NALIN H. KULATILAKA

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Current Academic Appointment

School of Management, Boston University

Boston, Massachusetts

2003 - Present Wing Tat Lee Family Professor of Management

1993 - Present Professor of Finance

- Teaching responsibilities include courses in corporate finance, real options, futures and options, econometrics, international financial management, and financial management at MBA and undergraduate levels; doctoral seminars on derivative asset pricing and modern corporate finance; Conducted executive education programs in valuation, international capital markets, pricing of derivative securities, and risk management. Core faculty member in Executive MBA program.
- Current research Interests: Licensing and contract design, valuation, real options. Applications areas include clean energy technologies, carbon markets, business platforms.
- Program design: Leading a university-wide effort to develop an integrative program on sustainable energy management.

Other Current Appointments

- Co-Director, Boston University Clean Energy and Environmental Sustainability Initiative (CEESI)
- Research Director, Institute for Global Work, Boston University
- Member Board of Directors, Assette (Boston, MA)
- Member Advisory Board, EnnovationsZ (Mountainview, CA)
- Editorial Boards: Management Science, International Journal of Management and Network Economics

Education

- 1982 Ph.D., Applied Economics, Massachusetts Institute of Technology
- 1977 S.M., Decision and Control, Harvard University
- 1976 B.Sc., Electrical Engineering, Imperial College of Science and Technology, U.K.

Awards

- Bertil Danielsson Visiting Professor of Banking, 2003, Stockholm School of Economics and Göteborg University.
- Tamkang Chair, Tamkang University, Taiwan (1997-1998)
- Association for Investment Management's Graham and Dodd Award (1994)
- John Russell Executive Teaching award, 1995
- Ford Foundation Fellow, 1981-1982

Past Work

School of Management, Boston University

Boston, Massachusetts

1988 – 1992 Associate Professor of Finance and Economics (Tenured in 1988).

1982 – 1987 Assistant Professor of Finance and Economics.

- Research Director, Global Mobility Innovations and Insights (GMII), a multi-university program conducting research on business issues surrounding the mobile Internet;
- Research Director, Boston University Institute for Leading in a Dynamic Economy.

National University of Singapore

Kent Ridge Crescent, Singapore

1989 - 1990 Visiting Professor (in the Department of Finance and Banking)

PUBLICATIONS

Books

- 1. John Henderson and Nalin Kulatilaka, "Intelligence at the Edge" (tentative title)", in preparation.
- 2. Martha Amram and Nalin Kulatilaka, "**Real Options: Managing Strategic Investment in an Uncertain World**", Harvard Business School Press, (1999). Also in Spanish, Japanese, Korean, and Italian Translations. Reviewed in *Journal of Finance*, December 1999. Adopted for use corporate finance and strategy courses at top business schools.

Articles

- 1. Amram, Martha, and Nalin Kulatilaka (2008), The Invisible Green Hand: How Individual Decisions and Markets Can Reduce Greenhouse Gas Emissions," *California Management Review*, Winter2009, Vol. 51 Issue 2, p194-218.
- 2. Gao, Lucia, Lihui Lin, and Nalin Kulatilaka (2008), "Coordination Mechanisms in the Development of Complementary Technologies," *International Journal of Management and Network Economics*, Vol. 1, No. 1.
- Anderson, E. G., Nitin Joglekar, and Nalin Kulatilaka (2007), "Hierarchical Planning under Uncertainty: Real Options and Heuristics", in Handbook for Product Development and Management, eds. Christoph Loch and Stylianos Kavadias, Elsevier
- 4. Lin, Lihui and Nalin Kulatilaka (2007), "Strategic Growth Options in Network Industries," *Advances in Strategic Management*, Volume 24 (June), 181-203.
- 5. Lin, Lihui and Nalin Kulatilaka (2007), "Valuation of Early-Stage Firms in Network Industries, *Managerial Finance, Volume 33, No. 11, 893-903.*
- Kulatilaka, Nalin and Lin, Lihui (2006), "Impact of Licensing on Investment and Financing of Technology Development". Management Science, Vol. 52, No. 12 (December), 1824-1837
- 7. Lin, Lihui and Nalin Kulatilaka (2006), "Network Effects and Technology Licensing with Fixed Fee, Royalty, and Hybrid Contracts", *Journal of Management Information Systems*, Vol. 23, No. 2, (Fall), 91-118.

