



BANGALORE CHAPTER  
MEETING

**PRMIA Paper  
Presentation -  
06 Oct 2007,  
14:00 - 17:30**

Oct 06, 2007  
2:00 PM

**Meeting Venue**  
Auditorium,  
Indian Institute of  
Management,  
Bangalore

Sl. No.	Category	Topic	Abstract
1	Credit Risk	Comparing the efficacy of the decision trees with logistic regression for credit risk analysis  By <i>S. S. Sachidananda, HP India Jay B. Simha, Abixa Systems</i>	Credit risk evaluation is an important and interesting problem in financial analysis domain. Several techniques like expert systems, neural networks etc. have been used for credit risk analysis. However these methods have limitations of knowledge bottleneck, slow learning etc., recently, the decision trees have been proposed as the white-box models for learning and classification. In this paper, we evaluate decision tree learning scheme with a logistic regression classifier on default risk of agricultural loans. We also propose a cluster prototype approach for balancing the sample. About twenty five variables have been used to develop a classifier including demographic, behavioral and transactional data. Ten fold cross validation for classification accuracy and true positive rates are used to evaluate the efficacy of the classifiers. It has been found that the decision tree classifier gives good results with parsimonious models. Further decision trees give a heterogeneous classification rules for getting a better insights into the default behavior. The progress is underway to incorporate the developed model into a much larger credit management system for Basel II implementation. It is hoped by the authors that machine learning methods will bridge the cognitive gap and computational load of credit risk modeling.
2	Insurance Risk	Risk Based Capital in insurance –from theory to practice  By <i>Praveen Chandrasekhar and Vandana Kumar, Infosys Technologies Zinnad</i>	Insurance is a promise made by the insurance company of a payment on the occurrence of a potential loss. The insurance company needs adequate capital to be able to fulfill these promises. While the primary need of capital stems from the fact that policyholders need to be paid even in adverse circumstances, regulators and rating agencies require ascertaining the capital adequacy of the insurance company in order to assess the insurance company's ability to do so. One way of ensuring this would be by allocating sufficient capital such that the chances of insolvency are very low. However, this would perhaps erode shareholder's value. Shareholders want to ensure that the capital is allocated in the most profitable way. Such competing requirements from various stakeholders make it imperative for the insurance company to allocate capital such that risk is minimized while returns are maximized. Recent global economic developments have changed the risk profile of financial companies. The growing need of a risk-based approach to manage the enterprise as well as assess the capital requirements has led to an important development in the insurance space. Both regulators and insurance companies are moving towards a new risk-sensitive system for measuring overall capital adequacy and solvency. This paper examines some challenges for an insurance company to move from theory to practice under the "risk based capital" regime.
3	Enterprise Risk Management	Determinants of Risk level and Influence of Origin on Risk-taking: Evidence from Indian Commercial	While banks have been stereotyped into bureaucratic and conservative on the one hand and risk-taking and shareholder value creating on the other, we attempt to venture a step further to unearth the reason behind such behavior. Second, we also try

