

6th Annual International Conference on

Real Options

Theory Meets Practice

Organized by
Real Options Group
University of Cyprus & Hermes Center
Northwestern University
University of California at Los Angeles

July 4 - 6, 2002
Coral Beach – Paphos, Cyprus

Program Sessions

Location: Akamas Ballroom A

Difficulty/Methodology Guide

(A) Applied; (C) Conceptual; (E) Empirical; (T) Theoretical (Math/Numerical)

DAY 1 – THURSDAY, JULY 4

7:15 – 8:00 Registration and Continental Breakfast

8:00 – 8:40 Chairperson's Welcome & Address

Real Options and Investment Under Uncertainty

Lenos Trigeorgis, U. Cyprus & President, Real Options Group

9:00 – 10:00 Ventures I: Introductory

Chairperson: Anthony Saunders (New York University)

(A) A. Wong (Multimedia U. and MSC Technology, Malaysia), *Real Options Implications on Venture Capitalist's Investment Behavior*

(A) A. Mehler-Bicher and M. Ahnefeld (European Business School, Germany), *Valuing a Private Equity Venture Investment: The Case of a B2B Marketplace Start-Up*

10:00 – 10:30 Morning Coffee Break

10:30 – 12:00 Ventures II: Design and Contracting

Chairperson: David Robinson (Columbia U.)

(T/A) H. Li and J. Feng (Dalian University of Technology, China), *Optimal Staging of Venture Investments*

(T) D. Cossin (HEC, U. Lausanne and IMD), B. Leleux (IMD), and E. Saliassi (HEC, U. Lausanne, Switzerland), *Understanding the Economic Value of Covenants in Venture Contracts*

(E/T) D. Robinson (Columbia U.), *Financial Contracting in Biotech Strategies Alliances*

12:00 – 1:30 Luncheon

1:30 – 3:00 Competition and Strategy

Chairperson: Helen Weeds (Lexecon Ltd., UK)

(T) R. Lukach (U. Antwerp, Belgium), P.M. Kort, and J. Plasmans (U. Antwerp and Tilburg U., Netherlands), *Strategic Dynamic R&D Decisions*

(T) D. Paxson and H. Pinto (Manchester Business School, UK), *Timing Advantage: Leader/Follower Value Functions if the Market Share Follows a Birth and Death Process*

(T) A. Balmann (FH Neubrandenburg and U. Halle, Germany), and O. Musshoff (Humboldt U. Berlin, Germany), *Real Options and Competition: The Impact of Depreciation and Reinvestment*

(T) G. Pawlina and P. Kort (Tilburg U., Netherlands), *The Strategic Value of Flexible Quality Choice*

3:00 – 3:30 Afternoon Coffee Break

3:30 – 5:00 Asymmetric Information, Auctions, and Games
Chairperson: George Constantinides (U. Chicago)

(T) J. Maeland (Norwegian School of Economics and Business, Norway), *Asymmetric Information and Irreversible Investments with Competing Agents: An Auction Model*

(T) S. Martzoukos and E. Zacharias (U. Cyprus), *Real R&D Option Games with Incomplete Information and Spillovers*

(T) M. Shackleton, A. Tsekrekos and R. Wojakowski (Lancaster U., UK), *Strategic Entry and Market Leadership in a Two-player Real Options Game*

5:00 – 6:00 Panel Discussion (joint)

High Tech/Corporate Valuation: Challenges and Prospects

Moderator: Gill Eapen (Principal, Decision Options, ex Director of R&D, Pfizer)

Panelists Include:

Rainer Brosch (Boston Consulting Group)

Fabio Cannizzo (British Petroleum)

George Constantinides (University of Chicago)

Onno Lint (U. Leuven and Associate, Real Options Group)

Michael Raynor (Deloitte Consulting)

David Robinson (Columbia U.)

Rob Smith (Dell Computer Corp)

6:00 – 7:00 Welcome/Networking Cocktail

8:30 – 10:00 Dinner

DAY 2 – FRIDAY, JULY 5

7:45 – 8:30 Continental Breakfast

8:30 – 10:00 Contractual Options and Agency/Incentives

Chairperson: Apostolos Burnetas (Case Western Reserve U.)