- 8. Lihui Lin and Nalin Kulatilaka (2006), "Network Effects and Technology Licensing," *Proceedings of the Thirty-Ninth Annual Hawaii International Conference on System Sciences*, January 4-7, 2006.
- 9. Lihui Lin and Nalin Kulatilaka (2005), "Strategic Technology Investments in Emerging Economies,", in *Systems exploitations: From globalization to localization, Proceedings of the Conference on Digital Environments (CoDE 2005)*, R. Hackney and L. Huang (eds), The Information Institute, Washington DC, USA,
- 10. Nalin Kulatilaka and Jim Ciriello (2005), "Shaping the Future through Experimentation," BUILDE Publications, Boston University.
- 11. Jim Ciriello, Greg Gerrish, Nalin Kulatilaka, and N. Venkatraman (2005), "Convergence," BUILDE Publications, Boston University.
- 12. Nalin Kulatilaka and Jim Ciriello (2005), "The Story of Island Man: It's Not Just the Technology," BUILDE Publications, Boston University.
- 13. Kogut, Bruce and Nalin Kulatilaka (2003) "Real Option Pricing and Organizations: The Contingent Risks of Extended Theoretical Domains" *Academy of Management Review*, Vol. 29, No. 1, 102-110.
- 14. Venkatraman, N., Freedman, J., Henderson, J., and Kulatilaka, N. (2003). Riding the Waves of Emerging Technologies: Opportunities and Challenges for the CIO. *Society of Information Management (SIM)*
- 15. Smith, H.A., Nalin Kulatilaka and N. Venkatraman (2002), "Developments in IS Practice III: Riding the wave: extracting value from mobile technology", *Communications of the Association for Information Systems* 8, 467-481.
- 16. John Henderson, Nalin Kulatilaka, and James Ciriello (2002), "Cause and Effect," 3G Strategies for Operators, Lucent Technologies Bell Labs, Issue 10, (October)
- 17. Kogut, Bruce and Nalin Kulatilaka (2001), "Capabilities as Real Options", *Organization Science, Vol. 12, No. 6, pp. 744-758*.
- 18. Kulatilaka, Nalin and N. Venkatraman, (2001), "Strategic Options in the Digital Era", Business Strategy Review, Volume 12, No. 4.
- 19. Kulatilaka, Nalin and Lenos Trigeorgis (2001), The General Flexibility to Switch: Real Options Revisited", in Ed. Eduardo Schwartz and L. Trigeorgis, *Real Options and Investment Under Uncertainty*, MIT Press, Cambridge.
- 20. Kogut, Bruce and Nalin Kulatilaka (2001), "Strategy, Heuristics, and Real Options", The Oxford Handbook of Strategy, Oxford University Press.
- 21. Kulatilaka, Nalin and Enrico Perotti (2000), "Strategic growth Options", in Game Choices: The Interaction of Real Options and Game Theory, Ed. Steven Grenadier, Risk Books, (London, U.K.) ISBN 1 899 332 94 4
- 22. Kulatilaka, Nalin, P.R.Balasubramanian, and John Storck (2000), "Using a Real Options to Frame the IT Investment Problem", in *Real Options and Business Strategy: Application to Decision Making*, Ed. Lenos Trigeorgis, Risk Books, (London, U.K.) ISBN 1 899 332 47 2
- 23. Kulatilaka, Nalin and Enrico Perotti (2000), "Time-to-Market Capability as Stackelberg Growth Option", in E. Schwartz and L. Trigeorgis (eds) *Innovation and Strategy: New Developments and Applications in Real Options*, Oxford University Press.

