





ABRAHAM **IZQUIERDO** Scotiabank Mexico



JOHN HULL Toronto

University



ROHDE

**BBVA Group** 

JORGE **DEL VALLE** Electronic Liquidity Group



**DAN ROSEN** 

R2 Financial

Technologies

GREGORY Solum Financial



CRUZ

**ERICK** 

MORALES

KPMG

JON Partners LLP

MARCELO

Morgan Stanley



GARRY

**KASPAROV** 

MARCO **AVELLANEDA** NYU and **Finance Concepts** 



LLC



GROCIO

SOLDEVILLA

Monex Financial

Group

MARCOS LÓPEZ **DE PRADO** Hess Energy Trading Company



**HELEODORO** 

RUIZ

Banorte - IXE

**OSCAR SIERRA** 



**JESÚS GUZMÁN** 

KPMG

JOSÉ

ALATORRE

**Barclays** Capital NY

SURESH

Research S.L.

**ROHAN RAO** Georgia Tech

**IZZY NELKEN** 

Super Computer

Consulting



SANKARAN IFC - Access to Finance



**Risk Management & Trading** Conference

3-day program with the most acknowledged Practitioners in Risk Management & Trading worldwide.

- The most important Conference in LatAm with the participation of Traders, Fund Managers, Treasurers, Quants • and Risk Managers.
- Learn from the big Practitioners the forefront techniques in Risk Management Modeling, Trading Strategies and Fund Managing.

				WO	RKSH	OPS				
Risk	Counterparty	Operatio	onal Risk	Managing	Derivatives:	Fixed Income: Trading	Solvency		Comp	utational
Aggregation DAN ROSEN CEO R2 Financial Technologies	Risk and CVA JON GREGORY Solum Financial Partners LLP	SANTIAGO CARRILLO QRR	MARCELO G. CRUZ Global Head Morgan Stanley	a Irading Derivatives Desk JORGE DEL VALLE Hedge Fund Manager Electronic Liquidity Group	Pricing & Risk Management JOHN HULL Toronto University	& Arbitraging the Yield Curve IZZY NELKEN Chairman and Founder Super Computer Consulting	CRISTINA ROHDE Strategic Vision of the Insurance and Pension Global Unit BBVA Group	JESÚS GUZMÁN KPMG	Fina Qi OSCAR SIERRA	Ince for Uants ROHAN RAO Georgia Institute of Technology (Georgia Tech)



Global	Trading	Man VS	Basel II	and III.	Hedge Fi	u <b>nds 360</b>	Liquidity	Market	Building and	Advanced
Investment	Commodity	Machine	Developr	nent and	(Building, imp	lementing and	Risk	Risk	Implementing	Portfolio
Performance	Derivatives	GARRY KASPAROV	Impleme	entation	managing a	Hedge Fund)	SURESH	GROCIO	Algorithms and	Management
Standards (GIPS®) ERICK MORALES KPMG	JOSÉ ALATORRE Commodities Structuring Americas Barclays Capital NY		HELEODORO RUIZ Global Risk Manager Banorte - IXE	ABRAHAM IZQUIERDO Credit, Counterparty & Liquidity Risk Director Scotiabank Mexico	MARCO AVELLANEDA Courant Institute of Mathematical Sciences, NYU and Senior Partner, Finance Concepts LLC.	MARCOS LÓPEZ DE PRADO Head of Quantitative Trading Hess Energy Trading Company	SANKARAN Principal Operations Officer IFC – Access to Finance	Global Risk Manager MONEX	High Frequency Trading Strategies Head of Quantitative Trading Hess Energy Trading Company	MARCO AVELLANEDA Courant Institute of Mathematical Sciences, NYU and Senior Partner, Finance Concepts LLC.



www.riskmathics.info

**RiskMathics**, aware that the most important factors to develop and consolidate the Financial Markets are training and promoting a high level financial culture, will host for the second time in Mexico: "The Risk Management & Trading Conference", which will have the participation of leading authorities who have key roles in the global financial industry.

#### **Objectives**

One of the primary objectives of this Conference is to provide through Workshops, Presentations and Round Table Discussions the latest advances in Risk Management, Trading, Technology and Market Regulation, and to transmit all this knowledge by local and international authorities in the field.

Some other objectives of this Conference are to explain and show in detail the current situation and where the Global Financial Industry is heading, advances in Pricing, and how intermediaries and direct or indirect participants of markets need to be prepared to remain competitive in spite of the new challenges and paradigms that are present nowadays.

#### Who should attend?

The Risk Management & Trading Conference is aim at Practitioners directly or indirectly involved in areas of trading, risk management, regulation, technology, and research & development of Stock Exchanges, Brokers, Brokerage Houses, Banks, Institutional Investors (Pension Funds, Mutual Funds, Insurance Companies, etc.), Hedge Funds, and Independent Investors.

#### It will be of particular relevance to:

- Chief Executive Officers of financial institutions and intermediaries
- Traders
- Risk Managers
- Consultants
- Regulators
- · Technology managers and staff
- Analysts, Developers and Vendors of Front Office Trading Software
- Quants
- Scholars
- In general, any Practitioner involved in Trading, Risk and/or Finance



			AGEN	NDA D	AY 2_			
			FRID	AY, JUNE 14, 2	2013			
8:00 AM - 9:30 AM				BREAKFAST (	CONFERENCE			
			Using Str	ategic Thinking	in Business an	d Politics		
	ROOM 1	ROOM 2	ROOM 3	ROOM 4	ROOM 5	ROOM 6	ROOM 7	ROOM 8
10:00 AM - 12:00 PM	WORKSHOP Hedge Funds 360 (PART I) (Building, implementing and managing a Hedge Fund) MARCO AVELLANEDA Courant Institute of Mathematical Sciences, NYU and Senior Pather, Finance Concepts LLC.	WORKSHOP Building and Implementing Algorithms and High Frequency Trading Strategies MARCOS LÓPEZ DE PRADO Head of Quantitative Trading Hess Energy Trading Company	WORKSHOP Computational Finance for Quants (PART I) OSCAR SIERRA	WORKSHOP Counterparty Risk and CVA JON GREGORY Solum Financial Partners LLP	WORKSHOP Operational Risk (PART I) SANTIAGO CARRILLO QRR	WORKSHOP Managing a Trading Derivatives Desk JORGE DEL VALLE Hedge Fund Manager Electronic Liquidity Group	WORKSHOP Liquidity Risk SURESH SANKARAN Principal Operations Officer IFC – Access to Finance	WORKSHOP Market Risk GROCIO SOLDEVILLA Global Risk Manager MONEX
12:00 AM - 12:30 PM				E	BREAK			
12:30 PM - 2:30 PM	Hedge Funds 360 (PARTE I) (Building, implementing and managing a Hedge Fund)	Building and Implementing Algorithms and High Frequency Trading Strategies	Computational Finance for Quants (PARTE I)	Counterparty Risk and CVA	Operational Risk (PARTE I)	Managing a Trading Derivatives Desk	Liquidity Risk	Market Risk
2:30 PM - 4:00 PM				L	UNCH			
4:00 PM - 5:00 PM	Hedge Funds 360 (PARTE I)	Building and Implementing Algorithms and High Frequency Trading	WORKSHOP COMPUTATIONAL FINANCE FOR QUANTS (PART II)	Counterparty Risk and CVA	Operational Risk (PARTE I)	Managing a Trading Derivatives Desk	Liquidity Risk	Market Risk
	WORKSHOP	Strategies	ROHAN RAO PhD in Finance		WORKSHOP			
5:00 PM - 6:00 PM	Fixed Income: Trading & Arbitraging The Yield Curve IZZY NELKEN	•	Georgia Institute of Technology (Georgia Tech)		Trading Commodity Derivatives JOSÉ ALATORRE Commodities			
6:00 PM - 7:00 PM	Chairman and Founder Super Computer Consulting	WORKSHOP SOLVENCY II: Model Validation and ARSI Process ARSI JESÚS GUZMÁN KPMG		WORKSHOP Global Investment Performance Standards (GIPS®) ERICK MORALES KPMG	Barclays Capital NY	WORKSHOP Basel II and III (PART II) Development and Implementation ABRAHAM IZQUIERDO Credit. Counterparty	ROUND TABLE Development and Significance of the Hedge Funds in the Financial System (Breaking down myths and	ROUND TABLE New ideas for the Markets and Clearing Houses infrastructure (BOVESPA, GBMV, ROFEX,
7:00 PM - 8:00 PM	9	9	Q			& Liquidity Risk Manager Scotiabank	parauigins)	Cille, NASDAQ)
8:00 PM - 8:30 PM				[	BREAK			
8:30 PM - 10:00 PM	Fixed Income: Trading & Arbitraging The Yield Curve	SOLVENCY II: Model Validation and ARSI Process ARSI	COMPUTATIONAL FINANCE FOR QUANTS (PART II)	Global Investment Performance Standards (GIPS®)	Trading Commodity Derivatives	Basel II and III (PART II) Development and Implementation	TH MER A QU, BECAM AND A	E UNIQUE RGING OF ANT WHO E TRADER
							WHO BE QUA	TRADER CAME A











cutting through complexity<sup>™</sup>





Dan Rosen brings a diverse combination of entrepreneurial and academic interests and skills to R<sup>2</sup> Financial Technologies and its clients. He co-founded R<sup>2</sup> after spending 10 years at Algorithmics Inc. in a variety of senior management roles, including strategy and business development, research and financial engineering, and product marketing. He is also an adjunct professor at the University of Toronto's Masters Program in Mathematical Finance. In 2010, Dan was inducted Fellow of the Fields Institute for Research in Mathematical Sciences for his "outstanding contributions to the Fields Institute, its programs, and to the Canadian mathematical community".

