

Course highlights:

**An overview of model risk**

**Model governance and risk mitigation**

**Counterparty credit model risk**

**Credit value adjustment**

**Estimating inputs to credit risk models**

**Model risk in market risk modelling**

**Scenario analysis to validate models**

**Model risk in analysis of structured finance instruments**

**Estimating model risk throughout the firm**

**Practical examples in model risk management**

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# Practical approaches to managing model risk

**New York**

**3 & 4 March 2010**

**London**

**10 & 11 March 2010**

## Overview of course

In today's markets theories abound on how to build, validate and monitor your models but achieving this in reality is somewhat more elusive. Unreliable data, a lack of industry-wide model validation standards and the challenge of ensuring models function in the good times and the bad reflect just some of the demands risk managers are facing.

This two day course will look at approaches to managing model assumptions and estimating their impact on your organisation when things go wrong. The programme will also look at improving model validation techniques in order to identify and manage your model risk and best practice techniques to ensure models are robust and deal effectively with market volatility.

## Venues & accommodation

### New York

Downtown Conference Center  
157 William Street, New York, NY 10038

Tel— 1-212-618-6997

Web— [www.downtownmeetings.com](http://www.downtownmeetings.com)

### London

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## Learning outcomes

- Assess statistical tools for risk model validation
- Explore a wide range of case studies in model risk management
- Identify the main drivers of counterparty risk and how it impacts on your models
- Investigate controls available to monitor risks throughout the model life cycle
- Examine the impact of different modelling assumptions

(Course content may vary between venues. Please check programme for specific content)

## Who should attend?

This course has been designed for people working in banks, investments firms, consultancies and regulatory bodies with the following job titles:

**Risk managers/Internal auditors/  
Risk consultants/Model validators/  
Model developers/Quantitative analysts/  
Market risk managers/Valuation  
controllers/Risk controllers/Financial  
engineers/Accountants/Examiners/  
Supervisors**

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### Course tutors:

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#### New York

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Michel Araten,  
Managing Director,  
JP MORGAN CHASE

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Victor Dvortsov,  
Director,  
UBS INVESTMENT BANK

---

Martin Goldberg,  
Senior Director, Model Quality Review,  
STANDARD AND POORS

---

Alex Levin,  
Director,  
ROYAL BANK OF CANADA

---

Perry Mehta,  
Senior Director/Head, Strategic  
Initiatives & Research,  
MOODY'S ANALYTICS

---

Mikhail Oet,  
Quantitative Analyst,  
FEDERAL RESERVE BANK OF CLEVELAND

---

Ricardo Rivera,  
Supervising Risk Management Specialist,  
NEW YORK STATE BANKING DEPARTMENT

---

Evan Sekeris,  
Assistant Vice President,  
FEDERAL RESERVE BANK OF RICHMOND

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#### London

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Peter Dobranszky,  
Model Validation Quant,  
FINALYSE/BNP PARIBAS FORTIS

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Tanguy Dehapiot,  
Head of Valuation, Market and  
Liquidity Risk,  
BNP PARIBAS

---

Massimo Morini,  
Head of Credit Models and Coordinator  
of Model Research,  
BANCA IMI, INTESA SAN PAOLO BANK

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Julian Phillips,  
Global Head of Quantitative Market Risk,  
DEUTSCHE BANK

---

Wolfgang Putschögl,  
Quantitative Analyst,  
UNICREDIT BANK AUSTRIA AG

---

Carsten Wehn,  
Head of Market Risk Control,  
DEKABANK

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Peter Whitehead,  
Group Valuation Oversight,  
DEUTSCHE BANK

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Marlene Wickenhauser,  
Market Risk Manager,  
UNICREDIT BANK AUSTRIA

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"Attention to model risk, in all its facets, has risen dramatically in recent past. Models are still useful and irreplaceable, so understanding model risk is a must for anybody whose daily work touches upon models of any kind."

