Chapter-1

Introduction
1.1 Introduction to Basel Accord

1.1.1 History

*In 1974,* the central banks governors of the G-10 countries namely Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, the United-Kingdom and the United States of America plus Luxembourg and Switzerland (Basel Committee on Banking Supervision, 2004b:1) formed a committee under the name of “Committee of Banking Regulations and Supervision”.

The representatives have meetings regularly at the Bank for International Settlements (BIS) based in Basel to discuss the stakes related to their responsibilities. Although the Basel Committee does not have any legal state or international power, it introduces the norms of references and general directives and formulates recommendations in respect with good practices which all members commit themselves to implement. Individual authorities are encouraged to implement these standards through detailed arrangements – statutory or otherwise which are best suited to their own national systems (Insurance Advisory Board, 2002:1).

*In 1980s,* with the increase in globalisation of banking activities due to explosion of market activities the risk of share capital loss for banks were felt. The evolution of the financial environment, the development of markets worldwide, and also the will to limit the systemic crisis (that is to say a series of bankruptcy of the economic actors); lead the supervisors to revise the conception of their role.

*In 1988,* it was agreed that the recommendation for “Minimum Requirements for Capital Adequacy of Internationally Active Banks” initially
be implemented by internationally active banks in the G10 countries, thereafter the widespread acceptance of this norm led to it gradually becoming the recognized standard in over 100 countries.

The 1988 Basel Capital Accord and its amendments have undoubtedly been of great importance in building a safe and stable financial system by setting a common minimum level of capital requirements.

In 1998, the Basel Committee introduced for the banks exercising their activities abroad a new set called "Basel Accord" which defines capital adequacy standards the banks must respect according to the risks they took. The international solvency ratio, called Cooke ratio (after the President of the Basel Committee) came into existence with a simple and near uniform rule of 8% as a maximum leverage *(i.e. for 100 weighted assets, the Bank must set aside 8 in Share Capital)*. (Basel Committee on Banking Supervision, 2004b:12)

Above all, this recommendation now referred to as “Basel I” set important international standards in three ways:

Firstly, despite great differences of opinion, the recognition of the constituents of capital was largely harmonized – since then; capital has been sub-divided into core capital (Tier 1) and supplementary capital (Tier 2).

Secondly, risk rates for exposures were set. The framework of weights is considered to be too broad by today’s standards and is the main reason for the amendment; the framework was also methodically limited by data processing and risk measurement capabilities available at the time.

Thirdly, the important minimum ratios for Tier 1 capital (4% of weighted exposures) and total capital (8% of weighted exposures) were set. These ratios are also frequently known as the BIS Tier 1 Capital Ratio or the BIS Capital Ratio, after the seat of the Basel Committee at the Bank for International Settlements (BIS).
However, during the last decade financial markets have undergone significant changes, which resulted in increased criticism of the current Accord.

In June 1999, in its attempt to close loopholes and re-establish a level playing field the Basel Committee started a process of establishing a new accord, which would correct the existing distortions and adjust the new Accord to the changed realities in the financial system the First Consultative Paper, “A New Capital Adequacy Framework”, was published to replace Basel I and all interested institutions were requested to submit comments by March 31, 2000 on this framework for a more risk-oriented revision of the 1988 Capital Accord. The New Capital Adequacy Framework has since then become known as the New Basel Capital Accord or “Basel II”.

In January 2001, following evaluation and revision, a Second Consultative Paper was published with a deadline for comments of May 31, 2001. This proposed for the first time the application of internal rating procedures to set capital charges for credit risk. The unsatisfactory and disappointing results of the Quantitative Impact Studies (QIS I and in particular QIS 2), the magnitude of the unresolved areas of regulation and not the least the high quality of the comments received prompted the Basel Committee to propose a third consultation round, which had been categorically rejected in January 2001.

In April 2003, the Basel Committee on Banking Supervision (BCBS) consultative paper entitled “New Basel Capital Accord” (Proposed New Accord). The Proposed New Accord set forth a “three pillar” framework encompassing risk-based capital requirements for credit risk, market risk, and operational risk (Pillar I); supervisory review of capital adequacy (Pillar II); and market discipline through enhanced public disclosures (Pillar III). The Proposed New Accord incorporated several methodologies for determining a bank’s risk-based capital requirements for credit, market, and operational risk.
Source: The Significance of Basel 1 and Basel 2 for the Future of the Banking Industry with Special Emphasis on Credit Information-Maher Hasan Central Bank of Jordan

Figure 1: Bank soundness

Although the proposal was based on the same principles of promoting safety and stability of financial system and enhancing competitive equality as the current Accord, it also attempted to fill the gaps created by the divergence between the regulatory content of the 1988 Accord and innovations that have occurred in the financial instruments available to banks ever since its inception.

1.1.2 Background of Basel Accord

Banks were highly regulated and protected entities with hardly any competition among them till late 1970. Collapse of the Bretton Woods agreement put them in a new environment of increased competition, leading to gradual erosion of capital that started to alarm the regulators. Dealing with the problem on international level seemed to be the only possible way of finding a proper solution without increasing competitive differences between banks from individual countries. Hence, a special committee was set up under the auspices of the Bank for International Settlements in Basel. Committee on Banking Regulations and Supervisory Practices or shortly the Basel Committee was established in 1974 by the governors of central banks of the Group of Ten (G10) countries (Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, United Kingdom and USA) and Luxemburg. Its work focused on strengthening the soundness and stability of the international
banking system, and reducing the distortion of competition between international banks. The Basel Committee’s meetings are usually held at the Bank for International Settlements.

1.1.3 Basel I Accord

The committee, initially known as the Cooke Committee and later renamed the Basel Committee, formed a proposal in which it suggested that a common framework for calculating the capital adequacy of banks should be formed. This document, known as the 1988 Basel Capital Accord, was published in July 1988 and fully implemented by end of 1992. The document set out the calculation of capital adequacy ratio with the definition of capital and credit risk became a huge success after its adoption – it not only managed to level the playing field, but it also brought national practices on capital adequacy of banks in line.

The 1988 Accord has been supplemented a number of times, with most changes dealing with the treatment of off-balance-sheet activities. A significant amendment was enacted in 1996, when the Committee introduced a measure whereby trading positions in bonds, equities, foreign exchange and commodities were removed from the credit risk framework and given explicit capital charges related to the bank’s open position in each instrument Bank of International Settlement (BIS) (2001). Over time the accord has become internationally accepted with more than 100 countries applying the Basel framework to their banking system. Since the implementation of the 1988 Accord and later amendments, capital ratios of nearly all internally active banks have increased substantially, thus reinforcing the solidity of the international banking system. The widespread adoption in many countries fostered competitive equality.
1.1.4 Pitfalls of Basel I Accord

However, the financial world has evolved significantly during the past ten years, to the point where a bank’s capital ratio, calculated using the 1988 Accord, may not always be a good indicator of its financial condition. The current risk weighting of assets results, at best, is a crude measure of economic risk, primarily because degrees of credit risk exposure are not sufficiently calibrated to differentiate adequately borrowers’ differing default risks.

Further, increased market volatility as well as incidents such as the Asian and Russian monetary crises, the collapse of Barings, problems with Sumitomo Capital and the near collapse of Long Term Capital Hedge Fund, prompted a new look at the capital accord with a view to preparing a comprehensive and detailed update that attempts to address some of the underlying factors that caused the incidents.

1.1.5 Features of the New Basel II Capital Accord
(Third Consultative Paper)

<table>
<thead>
<tr>
<th>BASEL II CAPITAL ACCORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Minimum Capital Requirements</td>
</tr>
<tr>
<td>- Sets minimum acceptable capital level</td>
</tr>
<tr>
<td>- Enhanced approach for credit risk</td>
</tr>
<tr>
<td>2. Supervisory Review of Capital Adequacy</td>
</tr>
<tr>
<td>- Public ratings</td>
</tr>
<tr>
<td>- Internal ratings</td>
</tr>
<tr>
<td>- Mitigation</td>
</tr>
<tr>
<td>- Explicit treatment of Operational Risk</td>
</tr>
<tr>
<td>- Market Risk framework, capital definition/ratios are unchanged</td>
</tr>
<tr>
<td>3. Market Discipline</td>
</tr>
<tr>
<td>- Banks must access solvency versus risk profile</td>
</tr>
<tr>
<td>- Supervisory review of bank’s calculations and capital strategies</td>
</tr>
<tr>
<td>- Banks should hold in excess of minimum level of capital</td>
</tr>
<tr>
<td>- Regulators will intervene at an early stage if capital levels deteriorate</td>
</tr>
</tbody>
</table>


Figure 2: Temple of Basel II
In June 2004, the BCBS issued a document entitled "International Convergence of Capital Measurement and Capital Standards: a Revised Framework" (New Accord or Basel II). (Basel Committee on Banking Supervision, 2004). The New Accord recognizes developments in financial products, incorporates advances in risk measurement and management practices, and assesses capital requirements that are generally more sensitive to risk. It is intended for use by individual countries as the basis for national consultation and implementation.

The capital framework proposed in the New Basel Accord consists of three pillars, each of which reinforces the other. The first pillar, which establishes the way to quantify the minimum capital requirements, is complemented with two qualitative pillars, concerned with organizing the regulator's supervision and establishing market discipline through public disclosure of the way that banks implement the Accord. This proposed three-pillar system of determining capital adequacy both revises and upgrades the 1988 Capital Accord.

The Objectives of the new accord (Basel 2) -as outlined by Basel committee- are:

- Promote safety and soundness in the financial system;
- Enhance competitive equality;
- Constitute a more comprehensive approach to addressing risks;
- Develop approaches to capital adequacy that are appropriately sensitive to the degree of risk involved in a banks' positions and activities; and
- Focus on internationally active banks and at the same time keep the underlying principles suitable for application to banks of varying levels of complexity and sophistication.
Basel II framework has substantive breadth and depth. It prescribes different approaches for different sized banks and/or domestic versus internationally active banks and recognizes properly different buckets of assets and assigns risk weights while incorporating the quality of issues/assets through rating mechanism. To allow this flexibility Basel II is elaborate and is bedecked with three mutually reinforcing pillars:

- Minimum capital requirement (MCR --Pillar I)
- Supervisory review process (Pillar II)
- Market Discipline (Pillar III)

All three pillars complement each other to form an overarching risk-management structure for the promotion of financial stability.

![Diagram of 3 Pillars of Basel II](image)


**Figure 3: Proposed structure of new Basel Accord**
1.1.5.1 Pillar I Minimum capital requirement

The Pillar I sets out minimum capital requirements. The new framework maintains both the current definition of capital and the minimum requirement of 8 percent of capital to risk-weighted assets. To ensure that risks within the entire banking group are considered, the revised Accord will be extended on a consolidated basis to holding companies of banking groups. The pillar provides for minimum capital requirement for 3 main risks i.e. credit risk, operational risk and market risk.

1.1.5.1.1. Definition of capital

Basel I defines capital based on two tiers:

1. **Tier 1 (Core Capital):** Tier 1 capital includes stock issues (or shareholder's equity) and declared reserves, such as loan loss reserves set aside to cushion future losses or for smoothing out income variations.

2. **Tier 2 (Supplementary Capital):** Tier 2 capital includes all other capital such as gains on investment assets, long-term debt with maturity greater than five years and hidden reserves (i.e. excess allowance for losses on loans and leases). However, short-term unsecured debts (or debts without guarantees), are not included in the definition of capital.

Total capital is defined in the formula below:

\[
\text{Risk-Based Capital Ratio} = \frac{\text{Capital}}{\text{Credit Risk} + \text{Market Risk} + \text{Operational Risk}}
\]

**Source:** The Significance of Basel I and Basel 2 for the Future of the Banking Industry with Special Emphasis on Credit Information-Maher Hasan Central Bank of Jordan

**Figure 4: Definition of the capital ratio**
The main changes will come from the inclusion of the operational risk and the approaches to measure the different kinds of risks.

The definition of capital in Basel 2 will not modify and that the minimum ratios of capital to risk-weighted assets including operational and market risks will remain 8% for total capital. Tier 2 capital will continue to be limited to 100% of Tier 1 capital.

1.1.5.1.2 Types of Risk

1.1.5.1.2.1 Credit Risk

Credit Risk is defined as the risk weighted asset (RWA) of the bank, which are banks assets weighted in relation to their relative credit risk levels. According to Basel I, the total capital should represent at least 8% of the bank's credit risk (RWA). In addition, the Basel agreement identifies three types of credit risks:

- The on-balance sheet risk (see Table 1 for example).
- The trading off-balance sheet risk. These are derivatives, namely interest rates, foreign exchange, equity derivatives and commodities.
- The non-trading off-balance sheet risk. These include general guarantees, such as forward purchase of assets or transaction-related debt assets.

Let's take a look at some calculations related to RWA and capital requirement. Table 1 displays predefined categories of on-balance sheet exposures, such as vulnerability to loss from an unexpected event, weighted according to four relative risk categories.

<table>
<thead>
<tr>
<th>Risk Weight</th>
<th>Asset Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>Cash and gold held in the bank, Obligation on OECD governments and U.S. treasuries</td>
</tr>
<tr>
<td>20%</td>
<td>Claims on OECD banks, Securities issued by U.S. government agencies, claims on municipalities</td>
</tr>
<tr>
<td>50%</td>
<td>Residential mortgages</td>
</tr>
<tr>
<td>100%</td>
<td>All other claims such as corporate bonds, less-developed countries' debt, claims on non-OECD banks, equities, real estate, plant and equipment.</td>
</tr>
</tbody>
</table>

*Source: Michael K. Ong "Internal Credit Risk Models, Capital Allocation and Performance Measurement (1999)"

Table 1: Basel's Classification of risk weights of on-balance sheet assets
As shown in Table 2, there is an unsecured loan of $1,000 to a non-bank, which requires a risk weight of 100%. The RWA is therefore calculated as 
\[ RWA = \$1,000 \times 100\% = \$1,000. \]
By using Formula 2, a minimum 8% capital requirement gives 
\[ 8\% \times RWA = 8\% \times \$1,000 = \$80. \]
In other words, the total capital holding of the firm must be $80 related to the unsecured loan of $1,000. Calculation under different risk weights for different types of assets are presented in Table 2.

<table>
<thead>
<tr>
<th>Asset Category</th>
<th>Risk Weight</th>
<th>Capital Ratio</th>
<th>Amount</th>
<th>RWA</th>
<th>Minimal Capital Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treasury Bond</td>
<td>0%</td>
<td>8%</td>
<td>$1,000</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Municipal Bond</td>
<td>20%</td>
<td>8%</td>
<td>$1,000</td>
<td>$200</td>
<td>$16</td>
</tr>
<tr>
<td>Residential Mortgage</td>
<td>50%</td>
<td>8%</td>
<td>$1,000</td>
<td>$500</td>
<td>$40</td>
</tr>
<tr>
<td>Unsecured loan</td>
<td>100%</td>
<td>8%</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$80</td>
</tr>
</tbody>
</table>

Source: Investopedia.com

Table 2: Calculation of RWA and capital requirement on-balance sheet assets

1.1.5.1.2.1.1 Approaches to measure Credit Risk

Choice of three levels of calculation - increasing in detail, complexity and sophistication

Increasing sophistication, with more advanced qualitative criteria

STANDARDIZED APPROACH

FOUNDATION INTERNAL RATINGS APPROACH

ADVANCED INTERNAL RATINGS APPROACH

Increasing sophistication, means greater disclosure

Similar to Basel I Accord but with some additional risk sensitivity through use of wider range of risk weights linked to external ratings.