(T) C.-J. U. Osakwe (U. Calgary, Canada), *Adverse Incentives and Real Options: Determining the Incentive Compatible Cost of Capital*

(T) A. Burnetas and P. Ritchken (Case Western Reserve U.), *Options Contracts in Supply Chains: Retailer Reorder and Returns Options*

(T) A. Subramanian (Georgia Institute of Technology), *Managerial Flexibility, Agency Costs and Optimal Capital Structure*

10:00 – 10:30 Morning Coffee Break

10:30 – 12:00 Empirical Evidence

Chairperson: Stathis Tompaidis (U. Texas/ Austin)

(E/T) A. Eliasson (Hawaii Pacific U.), S. Gao (Heriot-Watt U., UK), and J. Song (U. Whales, UK), *Exercising Real Options: A Test on Voluntary Liquidations*

(E) A. Charitou and L. Trigeorgis (U. Cyprus), *Option-based Bankruptcy Prediction*

(E/T) S. Titman (U. Texas/Austin), S. Tompaidis (U. Texas/Austin), and S. Tsyplakov (U. South Carolina), *Market Imperfections, Investment Optionality and Default Spreads*

(E) H. Smit and P. van Vliet (Erasmus U. Rotterdam, Netherlands), *Real Options and Stock Market Anomalies*

**12:00 – 1:30 Luncheon Keynote Address by Gordon Sick (U. Calgary)
Will Real Options Get the Respect They Deserve?**

1:30 – 3:00 Valuation of Electric Power/ Infrastructure

Chairperson: Gordon Sick (U. Calgary, Canada)

(T) S. Koekebakker and S. Sodal (Agder University, Norway), *Valuing an Operating Electricity Production Unit*

(E/T) J. Hlouskova, S. Kossmeier, M. Obersteiner, and A. Schnabl (Institute for Advanced Studies, Vienna-Austria), *Real Option Models and Electricity Portfolio Management*

(T) K. Rocha, A. Moreira (IPEA, Brazil), and P. David (FURNAS, Brazil), *Investments in Thermopower Generation: A Real Options Approach for the New Brazilian Electrical Power Regulation*

(A/T) C. Juan, F. Olmos, J.C. Perez, and T. Casaus (U. de Valencia, Spain), *Optimal Investment Management of Harbour Infrastructures: A Simulation Approach*

3:00 – 3:30 Afternoon Coffee Break

3:30 – 5:00 Valuation of Flexible Plants and Global Networks via Switching Options

Chairperson: Ajay Subramanian (Georgia Institute of Technology)

(T) G. Alesii (U. L'Aquila, Italy), *(Numerical) Valuation of a Flexible Manufacturing Plant (or FMS): An Overview Using Cost Volume Profit (CVP) Analysis*

(T) S. Martzoukos, N. Pospori, and L. Trigeorgis (U. Cyprus), *Valuation of a Flexible Plant with Staging Flexibility and Multiple Production Modes*

(T) N. Murthy (Georgia Institute of Technology), M. Shrikhande (Georgia State U. & Bank of Atlanta), and A. Subramanian (Georgia Institute of Technology), *Real Switching Options and Supplier Network Equilibrium in Global Markets*

8:00 – 8:30 Welcome/Overview Talk (by Paphos port & castle)
Overview of Cyprus Financial System & European Prospects
Dr. Marios Clerides, Chairman,
Cyprus Securities & Exchange Commission

8:30 – 10:00 Reception (by Paphos port & castle)
(followed by free stroll near Paphos port & downtown)

DAY 3 – SATURDAY, JULY 6

7:45 – 8:30 Continental Breakfast

Track I (Akamas Ballroom A)

8:30 – 10:00 Conceptual I: Overview
Chairperson: Richard Schockley (Indiana U.)

