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## PROJECT FINANCE CASE STUDIES AND UNDERLYING PRINCIPLES

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## PROJECT FINANCE CASE STUDIES AND UNDERLYING PRINCIPLES



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  $\checkmark$ 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
  - Comparison to Risks of Other Industries and Discussion of Demand, Supply and Volatility
  - 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
- ✓ Project Finance Risk Discussion for Case Study
  - History of Selected Africa 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



A Unique approach to financial modeling to improve analysis and reduce project risks.



RISK IDENTIFICATION AND DIFFERENT TYPES OF RISKS IN PROJECT FINANCE CONTRASTING PETROZUATA CASE THAT WAS LABELED "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 Majure 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 Overruns
  - 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

STRUCTURING DEBT IN PROJECT FINANCE -- DEBT SIZING, DEBT REPAYMENTS, DEBT TENORS, AND OTHER TERMS

- ✓ Timing of Debt and Equity Draws During Construction
  - Optimizing 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 in Africa
  - 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 for African Projects
  - Concepts of Re-financing
  - Projects where Re-financing is Most Important
  - Effect of Re-financing on IRR for PPP projects

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- ✓ Working Capital Analysis
  - Use of historic balances and projected balances with historic switch
  - Accumulation of working capital and calculation of changes in working capital
- ✓ Depreciation and Deferred Tax Analysis
  - Potential distortion created by not accounting for retirements
  - Existing depreciation on net plant and use of stable ratios using OFFSET function for computing retirements
  - Depreciation on new plant using TRANSPOSE function and age calculation
  - Calculation of depreciation using SUMPRODUCT function
- 4. Calculation of Discounted Cash Flow and Return on Invested Capital
- ✓ Computation of EBITDA, EBIT and Operating Taxes
- ✓ Presentation of Free Cash Flow and Enterprise Value
- ✓ Calculation of Enterprise Value and EV/EBITDA together with Return on Invested Capital

# EQUITY CASH FLOW AND CREDIT ANALYSIS FOR FULL CORPORATE MODEL ANALYSIS

The operating part of a corporate model derives the information for computing the free cash flow and the return on invested capital. A full financial model includes financial statements, debt structure and derives earnings per share, return on equity and measures of credit quality. Exercises and discussion of creating a full integrated corporate model include:

- 1. Structure of Financial Model and Accounting Framework
- ✓ Inclusion of debt and liabilities
- ✓ Importance of closing balance accounts for every balance sheet account
- ✓ Profit and loss statement for taxes and earnings
- ✓ Cash flow statement and computation of debt and cash balance
- ✓ Balance sheet as audit and verification tool

- 2. Debt Schedule
  - Separation of long-term and short-term debt
  - Importance of use of MIN function in modeling with example for long-term debt
  - Computation of short-term debt and cash balances to tie cash flow together with balance sheet
  - Use of MAX function to compute cash balances and short-term debt with assumptions for minimum cash balance
- 3. Computation of Financial Statements
  - General notion of only computing subtotals in financial statements
  - Calculation of taxes in profit and loss statement
  - Addition of Net operating loss balance using MAX and MIN functions
  - Adjustment for Tax and Book Depreciation
  - Computation of change in deferred tax and accumulated deferred tax
- ✓ Development of cash flow statement from EBITDA
- ✓ Computation of equity balance and balance sheet
- 4. Alternative Financing in Corporate Models
- ✓ Use of SOLVER for Target Capital Structure
- ✓ Computation of new equity issues and new shares
- ✓ Calculation of earnings per share, return on equity and return on invested capital
- 5. Use of EPS and P/E ratio in valuation
- ✓ Calculation of EPS with alternative capital structure
- $\checkmark$  Inclusion of dividends and equity financing in cash flow
- ✓ Use of M/B ratio in terminal value
- $\checkmark$  Computing value per share from equity cash flow

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### ANALYZING 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 Asses 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

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# UNIQUE RESOURCES FOR FURTHER LEARNING AND RETAINING KNOWLEDGE

### LOCATIONS



An essential part of the course is the provision of vast materials that can be used to re-enforce the concepts discussed during the workshops and to allow participants to engage in further studies. Materials include:

- ✓ Many featured models in electric power that fully resolve circular reference, rigorous structuring, customized scenario analysis and other features.
- ✓ Hundreds of focused exercises that highlight a variety of advanced financial issues.
- ✓ Framework of unique presentation of data and risk analysis including Monte Carlo simulations.
- ✓ Methods for extracting crucial data for financial and energy analysis with transparent macros that automatically update information.
- ✓ Unique tools to convert PDF files, format spreadsheet and enhance efficiency,
- ✓ Collection of comprehensive case studies, financial articles, contracts and models.

### **OPTIONAL EXCEL SESSION**

The objective of this session is to assure that all participants, including people who do not routinely work with Excel, become familiar with the tools in Excel and work comfortably on the class exercises. The optional Excel session will cover short-cut keys, effective presentations, use of forms, one-way and twoway data tables, and look-up functions for scenario analysis.

#### Locations can vary depending on requests.



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