

Implementation of the Basel II Framework in Mauritius

1. Introduction

Risks and uncertainties form an integral part of banking. The risk profile, more importantly the risk managing techniques of banks are, therefore, crucial aspects to consider for them to remain sound, stable and viable.

Banking sector regulation is the necessary framework to mitigate market failures while the quality of the regulatory regime has a significant impact on the functioning of financial institutions and general economic performance.

A well-regulated banking system is thus fundamental for the soundness of banks which would contribute to the overall effective and efficient functioning of financial markets and to overall economic stability.

This paper gives an overview of the Basel II framework, the shift from the Basel I paradigm to the Basel II framework and the implementation of Basle II in Mauritius since end March 2008 with the Bank of Mauritius having issued several Guidelines in line with the principles set up by the Basel Committee on Banking Supervision.

2. Basel Committee on Banking Supervision (BCBS)

The Basel Committee on Banking Supervision (BCBS) is a committee of banking supervisory authorities of the G-10 countries, whose objectives are to establish a comprehensive framework for bank supervision with a view to strengthen the stability of financial institutions in general and banks in particular. It has been developing standards and rules to this end since 1988.

2.1 Basel I

Basel I is the first of the Basel Accords, which are recommendations on banking laws and regulations issued by the Basel Committee on Banking Supervision. Basel I was issued in 1988 and sets out the minimum capital requirements of financial institutions with the goal of minimising credit risk.

Banks that operate internationally are required to maintain a minimum amount of 8% of their capital base (Tier 1 and Tier 2) on a percentage of the risk-weighted assets.

Since 1988, this framework has been progressively introduced in a number of countries, including the G-10 countries, namely, Belgium, Canada, France,

Germany, Italy, Japan, Luxembourg, Netherlands, Spain, Sweden, Switzerland, United Kingdom and the United States of America.

2.2 Basel II

Basel II is the second of the Basel Accords. It is an effort by the international banking supervisors to update the original international bank Capital Accord (Basel I). The revised Accord aims to improve the consistency of capital regulations internationally, make regulatory capital more risk sensitive and promote enhanced risk-management practices among large, internationally active banking organisations.

The new framework is more sensitive to the risks that banks face by incorporating an explicit measure for operational risk and includes more risk sensitive weightings against credit risk. It reflects improvements in banks' risk management practices, for example, the Internal Ratings Based Approach (IRB) that allows banks to rely to a certain extent on their own estimates of credit risk. It also provides incentives for banks to improve their risk management practices, with more risk sensitive weights, as banks adopt more sophisticated approaches to risk management.

The purpose of Basel II is to create an international standard that banking regulators can use when creating regulations such as the minimum capital requirements that banks need to put aside to guard against the types of financial and operational risks they face in their daily business. Advocates of Basel II believe that such an international standard can help protect the international financial system from the type of risks that might arise should a major bank or a series of banks collapse.

In practice, Basel II attempts to accomplish this by setting up rigorous risk and capital management requirements designed to ensure that a bank holds capital reserves appropriate to the risks that the bank exposes itself to through its lending and investment practices. These rules mean that the greater risks to which the bank is exposed, the greater the amount of capital the bank needs to hold to safeguard its solvency and overall economic stability.

Basel II aims at ensuring that

- (i) capital allocation is more risk sensitive;
- (ii) there is a separation of operational risk from credit risk, and quantifying both; and
- (iii) there is an attempt to align economic and regulatory capital more closely to reduce the scope for regulatory arbitrage.

In addition to maintaining an adequate level of Capital Adequacy Ratio, a key objective of Basel II is to improve quantitative risk measurement and risk management across banks. It is more concerned with improving risk management and risk mitigation techniques. Hence, risk analytics is a fundamental contribution of Basel II. The latter can also be regarded as synonymous of the best international practices of risk management in the financial sector.

Basel II is comprised of three pillars as illustrated in Figure 1 below.