Dan advises and lectures extensively around the world on financial engineering, enterprise risk and capital management, credit risk and market risk. He is the author of books and chapters on risk management, notably two chapters of the Professional Risk Manager's Handbook. Among his many industry advisory roles, Dan sits on the Advisory Board and Educational and Credit Risk Steering Committees of the International Association of Financial Engineers (IAFE), is a founder and former regional director of the Professional Risk Management International Association (PRMIA), and a member of the Oliver Wyman Institute. He is also a founder of RiskLab, an international network of research centers in Financial Engineering and Risk Management. Dan holds a Ph.D. in Chemical Engineering from the University of Toronto.



### REQUIREMENTS

- Medium to advanced knowledge of the financial markets, derivatives and structured products
- Participants should bring a laptop with Excel

Dr. Jon Gregory is a partner at Solum Financial Partners LLP and specializes in counterparty risk and CVA related consulting and advisory projects. He has worked on many aspects of credit risk in his career, being previously with Barclays Capital, BNP Paribas and Citigroup. He is author of the book "Counterparty Credit Risk: The Next Challenge for the Global Financial Markets" published by Wiley Finance in December 2009, now in its second edition.

#### Outline:

- 1. Introduction
- 1.1. A history of counterparty risk and CVA
- 1.2. The OTC derivatives market

Dr. Jon Gregory is a consultant specializing in counterparty risk and credit derivatives. He started his career in Salomon Brothers (now Citigroup). From 1997 to 2005, he worked in BNP Paribas, initially developing the framework for the pricing and management of counterparty risk for the fixed income division and later being part of the rapid growth of the credit derivatives business. From 2005 to 2008, he was Global Head of Credit Analytics at Barclays Capital based in London. He has published many papers in the area of credit risk, recently looking at some of the complex counterparty risk issues in relation to the credit crisis. In 2001, he was coauthor of the book "Credit: The Complete Guide to Pricing, Hedging and Risk Management", short-listed for the Kulp-Wright Book Award for the most significant text in the field of risk management and insurance.

Jon holds a PhD from Cambridge University.

 Credit value adjustment (CVA) 1.4. Regulation

- 2. Credit exposure
- 2.1. Credit limits
- 2.2. Defining credit exposure
- 2.3. Expected exposure (EE), potential future exposure (PFE) and expected positive exposure (EPE)
- 2.4. Typical exposure profiles
- 2.5. Mitigating credit exposure

a. Example: examples of EE, PFE, EPE and the impact of netting and collateral

- 3. Methodology for simulating exposure
- 3.1. Simple approaches
- 3.2. Overview of simulation methodology
- 3.3. Aggregation and the impact of netting
- 3.4. Incremental exposure
- 3.5. Marginal exposure

3.6. The impact of collateral

a. Example: quantifying the impact of netting on credit exposure

- 4. Default and credit spreads
- 4.1. Defining default probability
- 4.2. Historical data
- 4.3. Market-implied default probabilities
- 4.4. Mapping methods
- 4.5. Credit spreads
- 4.6. Recovery rates

a. Example: calculating default probability from CDS quotes

- 5. Credit value adjustment (CVA)
- 5.1. The role of CVA
- 5.2. Example the CVA of a swap
- 5.3. CVA formulas
- 5.4. CVA and risk neutrality
- 5.5. Examples
- 5.6. Incremental and marginal CVA
  - a. Example: computing CVA using approximate and more accurate methods. Computing incremental CVA
- 6. Counterparty risk capital requirements
- 6.1. Impact of counterparty risk at the portfolio level
- 6.2. The alpha factor and EEPE
- 6.3. Modifications to Basel II
- 6.4. Basel III and CVA VaR
- 6.5. Central counterparties

a. Example: computing the alpha factor for various difference credit portfolios

- Wrong-way risk
- 7.1. Examples and empirical evidence
- 7.2. Portfolio wrong-way risk

- 7.3. Trade-level wrong-way risk
- 7.4. The impact of collateral
  - a. Example: simple wrong-way risk model and simple CDS counterparty risk calculation
- 8. Debt Value Adjustment (DVA)
- 8.1. CVA for collateralized positions
- 8.2. Bilateral CVA and DVA
- 8.3. How to monetize DVA
- 8.4. Correlation and closeout assumptions
- 8.5. Funding value adjustment a. Example: computing CVA in the presence of netting and collateral and computing DVA
- 9. Funding and valuation
- 9.1. Rationale
- 9.2. OIS discounting
- 9.3. Funding value adjustment (FVA)
- 9.4. Optimization of CVA, DVA, funding and regulatory capital
  - a. Example: calculation of FVA (LVA)

#### 10. Managing CVA

- 10.1. Analyzing the role of a CVA desk
- 10.2. Dynamic hedging and CVA Greeks
- 10.3. Cross gamma
- 10.4. Hedging and DVA
- 10.5. Hedging in practice

#### 11. Central Counterparties

- 11.1. Multilateral netting
- 11.2. The trading mechanisms through a CCP
- 11.3. Marginalization
- 11.4. Relevant inquiries to a CCP 11.5. Capital charges of a CCP



#### SANTIAGO CARRILLO / Manager / Quantitative Risk Research S.L.

#### Objective

Present the forefront tools that are used worldwide in the Operational Risk field and to foster their implementation locally.

#### Who should attend?

Operational Risk... "A Global Approach" is intended to all the personnel linked to the Risk Management area of any financial institution that required developing and implementing reliable measures and controls of operational risk.

Santiago Carrillo holds a PhD in Science from the University Pierre et Marie Curie of Paris and by the Complutense University (sobresaliente cum laude).

Currently he is Director of RiskLab-Madrid, an I+D+i group of the Universidad Autónoma de Madrid. He is also Partner and Manager of Quantitative Risk Research S.L. (www.grr.es).

Santiago has an extensive experience in the development of advanced solutions in market and credit risk; specifically, he has been a consultant for various financial institutions throughout the world on Operational Risk.

#### Outline:

- 1. What is the operational risk?
- 1.1. Initial approach to operational risk
- 1.2. Databases of operational risk
- 1.3. Basel II and Basel III definition
- 1.4. Operational risk and other risks

2. A framework for the treatment of the operational risk

- 2.1. Business lines and risk types
- 2.2. Severity and frequency
- 2.3. Risk classification
- 3. Internal databases of operational risk
- 3.1. Internal databases design 3.2. Its usefulness for management
- 4. Approaches and methodologies

- 6. Economic capital allocation
- 6.1. The capital allocation as a management element
- 6.2. The Euler method
- 7. Qualitative Approaches
- 7.1. Qualitative Adjustments
- 7.2. Scorecard Approach
- 8. External databases
- 8.1. What is called Basel II and what changes does Basel III incorporate?
- 8.2. What consortiums to turn to?
- 8.3. The thresholds role
- 8.4. External data scale: necessity and procedures
- 8.5. Bayesian Simulations
- 8.6. Stress testing and back testing

12. Risk Indicators

- 12.1. Operational risk indicators
- KRIs and KRDs 12.2.
- Aggregation of indicators and alarm levels 12.3.
- How to approach a KRI's project 12.4.

#### 13. Organizational aspects

- 13.1. The senior management role
- The importance of an operational risk management 13.2.

14.3. A severity frequency adjustment demo in practice with

13.3. Other actors

14.1. The IMA model

14.2. Supervision approaches

14. Workshops

4.1. Top-down models and bottom-up models

4.2. Different approaches: risk indicators, causal nets and actuarial models

4.3. Expected loss and unexpected loss

5. Basel II and III

5.1. The three pillars

5.2. Basic model (critical analysis)

5.3. Standard model and standard alternative model (critical analysis)

5.4. A useful model for training purposes: the IMA model 5.5. Loss distribution approach: basic concepts 5.6. Critique of the use of the Pareto distribution

9. Operational risk prevention 9.1. Control methods 9.2. Use of insurance

10. Practical approach for mapping out risks

10.1. Process analysis

10.2. Risk events

10.3. Risk maps and their classification

11. Scorecard approach in practice

11.1. A concrete example

- 11.2. Building an operation risk Scoring
- 11.3. Factors affecting
- 11.4. Project perimeter of a successful Scorecard

OpVision 14.4. A legal risk model a. Defining legal risk b. The legal risk costs c. Toward a legal rating?



## PART II. Advanced Models and **Innovations in Oprisk**

MARCELO G. CRUZ / Global Head of Operational Risk Analytics / Morgan Stanley

Marcelo Cruz is the Editor-in-Chief of The Journal of Operational Risk and adjunct professor at the New York University. He is also the Global Head of Operational Risk Analytics at Morgan Stanley. Previously, he was an associate Partner at McKinsey & Co, Chief Risk Officer of Aviva PLC, and Global Head of Operational Risk at Lehman Brothers. Marcelo was the Managing Director and Founder of RiskMaths, a boutique consultancy focused on risk management and strategy.

Marcelo also worked on UBS AG, the Swiss bank, for 3 years as Head of Operational Risk having worked in London and New York. Before UBS he also worked as a Chief Economist/ Strategist for an investment bank and as a derivatives trader for JP Morgan where he was in charge of structuring and trading OTC products.

