19th Annual International Conference

Real Options
Theory Meets Practice

Organized by
Real Options Group
National & Kapodistrian University of Athens
Athens University of Economics and Business

In cooperation with
Bank of Cyprus Chair/University of Cyprus
King's College London
Northwestern University and
University of California at Los Angeles

June 17 - 20, 2015
Athens & Monemvasia, Greece
# Program Sessions Summary Guide

**DAY 1 - WEDNESDAY, JUNE 17 (Metropolitan Hotel Athens)**

<table>
<thead>
<tr>
<th>Track I (Managerial–Crete Room)</th>
<th>Track II (Academic–Corfu Room)</th>
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<tr>
<td>8:00-8:55 Registration &amp; President's Welcome</td>
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<tr>
<td>9:00-10:15 Personal Applications</td>
<td>9:00-10:15 R&amp;D &amp; Technology Investment</td>
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<tr>
<td>10:45-12:00 Various Corporate &amp; Public Applications</td>
<td>10:45-12:00 Staged Investment, VC &amp; Corp. Structure</td>
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<td>12:00-2:00 Luncheon</td>
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<tr>
<td>2:00-3:15 Energy, Nat. Resources &amp; Environment I</td>
<td>2:00-3:15 Mergers &amp; Acquisitions</td>
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<td>3:45-4:40 Energy, Nat. Resources &amp; Environment II</td>
<td>3:45-4:40</td>
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<tr>
<td>6:00-7:30 Networking Reception at U. Athens (bus from hotels at 5:15 &amp; 5:50 pm)</td>
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**DAY 2 - THURSDAY, JUNE 18 (Metropolitan Hotel Athens)**

<table>
<thead>
<tr>
<th>Track I (Joint–Crete Room)</th>
<th>Track II (Joint–Corfu Room)</th>
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<tbody>
<tr>
<td>8:30-9:00 Registration</td>
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<tr>
<td>9:00-10:15 Empirical Evidence I</td>
<td>9:00-10:15 Renewable Energy &amp; Policy</td>
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<tr>
<td>10:45-12:00 Empirical Evidence II</td>
<td>10:45-12:00 Corporate &amp; Public Policy Investment</td>
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<tr>
<td>12:00-12:45 Keynote Address (Corfu Room)</td>
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<tr>
<td>12:45-2:00 Luncheon</td>
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<tr>
<td>2:00-3:00 Panel Discussion: Growth in Europe (Corfu Room)</td>
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3:30 Buses leave for Monemvasia 320 km away (outside Metropolitan and Coral hotels)

**DAY 3 - FRIDAY, JUNE 19 (Academic-Monemvasia)**

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<thead>
<tr>
<th>Track I (Aghios Nikolaos Church)</th>
<th>Track II (New Malvasia Hotel)</th>
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<tbody>
<tr>
<td>8:30-9:00 Registration</td>
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<tr>
<td>9:00-10:15 Sequential Investment &amp; Expansion</td>
<td>9:00-10:15 Product(ion) Switching Options</td>
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<td>10:45-12:00 Flexible Capacity Decisions</td>
<td>10:45-12:00 Switching Issues &amp; Applications</td>
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<tr>
<td>12:00-2:00 Luncheon</td>
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<tr>
<td>2:00-3:15 Strategic Investment &amp; Preemption</td>
<td>2:00-3:15 Early Exercise &amp; Computation Approaches</td>
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<tr>
<td>3:45-5:00 Strategic Inv. &amp; Capacity Choice Games</td>
<td>3:45-5:00</td>
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<tr>
<td>6:30-8:00 Local Vendor’s Reception (outside Theofano Art Hotel)</td>
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**DAY 4 - SATURDAY, JUNE 20 (Academic-Monemvasia, Church)**

| 8:00-10:15 Theoretical Models & Issues | |
| 10.30-11:30 Panel Discussion: Current State, Challenges and Future Prospects | |

1:00-6:00 Bus tour in the Monemvasia region (meet outside castle gate)
2:00 Bus returns to Athens (also at 2.00 pm on Sunday) (outside castle gate)
Program Sessions

Day 1 - Wednesday, June 17 (Metropolitan Hotel)

8:00-8:40 Registration (Outside Corfu Room)

8:40-8:55 President’s Welcome (Corfu Room)

9:00-10:15 Track I (Managerial-Crete Room)

Personal Applications
Chairperson: Lenos Trigeorgis (KCL & U. of Cyprus)

*Should I Go to Work Now or Stay More at Home: Optimizing the Morning Commute*
L. Cordeiro and L. Brandão (PUC-Rio, Brazil)

