

ACST829 CAPITAL BUDGETING AND FINANCIAL MODELLING

Assumed knowledge: Students are assumed to have completed a unit in corporate finance (e.g. ACCG808 or ACST827) or something equivalent and to be familiar with the excel spreadsheet software package.

Description : The purpose of the unit is:

- to teach students about established methods for the valuation and appraisal of investment projects
- Introduce the new “real options approach” to investment appraisal
- learn to use microsoft excel to build the financial models and perform the calculations for these methods
- introduce students to visual basic / excel macros

The unit covers established methods for the evaluation of investment projects and introduces the “real options approach” to this. The unit also teaches students how to use excel for building financial models and to perform project evaluation.

TOPICS

BASIC FINANCIAL THEORY

Basic financial mathematics: interest rates, present value, future value, annuities, bond valuation. Methods for investment appraisal: Net Present Value, Internal Rate of Return, Payback Period, Accounting rate of return.

Analysis of leasing and leveraged leasing using IRR, NPV and other measures. Analysis of lease versus buy, lease versus borrow and buy, sale and leaseback decisions.

CAPITAL BUDGETING BASICS

- Overview of capital budgeting
- Project analysis under certainty: applications of NPV and IRR.
- Estimation of cashflows and discount rates for project appraisal
- Project analysis under risk: risk and uncertainty, the risk adjusted discount rate and certainty equivalent approaches, cost of capital
- estimation of parameters for financial models: quantitative and qualitative approaches
- approaches to dealing with risk and uncertainty in project appraisal: sensitivity and breakeven analysis, Simulation concepts and methods

OPTIONS AND REAL OPTIONS ANALYSIS

- Introduction to options: calls and puts, European and American options,
- Valuation of options using Black Scholes formulae, Monte Carlo Simulation and Binomial Tree methods: The arbitrage free / risk neutral valuation methodology.
- Options embedded in investment projects.
- Flaws in existing methods of project appraisal
- The “real options approach” to project valuation
- Exotic options formulae relevant to real options and project appraisal (compound options, switching options, chooser options, etc)

Excel for financial modelling:

- Introduction to excel
- writing excel formulae, copying and pasting, absolute and relative cell referencing.
- Financial statement modelling / Financial analysis of leasing and leveraged leasing / Estimating beta factors and the security market line
- elementary methods of forecasting: linear regression, multiple regression, moving averages and weighted moving averages
- Excel functions: statistical functions, financial functions, date functions, array and matrix functions / using excel for simple and multiple linear regression / Monte carlo simulation in excel
- Building and using binomial trees for valuation of contingent claims and options

Visual basic for applications (VBA)

- User defined functions
- Conditional execution: using if and select case statements
- Types and loops
- Macros and user interaction
- Arrays: simple, multidimensional and dynamic arrays

Assessment Two assignments: 50% Final exam: 50%

Textbooks Capital budgeting: by Dayananda et al (ISBN 0 521 52098 3)
Financial Modelling: by Simon Beninga (ISBN 0 262 02482 9)

The assignments and the final exam will include the development of various excel spreadsheets and documentation for these, as well as essays / written reports.

For the novice excel user, the book Teach Yourself Visually Excel 2003 by Maran (ISBN 0-7645-3996-5) is a good way to quickly learn the basics of excel assumed for this unit.

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Location and Time

Lecture:	W5C232 Tuesday 9am -11am
Computer Lab Session	E4B102 Tuesday 11am – 1 pm
Computer Lab Session	E4B306 Tuesday 11am – 1 pm

In most weeks we will have some exercises to do in excel during the computer lab session. A large part of what the course is about is to teach you how to set up excel spreadsheets to solve various financial and valuation problems.