INTERNATIONAL FINANCE
FINANCIAL MODEL
Lesson 1 - Introduction

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Introduction

- Section Organization
- Objectives
- Book References
- Keys of accounting / financial modelling
- Exercise

Main topics of this part (1/2)

Financial model

Being able to draw a simple financial model from some identified input

- Profit & Losses structure
- Cash Flow structure (before/after debt)
- Some good practise for financial modelling

Different model architectures

Different approach in project and project evaluation

- Corporate model
- Project finance model
- (Leverage buyout model)
- (Integration model)

Main topics of this part (2/2)

Sponsor and Lender ratios

Starting from a defined model, assessing the main ratios for project evaluation

- Sponsor vs lender's goals
- Sponsor Ratios: IRR (levered / unlevered), NPV, Payback
- Lender Ratios: DSCR, LLCR, Debt / Equity
- Comparables: Hurdle rate, Ke, CAPM, WACC
- Discounted Cash Flow
- Yield vs IRR

Sensitivity and Risk analysis

Identify, evaluate and eventually mitigate possible risk factor

- Risk matrix
- Sensitivity
- Scenario analysis
- Stress test

Objective

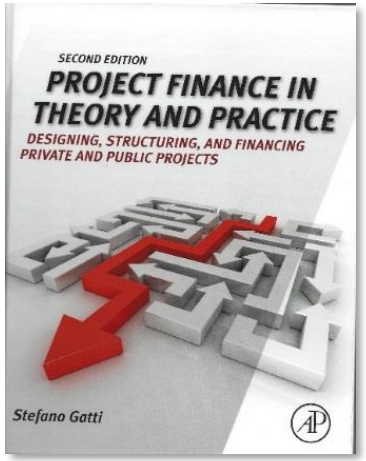
- ✓ At the end of this section, the student should be able to have the keys to understand the structure of complex international projects
- ✓ A specific focus will be given to the sponsor and lender’s perspective on structured deals
- ✓ All the topics included in this section will be part of the exam, unless specified
- ✓ Some simplified Case study will be submitted during the course

Book references

Please refer to the previous lesson of Professor Federico Merola for the book references

About this section (financial model), for possible further details beyond the slides, it is possible to refer to the book to enhance specific topics or to have a look to the case study

Reference book: *Project Finance in theory and practice by Stefano Gatti*



Background

- ✓ Basics of accounting and financial math (advanced financial mathematics) could facilitate the understanding of the course

  In the following slides a summary of the main needed topics will be provided

- ✓ Basics of Excel could facilitate the understanding of the course

  For the excercises (during the course and/or the exam), excel calculations will not be mandatory, but very helpful

Different perspectives: Lender vs Sponsor

Different perspectives according to different roles, strategies and risk profiles

Risk based remuneration
Sensitivity analysis
Multiple Scenario

Lower remuneration
Lower risk
Stress test to avoid default

Ratio
(IRR, ROE, NPV, EPS)
DCF, Payback period

Covenant
(DSCR, LLCR, D/E)
Stress test

SPONSOR AND LENDER GOALS
Sponsor's perspective

Why to invest in a project?
Which ratios to consider?

- Industrial savings (economy of scale, more productivity, better management, etc.)
- Strategy (possible benefits to enter a new market, as new Country or new sector)
- Size (to better play in the market arena)
- Cash flows during project's life (IRR)
- Gains (capital gains, net income) and financial return of the invested capital

SPONSOR AND LENDER GOALS
Lender's perspective

Will I get back my money?
Which is the impact on my ratios?

- Loan repayment (total life and year-to-year) = cover ratio and equity / debt ratio
- Effects on the lender's asset and balance sheet (covered / uncovered ratio)
- Interest rate and commissions (upfront fees, agency fees)

