

Project Finance Case Studies and Underlying Principles

SECTION 1: OVERVIEW OF PROJECT FINANCE

Theory of Project Finance and Differences Between Project Finance and Corporate Finance

- Project Finance Definition and Definition of Selected Terms
- Phases and Changing Risks over time in Project Financing
- Project Finance Analysis Compared to Corporate Finance and Importance of Project Finance
- Dependence of Project Finance on Consulting Reports and Engineering Reports and problems with Business Plans
- Importance of Banker and “Stamp of Approval”
- Theory of Debt Capacity in Measuring Risk
- Fundamental Difference Between Availability and Output Projects
- Risk Matrix and Risk Classification in Project Finance
 - Target Credit Rating for Project Finance (BBB-)
 - Different DSCR Levels for Credit Rating
 - Changing Levels of Equity IRR Requirements
 - Contract Structure and Credit Rating
 - Example: DSCR for Different Electricity Projects in Different Regions
 - Example of Letter Rating

Risk Analysis and Foundation of Project Finance Structure

- Risk Analysis, Philosophy, Statistics and Importance of Historic Data

- Classic Examples of Project Finance Failures and Relevance for Recent Projects
- Risks of Commodity (Agri-Business) versus Risks of Oligopoly (Ports)
- Traffic Risks in Infrastructure Projects and Problems with Traffic Studies
- Capacity Factor Risks in Renewable Energy Projects from Consulting Studies
- Off-taker and Technical Risks in PPP Projects
- Exchange Rate Risk and Market Risks
- Risks from Un-Economic Contracts and the Necessity to Examine True Costs
- Political Risks, High IRRs, Premiums
- Case Study of Risks
 - Appropriate Debt Structure
 - Conventional Technology and Business Risks
 - Commodity Price Volatility, Cash Sweeps and DSCR
 - Volatility in Value and Debt to Capital
 - Use of Contracts and Forwards for Managing Commodity Price Risk
 - Hands on Exercise: Operating Inputs in Financial Model

UNIQUE RESOURCES FOR FURTHER LEARNING AND RETAINING KNOWLEDGE

- An essential part of the course is the provision of vast materials that can be used to re-enforce the concepts discussed in the workshop and to allow participants to engage in further study. Materials include:
 - Many featured models in electric power that fully resolve circular references, rigorous structuring, customised scenario analysis and other features
 - Hundreds of Focused exercises highlighting a variety of advanced financial issues
 - Frameworks for unique presentation of data and risk analysis including Monte Carlo Simulation;
 - Methods for extracting crucial data for financial and energy analysis with transparent macros that automatically update information
 - Unique tools to convert PDF files, format spreadsheets and enhance efficiency
 - Collection of comprehensive case studies, financial articles, contracts and models

Project Finance Risk Discussion for Case Study

- History of Selected Projects
- Risk Matrix for Components of Project
- Perceived and Real Political Risk
- Cost of Differential IRR and DSCR Requirements
- Meaning of Credit Spreads in Project Finance
- Difficulty of Developing Standard Financial Criteria

Availability and PPP Projects

- Risk Allocation in PPP Projects and Contracts that Allocate Risk
- Problems of Contracts with Availability Risk
- Economic Analysis of Public Financed Projects versus PPPs
- Detailed Discussion of Benefits and Costs of BOOT versus BTO and Financing
- Alternative of Using EPC and O&M Contract with Government Financing
- Revenue Sharing in Upside Scenarios
- Attempts to Measure Risk with Value of Money
- Financing Costs and Equity IRR in Africa

- Hands on Exercise: Working with Financial Model of PPP

SECTION 2: RISK ANALYSIS AND MITIGATION

Risk Identification and Different Types of Risks in Project Finance contrasting Petrozuata Case that was labelled “Deal of the Decade” with Agri-Business Project

- Introduction to Country Risk and Credit Rating
- Why “Deal of Decade” Failed
- Risk Mitigation and Buffers for Remaining Risks
- Distortion of Project Economics because of Project Finance
- Importance of Lenders Understanding Project and Equity IRR
- Evaluation of the Cost Structure of Investments
- Benchmarking the Cost Processing Plants and Equipment
- Use of Break-even Analysis in Commodity Price
- Hands on Analysis: Computation of Break-even with PLCR, LLCR and IRR
- Case Discussion of Risk Allocation Matrix

- Contract Structure and Legal Documentation in Project Finance

- General Idea of Contracts and Risk Mitigation
- Construction Contract and EPC
- Lump-sum Fixed Price versus Cost Plus
- Concession Agreements and Build Own Operate
- Relationship Between Different Contracts and Back-to-Back Contracts
- Insurance and Third Party Support
- Force Majeure and Limitations on Responsibility of Contractor
- Termination Clauses and PPP’s
- Alternative Contract Structures

- Applicability of Contracts to Different Industries
- Usage versus Availability Payments and PPP's
- Limited Recourse and Responsibility for Cost Over-runs
- Incentives in O&M Contracts
- Completion Tests
- Costs and Benefits of Risk Mitigation in Contracts for Africa
- Liquidated Damages and True Costs of Delay
- Cost of Penalty Provisions in PPP Contracts
- Costs Associated with Maintenance Provisions in PPP Contracts
- Political Risk Insurance

SECTION 3: DEBT STRUCTURING IN PROJECT FINANCE

Structuring Debt in Project Finance -- Debt Sizing, Debt Repayments, Debt Tenors, and other Terms

