

Three day financial modelling for project finance course for experienced modellers

Course Objectives

The course is intended to provide techniques, ideas, structures and methodologies to help delegates;

- ~ *produce models which can be developed seamlessly from feasibility stage through to financial close*
- ~ *produce models which can run all cases needed during deal development and for sensitivity analysis*
- ~ *produce models without circular code*
- ~ *minimise the risk of errors in the model or in the running process*
- ~ *produce models which are easy to check, change and use*

Course Structure

The three day course is a mixture of theory and practical work, looking in detail at the process of writing, developing and running a project finance spreadsheet model. The course content is based on more than twenty-six years experience in this field, and is designed to offer experienced modellers a package of methods which, taken as a whole, provide solutions to the common modelling problems, and form a reliable basis from which to address the more esoteric problems. For modellers working within a team, the course offers a basis to introduce consistency of layout and philosophy enabling better cross-support within the group, and supporting the evolution of a standard in-house style and quality. The intention is always to help make modellers lives easier and their models even better. The program covers optimal model layout and structure including detailed review of most sub-sections, the avoidance of circular code, the treatment of multiple currencies within the model, making timings flexible within the model, incorporating monthly or quarterly calculations neatly into a semi-annual model structure, methodologies for checking and debugging, and running the usual project finance sensitivities safely and easily. In addition, without assuming any pre-existing VBA knowledge, the course considers macros for controlling events, such as dividend lock-ins, driven by LLCR thresholds, or for generation of results tables across a range of input values, and how such macros can be copied from model to model.

The course agenda will be split over the three days on a flexible basis allowing the focus of the course to respond to the specific questions and interests of the delegate group.

Required Skills

Delegates for this course are expected to have excellent Excel skills and some direct project finance modelling experience, as well as an understanding of the basic drivers and constraints of project finance. Delegates without modelling experience may want

three day financial modelling for project finance course for experienced modellers

to consider the equivalent course for novice modellers, details of which can be found at www.projfinmod.co.uk.

Agenda

Day One

Introduction & review of project finance model objectives and requirements

*Why is project finance different?
What does this mean for the model?
Feasibility analysis
Development of project structure
Scenario analysis
Sensitivity Analysis
Flexibility
Robustness*

Model Design

*Reflecting Objectives
Anticipating Development
Flexible control of timing and calculation options within the model
One model runs all cases for the project
Model calculates nominal figures
Using 'Pinch points'
Seeking simplest solution at each stage*

Building from the basics - Model Layout

*Model sections divided into three types, data, calculation and report
Which sections are needed?
In what order?
Detailed page layout
Timeline*

Data Input

*Where?
What?
Interface between data and calculations
Controlling timings using flexible inputs
Using 'switches'
Controlling calculation options
Expanding data choices
Review of illustrative data input sheet*

Handling Inflation in the model

Purpose of inflation in the model

three day financial modelling for project finance course for experienced modellers

Value dates
Calculation of inflation in the model
Review of illustrative inflation calculations

Construction Costs

Inputs
Timings
Categories
Review of illustrative construction cost sheet

The Practical Modelling Process

Customising the Excel environment
Planning the model
Setting up the model outline
Populating the model

Practical Exercise 1

Delegates provided with model skeleton including basic data and will work with course director to model construction cost calculations, controlling timings, applying inflation and using switches to control calculation options.

The Operations Section

Calculating revenues
Calculating fixed and variable operating costs
Applying flexible timing inputs for start/build up of operations and end of analysis
Calculating debtors and creditors
Review of illustrative operations calculations

Telling the Story with the Cash Flow Summary

Start to finish, top to bottom, the story of the project
Provides cross-check for model

Practical Exercise 2

Using the model from *practical 1* delegates work with the course director to complete the operations sheet, using timing inputs to control timing and levels of operation, and demonstrating the flow of information from the data sheet through the model calculations. Calculated operating and capital cost values then used to begin populating the cash flow summary page.

Day Two

Circularity in the Model

Are there circular calculations in project finance?
How should we handle them?
Why no sophisticated project finance model should include circular code

How can it be avoided?

Use of re-calc macro to deal with unavoidable circularity

Practical Exercise 3

Delegates will work with course director to develop a simple re-calc macro and observe its operation with a simple test calculation.