- 24. Amram, Martha and Nalin Kulatilaka (2000), "Strategy and Shareholder Value Creation: The Real Options Frontier", Journal of Applied Corporate Finance, Volume 15, Number 2 (Summer).
- 25. Amram, Martha and Nalin Kulatilaka (1999), "Disciplined Decisions: Aligning Strategy with the Financial Markets" (with), *Harvard Business Review*, January-February 1999, 95-109.
- 26. Amram, Martha, Nalin Kulatilaka, and John Henderson (1999)"From Components to Business Strategy: IT's Value and Risk", CIO Enterprise, June 15, 1999
- 27. Amram, Martha and Nalin Kulatilaka (1999), "Uncertainty: The New Rules for Strategy", Journal of Business Strategy, May/June 1999 Vol. 20, # 3, pp 25-34.
- 28. Kogut, Bruce and Nalin Kulatilaka, "Options Thinking and Platform Investments: Investing in Opportunity", California Management Review (Summer 1994), Vol. 36, No. 4.
- 29. Kulatilaka, Nalin and Alan Marcus (1999), "Project Valuation under Uncertainty: When does DCF Fail?" Advances in Corporate Finance, Ed. Andre Chew, Blackwell.
- 30. P. Balasubramanian, N. Kulatilaka, and J. Storck, "Managing Information Technology Investments Using a Real-Options Approach," *Journal of Strategic Information Systems*, vol. 9, pp. 39-62, 1999.
- 31. Kulatilaka, Nalin and Enrico Perotti (1998) "Strategic Growth Options". *Management Science*, Vol. 44, No. 8 (August), 1021-1031.
- 32. Kulatilaka, Nalin and George Wang (1996) "A Real Options Framework for Evaluating Infrastructure Investments", *Journal of Financial Studies*, Volume 4, Number 2 (October) 1996.
- 33. Kulatilaka, Nalin and Alan Marcus (1995) "Valuing Employee Stock Options", Financial Analysts Journal, Volume 50, No. 646-56.
- 34. Kogut, Bruce and Nalin Kulatilaka, "Direct Investment, Hysteresis, and Real Exchange Rate Volatility", *Journal of Japanese and International Economics*, Volume 10, 12-36 (1996).
- 35. Kogut, Bruce and Nalin Kulatilaka, "Options Thinking and Platform Investments: Investing in Opportunity", California Management Review (Summer 1994), Vol. 36, No. 4.
- 36. Kulatilaka, Nalin and Lenos Trigeorgis (1994), "The General Flexibility to Switch: Real Options Revisited", *International Journal of Finance*, Vol. 6, No. 2, (Fall).
- 37. Kulatilaka, Nalin and Alan Marcus (1994) "Hedging Foreign Project Risk", *Journal of International Financial Management and Accounting* (June), Vol. 5, No. 2., 142-156.
- 38. Kulatilaka, Nalin (1994), "Operating Flexibilities in Capital Budgeting: Substitutability and Complementarity of Real Options", in Real Options and Capital Investments: New Contributions, ed. Lenos Trigeorgis, Praeger, (New York).
- 39. Kulatilaka, Nalin (1994), "The Value of Flexibility: A General Model of Flexibility", in Real Options and Capital Investments: New Contributions, ed. Lenos Trigeorgis, Praeger, (New York) (1994).
- 40. Kogut, Bruce and Nalin Kulatilaka (1993), "Operating Flexibility, Global Manufacturing, and the Option Value of a Multinational Network", *Management Science*, (Fall), Vol. 40, No. 1. 123-139.

