

Risk Management Training

A complete guide to cutting edge risk management training programmes

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Risk Management Training Directory - Contents

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- **Operational Risk Management**
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ASSET & LIABILITY MANAGEMENT

THE REGULATORY ENVIRONMENT FROM AN ALM PERSPECTIVE

- Background: Basel I & Basel II
- Basel III
- Liquidity
- Capital
- Leverage
- Systemic risk

CASE-STUDY: MCKINSEY'S FIVE STEPS TO MORE EFFECTIVE GLOBAL RISK MANAGEMENT

- Core treasury activities
- Obstacles to expansion into emerging markets
- Strengthening governance
- The enhancement of treasury systems
- Improving the accuracy of cash flow forecasts
- Managing working capital globally

RISK MANAGEMENT

- Role of the treasurer
- Role of the CFO
- Role of the ALCO
- Functions of a treasury
- Centralising risk

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- Profit centres and cost centres
- Netting and in-house banks
- Importance of policies, procedures and risk management controls

INTERNATIONAL

CASE-STUDY: RISK MANAGEMENT AT LUFTHANSA

EXERCISE: DEFINING & CATEGORISING DIFFERENT TYPES OF RISK

- Definitions of risk
- Asymmetrical risks
- Understanding the symmetry of market risks

EXERCISE: TESTING FOR LONG & SHORT POSITIONS EXERCISE: EXPOSURE MANAGEMENT

USERS OF TREASURY PRODUCTS

- Borrowers
- Investors and wealth managers
- Commercial, investment and private banks

CASE-STUDY: RISK MANAGEMENT AT APPLE

CASE-STUDY: MCKINSEY – ASSET & LIABILITY MANAGEMENT

- Recent trends in ALM
- Yield curve analysis
- Gap analysis
- Net interest income
- Duration gaps
- Economic value of equity
- Value at risk
- Setting and monitoring tolerance limits
- Optimising income and managing risk
- Typical practices in funds transfer pricing
- Managing liquidity risk
- Likely developments in ALM

CASE-STUDY: HSBC – ALM GAPS

CASE-STUDY: GOLDMAN SACHS - ALM

CASE-STUDY: THE RULES OF RISK MANAGEMENT

- Return and risk
- Transparency
- Experience
- Known unknowns and unknown unknowns
- Communication
- Diversification
- Discipline
- Fraud, mismanagement, greed and corruption
- Common sense
- Case study: bank bosses must ensure honesty is best policy

CASE-STUDY: FRA'S, FUTURES AND INTEREST RATE SWAPS

- Buying and selling FRAs
- Selling and buying futures
- Paying and receiving fixed rates in the swap markets
- Perfect hedges and basis risk
- Contrasting exchange traded and OTC derivatives





INTERNATIONAL

CASE-STUDY: HOW HEDGING WORKS

- Measuring interest rate risk
- Duration weighted hedging
- Balancing the hedge
- Hedge ratios
- Testing the hedge

CASE-STUDY: FOREIGN EXCHANGE HEDGING IN THE FORWARD MARKET

- Relationship between spot and forward prices
- Approximate forward rates
- Hedging with forward contracts
- Motives for borrowers
- Motives for investors

CASE-STUDY: HEDGING WITH EXCHANGE TRADED CURRENCY OPTIONS

CASE-STUDY: NORDIC EXPORT CREDIT'S CURRENCY SWAP

- Fees and expenses
- Establishing the cash flows
- Plumbing diagrams •
- All in fixed rate costs
- All in floating rate costs
- Initial payments and receipts
- Annual payments and receipts
- Dynamics of basis swap prices
- Hedging with basis swaps
- Cross default, pari passu and negative pledges



HOW GLOBAL INVESTORS TURN NEGATIVE JAPAN YIELDS INTO BIG RETURNS

- Record-low negative yields
- Discount offered to dollar holders to borrow yen
- Fixed coupon equivalent for owning five-year JGBs
- Foreign demand for Japan's two- and five- year bonds
- Cross-currency basis swaps
- Demand for dollars

CASE-STUDY: PORTUGUESE TRAIN COMPANY CAN'T ESCAPE SNOWBALLS

- Managing financial risks
- Laying off risks with banks
- Laying off risks with customers
- Snowball interest rate swaps
- Calculating downside risks
- The view of the courts
- Legal and moral significance of hedging and trying
- Bank/customer relationships

EXERCISE: KEY ISSUES IN ASSET & LIABILITY MANAGEMENT

CASE-STUDY: OCBC & UOB - ALM





CASE-STUDY: ASSET & LIABILITY MANAGEMENT – KEY OBSERVATIONS FOR ALCOS

- Key liquidity and funding metrics
- Understanding the EVE and NII results
- Role of economic forecasts
- Business lines and control function s and strategy
- Compliance with limits and planned future actions •
- Accepting recommendations without debate or challenge
- Managing the agenda

MANAGING INTEREST RATE RISK IN THE BANKING BOOK

- Time value of money
- Future value and present value
- Implied repo rates
- Discount factors and compound factors
- Simple interest and compound interest
- Yield and return
- Act/act, act/360 and 30/360
- Interpreting the yield curve
- A guide to money market products
- Duration, PV01s and DV01s

CASE-STUDY: USING DURATION AS A HEDGING AND AN ALM RISK MANAGEMENT ROOL



MANAGING INTEREST RATE RISK IN THE BANKING BOOK

- The mechanism of FRAs
- Calculating FRA rates
- Hedging and trading with FRAs
- Calculating the settlement amount
- FRAs and FX swaps
- Pricing forwards from FRAs
- FRAs and futures

CASE-STUDY: CONTRASTING THE USE OF FRAS AND FUTURES IN ASSET & LIABILITY MANAGEMENT

EVE & HEDGING

- Relating EVE to earnings
- EVE and estimated actual reported earnings
- What does EVE really reveal about future earnings
- Managing EVE
- Using EVE to alter future earnings
- Managing EVE when portfolios are not marketable
- Causes of sensitivity in EVE
- Hedging the risk in the sensitivity to EVE

EXERCISE: EVE & HEDGING

SIMULATION: ASSET & LIABILITY MANAGEMENT – EVE AND INTEREST **RATE SENSITIVITY**





LIQUIDITY COVERAGE RATIOS

- LCR calculation •
- stock of high quality liquid assets/buffer
- levels one assets
- level two assets
- operational requirements
- calculation of net cash outflows

CASE-STUDY: HSBC LIQUIDITY RISK

CASE-STUDY: CHALLENGES OF LIQUIDITY RISK MANAGEMENT AND THE LCR

SIMULATION: HEDGING DURATION GAPS

- The economic value of equity
- Positive and negative gaps
- Estimating changes in the economic value of equity
- Durations of assets and liabilities
- Leverage adjusted duration gaps
- Hedging with forward contracts
- Hedging withe futures contracts
- Hedging with swaps
- Stress testing hedges
- EVE and duration gaps

CASE-STUDY: HEDGING PITFALLS

- Status quo
- Taking a view
- Engaging with business partners
- Attitude to losses
- Balance sheet forecasting
- Volatility and liquidity management
- Spreadsheets
- The costs of FX trading
- ISDA and counterparty risk management
- Timing of FX results

CASE-STUDY: HSBC – MARKET RISK

FUNDS TRANSFER PRICING

- What is FTP?
- Why do FTP?
- How do you do FTP?
- Pooled funding
- Multiple pooled funding
- Matched maturity method
- Refinement adding to the base cost
- FTP In practice
- What does the regulator want?
- What's the role of treasury?
- Are there pitfalls?
- Summary

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CASE-STUDY: EFFECTIVE FTP

SIMULATION: INTEREST RATE HEDGING & MARKET-MAKING

- ALM hedging and market making simulation
- ALCO meeting
- Hedging, trading and market making session
- Protecting the bank's earnings
- Defining a strategy
- Managing interest rate risk
- Calculating the impact on net interest income

CASE-STUDY: ALM LEHMAN BROTHERS

- Weaknesses in checks and balances
- Valukas Report
- Vulnerability to collapse
- Shadow banking systems
- Fundamental regulatory failure
- Flight risk
- Derivative exposures and market turmoil
- Significant exposures
- **Risk limits**
- Other contributory factors
- Key lessons

CASE-STUDY: MULTI-CURRENCY ASSET & LIABILITY MANAGEMENT

- Identifying the exposure
- Cash market alternatives
- Forward outrights, FX swaps and currency swaps

CASE-STUDY: HSBC – MARKET RISK

CASE-STUDY: HSBC – NET INTEREST INCOME

BALANCE SHEET MANAGEMENT SIMULATION WORKSHOP

- Capital constraints
- Impact on ROE and RAROC
- ALM for capital markets
- ALM and balance sheet management under new Basel and liquidity frameworks
- Management of RAROC and capital charge of treasury products under **Basel Framework**
- Liquidity constraints
- NII sensitivity
- Pillar 1 & Pillar 2





CREDIT RISK MASTERCLASS

FUNDAMENTALS OF CREDIT RISK

- Define credit risk and situate this within context of financial risks in general
- Default, deterioration in credit worthiness, expected and unexpected losses
- The key drivers of credit risk
- Measurement of credit risk
- Distinguish between types of credit risk
 - Sovereign, Corporate, Retail, Systemic
- Overview of counterparty risk bilateral instruments, swaps
- Concentration risk focus on cross exposures of G-SIB's
- Market and credit risk can they be separated into discrete categories?