(C) T. Arnold (Louisiana State U.) and R. Shockley (Indiana U.), *Real Options and the Assumptions of the NPV Rule*

(C/T) M. Bellalah (U. Cergy and U. Paris-Dauphine, France), *Extended NPV and Real Options with Information Uncertainty: Applications for R&D and Ventures*

(C/A) H. Weeds (Lexecon Ltd., UK), *Real Options and Game Theory: When Should Real Options Valuation be Applied?*

10:00 – 10:30 Morning Coffee Break

10:30 – 12:00 Economic Models of Real Options Valuation
Chairperson: Tim Folta (Purdue U.)

(T) R. Tunaru, E. Clark and H. Viney (Middlesex U., UK), *Valuation of Football Players*

(T) S. Sodal (Agder University, Norway), *Timing and Scaling Options for Market Power with Application to Real Estate: When and How Much to Invest?*

(T) A. Tsekrekos (Lancaster U., UK), *Investment and Abandonment Under Economic and Implementation Uncertainty*

(E/T) T. Folta and J.O'Brien (Purdue U., USA), *Entry Timing in the Presence of Growth Options*

12:00 – 1:30 Luncheon

1:30 – 3:30 Valuing Natural Resource Investments

Chairperson: Marco A.G. Dias (Petrobras, Brazil)

(A) M. Samis (Kuisseb Consulting, Canada), *Real Options Analysis of the Capital Structure of East Rand Proprietary Mine: A Case Study*

(T) M. Bellalah (U. Cergy and U. Paris-Dauphine, France), *Valuation of Commodity Projects and the Option to Invest with Stochastic Prices and Incomplete Information*

(A/T) M.A.G. Dias (PUC-Rio and Petrobras, Brazil), *Investment in Information in Petroleum: Real Options and Revelation*

(A) A. Soriano-Ramirez, M. Cisneros-Molina (Mexican Institute of Petroleum) and C. Ibarra-Valdez (Autonomous Metropolitan University, Mexico), *Real Options for the Release of New Crude Mixtures in Mexico*

Track II (Akamas Ballroom C)

8:30 – 10:00 Conceptual II: General Perspectives

Chairperson: Lawrence Kryzanowski (Concordia U., Canada)

(C) M. Dimpfel (University of St Gallen, Switzerland) and R. Algesheimer (Johannes Gutenberg Universitat Mainz, Germany), *Action Flexibility or the Option to Use Real Options: A Neo-institutional Economics Perspective*

(C) R. Rochman (FGV-EAESP, Brazil), *Real Options Valuation of Companies Run by Theory of Constraints*

(C) J.P. Dapena Fernandez (Universidad del CEMA, Argentina), *On Property Rights and Appropriation of Real Options*

10:00 – 10:30 Morning Coffee Break

10:30 – 12:00 Theoretical Issues I

Chairperson: Manuel Rocha Armada (U. Minho, Portugal)

(A/T) M. Collan and P. Majlender (IAMSR/Abo Akademi U., Finland), *Fuzzy Real Option Valuation*

(A/T) A. Gamba (U. Verona, Italy), *An Extension of Least Square Monte Carlo Simulation for Multi-option Problems*

(T) P.J. Pereira, M. Rocha Armada (U. Minho, Portugal), and L. Kryzanowski (Concordia U., Canada), *Real Investment Opportunity Valuation and Timing with Finite-Lived American Exchange Options*

12:00 – 1:30 Luncheon

1:30 – 3:30 Theoretical Issues II

Chairperson: Spiros Martzoukos (U. Cyprus)

(C/T) C. Sureth (U. Bielefeld, Germany) and R. Niemann (U. Tuebingen, Germany), *Limits of Integrating Taxes in Real Option Theory*

(T) N. Koussis, S. Martzoukos and L. Trigeorgis (U. Cyprus), *Real Options with Incomplete Information and Time-To-Learn*

(T) H. Rhys and J. Song (University of Wales, UK), *Valuing Projects with Stochastic Asset Life*

(T) A. Camara (U. Strathclyde, UK), *Valuation of Options on Multiple Operating Cash Flows*

3:30 – 4:30 Panel Discussion: Current State, Challenges and Future Prospects
Moderator: Gordon Sick (University of Calgary, Canada)

Panelists Include:

Marco A.G. Dias (Petrobras)

Tim Folta (Purdue U.)