*Monte Carlo Valuation of the Option to Expand with Application in Multi-Story Car Parking*
T. Wisniewski and M. Pawlak (U. of Szczecin, Poland)

*Mortgage Renegotiation and Strategic Default: Nash Bargaining in US Residential Mortgages*
M. Flanagan (Manchester Metropolitan U.) and D. Paxson (U. of Manchester, UK)

9:00-10:15 Track II (Academic-Coru Room)

R&D and Technology Investment
Chairperson: Luiz Brandão (PUC-Rio, Brazil)

*Valuation of R&D Projects with Expansion and Updating*
L. Brandão (PUC-Rio), J.S. Dyer (U. of Texas, USA), G. Fernandes and L.F.J Motta (PUC-Rio, Brazil)

*R&D Licensing in Biopharmaceuticals: How to Structure a Good Deal*
F. Baldi (LUISS Guido Carli U., Italy) and L. Trigeorgis (U. of Cyprus, Cyprus)

*End-game Effects in R&D Investment with Uncertain Cost and Finite Horizon*
S. Rötzer (Vienna U. of Technology, Austria)

10:15-10:45 Morning Coffee Break
10:45-12:00 Track I (Managerial-Crete Room)
Various Corporate & Public Applications

Chairperson: Lenos Trigeorgis (KCL & U. of Cyprus)

Hiring Decisions and Human Resource Flexibility
L. Ozorio, J.V. Perufo and C. Bastian-Pinto (IBMEC Business School, Brazil)

Valuation of a Staged PPP Contract in Brazil: When is Abandonment Not an Option?
R. Igrejas, L. Cordeiro, L. Brandão and L.F.J. Motta (PUC-Rio, Brazil)

Global Wealth Inequality, Economic Freedom, and Real Options Thinking
J. Kinnunen (Åbo Akademi U., Finland) and I. Georgescu (Academy of Economic Studies, Romania)

10:45-12:00 Track II (Academic-Corfu Room)
Staged Investment, Venture Capital & Corporate Structure

Chairperson: Arkadiy Sakhartov (Wharton School, U. of Pennsylvania, USA)

Resource Relatedness, Economies of Scope and Corporate Structure
A. Sakhartov (Wharton School, U. of Pennsylvania, USA)

Entrepreneurs, VCs and Growth Opportunities: Entrepreneurial Financing Model Design
M.T. Gärtner, P. Pereira and E. Brandão (U. of Porto, Portugal)

Sequential Investment in Emerging Technologies with Risk Aversion and Policy Uncertainty
L.H. Sendstad, P. Bjørksund and M. Chronopoulos (NHH, Norway)

12:00 - 2:00 Luncheon

2:00-3:15 Track I (Managerial-Crete Room)
Energy, Natural Resources & Environment I

Chairperson: Lenos Trigeorgis (KCL & U. of Cyprus)

A Case Application in an Oil and Gas Project in Latin America
M. Russo and A.R. Neto (FGV Escola de Admin. de Empresas de São Paulo, Brazil)

Thermal Power Portfolio Valuation under Uncertainty in Brazil
W.J. Damasceno do Nascimento (PUC-Rio), M.A.G. Dias (Petrobras) and M.A. Cavalcanti Pacheco (PUC-Rio, Brazil)

Valuation of a Wind Farm Project in Serbia
D. Loncar (U. of Belgrade), I. Milovanovic, B. Rakic and T. Radjenovic (U. of Nis, Serbia)
2:00–3:15 Track II (Academic-Corfu Room)

Mergers & Acquisitions

Chairperson: Artur Rodrigues (U. of Minho, Portugal)

A Theory on Merger Timing and Announcement Returns
P. Pereira (U. of Porto) and A. Rodrigues (U. of Minho, Portugal)

Dynamic Redemption, Default and Evaluation of LBOs: A Crossing Boundary Approach
A. Lahmann, M. Schreiter, and B. Schwetzler (HHL Leipzig, Germany)

Strategic Behaviour of a Business Acquisition Target: Non-competition Covenants and Market Reentry
A. Azevedo (U. of Hull, UK), P. Pereira (U. of Porto) and A. Rodrigues (U. Minho, Portugal)

3:15–3:45 Afternoon Coffee Break

3:45–4:40 Track I (Managerial-Crete Room)

Energy, Natural Resources & Environment II

Chairperson: Lenos Trigeorgis (KCL & U. of Cyprus)

Assessing Hard Coal Mining: An Application with Abandonment in the Czech Republic
M. Culík and P. Gurny (VSB-Technical U. of Ostrava, Czech Republic)

