Advanced Financial Modelling

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Session 1

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How did the Course come about?

April 2011	June 2008	October 2006	July 2006	January 2006	December 2003 July 2005
$1.3 Billion Demerger of Power Generating Assets (Russia)	Sale to Strategic Investor (Russia, UK)	Sale of a pan-European MVNO venture to Strategic Investor (Holland / Belgium / Italy / Poland / Russia)	Sale of the minority stake in Russia Gallop Media (Russia)	MBO of a UK construction and real estate deverloper (United Kingdom)	SFR430 Million Debt Restructuring And Assets Disposal (Switzerland)
April 2003	April 2002	November 2001	August 2001	November 2000	June 2000
$100 Million Acquisition of Diary Assets (Former Yugoslavia)	$16 Billion Debt Restructuring (UK)	$1.4 Billion Tender for Outstanding Debt of UPC (Netherlands / US)	€43 Billion Acquisition of Orange (France / UK)	$10 Billion Global Bond Offering (United Kingdom)	US$7.6 Billion IPO (Sweden)
March 2000	May 2000	November 1999	October 1999	May 1999	March 1999
$550 Million IPO and €200 Million High Yield Offering (France / Germany / US)	€175 Million Debut High Yield Offering (Slovak Republic)	$1 Billion IPO (Netherlands)	$525 Million IPO (Israel)	$500 and €650 Million Debt Offering (Sweden)	$170 Million Convertible Debt Offering (US)

Course Outline

1
- Introduction to modelling in Excel
- Key principles of financial modelling
- Setting up a model – basic principles and useful functions

2
- Review of Assignment #1 – Financial Statement
- Nuts and bolts of DCFs

3
- Review of Assignment #2 - DCF
- Revisiting Firm Value in the context of financial modelling
- Introduction to M&A structuring and modelling

4
- Review of Assignment #3 – Merger Model
- Modelling debt and credit analysis
- Introduction to inner world of leverage buy-outs

5
- Review of Assignment #4 – LBO Model
- Combining IB valuation approaches and techniques
- Final Q&A

What this Course is and is NOT about?

If you are in finance you should be comfortable with Microsoft Excel, but

Corporate Finance modelling is NOT about Excel proficiency or advanced modelling skills

- Structuring and modelling assignments assume that you understand:
  - Corporate Finance fundamentals – logic of finance
  - Accounting rules – language of finance
- The course aims to assist newcomers to corporate finance:
  - Provide best practice aspects of modelling related to tasks in corporate finance
  - Maximise use of cookie-cutters to be efficient and get fast and reliable results
- Most stuff is base level building blocks
  - Good starting point to develop further in a work environment
- Finally, discipline is what matters

What is a Good Financial Model?

Contrary to common misconception good models are NOT those with most bells and whistles

- Error Free ✓
- Compact & Flexible ✓ ✓
- Well Documented ✓ ✓ ✓
- Someone Else Can Read It ✓ ✓ ✓ ✓
- Someone Else Can Use It ✓ ✓ ✓ ✓ ✓

A Few Useful Housekeeping Rules…

Financial modelling is a bit like a small scale engineering or IT project

- Before you proceed to code the model -
  - Diagram or plan its structure: inputs, outputs, computations, # of tabs, etc.
  - Surprisingly, one of the most painful bits is fixing periodicity of the model
- Think of variables which may be repeatedly used throughout the model
  - Global control tab contains named cells and ranges
- Documenting allows easy reading and auditing
  - I colour code inputs and computations, add commentary to assumptions
  - If your model consists of numerous tabs, hyperlinks are extremely helpful

Choice of Operating Models

Choice of a model type depends on availability of information, market fundamentals of the modelled entity and its market environment

It is impossible to have a model driven from both "ends" - need to make a choice upfront