REGULATORY CAPITAL REQUIREMENTS FOR CREDIT RISK

- Overview of the key metrics employed in the regulatory framework
- Rationale behind the Basel notion of Risk Weighted Assets (RWA)
- Consistency of RWA as implemented across banks and jurisdictions
- Outline of different exposures within credit risk under the Basel Approaches
- Calculating capital charges for credit exposures
 - Standardized approach
 - Foundation internal ratings based approach
 - Advanced internal ratings based approach
- Explanation of the key Standardized Approach metrics
 - Probability of default (PD)
 - Exposure at default (EAD)
 - Loss given default (LGD)

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- Explanation of the differences between the Standardized and IRB approach
- Overview of new approaches to capital charges for credit risk under Basel

INTERNATIONAL

MEASURING CREDIT RISK AND TECHNIQUES FOR CREDIT RISK MODELLING

- Credit Metrics, credit scoring and credit rating systems
- Quantitative modelling of credit risk using stochastic processes
- Estimating probability of default KMV, distance to default techniques
- Explain how debt and equity can be understood as options on the firm
- Techniques for modeling default risk of CDO's, CMO's and other structured vehicles
- Lessons from SIVs and other off balance sheet financing on credit risk management
- Adapting VaR measures to include a metric for default value at risk
- Credit Migration matrices Moody's historical data, scaling over different time frames
- Integrating Credit VaR and Market VaR
- Swap rates and credit spreads as a tool for estimating market assessment of credit risk
- Joint probabilities of default copula techniques
- Techniques for estimating LGD and recovery rates



CREDIT RISK MASTERCLASS continued

IRB APPROACH TO CREDIT RISK MODELLING

- Detailed discussion of the IRB formula
 - PD, LGD, EAD, Maturity, Term
- Is the notion of correlation being dependent on PD justifiable?
- Scenario generation stress testing using hypothetical returns
- Stress testing for derivative portfolios with non-linear characteristics
- Sizes of historical samples are they sufficiently large to include wide variety of conditions?
- Limitations of back testing when used to assess CDO risk in US housing data
- Danger of optimizing risk management parameters over-fitting to the historical data
- Monte Carlo simulations how to conduct them
- Limitations of normal distribution as basis for probabilistic modelling
- Quantifying the exposure and severity of "outliers" and tail risk

CAPITAL CHARGES AND ACCOUNTING PRINCIPLES

- Review of the distinction between the banking book and the trading book
- Basel III attempts to address regulatory arbitrage
- Treatment of securitizations and off-balance sheet exposures
- Available for Sale issues impacts on liquidity, HQLA, rigidity of balance sheets
- Detailed examination of IFRS 9 implementation timetable, further revisions?
- Recognition of expected losses and early warning of asset impairment

INTERNATIONAL

• Amortized cost – held to maturity requirements

- Fair value though other comprehensive income (FVOCI)
- Fair value through profit or loss (FVPL)

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DRIVERS OF COUNTER-PARTY CREDIT RISK (CCR)

- Separating market risk impact on trading positions from CCR
- Pricing counterparty risk use of spreads, ratings
- Probability of Default (PD) estimation of PD and Exposure at Default (EAD)
- Expected positive exposure (EPE)
- Loss Given Default (LGD) and recovery rates
- Counterparty risk in credit default swaps
- Counterparty risk in interest rate swaps
- The role of a central clearing house
- Stress analysis and randomized stress scenarios
- Market factors which drive counter-party credit deterioration

STRESS TESTING METHODS, BENEFITS AND LIMITATIONS

- Overview of sensitivity of credit to market risk, interest rate risk, systemic risk
- Explanation of the techniques for conducting stress tests
- Back testing using historical returns
- Stress testing using hypothetical returns
- Explanation of Principal Components Analysis
- Sizes of historical samples are they sufficiently large to include wide variety of conditions?
- Limitations of back testing when used to assess CDO risk in US housing data
- Danger of optimizing risk management parameters over-fitting to the historical data
- Examination of network theory and relationship to systemic risk
- Benefits of more loosely coupled systems as less fragile









CREDIT RISK MASTERCLASS continued

PRACTICAL STUDY ON CREDIT RATINGS METHODOLOGY

- Examination of methodologies used to determine credit ratings
- Review of research methods of S&P, Moody's and Fitch
- Analysis of sovereign credit ratings
- Dodd Frank Act restriction on reliance on credit ratings
- Using credit derivatives as part of credit risk management strategy

CREDIT ASSESSMENT AND FINANCIAL RATIO ANALYSIS

FINANCIAL STATEMENT ANALYSIS

- Credit Assessment based on detailed analysis of corporate balance sheets, income statements and cash flow statements
- Impact of Corporate actions capitalization or consolidation, rights issues

FINANCIAL RATIOS

- Profitability, Liquidity, Asset turnover, Gearing
- Liquidity ratios, pay-out ratios, financial stability ratios, operational gearing
- Dividend policy, Return on equity, Return on Capital Employed ROCE
- Earnings per share, P/E Ratios (historic and prospective)
- Dividend yield, Dividend/interest cover, Price/book

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RATIO BASED METHODS FOR DETERMINING CREDIT STRESS AND DEFAULTS

- Altman's Z score model, KMV model, Moody's Analytics,
- Ohlson financial distress model, Risk Metrics, McKinsey Credit Portfolio View

CREDIT DERIVATIVES AND RISK MANAGEMENT

- How can credit derivatives be useful in managing credit risk
- Credit default swaps, single and multiple name
- Tranche CDS
- Issues with CDS, basis, ISDA documentation
- Correlation issues
- Joint default probabilities
- Advanced topics in assessing default probabilities including copula methods
- Nth to default type structures
- Pricing and risk issues

KEY RISK RATIOS AND KEY RISK INDICATORS

- Use of industry benchmarks to assess market values
- Money market indicators indicating credit/liquidity stresses LIBOR/OIS spread, TED spread, "haircuts" in repo markets, CDS rates for banks, sovereign CDS rates
- Foreign exchange indicators cross currency basis swap spreads, abnormal FX carry trade behaviour, EM FX volatility
- Market stress indicators VIX, bid/ask spread, market microstructure measures
- Use of KRIs for credit quality assessments
- Key ratios and KRIs used on assessing credit risk as listed in the SSM Manual
- Using the ratios and KRIs for trend analysis and monitoring credit risk movements

CREDIT RISK MASTERCLASS continued

CREDIT VALUE ADJUSTMENT (CVA) AND COLLATERAL MANAGEMENT

- Definition Credit value adjustment (CVA)
- Defining credit exposure in relation to market risk impact on derivatives
- Expected positive exposure and worst case exposure
- Nature of collateralization ISDA treatment
- Benefits of effective collateral management
- Impact of netting and collateral on CVA
- Eligible hedging instruments no nth to default structures
- Bilateral counterparty risk and collateral
- Over-collateralized positions and risk of counterparty default







CURRENCY, INTEREST RATE & INFLATION RISK

CURRENCY RISK MANAGEMENT POLICIES

- The role of the treasurer
- The role of the CFO
- Functions of a treasury
- Profit centres and cost centres
- Centralised and decentralised treasuries
- Netting and in-house banks
- Importance of policies, procedures and risk management controls **Case study**: treasury risk management at Lufthansa