Estimation of Volatility in Mining Projects: The Impact of Fixed Costs
K. Ampofo and R. Wolff (U. of Queensland, Australia)

3:45–4:40 Track II (Academic-Corfu Room)

Financing & Investment Choices

Chairperson: Gordon Sick (U. of Calgary, Canada)

Corporate Liquidity and Dividend Policy under Uncertainty
N. Koussis (Frederick U.), S. Martzoukos and L. Trigeorgis (U. of Cyprus, Cyprus)

External Funding Costs, Bargaining and Investment Timing
H. Roche (U. Adolfo Ibáñez, Chile)

6:00–7:30 Networking Reception at U. of Athens
(Bus from Metropolitan Hotel at 5:15 pm and 5:50 pm)
Sponsored by N&K University of Athens and ROG
Day 2 - Thursday, June 18 (Metropolitan Hotel Athens)

9:00-10:15 Track I (Joint-Crete Room)
Empirical Evidence I
Chairperson: Diderik Lund (U. of Oslo, Norway)

Offshore Wind Park Investment with Feed-in Tariffs: The German Renewable Energy Case
V.J. Schwanitz (Potsdam-Institut of Climate Impact Research, Denmark)

Comparative Statics for Oil Investments: Challenging Stylized Facts
D. Lund and R. Nymoen (U. of Oslo, Norway)

Real Options and Government Supports to PPP Infrastructure Investments: An Empirical Study
O. Adetunji and A. Owolabi (Lagos Business School, Pan-Atlantic U., Nigeria)

9:00-10:15 Track II (Joint-Corfu Room)
Renewable Energy & Policy
Chairperson: Graham Davis (Colorado School of Mines, USA)

Mitigating Wind Exposure with (Lower and Uppend Bound) Collars-type Insurance
G. Fernandes, L. Gomes, G. Vasconcelos and L. Brandão (PUC-Rio, Brazil)

Energy Consumption and Priority Dispatch for Renewables under Demand Uncertainty
F. Kalantzis, N. Milonas and S. Thomadakis (N&K U. of Athens, Greece)

Alternative Renewable Electricity Support Schemes under Market and Policy Uncertainty
T.K. Boomsma (U. of Copenhagen, Denmark) and K. Linnerud (CICERO, Norway)

10:15-10:45 Morning Coffee Break

10:45-12:00 Track I (Joint-Crete Room)
Empirical Evidence II
Chairperson: Peter Pope (London School of Economics, UK)

Effects of Risk Biases on Real Options Pricing
N. Brady (U. of Newcastle, Australia)

Discouraged In-need Borrowers: An Empirical Analysis of SMEs Borrowing Option
K. Drakos and A. Tsekrekos (Athens U. of Economics and Business, Greece)

Excess Capacity, Momentum and Long-term Reversal in Stock Returns
K. Aretz (U. of Manchester) and P. Pope (London School of Economics, UK)
10:45-12:00 Track II (Joint-Corfu Room)
Corporate and Public Policy Investment Appraisal

Chairperson: Panayiotis Alexakis (N&K U. of Athens, Greece)

Corporate Divestment Options in Takeover Premia by U.S. Acquirers
P. Alexakis (N&K U. of Athens), M. Chondrokouki and A. Tsekrekos (AUEB, Greece)

Appraisal of Interdependent Physical and Digital Urban Infrastructure Investments
S. Maier, J. Polak and D. Gann (Imperial College London, UK)

Valuation of Clean Development Mechanism (CDM) Investments
M. Keoula (Bielefeld U., Germany)

12:00 - 12:45 Keynote Address (Corfu Room)
Bart Lambrecht (U. of Cambridge)
Real Options and Agency Dynamics in Corporate Finance

12:45 - 2:00 Luncheon

2:00 - 3:00 Panel Discussion
Growth-Linked Bonds, (Un)Balanced Budgets, Infrastructure Investment and Growth in Europe
Moderator: Panayiotis Alexakis (N&K U. of Athens, Greece)

Panelists Include:
Gikas Hardouvelis (ex Minister of Finance, Greece)
Dean Paxson (U. of Manchester, UK)
Peter Pope (London School of Economics, UK)
Gordon Sick (U. of Calgary, Canada)
Lenos Trigeorgis (U. of Cyprus & King’s College London)
Yianis Varoufakis (Minister of Finance, Greece)

3:30 Buses Leave Metropolitan Hotel for Monemvasia (320 km)
Day 3 - Friday, June 19 (Academic-Monemvasia)

