved risk parameters independently in line with regulatory requirements. The role of RMD includes, but not limited to, the following:

- Collecting and analyzing data/information for identifying risks and making appropriate recommendations for risk mitigation;

- Preparing risk management reports, arranging monthly meeting of ERMC and preparing meeting minutes, disseminating the decisions to the concerned department/divisions, monitoring and follow up of implementation status;
- Ensuring timely submission of risk management reports, meeting minutes, compliance report and other documents to BB;
- Assisting BRMC/ERMC by providing risk issues that are needed to be addressed;
- Designing bank's overall risk management strategy;
- Ensuring significant contribution in establishing sophisticated risk management infrastructure with a sufficiently robust data-base, data architecture and information technology;
- Conducting, developing and overseeing Stress Testing activity;
- Utilizing the Stress Test result and scenario analysis to better understand potential risk exposures under a variety of adverse circumstances;
- Developing and testing different models (such as VaR, HHI index, Collection scoring, Vintage curve etc.), and observe their use for measuring and monitoring risks;
- Assisting senior management in formulating strategic planning considering bank's risk exposures and industry as a whole;
- Supporting the board, BRMC and ERMC in formulation, review and approval of the enterprise wide risk governance framework which includes the bank's risk culture, risk appetite, risk limits, and MAT;
- Monitoring on ongoing basis the risk-taking activities and risk exposures in line with the board approved risk appetite, risk limit and corresponding capital or liquidity needs (i.e. capital planning);
- Taking initiatives for interim review of risk appetites on request of other related departments and informing the board of directors and BRMC time to time about the status of risk exposures as compared to appetite;
- Establishing an early warning or trigger system for breaches of the bank's risk appetite or limits;
- Communicating views of the board and senior management throughout the bank;
- Taking initiatives for establishing enterprise/comprehensive risk management policies and procedures with the approval of the board;

- Monitoring concerned departments in formulating and reviewing related risk management policies and procedures;
- Monitoring compliance of irregularities found in core risk inspection reports of BB;
- Adopting proper financial protection measures through risk transfer, risk avoidance, and risk retention programs;
- Taking appropriate steps to control or mitigate risk exposures and ensure reporting the same to senior management and BRMC.

RMD of the bank is encouraged to prepare a comparative analysis report on bank's gain/loss due to/lack of proper risk management activities and its impact on capital and send the same to senior management & board of the bank and DOS of BB on yearly basis.

### **3.4.3.2 Desk-wise Functions of RMD**

For smooth functioning of risk management activities, the desks of RMD should commonly do the following tasks:

All the desks are individually responsible for collecting the related data/information, progress report of the previously taken decisions of ERMC and BRMC from concerned divisions/department for proper risk analysis and identification of risks, making appropriate recommendations, preparing memo on related issues, monitoring and following up of implementation status of the decisions of meeting minutes, ensuring regulatory compliance on related issues, assisting in formulation and review of risk appetite and risk related policies/guidelines. The desks are also responsible for monitoring the associated risks through concerned department/divisions. In addition, the desks will perform the following specific tasks:

#### **Credit Risk Related Desk**

- Assisting in formulation and review of credit risk management policies, guidelines, manual, setting up of credit risk appetite, limit, tolerance, MAT etc. with due consideration for sector, industry, geographical location, regulatory limits, best practices, current business and economic conditions;
- Monitoring loan portfolio to ensure good quality asset growth;
- Monitoring credit concentration and ensuring compliance of internal limit;

- Closely monitoring the stressed loans to avoid adverse classification;
- Monitoring and following up overdue loans, SMA loans, NPL, law suit cases, written off loans, regular accounts with unsatisfactory repayment, loans having excess over limit, overdue accepted bills, off-balance sheet exposure, forced loan, movement of adverse classification, collateral against loans, credit rating of borrowers, taken over loans etc.;
- Using different models for identifying related risks;
- Maintaining liaison with independent internal loan review desk as per revised CRM guidelines and ensuring its proper functioning.
- Conducting Stress -Testing activity to understand shock resilience capacity of the bank;
- Analyzing Stress Testing report, finding out the vulnerable areas that are needed to be addressed and accordingly advising the same to senior management and board to ensure maintenance of adequate capital for absorbing any unforeseen losses.

#### **Market Risk Related Desk**

- Ensuring that the treasury department calculates interest sensitive assets and liabilities properly for determining the impact of interest rate fluctuation on the profitability of the bank;
- Measuring interest rate risk of the bank by applying various tools such as sensitivity analysis, duration gap analysis etc.;
- Monitoring foreign exchange related risk such as exchange rate risk, maintenance of FX related limits, repatriation of export proceeds, outstanding of overdue accepted bill, reconciliation of long pending Nostro account transaction etc. through concerned departments;
- Measuring equity price risk by using various tools like VaR and monitoring the same to keep market exposure safe and sound.
- Conducting Stress -Testing activity to understand shock resilience capacity of the bank;
- Analyzing Stress Testing report, finding out the vulnerable areas that are needed to be addressed and accordingly advising the same to senior management and board to ensure maintenance of adequate capital for absorbing any unforeseen losses.

#### **Liquidity Risk Related Desk**

Treasury is primarily responsible for managing liquidity risk. Since RMD is responsible for overseeing enterprise level risk, it will ensure proper implementation of the instructions laid down in the ALM guidelines such as maintenance of regulatory requirements of liquidity ratios, liquidity forecasting etc. For doing this, the desk will perform the following activities:

- Ensuring that the treasury department prepares Structural Liquidity Profile, projected sources and uses of fund, statement of total time and demand liabilities and calculates all regulatory liquidity ratios such as CRR, SLR, ADR, LCR, NSFR, MCO, WBG, Undrawn Commitment etc.;
- Regularly monitoring liquidity ratios, liability concentration, growth of asset and liability including off-balance sheet items, Asset-liability of off-shore banking unit etc. to manage liquidity risk;
- Playing major role in setting liquidity strategy;
- Assessing opportunity loss resulted from improper liquidity management.
- Conducting Stress -Testing activity to understand shock resilience capacity of the bank;
- Analyzing Stress Testing report, finding out the vulnerable areas that are needed to be addressed and accordingly advising the same to senior management and board to ensure maintenance of adequate capital for absorbing any unforeseen losses.
- Identifying the vulnerable areas related to operational risk in collaboration with ICC and advising the senior management and board to review the existing policies to prevent recurrences of the unexpected incidents;
- Assisting in managing risks related to lapses in people, process and system;
- Monitoring unsettled issues (identified fraud/forgeries, major irregularities etc.) through ICC;
- Playing an important role to uphold the reputation of the bank by minimizing operational risks.

## **Operational Risk Related Desk**

- Identifying the vulnerable areas related to operational risk in collaboration with ICC and advising the senior management and board to review the existing policies to prevent recurrences of the unexpected incidents;
- Assisting in managing risks related to lapses in people, process and system;
- Monitoring unsettled issues (identified fraud/forges, major irregularities etc.) through ICC;
- Playing an important role to uphold the reputation of the bank by minimizing operational risks.

### **Risk Research and Policy Development Desk**

- Developing, testing, and using different models (such as VaR, Collection scoring, Vintage curve etc.) for measuring/assessing risks;
- Reviewing effectiveness of enterprise-wide risk governance framework and recommending necessary policy measures;
- Conducting research to explore reasons behind concurrence of the identified risks and suggesting the senior management probable ways to control the same;
- Exploring emerging risks and recommending preventive measures to achieve the organizational goal;
- Assisting senior management in formulating strategic planning considering bank's risk exposures and industry as a whole;
- Preparing a consolidated Risk Appetite Statement (RAS) based on the information provided by the related divisions/departments;
- Developing the KRI reporting format based on the complexity and size of the bank, suggesting mitigating measures to concerned departments based on the KRI provided by them, preparing summary of KRI and submitting the same to BRMC on quarterly basis.

### 3.5 Key Players in the Risk Management Process

The risk management is the responsibility of several key players. Each key player is accountable for a dimension of risk management. The key players are regulators/lawmakers, supervisors, shareholders, directors, executive managers, internal auditors, external auditors and the general public. To the extent that any key players does not fulfill its function in the risk management chain, it is the bank supervisor that has to step into the vacuum created by the failure of certain players. The roles and responsibilities of key players in risk management process are discussed here. The players directly and indirectly involved in risk management are also considered here. The activities of third parties, such as bank customers are also addressed. The following table summarizes the responsibilities of the key players involved in risk management.

**Table-3.1: Key Players and Their Responsibilities in Risk Management**

Key Players	Responsibility for Risk Management	Importance	
		Policy Level	Operational Level
<b>Systemic</b>			
Legal and Regulatory Authorities	Optimize	Critical	n/a
Bank Supervisors	Monitor	Indirect (monitoring)	Indirect
<b>Institutional</b>			
Shareholders	Appoint key players	Indirect	Indirect
Board of Directors	Set policy	Critical	Indirect
Executive Management	Implement policy	Critical (Implementation)	Critical
Audit Committee/ Internal Audit	Test compliance	Indirect (Compliance)	Critical
External Auditors	Evaluate and express opinion	Indirect (evaluation)	Indirect
<b>Outside Stakeholders/General Public</b>			
Investor/Depositor	Act responsibly	n/a	Indirect
Ratings Agencies/Media	Act responsibly	n/a	Indirect
Analysts	Act responsibly	n/a	Indirect



### **3.5.1 Regulatory Authorities: Establishing a Risk Management Framework**

A regulatory framework comprises more than just regulations designed to meet specific objectives. The regulatory environment embodies a general philosophy and principles that guide both the content and the implementation of specific regulations. In general, regulators may take either a prescriptive or a market-oriented approach to their task.

A prescriptive approach usually limits the scope of activities of financial institutions, and often results in attempts to promulgate regulations for all risks known to the regulators. The danger of such an approach is that regulations often quickly become outdated and cannot address the risks stemming from financial innovation.

In contrast, bank regulators who subscribe to a market-oriented regulatory approach believe that markets, by definition, function effectively, are capable of managing related financial risks, and should therefore be allowed to operate as freely as possible. With a market-oriented approach, the role of the regulator is focused on facilitating the congenial environment of risk management. In practice, regulations in most major countries combine both approaches, leaning one way or another depending on individual circumstances.

At the system level, regulators' efforts are typically focused on maintaining public confidence in the banking sector and on creating an equitable market (level playing field) for financial institutions and providers of financial services. In terms of financial risk management, regulators' responsibilities center around improving quality at entry through strict licensing and minimum capital requirements and capital adequacy rules; toughening the fiduciary responsibilities and standards of bank owners, directors, and management personnel; providing guidelines on risk management and related policies; setting statutory guidelines with respect to risk positions; and evaluating compliance and overall risk management in a bank or banking system. Most regulators also conduct research on the latest developments in the field of risk management.

### **3.5.2 Supervisory Authorities: Monitoring Risk Management**

Bank supervision is often incorrectly applied as a legal/administrative function largely focused on regulations related to the business of banking. Such regulations have often been prescriptive

in nature and have imposed onerous requirements on banks, which have sought to circumvent them through innovative product developments.

The regulators and supervisors must understand that they cannot bear sole responsibility for preventing bank failures; they need to clearly identify what they are capable of achieving, and then focus their attention on that specific mission. The role of a bank's supervisory authority is moving away from the monitoring of compliance with banking laws and old-style prudential regulations. A more appropriate mission statement today would be: "To create a regulatory and legal environment in which the quality and effectiveness of bank risk management can be optimized in order to contribute to a sound and reliable banking system."

The task of bank supervision can therefore be viewed as monitoring, evaluating, and when necessary strengthening the risk management process that is undertaken by banks. However, the supervisory authority is only one of the many contributors to a stable banking system. Other players have risk management responsibilities, and prudential regulations increasingly stress top-level management accountability. Certain countries are using a system of reporting that encourages and enables supervisors to rely more extensively on external auditors. Another important development has been the toughening of public information disclosure requirements to facilitate the delegation of monitoring responsibilities to the public at large.

### **3.5.3 The Shareholders**

Shareholders play a key role in the risk management process by electing the supervisory board (board of directors), which appoints management, the audit committee, and external auditors. Banks are different from other companies in that the responsibilities of management and the board are not only to shareholders but also to depositors, who provide leverage to owners' capital.

In the modern market-oriented approach to bank regulation, the emphasis on the fiduciary responsibility of shareholders has increased significantly. This is reflected in several ways, including more stringent bank licensing requirements and standards that a bank's founder and "larger" shareholders must meet to be considered fit and proper. Bank licensing procedures normally include the mandatory identification of major shareholders and a requirement for a minimum number of shareholders (which varies among jurisdictions).

Shareholders play a key role in overseeing a bank's affairs. They are normally expected to select a competent board of directors whose members are experienced and qualified to set sound policies and objectives. The board of directors must also be able to adopt a suitable business strategy for the bank, supervise the bank's affairs and its financial position, maintain reasonable capitalization, and prevent self-serving practices among themselves and throughout the bank as a whole. Determining a bank's ownership and control structure are key elements of bank assessment. This process should include a review of the ownership register, where all shareholders holding more than 5 percent of a bank's capital should be identified by name.

Another critical issue is whether or not shareholders are effectively carrying out their fiduciary responsibilities and whether or not they have taken advantage of their ownership position in the bank. In practical terms, this can be concluded by reviewing selected aspects of the bank operation, including the frequency of shareholder meetings, the number of shareholders who are normally present, and the percentage of total shares they represent. The level of direct involvement, if any, that the shareholders have with the bank, the supervisory board and the management board should also be considered. Such an assessment should also include a review of the current composition of the management and supervisory board, their remaining terms of office, and connections between board members, shareholders, and customers of the bank. In the case of shareholders with between 1 and 5 percent of holdings who are also the bank's customers, a review should be made of the bank's level of exposure to them, including an examination of instruments such as loans and deposits that specify the amounts, terms, conditions, and funding extended to shareholders.

#### **3.5.4 The Board of Directors: Ultimate Responsibility for a Bank's Affairs**

According to most banking laws, ultimate responsibility is typically placed with the board of directors (supervisory board). The board is answerable to depositors and shareholders for the safeguarding of their interests through the lawful, informed, efficient, and able administration of the institution. The members of the board usually delegate the day-to-day management of bank business to officers and employees, but cannot abdicate responsibility for the consequences of unsound or imprudent policies and practices concerning lending, investing, protecting against internal fraud, or any other banking activity.

A board of directors attracts significant interest from regulators, since risk-based approach emphasizes a board's fiduciary responsibilities and seeks to ensure that its directors are qualified and able to effectively carry out such responsibilities. Various laws and regulations typically govern the election, required number, qualifications, oaths, liability, and removal of board members and officers, as well as disclosure requirements for outside business interests. Other laws and regulations pertaining to restrictions, prohibitions, purchases from and sales to board members, commissions and gifts for procuring loans, embezzlement, willful misapplication, false entries, penalty for political contributions, and other matters.

The composition of a board of directors is crucial. Studies in the United States have found that nearly 60 percent of failed banks had board members who either lacked banking knowledge or were uninformed and passive regarding supervision of the bank's affairs. A strong managing director and a weak board are a recipe for disaster. A banking institution needs a board that is both strong and knowledgeable. It is essential that the board encourages open discussion and, even more importantly, that it tolerates conflict well, since conflict indicates that both sides of the coin are being considered.

Failed banks almost invariably suffer from deficiencies in their board and senior (executive) management. The supervision provided by the boards of directors of many troubled institutions has often been found to be ineffective. One of the chief functions of independent directors should therefore be the avoidance of economic and legal mistakes that may threaten the of their bank. To encourage the proper functioning of the board of directors, problems discovered by internal controls or external auditors should be immediately brought to its attention.

A board must be strong, independent, and actively involved in its bank's affairs. Both the bank directors and the executive management must adhere to high ethical standards and be fit and proper to serve. Although the bank's directors will not necessarily be experts on banking, they should have the skills, knowledge, and experience to enable them to perform their duties effectively.

The most important duty of the board is to ensure that the management team has the necessary skills, knowledge, experience, and sense of judgment to manage the bank's affairs in a sound and

responsible manner. The management team should be directly accountable to the board, and this relationship should be supported by robust structures. During good times, a board sets tone and direction. It oversees and supports management efforts, testing and probing recommendations before approving them, and it makes sure that adequate controls and systems are in place to identify and address concerns before they become major problems. During bad times, an active, involved board can help a bank survive if it is able to evaluate problems, take corrective actions, and when necessary keep the institution on track until effective management can be reestablished and the bank's problems resolved.

An effective board should have a sound understanding of the nature of the bank's business activities and associated risks. It should take reasonable steps to ensure that management has established strong systems to monitor and control those risks. The board's risk management responsibilities are summarized the following box-3.1. Even if members the board are not experts in banking risks and risk management systems, they should ensure that such expertise is available and that the risk management system undergoes appropriate reviews by suitably qualified professionals.

### **Box-3.1: The Board's Financial Risk Management Responsibilities**

Legal principles in banking laws and regulations leave no room for doubt that the board of directors should be regarded as the primary player in the risk management process. The board's primary responsibilities are to:

- Formulate a clear philosophy for each risk management area.
- Design or approve structures that include clear delegation of authority and responsibility at each level.
- Review and approve policies that clearly quantify acceptable risk, and that specify the quantity and quality of capital required for the safe operation of the bank.
- Periodically review controls to ensure that they remain appropriate, and make periodic assessment of the long-term capital maintenance program.
- Obtain explanations where positions exceed limits, including reviews of credit granted to directors and other related parties, significant credit exposures, and adequacy of provisions made.
- Ensure that the internal audit function includes a review of adherence to policies and procedures.
- Formally delegate to management the authority to formulate and implement strategies. (The board should, however, critically appraise and ultimately approve the strategic plan.)
- Specify content and frequency of reports.
- Ensure sound staffing and remuneration practices and a positive working environment.
- Perform an annual evaluation of the performance of the chief executive officer.
- Elect a committee, primarily made up of nonexecutive directors, to determine the remuneration of executive directors.

The board should ensure that the bank has adequate controls in place, including appropriate internal audit arrangements, and that risk management systems are properly applied at all times. Directors need not be experts in these control and audit mechanisms, but they should consult experts within and if necessary outside the bank to ascertain that such arrangements are robust and are being properly implemented.

The board should also ensure that the banking laws and regulations applicable to a bank's business are followed. It should take all reasonable steps to ensure that the information in the bank's disclosure statements is transparent and accurate and that adequate internal procedures are in place, including external audits or other reviews where appropriate, in order to ensure that the disclosed information is not false or misleading.

A bank appraisal always includes assessment of the structure and effectiveness of the board. Major objectives are to determine whether the board is staffed with competent and experienced officers who are able and willing to effectively carry out their responsibilities, who fully understand their duties, and who have developed adequate objectives and policies. The appraisal should include review of the minutes of board meetings and, for each functional area, a complete set of reports provided regularly to the relevant director. The follow-up actions undertaken by the directors can be assessed to determine if the board is effectively fulfilling its responsibility to supervise the affairs of the bank and to stay informed of the bank's condition.

A particularly important part of the appraisal is the review of the bank's compliance with laws and regulations, and assessment of whether or not conflicts of interest or self-serving practices exist. A self-serving board is a dangerous board, and when decisions involve a conflict of interest, the director in question should fully disclose the nature of the conflict and abstain from voting on the matter.

Other self-serving practices of which supervisors and analysts should be aware include the use of a bank's credit potential by directors, officers, or shareholders to obtain loans or to transact other business. The issuance of unwarranted loans to a bank's directors or to their business interests is a serious matter from the standpoints of both credit and management. Losses that develop from such unwarranted loans are bad enough, but the weakening effect on the bank's general credit culture is likely to be even worse. Attention should also be paid to the possibility of gratuities being given to directors for the purpose of obtaining their approval of financing arrangements or of the use of particular services.

### **3.5.5 Management: Responsibility for Bank Operations and the Implementation of Risk Management Policies**

The financial soundness and performance of a banking system ultimately depends on the boards of directors and on the senior management of member banks. The strategic positioning of a bank, the nature of a bank's risk profile, and the adequacy of the system for identifying, monitoring, and managing the profile reflect the quality of both the management team and the directors' oversight of the bank. For these reasons, the most effective strategy to promote a sound financial system is to strengthen the accountability of directors and management and to enhance the incentives for them to operate their banks prudently. The role of senior management is therefore a fundamental component of the new risk-based approach to regulation and supervisory arrangements. Regulators increasingly aim to strengthen the participation and accountability of senior management, comprising the persons with key responsibility for the maintenance of a bank's safety and soundness.

The quality and experience of the individuals involved in a senior management team is of great importance. In a financial institution, the process of risk management does not start at the strategy meeting, or the planning process, or in any other committee; it starts when a prospective employee is screened for appointment to the organization or for promotion to a senior position.

Regulators take several different approaches to ensure that management is fit and proper. Most regulators have established standards that have to be met by a manager. Jurisdictions with such standards often require that the central bank confirm the experience, technical capacity, and professional integrity of senior management before its members assume their duties. However, some jurisdictions do not, as a matter of policy, get involved in the appointment of senior management unless a bank is deemed unsafe due to incompetent management.

While the board and management need to support each other, each has its own distinct role and responsibilities to fulfill. The chief executive officer and the management team should run the bank's day-to-day activities in compliance with board policies, laws, and regulations, and should be supported by a sound system of internal controls. Although the board should leave day-to-day operations to management, it should retain overall control.



Management should provide directors with the information they need to meet their responsibilities, and should respond quickly and fully to board requests. In addition, management should use its expertise to generate new and innovative ideas and recommendations for consideration by the board. A bank should have adequate policies in place to increase the accountability of its managers. As the persons with ultimate responsibility for bank stewardship, managers should be given incentives to maintain a well-informed overview of business activities and corresponding risks. The duties and responsibilities of a bank's senior management include appointment to middle-level management positions of persons with adequate professional skills, experience, and integrity; the establishment of adequate performance incentives and personnel management systems; and staff training. Management should ensure that the bank has an adequate management information system and that the information is transparent, timely, accurate, and complete.

The key managerial responsibility is to ensure that all major bank functions are carried out in accordance with clearly formulated policies and procedures, and that the bank has adequate systems in place to effectively monitor and manage risks. Managerial responsibilities for financial risk management are summarized in Box-3.2.

### **Box-3.2: Financial Risk and Management Responsibilities**

Management's responsibilities with regard to financial risk are to:

- Develop and recommend strategic plan and risk management policies for board approval.
- Implement strategic plans and policies after approval by the board.
- Ensure development of manuals of policies, procedures, and standards for the bank's key functions and risks.
- Ensure the implementation of controls that enforce adherence to established risk limits.
- Ensure immediate reporting of noncompliance to management.
- Ensure that the internal auditors review and assess the adequacy of controls and compliance with limits and procedures.
- Develop and implement management reporting systems that adequately reflect business risks.

### **3.5.6 The Audit Committee and Internal Auditors (An Extension of the Board's Risk Management Function)**

While the board of directors is the primary risk manager, the audit committee can be regarded as an extension of the board's risk management function. An auditing committee is a valuable tool to help management with the identification and handling of risk areas in complex organizations. The mission statement of an audit committee that is organized according to modern principles should be "to enhance the management of operational risks on a group-wide basis." The goals of an internal audit function are to:

- enable management to identify and manage business risks;
- provide an independent appraisal;
- evaluate the effectiveness, efficiency, and economy of operations;
- evaluate compliance with laws, policies, and operating instructions;
- evaluate the reliability of information produced by accounting and computer systems;
- provide investigative services to line management.

The monitoring and directing of the internal audit function are an integral part of the audit committee's over- all responsibilities. Both the board and management must have a tool to help ensure that policies are being followed and risks are being managed. Under a market-oriented approach, an audit extends beyond matters directly related to administrative controls and accounting. It comprises all methods and measures adopted within the business to safeguard the business' assets and manage its risks, check accuracy and reliability of accounting and management information, promote operational efficiency, and encourage adherence to management policies. In short, the internal audit can be described as an independent appraisal function and, since it is established within an organization to examine and evaluate its activities, as a valuable service to the organization.

The most important duties of internal auditors are to review annual financial statements prior to their submission to the board of directors, and to ensure that appropriate accounting policies and practices are used in the development of financial statements. The review of financial statements must be detailed enough to allow internal auditors to be able to report on a range of subjects, including the fairness of balance sheet and income statement presentation. The internal auditors also consider compliance with regulatory and legislative requirements, identify all significant

discrepancies and disclosure problems, highlight differences between the annual report and management accounts, point to major fluctuations, and check management's compliance with statutory and other requirements.

Internal auditors and audit committees therefore have a very important contribution to make in the risk management process. In general terms, risk management responsibilities include monitoring of the institution's financial risk profile and review of management procedures. Further details regarding the internal auditing function and audit are summarized in Box-3.3.

**Box-3.3: The Responsibilities of Audit Committees and Internal Auditors**

The responsibilities of audit committees and internal auditors in financial risk management are to:

- review management's adherence to board policies and procedures;
- verify the adequacy and accuracy of the information reported to the board by management;
- report periodically to the board regarding adherence to policies and procedures;
- improve communication between the board and management;
- evaluate risk management measures for their appropriateness in relation to risk exposures;
- test all aspects of risk activities and positions;
- ensure effective management controls over positions, limits, and actions taken when limits are exceeded;
- ensure that managers fully understand the established policies and procedures and have the necessary expertise to implement them;
- assess operations and suggest Improvements.

**3.5.7 External Auditors: A Reassessment of the Traditional Approach to Auditing Banks**

The primary objectives of an audit are to enable the auditor to express an opinion on whether or not the bank's financial statements fairly reflect its financial condition, and to state the results of the bank's operations for a given period. The external audit report is normally addressed to shareholders, but is used by many other parties, such as supervisors, financial professions, depositors, and creditors. The traditional approach to an external audit according to the requirements of generally accepted auditing standards (International Standards of Auditing, or ISA) typically includes a review of internal control systems. This assessment is undertaken to determine the nature and extent of substantive testing, provide an analytic review, or trend analysis, and to undertake a certain amount of detailed testing. Apart from the audit of the

income statement, certain line items on the balance sheet are audited through the use of separate programs, for example fixed assets, cash, investments, or debtors. For example, external auditors have traditionally looked for fraud and mismanagement in the lending function. Audits rarely include a detailed credit analysis of borrowers, as this has traditionally been performed by bank supervisors.

A risk-based approach to financial regulation also requires a long over due reassessment of the conventional approach to external audits. External auditors, as an integral part of the risk-management partnership, have a specific role to fulfill. If market discipline is to be used to promote banking system stability, market systems must first be provided with information and the capacity to hold director and management accountable for the sound operation of a bank. External auditors play a key role in improving the market's ability to determine which banks to do business with. It is clear that the philosophy of and the approach to external auditing are crucial to the success or failure of a coordinated strategy of risk management. The work of the external auditor is, of course, an added protection for the consumer. It is therefore important that the profession shift from a mere balance-sheet audit to an audit of the risks inherent in the financial services industry. When such an approach has been fully adopted by all auditors of financial institutions, the risk management process will be significantly enhanced and all users of financial services will benefit. Box-4 summarizes the risk management responsibilities of external auditors.

**Box-3.4: Financial Risk Management Responsibilities of External Auditors**

External auditors have the responsibility to:

- review management's adherence to board policies and procedures;
- review the information supplied to the board, shareholders, and regulators;
- review adherence to statutory requirements;
- report to the board, shareholders, and regulators on the fair presentation of information submitted to them.

The role of the accounting and auditing profession has also gained importance as part of the bank supervision process. Management letters and long-form reports submitted by auditors can provide supervisors with valuable insights into various aspects of a bank's operations. This is especially important in situations when auditors become aware of facts that may endanger the

stability of a particular bank or of the banking system. In many countries, especially those where supervisory resources are scarce, supervisors may try to avoid repeating the work that external auditors have already performed for client banks. In such situations, auditors have a broader mandate prescribed by law, but at a minimum it is important to establish adequate liaison mechanisms. For example, Section 39 of the Bank of England's Banking Act stipulates annual discussions with external auditors.

### **3.5.8 The Role of the General Public**

Perhaps the greatest disservice that authorities have done to investors- particularly in jurisdictions where explicit deposit insurance does not exist-is to create the illusion that regulators can guarantee the safety of the public's deposits. When all is said and done, investors must understand that no amount of management or regulatory protection can take away their own responsibility for decisions regarding their investments. Investors and depositors retain responsibility for applying sound principles in the diversification of risk and in the assessment of a financial institution. In those situations where consumers cannot protect themselves, a limited deposit insurance scheme for banks and simplified contractual disclosure for insurance companies and other portfolio managers may be considered.

Investors can be assisted in their roles as risk managers if the concept of "public" is broadened to include the financial media and analysts, such as stockbrokers, other advisors, and rating agencies. In addition, the market's ability to provide a basis for informed decisions must be improved through full disclosure of the financial statements of banks, as well as by informed and competent analysis in the media. Investors' interests can be safeguarded in more than one way, but disclosure of what is actually happening is essential. Adequate protection of the public may also require some provisions to ensure that all business is exposed in the market place.

As a general principle, much of the justification for banking regulation rests on alleged imperfections in information disclosure. A policy of adequate information provision would help to mitigate this underlying problem, and possibly allow for the removal of many of the quantitative constraints that are prevalent in banking today. Removing constraints would also reduce the compliance cost and regulatory distortions that are often associated with conventional approaches to banking regulation.

Probably the most promising solution to these problems is legally mandated public disclosure. Louis Brandeis, a U.S. Supreme Court justice, observed in 1913 that sunlight is said to be the best of disinfectants and electric light most efficient policeman. This quaint-sounding aphorism still holds true. Brandeis made another crucial point: to be effective, disclosure must be made to the public. One of the most important benefits of mandating public disclosure is that the knowledge that information has to be publicly disclosed affects the conduct of financial institutions. Boards of directors and management know that, after having been assimilated by the financial press and competitors, even the most highly technical information will filter through to the public. In the United States and other countries with strict information disclosure requirements, the threat of private litigation engendered by public disclosure increases the incentive to management and boards to avoid problems.

Another form of public disclosure occurs when companies such as Standard & Poor's, Moody's Investors Services etc. publish their ratings of companies balance the needs for public disclosure and confidentiality, since they receive a great deal of information that is made public only in the form of ratings. Through published ratings, they have the ability to act more quickly and have a more subtle effect than regulators commonly do. If rating agencies can build a reputation for reliability among financial analysts, senior management in banking institutions, and the broader public, they can also provide an additional form of risk management for banks.

Market discipline could, therefore, be encouraged as an effective means of reducing the burden on regulators with regard to large, sophisticated investors. The role of financial analysts in assisting the public with risk management should not be underestimated. Financial analysts provide investment advice to clients and are therefore accustomed to presenting financial data from the perspective of investment risk. Investors who buy bank-negotiable certificates of deposit and other money market instruments should bear risk along with the creditors of bank holding companies. Faced with the possibility of losing their investments, such investors will police banks in order to protect their interests. Although all regulation can be left to the market, a policy of sharing resources between the authorities and the private sector is bound to be more effective than one of the parties acting alone.

### 3.6 Risk Management Checklist

#### **Risk Architecture**

- Statement produced that sets out risk responsibilities and lists the risk-based matters reserved for the Board
- Risk management responsibilities allocated to an appropriate management committee
- Arrangements are in place to ensure the availability of appropriate competent advice on risks and controls
- Risk aware culture exists within the organization and actions are in hand to enhance the level of risk maturity
- Sources of risk assurance for the Board have been identified and validated

#### **Risk Strategy**

- Risk management policy produced that describes risk appetite, risk culture and philosophy
- Key dependencies for success identified, together with the matters that should be avoided
- Business objectives validated and the assumptions underpinning those objectives tested
- Significant risks faced by the organization identified, together with the critical controls required
- Risk management action plan established that includes the use of key risk indicators, as appropriate
- Necessary resources identified and provided to support the risk management activities

#### **Risk Protocols**

- Appropriate risk management framework identified and adopted, with modifications as appropriate
- Suitable and sufficient risk assessments completed and the results recorded in an appropriate manner
- Procedures to include risk as part of business decision-making established and implemented
- Details of required risk responses recorded, together with arrangements to track risk improvement recommendations
- Incident reporting procedures established to facilitate identification of risk trends, together with risk escalation procedures
- Incident reporting procedures established to facilitate identification of risk trends, together with risk escalation procedures
- Business continuity plans and disaster recovery plans established and regularly tested
- Arrangements in place to audit the efficiency and effectiveness of the controls in place for significant risks
- Arrangements in place for mandatory reporting on risk, including reports on at least the following:
  - ✓ Risk appetite, tolerance and constraints
  - ✓ Risk architecture and risk escalation procedures
  - ✓ Risk aware culture currently in place
  - ✓ Risk assessment arrangements and protocols
  - ✓ Significant risks and key risk indicators
  - ✓ Critical controls and control weaknesses
  - ✓ Sources of assurance available to the Board

### **3.7 Indicative Questions**

1. Discuss the role of BRMC in managing the risks of a bank.
2. What are the roles and responsibilities of CRO?
3. What are the areas where the activities of RMD segregated? Mention some important task of these areas.
4. Discuss the major functions of Regulatory Authority and Public as a key player of corporate governance and risk management in banks?
5. “Audit Committee and Internal Auditors are considered as an extension of BRM function”. Do you agree? Justify your answer.



## Module – D

### Operational Risk Management

#### 4.1 Introduction

As per Basel-II, operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. As per Bangladesh Bank guideline, operational risk is the risk of unexpected losses due to physical catastrophe, technical failure and human error in the operation of a bank including fraud, failure of management, internal process errors and unforeseeable external events.