Exercise: defining and categorising types of treasury risk

- Definitions of risk
- Asymmetrical risks
- Understanding the symmetry of market risks
- Pricing principles

Case study: treasury risk management at EVRAZ

Case study: treasury risk management at Alphabet

THE USERS OF TREASURY PRODUCTS

- Corporate treasuries
- Borrowers and issuers
- Investors: asset managers, wealth managers, hedge funds and private equity
- Banks: central banks, commercial banks, investment banks and private banks

Case study: treasury risk management at Apple





INTERNATIONAL

CURRENCY RISK MANAGEMENT SOLUTIONS

- Spot foreign exchange
 - Base and variable currencies
 - Appreciation, depreciation, strengthening and weakening of currency positions
 - Calculating cross rates
- Forward foreign exchange
 - Forward pricing
 - Forward points
 - Discounts and premiums
- Foreign exchange swaps
 - Origin of the product
 - Comparison with repos
 - Efficiency of the product
 - FX swaps liquidity
- Currency swaps
 - Exchanges of principal
 - Gross and net settlement of differentials
 - Relationship to forward outrights and FX swaps
 - Advantages over the forward market
- Natural hedging

Case study: StoraEnso – currency exposure management



Case study: currency risk management at Southcorp

- Identifying and analysing risk
- Types of risk
- Long and short positions
- Hedging
- Physical delivery
- Contracts for differences
- The importance of carry
- The role of leverage in derivatives hedges
- OTC and exchange traded products
- Initial and variation margin
- Herstatt risk
- DVP, PVP & CLS Bank
- Symmetrical and asymmetrical risk management
- Equal and opposite positions
- IAS 39 and IFRS 9

Case study: Apple Capital Inc

MULTI-CURRENCY DEBT MANAGEMENT

- Using forward foreign exchange outrights
- Forward pricing
- Covered interest arbitrage
- Forward points
- Discounts and premiums
- Hedging currency debt
- Arbitraging the credit spread



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- Using FX swaps
 - Hedging currency debt
 - Arbitraging the credit spread
 - The carry trade
- Using currency swaps
 - Paying and receiving the basis
 - Exchanges of principal

Exercise: forward foreign exchange - covered interest arbitrage and uncovered interest arbitrage

Exercise: hedging in the forward market

Case study: the carry trade

Case study: cross-currency basis swaps

Case study: Export Credit Norway - currency swap

Case study: how global investors turn negative Japanese yields into big returns

- Record-low negative yields
- Discount offered to dollar holders to borrow yen
- Fixed coupon equivalent for owning five-year JGBs
- Foreign demand for Japan's two- and five-year bonds
- Cross-currency basis swaps
- Demand for dollars



MONEY MARKETS AND INTEREST RATE RISK

- T-Bills, CDs, CP, ABCP
- IBORs, IBIDs, IMEANs and the interbank money markets
- Replacing LIBOR
- SONIA, EONIA, ESTR, SARON, TONAR & SOFR
- Repos, securities lending and sell/buy backs
- Day count conventions: act/360, 30/360 and act/act
- Discounts and yields
- Present values, future values, IRRs, YTMs and AICs
- ICMA 803.1 & 803.2

UNDERSTANDING MONEY MARKET AND SWAP MARKET YIELD CURVES

- Liquidity preferences
- Referred habitats
- Market expectations
- Market segmentation
- Efficient markets?

Case study: hedging with interest rate swaps

Exercise: measuring fixed and floating rate risk -5 year fixed rate bond vs 5 year FRN

INTERNATIONAL

- Quantifying interest rate risk
- Interest rate sensitivity
- PV01s and DV01s
- Interest rate gaps

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- Gap analysis
- Calculating, understanding and using Macaulay's duration

- Calculating, understanding and using modified duration and convexity
- Using duration as a hedging tool
- Interest rate liability management
- Fixing floating rate debt in the forward market
- Fixing floating rate debt in the futures market
- Fixing floating rate debt in the swap market **Exercise**: using duration as a hedging tool

INTEREST RATE HEDGING TOOLS

- FRAs and futures
- Using interest rate swaps
 - Generic, 'plain vanilla' swaps
 - Swap structures
 - Par/par structures
 - Forward starting swaps
 - Amortising, accreting and roller-coaster swaps
 - Inflation linked swaps

Case study: FRAs, futures and interest rate swaps

- Buying and selling FRAs
- Selling and buying futures
- Paying and receiving fixed rates in the swap markets
- Perfect hedges and basis risk
- Contrasting exchange traded and OTC derivatives



THE PRACTICAL APPLICATIONS OF SWAPS

- Portfolio management
- Hedging
- Multi-currency debt management
- Translation exposure management
- Asset and liability management
- Credit arbitrage
- New issue arbitrage
- Trading
- Creating or hedging structured notes
- Benchmarking
- Currency overlay

Case Study - practical applications of swaps

Exercise: using swaps to hedge assets and liabilities
Case study: FMC Corporation's swap driven bond issue
Case study: Citibank's liquidity puts
Case study: Goldman Sachs & JP Morgan - lessons from the crisis

INTERNATIONAL

INTEREST RATE RISK MANAGEMENT

- Gaps
- Structural interest rate risk
- Borrowing short and lending long
- Leverage and structured products
- Hedging strategies in practice
- Market cycles
- Lessons from the crisis

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• Perspectives of banks and companies

- **Case study**: managing EVE sensitivity
- **Case study**: portfolio management
- Investment policies
- Sensitivity to a 1% parallel shift in the curve
- PV01s & DV01s
- Analysing the portfolio
- Estimating the modified duration of the portfolio
- Hedging the portfolio in the swap market
- Calculating the delta vector
- Modified duration of the swap
- Stack hedging the portfolio
- Strip hedging the portfolio
- Implied yield curve views
- Stress testing the hedge
- Managing interest rate risk

Case Study - Rabobank & Deutsche Bank

Case Study: the dynamics of total return swaps, Fidelity and JP Morgan

INFLATION-LINKED BONDS (ILBS)

- The impact of inflation on investment portfolios
- Inflation-linked bonds
- How ILBs work
- Factors affecting the performance and risks of ILBs
- Determining the relative value of ILBs
- The risks in ILBs

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INFLATION-LINKED SWAPS

- Zero-coupon inflation swaps
- Total return inflation swaps
- Asset swaps
- Inflation-linked swaps
- Cross-currency inflation-indexed swaps

Case study: inflation-linked swaps

Case study: avoiding hedging pitfalls

- Portuguese train companies and snowball swaps
- Managing financial risks
- Laying off risks with banks
- Laying off risks with customers
- Calculating downside risks
- The view of the courts
- Legal and moral significance of hedging and trading
- Bank/customer relationships





ESSENTIALS OF FINANCIAL RISK MANAGEMENT

OVERVIEW OF RISK MANAGEMENT

- Distinguish risk and uncertainty statistical nature of risk versus absence of probabilistic dimension to uncertainty
- Summarize the principal types of financial risk market risk and capital adequacy, credit risk, liquidity risk, sovereign risk, systemic risk, operational, legal and reputational risk
- Review of fundamental statistical tools for measuring and analysing risk
- Review of probabilistic methods based on a normal distribution
- Historical development of Value at Risk (VaR) a single measure of enterprise risk
- Explain the methodological principles of VaR and evaluate whether it is a reliable indicator of financial risk – e.g. are financial returns normally distributed?
- Increasing recognition that market risk, credit risk and liquidity risk are all interdependent.
- Risk/reward concepts from Capital Asset Pricing Model (CAPM)
- Modelling risk scenarios stress testing, regressions based on outlier values, Monte Carlo simulations, back testing
- Hedging strategies use of swaps and other derivatives to manage risk
- Systemic risk outline of key features of the global liquidity crisis of H2, 2008
- Overview of dynamic hedging topics delta hedging, gamma risk, options strategies

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COUNTER-PARTY CREDIT RISK

- Examine the various facets of credit risk which hinge on losses sustained from failure of an obligor or counter-party to honour contractual obligations
- Distinguish the separate components of credit risk:
 - Probability of default by obligor how reliably can it be estimated?
 - Probability of downgrade or widening credit spreads of counter-party
 - Recovery rate what is LGD and what percentage of the total obligation can be recovered after default?
 - Credit exposure estimating loss magnitude in relation to capital buffers
- Determination of a credit default event, ISDA master agreement, Credit Support Annex
- Liquidity of market for CDS, scrutiny from regulators
- Understand the concepts of credit rating and scoring, the role of the major Credit Ratings Agencies (CRA's), methods used to determine credit ratings, implications of ratings downgrades, how useful are ratings for determining actual risk of default?