- 41. Kulatilaka, Nalin (1993), "The Value of Flexibility: The Case of Dual-Fuel Industrial Steam Boilers", *Financial Management*, (Autumn), pp. 271-280.
- 42. Kogut, Bruce and Nalin Kulatilaka (1992), "What is a Critical Capability", in Proceedings of the International Joseph A. Schumpeter Society 1992 Conference, Kyoto, Japan.
- 43. Kulatilaka, Nalin and Alan Marcus (1992), "Project Valuation under Uncertainty: When does DCF Fail?", Journal of Applied Corporate Finance, Vol. 5 (Fall, 1992), pp. 92-100.
- 44. Kulatilaka, Nalin and Alan Marcus (1991) "The Use and Misuse of Options and Futures in Hedging Foreign Project Risk", Proceeding of the Financial Engineering and Risk Management, (OFIX: Osaka, Japan). Also in Japanese translation.
- 45. Kulatilaka, Nalin (1991) "The Role of Derivative Securities in Emerging Capital Markets", Proceedings of US-AID Conference on Leading Issues in Finance, Airlie, Virginia, 1991.
- 46. Kulatilaka, Nalin and Alan Marcus (1991) "A Real Options Primer", World Bank
- 47. Kulatilaka, Nalin and Stephen Marks (1988) "The Strategic Value of Flexibility: Reducing the Ability to Compromise", *American Economic Review*, Vol. 78, No. 3 (June), 574-580.
- 48. Kulatilaka, Nalin (1988) "Valuing the Flexibility of Flexible Manufacturing Systems", *IEEE Transactions in Engineering Management*, Vol. 35, No. 4 (November), 250-257.
- 49. Kulatilaka, Nalin and Alan Marcus (1988), "A General Formulation of Corporate Operating Options", in *Research in Finance*, Vol. 7, ed. Andrew Chen, JAI Press, (Spring 1988), 183-199.
- 50. Kulatilaka, Nalin and Alan Marcus (1987) "Strategic Default of Sovereign Debt" *Journal of Economics Dynamics and Control* (December), 483-498.
- 51. Anandalingam, G. and Nalin Kulatilaka (1987) "Decomposing Production Efficiency into Technical, Allocative, and Structural Components", *Journal of the Royal Statistical Association, Series A (General)*, Vol. 150, Part 2, 143-151.
- 52. Kulatilaka, Nalin (1987) "The Specification of Partial Static Equilibrium Models", *Review of Economics and Statistics*, Volume 69, Number 2 (May), 327-335.
- 53. Kulatilaka, Nalin (1985) "Capital Budgeting and the Timing of Investments in Flexible Manufacturing Systems", *Annals of Operations Research*, 3, 35-57.
- 54. Kulatilaka, Nalin (1985) "Tests on the Validity of Static Equilibrium Models", Journal of Econometrics, 28 (June), 253-268.
- 55. Kulatilaka, Nalin (1986) "Optimal Switching of Modes and the Value of Flexibility When Firms Face Stochastic Prices", Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics, Atlanta, GA. (September).
- 56. Kulatilaka, Nalin and Stephen Marks (1985), "Strategic Value of Flexibility in a World of Certainty", *Proceedings of the Institute National de Recherche en Informatique et en Automatique*, Conference on Production Systems, Paris, (April 1985).
- 57. G. Anandalingam and Nalin Kulatilaka (1984), "Partial Adjustment, Measurement Errors, and Uncertainty in Industrial Factor Demand Models", in *Models in the Decision Making Process: Planning Under Uncertainty*, ed. A. S. Kydes, McGraw-Hill, (1984).
- 58. Kulatilaka, Nalin (1984), "A Managerial decision Support System to Evaluate Investments in Flexible Manufacturing Systems", Proceeding of the ORSA/TIMS Conference on Flexible Manufacturing Systems: Operations Research Models and Applications, Ann Arbor, Michigan, (August).

- 59. Kulatilaka, Nalin (1984) "Financial, Economic, and Strategic Considerations in the Decision to Invest in Advanced Automation", International Journal of Production Research, Vol. 22, No.6 (December), 949-968.
- 60. Hsieh, David and Nalin Kulatilaka (1982) "Rational Expectations and Risk Premia in Forward Markets" Journal of Finance, Vol. 37, No.5 (December), 1199-1207.