#### 4.2 Operational Risk Management Components and Factors

Summary of operational risk cause factors and their examples are presented in the table-4.1

**Table-4.1: Summary of Risk Cause Factors and Their Examples**

Risk Cause Factors	Explanations of Risk Cause Factors
Process	<ul style="list-style-type: none"> <li>• Inadequate/ inappropriate guidelines, policies &amp; procedures;</li> <li>• Inadequate / failure of communication;</li> <li>• Erroneous data entry;</li> <li>• Inadequate reconciliation;</li> <li>• Poor customer / legal documentation;</li> <li>• Inadequate security control;</li> <li>• Breach of regulatory &amp; statutory provisions / requirements;</li> <li>• Inadequate change management process; and</li> <li>• Inadequate back up / contingency plan</li> </ul>
People	<ul style="list-style-type: none"> <li>• Breach of internal guidelines, policies &amp; procedures;</li> <li>• Breach of delegated authority;</li> <li>• Criminal acts (internal);</li> <li>• Inadequate segregation of duties / dual controls;</li> <li>• Inexperienced staff;</li> <li>• Staff oversight; and</li> <li>• Unclear roles &amp; responsibilities</li> <li>• High turnover</li> </ul>
System	<ul style="list-style-type: none"> <li>• Inadequate hardware / network / server maintenance</li> </ul>
External	<ul style="list-style-type: none"> <li>• Criminal acts;</li> <li>• Vendor mis-performance</li> <li>• Man-made disaster;</li> <li>• Natural disaster; and</li> <li>• Political / legislative / regulatory causes</li> </ul>

### **4.3 Operational Loss Event Type as Identified in Basel Framework**

**Internal Fraud:** Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/ discrimination events, which involves at least one internal party. Examples include intentional misreporting of positions, employee theft, and insider trading on an employee's own account.

**External Fraud:** Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party. Examples include robbery, forgery, cheque kiting, and damage from computer hacking.

**Employment Practices and Workplace Safety:** It refers to the losses arising from acts that are inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity or discrimination events. Examples include workers compensation claims, violation of employee health and safety rules, organized labor activities, discrimination claims, and general liability.

**Clients, Products and Business Practices:** It refers to the losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product. For example, fiduciary breaches, misuse of confidential customer information, improper trading activities on the bank's account, money laundering, and sale of un-authorized products.

**Damage to Physical Assets:** It refers to the losses arising from damage to physical assets from natural disaster or other events. Examples include terrorism, vandalism, earthquakes, fires and floods

**Business Disruption and System Failure:** It refers to the losses arising from disruption of business or system failures. Examples include hardware and software failures, telecommunication problems, and utility outages

**Execution, Delivery and Process Management:** It refers to the losses arising from failed transaction processing or process management, from relationships with trade counterparties and vendors. Examples include data entry errors, collateral management failures, incomplete legal documentation, and unauthorized access given to client accounts, non-client counterparty mis-performance, and vendor disputes.

#### **4.4 Operational Risk Management Framework (Three Lines of Defense)**

Sound internal governance is a must for establishing an effective operational risk management framework. Board should take the necessary initiatives for implementing a strong risk management culture within the organization. A regular review of the framework and senior management's participation in actively monitoring the effectiveness of risk management and controls is essential. For this purpose, the Board should establish a management structure based on clear lines of responsibility, accountability and reporting. The Board should set the bank's risk appetite through the approval of operational risk management policy. The senior management should focus on implementing the operational risk management framework as approved by the Board. Senior management must ensure that all its business activities are adequately staffed having necessary experience and technical skills. The remuneration policies should also be consistent with the approved risk appetite.

Sound operational risk governance often relies on three lines of defense – (i) business line management, (ii) an independent operational risk management function and (iii) an independent review. Depending on the bank's nature, size and complexity, and the risk profile of a bank's activities, the degree of formality of how these three lines of defense are implemented will vary. In all cases, however, a bank's operational risk governance function should be fully integrated into the bank's overall risk management governance structure.

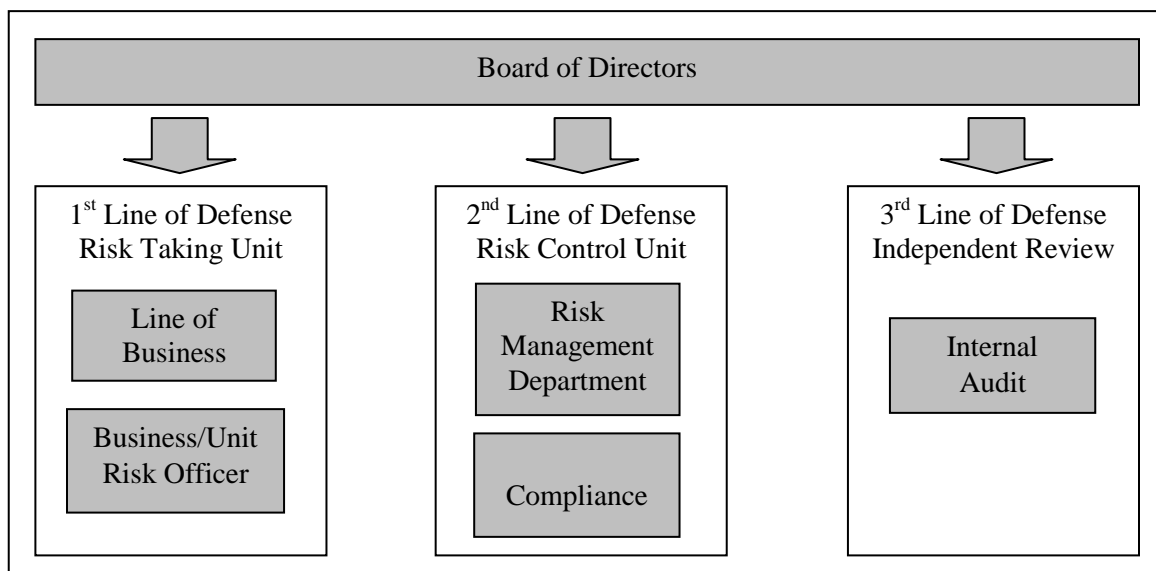
***First Line of Defense – Business Line Management:*** Business line management is the first line of defense against operational risk. Business line management is responsible for identifying and managing risks in the products, activities, processes and systems for which they are accountable. It is important that appropriate segregation of duty and proper delegation of authority is maintained. For ensuring smooth operation and minimizing operational risk, all employees

should have a clearly documented and regularly updated operating manual. It is also necessary that operational staff must have necessary skills and training so that they can fulfill their duties.

**Second Line of Defense – Independent Operational Risk Function:** A separate independent operational risk management function is the second line of defense, which is very much essential to assist management to understand and manage operational risk. The function generally complements the business line’s operational risk management activities. It is the responsibility of the independent operational risk management function to assist in initiating policies, procedures and standards and coordinate with various businesses/ risk management activities. The independent unit must assess, monitor, and report operational risks as a whole, and ensure that the management of operational risk in banks is as per approved strategies/ policies.

**Third Line of Defense – Independent Review:** Independent validation and verification is the third line of defense in the governance structure. It serves as a challenge function to the other two lines of defense. Internal audit or any independent group of qualified staff may conduct these independent reviews. Those performing these reviews must be competent and appropriately trained and not involved in the development, implementation and operation of the framework. The audit function should also provide assurance to the Board regarding effectiveness of the operational risk management framework. Senior management should seriously investigate the findings of audit to set up a risk culture in the bank (Anwar, 2013)

**Figure-4.1: Three Lines of Defense (3-LD) Framework**



*Source: Risk Management Report-2012, Alliance Islamic Bank, Malaysia.*

A strong operational risk culture<sup>1</sup> and proper communication among the three lines of defense are important characteristics of good operational risk governance. Internal audit coverage should be adequate to independently verify that the framework has been implemented as intended and is functioning effectively. Where audit activities are outsourced, senior management should consider the effectiveness of the underlying arrangements and the suitability of relying on an outsourced audit function as the third line of defense. Internal audit coverage should include opinion on the overall appropriateness and adequacy of the framework and the associated governance processes across the bank. Internal audit should not simply test for compliance with Board approved policies and procedures, but should also evaluate whether the framework meets organizational needs and supervisory expectations. The implementation model of three lines of defense framework depends on the stage of adoption and maturity of the organization.

## **4.5 Steps in Operational Risk Management Process**

### **4.5.1 Identification and Assessment**

Effective risk identification considers both internal factors and external factors. Sound risk assessment allows the bank to better understand its risk profile and allocate risk management resources and strategies most effectively. Internal factors include bank's structure, the nature of the bank's activities, the quality of the bank's human resources, organizational changes and employee turnover. External factors include changes in the broader environment and the industry and advances in technology. Tools for identifying and assessing operational risk may include the following-

- Audit Findings
- Internal Loss Data Collection and Analysis
- External Data Collection and Analysis
- Risk Self Assessments
- Business Process Mapping
- Risk and Performance Indicators
- Scenario Analysis

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<sup>1</sup>Operational risk culture means the combined set of individual and corporate values, attitudes, competencies and behavior that determine a firm's commitment and style of operational risk management.

- Measurement Comparative Analysis

#### **4.5.2 Monitoring and Reporting**

Operational risk reports may contain internal financial, operational, and compliance indicators, as well as external market or environmental information about events and conditions that are relevant to decision making. Operational risk report may include breaches of the bank's risk appetite and tolerance statement, as well as thresholds or limits; details of recent significant internal operational risk events and losses; and relevant external events and any potential impact on the bank and operational risk capital. Appropriate reporting mechanisms should be in place at the board, senior management, and business line levels that support proactive management of operational risk. Data capture and risk reporting processes should be analyzed periodically with a view to continuously enhancing risk management performance as well as advancing risk management policies, procedures and practices.

#### **4.5.3 Control and Mitigation**

Banks should have a strong control environment that utilizes policies, processes and systems; appropriate internal controls; and appropriate risk mitigation and/or transfer strategies. All policies and procedures, methods and measures adopted in a business to safeguard the assets are part of internal control system. Components of Sound Internal Control System include control environment, risk assessment, control activities, information & communication and monitoring activities. Sound internal control system also requires the following-

- An effective control environment also requires appropriate segregation of duties.
- Clearly established authorities and/or processes for approval;
- Close monitoring of adherence to assigned risk thresholds or limits;
- Safeguards for access to, and use of, bank assets and records;
- Appropriate staffing level and training to maintain expertise;
- Ongoing processes to identify business lines or products where returns appear to be out of line with reasonable expectations;
- Regular verification and reconciliation of transactions and accounts; and
- A vacation policy that provides for officers and employees being absent from their duties for a period of not less than two consecutive weeks.

## **4.6 Regulatory Framework of Operational Risk in Bangladesh**

Various guidelines are available in Bangladesh that includes discussion on issues related to operational risk management in banks. These guidelines are mostly issued by Bangladesh Bank. A few of the important guidelines are summarized this section for the understanding of the regulatory environment for operational risk management in Bangladesh.

### **4.6.1 Guideline on Internal Control and Compliance (ICC)<sup>2</sup>**

Banks consider this guideline as an important document for managing operational risk. This guideline covers internal control policy, organizational structure of ICC division, process guideline and internal control implementation process. Organizational structure requires banks to create three sections under the ICC division and these are compliance, monitoring and audit. The guideline also suggests three important instruments named Departmental Control Function Checklist (DCFCL)<sup>3</sup>, Quarterly Operations Report (QOR)<sup>4</sup> and Loan Documentation Checklist (LDC)<sup>5</sup>. These instruments ensure compliance with internal policies and external laws, regulations, guidelines and internal control norms. This guideline, among others, also requires banks to conduct risk based internal audit.

### **4.6.2 Self-Assessment of Anti-fraud Internal Controls<sup>6</sup>**

This document includes eighty questions related to the assessment of adequacy and effectiveness of the anti-fraud control system placed in banks and one statement for reporting fraud-forgeries occurred in banks. The circular requires banks to send quarterly reports to Bangladesh Bank on the details of fraud / forgeries occurred, related action taken and an assessment of the effectiveness of the related controls. The aforementioned quarterly report is signed by ICC head and Managing Director jointly. This initiative is expected to reduce fraud/ forgeries and improve the adequacy and effectiveness of internal control system in banks.

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<sup>2</sup>Bangladesh Bank has issued this guideline through BRPD circular no.17 dated October 7, 2003.

<sup>3</sup> DCFCL is a comprehensive list of activities to be carried out daily, weekly, monthly and quarterly by the designated officers to ensure smooth functioning of the internal controls placed in different business lines.

<sup>4</sup> Quarterly operations report is prepared by a branch at the end of every quarter to report various aspects of branch operations to the managing director and head of ICC. QOR is used to report issues related to policies, procedures, controls, protection of valuables, premises management, operational losses etc.

<sup>5</sup> It is a comprehensive list of documents to be obtained or created before disbursement of loans to a borrower.

<sup>6</sup> This document has been issued by Bangladesh bank through DOS circular letter no 17 dated November 7, 2012

### **4.6.3 Guidance Note on Prevention of Money Laundering<sup>7</sup>**

This Guidance Note is all about identification and prevention of money laundering activities in banks. This guidance note has suggested an organization structure for money laundering prevention activities, internal control checklists, Know Your Customer (KYC) profile format, suspicious transaction reporting format, roles and responsibilities of different officers in the process of prevention of money laundering in banks. As per the guidance note, every bank branch should assign one officer as the Anti-Money Laundering Compliance Officer (AMLCO) who will finally report to Chief Anti-Money Laundering Compliance Officer (CAMLCO) of the bank at head office level. CAMLCO will report to the Chief Executive Officer. CAMLCO is responsible for coordinating and monitoring day-to-day compliance with applicable money laundering laws, rules and regulations, the policy and the practices, procedures and controls implemented by the institution.

### **4.6.4 Risk Management Guidelines for Banks<sup>8</sup>**

Risk management guideline for Banks includes a separate chapter on operational risk management. This guideline requires banks to have their own operational risk management policy and framework. Guideline outlined the roles and responsibilities of different levels of management for operational risk, the process of identification, reporting, mitigation and controls of operational risk in Banks. However, the guideline did not outline any specific formats or checklists for reporting operational loss or for mitigating operational risk.

### **4.6.5 Guideline on ICT Security<sup>9</sup>**

Guideline on ICT security is very important to banks for reducing operational loss due to failure of the system. This has separate chapter on ICT security management, ICT operation management, physical security, information security standard, software development and acquisition, business continuity and disaster recovery plan, and service provider management. Therefore, the guideline is useful in managing the operational loss resulting from the failure in the system.

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<sup>7</sup> Bangladesh Bank has issued this guideline through BRPD circular no.17 dated October 7, 2003.

<sup>8</sup> Bangladesh Bank has issued this guideline through DOS Circular No. 2 dated February 15, 2012.

<sup>9</sup> Bangladesh Bank has issued this guideline in April 2010.



#### **4.6.6 Guideline on Risk Based Capital Adequacy (RBCA)<sup>10</sup>**

Guideline on RBCA significantly contributed to the process of creating awareness among the bankers about operational risk management in Bangladesh. The guideline has given a formal definition of operational risk, outlined the approaches for calculating capital charge for operational risk. As per the requirement of the guideline, banks are following the basic indicator approach for calculating the capital charge. Under the approach, banks maintain 15% of average positive gross income<sup>11</sup> of the past three years.

#### **4.6.7 Other Guidelines, Regulations and Acts**

Some other guidelines are important, though may not directly related to operational risk, for business line management of operational risk. These guidelines and acts include but not limited to credit risk management guideline, foreign exchange risk management guideline, asset liability risk management guideline, Guidelines on Mobile Financial Services, Note Refund Regulations, Bank Deposit Insurance Scheme, Money Laundering Prevention Act, 2012, Anti-Terrorism (Amendment) Act-2012 etc.

### **4.7 Operational Risk Measurement Techniques**

The Basel Committee has recommended three alternative approaches to quantify operational risk, representing methods for calculating capital charges for operational risk. These three alternatives, ranging from the simple to the very sophisticated, are intended to offer institutions of all sizes and complexities a choice of what is right for each. The proposed approaches are: The Basic Indicator Approach (BIA), The Standardized Approach (TSA) and Advanced Measurement Approaches (AMA). Basel leaves to banks the choice between the three approaches for quantifying the regulatory capital for operational risk.

The Basic Indicator Approach is the simplest approach for estimating regulatory capital, wherein banks are required to set apart an amount equal to the average over the previous three years of 15percent of positive annual gross income. Gross income is the sum of the interest margin, the fee income, and the other revenues. This suggests that banks with higher gross incomes are relatively bigger in size and have more operational risk exposure. However, it is often argued

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<sup>10</sup> Bangladesh Bank has issued this guideline in December 2010.

<sup>11</sup> Gross income is equal to total operating income minus realized profits from sale of securities (HTM) of banking book minus extraordinary or irregular items minus income derived from insurance.

that gross income is not always a perfect proxy for operational risk since it may fluctuate with the business/ economic cycle. Because of this, internationally active banks are strongly recommended not to adopt this simple model (Trenca and Neag, 2010).

Second, The Standardized Approach (TSA) is a slightly modified version of the Basic Indicator Approach. Under this approach, the regulator distinguishes among different operational risk levels according to the type of activity performed. In the Standardized Approach, banks' activities are divided into eight business lines: Corporate Finance, Trading & Sales, Retail Banking, Commercial Banking, Payment & Settlement, Agency Services, Asset Management and Retail Brokerage. While gross income continues to be the main indicator of operational risk as under the Basic Indicator Approach, the specific amount to be set apart as a percentage of the gross income varies between business lines, ranging from 12 percent (for the least risky business lines) to 18 percent (for the riskiest ones), as compared to the 15 percent overall under the Basic Indicator Approach. This approach is more refined than the Basic Indicator Approach as it considers the fact that some business lines are riskier than others and therefore a higher proportion of capital has to be set apart for those business lines. (Janakiraman, 2008)

**Table-4.2: Operational Risk Measurement Techniques under Pillar-I of Basel Framework**

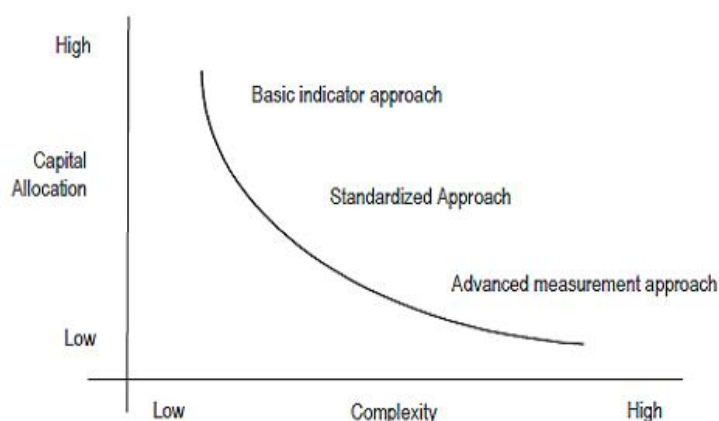
<b>Basic Indicator Approach (BIA)</b>	<b>The Standardized Approach (TSA)</b>	<b>Advanced Measurement Approach (AMA)</b>
<ul style="list-style-type: none"> <li>• Supervisor Specified Parameter</li> <li>• Bank-wide Measure</li> <li>• Exposure = GI×15%</li> <li>• No Specific Criteria, but Banks Encouraged to Comply with 2003 Sound Practices Paper</li> </ul>	<ul style="list-style-type: none"> <li>• Supervisor Specified Parameter</li> <li>• Business Line Based</li> <li>• Exposure = GI×Beta</li> <li>• Beta = 12% to 18%</li> <li>• Qualifying Criteria Regarding Governance, Risk Management and Risk Assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Bank Defined Model/ Framework</li> <li>• Significant Flexibility</li> <li>• Supervisor Defined Standards</li> <li>• Qualifying Criteria</li> </ul>

*Source: Balta and Fontnouvelle (2009)*

Finally, under the Advanced Measurement Approach (AMA), banks are free to develop their own model for assessing the regulatory capital that covers their operational risk, with a

confidence interval of 99.9 percent. International banks are advised by the regulator to comply with the AMA, and to quickly adapt their quantitative data collection, theoretical modeling of risk exposure and statistical validation in order to be allowed to make use of a proprietary model. Banks are required to focus on four key elements in designing their Advanced Measurement Approach framework: (i) internal loss data, (ii) external loss data, (iii) scenario analysis and bank specific business environmental and (iv) internal control factors. The Accord also specifies the standard matrix of business lines and risk types to facilitate validation of the Advanced Measurement Approach. The methodologies under the advanced approach are still evolving and there are a range of methods in place that banks follow internationally (BCBS 2006).

**Figure-4.2: The Relationship between Capital Allocation and the Complexity of Approaches**



*Source: Andrei Tinca, 2007*

The first methodology is the easiest to implement and involves the highest capital cost, while the third methodology is the most difficult to implement, but it involves the lowest capital costs. The capital allocation required by each approach is related with the complexity of the method. In other words, capital allocation decreases as implementation complexity grows. Therefore, banks must have a strong control on their operational risk, in order to reduce their capital requirements, and therefore their cost of capital (Choudhury, 2009)

#### **4.8 Challenges Faced by Banks in Bangladesh in Managing Operational Risk**

Managing operational risk is a challenging task. All the banks in Bangladesh are exposed to operational risk to a large extent. Operational risk may originate from the activities of top level (i.e. board of directors) to the desk officer of the bank. Despite the industry's efforts to

control operational risk, much work is still required to be done by the banks in order to mitigate the operational risk. There is a misconception that operational risk management is solely about internal controls. This concept needs to be changed as internal control is not all about operational risk management rather a sound internal control can complement the operational risk management very well. It is also observed that banks are good in minimizing high frequency low severity risk events but it is often low frequency high severity events that can jeopardize the existence of a bank. Banks need to be very careful about such type of operational loss events. The challenges that are faced by the bank while managing operational risk are summarized in box given below.

- Absence of operational risk management policy and framework
- Top management perception regarding operational risk management
- Lack of awareness regarding operational risk management
- Unstructured reporting line for operational risk management
- Lack of clarity in the categorization of operational loss events
- Absence of a standard comprehensive list of KRIs for business lines
- Absence of policy on ethical standards for the employees
- Lack of skilled and knowledgeable manpower
- Absence of appropriate technological support
- Breach of IT security because of malpractice of password sharing
- Introduction of new products without proper assessment of operational risk
- Poor service from the third-party service providers
- Absence of loss data capture mechanism

#### **4.9 Indicative Questions**

1. “Operational risk is common in all activities of a bank” Do you agree? Discuss in line with the event based operational risk.
2. How does 3-LD framework help the banks/FIs in ensuring proper risk management?
3. Briefly discuss the steps in operational risk management process.
4. Delineate the Central Bank’s initiatives in handling ORM.
5. What are the techniques of operational risk measurement?

## **Module – E**

### **Steps in ERM Implementation**

#### **5.1 Enterprise Risk Management (ERM)**

Banks are complex financial institutions involve in intermediation process with risk such as credit risk, interest rate risk, market risk, systemic risk, performance risk, operational risk as well as liquidity risk. The need to institutionalize ERM in the banking industry translates to the fact that each components of risk must be treated collectively. Again, the standard measure of portfolio risk (Markowitz, 1952) under portfolio theory evaluates the standard deviation of the different risk components in order to establish risk-return trade off that is acceptable to the organization with their set objectives. ERM proposes that risk management decision cannot be centralized but will entail an integrated framework that incorporate branches. This scientific measure requires business managers in banks to balance their risk appetite and the capital investments as well as anticipate the value of anticipated losses and balance it with the available liquidity at their disposal from customers, investors and regulators.

The risk function in the banks has evolved over a period of time and reached to a stage where the need felt to have a common criterion to measure & quantify the risks so that a comparative analysis of the banks can be performed and made available to the stakeholders. This development has led to introduction of BASEL Norms by BIS Committee. The committee has guided all the central banks of the participating countries and the banks governed by them to adapt and align their risk management practices to the norms over a period in time. The Basel norms are focused on the risks in credit,market, and operational areas which in turn helped the banks to quantify the risks and standardize their risk management practices in the said areas. However, most of the banks have seen Basel norms as another mundane exercise of regulatory compliance instead of a tool for effective risk management which has resulted in reality as a pure eye-wash act to satisfy the regulatory authorities. The situation resulted was mainly on account of banks being under constant scrutiny of the regulatory authorities and cornered with multiple number of regulations to be complied with. In other words, banks in their efforts to comply with these multi-regulations realized that complying with all the mandatory regulations is too cumbersome because many times the data and approach required to meet different requirements

are quite similar resulting in duplicated efforts and increased costs. One way, these multi-regulations have jeopardized the very essence of the regulations and risk management itself.

Moreover, given the depth, breadth and geographical spread of the banking business and operations, banks realized that Basel norms are not comprehensive enough to establish a comprehensive risk management system which could help them to identify, mitigate risks across enterprise in all the areas and at the same time rationalize and mature their risk management practices across the enterprise.

The above said factors lead to a scenario where the banks started looking beyond Regulatory compliance and Basel norms for an Enterprise-wide approach to cater to all risk requirements in more cost effective and efficient manner. Banks have identified and started adapting the Enterprise Risk Management Framework released by COSO (Committee of Sponsoring Organizations of the Treadway Commission) as a framework to drive their initiatives in risk management beyond Basel norms and regulatory compliances. The COSO ERM framework has all the components that could help the banks to stand a chance to derive business value while meeting compliance requirements. The ERM Framework is structured around eight key components and four key objectives of business viz. strategic, operations, reporting and compliance.

**Figure-5.1: Components of ERM Framework**



*Source:*Enterprise Risk Management – Integrated Framework, Committee of Sponsoring Organization of the Treadway Commission (COSO)

## **5.2 Enterprise Risk Management: Conceptual Framework**

### **A Holistic Approach of Entity Wide Risk Management**

“Holistic” is a term used in risk management to emphasize the importance of understanding the interrelationships among individual risks (or groups of related risks) and the coordinated approach that an organization’s operating units and functions undertake to manage risk. A holistic approach to risk management is, by definition, one that is not fragmented into functions and departments, but rather is organized with the intention of optimizing risk management performance. A silo approach to managing risk is dangerous in today’s rapidly changing environment. Banks can face change with greater confidence with an enterprise-wide perspective. That is why an enterprise risk management (ERM) approach is intended to be holistic in its perspective toward risk and how it is managed. While the goal of thinking holistically is laudable, the question arises as to what it means from a practical standpoint.

A holistic view of risk attempts to grasp the big picture by identifying the critical risks that really matter through an enterprise-level, portfolio view of risk. This is where management considers risk from an entity-wide perspective and determines whether the entity’s residual risk profile is commensurate with its overall risk appetite. Each manager responsible for a business unit, function or process must assess, from an enterprise perspective, the risks generated by the activities for which he or she is responsible. With a composite view at each level of the organization, senior management and the board then determine whether the entity’s overall risk portfolio is commensurate with its desired risk profile. From a practical standpoint, a holistic approach means one or more of the following (Box-5.1):






#### **Box-5.1: Holistic Approach of ERM**

- Senior management establishes the enterprise’s appetite for risk in the context of its overall objectives and determines how to cascade it down into the organization through appropriate risk tolerances and limit structures;
- Each responsible manager develops a composite assessment of risks for his or her business unit, process or function, and considers the residual risk profile relative to the

enterprise as a whole in addition to the objectives of the business unit, process or function, and relevant risk tolerances/limits;

- With a roll-up of the risks assessed for individual business units, processes and functions, senior management uses a portfolio view for the entity as a whole to ascertain whether its residual risk profile is commensurate with the organization’s overall objectives and risk appetite;
- The statement of risk appetite is supported by an analytical tool tied to status and trending reports linked to critical metrics; this tool should model relevant scenarios such as a revenue downturn or the impact of an acquisition so that management can assess the impact of potential opportunities and/or adverse events to ascertain whether their effects are in line with the bank’s risk appetite;
- Different units may be within the risk tolerances of the individual units, but, taken together, risks might exceed the risk appetite of the entity as a whole, in which case additional or different risk responses are needed to bring risk within the entity’s risk appetite, consistent with the organization’s objectives; and
- Conversely, risks may naturally offset across the entity where, for example, some individual units have higher risk while others are relatively risk averse, such that the overall aggregate risk is within the entity’s risk appetite, obviating the need for a different risk response.

**Table-5.1: Evolution of Enterprise Risk Management**

<b>Historical View</b>		<b>Today</b>
Hazard Risk Management		Enterprise Risk Management Operational, strategic, financial reputation and insurable risks
Focus on preservation of tangible assets		Recognition of the value of tangible and intangible assets
Silo approach: Each department / function		Holistic approach: Coordinated at the highest level
Risk management = separate function		Risk management is a corporate wide daily concern and is embedded in the operations
Risks are threats: Focused on avoidance of negative events		Risks can be threats and opportunities

Source:<https://jsmorlu.com>



Enterprise risk management is an ongoing process. It is applied in the form of strategies across all the departments in a company. The enterprise risk management system is created to identify potential threats that could affect the capabilities and functioning of an organization. The ERM then manages the risk within the company's risk appetite. This ends up providing stakeholders some level of certainty that will aid them in achieving their business objectives. (Horvath, n.d.). The terminology Enterprise Risk Management (ERM) used in this part is based on the 7Rs and 4Ts of (hazard) risk management.

### **Risk Management Process**

The risk management process can be presented as a list of coordinated activities (White Paper on ISO 31000). There are alternative descriptions of this process, but the components listed below are usually present. According to Digital Financial Services and Risk Management, this list represents the 7Rs and 4Ts of (hazard) risk management:

- Recognition or identification of risks
- Ranking or evaluation of risks
- Responding to significant risks (4Ts)  
Tolerate, Treat, Transfer and Terminate
- Resourcing controls
- Reaction planning
- Reporting and monitoring risk performance
- Reviewing the risk management framework

The table below provides an overview of the steps involved in the implementation of an enterprise risk management (ERM) initiative. Successful implementation of an ERM initiative is an ongoing process that involves working through the 10 steps set out below on a continuous basis (ISO). The 10 steps are divided between:

- Planning and designing
- Implementing and benchmarking
- Measuring and monitoring
- Learning and reporting

Activity		Concepts / Tools and techniques
<b>Planning and Designing</b>		
1.	Identify intended benefits of the enterprise risk management initiative and gain Board mandate	<ul style="list-style-type: none"> <li>• Benefits of ERM</li> <li>• Embedding risk management</li> </ul>
2.	Plan the scope of the ERM initiative and develop common language of risk	<ul style="list-style-type: none"> <li>• Upside of risk</li> <li>• Stakeholder expectations</li> </ul>
3.	Establish the risk management strategy, framework, and the roles and responsibilities	<ul style="list-style-type: none"> <li>• Risk management policy</li> <li>• Risk architecture</li> </ul>
<b>Implementing and Benchmarking</b>		
4.	Adopt suitable risk assessment procedures and an agreed risk classification system	<ul style="list-style-type: none"> <li>• Risk description</li> <li>• Risk classification systems</li> </ul>
5.	Establish risk significance benchmarks and undertake risk assessments	<ul style="list-style-type: none"> <li>• Risk assessment techniques</li> <li>• Benchmark tests of significance</li> </ul>
6.	Determine risk appetite and risk tolerance levels, and evaluate the existing controls	<ul style="list-style-type: none"> <li>• Risk register</li> <li>• Risk appetite</li> </ul>
<b>Measuring and Monitoring</b>		
7.	Ensure cost-effectiveness of existing controls and introduce improvements	<ul style="list-style-type: none"> <li>• Risk improvement plans</li> <li>• BCP and DRP</li> </ul>
8.	Embed risk aware culture and align risk management with other management tasks	<ul style="list-style-type: none"> <li>• Control environment</li> <li>• Risk communications</li> </ul>
<b>Learning and Reporting</b>		
9.	Monitor and review risk performance indicators to measure ERM contribution	<ul style="list-style-type: none"> <li>• Audit plan and risk reviews</li> <li>• Sources of risk assurance</li> </ul>
10.	Report risk performance in line with legal and other obligations, and monitor improvement	<ul style="list-style-type: none"> <li>• Risk reporting</li> <li>• Legal requirements</li> </ul>

**Planning and Designing:** There are a number of factors that should be considered when designing and planning an ERM initiative. Details of the risk architecture, strategy and protocols should be recorded in a risk management policy for the organization. Table-5.2 provides information on the contents of a typical risk management policy (White Paper on ISO 31000).

**Table-5.2: Contents of Risk Management Policy**

<p>A risk management policy should include the following sections:</p> <ul style="list-style-type: none"> <li>➤ Risk management and internal control objectives (<b>governance</b>)</li> <li>➤ Statement of the attitude of the organization to risk (<b>risk strategy</b>)</li> <li>➤ Description of the <b>risk aware culture</b> or control environment</li> <li>➤ Level and nature of risk that is acceptable (<b>risk appetite</b>)</li> <li>➤ Risk management organization and arrangements (<b>risk architecture</b>)</li> <li>➤ Details of procedures for risk recognition and ranking (<b>risk assessment</b>)</li> <li>➤ List of documentation for analyzing and reporting risk (<b>risk protocols</b>)</li> <li>➤ Risk mitigation requirements and control mechanisms (<b>risk response</b>)</li> </ul>
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- Allocation of risk management roles and responsibilities
- Risk management training topics and priorities
- Criteria for monitoring and benchmarking of risks
- Allocation of appropriate resources to risk management
- Risk activities and risk priorities for the coming year

**Implementing and Benchmarking:** Risk assessment is a fundamentally important part of the risk management process. In order to achieve a comprehensive risk management approach, an organization needs to undertake suitable and sufficient risk assessments. A range of the most common risk assessment techniques is set out in Table below.

An organization should develop benchmarks to determine the significance (or materiality) of the identified risks. The nature of these benchmark tests will depend on the type of risk. For financial risks, a sum of money can be used as the benchmark test of significance. For risks that can cause disruption to operations, the length of disruption may be a suitable test. Reputational risks can be benchmarked in terms of the profile that the report of the event would receive, the likely impact of the event on share price, or the impact on the political and financial support received from key stakeholders.