MEASURING CREDIT RISK AND TECHNIQUES FOR CREDIT RISK MANAGEMENT

- Credit Metrics, credit scoring and credit rating systems
- Credit Migration matrices Moody's historical data, scaling over different time frames
- Estimating probability of default KMV, distance to default techniques
- Explain how debt and equity can be understood as options on the firm
- Techniques for modelling default risk of CDO's, CMO's and other structured vehicles
- Quantitative modelling of credit risk using stochastic processes
- Lessons from SIVs and other off-balance sheet financing on credit risk management
- Adapting VaR measures to include a metric for default value at risk
- BCBS approach to credit risk under Basel III risk weighting of assets, correlations, CVA
- Using credit derivatives as part of credit risk management strategy
- Swaps as a hedging mechanism and as a tool to reduce cost of borrowings
- Analysing Merton's Distance to Default methodology and examples of KMV's track record with its Expected Default Frequency (EDF) metric





FUNDAMENTALS OF INTEREST RATE RISK

- Explanation of sensitivity of bond price to changes in interest rates
- Overview of term structure of interest rates yield curve
- Modified duration and portfolio risk management
- Calculating Basis Point Value (BPV) or DV01 from Modified Duration
- Duration Gap not confined to a branch of Asset/Liability Management (ALM)
- Duration modelling
- Framework to stress test/model the impact on balance sheet equity from changes to asset and liability valuations resulting from variations in yield curve
- Contrast an approach which seeks to immunize a portfolio from shifting duration to a more pro-active stance in accordance with a view/forecast on future course of interest rates
- Modelling duration gap analysis and determining whether interest rate changes will be beneficial to positive/negative duration gap



MARKET RISK AND TRADING BOOK ACTIVITIES **BASEL III, CAPITAL ADEQUACY AND RELATIONSHIP TO LIQUIDITY RISK**

- Why the BCBS has created a brand new risk reporting obligation regarding liquidity
- Focus on market stress in the Liquidity Coverage Ratio (LCR) in Basel III • Identify principal drivers of each asset class – e.g. what drives interest • Learning lessons from lack of liquidity of many structured products in rates and bond yields
- 2008 crisis
- Definition of High Quality Liquid Assets (HQLA) under the LCR of Basel
- Criteria for allocation to Level 1 and Levels 2A and 2B of HQLA
- Short term funding requirements versus longer term stable funding (NSFR)
- Why is the BIS and Financial Stability Board so focused on higher capital levels?
- Asset liability mismatches in the balance sheet
- Understanding hidden liquidity risks in a portfolio
- Should illiquid assets be eligible for inclusion in a bank's trading book?
- Characteristics of securitizations, CDO's, SPVs and conduits
- Funding, asset/liability liquidity and derivative pricing/hedging how are they all linked?
- Novel capital instruments contingent capital CoCo's
- The role of Basel's pillars two and three in support of capital requirements
- Risk and capital performance measures such as RAROC, economic and regulatory capital
- Allocating and managing capital in most efficient ways

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- Review of major traded financial assets equities, bonds, FX, commodities
- Distinguish between derivatives and underlying instruments
- Overview of forwards, futures, swaps and structured products e.g. securitizations
- Liquidity of different trading markets and financial instruments
- Valuation of portfolios mark to market, mark to model
- Calculating stressed Value At Risk modelling techniques, stress testing
- Quantifying the exposure and severity of "outliers" and tail risk
- Understanding of the key concept of delta of a portfolio hedging, options
- Importance of non-parallel shifts in yield curves to fixed income instruments
- Contrast financial instruments with linear/non-linear returns and hedging profiles



HOW MARKET RISK, LIQUIDITY RISK AND SYSTEMIC RISK ARE **INTERWOVEN**

- Characteristics of maturity transformation and vulnerabilities
- Stresses during H2, 2008 in the repo and interbank markets
- Evidence of heightened correlations for cross sectional asset returns
- Eurozone risk implications of a (partial) break-up of the EMU
- Comparison between asset correlations during 2009-12, and markets in 2013/14
- References to course tutor's book on Systemic Liquidity Risk
- China bubble risk property bubble, over-extended banks, shadow banking system
- Financial contagion tightly coupled networks, non-linear dynamics
- HFT and algorithmic trading real and imaginary risks
- Arbitrage strategies break down through lack of liquidity
- Explanation of the Risk On/Risk Off (RORO) paradigm
- Have financial markets since 2013 finally moved beyond RORO?

MONITORING KEY RISK INDICATORS (KRI'S)

- Money market indicators indicating credit/liquidity stresses
- LIBOR/OIS spread, TED spread
- Market volatility as primary risk factor variance forecasting
- Explanation of the mechanics and usefulness of the CBOE VIX Index
- Overview of the "greeks"– delta and gamma, volatility
- Foreign exchange indicators cross currency basis swap spreads, abnormal FX carry trade behaviour, EM FX volatility
- Market stress indicators VIX, bid/ask spread



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STRESS TESTING METHODS, BENEFITS AND LIMITATIONS

- Explanation of the rationale and techniques for conducting stress tests
- Why do we need stress and scenario testing in addition to VaR?
- Why do the regulators want to see it done?
- Is there a robust division between market risk and liquidity risk?
- Back testing using historical returns which periods to use?
- Stress testing using hypothetical returns Monte Carlo simulations
- Joint probabilities of default how can these be modelled?

OVERVIEW OF KEY OPERATIONAL RISK ISSUES

- Distinguishing operational risk from other kinds of risk
- The impact of operational risk on the organisation
- Regulatory focus on issues relating to misconduct of management and employees
- Selection of risk control strategies appropriate to the objectives of the business and implementation of such strategies
- Systems of accountability, responsibilities bounded by safety thresholds, alerts, disciplinary guidelines, sanctions for violation
- Implementing an organizational structure including well-resourced internal audit systems, proper IT monitoring and back office functions.
- Continued development of quantitative protocols, and reporting systems for detecting causes of risk resulting in financial loss
- Estimating probability of adverse outcome and loss to business
- Determining the direct and indirect effects of an adverse outcome







CREATING AN EFFECTIVE RISK MANAGEMENT CULTURE METHODOLOGIES FOR MEASURING AND MONITORING OPERATIONAL **RISKS**

- Basel III measurement approaches (unchanged from Basel II):
 - Basic Indicator
 - Standard
 - Advanced Measurement Approaches
- Loss Modelling Methods contingency scenarios, Monte Carlo simulations
- The Loss Distribution Approach (LDA) exemplified in Excel model
- Examination of Poisson distribution and other distribution models
- Quantifying the exposure and severity of operational "outliers" and tail risks
- Evidence of power laws in outliers of operational losses
- Application of VaR techniques to operational risk (OpVar)
- Data limitations involved in quantifying operational risks –sparse detail in tails
- Integrating operational risk management into the organizational risk management framework
- Operational risk exposure indicators KRI's





- Developing a corporate culture which is fully aligned with the risk management process
- Enterprise wide risk control environment strategic management philosophy and cultivating an ethos of prudence and robust risk control
- Risk assessment process identifying and responding to potential and actual risks
- Risk control systems need to be pro-active and not reactive not "fire fighting"
- Avoid silos when risk information is kept isolated in separate divisions supervision and vigilance at the senior level becomes impossible
- Risk mindset in accounting, surveillance, IT systems and data back-up systems
- Monitoring of controls quality and integrity of the procedures
- Fully resourced compliance officers check on whether regulations are being followed
- Critical evaluation of role of external auditors
- HR processes designed to screen new employees, conduct regular reviews, motivate and enhance employee morale
- Separation of risk and compliance function from front office/P&L targets