Selected Consulting Activities

- 1. Develop valuation framework for licensing early-stage pharmaceutical compounds for a major pharmaceutical firm.
- 2. Designing and evaluating capabilities for globally distributed service organizations for several major energy companies.
- 3. Valuing patents and other intellectual property contracts for technology firms.
- 4. Develop the global mobile Internet strategy for one of the leading telecommunications firm.
- 5. Capacity and global location planning for a large chemical firm.
- 6. Advice on various valuation and contract design issues for a global energy firm.
- 7. Generation capacity planning for an electric utility. Designing and evaluating investments to comply with environmental regulations.
- 8. Design and valuation of infrastructure I/T capabilities for a financial services firm.
- 9. Develop software for the pricing of foreign currency and interest rate options to be included as part of an integrated treasury management system.
- 10. Use of real options techniques in evaluating energy projects; designing flexible contracts for a natural gas pipeline.
- 11. Perform valuations and assist in negotiations for the financial restructuring in the privatization of government corporations in developing countries.
- 12. Develop primer for the application of real options techniques in project design, analysis, and implementation.
- 13. Develop a factor demand model to study the short- and long-run inter-fuel substitution possibilities for a government agency.
- 14. Develop buffer stock management rules and studied the use of commodity denominated financial instruments to stabilize commodity prices.

Professional Service (Selected)

Finance Economics Department (Boston University)

Faculty recruiting committee, (member 1986-1987, Chairman 1988, 1992, 2003-2005) DBA program (1986, 1994-2000)

School of Management (Boston University)

Faculty Policy committee (1987-1989, 2005-2007, Chairman 2007)

Policy Committee, BUILDE, (2000-Present)

Executive MBA Committee (1993-2002, 2007-Present)

Policy Committee, System Research Center, (1996-2000)

Appointment, Promotion and Tenure Committee (1990-1993)

MIS Program Development Committee (1991-present)

Graduate Program Development Committee (1986-1987)

Member SMG's ad hoc committee on international management (1986)

Principal member of the team responsible for developing a proposal (funded by the Childs Foundation) on international management, research and curriculum issues (1986)

Undergraduate Program Development Committee (1985)

Boston University

UPT Committee (1997,1998, 2002)

Faculty Advisor AIESEC (1986-1989)

Board member AIESEC (1990-1993)

Steering Committee on energy and environmental programs (2008 – Present)

Refereeing

Associate Editor, Management Science (2003 – Present)

Editorial Board, International Journal of Management and Network Economics

Reviewer for the National Science Foundation.

Referee for American Economic Review, Journal of Econometrics, Review of Economics and Statistics, Journal of Finance, Operations Research, Management Science, Journal of Economic Dynamics and Control, Annals of Operations Research, Financial Management, IEEE Transactions in Engineering Management, IEEE Transactions in Systems, Man, and Cybernetics, Journal of Industrial Economics, International Journal of Production Research, Journal of Manufacturing Systems

Conference Organization

U.S.-Japan Forum: Financial Strategy for the 1990s, August 29 - 30, 1991, Osaka, Japan Over 200 Japanese financial practitioners attended the conference, which focused on financial systems and risk management strategies. It was jointly sponsored by Boston University, Osaka Prefectural Government, and several Japanese financial services trade organizations. Proceedings were published by the Osaka Foundation for International Exchange.

Executive Education

- 1. "A Strategic Risk Management Framework" -- IBM's client executives.
- 2. "Derivatives for Directors" 3-day program surrounding issues of total risk management.
- 3. "Financial Valuation and Corporate Re-structuring in Emerging Economies" 3-day program on the valuation and restructuring of firms in emerging capital markets.
- 4. "Real Options in Project Analysis". 3-day program on the use of option pricing techniques in the valuation of operating flexibilities that are embedded in real projects.
- 5. "The Role of Derivative Securities in Emerging Economies". Discuss traditional and innovative uses of derivative assets in privatization, capital market development, and government loan guarantees.
- 6. "Project Analysis and Financial Restructuring: The State-of-the-Art". Target groups: Senior managers (1 day), Project analysts (1 week).
- 7. "Futures and Options Strategies and Dynamic Asset Allocation".
- 8. "Revolution in Financial Markets".
- 9. "Option Features Embedded in Fixed Income Securities".
- 10. "Innovations in Financial Markets"
- 11. "Recent Developments in International Finance: Theory and Practice".