#### Outline:

#### **REGULATORY FRAMEWORK EVOLUTION – CATCHING UP WITH THE BANKS**

#### 1. Operational Risk Database

- 1.1. Obstacles in the operational risk losses recollection
- 1.2. Classification of operational losses: Internal Vs Regulatory
- 1.3. Importance of key risk indicators
- 1.4. Developing scenario analysis and stress testing
- 1.5. How to develop and make more efficient the self-assessment in risk control?
- 1.6. How could external data be efficiently used?
- 2. Quantitative methods for measuring and managing Operational Risk
- 2.1. Developing an approved VaR framework for measuring operational risk

Marcelo Cruz is recognized worldwide in the financial industry as a leader in operational risk and one of the top names in risk management. He is a member of the board of many publications and industry associations. He is a sought-after speaker in many seminars and conferences in several countries. He wrote the first academic article on operational risk in 1998 and has published many articles on the subject since then. He wrote the best seller book on operational risk "Modeling, Measuring and Hedging Operational Risk", Wiley 2002. He wrote/ edited other books in risk management. He also participates in other books with other top names in risk management. He was a member of the Industry Technical Working Group that helped to develop the new Basel Accord. He was also a Trustee of the Board of GARP and currently sits on the Research Committee of PRMIA.

He holds a PhD in Mathematics from the Imperial College in London, a M.Sc. in Financial Mathematics, an MBA and a B.Sc. in Economics.

- 2.2. Using all the elements and data to measure Operational Risk
- 2.3. Building causal models: how these models are fundamental for an efficient operational risk framework?
- 2.4. Examples with real data
- 3. Hedging Operational Risk
- 3.1. Which are the current options to hedge Operational Risk?
- 3.2. Operational Risk Derivatives: When and is it possible to think operating them some day and/or listing them in Markets?

REQUIREMENTS

Products

with Excel

Basic knowledge of Derivatives

Participants should bring a laptop

3.3. Developing an Operational Risk hedge system for your institution using the current options



#### JORGE DEL VALLE / Hedge Fund Manager / Electronic Liquidity Group (ELG)

With 15 years of experience in the financial industry, Jorge del Valle is currently Hedge Fund Manager in Electronic Liquidity Group, introducing broker of listed derivatives. Until December 2011 he was Head of the Equity Derivatives Trading Desk in BBVA Bancomer, which he led for 5 years.

Previously, Jorge del Valle was Head of Derivatives in the Brokerage House Monex, where he was responsible of the Derivatives trading either for customers transactions and for proprietary transactions of the Brokerage House in the negotiation of OTC Derivatives (Forwards and Options on Foreign Currency, Rates and the Mexican IPC) and of its hedging (Delta-Hedge) in listed markets (MexDer and CME). He also was in charge of the Front Office and was the Quantitative Management Director of Santander Financial Group, designing systems to support the decision-making of Trading in the investment department of the Investment Funds (fixed income and equities) and the Pension Fund (Siefore). Jorge del Valle was also Head of Risk Management in Dresdner Bank Mexico.

He holds a Ms. in Science from the Imperial College of Science and Technology University of London and a BC.S. in Electronic Engineering from the Universidad Nacional Autónoma de México.

#### **Objective:**

Provide the participants with the relevant knowledge to implement, operate and manage a derivatives trading desk including linear and volatility instruments; as well as their hedging. The course will address relevant aspects of the operation of the "Buy side" (e.g. Asset Management, investment funds and pension funds) as well as the "Sell side" (e.g. risk

#### Outline:

#### Module I: Delta 1

- 1. Forwards y Futuros
- 1.1. General concepts, operative and valuation differences among both instruments, trading in the OTC Market and Listed Markets, ISDA contracts, Clearinghouses. Credit, Liquidity and Market Risk
- 1.2. Valuation Models. Equity forwards formulas (equities and indices), FX and Interest Rates
- 1.3. Fund rates considerations, dividends treatment, and corporate actions
- 1.4. Considerations on the market liquidity conditions when trading forwards and futures
- 1.5. Hedging forwards and futures. In cash markets; in derivatives markets; with correlated assets: baskets, ETFs. Base risk management. Lineal derivatives hedging analysis with instruments of various currencies
- 1.6. Delta risks, base risk, foreign exchange risks and interest rate risks
- 1.7. Arbitrages, spread operations
- 1.8. Building spreadsheets to valuate forwards and futures

#### 2. Swaps

- 2.1. Equity Swaps. Definitions and characteristics; hedging and valuation
- 2.2. Interest Rates Swaps (IRS). Definitions and characteristics
- 2.3. Cross Currency Swaps
- 2.4. IRS markets, valuation, rate curves and bootstrapping, risks and hedging the IRS
- 2.5. Transformation of portfolios from fixed rates to variable rates

3. Systems

The workshop will be held with a practical approach taking into account the elements of the theory that are required for the operation and risk management of a derivatives business from the Front Office (operation, risks and sales) perspective.

#### Who should attend?

- Traders
- · Fund Managers of investment funds and pension funds
- Investment consultants
- Risk managers
- · Areas of structuring and derivatives sales
- Brokers

3.1. Front Office system requirements and "standard" configurations for handling a derivatives book

#### 4. Risk Management

4.1. General aspects for the measurement and management of risks of a Delta 1 bookde Delta 1



#### Module II: Options

- 1. Forwards and Futures (Review)
- 1.1. Forwards and Futures application in the hedging of options risks
- 2. Options
- 2.1. Vanilla Options. General Concepts. Trading Options in listed markets and OTC markets. Options settlement, credit lines, credit lines consumption when trading options, aspects of the contracts
- 2.2. Options valuation. Fundamentals, assumptions of the models and its deductions a.a. Binomial Model
  - b.b. Black-Scholes Model
- 2.3. Mathematics vs. Markets
- 2.4. Funding rates and investment rates in the options valuation
- 2.5. Dividends treatment for the Equity options case
- 2.6. Market liquidity issues when trading options. How do pricing and hedging affect?
- 2.7. Volatility
  - a. Historic Volatility (significance and calculation)
  - b. Implicit Volatility (significance, methods for obtaining it)
  - c. Relationships in the market between volatilities: historic and implicit
  - d. Structure of the volatility surface (volatility over time, the skew). Volatility based on moneyness / exercise prices
  - e. Volatility indices
  - f. Volatility strategies and arbitrages

- 3. Options risks and hedges
- 3.1. First and second derivatives: The Greeks
- 3.2. Which are the most relevant Greeks in each market situation?
- 3.3. Dynamic hedging: The Delta Hedge
- 3.4. Hedging the options risks in volatility and interest rates markets
- 3.5. Risk and Pricing. Which is the value of risk?
- 4. 4. Building an Options book (what it is taught in books)
- 4.1. Risk aggregation
- 4.2. Pricing and hedging
- 4.3. Dynamic hedging: The Delta Hedge
- 4.4. Options risk hedging (vega, rho) in volatility and interest rate markets
- 4.5. Risk and "Pricing". Which is the value at risk?
- 4.6. Situations of spread positions and base risk
- $\ensuremath{\textbf{4.7.}}$  Hedging foreign exchange risks and interest rate risks
- 4.8. Value at Risk of an options book
- 5. Other options
- 5.1. Binary, barrier, quanto and Asiatic options

6. Systems

6.1. Front Office systems requirements and "standard" configurations for handling an options book



John Hull is the Maple Financial Professor of Derivatives and Risk Management at the Joseph L. Rotman School of Management, University of Toronto. He is an internationally recognized authority on derivatives and risk management. He was, with Alan White, one of the winners of the Nikko-LOR research competition for his work on the Hull-White interest rate model and was in 1999 voted Financial Engineer of the Year by the International Association of Financial Engineers. He has acted as consultant to many North American, Japanese, and European financial institutions. He has won many teaching awards, including University of Toronto's prestigious Northrop Frye Award.

John Hull has written three books: "Risk Management and Financial Institutions" (now in its 3rd edition), "Options, Futures, and Other Derivatives" (now in its 8th edition) and "Fundamentals of Futures and Options Markets" (now in its 7th edition). The books have been translated into many languages and are widely used in trading rooms throughout the world, as well as in the classroom.

Dr. Hull is co-director of Rotman's Master of Finance Program. In addition to the University of Toronto, Dr. Hull has taught at York University, University of British Columbia, New York University, Cranfield University, and London Business School. He is an Associate Editor of nine academic journals.

#### First Half

- 1. Current Issues in the Pricing of Derivatives
- 1.1. What discount rate should be used: LIBOR vs. OIS
- 1.2. Should funding costs be considered: the FVA adjustment
- 1.3. Handling counterparty credit risk: CVA and DVA
- 1.4. Collateral issues
- 1.5. The impact of regulation

#### Second Half

- 2. Key Issues in the assessment of Market Risk
- 2.1. VaR vs. expected shortfall vs. other measures
- 2.2. Historical simulation and its extensions
- 2.3. Stress testing and stressed VaR
- 2.4. Tail risk and extreme value theory
- 2.5. The impact of regulation



With low yields in many parts of the world, there is a shift towards fixed income investing. There is also the realization that "buy and hold" is a fool's game. A much more active approach is required.

This course is geared towards investors and traders in fixed income assets who want to enhance their return profile through active trading. We will specifically look at opportunities in the US, Mexico and Brazil. Trading strategies involving taking position in both the long & short side will be considered.

Please note that this is designed as a practical hands-on seminar. We will be focusing on practical high probability trading situations. The obtuse fixed income mathematics will not be covered.

