



# RISK MANAGEMENT, AUDIT & OPERATIONS

LEARN WITH THE LEADING  
FINANCIAL SERVICES TRAINING &  
EDUCATION PROVIDER

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# Welcome to ZISHI

Committed to unlocking success for your business, we have been empowering our clients to build **resilience through knowledge** for over 25 years.

A recognised global leader, we stand as the preferred and trusted training and education partner for a number of the world's most prestigious financial institutions.

Our cutting-edge, immersive learning experiences support the breadth of the financial industry, from some of the largest asset management firms and global trading exchanges to world-leading universities, sovereign

wealth funds, energy companies, refiners, and investment, commercial and central banks.

Spanning all levels of trading qualifications, the maze of regulatory and compliance training and financial services professional development, ZISHI's expertise is unrivalled.

Our internal faculty of leading trainer-practitioners sets us apart. Delivering solutions uniquely crafted to bridge your business's knowledge gap, our wealth of educator experience and hands-on industry insight ensures your teams receive practical, up-to-date, and contextually relevant training.

Whether one-to-one or multi-faceted group deliveries, entry level or boardroom executives, and from design through to delivery, ZISHI is uniquely placed to become your trusted training partner, developing programmes and learning pathways to meet your specific operational needs.

Enabling informed decision-making and contributing to financial stability and wealth creation, we build **resilience through knowledge** across your business.



# Risk Management, Audit & Operations

Our expertise within the Risk Management, Audit and Operations functions is without rival, regularly deploying some of the industry's most preeminent educators to help solve our clients' critical challenges.

World-leading banks rely on our cutting-edge training to ensure their risk management teams are equipped to deal with whatever challenges the markets present to them. In addition, our team of consultants support audit functions to gain new skills and knowledge prior to conducting annual audit strategy.



Whether starting out in your risk management career or a seasoned professional wanting to develop your technical expertise to new levels, our portfolio of courses will equip you with the tools and knowledge to effectively manage risks and enhance operational efficiency.

# Powerful Learning Solutions

## Blended learning for better results.

We believe in a whole-of-organisation approach to professional development training, and our blended learning approach utilises all the right tools in all the right ways.

Our multi-channel delivery options can be mixed and matched and guarantee a seamless experience through whichever methods you prefer.

### Bespoke Content Creation

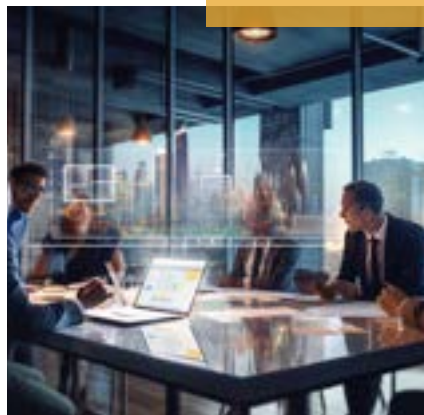
Looking for tailor-made learning solutions? We specialise in crafting personalised content that aligns seamlessly with your organisation's objectives.

### Real-World Simulator-Based Learning

Take the learning experience to the next level with immersive, hands-on experiences that bridge the gap between theory and practice.

### Curated Learning Journeys

For clients seeking comprehensive ongoing learning pathways, our digital learning team possesses the expertise and knowledge to support your long-term ambitions.



### Rapid Deployment

Need to quickly roll out bite-sized, focused learning modules? We've got you covered with swift and effective solutions.

### Digitising Existing Content

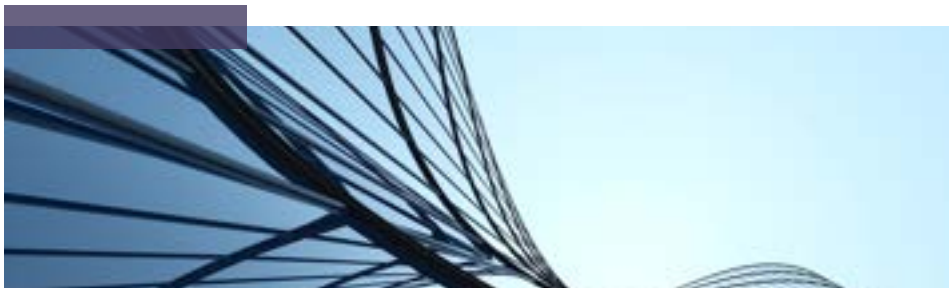
We excel at transforming your traditional learning materials into dynamic, interactive digital formats, breathing new life into your educational resources.

# Course Outlines

- 7 **Market Risk Management**
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Courses listed within this brochure are a representation of those we offer and can curate for your needs. Visit [www.thezishi.com](http://www.thezishi.com) or speak to your sales representative for further information.

