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CONTENTS

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INTRODUCTION

REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

SCOPE FOR FURTHER RESEARCH

ACKNOWLEDGMENTS

REFERENCES

APPENDIX/ANNEXURE

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BOOKS

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

UNPUBLISHED DISSERTATIONS AND THESES

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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WEBSITES

- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

RISK MANAGEMENT IN THE BANKS: AN ANALYSIS

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ABSTRACT

The objective of risk management is not to prohibit or prevent risk taking, but to ensure that the risks are consciously taken with full knowledge, clear purpose and understanding so that it can be measured and mitigated. If a bank can take risk more consciously; anticipate adverse changes and could hedge accordingly; Risk Management becomes a source of competitive advantage, as a bank can offer its products at a better price than its competitors. For formulating effective Risk Management strategies, we need to develop various Risk Management Committees like Credit Policy Committee, Asset Liability Management Committee, and an efficient Management Information System. Besides this, an objective and reliable data base has to be built up for which bank has to analyze its own past performance data relating to loan defaults, trading losses, operational losses, etc., and come out with benchmarks so as to prepare themselves for the future risk management activities. In light of these facts the present paper introduces the concept of Risk Management, its components and the related issues. It then assesses the various Risk Management techniques being followed and the strategies suggested and implemented by banks world over and which are also in line with the Basel Committee recommendations.

KEYWORDS

risk management, banking.

INTRODUCTION

The banks in India have been seriously in the trap of ever rising Non-Performing Assets for a very long time. This has led to many of the banks playing a cautious game by investing in the safest ventures, hence minimizing risk. But profiting without exposing to risk is like trying to live without being born. Growth and development of any business organization depends on its risk management and profit generating capacity. ***Hence risk is not to be avoided but to be managed.*** Both risk and profit have time dimension, which leads us to future projections. These future projections have an element of uncertainty because future is not always perfectly predictable. This element of uncertainty gives rise to risk, which, in turn, affects profits. For ensuring long-term survival of banks, the risk dimension of banking has to be addressed appropriately. Mr. Walter Wriston, ex-CEO, CITI Bank has rightly observed that "…the business of banking is business of risk management, plain and simple, that is business of banking…" Of late, banks have graduated from being a financial intermediary in the past to risk intermediary now-a-days.

The importance of risk management in the present day banking industry is derived from the increasing challenges earmarked by the deregulation and liberalization of the financial system.

REVIEW OF LITERATURE

Culbertson propounded the theory of ***'Term structure of Interest Rates'*** which was afterwards better known as the theory of '***Risk Averseness'***. According to the theory the best way to minimize risk is to match maturities of assets and liabilities or to match maturities with holding periods. If a lender knows exactly how long his money will be available for investment, he can select the maturity date of the claim in such a way that he runs neither the income risk nor the capital risk.

In yet another study, related to Risk Management, ***DM Nachane, Aditya Narain, Saibal Ghosh, Satyananda Sahoo*** have presented a paper relating to the importance of ensuring ***Capital Requirements*** in order to manage risk. According to the theory, bank capital ratios have become a primary measure of banks' financial condition in terms of Risk Management for proper provisioning of assets. Since banks may respond to capital regulation in a variety of ways, regulators need to consider what response they want to elicit when formulating new regulations. They emphasized for ***effective increase in the capital cushion*** so as to ensure stability of the banking system as a whole. In the Indian context, their findings are reassuring in that capital requirements do seem to affect bank behavior over and above the influence of the banks' own internally generated capital requirements.

Summon Kumar Bhaumick and Jenifer Piesse have produced a masterpiece work on risk aversion by banks. Their study is an eye washer which proves that private ownership, although normally may improve allocative efficiency as against the public sector banks, normally considered to be less efficient, in the credit market, it may be detrimental to credit disbursal, if the risks associated with this are significantly high. Also foreign banks are willing to take significant exposures to the Indian borrowers, they are likely to restrict their exposure to blue chip borrowers and not exploit the full potential of the resources, including softness of regulatory constraints, at their disposal. Importantly, the results of both this paper and ***Bhaumik and Dimova*** (2004) indicate that the domestic de novo banks outperform the others with respect to both profitability and technical efficiency with respect to credit disbursal.

Another prominent contribution in the empirical works of risk management, a paper titled ***'Are foreign banks active in emerging credit markets: evidence from Indian banking industry'*** was presented by ***Jenifer Piesse & Sumon Kumar Bhaumik.*** Using bank-level data from India, for six years (1995-96 to 2000-01), they have shown that while foreign banks have high credit-deposit ratios, the domestic banks experienced much greater improvements in technical efficiency in terms of the latest risk management strategies in relation to the disbursal of credit. The most significant improvements in technical efficiency were registered by the domestic *de novo* banks. There is weak evidence that foreign banks may be bullish only with respect to blue chip borrowers. Together with recent literature on the Indian banking system, these results emphasize the dominance of competition rather than changes in ownership-mix as a policy objective for banks in an emerging market economy.

RISK MANAGEMENT AND RELATED ISSUES

Risk Management is the constructive containment of risk levels so as to limit the downside effect of the underlying action within the ability and capacity to bear this effect, while optimizing the returns from the actions for which the risk is assumed. Risk Management is all about managing risk and not eliminating it. The main objective of Risk Management is *'Exposure by Choice and not by Chance'*. It involves the laying down and compliance of risk policies, setting up of control and monitoring mechanisms, putting in place risk mitigants, enhancing risk compensation, setting aside capital to meet unexpected losses, etc. The process includes the usage of statistical and mathematical models, besides subjective analytical techniques.