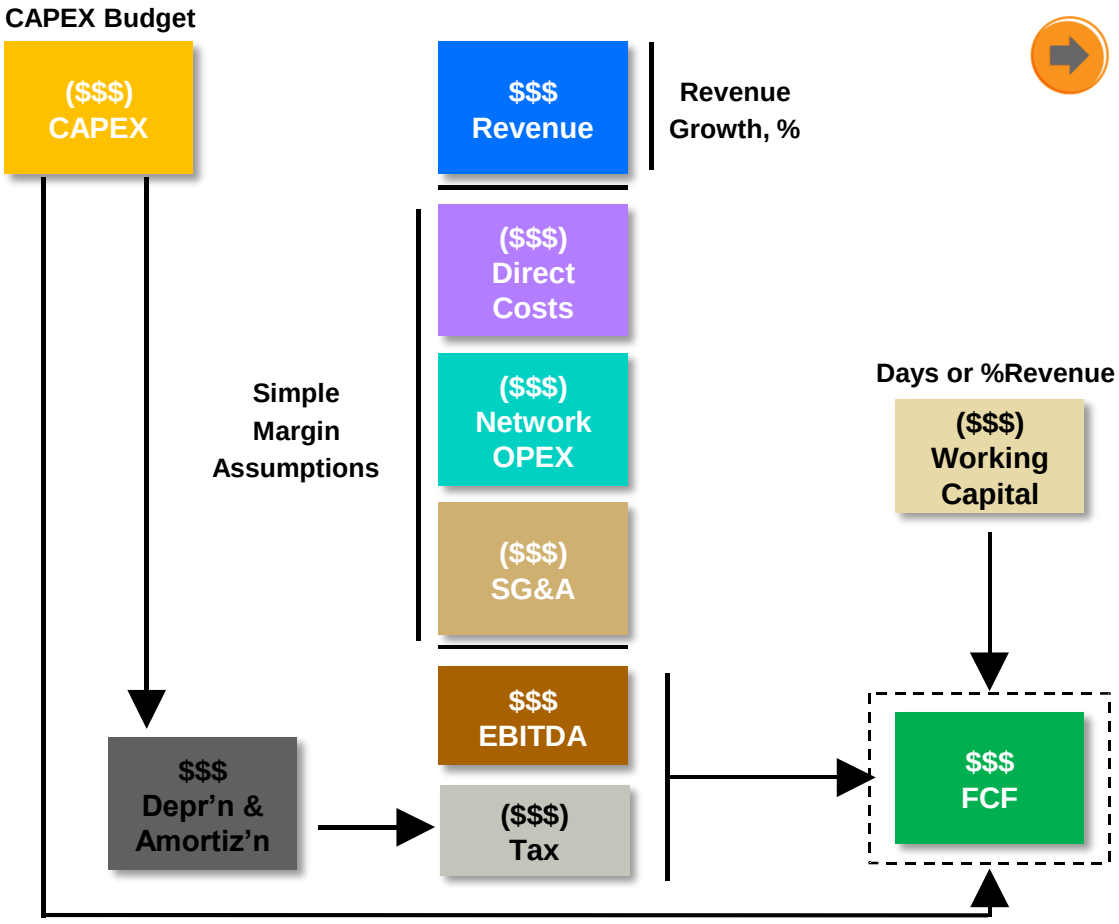
A Top Down Model

- Based on demand analysis
- Commonly market share driven
- Examples
  - Wholesale trade
- Easy
  - Defines market opportunity and competitive positioning
- Provides little insight on means of achieving target market share
  - May overstate future margins

B Bottom Up Model

- Based on supply analysis
- Assumes certain pricing schedules and customer sign-up rates
- Examples
  - Hotel and catering businesses
- Fixed number of variables
  - Commonly CAPEX / utilization driven
  - No flexibility to run scenarios
- Difficulties in testing whether a market opportunity is available at the right price