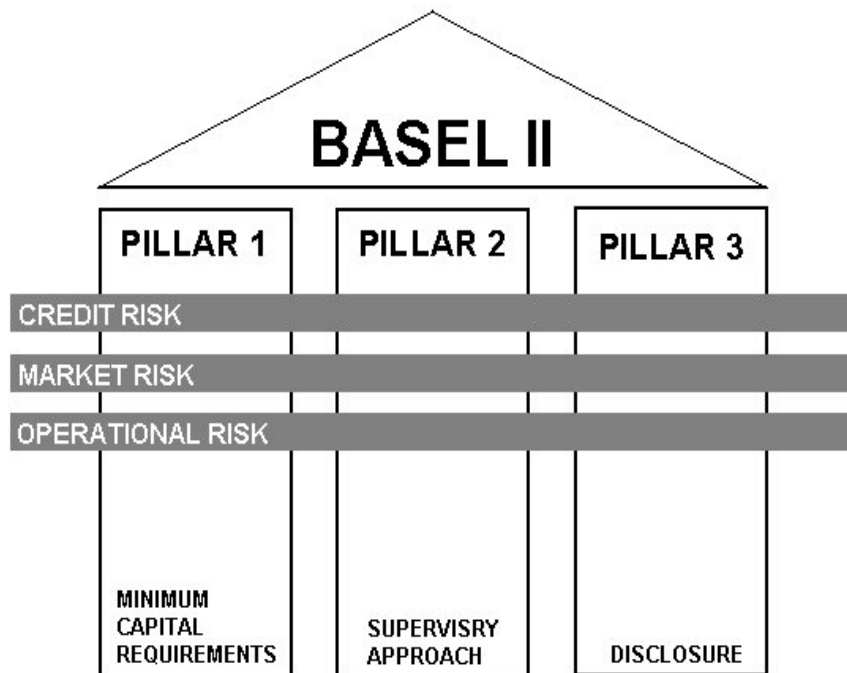


Figure 1: The structure of Basel II

The **first pillar** deals with the minimum capital requirements and basically describes the capital requirements for credit risk, market risk and operational risk.

The **second pillar** deals with the supervisory approach, whose aim is to encourage banks to develop better methods to measure and **manage** the various risks.

The third pillar of Basel II deals with the disclosure requirements and recommendations for banks.

2.2.1 First Pillar

There are three types of risks which are within the scope of the first pillar, namely credit risk, market and the operational risk.

Credit risk is basically the risk of a loss for the bank due to the financial failure of the second party to meet its contractual debt obligations towards the bank. Basel II distinguishes between two methods to measure credit risk:

The **Standardised Approach** and the **Internal Rating Based (IRB) Approach**.

The latter can be further divided into two approaches namely the **Foundation Internal Rating Based Approach** and the **Advanced Internal Rating Based Approach**.

The Internal Rating Based Approach is more sophisticated than the Standardised Approach while the Advanced Internal Rating Based Approach is the most sophisticated Approach within the IRB methods.

Market risk can be defined as the risk of a loss, due to the day to day potential of an investor to experience losses from fluctuations in securities prices.

There are two methods to measure market risk within the framework of Basel II which are the **Standardised Approach** and the **Internal Models Approach**.

Market risk can be defined as the risk that market price changes adversely affect the value of on and off balance sheet positions. As such, market risk can be further decomposed into interest rate risk, equity risk, foreign exchange risk, and commodity risk. Market risk refers to changes in market prices resulting from general market behaviour and specific risks inherent to individual instruments, independent of general market movements. Market risk can be measured by sophisticated methods of Internal Models.

Operational risk is basically the risk of loss due to inadequate or failed internal processes, people, systems or an external event. This can be summarised as everything that is not a result of credit and market risks.

There are three approaches to measure operational risk namely the **Basic Indicator Approach (BIA)**, the **Standardized Approach (SA)** and the **Advanced Measurement Approach (AMA)**.

