Modern Corporate Finance Theory and Real Options PhD Course

Departments of Economics
University of Verona
June, 16-20 2003

- Eduardo S. Schwartz, Anderson Graduate School of Management at the University of California, Los Angeles
- Gordon A. Sick, Haskayne School of Business, University of Calgary
- Carmen Aranda León, University of Navarra
- Andrea Gamba, University of Verona

Aims

The course reviews some corporate finance topics (valuation, capital budgeting, investment and financing decisions) from the perpective offered by modern finance theory.

Session schedule

June 16

- 9.00 - 12.00. E. Schwartz
  1. Introduction to Real Options: some insights.
  2. Valuation of Internet Companies: Schwartz and Moon (2000, 2001)
- 14.00 - 17.00. A. Gamba - Dynamic models for capital budgeting: optimal stopping problems.
  1. MacDonald and Siegel (1985) model: the value of waiting to invest.
  2. Majd and Myers (1990) model: the value to abandon a project.

June 17

- 9.00 - 12.00. E. Schwartz - Valuing American Options by Simulation and Valuation of R&D projects: Longstaff and Schwartz (2001) adn Schwartz (2001)
- 14.00 - 17.00. G. Sick - Basic principles of valuation of real and financial assets
  1. Risk premium: CAPM and APT, single time, multi-period (continuous-time models).
  2. Certainty equivalent: valuation of non-linear payoff, valuation of cash flows with non-constant cost of capital (multi-divisions, multi-beta companies).
  3. Linear prices: no-arbitrage, pricing kernels (in terms of Radon-Nykodym derivative, of marginal rate of substitution, and in term of factor risk premia), martingale measure, equilibrium.

June 18

- 9.00 - 12.00. A. Gamba - Dynamic models for capital budgeting: optimal switching problems. Brennan and Schwartz (1985) model.
- 14.00 - 17.00. E. Schwartz - Valuation of R&D projects: Miltersen and Schwartz (2002), Hsu and Schwartz (2003).

June 19

- 9.00 - 12.00. G. Sick - Capital structure and cost of capital:
  1. Modigliani and Miller model; Miller's equilibrium model with debt and personal taxes; De Angelo and Masulis' equilibrium model.
  2. Tax- and risk-adjusted discount rates, Weighted Average Cost of Capital and Adjusted Present Value.
  3. Certainty equivalent for leveraged projects with no flexibility.
- 14.00 - 17.00. A. Gamba - An extension of Longstaff and Schwartz (2001) simulation approach to complex real options problems: Gamba (2002).

June 20

- 9.00 - 12.00. C. Aranda - Interaction of investment and financing decisions:
  1. Introduction to investment and financing decisions. When do they create vale? Value for whom? Controversial examples.

2. Could financing and investment decisions be analyzed independently? The modern formulation of interactions (Trigeorgis (1993), Mauer and Triantis (1994)).
3. Agency Theory: core distortions in investment strategies and their implications for capital structure.
   (a) The traditional analysis of underinvestment and overinvestment problems: implications for financing choices.
   (b) A revisited analysis in light of contingent claim analysis (Mauer and Ott (2000).

- 14.00 - 17.00. G. Sick - Capital budgeting
  1. modelling cash flows in terms of lagged market factors, commodity asset pricing, forward curves, cost of carry, mean reversion;
  2. static models, NPV and certainty equivalent, EVA.

References

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Faculty profile

Eduardo S. Schwartz is the California Professor of Real Estate and Professor of Finance, Anderson Graduate School of Management at the University of California, Los Angeles. He has an Engineering degree from the University of Chile and a Masters and Ph.D. in Finance from the University of British Columbia. He has been in the faculty at the University of British Columbia and visiting at the London Business School and the University of California at Berkeley. His wide-ranging research has focused on different dimensions in asset and securities pricing. Topics in recent years

include interest rate models, asset allocation issues, evaluating natural resource investments, pricing Internet companies, the stochastic behavior of commodity prices and valuing patent-protected R&D projects. His collected works include more than eighty articles in finance and economic journals, two monographs, an edited book, and a large number of monograph chapters, conference proceedings, and special reports. He is the winner of a number of awards for both teaching excellence and for the quality of his published work. He has been associate editor for more than a dozen journals, including the Journal of Finance, the Journal of Financial Economics and the Journal of Financial and Quantitative Analysis. He is past president of the Western Finance Association and the American Finance Association. He is a Fellow of the American Finance Association and the Financial Management Association International. He is a Research Associate of the National Bureau of Economic Research. He was awarded a Doctor Honoris Causa by the University of Alicante in Spain. He has also been a consultant to governmental agencies, banks, investment banks and industrial corporations.

Gordon A. Sick is a member of the Haskayne School of Business since 1988, previously taught at the Yale School of Organization and Management, the University of Alberta and the University of British Columbia. In addition to a PhD and an M.Sc. in Finance, from the University of British Columbia, Dr. Sick also has an M.Sc. in Mathematics from the University of Toronto. He has been a director of the Financial Management Association, the Western Finance Association and also the Finance Division Chairperson of the Administrative Sciences Association of Canada. He chaired the 1999 Northern Finance Association Conference. Dr. Sick consults internationally on real options, risk assessment and derivatives. In the past, he has published articles on cash management, capital budgeting and asymmetric information models. He has been an Associate Editor of Management Science and is the Book Review Editor for the Journal of Finance. He has published articles in the Journal of Finance, Journal of Banking and Finance, Journal of Financial and Quantitative Analysis, Management Science, Financial Management, Journal of Real Estate Finance and Economics, and Journal of Urban Economics. His Principles of Corporate Finance, Second Canadian Edition, with Brealey, Myers and Giammarino, is an introductory finance text that is widely used in Canadian undergraduate and MBA programs. Dr. Sick's current research interests include capital budgeting, the impact of interest tax shields on project valuation, real options, cost of capital, real estate, seasonalities in security returns and the cost of banking services

Carmen Aranda has been a member of the School of Economics and Business at the University of Navarra in Spain since 1998. In addition to her Business and Economics degree from the aforementioned University, she studied at the University of California, Los Angeles as a Postdoctoral Fel-

low under the supervision of Prof. Brennan. Her research interests have recently shifted from efficiency in the Spanish Financial market to real options, cost of capital, valuation of biotech companies and credit risk. Dr. Aranda consults nationally on risk assessment and real options, being one of the leading experts in her country for this topic. In addition, she is well known for her teaching skills not only with students but also with managers. In this respect, she currently conducts a managers' training program for a prestigious financial institution in Spain.

Andrea Gamba is Associate Professor of Financial Mathematics at the University of Verona. He previously taught at the University Ca' Foscari of Venice, Italy, and has been a visiting at New York University, Purdue University and University of Calgary.

He holds a Ph.D. in Financial Mathematics from the University of Trieste. A former member of Real Options Group, he consults internationally on real options and derivative pricing.

His current research interests are in investment valuation and capital budgeting, real options valuation and interaction with financing decisions, and in numerical methods for derivative valuation.