**Table-5.3: Risk Assessment Techniques**

<b>Technique</b>	<b>Brief Description</b>
Questionnaires and checklists	Use of structured questionnaires and checklists to collect information to assist with the recognition of the significant risks.
Workshops and brainstorming	Collection and sharing of ideas and discussion of the events that could impact the objectives, stakeholder expectations or key dependencies.
Inspections and audits	Physical inspections of premises and activities and audits of compliance with established systems and procedures.
Flowcharts and dependency analysis	Analysis of processes and operations within the organization to identify critical components that are key to success.
HAZOP and FMEA approaches	Hazard and Operability studies and Failure Modes Effects Analysis are quantitative technical failure analysis techniques.
SWOT and PESTLE analyses	Strengths Weaknesses Opportunities Threats (SWOT) and Political Economic Social Technological Legal Environmental (PESTLE) analyses offer structured approaches to risk recognition.

**Measuring and Monitoring:** It is frequently the case that risk assessments are recorded in a risk register. There is no standard format for a risk register and the organization should establish a

suitable format for this important document. The risk register should be viewed as a risk action plan that includes details of the current controls and details of any further actions that are planned.

Monitoring and measuring extends to the evaluation of culture, performance and preparedness of the organization. Monitoring the preparedness of the organization to cope with major disruption is an important part of risk management. This activity normally extends to the development and testing of business continuity plans and disaster recovery plans.

Evaluation of the existing controls will lead to the identification of risk improvement recommendations. These recommendations should be recorded in the risk register by way of a risk action plan. An important part of evaluating the effectiveness of existing controls is to ensure that there is adequate evaluation of the business continuity planning and disaster recovery planning arrangements in place. Any monitoring and measuring process should also determine whether:

- the measures adopted achieved the intended result
- the procedures adopted were efficient
- sufficient information was available for the risk assessments
- improved knowledge would have helped to reach better decisions
- lessons can be learned for future assessments and controls

Other features of learning from experience include evaluation of audit reports and an assessment of the sources of risk assurance available to the Board and the audit committee. An evaluation of the level of assurance that has been obtained is also necessary.

**Learning and Reporting:** Completing the feedback loop on the risk management process involves the important steps of learning from experience and reporting on performance. In order to learn from experience, an organization needs to review risk performance indicators and measure the contribution that enterprise risk management has made to the success of the organization.

Learning the lessons from risk management also requires investigation of the opinions of key stakeholders both internally and externally. In particular, the opinion of internal audit and evaluation of risk management activities at audit committee will be vitally important. Learning from experience requires more than evaluation of the risk performance indicators. Other features of learning from experience include evaluation of audit reports and an assessment of the sources of risk assurance available to the Board and the audit committee (AIRMIC, Alarm, IRM: 2010).

External reporting should provide useful information to stakeholders on the status of risk management and the actions that are being taken to ensure continuous improvement in performance. A company needs to report to its stakeholders on a regular basis, setting out its risk management policies and the effectiveness in achieving its objectives.

### **5.3 Stress Testing**

The regulators and managers of the financial system around the globe have developed a number of quantitative techniques to assess the potential risks to the individual institutions as well as financial system (DOS, BB, 2010). A range of quantitative techniques that could serve the purpose is widely known as ‘stress testing’. IMF and Basel Committee on banking supervision have also suggested for conducting stress tests on the financial sector. Stress testing is a simulation technique, which are used to determine the reactions of different financial institutions under a set of exceptional, but plausible assumptions through a series of battery of tests. At institutional level, stress testing techniques provide a way to quantify the impact of changes in a number of risk factors on the assets and liabilities portfolio of the institution.

At the system level, stress tests are primarily designed to quantify the impact of possible changes in economic environment on the financial system. These tests help the regulators to identify structural vulnerabilities and the overall risk exposure that could cause disruption of financial markets.

#### **5.3.1 Techniques for Stress Testing**

**Simple Sensitivity Analysis (single factor tests)** measures the change in the value of portfolio for shocks of various degrees to different independent risk factors while the underlying relationships among the risk factors are not considered.

**Scenario Analysis** encompasses the situation where a change in one risk factor affects a number of other risk factors or there is a simultaneous move in a group of risk factors. Stress testing can be based on the historical scenarios, a backward-looking approach, or the hypothetical scenario, a forward-looking approach.

**Extreme Value/ Maximum Shock Scenario** measures the change in the risk factor in the worst-case scenario, i.e. the level of shock which entirely wipes out the capital.

### **5.3.2 Scope of Stress Test**

As a starting point the scope of the stress test is limited to simple sensitivity analysis. Five different risk factors namely; interest rate, forced sale value of collateral, non-performing loans (NPLs), stock prices and foreign exchange rate have been identified and used for the stress testing. Moreover, the liquidity position of the institutions has also been stressed separately

Stress test shall be carried out assuming three different hypothetical scenarios:

- **Minor Level Shocks:** These represent small shocks to the risk factors. The level for different risk factors can, however, vary.
- **Moderate Level Shocks:** It envisages medium level of shocks and the level is defined in each risk factor separately.
- **Major Level Shocks:** It involves big shocks to all the risk factors and is also defined separately for each risk factor.

Assumptions: The stress test at this stage is only a single factor sensitivity analysis. Each of the five risk factors has been given shocks of three different levels. The magnitude of shock has been defined separately for each risk factor for all the three levels of shocks.

### **5.3.3 Methodology and Calibration of Shocks**

#### **Credit Risk**

Stress test for credit risk assesses the impact of increase in the level of non-performing loans of the banks. This involves the five individual shocking events. Each shocking event contains Minor, Moderate and Major Shock levels.

- a. **Increase in NPL:** This includes three scenarios each of which explains the impacts of downgrading a portion of the total performing loans directly to bad and loss category having 100% provisioning requirement. Standard shock levels are 3%, 9% and 15% respectively.
- b. **Increase in NPL Due to Default of Top Large Borrower:** This includes three standard scenarios. The scenarios are constituted assuming that a number of top borrowers may become defaulters due to various reasons creating a shocking event of the bank. Standard shock levels are default of 3(three) top borrowers, the minor shock, default of top 7(seven) borrowers, the moderate shock, and finally the default of top 10(ten) borrowers, the major shock. In all the above scenarios, the provision will be 100%.
- c. **Fall in the forced Sale value (FSV) of Mortgaged Collaterals:** This includes three standard scenarios assuming three different levels of shock i.e. decrease in value in case of forced sell of mortgaged collaterals creating shocking events to the banks. The shocking levels are 10%, 20% and 40% respectively.
- d. **Negative Shifts in NPL Category:** The scenarios are constituted assuming that negative shifts in the NPL category take place due to some unfavorable events in the country or outside the country. The standard shocks are 5%, 10% and 15% respectively. For example, 5% SMA downgraded to SS, 5% SS downgraded to GF and 5% GF downgraded to BL
- e. **Increase in NPL in Particular 2 sectors:** This measures the concentration risk particularly in 2 sectors where bank has highest investment. The scenarios are constituted assuming that 3%, 9% or 15% (standard shock) of performing loans of that 2 sectors directly downgraded to bad/loss category.

### **Interest Rate Risk**

Interest rate risk is the potential that the value of the on-balance sheet and the off-balance sheet positions of the bank/FI would be negatively affected with the change in the interest rates. The vulnerability of an institution towards the adverse movements of the interest rate can be gauged by using GAP analysis. The following section discusses the rate sensitive and duration gap analysis

### **Rate Sensitive Gap Analysis**

The sensitivity of bank profits to changes in interest rate can be directly measured by gap analysis. Gap analysis is essentially a cash flow analysis of the gap between the interest revenue

earned on an FI's assets and the interest paid on its liabilities over a particular period of time. Under this approach, banks report the gaps between the rate sensitive asset (RSA) and rate sensitive liabilities (RSL) in each maturity bucket on its balance sheet. Rate sensitivity means the asset or liability is re-priced at current market interest rates within a certain maturity bucket.

If interest-sensitive assets in each planning period exceed the volume of interest-sensitive liabilities subject to re-pricing, the financial firm is said to have a positive gap and to be asset sensitive. Thus

$$\text{Asset-sensitive (positive) gap} = \text{Interest-sensitive assets} - \text{Interest-sensitive liabilities} > 0$$

In the opposite situation, a bank is said to have a negative gap and to be liability-sensitive if

$$\text{Liability-sensitive (negative) gap} = \text{Interest-sensitive assets} - \text{Interest-sensitive liabilities} < 0$$

**Example:** Let us consider the following balance sheet of a financial institution

Maturity Bucket	Assets (Tk. in million)	Liabilities (Tk. in million)	Gap (Tk. in million)	Cumulative Gap (Tk. in million)
1-day	20	30	-10	-10
More than 1-day to 3-months	30	40	-10	-20
More than 3-months to 6-months	70	85	-15	-35
More than 6-months to 12-months	90	70	20	-15
More than 1-year to 5-year	40	30	10	-5
More than 5-year	10	5	5	0
<b>Total</b>	<b>260</b>	<b>260</b>		

The gap may be positive or negative. A negative gap indicates that an increase (decrease) in the short-time interest rates would lower (higher) the FI's net interest income since the FI has more RSL than RSA in this bucket.

$$\Delta \text{NII} = \Delta i \times (\text{RSA} - \text{RSL}) = \Delta i \times \text{GAP}$$

Considering 1-day maturity bucket, the gap is -10 million and if short-term interest rates rise by 1 percent, the annualized change in FI's future net interest income is

$$\Delta \text{NII} = 0.01 \times (30 - 20) \text{ million} = -0.1 \text{ million}$$

The FI manager can also estimate cumulative gap (CGAP) over various maturity buckets. A common CGAP of interest is the one-year re-pricing gap. From the above example, cumulative gap (CGAP) for one-year maturity bucket is -15 million. So

$$\Delta \text{NII} = 0.01 \times (-15) \text{ million} = -0.15 \text{ million} = \Delta i \times \text{CGAP}$$



Therefore, if an FI has more RSL than RSA, a rise in interest rate will reduce bank profits, while a decline in interest rates will raise bank profits. In general, when gap is positive, the change in NII is positively related to the change in interest rates. Conversely, when gap is negative, if interest rates rise by equal amounts for both RSA and RSL, NII will fall. Thus, an FI would want its gap to be positive when interest rates are expected to rise.

Similarly, if interest rates fall equally for RSA and RSL, NII will increase when gap is negative. As rates fall, interest expenses decrease by more than interest revenues. In general, when gap is negative, the change in NII is negatively related to the change in interest rates. Thus, an FI would want its gap to be negative when interest rates are expected to fall.

Some financial institutions shade their interest-sensitive gap toward either asset-sensitivity or liability-sensitivity, depending on degree of confidence in their own interest rate forecast. This is often referred to as aggressive gap management. For example, if management firmly believes interest rates are going to fall over the current planning horizon, it will probably allow interest-sensitive liabilities to climb above interest-sensitive assets. If interest rates do fall as predicted, liability costs will drop by more than revenues and the institution's NIM will grow. Similarly, a forecast of higher interest rates will trigger many financial firms to become asset-sensitive, knowing that if rates do rise, interest revenue will rise by more than interest expenses. This aggressive strategy creates higher risk, which leads the financial manager to rely on hedging against changes in market interest rates. The following could be the possible hedging strategy

<b>GAP position</b>	<b>Risk</b>	<b>Possible Management Response</b>
Positive (IS assets > IS liabilities)	Losses if interest rates fall because the net interest margin will be reduced	<ol style="list-style-type: none"> <li>1. Do nothing with the expectation that interest rate will rise or be stable</li> <li>2. Extend asset maturities or shorten liability maturities</li> <li>3. Increase interest-sensitive liabilities or reduce interest-sensitive assets</li> </ol>
Negative (IS assets < IS liabilities)	Losses if interest rates rise because the net interest margin will be reduced	<ol style="list-style-type: none"> <li>1. Do nothing with the expectation that interest rate will fall or be stable</li> <li>2. Shorten asset maturities or lengthen liability maturities</li> <li>3. Decrease interest-sensitive liabilities or increase interest-sensitive assets</li> </ol>

## Duration Gap Analysis

Duration is the weighted average maturity of a promised stream of future cash flows i.e., duration is a value and time weighted measures of maturity that considers the timing of all cash inflows from earning assets and all cash outflows associated with liabilities. Duration measures the average time required to recover the funds committed to an investment.

$$D = \frac{\sum_{t=1}^n \frac{t \times CF_t}{(1 + YTM)^t}}{\sum_{t=1}^n \frac{CF_t}{(1 + YTM)^t}}$$

The formula can be simplified as follows

$$D = \frac{\sum t \times CF_t \times DF_t}{\sum CF_t \times DF_t};$$

where,  $CF_t$  = Cash flow at time t

$DF_t$  = Discount factor of the corresponding cash flow

The calculation of duration depends on the following 3 factors

- The final maturity of the financial instruments
- The size and timing of cash flows (coupon payments)
- The yield to maturity (YTM)

**Example:** The duration of a two-year treasury bond with 8 percent coupon (semi-annual) and 12 percent yield.

Time period cash is to be received (t)	Expected cash flow at time t ( $CF_t$ )	Discount factor ( $DF_t$ )	$CF_t \times DF_t$	$t \times CF_t \times DF_t$
½	40	0.9434	37.74	18.87
1	40	0.8900	35.60	35.60
1 ½	40	0.8396	33.58	50.37
2	40	0.7921	31.68	63.36
2	1000	0.7921	792.1	1584.20
<b>Total</b>			<b>930.70</b>	<b>1752.40</b>

So Duration,  $D = \frac{\sum t \times CF_t \times DF_t}{\sum CF_t \times DF_t} = 1752.40/930.70 = 1.883$  years

The important feature of duration from a risk management point of view is that it measures the sensitivity of the market value of FIs to changes in interest rates. The percentage change in the market price of an asset or liability is approximately equal to its duration times the relative change in interest rates attached to that particular asset or liability.

$$\frac{\Delta P}{P} \approx -D \times \frac{\Delta i}{(1+i)}$$

### Measuring Duration Gap

The duration model can also evaluate the overall interest rate exposure for an FI that is measure the duration gap on its balance sheet. To estimate the overall duration gap of an FI, we first determine the duration of FIs asset portfolio ( $D_A$ ) and the duration of its liability portfolio ( $D_L$ ).

$$D_A = \sum_{i=1}^n w_i \times D_{A_i} \quad \text{and} \quad D_L = \sum_{i=1}^n w_i \times D_{L_i}$$

The duration of a portfolio of assets or liabilities is the market value of weighted average of the individual durations of the assets or liabilities on the FIs balance sheet.

### Impact of Changing Interest Rates on Bank's Net Worth

Due to the differences in the duration of the asset and liability portfolio, change in interest rates cause significant impact on the Bank's net worth.

$$\text{Change in Net Worth, } \Delta NW = \left[ -D_A \times \frac{\Delta i}{(1+i)} \times A \right] - \left[ -D_L \times \frac{\Delta i}{(1+i)} \times L \right]$$

A positive duration gap will lead to the decrease (increase) of the net worth due to the rise (fall) in the interest rate. In case of negative duration gap, net worth will increase (decrease) due to the rise (fall) in the interest rate. Interest rate fluctuation does not affect the net worth if there is no duration gap.

**Example:** Duration gap measurement and risk exposure of a financial institution

Suppose duration of asset and liability portfolio of a financial institution is calculated as

$$D_A = 5 \text{ years and } D_L = 3 \text{ years}$$

The overall economic forecasting suggests that the interest rates are expected to rise by 1 percent from existing 10 percent to 11 percent in the immediate future i.e.,

$$i = 10\%, \Delta i = 1\%$$

Initial Balance Sheet		Balance Sheet after the interest rate change	
Asset (Million)	Liabilities (Million)	Asset (Million)	Liabilities (Million)
A = 100	L = 90 E = 10	A = 95.45	L = 87.54 E = 7.91
Total = 100	Total = 100	Total = 95.45	Total = 95.45

The potential loss to equity holder's net worth (E) if the forecast of rising rates proves true is as follows

$$\Delta E = [-5 \times (0.01/1.10) \times 100] - [-3 \times (0.01/1.10) \times 90] = -2.09 \text{ million}$$

Change in the market value of the asset,

$$\Delta A = \left[ -D_A \times \frac{\Delta i}{(1+i)} \times A \right] = [-5 \times (0.01/1.10) \times 100] = -4.54 \text{ million}$$

Change in the market value of the liability,

$$\Delta L = \left[ -D_L \times \frac{\Delta i}{(1+i)} \times L \right] = [-3 \times (0.01/1.10) \times 90] = -2.45 \text{ million}$$

So net worth of the financial institution will be reduced by 2.09 million if interest rates rise by 1 percent. Since the initial equity is 10 million, the loss of 2.09 million is about 21 percent of its initial net worth. Similarly, After the calculation of the changes of the market value of asset, liability and net worth, the new balance sheet is formed, which is given above.

The banks and FIs shall follow the following steps in carrying out the **interest rate stress tests**:

- Estimate the market value of all on-balance sheet rate sensitive assets and liabilities of the bank/DFI to arrive at market value of equity
- Calculate the durations of each class of asset and the liability of the on-balance sheet portfolio Arrive at the aggregate weighted average duration of assets and liabilities
- Calculate duration GAP by subtracting aggregate duration of liabilities from that of assets.

- Estimate the changes in the economic value of equity due to change in interest rates on on-balance sheet positions along the three interest rate changes.
- Calculate surplus/(deficit) on off-balance sheet items under the assumption of three different interest rate changes i.e. 1%, 2%, and 3%
- Estimate the impact of the net change (both for on-balance sheet and off-balance sheet) in the market value of equity on the capital to risk-weighted asset ratio (CRAR).

Market value of the asset or liability shall be assessed by calculating its present value discounted at the prevailing interest rate. The outstanding balances of the assets and Liabilities should be taken along with their respective maturity or repricing period, whichever is earlier.

### **Exchange Rate Risk**

The stress test for exchange rate assesses the impact of change in exchange rate on the value of equity. To assess foreign exchange risk, the overall net open position of the bank/FI including the on-balance sheet and off-balance sheet exposures shall be charged by the weightage of 5%, 10% and 15% for minor, moderate and major levels respectively. The overall net open position is measured by aggregating the sum of net short positions or the sum of net long positions; whichever is greater. For example, the bank may have net long position of Tk.500 million in Yen, Euro and USD and the net short position in GBP and Australian dollar of Tk.600 million. The total exposure will be the greater of the two i.e. sum of the short positions of Tk.600 million. The impact of the respective shocks will have to be calibrated in terms of the CRAR. The revised CRAR will then be calculated after adjusting total loss from the risk-weighted assets of the bank/FI.

### **Equity Price Risk**

The stress test for equity price risk assesses the impact of the fall in the stock market index. Appropriate shocks will have to be absorbed to the respective securities if the current market value of all the on-balance sheet and off-balance sheet securities listed on the stock exchanges including shares, NIT units, mutual funds etc. falls at the rate of 10%, 20% and 40% respectively. The impact of resultant loss will be calibrated in the CRAR.

## **Liquidity Risk**

Stress test for liquidity risk evaluates the resilience of the banks towards the fall in liquid liabilities. A special threshold of one business week survival period is set to test the ability to withstand a liquidity run autonomously from the whole market. Liquidity test shows how many days a bank would be able to survive a liquidity drain without restoring liquidity from outside sources (other bank or central bank). The considerable terms for liquidity stress test are as follows:

- Chronic withdraw of demand and time deposit both in local and foreign currency
- The bank is considered to be a well liquid bank if it can survive 5 days under the stress situation

Standard shock would be, in excess of bank's normal withdrawal scenario, 2%, 4% and 6% respectively.

## **Combined shock**

Bank will assess combined shock by aggregating results of credit shock, exchange rate shock, equity price shock and interest rate shock. In case of credit shock- Increase in NPL, results of Increase in NPL due to default of top large borrower, results of Fall in the forced sell value (FSV) of mortgaged collaterals, results of Negative shifts in NPL category, results of Increase in NPL in particular 2 sectors would have to be considered.

## **5.4 Indicative Questions**

1. Identify the components of ERM framework as per COSO.
2. Discuss different steps involved in successful implementation of ERM.
3. What is stress test? Why is stress test important in ensuring the financial stability in the banking sector of Bangladesh?
4. What are the different risk areas where stress test conducted?
5. What is duration gap analysis? How is the duration gap analysis related to stress test?

**Module – F**  
**Policy Initiatives for Development of Risk Management in FIs**

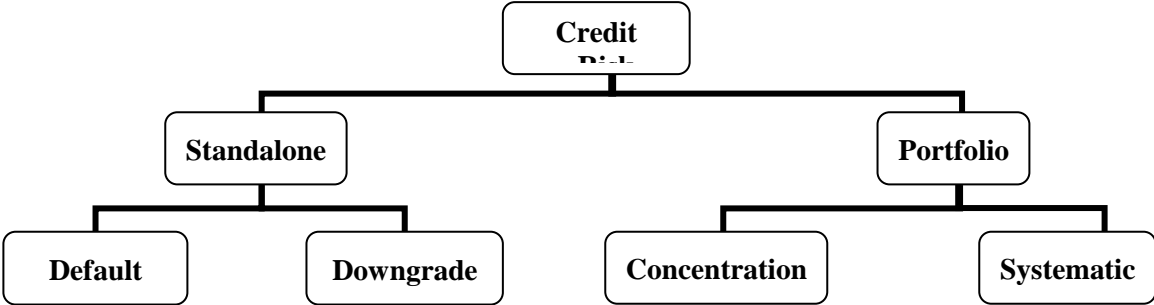
Risk is an inseparable part of every banking business as it deals with money directly. Bangladesh Bank considers six types risks as core risks, namely Credit Risk Management (CRM), Asset Liability Management Risk (ALMR), Foreign Exchange Risk (FER), Anti Money Laundering Risk (AMLR), Internal Control and Compliance Risk (ICCR) and Information Technology Risk (ITR). Later, Bangladesh Bank has also issued, not as a part of core risk, Environmental and Social Risk Management Guideline to deal with the environment related risk factors.

**6.1 Guideline on Credit Risk Management (CRM)**

Credit risk is the probability that a borrower will not be able to pay accrued interest or repay principal amount of a loan according to terms specified in the credit agreement. In other words, it is the probability of default on the part of the borrower to act as per the agreement. Credit risk comes from a bank’s dealing with individual, corporate, bank, NBFIs or a sovereign. It may arise due to inability or unwillingness to perform. It may stem from on-balance sheet and off-balance sheet activities. Credit risk not only includes default risk but also downgrade risk. As a result of excessive credit risk, bank’s profitability, capital adequacy and cash flows are adversely affected.

**6.1.1 Types of Credit Risk**

- **Standalone/Transaction Credit Risk:** It refers to the losses in the event of default or in the event of decline in the borrower’s credit rating or grade. Therefore, standalone credit risk includes both default risk and downgrade risk. It occurs mainly from banks’ failure to select good borrower with a viable project.
- **Portfolio Credit Risk:** It arises when the economy as a whole does not perform well or when credit portfolio is not well diversified. It has two dimensions: systematic risk and concentration risk.





### **6.1.2 Different Types of Default**

- **Technical default** occurs when a borrower breaches the terms of the loan agreement.
- **Strategic default** occurs when a borrower undertakes a strategy not to repay the loans.
- **Payment default** occurs when a borrower fails to pay the installment of a loan on time.
- **Economic default** occurs when a borrower has less amount of assets at market value than the liabilities i.e. when the liabilities are greater than assets.

### **6.1.3 Importance of Credit Risk Management**

Credit is the main source of earning and cash flow of a bank. If the quality of bank credit declines, it adversely affects income, cash flow and capital adequacy of banks. Cash flow problem may lead to credit crunch and failure to pay the depositors on time. Erosion of depositors' confidence may result from the failure to pay and such erosion of confidence may invite bank failure.

### **6.1.4 Causes of Standalone Credit Risk**

The following reasons, other than selection of wrong borrower with financially unviable project, are believed to be the reasons of standalone credit risk at banks in Bangladesh.

- Improper or weak need assessment
- Wrong structuring
- Insufficient cash flow generation
- Failure to understand forex risk
- Name lending ignoring fundamentals
- Lack of monitoring of approval condition
- Lack of ready succession
- Insufficient security and guarantee
- Incomplete documentation
- Scarcity of utilities and input
- Undermining the importance of interbank deposits and OBSA
- Poor Governance (corruption, failure to stand in pressure, related party transaction)

### **6.1.5 Causes of Portfolio Credit Risk**

Banks suffer credit portfolio risk mainly because of the following reasons.

- Credit concentration
- Economic downturn
- Absence of in-depth portfolio review

#### **6.1.6 Indicators of High Credit Risk (not an exhaustive list)**

- The level of loans is high relative to total assets and equity capital.
- Loan growth rates significantly exceed national trends and the trends of similar banks.
- Growth was not planned or exceeds planned levels, and stretches management and staff expertise.
- The bank is highly dependent on interest and fees from loans and advances.
- Loan yields are high and reflect an imbalance between risk and return.
- The bank has one or more large concentrations. Concentrations have exceeded internal limits.
- Existing and/or new extensions of credit reflect liberal judgment and risk-selection standards.
  - Practices have resulted in a large number of exceptions to the credit policy.
- The bank has a large volume and/or number of classified loans.
- Even among standard and special mention account loans, the portfolios are skewed toward lower internal ratings.
- Classified loans are skewed toward the less favorable categories (doubtful and bad/loss).
- Collateral requirements are liberal, or if conservative, there are substantial deviations from requirements.
- Collateral valuations are not always obtained, frequently unsupported, and/or reflect inadequate protection.
- Loan documentation exceptions are frequent, and exceptions are outstanding for long periods of time.
- The bank liberally reschedules and/or restructures loans in a manner that raises substantial concern about the accuracy or transparency of reported problem loan numbers.
- Quarterly loan losses, as a percentage of the total loan portfolio, are high and/or routinely exceed established provisions.

#### **6.1.7 Indicators of Poor Credit Risk Management (not an exhaustive list)**

- Credit culture is absent or materially flawed.
- Strategic and/or business plans encourage taking on liberal levels of risk.

- Anxiety for income dominates planning activities.
- The bank engages in new loan products or initiatives without conducting sufficient due diligence testing.
- Loan management and personnel may not possess sufficient expertise and/or experience.
- Responsibilities and accountabilities in the origination, administration, or problem loan management processes are unclear.
- The bank may not identify concentrated exposures, and/or identifies them but takes little or no actions to limit, reduce, or mitigate risk.
- Concentration limits, if any, are exceeded or raised frequently.
- Compensation structure is skewed toward volume of loans originated, rather than quality.
- There is little evidence of accountability for loan quality in the origination and/or administration function.
- Staffing levels throughout the origination and/or administration function are low.
- Skills throughout the origination and/or administration function are low.
- Credit policies are deficient in one or more ways and require significant improvement in one or more areas. They may not be sufficiently clear or are too general to adequately communicate portfolio objectives, risk tolerance, and loan judgment and risk selection standards.
- The bank approves significant policy exceptions, but does not report them individually or in the aggregate and/or does not analyze their effect on portfolio quality. Policy exceptions do not receive appropriate approval.
- Credit analysis is deficient. Analysis is superficial and key risks are overlooked.
- Risk rating and problem loan review are deficient and require improvement. Problem loans and advances are not identified accurately or in a timely manner; as a result, portfolio risk is likely misstated.
- The bank's risk ratings (including the classification system) frequently deviate from BB's risk ratings or classifications.
- The graduating of internal risk ratings in the standard and special mention categories is insufficient to stratify risk for early warning or other purposes, such as loan pricing or capital allocation.

- Management information systems (MIS) have deficiencies requiring attention. The accuracy and/or timeliness of information is affected in a material way, and portfolio risk information is incomplete. As a result, the Board and senior management may not be receiving appropriate or sufficient information to analyze and understand the bank’s credit risk profile.

### **6.1.8 Credit Risk Management Policy**

Banks always have a “credit policy,” but what is really needed is a high-quality “credit risk management policy” (CRMP). The CRMP in its expanded form contains all of the elements that a “credit policy” would contain, and goes beyond these. It must be updated at least annually, with Board approval for these annual updates.

#### **6.1.8.1 Risk Appetite Statement (RAS)**

Risk appetite is the level and type of risk a bank is able and willing to assume in its exposures and business activities, given its business objectives and obligations to stakeholders (depositors, creditors, shareholders, borrowers, regulators). A robust CRMP starts with a well-crafted risk appetite statement (RAS). In this regard, The Risk Appetite Statement shall be approved by board and embodied in risk policy and delegated authorities. Risk appetite is generally expressed through both quantitative and qualitative means and should consider extreme conditions, events, and outcomes. It should be stated in terms of the potential impact on profitability, capital, and liquidity, and should be consistent with the bank’s strategic and business plans. The credit RAS is an example of a bank’s overall RAS being concretely expressed at the business line level. The RAS shall be approved by board and embodied in risk policy and delegated authorities. For credit risk specifically, the RAS should quantify the maximum expected loss the bank is willing to endure across all credit products, including off-balance-sheet items such as letters of credit and guarantees. The maximum expected losses need to be specified so that the business lines that take on credit risk know where the bank wishes to be along the risk-return tradeoff. The bank should also specify the minimum expected losses, since it is possible for a bank to take on too little credit risk and face the consequence of weak earnings. The RAS should also address the maximum and minimum allowable concentrations (expressed as a percentage of CET1) for all major types of credit products, borrowers, and sectors.

Contents of the Risk Appetite Statement shall be, but are not limited to, the following statements:

- Industry-wise sectoral concentration
- Product-wise funded loan concentration (composition of term loan, mid-term loan, demand loan, continuous loan etc)
- Product-wise non-funded loan (OBS) concentration (composition of bank guarantee, acceptance, etc.)
- Area wise/geographical, currency wise and maturity wise credit concentration
- Business segment-wise concentrations (corporate, MSMEs, Retail, Micro Credit, Card etc.)
- Client concentration based on external/internal credit rating.
- Classification boundaries in terms of portfolio percentage, beyond which further growth may be halted.
- Maximum level of 'high' rated clients in terms of environmental and social due diligence.

#### **6.1.8.2 Limits on loan type, borrower type, rating grade, industry or economic sector**

As stated above, it is an essential component of credit risk management to establish limits on concentrations across all possible dimensions of the credit portfolio. The first task in that effort is to establish a sensible disaggregation of the portfolio.

#### **6.1.8.3 Other necessary components of an adequate credit risk management policy**

Every bank has to develop a credit policy (CP) as a part of an overall credit risk management framework and get it approved by the Board. The CP should clearly outline the bank's view of business development priorities and the terms and conditions that should be applicable for credits to be approved. The CP should be periodically updated, considering changing internal and external circumstances. To make it effectual, CP should be communicated timely and implemented by all levels of the bank through appropriate procedures. It should be distributed to all lending authorities and credit officers. Significant deviations from the CP must be communicated to the senior management or Board and corrective measures should be taken

### **6.1.9 Organizing Credit Risk Management**

#### **6.1.9.1 Role of the Board of Directors**

The board has a vital role in granting credit as well as managing the credit risk of the bank. It is the overall responsibility of a bank's board to approve credit risk strategies and significant policies relating to credit risk and its management which should be based on the overall business strategy. Overall strategies as well as significant policies have to be reviewed by the board on regular basis. The responsibilities of the board with regard to credit risk management shall include the following:

- Ensure that appropriate policies, plans and procedures for credit risk management are in place. Ensure that bank implements sound fundamental policies;
- Define the bank's overall risk appetite in relation to credit risk;
- Ensure that top management as well as staff responsible for credit risk management possess sound expertise and knowledge to accomplish the risk management function;
- Ensure that bank's significant credit risk exposure is maintained at prudent levels and consistent with the available capital.
- Review trends in portfolio quality and the adequacy of bank's provision for credit losses;
- Ensure that internal audit reviews the credit operations to assess whether or not the bank's policies and procedures are adequate and properly implemented;
- Review exposures to insiders and other related parties, including policies related thereto;
- Limit involvement in individual credit decisions to those powers specifically reserved to the Board by the bank's articles of association, by-laws, and credit risk management policy.
- Ratify exposures exceeding the level of the management authority delegated to management and be aware of exposures; and
- Outline the content and frequency of management reports to the board on credit risk management.

#### **6.1.9.2 Role of Senior Management**

The responsibility of senior management is to transform strategic directions set by the board in the shape of policies and procedures. Senior management has to ensure that the policies are embedded in the culture of the bank. Senior management is responsible for implementing the bank's credit risk management strategies and policies and ensuring that procedures are put in place to manage and control credit risk and the quality of credit portfolio in accordance with

these policies. The responsibilities of senior management with regard to credit risk management shall include:

- Developing credit policies and credit administration procedures for board approval;
- Implementing credit risk management policies to ensure an effective credit risk management process;
- Ensuring the development and implementation of appropriate reporting system;
- Monitoring and controlling the nature and composition of the bank's credit portfolio;
- Monitoring the quality of credit portfolio and ensuring that the portfolio is thoroughly and conservatively valued and probable losses are adequately provided for;
- Establishing internal controls and setting clear lines of accountability and authority; and
- Building lines of communication for the timely dissemination of credit risk management policies, procedures and other credit risk management information to all the credit staffs.

#### **6.1.9.3 Role of the Credit Risk Management Committee**

Each bank, depending upon its size, should constitute a credit risk management committee (CRMC), at least comprising of head of credit risk management Department and or credit department, head of recovery, head of RMD and treasury. The head of credit department/CRMD shall act as a member secretary of CRMC. This committee shall report to Board's risk committee and Board who shall be empowered to oversee credit risk taking activities and overall credit risk management function. The CRMC should be mainly responsible for:

- Implementation of the credit risk policy/strategy approved by the board.
- Monitoring credit risk on a bank-wide basis and ensure compliance with limits approved by the board.
- Making recommendations to the board, for its approval, clear policies on standards for presentation of credit proposals, financial covenants, rating standards and benchmarks.
- Deciding delegation of credit approving powers, prudential limits on large credit exposures, standards for loan collateral, portfolio management, loan review mechanism, risk concentrations, risk monitoring and evaluation, pricing of loans, provisioning, regulatory/legal compliance, etc.