Arnd Huchzermeier (WHU Koblenz)

John Kensinger (U. N. Texas)

Lawrence Kryzanowski (Concordia U.)

Lenos Trigeorgis (U. Cyprus and ROG)

Helen Weeds (Lexecon Inc.)

4:30 Closing Remarks/Conference Concludes

8:30 – 10:30 Traditional Dinner with Music (downtown)

SUNDAY, JULY 7

Bus Tour (optional)

Keynote Address

Dr. Gordon Sick

University of Calgary

Professor Sick is Professor of Finance at the University of Calgary. Previously he taught at Yale University, the University of British Columbia, and the University of Alberta. He received a Masters in Mathematics from the University of Toronto, and a Masters and PhD in Finance from the University of British Columbia. Dr. Sick has been a Fellow at the Royal Netherlands Academy of Arts and Sciences (NIAS), and is the book review editor for the *Journal of Finance*.

Professor Sick made early contributions in real options primarily in the area of urban land and natural resource economics and published one of the first comprehensive monographs on real options in 1989. He has made important contributions in the area of certainty-equivalent valuation and capital budgeting, which are at the core of real options. For example, he pondered how to value interest tax shields in the presence of certainty-equivalents, and in his work on Tax-Adjusted Discount Rates he develops the correct treatment for discounting certainty-equivalents (including real options).

On the practitioner side, Dr. Sick was one of the founding members of the Real Options Group, and has subsequently consulted independently, for Stern Stewart and Co. and others. He has also been instrumental for the success of the annual real options conference, helping out with the website, program and otherwise.

Dr. Sick will deliver the Keynote Address during luncheon on Friday, July 5 at 12:00.

About the Conference

Aim To bring together academics and practitioners at the forefront of real options and investment under uncertainty to discuss recent developments and applications. The conference features academic and professional presentations of theoretical and applied work, workshops and case discussions, sharing experiences from the field and panel discussions.

Topics Sessions span a broad range of topics on theory or application of real options. Specific sessions include ventures, conceptual developments, R&D/new product development, valuation of oil and natural resource investments, electric power and infrastructure, valuation of flexible plants and global networks, competition and strategic investments, theoretical issues in real options valuation, including asymmetric information, auctions and games, contractual options and agency/incentives, economic models, organizational adoption & implications, empirical evidence, case studies, and a variety of other applications.

Keynote Addresses

2002	Gordon Sick (U. Calgary)
2001	Eduardo S. Schwartz (UCLA)
2000	Myron Scholes (Stanford U.)
1999	Stephen A. Ross (MIT)
1998	Robert L. McDonald (Northwestern U.)
1997	Michael J. Brennan (UCLA)

Review and Publication Submitted papers were reviewed by a committee headed by Professors Lenos Trigeorgis (U. Cyprus & ROG), Michael Brennan (UCLA), Robert McDonald (Northwestern U.), Gordon Sick (U. Calgary), Alex Triantis (U. Maryland), and Spiros Martzoukos (U. Cyprus). In addition, the best submitted papers may be considered for publication, after a standard review process, in a forthcoming book on real options to be published by *Oxford University Press*.

Registration and Expenses

Academic (faculty & students): \$350 or CY£235 by May 1, \$400 or CY£267 thereafter

Corporate: \$1000 or CY£667 by May 1, \$1,250 or CY£833 thereafter

Consulting firms: \$2,500 or CY£1667 by May 1, \$3,000 or CY£2,000 thereafter

Amounts more than \$400 (or CY£267) *must* be remitted via bank transfer (Swift) in US\$; smaller amounts (although also preferred via bank transfer) *may* be remitted via credit card but can only be paid/processed in Cyprus pounds at the above quoted CY£ rates. Payments should be made to Lenos Trigeorgis, for Real Options Conference.