Page 31 gives further information about our tailor-made training solutions.



Course outline

# Market Risk Management

Available as  
**In-house**  
**In-person**  
**Digital**  
**Blended**

# MARKET RISK MANAGEMENT

This practical course offers a comprehensive overview of managing market risk in the wake of significant financial events such as the credit crunch, Global Financial Crisis, quantitative easing, and the pandemic.

It introduces the basics of risk management, covering the identification, measurement, and management of various risks including market, credit, and operational risks.

Participants will learn about the crucial banking controls, valuation methods, and the impact of organisational culture on risk management.

The course explores advanced tools and concepts such as delta, DV01, Value at Risk (VaR), its limitations, and the introduction of Expected Shortfall.

Additionally, it delves into handling new products and derivatives within market risk frameworks, specific challenges for fund managers, and the role of back testing in VaR models. Concluding with an examination of market risk capital requirements and upcoming regulatory changes.



# MARKET RISK MANAGEMENT

## LEARNING OBJECTIVES

Understand the fundamental concepts of market risk management, including the identification, measurement, and management of market, credit, operational, and other risks, within the context of significant financial events like the Global Financial Crisis and the pandemic.

Gain proficiency in valuation techniques and the distinction between Banking Book and Trading Book, alongside grasping the importance of basic control processes in banking for effective market risk management.

Master the use of market risk tools and concepts such as delta, DV01, and Value at Risk (VaR), including their limitations and the advantages of alternative measures like Expected Shortfall.

Learn to navigate the complexities of incorporating new financial products and derivatives into market risk portfolios, understanding their impact on risk profiles and the necessary adjustments to risk measures.

Acquire insights into the unique challenges of market risk management for fund managers, including the use of benchmarks, alpha, beta, information ratios, and managing liquidity risk.

Prepare for the evolving regulatory landscape affecting market risk management, including the transition to new capital requirements under Basel III and the anticipated changes with the Fundamental Review of the Trading Book (FRTB).



## COURSE AGENDA

### THE FUNDAMENTALS

- | 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?



### THE MECHANICS OF 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

## COURSE AGENDA

- | Staffing and experience
- | The importance of systems
- | Banks versus other corporate entities – Why are they different?

### MARKET RISK MANAGEMENT TOOLS

- | 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



### UNDERSTANDING PORTFOLIO RISK TECHNIQUES

- | 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

### GETTING TO GRIPS WITH VALUE AT RISK

- | Variance-Covariance
- | Historic simulation
- | Monte-Carlo
- | Limitations of approaches
- | Handling specific risk
- | Problems with illiquid assets

## COURSE AGENDA

- | Changes in volatility and covariance assumptions
- | Why might “Expected Shortfall” be better?
- | What might the “Fundamental Review of the Trading Book” bring?

### SCENARIO & STRESS TESTS

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

### INCORPORATING NEW PRODUCTS

- | 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?



### DERIVATIVES & 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?

## COURSE AGENDA

### UTILISING DERIVATIVES IN MARKET RISK PORTFOLIOS

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

### BACK TESTING

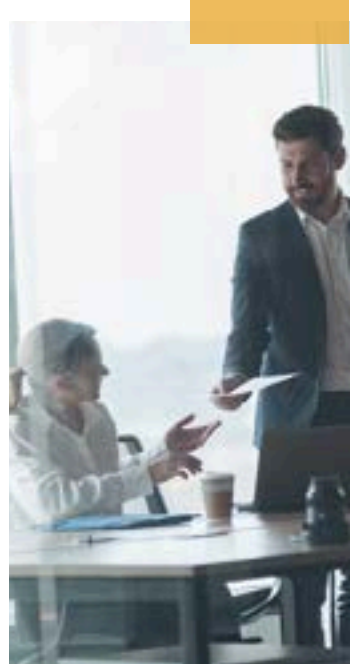
- | Explaining the sources and sinks of profit and loss from risk measures
- | Back testing process – Clean, dirty and hypothetical P&L
- | Exceptions – How many is too many or too few?
- | Model hypothesis testing

## COURSE AGENDA

- | Effects of auto correlation
- | The role of Extreme Value Theory (EVT) for tail correction

### EVOLUTION OF 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?





Course outline



# Interest Rate Risk Management



Available as  
**In-house**  
**In-person**  
**Digital**  
**Blended**

# INTEREST RATE RISK MANAGEMENT

This comprehensive delves into a myriad of crucial topics spanning interest income metrics, mark-to-market risks, the interplay between money markets and foreign exchange, central banks and monetary policy, duration gap risk management, quantitative easing (QE) and negative interest rates (NIR), interest rate swaps, the transition from IBOR rates, models for interest rate forecasting, stress test methods for treasury, funds transfer pricing (FTP), and interest rate risk in the banking book (IRRBB).