EXAMPLE – Target after these lessons

Base Case M$	Years 1	2	3	4	5	6	7	8	9	10
Revenues	0	0	150	250	300	450	468	487	506	526
Operation costs (Opex)	0	0	75	80	84	89	95	100	106	113
EBITDA (Revenues - Opex)(A)	**0**	**0**	**75**	**171**	**216**	**361**	**373**	**386**	**400**	**414**
D&A	0	0	30	50	50	50	50	50	50	0
EBIT	0	0	45	121	166	311	323	336	350	414
Interests	0	0	27	24	20	17	14	10	7	3
EBT	0	0	18	97	145	294	310	326	343	410
Taxes (B)	0	0	0	0	140	147	154	162	170	179
Net profit (C)	**0**	**0**	**18**	**97**	**5**	**147**	**155**	**164**	**173**	**232**
Capex / Investments (D)	300	400	50	0	0	0	0	0	0	0
Cash Flow Available for Debt Service (F=A-B-D)	**(300)**	**(400)**	**25**	**171**	**76**	**214**	**219**	**224**	**230**	**235**
Debt - principal initial	0	180	420	394	338	281	225	169	113	56
Debt drawdown (G)	180	240	30	0	0	0	0	0	0	0
Principal repayment	*0*	*0*	*56*	*56*	*56*	*56*	*56*	*56*	*56*	*56*
Interests			*27*	*24*	*20*	*17*	*14*	*10*	*7*	*3*
Principal + interests repayment (H)	0	0	83	80	77	73	70	66	63	60
Debt - principal final	180	420	394	338	281	225	169	113	56	0
Debt Service Cover Ratio - DSCR (A/H)	**n.a.**	**n.a.**	**0,30**	**2,13**	**0,99**	**2,92**	**3,14**	**3,38**	**3,64**	**3,94**
Free Cash Flow (F+G-H)	**(120)**	**(160)**	**(28)**	**91**	**(1)**	**141**	**149**	**158**	**167**	**175**

Project NPV	278
Project IRR	13,37%

Equity NPV	221
Equity IRR	20,19%

Before building a financial model

How to identify the best financial structure of a project?

How to build a financial model?

How to evaluate a project and which project ratios are relevant?

Which information to share and how to share them?

BUSINESS PLAN AND FINANCIAL MODEL

Contracts

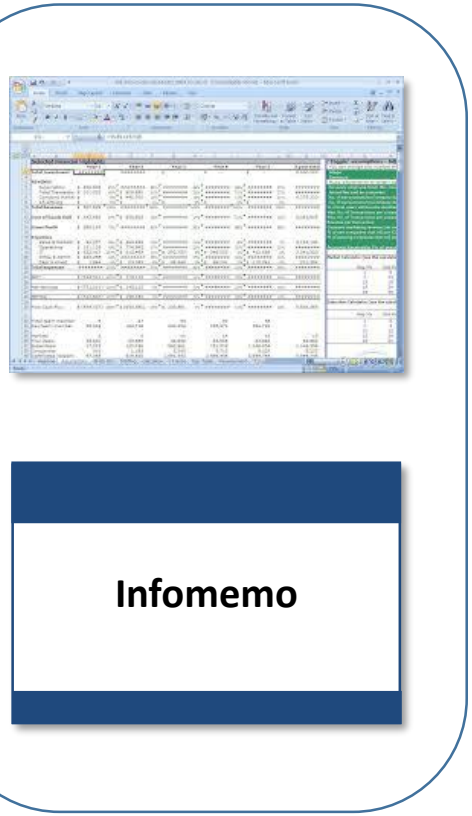
Market research

Due Diligence

Macro economy

(Strategy)

(Negotiation)



Internal meetings

Company decisions

Operations

Financial Model: financial representation of different angles of a project, including market data, project data and regulation aspects, aiming to summarize key information by performing calculations. The final goal of a financial model is to drive investment decisions or strategies.

BUSINESS PLAN AND FINANCIAL MODEL
Beyond the input

Contracts	• Commercial agreements, shareholders agreement, financial agreement, quotations, etc.
Market research	• Is a quotation fair? How to estimate missing inputs? Is the forecast sound?
Due Diligence	• Specific details (regulatory, technical, legal), market trend, risks
Macro economy	• Country outlook, taxes, regulation, country forecast, country targets, macro region forecast, sector forecast, commodity price, etc.
(Strategy)	• To read and report a financial model, the knowledge of the company's strategy is essential to highline the right points
(Negotiation)	• To suggest and rank the possible corrective actions, the knowledge of a possible deal-breaker is essential *(do I suggest a feasible action?)*

BUSINESS PLAN AND FINANCIAL MODEL
Who is involved ?