Institution's portfolio is split by broad category of exposure.

Institutions assign ratings limited to probability of default. Other inputs set by supervisor.

Similar to Foundation Approach but institutions use their own estimates of loss given default and of exposure at default in addition to calculation probability of default.

Source: THE BASEL II ACCORD: WHAT DOES IT MEAN FOR THE NORTH AMERICAN LEASING MARKET?

Figure 5: Approach to measure credit risk
1.1.5.1.2.1.1 Standardized Approach (a modified version of the existing approach).

The standardized approach is conceptually the same as the present Accord, but it is more risk sensitive. The bank allocates a risk-weight to each of its assets and off balance-sheet positions and produces a sum of risk-weighted asset values. A risk weight of 100% means that an exposure is included in the calculation of risk weighted assets at its full value, which translates into a capital charge equal to 8% of that value. Similarly, a risk weight of 20% results in a capital charge of 1.6%. Because of its simplicity it is expected that it will be used by a large number of banks around the globe for calculating minimum capital requirements.

Under Basel I individual risk weights depend on the board category of borrower (i.e. sovereigns, banks or corporates). Under Basel II the risk weights are to be refined by reference to a rating provided by an external credit assessment institution (such as a rating agency) that meets strict standards. For example, for corporate lending, the existing Accord provides only one risk weigh category of 100% but the new Accord will provide four categories (20%, 50%, 100% and 150%). The following table illustrates the relation between the risk weights and credit assessment for corporate lending.

<table>
<thead>
<tr>
<th>Credit Assessment</th>
<th>AAA to AA-</th>
<th>A+ to A-</th>
<th>BBB+ to BBB-</th>
<th>Below BB-</th>
<th>Unrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk weight</td>
<td>20%</td>
<td>50%</td>
<td>100%</td>
<td>150%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Adapted from Basel Committee on Banking Supervision, 2004b, Internal Convergence of Capital Measurement and Capital Standards Pg 15

Table 3: the relation between the risk weights and credit assessment for corporate lending

Banks’ exposures to the lowest rated corporates are captured in the 150% risk-weight category. 150% risk-weight can be assigned for example to unsecured portions of assets that are past due for more than 90 days, net of
specific provisions. Similar frameworks for sovereigns and banks credit risk weighs will be applied.

For bank’s exposures to sovereigns, the Basel II proposes the use of published credit scores of export credit agencies (ECA) and developed a method for mapping such ratings to the standardized risk buckets.

The standardised approach is a simple rules-based approach designed to address some of the shortcomings of Basel I. The suggested risk weightings for some of the main different claims will now be reflected.

**Claims on sovereigns**

Claims on sovereigns and their central banks will be risk weighted as follows:

<table>
<thead>
<tr>
<th>Credit Assessment</th>
<th>AAA to AA-</th>
<th>A+ to A-</th>
<th>BBB+ to BBB-</th>
<th>BB+ to B-</th>
<th>Below B-</th>
<th>Unrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk weight</td>
<td>0%</td>
<td>20%</td>
<td>50%</td>
<td>100%</td>
<td>150%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Adapted from Basel Committee on Banking Supervision, 2004b, Internal Convergence of Capital Measurement and Capital Standards Pg 15

Table 4: Claim on sovereign and risk weights

The notations used follow the methodology used by one institution, Standard & Poor’s.

The use of Standard & Poor’s credit ratings is an example only as other credit assessment institutions may well be used. Claims on the Bank for International Settlements, the International Monetary Fund, the European Central Bank and the European Community may receive a 0% risk weight.

Since sovereign risk is currently risk-weighted at 10% under Basel I, the risk weightings under Basel II will have a significant impact on the amount of capital required for this type of exposure. Banks may have to reconsider whether they still want to participate in this market segment and if so, how it will affect the pricing of products.
Claims on non-central government public sector entities (PSEs)

Claims on domestic PSEs will be risk weighted at national discretion, according to either option 1 or option 2 for claims on banks. When option 2 is selected, it is to be applied without the use of the preferential treatment for short-term claims. Subject to national discretion, claims on certain domestic PSEs may also be treated as claims on the sovereigns in whose jurisdictions the PSEs are established.

The following examples outline how PSEs might be categorised when focusing on one specific feature, namely revenue raising powers.

Regional governments and local authorities could qualify for the same treatment as claims on their sovereign if they have specific revenue raising powers and have specific institutional arrangements the effect of which is to reduce their risks of default.

Administrative bodies responsible to central governments, regional governments or to local authorities owned by the governments or local authorities may not warrant the same treatment as claims on their sovereign if the entities have no revenue raising powers. If strict lending rules apply to these entities, then it may be appropriate to treat these claims in the same way as claims on banks. Commercial undertakings owned by governments or by local authorities may be treated as a corporate in competitive markets even though the state is a major shareholder (Basel Committee on Banking Supervision, 2004b:16).

Banks currently enjoy significant capital requirement benefits on its exposures to PSEs as the risk weighting is only 10%. This lower capital requirement allowed banks to price credit risk lower than corporate in general because the return on equity is far superior. The Basel II changes will have a significant impact on both the borrower and lender of this market segment.
**Claims on banks**

There are two options for claims on banks. National supervisors will apply one option to all banks in their jurisdiction. Under the first option, all banks incorporated in a given country will be assigned a risk weight one category less favourable than that assigned to claims on the sovereign of that country. However, for claims on banks in countries with sovereigns rated BB+ to B- and on banks in unrated countries, the risk weight will be capped at 100%.

The second option bases the risk weighting on the external credit assessment of the bank itself with claims on unrated banks being risk-weighted at 50%. Under this option, a preferential risk weight that is one category more favourable may be applied to claims with an original maturity of three months or less, subject to a floor of 20%. will not be available to banks risk weighted at 150%. The two options are summarised in the tables below.

### Risk weightings for banks under option 1 and 2

#### Option 1

<table>
<thead>
<tr>
<th>Credit Assessment of sovereign</th>
<th>AAA to AA-</th>
<th>A+ to A-</th>
<th>BBB+ to BBB-</th>
<th>BB+ to B-</th>
<th>Below B-</th>
<th>Unrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk weight under Option 1</td>
<td>20%</td>
<td>50%</td>
<td>100%</td>
<td>100%</td>
<td>150%</td>
<td>100%</td>
</tr>
</tbody>
</table>

#### Option 2

<table>
<thead>
<tr>
<th>Credit Assessment of Banks</th>
<th>AAA to AA-</th>
<th>A+ to A-</th>
<th>BBB+ to BBB-</th>
<th>BB+ to B-</th>
<th>Below B-</th>
<th>Unrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk weight under Option 2</td>
<td>20%</td>
<td>50%</td>
<td>50%</td>
<td>100%</td>
<td>150%</td>
<td>100%</td>
</tr>
<tr>
<td>Risk weight for short term claims under Option 2</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>150%</td>
<td>20%</td>
</tr>
</tbody>
</table>

*Source: Adapted from Basel Committee on Banking Supervision, 2004b, Internal Convergence of Capital Measurement and Capital Standards.*

*Table 5: Risk weight options available to banks*
Claims on corporates

The table provided below illustrates the risk weighting of rated corporate claims. The standard risk weight for unrated claims on corporate will be 100%. No claim on an unrated corporate may be given a risk weight preferential to that assigned to its sovereign of incorporation.

<table>
<thead>
<tr>
<th>Credit Assessment</th>
<th>AAA to AA-</th>
<th>A+ to A-</th>
<th>BBB+ to BBB-</th>
<th>Below B-</th>
<th>Unrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk weight</td>
<td>20%</td>
<td>50%</td>
<td>100%</td>
<td>150%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Risk weightings for corporate - Source: Adapted from Basel Committee on Banking Supervision, 2004b, Internal Convergence of Capital Measurement and Capital Standards.

Table 6: Risk weightings for corporate

Under Basel I all corporate risk exposures were risk weighted at 100%. The differentiated risk weightings under Basel II will have an impact on market segmentation and product offerings.

Claims included in the regulatory retail portfolios

Claims that qualify under the criteria listed below may be considered as retail claims for regulatory capital purposes and included in a regulatory retail portfolio and may therefore be risk weighted at 75%. This risk weighting is lower than the existing 100% under Basel I. This may result in banks aggressively marketing their products to this segment as they can either lower their pricing or have an increased return on equity (ROE). An increase in competition may negate the benefits stated above. To be included in the regulatory retail portfolio, claims must meet the following four criteria:

- Orientation criterion – The exposure is to an individual person or to a small business;
- Product criterion – The exposure takes the form of any of the following:
Revolving credits and lines of credit (including credit cards and overdrafts), personal term loans and leases (e.g. instalment loans and personal finance). Mortgages are excluded as they qualify for different treatment;

- Granularity criterion – The supervisor must be satisfied that the portfolio is sufficiently diversified. One way of achieving this may be to set a numerical limit that no aggregate exposure to one party can exceed 0.2% of the overall portfolio;

- Low value of individual exposures – The maximum aggregated retail exposure to one party cannot exceed an absolute threshold of €1 million.

**Claims secured by residential property and commercial real estate**

Lending fully secured by mortgages on residential property that is or will be occupied by the borrower, or that is rented, will be risk weighted at 35% compared to 50% under Basel I. This change in the risk weightings is likely to have a positive impact on banks with large mortgage exposures. In view of the experience in numerous countries that commercial property lending has been a recurring cause of troubled assets in the banking industry over the past few decades, mortgages on commercial real estate do not, in principle, justify other than a 100% weighting on the loans secured.

**Higher risk categories**

The following claims will be risk weighted at 150% or higher:

- Claims on sovereigns, PSEs and banks rated below B-.

- Claims on corporates rated below BB-

- Past due loans

- Securitisation tranches that are rated between BB+ and BB- will be risk weighted at 350%.
National supervisors may decide to apply a 150% or higher risk weighting reflecting the higher risks associated with some other assets, such as venture capital and private equity investments. This will have an impact on the market segments and product offerings. Since these areas are seen as high risk, they will have an internal impact on the bank in the form of capital management and disclosure requirements.

1.1.5.1.2.1.1.2 Foundation Internal Rating Based Approach (IRB).

Compared to the current Accord, the IRB approach is fundamentally different in concept, design and implementation. Consistent with the Basel Committee’s objectives, it is intended to produce a capital requirement more closely linked to each bank’s actual credit risks. The IRB approach is built to take advantage of two main principals.

First, it is designed to take advantage of the bank’s own information about the quality of its assets.

Second, it is designed to promote and take advantage of best practices in risk management. There is relative unanimity in the industry that IRB is a major step towards aligning capital with true economic grounds.

Banks using the Foundation IRB will estimate the Probability of Default, (“PD”) relating to each borrower, while the bank supervisors will supply the other inputs, i.e. Loss given Default (“LGD”) and Exposure at Default (“EAD”) as primary inputs into the capital requirement calculation. (Section III.B, § 23 – 30, of Basel Committee on Banking Supervision (2001a).

Two aspects of the IRB qualification requirements worth mentioning are:

1. External data sources are allowed, which could include data pooling among banks and adopting data from credit rating agencies.
2. In order to use IRB, banks must have five years of historical PD data. At the time of the implementation of Basel II, the requirement would be only two years, which will grow to five within the first three years.

The IRB approach is based on four key parameters used to estimate credit risks (Saidenberg and Schuermann, 2003:8):

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory Capital</td>
<td>$8% \times \text{Risk Weighted Assets}$</td>
</tr>
<tr>
<td>Risk Weighted Asset</td>
<td>$\text{Asset} \times \text{Risk Weight} = \text{Capital Requirement} \times 12.50 \times \text{EAD}$</td>
</tr>
<tr>
<td>Capital requirement</td>
<td>$\frac{\text{LGD} \times N^{-1}(\text{PD}) + \rho \delta N^{-1}(\text{C})}{\sqrt{1-\rho}} \times \text{EAD}$</td>
</tr>
</tbody>
</table>

| PD = Probability of Default      | it measures the likelihood that the borrower will default over a given time horizon (measured in decimals) |
| LGD = Loss Given Default         | it measures the proportion of the exposure that will be lost if a default occurs (measured in decimals) |
| EAD = Exposure at Default        | it measures the loan commitments, the amount of the facility that is likely to be drawn if default occurs (measured in currency) |
| M = Maturity                     | it measures the remaining economic maturity of the exposure |

Figure 6: Internal ratings based approach formulas

For a given maturity, these parameters are used to estimate two types of expected loss (EL).

Expected loss as an amount: $\text{EL} = \text{PD} \times \text{LGD} \times \text{EAD}$

And expected loss as a percentage of exposure at default: $\text{EL\%} = \text{PD} \times \text{LGD}$

For the foundation approach only PD may be assigned internally, subject to supervisory review (Pillar II). LGD is fixed and based on supervisory values, e.g. 45% for senior unsecured claims and 75% for subordinated claims. EAD is also based on supervisory values in cases where the measurement is not clear, e.g. EAD is 75% for irrevocable undrawn commitments. Finally a single average maturity of 2.5 years is assumed for the portfolio.
Risk weighted assets for various exposures

Using the above information there are formulas to calculate the risk weighted assets, which have different asset correlations in their formulas. Under the IRB approach for corporate credits, banks will be permitted to separately distinguish exposures to SME borrowers (defined as corporate exposures where the reported sale for the consolidated group of which the firm is a part is less than €50 million) from those to large firms. A firm size adjustment is made to the corporate risk weight formula, which results in a lower risk weighting for this category of assets.

Banks that do not meet the requirements for the estimation of PD under the IRB approach for specialised lending assets will be required to map their internal grades to five supervisory categories, each of which is associated with a specific risk weight. A satisfactory level can be converted into a risk weighting of 115%. Besides the impact of the IRB approach on market segments and product offerings, it will also have a significant internal impact on the financial institutions in the form of costs, different decision-making methodologies and capital management. The IRB approaches may also have a global impact on the banks as it could accentuate the business cycle and it may result in an increase in merger activities as the different approaches may result in competitive advantages.