INTEREST RATE RISK MANAGEMENT

INTEREST INCOME METRICS

- Time value of money, zero coupon curves, discount factors
- Bond duration, convexity, Macaulay Duration, Modified Duration,
- Optionality and callable bonds pre-payment risk
- Calculating Basis Point Value (BPV)
- Explanation of the term structure of interest rates the yield curve
- Historical examples of different shapes to the yield curve
- Credit spreads over Treasuries, over LIBOR, Z spread
- Swap spreads which curves to use, OIS, LIBOR
- Fundamental statistical tools for measuring and analysing risk mean, variance
- Expected Shortfall as foundation for value at risk

MARK TO MARKET RISKS FOR INCOME ASSETS AND FUNDING **INSTRUMENTS**

- Fair value accounting (IFRS 9 and 13) and mark to market practice
- Trading book exposures levels 1, 2 and 3 exposures
- Impact of interest rate changes on balance sheet AFS, banking book exposures, derivatives
- Feedback loops between market risk, credit risk and liquidity risk
- Value at Risk (VaR) a single measure of enterprise risk
- Explain the differing methodological principles for calculating VaR
- Benchmark rates distinguish types and suitability for different purposes/objectives
- Market distortions and liquidity issues arising from orchestrated interest rate environment





INTERNATIONAL

INTERFACE OF MONEY MARKETS AND FOREIGN EXCHANGE

- Size of the markets size of outstanding derivatives, FX daily volumes
- Participants commercial banks, central banks, corporates, government agencies
- Treasury bill issuance in different jurisdictions calculating yields etc.
- Detailed analysis of the mechanics of repo markets, commercial paper
- LIBOR and EURIBOR rates currencies and maturities,
- Eurodollar futures market
- Forward Rate Agreements for interest rate and FX
- Arbitrage and interest rate parity
- Current market conditions policy rates, macro-economic background
- Risk premia, key money markets spreads and currency outlook
- Term structure of interest rates yield curve forecasting

CENTRAL BANKS AND MONETARY POLICY

- Overview of FOMC, MPC of BOE, ECB Governing Council, BOJ and PBOC
- Structure of a central bank balance sheet relationship to commercial bank balance sheets
- Summary of Open Market Operations NY Fed, BOE and ECB practice
- Forward guidance and transparency of decision making
- Examination of impact of CB asset purchases on yield curve and short term rates
- Impact of QE on CB balance sheets Fed, BOE, BOJ, ECB
- Overnight market OIS rates Fed funds, EONIA, SONIA
- Overview of money supply monetary base (M0), M1, M2 how measured
- Monetary tools and how they impact money supply
- How is money created in a modern economy role of commercial banks in creating deposits









INTEREST RATE RISK MANAGEMENT continued

DURATION GAP RISK MANAGEMENT

- Duration gap analysis basis for net worth (accounting equity) calculations
- Duration Gap Management
 - Economic Capital, and Economic Value of Equity (EVE)
 - How to modify balance sheet for contrasting duration gap scenarios
- Learning lessons from lack of liquidity of many structured products in 2008 crisis
- Asset liability mismatches in the balance sheet need for full transparency with contingent liabilities
- Understanding hidden liquidity risks in a portfolio
- Should illiquid assets be eligible for inclusion on a bank's trading book?
- Varying the duration characteristics of portfolios of fixed income securities
- Characteristics of securitizations, CDO's, SPVs and conduits
- Funding, asset/liability liquidity and derivative pricing/hedging how are they all linked?
- Novel capital instruments contingent capital bail-ins versus bailouts
- Intra-day liquidity risks emergency liquidity buffers
- Liquidity-adjusted risk measures
- Derivatives pricing under illiquidity





QUANTITATIVE EASING (QE) AND NEGATIVE INTEREST RATES (NIR)

- Unorthodox monetary policy including QE origins, recent history, mechanics
- Economic rationale for QE and NIR
- Efficacy of QE has it achieved its objectives?
- Overview of current policy of the European Central Bank
- Outlook for continuation of QE measures in Eurozone, Japan
- Applying negative inputs to traditional modelling tools

INTEREST RATE SWAPS

- Basic structures and terminology of swaps
- Business case for using interest rate swaps
- Notion of swap as an aggregation of forward rate agreements
- Pricing the fixed leg and interpreting the swap markets
- Counter party risk default, deterioration of creditworthiness, CVA
- Recognition that CVA is integral part of fair value and pricing of derivatives and not just a regulatory (Basel) issue
- OTC market versus SEF's outlook for mix between different platforms
- Collateralized OTC trades versus margin based CCP platforms
- Netting arrangements explanation of mechanism, close out risks

INTEREST RATE RISK MANAGEMENT continued

REPLACEMENT OF IBOR RATES

- Background to the regulator's desire to replace IBOR the LIBOR rigging scandal
- Legacy issues related to the fact that \$350 trillion of notional references IBOR rates
- Residual transition issues
- Adoption of SONIA for sterling-based markets
- Adoption of ESTER in euro area markets
- Explanation of the SOFR rate in the US money market
- Alternative rates that have been advocated for replacement of USD Libor
- Development of SOFR futures challenges

MODELS FOR INTEREST RATE FORECASTING

- Drift, stochastic factors and mean reversion tendencies
- Vasicek and CIR models for modelling evolution of short-term rates
- Market volatility as primary risk factor variance forecasting
- Parallel and non-parallel shifts in the yield curve
- Principal Components Analysis for modelling changing shape of term structure
- Volatility modelling EWMA and GARCH techniques





STRESS TEST METHODS FOR TREASURY

- Sensitivity to interest rate deltas quantification and modelling
- Stress Testing bond or loan portfolio
- How to generate and calibrate shocks and adverse scenarios
- Worst case approach; threshold approach; base case
- Identification of key risk factors
- Associating probabilities to risk factors quantitative and qualitative approaches
- Mapping qualitative and descriptive data to numerical values
- Model based simulations of adverse case scenarios
- Stress testing volatility episodes using weighted approaches to volatility
- Impact of interest rate risk on balance sheet AFS, trading book exposures, derivatives
- Feedback loops between market risk, credit risk and liquidity risk
- Benchmark rates distinguish types and suitability for different purposes/objectives
- Scenario Based Analysis (SBA) and Risk Control Self-Assessment (RCSA)



INTEREST RATE RISK MANAGEMENT continued

FUNDS TRANSFER PRICING (FTP)

- ALCO as clearing house for providers and users of funds –group and local perspectives • Different FTP Approaches – average cost of funds, pool approaches,
- matched maturity marginal cost of funds
- Liquidity Term Premium (LTP) how to separate from term premium and credit risk
- Cost of Funds and relationship to the LTP dealing with outflows under stressed conditions
- Liquidity cushions (buffers) best practice, charging business units on basis of expected use of contingent liquidity
- Liquidity Transfer Pricing for trading book, banking book, derivatives funding of haircuts • Trading/AFS Portfolio Liquidity Premium

INTEREST RATE RISK IN THE BANKING BOOK (IRRBB)

- Distinction between banking and trading books
- Economic Value of Equity (EvE) and Net Interest Income (NII) metrics Regulatory arbitrage treatment under Basel III • IRRBB link to Basel III capital adequacy requirements

- Implementing Basel's six scenarios specifications and recommended implementation
- ICAAP and the Enhanced Pillar 2 approach
- Defining IRRBB risk appetite
- IRRBB and enterprise-wide stress testing



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MEASURING & MONITORING LIQUIDITY RISK

OVERVIEW OF LIQUIDITY

- Different definitions of liquidity accounting, economic and market driven
- The importance of the new focus on liquidity in the Basel III framework
- Definition of High Quality Liquid Assets (HQLA) under the LCR of Basel III
- Short term funding requirements versus longer term stable funding
- Overview of duration gap analysis basis for economic value of equity (EVA) calculations
- Asset liability mismatches on the balance sheet
- Understanding hidden liquidity risks on the balance sheet
- Funding, asset/liability liquidity and derivative pricing/hedging how are they all linked?
- Bid-ask spreads as indicator of market depth
- Illiquidity of some markets for complex derivatives
- Accounting issues regarding fair value for traded instruments MtM and mark to model

LIQUIDITY RISK AT FIRM LEVEL AND SYSTEMIC LEVEL

- Failure to include stress and contingency scenarios in risk modelling methods
- Abuses/gaming of Basel II in the lead up to the financial crisis
- Inter-linked nature of liquidity risk and systemic risk
- Overview of systemic liquidity risk indicators

