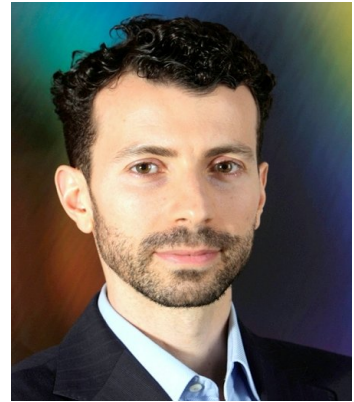


## MAHMOUD HAMADA

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Switzerland

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Homepage: <http://quant.al-hamada.com>  
Citizenship: Australian

Date of birth: September 26, 1976



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Strong academic background, with 12 years of quantitative analysis in financial markets combined with 5 years of teaching university mathematical finance subjects. My main expertise is the modelling and the development of risk management, asset optimization and financial structured products pricing applications. I have also kept abreast of recent development in the finance research through conference presentations and publication in refereed finance journals.

I am seeking an adjunct professor position establishing links between academia and industry.

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**CURRENT POSITION** (since February 2008):

Vice President Quantitative Analysis at RWE Supply and Trading Switzerland S.A. (former Essent Trading International S.A.) in Geneva, Switzerland.

### EDUCATION

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**2008:** Executive MBA (with Certificate of Merit) from Macquarie Graduate School of Management (member of the international TopMBA network), Sydney Australia.

**2005:** Dealer Accreditation Diploma in Financial Services from the Australian Financial Markets Association (AFMA). A nationally recognised workplace qualification for financial product advisors; specialised in energy derivatives.

**2002:** Ph.D. in mathematical finance (with special commendation from the Australian Mathematical Society), School of Actuarial Studies at UNSW, Sydney, Australia.

Thesis title: « Dynamic Portfolio Optimisation and Asset Pricing – Martingale Methods and Probability Distortion Functions » Three examiners from the USA and Canada unconditionally approved the thesis: Stanley R. Pliska, Harry Panjer and Shaun Wang

**1998:** (DEA) Advanced Research Diploma in Financial Management from the IAE Grenoble, France (Institut d'administration d'entreprises)

**1998:** Masters of Science in financial engineering from the ENSIMAG (French engineering school in computer science & applied maths) part of the INPG (Polytechnic Institute of Grenoble). Double major: Computer Science and Financial mathematics, passed with honours.

## ACADEMIC APPOINTEMENTS

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- July 2010: Visiting Professor at HEC-Université de Genève , Geneva Switzerland

Teaching “Commodity Price Risk” course at the Master of Arts in International Trading, Commodity Finance and Shipping. Duties include subject course development, 24 hours teaching load, preparation and marking of assessments and responding to students’ queries.

- 2003-2007: Lecturer and visiting fellow of the Quantitative Finance Research Centre, Faculty of Finance and Economics, University of Technology of Sydney, Australia

Every semester between June 2003 and November 2007, I have been teaching Investment Management (3 hours a week from 6 to 9pm), a course in Masters of Finance, exploring modern portfolio theory. This subject introduces the theoretical frameworks of the portfolio approaches to investments, and provides practice in the techniques of portfolio analysis and management.

During the semesters: spring 2006 and spring 2007, I also taught Synthetic Financial Products, which deals with the concepts of hedging, speculating and arbitrage in the capital markets, using options and futures. My activities include 3 hours lecture per week, per subject, marking, tutorials, consultation and summer school. This subject is based on the textbook: “Options, Futures and Other Derivatives” by John Hull.

- 2007: Visiting Lecturer in Actuarial Studies, University of New South Wales, Australia

In the actuarial studies department, I taught Financial Economics for Insurance and Superannuation, a Masters class subject accredited by the Institute of Actuaries of Australia (3 hours a week from 6 to 9pm). The aim of this course is to introduce the mathematical and economic models of financial economics and highlight their application to asset-liability management for insurance, superannuation and funds management. This subject is based on textbooks: “Investment Science” by David Luenberger and “Financial Calculus” by Baxter and Rennie. Outstanding teaching report obtained.

- 1999-2002, Teaching and Research Assistant, University of New South Whales, Australia

During this period, I was a teaching assistant of two actuarial subjects: Probability and Statistics and Stochastic Models for Actuarial Applications. My responsibilities included tutoring, marking and consultation for first and second year students. I also provided research assistance and support to the Australian Research Council project conducted by Professor Michael Sherris investigating new investment risk measure and asset allocation strategies.