Categorisation of exposures

Under the IRB approach, banks must categorise banking book exposures into broad classes of assets with different underlying risk characteristics. The classes of assets are corporate, sovereign, bank, retail and equity. Within the corporate asset class, five sub-classes of specialised lending are separately identified. Within the retail asset class, three sub-classes are separately identified.
Definition of corporate exposures

Banks are permitted to distinguish separately exposures to small-and medium-sized entities (SME) as defined below. Within the corporate asset class, five sub-classes of specialised lending (SL) are identified. Such lending possesses all of the following characteristics, either in legal form or economic substance:

- The exposure is typically to an entity (often a special purpose entity) which was created specifically to finance and/or operate physical assets;
- The borrowing entity has little or no other material assets or activities, and therefore little or no independent capacity to repay the obligation other than the income that it receives from the asset being financed;
- The terms of the obligation give the lender a substantial degree of control over the asset and the income that it generates; and
- As a result of the preceding factors, the primary source of repayment of the obligation is the income generated by the asset, rather than the independent capacity of a broader commercial enterprise.

The five sub-classes are project finance, object finance, commodities finance, income producing real estate and high-volatility commercial real estate.

Definition of sovereign and bank exposures

These asset classes are defined in the same manner as the standardised approach, which is defined in paragraph above.

Definition of retail exposures

An exposure is categorised as a retail exposure if it meets all of the following criteria:

- Nature of borrower or low value of individual exposures
• Exposures to individuals – such as revolving credits and lines of credit (e.g. credit cards and overdrafts) as well as personal term loans and leases are generally eligible for retail treatment regardless of exposure size.

• Residential mortgage loans are eligible for retail treatment regardless of exposure size so long as the credit is extended to an individual that is an owner-occupier of the property.

• Loans extended to small businesses and managed as retail exposures are eligible for retail treatment provided the total exposure of the bank to such a borrower is less than €1 million.

**Large number of exposures**

• The exposure must be one of a large pool of exposures, which are managed by the bank on a pooled basis.

Within the retail asset class category, banks are required to identify separately three sub-classes of exposures: (a) exposures secured by residential properties as defined above, (b) qualifying revolving retail exposures, as defined below, and (c) all other retail exposures.

**Definition of qualifying revolving retail exposures**

All of the following criteria must be satisfied for a sub-portfolio to be treated as a qualifying revolving retail exposure (QRRE). These criteria must be applied at a sub portfolio level consistent with the bank's segmentation of its retail activities generally.

• The exposures are revolving, unsecured, and uncommitted.

• The exposures are to individuals.

• The maximum exposure to a single individual in the sub-portfolio is €100,000.
• Because of a more favourable risk weighting for these assets, banks must demonstrate that the use of the QRRE risk weight function is constrained to portfolios that have exhibited low volatility of loss rates.

• Data on loss rates must be retained in order to allow analysis of the volatility of loss rates.

• The supervisor must concur that treatment as a QRRE is consistent with the underlying risk characteristics.

**Definition of equity exposures**

An instrument is considered to be an equity exposure if it meets all of the following requirements:

- It is redeemable in the sense that the return of invested funds can be achieved only by the sale of the investment;
- It does not embody an obligation on the part of the issuer; and
- It conveys a residual claim on the assets or income of the issuer.

The following table illustrates the results across some of the asset classes:

<table>
<thead>
<tr>
<th>Asset type</th>
<th>Risk weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualifying revolving retail exposures</td>
<td>0.98%</td>
</tr>
<tr>
<td>Residential mortgages</td>
<td>4.15%</td>
</tr>
<tr>
<td>Other retail exposures</td>
<td>4.45%</td>
</tr>
<tr>
<td>SME exposure</td>
<td>11.30%</td>
</tr>
<tr>
<td>Corporate exposure</td>
<td>14.44%</td>
</tr>
</tbody>
</table>


**Table 7: Illustrative IRB risk weightings**

From the above it is clear that the differences between the risk weightings of assets can be large and this may have an impact on the way in which a bank conducts its business in the future.
1.1.5.1.2.1.1.3 Advanced Internal Rating Based Approach (AIRB).

Under the Advanced IRB approach, banks will supply all three inputs into the assessment of credit risk, i.e. PD, LGD and EAD. The difficulty with the IRB approaches, according to the Committee’s own research, will be the lack of banks’ own estimates of Loss Given Default for non-retail exposures. While monitoring of PD is a standard industry practice, the research suggests that few banks have robust data on which to base LGD.

To qualify for the Advanced IRB approach, Banks require LGD data spanning a minimum of 7 years, and ideally covering a complete economic cycle1. In addition, the institution needs to demonstrate that it is fully competent with the inputs into the risk function, and must disclose more information on an ongoing basis.

The more sophisticated the approach, the more risk-sensitive it is thereby increasing the likelihood of a better evaluation of credit risk. It is generally believed that the Committee’s intention is to allow lower capital under the more sophisticated approaches. Initial estimates are that the difference in capital between the Foundation IRB and Advanced IRB approaches may be in the region of 10-20% in favour of the Advanced IRB approach.

However, the more risk sensitive the approach, the higher the cost to implement due to the increased sophistication required in the bank’s capital management system.

Once implemented, all participating banks will have to adopt the Standard approach, at a minimum.

1.1.5.1.2.2 Market Risk

Market risk estimates the uncertainty of the future earnings due to the changes in the market conditions; this is the risk that the value of assets or
liabilities will be affected by movements in equity and interest rate markets, currency exchange rates and prices of the commodities. Market risk can be divided into such main categories (by the Basel Committee on Banking Supervision, 2004):

1. **Interest rate risk** is the exposure of a bank’s financial conditions to adverse movements in interest rates. If bank accepts this risk as a normal part of banking, it can be a huge resource of profitability and the high value for the shareholders. Changes in the interest rates change the net interest income, operating expenses, which affects a bank’s profit. Interest rate can affect the bank’s balance sheet in three ways: net interest margin, assets and liabilities (excluded cash) and trading positions.

2. **Equity risk** arises in the case when assets that are included in the portfolio have a market value (securities). The change of the market price of such assets will affect the respective bank’s portfolio value.

3. **Exchange rate risk** is the risk of money loss or asset and/or capital depreciation after some adverse changes of the exchange rates. It consist of the risk of depreciated value of foreign assets portfolio after the adverse changes in the exchange rates and the risk of sign financial agreements of future converting the foreign value, when future exchange rates are stated.

4. **Liquidity risk** is caused by the unexpected large negative cash flow over a short period. If the bank has highly liquid assets and suddenly needs some additional liquidity, it may sell some of its assets at a discount.

Market Risk remains unchanged from the original Basel I Accord. This assessment is based largely on the bank’s own measure of value-at-risk or the standardized approach for market risk.

Emphasis should be focused on evaluating the adequacy of capital to support the trading function includes general market risk and specific risk. The general market risk refers to changes in the market values due to large market
movements. Specific risk refers to changes in the value of an individual asset due to factors related to the issuer of the security. There are four types of economic variables that generate market risk. These are interest rates, foreign exchanges, equities and commodities.

1.1.5.1.2.2.1 Approaches to measure Market Risk (unchanged):

In January 1996, the Basle Committee on Banking Supervision issued the “Amendment to the Capital Accord to Incorporate Market Risks.” This document provides a detailed account of the methodology laid down by the Committee to set capital requirements for market risk. Since January 1, 1998, banks in the G10 countries have been required to maintain regulatory capital to cover market risk. Market risk is usually measured as Value At Risk (VAR). VAR takes the form of a single number that estimates the maximum likely loss an institution is exposed to over a given time interval and at a given confidence level, based on the distribution of price changes over a given historical time horizon. The probability of losses greater than the VAR estimates occurring is small (as specified by the confidence level).

The Market Risk Amendment sets out two approaches to the measurement of market risk:

- the standardized approach and
- the internal models approach
Choice of two levels of calculation - increasing in detail, complexity and sophistication

Standardized Measurement Approach

- The standardized measurement introduces capital charges to be applied to:
  1. Current market value of open positions in interest related instruments and equities in institutions' trading books
  2. Institutions' total currency and commodities positions in respect of foreign exchange and commodities risk

In-House Model Approach

- The in-House Approach allows institutions to use in-house measurements subject to a number of quantitative and qualitative criteria, these include:
  1. "Value at risk" computed daily
  2. Minimum price shock to ten days trading
  3. Model to incorporate one year's trading data

The capital charge for the institution will be the greater of:
1. The previous day's value at risk
2. Three times the average of the daily value at risk of the preceding 60 business days

Increasing sophistication means greater disclosure

Source: The Basel II accord: what does it mean for the North American leasing market?

Figure 7: Approaches to measure Market Risk

1.1.5.1.2.1.1 Standardized Approach

The standardized method, first proposed in 1993, adopts a so-called building block approach for interest rate related and equity instruments which differentiates capital requirements (charges) for specific risk from those for general market risk.

The capital requirements for specific risk are designed to protect against adverse price movements in a security because of factors related to the issuer of a security. The capital charges for general market risk are designed to protect against the risk of loss arising from adverse changes in market prices.

1.1.5.1.2.1.2 Internal Models Approach

For banks that prefer to use proprietary in-house models as an alternative approach to the standardized method for calculating market risk, the capital charge is the higher of:
•= Previous day's VAR

•= Average of the daily VAR of the preceding 60 business days, multiplied by a minimum factor of three.

While it is generally accepted that VAR is a useful measure of market risk, no universal agreement exists on the best method to calculate it. There are three popular methods to calculating VAR:

•= Variance/Covariance Models

•= Historical Simulation Method

•= Monte Carlo Simulation Method

VAR takes the form of a single number that estimates the maximum likely loss an institution is exposed to over a given time interval (the holding period) and at a given confidence level, based on the distribution of price changes over a given historical time horizon (the observation period). The probability of losses greater than the VAR estimate occurring is small (as specified by the confidence level).

The Basel Committee requires that banks calculate their VAR on a daily basis with a one-tailed confidence interval of 99 percent, a minimum holding period of 10 days, and a minimum observation period of one year.

Furthermore, banks' internal models are required to accurately capture the unique risks associated with options and option-like instruments.

Banks that do not meet the qualitative and quantitative criteria laid down by the Basel Committee are not permitted to use their in-house models and must use the standardized approach instead. Furthermore, the use of proprietary models is conditional upon the explicit approval of a bank’s supervisory authority.

As is the case for credit risk, the capital requirements for market risk apply on a world-wide consolidated basis.
These internal models can only be used by the largest banks that satisfy qualitative and quantitative standards imposed by the Basel agreement. Moreover, the 1996 revision also adds the possibility of a third tier for the total capital, which includes short-term unsecured debts. This is at the discretion of the central banks.

Value at Risk (VaR) is a measure of how the market value of an asset or of a portfolio of assets is likely to decrease over a certain time period (usually over 1 day or 10 days) under usual conditions. It is typically used by security houses or investment banks to measure the market risk of their asset portfolios (market value at risk), but is actually a very general concept that has broad application. Other measures of risk include volatility/standard deviation, semi variance (or downside risk) and shortfall probability.

**Details of the definition**

VaR has three parameters:

- The time horizon (period) to be analyzed (i.e. the length of time over which one plans to hold the assets in the portfolio - the "holding period"). The typical holding period is 1 day, although 10 days are used, for example, to compute capital requirements under the European Capital Adequacy Directive (CAD). For some problems, even a holding period of 1 year is appropriate.

- The confidence level at which the estimate is made. Popular confidence levels usually are 99% and 95%.

- The unit of the currency which will be used to denominate the value at risk (VaR).

The VaR is the maximum amount at risk to be lost from an investment (under 'normal' market conditions) over a given holding period, at a particular confidence level. As such, it is the converse of shortfall probability, in that it
represents the amount to be lost with a given probability, rather than the probability of a given amount to be lost.

Note that VaR cannot anticipate changes in the composition of the portfolio during the day. Instead, it reflects the riskiness of the portfolio based on the portfolio's current composition.

Example

Consider a trading portfolio. Its market value in US dollars today is known, but its market value tomorrow is not known. The investment bank holding that portfolio might report that its portfolio has a 1-day VaR of $4 million at the 95% confidence level. This implies that (provided usual conditions will prevail over the 1 day) the bank can expect that, with a probability of 95%, the value of its portfolio will decrease by at most $4 million during 1 day, or, in other words, that, with a probability of 5%, the value of its portfolio will decrease by $4 million or more during 1 day.

The key thing to note is that the target confidence level (95% in the above example) is the given parameter here; the output from the calculation ($4 million in the above example) is the maximum amount at risk (the value at risk) for that confidence level.

Common VaR calculation models

In the following, return means percentage change in value.

A variety of models exist for estimating VaR. Each model has its own set of assumptions, but the most common assumption is that historical market data is our best estimator for future changes. Common models include:

- (a) variance-covariance (VCV), assuming that risk factor returns are always (jointly) normally distributed and that the change in portfolio value is linearly dependent on all risk factor returns,
(b) the historical simulation, assuming that asset returns in the future will have the same distribution as they had in the past (historical market data),

(c) Monte Carlo simulation, where future asset returns are more or less randomly simulated

The variance-covariance, or delta-normal, model was popularized by J.P Morgan (now J.P. Morgan Chase) in the early 1990s when they published the *Risk Metrics Technical Document*. In the following, we will take the simple case, where the only risk factor for the portfolio is the value of the assets themselves. The following two assumptions enable to translate the VaR estimation problem into a linear algebraic problem:

1. The portfolio is composed of assets whose deltas are linear, more exactly: the change in the value of the portfolio is linearly dependent on (i.e. is a linear combination of) all the changes in the values of the assets, so that also the portfolio return is linearly dependent on all the asset returns.

2. The asset returns are jointly normally distributed.

The implication of (1) and (2) is that the portfolio return is normally distributed because it always holds that a linear combination of jointly normally distributed variables is itself normally distributed.

We will use the following notation:

- \( i \) means "of the return on asset i" (for \( \sigma \) and \( \mu \)) and "of asset i" (otherwise)
- \( P \) means “of the return on the portfolio” (for \( \sigma \) and \( \mu \)) and "of the portfolio" (otherwise)
- all returns are returns over the holding period
- there are \( N \) assets
• $\mu =$ expected value, i.e. mean

• $\sigma =$ standard deviation

• $V =$ initial value (in currency units)

• $\omega_i = V_i / V_p$

• $\omega =$ vector of all $\omega_i$ (T means transposed)

• $\Sigma =$ covariance matrix = matrix of covariances between all $N$ asset returns, i.e. an $N \times N$ matrix

The calculation goes as follows.

(i) $\mu_p = \sum_{i=1}^{N} \omega_i \mu_i,$

(ii) $\sigma_p = \sqrt{\omega^T \Sigma \omega}$

The normality assumption allows us to z-scale the calculated portfolio standard deviation to the appropriate confidence level. So for the 95% confidence level $VaR$ we get:

(iii) $VaR = -V_p (\mu_p - 1.645 \sigma_p )$

The benefits of the variance-covariance model are the use of a more compact and maintainable data set which can often be bought from third parties, and the speed of calculation using optimized linear algebra libraries. Drawbacks include the assumption that the portfolio is composed of assets whose delta is linear, and the assumption of a normal distribution of asset returns (i.e. market price returns).