Example of a Basic Top Down Model



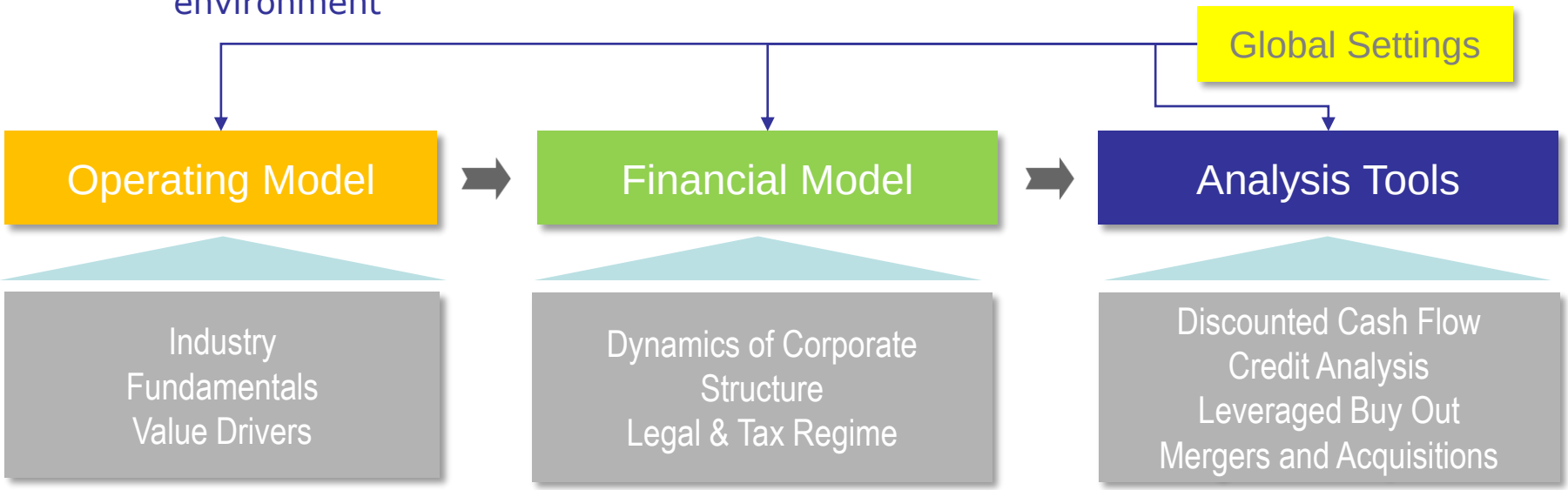
Quick but with shortcomings:

- Revenue growth is irrelevant without a relationship to a specific market opportunity
- Margins hard to analyse without more detail on actual underlying drivers, strength of competition, barriers to entry, capital intensity, product maturity and its life cycle

Corporate Finance Modelling Framework

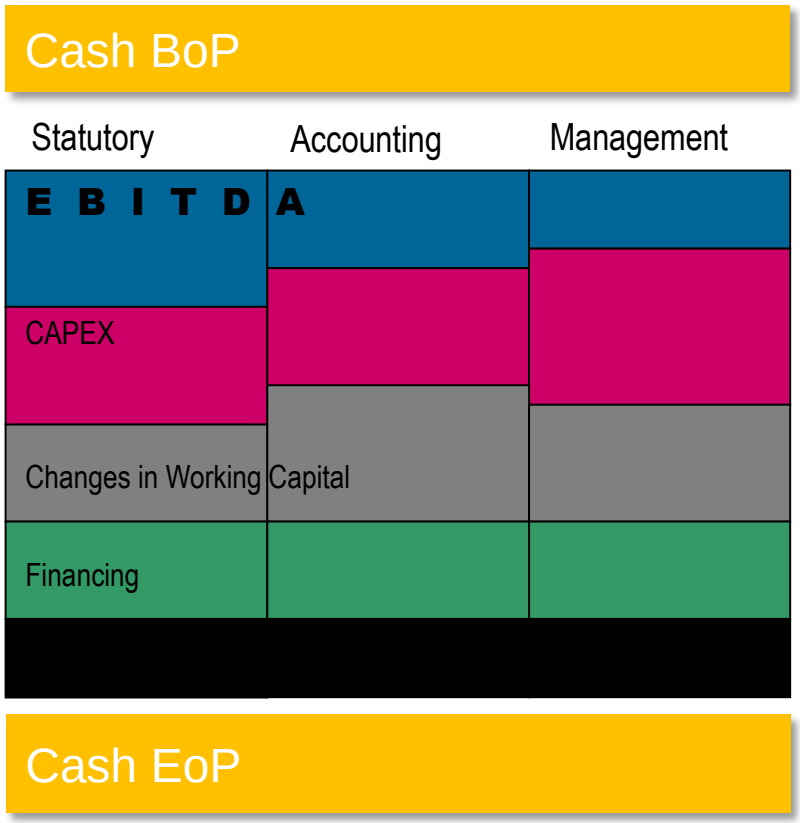
- Operating models differ from financial schedules
  - Mixing the two will result in confusion or an unreliable "spaghetti" model
  - Financial schedules can be and should be standardised
  - Operating models are unique to specific business environment