An overview of the risk management methods within the scope of the revised framework is shown in Table 1 below:

Table 1: Risk Management Methods

Pillar 1			
Type of Risk	Credit Risk	Market Risk	Operation Risk
Methods	Standardised Approach	Standardised Approach	Basic Indicator Approach
	Foundation Internal Rating Based Approach	Internal Models Approach	Standardised Approach
	Advanced Internal Rating Based Approach		Advanced Measurement Approach

Source:BCBS

2.2.2 Second Pillar

The second pillar of Basel II is the supervisory review process. The supervisory review process requires supervisors to ensure that each bank has sound internal processes in place to assess the adequacy of its capital base on a thorough evaluation of its risks. This framework encourages the bank's management to develop an internal capital assessment process and to set targets for capital that commensurate with the bank's particular risk profile and control environment.

The second pillar deals with the regulatory response to the first pillar, giving regulators much improved techniques over those available to them under Basel I. It also provides a framework for dealing with all the other risks a bank may face, such as systemic risk, pension risk, concentration risk, strategic risk, reputation risk, liquidity risk and legal risk, which the Accord combines under the title of residual risk.

2.2.3 Third Pillar

The third pillar of the new Framework is disclosure, which sets a floor to support

market discipline through enhanced disclosure by banks. The main idea is to ensure that market participants can get a better understanding of banks' risks profiles and the adequacy of their capital position by effective disclosure. The new framework sets out disclosure requirements and recommendations in several areas, including the way a bank calculates its Capital Adequacy and its risk assessment methods. These requirements apply to all banks. The principles of the supervisory review process undertake that banks should have a process for assessing their overall capital adequacy. Consequently, the central bank expects banks to have in place the appropriate Board and senior management oversight, a sound capital assessment framework, a comprehensive assessment of risks, an effective monitoring, reporting and internal control review. Moreover, supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum. They should seek to intervene at an early stage in order to prevent capital from falling below the minimum required level to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored.

3. Implementation of Basel II

3.1 International Perspectives

- The new Basel Accord has been implemented in the European Union since January 2008 via the Capital Requirements Directive (CRD).
- It has also been implemented in Australia since 1 January 2008 through Prudential Standards set by the Australian Prudential Regulation Authority (APRA).
- In New Zealand, the Reserve Bank's capital adequacy framework for banks is based on the Basel II framework where locally incorporated banks are required to hold capital based on Basel II requirements since the first quarter of 2008.
- The Monetary Authority of Singapore has implemented the Basel II Framework since 1 January 2008.
- In Pakistan, the Standardized Approach for credit risk and Basic Indicator/Standardised Approach for operational risk are operational since January 2008.

3.2 The Mauritian Experience

Basel II is operational in Mauritius as from end March 2008 on a parallel run with Basel I.

Banks will thus have to apply, during this transitory period, both the Guidance Notes on Risk Weighted Capital Adequacy Ratio (Basel I) and the Guidelines issued by the Central Bank in the context of the Basel II implementation for the computation of their Capital Adequacy Ratio.

The Bank of Mauritius has set up, as early as August 2005, a Steering Committee comprising of the central bank, the banks and the Mauritius Bankers Association. Moreover, various working groups have been set up to discuss specific issues which have subsequently been incorporated in the following

Guidelines that have been issued since end of March 2008:

- (i) Guideline on Scope of Application of Basel II
- (ii) Guidance on Eligible Capital
- (iii) Guideline on Standardised Approach to Credit Risk
- (iv) Guideline on Operational Risk Management and Capital Adequacy Determination
- (v) Guideline on the Recognition and use of External Credit Assessment Institutions
- (vi) Proposal Paper on the Measurement and Management of Market Risk (still under consultation)

3.2.1 Guideline on the Scope of Application of Basel II

Under the Scope of Application, Basel II clarifies the level at which capital requirements should be applied within a banking group in order to capture the risk of the whole banking group.

