Our power-packed 2-day management development program is designed to deliver a comprehensive, multi-faceted understanding of the Big Data and credit risk analytics and how they can be successfully applied to mitigate risks in Financial Services firms. Participants will learn about tools, techniques and best practices for building risk models and applying Big Data analytics to manage and mitigate credit risk.

**COVERAGE**

**DAY - 1**

**MODULE 1: Risk Management in Financial Institutions and Related Challenges**

- Introduction to different kind of risks in financial domain
  - Credit Risk
  - Market Risk
  - Liquidity Risk
  - Operational Risk
  - Regulatory Risk
- Survey and analysis of how risks are staggered and mismanaged at times
- Problems with data storage and data management for risk calculations
- Multiple proprietary systems – which do not talk with each other
- Security, control and integration of risk modules

**MODULE 2: Credit Risk Analysis**

- Overview of credit risk and its impact on financial institutions
- Counterparty credit risk & swaps – Interest rate swaps, currency swaps, CDS swaps
- Collection analysis
- Credit scorecards
- Understanding the typical variables in credit risk models
- Definition (BASEL) related to counterparty such as EPE, EEPE, PFE, ERC etc.
- Contract-level exposure
- Counterparty-level exposure
- Instruments and related exposure
- Effect of Netting agreements

**Case Study:** How different kind of swaps cause counter party default risks and how to mitigate them

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MODULE 3: Building Blocks of Risk Models – How to Design and Evaluate  

- Introduction to regression and regression techniques for risk parameters assessment
- Calculation of PD, EAD types of models with examples of case studies from mortgage defaulters risk models
- Using the macro economic scenario for stress testing:
  - Making conceptual regression framework between bank risk portfolios and macro-economic scenarios
  - Understanding risks in Interest collection, Fee income from mortgage, Expenses, operational risks, credit loss risks
  - Mapping the credit risks and other risks to the major macro-economic scenarios
- Understanding data and their sub-sets to be picked for testing from historical data of the bank

**Case Study:** Home loan mortgage defaulters and banks Interest Income risk modeling

MODULE 3: Calculation of CVA Capital Charge  

- Understanding the counter party credit default risk and its impact on the credit portfolio of the bank
- Modeling the CVA (Credit Valuation Adjustment) equation and understanding the various variables
- Calculation of the terms in the CVA equation - PD, EAD and LGD of the Credit Valuation exposure
- An Excel example and step by step calculation of CVA using mortgage, retail or business loan (using Credit Spread Technique)
- An Excel example and step by step calculation of CVA using on CDS (Credit Default Swap) portfolio of the bank
- Importance of CVA in Basel III norms

**Case Study:** Using a derivative (Forward contract) price of gold to find the CVA involved and EE calculations

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MODULE 5: Wrong Way of Risk Modeling  
2 HOURS

- Different ways to model a credit risk portfolio
- Influence of micro economic and macroeconomic factors in calculation of PD, EAD and LGD for credit risk portfolio
- Sample example of a mortgage default portfolio and how to model it
- Rights and wrongs - Do's and don'ts in regressions / logistic regression in modeling PD, EAD and LGD calculations
- Do's and don'ts in using macro-economic factors for calculation of credit risk and credit portfolios
- Importance of right kind of model in credit risk and its direct impact on Tier I capital of the bank under Basel norms

Case Study: Several real life examples of Wrong Way risk from crude oil, exporter/importers etc.

MODULE 6: Big Data and Its Usage for Risk Management  
2 HOURS

- Introduction to Big Data: Volume (Petabytes of data), Variety (Social Media, Email, Data Vendors), Velocity (Real Time, Delayed), Veracity (Importance)
- Big Data and its application in risk management why, where and how?
- Big Data usage in Credit Risk, Market Risk, Operational Risk, Compliance Risk, ALM Risk and Integrated Risk Management
- Examples in each category of risk management and how there is a shift in risk management due to introduction of Big Data
- Real time, actionable and speed based risk management as opposed to traditional one time, manual and slow risk arrangement processes

Case Study: How right usage of Big Data saves banks millions of dollars in Credit Risk every year

MODULE 7: Using the Hadoop Framework for Managing Big Data in Risk Management  
2 HOURS

- Using Data Lakes and Data Warehouses to ‘connect the dots’ in risk management as opposed to traditional RDBMS databases
- Examples of how Big Data is causing transformations in other verticals like E-Commerce, Marketing etc. and how it would impact Financial services in a big way
- Modeling risk management using Big Data – A brief overview and step by step process

Case Study: Usage of Hadoop framework for Big Data and risk management for banks customer
**MODULE 8: BASEL Norms**  
**1.5 HOURS**

- Overview of Basel I, II, III
- Calculation of RWA and Tier I and II capital of the banks
- Other kind of evaluations of risk by regulatory: liquidity risk, leverage risks, off-balance sheet risks
- Capital measurement techniques suggested under credit and market risk
- Key differences between capital and risk measurement techniques of Basel II and Basel III
- Additional capital requirements to move from Basel 2.5 to Basel III
- Basel I vs. Basel II vs. Basel III
- Economic Implications of moving from Basel II to Basel III

*Case Study*: Calculation of a bank’s RWA, off balance sheet exposures and capital ratio requirement