APPROACH TO RISK MANAGEMENT

One could approach risk in an inactive, reactive, interactive or proactive manner. Briefly these could be summarized as:

1. Inactive risk management*:* when the bank simply neglects the consideration of risk issues at all. The bank does not bother to address or even concern itself with the possibility that things may not turn out as was intended. This scenario is not as farfetched as it would seem. Even today, there are a number of banks which do not have a formal system to deal with such vital questions.

2. Reactive risk managemen*t:* when there is a post-mortem effort to ameliorate the effects of risk that have materialized. It then turns out to be a crisis management effort.

3. Interactive risk management*:* This is when the bank is concerned with risk throughout each of its various life-cycles.

4. Proactive risk management*:* This is when the bank plans and tries to forecast risk potential and then adopts various measures that would control, to the extent possible, risk potentials.

Banks mostly should adopt the proactive perspective because it is the only approach which fulfills the risk management criteria in the fullest sense.

COMPONENTS OF RISK MANAGEMENT

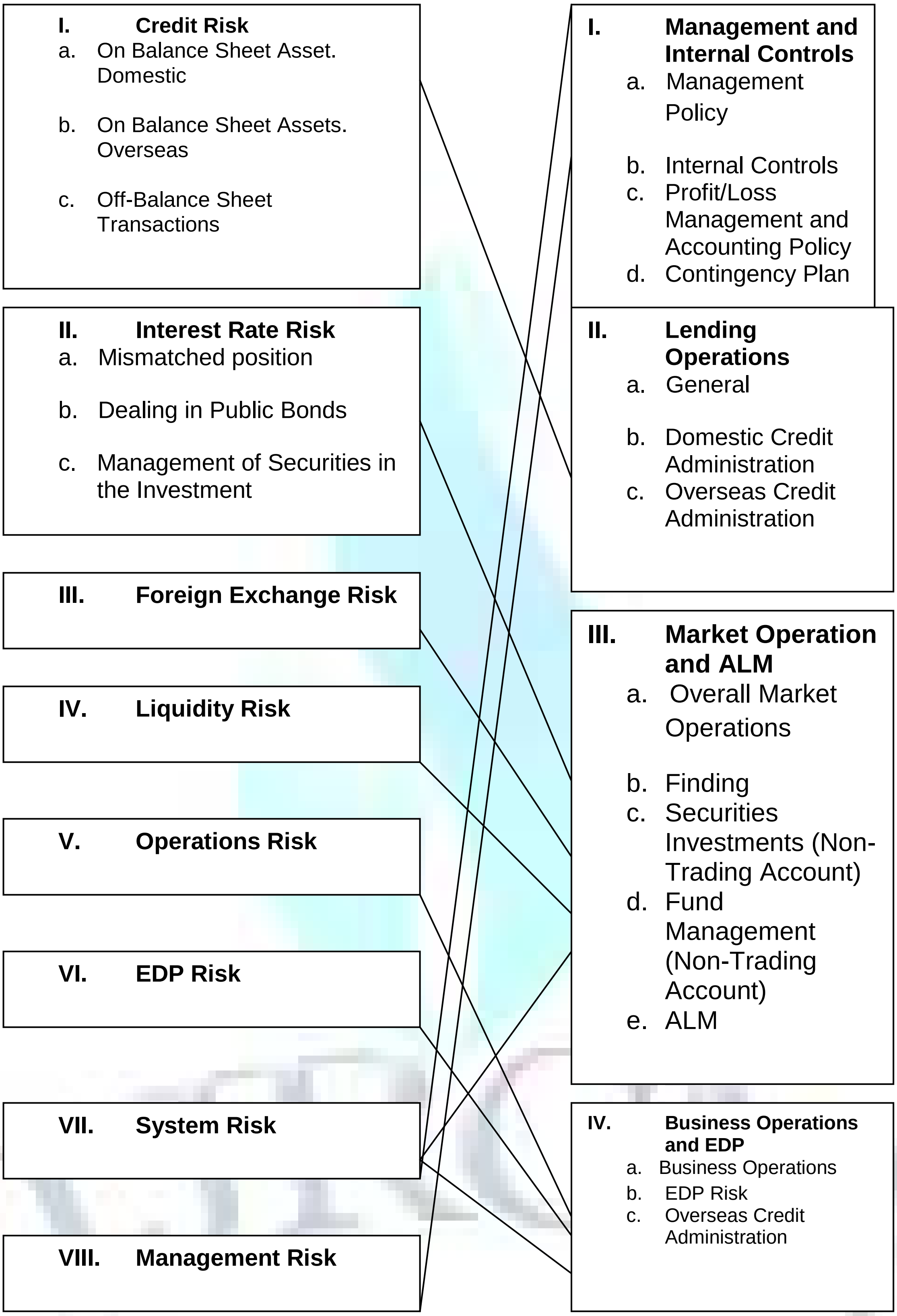
- *Risk identification*
- *Risk quantification or measurement*
- *Risk control*

Risk identification consists of naming and defining each of the risks associated with a transaction or a type of bank product or service. After completing the matrix for all products of services, one can read across a particular type of risk, say, 'credit risk' row and can get a picture of products that are sources of credit risk. The totality of credit risk may be termed as a 'pool of risk'. ***Risk measurement*** **refers** to estimation of the size, probability and timing of a potential loss under various scenarios. Asset liability management is a good example of risk measurement and asset liability analysis can provide an estimate of the potential effect of the changes in the interest rates on the bottom-line of the banks. ***Risk control*** is looked on as the entire process of policies, procedures, and systems and institution needs to manage prudently all the risks resulting from its financial transactions and to ensure that they are within the bank's risk appetite.