Historical simulation is the simplest and most transparent method of calculation. This involves running the current portfolio across a set of historical price changes to yield a distribution of changes in portfolio value, and computing a percentile (the $VaR$). The benefits of this method are its simplicity to implement, and the fact that it does not assume a normal distribution of asset
returns. Drawbacks are the requirement for a large market database, and the computationally intensive calculation.

Monte Carlo simulation is conceptually simple, but is generally computationally more intensive than the methods described above. The generic MC VaR calculation goes as follows:

- Decide on \( N \), the number of iterations to perform.
- For each iteration:
  - Generate a random scenario of market moves using some market model.
  - Revalue the portfolio under the simulated market scenario.
  - Compute the portfolio profit or loss (PnL) under the simulated scenario. (i.e. subtract the current market value of the portfolio from the market value of the portfolio computed in the previous step).
- Sort the resulting PnLs to give us the simulated PnL distribution for the portfolio.
- VaR at a particular confidence level is calculated using the percentile function. For example, if we computed 5000 simulations, our estimate of the 95% percentile would correspond to the 250th largest loss, i.e. \((1 - 0.95) \times 5000\).
- Note that we can compute an error term associated with our estimate of VaR and this error will decrease as the number of iterations increases.

Monte Carlo simulation is generally used to compute VaR for portfolios containing securities with non-linear returns (e.g. options) since the computational effort required is non-trivial. Note that for portfolios without these complicated securities, such as a portfolio of stocks, the variance-covariance method is perfectly suitable and should probably be used instead.
Also note that MC VaR is subject to model risk if the market model is not correct.

1.1.5.1.2.3 Operational Risk

Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. The definition includes legal risk, but excludes strategic and reputation risk. Operational risk is defined 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 reputation risk.

Banks are encouraged to move along the spectrum of available approaches as they develop more sophisticated operational risk measurement systems and practices.

1.1.5.1.2.3.1 Approaches to measure Operational Risk

The framework presents three methods for calculating operational risk capital charges in a continuum of increasing sophistication and risk sensitivity:

(a) the Basic Indicator Approach;
(b) the Standardised Approach; and
(c) Advanced Measurement Approaches (AMA).

1.1.5.1.2.3.1.1 The Basic Indicator Approach

The Basic Indicator Approach provides a simple way to determine a capital requirement, based on a percentage of gross income. A factor (denoted beta) is included in the calculation. An example of this approach uses gross income as a proxy for the organization’s operational risk exposure. This is calculated by multiplying a particular bank’s average annual gross income over the previous three years by 15%.
Banks are encouraged to move along the spectrum of available approaches as they develop more sophisticated operational risk measurement systems and practices.

Banks using the Basic Indicator Approach must hold capital for operational risk equal to the average over the previous three years of a fixed percentage (denoted alpha) of positive annual gross income. The charge may be expressed as follows:

\[ KBIA = \frac{[(GI\cdot n \times \alpha)]}{n} \]

Where

- \( KBIA \) = the capital charge under the Basic Indicator Approach
- \( GI \) = annual gross income, where positive, over the previous three years
- \( n \) = number of the previous three years for which gross income is positive
- \( \alpha = 15\% \), which is set by the Committee, relating the industry wide level of required capital to the industry wide level of the indicator.

1.1.5.1.2.3.1.2 The Standardised Approach

In the Standardised Approach, banks' activities are divided into eight business lines. Within each business line, gross income is a broad indicator that serves as a proxy for the scale of business operations and thus the likely scale of operational risk exposure within each business line.

This approach divides an organization’s activities into standardized business units (i.e., investment banking, banking and others) and various lines of business:

(i) corporate finance,
(ii) trading and sales,
(iii) retail banking,
(iv) commercial banking,
(v) payment and settlement,
(vi) retail brokerage,
(vii) agency services,
(viii) asset management.

Risk indicators (from 12% to 18%) are established for each line of business to serve as the proxy for operational risk.

The required capital under this approach is determined by multiplying the gross income (or for asset management, total funds under management), by a factor determined by industry loss experience for the given line of business. The total operational risk capital charge for the organization is the sum of all capital charges for each of the lines of business.

The capital charge for each business line is calculated by multiplying gross income by a factor (denoted beta) assigned to that business line. Beta serves as a proxy for the industry-wide relationship between the operational risk loss experience for a given business line and the aggregate level of gross income for that business line. The beta factors are detailed below:

**Illustrative IRB risk weightings**

<table>
<thead>
<tr>
<th>Business lines</th>
<th>Beta factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate finance</td>
<td>18%</td>
</tr>
<tr>
<td>Trading and sales</td>
<td>18%</td>
</tr>
<tr>
<td>Retail banking</td>
<td>12%</td>
</tr>
<tr>
<td>Commercial banking</td>
<td>15%</td>
</tr>
<tr>
<td>Payment and settlement</td>
<td>18%</td>
</tr>
<tr>
<td>Agency services</td>
<td>15%</td>
</tr>
<tr>
<td>Asset management</td>
<td>12%</td>
</tr>
<tr>
<td>Retail brokerage</td>
<td>12%</td>
</tr>
</tbody>
</table>


**Table 8: Illustrative IRB risk weightings**
The table above indicates that corporate finance, trading and sales and payment and settlement risk is perceived to have the highest risk of the operational business lines and will therefore be allocated more capital.

1.1.5.1.2.3.1.3 Advanced Measurement Approaches (AMA)

Under the AMA, the regulatory capital requirement will equal the risk measure generated by the bank’s internal operational risk measurement system. Use of the AMA is subject to supervisory approval.

Trading book capital treatment for specific risk under the standardised methodology. The following sections describe the changes to the specific risk capital treatments under the standardised methodology within the trading book.

<table>
<thead>
<tr>
<th>External credit assessment</th>
<th>Specific risk capital charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA to AA-</td>
<td>0%</td>
</tr>
<tr>
<td>A+ to BBB-</td>
<td>0.25% (residual term to final maturity 6 months or less)</td>
</tr>
<tr>
<td></td>
<td>1.00% (residual term to final maturity greater than 6 and up to and including 24 months)</td>
</tr>
<tr>
<td></td>
<td>1.60% (residual term to final maturity exceeding 24 months)</td>
</tr>
<tr>
<td>All others</td>
<td>8.00%</td>
</tr>
</tbody>
</table>

Table 9: Specific risk capital treatments

Under the Advanced Measurement Approaches (AMA), the regulatory requirement will equal the risk measure generated by the bank’s internal operational risk measurement system using quantitative and qualitative criteria. A research paper (de Fontnouvelle et al, 2003) from the Federal Reserve Bank of Boston shows that the amount of capital that will be set aside under Basel II will often exceed capital held for market risk and that the largest banks could choose to allocate several billion dollars in capital to operational risk.

This will be the first time that banks will have to hold capital in respect of operational risks. This will have an internal impact on the banks as they need to develop sophisticated systems in order to comply with these regulations and the allocation of economic capital to such areas is a new phenomenon.
This approach allows banks more input into determining their operational risk capital charge, as their capital charge will be based on internally developed models.

The AMA is designed to allow each financial institution to use its own methodology for assessing its exposure to operational risk, provided it is comprehensive and results in a capital charge that is reflective of the operational risk experience of the organization.

This means one estimates the potential operational losses that the banking institution faces at a soundness standard of 99.9 percent confidence level over a one-year period (a once in a millennium event).

The operational risk exposure would be multiplied by 12.5 to determine a risk-weighted assets equivalent, which is added to the amounts for credit and market risk for the denominator of the regulatory capital ratio.

1.1.5.2 Pillar II the Supervisory Review Process

The second pillar supplements provisions of the first pillar by organising the supervision of regulators in order to ensure the soundness of bank’s internal processes of risk evaluation.

Supervisory review process is in a way a formalization of the existing supervisory standards in the area of capital and capital adequacy supervision, together with their improvements and new approaches based on practical experiences in the field. One of the main objectives of the supervisory review process is to encourage banks to develop and apply better risk management processes. Supervisors have the responsibility to control the metrics used by banks and to verify that banks make appropriate capital charges to cover the inherent risk of all their business activities. Provisions of the second pillar allow supervisors to set a bank’s capital requirements depending on its risk profile, meaning, the supervisors can require a bank with riskier business profile to maintain a higher capital ratio, if this is needed to ensure safe
operating of the bank in question. If the bank would not comply with these standards, it would be subject to supervisory intervention and in a position of jeopardizing its license.

Implementation of the Pillar II is believed to be very demanding, as the new Accord proposes changing of traditional methods of supervision by shifting from rules to standards.

It is centred around four principles concerning

1. banks’ processes for evaluating their capital in relation to their risks,
2. supervisors’ assessment of these processes and their capacity to take action as necessary,
3. the expectation of supervisors that banks will have capital in excess of that prescribed by minimum regulatory ratios, and
4. the need for supervisors to intervene to prevent banks’ capital from falling below these minimal.

These key principles are linked to criteria for assessment of compliance with the BCBS’s Core Principles for Effective Banking Supervision in the areas of capital adequacy and risk management as set out in the BCBS’s Core Principles Methodology.

In view of the role of such assessments in IMF Article IV surveillance, that now includes compliance with key financial standards of which that concerning bank supervision consists of the BCBS’s Core Principles; the result will be to provide a link between this surveillance and the implementation of the New Capital Accord. While the logic of such a link may seem impeccable in principle, it could prove problematic in practice owing to the difficulty of assessing compliance with so complex an agreement in a context where compliance is already imposing a considerable new burden on most country’s supervisors.
Pillar II (para. 732) prescribes comprehensive assessment of risks as follows: "All material risks faced by the bank should be addressed in the capital assessment process. While the Committee recognises that not all risks can be measured precisely, a process should be developed to estimate risks. Therefore, the following risk exposures, which by no means constitute a comprehensive list of all risks, should be considered".

The risk classification which follows refers to credit risk, operational risk, market risk, interest-rate risk in the banking book, liquidity risk, and other risks such as reputational and strategic risk. Of the risks in this list the first three are covered under Pillar I, while the second has been reserved for Pillar II for reasons described below. Liquidity risk has the two dimensions of funding risk and market liquidity risk: the first is due to periodic needs for funds which cannot be precisely forecast in advance; and the second is that the bank’s sales or purchases of assets have an adverse effect on prices in their markets. The first is traditionally covered as part of banks’ asset and liability management rather than under capital (although like other banking risks it can be a source of unexpected losses) but the second is clearly related to market risk through its effects on valuations. Both dimensions are likely to be the subject of increased attention from regulators in the period following agreement on Basel II. Reputational risk is that of a loss of confidence in a bank amongst its peers, customers or regulators, or in the markets in which it trades. The consequences are reduced access to credit, the loss of customers and of investor support, lower credit ratings, and the sacrifice of regulatory confidence. Strategic risk is that of losses due to strategic errors in business selection or management. This prescription poses a formidable challenge to banks, and its acceptance provides regulators and supervisors (including the BCBS itself) considerable leverage in their future dealings with banks.

In the discussion of subjects covered under Pillar II in Basel II two others deserve special attention:
Firstly, amongst factors external to the bank, reference is made to the effects of business cycles as a subject suitable for incorporation in supervisory review (RF, para. 724).

However, guidance here is limited to the general references to the need for a bank's management to take account of the stage of the business cycle in assessing capital adequacy (RF, para. 726) and for supervisors to do the same (RF, para. 752);

Secondly, the BCBS has decided against prescribing a quantitative capital charge under Pillar I for interest-rate risk in the banking book owing to the lack of agreement among banks and their supervisors as to the appropriate way to set such a charge. Interest-rate risk is instead singled out as a subject for Pillar II, some particular guidelines for supervisory review being provided.

There are also references to subjects which are covered as part of the setting of risk weights under Pillar I but which are also considered to be of special importance to supervisory review, namely operational risks, stress testing, the definition of default, the residual risk remaining after credit risk mitigation, credit concentration risk, and securitisation. The treatment here is devoted to particular problems under the different headings which may in some cases indicate the need for capital charges additional to those assessed in accordance with the rules of Pillar I set out above.

Two matters here merit comment.

- Credit concentration is generally related to the effect of cyclical downturns on banks' risk profiles (although there is no explicit reference to business cycles as such here).

- The guidelines for supervisory review in the area of securitisation suggest the influence on regulatory thinking of recent innovations and corporate scandals and the role therein of shifts of assets and liabilities
off the balance sheet. Under the heading of "market innovations" RF interestingly notes (RF, para. 789): "As the minimum capital requirements for securitisation may not be able to address all potential issues, supervisory authorities are expected to consider new features of securitisation transactions as they arise. Such assessments would include reviewing the impact new features may have on credit risk transfer ... A Pillar I response may be formulated to take account of market innovations".

The supervisory review process is meant not only to ensure that banks make appropriate capital charges to cover the inherent risk of all their business activities, but also to encourage them to develop and apply better risk management processes to monitor and manage their risk (cf. also Sec. 25a KWG).

The supervisory review process shall include not only an audit of compliance with the minimum capital charge as under Pillar I but also a review of whether banks are implementing appropriate internal procedures and instruments for risk management, on the basis of which their capital adequacy may be judged.

The risk management process requires a thorough assessment of all risk exposures, a valuation of existing capital adequacy, a formulation of a capital strategy and a comparison of the risk strategy with the current risk profile.

The Basel Committee has made it clear that increasing capital should not be viewed as the only option for banks to take in the face of growing risks. More to the point, banks are expected to fundamentally address inadequate control and risk management processes and improve these step by step. Pillar II cannot be viewed as a discrete element of the New Basel Capital Accord, as compliance with its qualitative standards is required for the Advanced Measurement Approaches in Pillar I.
Under the supervisory review process, the qualitative standards for risk management by banks and for supervisors have been summarized as four key principles:

**Principle 1:**

Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels. Principle 1 calls for banks to have a risk management process. The five most important elements of this process are:

- oversight of the risk management process by the board of directors and senior management;
- sound capital assessment;
- comprehensive assessment of risks;
- monitoring and reporting;
- internal control review.

**Principle 2:**

Supervisors should review and evaluate banks’ internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the result of this process.

**Principle 3:**

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.
Principle 4:

Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored.

Principle 1 thus requires an internal capital adequacy assessment process (ICAAP) to be set up.

Principle II deals with the Supervisory Review and Evaluation Process (SREP). A bank’s ICAAP is assessed by the supervisors in the SREP.