**Carsten Wehn,**  
Head of Market Risk Control, DEKABANK



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## Coming up in February - March 2010

Risk management for equity-based guarantees  
London, 1 & 2 February 2010  
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### Robust modelling for retail lending

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Prague, 8 & 9 February 2010  
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### Clearing and settling of OTC derivatives

London, 5 February 2010  
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### Managing concentration risk

London, 1 & 2 February 2010  
New York, 4 & 5 February 2010  
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### Economic capital modelling

New York, 16 & 17 February 2010  
London, 23 & 24 February 2010  
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New York Wednesday 3 March 2010

Day

1



0900	Registration and coffee
0930	<p><b>An overview of model risk</b></p> <ul style="list-style-type: none"> <li>- What went wrong?</li> <li>- Sources of model risk</li> <li>- Managing model risk</li> <li>- Ensuring models remain robust in the good times and the bad</li> <li>- Valuation control</li> <li>- Model risk measurement</li> </ul> <p>Tutor <b>Evan Sekeris, Assistant Vice President, FEDERAL RESERVE BANK OF RICHMOND</b></p>
1100	Morning break
1130	<p><b>Regulatory requirements for model risk management</b></p> <ul style="list-style-type: none"> <li>- Materiality or why do supervisors emphasize model risk?</li> <li>- Financial institutions inside and out (endogenous and exogenous models)</li> <li>- What are the risks and how to cope with them <ul style="list-style-type: none"> <li>- Endogenous models</li> </ul> </li> <li>- Credit, market, internal capital, liquidity <ul style="list-style-type: none"> <li>- Exogenous models</li> </ul> </li> <li>- Feedbacks / amplifications, connectivity, concentrations, contagion</li> <li>- Model risk management from a regulatory perspective</li> </ul> <p>Tutor <b>Mikhail Oet, Quantitative Analyst, FEDERAL RESERVE BANK OF CLEVELAND</b></p>

1300	Lunch
1400	<p><b>Counterparty credit model risk</b></p> <ul style="list-style-type: none"> <li>- What do you model?</li> <li>- Identifying the main drivers of credit risk</li> <li>- Valuation of counterparties exposure</li> <li>- Challenges in modelling default correlations and issues in aggregation</li> <li>- Recovery issues</li> </ul> <p>Tutor <b>Alex Levin, Director, ROYAL BANK OF CANADA</b></p>
1530	Afternoon break
1600	<p><b>Estimating Inputs to credit risk models</b></p> <ul style="list-style-type: none"> <li>- PD, LGD, EAD</li> <li>- Estimation and modelling challenges</li> <li>- Expert judgment vs. empirical data</li> <li>- Development of robust data collection systems</li> </ul> <p>Tutor <b>Michel Araten, Managing Director, JP MORGAN CHASE</b></p>
1730	End of the day

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New York Thursday 4 March 2010

Day

2



0900	Registration and coffee
0930	<p><b>Model risk in market risk modelling</b></p> <ul style="list-style-type: none"> <li>- Building blocks of market risk models</li> <li>- Assessing the individual building blocks' adequacy</li> <li>- Backtesting and ex-post analysis</li> <li>- Statistical tools for risk model validation</li> </ul> <p>Tutor <b>Ricardo Rivera, Supervising Risk Management Specialist, NEW YORK STATE BANKING DEPARTMENT</b></p>
1100	Morning break
1130	<p><b>Scenario analysis to validate models</b></p> <ul style="list-style-type: none"> <li>- Using the appropriate scenarios for validating various types of models</li> <li>- Validation scenarios as distinct from model scenarios or Monte Carlo</li> <li>- Benchmarking using alternative models</li> <li>- How do you correctly conduct scenario analysis?</li> <li>- What are its limitations?</li> </ul> <p>Tutor <b>Martin Goldberg, Senior Director, Model Quality Review, STANDARD AND POORS</b></p>
1300	Lunch

1400	<p><b>Stress testing to assess model risk in credit rating models</b></p> <ul style="list-style-type: none"> <li>- How confident can one be about the scoring and PD outcomes of credit models?</li> <li>- Model risk as sensitivity of model outcomes to changes in business and economic environment</li> <li>- Assessing this sensitivity via stress testing</li> <li>- Challenges with stress testing, suggested approaches, illustrative results</li> </ul> <p>Tutor <b>Perry Mehta, Senior Director, Head of Strategic Initiatives &amp; Research, MOODY'S ANALYTICS</b></p>
1530	Afternoon break
1600	<p><b>Model governance and risk mitigation</b></p> <ul style="list-style-type: none"> <li>- Components of model governance</li> <li>- Beyond model validation: is theoretical value fair?</li> <li>- Model uncertainties and fair value adjustments</li> <li>- What do accounting standards have to say about model reserves?</li> <li>- Valuation uncertainty, fair value adjustments and model risk</li> <li>- The place of model risk in ERM hierarchy</li> <li>- Model risk control and monitoring</li> </ul> <p>Tutor <b>Victor Dvortsov, Director, UBS INVESTMENT BANK</b></p>
1730	End of the course