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	Banks By <b>S. Teema Iyer, Infosys BPO</b>	to check whether such a notion is really true. We found that while private sector and foreign banks were more dynamic in their decision-making process as compared to state-owned banks, we also found that the former, especially the branches and subsidiaries of foreign banks were not as aligned to shareholder value creation goals as they are thought to be. More precisely, they were found to be very risk-averse when operating in emerging market economies as compared to domestic banks.
4	Credit Risk Risk of Cash Flow: Firm, Industry and Macroeconomic Factors By <b>Shlok Thampi, IIM Bangalore</b>	Credit risk is an important area of risk management for banks and financial institutions. In recent years, credit risk has been receiving considerable attention from the management and regulators which have resulted in the introduction of regulation that requires banks to keep capital in proportion to their credit risk. In this context, the need to understand factors affecting credit risk has become important. In this paper, the credit risk is analyzed in the context of firm specific factors, industry and macro-economic factors.
5	Market Risk Visualization of Risk Metrics By <b>Raghu Anantharam and Shiram Subramanian, Infosys Technologies Limited</b>	Risk numbers at trading firms are typically calculated on an end-of-day basis and reported in a fairly static format. However, there are some emerging trends in visually enhancing risk reporting and using technology to easily slice-and-dice risk numbers on a real time basis. This paper highlights three methods of visualization of risk metrics. Besides highlighting the developments in visual enhancement technology to showcase risk metrics, the paper also touches upon how additional dimensions of reporting like relationship, hierarchy, etc can add more value for active decision making for risk management.
6	Operational Risk Operational Risk Implementation Path for Banks By <b>Hemalatha Mohan, ING Vysya Bank</b>	A case study of one such advanced methodology of presentation of risk numbers has been taken up to show its usefulness in disaggregating risk numbers.
7	Credit Risk Credit Risk Modeling: Study of Interrelationships between Credit Risk and Financial Ratios of a Firm By <b>Ragunath Trivisuri, MindTree Consulting</b>	Implementation of Operational Risk Management – ING Vysya Bank Case Study  Option pricing theory has been applied for valuation of risky loans and bonds of a firm. This theory was developed by Robert C Merton in 1974. In recent years, this concept, Merton's Model, has been extended to derive a default prediction model for publicly traded firms.  If a public limited company uses debt financing, the capacity of the firm to repay the debt depends entirely on the market value of its assets at any point in time. The shareholders or owners of the firm have a limited liability. Hence if the market value of the assets of the firm is significantly lower than value of debt, the shareholders do not have an incentive to repay the debt. However, shareholders have a significant upside gain if the market value of assets is much higher than the value of debt.  Estimating the market value of the assets and volatility in the value of assets is a problem in this approach. To work around this problem, KMV Corporation of San Francisco developed a new KMV Credit Monitor Model that considers the problem from the perspective of the incentive of shareholders to repay back. This model uses the structural relationship between the market value of a firm's equity and market



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8	Operational Risk	<p>Operational Risks in Financial Services: Comparative Analysis of Operational Risk Measurement Techniques</p> <p>By <i>Dr. Mohan, Vijaya Bank</i></p> <p>value of its assets, and also the relationship between the volatility of a firm's assets and the volatility of a firm's equity. It uses the concept that the market value position of equity holders in a borrowing firm is similar to holding a call option on the assets of the firm.</p> <p>This study implemented the KMV Credit Monitor Model to compute the 'distance to default' of firms that have used debt financing. It also examines the correlation between distance-to-default and some standard financial ratios of the firm to explore if there are any interrelationships.</p> <p>Data on a bank's historical loss experience could provide meaningful information for assessing the bank's exposure to operational risk and developing a policy to mitigate/control the risk. An effective way is through tracking and recording the frequency, severity and other relevant information on individual loss events. In this way, a bank can hope to identify which events have the most impact across the entire bank and which business practices are most susceptible to operational risk.</p> <p>Every risk event in the risk matrix is then classified according to its frequency and severity. By frequency, the reference is to the number/potential number (proportion) of error events that the product type / risk type point is exposed to. By severity, the reference is to the loss amount/potential loss amount that the operational risk event is exposed to when the risk event materializes.</p> <p>The classification can be on any predefined scale (say 1-10, Low, Medium, High etc.). All risk events will thus be under one of the four categories, namely high frequency-high severity, high frequency-low severity, low frequency-high severity, low frequency-low severity in the decreasing order of the risk exposure. Potential losses can be categorized broadly as arising from "high frequency, low severity" (HFLS) events, such as minor accounting errors or bank teller mistakes, and "low frequency, high severity" (LFHS) events, such as terrorist attacks or major fraud. Data on losses arising from HFLS events are generally available from a bank's internal auditing systems. Hence, modeling and budgeting these expected future losses due to operational risk potentially could be done very accurately. However, LFHS events are uncommon and thus limit a single bank from having sufficient data for modeling purposes. Although quantitative analysis of operational risk is an important input to bank risk management systems, these risks cannot be reduced to pure statistical analysis. Hence, qualitative assessments, such as scenario analysis, will be an integral part of measuring a bank's operational risks.</p>
9	Risk Based Audit	<p>Risk Based Audit</p> <p>By <i>Vijaya Sampath, IBM</i></p> <p>Presentation on Risk Based Audit – The State Bank of India Experience</p>