Important to get the right level of detail flowing from one module to the next one



Accounting vs. Modelling

Cash is next to impossible to fudge



- The Bare Minimum is CASHFLOW
  - DCF / LBO / Credit…. Merger?
  - Any deal relies on understanding of its cash flow impact
- As modelling concentrates on key cash drivers it would NOT align perfectly to detailed financial reporting
- That is NOT a problem if cash flows are captured right
- Consistency with accounting standards is nice but is a secondary objective

Testing a model….

There is no such thing as 100% certainty that every link is correct

- Tracing formulae and browsing around the model is usually useless
  - Especially if it is your own model!
- What one can do to get some comfort?
  - Professional auditing packages
  - Stress and directional testing
    - ✓ Does it behave the way you anticipated it to?
    - ✓ There are no rounding errors in excel!
- Think of suitable tests, for example -
  - ✓ If revenues go up 10%, what does it do to your net income and why?
  - ✓ Cumulative negatives shall equal cumulative positives

Agenda for the first Excel workshop

A Things to Consider

- Periodicity
- Level of detail for inputs / outputs
- Design of internal flows
- Documenting inputs and subsequent changes
- Navigation

B Tools & Global Settings

- Useful tools / global settings
  - Model's timeline
  - Named ranges
  - Formatting tricks to generate headers
  - Events and time counters
  - Spreading data with the help of Sumif function (annual to interim, interim to annual)
  - Validation lists

Modelling Financial Statements

Modelling financial statements is different from budgeting

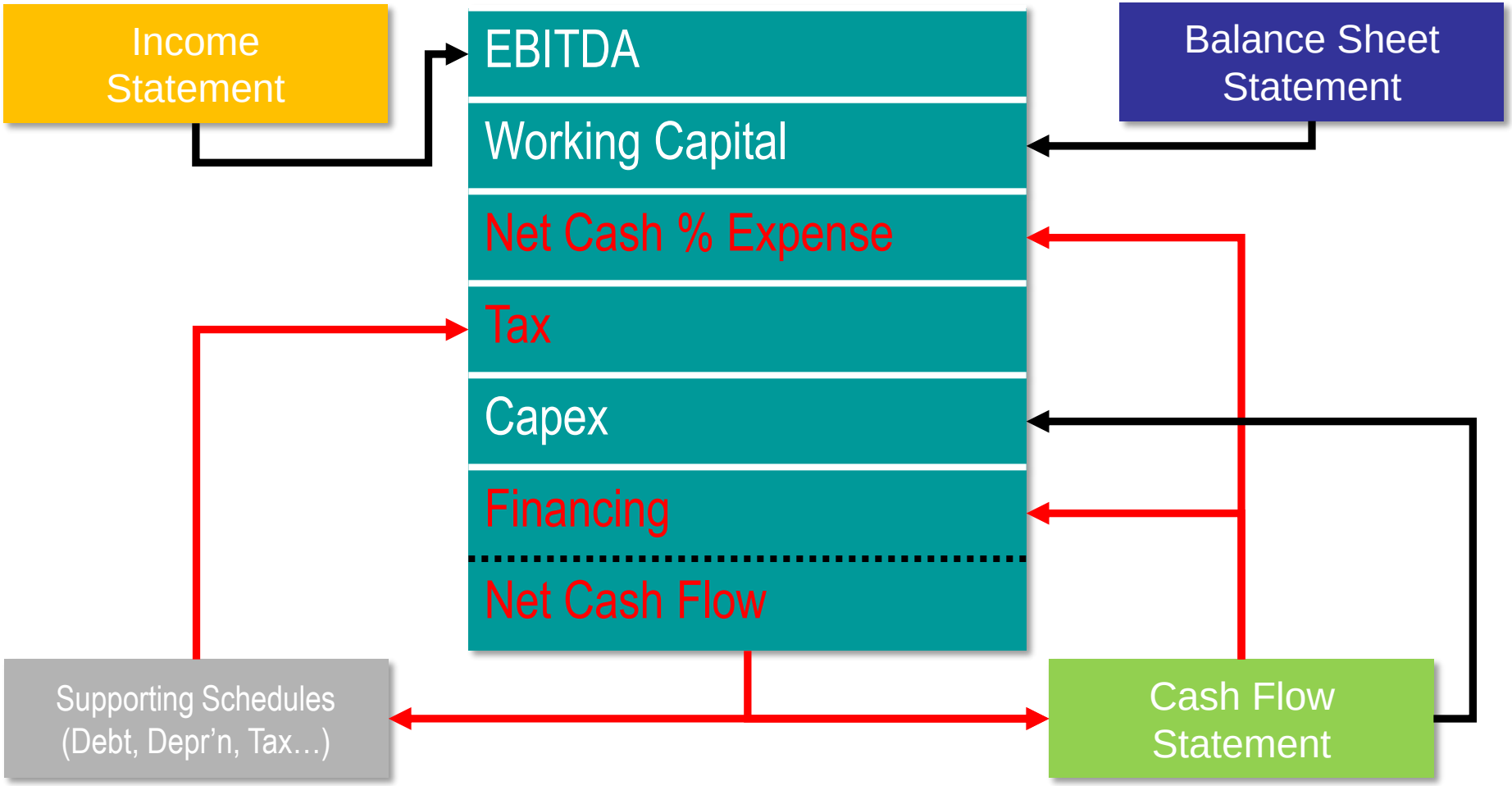
- On the surface of it
  - No big deal – any decent company would have a set of accounts, or three forms which will "balance"
- However, unlike budgeting modelling is not static
  - Modelled statements run dynamically = plenty of "chicken and egg" issues if not structured well
  - No comfort (real or perceived) of accounting debits and credits = two negatives would balance
  - Needs to react to changing assumptions and not "break" – requires integrity