London Wednesday 10 March 2010

Day

1



0830 Registration and coffee

0900 **An overview of model risk**

- What went wrong?
- Sources of model risk
- Managing model risk
- Ensuring models remain robust in the good times and the bad
- Valuation control
- Model risk measurement

Tutor **Peter Whitehead, Group Valuation Oversight, DEUTSCHE BANK**

1030 Morning break

1100 **Model governance and risk mitigation**

- Valuation control: new expectations from regulators
- Judgmental and operational aspects in models
- Controls available to monitor risks throughout the model life cycle: model approvals and model reviews
- Valuation challenges with modelling uncertainties
- Role of reserves in model risk mitigation
- Model reserve policies
- Valuation and IFRS 7 requirements, reserves under accounting standards

Tutor **Tanguy Dehapiot, Head of Valuation, Market and Liquidity Risk, BNP PARIBAS**

1230 Lunch

1330

**Counterparty credit model risk**

- Introduction to an internal model method
- Identifying the main drivers of counterparty risk
- Proper scenario generation and validation
- Back testing of counterparty exposures
- Aggregation challenges
- Recovery issues
- Role of exposures for capital requirements and internal control

Tutor **Marlene Wickenhauser, Market Risk Manager, UNICREDIT BANK AUSTRIA**

1500 Afternoon break

1530

**Credit value adjustment**

- Determining recovery rates and default probabilities
- Managing models
- Wrong way risk
- Main drivers of credit value
- Consistency with markets

Tutor **Wolfgang Putschögl, Quantitative Analyst, UNICREDIT BANK AUSTRIA AG**

1700 End of the day

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London Thursday 11 March 2010

Day

2



0830 Registration and coffee

0900 **Model risk in market risk modelling**

- Building blocks for a market risk model
  - Identifying the building blocks for the market risk model
  - Impact of different modelling assumptions
  - How does model risk in a risk model affect the risk management process?
- Assessing the model risk of a market risk model
  - Tools for assessing the adequacy of the individual building blocks
  - Introduction and comparison of different backtesting procedures
  - Regulatory requirements for backtesting market risk models
- Approaches to take into account model risk for a market risk model
  - Application in practise, regular validation processes and its potential effects
  - Incorporation of backtesting results in market risk management

Tutor **Carsten Wehn, Head of Market Risk Control, DEKABANK**

1030 Morning break

1100 **Estimating model risk throughout the firm**

- Deutsche Bank approach to model risk
- Understanding the components
- Practical estimation
- Comparing model risk across the firm

Tutor **Julian Phillips, Global Head of Quantitative Market Risk, DEUTSCHE BANK**

1230 Lunch

1330

**Scenario analysis to validate models**

- Benchmarking using alternative models
- Model implications and limitations - where models may go wrong
- Model selection and calibration with intuition
- Stress testing and backtesting using scenario analysis
- Parameter sensitivity, limits and model reserves
- How do we filter historical returns to create future scenarios?
- Dynamics, the link between model, market and counterparty risks

Tutor **Peter Dobranszky, Model Validation Quant, FINALYSE/BNP PARIBAS FORTIS**

1500 Afternoon break

1530

**Practical examples in model risk management**

- Detecting the real stress test: case study on correlation in VaR and counterparty risk
- Using and comparing different models: case study in credit risk modelling
- Model risk in hedging: case study on local and stochastic volatility models for interest rates
- Model validation when market data are missing: case study on mapping for structured finance
- Model risk in statistical arbitrage: case study on equity and capital structure arbitrage

Tutor **Massimo Morini, Head of Credit Models and Coordinator of Model Research, BANCA IMI, INTESA SAN PAOLO BANK**

1700 End of the course

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“The credit crisis has been partly blamed upon the use of complex pricing models, thereby placing model risk and its management firmly in the limelight.”

**Peter Whitehead, Group Valuation  
Oversight, DEUTSCHE BANK**