## 6.2 Guideline on Asset-Liability Risk Management (ALRM)

Asset and Liability Management (ALM) is an essential process for banks and when not well managed, it creates a threat to the existence of the bank. Banks must have their own ALM policy, essentially approved by the BODs. In order to formulate the policy, the management and the BODs must understand the risks around each and every asset and liability of the bank. Asset-Liability Management Committee (ALCO), comprising of the senior management of a bank, is primarily responsible for managing assets and liabilities under the set ALM policy. The primary responsibility of the committee is to review and analyze different issues related to liquidity risk, market risk and other risks. They are also concerned with the interest rate forecasting, developing liquidity contingency plan, and minimizing balance sheets mismatches, pricing of deposit and lending products and other related issues. To facilitate the above-mentioned activity, the Bangladesh Bank has given a guideline on 'Asset-Liability Management (ALM) vide BRPD Circular No. 02, March 07, 2016, which is a snapshot of what to do and how to do things regarding proper management of assets and liabilities of a bank. The ALM guideline has been modified and upgraded in the year 2016 to cope with the global changes in this regard. The ALM policy, set out by the BODs, incorporating the limits and essence of the ALM guideline.

### 6.2.1 Highlights of the Asset-Liability Management (ALM) Policy-2016

**(i) Basel III Liquidity Ratios:** BB has issued separate Guidance note on LCR and NSFR under Basel III. These ratios represent the way forward in ALM through liquidity measurement and management. These ratios along with the liquidity gap should be central to liquidity measurement and management.

- **Liquidity Coverage Ratio (LCR):** This standard is built on the methodologies of traditional liquidity coverage ratio used by banks to assess exposure to contingent liquidity events.
- **Net Stable Funding Ratio (NSFR):** NSFR or Net Stable Funding Ratio is another new standard introduced by the BCBS. The NSFR aims to limit over-reliance on short-term wholesale funding during times of abundant market liquidity and encourage better assessment of liquidity risk across all on- and off-balance sheet items.



**(ii) Leverage Ratio:** A minimum Tier 1 leverage ratio of 3% is being prescribed by BB both at solo and consolidated level. Banks have to maintain leverage ratio on quarterly basis.

**(iii) Advance to Deposit Ratio (ADR):** Although commonly known as Advance to Deposit Ratio, actually the ratio is determined by putting Advance in numerator and Liabilities (excluding capital) in denominator. The ratio should be fixed in such a manner so that there will be no unnecessary liquidity pressure on the bank in any point of time. Considering the regulatory liquidity requirements (CRR and SLR), the maximum value of the ratio shall be derived using the formula  $[100\% - CRR - SLR]$ . Depending upon the capital base, liquidity condition, NPL status etc. and above all the maintenance of LCR & NSFR, the board may decide adding highest 4.5% and 2%\*\* (for conventional banks and Shariah based banks respectively) with the result of the above formula to fix a suitable AD ratio.

**The Equation:**

The formula for calculating AD ratio is as follows-

ADR=	Total Loans and Advances or Investment (for Shariah based banks) / (Total Time and Demand Liabilities + Interbank deposit surplus*)
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\*Interbank deposit surplus = Deposit from other banks - Deposit with other banks (if -ve then 0)

Bank should follow the instruction of BB regarding deduction of some items to calculate total loans and advances or Investment while calculating ADR. Total Demand and Time liabilities will be calculated according to DOS Circular No.01/2014.

**ADR for Islamic Banking Operation of Conventional Banks:** Conventional banks having Islamic banking business have to calculate and maintain ADR separately for conventional banking and Islamic banking operation. ADR for Islamic banking operation is same as that of Islamic Shariah based banks.

**(iv) Wholesale Borrowing Limit:** WB covers call borrowing, Short Notice Deposit from banks and financial institutions, placement received with maturity less than 12 months, commercial papers/similar instruments and overdrawn Nostro-accounts. The WB Limit should be capped at 80% (for Non-Primary Dealer Banks) and 100% (for Primary Dealer Banks) of bank's eligible capital on fortnightly average basis with maximum two deviations (not more than 90% and 110%

of the eligible capital for Non-PD and PD banks respectively) in a particular fortnight. The eligible capital determined under Basel III for any quarter will be applicable as eligible capital until it is determined for the next quarter.

**(v) Commitment:** Total Commitments include undrawn portions of continuous loan including interest thereon and undrawn portions of term loans, outstanding irrevocable letters of credit and similar instruments, letters of guarantee, acceptances and similar instruments. Counter guarantee provided by foreign banks with BB rating grade 1 or similar, awarded by recognized (by BB) international Credit rating agencies against any guarantee, FC held against Back to Back LC and Margin on LC or guarantee shall be deducted from the total commitment amount.

**Commitment Limit:** The commitment limit should be fixed considering three important ratios. These are:

Details	Limit
Total Commitments to Total Assets,	Less than 50%
ii) Total Commitments to Total Eligible Capital	Less than 500%
Total Commitments to Total High Quality Liquid Assets (HQLA).	Less than 250%

The commitment limit should be the lowest amount of the three ratios mentioned above.

**(vi) Swapped Fund Limit:** Swapped fund is the deference between assets and liabilities including capital denominated in the same currency. Assets and liabilities will not always be in the same currencies. A bank might be exposed to the risk that it may not meet by its currency-wise obligations as they fall due. Swapped funds position results from reliance on foreign exchange markets and therefore needs to be controlled. Swapped funds limits are established on the maximum amount that may be swapped out of foreign currency into local currency and swapped out of local currency into foreign currency.

**(vii) Structural Liquidity Profile (SLP):** The structural liquidity profile of a bank provides information regarding maturity transformation of assets and liabilities in a simple manner. The negative liquidity GAP (if exist), derived by considering assets and liabilities both in local and foreign currencies, may be taken as a preliminary signal for the need of maturity adjustment of

assets and liabilities in different time buckets. The Maximum Cumulative Outflow ratio may be considered as an important benchmark in this regard.

**(viii) Maximum Cumulative Outflow (MCO):**MCO reflects the maximum cumulative outflow against total assets in a maturity bucket. MCO upto one-month bucket should not be greater than the sum of daily minimum CRR plus SLR. For example, at the present rate of CRR and SLR, the MCO should be 19% (6% CRR+ 13% SLR) for conventional banks. The Shariah based banks, due to higher ADR and Short nature of their investment are also allowed MCO at the same level. MCO in the other maturity buckets should be prudently fixed by the BODs (ALCO in case of foreign banks) depending on bank's business strategy. The board should take utmost care in setting these ratios as they have significant impact on bank's business strategy.

**The Equation:**

The formula for determining maximum cumulative outflow in one-month bucket is-

MCO =	$\frac{(\text{Total outflow upto one month} + \text{Total OBS upto one month})}{(\text{Total inflows} + \text{Net Nostro Account Balance} + \text{Available Foreign Currency Balance with BB})}$
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Banks should follow the instruction of BB (Dos circular no-02, dated: 29/03/2011) regarding preparation of Structural Liquidity Profile (SLP). Using the above equation bank should calculate MCO in other time buckets.

**(ix) Interest Rate Risk (IRR):**Interest rate risk refers to fluctuations in the Bank's Net Interest Income and the value of its balance sheet and off-balance sheet items arising from internal and external factors. Internal factors include the composition of the Bank's assets and liabilities, quality, maturity and re-pricing period of deposits and advances, External factors cover general economic conditions.

The changes in interest rates affect banks in a larger way. The immediate impact of changes in interest rates is on bank's earnings by changing its Net Interest Income (NII). A long-term impact of changing interest rates is on bank's Market Value of Equity (MVE) or Net Worth as the economic value of bank's assets, liabilities and off-balance sheet positions get affected due to variation in market interest rates. The interest rate risk when viewed from these two perspectives is known as 'earnings perspective' and 'economic value perspective respectively'.

### **6.2.2 Asset and Liability Management Committee (ALCO)**

The Asset and Liability Management Committee (ALCO) is responsible for balance sheet risk management. Managing the assets and liabilities to ensure maximum level of structural balance sheet stability and optimum profitability is an important responsibility of the ALCO.

#### **Constitution of the ALCO**

The CEO/Managing Director of the bank shall be the chairman of ALCO. Head of Treasury shall work as the member secretary of ALCO. The committee shall be constituted as follows:

- Chief Executive Officer / Managing Director
- Head of Retail banking and/or General banking
- Head of Treasury
- Head of Corporate Banking
- Head of Finance/Chief Financial Officer/Head of Central accounts / Head of FAD
- Head of SME/International Division/Commercial Customers
- Head of Risk Management Department (RMD)

Conventional banks having Islamic banking business shall include the Head of Islamic banking as a member of the ALCO committee. Banks having Off-shore Banking shall also include representative (as a member) from the Off-shore Banking Unit (OBU). The head of ALM desk should be a permanent invitee of the ALCO meeting. The Chairperson of ALCO may invite any other related person (maximum 2) in any meeting.

#### **Treasury Department**

Treasury Department unless otherwise stated, essentially means the "Treasury Front Office" and "Head of Treasury" refers the head of this department of a bank for the purpose of this guideline. The prime responsibility of Asset and liability Management (ALM) is on this Department, specifically its ALM desk. Moreover, Treasury Front Office, Back Office and Mid Office shall be established with separate reporting lines within the bank.

The Head of Treasury shall have at least 10(ten) years of working experience in bank and/or FIs with minimum 5 years in different levels of Treasury related departments (Front office, Mid office or Back office) or FAD or Finance department of banks/Financial Institutions. The Head

of Treasury will act as the member secretary of ALCO. The results of balance sheet analysis, along with recommendations, are to be placed in the ALCO meeting by the Head of Treasury Department. To avoid conflict of interest, The Head of Treasury will directly report to the Managing director or CEO of the bank. The Head of Treasury shall not be in charge of any credit related major departments (e.g. corporate/retail/consumer/general) or Risk Management Department.

### **6.2.3 Key Agenda of ALCO**

The key agenda (includes Islamic banking operation of conventional banks and also the operation of OBU) of ALCO meetings should be at least, but not limited to, the following:

- Review of actions taken in previous ALCO and the status of implementation
- Review of monthly changes in various key parameters
- Overall fund position including loanable funds, maintenance of CRR and SLR, LCR and NSFR position, Structural Liquidity Profile, etc.
- Asset position: Concentration, Quality
- Liability position: Deposit mix, Market situation, Concentration, Cost of fund
- Foreign exchange related asset and liability position: forward agreement, net Foreign exchange liability, OBU position: assets and liabilities, SWAP position, Sight L/C
- Economic and Market Status and Outlook
- Liquidity Risk related to the Balance Sheet
- Review of the price / interest rate structure: interest rate risk in banking book, interest rate risk in trading book, equity price risk
- Off-balance sheet position: Unused portion of lines of credit (undrawn commitments), Acceptances, Guarantees, Maturity profile of other L/Cs
- Capital Market Investment position: Solo and Consolidated basis.
- Investment in associates
- Leverage Ratio
- Stress Test, VaR (Value at Risk) analysis, Gap Analysis and others with proper interpretation.
- Actions to be taken by whom and by when

#### **6.2.4 ALCO Paper**

An ALCO paper, covering all the above issues must be presented in every meeting of ALCO. The Treasury Department will be responsible to present the paper incorporating all necessary information, analysis and suggestions from the related Departments including its own opinion, if necessary, on the related issues. A separate observation from RMD regarding market and liquidity risk shall also be included in the ALCO paper. The decision taken against each issue should be carefully noted and preserved for a reasonable time (not less than 3 years).

### **6.3 Guideline on Foreign Exchange Risk Management (FXRM)**

Foreign exchange market is a market where different foreign currencies are traded. The exchange rate is determined in the market on the basis of market demand and supply forces of the respective currencies. In the forex market, banks are free to buy and sell foreign currency in the spot and also in the forward markets through the authorized dealers. To avoid any unusual volatility in the exchange rate, the Bangladesh Bank remains vigilant over the foreign exchange market and intervenes by buying and selling foreign currencies whenever it deems necessary to maintain stability in the market. To manage and control the Foreign Exchange Risk in the Bank of Bangladesh, Foreign Exchange Policy Department of Bangladesh Bank issued a policy guideline on February, 2016, named ‘Foreign Exchange Risk Management Policy-2016’.

#### **6.3.1 Highlights of the Foreign Exchange Risk Management (FX) Policy-2016**

##### **Functions and Organizational Set up & Process**

This guideline of the central bank covers both the area of money market and foreign exchange market operations in the treasury departments. The organizational structure and process steps to run a treasury with the money market and foreign exchange market products have been explained. The treasury functions are performed by three distinct office under separate supervision viz., front office, back office and mid-office.

**Front-office:** Front-office of a treasury has the responsibility to manage investment, foreign exchange risk and market risk in accordance with instructions received from the bank’s management. This is undertaken through the dealing room which acts as the bank’s interface to international and domestic financial markets. The dealing room is the center for market and risk management activities in the Bank.

**Mid-office:** Mid-office is responsible for risk management, monitoring, internal controls, and management reporting. Risk management involves analyzing the risks that traders are taking into the balance sheet in conducting their daily trades, and set limits on the amount of capital. To minimize “operational risk”, a separate mid-office is required. Generally, larger banks have separate mid office arrangement. But, some of the banks, especially the smaller ones, do not have such an arrangement. They perform their mid-office activity by merging with the back office.

**Back-office:** Treasury back-office is mainly responsible for confirmation, settlement and reconciliation of front office activities. This involves checking trade related data that have been conducted; ensuring that the data are not erroneous; and endorsing the required transfers. Basically, it provides support service to the front office.

### **6.3.2 Nostro Account Reconciliation**

**Mark-to-Market:** This is a process through which the treasury back-office values all outstanding positions (Spot and Forward, on and off-balance sheet as detailed by Risk management policy/regulations) at the current market rate to determine the current market value of these positions. This exercise also provides the profitability of the outstanding contracts. The treasury back office gathers the market rates from an independent source i.e. other than traders (Reuters/Bloomberg, BAFEDA, calling other bank back offices) of the same organization which is required to avoid any conflict of interest. Back office can also check with traders if needed. Revaluation should be done daily and the p/l impact adjusted accordingly.

Traders are required to have their own P&L estimate which must be tallied with the ones provided by the treasury bank-office. Any unacceptable difference between these two must be reconciled to an acceptable level.

### **6.3.3 ALM/CFT Risk Management in Foreign Exchange**

**Market Risk:** Market risk is the risk of losses due to movements in financial market variables. These may be interest rates, foreign exchange rates, security prices, etc. Thus, market risk is the risk of fluctuations in portfolio value because of movements in such variables.

**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.

**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.

**Reputational and fraud Risk:** Reputational risk should be regarded as a generic term embracing the risks, from any source, that can negatively 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.

**Credit Risk:** Arises from an obligor's failure to perform as agreed. 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 guideline 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.

**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 factors, such as, Operational errors, Non-compliance with banking regulations, staff fraud etc. and external factors, such as: adverse legal judgements, deliberate external fraud attempts, money laundering etc.

**Settlement Risk:** 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.

#### **6.3.4 Derivatives Guideline**

Derivative means an instrument, to be settled at a future date, whose value is derived from change in interest rate, foreign exchange rate, credit rating or credit index, price of securities (also called “underlying”), or a combination of more than one of them. Participants of this market can broadly be classified into two functional categories, namely, market-makers and users. Users can undertake derivative transactions to hedge - specifically reduce or extinguish an existing identified risk on an ongoing basis during the life of the derivative transaction - or for transformation of risk exposure. Users can also undertake hedging of a homogeneous group of assets & liabilities, provided the assets & liabilities are individually permitted to be hedged. Market-makers can undertake derivative transactions to act as counterparties in derivative transactions with users and also amongst themselves with prior permission from Bangladesh Bank where necessary.

Market-makers are all AD Banks (and their overseas offices) and users are business entities with identified underlying risk exposure. Market-makers may undertake a transaction in any derivative structured product as long as it is permitted by Bangladesh Bank. Users can enter into derivatives transactions only to hedge underlying commercial exposure and not for speculative purposes. The management of derivatives activities should be an integral part of the overall risk management policy and mechanism.

Foreign Exchange Forward (Local and Foreign Currencies), Foreign Exchange Swaps (Local and Foreign Currencies) and Cross Currency Swaps are permitted subject to creation conditions specified Guidelines for Foreign Exchange Transactions, 2009 (Volume-1) Chapter-1 and subsequent circular issued thereafter. Other derivative contract (not specifically mentioned in any instruction) Foreign Exchange Options, Interest Rate Swaps, Interest Rate Cap and Interest Rate Collar, etc. may be exercised only with prior permission from Bangladesh Bank and subject to certain conditions detailed in the following sections:

- Foreign Exchange Forward: Local and Foreign Currencies

- Foreign Exchange Swaps: Local and Foreign Currencies
- Foreign Exchange Options: Local and Foreign Currencies
- Cross Currency Swaps: Local and Foreign Currencies
- Interest Rate Swaps: Foreign Currencies
- Interest Rate Cap and Collar: Foreign Currencies

**Spot Foreign Exchange:** A foreign exchange spot transaction, also known as FX spot, is an agreement between two parties to buy one currency against selling another currency at an agreed price for settlement on the spot date. The exchange rate at which the transaction is done is called the spot exchange rate.

**Forward Foreign Exchange:** A FX forward contract or is a non-standardized contract between two parties to buy or sell a currency against another at a specified future time at a price agreed upon today. The party agreeing to buy the underlying currency in the future assumes a long position, and the party agreeing to sell the currency in the future assumes a short position. The price agreed upon is called the forward rate, which is agreed at the time when the contract is entered into. The forward price of such a contract is commonly contrasted with the spot price, which is the price at which the asset changes hands on the spot date. The difference between the spot and the forward price is the forward premium or forward discount. Forwards, like other derivative securities, can be used to hedge risk (typically currency or exchange rate risk).

**Forex Options:** A foreign-exchange option (FX option or currency option) is a financial derivative instrument that gives the owner the right but not the obligation to exchange money denominated in one currency into another currency at a pre-agreed exchange rate on a specified date. To hedge bonafide transactions, banks can exercise foreign exchange option only with prior permission from Bangladesh Bank in case to case basis.

**Forex Swaps:** Clients having a foreign currency liability and undertaking a foreign currency vs BDT swap to move from a foreign currency liability to a BDT liability or vice versa is allowed given AD banks is able to examine the suitability and appropriateness of the swap and be satisfied about the financial soundness of the client. Purpose of this is to hedge exchange rate and/or interest rate risk exposure for those having long or short-term foreign currency borrowing or to transform long or short-term BDT borrowing into foreign currency liability.

**Cross Currency Swaps:** Cross Currency Swap (CCS) or Currency Swap is an agreement between two parties to exchange interest payments and principals denominated in two different currencies. Purpose is to hedge FCY borrowing or lending related interest rate and exchange rate exposure and unwinding from such hedges.

**Interest Rate Swaps:** An Interest Rate Swap is a financial contract between two parties exchanging or swapping a stream of interest payments for a 'notional principal' amount on multiple occasions during a specified period. Such contracts generally involve exchange of a 'fixed to floating' or 'floating to floating' rates of interest. Accordingly, on each payment date - that occurs during the swap period - cash payments based on fixed/ floating and floating rates, are made by the parties to one another. Purpose is to hedge FCY borrowing or lending related interest rates exposure and unwinding from such hedges.

**Interest Rate Cap and Collar:** An interest rate cap is an interest rate option in which payments are made when the reference rate exceeds the strike rate. Analogously, an interest rate floor is an interest rate option in which payments are made when the reference rate falls below the strike rate. Purpose is to hedge FCY borrowing or lending related interest rate exposure and unwinding from such hedges.

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 the 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.

#### **6.4 Guideline on Anti-Money Laundering Risk Management (AML)**

AML is one of the key risks to be managed by financial institutions not because of its own but because of complying with local and international regulations. To maintain stability and integrity of international financial system, Financial Action Task force (FATF), an inter-governmental body established by G-7 in 1989, has set 40 recommendations for preventing money laundering and terrorist financing.

In domestic level, Bangladesh Bank, as the major regulator of the financial system of the country plays a pivotal role to stabilize and enhance the efficiency of the financial system. Considering

money laundering (ML) and terrorist financing (TF) as one of the major threats to the stability and the integrity of the financial system, BB has taken several initiatives including issuance of circulars/circular letters/Guidance Notes under Money Laundering prevention Act and Anti-terrorism Act. The regulator issued a comprehensive ‘Guidance Notes on Prevention of Money Laundering’ in 2003 based on Money Laundering Prevention Act, 2002 which enumerated the duties and responsibilities of commercial banks of the country to prevent money laundering.

BFIU has revised its Master Circular on AML, CFT and PF by issuing BFIU Master Circular # 26 on June 16, 2020 which superseded all previous circulars on AML & CFT except *followings*:

- AML circular # 22/2009
- BFIU Circular # 02/2012, 07/2013, 22/2019, 23/2019, 24/2019, 25/2020
- BFIU Circular Letter # 01/2012, 01/2015, 03/2015, 06/2015, 01/2016, 01/2018, 01/2019

#### **6.4.1 Highlights of the Anti-Money Laundering and Combating Terrorist Financing**

##### **Bank’s Policy on AML & CFT:**

- Every scheduled bank operating in Bangladesh should have their own Policy on Anti-Money Laundering and Combating Terrorist Financing.
- This Policy should be disseminated among all concerned for information & proper implementation
- That policy should be reviewed from time to time as part of its risk management
- That should be approved by the Board/ Senior Management in relevant cases

**Apart from the above every Bank and NBFIs are to consider the following issues while addressing AML and CFT risk management:**

- 1. Corporate Governance Structure & Annual Message from CEO**
- 2. Formation and proper functioning of Central Compliance (CC) Committee led by the CAMLCO**
- 3. Setting up of AML & CFT Compliance Division (ACCD) with sufficient and appropriate manpower**

**4. Appoint of CAMLCO & Deputy CAMLCO with power and authority as recommended by BFIU.**

**CAMLCO**

- ✓ The position should not be lower than 2 steps below the CEO
- ✓ s/he should be well conversant about AML & CFT related laws, regulation, circulars, policy, etc.
- ✓ s/he will chair the CC Committee and will reports directly to the CEO
- ✓ before assigning him any other work to CAMLCO the management should be careful whether it could hamper the AML & CFT related functions
- ✓ In case of any change of CAMLCO, BFIU should be informed immediately.

**Deputy CAMLCO**

- ✓ The position should be filled with at least DGM/ SVP or equivalent position.
- ✓ s/he will be the operational Head of ACCD
- ✓ s/he should also be well conversant about AML & CFT related laws, regulation, circulars, policy, etc.

**5. Identifying BAMLCO at Branch Level and Delegate His/Her Roles**

**Role of BAMLCO:**

There should be a Branch Anti-Money Laundering Compliance Officer (BAMLCO) who should be senior enough and knowledgeable about Bank's AML & CFT Policy either from GB, Credit or FX background. The BAMLCO will conduct quarterly meeting on AML & CFT to discuss followings:

- ✓ KYC Profile of Customers
- ✓ Transaction Monitoring
- ✓ Identification & reporting of SAR/ STR
- ✓ Implementation of local sanctioned list along with UNSCR
- ✓ Self-assessment related program
- ✓ Record retention &
- ✓ Training, etc.

BAMLCO shall send a copy of the meeting minutes to ACCD of Head Office and should preserve the copy at Branch.

## **6. Formulation of Customer Acceptance Policy (CAP)**

The CAP should include the followings:

- ✓ No accounts should be opened only with numbers or in any fake/ fictitious names. In addition, Bank will exercise due diligence to prevent opening account in any anonymous, factious name, or an account with number only.
- ✓ No accounts of Shell Banks should be opened. Shell banks are banks which do not have any branches or activities in the country of registration and are not regulated by any regulators
- ✓ No accounts of individuals or entities should be opened whose names appear in the UNSCR sanctioned lists or Bangladesh Govt. list
- ✓ As per guidance or instruction issued by BFIU from time to time.

## **7. Risk Based Approach (RBA) on AML & CFT issues**

Every Bank, after certain intervals, will assess its own risk on AML/CFT as per “ML/TF Risk Assessment Guideline for Banking Sector” (issued by BFIU) considering its nature of business, customers, products or services, country and geographic location, etc.

## **8. Customer’s Profile (KYC)**

- Use of Account Opening Form (AOF) as circulated through BRPD. But, considering the usefulness of modern technology, e-KYC as circulated by BFIU to be used, in applicable cases. Hardcopy of AOF should be used, if electronic medium not available. To safeguard the bank from ML & TF risks, banks should obtain accurate and complete information of customers (KYC).
- The purpose of opening account, and verification of information and documents should be carefully done to avoid ML & TF risks
- If the account is operated by other than the customer, authorization must be ensured and KYC of the operator should be obtained
- Legal position of the trustee or professional mediator on behalf of customer’s account should be ensured and KYC of the such operator should be obtained
- Instruction of this circular regarding Walk-in-customer should be complied with while rendering service (PO/ DD/ TT/ MT or online transactions, etc.)

## **9. Executing:**

- Customer Due Diligence (CDD)
- Simplified Customer Due Diligence (SDD)
- Enhance Due Diligence (EDD)

### **Customer's Due Diligence (CDD)**

- Reliable information from independent source through e-KYC digital Form to be used for account opening as per Guidelines on e-KYC. If it is not possible to use digital e-KYC Form, then sample form as Appendix- KA to be used for account opening, produced documents which are used to ascertain the customer's identity and information and ongoing monitoring of customer transaction will be termed as CDD (Customer Due Diligence).
- While completion of KYC of the customer using sample KYC Form (Appendix-KA) by the Bank, it must not be considered as part of AOF or filled-up by customer
- Based on 6/12 months' transaction Bank itself will prepare the TP of the customer as per para #3.6.(3) of BFIU Circular # 26 dated 16.06.2020
- Bank has to gather as such information upto the level satisfaction to ensure the purpose of establishing relationship and ongoing review of CDD
- KYC Profile of the customers to be reviewed once in a year for High Risk and once in every five years for a Low Risk customer
- UCIC should allowed to a customer for avoiding duplication of KYC and for proper monitoring
- while establishing RMA with any foreign bank AML/CFT related compliance to be ensured
- Compliance of the Foreign Exchange Regulation act, 1947, rules and circular thereof has to be ensured in case of Foreigners/ NRB customers
- In case of foreign trade related transaction or account, Guideline for Prevention of Trade Based Money Laundering should be complied with

### **Simplified Customer Due Diligence (SDD)**

- Simplified Due Diligence(SCDD/ SDD) shall be done while a walk-in-customer is executing occasional transactions (viz. PO/ DD/ TT/ MT or online transaction), the Branch shall obtain a short KYC Profile as per Guideline on e-KYC with least information which should include:
  - i. Name, address and telephone/ mobile no. of Sender/Applicant and Payee/ Beneficiary, if transacted not exceeding Tk.50,000 (fifty thousand);
  - ii. Attested copy of Photo ID (i.e. NID/Valid Passport/BRC) of Sender or Applicant or Depositor or person withdrawn money has to be obtained side by side above information, if such transaction made above Tk.50,000 but not exceeding Tk.500,000;
  - iii. Accounts opened and operated purporting to financial inclusion (e.g. Government Social Safety-net Allowance Accounts, School Banking Farmers' Account or No-frill account), SDD can be applied.

### **Enhanced Due Diligence (EDD)**

EDD should be performed in case of customers rated as “High Risk” by the Bank and suggested to carry out following cautions:

- KYC related additional information should be collected from reliable & independent sources;
- Extra effort to be engaged to identify the purpose and sources of the fund/ income;
- Account transactions should be monitored more frequently &
- Approval of the CAMLCO has be taken in applicable cases

### **10. Proper identification of Beneficial Ownership**

Beneficial Owner of each account has to be identified and ascertained through information from reliable sources and following steps to be taken in the following cases:

- If someone/another customer operates an account on behalf of the actual customer then complete and accurate information has to be obtained of the customer as well as the account operator e.g. joint account / locker with housewife
- If a person controls the customer then complete and accurate information of that person has to be obtained e.g. school banking



- In case of company, complete and accurate information of the person who controls the company or any person holding controlling/ ownership interest in the company has to be obtained
- If it is not possible to identify any Natural Person then complete and accurate information of Senior Management Official has to be obtained.
- In order to identify BO and take necessary steps there-against, Guidance on Beneficial Ownership (BO) as circulated by BFIU to be followed.

#### **11. Customer categorization in AML & CFT perspectives and establishing relationship with them**

- PEP
- IP
- Non-face to face customer
- Senior officials of International Organization (IO)
- Corresponding Banking
- Agent Banking
- Overseas branch
- Etc.

#### **12. Key functions of ACCD**

- CTR
- STR
- Transaction Monitoring
- TBML monitoring
- Self-assessment and Independent Testing Procedure
- Wire Transfer monitoring (both domestic and international)
- Regular Training and Development of officials on AML & CFT
- Sanction Screening

#### **Cash Transaction Reporting (CTR)**

- Banks will review the mandatory information (KYC) and report CTR to BFIU through goAML Web against cash transactions (including online, ATM transactions) in a single day

(either Deposit/ Withdrawal) in any account single or aggregate amount of Tk.10 lac or above even equivalent FX, such transactions on monthly basis

- Banks should also submit STR separately if no such STR eligible transactions are identified, then banks should certify that there are no STR eligible transactions along with their monthly CTR report to ACCD. Guideline on Reporting Suspicious Transaction and
- Branches should keep the records of CTR on monthly basis and has to maintain it at least for 5(five) years from the month of submission.
- No CTR in case of collections of salaries/tuition fees of all educational institutions including School, College, universities and Govt. utility bills transactions only withdrawal will be reported
- No CTR against Inter-Bank and inter-Branch transaction

### **Suspicious Transaction Report (STR)**

Bank employees should be alert and keep themselves aware to comply with AML Act, 2012 & AT act 2013 side-by-side their routine duties. Follow the definition as per AML Act, 2012 & AT act 2013 while identifying STR/SAR

- Report should be in writing and it should be supported by relevant documentary evidences
- Immediate reporting
- Keep records until clearance from BFIU is received.
- Bank should be meticulously complied with instructions of the Guideline on Reporting Suspicious Transaction.

### **Transaction Monitoring**

Every Banks should have the drive to detect Suspicious Transaction by monitoring transaction diligently, they should consider:

- i. Monitor customer transactions either manually or automatically on a regular basis
- ii. Complex or abnormal transactions and transactions which appear to be apparently illegal should be monitored more seriously
- iii. Alert for STR in Guideline for Prevention of Trade Based Money Laundering should be considered for detecting STR/SAR

- iv. There should have mechanism to detect the structuring of transaction in any account and that shall be reported as STR
- v. FX-Transaction and electronically effected transactions (viz. EFTN, RTGS ) shall be considered
- vi. Any transaction which involved with the violate the UNSCR or failed to comply with international standard of AML/CFT or non-cooperative country

### **Self-assessment & Independent Testing Procedures**

- In order to review all AML & CFT Self-Assessment Reports from branches and for completion of the Independent Testing Procedures and to establish effective AML & CFT regime, all banks will strengthen their ICCD through sufficient and competent officers.
- What to be done by-
  - ✓ Branches-arrange meeting on half-yearly statement, RM will be presided, identify problem, reports to DICC and ACCD of Head Office within the stipulated time
  - ✓ ICCD-review the Self-assessment report, conduct inspection with instant decision, conduct at least additional 10%, in case of Agent Banking minimum 5% to conduct ITP and to provide a copy of the report to ACCD with rating.
  - ✓ ACCD-to prepare Half-yearly Statement based evaluation of above reports, what action has been taken against Branches of which lapses was reported, what remedial actions taken against “Satisfactory” & “Fair” rated Branches and draw the attention of competent authority and to request DICC to carry out inspect such branch.

### **13. Prevention of TF & Proliferation of Weapon of Mass Destruction (WMD)**

Banks should initiate following measures for Proliferation of Weapon of Mass Destruction (WMD) and combating the Financing of Terrorism by implementing the United Nation Security Council Resolution (UNSCR) # 1264 and 1373:

- All banks will establish a procedure with the approval of the Board to identify and prevent transactions related to TF and PWMD, fixing the responsibility of officials
- As soon as any news regarding TF and/or PWMD is published/telecast in public media, banks will review their accounts to determine whether any accounts exist in their books related to such news and inform BFIU immediately if positive

- All banks will electronically store updated lists of UNSCR sanctioned persons/entities associated with TF & PWMD as well as list of persons/entities banned by Bangladesh Govt.
- Banks will regularly monitor and if required review transactions to identify any transactions and will retain “False Positive”
- Immediate after identification of such transaction, such account should be blocked and report to BFIU on the following working day
- Ensure compliance of Guidance Note for Prevention of Terrorist Financing and Financing of PF of WMD

#### **14. Educate Customers**

- Banks will explain the necessity and reasons for obtaining different information and documents at the time of opening accounts to customers. They will also prepare and distribute leaflets to build awareness amongst customers regarding ML, TF & PF-WMD. Such leaflets should also be displayed in a visible location in the bank’s branches
- In order to build awareness, banks will post advertisements and/ or broadcast documentary regarding ML & TF through different mess-medias from time to time.