The RBI can evaluate the banks' working through a risk-centered evaluation. The issuance of two very elaborate circulars by the RBI is a positive step in this regard. The circulars deal with 'Asset/liability Management', and 'risk management', respectively.

The Bank Supervision Department of Bank of Japan in its quarterly Bulletin of May, 1997 had published a detailed checklist for risk management to assist regulators and internal auditors in assessing the adequacy of risk management at individual banks, which can serve as guidelines for building of a risk management system in banks/Financial Institutions.

RISK MANAGEMENT SYSTEM AS PRACTICED IN BANK OF JAPAN



Source: Bank of Japan, Quarterly Bulletin, 1997

TYPES OF RISKS

1. Credit Risk is the risk of loss due to the default by a borrower or counter-party in meeting his obligations. The default could be due to inability, incapacity or unwillingness to honour commitments in relation to lending, trading, hedging, settlement and other financial transactions.

Credit risk consists of primarily two components, viz., Quantity of risk, which is nothing but the outstanding loan balance as on the date of default and the Quality of risk viz., the severity of loss that is defined by the recoveries that could be made in the event of default. Thus, Credit risk is a combined outcome of Default Risk and Exposure Risk.

2. ***Operational Risk*** as defined by British Bankers' Association is the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events. It is associated with the problems of accurately processing, settling, and taking or making delivery on trades in exchange for cash. It also arises in record keeping, processing system failures and compliance with various regulations.

The most important aspect of operational risk is breakdown or inadequacies in internal controls, procedures and processes.
The Bank for International Standards defines **Market Risk** as "the risk that the value of on-or off-balance-sheet positions will be adversely affected by movements in equity and interest rate markets, currency exchange rates and commodity prices". Thus, Market Risk is the risk to the bank's earnings and capital due to changes in the market level of interest rates or prices of securities, foreign exchange and equities, as well as the volatilities of those prices. Various types of market risks can be categorized as Interest Rate Risk, Liquidity Risk, and Foreign Exchange (Forex) Risk.
3. Interest rate risk is the risk where changes in market interest rates might adversely affect a bank's financial condition. The assets and liabilities on account of mismatch in maturity or re-pricing are exposed to interest rate risk. Premature withdrawal of deposits and pre-payment of loans contribute to interest rate risk due to the existence of embedded options. The forex forward positions are also subject to interest rate risk due to adverse movements in implied or actual interest rates. Interest Rate Risk can take different forms such as Gap or Mismatch risk, Basis Risk, Yield Curve Risk, Embedded option risk, Price Risk, Reinvestment Risk, Net Interest position Risk.
4. Liquidity risk is the risk that the bank will be unable to meet its payment obligations. The liquidity risk arises mainly on account of specific products or markets and general funding of institution's activities. Our bank focuses on Liability management approach for managing Liquidity risk wherein the funds are borrowed when needed.
5. Foreign Exchange Risk may be defined as the risk that a bank may suffer losses as a result of adverse exchange rate movements during a period in which it has an open position, either spot or forward, or a combination of the two, in an individual foreign currency.

RISK MANAGEMENT MEASURES

a. *Preventive measures*, and
b. *Curative measures*.

Preventive measures are primarily applicable for partial mitigation of credit risk and some forms of market risk. Proper selection of clients, strengthening of independent information collection systems for proposed borrowers, strengthening of appraisal system, close verification of end-use, etc., are preventive measures of mitigation of credit risk.
Curative measures include 'risk hedging' and 'risk sharing'. Hedging is a technique by which risk is transferred to a counter party. Banks and financial institutions, the world over, use various forms of derivative instruments like options, futures, swaps, etc., for risk hedging. Risk sharing as an important concept is used primarily in case of financing infrastructure and large core sector projects by banks and financial institutions, wherein the risks involved in financing are shared by banks/FIs with other parties like construction contractors, O & M contractors, input (fuel) suppliers, buyers (SEBs), etc., at different stages of the project life cycle.
Banks in developed countries make use of **Standardized or Customized mathematical models and techniques for risk management**. The standardized techniques used are:

Nature of Risk	Techniques Used
Credit Risk	Sensitivity Analysis Decision Tree Analysis Simulation
Market Risk	GAP Analysis Duration Analysis Duration GAP Analysis Value Risk Analysis