Where to begin?

If you build your model from scratch, then the most logical sequence would be

1. CAPEX and D&A
   (pure input from operating data)
2. P&L down to EBIT (clean from any b/s impact)
3. Operating bits of Balance Sheet
   (PP&E and Working Capital)
4. Cash Flow Statement down to Operating Cash Flow
   (except for tax)
5. Computations of Interest Charges and Financing
6. Computations of Tax
7. Rest of Cash Flow Statement (Tax and Financing)
8. Rest of Income Statement (EBIT to NI) and Balance Sheet (Financing)

"Mapping Cash" = Model's Cash Engine



Cash Flow Circularity

If you know the source of circularity in your model, then there is no need to panic.

In fact, circularity provides certain advantages over linear models

- What to do with cash surplus (deficit) in a projected period?
  - Manually setting debt levels is tedious and impractical (e.g. sensitivities)
  - Most models assume an automatic cash sweep (Pays or borrows against a revolver facility from available operating cash flow)
- Cash Interest / Cash Expense (Revolver debt)
  - Normally calculated on average BoP and EoP balances (more accurate than on BoP only)
  - EoP balances can only be computed if % is computed = circular
- Xls does an excellent job of iterating for solution
  - Excel Options >> Formulas >> Iteration

Modelling Tax

Cash tax, or what is actually paid to the government in any given period would almost certainly not match tax charge as shown in P&L

- Our old good accounting
  - Permanent differences (e.g. non-taxable PIK, goodwill impairments, etc.)
  - Temporary differences (e.g. tax depreciation vs. book depreciation)
- Need separate supporting tax schedule to make things transparent
  - Start the schedule from P&L EBT line
  - Work in (add) permanent and temporary taxation differences
  - Factor in operating tax losses and loss carry forwards
  - Work out P&L and Cash Flow tax charge
  - P&L tax = Cash tax + delta BS tax assets (liabilities)

Assignment One

- Please, study the model carefully before proceeding to specific tasks!
- Work in groups or individually as you prefer

- Guided by principles discussed today -
  - Restore broken links and…make the model run properly
  - Your balance sheet needs to balance!
- Specific items to address
  - Fix the revolver (overdraft) calculations, needs to draw/repay based on availability of operating cash
  - Fix the interest expense (link supporting schedules, profit & loss and cash flow statements)
  - Fix the tax schedule (assume non-cash % is not tax deductible) and pay particular attention to loss carry forwards computations
- Don't forget to set Excel to interations mode
- For next class submit one page print of the balance sheet statement