#### **15. Retention of Records**

- Banks should maintain information/records of customers for a period of at least 5 years from closure of the account in the following cases:
  - ✓ pertaining to local and/or foreign exchange transactions, Account Documentation with updated KYC, CDD information along with papers & documents obtained & used for identification and verification during CDD and all documents pertaining to the account should be retained
  - ✓ All documents/information related to walk-in customer transactions should be retained
  - ✓ Documents relating to AML/CFT Training, Meeting minutes, audit and inspection reports,
- The information/documents so obtained and retained to be submitted as sufficient as proof in a court of law if required
- Customers’ KYC and/or information/documents obtained during the CDD process should be furnished to BFIU as and when required or demanded

<b>Terminologies</b>			
ACC	Anti-Corruption Commission	CTR	Cash Transaction Report.
ACCD	AML & CFT Compliance Division	CFT	Combating Financing of Terrorism
ATA	Anti-Terrorism Act, 2009 (as amended in 2013)	CCI & E	Chief Controller of Import & Export
AT	Anti-Terrorism	CDD	Customer Due Diligence
AML	Anti-Money Laundering	CAMS	Certified Anti-Money Laundering Specialist
ARS	Alternate Remittance System	DNFBPs	Designated Non-financial Business and Professions.
APG	Asia Pacific Group on Money Laundering.	Deputy CAMLCO	Deputy Chief Anti-money Laundering Compliance Officer
BFIU	Bangladesh Financial Intelligence Unit	e-KYC	Electronic Know Your Customer
BAMLCO	Branch Anti-Money Laundering Compliance Officer	EDD	Enhance Due Diligence
BL	Bill of Lading	ETP	Expected Transaction Profile
BO	Beneficial Owner	FATF	Financial Action Task Force
CAMLCO	Central Compliance (CC) Committee	FERA	Foreign Exchange Regulation Act, 1947
CAP	Customer Acceptance Policy	FATCA	Foreign Accounts Tax Compliance Act
CTR	Cash Transaction Report.	GFET	Guidelines for Foreign Exchange Transaction 2018
IMF	International Monetary Fund	INTERPOL	International Police Organization
ICRG	International Co-operative Review Group	IPs	Influential Persons
IRC	Import Registration Certificate	ITP	Independent Testing Procedure
KYB	Know Your Business	KYC	Know Your Customer.

Reference: BFIU Master Circular#26 on June 16, 2020

## **6.5 Guideline on Internal Control & Compliance (ICC) Risk Management**

Banking is a diversified and multifarious financial activity which involves different risks. An effective internal control and compliance system has become essential in order to underpin effective risk management practices and to ensure smooth performance of the banking industry. In general, internal control is identified with internal audit but the scope of internal control is not limited to an audit work. Internal control by its own merit identifies the risks associated with the process and adopts measures to mitigate or eliminate these risks. Internal Audit, on the other hand, reinforces the control system through regular review of the effectiveness of the controls. Bangladesh Bank has issued 'Guidelines on Internal Control & Compliance in Banks' vide BRPD Circular No.03 dated: 8<sup>th</sup> March, 2016.

### **6.5.1 Concept of Internal Control**

Internal control is broadly defined as a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories:

- Effectiveness and efficiency of operations.
- Reliability of financial reporting.
- Compliance with applicable laws and regulations.

The first category addresses an entity's basic business objectives, including performance and profitability goals and safeguarding of resources. The second relates to the preparation of reliable published financial statements, including interim and condensed financial statements and selected financial data derived from such statements, such as earnings releases, reported publicly. The third deals with complying with those laws and regulations to which the entity is subject. These distinct but overlapping categories address different needs and allow a directed focus to meet the separate needs. Weygandt, Kieso, Kimmel defined internal control as follows: Internal control consists of the plan of organization and all the related methods and measures adopted within a business to: one, safeguard its assets from employee theft, robbery, and unauthorized use; two, enhance the accuracy and reliability of accounting records.

### **6.5.2 Objectives of Internal Control laid down in the BB Guidelines**

The primary objectives of internal control system in a bank are to help the bank perform better through the use of its resources, to communicate better internally and with external stakeholders, and to comply with applicable laws and regulations. The main objectives of internal control are as follows:

**Operations Objectives:** achievement of a bank's basic mission and vision.

**Reporting Objectives:** timely, accurate, and comprehensive reporting, financial and non-financial, internal and external.

**Compliance Objectives:** conducting activities and taking specific actions in accordance with applicable laws and regulations.

### **6.5.3 Types of Internal Control**

Various types of internal controls are placed in a banking business to safeguard resources from Internal and external threats and errors. These controls are grouped into different categories. These categories include but not limited to the following:

- Directive Control
- Preventive Control
- Detective Control
- Corrective Control
- Recovery Control
- Automated Control

### **6.5.4 Basic Principles of Internal Control**

Internal control system is based on some basic principles which are delineated below.

**Establishment of responsibility:** Responsibility for each and every person working in the system must be established to have a strong internal control system. It is most effective when only one person is responsible for a given task.

**Segregation of duties:** Duties should be segregated and the work of one employee should provide a reliable basis for evaluating the work of another employee.

**Documentation procedures:** Documents provide evidence that transactions and events have occurred. So, a good documentation system is a precondition for strong internal control system.

**Physical, Mechanical and Electronic controls:** There may be different forms of control to safeguard the assets and to enhance the accuracy and reliability of the accounting records. For example- physical, mechanical and electronic controls.

**Independent internal verification:** For the effectiveness of internal control system, there should be a system of independent internal verification. Independent internal verification includes a review, comparison, and reconciliation of information from two sources.

### **6.5.5 Components of Internal Control**

Internal control consists of five interrelated components. These are derived from the way management runs a business, and are integrated with the management process. Although the components apply to all entities, small and mid-size companies may implement them differently than large ones. Its controls may be less formal and less structured, yet a small company can still have effective internal control. The components are:

**Control Environment:** The control environment sets the tone of an organization, influencing the control consciousness of its people. It is the foundation for all other components of internal control, providing discipline and structure. Control environment factors include the integrity, ethical values and competence of the entity's people; management's philosophy and operating style; the way management assigns authority and responsibility, and organizes and develops its people; and the attention and direction provided by the board of directors. More specifically factors include-

- a board of directors that is actively concerned with sound corporate governance and that understands and diligently discharges its responsibilities by ensuring that the company is appropriately and effectively managed and controlled;
- a management that actively manages and operates the company in a prudent manner;
- organizational and procedural controls supported by an effective management information system to prudently manage the company's exposure to risk; and
- an independent audit mechanism to monitor the effectiveness of the organizational and procedural controls.



**Risk Assessment:** Every entity faces a variety of risks from external and internal sources that must be assessed. A precondition to risk assessment is establishment of objectives, linked at different levels and internally consistent. Risk assessment is the identification and analysis of relevant risks to achievement of the objectives, forming a basis for determining how the risks should be managed. Because economy, industry, regulatory and operating conditions will continue to change, mechanisms are needed to identify and deal with the special risks associated with change.

**Control Activities:** Control activities are the policies and procedures that help ensure management directives are carried out. They help ensure that necessary actions are taken to address risks to achievement of the entity's objectives. Control activities occur throughout the organization, at all levels and in all functions. They include a range of activities as diverse as approvals, authorizations, verifications, reconciliation, reviews of operating performance, security of assets and segregation of duties.

**Information and Communication:** Pertinent information must be identified, captured and communicated in a form and timeframe that enable people to carry out their responsibilities. Information systems produce reports, containing operational, financial and compliance-related information, that make it possible to run and control the business. They deal not only with internally generated data, but also information about external events, activities and conditions necessary to informed business decision-making and external reporting. Effective communication also must occur in a broader sense, flowing down, across and up the organization. All personnel must receive a clear message from top management that control responsibilities must be taken seriously. They must understand their own role in the internal control system, as well as how individual activities relate to the work of others. They must have a means of communicating significant information upstream. There also needs to be effective communication with external parties, such as customers, suppliers, regulators and shareholders.

**Monitoring:** Internal control systems need to be monitored--a process that assesses the quality of the system's performance over time. This is accomplished through ongoing monitoring activities, separate evaluations or a combination of the two. Ongoing monitoring occurs in the course of operations. It includes regular management and supervisory activities, and other actions personnel take in performing their duties. The scope and frequency of separate

evaluations will depend primarily on an assessment of risks and the effectiveness of ongoing monitoring procedures. Internal control deficiencies should be reported upstream, with serious matters reported to top management and the board.

### **6.5.6 Principles Related to the Components of Internal Controls**

Bangladesh Bank guideline on ICC has outlined 17 core principles related to the components of the internal controls. These are stated below.

#### **Principles Related to Control Environment**

- The bank demonstrates a commitment to integrity and ethical values.
- The board of directors demonstrates independence from management and exercises oversight of the development and performance of internal control.
- Management establishes, with board oversight, structures, reporting lines, and appropriate authorities and responsibilities the pursuit of objectives.
- The bank demonstrates a commitment to attract, develop, and retain competent individuals in alignment with objectives.
- The bank holds individuals accountable for their internal control responsibilities in pursuit of objectives.

#### **Principles Related to Risk Assessment**

- The bank specifies objectives with sufficient clarity to enable the identification and assessment of risks relating to objectives.
- The bank identifies risks to the achievement of its objectives across the bank and analyzes risks as a basis for determining how the risks should be managed.
- The bank considers the potential for fraud in assessing risks to the achievement of objectives.
- The bank identifies and assesses changes that could significantly impact the system of internal control.

#### **Principles Related to Control Activities**

- The bank selects and develops control activities that contribute to the mitigation of risks to the achievement of objectives to acceptable levels.

- The bank selects and develops general control activities over technology to support the achievement of objectives.
- The bank deploys control activities through policies that establish what is expected and procedures that put policies into action.

### **Principles related to Information and Communication**

- The bank obtains or generates and uses relevant, quality information to support the functioning of internal control.
- The bank internally communicates information, including objectives and responsibilities for internal control, necessary to support the functioning of IC.
- The bank communicates with external parties regarding matters affecting the functioning of internal control.

### **Principles Related to Monitoring Activities**

- The bank selects, develops, and performs ongoing and/or separate evaluations to ascertain whether the components of internal control are present and functioning.
- The bank evaluates and communicates internal control deficiencies in a timely manner to those parties responsible for taking corrective action.

### **6.5.7 Functions of ICC Division of Banks in Bangladesh**

ICC division of a bank in Bangladesh has three wings. These are Audit & Inspection, Monitoring and Compliance.

**Functions of Audit Unit:** The internal audit unit should independently assess the effectiveness and efficiency of the internal control, risk management and governance system and processes created by the business units. Similar to any other activity, planning is the pre-requisite of internal auditing. Each year the head of the audit will formulate a high-level audit plan for the year, which will be approved by the ACB. This will be the risk-based plan, where sensitive areas will be given priority. This unit will evaluate, at least annually, every department/office/branch/subsidiary within the organization to analyze the degree of risk. The internal auditor's work involves identifying areas, where internal controls are not in place or where there is a risk of failure of control. The audit procedures consist of a selection of branches, units/divisions, and divisions to be audited; types of lapses to be raised in audit findings; determining the items/areas of the units to be audited and the period under coverage. The

functions of internal audit start with the collection of relevant data and end with preparation and submission of a summary of audit findings. A team comprising experts on general banking, credit, foreign exchange, ICT and so on are formed to conduct an internal audit. After reaching a branch, the audit team observes some aspects before banking starts. Then, the team meets with the branch manager and asks for some information. The team leader along with other members plans for conducting an audit of that particular branch/unit. Subsequently, they may carry out interview of some key personnel of the branch including some customers. Before leaving a branch, the audit team arranges an exit meeting with the branch officials. The audit team prepares and submits audit report along with the audit rating of the branch. A summary of audit findings and corrective actions taken should be forwarded to ACB and the senior management simultaneously at the end of the year. The internal audit unit is also responsible for conducting FX audit and preparing a summary report, which will be submitted to BB.

**Functions of Monitoring Unit:** Monitoring is an off-site supervision method. The internal control deficiencies, whether identified by business lines, internal auditors, or other control personnel should be reported in a timely and prompt manner to the appropriate management level and addressed immediately. The monitoring unit will review the Quarterly Operations Report (QOR) and Exceptions Report (if any). If deemed necessary, this unit will instruct the audit unit to carry out an audit on the specific deviation. It is responsible for conducting effective monitoring on the proper implementation of various control tools (DCFCL, QOR, LDCL and Self-Assessment of Anti-Fraud Internal Control Checklist). Besides, the unit will prepare, in collaboration with other units of ICCD, an annual report on the health of the bank to be submitted to the ACB, BB and other regulatory bodies. It is also accountable to identify, assess and control the risks involved in manifold operational activities of the bank. Moreover, monitoring unit completes the self- assessment of anti-fraud internal control checklist for signature by the MD/CEO and counter signature by the chairman of ACB for submission of the same to the Department of Offsite Supervision (DOS) of BB.

**Functions of Compliance Unit:** The compliance unit of ICCD will be responsible for ensuring that a bank complies with all regulatory requirements while conducting its business. The MD/CEO is ultimately accountable for ensuring compliance with all applicable regulations. The unit maintains liaison with the regulators and notifies the concerned units of banks regarding

regulatory changes. In addition, it would contact the regulators for proper clarification on a particular issue, if required. Moreover, this unit may compile all of the internal and external circulars/guidelines/regulatory updates and disseminate those to the concerned department. The compliance unit will ensure the compliance by proper follow up with all recommendations made by both internal and external audit or monitoring unit. For settlement of administrative objections, the unit will raise the issue to the head of ICCD, and ultimately to the ACB, if required. If any major deviation is identified by the regulatory authority, they must ensure to bring the matter to the knowledge of the ACB as well as to CEO of the bank.

### **How ICS is related to Audit and Inspection?**

- Audit & Inspection (Appendix-2) is dependent on audit and inspection. Internal control as it creates track for audit and inspection.
- Internal audit is basically the review of the internal control system.
- The scope and the degree of external audit is largely determined by the strength of ICS.
- Audit without having ICS can rarely provide reasonable assurance regarding the fairness.

### **Limitations of Internal Control:**

- Implementation of internal control system is very costly.
- Effectiveness of the internal control system depends mostly on the human element and their fatigue and carelessness may make the costly system worthless.
- Collusion among the employees may make the system worthless.

## **6.6 Guideline on ICT Security Risk Management**

The banking industry has changed the way of providing services to their customers and processing of information in recent years. Information and Communication Technology (ICT) has brought this momentous transformation. Electronic banking is becoming more popular and enhancing the adoption of financial inclusion. Security of Information for financial institutions has therefore gained much importance and it is vital for us to ensure that the risks are properly identified and managed. Moreover, information and information technology systems are essential assets for the Banks and Non-Bank Financial Institutions (NBFIs) as well as for their customers and stakeholders. Information assets are critical to the services provided by the Banks and NBFIs to their customers. Protection and maintenance of these assets are important to the organizations'

sustainability. Banks and NBFIs must take the responsibility of protecting the information from unauthorized access, modification, disclosure and destruction. Approaches of Banks and NBFIs for business leading to services are risk-based, which means ICT risk is also associated with banking system that needs to be managed with thoughts and efforts.

Bangladesh Bank (BB) has been playing notable role to maintain smooth and secured e-banking operations. BB has taken necessary initiatives to start e-banking, e-commerce and e-payment, automated clearing house system, mobile phone banking, to facilitate online money transactions, payment of utility bills, transfer of funds, payments for trading goods and services through e-channels like Internet, ATM, Mobile phone. Considering the paramount importance of information systems security in banks, BB has issued “Guidelines on ICT Security for Banks and Non-Bank Financial Institution, May 2015 (version 3.0). Online access to Credit Information Bureau (CIB) has been successfully started by the initiative of the BB. Installations of Bangladesh Automated Clearing House (BACH), Bangladesh Electronic Fund Transfer Network (BEFTN), National Payment Switch (NPS) and Real Time Gross Settlement (RTGS) are other remarkable events in the history of our financial sector.

The ICT Security Guideline is a systematic approach of controls to policies required to be formulated for ensuring security of information and ICT systems. This Guideline covers all information that are electronically generated, received, stored, replicated, printed, scanned and manually prepared.

### **6.6.1 Highlights of the ICT Security Policy-2015**

#### **ICT Security Management:**

ICT Security Management must ensure that the ICT functions and operations are efficiently and effectively managed. Banks and NBFIs shall be aware of the capabilities of ICT and be able to appreciate and recognize opportunities and risks of possible abuses. They have to ensure maintenance of appropriate systems documentations, particularly for systems, which support financial transactions and reporting. They have to contribute in ICT security planning to ensure that resources are allocated consistent with business objectives and to ensure that sufficient and

qualified technical staffs are employed so that continuance of the ICT operation area is unlikely to be seriously at risk. ICT Security Management deals with Roles and Responsibilities, ICT Security Policy, Documentation, Internal and External Information System Audit, Training and Awareness, Insurance or Risk coverage fund.

**Roles and Responsibilities:** Well-defined roles and responsibilities of Board and Senior Management are critical while implementing ICT Governance but clearly-defined roles enable effective project control and expectations of organizations. ICT Governance stakeholders include Board of Directors, CEO, ICT Steering Committee, ICT Security Committee, CIO, CTO, CISO, Risk Management Committee, Chief Risk Officer and Business Executives.

### **ICT Risk Management**

ICT risk is a component of the overall risk universe of an enterprise. Other risks Bank or NBFI faces include strategic risk, environmental risk, market risk, credit risk, operational risk, compliance risk, etc. In many enterprises, ICT related risk is considered to be a component of operational risk. However, even strategic risk can have an ICT component itself, especially where ICT is the key enabler of new business initiatives. The same applies for credit risk, where poor ICT security can lead to lower credit ratings. It is better not to depict ICT risk with a hierarchic dependency on one of the other risk categories.

ICT risk is business risk - specifically, the business risk associated with the use, ownership, operation, involvement, influence and adoption of ICT within a Bank or NBFI. It consists of ICT related events and conditions that could potentially impact the business. It can occur with both uncertain frequency and magnitude and it creates challenges in meeting strategic goals and objectives.

### **ICT Risk Governance**

The Bank or NBFI shall form an ICT Risk Management Committee to govern overall ICT risks and relevant mitigation measures. They shall define the *Risk Appetite* (amount of risk the Bank or NBFI is prepared to accept to achieve its' objectives) in terms of combinations of frequency and magnitude of a risk to absorb loss e.g., financial loss, reputation damage. The *Risk Tolerance* (tolerable deviation from the level set by the risk appetite definition), shall define and having

approval from the board/Risk Management Committee and clearly communicated to all stakeholders. They shall review and approve risk appetite and tolerance change over time; especially for new technology, new organizational structure, new business strategy and other factors require the enterprise to reassess its risk portfolio at a regular interval.

### **ICT Risk Assessment**

Meaningful ICT risk assessments and risk-based decisions require ICT risks to be expressed in unambiguous and clear, business-relevant terms. Effective risk management requires mutual understanding between ICT and the business over which risk needs to be managed. All stakeholders must have the ability to understand and express how adverse events may affect business objectives.

- a. An ICT person shall understand how ICT-related failures or events can impact enterprise objectives and cause direct or indirect loss to the enterprise.
- b. A business person shall understand how ICT-related failures or events can affect key services and processes.

### **ICT Risk Response**

Risk response is to bring measured risk in line with the defined risk tolerance level for the organization. In other words, a response needs to be defined such that as much future residual risk as possible (usually depending on budgets available) falls within risk tolerance limits. When the analysis shows risks deviating from the defined tolerance levels, a response needs to be defined. This response can be any of the four possible ways such as Risk Avoidance, Risk Reduction/Mitigation, Risk Sharing/Transfer and Risk Acceptance.

### **ICT Service Delivery Management**

ICT Service Management covers the dynamics of technology operation management that includes capacity management, request management, change management, incident and problem management etc. The objective is to set controls to achieve the highest level of ICT service quality by minimum operational risk.



- **Capacity Management:** The goal of capacity management is to ensure that ICT capacity meets current and future business requirements in a cost-effective manner. To ensure that ICT systems and infrastructure are able to support business functions, the Bank or NBFI shall ensure that indicators such as performance, capacity and utilization are monitored and reviewed. The Bank or NBFI shall establish monitoring processes and implement appropriate thresholds to plan and determine additional resources to meet operational and business requirements effectively.
- **Change Management:** Bank or NBFI shall prepare Business Requirement Document (BRD) which will cover the requirements of system changes and the impact that will have on business processes, security matrix, reporting, interfaces, etc. All changes of business application implemented in the production environment must be governed by a formal documented process with necessary change details.
- **Incident Management:** An incident occurs when there is an unexpected disruption to the standard delivery of ICT services. The Bank or NBFI shall appropriately manage such incidents to avoid a situation of mishandling that result in a prolonged disruption of ICT services. The Bank or NBFI shall establish an incident management framework with the objective of restoring normal ICT service as quickly as possible following the incident with minimal impact to the business operations. The Bank or NBFI shall also establish roles and responsibilities of staff involved in the incident management process, which includes recording, analyzing, remediating and monitoring incidents. It is important that incidents are accorded with the appropriate severity level. As part of incident analysis, the Bank or NBFI may delegate the function of determining and assigning incident severity levels to a technical helpdesk function. The Bank or NBFI shall train helpdesk staff to determine incidents of high severity level. In addition, criteria used for assessing severity levels of incidents shall be established and documented.

- **Problem Management:** While the objective of incident management is to restore the ICT service as soon as possible, the aim of problem management is to determine and eliminate the root cause to prevent the occurrence of repeated incidents. Bank or NBFI shall establish a process to log the information system related problems and shall have the process of workflow to escalate any problem to a concerned person to get a quick, effective and orderly response.

### **6.6.2 Infrastructure Security Management**

The ICT landscape is vulnerable to various forms of attacks. The frequency and malignancy of such attacks are increasing. It is imperative that Bank or NBFI implements security solutions at the data, application, database, operating systems and networks to adequately address related threats. Appropriate measures shall be implemented to protect sensitive or confidential information such as customer personal information, account and transaction data which are stored and processed in systems. Customers shall be properly authenticated before access to online transactions, sensitive personal or account information.

- **Asset Management:** Prior to procuring any new ICT assets, compatibility assessment (with existing system) shall be performed by the Bank or NBFI. All ICT asset procurement shall be complied with the procurement policy of Bank or NBFI. Each ICT asset shall be assigned to a custodian (an individual or entity) who will be responsible for the development, maintenance, usage, security and integrity of that asset. All ICT assets shall be clearly identified and labeled. Labeling shall reflect the established classification of assets.
- **Desktop/Laptop Devices Controls:** Desktop computers shall be connected to UPS to prevent damage of data and hardware. Before leaving a desktop or laptop computer unattended, users shall apply the "Lock Workstation" feature. If not applied then the device will be automatically locked as per policy of Bank or NBFI. Confidential or sensitive information that stored in laptops must be encrypted. Desktop computers, laptops, monitors, etc. shall be turned off at the end of each workday. Laptops, computer media and any other forms of removable storage containing sensitive information (e.g. CD ROMs, Zip disks, PDAs, Flash drives, external hard drives) shall be stored in a secured location or locked cabinet when not in use.

- **BYOD Controls:** “Bring Your Own Device” (BYOD) is a relatively new practice adopted by banks and financial institutions to enable their employees to access corporate email, calendars, applications and data from their personal mobile devices like smart phones, tablet computers, etc. Bank or NBFIs shall be aware of the heightened security risks associated with BYOD due to challenges in securing, monitoring and controlling employees’ personal devices.
- **Server Security Controls:** Bank or NBFIs shall maintain test server(s) to provide a platform for testing of configuration settings, new patches and service packs before applied on the production system. They shall ensure the security of file sharing process. File and print shares must be disabled if not required or kept at a minimum where possible. All unnecessary services running in the production server shall be disabled. Any new services shall not run in production server without prior testing.
- **Data Center Controls:** As critical systems and data of a Bank or NBFIs are concentrated and housed in the Data Center (DC), it is important that the DC is resilient and physically secured from internal and external threats.
- **Physical Security:** Physical security shall be applied to the information processing area or Data Center. DC must be a restricted area and unauthorized access shall be strictly prohibited. The Bank or NBFIs shall limit access to DC to authorized staff only. The Bank or NBFIs shall only grant access to the DC on a need to have basis. Physical access of staff to the DC shall be revoked immediately if it is no longer required. Access authorization procedures shall be strictly applied to vendors, service providers, support staff and cleaning crews.
- **Environmental Security:** Protection of Data Center from the risk of damage due to fire, flood, explosion and other forms of disaster shall be designed and applied. To build Data Center and Disaster Recovery Site in multi-tenant facilitated building is discouraged.
- **Cryptography:** The primary application of cryptography is to protect the integrity and privacy of sensitive or confidential information. Cryptography is commonly used in Banks and NBFIs to protect sensitive customer information such as PINs relating to critical applications (e.g. ATMs, payment cards and online financial systems). All encryption

algorithms used in a cryptographic solution shall depend only on the secrecy of the key and not on the secrecy of the algorithm. As such, the most important aspect of data encryption is the protection and secrecy of cryptographic keys used, whether they are master keys, key encrypting keys or data encrypting keys.

- **Malicious Code Protection:** The environment of Banks or NBFIs including servers and workstations must be protected from malicious code by ensuring that approved anti-virus packages are installed. All computers in the network shall get updated signature of anti-virus software automatically from the server.
- **Internet Access Management:** All applications and systems that require connections to the Internet or third-party and public networks must undergo a formal risk analysis during development and before production use and all required security mechanisms must be implemented.
- **Email Management:** Information transmitted by email must not be defamatory, abusive, involve any form of racial or sexual abuse, damage the reputation of the Bank or NBFIs, or contain any material that is harmful to employees, customers, competitors, or others. The willful transmission of any such material is likely to result in disciplinary action. Bank email system is principally provided for business purposes. Personal use of the bank email system is only allowed under management discretion and requires proper permission; such personal use may be withdrawn or restricted at any time.

### **6.6.3 Access Control of Information System**

The Bank or NFI shall only grant access rights and system privileges based on job responsibility.

- **Alternative Delivery Channels (ADC) Security Management:**“Channelize through channels” is the new paradigm for banking today, which in earlier relied solely on the branch network. Branchless banking is a distribution channel strategy used for delivering financial services without relying on bank branches. Alternate Delivery Channels are methods for providing banking services directly to the customers. Customers can perform banking transactions through their ATM, contact the bank’s Call Center for any inquiry, access the digital Interactive Voice Response (IVR), perform transactions through Internet Banking and

even on phones through mobile banking, etc. These channels have enabled banks to reach a wide consumer-base regardless of time and geographic location. ADCs ensure higher customer satisfaction at lower operational expenses and transaction costs.

- **ATM/POS Transactions:** The ATMs and Point-of-Sale (POS) devices have facilitated cardholders with the convenience of withdrawing cash as well as making payments to merchants and billing organizations. However, these systems are targets where card skimming attacks are perpetrated. To secure consumer confidence in using these systems, The Bank or NBFBI shall install anti-skimming solutions on ATM devices to detect the presence of unknown devices placed over or near a card entry slot.
- **Internet Banking:** Information involved in internet banking facility passing over public networks shall be protected from fraudulent activity, dispute and unauthorized disclosure or modification. Banks' internet systems may be vulnerable as financial services are increasingly being provided via the internet. As a counter-measure, the Bank or NBFBI shall devise a security strategy and put in place measures to ensure the confidentiality, integrity and availability of its data and systems.
- **Payment Cards:** Payment cards allow cardholders the flexibility to make purchases wherever they are. Cardholders may choose to make purchases by physically presenting these cards for payments at the merchant or they could choose to purchase over the internet, through mail-order or over the telephone. Payment cards also provide cardholders with the convenience of withdrawing cash at automated teller machines ("ATMs"). Payment cards exist in many forms; with magnetic stripe cards posing the highest security risks. Sensitive payment card data stored on magnetic stripe cards is vulnerable to card skimming attacks. Card skimming attacks can happen at various points of the payment card processing, including ATMs, payment kiosks and POS terminals.
- **Mobile Financial Services:** Controls over mobile transactions are required to manage the risks of working in an unprotected environment. The Bank or NBFBI shall formulate security controls, system availability and recovery capabilities, which commensurate with the level of risk exposure, for operations.

#### **6.6.4 Service Provider Management**

External service providers provide ICT outsourcing in systems development and maintenance, DC operations, network administration, disaster recovery, and application hosting. Commercial banks outsource their ICT services, and due diligence is carried out to determine viability, capability, reliability, track record and financial position. Outsourcing activities must be evaluated based on objectives, economic viability, risks and security concerns. The Bank or NBFIs must ensure that contractual terms and conditions governing the roles, relationships, obligations and responsibilities of all contracting parties are set out fully in written agreements. The service provider must employ a high standard of care and diligence in its security policies, procedures and controls to protect the confidentiality and security of sensitive or confidential information.

The Disaster Recovery Site must be multi-layered in terms of physical location and connectivity to ensure data availability and continuation. The Bank or NBFIs must have Service Level Agreements (SLAs) and Annual Maintenance Contracts (AMCs) with vendors. These agreements must include performance targets, service levels, availability, reliability, scalability, compliance, audit, security, contingency planning, disaster recovery capability, and backup processing facility.

#### **6.6.5 Customer Education**

With the advent of electronic banking, customer's experience of banking is therefore no longer fully under control of a Bank or NBFIs. In the age of self-service banking model, a customer also has to be equipped to do safe banking through self-help. It is often said that the best defense against frauds is awareness of customer. With fraudsters constantly creating more diverse and complex fraudulent ruses using advanced technology and social engineering techniques to access their victims' accounts, accelerating awareness among consumers becomes imperative. It is also important to educate other stakeholders, including bank employees, who can then act as resource persons for customer queries, law enforcement personnel for more understanding response to customer complaints and media for dissemination of accurate and timely information.

Awareness programs must be successful if users feel the content is in their interest and relevant to their banking needs. The Bank or NBFIs must identify personnel, awareness material, advertisements and promotions, maintenance of website, create and publish proper contents, provide general and specific information about fraud risk trends, types or controls, help consumers identify areas vulnerable to fraud attempts, motivate individuals to adopt recommended guidelines or practices, create a stronger culture of security with better understanding and commitment, help minimize the number and extent of incidents, and deliver the right message content to the right audience using the most effective communication channels.

## **6.7 Guideline on Environmental & Social Risk Management (ESRM)**

Sustainability is a well-recognized central tenet to economic growth, particularly in emerging economies. As an element of the venture to entrench sustainability into the business practices of banks and financial institutions, to enlarge the risk management perspective of them, to properly address the link between probabilities of default with the environmental vulnerabilities, Guidelines on Environmental and Social Risk Management (ESRM) for banks and FIs is a must for any nation. In 2013, a baseline study was conducted by Bangladesh Bank jointly with International Finance Corporation (IFC) to assess the implementation experience of Guidelines on ERM. The outcomes of the study indicated to expand the scope of the guidelines by incorporating social issues. In this light, Bangladesh Bank started the works to formulate a comprehensive framework on ESRM for banks and FIs. This guideline has come through a long process of drafting by the experts, rigorous multi-step consultation with banks and FIs as well as development partners.

As key actors in the economic development process, Banks and Financial Institutions (B/FIs), such as commercial banks, development banks, and leasing companies, have a significant role to play in supporting sustainable development. Within the international financial sector, new standards and codes of conduct have been developed for environment and social risk management by banks and financial institutions. The goals of such standards are to promote corporate accountability and transparency with respect to the impacts of businesses on environment and society, and to encourage sustainable development. The role of environmental

and social risk management in B/FIs is to reduce the transaction risks resulting from environmental and social risk factors associated with their clients' business activities.

The core objective of the ESRM Guideline is to require B/FIs to integrate Environmental & Social risk management into the overall credit risk management process in order to fully inform the credit authority of E&S risks prior to the financing decision regarding individual transactions.

This ESRM Guideline introduces the following features:

- ✓ The Guideline focuses on environmental, social, and climatic risks, related to the business activities of the B/FI's client, which are becoming increasingly relevant and crucial for Bangladesh.
- ✓ The Guideline defines its scope of applicability to various type of financing (i.e., SME finance, commercial leasing, Business Working Capital Finance/Term Finance, project finance).
- ✓ The Guideline requires all B/FIs engaging in the types of transactions mentioned above to develop and implement an Environmental and Social Management System (ESMS) consistent with local environmental and social laws and regulation and overtime with recognized international standards such as IFC's Performance Standards on Environmental and Social Sustainability and the Equator Principles.
- ✓ The Guideline incorporates E&S Risk Management Tools and Templates to enable non-technical B/FI staff to oversee and facilitate the management of E&S risk.
- ✓ The Guideline describes the necessary organizational roles and responsibilities built on the principles of integrating E&S risk management into the B/FI's overall credit policy.

### **6.7.1 Applicability of Guidelines**

As per regulatory directive, ESRM guideline has to be considered as one of the core risk management guidelines of the Bank. The spirit of this directive is to practice the environmental and social risk assessment and management techniques in the internal operation as well as in the financing decision. As such environmental and social risk assessment should be carried out along with credit risk assessment for any credit proposal (fresh, rescheduling, renewal and restructuring). ESRM Guideline is applicable for all credit proposals of agriculture, retail, trade, microfinance, SME, corporate finance and project finance. The loan categories for which the



ESRM Guideline is applicable are agriculture finance; cottage, micro small, medium enterprises (CMSME) finance; financing in retail and trading enterprises; consumer financing; financing in all large manufacturing and service enterprises (other than CMSME, retail and trading enterprises) and infrastructure finance.

All loan proposals (New/Renewal/Rescheduling/Restructuring) for the above applicable sectors firstly have to be screened against the exclusion list. Only on-balance sheet exposures need to be assessed under this guideline. Whenever any off-balance sheet exposure would be transformed into an on-balance sheet ESDD has to be conducted on. For demand/continuous loan, conducting of ESDD has to be made during new approval/renewal/rescheduling/restructuring, not during disbursements.