1.1.5.3 Pillar III Market Discipline

In the third and the last pillar disclosure requirements are used as a mean of enhancing market discipline. The logic introduced in this pillar assumes that well-informed market participants will reward risk aware management and thereby exert pressure on banks to improve their systems and not take on additional risk. Detailed disclosure requirements are believed to create an environment in which effective market discipline can take place. Even though provisions of this pillar were considerably reduced in the CP3, it is still questionable, how efficient can their implementation be. The distinction in CP2 between “core” disclosures (i.e. those essential for the operation of market discipline) and “supplementary” disclosures (not of crucial importance for all institutions but which are expected of sophisticated internationally active banks) has been dropped. The requirements for transparency under Pillar III should be seen in the context of increased links between banks’ internal controls and accounting and the contents of banking regulation, greater reporting requirements regarding their governance, and the demands placed on their information systems. These demands pose particularly difficult problems for banks with cross-border operations which require compliance with rules often differing among jurisdictions (and have occupied an especially
prominent place in the discussion of Basel II in specialised industry publications).

If disclosure is to have a disciplinary function, both banks and other market participants must recognise the importance of detailed disclosure information and play their role by changing their behaviour according to the information received. The situation in emerging countries in the field of disclosure standards is gradually changing, but it is likely that the level envisaged in the new Accord will not be reached shortly. New legislation and further education of both bank managers and other market participants would be needed, if disclosure requirements were to be used as a successful mean of enhancing market discipline.

The Committee aims to encourage market discipline by developing a set of disclosure requirements which will allow market participants to assess key pieces of information on the scope of application, capital, risk exposures, risk assessment processes, and hence the capital adequacy of the institution. Market discipline can contribute to a safe and sound banking environment, and supervisors require firms to operate in a safe and sound manner.

The third pillar of the new capital adequacy requirements relies on market forces as a regulatory mechanism. This mechanism assumes that well-informed market participants will reward risk-aware management of companies and effective risk management by banks with their investment and credit decisions, thereby sanctioning a bank taking on more risk.

As market discipline can only be effective as a regulatory factor with corresponding transparency, specific disclosure requirements have been laid down. These requirements relate to factors such as consolidation of information, capital structure including explanations of the background of innovative capital elements, the calculation of risk positions and details on interest rate risk. Apart from qualitative data, a great number of quantitative figures must be disclosed.
Flexibility has been built into the system to achieve a balance between the interests of banks and those of market participants.

In practice, therefore, the extent and frequency of disclosures by individual banks will be governed by the principles of materiality and the protection of confidential information. In general, disclosure practice should harmonize with the assessment and management of a bank’s risks by its senior management and management board. Pillar III Calls for Public Disclosure under Banking Supervision

**Application of Capital Requirements**

The disclosure requirements must be met on a consolidated basis; individual banks within a group generally do not have to meet these requirements. For the purpose of the regulatory capital charge, the companies belonging to the group must be listed and the consolidation principles explained.

**Capital Structure and Capital Adequacy**

Details on the nature and scope of individual capital elements and total liable capital are required. The capital requirement for each risk category (credit risk, market risk and operational risk), the risk measurement method used and the corresponding capital ratios must also be disclosed.

**Risk Exposures**

The risk management objectives and processes implemented for each risk category must be disclosed; in particular, strategies and processes and the structure and organization of the risk management function. Specific disclosure requirements must be observed for each of the four risk areas: credit risk, operational risk, market risk and interest rate risk.
1.2 Indian and UAE Banking Industry Overview

1.2.1 Indian Banking Industry

The Indian Banking industry, which is governed by the Banking Regulation Act of India, 1949 can be broadly classified into two major categories, non-scheduled banks and scheduled banks. Scheduled banks comprise commercial banks and the co-operative banks. In terms of ownership, commercial banks can be further grouped into nationalized banks, the State Bank of India and its group banks, regional rural banks and private sector banks (the old/new domestic and foreign). These banks have over 67,000 branches spread across the country.

The first phase of financial reforms resulted in the nationalization of 14 major banks in 1969 and resulted in a shift from Class banking to Mass banking. This in turn resulted in a significant growth in the geographical coverage of banks. Every bank had to earmark a minimum percentage of their loan portfolio to sectors identified as “priority sectors”. The manufacturing sector also grew during the 1970s in protected environs and the banking sector was a critical source. The next wave of reforms saw the nationalization of 6 more commercial banks in 1980. Since then the number of scheduled commercial banks increased four-fold and the number of bank branches increased eight-fold.

After the second phase of financial sector reforms and liberalization of the sector in the early nineties, the Public Sector Banks (PSBs) found it extremely difficult to compete with the new private sector banks and the foreign banks. The new private sector banks first made their appearance after the guidelines permitting them were issued in January 1993. The private sector banks are presently in operation. These banks due to their late start have access to state-of-the-art technology, which in turn helps them to save on manpower costs and provide better services.
The banking system in India consists of commercial and cooperative banks, with the former accounting for around 98 percent of banking system assets. The entire segment is referred to as Scheduled Commercial Banks, because they are included in the Second Schedule of the Reserve Bank of India Act, 1934. The period 1992-97 laid the foundations for reform in the banking system (Rangarajan, 1998). It saw the implementation of prudential norms pertaining to capital adequacy, income recognition, asset classification, provisioning, and exposure norms. While these reforms were being implemented, the world economy also witnessed significant changes, "coinciding with the movement towards global integration of financial services" (Government of India, 1998).

Against such a backdrop, a second government-appointed committee on banking sector reforms provided the blueprint for the current reform process (Government of India, 1998).

A feature, somewhat unique to the Indian financial system is the diversity of its composition. Scheduled Commercial Banks (SCBs) in India are categorised into five different groups according to their ownership and/or nature of operation.

These bank groups are

(i) State Bank of India and its associates

(ii) Other nationalised banks

(iii) Regional rural banks

(iv) Foreign banks and

(v) Other Indian SCBs (in the private sector).

The dominance of Government ownership coupled with significant private shareholding in the public sector banks which in turn continue to have a dominant share in the total banking system. These public sector banks are listed
on the stock exchange and their performance is reflected in their P/E ratios. The private sector banks especially the new ones are world class. We also have cooperative banks, whose numbers are large and pose a challenge because of the multiplicity of regulatory and supervisory authorities. There are also Regional Rural Banks with links to their parent commercial banks. Foreign bank branches operate profitably in India and by and large the regulatory standards for all these banks are uniform. The process of providing financial services is changing rapidly from traditional banking to a one stop shop of varied financial services and the old institutional demarcations are getting increasingly blurred.

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<td>12.3</td>
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<td>11.8</td>
<td>12.6</td>
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<td>12.2</td>
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<td>12.5</td>
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<tr>
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<td>10.1</td>
<td>10.2</td>
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<td>12.2</td>
<td>13.1</td>
<td>13.2</td>
<td>12.3</td>
<td>12.4</td>
<td>12.1</td>
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<td>SBI Group</td>
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<td>13.4</td>
<td>13.4</td>
<td>12.4</td>
<td>11.9</td>
<td>12.3</td>
<td>13.2</td>
</tr>
<tr>
<td>Old Private Sector Banks</td>
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<td>11.9</td>
<td>12.5</td>
<td>12.8</td>
<td>13.7</td>
<td>12.5</td>
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<td>14.1</td>
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<tr>
<td>New Private Sector Banks</td>
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<td>11.5</td>
<td>12.3</td>
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<td>12.1</td>
<td>12.6</td>
<td>12.0</td>
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<tr>
<td>Foreign Banks</td>
<td>11.9</td>
<td>12.6</td>
<td>12.9</td>
<td>15.2</td>
<td>15.0</td>
<td>14.0</td>
<td>13.0</td>
<td>12.4</td>
<td>13.1</td>
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</table>

Source: Based on off-site returns submitted by banks

Source: RBI

Table 10: capital adequacy for Banks in India

Apart from the SCBs, there exist 130 regional rural banks (RRBs) and four local area banks (LABs). Regional Rural Banks (RRBs) were set up under the Regional Rural Banks Act, 1976. RRBs were expected to operate as State sponsored, region based and rural oriented commercial banks. The basic objective of this set of rural financial institutions was to have a feel and familiarity with local need, and professionally managed alternative channel for credit dispensation to small and marginal farmers, agricultural labourers, socio-economically weaker sections of population for development of agriculture, trade, commerce, industry and other productive activities. RRBs were expected to mobilise resources from rural areas and play a significant role in developing agriculture and rural economy by deploying mobilised resources in rural
sectors for the needy not covered by SCBs despite their large network. Keeping this objective in view, the capital of RRBs is held by the Central Government, concerned State Government and sponsor bank in the proportion of 50:15:35. Four local area banks (LABs) were functional at end-March 2006.

In 1996 it was decided to allow the establishment of local banks in the private sector with the objective to bridge the gaps in credit availability and enhance the institutional credit framework in the rural and semi-urban areas and provide efficient and competitive financial intermediation services in their area of operation. The minimum start-up capital of a LAB was fixed at Rs.5 crore. The promoters of these banks were required to bring in the entire minimum share capital up-front. It was also decided that a family among the promoter group could hold equity not exceeding 40% of the capital. The NRI contributions to the equity of the bank were not to exceed 40% of the paid-up capital. The entire initial capital subscribed by the promoters (including their friends and relatives/associates) would carry a lock in period of three years from the date of licensing of the bank. Further, the promoters' equity to the extent of 40% of the initial paid-up capital was to be locked in at least for two years beyond the aforesaid period of three years subject to review before expiry of five years from the date of licensing of the bank. These were: Coastal Local Area Bank Ltd, Vijayawada; Capital Local Area Bank Ltd., Phagwara, Navsari; Krishna Bhima Samruddhi Local Area Bank Ltd., Mehboobnagar; and the Subhadra Local Area Bank Ltd., Kolhapur.

Co-operative banking has passed through many phases since the enactment of the Agricultural Credit Co-operative Societies Act in 1904. Co-operative banks, developed largely as an offshoot of official policy, expanded rapidly in the post-independence era and played an important role in implementation of various Government schemes. Their business is now being re-engineered to strengthen their role in contributing to financial inclusion and
deepening banking penetration in an increasingly competitive financial landscape.

The co-operative banking structure in India is complex. It comprises urban co-operative banks and rural co-operative credit institutions. Urban co-operative financial institutions consist of a single tier, viz., primary co-operative banks, commonly referred to as urban co-operative banks (UCBs). However, they are classified according to their scheduled status, operational outreach and purpose/clientele. Out of the 1,853 UCBs, 55 enjoyed scheduled status, of which 24 had multi-State presence as on March 31, 2006.

Of the non-scheduled UCBs, 117 were Mahila (women) UCBs and another 6 were Scheduled Caste (SC)/Scheduled Tribe (ST) banks. In addition, there were 79 salary earners UCBs. Out of the 1,853 banks, 914 UCBs were unit banks i.e., having a single Head office/branch set up.

Today the commercial banking system in India may be distinguished into:

Public Sector Banks

a. State Bank of India and its associate banks called the State Bank group

b. 20 nationalised banks

c. Regional Rural Banks mainly sponsored by Public Sector Banks

Private Sector Banks

a. Old generation private banks

b. New generation private banks

c. Foreign banks in India

d. Scheduled Co-operative Banks

e. Non-scheduled Banks
Co-Operative Sector

The co-operative banking sector has been developed in the country to supplement the village money lender. The co-operative banking sector in India is divided into 4 components

1. State Co-operative Banks
2. Central Co-operative Banks
3. Primary Agriculture Credit Societies
4. Land Development Banks
5. Urban Co-operative Banks
6. Primary Agricultural Development Banks
7. Primary Land Development Banks
8. State Land Development Banks

Development Banks

1. Industrial Finance Corporation of India (IFCI)
2. Industrial Development Bank of India (IDBI)
3. Industrial Credit and Investment Corporation of India (ICICI)
4. Industrial Investment Bank of India (IIBI)
5. Small Industries Development Bank of India (SIDBI)
6. SCICI Ltd.
7. National Bank for Agriculture and Rural Development (NABARD)
8. Export Import Bank of India
9. National Housing Bank
Table 11: Offices of Commercial Banks in India

Present Scenario

The scheduled commercial banks in India are categorized into the following groups: nationalised banks, other public sector banks, State Bank of India (SBI) group, Indian private banks (further categorized as old private banks and new private banks) and foreign banks. Sometimes the first two categories are clubbed together as there is only one bank in the category ‘other public sector bank’, the Industrial Development Bank of India (IDBI) bank. The first three categories are commonly known as public sector banks. At the end of March 2006, there were altogether 84 banks operating in India, consisting of 20 nationalised banks (including IDBI bank), 8 banks in SBI group, 19 old private banks, 8 new private banks and 29 foreign banks. The ratio of total assets of the commercial banks to the GDP of India stood at 86.9 per cent at end-March 2006. At the end of March 2006, the share of public sector banks in the total banking assets of the country stood at 72.3 per cent. Old and new private banks together constituted about 20 per cent, while foreign banks accounted for 7.2 per cent of the total banking assets of India in March 2006.
Table 12: Group-wise Presence of Banks in India (2006-07 & 2007-08)

<table>
<thead>
<tr>
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<th>SBI &amp; associates 2006-07</th>
<th>Nationalised Banks 2006-07</th>
<th>Other SCBs 2006-07</th>
<th>Foreign Bank 2006-07</th>
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<td>25</td>
<td>29</td>
<td>82</td>
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<td>2007-08</td>
<td>8</td>
<td>20</td>
<td>23</td>
<td>28</td>
<td>79</td>
</tr>
</tbody>
</table>

1.2.2 UAE Banking Industry

The current domestic financial consists of forty-eight local and foreign commercial banks, two restricted license (specialized) banks, and twenty-five foreign bank representative offices.

Central bank regulations announced on April 5, 1993, set the minimum capital to risk-weighted asset ratio at 10 percent, which is 2 percent higher than the minimum level recommended by the Basel Concordat committee on banking supervision. The reduction of higher risk assets may cause concomitant declines in UAE bank profits, but it is anticipated that this will strengthen the banking industry.

Most banks provide trade, project and consumer financing. They re-export financing accounts for a large portion of trade finance, and this is viewed as having substantial prospects for growth. Loan decisions are based on project viability and the credit worthiness of the parties involved. Short-term loans (3-6 months) by commercial banks are offered at current interest rates. Project loans are given for five years. Consumer financing is also growing rapidly. Furthermore, the local banking system has well-established correspondent relationships with international banks.

The Central Bank Law establishes five principal categories of institutions in the UAE - commercial banks, investment banks, financial establishments, financial intermediaries, and monetary intermediaries - all of which must be licensed by both the Central Bank and the local licensing authorities. In addition to these five categories, current practice in the
individual Emirates permits the licensing of financial or investment consultants. These consultants are not required to obtain a Central Bank license.

**Commercial Banks**

The Central Bank Law defines a commercial bank as any establishment which customarily receives funds from the public, grants credit and banking facilities, and conducts other banking operations prescribed for commercial banks either by law or by customary banking practice. In the UAE, customary banking practice includes the marketing and sale of investment products and services, including the sale of securities and various funds.

**Investment Banks**

Central Bank Resolution No. 21 of 1988 regulates the activities of investment banks. Investment banks are defined as merchant or development banks or banks which provide medium or long term financing. The Central Bank Resolution authorizes investment banks in the UAE to offer financial products and services, including the issuance of financial instruments and the management of investment portfolios.