- Timing of Debt and Equity Draws During Construction
 - Optimising of Financing in PPPs
 - Financing with Equity First
 - Treatment of Cost Over-runs
 - Equity Bridge Loans and Measurement of Equity IRR
 - Hands on Exercise
 - Pricing of Debt and Changing Spreads
- Theory of Credit Spreads with risk of default
 - Implied Default Probability and Loss on Debt
 - Implied Probability of Expropriation
 - Credit Spreads for PPP's
 - Debt Tenor and Grace Periods for Agribusiness and Industrial
 - Working capital and Value of Processing Plants

- Structure of repayments in PPP versus Resource and Commodity Projects
- Applicability of Structural Enhancements in Different Transactions
- Debt Service Reserve Accounts and Covenants
 - Applicability of Credit Covenants
 - Positive and Negative Covenants
 - Project Finance Covenants versus Corporate Covenants
 - Cash flow sweeps for Alternative Projects
 - Cash Trap Covenants
 - Costs and Benefits of Debt Service Reserve Accounts
 - Arguments for Balloon Payments with Debt Service Reserve Accounts in PPP's
 - Importance of Re-Financing
 - Concepts of Re-financing
 - Projects where Re-financing is Most Important
 - Effect of Re-financing on IRR for PPP projects

SECTION 4: PROJECT FINANCE MODELS

Analysing and Interpreting Project Finance Models

- General Objectives in Reviewing Models
- Remove Fear of Large Models
- Create Simple Analysis to Evaluate Project Risks
- Understand How to Find Important Information in Models
- Compare Project Finance Models with Other Kinds of Models
- Discuss How to Evaluate Key Assumptions in Models
- Model Concepts for Agribusiness/Industrial Project

- Setting-up project phases in model for development, construction, operation
- Development of Operating Assumptions and Computation of Pre-tax IRR with Analysis of Cost
- Structure and Reasonableness of IRR
- Benchmarking of Processing Plant Cost and Operating Costs Relative to Other Projects
- Debt schedule and connection with cash flow statement for Sweeps, Traps, Defaults, and DSRA
- Cash Flow Statement and Cash Flow Waterfall
- Computation of Model Outputs – Equity IRR, DSCR, LLCR, and Debt IRR

Review of Completed Real Project Finance Models

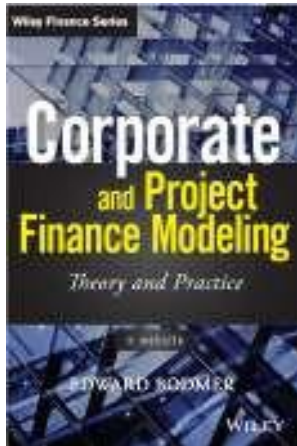
- Problems with Real Models that have 20 to 50 Separate Sheets

- Using the Principle that Economic Parameters Should be Tested before Financial Inputs
- Understanding Project Cash Flow and Project IRR to Assess Reasonableness of Assumptions
- Inserting Calculations for Benchmarking Capital Costs, Operating Costs and Plant Performance
- Creating Graphs of Cash Flow and Cash Flow Waterfall
- Evaluating Potential for Re-financing and Upsides
- Creating Table of IRRs for Equity and Different Debt Tranches
- Evaluating Games Played with Development Fees, Management Fees and other Allocated Costs
- Simulating Returns from Selling Projects before Decommissioning Date

TEACHING STYLE COVERING THEORY AND PRACTICE

- We have developed a unique teaching style whereby theory is covered well as practice. Teaching Approaches Include:
 - Having participants perform all the practical exercises rather than the instructor
 - Minimizing the use of power point slides and maximizing theoretical discussion behind each concept
 - Reserving time for group case studies to reinforce theory and practice
 - Providing resources for future learning and knowledge retention
 - Highly interactive and hands-on teaching style
 - Selection of case studies demonstrating potential errors in analysis and theory

Faculty: Edward Bodmer



Edward Bodmer provides financial and economic consulting services to a variety of clients, he teaches professional development courses in an assortment of modelling topics (project finance, M&A, and energy). He is passionate about teaching in Africa, South America, Asia and Europe. Many of the unique analytical concepts and modelling techniques he has developed have arisen from discussion with participants in his courses. Professor Bodmer has taught customized courses for MIT's Sloan Business School, Bank Paribas, Shell Oil, Society General, General Electric, HSBC, GDF Suez, Citibank, CIMB, Lind Lagers, HSBC, Saudi Aramco and many other energy and industrial clients. Bodmer's consulting activities include developing complex project finance, corporate and simulation models, providing expert testimony on financial and economic issues before energy regulatory agencies, and advisory services to support merger and acquisition projects.

Mr Bodmer has written a textbook titled ***Corporate and Project Finance Modelling, Theory and Practice*** published by Wiley Finance. The book introduces unique modelling techniques that address many complex issues that are not typically used by even the most experienced financial analysts. For example, it describes how to build user-defined functions to solve circular logic without cumbersome copy and paste macros; how to write function that derives the ratio of EV/EBITDA accounting for asset life, historical growth, taxes, return on investment, and cost of capital; and how to efficiently solve many project finance issues related to debt structuring. Bodmer is in the process of writing a second book that describes a series of valuation and analytical mistakes made in finance. This book uses many case studies from Harvard Business School that were thought to represent effective business strategies and later turned into valuation nightmares.

Professor Bodmer was formerly Vice President at the First National Bank of Chicago where he directed analysis of energy loans and also created financial modelling techniques used in advisory projects. He received an MBA specializing in econometrics (with honours) from the University of Chicago and a BSc in Finance from the University of Illinois (with highest university honours). Mr Bodmer was born in Manchester, England, he lived in Switzerland as a child, and currently resides in Chicago. You can find more information on his website www.edbodmer.com.