## HONORS/AWARDS

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- The academy first prize at the end of secondary school studies (1993)
- Regional Mathematics Olympiad first prize (1993)
- First prize in Physics at the entry of French engineering schools (1995)
- Excellence Scholarship (BGF) from the French Government to top engineering schools students (1996- 3 years)
- International Postgraduate Research Scholarship (IPRS) funded by the Australian Department of Employment, Education and Training (1999- 3 years)
- UNSW Faculty of Commerce and Economics Postgraduate scholarship (2000- 2 years)
- Actuarial Studies Grant (2000- 1 year)
- N.H. Neuman Prize special commendation by the Australian Mathematical Society (AMS - 2001)
- Q-group Australia student competition second prize (2002)
- Research paper award: H M Jackson Memorial Prize (2004) by the Institute of Actuaries of Australia for the paper “Contingent Claim Pricing” published in Applied Mathematical Finance (2002)
- UTS School of Finance and Economics Research Grant (\$10,000) to conduct a joint research in applying real option theory to price electricity forward contracts (2004)
- Certificate of Merit from Macquarie Graduate School of Management in recognition of outstanding achievement in foundations of management thoughts, July 2007
- Listed in Who’s who in the World 2009, 2010 and Who’s who in Business and Finance 2010 editions

## INDUSTRY EXPERIENCE

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2008-Present: Vice President Quantitative Analysis, RWE Supply and Trading Switzerland S.A., Geneva, Switzerland

Essent is an international asset-backed merchant energy trading firm. Leading a team of 4 quantitative analysts, I am responsible for the maintenance and development of the key financial evaluation models used to assess the front office complex energy deals and to measure their intrinsic and extrinsic values. My activities are centered around:

- Maintenance and development of financial valuation models used to assess complex or originated deals such as tolling, storage and swing models and providing a fair valuation
- Explanation and discussion of valuation results and help the structurers tailor the deal in a way which ensures a good risk-return ratio for the company, while meeting the requirements of customers
- Providing general quantitative support to the rest of Structuring and Analytics and the company in topics like: (i) the stochastic description of commodity prices; (ii) optimisation models for Essent’s assets or contracts; (iii) temperature and load forecasting; (iv) advanced statistical analysis - for example for hedging purposes; (v)

modelling of power plant stacks and/or pipeline networks; (vi) pricing of energy derivatives

- Acting as resident expert in financial and portfolio theory, which involves participating in the review of methodologies used to value assets/investments

2003 – 2007: with EnergyAustralia, Sydney, Australia

- Quantitative Systems Analyst and Developer (06/2003-12/2005)
- Senior Quantitative Analyst (01/2006-09/2006)
- Analytics Operations Manager (10/2006-12/2007)

Energy Australia is the second largest energy retailer in NSW. I started as commodity quantitative analyst/developer and moved up to head the quant team developing risk management solutions to assist the traders in their decision making. The library I was maintaining and developing covers forecasting of weather, energy demand and prices, generating electricity forward curves, pricing of energy derivatives using different valuation models and calculating portfolio VaR based on Monte Carlo simulations. The analytics include optimisation, SDE models, ARIMA models, genetic algorithms, Poisson process, extreme value theory, copulas...

2002-2003: Financial Engineer, MUREX S.A., Sydney

Murex provides fully integrated front, middle and back office software solutions to handle cash and derivatives trading, risk management and processing in the areas of foreign exchange, energy and commodities, equities, credit and interest rates.

I spent 3 months in Paris office for training in pricing various financial market products and market risk analysis. In Sydney office, I was providing consultancy, training and support to traders and quantitative analysts of three major Australian banks in using the system for pricing, hedging and risk analysis; I was involved in front office activities including implementing external models into Murex system using APIs written in C++ and JAVA.

1999-2001: Financial Engineer, Classic Solutions (Towers Perrin), Sydney  
(2 days a week)

During this period, I modeled, designed and implemented a generic term structure of interest rates and equity returns. The interest rate process was modeled using Heath-Jarrow-Morton (HJM) framework with constant, time-dependent and stochastic volatility functions. The equity returns were modeled using Capital Asset Pricing Model (CAPM) approach with a Generalized Autoregressive Conditional Heteroskedastic (GARCH) error process.