On June 1, 1997, the Emirates Bank Group, which is controlled by the Dubai government, launched UAE's first mutual investment fund with an initial capital of about US$ 8.2 million. The fund offers non-UAE nationals their first opportunity to invest in the UAE's tightly restricted equity market up to a limit of DH 500,000. The huge response by foreign investors prompted the UAE Central bank to raise its original ceiling of 20 percent of foreign investment to 49 percent. When the fund closed for public subscription on June 15, 1997 the investment totalled to US$ 74.5 million.

**Financial Establishments**

The Central Bank Law permits financial establishments to lend money and to undertake other financial transactions but does not allow them to accept
deposits. The Central Bank has adopted a policy that prohibits financial establishments from offering financial products and services. In comparison to commercial banks, the only activity that financial establishments may undertake which commercial banks may not is the lease of equipment and machinery.

Financial Intermediaries

Financial intermediaries are brokers. Regulations issued under the UAE Central Bank Law allow licensed brokers to market and to sell foreign and local shares and financial instruments in consideration for a commission. Local and foreign companies may obtain a brokerage license from the UAE Central Bank.

Monetary Intermediaries

Monetary intermediaries are money changers. They are not authorized to market or to sell investment products and services.

Investment Consultants

The UAE Central Bank has not published regulations on investment consultancy. Under the existing policies of the individual Emirates, a company licensed as an investment consultant may advise and assist clients in pursuing various investment strategies but may not directly sell investment products. Sales of investment products introduced by consultants are, therefore, typically booked outside the UAE. Consultants are also not expected to receive investment funds from clients, although they may assist in the transfer of those funds. Consultants may not provide credit facilities or open accounts for clients but may assist them in opening accounts with brokers and banks. If properly authorized by the client, the consultant could also manage such accounts.
The UAE Central Bank has issued instructions to local municipalities that they may issue investment consultancy licenses but only after first consulting the Central Bank.

**Present Scenario**

The UAE Central Bank has recently moved towards a tighter policy regarding investment companies and financial consultants. In the future, such companies will have to obtain a license from the Central Bank and to report under the rules it has established. Investment Companies for the purpose of these regulations have been defined as undertakings which are involved in investment in securities or in the management of trust funds or investment portfolios on behalf of others. The minimum paid up capital for investment companies (including branches of foreign companies) is DH 25 million, increasing to a larger amount depending on the activities of the company. Financial consultants, on the other hand, are deemed to be individual professionals or groups of professionals providing advice to individuals or companies about the value of securities and other financial instruments or giving recommendation about investing. For these, licenses can be issued with a minimum paid in capital of DH 1 million.

The number of locally incorporated banks increased to 24 banks during the December 2008. The number of branches and pay offices of these banks rose from 573 (508 branches, 56 pay offices and 11 electronic banking services units) at the end of December 2007 to 717 (638 branches, 60 pay offices and 19 electronic banking services units) at the end of December 2008.
### Chapter 1

#### Banking Institutions (Head Offices & Branches)

<table>
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<th>Banking Institutions (Head Offices &amp; Branches)</th>
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<tr>
<td>Pay offices</td>
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<td><strong>Foreign Banks (Regional Offices &amp; Branches)</strong></td>
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<td>Branches</td>
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<td>Pay offices</td>
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</table>

*Sources: CB of UAE*

#### Table 13: Commercial Bank in UAE

**Representative Offices**

The number of representative offices of foreign banks and other financial institutions licensed to operate in the country amounted to 23 in Abu Dhabi and 57 in Dubai at the end of March 2008.

#### 1.3 Comparative Analysis of Legal and Regulatory Framework

**1.3.1 Legal and Regulatory framework in which Indian banks operate**

Without a sound and effective banking system in India it cannot have a healthy economy. The banking system of India should not only be hassle free but it should be able to meet new challenges posed by the technology and any other external and internal factors.

For the past three decades India's banking system has several outstanding achievements to its credit. The most striking is its extensive reach. It is no longer confined to only metropolitans or cosmopolitans in India. In fact,
Indian banking system has reached even to the remote corners of the country. This is one of the main reasons of India's growth process.

The government's regular policy for Indian banks since 1969 has paid rich dividends with the nationalisation of 14 major private banks of India.

Not long ago, an account holder had to wait for hours at the bank counters for getting a draft or for withdrawing his own money. Today, he has a choice. Gone are days when the most efficient bank transferred money from one branch to another in two days. Now it is simple as instant messaging or dial a pizza. Money have become the order of the day.

The first bank in India, though conservative, was established in 1786. From 1786 till today, the journey of Indian Banking System can be segregated into three distinct phases. They are as mentioned below:

- Early phase from 1786 to 1969 of Indian Banks
- Nationalisation of Indian Banks and up to 1991 prior to Indian banking sector Reforms.
- New phase of Indian Banking System with the advent of Indian Financial & Banking Sector Reforms after 1991.

In order to make this description more explanatory, the entire description is divided into three phases: Phase I, Phase II and Phase III.

Phase I

The General Bank of India was set up in the year 1786. Next came Bank of Hindustan and Bengal Bank. The East India Company established Bank of Bengal (1809), Bank of Bombay (1840) and Bank of Madras (1843) as independent units and called it Presidency Banks. These three banks were amalgamated in 1920 and Imperial Bank of India was established which started as private shareholders banks, mostly Europeans shareholders.
In 1865 Allahabad Bank was established and first time exclusively by Indians, Punjab National Bank Ltd. was set up in 1894 with headquarters at Lahore. Between 1906 and 1913, Bank of India, Central Bank of India, Bank of Baroda, Canara Bank, Indian Bank, and Bank of Mysore were set up. Reserve Bank of India came in 1935.

During the first phase the growth was very slow and banks also experienced periodic failures between 1913 and 1948. There were approximately 1100 banks, mostly small. To streamline the functioning and activities of commercial banks, the Government of India came up with The Banking Companies Act, 1949 which was later changed to Banking Regulation Act 1949 as per amending Act of 1965 (Act No. 23 of 1965). Reserve Bank of India was vested with extensive powers for the supervision of banking in India as the Central Banking Authority.

During those days public has lesser confidence in the banks. As an aftermath deposit mobilisation was slow. Abreast of it the savings bank facility provided by the Postal department was comparatively safer. Moreover, funds were largely given to traders.

Phase II

Government took major steps in this Indian Banking Sector Reform after independence. In 1955, it nationalised Imperial Bank of India with extensive banking facilities on a large scale especially in rural and semi-urban areas. It formed State Bank of India to act as the principal agent of RBI and to handle banking transactions of the Union and State Governments all over the country.

Seven banks forming subsidiary of State Bank of India was nationalised in 1960 on 19th July, 1969, major process of nationalisation was carried out. It was the effort of the then Prime Minister of India, Mrs. Indira Gandhi that 14 major commercial banks in the country were nationalised.
Second phase of nationalisation Indian Banking Sector Reform was carried out in 1980 with seven more banks. This step brought 80% of the banking segment in India under Government ownership.

The following are the steps taken by the Government of India to Regulate Banking Institutions in the Country:

- 1949: Enactment of Banking Regulation Act.
- 1955: Nationalisation of State Bank of India.
- 1959: Nationalisation of SBI subsidiaries.
- 1961: Insurance cover extended to deposits.
- 1971: Creation of credit guarantee corporation.
- 1975: Creation of regional rural banks.
- 1980: Nationalisation of seven banks with deposits over 200 crore.

After the nationalisation of banks, the branches of the public sector bank India rose to approximately 800% in deposits and advances took a huge jump by 11,000%.

Banking in the sunshine of Government ownership gave the public implicit faith and immense confidence about the sustainability of these institutions.

**Phase III**

This phase has introduced many more products and facilities in the banking sector in its reforms measure. In 1991, under the chairmanship of M Narasimham, a committee was set up by his name which worked for the liberalisation of banking practices.

The country is flooded with foreign banks and their ATM stations. Efforts are being put to give a satisfactory service to customers. Phone banking and net banking is introduced. The entire system became more convenient and swift. Time is given more importance than money.
The financial system of India has shown a great deal of resilience. It is sheltered from any crisis triggered by any external macroeconomics shock as other East Asian Countries suffered. This is all due to a flexible exchange rate regime, the foreign reserves are high, the capital account is not yet fully convertible, and banks and their customers have limited foreign exchange exposure.

<table>
<thead>
<tr>
<th>ANNOUNCED REFORMS</th>
<th>PRIOR TO MARCH 2005</th>
<th>2005-2006</th>
<th>2006 THEREAFTER</th>
</tr>
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<tbody>
<tr>
<td>Structure of foreign bank presence in India</td>
<td>Branches Only</td>
<td>Branches or wholly-owned subsidiaries</td>
<td>Full national treatment, including IPO subject to 26% of paid-in capital being held resident Indians</td>
</tr>
<tr>
<td>Aggregate foreign direct investment limit in private banks</td>
<td>40%</td>
<td>74% for banks identified as distressed by RBI</td>
<td>74%</td>
</tr>
<tr>
<td>Foreign voting rights limit</td>
<td>10%</td>
<td>Proposed amendment to allow voting rights to reflect ownership level</td>
<td></td>
</tr>
<tr>
<td>Branching limit per year</td>
<td>12</td>
<td>&gt; 12 subject to RBI approval</td>
<td></td>
</tr>
</tbody>
</table>

**UNCHANGED**

Five percent foreign investment limit in private banks by individual foreign banks.

Ten percent foreign investment limit in private banks by foreign institutional investors or individual corporate entities.

*Source: RBI*

**Table 14 : Financial reforms in India.**

The impressive institutional and legal reforms have been undertaken in relation to the banking sector. In 1994, a Board for Financial Supervision (BFS) was constituted comprising select members of the RBI Board with a variety of professional expertise to exercise 'undivided attention to supervision'.

The BFS, which generally meets once a month, provides direction on a continuing basis on regulatory policies including governance issues and supervisory practices. It also provides direction on supervisory actions in specific cases. The BFS also ensures an integrated approach to supervision of commercial banks, development finance institutions, non-banking finance companies, urban cooperatives banks and primary dealers.
A Board for Regulation and Supervision of Payment and Settlement Systems (BPSS) has also been recently constituted to prescribe policies relating to the regulation and supervision of all types of payment and settlement systems, set standards for existing and future systems, authorise the payment and settlement systems and determine criteria for membership to these systems. The Credit Information Companies (Regulation) Bill, 2004 has been passed by both the Houses of the Parliament while the Government Securities Bills, 2004 is under process. Certain amendments are being considered by the Parliament to enhance Reserve Bank’s regulatory and supervisory powers. Major amendments relate to requirement of prior approval of RBI for acquisition of five per cent or more of shares of a banking company with a view to ensuring ‘fit and proper’ status of the significant shareholders, aligning the voting rights with the economic holding and empowering the RBI to supersede the Board of a banking company.

There have been a number of measures for enhancing the transparency and disclosures standards. Illustratively, with a view to enhancing further transparency, all cases of penalty imposed by the RBI on the banks as also directions issued on specific matters, including those arising out of inspection, are to be placed in the public domain. While the regulatory framework and supervisory practices have almost converged with the best practices elsewhere in the world, two points are noteworthy. First, the minimum capital to risk assets ratio (CRAR) has been kept at nine per cent i.e., one percentage point above the international norm; and second, the banks are required to maintain a separate Investment Fluctuation Reserve (IFR) out of profits, towards interest rate risk, at five per cent of their investment portfolio under the categories ‘held for trading’ and ‘available for sale’. This was prescribed at a time when interest rates were falling and banks were realizing large gains out of their treasury activities.
Simultaneously, the conservative accounting norms did not allow banks to recognize the unrealized gains. Such unrealized gains coupled with the creation of IFR helped in cushioning the valuation losses required to be booked when interest rates in the longer tenors have moved up in the last one year or so.

The regulatory framework in India, in addition to prescribing prudential guidelines and encouraging market discipline, is increasingly focusing on ensuring good governance through "fit and proper" owners, directors and senior managers of the banks. Transfer of shareholding of five per cent and above requires acknowledgement from the RBI and such significant shareholders are put through a 'fit and proper' test. Banks have also been asked to ensure that the nominated and elected directors are screened by a nomination committee to satisfy 'fit and proper' criteria. Directors are also required to sign a covenant indicating their roles and responsibilities.

The RBI has recently issued detailed guidelines on ownership and governance in private sector banks emphasizing diversified ownership.

The listed banks are also required to comply with governance principles laid down by the SEBI – the securities markets regulator.

**Processes of banking reform**

The processes adopted for bringing about the reforms in India may be of some interest to this audience. Recalling some features of financial sector reforms in India would be in order, before narrating the processes.

First, financial sector reform was undertaken early in the reform-cycle in India.

Second, the financial sector was not driven by any crisis and the reforms have not been an outcome of multilateral aid.

Third, the design and detail of the reform were evolved by domestic expertise, though international experience is always kept in view.
Fourth, the Government preferred that public sector banks manage the over-hang problems of the past rather than cleanup the balance sheets with support of the Government.

Fifth, it was felt that there is enough room for growth and healthy competition for public and private sector banks as well as foreign and domestic banks. The twin governing principles are non-disruptive progress and consultative process.

In order to ensure timely and effective implementation of the measures, RBI has been adopting a consultative approach before introducing policy measures. Suitable mechanisms have been instituted to deliberate upon various issues so that the benefits of financial efficiency and stability percolate to the common person and the services of the Indian financial system can be benchmarked against international best standards in a transparent manner.

**Brief account of these mechanisms.**

First, on all important issues, workings group are constituted or technical reports are prepared, generally encompassing a review of the international best practices, options available and way forward. The group membership may be internal or external to the RBI or mixed. Draft reports are often placed in public domain and final reports take account of inputs, in particular from industry associations and self-regulatory organizations. The reform-measures emanate out of such a series of reports, the pioneering ones being: Report of the Committee on the Financial System (Chairman: Shri M. Narasimham), in 1991; Report of the High Level Committee on Balance of Payments (Chairman: Dr. C. Rangarajan) in 1992; and the Report of the Committee on Banking Sector Reforms (Chairman: Shri M. Narasimham) in 1998.

Second, Resource Management Discussions meetings are held by the RBI with select commercial banks, prior to the policy announcements. These
meetings not only focus on perception and outlook of the bankers on the economy, liquidity conditions, credit flow, development of different markets and directions of interest rates, but also on issues relating to developmental aspects of banking operations.

Third, we have formed a Technical Advisory Committee on Money, Foreign Exchange and Government Securities Markets (TAC). It has emerged as a key consultative mechanism amongst the regulators and various market players including banks. The Committee has been crystallizing the synergies of experts across various fields of the financial market and thereby acting as a facilitator for the RBI in steering reforms in money, government securities and foreign exchange markets.