The course includes a variety of spreadsheets. Delegates are encouraged to bring their Excel enabled Laptops to the training. Practical ideas will be demonstrated with Thomson Reuters Eikon.

IIzzy is President of Super Computer Consulting, Inc. in Northbrook, Illinois. Super Computer Consulting Inc. specializes in complex derivatives, structured products, risk management and hedge funds.

Izzy holds a Ph.D. in Computer Science from Rutgers University and was on the faculty at the University of Toronto. Izzy's firm has many consulting clients including several regulatory bodies, major broker-dealers, large and medium sized banks as well as hedge funds. Izzy is a lecturer at the prestigious mathematics department at the University of Chicago. He teaches numerous courses and seminars around the world on a variety of topics. Izzy's seminars are known for being non-mathematical. Instead they combine cutting edge analytics with real world applications and intuitive examples.

Izzy is a member of the Chicago Board Options Exchange New Products Committee. He is author of "Implementing Credit Derivatives" (McGraw Hill, 1999) and "Pricing, Hedging and Trading Exotic Options" (McGraw Hill, 1999) and is also editor and co-author of many other publications, the most recent of which is "Volatility as an Asset Class" (Risk Books, 2007).

#### THE TERM STRUCTURE OF INTEREST RATES

- 1. We discuss many types of interest rates and how they are derived from each other
- 1.1. Par bond yield curve
- 1.2. The zero coupon curve
- 1.3. Corporate curves and spreads
- 1.4. What does the spread really measure?
- 1.5. Forward curve
- 1.6. Derivation of one curve from another a. Bond stripping and reconstitution
- 1.7. CETES, BONO curves

Workshop: review various curves especially US, Mexico, Brazil

\* Spreadsheet demo to convert from one curve to another

#### **DURATION AND CONVEXITY**

- 1. Duration and convexity analysis
- 1.1. Duration
- 1.2. Convexity
- 1.3. How are they used?
- 1.4. Setting duration and convexity targets
- \* Discussion: "the benter the better"
- \* Spreadsheets demo: duration & convexity

#### THE THREE ELEMENTS OF YIELD

- 1. Credit Risk
- 2. Inflation
- 3. Liquidity or convenience yield
- \* Mexico Peso vs. USD denominated bonds
- \* Discussion: negative yields in Germany

#### OPTION ADJUSTED SPREAD (OAS)

- OAS analysis
   1.1. What is OAS?
   1.2. How is it used?
- Spreadsheets demo: OAS Calculation

#### LONG ONLY STRATEGIES

- 1. Here we study portfolio construction strategies
- 1.1. Bullet structures
- 1.2. Ladders
- 1.3. Barbells
- 1.4. Liquidity considerations

Workshop: Using analytical tools to find "high probability trades"

#### **STRIPPING AND RECONSTITUTION – US STRIPS**

- 1. Long/Short strategies
- 1.1. Spreads
- 1.2. The Butterfly

#### Demo: Creation of Butterflies

#### **BOND ETF'S**

- 1. A review of bond ETF's
- 1.1. ETF to become long bonds
- 1.2. ETF to become short bonds
- 1.3. The crucial but overlooked difference between ETFs and ETNs
- 1.4. Leveraged  $\ensuremath{\mathsf{ETF}}$  the Ultra Shorts and Triple Bear notes

Workshop: Using charts to find high probability long-short relative value trades.

#### DERIVATIVES

- 1. Options on US Treasury Bond Futures
- 1.1. Call and Put options on US Treasury bond futures
- 1.2. Different strategies using options and futures
- 1.3. Potential risk in option trading
- 1.4. Futures in Mexico (TIIE28, CETE91 and BONO futures)

Workshop: How to place on the trade that reflects your view

#### INFLATION LINKED BONDS

- 1. TIPS Inflation linked securities
- 1.1. What are TIPS?
- 1.2. The implied inflation curve
- 1.3. A review of the TIPS strategy in 2008
- 1.4. Mexico inflation linked bonds
- 1.5. Extracting the Mexican inflation rate

#### **MEXICO - BRAZIL - USA**

- 1. Compare and contrast the countries
- 1.1. What are the curves showing?
- 1.2. Reading the curves

Discussion: Trading opportunities in the various countries

#### CORPORATE BONDS AND CREDIT SPREADS

- 1. Higher yields with increased risks
- 1.1.\* Corporate bonds in US, Mexico and Brazil
- 1.2. \* Credit ratings and yields
- 1.3. \* NRSRO (Nationally Recognized Statistical Rating Organizations) - The credit ratings agencies

Workshop: Examples of corporate bonds in US, Mexico and Brazil. Past trades which were successful

## THE FUTURE

1. The future of the bond market



## **PART I. Introduction**

#### CRISTINA ROHDE / Strategic Vision of the Insurance and Pension Global Unit / BBVA Group

Since the introduction of the first framework of Solvency at the beginning of 1970, sophisticated systems have been developed for the integral measurement of risks, jointly with an exponential growth of the insurance industry worldwide driving the need for counting with a new regulatory and operative framework for these institutions.

Solvency II considers an efficient framework for risk measurement, capital levels definition, and the implementation of efficient procedures to identify, measure and manage the risks to which Insurance and Reinsurance Institutions are exposed. Sometimes called the "Basel for Insurances and Reinsurances", Solvency II is in some way alike to the Basel II and III regulation. This new framework was approved in the last quarter of 2009 by the European Parliament for the insurance industry and was adopted by regulators throughout the world. This new framework must be covered and implemented in Mexico by the third quarter of 2014; that is why all participants of the industry must be trained, know the impacts and implement all the requirements that this new framework proposes.

Solvency II allows the Insurance Companies to use internal models for the risk measurement for the first time, which is a great challenge for all these companies. Solvency II follows a similar structure as the one followed by Basel for Banks, and which is governed by three fundamental pillars: Regulate the risk measurement requirements, Supervision and Market Discipline.

Cristina Rohde is Head of Strategic Vision of the Insurance and Pension Global Unit in BBVA Group. Previously, she was specialist in insurance and leasing in PwC, and worked in the National Leasing and Insurance Commission (CNSF) as CEO of Financial Supervision, Advisor to the Commission's Chairman and CEO of Research and Development, among other charges. Cristina has been independent consultant in regulatory topics and corporate governance in insurance and leasing, and has participated as an independent expert in the International Monetary Fund.

While she was in the CNSF, Cristina led the inspection and surveillance division from the financial perspective of the insurance and surety companies authorized to operate in Mexico, as well as the surveillance of the regulatory compliance to prevent money laundering operations. She participated in the regulation projects that sought to adopt a Solvency II – type model for Mexico, and participated in the International Association of Insurance Supervisors (IAIS), the Insurance and Private Pension Committee of the OECD, and the Insurance Supervisors Association of Latin America (ASSAL).

Cristina received her B.A. in Economics from ITAM with an Honorable Mention; she holds a master's degree in Public Administration and Economics from Columbia University, New York. She is currently pursuing a PhD in Economics from the same University. She obtained the second place of the National Economics Award from the Mexican National Bank (Banxico) in 1997, the first place of the Insurance and Leasing Reasearch Prize form the CNSF in 1997, and the third place of the Tlacaélel Award in Economic Consultancy from Consultores Internacionales in 1998 for her B.A. thesis about the pension system reform in Mexico and its impact in public finance.

#### Who should attend?

- Regulators
- Insurance Companies
- Reinsurance Companies
- Risk Systems Providers
- Risk Managers
- CFOs
- Project managers for the implementation of Solvency in the Insurance and Reinsurance Institutions
- Comptrollers
- · Internal and External Auditors
- Insurance and Reinsurance Companies Advisors





- Participants should bring a Laptop
- Medium to advanced knowledge of Mathematics and Statistics

## PART II. Model Validation and ARSI Process

JESÚS GUZMÁN / KPMG

Jesús Guzmán has a degree in Actuarial Science and has more than 14 years of experience in the Insurance Industry, serving in the following areas: Valuation of Statutory Technical Reserves under US GAAP and IFRS, Statistics for the CNSF (National Insurance and Leasing Commission), Establishment of policies and operation control, Audits and SOX Controls, Registration of Technical Notes of Products and Reserves, Actuarial Studies, Dynamic Solvency Tests, and Retention Limits; additionally, he has an extensive knowledge about the Mexican regulation, in the various operations of the insurance of persons (Life, Pensions, Health, Major Medical Expenses and Personal Accidents).

Before KPMG, he worked in other actuarial firms and in BBVA Bancomer. He is a Certified Actuary and Actuarial Auditor by the Colegio Nacional de Actuarios (CONAC) and by the National Insurance and Liabilities Commission (CNSF).

Currently, Jesús is Senior Manager of the Actuarial and Solvency Services area within the Advisory practice in KPMG.

#### **Outline:**

- 1. Introduction to Solvency II
- 2. Model Validation
- 2.1. Scope of the Model
- 2.2. Key Risks Identification
- 2.3. Tools Identification
- 2.4. Policy and Manual of Validation

WORKSHOP IN

SPANISH

- 2.5. Independent Validation
- 3. Risk and Solvency Institutional Self-assessment (ARSI)
- 3.1. ARSI Design
- 3.2. Multi-functional Approach
- 3.3. Capital, Performance and Risk Management
- 3.4. Business Integration



#### REQUIREMENTS

Medium to advanced knowledge of Mathematics, Statistics, Derivatives Products and Fixed Income Participants should bring a laptop

#### **OSCAR SIERRA**

## PART I. Programming, Design and Implementation of Financial Solutions

Currently, the trends present in the markets and the speed in which they are being implemented are really astounding. From the birth of new complex Financial Products to the use of the famous "Black Boxes" (Algorithmic Trading) and the implementation of the "High Frequency Trading" for operating and executing orders in milliseconds. All of this has resulted in an increasing need for financial intermediaries (Buy Side and Sell Side) to count with human capital with skills and solid knowledge in Mathematics, Statistics, Programming, Finance and Markets. Nowadays, they are known as QUANTS.