Some Other uses for the re-calc macro

Use of re-calc macro to automate target seeking

Treatment of Currencies within the model

Calculate figures in actual currency or in a consistent presentation currency?

Modelling real and nominal exchange rate movements.

Flexibly assigning currencies to costs, funding sources or deposits in the model.

Pitfalls

Review of illustrative currency calculations

Funding Calculations

Layout of funding section to make funding calculations easy to write and check

Calculating funding to match funding needs

Modelling multiple sources of funding

Modelling alternative funding structures

Modelling Equity

Modelling Loans

- *drawdowns*
 - *interest*
 - *interest roll up*
 - *average balance*
 - *repayments*
- equal*
annuity
sculpted
dedicated cash flow or 'cash sweep'

Pro-rata funding drawdown

Cash constraints on drawdown and repayment

Funding sub totals

Review of illustrative funding calculations

Practical Exercise 4

Delegates will work with course director on the addition of a simple finance section to the models developed in practical 1.

Project Finance Cover Factors

The cover factors answer questions

To model them we need to know what the questions are and what the answers mean

three day financial modelling for project finance course for experienced modellers

Key Project Finance Cover Factors

Loan Life NPV cover factor

Project Life NPV cover factor

Debt Service cover factors

What is "available cash"?

Can we include deposits in cover factor calculations?

Modelling pitfalls

Review of illustrative cover factor calculations

Cover factor constraints on cash distribution

- *ADSCR*
- *LLCR review of specialised macro to trigger lock-ins based on LLCR values*

Tax and Profit & Loss Calculations in the model

Basic elements of tax calculations

Basic elements of P&L calculations

Modelling tax to avoid circularity

Grouping semi annual figures for annual calculations

Calculating capital allowances and depreciation

- *Written down balance*
- *Straight line*

Input data specifying depreciation for different capital costs

Calculation of interest and fees capitalised for tax

Modelling accounting reserves

Dividends

Balance sheet

What's the point?

Making it balance

Equity Returns

Definition of IRR

Calculation of real and nominal IRR

Treatment of Equity Loans and sub debt

Day Three

Developing the model

Adding monthly or quarterly data and calculations within a semi-annual timeline, without losing flexibility

Review of illustrative monthly and quarterly calculations

Practical Exercise 5

Delegates will be provided with data and will incorporate quarterly capital cost data and calculations into their models

three day financial modelling for project finance course for experienced modellers

Cash Balance Calculations

Basic elements of cash balance calculation
Specific issues for construction period escrow account
Specific issues for debt service reserve account
Specific issues for Maintenance reserve fund
Specific issues for surplus cash account
Review of illustrative deposit calculations

Summary Sheets

One page summary sheet
Total sources and uses for the investment period
Use of 'strings' to give a textual description of the case being printed
Production of results in annual format from semi annual calculations
Review of illustrative summary sheets

Scenario and Sensitivity analysis with the model

Evaluating alternative base cases
Purpose of sensitivity analysis
Which sensitivities?
Handling the common sensitivities in the model
Managing the risk of error when running sensitivities
Using case selection /sensitivity tables

- *Defines set of scenario and sensitivity cases*
- *Cases easily re-run*
- *Case headings automatically identify case run and selected values*

Review of illustrative sensitivity table

Practical Exercise 6

The delegates will add a sensitivity table to their models

Generating results tables for a range of input values

Using copy-paste macro to count through a series of values for one or more specific inputs
Populating tables with a series of results using simple counters and copy-paste macro
Reviewing illustrative table and macro

Practical Exercise 7

Delegates will work with the course director to copy the macro and accompanying spreadsheet elements into their models, and integrate its operation with the sensitivity table

Checking the model

three day financial modelling for project finance course for experienced modellers

During development

Output check before releasing base case

Cross check sensitivity results

Identifying the model assumptions

Documentation of the model code as a checking tool

Seeking perfection, modelling approaches for minimising error risk

Working with other people's models

Finding your way around

Finding and presenting the key information

Checking the results

Running your own cases

Taking over the model for onward development (and when to start again)

Storing Results and recording changes

Keeping track of data changes

Storing results and tracking model changes

Practical Exercise 8

The delegates will add a 'stored results' library sheet to their models and work with the course director to record a simple macro to operate it.

Summary & Discussion