Fourth, in order to strengthen the consultative process in the regulatory domain and to place such a process on a continuing basis, the RBI has constituted a Standing Technical Advisory Committee on Financial Regulation on the lines similar to the TAC.

The Committee consists of experts drawn from academia, financial markets, banks, non-bank financial institutions and credit rating agencies.

The Committee examines the issues referred to it and advises the RBI on desirable regulatory framework on an on-going basis for banks, non-bank financial institutions and other market participants.

Fifth, for ensuring periodic formal interaction, amongst the regulators, there is a High Level Co-ordination Committee on Financial and Capital Markets (HLCCFCM) with the Governor, RBI as the Chairman, and the Heads of the securities market and insurance regulators, and the Secretary of the Finance Ministry as the members. This Co-ordination Committee has authorised constitution of several standing committees to ensure co-ordination in regulatory frameworks at an operational level.
Sixth, more recently a Standing Advisory Committee on Urban Cooperative Banks (UCBs) has been activated to advise on structural, regulatory and supervisory issues relating to UCBs and to facilitate the process of formulating future approaches for this sector. Similar mechanisms are being worked out for non-banking financial companies.

Seventh, the RBI has also instituted a mechanism of placing draft versions of important guidelines for comments of the public at large before finalisation of the guidelines. To further this consultative process and with a specific goal of making the regulatory guidelines more user-friendly, a Users’ Consultative Panel has been constituted comprising the representatives of select banks and market participants. The panel provides feedback on regulatory instructions at the formulation stage to avoid any subsequent ambiguities and operational glitches.

Eighth, an extensive and transparent communication system has been evolved. The annual policy statements and their mid-term reviews communicate the RBI’s stance on monetary policy in the immediate future of six months to one year. Over the years, the reports of various working groups and committees have emerged as another plank of two-way communication from RBI.

An important feature of the RBI’s communication policy is the almost real-time dissemination of information through its web-site.

Ninth, an important feature of the reform of the Indian financial system has been the intent of the authorities to align the regulatory framework with international best practices keeping in view the developmental needs of the country and domestic factors.

Towards this end, a Standing Committee on International Financial Standards and Codes was constituted in 1999. The Standing Committee had set up ten Advisory Groups in key areas of the financial sector whose reports are
available on the RBI website. The recommendations contained in these reports
have either been implemented or are in the process of implementation. I would
like to draw your attention to two reports in particular, which have a direct
bearing on the banking system, viz., Advisory Group on Banking Supervision
and Advisory Group on Corporate Governance.

<table>
<thead>
<tr>
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<td>Number of Commercial Banks</td>
<td>89</td>
<td>300</td>
<td>297</td>
<td>292</td>
<td>290</td>
<td>289</td>
<td>222</td>
<td>183</td>
<td>174</td>
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<tr>
<td>(a) Scheduled Commercial Banks</td>
<td>73</td>
<td>296</td>
<td>293</td>
<td>298</td>
<td>286</td>
<td>285</td>
<td>218</td>
<td>179</td>
<td>170</td>
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<td>of which: Regional Rural Banks</td>
<td>16</td>
<td>5</td>
<td>4</td>
<td>4</td>
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<td>4</td>
<td>4</td>
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<td>(b) Non-Scheduled Commercial Banks</td>
<td>74</td>
<td>195</td>
<td>196</td>
<td>196</td>
<td>196</td>
<td>196</td>
<td>133</td>
<td>96</td>
<td>91</td>
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<td>Number of Bank Offices in India</td>
<td>8322</td>
<td>67937</td>
<td>68195</td>
<td>68800</td>
<td>69170</td>
<td>70373</td>
<td>71385</td>
<td>74346</td>
<td>77773</td>
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<td>(a) Rural</td>
<td>1833</td>
<td>32585</td>
<td>32503</td>
<td>32283</td>
<td>32227</td>
<td>30790</td>
<td>30436</td>
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<td>(b) Semi-Urban</td>
<td>3342</td>
<td>14943</td>
<td>14962</td>
<td>15135</td>
<td>15298</td>
<td>15325</td>
<td>15811</td>
<td>16620</td>
<td>17656</td>
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<tr>
<td>(c) Urban</td>
<td>1384</td>
<td>11193</td>
<td>11328</td>
<td>11566</td>
<td>11806</td>
<td>12149</td>
<td>13034</td>
<td>14049</td>
<td>15245</td>
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<tr>
<td>(d) Metropolitan</td>
<td>1503</td>
<td>9316</td>
<td>9402</td>
<td>9516</td>
<td>9750</td>
<td>11839</td>
<td>14204</td>
<td>13102</td>
<td>13895</td>
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<tr>
<td>Population per Office (in thousands)</td>
<td>64</td>
<td>15</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>15</td>
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<tr>
<td>Aggregate deposits of Scheduled Commercial Banks in India (Rs. crore)</td>
<td>4646</td>
<td>899141</td>
<td>1131189</td>
<td>1311171</td>
<td>1364416</td>
<td>1700198</td>
<td>2190949</td>
<td>2617934</td>
<td>3196940</td>
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<td>(a) Demand deposits</td>
<td>2104</td>
<td>359407</td>
<td>169181</td>
<td>187837</td>
<td>225822</td>
<td>248828</td>
<td>326440</td>
<td>420731</td>
<td>524310</td>
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<tr>
<td>(b) Time deposits</td>
<td>2542</td>
<td>829734</td>
<td>922085</td>
<td>1172362</td>
<td>1179394</td>
<td>1452717</td>
<td>1744409</td>
<td>2192203</td>
<td>2672630</td>
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<tr>
<td>Credit of Scheduled Commercial Banks in India (Rs. crore)</td>
<td>3550</td>
<td>529271</td>
<td>609653</td>
<td>744532</td>
<td>849786</td>
<td>1100428</td>
<td>1507077</td>
<td>1931190</td>
<td>2361913</td>
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<tr>
<td>Investments of Scheduled Commercial Banks in India (Rs. crore)</td>
<td>1361</td>
<td>367184</td>
<td>437482</td>
<td>547545</td>
<td>677588</td>
<td>738154</td>
<td>717454</td>
<td>791516</td>
<td>7917114</td>
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<tr>
<td>Deposits of Scheduled Commercial Banks per office (Rs. lakh)</td>
<td>56</td>
<td>1456</td>
<td>1569</td>
<td>1925</td>
<td>2265</td>
<td>2574</td>
<td>3047</td>
<td>3675</td>
<td>4344</td>
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<td>Credit of Scheduled Commercial Banks per office (Rs. lakh)</td>
<td>44</td>
<td>779</td>
<td>893</td>
<td>1143</td>
<td>1330</td>
<td>1700</td>
<td>2209</td>
<td>2757</td>
<td>3222</td>
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<td>Per capita Deposit of Scheduled Commercial Banks (Rs.)</td>
<td>68</td>
<td>9770</td>
<td>11008</td>
<td>12253</td>
<td>14809</td>
<td>16281</td>
<td>19130</td>
<td>23382</td>
<td>28610</td>
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<tr>
<td>Per capita Credit of Scheduled Commercial Banks (Rs.)</td>
<td>68</td>
<td>5228</td>
<td>5927</td>
<td>7275</td>
<td>8273</td>
<td>10752</td>
<td>13754</td>
<td>17541</td>
<td>211218</td>
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<tr>
<td>Deposits of Scheduled Commercial Banks in percentage to Gross National Product at factor cost (at current prices)</td>
<td>15.5</td>
<td>56.0</td>
<td>54.4</td>
<td>58.8</td>
<td>59.4</td>
<td>60.0</td>
<td>65.4</td>
<td>70.1</td>
<td>74.7</td>
</tr>
<tr>
<td>Scheduled Commercial Banks’ Advances to Priority Sectors (Rs. crore)</td>
<td>504</td>
<td>182255</td>
<td>205606</td>
<td>256448</td>
<td>268534</td>
<td>361476</td>
<td>510175</td>
<td>632647</td>
<td>738606</td>
</tr>
<tr>
<td>Share of Priority Sector Advances in total credit of Scheduled Commercial Banks (per cent)</td>
<td>14.0</td>
<td>31.0</td>
<td>34.8</td>
<td>35.1</td>
<td>34.5</td>
<td>36.7</td>
<td>35.3</td>
<td>34.3</td>
<td>32.9</td>
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<tr>
<td>Credit-Deposit Ratio (per cent)</td>
<td>77.6</td>
<td>53.5</td>
<td>52.8</td>
<td>56.5</td>
<td>55.9</td>
<td>62.6</td>
<td>70.1</td>
<td>73.5</td>
<td>74.6</td>
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<tr>
<td>Investment-Deposit Ratio (per cent)</td>
<td>29.3</td>
<td>37.1</td>
<td>38.7</td>
<td>41.3</td>
<td>45.0</td>
<td>47.3</td>
<td>40.0</td>
<td>36.3</td>
<td>35.4</td>
</tr>
<tr>
<td>Cash-Deposit Ratio (per cent)</td>
<td>8.3</td>
<td>8.4</td>
<td>7.1</td>
<td>6.3</td>
<td>7.2</td>
<td>6.4</td>
<td>6.7</td>
<td>7.2</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Notes: 1) Number of bank offices includes Administrative Offices
2) Classification of bank offices according to population for the year 1959 is based on 1951 census and for the
subsequent years up to March 2004 it is based on 1991 census. For March 2005 up to March 2007, classification
of bank offices were based on 2001 census
3) Population per office, per capita deposits and per capita credit are based on the estimated mid-year population
figures, supplied by the Office of the Registrar General, India
4) Deposits, credit and investments of Scheduled Commercial Banks in India are as per 'Form A' return under Section
42(2) of the Reserve Bank of India Act, 1934 and relate to the last Friday of the reference period
5) Scheduled Commercial Banks’ Advances to priority sectors and the related ratios are exclusive of Regional
Rural Banks
6) For working our cash-deposit ratio, cash is taken as the total of ‘cash in hand’ and ‘balances with the Reserve Bank
of India’. The data for ‘cash in hand’ are taken from ‘Form A’ return as per Section 42(2) of the Reserve Bank of
India Act, 1934 and ‘balances with the Reserve Bank of India’ are taken from the ‘Weekly Statement of Affairs of the
Reserve Bank of India
7) Investments of Scheduled Commercial Banks in India include only investments in government securities and other
approved securities

Source: RBI

Table 15: Indicators of Indian banks
1.3.2 Legal and Regulatory framework in which UAE banks operate

In the UAE, the marketing of financial products and services is regulated by the UAE Central Bank under Federal Law No. 10 of 1980 (the Central Bank Law and related banking resolutions). Enforcement of Central Bank policy, however, is often undertaken by the local licensing authorities in the various Emirates.

The UAE Central Bank prohibits lending an amount greater than seven percent of a bank's capital base to any single customer. The bank defines a customer as an individual, a company, or a group of companies under common ownership, and capital base as local capital. Foreign banks with branches in the UAE are not permitted to calculate loans as a percentage of their global capital (which may however be used to calculate the capital adequacy ratio). In a revision to the rule in 1993, the Central Bank decided to exclude non-funded exposures, such as letters of credit and guarantees from the requirement. The Central Bank has also announced implementation of internationally recognized and accepted accounting principles, in the form of the International Accounting Standard (IAS) number 30 on disclosure.

The creation of the UAE’s Central Bank in the early 1980s came in response to the oil boom which had created a chaotic financial environment in terms of bank proliferation, credit expansion, and real estate speculation. This atmosphere, coupled with the lack of a proper governing body, had led to a financial crisis and the collapse of two banks in 1977. In spite of pressures coming from various members of the Emirate’s ruling families, the central bank announced in 1981 that it would not issue any new branch licenses for foreign banks and that existing foreign banks would each have to restrict the number of branches to eight by 1984.

In the early 1980s, the central bank adopted several measures to strengthen the banking sector. It “expanded audits and inspections, increased
bank reporting requirements, established a computerized loan risk department, and set minimum capital requirements”.

In 1983, the Central Bank was forced to take over UAE’s third largest bank, Union Bank, when the later violated a regulation that limited the size of a bank's loans to its directors. The central bank and the Dubai government bailed out the bank with US $380 million.

By the mid 1980s, the price of oil had fallen to below $10 per barrel, causing contractions in government spending, which in return, slowed down economic activities. The banking sector suffered loan losses arising from increased problem loans. This resulted in a restructuring of the banking sector—three banks in Dubai merged as did three others in Abu Dhabi. The central bank took another step towards strengthening the sector in 1994, when it urged banks to adopt International Accounting Standards.
### Table 16: Aggregate balance sheet of banks in UAE

<table>
<thead>
<tr>
<th>Item</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>DEC.</td>
<td>SEP.</td>
<td>JULY</td>
</tr>
<tr>
<td>Cash and Deposits with C.B.</td>
<td>63,415</td>
<td>129,529</td>
<td>238,852</td>
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<tr>
<td>Cash in Hand (L.C.)</td>
<td>4,995</td>
<td>4,831</td>
<td>5,730</td>
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<tr>
<td>Deposits with Central Bank</td>
<td>58,420</td>
<td>124,698</td>
<td>231,122</td>
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<tr>
<td>Due From Resident Banks</td>
<td>34,793</td>
<td>36,261</td>
<td>44,377</td>
</tr>
<tr>
<td>Money at Call and Short Notice</td>
<td>2,218</td>
<td>5,145</td>
<td>5,512</td>
</tr>
<tr>
<td>Demand Deposits</td>
<td>707</td>
<td>1,396</td>
<td>919</td>
</tr>
<tr>
<td>Time Deposits</td>
<td>30,390</td>
<td>29,625</td>
<td>37,816</td>
</tr>
<tr>
<td>Cheques in the Course of Collection</td>
<td>1,478</td>
<td>95</td>
<td>130</td>
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<tr>
<td>Foreign Assets</td>
<td>231,938</td>
<td>229,265</td>
<td>196,896</td>
</tr>
<tr>
<td>Net Due From Head Office and/or Branches Abroad</td>
<td>18,024</td>
<td>17,328</td>
<td>4,174</td>
</tr>
<tr>
<td>Due From Other Banks Abroad</td>
<td>90,489</td>
<td>70,382</td>
<td>60,222</td>
</tr>
<tr>
<td>Cash in Hand (F.C.)</td>
<td>114</td>
<td>130</td>
<td>106</td>
</tr>
<tr>
<td>Securities **</td>
<td>56,638</td>
<td>70,415</td>
<td>57,795</td>
</tr>
<tr>
<td>Credit to Non - Residents **</td>
<td>63,264</td>
<td>66,643</td>
<td>70,599</td>
</tr>
<tr>
<td>Other Foreign Assets</td>
<td>3,409</td>
<td>4,357</td>
<td>4,000</td>
</tr>
<tr>
<td>Domestic Credit and Investments **</td>
<td>506,278</td>
<td>626,301</td>
<td>700,708</td>
</tr>
<tr>
<td>a) Credit Facilities</td>
<td>474,162</td>
<td>578,713</td>
<td>647,482</td>
</tr>
<tr>
<td>Claims on Government</td>
<td>47,885</td>
<td>55,681</td>
<td>58,402</td>
</tr>
<tr>
<td>Claims on Official Entities</td>
<td>31,513</td>
<td>33,688</td>
<td>39,823</td>
</tr>
<tr>
<td>Loans, Advances and Overdrafts</td>
<td>31,513</td>
<td>33,688</td>
<td>39,823</td>
</tr>
<tr>
<td>Claims on Private Sector</td>
<td>376,170</td>
<td>458,885</td>
<td>512,316</td>
</tr>
<tr>
<td>Commercial Papers</td>
<td>9,522</td>
<td>11,990</td>
<td>13,312</td>
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<tr>
<td>Real Estate Mortgage Loans</td>
<td>31,016</td>
<td>50,103</td>
<td>58,859</td>
</tr>
<tr>
<td>Loans, Advances and Overdrafts</td>
<td>335,632</td>
<td>396,792</td>
<td>440,145</td>
</tr>
<tr>
<td>Claims on Other Financial Institutions</td>
<td>18,584</td>
<td>30,279</td>
<td>36,941</td>
</tr>
<tr>
<td>Loans, Advances and Overdrafts</td>
<td>18,584</td>
<td>30,279</td>
<td>36,941</td>
</tr>
<tr>
<td>b) Domestic Investments</td>
<td>32,116</td>
<td>47,588</td>
<td>53,226</td>
</tr>
<tr>
<td>Unclassified Assets</td>
<td>23,150</td>
<td>43,538</td>
<td>44,240</td>
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<tr>
<td>Fixed Assets</td>
<td>4,555</td>
<td>6,826</td>
<td>8,658</td>
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<tr>
<td>Inter-Branch Transactions</td>
<td>226</td>
<td>600</td>
<td>1,299</td>
</tr>
<tr>
<td>Other Assets</td>
<td>18,369</td>
<td>35,112</td>
<td>34,283</td>
</tr>
<tr>
<td>Total Assets / Liabilities **</td>
<td>869,574</td>
<td>1,064,894</td>
<td>1,223,073</td>
</tr>
</tbody>
</table>

* Excluding Overseas Branches of National Banks.