The Basel II Framework recognises that different entities may exist within a banking group and that risks within these entities may impact on the overall risk profile of the whole group. In order to capture the risk of the whole banking group, Basel II states that capital adequacy requirements should be applied at

parent holding (top level) of the banking group. The following rules should be used for calculation of Capital Adequacy Ratios:

- A home banking group, defined as a group predominantly engaged in banking business whose centre of economic interest is in Mauritius, shall be subject to capital adequacy requirements, on a consolidated basis for the group and on a stand-alone basis for each individual member which is predominantly engaged in banking business, using an approach as approved by the central bank.
- A banking entity incorporated and operating in the Mauritian jurisdiction and forming part of a banking group having a foreign regulator as its home regulator, shall be subject to capital adequacy requirements on a subconsolidated basis for its group operation in Mauritius.
- A banking entity operating through a branch in the Mauritian jurisdiction and forming part of a banking group having a foreign regulator as its home regulator, shall be subject to capital adequacy requirements, on a stand-alone basis in respect of its segment A banking operations only, using an approach approved by the central bank.
- For banking branches or subsidiaries of home banking groups operating outside the Mauritian jurisdiction, the Bank of Mauritius will rely on the Capital Adequacy requirements of the host regulator for assessing the Capital Adequacy of the branch or subsidiary on a stand alone basis.

3.2.2 Guideline on Eligible Capital

The provision under Basel I requiring banks to hold sufficient capital to support the risks that arise from their business is still being pursued under the New Capital Adequacy Framework of Basel II. For the purpose of calculating the Capital Adequacy Ratio (CAR), the capital of a bank is divided into two tiers (levels): Core Capital (Tier 1) and Supplementary Capital (Tier 2). For the purpose of determining the Capital Adequacy Ratio of a bank, the capital base of a bank, being the numerator of the risk asset ratio, shall be the sum of Tier 1 and Tier 2 Capital net of the relevant deductions.

Tier 1 Capital

Elements of **Tier 1 Capital** comprise of paid up or assigned capital, share

premium reserve, statutory reserve and general reserve (excluding any portfolio provisions for credit losses which is included in Tier 2 Capital). The current year's interim retained profits, including any negative goodwill and minority interests arising from the consolidation or sub-consolidation of an entity which might be included in Tier 1 Capital whereas the following deductions are: accumulated losses; goodwill and intangibles assets as reported in the latest audited accounts; deferred tax assets as shown in the latest audited accounts; 50 per cent of (i) investment in unconsolidated banking and financial subsidiary companies; (ii) investments in capital (including lending of a capital nature and holding of capital instruments) of other banks and financial institutions; (iii) significant minority investments in other financial entities; (iv) the portion of investment in commercial entities that exceeds 15 per cent of the bank's capital base for significant individual investment and 60 per cent of the bank's capital base for aggregate investments and any amount permitted to be deducted from Tier 2 Capital.

Tier 2 Capital

Tier 2 Capital or supplementary capital is made up of a broad combination of capital components and has lower characteristics to absorb losses than Tier 1 capital. The total amount that can be included in Tier 2 capital is limited in proportion to Tier 1 capital which is limited to 100 per cent of Tier 1 capital. The latter capital is made up of several components of capital that support the overall strength of a bank on an ongoing basis. Elements that constitute Tier 2 capital are undisclosed reserves, fixed assets revaluation reserves, fair value gains on revaluation of securities not held for trading, irredeemable cumulative preference shares, redeemable preference shares, term subordinated debt, 50 per cent of (i) the investment in unconsolidated banking and financial subsidiary companies; (ii) the investment in the capital (including lending of a capital nature and holding of capital instruments) of other banks and financial institutions; (iii) significant minority investments in other financial entities; and (iv) the portion of investment in commercial entities that exceeds 15 per cent of the bank's capital base.

3.2.3 Guideline on Standardised Approach to Credit Risk

Under the Basel II framework banks are allowed to choose between two broad

methodologies for calculating their capital requirements for credit risk.