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- Special treatment of liquidity risk and concentration risk for G-SIB's
- Reducing counter party risk through greater collateralization
- Collateralization requirements and impact on ALM

- Eurozone risk implications of a (partial) break-up of the EMU
- China bubble risk property bubble, over-extended banks
- Financial contagion tightly coupled networks, non-linear dynamics

INTERNATIONAL

REPO MARKETS AND SHORT TERM FUNDING

- Learning lessons from lack of liquidity of many structured products in 2008 crisis
- Reference to the main case study by Gorton and Metrick (2010)
- Should illiquid assets be eligible for inclusion on a bank's trading book?
- Characteristics of securitizations, CDO's, SPVs and conduits
- Funding, asset/liability liquidity and derivative pricing/hedging how are they all linked?
- Intra-day liquidity risks

BEAR STEARNS BALANCE SHEET & FINANCIAL CONDITION IN 2008

- Examination of 10-Q statement for H2, 2008 of Bear Stearns
- This illustrates the financial condition of Bear prior to being subsumed within JP Morgan Chase
- Review of stockholder's equity in relation to total balance sheet
- Reliance on short term repo funding
- Disclosures of its approach to liquidity risk management

SECURITISED BANKING & THE RUN ON REPO

- Contrasts the traditional notion of a run on banks via depositor withdrawals with the experience in the 2007/8 crisis characterized as a run on repos
- Examines the linkage and circularity in market's need for liquidity in 2007/8 via repos but where there was a shortage of highest rated collateral and lower quality including sub-prime securities were offered as collateral
- Explanation of the methodology linking the changes in LIBOR-OIS spread and ABX index during the financial crisis













MODELS FOR CURVE FORECASTING

- Drift, stochastic factors and mean reversion tendencies
- Vasicek and CIR models for modelling evolution of short term rates
- Nelson Siegel models for modelling overall term structure
- Market volatility as primary risk factor variance forecasting
- Parallel and non-parallel shifts in the yield curve
- Principal Components Analysis for modelling changing shape of term structure

STRESS TEST METHODS FOR TREASURY

- Sensitivity to interest rate deltas quantification and modelling
- Stress Testing bond or loan portfolio
- How to generate and calibrate shocks and adverse scenarios
- Worst case approach; threshold approach; base case
- Identification of key risk factors
- Associating probabilities to risk factors quantitative and qualitative approaches
- Mapping qualitative and descriptive data to numerical values
- Stress testing volatility episodes using weighted approaches to volatility
- Impact of interest rate risk on balance sheet AFS, trading book exposures, derivatives
- Feedback loops between market risk, credit risk and liquidity risk
- Benchmark rates distinguish types and suitability for different purposes/objectives
- Is there a robust division between market risk and liquidity risk?
- Impact of liquidity conditions on short term funding



CHANGES IN LIQUIDITY AND VOLATILITY

- Close relationship between correlation, liquidity and volatility
- Predicting volatility changes: GARCH models
- The perspective from implied volatility
- Implied probability distribution and tail risk
- Attempts to create a meaningful value for VaR adjusted for liquidity
- Liquidity Adjusted VaR techniques

LIQUIDITY ISSUES WHEN CAPITAL MARKETS ARE FACING STRESS

- Liquidity hoarding fears of counter-party risk lead to unwillingness to engage in normal money market operations
- Break down in repo markets and commercial paper market
- Financial contagion and the role of very connected "super spreaders"
- Greater need to be vigilant regarding counterparty exposure and daily cash management
- Stress testing of balance sheets test for liquidity/solvency under different time frames regarding the extent and severity of market disruptions
- Need for Contingency Funding Plans (CFPs)
- Significantly adjust expectations as to liquidity of complex structured products and derivatives
- Greater emphasis on multi-lateral netting of derivatives contracts







FUNDING AND LIQUIDITY RISK MANAGEMENT

- Market indicator dashboard share prices, CDS level, money market rates, volatility
- Hidden liquidity undrawn contingencies, derivatives, collateral drawdowns
- Encumbrance issues assets used for repo, margin requirements and security lending
- Intra-day liquidity risks episodic liquidity crises during periods of systemic credit risk stress
- Normal versus stressed markets runoff assumptions, effective maturity approach
- Contingency liquidity planning
- Concentration of funding sources
- Maintaining a desired level of credit rating
- Central Clearing Party structure examine advocacy of exchange traded derivatives to avoid defaults by OTC counter-parties
- Characteristics and waterfall structure of a central clearing party
- CRD IV approach to capital charges for CCP





BALANCE SHEET MANAGEMENT AND FUNDS TRANSFER PRICING (FTP)

- Characteristics of maturity transformation and vulnerabilities
 - ALCO as clearing house for providers and users of funds
 - Overview of strategic balance sheet management
 - Different FTP Approaches average cost of funds, pool approaches, matched maturity marginal cost of funds
- Liquidity Term Premium (LTP) how to separate from term premium and
- Cost of Funds and relationship to the LTP dealing with outflows under stressed conditions
- Liquidity cushions (buffers) best practice, charging business units on basis of expected use of contingent liquidity
- Liquidity Transfer Pricing for trading book, banking book, derivatives funding of haircuts
- Trading/Available For Sale (AFS) Portfolio Liquidity Premium



INTERNAL LIQUIDITY ADEQUACY ASSESSMENT PROCESS (ILAAP)

- Supplementary provisions beyond the Basel III Pillar One LCR
- Situate within the context of the CRD IV implementation and special status in the UK
- Examining survival horizons stress modeling requirements
- Requiring greater specificity of the actual liquidity of HQLA
- More precise modeling of the denominator values to the LCR ratio
- The run-off of retail funding, reduction of secured and unsecured wholesale funding
- The correlation and concentration of funding, funding tenors
- Deterioration in the firm's credit rating
- Foreign exchange convertibility and access to foreign exchange markets
- The ability to transfer liquidity across entities, sectors and countries
- Estimates of future balance sheet growth
- Intraday liquidity risk management
- Drawing down liquidity buffers and replenishment
- Liquidity and funding reporting obligations





MACRO LIQUIDITY RISK INDICATORS

- Understanding the distinction between macro level KRI's and those which are endogenous to specific institutions
- Recognize the vital influence of systemic conditions on internal risk
- Money market indicators indicating credit/liquidity stresses LIBOR/OIS spread, TED spread, "haircuts" in repo markets, CDS rates for banks, sovereign CDS rates
- Foreign exchange indicators cross currency basis swap spreads, abnormal FX carry trade behaviour, EM FX volatility
- Market stress indicators VIX, bid/ask spread, market microstructure measures
- Using the ratios and KRIs for trend analysis and monitoring credit risk movements
 - Swap spreads LIBOR/OIS, EURIBOR/EONIA
 - Measuring market sentiment investor confidence indices, contrarian indicators
 - Assessing sovereign risk indicators debt levels, issuance of foreign currency debt







MARKET MICRO-STRUCTURE AND LIQUIDITY RISK

- Fragmentation of market venues and technological infrastructure
- Impact of HFT on market micro-structure
- New role of electronic market makers
- Liquidity providers and liquidity consumers conflicts within HFT algorithms
- Circuit breakers in equity markets, futures markets
- Paradox of macro liquidity-hardest to find when most needed
- Dynamic hedging strategies can they be applied in illiquid markets?
- Statistical arbitrage strategies break down through lack of liquidity
- Flash Crash of May 2010 extended across a wide spectrum of ETF's and equities.





EFFECTIVE MARKET RISK MANAGEMENT

INTRODUCTION

- Overview of current markets and fallout from the credit crunch / GFC and QE
 - How has the pandemic change the picture?
- The basics of risk management What is it? What isn't it?
- Identification, measurement and management of risk
- Market risk
- Credit risk
- Operational risk
- Other risks
- Valuation, mark to market and accruals, Banking Book / Trading Book split
- What do we mean by manage?
- What is risk management trying to achieve?
- Regulation vs. Risk Management aren't they trying to do the same thing?

MARKET RISK IN BANKING

- Importance of basic control processes
- Mark to market, mark to model other valuation
- Profit and Loss monitoring
- Limits
- Assets and liability (inventory) control
- Organisational culture and structure
- The tone set by senior management
- Staffing and experience
- The importance of systems
- Banks verses other corporate entities Why are they different?