** Including provisions for bad and doubtful debts as well as interest in suspense.

Source: CB of UAE
Chapter - 1

in millions of AEDs

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Monetary Deposits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand Deposits (L.C.)</td>
<td>96,367</td>
<td>129,436</td>
<td>152,721</td>
<td>212,019</td>
<td>201,040</td>
</tr>
<tr>
<td>Bankers Drafts</td>
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<td>3,001</td>
<td>7,891</td>
<td>5,551</td>
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<td>Quasi-Monetary Deposits</td>
<td>279,274</td>
<td>349,765</td>
<td>384,038</td>
<td>435,624</td>
<td>454,532</td>
</tr>
<tr>
<td>Time Deposits (L.C.)</td>
<td>159,374</td>
<td>207,780</td>
<td>259,374</td>
<td>277,923</td>
<td>284,511</td>
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<tr>
<td>Savings Deposits (L.C.)</td>
<td>18,015</td>
<td>21,198</td>
<td>24,654</td>
<td>32,904</td>
<td>32,049</td>
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<tr>
<td>Commercial Prepayments (L.C.)</td>
<td>5,578</td>
<td>7,991</td>
<td>9,003</td>
<td>10,015</td>
<td>10,413</td>
</tr>
<tr>
<td>Other Deposits (F.C.)</td>
<td>96,307</td>
<td>112,796</td>
<td>91,007</td>
<td>114,782</td>
<td>127,559</td>
</tr>
<tr>
<td>Foreign Liabilities</td>
<td>177,688</td>
<td>244,864</td>
<td>320,970</td>
<td>308,759</td>
<td>328,988</td>
</tr>
<tr>
<td>Net Due To H. O. and/or Branches Abroad</td>
<td>20,513</td>
<td>21,950</td>
<td>44,476</td>
<td>27,598</td>
<td>29,861</td>
</tr>
<tr>
<td>Due To Other Banks Abroad</td>
<td>101,094</td>
<td>146,193</td>
<td>209,303</td>
<td>200,124</td>
<td>206,011</td>
</tr>
<tr>
<td>Other Deposits (L.C. + F.C.)</td>
<td>49,484</td>
<td>67,704</td>
<td>64,684</td>
<td>76,065</td>
<td>85,559</td>
</tr>
<tr>
<td>Provisions 1</td>
<td>1,279</td>
<td>1,054</td>
<td>819</td>
<td>833</td>
<td>798</td>
</tr>
<tr>
<td>Other Foreign Liabilities</td>
<td>5,318</td>
<td>7,963</td>
<td>1,688</td>
<td>4,139</td>
<td>5,959</td>
</tr>
<tr>
<td>Government Deposits (L.C. + F.C.)</td>
<td>93,680</td>
<td>104,589</td>
<td>114,579</td>
<td>115,466</td>
<td>111,908</td>
</tr>
<tr>
<td>Government Lending Funds 2</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Due To Central Bank</td>
<td>168</td>
<td>5,452</td>
<td>94</td>
<td>25,905</td>
<td>21,808</td>
</tr>
<tr>
<td>Capital and Reserves</td>
<td>104,089</td>
<td>121,636</td>
<td>130,882</td>
<td>166,527</td>
<td>171,821</td>
</tr>
<tr>
<td>Due To Resident Banks</td>
<td>38,397</td>
<td>46,641</td>
<td>46,026</td>
<td>77,353</td>
<td>66,290</td>
</tr>
<tr>
<td>Money at Call and Short Notice</td>
<td>1,504</td>
<td>3,205</td>
<td>2,008</td>
<td>2,118</td>
<td>3,914</td>
</tr>
<tr>
<td>Demand Deposits</td>
<td>665</td>
<td>1,780</td>
<td>1,255</td>
<td>1,868</td>
<td>2,270</td>
</tr>
<tr>
<td>Time Deposits</td>
<td>35,828</td>
<td>35,656</td>
<td>42,763</td>
<td>73,367</td>
<td>60,106</td>
</tr>
<tr>
<td>Unclassified Liabilities</td>
<td>68,080</td>
<td>64,962</td>
<td>70,746</td>
<td>73,338</td>
<td>71,536</td>
</tr>
<tr>
<td>Inter-branch Transactions</td>
<td>205</td>
<td>157</td>
<td>372</td>
<td>437</td>
<td>388</td>
</tr>
<tr>
<td>Provisions 1</td>
<td>33,183</td>
<td>19,996</td>
<td>20,788</td>
<td>22,913</td>
<td>23,339</td>
</tr>
<tr>
<td>Other Liabilities</td>
<td>34,692</td>
<td>44,809</td>
<td>49,568</td>
<td>49,968</td>
<td>47,809</td>
</tr>
<tr>
<td>Memoranda Accounts</td>
<td>952,310</td>
<td>1,376,821</td>
<td>1,416,622</td>
<td>1,713,106</td>
<td>1,708,433</td>
</tr>
<tr>
<td>Letters of Credit</td>
<td>79,228</td>
<td>99,316</td>
<td>110,860</td>
<td>143,797</td>
<td>137,474</td>
</tr>
<tr>
<td>Guarantees and Other Endorsements</td>
<td>194,143</td>
<td>244,671</td>
<td>252,402</td>
<td>319,515</td>
<td>301,599</td>
</tr>
<tr>
<td>Acceptances</td>
<td>14,740</td>
<td>17,020</td>
<td>16,272</td>
<td>23,725</td>
<td>20,952</td>
</tr>
<tr>
<td>Forward Exchange Contracts</td>
<td>341,413</td>
<td>420,376</td>
<td>569,807</td>
<td>677,325</td>
<td>764,405</td>
</tr>
<tr>
<td>Other Memoranda Accounts</td>
<td>322,786</td>
<td>396,538</td>
<td>465,281</td>
<td>548,744</td>
<td>484,003</td>
</tr>
</tbody>
</table>
| *Excluding Overseas Branches of National Banks
1. Provisions for Bad and Doubtful Debts as well as interest in suspense
2. Including Construction Refinancing by the Government of Abu Dhabi

Source: CB of UAE

Table 17: Aggregate balance sheet of banks in UAE

72
### Table 18: List of national banks and their branches in UAE

<table>
<thead>
<tr>
<th>NATIONAL BANKS</th>
<th>Abu Dhabi</th>
<th>Dubai</th>
<th>Sharjah</th>
<th>Ras-Al-Khaimah</th>
<th>Ajman</th>
<th>Umm-Al-Qiwain</th>
<th>Al-Fujairah</th>
<th>TOTAL</th>
<th>Pr. Offices</th>
<th>Grant. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. National Bank of Abu Dhabi</td>
<td>37</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>57</td>
<td>16</td>
<td>75</td>
</tr>
<tr>
<td>2. Abu Dhabi Commercial Bank</td>
<td>25</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>39</td>
<td>5</td>
<td>44</td>
</tr>
<tr>
<td>3. Abu Bank for Investment &amp; Foreign Trade</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>5</td>
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<tr>
<td>4. Al Fattan Bank</td>
<td>17</td>
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<td>6</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>35</td>
<td>11</td>
<td>46</td>
</tr>
<tr>
<td>5. The National Bank of Dubai</td>
<td>3</td>
<td>13</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>42</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>6. Commercial Bank of Dubai</td>
<td>5</td>
<td>12</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>5</td>
<td>25</td>
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<tr>
<td>7. Emirates Bank</td>
<td>10</td>
<td>16</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>45</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>8. Dubai Bank International</td>
<td>1</td>
<td>35</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>51</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>9. Emirates Bank International</td>
<td>1</td>
<td>12</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>23</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>10. Dubai Bank</td>
<td>10</td>
<td>21</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>45</td>
<td>1</td>
<td>46</td>
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<td>11. Sharjah Islamic Bank</td>
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<td>0</td>
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<td>19</td>
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<tr>
<td>12. Bank of Sharjah</td>
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<td>3</td>
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<td>1</td>
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<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>9</td>
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<tr>
<td>13. Abu Dhabi Bank</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>14. First Bank</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
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<td>15. The National Bank of Ras-Al-Khaimah</td>
<td>4</td>
<td>12</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>16. Commercial Bank (International)</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>17. National Bank of Fujairah</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>18. National Bank of Umm-Al-Qwain</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>19. First Gulf Bank</td>
<td>1</td>
<td>6</td>
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<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>20. Abu Dhabi Bank</td>
<td>20</td>
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<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
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<td>21. Dubai Bank</td>
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<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>22. Noor Al Islah Bank</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

**TOTAL** 117 200 75 26 19 8 24 510 56 597

* Including Automated Branch/Consumer Service Centres

**Source:** CB of UAE

### Table 19: List of specialised banks, investment institution, finance companies and rep. office in UAE

**Source:** CB of UAE
1.4 Motivation and Rationale of Research

There were a number of motivations to pursue the present study:

1. Interest of the researcher to understand the changes taking place following implementation of Basel-II framework and their impact on banking sector in particular and society in general.

2. This research is being conducted as a Ph.D. thesis, after completion of which the researcher will be getting an academic incentive.

3. As the researcher is currently working in UAE, where the environment is quite different from India, the researcher is always interested to see the differences and similarities between the two systems.

The researcher is a full-time academician, the vastness of the topic and its impact on almost every sphere of life will provide the researcher an opportunity to understand the relationships more clearly and vividly.

1.5 Organization of Thesis

As per the plan of study the present study has been chaptered as follows:

Chapter 1- Introduction: This chapter of the thesis provides the reader an insight to the research area. It focuses on the Basel accord, its background and also makes the reader familiar with the terminology, the developments leading to Basel-II. It provides the conceptual knowledge about the capital needs of banks and forms the basis of the study that follows, because the most important impact areas have been identified in this chapter for research in the later chapters. It gives an overview of the banking industry in India and UAE, the evolution of the banking industry and the varied nature and forms of banks operating in the region. Further this chapter also provides insight on the legal and regulatory framework of the two countries financial sector and covers major regulations and laws under which the banks operate in India and UAE.

Chapter 2- Literature Review on the Basel Capital Accord: In this chapter the theoretical framework relevant to the purpose of this study has been
presented. The chapter also covers the reviews the literature on the three pillars of Basel II and present the relevant theories on the Capital Accord along with various studies related with the issue of implementation of Basel-II accord and response from banking community worldwide.

Chapter 3- Research Methodology & Research Design: This chapter discusses the research methodology of the thesis. It starts with need of study, statement of problem justification of study, scope of study, objective of study, research design, hypotheses proposed and research approach. It also outlines research strategy, sampling method, research setting, data collection, research tools and the pattern of data analysis.

Chapter 4 – Tabulation, Analysis and Interpretation: In this chapter the test tool was employed to the respondents from Axis bank, HDFC bank, ABN AMRO Bank, ENBD, Commercial Bank of Dubai and Union National Bank. The data gathered from the questionnaire are analysed statistically and subjectively in context with the secondary data available. Basic Information, Industry analysis and testing of research tools along with comparative assessment is provided in this chapter. Finally, the hypotheses proposed have also been tested at the end of this chapter.

Chapter 5 – Inferences & Conclusion: Covers the major inference of the study, the formulation of conclusions.

Chapter 6- Recommendations and Suggestions: It gives the gist and final outcome of the research. It contains findings and recommendations. It also provides general suggestions along with the challenges ahead, impacts, limitation of study and finally it justifies the study and poses the question whether there are any areas of further studies?

Chapter 1

Introduction
(Introduction to Basel Accord and Study of Banking Industry in India and UAE with comparative analysis of Legal and Regulatory Framework)

Literature Review on the Basel Capital Accord
(Theoretical Framework relevant to the purpose of study and review of related literature)

Research Methodology and Research Design

Tabulation, Analysis & Interpretation
(Discussion on collected data in banking sector of India and UAE)

Inferences and Conclusion
(Inferences and Conclusion based on the analysis of data)

Recommendations and Suggestions
(Findings, Recommendations, General Suggestions, Challenges ahead, Impact, Limitations of study and Direction of Future Research)

Basel II Accord and Economic Meltdown 2008-2009
(An Overview of Economic Meltdown)

Figure 8: Organization of Thesis
1.6 Conclusion

From the above discussion we can see that Basel-II framework is affecting the banking sector radically, and in today's world where the financial institutions play an important role in almost every sphere of life the impact of Basel-II framework will not only be limited to the banks alone rather it would be reflected on almost every sphere of life. Basel-II is an attempt to standardise the banking world over as per one single standard, which needs fundamental changes in proportions of men, machines and money in banking sector – which presently are not evenly distributed throughout the world, the economic and financial environments in different countries are different – so are the problems faced by them in acceptance and implementation of Basel-II and here the challenges emerge to accommodate all the differences and rope them in one thread.

T-7506.