One alternative is to measure credit risk in a **Standardised** manner, supported by external credit assessments. The other alternative, which is subject to the explicit approval of the regulator, allows banks to use their **Internal Rating Systems** to measure credit risk. It provides a framework for banks to apply a uniform approach to the measurement of risks relating to their on- and off-balance sheet credit exposures for capital adequacy purposes.

Banks shall be required to use the Standardised Approach to Credit Risk for capital adequacy purposes unless they have obtained approval from the Bank of Mauritius to use an Internal Ratings-Based Approach. The Bank of Mauritius shall map eligible ECAs' assessments to the supervisory risk weights under the Standardised Approach to Credit Risk using the guidance provided by BCBS.

In conducting the mapping process, the Bank of Mauritius shall assign supervisory risk weights to each rating category such that the probability of default (PD) associated with each rating category is consistent with the level of risk reflected in the supervisory risk weights of the Standardised Approach to Credit Risk.

The Bank of Mauritius shall also consider a variety of qualitative and quantitative factors to differentiate between the relative degrees of risk expressed by each rating category.

The Guideline also permits banks to use consensus country risk scores of Export Credit Agencies (ECAs) to determine risk weights for claims on sovereigns in cases where countries are not rated by eligible ECAs.

3.2.4 Guideline on the Recognition and Use of External Credit Assessment Institutions

The Standardised Approach to Credit Risk requires banks to use credit assessments provided by duly recognised External Credit Assessment Institutions (ECAs) to determine the risk weights on their credit exposures. Only

the credit assessments of eligible ECAIs shall qualify for the Standardised Approach to Credit Risk.

Two methods of recognition are proposed: the **direct recognition** and the **indirect recognition**.

Under the **direct recognition** method, the Bank of Mauritius shall conduct an evaluation of an ECAI's compliance with the recognition criteria as set out in the Guideline based on the information provided by the ECAI.

Under the **indirect recognition** method, the central bank shall recognise an ECAI based on the recognition criteria of another jurisdiction provided that the criteria comply with the requirements of the Basel Committee on Banking Supervision (BCBS).

There are **six eligibility criteria for an ECAI**, namely objectivity, independence, international access/transparency, disclosure, resources, and credibility, each with its own minimum requirements.

A locally incorporated subsidiary may be granted recognition at the level of the group provided the ECAI group demonstrates that the subsidiary for which it is seeking recognition strictly adheres to the procedures and methodologies set up at group level.

The Bank of Mauritius recognises (directly) the following international credit rating agencies

1. **Standard and Poor's Ratings Services;**
2. **Moody's Investors Service;** and
3. **Fitch Ratings.**

And indirectly:

1. **Rating and Investment Information, Inc.**

Additionally, the ratings of the following rating agencies may be used by banks for risk weighting their claims on corporates only:

1. **Credit Analysis and Research Limited (CARE);**
2. **Credit Rating Information Services of India Limited (CRISIL),**
3. **FITCH India;** and
4. **Investment information and Credit Rating Agency of India (ICRA).**

A bank can also make use of consensus country risk scores of Export Credit Agencies (ECAs) to determine risk weights for claims on sovereigns in cases where countries are not rated by eligible ECAs.

3.2.5 Guideline on Operational Risk Management and Capital Adequacy

Determination

This Guideline is classified into the **Operational Risk Management Framework and the Computation of Capital Charge.**

Under this Guideline, every bank shall establish an appropriate, comprehensive approach to identify, assess, monitor and control operational risk and shall be required to make an adequate provision of capital to protect against such risk.

In determining Capital Adequacy, the requirements of this Guideline are supplementary to those of the Guidance Notes on Risk Weighted Capital Adequacy Ratio which is based on the concept of weighting both on-balance sheet assets and off-balance sheet exposures according to their perceived level of risk. The sum of risk weighted assets and risk assessed off-balance sheet exposures is related to a bank's capital base and the resulting "risk asset ratio" is used as a measure of Capital Adequacy.