RISK MANAGEMENT TOOLS FOR MARKET RISK

- Defining a returns process for a price series
- Modelling the returns process
- Asset/liability size and equivalents
- Sensitivities of positions to market moves The concepts of delta and **DV01**
- Arbitrage principles for pricing and sensitivities Forward pricing and probability

PORTFOLIO MARKET RISK TOOLS

- Aggregation of positions From the many to the few
- Portfolio effects from correlation and diversification
- Composite risk measures
- Value at Risk and other portfolio risk models

VALUE-AT-RISK AND ITS SHORTCOMINGS

- Variance-Covariance
- Historic simulation
- Monte-Carlo
- Limitations of approaches
- Handling specific risk
- Problems with illiquid assets
- Changes in volatility and covariance assumptions
- Why might "Expected Shortfall" be better?
- What might the "Fundamental Review of the Trading Book" bring?



EFFECTIVE MARKET RISK MANAGEMENT continued

ADJUNCTS TO THE VALUE-AT-RISK TOOLS

- Using scenarios to identify "problem" positions
- Stress testing What is it and how does it help?
- Developing scenario and stress tests

NEW PRODUCTS AND NEW CHALLENGES

- How do we incorporate new products?
- Breaking down the components of risk
- Use of models
- Incorporating into existing system and not-in-system trades for reporting
 - How do we cope with non-modelable risk?
 - How do we cope with risks not in VaR?

WHAT CAN DERIVATIVES TELL US ABOUT MARKET RISK?

- Implied volatility, skews and smiles What do they mean?
- Fat tails and market instabilities
- What do real returns look like?
- How should we adjust measures?

INCORPORATING DERIVATIVES INTO MARKET RISK PORTFOLIOS

- How non-linear instruments distort returns distributions
- The effect on confidence intervals for VaR estimation

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- How Greeks sensitivities are a necessary addition to normal risk measures such as VaR
- Integrating OTC Derivatives into combined market and credit risk framework using Monte-Carlo Simulation

MARKET RISK FOR FUND MANAGERS

- Why is Fund Management different?
 - Traditional fund manager vs. Hedge Funds
- The role of benchmarks and mandates
- Alpha, Beta, Information and Sharpe Ratios What do they tell us?
- Benchmark relative risk
- Non linear beta effects
 - Managing Liquidity Risk for funds how do investors get in and out?
 - Way is it easy to be mis-lead by a good track-record?

THE ROLE OF BACK TESTING FOR VAR

- Explaining the sources and sinks of profit and loss from risk measures
- Back testing process Clean, dirty and hypothetical P&L
- Exceptions How many is too many or too few?
- Model hypothesis testing
- Effects of auto correlation
- The role of Extreme Value Theory (EVT) for tail correction

MARKET RISK CAPITAL

- The evolution of Basel capital requirements for market risk
- The 1996 market risk amendment and introduction of internal models
- Quantitative and qualitative aspects of model recognition
- Defining Market Risk Capital and qualifying capital types Tiers 1, 2 and 3
- Recent developments such as liquidity risk and leverage limits What is Basel III bringing?
 - What will the FRTB (aka Basel IV) bring?







OPERATIONAL RISK MANAGEMENT

OVERVIEW OF KEY OPERATIONAL RISK ISSUES

- The impact of operational risk on the organisation
- Regulatory focus on issues relating to misconduct of management and employees
- Selection of risk control strategies appropriate to the objectives of the business and implementation of such strategies
- Systems of accountability, responsibilities bounded by safety thresholds, alerts, disciplinary guidelines, sanctions for violation
- Implementing an organizational structure including well-resourced internal audit systems, proper IT monitoring and back office functions.
- Estimating probability of adverse outcome and loss to business
- Determining the direct and indirect effects of an adverse outcome
- HR processes designed to screen new employees, conduct regular reviews, motivate and enhance employee morale
- Separation of risk compliance function from P&L targets
- Cyber risks internal vulnerabilities, integrity of software systems, third party risk, outsourcing, cloud computing, phishing

RELIANCE ON ROBUST AND SECURE SOFTWARE SYSTEMS

- Architecture of enterprise software integration and security issues
- Cyber risk how secure are in bound channels?
- How secure are outsourced systems?

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- Documentation of home-made and outsourced solutions
- Increasing focus on data collection and aggregation FRTB issues
- Complexity issues integration of middleware with back office systems
- New technologies and integration with legacy systems
- Preparation for block chain technologies impact on business processes

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• Adoption of artificial intelligence (AI) based methods

SYMPTOMS OF POOR RISK CULTURE

- Poor tone set by the key executives and weak governance
- Boards of directors with cronyism and lack of independent NED's
- A "box ticking" mentality which produces myopia and failure to see the big picture
- Front office revenue generators not adequately subject to "internal controls"
- Over reliance on special purpose vehicles and off-balance sheet accounting
- Failing to eliminate dysfunctional, legacy business processes
- Failing to recognize "blind spots" of the organization's culture
- Accepting a lack of transparency in high-risk areas
- Senior management endowed with "charisma" and an untouchable quality which makes them remote from internal criticisms

MEASURING AND MODELLING OPERATIONAL RISKS

- Basel Committee requires close monitoring of internal modelling and model risk
- Loss Modelling Methods contingency scenarios
- Templates for collecting loss data
- Using Scenario Based Analysis (SBA) for filling in gaps in data
- The role of Business Environment Internal Control Factors (BEICF's)
- Scarcity of historical data in the outliers for operational losses
- Different distributions for modelling severity of losses
- Monte Carlo based loss scenarios
- Stress testing methodologies
- Data limitations involved in quantifying operational risks
- Segregating internal versus external software failures



OPERATIONAL RISK MANAGEMENT continued

ROOT CAUSE ANALYSIS

- Identification of underlying causes for operational failures digging beneath the surface
- Forensic and systematic analysis of large scale failures and near failures
- Data mining approaches and time line sequences critical nodes in networks
- Transforming from a reactive approach to operational failure to a pro-active approach
- Prioritizing amongst multiple root causes
- Process mapping identify all critical steps, what can go wrong, what controls can be in place
- Establish the relevant metrics for each root cause leading to process disruptions
- Checks to ensure that action plans would alleviate or mitigate symptoms arising from root causes

OVERVIEW OF SCENARIO GENERATION FOR STRESS TESTING

- How can we generate and calibrate shocks and adverse scenarios
- Simulations randomized market scenarios expressing risk factors
- Macro factors broad macro-economic variables
- Expert judgment qualitative and forward looking
- Identification of key risk factors

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Associating probabilities to risk factors – quantitative and qualitative approaches

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- Mapping qualitative and descriptive data to numerical values
- Model based simulations of adverse case scenarios
- Identification of worst case scenarios
- Data deficiencies and estimation of outlier scenarios

FINANCIAL CRIMES AND ANTI MONEY LAUNDERING

- Surveillance of financial services sector by regulatory bodies
- Know Your Customer (KYC) and Anti-Money Laundering (AML) remediation
- International context for Anti-Money Laundering (AML)
- Focus on Counter Terrorist Financing (CTF)
- Legal, regulatory and supervisory frameworks underpinning AML/CTF
- Money Laundering Reporting Officer (MLRO)
- Transaction Monitoring and Filtering Framework
- Suspicious Activity Reporting
- Senior Management Responsibility regarding AML/CTF
- Role of banking supervisors
- Sanctions provisions and "blacklisted" territories and individuals
- Tax avoidance FATCA
- Consumer protection focus SEC, FCA, CFTC, EU Commission

CYBER RISKS AND VULNERABILITIES IN BUSINESS PROCESSES

- Understand the core concepts in the architecture of enterprise software, especially systems integration and security issues
- Identify the principal sources of cyber risk internal and external
- Understand the risks associated with introducing new business systems and how these need to be thoroughly tested before deployment
- Analyse the risks associated with introducing new products and how these need to be thoroughly tested before deployment
- Understand the opportunities and challenges presented by new, disruptive technologies – blockchain, AI, Big Data analytics, machine learning
- Understand the nature of business process re-engineering (BPR)



OPERATIONAL RISK MANAGEMENT continued

BEST PRACTICE IN ENHANCING RISK CULTURE

- Commitment by all levels of the organization to ethical principles
- Codes of conduct articulation of the company's philosophy
- Screening of the ethical profile of all executives and board members
- Full engagement of human resources personnel in the risk culture
- Enterprise-wide support for ongoing professional development
- Diversity of perspectives ensure status quo is rigorously challenged
- Remuneration of risk and compliance teams must be wholly separated from front office interference, "star traders" and P&L performance?
- Rewards, bonuses should be adjusted for risk and claw backs and deferred compensation structures should be in place for key revenue generators





TREASURY PRODUCTS & RISK MANAGEMENT

TREASURY RISK MANAGEMENT

- Role of the treasurer
- Role of the CFO
- Functions of a treasury
- Profit centres and cost centres
- Netting and in-house banks
- Importance of policies, procedures and risk management controls

DEFINING & CATEGORISING DIFFERENT TYPES OF TREASURY RISK

- Definitions of risk
- Asymmetrical risks
- Understanding the symmetry of market risks

WHO USES TREASURY PRODUCTS?