Participants will gain in-depth insights into time value of money, bond duration, convexity, optionality, and the intricacies of callable bonds, alongside understanding the impact of interest rate changes on various financial instruments and the balance sheet.

The course covers the mechanics and implications of central bank policies, duration gap analysis, and the management of economic capital. It also explores the complexities of quantitative easing, negative interest rates, the business case for using interest rate swaps, and the transition challenges from IBOR rates.



# INTEREST RATE RISK MANAGEMENT

## LEARNING OBJECTIVES

- | Understand the fundamentals of interest income metrics, including the time value of money, zero coupon curves, discount factors, bond duration, convexity, and the calculation of Basis Point Value (BPV).  
  
Gain proficiency in analysing the term structure of interest rates, understanding different yield curve shapes, credit spreads, swap spreads, and the implications of optionality and callable bonds on pre-payment risk.
- | Develop the ability to assess mark-to-market risks for income assets and funding instruments, comprehend fair value accounting principles (IFRS 9 and 13), and evaluate the impact of interest rate changes on the balance sheet and various market risk exposures.
- | Acquire a deep understanding of the interaction between money markets and foreign exchange, including the size and participants of these markets, the mechanics of repo markets, commercial paper, and the nuances of LIBOR and EURIBOR rates.
- | Master the concepts of central bank operations and monetary policy, including an overview of major central banks, the structure of central bank balance sheets, the effects of open market operations, and the impact of quantitative easing on yield curves.
- | Learn duration gap risk management techniques, including duration gap analysis, economic capital, and Economic Value of Equity (EVE) calculations, and understand how to adjust the balance sheet for different duration gap scenarios.
- | Explore the mechanics, business cases, and pricing of interest rate swaps, including the understanding of counterparty risk, credit valuation adjustment (CVA), and the distinctions between OTC markets and SEF platforms.
- | Delve into advanced interest rate risk management strategies, such as models for interest rate forecasting, stress test methods for treasury, funds transfer pricing (FTP) approaches, and managing interest rate risk in the banking book (IRRBB), with a focus on regulatory considerations and Basel III implications.

## COURSE AGENDA

### THE MECHANICS OF 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



- | 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

## COURSE AGENDA

- | 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



## FOREIGN EXCHANGE & MONEY MARKET

- | 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

## COURSE AGENDA

### UNDERSTANDING CENTRAL BANKS & MONETARY POLICIES

- | 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



### DURATION GAP 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

## COURSE AGENDA

- | 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 securitisations, 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 bail-outs
- | Intra-day liquidity risks – emergency liquidity buffers
- | Liquidity-adjusted risk measures
- | Derivatives pricing under illiquidity



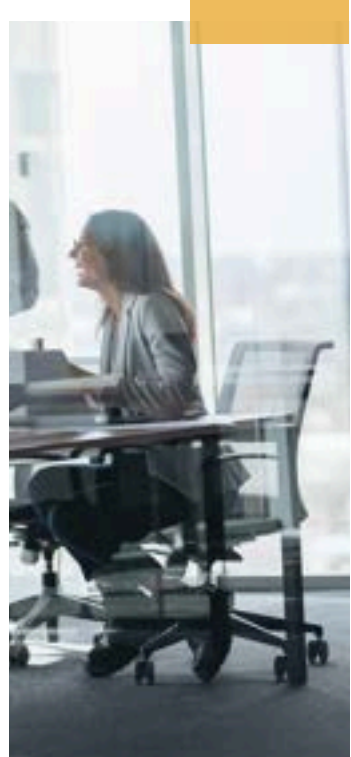
## NEGATIVE INTEREST RATES & QUANTITATIVE EASING

- | 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

## COURSE AGENDA

### THE MECHANICS OF 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
- | Collateralised OTC trades versus margin based CCP platforms
- | Netting arrangements – explanation of mechanism, close out risks



### 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

## COURSE AGENDA

- | Alternative rates that have been advocated for replacement of USD Libor
- | Development of SOFR futures - challenges

### INTEREST RATE FORECASTING MODELS

- | 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

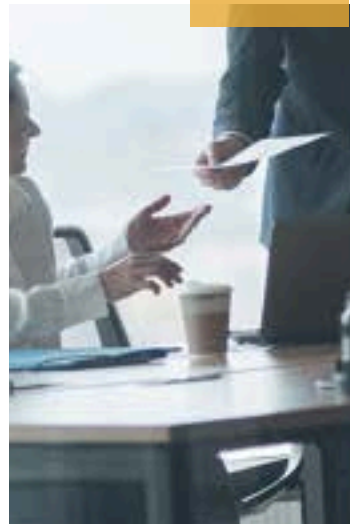


### STRESS TESTING TECHNIQUES

- | 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

## COURSE AGENDA

- | 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)



## UNDERSTANDING FUNDS TRANSFER PRICING

- | 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

## COURSE AGENDA

### GETTING TO GRIPS WITH IRRBB (INTEREST RATE RISK IN THE BANKING BOOK)

- | 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





## Course outline



# The Trade Life Cycle



Available as  
**In-house**  
**In-person**  
**Digital**  
**Blended**

# THE TRADE LIFE CYCLE

Have you wondered what happens after a securities transaction is executed? The life cycle involves all the business, operational and technological activities involved in a securities trade from execution through to settlement.