For ***Credit Risk Management,*** **Sensitivity analysis** is usually conducted by most Indian Financial institutions. The **decision tree and simulation techniques** bring improvement over the sensitivity technique to the extent that while in the sensitivity technique, the risk associated variation of any one of the key determinants is computed, the other two techniques attempt to assess risk involved in the credit proposal, should more than one key determinants vary simultaneously.
Market risk is addressed by a process known as "**Asset Liability Management**". A financial institution usually divides its portfolio into two portions: (1) the trading portion and (2) the non trading portion. The trading potion is usually monitored through the value at risk methodology, while the non-trading portion is managed through either gap or duration analysis.
The ***"gap"*** in gap analysis is the difference between interest sensitive assets and liabilities for a given time interval. In this analysis, each of the institution's assets and liabilities is classified according to the date when the asset or liability is repriced and put in "time buckets".
"Duration" in duration analysis is the average life cycle computed by using the process of discounted cash flow. Through it, the impact of changes in the value of asset and liabilities in an institution's portfolio is computed for every 1% change in interest rate.
The "***duration gap analysis"*** is a mixture of both the above techniques. By using this technique, an attempt is made to immunize the balance sheet of the financial institutions against unexpected fluctuations in interest rates.
The value at risk technique uses statistical modeling to compute the level of maximum loss(risk) the institution is expected to suffer at a given confidence level for an adverse movement in market rates or prices. This technique is used for extremely short time horizons, normally a day.

OBJECTIVES OF THE STUDY

In light of the above facts, it can be stated that Risk Management is an integral part of the financial system and hence requires due weightage in the policy formation for the future. However the present study basically is concentrated on two important issues:

- To study the concept of Risk Management as a part of Banking System and its components.
- To study the recent approaches theoretically to Risk Management as being in use internationally and which are in line with the Basel Committee recommendations. This would help us to build some standards in the banking sector division and would also bring us at par with the international level, hence giving us the strength of competitiveness.

DATA SOURCES AND METHODOLOGY

In order to study the above mentioned aspects, the data used, has been collected from secondary sources. Most of the information was collected from publications of various National and International Organizations. The information collected has been classified and analyzed for presentation. Most of the theoretical portion is in tune with the latest aspects of Risk Management developments from the Journals of National Institute of Bank Management, Pune; Credit Suisse First Boston (CSFB) and; RBI and Indian Bank Association (IBA) Bulletins.

DEVELOPMENTS IN CREDIT RISK MANAGEMENT

Risk management and technology

National Institute of Bank Management (NIBM), with its experience in Information Technology and finance solutions for the Banking industry has proposed a Business-technology model termed as ***Enterprise Maturity Model*** which provides a framework for a phased introduction of the Executive Information System (EIS). The Enterprise Maturity Model has five layers with defined business objectives at each level starting with increasing operational efficiency and leading upto much more strategic objectives like maximizing wealth and stakeholder value.
The IT Strategies of a bank can act as **enablers** in **the following three areas like**