Preferred mode of payment via bank transfer (Swift):

Name: Lenos Trigeorgis, for Real Options Conference

Account no: 1024242106022
Bank/Swift: Alpha Bank, Nicosia, Cyprus
Swift code: ABKLCY2N
Correspondent Bank (for US\$): J.P. Morgan Chase Bank
Swift code: CHASUS33; Account no. 0011190741

To register (and pay via credit card in CY£ for amounts less than \$400 or CY£267) please fill out the online registration form at the real options conference website <http://www.realoptions.org>. Please fax a copy of your bank transfer (swift) to Helen at +357 22892481 (attention Lenos Trigeorgis, for Real Options Conference). We regret that due to high transaction costs and long delays we cannot accept personal checks.

Fees are waived for all presenters for the conference in which they participate (those serving only on the panel save half the fees); in addition, stipends of Euros 500 to be used toward travel and hotel expenses are provided for some of the academic presenters (only one if multiple co-authors). Academics registering in this conference are entitled to receive a 50% discount on the accompanying practitioner conference on *Real Options Valuation in the New Economy*.

Fees include program materials (copies of papers), breakfasts, lunches, some dinners, and receptions.

Venue/Hotel: Coral Beach - Paphos

The conference will take place at:

Coral Beach Hotel & Resort
Coral Bay, P.O. Box 62422
P.C. 8099 Paphos, CYPRUS
Telephone +357 26 621601
Fax +357 26 621156
Website www.coral.com.cy
E-mail reservations: Andreas Mylonas elenaA@coral.com.cy (access code RO2002)

Paphos is probably the most picturesque and natural venue in Cyprus, rich with ancient Greek history, tombs and mosaics, palaces and forts, Christian churches and monasteries, natural beaches, and local culture and traditions. It is famed for being the birthplace of Aphrodite, the Goddess of Love, and one can see Aphrodite's Rock as well as her Baths. The beautiful Mosaics of Paphos (near the harbor), depicting scenes from Greek mythology, are the finest mosaics in the Eastern Mediterranean. Other sites include the Tombs of the Kings (4th century BC), the Odeon (2nd century), the ancient town of Kouklia and Temple of Aphrodite, the columns where St. Paul was beaten, as well as the Archaeological, Byzantine and Ethnographical museums. The town of Paphos is listed as a World Heritage Site by UNESCO.

The Coral Beach Hotel & Resort is a superb 5 star hotel resort located in an idyllic beachfront setting with 500 meters of natural sand, embraced by the clear turquoise waters of the Mediterranean. The hotel offers undisturbed views over the lush landscaped gardens and the Coral Bay beach, one of the very best beaches on the island. The hotel is just 25 min from Paphos International Airport, ten minutes drive down the coast road with blue sky all around from the picturesque harbor of Paphos

(8 km), a short distance from the Akamas natural park, and only a short stroll away from taverns, bars, and shopping center. At this luxurious yet calm resort, you can revitalize your mind and body in the calming natural environment.

Coral beach hotel offers special rates to conference participants. Please refer to the real options conference (code RO2002) for these special rates (in Cyprus pounds):

Run of House Room – Single 68; Double 48

Sea View Room – Single 73; Double 53

Studio – Single 79; Double 59

All above rates are quoted and must be paid in Cyprus Pounds (as of April 2001, 1CY£ was about \$1.6), per person/ per day, and include buffet breakfast, taxes, service charge and VAT. Facilities include indoor and outdoor pools, health club and beauty spa, tennis courts, arts & crafts center (for spouses & children), nightclub with live music etc. For delegates wishing to extend their stay, the same rates will be applicable.

Rooms at the above rates cannot be guaranteed after May 1. Reservations after this cutoff date are subject to availability. For views of the rooms or other info. on the hotel see www.coral.com.cy. For cancellation policy, online hotel reservation guidelines (cite access code RO2002 for special rates) and other details see the conference website www.realoptions.org. A hard copy of the hotel reservation form can be downloaded from the conference website or faxed upon request by e-mailing conference.registration@realoptions.org

Alternative accommodation (more economical but of lower standard and less conveniently-located) may be arranged for conference speakers and students (only); for information and reservations please contact conference.registration@realoptions.org (re: alternative accommodation).