The international and local financial firms are increasingly looking for QUANTS who are capable of implementing tools that really help to improve the processes in the areas of Trading, Risk Management and Back and Middle Office; as an example, in "High Frequency Trading", development of Algorithms and Trading Strategies for Brokerage Houses and Banks, for Databases Management, among other multiple possibilities.

### Objective

The Course Computational Finance for Quants aims to provide the necessary techniques and knowledge for Programming, Finance and Markets to design and implement solutions in the financial areas of Trading (Algo Trading, High Frequency Trading, Arbitrage Strategies), Risk Management (Models), Treasury, Database Management, Programming, etc.; thus to improve and to optimize processes in the institutions.

### Who should attend?

- Quants
- Quant Traders
- Product Structuring Staff
- Volatility Traders

the financial and economic training area in The Mathworks Inc, the firm that commercializes Matlab. In 2005 he participated in programming the Computable General Equilibrium Model for the UN and in 2009 he held a workshop in Computable General Equilibrium Models in the Economic Research Institute of the Autonomous National University of Mexico (UNAM). He has given training in many institutions of the financial system, including: Banco de México, IPAB and National Insurance and Liability Commission (CNSF).

Oscar holds a master's degree in Economics from the UNAM, holds a degree in Computer Engineering from the same institution and has a BA in Economics from the Tecnológico de Monterrey in Mexico City. He has also received training in different specialties which he learned abroad, including the University of Sussex in England and UIBE in China. Oscar, has written many research articles about the economic and financial modeling in computational systems.

## **Outline:**

- 1. INTRODUCTION TO MATLAB
- 2. RANDOM NUMBERS THEORY
- 3. VOLATILITY AND CORRELATION IN MATLAB
- 4. NUMERIC METHODS FOR PRICING OPTIONS
- 5. FIXED INCOME
- 6. INTEREST RATE OPTIONS
- 7. PORTAFOLIO ANALYSIS

- Risk Managers
- Hedge Fund and Fund Managers
- Systems Staff linked to financial areas, Risk Management or Trading
- Software and Financial Solutions Vendors
- · Scholars with knowledge in Mathematics, Statistics, Derivatives and Markets

Oscar Sierra currently works in HSBC in the Credit Services Department. Previously he worked in the Treasury of the Brokerage House Banorte, in charge of the investment strategies. With 5 years of experience in Banorte Financial Group, Oscar has planned strategies and has developed systems with outstanding impact in different areas. Before Banorte, he worked in





# **COMPUTATONAL** FINANCE FOR QUANTS

#### REQUIREMENTS

- Medium to advanced knowledge of Mathematics, Statistics, Derivatives Products and Fixed Income
- Participants should bring a laptop

**ROHAN RAO** / PhD in Finance / Georgia Institute of Technology (Georgia Tech)

# PART II. Programming, Design and Implementation of Financial Solutions

G.S Rohan Rao is currently pursuing a PhD in Finance at Georgia Institute of Technology (Georgia Tech). His current research work is in the electricity markets jointly with a Professor from the School of Industrial and Systems Engineering at Georgia Tech. He also has a Master's degree in Quantitative and Computational Finance from Georgia Tech and a BTech degree in Engineering Physics from Indian Institute of Technology, Bombay (IIT-Bombay) - one of the premier institutes for technology in India.

He also has 2 years of work experience in the financial industry working with Bank of America in their Quantitative Finance group dealing with global structured products.

He has extensive experience with modelers and solvers like Matlab, R and GAMs and programming languages like C and Java. Some of his current interests include investing and trading in volatility and implementation of numerical methods in pricing derivatives.

#### Outline:

- 1. Binomial Trees
- 2. Montecarlo simulations
- 3. Pricing a basket of non-path dependent options, pricing Asian options, pricing path dependent options using lattice methods
- 4. Implied Trees using market prices
- 5. Implementation of a variance swap using market prices and calculating the VIX index
- 6. Time series analysis and dealing with real high frequency data and market microstructure
- 7. Lee and Ready algorithm, Model for price changes, Duration models
- 8. Vwap & Twap strategies





Erick came to KPMG early on 2011, bringing in more than twelve years of experience,

where he held different positions in the broker-dealer & asset management operations at an

important financial group in Mexico. He is knowledgeable of the regulation for stocks, bonds

He is proficient in the design of internal controls in front office processes and risk management.

He has been involved in multiple middle - back office projects, to comply with local regulatory

During the last year, he did participate in providing information on performance metrics

and products assistance to a local institutional and private banking client with assets under

management of around 160 million USD, as well as managing a database with volume of 3,000 clients. He is knowledgeable of KYC / AML process and regulation, as well as with the

and derivatives brokerage business, as well as retail funds activities.



requirements.

US IRS' FATCA initiative.

Banking & Securities regulator.

This workshop is designed to review in detail the Global Investment Performance Standards GIPS®, as well as to help the Institutions, who seek to adhere to the standards, understand the fundamentals, portfolio creation, and compliance presentations including the required methodologies for the yield calculation.

#### During the workshop, participants will:

- · Understand the fundamental principles of GIPS standards
- Learn the necessary requirements to comply with the standards
- Understand the accepted methodologies for the yield calculation
- · Understand how to build a portfolio and compliance presentations

This workshop is intended to all the personnel linked to the areas of compliance, risk management, investment performance measurement analysis, investment presentations for customers of the Financial Institutions and Corporates. Specifically for:

- Risk Managers
- · Staff of the Front, Middle and Back Office areas of Brokerage Houses and Banks
- Investment promoters
- Comptrollers
- Auditors
- Treasurers
- Traders
- Advisors

At KPMG Mexico, he has been involved in Financial Services local compliance engagements related to México's Central Bank 31 requirements needed to intermediate Derivatives as well as Comprehensive Risk Management regulatory compliance as set by CNBV, the local

#### **Professional and Industry Experience**

He has ample experience on different asset classes, including fixed income, equities, FX, ETFs (iShares) and financial derivatives for local and U.S. Markets.

#### **Outline:**

- 1. What is necessary to adhere to GIPS?
- 2. How to build Portfolios who comply with the required standards?
- 3. Which are the accepted Calculation Methodologies?
- 4. What is a Compliance Presentation?
- 5. Could I carry out Advertising about my adherence to GIPS?
- 6. What is the Additional and Complementary Information?
- 7. How to correct Mistakes?

Erick has been also assisting asset management institutions in portfolio management systems, performance, risk control processes and GIPS compliance for financial institutions, along with FATCA-related assistance.

Other training he has received recently, while at KPMG include:

US FATCA (Foreign Account Tax Compliance Act) AcademyHarvard Management Mentor, Mexico, 2011.

TRADAGE WORKSHUP N COMMODITY DERIVATIVES

JOSÉ ALATORRE / Commodities Structuring Americas / Barclays Capital NY

In recent years, an exponential growth has been seen worldwide in the trading volume of Derivatives products referenced to Commodities, as a result of the hedge and trade strategies that provide this type of instruments. As of June, 2011, the current notional amount of all Derivatives contracts on Commodities in OTC markets, amounted to 3.1 Trillions of Dollars. In organized markets 2,830 millions of contracts were traded. Both in the OTC markets and the Organized Derivatives markets (CME Group, ICE, etc.), Metals, Grains, Oil, etc. are included.

All of this has led to the requirement of trained and experienced personnel on this type of products in financial institutions, specifically everyone involved in hedging risks against the price fluctuations in Commodities, and those who trade, value and hedge them. For the Mexican case, in the last two years there have been events and changes in the Regulation that open a new investment horizon for players, that considering the assets they managed it could be of great relevance their participation in this type of markets (Pension Funds, Insurances, Pemex, etc.). Recently MexDer, Mexican Derivatives Exchange, established an alliance with CME Group, which aggregates the most important markets worldwide in Commodities: CBOT, leader in Commodities Derivatives, and NYMEX, the number one metals and energy derivatives exchange in the world.

Additionally to this Alliance, the Pension Funds for the youngest workers have greater exposure to riskier assets. So the three funds with the youngest workers could invest up to 10% of their assets in instruments linked to Commodities.

José Alatorre, currently work in the Commodities Structuring Americas area in Barclays Capital in NY. This area has been recognized by many organizations as the best structuring house of Commodities (Risk Awards, Structured Products, among others). As part of his functions, Jose develops solutions in the commodities space for Canadian, American, and primarily Latin American clients (including many of the biggest pension funds worldwide and leading institutional investors); some of these solutions are the creation of indices, exotic options and strategies using derivatives.

Previously, José worked in Afore Banamex as quantitative analyst and later he coordinated all this analysis area. Some of his functions were: the portfolio optimization, development of investment strategies across various assets (Fixed Income, Equities, FX, Alternatives), economic analysis and CKDs.

José holds a Master of Science degree in Financial Engineering from the Columbia University in NY, and has a degree in Actuarial Science from the ITAM.