1998-1999: Analyst/Programmer, BNP-Paribas, Paris, France

I spent 6 month internship in BNP equities – Research on Options team, analyzing and testing a new credit risk measurement approach "ValRisk" based on CreditMetrics developed by JP-Morgan, and then was employed to work within a team developing a software "ETK" for the trading room, allowing exchange of financial data using TDL, C/C++ programming languages

## RESEARCH INTERESTS

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Decisions under uncertainty, dynamic portfolio optimization, probability theory, real option theory, asset pricing, commodity markets modelling

## PUBLISHED BOOK/PAPERS

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M. Hamada. Dynamic Portfolio Optimization and Asset Pricing - Martingale Methods and Probability Distortion Functions. Book published by VDM Verlag Dr. Müller, Germany 2009

M. Hamada and M. Sherris. Contingent Claim Pricing using Probability Distortion Operators: Methods from Insurance Risk Pricing and their Relationship to Financial Theory. *Applied Mathematical Finance*, 10 (1): 19-47, 2003.

M. Hamada and E. Valdez. CAPM and Option Pricing With Elliptically Contoured Distributions. *Journal of Risk and Insurance*, 75 (2):387-409, 2008

M. Hamada, M. Sherris and J. van der Hoek. Dynamic Portfolio Allocation, the Dual Theory of Choice and Probability Distortion Functions. *ASTIN Bulletin*, 36 (1): 187-217, 2006

J. Batten and M. Hamada. The Compass Rose Pattern in Electricity Prices. *CHAOS* 19, 043106 - 2009

M. Hamada and J. van der Hoek. Pricing Electricity Forwards using the Real Option Theory. *Forthcoming in Journal of Energy Markets*

M. Hamada and A. Shmatok. A probabilistic Approach for Evaluating Alternatives to Reduce Minimum Send Out Rate at LNG Regasification Terminal, *Forthcoming in LNG Journal*

M. Hamada. Fair Pricing of Energy Derivatives - A Comparative Study. *World Energy Congress proceedings*, 2004

## VISITING POSITIONS

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- Invited researcher at the Mathematical Institute at the University of Oxford, February 2003
- Invited researcher at Haskayne School of Business Finance seminar, University of Calgary, January 2007.
- Visiting Fellow at the Quantitative Finance Research Centre, University of Technology of Sydney, July 2003 - December 2006.

## ACADEMIC ACTIVITIES:

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### Conference Talks:

1. The First National Symposium in Mathematical Finance in Canberra, June 2001
2. The Quantitative Methods in Finance Conference in Sydney, December 2001
3. The Australian Mathematical Society meeting in Canberra, September 2001
4. Q-group Australia Colloquium in Manly, October 2001
5. Actuarial Research @ UNSW Symposium in Sydney, November 2001
6. Q-group Australia Research Prize seminar in Sydney, April 2002
7. Bachelier Finance Society, 2nd World congress in Crete, June 2002
8. The OCIAM centre of Oxford University mathematics seminar, March 2003
9. The Horizon Seminars by the Institute of Actuaries of Australia, April 2003
10. Quantitative Methods in Finance Conference in Manly, December 2003
11. 19th World Energy Congress in Sydney, September 2004
12. The Sydney Financial Mathematics Workshop in Sydney, October 2004
13. University of Technology finance series seminar, Sydney, August 2003
14. Quantitative Methods in Finance Conference in Manly, December 2004
15. University of New South Wales mathematics series seminar, August 2005
16. FIRN Inaugural Doctoral Tutorial in Sydney, December 2005
17. Quantitative Methods in Finance Conference in Manly, December 2005
18. Haskayne School of Business Finance seminar, University of Calgary, January 2007
19. AMSI / MASCOS Industry workshop & ICE-EM short course: The mathematics of electricity supply and pricing, April 2007
20. University of New South Wales Research symposium, November, 2007
21. MODELLING & MEASURING ENERGY RISK, Energy Forum conference, London, November 2008
22. 24<sup>th</sup> World Gas Conference, Buenos Aires Argentina, October 2009

### Referee:

Journal of Economic Dynamics and Control, journal of Applied Mathematical Finance, journal of risk and insurance, Energy Economics, Emerging markets review and reviewer of PhD theses (Financial Integrity Research Network, Australia).

### Affiliation:

- Member of the Australian Mathematical Society
- Member of the American Risk and Insurance Association
- Member of the American Finance Association
- Member of the editorial board of Emerging Markets Review, an Elsevier journal

### Supervised Masters Students:

- Carolina Edkhal: Engineering and Business Management at The Royal Institute of Technology in Stockholm, Sweden. Thesis: Different approaches in modelling commodity forward price dynamics. 2009
- Roza-Evgenia Gkempe: Master in Financial Engineering, University of Twente, The Netherlands. Thesis: Spark spread options and valuation of electricity tolling agreements. 2009