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Market & Credit Risk Management and Operational Risk Management

General

This course discusses market & credit risk and also operational risk. Delegates will learn the key concepts and will retain them through the use of many illustrative examples. In particular, we use many spreadsheet examples as well as "stories from the field" to illustrate the relevant points.

Day One: Market Risk Management

Introduction
- What is risk management?
- Types of risk management: market and credit risk, operational risk
- Calculated risks and unexpected risks
- What can be done?

Derivative Instruments - Review
- Forwards
- Futures
- Swaps
- Options
- Compare and contrast the different instruments
- The put-call parity
- The "Greeks" (Delta, Gamma, Theta and Vega) defined and how they are used

- Second generation Greeks: Vomma and Vanna
- Vomma – dvega/dvol
- Vanna – dvega/dspot

Commodity Derivatives
- Example: cruse oil futures
- Settlement: physical or financial
- Strategies

Risks
- Interest rate risk
- Foreign exchange risk
- Equity risk
- Commodity risk
- Emerging market risk
- Credit risk
- Liquidity risk
- Derivatives risk
- How they combine together

Case study: an interest rate swap, an equity swap

Value at Risk Management of a portfolio
- Value at risk
- What is VAR
- Parametric VAR
- Delta Normal VAR
- Historical VAR
- Simulation VAR

Case study: when are different methods used?

Other Approaches
- Stress Testing
- Asset management risk
- Asset and Liability Management

Market risk management for non-financial corporations
- Looking at the balance sheet as a source for Risk
- Transaction risk vs. translation risk
- How companies hedge in practice?
- Some common themes
- Zero or low-cost hedging strategies for corporations
- Risk management to reduce a corporation's own risk vs. an insurance program to protect against an competitive disadvantage

- We look at companies such as Gillette, RJR Nabisco, Abitibi-Price and more
- Examples of reports on Risk Exposure by several companies

Discussion: should companies hedge?

Day Two: Credit Risk Management

Overview of Credit Risks and Their Effects
- Evaluating three key issues:
  - pricing of credit losses
  - managing credit lines
  - calculating credit risks and capital charges
- Assessing the three components of credit risks:
  - exposure to single counter party
  - default probability
  - recovery rates
- Credit risk vs market risk
- Credit buckets

Case study: credit risk management at the big multi-national banks

Determining the Probability of Counterparty Default
- A comparison of three approaches to default:
  - o Flesaker et al
  - o Black, Scholes & Merton
  - o Longstaff & Schwartz
  - o Hazard Rates
- Compare and contrast the approaches

Netting as a Successful Technique for Reducing Credit Exposure
- What are the principal forms of netting
- Identifying the risks and how netting can mitigate these risks
- Cross-border netting/cross product netting
- Assessing the impact of netting on a counterparty's potential credit exposure
- Understanding the role of the regulators and their interest in netting systems
- How documentation can strengthen your netting position
- The legal perspective: when can you net and which countries would let you do it?

Pre-settlement and settlement risks

- Pre-settlement risks
- Settlement risks
- Cross currency settlement risks
- Example: an interest rate swap
- What is the "Herstatt Risk"?

Credit risk modeling and data issues
- Data requirements for market and credit risk modeling
- Dealing with sparse data and poor quality data (e.g. Asia or Emerging Markets)
- Modeling credit risk
- Ratings-based approach
- Equity-based approach
- Hull, Nelken & White: Volatility Skews and the Credit Markets
- Compare and contrast the various approaches
- Combining market and default risk to find the total credit risk

Case study: comparing availability of data in various markets

Extreme value theory (EVT) - theory and practice
- What is an extreme event: examples from the field
- The collapse of the Soviet Union
- Long Term Capital Management
- October 1987
- October 1998
- September 2001
- Leptokurtosis : Focusing in on the "fat tails"
- Techniques from the insurance industry
- The "Pareto" distribution
- Is EVT Useful?

Portfolio Credit Risk Management
- Looking at different approaches
- JP Morgan - CreditMetrics/CreditManager
- CSFP - CreditRisk+
- McKinsey and Company – CreditPortfolioView
- Moody's KMV – PortfolioManager
- Compare and contrast the different approaches

Evaluating the Credit Derivatives Market and the Rationale for its Development
- Current and future potential of credit derivatives market

- Assessing the size of the market in terms of capacity and liquidity
- The size of the market and the distribution among product lines and underlying instruments
- Difficulties in developing a true "two way" market
- Evaluating the potential for a secondary market in credit derivatives
- How the Euro has impacted on the credit derivatives market
- Credit derivatives: the US experience
- The recent credit crunch and its implications on the market

Different Structures and Assessing their Risks to Ensure Successful Implementation
- Default Swaps & Options
- Total return swaps
- Credit linked notes
- Put credit spreads on asset swaps
- Credit spread notes
- Demystifying the risks: cross, equity, term structure, settlement, legal and basis risk
- Collateralized Debt Obligations CDO's: Collateralized Bond Obligations (CBOs) and collateralized loan obligations (CLOs)
- Downgrade options and their uses

Case study: pricing a credit derivative

Examples of sample terms sheets
- Examining specific terms sheets
- What is the use of each structure
- Why is someone purchasing the structure
- How is it created
- What are the benefits to the issuer
- The ISDA definitions booklet

Day Three: Operational & Integrated Risk Management

Operational risk
- What is it and why does it matter

Factors Effecting the Importance of Operational risk
- Market consolidation and margin squeeze
- The complexity and sophistication of IT systems
- Regulatory and risk capital allocation pressures
- Hidden risks posed by complex financial products
- Improved communication and reliance upon efficient IT systems and STP

Discussion: who should manage operational risk?

Risks identified and defined
- Fraud
- Systems and operations
- Model risk
- Communication
- Documentation
- Delivery and settlement – matching the book

Discussion: operational risk qualitative vs. quantitative

Specific Risks
- Technology
  - Systems failure
  - Model risks
  - Programming errors
  - Telecoms
- People
  - Incompetence
  - Fraud
- Process
  - Execution error
  - Booking error
  - Transaction and mis-matching of trades

Workshop: identify all the risks in a derivative trade

Accidents and insurance
- What is the company's liability to accidents?
- How is this measured?
- How does this get included in the overall risk profile?
- What sort of insurance premiums do we expect to pay?
- Over-insurance vs. under-insurance

Discussion: compare several companies and their approach to insurance

Steps towards operational risk management
- Self-assessment
- Collection of operational-loss data

- Capital calculation
- Examples from the field

Discussion: Using internally generated loss data vs. publicly available data

Policies and procedures
- Best Practices
- Business Structure
- Examples of failures
- Examples of successes
- Moving from a business-unit-by-business-unit control to an established, unified approach to operational risk

Discussion: The changing landscape in the USA

RAROC (Risk Adjusted Return on Capital)
- The concept of RAROC
- RAROC vs. NIM (Net Interest Margin)
- RAROC and bonuses
- Capital Allocation and Performance Measurement

Firmwide Risk Management
- What is it?
- How is that done?
- Overcoming resistance
- Calculation of risk capital

Discussion: the future of risk management