This course offers insight into the critical functional processes, referred to as the workflow of a trade. We break down the life cycle into three functional activity groups from Pre-trade to At-trade and Post-trade functionalities. The course will demonstrate how the entire process works and demystify the complexities of the chain of events that occur.



## LEARNING OBJECTIVES

- | Understand how trades are executed on exchanges and OTC markets
- | Discuss electrification in securities markets
- | Explore the transaction flow from trade execution through to settlement
- | Recognise the importance of risk management provided by clearing houses
- | Identify the operational risks in securities trading
- | Discuss post trade responsibilities and regulatory obligations
- | Analyse securities transaction costs and how to measure them



## COURSE AGENDA

### The Pre-trade phase – trading and the environment

- The genesis of a trade and idea generation
  - | Ways to execute an order and how to execute a trade
  - | Execution strategy considerations – positioning, horizons etc.
- | Pre-trade considerations and checks
  - | Legal and compliance issues – Know Your Customer (KYC) and product suitability
  - | Credit approval, risk limits and the ability to book the trade



### The At-trade phase – trade venues and trade management

- | The different trading mechanisms – exchange traded vs. over the counter (OTC)
- | MiFID II market structure – What is a multilateral trading venue?
  - | Who uses them? What functions do they perform?
  - | Regulated Markets (RM), Multilateral Trading Facility (MTF) and Organised Trading Facility (OTF)
- | Market liquidity and 'Dark Pools'
  - | What they are and how they are used
- | Electronification in the marketplace – Direct Electronic Access (DEA) – a closer look
  - | How it works and why it is needed
  - | Direct Market Access (DMA) vs. Smart Order Routing – what is the difference
- | Overview of algorithmic trading
  - | Why use algorithmic trading?
  - | Overview of the different algorithmic trading strategies



## COURSE AGENDA

### The Post-trade phase – Settlement and the ‘Straight-Through-Process’

- | The Straight-Through-Process
  - | Overview of the post-trade life cycle – step by step guide
- | Static data, trade capture and processing
  - | What is static data and its primary functions?
- | Trade confirmation, matching and settlement
  - | The trade to settlement timeline – settlement instructions and content
  - | Why do we match instructions? Why securities may fail?
  - | Delivery vs. payment (DVP) and free of payment (FOP)
- | Central clearing
  - | The role of the clearing house
  - | Portfolio compression – reducing operational risk and managing counterparty risk
    - | The netting process and how it works
- | Corporate action events overview



### The Post-trade phase – Transaction Cost Analysis (TCA)

- | Trade reporting
  - | Trade vs. transaction reporting – what the difference?
  - | Who needs to report what, when and where?

## COURSE AGENDA

- | What are transaction costs?
    - | Calculating transaction costs – explicit and implicit
    - | The sequence of events from placing the order to trade to getting the net return
    - | Where does “best execution” fit in?
  - | The three key areas of a trading strategy that influence transaction costs
    - | Turnover, liquidity and execution
- How to measure transaction costs – the estimation conundrum and how to estimate the implicit component
- | Implementation shortfall, bid/offer spread and slippage
  - | FCA’s approach to calculating slippage costs
  - | How trades are benchmarked to Arrival Price, Sweep-To-Fill, VWAP and TWAP



# In-House Training



All ZISHI courses can be customised to your unique requirements.

Whether one-to-one or multi-faceted group deliveries, entry level or boardroom executives, and from design through to delivery, ZISHI is best placed to become your trusted training partner, developing programmes and learning pathways to meet your specific operational needs.

Whatever your professional development training requirements, we have the expertise, knowledge and ability to deliver first-class results at every level, every time.

## CONTACT US

Please get in touch to discuss how our bespoke solutions already help world-leading financial services organisations meet their professional development needs and how we can do the same for yours.

Contact us today to discuss your requirements:

+44 (0)20 4551 8568  
[info@thezishi.com](mailto:info@thezishi.com)





Resilience Through Knowledge



[www.thezishi.com](http://www.thezishi.com)



[info@thezishi.com](mailto:info@thezishi.com)



+44 (0)204 551 8568



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