Airports/ Transportation

You can fly to Larnaca (LCA) or to Paphos (PFO) international airports (LCA is the main airport with most flights). Larnaca airport is 150 km or 110 min, while Paphos airport is 18 km or 20 min. There will be a bus on Wednesday evening July 3 at Larnaca airport (look for Real Options Conference sign at the exit) for the hotel. The departure time will be determined based on when most people will arrive as noted on the registration forms. (If you miss it you can take a taxi from outside the airport to your right). Car rentals can also be arranged at the airport. You can check for flights at www.itn.com

[Map here]

Bus Tours Two bus tours are provided as an optional service for conference participants and accompanying persons. The **main Sunday bus tour** (\$45 or CY£30 /person) will visit the best natural, traditional and archaeological attractions in the Paphos and Limassol areas and is intended for all conference participants and accompanying persons at the end of the conference on Sunday July 7 (from 8:00 am to 4:00 pm). The tour may include part of the unspoiled Akamas nature resort (a

unique area with diverse vegetation, wild life, geology, landscapes and coasts), including the Baths of Aphrodite; a visit of the main sites of Paphos, such as Tombs of the Kings, Mosaics of Paphos, St Paul's columns and church, the ancient town of Kouklia and Temple of Aphrodite; then head towards Limassol, seeing on the way Aphrodite's Rock, the ancient Greek theatre of Curium, and the medieval castle of Kolossi; brief tour of the city of Limassol, including the port, Loel Winery, and the Amathus ancient site. After the common route seeing the sites of Limassol, one of the buses will continue to see some villages on part of the Troodos mountain region (and then return to the hotel), while the other bus will head to Larnaca. This bus should be at Larnaca airport about 2:30 pm (so people can catch flights 4 pm onwards –e.g., flight to Vienna at 4:20 pm), spend 30-40 min at Saint Lazarus church and the Larnaca tourist beach area, and return to the hotel in Paphos.

A half-day **Friday bus tour for spouses** and children (\$25 or CY£17) will be offered on July 5 (8:00 am to 2:00 pm) concentrating on the mountains, monasteries and wine tasting. Both bus tours include meals (lunch). Advanced reservations for either bus tour can be made as part of your online registration through the conference website.

For updated information on bus tours and airport transportation please check with the conference website later on or inquire at conference.registration@realoptions.org

Conference Organizers Lenos Trigeorgis (University of Cyprus & Real Options Group), Michael Brennan (UCLA), Robert L. McDonald (Northwestern University)

VPs Program: Gordon Sick (U. Calgary) and Spiros Martzoukos (U. Cyprus); VP Local Arrangements: Spiros Martzoukos (U. Cyprus); VP Website: Gordon Sick (U. Calgary)

Notification & Inquiries The final program will be communicated to all those registered by May 1. Confirmations will be sent out (by email) no later than June 10. For questions regarding paper submission or other academic aspects of the conference contact Lenos Trigeorgis (tel +357 22 892476 or -892462; fax +357 22 892460; e-mail lenos@ucy.ac.cy). For information on logistics, registration and other conference-related inquiries contact Helen (tel +357 22892482; fax +357 22892481; e-mail conference.registration@realoptions.org). For additional information, on-line registration or previous years' programs (abstracts and papers) see the conference website www.realoptions.org. Registration *should* be made online via this website.

Related Back-to-Back Conferences Academics (only) attending this conference are entitled to receive a 50% discount on two back-to-back conferences taking place in the same hotel: the accompanying practitioner conference on *Real Options Valuation in the New Economy* (July 4-5); and the *9th Annual Multinational Finance Society (MFS) conference* (June 30-July 3; see <http://mfs.rutgers.edu>). Finally, there is enough time (if take a Saturday evening flight with Austrian Airlines or a Sunday morning flight with Cyprus Airways) to attend a *real options workshop in Krems-Austria* (July 7-8; see <http://ebweb.tuwien.ac.at/ibwl/realopt.html>).