#### Transaction Type Wise Applicability of Different Assessments

SN	Transaction Type	Exclusion List	ESDD Check List	Third Party ESIA
1	Financing in all agriculture activities related to farming with full organic and environment friendly practices.	√		
2	Financing in all agriculture activities related to farming if there is any environmentally or socially adverse agricultural practices involved such as use of pesticides, agro-chemicals leading to top soil depletion, ground water contamination; use of nitrogenous fertilizers instead of organic fertilizers leading to nitrous oxide emissions and the loan/investment proposal amounting to not more than BDT 0.50 Million (5.00 Lakh)	√		
3	Financing in All agriculture activities related to farming if there is any environmentally or socially adverse agricultural practices involved such as use of pesticides, agro-chemicals leading to top soil depletion, ground water contamination; use of nitrogenous fertilizers instead of organic fertilizers leading to nitrous oxide emissions and the loan/investment proposal amounting to more than BDT 0.50 Million (5.00 Lakh)	√	√	
4	Financing in all types of Cottage Enterprises, all types of Micro, Retail & Trading Enterprises and Consumer Financing	√		

5	Financing in Small Enterprises (manufacturing and services) and the loan/investment proposal amounting to not more than BDT 1.00 Million (10.00 Lakh)	√		
6	Financing in Small Enterprises (manufacturing and services) and the loan/investment proposal amounting to more than BDT 1.00 Million (10.00 Lakh)	√	√	
7	Financing in Small Enterprises (manufacturing and services) and the loan/investment proposal of any amount of following categories: a) Washing, dyeing and finishing units of RMG sector (water, chemical pollution) b) Small steel re-rolling mills (operational health and safety, thermal, air pollution) c) Brick kilns (air pollution, child labour, burning of fossil fuel) d) Units for tanning, dressing and dyeing of leather and fur (water, chemical, air pollution) e) Pesticides, agrochemical and nitrogen manufacturing units (land contamination, water, air pollution) f) Chemicals and chemical products manufacturing units (safety, pollution) g) Rubber and plastic products manufacturing units (pollution) h) Batteries and accumulators manufacturing units (chemical pollution) I) Any other industry or business segment falls under the red category of ECR 1997 (Environmental Conservation Rule 1997)	√	√	
8	Financing in all Medium Enterprises (manufacturing and services)	√	√	
9	Financing in all large manufacturing and service enterprises (other than CMSME, retail and trading enterprises)	√	√	
10	Financing in all large manufacturing and service enterprises (other than CMSME, retail and trading enterprises)	√	√	√

### Exclusion List

SN	Sector/Activities
1	Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements, or subject to international bans, such as pharmaceuticals, pesticides/herbicides, ozone depleting substances, PCB's, wildlife or products regulated under the Convention on International Trade in Endangered Species (CITES). Links: United Nations (UN) list of banned chemicals and products: <a href="http://www.un.org/esa/coordination/Consolidated.list-13FinalFinal.pdf">http://www.un.org/esa/coordination/Consolidated.list-13FinalFinal.pdf</a> <a href="https://cites.org/sites/default/files/eng/app/2017/E-Appendices-2017-10-04.pdf">https://cites.org/sites/default/files/eng/app/2017/E-Appendices-2017-10-04.pdf</a>
2	Ship breaking/ trading activities which include: 1. Ships with prevalent asbestos use (for e.g. passenger

	cruise); 2. Ships not certified —gas free! for hot work
3	Drift net fishing, deep sea bottom trawling, or fishing with the use of explosives or cyanide
4	Operations impacting UNESCO World Heritage Site and/or Ramsar site
5	Illegal logging, and logging operations or conversion of land for plantation use in primary tropical moist forests
6	Production or activities involving forced labour/ child labour
7	Production or trade in: 1. Weapons and munitions 2. Tobacco 3. Gambling, casinos 4. Pornography (goods/stores/web-based)
8	Production or activities that impinge on the lands owned, or claimed under adjudication, by Indigenous Peoples, without full documented consent of such peoples

### **6.7.2 Environmental and Social Due Diligence (ESDD) Checklist**

ESDD Checklist is to be completed by Relationship Officer (RO), approved by official(s) of CRM/IRM in head office/branch. Industry-specific ESDD is applicable for: Cement, Ceramic, Fertilizer, Leather & Tanning, Pharmaceutical, Power, Pulp & Paper, Shipbreaking, Steel re-rolling, Textile. If the customer is not related to the industries stated above, or into trading (except ship breaking) Generic ESDD Checklist is applicable.

### **6.7.3 Environmental and Social Impact Assessment (ESIA)**

Environmental and Social Impact Assessment (ESIA) is inevitable to have a detailed understanding of the impacts of any project or industrial/manufacturing unit on different aspects of environment and society, ESIA is a process for predicting and assessing the potential environmental and social impacts of a proposed project; considering inter-linked socioeconomic and environmental impacts, both beneficial and adverse; evaluating alternatives and designing appropriate mitigation, management and monitoring measures. It also enables in carrying out environmental and social cost-benefit analysis of projects at the primary stage. Environmental and Social Impact Assessment (ESIA) will generally be arranged by the client at his/her/its own cost and submitted along with loan application. The Bank will ensure that ESIA is done through qualified third party.

A sound **ESMS (Environmental and Social Management System)** consists of a policy, procedures, tools and internal capacity to identify, appraise, manage and monitor a B/Fl's

exposure to the E&S risks of its clients' operations. The policy includes a statement of the B/FI's commitment to E&S management, while the procedures define the process for identifying, assessing and managing E&S risk of financial transactions, identifies required documentation and records, describes the decision-making process, and the roles and responsibilities of B/FI staff. The following staff of a Bank/FI will be involved with implementing different aspects of the ESMS

**Relationship Managers/Loan Officers:** Relationship Managers (RMs) or Loan Officers (Los) should be responsible for identifying E&S risks in a client's operation (i.e., environmental and social due diligence [ESDD]) by talking to the client/ relevant officials, site visits, collecting documents, permits relevant for the proposed transaction. They are usually responsible for filling out the ESDD Checklist in consultation with the client at approval stage, collect additional information, if required and respond to credit authority queries if necessary, and follow up with client if there are any pre-disbursement actions.

**Credit Risk Managers/Credit Officers:** Credit Risk Managers(CRMs) or Credit Officers(COs) are the first point of contact for any transaction once the ESDD has been conducted by the RMs/LOs and should be responsible for review of the results of ESDD including the compliance check and E&S risk rating. Based upon the risk rating, the official escalates the transaction to Head of CRM/IRM. There must be a separate unit within CRM/IRM division for ESRM with at least 01 (one) dedicated official

**Head of Business:** Head of Business is responsible to ensure that the ROs under his/her jurisdiction properly comply with the requirements of this guidelines during the initial processing of loan/investment proposals.

**Head of CRM/IRM:** Head of CRM/IRM is responsible for ensuring that in each transaction no critical E&S issues were overlooked, there is adequate documentary evidence to support client's E&S performance and to ensure enough measures have been taken to manage identified risk.

**Senior Management and Board of Directors:** The Senior Management is responsible for the Bank/FI's overall commitment to E&S objectives. Senior Management and the Board of Directors (BoD) establish the Bank/FI's E&S requirements for clients. In cases of unresolved E&S issues or non-compliance associated with a transaction that cannot be resolved by the Head

of CRM/IRM, Senior Management or the BoD determine the appropriate course of action to follow to reduce the Bank/FI's potential exposure to E&S risk, which may include taking legal action against the client. Board/EC (Executive Committee) is responsible for deciding if high risk projects are acceptable to the Bank/FI's overall exposure to risk before proceeding with a transaction. The Board in certain cases may decide to terminate a transaction based upon the level of risk of the project. Risk Management Committee (RMC) of Board will review, monitor and supervise the overall ESRM activities of bank/FIs.

**Legal Department:** The Legal Department should be responsible for ensuring that the any client E&S requirements (e.g., remedial actions, monitoring and reporting) identified during the ESDD process are incorporated in legal agreements for each transaction.

**Credit Authority:** The appropriate credit authority is responsible for ensuring that it has sufficient information regarding the potential E&S risks associated with a transaction available to make an informed credit decision, and that it is comfortable that the provisions of the Loan agreement are sufficient to ensure identified E&S risks are managed so as to be acceptable to the B/FI.

**An ESMS helps a Bank/FI to:**

- ✓ Identify and assess potential E&S impacts and issues, both adverse and beneficial, associated with a proposed investment project;
- ✓ Conduct a gap analysis to define areas of project noncompliance with the requirements of the national laws
- ✓ Assess the commitment and capacity of the client to manage identified impacts and define remedial measures as needed;
- ✓ Evaluate the quality and adequacy of the client's ESMS and practices to avoid, minimize, or mitigate adverse impacts, and define remedial measures as needed;
- ✓ Identify measures to avoid, minimize, mitigate, or offset/compensate for adverse impacts on workers, affected communities, and the environment;
- ✓ Design an E&S Action Plan (ESAP) addressing all deficiencies and non-compliances discerned during the appraisal containing specific tasks designed to close all significant gaps;

- ✓ Ensure that the investment contracts (e.g., loan documentation) include appropriate definitions, covenants, clauses and associated elements to obligate the client to comply with all E&S laws and regulations, the ESAP, and applicable sections of general and sector-specific checklists; and stipulate progress and performance reporting obligations;

Banks and FIs need to refer to the ESDD checklist only for carrying out the ESDD. The ESDD checklists will auto generate the E&S risk ratings – high, medium and low based on the responses provided to the questions in the checklist. Typical steps to follow E&S Risk Management Procedures for conducting an ESDD include:

**Step 1** - Exclusion List: Screening of the project against a list of excluded activities adopted by the financial institution;

**Step 2** - Initial Categorization: Determining the category of loan by the size or type of the loan (e.g. Small loans in non-critical sectors, Small loans in critical sectors, Term Finance, Project Finance). The Loan Category determines the extent of E&S appraisal as it is specified in ESRM Guidelines of Bangladesh bank.

**Step 3**- Environmental & Social Due Diligence (ESDD):

Review the project's compliance with applicable national environmental and social regulations including the document check (e.g., approval of IEE or EIA, pollution control certificates, permits, etc. as specified in ESRM Guidelines of Bangladesh bank.);

- ✓ Review the project sponsors' track record on environmental and social issues, in terms of potential non-compliance with national regulations or negative publicity;
- ✓ Review the project's compliance against international standards or industry best practice regarding environmental and social issues;

**Step 4** - Generate E&S Risk Rating: Upon completion of the ESDD Checklist an E&S risk rating (High, Medium, or Low) will be generated automatically.

**Step 5**- E&S Risk Management & Control: For LOW Risk transactions, no mitigation measures are required, For HIGH and MEDIUM Risk transaction, a time bound action plan and relevant covenants, addressing required remedial actions by the client, will have to be included in the loan documentation.

**Step 6 - Escalation:** Depending upon the risk rating, the transaction will have to be escalated to the relevant authority.

**Step 7- E&S Risk Monitoring:** Review of the proposed actions (if any) to mitigate potential environmental and social issues associated with the project throughout all phases of the project life cycle.

**Step 8- E&S Reporting:** B/FIs must establish E&S performance reporting procedures for both internal reporting to senior management and external reporting to NRB, shareholders and stakeholders.

Upon completion of the ESDD Checklist, an E&S risk rating – ESRR (Low, Medium, High) will be generated automatically by the excel-based ESDD Checklist (in a separate annex to the Guideline). This rating is indicative of the E&S risk and compliance level in the actual transaction, irrespective of sector activity. So, for example, Mining and Quarry is a high environmental and social risk sector, however, if the client has managed all the E&S issues well, the ESRR of this transaction might be LOW based on actual management of E&S risk issues identified on the ground. Below is an interpretation of the transaction level risk ratings:

**HIGH Risk:** Transactions typically involve clients with business activities with significant adverse E&S impacts that are diverse, irreversible or unprecedented. A potential impact is considered significant if it may be irreversible (such as loss of a major natural habitat), affect vulnerable groups or ethnic minorities, involve involuntary displacement and resettlement, or affect significant cultural heritage sites. "High" ESRR may also indicate serious non-compliance or irresponsible behavior of the client towards managing E&S issues.

**MEDIUM Risk:** Transactions typically involve clients with business activities with specific E&S impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures and international best practice. Potential adverse environmental impacts on human populations or environmentally important areas are less adverse than those of High-Risk transactions. "Medium" ESRR also indicates transactions with less serious non-compliance or unresolved non-material issues.

**LOW Risk:** Transactions typically involve clients with business activities with minimal or no adverse E&S impacts. "Low" ESRR also means that all issues appeared to be sufficiently managed and that were no compliance issues identified.

Monitoring and supervision of borrower's E&S risk related activities will be conducted by the RM. For High Risk clients, RM needs to conduct on-site monitoring by visiting at least half yearly basis and in case of Medium or Low risk at least on yearly basis. In case of High Risk at the time of visit RM will be accompanied by a member of PIAD. Like any other financial covenants, the agreed E&S covenants will be registered in the system and monitored by Credit Administration Department (CAD) based on the follow up visit and documents collected by RM. Based on the follow up RM may re-conduct the ESRR and report it to Risk Officer and CAD. In case of making any improvement or downgrade in ESRR, E&S Officer recommendation is necessary.

A bank/FI's ESMS needs to include periodic reporting on the E&S performance of transactions and measures taken to reduce its overall exposure to E&S risk. Bank/FI will compile all E&S findings from monitoring clients and aggregate findings at the portfolio level. By analyzing this information, the bank/FI can have a better understanding of its overall exposure to E&S risk through its portfolio. E&S performance reports typically include information on:

- ✓ Portfolio breakdown by business line, industry sector and E&S risk category
- ✓ Overall exposure to E&S risk and performance
- ✓ High-risk transactions and E&S due diligence process prior to transaction approval
- ✓ Major E&S risks of individual transactions, including cases of non-compliance
- ✓ Significant E&S accidents or incidents related to a transaction
- ✓ Implementation and changes in the Bank/FI 's ESMS.

#### **6.7.4 Implementing ESMS**

Once the ESMS has been developed and formally approved by senior management it must be institutionalized, integrated into the overall risk management process, and rolled out across the organization. To implement the ESMS, the Bank/FI should develop an implementation plan, including a strategy for fully integrating E&S risk management into the Bank/FI's existing credit risk management framework, and an ESMS testing phase, with a time schedule for completing each task and the designated staff responsible for doing so. Senior management should be kept informed of challenges, successes and other important issues associated with the implementation of the Bank/FI's ESMS. The SFU of each bank in consultation with relevant business teams and credit related departments will take the coordinating role for implementation.



### 6.7.5 Provision of Incentives and Disincentives

On the basis of the performance of dealing with high ESRR, incentives and disincentives are applicable at individual and Portfolio level.

- **High ESRR at Individual Level:** The BoD of the bank/FI is authorized to consider the provision of incentives and disincentives for projects that have high pre-disbursal ESRR and if change in ESRR is observed during post disbursal monitoring. the following options may be considered,

SN	Particulars	Probable actions
1	Incentive(s) if change in ESRR is positive	<ul style="list-style-type: none"> <li>✓ Issuance of appreciation letter and upload the name of project on bank 's website</li> <li>✓ Reduction in interest rate</li> <li>✓ Higher debt-equity ratio for borrowers</li> <li>✓ Flexibility in loan conditions</li> <li>✓ Favorable loan to value ratio for borrowers</li> </ul>
2	Disincentive(s) if change in ESRR is negative	<ul style="list-style-type: none"> <li>✓ Increase in interest rate</li> <li>✓ Lower debt-equity ratio for borrowers</li> <li>✓ Tougher loan covenants/conditions</li> <li>✓ Tougher loan to value ratio for borrowers</li> </ul>

- **High ESRR at Portfolio Level:** Bangladesh Bank will monitor the share of high ESRR transactions of individual banks or FIs in total loan portfolio and actions taken by the boards for high ESRR transactions. Bangladesh Bank will consider the following options with respect to the performance of banks and FIs towards meeting the sanction target for high ESRR projects:
  - ✓ Impact in CAMELS rating
  - ✓ Impact on liquidity and capital requirements
  - ✓ Impact on credit growth
  - ✓ Impact on profit distribution

The purpose of these Guidelines is to encourage banks and FIs to better understand E&S risks and incorporate appropriate risk mitigation measures to be able to expand the lending portfolio rather than avoid investing in high E&S risks.

## 6.8 Indicative Questions

1. What are the different types of credit risk? Discuss the causes of standalone credit risk.
2. Mention 10 important indicators of high credit risk.
3. Identify the important contents that a CRM policy should contain. How these contents help to mitigate the credit risk of a bank/FI?
4. Why is asset liability management important for banks? Briefly discuss the areas where Board or Management committee should set out the policy statement?
5. What are the different functional areas of a treasury department?
6. Differentiate between SDD, CDD and EDD.
7. Why is CTR and STR important in handling risk of money laundering?
8. Briefly discuss different types of internal control.
9. What should be considered in managing IT infrastructure security management?
10. Write a summary on ESRM guideline.

## **Module – G**

### **Implementation of Basel Capital Framework**

#### **7.1 Evolution of Basel Accords**

##### **7.1.1 Global Perspective<sup>12</sup>**

After the abolition of the Bretton Woods System<sup>13</sup> of managed exchange rates in 1973, banks incurred substantial losses due to the fact banks have had excessive exposures to foreign currencies. Many banks' foreign currency exposure became three/four times higher than their capital, which resulted in significant losses on the unsettled transactions (BIS 2014).

Consequently, in the event of international financial market turmoil, the central bank Governors of the then G-10 countries formed a committee known as the Basel Committee on Banking Supervision (BCBS) in 1974 to promulgate banking regulations and to supervise those policy regulations (BIS 2014; Goodhart 2011). The policy regulations of the BCBS are commonly referred to as 'Basel Regulation'. The major focus of the BCBS was on collaboration amongst the central banks in order to ensure financial stability and to increase the efficiency of international banking and the monetary system (Toniolo 2005).

At the very outset, the Basel regulations were issued to increase cooperation among the member countries. However, 140 regulators (central banks) are now following the prescriptions of the BCBS (BIS 2014). Thus, the Basel regulations have become an international convergence of capital and liquidity standard for banks (BCBS 2013). Although the policy prescriptions of the BCBS are voluntary and have no legal enforce (BCBS 1996; BIS 2014), internationally active banks across the world follow the supervisory guidelines of the BCBS due to the fact Basel regulations provide a comprehensive risk management recipe to the banks (BCBS 2004). In

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<sup>12</sup> This section of the paper is based on Hossain, M. Z., 2016. *Impending Effects of Basel III in the BRICS Economies* (M. Phil dissertation, Curtin University).

<sup>13</sup> Bretton Woods System is an international monetary system, which was established by the agreement of 44 members of the IMF in 1944 during a conference held in Breton Woods, New Hampshire. Under this system, all countries fixed their exchange rates in terms of the U.S. dollar and the U.S dollar was fixed to the price of gold at \$35 per ounce. As per the agreement, countries kept their currencies fixed but adjustable within  $\pm 1$  percent to the dollar. After the abolition of the Bretton Woods, IMF member countries could adopt any form of exchange arrangement except pegging to gold, such as, free float, pegging to another currency/basket of currencies or adopting another currency.

effect, the risk management capabilities of banks increase by large by the compliance with the Basel regulations.

### **Basel-I:**

The first set of regulations, the Basel-I, came into effect in 1988 with the aim of strengthening the stability and soundness of the international banking system by managing the capital of banks (BCBS 1988). In line with the Basel-I regulation, globally banks were required to maintain capital of at least 8 percent of total credit risk-weighted assets. Thus, Basel-I exclusively focused on the credit risk though there were other risks in the banking business such as, market and operational risks. There was no recognition of risks related to the term-structure of credit portfolio. Moreover, the regulation recognized neither portfolio diversification effects of credit risk nor credit risk mitigation/the role of collateral. In fact, there were inadequate differentiations of credit risk because Basel-I proposed few risk weights for exposures of banks, i.e., 0%, 20%, 50% and 100%. In particular, the Basel-I Accord did not differentiate ‘SMEs’ from ‘corporate’ or AAA from BBB rated entities, that is, it followed a ‘one-size fits all’ approach.

Hence, Basel-I was amended by the BCBS in 1996 in order to incorporate market risk (BCBS 1996). From 1997 onwards, banks were required to calculate minimum capital requirements considering credit and market risks. However, operational risk of banks remained unrecognized by the Basel-I Accord. As a result, the capital adequacy was less secure and vulnerable to define the banks’ financial health and resilience. Therefore, the risk management capacity of Basel-I was very poor and it became necessary to revise the Basel-I Accord.

### **Basel-II:**

Subsequently, in addressing the weaknesses of Basel-I, the Basel-II Accord was developed in 2004 as the new regulation for banks. This regulation (Basel-II) was more practical and comprehensive from a risk management perspective. The Basel-II regulation consisted of three Pillars (BCBS 2011). Pillar-I (first pillar) was the Minimum Capital Requirement (MCR), which was the improved version of the previous Accord. Pillar-I required banks to focus on credit, market, and operational risks in order to calculate the Minimum Capital Requirements (MCR):

$$CAR = \frac{\text{RegulatoryCapital}(\text{Tier1} + \text{Tier2} + \text{Tier3})}{TRWA^{14}} \geq 8\%$$

While calculating the minimum capital requirement under Pillar-I, banks could apply a number of methodologies. In assessing credit risk-weighted assets for example, Basel-II recommended three methodologies which were, the Standardized Approach (SA), Foundation Internal Rating Based Approach (IRB), and Advanced IRB Approach. In the market risk measurement, the Standardized Approach (SA), and Internal Model Approach (IMA) were followed by banks. Likewise, in assessing operational risks, banks were allowed to use the Basic Indicator Approach (BIA), Standardized Approach (SA), and Advanced Measurement Approach (AMA).

Pillar-II of Basel-II was the supervisory review process where risks were identified and assessed apart from the risk in Pillar-I in a wider perspective. Under Pillar-II, national regulators imposed additional capital charge if any material risk was found other than the credit, market, and operational risks. For example, regulators could impose additional capital charge for residual risk, reputation risk, concentration risk, etc. Hence, the capital requirements for risks under Pillar-II were additional to the capital calculated under Pillar-I. The Pillar-III of Basel-II was all about market disclosures, that is, banks were required to disclose all the material information, market outlook and risks exposure to stakeholders, the public, and in the market in order to make the financial market more transparent and resilient (BCBS 2004).

Principally, the Basel committee focused on the capital base, which is assumed to safeguard banks in the event of unexpected banking losses. In Basel-II, the BCBS announced three tiers of capital; *Tier-1 Capital* or *Core Capital* composed of the highest quality capital elements. The components include paid up capital, non-repayable share premium account, statutory reserves, general reserves, retained earnings, minority interest in subsidiaries, non-cumulative irredeemable preference shares and dividend equalization account (BCBS 2004).

*Tier-2 capital* or *Supplementary Capital* represents other capital instruments, in which some of the attributes of the Core Capital are missing but contribute to the overall strength and soundness of a bank. These elements include general provisions, asset revaluation reserves, all other preference shares, exchange equalization account, revaluation reserves for securities and subordinated debts (BCBS 2004).

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<sup>14</sup> TRWA represents total risk-weighted assets for credit, market and operational risks.

Apart from the *Tier-1* and *Tier-2* capital, *Tier-3* capital was a new type of capital in the Basel-II, which was treated as “additional supplementary capital”. *Tier-3* capital or additional supplementary capital consisted of short-term subordinated debt (original/residual maturity less than or equal to five years but greater than or equal to two years). This capital could solely be used to cover market risks capital charge arising from the risk in trading book, interest rate, foreign exchange, and commodity prices. According to the norms of Basel-II, the amount of *Tier-2* capital was limited to 100% of the *Tier-1* capital and the support for market risks from the *Tier-3* capital, was limited up to the maximum of 250% of *Tier-1* capital<sup>15</sup> in order to ensure a robust shock absorbent and risk resilient banking system (BCBS 2004).

With respect to Basel-I, Basel-II was appropriately sensitive to the degree of risk because it assigned diversified risk weights to different exposures. Although the approach of Basel-II was very comprehensive in addressing banking risks, it could not protect banks from the severe crisis in 2007/08.

### **Basel-III:**

Under these circumstances, Basel-III<sup>16</sup> emerged in 2010. This regulation is an upgraded version of Basel II, and globally, banks have started to implement the Basel-III norms from 2013 (Gatzert and Wesker 2011). The motivation of the Basel-III regulation is to increase the financial stability of international banks in order to withstand future economic and financial crises, including the effects of financial contagions by improving the transparency and market disclosures of capital base. There are many novel ideas in the Basel-III regulation, such as a focus on the quality and quantity of regulatory capital; tighter liquidity requirements; a non-risk-based leverage ratio; risk coverage under stress scenario; a capital conservation buffer, a counter cyclical capital buffer, and restrictions on systematically important banks and financial institutions (Gatzert and Wesker 2011). The salient features of Basel-III are presented below:

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<sup>15</sup>*Tier-1* capital was calculated after meeting the credit risk capital requirements.

<sup>16</sup> Before the Basel-III framework was finally proposed, enhancement to Basel-II (popularly known as Basel 2.5) was introduced in 2009. In this document, the BCBS enhanced the regulatory framework of Basel II in the area of securitization and more specifically for dealing with re-securitizations. In fact, the new capital requirement was introduced to regulate exposures in the Trading Books (see BCBS 2009).

- (i) **Capital Requirement:** The new regulation redefined the capital requirement, which is much tighter than the previous Basel-II regulation. Banks are now required to maintain more reserves starting from January 1, 2015, where *Common EquityTier-1 (CET-1)* (common shares and retained earnings) requirements were raised from 2% to 4.5%. The BCBS also increased the mandatory *Tier-1* capital<sup>17</sup> requirement from 4% to 6% and this has been implemented by the banks since 2015.
- (ii) **Capital Conservation Buffer:** Basel-III has introduced a new type of capital known as 'Capital Conservation Buffer (CCB)'. The capital conservation buffer is 2.5%, which is an additional capital reserve (buffer) to withstand future periods of stress. The buffer would bring the *Total Common EquityTier-1* capital requirement to 7% (from 4.5% of *CET-1*). The aim of building an additional buffer is to "*strengthen the resilience of the banking sector*" so that banks can use those capital stocks in times of stress. The phase-in has commenced from January 1, 2016, and would be complete by January 1, 2019. Importantly, the capital conservation buffer (*CCB*) must be fulfilled by the *CET-1* capital after deductions (BCBS 2011).
- (iii) **Countercyclical Buffers:** The new Basel-III norms require national regulators not only to ensure the compliance of banks with the Basel-III requirements but also to regulate the credit volume in the economy. If the credit volume increases faster than the GDP, regulators may increase the capital requirement for the systematically important banks by increasing Countercyclical Buffers, which varies from 0% to 2.5% (BCBS 2011).
- (iv) **Tier-3 Capital:** As the *Tier-3* or additional supplementary capital of Basel-II (*subordinate debt*) did not protect banks in the recent financial crisis, it has been abolished from the Basel-III capital regulation. Thus, the subordinate debt would not be considered a component of capital under the Basel-III norms.
- (v) **Leverage Ratio:** In securitisation transactions and in off-balance sheet exposures, banks built up extremely high levels of leverage which was a prime cause of financial losses during the most recent global financial crisis. Thus, the Basel-III has introduced a leverage

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<sup>17</sup>*Tier-1* capital comprises common equity *Tier-1* and additional *Tier-1 (ATI)* capital components.

ratio to restrict leverage in the banking sector. The leverage ratio is calculated as:

$$\text{Leverage Ratio} = \frac{\text{Tier 1 Capital}}{\text{Total Assets}}$$

The ratio must be at least 3% of total assets. The total assets would be calculated taking the balance sheet assets and 10% of off-balance sheet exposures and this would not be risk-based. Thus, the capital requirement would be supplemented by a non-risk-based leverage ratio (Metha 2012). Researchers, academicians and regulators believe this ratio would certainly give protection against "model risk and measurement error"<sup>18</sup> (BCBS 2011). In effect, the leverage ratio would be implemented from 2017.

(vi) **Liquidity Ratio:** Taking lessons from the global financial crisis, Basel-III has also introduced liquidity requirements, namely, the liquidity coverage ratio (*LCR*) and the net stable funding ratio (*NSFR*) (BCBS 2013).

- **Liquidity Coverage Ratio (LCR):** The liquidity coverage ratio (*LCR*) takes the following form and must be equal to or greater than 100 percent:

$$\text{LCR} = \frac{\text{Stock of HQLA}}{\text{Total net cash outflows over the next 30 calendar days}}$$

where,

The total net cash outflows over the next 30 calendar days	=	Total expected cash outflows	–	Min (total expected cash inflows; 75% of total expected cash outflows)
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The stock of high-quality liquid assets (*HQLA*) represents 'level 1 assets' and 'level 2 assets'. The 'level 1 assets' as defined by BCBS (2013) includes cash; central bank reserves; marketable securities representing claims on or guarantees by sovereigns, central banks, IMF, non-central bank public sector entities, etc.; and debt securities issued by sovereigns or central banks. The 'level 2 assets' represent marketable securities subject to 20% risk-weights as per the definition of the BCBS and corporate bonds rated AA- and above. Thus, the *LCR* is a short-term liquidity indicator and requires banks to provide

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<sup>18</sup>Model risk and measurement error arises when a financial model is used to measure a bank's risk but the model fails to capture the risks involved or may have errors in measuring it. Kiema and Jokivuolle (2014) argued that severe model risks associated with low-risk loans reduce banks' stability or resilience.



sufficient liquidity in a one-month horizon in the form of ‘unencumbered high-quality assets’ in order to survive in a severe liquidity stress scenario (BCBS 2011; BCBS 2013; BCBS 2015). The implementation of the *LCR* has already been started from 2015.

- **Net Stable Funding Ratio (NSFR):** The second liquidity measure, net stable funding ratio (*NSFR*) is calculated as follows:

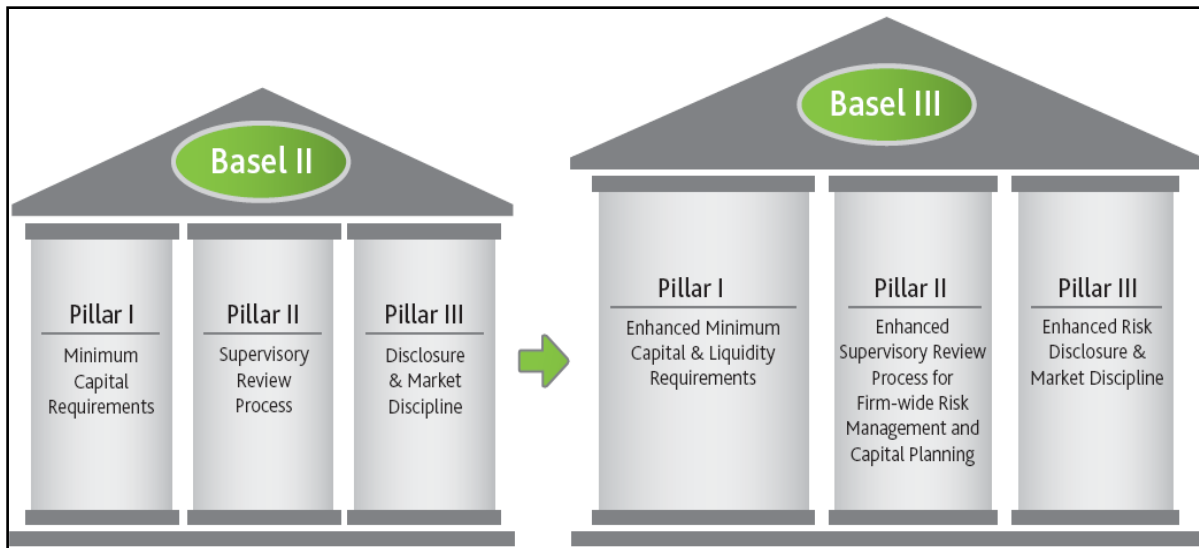
$$NSFR = \frac{\text{Available amount of stable funding}}{\text{Required amount of Stable funding}}$$

The ratio is calculated over a period of a one-year horizon (BCBS 2014). The motivation of incorporating the *NSFR* is to protect banks by limiting dependence on short-term funding and increase the base of long-term funding sources in order to ensure the resilience of banks and the banking system (BCBS 2011; BCBS 2013; BCBS 2015). The purpose of introducing the *NSFR* is to ensure at least a minimum funding from the more stable liabilities of the transactions in investment banking, off-balance sheet exposures, securitization, etc. (BCBS 2013). In fact, it is introduced to minimize the funding risk arising from the mismatch between assets and liabilities (King 2013). Therefore, Basel-III aspires banks will have an enormous amount of liquidity to withstand the crises period in a situation of serious liquidity disruptions. Even if, banks incur losses due to any unexpected shocks the strong capital base of banks would help them avoid bankruptcy.

### **Pillars of Basel-III:**

As mentioned earlier, Basel-III is an upgraded version of the Basel-II regulation. In fact, "*Basel-III was remodeled to supplement the Basel-II rather than supplant it*" (Hazarika and Dubey 2014, p. 1). Basel-II consisted of three pillars (Pillar-I, Pillar-II, and Pillar-III), which were redesigned and strengthened (especially Pillar-I with enhanced minimum capital and liquidity requirements) with the pillars of Basel-III by addressing the situation in the aftermath of the financial crisis. The following Figure-7.1 illustrates how the enhanced framework of Basel-III looks like compared to Basel-II.