9:00-10:15 Track I (Aghios Nikolaos Church)

Sequential Investment & Expansion

Chairperson: Yuri Lawryshyn (U. of Toronto, Canada)

Valuation of Sequential vs. Lump Investment with Stage-specific Parameters
R. Adkins (Bradford U.) and D. Paxson (Manchester Business School, UK)

Modular Plant Expansion: A Simulation Application to Wastewater Treatment
M. Davison (U. of W. Ontario), Y. Lawryshyn and B. Zhang (U. of Toronto, Canada)

Generation Investment Replacement and Complementarity under Uncertainty
R. Adkins (Bradford U.) and D. Paxson (Manchester Business School, UK)

9:00-10:15 Track II (New Malvasia Hotel)

Product(ion) Switching Options

Chairperson: Nikolaos Milonas (N&K U. of Athens, Greece)

Valuing Product Switch Options in Integrated Steel Plants using Monte Carlo Simulation
V. Neri and L. Ozorio (IBMEC Business School, Brazil)

Valuing Production Switch Options in Commodities
G. Dotsis and N. Milonas (N&K U. of Athens, Greece)

Optimal Switching under Stochastic Volatility with Fast Mean Reversion
A. Tsekrekos and A. Yannacopoulos (AUEB, Greece)

10:15-10:45 Morning Coffee Break

10:45-12:00 Track I (Aghios Nikolaos Church)

Flexible Capacity Decisions

Chairperson: Gordon Sick (U. of Calgary, Canada)

Do Plants Freeze Employment upon Uncertainty Shocks?
M. Meier and A. Mecikovsky (U. of Bonn, Germany)

Firms’ Interactive Capital Investment Decisions with Network Effects
Y. Li (Ryerson U.) and G. Sick (U. of Calgary, Canada)

Anticipative Transmission Capacity Planning with Renewable Energy Expansion
V. Hagspiel (NUST, Norway), A.S. Siddiqui (University College London, UK) and T.M. Boomsma (U. of Copenhagen, Germany)
10:45-12:00 Track II (New Malvasia Hotel)

Switching Issues & Applications

Chairperson: Nicola Secomandi (Carnegie Mellon U., USA)

Sequential Innovation Investment and Technology Switching under Rivalry and Uncertainty
M. Chronopoulos (NSE, Norway) and A. Tsekrekos (AUEB, Greece)

The Odd Notion of "Reversible Investment"
G. Davis (Colorado School of Mines, USA) and R. Cairns (McGill U., Canada)

Analyzing the Tradeoff between Storage and Transport in Merchant Energy Trading Networks:
An Application to Natural Gas
S. Nadarajah (U. of Illinois at Chicago) and N. Secomandi (Carnegie Mellon U., USA)

12:00 - 2:00 Luncheon

2:00-3:15 Track I (Aghios Nikolaos Church)

Strategic Investment & Preemption

Chairperson: Bruno Versaevel (EMLYON, France)

Complementary Investments in Sequential (Leader-Follower) Duopoly Markets
A. Azevedo (Hull U.) and D. Paxson (Manchester Business School, UK)

Innovation and Imitation in Dynamic Duopoly
E. Billette de Villemeur (U. of Lille 1), R. Ruble and B. Versaevel (EMLYON & GATE, France)

Managerial Strategic Investment with Agency and Competition
A. Odabasioglu (Swiss Finance Institute/U. of Geneva, Switzerland)

2:00-3:15 Track II (New Malvasia Hotel)

Early Exercise & Computation Approaches

Chairperson: Mark Shackleton (Lancaster U., UK)

Convergence and Versatility of LSM Simulation for Alternative Stochastic Processes
D. Nogueira de Paula and C. Bastian-Pinto (IBMEC Business School, Brazil)

Detecting Trigger Events for Successful Investment: A Multidisciplinary Non-Parametric Analysis
C. Justin and D. Mavris (Georgia Institute of Technology, USA)

Valuing Flexible Cashflow Networks with Operating Modes Switching
S. Ekern (NHH, Norway), M. Shackleton (Lancaster U., UK) and S. Sodal (Agder U., Norway)

3:15-3:45 Afternoon Coffee Break
3:45-5:00 Track I (Aghios Nikolaos Church)

Strategic Investment & Capacity Choice Games

Chairperson: Dean Paxson (Manchester Business School, UK)

Capacity Choice in a Duopoly with Endogenous Exit
M. Lavrutich, P. Kort and K. Huisman (Tilburg U., Netherlands)