#### Outline:

- 1. Introduction to the Commodities Market
- 1.1. Super Cycle Theory
- 1.2. Market Participants
- 1.3. Sectors
- 1.4. Commodities as an independent asset class1.5. Risk and Return Characteristics

2. Pricing and Economics of the Commodities markets

2.1. Understanding the curve shape "Backwardation" and Contango

- 3. Risk Premium and Convenience Yield Models
- 3.1. ntroduction
- 3.2. "Risk-neutral" valuation constraints
- 3.3. Some examples
- 3.4. Risk premium models
- 3.5. Convenience yield models
- 3.6. A mix of the models
- 3.7. Temporal structure
- 3.8. Returns in risk premium and convenience yield models
- 3.9. Spot and Roll Yield
- 4. Introduction to Commodity Derivatives
- 4.1. Preliminaries
- 4.2. Main Exchanges
- 4.3. Options on futures
- 4.4. The Pricing Measure
- 4.5. Practical Examples
- 4.6. Commodities Indices, "Institutional Investor Weapon of Choice"
- 4.7. A quick glance to the advanced pricing of Commodities Derivatives
  - a. Adding mean reversion b. Model generalization with parametric volatility c. Forward Models
- 5. Case Study "Gold"
- 5.1. Fundamentals
- 5.2. Gold market
- 5.3. Factors that impact the gold price
- 5.4. Gold and pricing derivatives
  - a. Lease rates
    - b. Gold Forward (GOFO)
  - c. Gold IRS development
     d. Negative floating rates in the Gold IRS
  - e. Volatility



A seminar with Garry Kasparov is a unique chance to get hands-on coaching from a man with a lifetime of high-pressure peak performance to share. The seminar will focus on getting the participants to evaluate their own decision-making process, to find their strengths and weaknesses and, as Kasparov puts it, "to upgrade their mental software." The seminars with Kasparov are an instructive and entertaining tour through dynamic decision-making scenarios, each prepared especially for each situation. This seminar will include examples from the worlds of business, politics, and even military history.

Today this master of strategy applies the insights and unique perspective from his extraordinary chess career to the issues of leadership, logical thinking, strategic thinking, and success on the speakers' circuit and to Russian politics.

Known as an extremely intuitive chess player, Kasparov emphasizes intuition's role in reaching one's full potential as an individual and achieving superior performance as the leader of a group or organization. His contests with the super-computer "Deep Blue" were worldwide headline news and he was at the forefront of innovation in chess for over twenty years. He was at the cutting-edge of research and the battles between humans and computers as far back as 1989.

Kasparov challenges and inspires the participants with the same energy and charisma that have made him the world's best-known chess player, a best-selling author, and political leader in his native Russia. Anecdotes from Kasparov's remarkable career provide insight into the dangers of clichéd thinking, conventional wisdom, and routine decisions. The participants will leave with new perspectives on strategy, preparation, decision-making, and how only constant challenge can avoid complacency.

#### Ideal for top management and especially for technology companies

Garry Kasparov was the highest-rated chess player in the world for over twenty years and is widely considered the greatest chess player that ever lived. On Thursday, 10th March, 2005 Kasparov announced his retirement from competitive chess. He remains the highest-rated player in the history of the game and the only true icon in a sport with over 100 million players. He was the first player to break through the "four minute mile" of chess, a rating over 2800. He remains the only player who topped the 2850 mark. His 2851 ELO rating is still an all-time record.

His global reach is fed by a steady stream of keynote speaking engagements, predominately in Europe and the United States. Soon he will appear in Asia. His speech topics vary from country to country, but he is never far from what he knows best – strategy and logical thinking. He takes his listeners into the worlds of calculation, seeing the big picture, the analytical mind, achieving potential, and what constitutes intelligence without reducing the answers to plain black and white. Most remarkably, Kasparov's speeches are customized for each corporation or language group to include local facts and items of interest. Recently he has been invited to speak about his life in chess as well as politics and current affairs.

Mr. Kasparov is a contributing editor to "The Wall Street Journal" and has contributed editorials to dozens of other major publications. Volume one of his new "Garry Kasparov on Modern Chess" was released in 2007. This came on the heels of his best-selling series of chess books

"My Great Predecessors," which sold over 100,000 hardcover copies in various languages - a record for chess literature. Kasparov is the founder and inspiration behind the Kasparov Chess Foundation, whose mission is to introduce chess into the educational system worldwide.

In 2007 his first mainstream book, "How Life Imitates Chess" was released and it will be published in 25 languages. It is part memoir, part business book, and all about how to make better decisions. Mr. Kasparov has made hundreds of major media appearances to support the book worldwide. In the first guarter of 2007 he was profiled in TIME, The Times (UK), 60 Minutes and the New York Times.

Without a pause Kasparov moved from chess to the political front lines. Russia today is sliding into a corrupt dictatorship. Despite the recent high price of oil, most of the population has little to show for it. Kasparov is busy campaigning the length and breadth of Russia for democracy and civil liberties. As he explains, "We are not fighting to win elections - we are fighting for having elections. The goal is to bring all opposition groups into a broad coalition to return Russia to the path of democracy."

Mr. Kasparov is the leader of the Russian pro-democracy group the United Civil Front and chairman of the New York-based Human Rights Foundation.



Heleodoro Ruiz has over 25 years of banking experience with strong emphasis in risk management and information technology including Market, Operational and Credit Risk Management; counterparty, commercial, retail and consumer credit; he has significant experience in loan portfolio management and strategic planning to create economic value added, in developing risk rating and credit scoring methodologies and models, as well as in statistical and judgmental underwriting, behavioral and collect credit models to consumer lending business, network training and supervision as well as credit policy implementation.

Heleodoro holds a Master's degree in Finance from ITESM, Monterrey Institute of Technology, a MBA from IPADE, Instituto Panamericano de Direccion de Empresas, and a Bachelor of Science degree in Computer Engineering from UNAM, Universidad Nacional Autonoma de Mexico.

Mr. Ruiz has been conference speaker for some universities and banking associations on topics such as Banking, Finance, Basel and Enterprise Risk Management in America, Europe and Asia (Austria, Brazil, Canada, Colombia, Costa Rica, El Salvador, Japan, South Korea, Spain, USA, Mexico, Peru and Venezuela).

He has been Guest Professor at the IPADE's MBA (MEDEX), Professor at the ITESM's Global MBA and of the International Financial Risk Management Seminar. He has authored a number of articles on Banking, Finance and Risk Management in different publications, recently awarded by the National Institute of Public Accountants as best article of the year for the article "Risk Management & Economic Value Creation".

He is President of the Credit Commission at the Mexican Banking Association, member of the board of the International Bank in Texas USA, member of the Board of the Trans Union Credit Bureau Mexico, Member of the Board of Dun & Bradstreet Bureau Mexico.

Heleodoro Ruiz is Deputy Chief Risk Officer in Banorte Financial Group since 1997, and since 2005 represents the Mexican Banking Association to implement Basel in Mexico.

#### Outline:

- 1. Background
- 2. From Basel I to Basel II
- 2.1. Evolution of the National and International Regulation
- 2.2. Basel II pillars
- 2.3. Main changes from Basel II to Basel III
- 2.4. Basel III Objectives
- 3. Basel III Mexican Regulation
- 3.1. Basel III CNBV (National Banking and Securities Commission) Regulation Summary
- 3.2. Implementation dates
- 3.3. Main Challenges
- 4. Basel III Venture Capital Type
- 4.1. Capital Calculations
- 4.2. Credit Risk
- 4.3. Market Risk
- 4.4. Operational Risk
- 4.5. Liquidity Risk

5. Conclusions



ABRAHAM IZQUIERDO / Credit & Liquidity Risk Associate Director / Scotiabank México

Abraham Izquierdo is Financial Risk Manager: Certified by the Global Association of Risk Professionals. He holds a B.A. in Economics, a MBA, a Master's degree in Finance and a Master's degree in Risk Management from the ITAM (Autonomous Technological Institute of Mexico).

Currently he is Credit, Counterparty & Liquidity Risk Director in Scotiabank Mexico, where he led the development and implementation of Credit Risk Models AIRB for Basel II, the

development and implementation of the Liquidity Risk Guideline of Basel III, the management

and monitoring of the liquidity position, the budget management and the interest rate risk

#### Outline:

- 1. . Practical case studies on Credit Risk Parameters
- 1.1. Probability of Default
- 1.2. Severity of the Loss
- 1.3. Exposure at Default
- 2. Practical case studies on Portfolio Credit Risks
- 2.1. Expected Loss
- 2.2. Unexpected Loss
- 2.3. Capital and Reserves
- management of the bank, as well as, the implementation of the CVA and IRC, the management

and monitoring of the Counterparty Risk of the Derivatives Portfolios and the Credit Risk Management related to the consumption portfolios and commercial loans of the bank. Abraham is also in charge of representing the institution in the Credit Risk Committee of the Mexican Bank Association.

3. Practical case studies on Liquidity Risk 3.1. Liquidity Coverage Ratio (LCR) 3.2. Net Stable Funding (NSF) 3.3. Loan to Deposits Ratio (LDR) 4. Practical case studies on Counterparty Risk and Market Risk 4.1. Unilateral Credit Value Adjustment (CVA) 4.2. Bilateral Credit Value Adjustment (CVA) 4.3. Incremental Risk Charge (IRC) 4.4. Stress VaR (SVaR)

5. Practical case studies on Other Relevant Topics 5.1. Leverage Ratio (LR) 5.2. Capital Indices



Hedge Funds 360 is a workshop who provides a complete picture of how Hedge Funds work from various perspectives: legal and economic, sell-side, buy-side, the executive's point of view, etc. Also it will address two topics not discuss frequently in the Hedge Funds presentations: (i) an overall vision of equity strategies and (ii) the new regulatory environment and how this will affect the alternative investments.