- Borrowers
- Investors and wealth managers
- Commercial, investment and private banks

TREASURY SOLUTIONS – CURRENCY RISK

- Client exposure management
- Hedging solutions market
- spot foreign exchange
- base and variable currencies
- cross rates
- forward foreign exchange
- forward pricing

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- forward points
- foreign exchange swaps
- currency swaps
- exchanges of principal
- gross and net settlement of differentials
- relationship to forward market
- advantages over forward market
- currency options
- comparison with the forward market
- 'Natural' hedging

CORPORATE TREASURY RISK MANAGEMENT

- Hedging analysis: summary
- selective hedging
- partial hedge/run dynamic position

CASE STUDY: Netflix

- Investment policy
- Interest rate sensitivity
- Using the portfolio's modified duration
- Identifying foreign currency risk: long and short positions
- Currency risk management policy considerations
- Currency risk management techniques

HOW HEDGING WORKS

- Identifying and analysing risk
 - types of risk
 - long and short positions
- Hedging
 - physical delivery
 - contracts for differences
 - the importance of carry
 - put/call parity
 - the role of leverage in derivatives hedges
- OTC and exchange traded products
 - how initial and variation margins work
 - Herstatt risk
 - DVP, PVP & CLS Bank
 - symmetrical and asymmetrical risk management
 - equal and opposite positions
 - correlation and partial hedges
 - when is a hedge a speculative position?
 - IAS 39

STRATEGIES FOR USING TREASURY PRODUCTS

- Understanding the client's appetite for risk
 - borrowers
 - investors
- Upside/downside and downside/upside strategies
- Identifying exposures revisited
- Know your client





MEASURING TREASURY PERFORMANCE

- Defining objectives
- Challenges in performance measurement
- ROE, Modified duration, PV01, VaR
- Banks and Corporations: Approaches to performance measurement

EVALUATING THE BENEFITS OF TREASURY MANAGEMENT

- Evaluating upside and downside risks
- Advising clients on risk management
- Managing costs

CASE STUDY: How Global Investors Turn Negative Japan Yields into Big Returns

- Record-low negative yields
- Discount offered to dollar holders to borrow yen
- Fixed coupon equivalent for owning five-year JGBs
- Foreign demand for Japan's two- and five-year bonds
- Cross-currency basis swaps
- Demand for dollars



HOW MARKETS MOVE

- Economic fundamentals
- macro-economic data
- micro-economic data
- Technical analysis
- trend lines
- support and resistance levels
- moving averages
- Random walks
- knowns and unknowns
- efficient markets hypothesis

MONEY MARKETS AND INTEREST RATE RISK

- TBills, CDs, CP, ABCP
- IBORs, IBIDs, IMEANs and the interbank money markets
- Repos, Securities Lending and Sell/Buy backs
- Day count conventions: act/360, 30/360, act/act
- Discounts and yields
- Present values, future values, IRRs, YTMs and AICs
- ICMA 803.1 & 803.2

UNDERSTANDING MONEY MARKET / SWAP MARKET YIELD CURVES

- Liquidity preferences
- Preferred habitats
- Market expectations
- Market segmentation
- Efficient markets?

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TREASURY SOLUTIONS – INTEREST RATE RISK

- Fixed rate and floating rate risk
- Measuring fixed and floating rate risk
- Quantifying interest rate risk
- Interest rate sensitivity
- PV01s and DV01s
- Interest rate gaps
- GAP analysis
- Calculating, understanding and using Macaulay's duration
- Calculating, understanding and using modified duration and convexity
- Using duration as a hedging tool
- Interest rate liability management
 - fixing floating rate debt in the forward market
 - fixing floating rate debt in the futures market– fixing floating rate debt in the swap market
- hedging with interest rate options
- Interest rate asset management
 - forwards
 - futures
 - interest rate swaps
 - interest rate options



HEDGING TOOLS

- FRAs or futures?
- Using interest rate swaps
 - generic, 'plain vanilla' swaps
 - swap structures
 - par/par structures
 - forward starting swaps
 - amortising, accreting and roller-coaster swaps
- Caps, floors and collars
 - option pricing
 - importance of delta and gamma in hedging
- Swaptions

FRAs, FUTURES & INTEREST RATE SWAPS

- Buying and selling FRAs
- Selling and buying futures
- Paying and receiving fixed rates in the swap markets
- Perfect hedges and basis risk
- Contrasting exchange traded and OTC derivatives







MULTI-CURRENCY DEBT MANAGEMENT

- Using forward foreign exchange outrights
 - forward pricing
 - covered interest arbitrage
 - forward points
 - discounts and premia
 - hedging currency debt
 - arbitraging the credit spread
- Using FX swaps
 - hedging currency debt
 - arbitraging the credit spread
 - the carry trade
- Using currency swaps
- Using currency options

INTEREST RATE RISK MANAGEMENT

- Sources of floating rate finance
- Sources of fixed rate finance
- Contracts for differences and physical delivery

CORPORATE ASSET & LIABILITY MANAGEMENT

- Gaps
- Borrowing short and lending long
- Leverage and structured products
- Recent trends in ALM
- Yield curve analysis
- Gap analysis
- Net interest income
- Duration gaps
- Economic value of equity
- Value at risk
- Setting and monitoring tolerance limits
- Optimising income and managing risk
- Typical practices in funds transfer pricing
- Managing liquidity risk
- Likely developments in ALM

PORTFOLIO MANAGEMENT

- Investment policies
- Sensitivity to a 1% parallel shift in the curve
- PV01s & DV01s
- Analysing the portfolio

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• Estimating the modified duration of the portfolio

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- Hedging the portfolio in the swap market
- Calculating the delta vector
- Modified duration of the swap

- Stack hedging the portfolio
- Strip hedging the portfolio
- Implied yield curve views
- Stress testing the hedge
- Managing interest rate risk

MEDIUM & LONG TERM FINANCING STRATEGIES CAPITAL MARKETS - EQUITY

- ADRs and GDRs
- Shares and preference shares
- Pricing
- Multiples
- Origination
- Underwriting
- Distribution

CAPITAL MARKETS - DEBT

- Government, corporate and international bond issues
- Fixed rate issues
- pricing
- benchmarks
- AIC, YTM, IRR
- origination
- underwriting
- distribution
- Floating rate notes
- pricing
- distribution
- The term structure of interest rates



LIQUIDITY RISK MANAGEMENT

- Lessons from the Crisis
 - stress testing
 - contingency funding plans and asset market liquidity
 - off-balance sheet activity and contingent commitments
 - capital
 - supervision and market information
 - central bank facilities
- Measurement and management of liquidity risk
 - identifying, measuring and controlling liquidity risk
 - managing liquidity across business divisions
 - funding strategies
 - managing intraday liquidity
 - stress testing
 - contingency funding plans
 - liquidity cushions

DEBT MANAGEMENT

- Efficient uses of capital
- Equity finance and debt finance: advantages and disadvantages
- The importance of leverage
- The importance of capital adequacy
- Value-at-Risk





AVOIDING HEDGING PITFALLS

- Portuguese train companies and snowball swaps
- Managing financial risks
- Laying off risks with banks
- Laying off risks with customers
- Snowball interest rate swaps
- Calculating downside risks
- The view of the courts
- Legal and moral significance of hedging and trying
- Bank/customer relationships

Final thoughts on partnering with JH Consulting International



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