Strategic Investment Timing and Capacity Decisions by Asymmetric Firms
N. Huberts (Tilburg U.), H. Dawid (Bielefeld U., Germany), K. Huisman and P. Kort (Tilburg U., Netherlands)

Asymmetric Cournot Oligopoly under Capacity Constraints
B. Chevalier-Roignant (BCR, Germany), C. Flath (U. of Wuerzburg, Germany) and L. Trigeorgis (KCL and U. of Cyprus, Cyprus)

3:45-5:00 Track II (New Malvasia Hotel)

Ambiguity and Fuzzy Investment Options

Chairperson: Motoh Tsujimura (Doshisha U., Japan)

Pollutant Abatement Investment Policy under Ambiguity
M. Tsujimura (Doshisha U., Japan)

Ambiguity in a Real Option Game
T. Hellmann (Bielefeld U., Germany) and J. Thijssen (U. of York, UK)

Strategic Technology Adoption and Portfolio Choice under Incomplete Markets
M. Leippold and J. Stromberg (U. of Zurich, Switzerland)

6:30-8:00 Local vendor's reception & poetry reading
(in square outside Theofano Art Hotel)
Day 4 - Saturday, June 20 (Academic-Monemvasia)

(Aghios Nikolaos Church)

9:00-10:15 Theoretical Models & Issues

Chairperson: Andrianos Tsekrekos (AUEB, Greece)

*Waiting to Invest When Interest Rates Are in a Liquidity Trap*
G. Dotsis (N&K U. of Athens, Greece)

*Entry and Exit Decisions under Output-Price Uncertainty: A Generalized Class of 1-D Diffusions*
J.C. Dias (ISCTE), M. Larguinho (ISCAC) and C. Braumann (U. of Évora, Portugal)

*On the Equivalence of Dixit-Pindyck and Arrow-Fisher-Hanemann-Henry Option Value Concepts*
W. Althammer and G. Siegert (HHL Leipzig, Germany)

10:30-11:30 Panel Discussion

**Current State, Challenges and Future Prospects**

Moderators: Gordon Sick (U. Calgary, Canada) and Dean Paxson (Manchester Business School, UK)

Panelists Include:
Luiz Brandão (PUC-Rio, Brazil)
Yuri Lawryshyn (U. of Toronto, Canada)
Artur Rodrigues (U. of Minho, Portugal)
Nicola Secomandi (Carnegie Mellon U., USA)
Mark Shackleton (Lancaster U., UK)
Bruno Versaevel (EMLYON, France)

11:30 Best Student Paper Award and Closing Remarks
11:30-12:15 Coffee Break
Conference Concludes

1:00-6:00 Bus Tour in Monemvasia Region (Outside Castle Gate)

2:00 Bus Returns to Athens 320 km (also another bus returns to Athens on Sunday at 2:00 pm) (Outside Castle Gate)
Conference Venue and Logistics

Venue
The conference on June 17 and 18 will take place at Metropolitan Hotel Athens at 385 Syngrou Ave. in Paleon Faliron, Athens; then participants will move to Monemvasia (320 km away) by buses leaving from Metropolitan at 3.30 pm on June 18 to continue the conference on June 19 and 20 in the medieval Aghios Nikolaos Basilika (Church) and New Malvasia Hotel inside the medieval Castle of Monemvasia surrounded by the sea off the coast in southern Peloponnese.

Fees & Registration
€480 by April 10 (for both Academic and Managerial conferences, including return bus fare). Registration fees go up by 20% to €575 after April 10. Registration should be made online via the conference website www.realoptions.org

Important Administrative Information
Registration fees include the return bus fare from Athens to Monemvasia (€60), the conference proceedings and other materials, gifts, lunches, coffee breaks, and two receptions. Only registrations paid by April 10 are guaranteed to be confirmed and be included on the official list of participants. For registration and other general-type conference-related inquiries contact Eugenia (tel +357 22893605; fax +357 22895475; e-mail conference.registration@realoptions.org). For information on local logistics in Greece contact Andrianos Tsekrekos (tel+30 6936599640, e-mail tsekrekos@aueb.gr).

Hotels, Airport and Transport
Fly to Athens International Airport (ATH) Eleftherios Venizelos (27 km NE of Athens). The hotels are 40 min by taxi from the airport. For details on venue, accommodation and transport see www.realoptions.org.

Organizers

For more detailed information or to register for the conference see www.realoptions.org
Valuing flexibility
Risk management

THE ANDERSON SCHOOL
AT UCLA

National and Kapodistrian University of Athens

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ECONOMICS AND BUSINESS

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