Likewise, this Workshop has as its main objective to break down myths and paradigms that in recent years have been linked with this type of funds. Another objective is to show to Fund Managers, Traders, independent investors and specially Regulators, why it is fundamental to understand this type of investment vehicles that have proved they must be in any financial system, simply for the liquidity that they bring to markets.

Marco Avellaneda was named 2010 Quant of the Year by RISK Magazine. He has been involved in teaching, developing and practicing quantitative finance for the last 15 years. He worked at Banque Indosuez as Consultant in FX Derivatives, then as a Vice-President in Fixed-Income Research at Morgan Stanley, as Quant Strategist at Gargolye Strategic Investments, as Head of Volatility Arbitrage at Capital Fund Management, where he created the Nimbus Fund, and as Quant Equity Portfolio Manager at the Galleon Group. His interests - both practical and theoretical - are unabashedly focused on quantitative alpha generation.

He is known in academic finance as the inventor of the Uncertain Volatility model, for developing model-calibration algorithms using Weighted Monte Carlo/Max Entropy, for the theory behind dispersion trading, and for his more recent works on statistical arbitrage in the US equities market, high-frequency trading and price forecasting. A faculty member at the Courant Institute since "before the internet", he teaches classes in Stochastic Calculus, Riskmanagement and Portfolio Theory, PDEs in Finance and Quantitative Investment Strategies. He is in the editorial boards of Communications on Pure and Applied Mathematics, the International Journal for Theoretical and Applied Finance and Quantitative Finance and coauthored the textbook "Quantitative Modeling of Derivative Securities".

#### **Outline:**

- 1. Hedge funds as investment firms: legal and economic perspectives
- 2. Hedge Funds Structure, Fund of Funds
- 3. Styles and strategies of Hedge Funds
- 4. CTAs
- 5. Equities HFs: systematic vs. classical top-down
- 6. Regulation: USA, European Union, LatAm (Brazil, Mexico, Chile), rest of the world. Changes in the regulatory environment after 2008 (Dodd Frank, Volker Rule and European Commission).
- 7. Hedge Funds debate and prospect for the following years



**PART II. Trading Strategies in a Hedge** 

Marcos López de Prado is Head of Quantitative Trading & Research at Hess Energy Trading Company, the trading arm of Hess Corporation, a Fortune 100 company. Before that, Marcos was Head of Global Quantitative Research at Tudor Investment Corporation, where he also led High Frequency Futures Trading and several strategic initiatives. Marcos joined Tudor from PEAK6 Investments, where he was a Partner and ran the Statistical Arbitrage group at the Futures division. Prior to that, he was Head of Quantitative Equity Research at UBS Wealth Management, and a Portfolio Manager at Citadel Investment Group. In addition to his 15+ years of investment management experience, Marcos has received several academic appointments, including Postdoctoral Research Fellow of RCC at Harvard University, Visiting Scholar at Cornell University, and Research Affiliate at Lawrence Berkeley National Laboratory (U.S. Department of Energy's Office of Science). He holds a Ph.D. in Financial Economics (Summa cum Laude, 2003), a Sc.D. in Mathematical Finance (Summa cum Laude, 2011) from Complutense University, is a recipient of the National Award for Excellence in Academic Performance by the Government of Spain (National Valedictorian, Economics, 1998), and was admitted into American Mensa with a perfect test score.

Marcos is a scientific advisor to Enthought's Python projects (NumPy, SciPy), and a member of the editorial board of the Journal of Investment Strategies (Risk Journals). His research has resulted in three international patent applications, several papers listed among the most read in Finance (SSRN), publications in the Review of Financial Studies, Mathematical Finance, Journal of Risk, Journal of Portfolio Management, etc. His current Erdös number is 3, with a valence of 2.

#### Outline:

- 1. Performance assessment of the hedge funds
- 1.1. IID Gaussian Processes:
- 1.2. Sharpe ratio
- 1.3. Information ratio
- 1.4. Treynor
- 1.5. No-IID Gaussian Processes:
- 1.6. Sortino ratio 1.7. PSR
- 2. Monitoring of the hedge funds strategies 2.1. Style change
- 2.2. Potential for loss
- 2.3. The stop-out decision
- 3. Diversification and risk control
- 3.1. Risk level measurement
- 3.2. Risk concentration measurement: Entropy





## REQUIREMENTS

Participants should bring a Laptop

#### SURESH SANKARAN / Principal Operations Officer / IFC – Access to Finance

A liquidity risk efficient measurement is fundamental to the management of every financial operation within the Financial Institutions (Banks, Pension Funds, Insurances, etc). This ground-breaking course will teach you the best proactive and effective methods for measuring, managing and hedging this type of risk in today's turbulent market environment.

This workshop will also teach participants to create, in a practical way, the liquidity risk dynamics, implement and create processes that are followed in the best financial institutions with regard to "Market and Funding Liquidity" and "Liquidity Contingency Planning", including the recent incorporation of Basel III regarding Liquidity Risk.

#### **Objectives:**

- The effects of liquidity risk on securities pricing and funding
- The challenges of building and implementing a successful framework for liquidity risk management
- The regulatory requirements for liquidity
- Effective liquidity stress testing and contingency planning
- The techniques for modeling liquidity risk within a treasury framework
- · The incorporation of credit in the liquidity risk framework

Suresh Sankaran is the Principal Operations Officer with the global IFC Access to Finance (A2F) Risk Management Advisory team based in Washington DC, and provides technical expertise to support projects with all types of financial institutions on risk management. He provides assistance to all regions on various facets of risk management, is responsible for the positioning of risk management in the forefront of developing markets, and working closely with financial institutions to assess their risk management capabilities.

Before joining the IFC, Sankaran was the country head for Kamakura Corporation providing strategic consulting services in financial risk management to financial institutions in Europe, Middle East, Asia, and Africa. He specialized in credit risk, market risk, liquidity, ALM, economic capital allocation routines and integrated risk processes. His responsibilities were to provide niche consulting services to internationally active banks on advanced integrated risk management techniques.

Sankaran has been involved in financial advisory assignments including both risk management and mergers and acquisitions. He has worked on assignments with organizations affected in the European crisis, in a major derivatives dispute between two global derivatives houses, for several Central Banks, Governments of OECD countries and many of the world's largest financial institutions.

Sankaran's banking expertise stems from his work in ABN AMRO as finance and risk manager, and with HSBC in its Treasury, Risk, and MIS divisions. He started his professional career with KPMG in their financial risk consulting division.

Sankaran is a featured speaker and trainer at the Bank for International Settlements (BIS) and a frequent speaker in well-known and well-established risk conferences worldwide. He has authored many papers on transfer pricing, liquidity management, credit risk, and integrating macro and market risks. He has also penned several articles on various aspects of risk and performance attribution, in leading magazines including Risk, The Banker, Credit, Asian Banker, and Financial Solutions.

#### **Outline:**

- 1. Understanding the nature of liquidity risk
- 1.1. The universe of investable instruments
- 1.2. Pools of liquidity, and illiquid assets
- 1.3. Market conventions
- 1.4. Repo and the funding of illiquid instruments
- 1.5. Liquidation and "fire-sales"
- 1.6. Liquidity risk in banking, securities trading and insurance

- 2. Building and implementing a framework for liquidity management
- 2.1. Mismatch approach
- 2.2. Internal controls for liquidity risk management: stress testing and scenario analysis
- 2.3. Double default and the analysis of collateralized transactions
- 2.4. Basel II and III liquidity risk
- 3. Liquidity contingency planning
- 3.1. The need for contingency planning how to build and implement a contingency planning
- 3.2. Crisis management plans and market collapses for assets and liabilities
- 3.3. Internal and external communications

4. Liquidity stress-testing

- 4.1. Why liquidity stress tests?
- 4.2. General considerations
- 4.3. Empiricism versus rocket science
- 4.4. Current stress test priorities
- 4.5. Additional considerations

5. Liquidity risk in the context of an active Treasury

- 5.1. Metrics and measures of liquidity risk
- 5.2. Liquidity gap analysis and the bank's liquidity profile
- 5.3. Expected and unexpected loss analysis in the presence of illiquidity
- 5.4. Liquidity management policy
- 5.5. Regulatory requirements for liquidity management
- Measuring market risk Liquidity adjusted Value at risk (LVaR)
- 6.1. Definitions
- 6.2. Using liquidity-adjusted VAR to manage risk
- 6.3. Limitations of standard VAR measures to assess liquidity
- 7. The incorporation of credit in the liquidity risk framework
- 7.1. Cash-flows adjusted for credit
- 7.2. The recovery process
- 7.3. Credit in funding and market liquidity
- 7.4. Credit-adjusted liquidity analytics
- 8. Northern Rock A case study on liquidity
- 8.1. What caused the failure of Northern Rock
- 8.2. The history of Northern Wreck
- 8.3. An exemplary case of Liquidity Risk





#### REQUERIMIENTOS

- Medium to advanced knowledge of Mathematics, Statistics and Derivatives Products
- Participants should bring a Laptop

#### GROCIO SOLDEVILLA / Global Risk Manager / MONEX

Grocio Soldevilla is currently Global Risk Manager at Monex Group since February 2002, he is responsible of measuring market, credit and liquidity risk in the Brokerage House, Bureau de Change, Investment Funds and Monex Derivatives.