(a) *Credit Information Systems*
(b) *Analytical Tools*

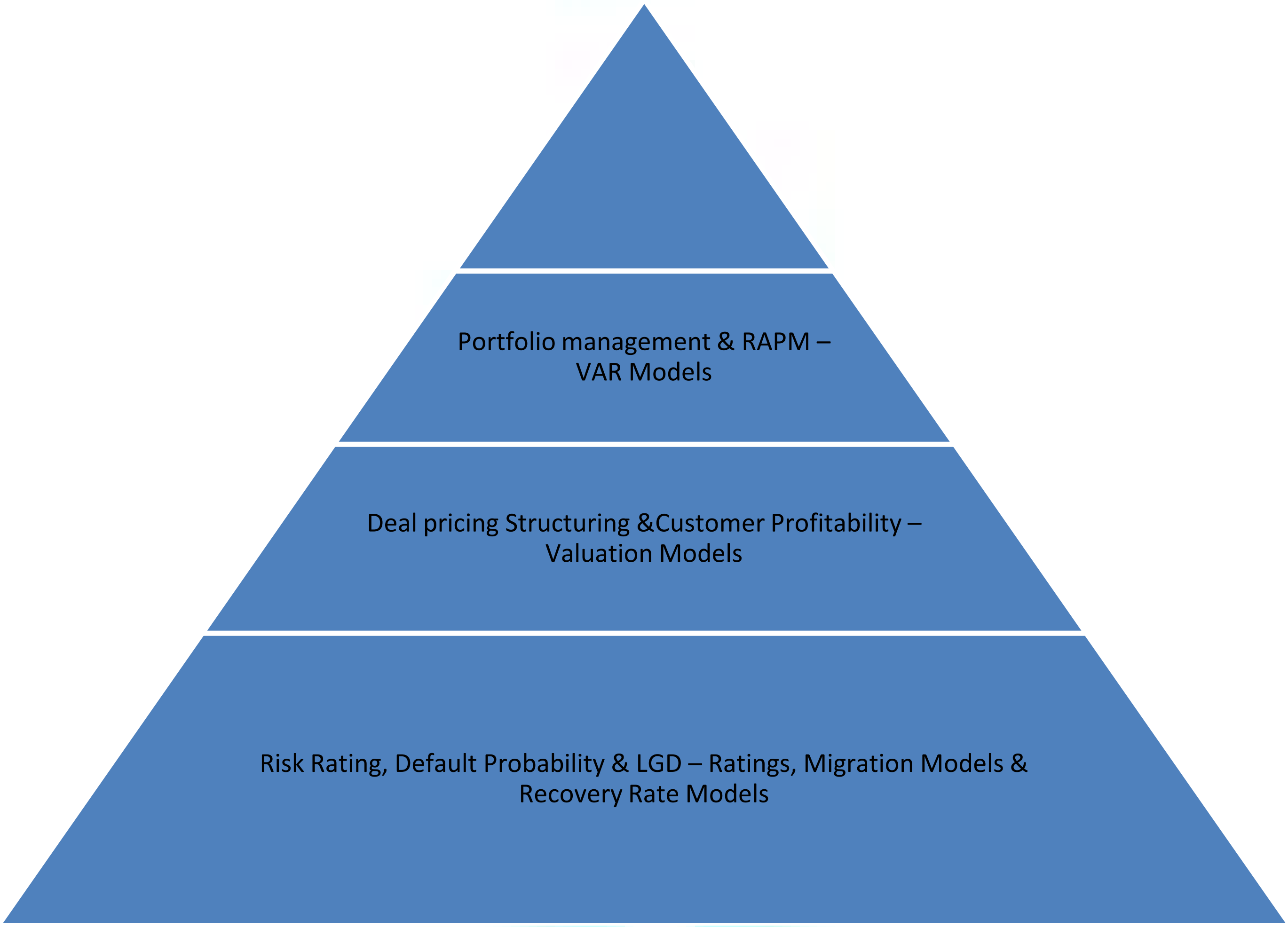
(c) Level of work flow automation

The objective of a Credit Information System is, to enhance the value of data by providing accurate and timely information, thereby significantly contributing to better planning and decision-making on the credit portfolio. **Credit Information Systems and Credit Risk Management Information Systems should be designed to overcome the problem of aggregating data across diverse sources and business units**.

ANALYTICAL TOOLS

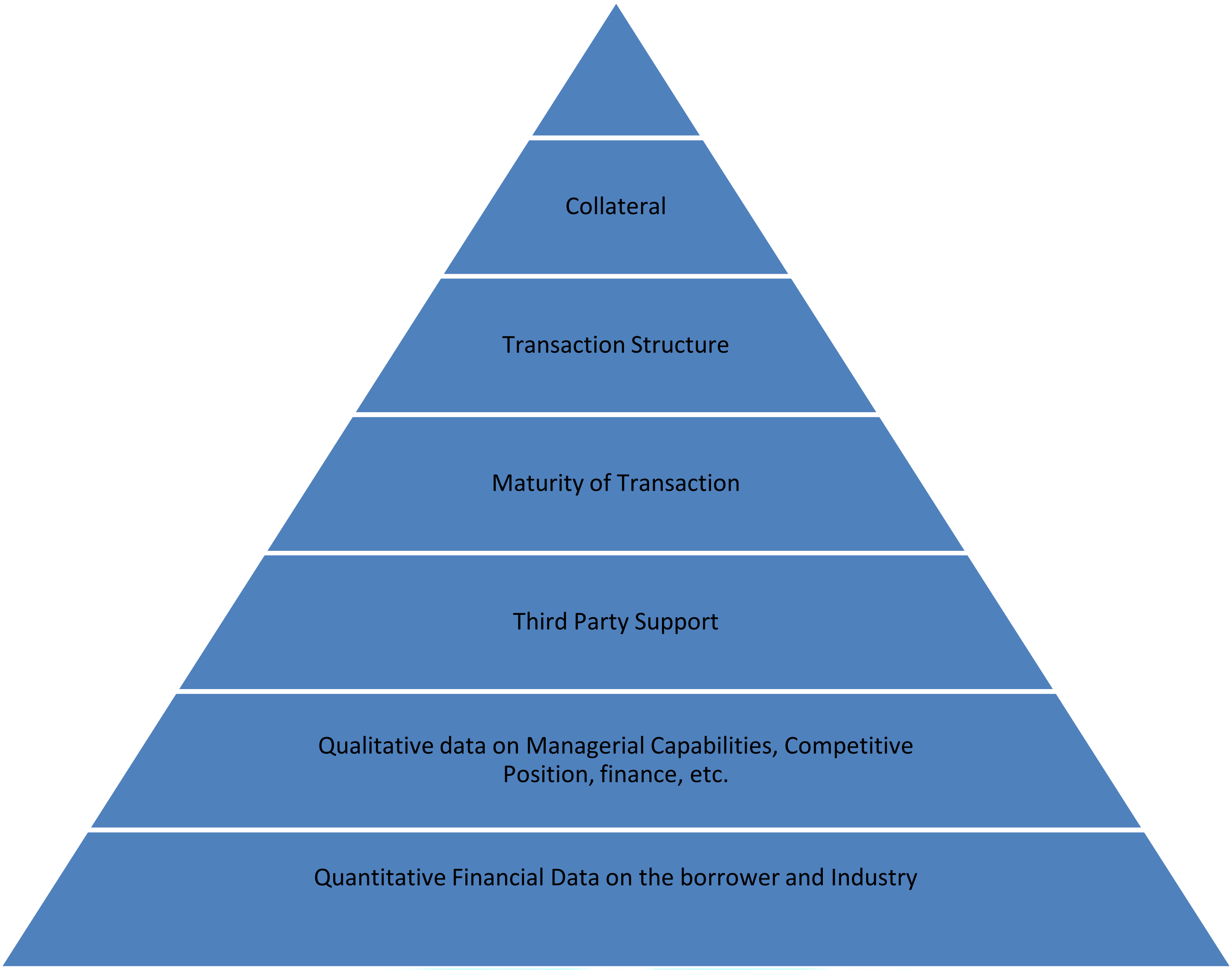
At every stage of managing risk in the credit portfolio, a number of analytical tools need to be used to enhance the process of decision-making. The diagram below depicts some of the Analytical Models used in Credit Risk Management.