Operational Risk Management Framework

- Every bank shall have in place an Operational Risk Management Framework that serves to orient the employees to the essential objectives and components of operational risk management.
- A bank may use the following tools for identifying and assessing operational risk: Business Process Analysis, Self Assessment, Risk Treatment, Risk Monitoring and Continuous Monitoring.
- Banks are also required to track internal loss data and they have the option of choosing the structure of their internal loss database, to be reported on a quarterly basis.

- The bank should also have an appropriate Contingency and Business Continuity Planning.

Computation of Capital Charge

- There are three main methods for calculating operational risk capital charges. Every bank in Mauritius shall have the flexibility of choosing one of the three approaches outlined below and will be encouraged to move along the spectrum of available approaches as they develop more sophisticated operational risk measurement systems and practices.
- The three approaches are:
 1. **The Basis Indicator Approach (BIA)** which can be used where the capital requirement for operation risk is equal to 15% of the average annual positive gross income over the previous three years.
 2. **The Standardised Approach** which is further classified into the **Standardised Approach** and the **Alternative Standardised Approach**.

Under the **Standardised Approach**, bank's activities are divided into eight business lines where the capital charge for each business line is calculated by multiplying gross income by a beta factor assigned to that business line. Beta serves as a proxy for industry-wide relationship between the operational risk loss experience for a given business line and aggregate level of gross income generated by the business line and ranges from 12% to 18%.

The Computational Framework under the **Alternative Standardised Approach** is the same as under the Standardised Approach except for retail banking and commercial banking. The beta factors for these two business lines remain unchanged but the gross income is replaced by the outstanding balance of loans and advances multiplied by a factor which has been fixed at 0.035.

3. The regulatory capital requirement under the **Advanced**

Measurement Approach shall equal the risk measure resulting from the bank's internal operational risk measurement system, using the specified qualitative and quantitative criteria. The approach is designed to produce a reasonable estimate of unexpected losses based on the combine use of internal and relevant external contingencies and loss data.

Banks will also be permitted to make partial use of any of the three approaches for different parts of their operations provided certain minimum criteria are met.

Computation of Capital Adequacy Ratio

Banks in Mauritius shall compute a composite Capital adequacy Ratio, encompassing both credit risk and operational risk. They are required to maintain a minimum composite Capital Adequacy Ratio of 10 per cent which is above the minimum 8 per cent prescribed by BCBS.

3.2.6 Proposal Paper on Measurement and Management of Market Risk

This paper deals with the measurement and management of market risk, which has been divided into **four risk components**: namely

- **Interest Rate Risk;**
- **Equity Risk;**
- **Foreign Exchange Risk;** and
- **Commodities Risk.**

The Bank of Mauritius allows banks to compute capital charge using a mixture of **Standardised Measurement Method (SMM)** and **Internal Model Method (IMM)**. In such cases, banks will have to ensure consistency in the use of the method for the computation of capital charge for any risk class. For instance, if a bank uses IMM to compute Equity Risk and SMM for the other risk classes, it cannot switch to SMM for computation of capital charge for Equity Risk without the approval of the Bank of Mauritius.

Banks shall ensure that they hold capital commensurate with their level of risk in

their books. For instance, banks with significant trading in this paper. All other banks with an insignificant trading book should have processes in place to ensure adequacy of capital against such risks, but without the requirement to hold regulatory capital for the risk.

Banks should have a sound market risk management policy framework which involves the application of four basic elements in the management of Assets, Liabilities, and Off Balance Sheet (OBS) instruments, namely:

- appropriate board and senior management oversight;
- adequate risk management policies and procedures;
- appropriate risk measurement, monitoring, and control functions;
- comprehensive internal controls ; and
- independent audits.

4. Conclusion

To remain globally competitive, banks have to resort to international convergence of risk management and reporting. Given the fast process of globalisation of the financial sector, the banking sector in Mauritius is complying with these international standards through the implementation of the Basle II Framework.

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