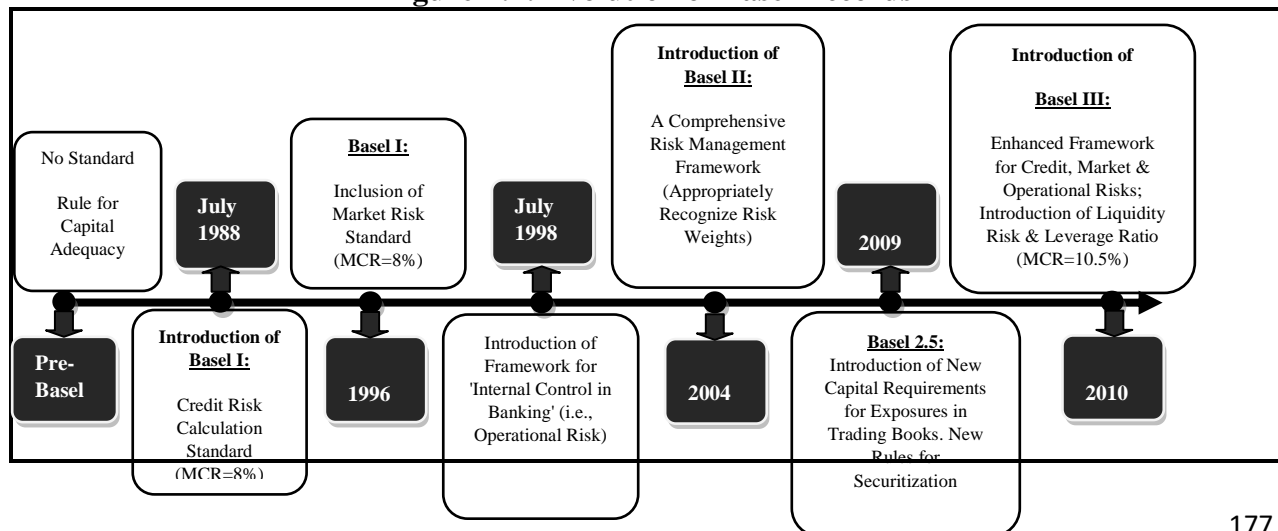
**Figure-7.1: Enhanced Pillars of Basel-III**



Source: Irwin (2011)

The Basel-III framework appears much stronger than the Basel-II Accord. The newly introduced forward-looking approach of the model would help better manage a system-wide risk and the new disclosure requirements would likely make the financial markets more transparent. The three pillars of Basel-III were designed in such a manner as to consider both the micro and macro aspects of risk management in banks. Therefore, Basel-III has been finalized by many prudent policy efforts. This regulation has been amended and modified from time to time to address the relevant risks by incorporating pragmatic risk management tools, which are forward-looking in nature. In order to provide a snapshot of the important dates when an amendment and/or a new set of rules was incorporated, a pictorial view of the evolution of Basel-III is depicted in the following timeline (Figure-7.2).

Figure-2.2: Evolution of Basel Accords



Source: Based on Hazarika and Dubey (2014) and Various BCBS Documents

### **7.1.2 Bangladesh Perspective**

#### **Basel-I:**

Following the global pursuit, Bangladesh Bank introduced Basel norms<sup>19</sup> in 1996 which was known as Basel-I. This was completely new for Bangladesh which was risk-based approach that replaced the earlier Capital-to-Liabilities approach. In this regard, Bangladesh Bank followed the set of minimum capital requirements for banks recommended by the Basel Committee on Banking Supervision (BCBS). Though BCBS recommended capital measurement of market risk in addition to credit risk under Basel-I norms, Bangladesh Bank did not incorporate market risk for measuring capital under Basel-I.

Initially, minimum capital requirement (a ratio of capital to risk weighted assets) of each bank was set at minimum 8 percent with at least 4 percent in core capital which was bounded to be achieved by 30 June 2003<sup>20</sup>. Bangladesh Bank listed the eligible components of core capital (Tier-1) and supplementary capital (Tier-2) to justify the overall strength of a bank. Assets of banks were classified and grouped in five categories according to credit risk, carrying risk weights of 0, 20, 50 and 100 percent. Bangladesh Bank revised the previous MCR of 8 percent to 9 percent with core capital of at least 4.5 percent within 30 June 2003<sup>21</sup>, which was again raised to a minimum of 10 percent with core capital of 5 percent by December 31, 2007<sup>22</sup>.

#### **Basel-II:**

To cope with the international best practices and to make the bank's capital more risk sensitive as well as more shock resilient, Bangladesh Bank introduced Basel II norms from January 01, 2009 parallel to existing Basel-I norms. However, statutory compliance of Basel-II norms was executed from January 01, 2010. With a view to ensuring smooth transition to Basel-II, Bangladesh Bank (BB) adopted a consultative approach and formed a high-level National

<sup>19</sup> BRPD Circular No.1 of August 01, 1996

<sup>20</sup> BRPDCircular No.1 of August 01, 1996

<sup>21</sup> BRPD Circular No.10 of November 24, 2002

<sup>22</sup> BRPD Circular No. 05 of May 14, 2007

Steering Committee (NSC) headed by a Deputy Governor of BB comprising officials of central bank and commercial banks. A Coordination Committee (CC) headed by an Executive Director of BB was also formed to assist the NSC. An Implementation Cell at BRPD was established to implement Basel-II norms in banks in Bangladesh. It includes Minimum Capital Requirement (MCR), Adequate Capital, and Disclosure requirements for banks. MCR includes credit, market and operational risk. Initially, the NSC approved Standardized Approach (SA) for computing capital requirement for credit risk; Standardized Measurement Method for market risk and Basic Indicator Approach (BIA) for operational risk capital measurement. The Standardized Approach (TSA) for operational risk was put as alternative option for the banks eligible for TSA. Under the Standardized Approach of Basel-II, credit rating is to be determined on the basis of risk profile assessed by the External Credit Assessment Institutions (ECAIs) duly recognized by BB.

A set of guidelines on recognition of the eligible ECAI was issued<sup>23</sup>. Basel-II framework was emphasized on drawing enforceable action plans for credit rating of the banks' counterparties, adopting Supervisory Review Process (SRP) for calculating adequate capital and a capital growth plan. Later on a comprehensive guideline<sup>24</sup> was issued for inclusion of 'Subordinated Debt' in the regulatory capital. Bangladesh Bank also issued guidelines<sup>25</sup> on Supervisory Review and Evaluation Process (SREP) that have been issued in 2010.

Migration to Internal Rating Based (IRB) approach (Foundation and Advance IRB Approaches) was planned to be implemented by 2012 according to the Road Map<sup>26</sup> designed for Basel-II implementation in Bangladesh. However, no requests from banks for the migration to advance approaches are yet to be received by Bangladesh Bank.

### **Basel-III:**

With a view to ensuring the implementation of Basel-III in a congenial manner, Bangladesh Bank conducted two consecutive Quantitative Impact Studies (QIS) on the banks. It has shown a propitious condition in quality and level of capital for phasing in arrangement of Basel-III. Based on the findings of the last QIS, an Action Plan/Roadmap was issued. To ensure smooth transition

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<sup>23</sup> BRPD Circular No. 07 of September 23, 2008

<sup>24</sup> BRPD Circular No. 13 of October 14, 2009

<sup>25</sup> BRPD Circular No. 13 of April 21, 2010

<sup>26</sup> BRPD Circular No. 14 of December 30, 2007

to Basel-III, appropriate transitional arrangements have been provided for meeting the minimum Basel-III capital ratios, full regulatory adjustments to the components of capital etc. Consequently, Basel-III Implementation process commenced from July 2014 and capital regulations would be fully implemented from January 1, 2019. Basel-III also underpinned with three pillars of the Basel-II capital adequacy framework, viz. minimum capital requirements, supervisory review of capital adequacy, and market discipline. Under Pillar-1, the Basel-III framework considers Standardized Approach (SA) for computing capital requirement for credit risk; Standardized Approach for market risk and Basic Indicator Approach (BIA) for operational risk in Bangladesh.

Basel-III framework in the banking sector of Bangladesh addresses systemic risk and interconnectedness of banks. Bangladesh Bank developed a macro-prudential tool for imposing counter-cyclical capital buffer for addressing pro-cyclicality by following BCBS guideline. BB also adopted methodology comprising both quantitative and qualitative indicators to assess the systemic importance of financial institutions at the domestic level, i.e., identifying domestic systemically important banks (D-SIBs), for developing high loss absorbency (HLA) capacity for excessive interconnectedness among institutions.

Like BCBS, Bangladesh Bank includes two global liquidity standards to strengthen the liquidity framework for achieving two objectives. *One*, to promote short-term resilience of a bank's liquidity risk profile by ensuring it has sufficient high-quality liquid resources (measured by Liquidity Coverage Ratio (LCR)) to survive in an acute stress scenario lasting for one month; *two*, to provide long-term funding requirement by ensuring sustainable maturity structure of assets and liabilities in a one year time horizon which is measured by Net Stable Funding Ratio (NSFR). LCR and NSFR of at least 100 percent were enforced fully from July 2015.

Bangladesh Bank included, but not yet enforced, Countercyclical Capital Buffer (CCB) in the Basel-III framework to protect the banking sector from periods of excess credit growth. In addition, in order to ensure the build-up of excessive leverage in the banking system, a Leverage ratio of 3 percent has been introduced which is effective from January 2015. Apart from this, phase-in of deductions of Revaluation Reserve (RR) from Tier-2 has already been started from July 2014 and will be fully deducted by 2018.

## **7.2 Components of Capital**

Under Basel Capital adequacy framework, the capital of banks shall be categorized into two main tiers: Tier1 and Tier 2. Tier1 capital also divided into two categories Common Equity Tier1 (CET1) and Additional Tier 1 (AT1).

### **7.2.1 Tier 1 Capital**

Tier1 capital also divided into two categories Common Equity Tier1 (CET1) and Additional Tier 1 (AT1). Tier1 also known as going-concern capital which can absorb losses without triggering bankruptcy of the bank.

**Common Equity Tier 1 Capital:** Common Equity Tier 1 capital comprises of paid up capital, non-repayable share premium account, statutory reserve, general reserve, retained earnings, dividend equalization reserve and Minority interest in subsidiaries. For the foreign banks operating in Bangladesh Common Equity Tier 1 (CET1) capital shall comprises of the fund received from Head office as capital, statutory reserves kept in books in Bangladesh, retained earnings, actuarial gain/loss kept in books in Bangladesh and non-repatriable interest-free funds from Head Office for the purpose of acquisition of property.

**Additional Tier 1 Capital:** Additional Tier 1 capital comprises of Instruments issued by the banks that meet the qualifying criteria for AT1 as prescribed by Basel Committee for Banking Supervision (BCBS) and local regulatory authority (Bangladesh Bank) and minority interest in AT1 of subsidiaries company.

### **7.2.2 Tier 2 Capital**

Tier 2 capital comprises of general provision, subordinated instruments, Minority interest in the subsidiaries of Tier2. For the foreign banks operating in Bangladesh general provisions, Head Office (HO) borrowings in foreign currency received that meet the criteria of Tier 2 debt capital. Tier 2 capital also known as gone concern capital and are not considered as core capital but contribute to the overall strength of the bank.

## **7.3 Importance of Capital for Banks/Financial Institutions**

Capital is one of the key factors to be considered when the safety and soundness of a particular bank is assessed. An adequate capital base serves as a safety net for a variety of risks to which an institution is exposed to in the course of its business. Capital absorbs possible losses and thus provides a basis for maintaining depositor confidence in a bank. Capital also is the ultimate determinant of bank's lending capacity. A bank's balance sheet cannot be expanded beyond the level determined by its capital adequacy ratio. Consequently, the availability of capital determines the maximum level of assets. The key purposes of capital are to provide stability and to absorb losses, thereby providing a measure of protection to depositors and other creditors in the event of liquidation. Capital, however, is not a substitute for bad management, poor risk management, poor corporate governance, or weak internal controls.

#### **7.4 Limits-Maxima & Minima of Capital Ratios**

According to Basel III capital standards, In Bangladesh, Bank's Minimum Capital to Risk Weighted Assets Ratio (CRAR) shall be 10% of total Risk Weighted Assets. In which, Tier1 capital will be at least 6% and Tier-2 capital can be admitted maximum up to 4% of total Risk Weighted Assets. Moreover, The Minimum 6% Tier 1 capital shall be maintained by Common Equity Tier 1 of at least 4.5% of the total RWA and Additional Tier 1 capital can be admitted maximum up to 1.5% of the total RWA or 33.33% of CET1, whichever is higher. In addition to minimum CRAR, Capital Conservation Buffer (CCB) of 2.5% of the total RWA is being introduced which will be maintained in the form of CET1.

#### **7.5 Board & Senior Management Oversight for Managing Sustainability of Capital**

A bank's management continues to be accountable that its bank has adequate capital. The capital management process should address all material risks faced by the bank. Given its business strategy, a bank must have clearly defined capital adequacy targets; adequate policies and processes to identify, measure, and report all material risks; a capital assessment process that relates its capital to the risk profile; and internal control systems that ensure the integrity of the overall capital assessment and management process. In this regard banks shall follow the latest guidelines on Risk Based Capital Adequacy and related regulatory instructions to assess its capital adequacy. A bank's board must also devote proper attention to all matters related to the maintenance of capital adequacy. The board has a responsibility to project capital requirements

and to determine whether current growth and capital retention are sustainable. Roles and responsibilities of Board and Senior Management regarding capital management are as follows:

- Define the goals of capital management in an official policy statement and goals must include the regulatory compliance; such that capital levels always exceed BB's requirements; Capital levels are aligned with the risks in the business and consistent with the strategic plan and Maintain capital at an appropriate level for balancing between maximizing shareholder returns and protecting the interests of depositors and other creditors.
- Integrate capital management into the bank's strategic plan
- Disseminate the capital management policies throughout the bank
- Analyze present as well as future capital needs of the bank and adopt suitable capital-raising methods, satisfying the prudential and regulatory requirements of BB;
- Ensure consistency of the capital management system with the bank's risk profile and the competing business environment;
- Prepare an effective capital plan for the short-term, medium-term and long-term horizon considering regulatory capital requirements, banks risk profile, expected asset and profitability growth, stress test scenario, dividend policy and Coverage of unexpected losses up to a certain probability of occurrence
- The board must be satisfied that capital levels under specific stressed economic scenarios are sufficient to remain above both BB and the Bank's internal requirements

## **7.6 Capital Planning and Dividend Policy**

Capital planning is a critically important activity for a bank. Capital planning is an ongoing, dynamic and forward-looking process that aligns banks strategic focus, business plans, tolerance levels and operating environment within the context of risk. The effective capital planning includes the following components:

- ✓ Identify and evaluate risks
- ✓ Assessing risks and set capital adequacy goals in relation to risk profile
- ✓ Maintaining a strategy to ensure capital adequacy and contingency planning
- ✓ Ensuring integrity in the internal capital planning process and capital adequacy assessments.



A dividend is the part of profits that a company distributed to its shareholders. When a company generates a profit and accumulates retained earnings, those earnings can be either reinvested in the business or paid out to shareholders as a dividend.

The dividend policy should be framed out based on earnings and capital needs means that a decision must be made concerning the amount of earnings retained in the business versus the amount paid out to stockholder in the form of dividend. The retention of capital is great importance to management. A high dividend payout (low retention) results in slower growth of internal capital, which may increase failure risk and retard expansion of assets. A low dividend payout (high retention) can results in a cut in stockholders' dividend income. The optimal dividend policy is one that maximizes the value of the stockholder's investments, attract new stockholders and retained existing by providing the return at least equals compare to other investments of comparable risks. The effective capital planning contains both short- and long-term capital plan usually at least five years' horizon.

## **7.7 Relation between Risk Management and Capital**

Capital management and risk management are two sides of the same coin, the relationship between capital structure and risk in the banking industry received renewed attention after the recommendations on minimal capital requirements for banks made by the Basel Committee in 1988. Capital management in a bank usually refers to implementing measures aimed at maintaining adequate capital, assessing internal capital adequacy and calculating its capital adequacy ratio of bank. Risk management is increasingly becoming difficult to separate from capital management. Most banking risks can be quantified as numerical indicators, and this quantification naturally leads to the principle that increased capital can be held to cover unexpected losses at a certain confidence level where an adequate capital base is considered as a cushion against risk to which an institution is exposed to.

Basel Accord, particularly Basel-III, is a comprehensive risk-based capital management framework for promoting resilient banking system in a jurisdiction. Basically, it was the response of the global banking regulators to deal with the factors, more specifically those relating to the banking system that led to the global financial and economic crisis in 2007-2009. The financial crisis revealed that banks should have robust risk management techniques and they

should build capacity to withstand severe disasters (Elizalde 2007). Basel-III guideline has been formulated to improve shock resilience capacity of the banks to prevent recurrence of such financial and economic crisis. Basel-III has identified the reasons of bank failure in recent crisis. The main reasons of the crisis, as identified in the Basel-III document, are use of excessive leverage, gradual erosion of level and quality of capital base, insufficient liquidity buffer, pro-cyclicality and excessive interconnectedness among systematically important institutions. The framework therefore sought to increase the capital and improve the quality thereof to enhance the loss absorption capacity and resilience of the banks (Ahmed 2016).

There is a broad consensus that Basel-III will produce a banking system that is far more resilient. Basel-III has set its objectives to improve the shock absorbing capacity of each and every individual bank as the first order of defense. Basel-III has also incorporated measures to ensure that the banking system as a whole does not crumble and its impact on the real economy is minimized. Therefore, Basel-III has some micro-prudential elements i.e. bank wise regulation with the intention to raise the resilience of individual banking institution in periods of stress. Besides, it has macro prudential focus which will reduce the risk of spillover from the financial sector to the real economy (Shakdwipee and Mehta 2017).

Though capital and capital management could not be substitute for effective risk management but it helps to identify the risks it is exposed to and ensure that the bank has sufficient capital to cover the risks and the remainder of these risks is mitigated by means of collateral or other credit enhancements, contingency planning, additional reserves and valuation allowances, and other mechanisms. The outcomes of capital management are: i. A Capital Plan that meets the needs of the bank over a longer time horizon; ii. An ICAAP that determines precise levels of required capital (the “solvency need”) according to the measures of balance sheet capital and regulatory capital; iii. A process to regularly compare available capital with current and projected solvency needs, and address deficiencies in a timely manner.

## 7.8 Measurement of Risk Weighted Assets (RWA) under Pillar-1

In order to calculate Capital to Risk-weighted Asset Ratio (CRAR), banks are required to calculate Total Eligible Capital as well as Risk Weighted Assets (RWA) on the basis of credit, market, and operational risks. The Capital to Risk-weighted Asset Ratio (CRAR) is calculated by taking eligible regulatory capital as numerator and total RWA as denominator

$$CRAR = \frac{\text{Total Eligible Capital (TEC)}}{\text{Total Risk Weighted Asset (TRWA)}}$$

where, TRWA = Risk weighted Asset for Credit Risk +

$$10 \times (\text{Capital charges for Market Risk and Operational Risk})$$

### 7.8.1 Credit Risk

Credit risk is the potential that a bank borrower or counterparty fails to meet its obligation in accordance with agreed term. Credit risk weighted assets is the total of risk weighted assets derived from on balance sheet and off-balance sheet exposures.

### Calculation of RWA Against Balance Sheet Exposure

There have three different approaches to measure RWA, under standardized approach RWAs are calculated by multiplying the exposures with corresponding risk weights. To determine the risk weights for certain exposure classes, in jurisdictions that allow the use of external ratings External Credit Assessment Institutions (ECAIs) that are recognized as eligible for capital purposes by Bangladesh bank. In addition, fixed weights (broadly aligned with the likelihood of counter party default) for some exposures is used.

**Table-7.3: Fixed Risk Weights for Balance Sheet Exposure**

Exposure Category	Risk Weight
Cash	0.00
Claims on Bangladesh Government (other than PSEs) and Bangladesh Bank	0.00
Claims on other Sovereigns & Central Banks	0.50
Claims on Bank for International Settlements, International Monetary Fund and European Central Bank	0.00
Claims on Multilateral Development Banks (MDBs): i) IBRD, IFC, ADB, AfDB, EBRD, IADB, EIB, EIF, NIB, CDB, IDB, CEDB	0.00

<b>Exposure Category</b>	<b>Risk Weight</b>
Claims categorized as retail portfolio (excluding SME, Consumer Finance and Staff loan) upto 1 crore	0.75
Consumer finance	1.00
Claims fully secured by residential property	0.50
Claims fully secured by commercial real estate	1.00
Capital market exposure	1.25
Investment in equity and other regulatory capital instruments issued by other banks and Merchant Banks/Brokerage Houses/Exchange Houses which are not listed in the Stock Exchanges (other than those deducted from capital) held in banking book	1.25
Investments in venture capital	1.50
Investments in premises, plant and equipment and all other fixed assets	1.00
Claims on all fixed assets under operating lease	1.00
All other assets	
i) Claims on GoB& BB	0.00
ii) Staff loan/investment	0.20
iii) Cash items in Process of Collection	0.20
iv) Claims on Off-shore Banking Units (OBU)	1.00
v) Other assets (not specified above) [Net of specific provision, if any]	1.00

### **Variable Risk Weights based ECAIs Rating**

For Corporate and SME categories recognized ECAIs ratings are considered to determine Risk weights. Rating categories of recognized ECAIs are mapped with the rating grades of Bangladesh as per below Table MMM. For risk weighting purpose, the rating of a client by any recognized ECAI is valid for one year. Credit rating for one entity within a corporate group cannot be used to risk weight to other entities within the same group i.e. each entity within a same corporate group needs to get credit rating individually. For two ECAIs assessments higher risk weight will be applied and three or more ECAIs assessment the lowest two Risk weights will be considered and between them the higher RW will be applied.

**Table-7.4: ECAIs rating and corresponding Risk Weights**

S&P and Fitch	Moody	CRISL	CRAB	NCRL	ECRL	ACRSL	ACRP	WASO	BDRAL	Equivalent BB Rating grade	Equivalent RW

### Calculation of RWA Against Past Due Claims

The unsecured portion of any loan (other than claims secured by residential property) that is past due for more than 60 days, net of specific provisions (including partial write-offs) will be risk weighted as multiplying the net of specific provision (outstanding amount-specific provision) with corresponding Risk weights. 150% risk weight when specific provisions are less than 20% of the outstanding amount of the loan; 100% risk weight when specific provisions are no less than 20% of the outstanding amount of the loan, 50% risk weight when specific provisions are no less than 50% of the outstanding amount of the loan, in case of Claims fully secured against residential property, when specific provisions are held there-against is less than 20 percent of outstanding amount and more than 20% of the outstanding amount applicable risk weight will be 100% and 75% respectively.

### Credit Risk Mitigation Techniques

Bank uses a number of techniques to reduce the credit risk to which they are exposed to, Financial collateral is one of them. The eligible financial collateral that are considered as credit risk mitigation tools under Basel III standardized approach are:

- Cash including certificate of Deposit or Fixed Deposit Receipt, Gold, Debt securities rated by recognized ECAI, Debt securities issued by a bank, Equities (including convertible bonds) those are enlisted and regularly traded in Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE). The value of the equity will be computed on the basis of last 6 months' daily average price, Undertakings for Collective Investments in Transferable Securities (UCITS) and mutual funds where a price for the units is publicly quoted daily.

In calculating the adjusted exposure amount after risk mitigation, a standard haircut is used.

Haircut is the adjustment factor that is applied both exposure and collateral for netting off while

calculating the capital requirement against financial collateral backed securities. The framework for this treatment are as follows:

$$E^* = \text{Max}[0, E(1 + H_e) - C(1 - H_c - H_{fx})]$$

Where:  $E^*$  = the exposure value after risk mitigation,  $E$  = current value of the exposure for which the collateral qualifies as a risk mitigate,  $H_e$  = haircut weight appropriate to the exposure,  $C$  = the current value of the collateral received,  $H_c$  = haircut weight appropriate to the collateral,  $H_{fx}$  = haircut weight appropriate for currency mismatch between the collateral and exposure

### **Calculation of RWA Against Off-Balance Sheet Items**

Off-balance-sheet items under the standardized approach will be converted into credit exposure equivalents through the use of credit conversion factors (CCF). Direct credit substitutes, e.g. general guarantees of indebtedness (including standby letters of credit serving as financial guarantees for loans and securities) and acceptances (including endorsements with the character of acceptances) will receive a CCF of 100%. Commitments with an original maturity up to one year and commitments with an original maturity over one year will receive a CCF of 20% and 50%, respectively. However, any commitments that are unconditionally cancellable at any time by the bank without prior notice, or that effectively provide for automatic cancellation due to deterioration in a borrower's creditworthiness, will receive a 0% CCF. For short-term self-liquidating trade letters of credit arising from the movement of goods (e.g. documentary credits collateralized by the underlying shipment), a 20% CCF will be applied to both issuing and confirming banks. Certain transaction-related contingent items (e.g. performance bonds, bid bonds, warranties, indemnities, and standby letters of credit in relation to a non-monetary obligation of counterparty under a particular transaction) will receive a CCF of 50%.

### **7.8.2 Capital Charge for Market Risk**

Market risk is defined as the risk of losses in on and off-balance sheet positions because of volatility of market variables. Capital charge against market risk considers interest rate risk, equity position risk, foreign exchange position risk and commodity position risk. The total capital requirement in respect of market risk is the sum of capital requirement calculated for each

of these market risk sub-categories. The methodology to calculate capital requirement under Standardized Approach for each of these market risk categories is as follows.

### Capital Charges for Interest Rate Risk

The capital charge for interest risk is calculated considering specific risk' and general market risk separately. Capital charge for specific risk is designed to protect against an adverse movement in the price of an individual security owing to factors related to individual issuer. It will be calculated on gross position. The capital charges are set out in the following table-7.5

**Table-7.5: Capital Charge weight for Specific Risk**

Categories		BB Rating Grade	Particulars	Capital Charge Weight(%)
Government	This category will include all the securities of GoB and foreign government			<b>0</b>
Government (Other than Domestic Currency)		1		<b>0</b>
		2,3	Residual term to final maturity 6 months or less	<b>0.25</b>
			Residual term to final maturity greater than 6 and up to and including 24 months	<b>1</b>
			Residual term to final maturity exceeding 24 months	<b>1.60</b>
		4,5		<b>10</b>
		6		<b>12</b>
		unrated		<b>10</b>
Qualifying category	1. Debt securities issued by public sector entities and multilateral development banks, and other securities that are recognized by BB for including in this category, 2. Debt securities rated by at least two credit rating agencies of the approved panel of BB, neither rating to be worse than an equivalent BB Ratings Grade 3		Residual term to final maturity 6 months or less	<b>0.25</b>
			Residual term to final maturity greater than 6 and up to and including 24 months	<b>1</b>
			Residual term to final maturity exceeding 24 months	<b>1.60</b>
Other	This category will include those instruments which are	1		<b>2</b>
		2,3		<b>6</b>

	not included in	4		<b>10</b>
	'Government' or	Below 4		<b>12</b>
	'Qualifying category' above	Unrated		<b>10</b>

The capital charge for general market risk is designed to capture the risk of loss arising from changes in market interest rate. This will be calculated using weights under maturity Method (Table-7.6)

**Table-7.6: Maturity Method for General Market Risk**

Zone	Time Band for Coupon 3% or more	Time Band for Coupon Less than 3%	Capital charge Weight
Zone 1	1 Month or Less	1 month or less	0.00%
	1 to 3 Months	1 to 3 months	0.20%
	3 to 6 Months	3 to 6 months	0.40%
	6 to 12 Months	6 to 12 months	0.70%
Zone 2	1 to 2 Years	1.0 to 1.9 years	1.25%
	2 to 3 Years	1.9 to 2.8 years	1.75%
	3 to 4 Years	2.8 to 3.6 years	2.25%
Zone 3	4 to 5 Years	3.6 to 4.3 years	2.75%
	5 to 7 Years	4.3 to 5.7 years	3.25%
	7 to 10 Years	5.7 to 7.3 years	3.75%
	10 to 15 Years	7.3 to 9.3 years	4.50%
	15 to 20 Years	9.3 to 10.6 years	5.25%
	Over 20 Years	10.6 to 12 years	6.00%
		12 to 20 years	8.00%
		Over 20 years	12.50%

\* Time bands after decimal represents months i.e. 1.3 to be read as 1 year 3 months

### Capital Charge for Equity Position Risk

The capital charge for equities would apply on their current market value in bank's trading book. This capital charge for both specific risk and the general market risk will be at the rate of the required minimum capital adequacy ratio. This is applied to all capital market related holdings by the bank that exhibit market behavior similar to equities. The instruments include equity shares, bonds, debentures, mutual funds, convertible securities and all other capital market related instruments which are listed in the Stock Exchanges. The capital charge for the equity position risk is the sum of capital charge against specific risk and general market risk and these are at the rate of the required minimum capital adequacy ratio of current market value of banks capital market related holdings.



### Capital Charges for Foreign Exchange Risk

The capital charge for foreign exchange risk will be at the rate of the required minimum capital adequacy ratio of bank's net open position. Net open position is determined in two steps, firstly, we need to calculate currency wise net open position and secondly, sum the net short position and net long positions separately and consider the higher of these two as overall net open position regardless the sign.

	Position in BDT Million	Net Short Position	Net Long position	Net Open Position	Capital Charge
USD	+140	-450	+400	450	45
GBP	+60				
YEN	-300				
JPY	+200				
EURO	-150				

### 7.8.3 Capital Charge for Operational Risk

Operational risk is inherent in all banking products, activities, processes and systems, and the effective management of operational risk has always been a fundamental element of a bank's risk management program. BCBS defined Operational risk as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk. There are two approaches for capital calculation against operational risk under Basel III: the Basic Indicator Approach (BIA) and the Standardized Approach (TSA). Under BIA, the capital charge for operational risk is a fixed percentage of average positive annual gross income of the bank over the past three years.

Bank shall compute Capital charge for Operational Risk following Basic Indicator Approach as reflected by the following equation:

$$K = [(GI_1 + GI_2 + GI_3) * \alpha] / n$$

Where, K is the capital charge against operational risk under BIA, GI represents Gross Income is the total of Net interest income and net non-interest income,  $\alpha$  s 15% and n is number of the previous three years for which gross income is positive. Any year in which annual gross income is negative or zero, should be excluded from both the numerator and denominator when calculating the average.

## **7.9 Measurement of Capital Requirement for Pillar 2: Supervisory Review Process**

Supervisory Review Process (SRP) is the second pillar under Risk based capital adequacy framework. As part of Basel Implementation, Bangladesh Bank Issued Revised Process Document for SRP-SREP Dialogue on ICAAP (Implementation of 2nd Pillar of Basel II) on May-2014. In addition to ensure adequate capital to support all the risks in business, SRP also encourages banks to develop and use better risk management techniques in monitoring and managing their risks. The key principle of the supervisory review process (SRP) is that “banks have a process for assessing overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital at an adequate level”. The supervisory review process recognizes the responsibility of bank management in developing an Internal Capital Adequacy Assessment Process (ICAAP) and setting capital targets that are commensurate with the bank’s risk profile and control environment. The SRP will establish relationship between the planning of adequate capital and strength and effectiveness of bank’s risk management and internal control process. Mentioned that, maintaining adequate capital should not be regarded as a substitute for addressing fundamentally inadequate control or risk management process.

A sound and vibrant SRP for a bank requires three-layer structure: strategic layer, managerial layer and operational layer. Strategic layer comprises of the members of Board of Directors responsible to implement SRP in banks and monitor managerial layer. In Supervisory Process Managerial layer is a management level team constituted by the concerned departmental heads of a bank headed by Managing Director. The formation and modification of SRP team and its terms of reference must be approved by the Board of Directors. The SRP must meet at least bi-monthly to monitor the implementation of SRP. At operational layer there have an operational unit which is responsible for collecting information, regulatory correspondences, compiling the required calculations of ICAAP reporting and the tasks assigned by the SRP team.

SRP-SREP dialogue stands for an exclusive meeting between the SREP team of BB and SRP team of a bank. The objective of the dialogue is to determine the adequate level of capital needed for a bank by reviewing the ICAAP and strategies of the bank. The intensity and frequency of the dialogue depends on the level of complexity and magnitude of the banks' activities as well as the difference between the capital requirements assessed by the bank and BB. The key principles of SREP includes: Ensure compliance with minimum CRAR and regulatory intervention at early stage to prevent minimum capital level to support the risk profile of bank.

### **7.10 Preparation of ICAAP Documents for Determination of Capital Requirement**

Banks must have a document called Internal Capital Adequacy Assessment Process-ICAAP for assessing their overall risk profile, and a strategy for maintaining adequate capital. This document is also to be approved by the Board of Directors. Every year bank will Prepare ICAAP document based on the latest audited financial report. The ICAAP reporting must be approved by the Board of Directors of the banks before submitting to BB. The information provided in the ICAAP reporting will verified by Inspection Departments of BB. Beyond the minimum capital requirements for credit, market and operational risks captured in Pillar I, Banks are also required to calculate the adequate capital under the framework of Pillar II which addresses residual risk, credit concentration risk, interest rate risk, liquidity risk, reputation risk, strategic risk, settlement risk, evaluation of six core risks areas, environmental risk and other material risk.

#### **(i) Residual Risk**

Bank use different tools and techniques to reduce credit risk. But, inappropriate application of these techniques may elevate additional risks and prove the risk management activities less effective than expected. This additional risk may rise mainly due to improper documentation and valuation of collateral property. Bank collects and preserves documents against loans and advances to have legal protection in case of adverse events like default loan. Lack of required and duly filled-up documents and erroneous or fake or forged documents will lead to the amplification of overall risk aspects of loan portfolio and the reduction in the strength of legal shield that slacks the ownership of the bank on collateral and consequently hinders the recovery of loan. If any loan account lacks any or more duly filled-up document specified in document

checklist, that loan account is considered for capital charge. Banks require appropriate valuation of collateral (both physical and financial) and guarantee (bank guarantee and personal guarantee) against loans and advances for mitigation of default probability. The improper valuation or overvaluation of collateral can lead to overstated scenario of risk mitigation for collateralized Loan. That will raise the default probability of the loan.

**Computation of Capital Charge Against Residual Risk:** For computing capital charge against residual risk, firstly loan accounts which have documentation error and valuation error are identified. To determine Base for Capital Charge of a particular loan account, Provision (general/specific) kept against the loan, minimum capital already maintained under pillar I against the loan and qualified financial collateral against the loan is deducted from the outstanding amount of that loan.