STAGES IN CREDIT RISK MANAGEMENT: ANALYTICAL MODEL AND BENEFIT



Source: Introducing IT in Banks, NIBM Research Papers, 2002

DATA REQUIREMENTS FOR CREDIT RISK MANAGEMENT

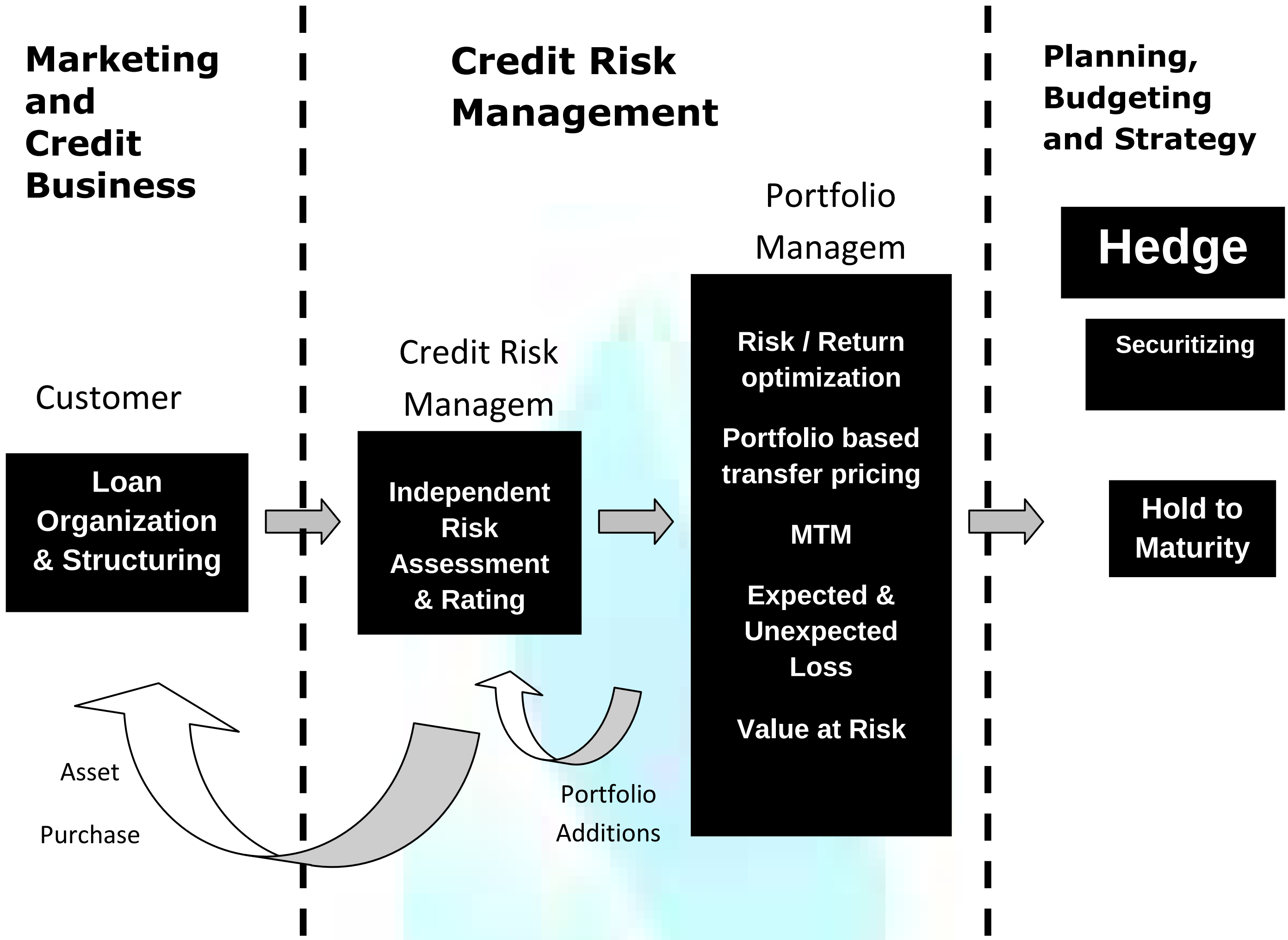


Source: Introducing IT in Banks, NIBM Research Papers, 2002

INTEGRATED CREDIT RISK MANAGEMENT PROCESS

As the banks develop their Credit Risk measurement Tools and the Credit Information Systems over the four phases, the same will have to be integrated with Credit Business process and Credit Risk Management process of the bank. A fully integrated Credit Risk Management process has been diagrammatically depicted below:

INTEGRATED CRM PROCESS



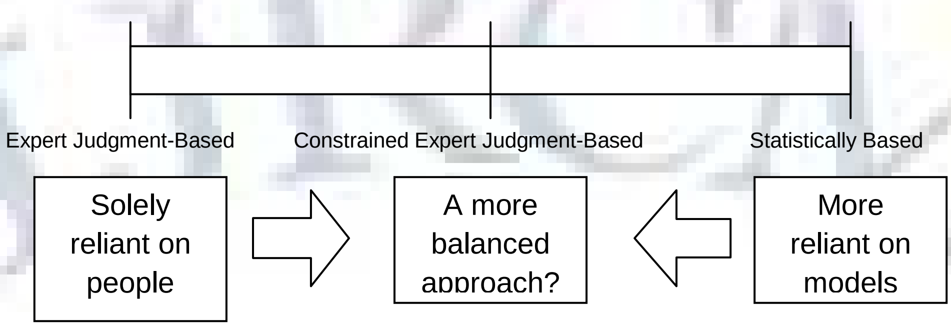
Source: Integrating IT Srategies with Business Strategies, NIBM Research Papers, 2002

INTERNAL RATINGS FOR CREDIT RISK MANAGEMENT: BASEL ACCORD

It is apparent that Basel has given much thought of the linkage between use for rating models and validation of internal ratings. The Basel Committee on Banking Supervision has brought unprecedented focus to issues relating to consistency and robustness of financial institutions' internal credit risk system management processes in its first consultative paper, A New Capital Adequacy Framework, in 1999.

Basel Committee listed a wide range of practices that were employed for the risk management of other product types. Basel classified these approaches into ***judgmental, constrained expert systems, and statistical modeling.***

Spectrum of Internal Rating Procedure



BUILDING CREDIT RATING MODELS

There is a wide range of approaches that can be applied to the process of modeling ratings. Some popular models seek to model many factors, while others (such as statistical models) provide an output derived from a relatively small number of inputs. In table below are listed briefly some of the advantages and disadvantages of popular approaches to modeling rating.

Approach	Advantages	Disadvantages
Multi-discriminant Analysis	• Well known • Z-score mode well understood • Long established(Altman, 1968) • Objective • Transparent	• Focus on bankruptcy, not rating
Linear Regression	• Models internal ratings • Long established (Horrigan, 1965) • Good predictive capabilities • Objective • Transparent	• Nonlinear effects not included
Expert Systems	• Models complex relationships • Includes qualitative factors • Objective	• Non statistically robust • Require wide team of experts • Can be time consuming to implement
Neural Networks	• Captures complex relationships • No preconceived assumptions required	• Not transparent • Can be time consuming to implement
Merton Approach	• Market-based • Based in financial theory • Objective • Timely • Measures probability of default	• Does not replicate internal ratings
Bond Spread Analysis	• Market-based • Objective • Timely • Measures probability of default	• Does not replicate internal ratings • Other factors, such as liquidity, affect credit spreads

The rating Model Development process can be explained with the help of following diagram.

Process Flow Diagram for Rating Model Development

Input Data	Model Generation	Model Validation	Model Sign-off	Model Validation
Key Risk Indicators Default Experience	Identity Components	Quantitative Assessment	Agreement in Rating Forum	Inclusion of New Data
Benchmarks (rated & unrated)	Explain Components	Expert Evaluation		Performance vs. Benchmarks

Source: Banks and Risk Management, CSFB, December, 2003

MARKET RISK MANAGEMNT AND ASSET LIABILITY AND MANAGEMENT

ALM can be defined as 'assessing the impact of changing profile of various risks especially market risk on the banks balance sheet and actively altering the structure of the asset and liability portfolio to optimize the profit position of banks.' Liberalization of interest rates and business activities has increased the interest rate sensitivity of banks' assets and liabilities thereby increasing the vulnerability of banks bottom-line on market rate fluctuations. Asset Liability Management is a strategic balance sheet management of risks caused by changes in the interest rates, exchange rates and the liquidity position of the bank. To manage these risks, banks will have to develop suitable models based on its product profile and operational style. The guidelines of RBI on ALM are primarily aimed to enable banks to tackle the liquidity risk and interest rate risk.