Previously he was Head of Risk Management in Interacciones Bank. He has had an outstanding career in the financial sector, being part of Institutions like Bancrecer, Banpais, Mexican Stock Exchange, Peruvian Central Reserve Bank and the Peruvian Public Charitable Society.

He has extensive experience as lecturer; he has provided courses in Risks and Derivatives in many Financial Institutions like Merrill Lynch, Scotia Inverlat, Citibank, and training courses in the Mexican Association of Securities Intermediaries. He has been professor in important educational centers in the country, like the ITESM, CIDE and Universidad Anáhuac.

Grocio Soldevilla holds a B.A. in Economics from the Economics Sciences Faculty of the Universidad Nacional Federico Villarreal in Lima, Peru and holds a Master's degree in Economics form CIDE Mexico.

- 2.4. Metodología de RiskMetricsTM
- 2.5. Mezclas y Distribuciones Alternativas en el Cálculo del VaR
- 2.6. VaR Incremental y VaR Condicional
- 3. Simulación Histórica y Simulación Montecarlo
- 3.1. El Modelo Histórico con Ponderación Equitativa
- 3.2. La Introducción de Actualización de Volatilidad de Hull y White
- 3.3. El Enfoque Híbrido de Boudoukh, Richardson y Whitelaw
- 3.4. Aproximaciones basadas en Teoría de Valores Extremos
- 3.5. La Expansión de Cornish-Fisher
- 3.6. Generación de trayectorias de Precios y Tasas de Interés
- 3.7. El VaR Monte Carlo en un entorno Multivariante
- 4. Valor en Riesgo de Portafolios compuestos por instrumentos no Lineales
- 4.1. Aproximación Delta y el VaR Delta Normal
- 4.2. El efecto Gamma y el VaR Delta Gamma
- 4.3. El Método Full-Valuation

#### **Outline:**

1. Introducción y Nociones Fundamentales

- 1.1. Panorama General de la Administración del Riesgo Mercado en Bancos, Portafolios de Inversión y Corporativos no Financieros
- 1.2. Definición Económica y Matemática del Valor en Riesgo
- 1.3. Conceptos Esenciales detrás del VaR
- 1.4. Instrumentos Lineales, no Lineales e identificación de Factores de Riesgo
- 1.5. Medidas Coherentes de Riesgo
- 2. Métodos Paramétricos Lineales para la Estimación del Valor en Riesgo
- 2.1. La Fórmula del VaR Normal
- 2.2. Mapeo de Posiciones y el VaR de Tasas de Interés
- 2.3. El Análisis de Componentes Principales en la Determinación del VaR

4.4. Capturando No Normalidad y Extendiendo a Riesgo Vega

- 5. Herramientas de Seguimiento y Evaluación del Valor en Riesgo 5.1. Lineamientos Regulatorios para el Análisis de los Modelos de Riesgo Mercado 5.2. Métodos de Evaluación basados en Técnicas Econométricas 5.3. Pruebas Basadas en Distribuciones de Probabilidad
- 6. Técnicas Complementarias (Stress Testing) 6.1. Generación y Elección de Escenarios Extremos 6.2. Lineamientos Regulatorios y Principios en materia de Stress Testing 6.3. Análisis de Escenarios, Análisis de Sensibilidad y Métodos Alternativos



Marcos López de Prado is Head of Quantitative Trading & Research at Hess Energy Trading Company, the trading arm of Hess Corporation, a Fortune 100 company. Before that, Marcos was Head of Global Quantitative Research at Tudor Investment Corporation, where he also led High Frequency Futures Trading and several strategic initiatives. Marcos joined Tudor from PEAK6 Investments, where he was a Partner and ran the Statistical Arbitrage group at the Futures division. Prior to that, he was Head of Quantitative Equity Research at UBS Wealth Management, and a Portfolio Manager at Citadel Investment Group. In addition to his 15+ years of investment management experience, Marcos has received several academic appointments, including Postdoctoral Research Fellow of RCC at Harvard University, Visiting Scholar at Cornell University, and Research Affiliate at Lawrence Berkeley National Laboratory (U.S. Department of Energy's Office of Science). He holds a Ph.D. in Financial Economics (Summa cum Laude, 2003), a Sc.D. in Mathematical Finance (Summa cum Laude, 2011) from Complutense University, is a recipient of the National Award for Excellence in Academic Performance by the Government of Spain (National Valedictorian, Economics, 1998), and was admitted into American Mensa with a perfect test score.

Marcos is a scientific advisor to Enthought's Python projects (NumPy, SciPy), and a member of the editorial board of the Journal of Investment Strategies (Risk Journals). His research has resulted in three international patent applications, several papers listed among the most read in Finance (SSRN), publications in the Review of Financial Studies, Mathematical Finance, Journal of Risk, Journal of Portfolio Management, etc. His current Erdös number is 3, with a valence of 2.

#### Outline:

- 1. The paradigm of high frequency
- 1.1. Flow Toxicity
- 1.2. Liquidity provision
- 1.3. Predatory algorithms
- 1.4. Optimal Execution



MARCO AVELLANEDA / Courant Institute of Mathematical Sciences, NYU and Senior Partner, Finance Concepts LLC.

Marco Avellaneda was named 2010 Quant of the Year by RISK Magazine. He has been involved in teaching, developing and practicing quantitative finance for the last 15 years. He worked at Banque Indosuez as Consultant in FX Derivatives, then as a Vice-President in Fixed-Income Research at Morgan Stanley, as Quant Strategist at Gargolye Strategic Investments, as Head of Volatility Arbitrage at Capital Fund Management, where he created the Nimbus Fund. and as Quant Equity Portfolio Manager at the Galleon Group. His interests - both practical and theoretical — are unabashedly focused on quantitative alpha generation.

He is known in academic finance as the inventor of the Uncertain Volatility model, for developing model-calibration algorithms using Weighted Monte Carlo/Max Entropy, for the theory behind dispersion trading, and for his more recent works on statistical arbitrage in the US equities market, high-frequency trading and price forecasting. A faculty member at the Courant Institute since "before the internet", he teaches classes in Stochastic Calculus, Riskmanagement and Portfolio Theory, PDEs in Finance and Quantitative Investment Strategies. He is in the editorial boards of Communications on Pure and Applied Mathematics, the International Journal for Theoretical and Applied Finance and Quantitative Finance and coauthored the textbook "Quantitative Modeling of Derivative Securities".

#### Outline:

- 1. Econometrics of the income from shares
- 2. Factor decomposition and Principal Components Analysis (PCA)
- 3. Dynamic PCA and its applications in the Risk Management
- 4. Time Series Analysis (AR, ARCH, GARCH) and its applications
- 5. Mean Reversion Analysis
- 6. Building Risk Models for Mortgage-backed Treasuries and Securities
- 7. Equity Derivatives: Risk and Portfolio Management
- 8. Exchange Traded Funds (ETFs)
- 9. Statistical Arbitrage in U.S. Equity Markets
- 10. Concepts on Portfolio Active Management
- 11. Algorithmic and High-Frequency Trading 12. Disperse Trading
- 13. ETFs Arbitrage and Options on LETFs

#### 7:00 PM - 8:00 PM

## **ROUND TABLE**







TORONTO UNIVERSITY







MARCOS LÓPEZ DE PRADO **TUDOR INVESTMENTS** 



WORKSHOP IN

SPANISH



6:00 PM - 8:00 PM

#### ROOM 7

ROOM 7

# **ROUND TABLE DEVELOPMENT AND SIGNIFICANCE OF THE HEDGE FUNDS IN THE** FINANCIAL SYSTEM (Breaking down myths and paradigms)







NYU

**CARLOS KRETSCHMER** SCOTIACAPITAL









## **ROUND TABLE**

**NEW IDEAS FOR THE MARKETS AND CLEARING HOUSES INFRASTRUCTURE... THE LEADERS PERSPECTIVE** 



THOMSON REUTERS









**ROOM 8** 



COSTS	
<ol> <li>FULL EVEN I: Participants could enter any Workshop, Seminar, and/or Round Table at any moment.</li> </ol>	USD 2250 Plus Tax
<ol><li>WORKSHOPS: Aim for participants who wish to take a specific Course/Workshop. Participants could enter any Round Table.</li></ol>	USD 2000 Plus Tax
3. JOHN HULL SEMINAR	USD 1350 plus tax



#### 4. RISK AGGREGATION SEMIMAR (DAN RUSEN) 5. KEYNOTE SPEECH GARRY KASPAROV

USD 800 plus lax USD 800 plus Tax Scan with smartphone **QR** Reader App

## REGISTRATION

## E-Mail: derivatives@riskmathics.com Phones.: (+52 55) 5536 4325 y (+52 55) 5669 4729 WWW.RISKMATHICS.COM

## Venue: **SHERATON MARIA ISABEL HOTEL & TOWERS** Paseo de la Reforma 324, Col. Cuauhtémoc, C.P. 06500, México D.F.

## **PAYMENT METHODS**

1. Bank Transfer in US Dollars BANK: BBVA Bancomer, S.A. **BRANCH NUMBER: 0956** SWIFT: BCMRMXMM BENEFICIARY: RiskMathics Financial Innovation, S.C. ACCOUNT NUMBER: 012180001649665629 USD

2. Credit Card: VISA, MASTERCARD or AMERICAN EXPRESS.

IMPORTANT NOTICE: There will be no reimbursements.