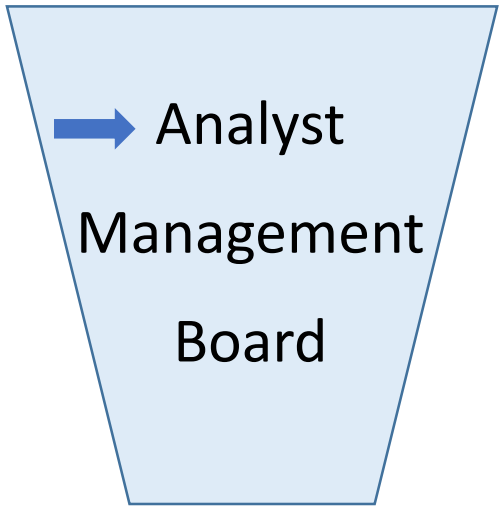
Advisors
M&A, Technical, Legal, Tax Advisors

Internal departments
Sales, Business Development, Accounting

Counterparts
Seller, Partners, Lenders, Shareholders, etc.

«Third-Parties»
Regulator, Market, Law

Project leader

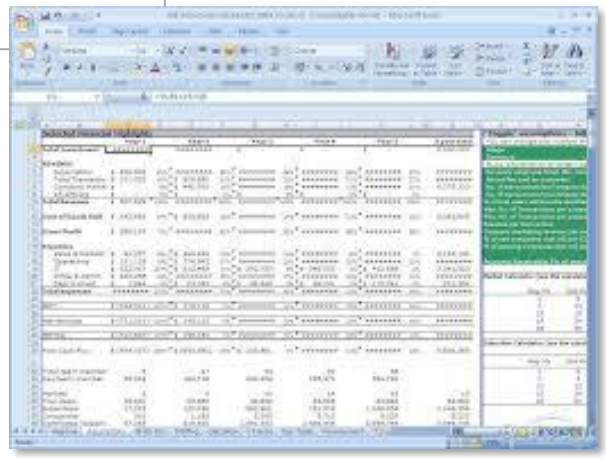


Different set of information and different detail of information depending on report level also reflecting different perspectives (CEO, CFO, Board, etc.)

BUSINESS PLAN AND FINANCIAL MODEL
Inputs

Project input
- Location, Project life
- Project characteristic
- Capex, Opex
- Financial statements

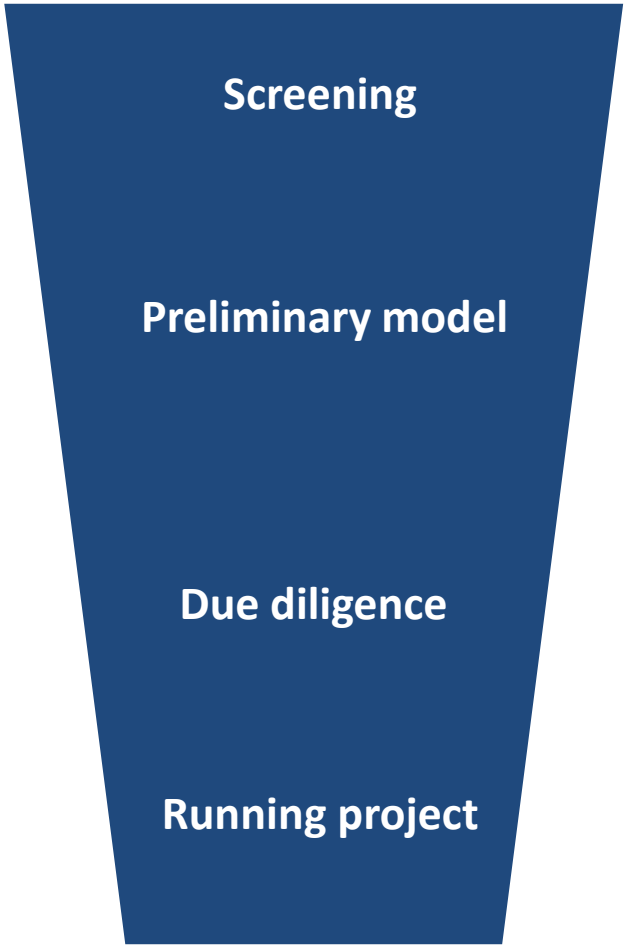
Financial input
- Financial structure
- Sponsor expectations
- Debt structure