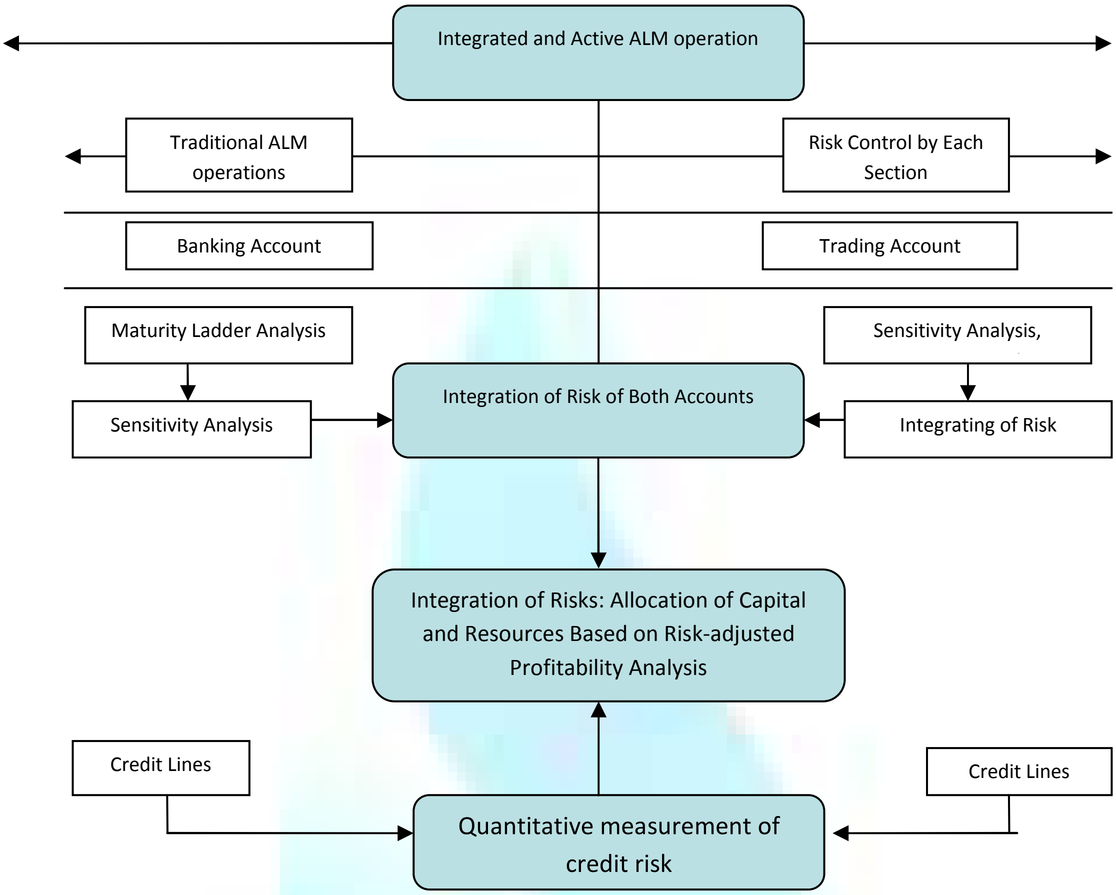
The three approaches to ALM practices followed by banks normally are:

(a) *The Maturity Model,*
(b) *The Duration Model, and*
(c) *The Repricing or the Funding Gap Model.*
(d) For ***liquidity risk management***, the assets and liabilities of the bank are segregated into different groups based on their maturity profile. Based on the maturity profile, the Statement of Structural Liquidity will have to be prepared by the banks. And to monitor the short-term liquidity, the banks are required to prepare the Statement of Short-term Dynamic Liquidity.

For managing the ***interest rate risk,*** the RBI guidelines prescribe the Gap Analysis. Based on the sensitivity of the assets and liabilities to the interest rate fluctuations, they are classified into different maturity buckets. The Rate Sensitive Gap (RSG), which is the difference between the rate sensitive assets (RSAs) and the rate sensitive liabilities (RSLs) enables the banks to assess the impact of the rate fluctuations on their net interest margin (NIM). The model can also be extended to target a RSG so as to attain a positive impact on the NIM. An essential ingredient for this is however, an elaborate MIS at the micro-level.

In the case of ***currency risk management***, banks in India have been given the discretion to maintain overnight open positions subject to maintenance of adequate capital. An integrated ALM process is shown in the following diagram:

INTEGRATED ALM PROCESS



Source: Integrating IT and Business Strategies, NIBM Research Papers, 2002

CONCLUDING REMARKS

Risk Management helps banks in preventing problems even before they occur. In managing risks, the Board of Directors and Senior Management will have to play an effective role by formulating clear and comprehensive policies. The Risk Management System, which integrates (i) prudent risk limits, (ii) sound risk measurement procedures and information systems, and (iii) continuous risk monitoring and frequent reporting is said to be efficient one. The keen interest taken by the Reserve Bank of India in this context needs to be appreciated and supported at all levels.

There are various new aspects to the risk management which are taking the forefront in the upcoming business and banking world. These deal with developing systems and procedures for handling properly and more prudently the various types of risks so as to avoid any kind of losses in the future. Few important aspects related mainly **to Credit Risk Management and Market Risk Management** which have developed and gained importance in the recent past have been analyzed in this study. The major issues covered are:

- ***Aggregation of Risks***: Joshi and Joshi have stated it is highly necessary that aggregate risk exposures should receive increased scrutiny before any type of risk management technique is applied. To do so, however, banks would necessarily have to aggregate risks.
- ***Risk management and technology***: National Institute of Bank Management (NIBM), with its experience in Information Technology and finance solutions for the Banking industry has proposed a Business-technology model termed as **Enterprise Maturity Model** which provides a framework for a phased introduction of the Executive Information System (EIS).
- ***Internal ratings for Credit Risk Management****-Basel Accord:* It is apparent that Basel has given much thought over the linkage between use for rating models and validation of internal ratings. The Basel Committee on Banking Supervision has brought unprecedented focus to issues relating to consistency and robustness of financial institutions' internal credit risk system management processes in its first consultative paper, A New Capital Adequacy Framework, in 1999.

In determining appropriate levels of capital, banks need to determine both the level of risk and creditworthiness through its internal rating process. Credit Suisse First Boston (CSFB) has discussed various issues faced in building its internal rating process.

- ***Development of an integrated ALM for managing especially the market risk:*** There has been a shift away from a simple ALM operation in the narrow sense to one which is based on interest rate predictions. It also examines the possibility of an Integrated Risk Management System covering both Banking and Trading accounts.

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