Base for Capital charge=Outstanding Amount-Provision kept against the loan- (Outstanding amount×Corresponding risk weight×Minimum CRAR set by Bangladesh Bank)-Value of qualified Financial collateral

Capital requirement of residual risk for particular loan account will be the multiplication of minimum capital requirement set by Bangladesh bank and Base for capital charge.

Capital requirement for Residual Risk=Base for capital charge×Minimum CRAR set by BB

Capital requirement for each loan account will have to be summed up for determining total capital charge against residual risk and to avoid duplication in capital calculation, when capital charge is imposed for error in documentation in loan account, no capital charge is required for error in valuation of collateral on that loan account. The accounts which are fully covered by qualified financial collateral and are properly executed in favor of bank will not be considered for capital charge. Moreover, written off loans will not be considered for capital charge in this regard.

## **(ii) Credit Concentration Risk**

When bank fails to diversify its credit portfolio or when a bank most assets are concentrated to few individuals/entities or sectors/instruments then credit concentration risk arises.

### Aspects of Concentration Risk and its Measurement Approach

To assess the credit concentration risk and capital requirement, The Sector wise exposure, Division wise exposure, Group wise exposure, Single borrower wise exposure, Financial securities wise investment, Sector wise investment in listed instruments and Currency wise investment of foreign exchange portfolio will be considered, the concentration on each aspect will be measured based on Herfindahl Hirschman Index(HHI), Simpson's Equitability Index (SEI), Shannon's Index (SI) and Gini Coefficient (GC).

Indicators/ Ratings(points)	Homogeneous(1)	Satisfactory(2)	Moderate(3)	High(4)
<b>HHI</b>	$\leq 0.01$	$>0.01$ to $\leq 0.1$	$>0.1$ to $\leq 0.18$	$>0.18$
<b>SEI</b>	=1	$>0.7$ to $<1$	$>0.3$ to $<0.7$	$\geq 0$ to $<0.3$
<b>SI</b>	=1	$>0.6$ to $<1$	$>0.2$ to $<0.6$	$\geq 0$ to $<0.2$
<b>GC</b>	=0	$>0$ to $<0.4$	$>0.4$ to $<0.8$	$>0.8$ to $\leq 1$

The total points earned in any aspect will be calculated. If the total points in an aspect exceed certain point (given in the guideline), Capital charge will be at the rate of 1% of MCR for each of the aspects except for the instrument wise(financial securities) investment and currency wise investment of foreign exchange portfolio.

### (iii) Liquidity Risk

Liquidity in the simplest term means availability of cash. It also means how quickly and cheaply an asset can be turned into money. Liquidity risk arises when a given security or asset cannot be traded quickly enough in the market without incurring significant loss or when a bank is unable to fulfill its commitments in time when payment falls due.

**Computation of Capital Charge Against Liquidity Risk:** For liquidity risk additional capital requirement is calculate based on the Regulatory Liquidity Indicators (RLIs). If annual average of any of RLIs of any bank falls below Bangladesh Bank's requirement the bank will be required to maintain additional capital for that RLI (or those RLIs). Additional capital will be calculated at the rate of 2% of MCR for each of Cash Reserve Requirement (CRR), Statutory Liquidity

Ratio (SLR) and Liquidity Coverage Ratio (LCR) and 1% of MCR for Medium Term Funding Ratio (MTFR), Maximum Cumulative Outflow (MCO), Advance Deposit Ratio (ADR)/Investment Deposit Ratio (IDR) and Net Stable Funding Ratio (NSFR).

#### **(iv) Reputation Risk**

Reputation risk is the current or prospective risk to earnings and capital arising from adverse perception or image of the bank on the part of customers, counterparties, shareholders, investors or regulators. It is manifested in the fact that the external opinion of the bank is less favorable than desired. Reputation risk may originate in the form of lack of compliance with industry service standards, failure to deliver on commitments, lack of customer-friendly service and fair market practices, low or inferior service quality, unreasonably high costs, a service style that does not harmonize with market circumstances or customer expectations, inappropriate business conduct etc.

**Computation of Capital Charge against Reputation Risk:** Capital requirement for Reputation Risk will be calculated based on the following parameters.

- **Credit Rating of the Bank:** If the rating grade of the bank is below 2 of Bangladesh Bank (BB) rating grade, MTB will have to maintain additional capital which will be the multiplication of the MCR with 20% of minimum CRAR set by BB from time to time.
- **Internal and External Fraud:** Bank will develop its own Fraud Detection and Management methodology to deal with fraud incidents. Bank will calculate the total amount of loss incurred and unrecovered against internal and external fraud occurred in a year. Additional capital will be maintained which is equal to the unrecovered amount.
- **Non-payment or Delayed Payment of Accepted Bills (foreign & domestic):** Bank will calculate the total number and amount against non-payment or delayed payment of accepted bills (Delayed means payment not disbursed within the agreed stipulated time according to the documents or existing rules) in a year. If the total value in taka from such cases in a reporting year is greater than or equal to 5% of the total loans and advances, the bank will be required to maintain additional capital which is the multiplication of the MCR with 20% of minimum CRAR set by BB from time to time.

- **Quality of Customer Service:** Banks will develop their own methodology to assess the quality of customer service and conduct yearly evaluation based on that methodology. If any bank fails to do so, the SREP team of BB will apply its prudence to determine capital charge for non-assurance of quality customer service.

**(v) Strategic Risk**

Strategic risk is the risk to earnings or capital arising from adverse business decisions or improper implementation of those decisions. This risk is a function of the compatibility between an organization's strategic goals, business strategies developed to achieve those goals, the resources deployed in pursuit of these goals, and the quality of implementation. The resources needed to carry out business strategies are both tangible and intangible. They include communication channels, operating systems, delivery networks, and managerial capacities and capabilities.

- **CAMELS Rating:** Capital charge will be applicable if the CAMELS rating of the bank given by Bangladesh Bank fall below 2. Additional capital will be calculated as the multiplication of the MCR with 10% of minimum CRAR set by BB from time to time.
- **Operating Expenses:** If operating expense exceeds 45% of operating income for a specific year, additional capital charge will have to be maintained. Additional capital which will be the multiplication of the MCR with 10% of minimum CRAR set by BB from time to time.
- **Classified Loan Ratio:** If classified loan exceeds 5% of total outstanding loans for specific year, capital will be required to maintain and capital will be calculated as multiplication of the MCR with 10% of minimum CRAR set by BB from time to time.
- **Recovery of Classified Loan:** Classified loan recovery as % of total classified loans will be assessed. If the recovery percentage falls below 20% for a specific year additional capital will be required to maintain which will be calculated as multiplication of the MCR with 10% of minimum CRAR set by BB from time to time.

- **Written-off Loans:** If written off loans as percentage of total classified loans exceeds 15% for a specific year additional capital will be required to maintain which will be calculated as multiplication of the MCR with 10% of minimum CRAR set by BB from time to time.
- **Interest Waiver:** If interest waiver as a percentage of total classified loans exceeds 5% for a specific year, additional capital will be required to maintain, which will be calculated as multiplication of the MCR with 10% of minimum CAR set by BB from time to time.
- **Rescheduling of Loans and Advances:** If any of the loan accounts rescheduled for more than 3 times, capital charge will be imposed against that loan account by netting of provision, MCR, value of qualified financial collateral and capital charge against residual risk. Capital charge will be imposed at the rate of 10% on the residual amount after netting off.
- **Base Rate Calculation Methodology:** Each Bank will have an approved methodology of calculating base rate for conducting business considering cost of fund, cost of administration, cost of equity, and cost of CRR/SLR. If any banks fail to prepare, additional capital will require to maintain as determined by the SREP team of Bangladesh Bank.
- **Strategic Plan:** Bank will have developed business growth plan for 3 (three) years' time span especially in the areas of deposit growth, loans and advance growth, profit growth and capital growth, which have been approved by the Board. If any bank fails to prepare any of the stated document, it will require maintaining additional capital which will be determined by the SREP team of BB.

#### **(vi) Settlement Risk**

Settlement risk arises when an executed transaction is not settled as the standard settlement system suggests or within predetermined method. Bank will calculate the total number and amount against Non-receiving or delayed receiving (delayed means payment not realized within the agreed stipulated time according to the documents or existing rules) of receivable bills (foreign & domestic) in a year. If the total value in taka from such cases in a reporting year is greater than or equal to 5% of the total loans and advances, the bank will be required to maintain additional capital which is the multiplication of the MCR with 10% of minimum CRAR set by



BB from time to time.

### **(viii) Interest Rate Risk in the Banking Book (IRRBB)**

IRRBB is the current or potential risk to the interest rate sensitive assets and liabilities of a bank's balance sheet as well as the off-balance sheet items arising out of adverse or volatile movements in market<sup>27</sup> interest rate. Volatile movements of market interest rate adversely affect the value of interest rate sensitive assets and liabilities that consequentially results in the loss of equity value. In the context of Pillar 2, the assessment of loss of equity value due to IRRBB is vital as this is the outcome of poor asset liability management that shows the inefficiency of the risk management framework of the bank. Although currently in Bangladesh, there is no efficient and active secondary market for any type of debt instrument (interest bearing financial instrument), the evaluation of IRRBB on the basis of hypothetical scenarios is essential for the appraisal of asset-liability management and effectiveness of the risk management framework of a bank. The susceptibility of banks to IRRBB can be estimated through Simple Sensitivity Analysis and Duration Gap Analysis.

The Steps for conducting Simple Sensitivity Analysis:

- Calculate all on-balance sheet Rate Sensitive Assets (RSA) and Rate Sensitive Liabilities (RSL),
- Plot the RSA and RSL into different time buckets on the basis of their maturity,
- Calculate the maturity gap by subtracting RSL from RSA (GAP= RSL-RSA),
- Calculating the changes in the Net Interest Impact (NII) by multiplying the changes in interest rate with the Gap<sup>28</sup>.

The Steps for conducting Duration Gap Analysis:

- Estimate the market value<sup>29</sup> of all on-balance sheet rate sensitive assets and liabilities of the bank/NBFI to arrive at market value of equity,

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<sup>27</sup> Market refers to the fully active efficient secondary market of interest bearing instruments like bills, bonds, debentures, commercial paper etc.

<sup>28</sup>  $\Delta NII = \Delta i \times \text{Gap}$

<sup>29</sup> Market value of the asset or liability shall be assessed by calculating its present value discounted at the prevailing interest rate. The outstanding balances of the assets and Liabilities should be taken along with their respective maturity or re-pricing period, whichever is earlier.

- Calculate the durations of each class of asset and the liability of the on-balance sheet portfolio,
- Arrive at the aggregate weighted average duration of assets and liabilities,
- Calculate the duration GAP by subtracting aggregate duration of liabilities from that of assets,
- Estimate the changes in the economic value of equity due to change in interest rates on on-balance sheet positions along with the three interest rate changes,
- Calculate surplus/ (deficit) on off-balance sheet items under the interest rate change,
- Estimate the impact of the net change (both for on-balance sheet and off-balance sheet) in the market value of equity on the capital to risk-weighted asset ratio (CRAR),

As long as any efficient, vibrant and active secondary market for any debt instrument would be not established, capital charge is not required for the negative change in the value of that debt instrument based on hypothetical assessment against IRRBB. When required capital charge against IRRBB will be the loss of equity value due to changes in the market interest rate. The capital charge will be calculated by netting off the capital charge for interest rate related instrument under Market Risk of Pillar-1. Yet, BB will keenly analyze the result of Simple Sensitivity Analysis and Duration Gap Analysis of banks. If any adverse output would be observed even from hypothetical scenarios, prudent measures will be taken by the Bangladesh Bank.

#### **(vii) Evaluation of Core Risk Management**

Bank will have developed its own methodology for assessing six core risk areas i.e. credit risk, asset liability management risk, foreign exchange risk, money laundering risk, internal control and compliance risk, and information technology risk separately, which are subsequently approved by the Board of Directors. Based on these approved methodologies, bank conducts rigorous review of each core risk areas annually and derive risk rating as 1 (Strong), 2 (Satisfactory), 3 (Fair), 4 (Marginal) and 5 (Unsatisfactory).

**Computation of Capital Charge:** Capital charge will be applied for each risk separately, for risk ratings of 3 (Fair), 4 (Marginal) and 5 (Unsatisfactory); capital charge will be derived by multiplying the MCR with 15% of minimum CRAR set by BB from to time and no capital charge will be imposed for risk ratings of 1 (Strong) and 2 (Satisfactory), If any bank fails to

develop its own assessment methodology for each core risks and to conduct annual review, it will require maintaining additional capital for regulatory non-compliance. This additional capital will be in excess of the capital charge against Appraisal of Core Risk Management Methodology. Apart from that, core risk ratings of Inspection Departments of BB20 will also be considered during the process. If any adverse deviation observed between two ratings i.e. rating of BB inspection and that of bank's evaluation, supervisory discretion would be applied to determine capital charge in this context.

**(ix) Environmental and Climate Change Risk**

Environmental and climate change risk refers to the uncertainty or probability of losses that originates from any adverse environmental or climate change events (natural or manmade) and/or the non-compliance of the prevailing national environmental regulations. This is a facilitating element of credit risk arising from environmental issues. These can be due to environmental impacts caused by and / or due to the prevailing environmental conditions. These increase risks as they bring an element of uncertainty or possibility of loss in the context of a financing transaction. Environmental and climate change risk can hamper the business stability of the borrowers in respect of both- i) profitability and ii) reputation. Consequentially, the extent of risk for the banks will be higher. To evaluate this risk, Sector Environmental Due Diligence (EDD) Check List specified in Guidelines on Environmental Risk Management (ERM) issued vide BRPD Circular No. 01/2011 dated 30/01/2011 will be used. For the loans under the sectors specified in the guidelines and which will have Environmental Risk Rating (EnvRR) of 'High (H)' will be considered for the capital charge against this risk. Base for capital charge will be:

Outstanding Amount - Provision (General/Specific) - Minimum Capital Requirement - Value of qualified financial collateral- Capital Charge against Residual Risk (if any)- Capital Charge against Strategic Risk (if any).

Bank will require maintaining additional capital at the rate of 10% on the base for capital charge. If 50% or more of the loans which are eligible for EnvRR are found unrated in the reporting year, the SREP team of BB will determine the additional capital charge appropriate for the bank.

### **7.11 Pillar 3- Market Discipline and its Importance for Different Stakeholders**

Pillar 3- Market Discipline provide information to market participants for assessing the status of the bank's exposure to various risks and easy comparison among banks operating in the same market. The report is prepared once a year based on the audited financial statement and is available in the banks website also, the objectives of the pillar-3 market discipline in the revised framework are to establish more transparent and more disciplined financial market through providing timely, accurate and relevant information, so that stakeholders can assess the position of the bank regarding holding of asset and risks relating to assets and capital adequacy to meet any probable loss of assets. These disclosures provide information to market participants for assessing the status of the bank's exposure to various risks and easy comparison among banks operating in the same market. The report is prepared once a year based on the audited financial statement and is available in the bank's website also. A bank should decide which disclosures are relevant for it based on the materiality concept. Information would be considered as material and if its omission or misstatement could change or influence the assessment or decision of a user relying on that information for the purpose of making economic decision.

Bangladesh Bank has specified the standard of disclosure through Guidelines on Risk Based Capital Adequacy (December 2010) which revised in Basel III Guideline on December 2014 with effect from January 2015. The standard aims to enhance the transparency in Bangladeshi financial market by setting minimum requirement for the disclosure of information on the risk management practice and capital adequacy. As defined and by the Revised Regulatory Capital Framework for banks in line with Basel III, information on the following ratios and factors are required to be calculated, assembled and provided: i) Scope of application ii) Capital structure iii) Capital adequacy iv) Credit risk v) Equities disclosures for banking book positions vi) Interest Rate Risk in the Banking Book (IRRBB) vii) Market risk viii) Operational risk ix) Leverage ratio x) Liquidity ratio xi) Remuneration.

### **7.12 Liquidity Ratios under Basel Capital Framework: LCR and NSFR**

Strong capital base and its sound management are necessary but not sufficient condition for ensuring banking sector stability. The difficulties experienced by some banks during the financial crisis (2008), were due to lapses in basic principles of liquidity risk management. Apart from maintaining required capital, the recent global financial crisis (2008) underlined the

importance of a second type of buffer, the “liquidity” that banks should have in order to cover unexpected cash flows. In response, to promote better liquidity risk management BCBS introduced internationally harmonized global liquidity standards: Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) in Basel III.

LCR measures the short-term liquidity and indicates bank's sufficiency/insufficiency in possessing high quality liquid assets. LCR promote short-term resilience of a bank’s liquidity risk profile by ensuring that it has sufficient high-quality liquid resources to survive an acute stress scenario lasting for one month,

$$\text{Liquidity Coverage Ratio: } LCR = \frac{\text{Stock of High Quality Liquid Assets}}{2 \text{ Net cash Outflow}} \geq 100\%$$

The calculation of the LCR requires three important quantities to be defined: Total value of stock of high-quality liquid assets (a), Total cash outflows in next 30 days (b), Total cash inflows in next 30 days (c), LCR requirement is met if a is greater than b – c; that is, if high quality liquid assets exceed net cash outflows under the stressed scenario in next 30 days. To make the metric even more conservative, c is capped at 75 percent of b.

NSFR measures the long-term liquidity, and is designed to encourage banks to use stable sources to fund their activities and to reduce the dependency on short-term wholesale funding. These standards have been developed to achieve two separate but complementary objectives. NSFR promote resilience over a longer time horizon by creating additional incentives for a bank to fund its activities with more stable sources of funding on an ongoing structural basis (a time horizon of one year) and has been provide a sustainable maturity structure of assets and liabilities.

$$\text{Net Stable Funding Ratio: } NSFR = \frac{\text{Available Amount of Stable Funding (ASF)}}{\text{Required Amount of Stable Funding (RSF)}} > 100\%$$

The calculation of the NSFR requires two quantities to be defined: available stable funding (a) and required stable funding (b). NSFR is met if available stable funding exceeds required stable funding, that is if ASF/RSF > 1 or 100%

### **7.13 Leverage Ratio: Calculation Procedures and Importance for Banks**

Leverage ratio is introduced as an additional safeguard against model risk and control the aggressive credit expansion. It is a simple, transparent and non-risk based regulatory leverage ratio. Under Basel III, Banks have to maintain the amount of Tier1 capital which will be not less than 3% of its total on and off-balance sheet. The ratio signifies that without increasing the quality capital, banks could not expand their business. The ratio has to be increased to 4% by 2026.

## 7.14 Indicative Questions

1. Discuss the capital requirement as per Basel-III framework. Why is Basel Capital regulation important for ensuring the soundness and stability of the banking sector of Bangladesh?
2. What are different components of regulatory capital?
3. How does adequate capital management help in ensuring sound risk management?
4. What is ICAAP? Identify the risk factors that are considered in ICAAP document.
5. Define strategic risk. What are the factors that should be considered while assessing strategic risk?
6. What do you mean by Market Discipline? What is its purpose? Identify and list the areas of disclosures required by the third pillar of Basel-II.

## References

A structured approach to Enterprise Risk Management (ERM) and the requirements of ISO 31000

Ahmed, B.U. (2016), “Basel III - Implementation in and Challenges for Bangladesh”, *Proceedings of the Australia-Middle East Conference on Business and Social Sciences*, Dubai.

Ahmed, Md. Nehal, Atul Chandra Pandit and Md. Zakir Hossain (2013), “Operational Risk Management in Banks: Issues and Implications” paper presented in the research workshop held at BIBM.

Ahmed, N.M. and Atul C. Pandit (2011), “Implementation Status of Basel-II: Bangladesh Perspective”, *Banking Research Series*, BIBM

Ahmed, N.M., Atul C. Pandit and M. Z. Hossain (2014), “Operational Risk Management in Banks: Issues and Implications”, *Banking Research Series*, BIBM

Ahmed, N.M., Atul C. Pandit and M. Z. Hossain (2015), “Bank Credit Quality in Changing Business Environment: Issues and Challenges”, *Banking Research Series*, BIBM

Ahmed, N.M., Atul C. Pandit and M. Z. Hossain (2018), “Impact of Adopting Basel Accords in the Banking Sector of Bangladesh”, *Research Monograph*, BIBM

AIRMIC, Alarm, IRM: 2010. (n.d.). A structured approach to Enterprise Risk Management (ERM) and the requirements of ISO 31000. AIRMIC, Alarm, IRM: 2010.

Anwar, Y. (2013), “Operational risk management in Pakistan – issues and challenges”, Conference on Operational Risk Management organized by the State Bank of Pakistan

Balta, E. and Patrick de F. (2009), “Basel II Operational Risk Modeling Implementation & Challenges”, OCC/NISS Risk Modeling & Regulation Workshop, Washington, D.C.

Banerjee, P.K., M. N. Ahmed, M. Alamgir, D. R. Hazra, D.R. & M. A. R. Chowdhury (2016), “Basel-III: Preparation of Banks in Bangladesh”, *Roundtable Discussion Series 2016*, BIBM.

Bangladesh Bank (2012), “Risk Management Guidelines for Banks”

Bangladesh Bank (2016), *Financial Stability Report*, Available at: [https://www.bb.org.bd/pub/annual/fsr/final\\_stability\\_report2016.pdf](https://www.bb.org.bd/pub/annual/fsr/final_stability_report2016.pdf)

Bangladesh Bank (2015), "Money Laundering and Terrorist Financing Risk Management Guideline".

Bangladesh Bank (2020), BFIU Master Circular # 26

Bangladesh Bank (2018), “Risk Management Guidelines for Banks”

Bangladesh Bank (2016). "Guidelines on Asset Liability Risk Management", Dhaka, Bangladesh.

Bangladesh Bank (2016). "Guidelines on Credit Risk Management", Dhaka, Bangladesh.

Bangladesh Bank (2016). "Guidelines on Foreign Exchange Risk Management", Dhaka, Bangladesh.

Bangladesh Bank (BB) (February, 2016). "Guidelines on Internal Control and Compliance in Banks, Dhaka, Bangladesh.

Bangladesh Bank (BB) (May, 2015). "Guidelines on ICT Security For Banks and Non-Bank Financial Institutions".

Bangladesh Bank Department of Offsite Supervision. (2011). GUIDELINES ON STRESS TESTING. In *GUIDELINES ON STRESS TESTING*. Dhaka: Bangladesh Bank.

Bank for International Settlements (2014), "History of Basel Committee", BIS, Basel, Updated October 2014, Available at: <http://www.bis.org/bcbs/history.htm>

Banking Review Series-2018, Published by: Bangladesh Institute of Bank Management.

Basel Committee on Banking Supervision (2011), "Principles for the Sound Management of Operational Risk", *Bank for International Settlements*, June

BCBS (2015), "Net Stable Funding Ratio Disclosure Standards", BIS, Basel Committee on Banking Supervision (BCBS), Available at: <https://www.bis.org/bcbs/publ/d324.htm>

Bergess, K. (2012), "Impacts and Implementation of the Basel Accords: Contrasting Argentina, Brazil, and Chile", *CMC Senior Theses*, Paper 310. Available at: [http://scholarship.claremont.edu/cmc\\_theses/310](http://scholarship.claremont.edu/cmc_theses/310)

Büyükkşalvarcı, A. and H. Abdioğlu (2011), "Determinants of Capital Adequacy Ratio in Turkish Banks: A Panel Data Analysis", *African Journal of Business Management*, Vol. 5 (27), pp.11199 - 11209.

Caggiano, G. and P. Calice (2011), "The Macroeconomic Impact of Higher Capital Ratios on African Economies", *Working Paper*, African Development Bank.

Calice, P. (2010), "A Preliminary Assessment of the Implications of Financial Regulatory Reform for African Countries", *African Development Bank Policy Briefs on Financial Crisis*, No.03/10.

Cannata, F. and M. Quagliariello (2009), "The Role of Basel-II in the Subprime Financial Crisis: Guilty or not Guilty?", *Carefin Working Paper*, No. 03/09, Carefin, Università, Bocconi.

Chalermchatvichien, P., S. Jumreornvong and P. Jiraporn (2014), "Basel-III, Capital Stability, Risk-Taking, Ownership: Evidence from Asia", *Journal of Multinational Financial Management*, Vol. 28, pp. 28-46.

Cummings, J. R. and S. Wright (2015), "Effect of Higher Capital Requirements on the Funding Costs of Australian Banks", Centre for International Finance and Regulation Financial System Inquiry Workshop III - The Final Report and the Accounting and Finance Association of Australia and New Zealand 2015 Annual Conference.

Digital Financial Services And Risk Management. (n.d.). The MasterCard Foundation and IFC's Partnership for Financial Inclusion Program.

Elizalde, A. (2007), "From Basel-I to Basel-II: An Analysis of the Three Pillars", *CEMFI Working Paper*, No. 0704.

Elliot, D. J. (2009), *Quantifying the Effects of Lending Increased Capital Requirements*, The Brookings Institution, Washington.

Gatzert, N. and H. Wesker (2011), *A Comparative Assessment of Basel-II/III and Solvency-II*, Friedrich-Alexander-University of Erlangen-Nuremberg, Nuremberg, Germany.



- Gobat, J., M. Yanase, and J. Maloney (2014), “The Net Stable Funding Ratio: Impact and Issues for Consideration”, *IMF Working Paper*, No. 14/106.
- Goodhart, C. (2011), “The Basel Committee on Banking Supervision: A History of the Early Years 1974-1997”, Cambridge University Press.
- Habib, SMAH, M. N. Ahmed and A. C. Pandit (2013), “An Assessment of Risk Management Practices of Banks in Bangladesh”, Banking Research Series, BIBM
- Habib, SMAH, M. N. Ahmed and A. C. Pandit (2017), “Handling Credit Risk of Banks in Bangladesh: Demand, Supply and Regulatory Perspective”, Banking Research Series, BIBM
- Hazarika, D. and S. Dubey (2014), “Dissecting Basel-III by Geography”, *Cognizant 20-20 Insights*, Available at: <http://www.cognizant.com>
- Hennie, V. G., B. B. Sonja (2003), “Analyzing Banking Risk”, The World Bank, Washington D.C.
- Hida, Edward; Pieper, Michael. "The future of non-financial risk in financial services". Deloitte. Retrieved 16 September 2020.
- Horvath, I. (n.d.). *What is Enterprise Risk Management (ERM)*. Retrieved from Invensis Inc.: <https://www.invensislearning.com/blog/enterprise-risk-management-erm/>
- Hossain, M. Z. (2016), “Impending Effects of Basel-III in the BRICS Economies”, *M. Phil Dissertation*, Curtin University.
- Irwin, M. (2011), “Basel-III New Capital and Liquidity Standards – FAQs”, *Moody's Analytics*, Available at: <http://www.moodyanalytics.com/Insight/Regulations/Basel-III/Basel-III-Publications>
- ISO. (n.d.). *ISO 31000:2018 - Risk management, A practical guide*. ISO and UNIDO. Retrieved from <https://nobelcert.org/iso-31000-and-risk-management.html>
- Kiema, I. and E. Jokivuolle (2014), “Does a Leverage Ratio Requirement Increase Bank Stability”, *Journal of Banking and Finance*, Vol. 39, pp. 240-254.
- King, M. R. (2013), “The Basel-III Net Stable Funding Ratio and Bank Net Interest Margin”, *Journal of Banking and Finance*, Vol. 37, pp. 4144-4156.
- KPMG (2009), Three Lines of Defense, Audit Committee Institute, KPMG
- Laeven, L. and R. Levine (2008), “Bank Governance, Regulation, and Risk Taking”, *Working Paper No. 14113*, National Bureau of Economic Research, Cambridge. Available at: <http://www.nber.org/papers/w14113>
- Macroeconomic Assessment Group (MAG) (2010a), “Assessing the Macroeconomic Impact of the Transition to Stronger and Liquidity Requirements”, *Interim Report*, BCBS, BIS, Basel, August.
- Metha, M. (2012), “Demystifying Basel-III for Indian Banks”, International Conference on Technology and Business Management, Delhi University.
- Nowak, R. A. (2011), “How Effective is Global Financial Regulation? The Basel Accords’ Role in Mitigating Banking Crises”, *Thesis Paper*, Duke University.

- Parcon-Santos, H. C. and Jr. E. M. Bernabe (2012), “The Macrocconomic Effects of Basel-III Implementation in the Philippines: A Preliminary Assessment”, *BSP Working Paper*, The Philippines.
- Reisen, H. (2008), “The Fallout from the Global Credit Crisis: Contagion-Emerging Markets under Stress, in Felton, A. and Reinhart, C. M. (Eds.)”, *The First Global Financial Crisis of the 21st Century – Part II June-December 2008*, Available at <http://VoxEU.org>
- Risk Culture: From Theory to Evolving Practice, *The RMA Journal*, 2013, Risk Management Association and Protiviti
- Risk Management Guidelines for Banks (Ref: DOS Circular No. 04 of October 18, 2018)
- Risk Management in Banking (Fourth Edition) Joel Bessis Wiley
- Risk Management Report (2012), Alliance Islamic Bank, Malaysia.
- Santos, A. O. and D. Elliott (2012), “Estimating the Costs of Financial Regulation”, *IMF Staff Discussion Note*, September, SDN/12/11.
- Schroeck, G (2002), “Risk management and value Creation in Financial Institutions”, New Jersey: John Wiley&Sons,Inc.
- Shakdwipee, P. and M. Mehta (2017), “Impact of Basel-III on Indian Banks”, *World Journal of Research and Review (WJRR)*, Vol. 4 (1), pp. 40-45.
- Shortreed, J. (2010), “ERM Frameworks”, p.103. In Fraser & Simkins eds., *Enterprise Risk Management*.
- Siddique, M.S., A. C. Pandit and M. R. Amin (2015), “Organizational Structure in Managing Risks of Banks: Progress and Challenges”, *Banking Research Series*, BIBM
- Stephan Schenk (2013), “Three Lines of Risk and Control Defense: Challenges and Industry Practices” paper presented in the Enterprise Risk Management Symposium held at Chicago during April 22-24.
- Sy, A. (2011), *The Macro-financial Impact of Basel-III Capital Requirements*, IMF Selected Issues, Vol. 8 July.
- Tinca A. (2007), “The operational risk in the outlook of the Basel II Accord implementation”, *Theoretical and Applied Economics*, nr.5
- Toniolo, G. (2005), *Central Bank Cooperation at the Bank for International Settlements 1930-1973*, Cambridge University Press.
- Van Greuning Hennie, BrajovicBratanovic, Sonja, *Analyzing Banking Risk*. The World Bank, Washington D.C.
- Wellink, N. (2011), “The New Framework of Banking Supervision”, FSI High Level Meeting on ‘The Emerging Framework to Strengthen Banking Regulation and Financial Stability’ for Africa, Basel Committee on Banking Supervision, Cape Town, South Africa, 27 January.
- Went, P. (2010), “Basel-III Accord: Where do We Go from Here?”, *Risk Professional*, GARP Research Center-USA, December, pp. 36-43.
- White Paper on ISO 31000. (n.d.). Retrieved from <http://www.lakshy.com/>: [https://www.iso-consultants.com/white-papers/ISO%2031000%20Risk%20Mgmt%20White%20paper\\_Lakshy\\_Rev02\\_17022015%20Low.pdf](https://www.iso-consultants.com/white-papers/ISO%2031000%20Risk%20Mgmt%20White%20paper_Lakshy_Rev02_17022015%20Low.pdf)

### Appendix-1: List of Regulatory Guidelines for Risk Management

SL.	Name of Guidelines/Regulations	Remarks	Year of Issue
1.	Foreign Exchange Risk Management	Core Risk Guideline	2003 and revised 2016
2.	Asset Liability Management	Core Risk Guideline	2003 and revised 2016
3.	Internal Control and Compliance	Core Risk Guideline	2003 and revised 2016
4.	Credit Risk Management	Core Risk Guideline	2003 and revised 2016
5.	Money Laundering & Terrorist Financing Risk Management Guidelines	Core Risk Guideline	2015
6.	Money Laundering and Terrorist Financing Risk Assessment Guidelines for Banking Sector	BFIU	2015
7.	Guideline on ICT Security for Banks and Non-Bank Financial Institutions	Core Risk Guideline	2015
8.	Risk Management Guidelines for Banks	For RMD	2012 and Revised 2018
9.	Strengthening and Updating the Risk Management System in Banks	DOS	2015
10.	Guidelines on Risk Based Capital Adequacy (Revised Regulatory Capital Framework for banks in line with Basel III	BRPD	2010 and revised 2014
11.	Guidelines for recognition of eligible External Credit Assessment Institutions (ECAIs)	BRPD	2008
12.	Guidelines on Supervisory Review Evaluation Process (SREP)	BRPD	2014
13.	Implementation of Basel III Liquidity Ratios	LCR & NSFR	2015
14.	Guidelines on Subordinated Debt for Inclusion in Regulatory Capital	BRPD	2010
15.	Guidelines on Stress Testing	DOS	2010 and revised 2011
16.	Prudential Regulations for Banks: Selected Issues	BRPD	2014
17.	Money Laundering Prevention Act-2012	BFIU	2012
18.	Anti-Terrorism Act-2012	BFIU	2012
19.	Submission of Cash Transaction Report-CTR	BFIU	2015
20.	Guidelines on Environmental Risk Management(ERM)	BRPD	2011
21.	Implementation of Credit Risk Grading Manual	BRPD	2005
22.	Formation and Responsibilities of Board of Directors of a Bank Company	BRPD	2013
23.	Self-assessment of Anti-fraud internal Control Statement	DOS	2012 and revised 2017
24.	Foreign Account Tax Compliance Act of the United States	BRPD	2014
25.	Guidelines on Internal Credit Risk Rating System for Banks	BRPD	2018
26.	Environmental and Social Risk Management Guidelines	SFD	2017

**Source:** Bangladesh Bank