Market
- Market arena
- Regulation
- Trend

Macro economic assumption
- Inflation rate
- Tax rate
- Currency change

BUSINESS PLAN AND FINANCIAL MODEL
Stages of the model



Many projects *(i.e. 50)*. Low success rate. Timing essential. Gross result is satisfactory

Still many projects *(i.e. 15)*. Potentially high success rate. Ranking the complexity of the projects is essential as well as enhancing the quality of the results

Less projects *(i.e. 5)*. Any detail is important. The quality of the analysis and the results is essential

Project in portfolio. Monitoring to assess any possible variation and to verify the previous phases in the following projects

P&L - Profit and Losses (Income statements)

(+) Revenues

(-) Operating Costs

(=) EBITDA ***(earnings before interests, taxes, depreciation and amortization)***

(-) D&A – depreciation and amortization

(=) Ebit *(earnings before interests and taxes)*

(-) Interests

(=) Ebt *(earnings before taxes)*

(-) Taxes

(=) Net Profit

BS - Balance Sheet *(simplified)*

Assets	Liabilities
Property, plant & equipment	Equity and retained earnigs
(Capex/investements)	Shareholder loans
Cash and associated	Financial debts *(loans, etc.)*
Working capital	Other liabilities
(+) Receivables, (-) Payables, (±) VAT/tax credit/debit, etc.	***Total Liabilities***
Financial investments	
Other assets	
Total Assets	

From P&L and BS to Cash Flow

P&L

- D&A – depreciation & amortization, are not uses of cash
- Financial interests are debt related (we will split the cash flow between "before debt" and "after debt"

Balance Sheet

- Capex variation – investments / disinvetments (net of depreciation and amortization)
- Working capital variation
- Financial debt variations
- [Other financial investments / asset / liabilities variations]
- Equity and shareholder loan variation are now considered as outcome of the model (sponsor perspective)

Cash Flow Available for Debt Service

Two ways to calculate the cash flow:

From Net Profit			From Ebitda	
(+)	Net Profit			
(+)	D&A	=	(+)	Ebitda
(+)	Financial Interests		(-)	Taxes
(-)	Investments (disinvestments)		(-)	Investments (disinvestments)
(+/-)	Working capital variation		(+/-)	Working capital variation
(=)	**Cash Available for Debt Service**		**(=)**	**Cash Available for Debt Service**

Net Profit = + Ebitda –D&A – Financial interests - Tax

Project IRR
Project NPV

To be discussed next lesson

Before debt to after debt

- Debt increase (drowdown)
- Principal repayment
- Financial interests
- Other debt-related cash-out *(commissions, agency fee, DSRA)*

- Tax benefit coming from debt – on financial interests
- *As simplification, this representation does not distinguish the debt tax benefit (to be subtracted in cash flow before debt and readded in cash flow after debt). An example will be given in the following lesson*

Free Cash Flow after debt

(+) Cash Available for Debt Service

(+) Debt increase (drowdown)

(-) Principal variation

(-) Financial interests

(-) Other debt related expenses / flows (commissions, agency fee, DSRA)

(=) Free Cash Flow

[Distribution rules]

(=) Cash Flow for the shareholders

Equity IRR
Equity NPV

Exercise n.1

An European Investor is considering a possible investment (>500 M$) in a power generation (electricity) plant coal fired. The plant has to be built and it will be located in China.

<u>If you were the Investor, can you list some key characteristic of the project, financially relevant?</u>

Exercise n.2

Under the following assumptions (M€):

	Year 1	Year 2	Year 3
Revenues	200	300	250
Costs	50	150	90

- Tax rate 30% on the Earning before taxes (EBT)
- Asset Value of 300 M€, to be amortized in 3 years with a fixed value
- No Working Capital
- Debt structure:
  - initial debt outstanding of 180 M€,
  - Repayment in 3 years with 60 M€ + financial interests
  - interest rate of 5.0%

Please draw: (i) P&L, cash flow (ii) before debt and (iii) after debt

To be corrected next lesson