TECHNIP-AIDIC PARTNERSHIP
Università di Roma La Sapienza

Project Financing – Introductory Course

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1. Role and Attributes of Project Finance

Role and Attributes of Project Finance

Why is a proper Project Financing strategy essential?

Role and Attributes of Project Finance

Why is a proper Project Financing strategy essential?

Hydro-Skimming Phase

- Crude Distillation Unit (CDU)
- Kerosene Hydrotreater Unit (KHT)
- Diesel Hydrotreater Unit (DHT)

Hydro-Cracking Phase

- Hydrocracking Unit *(80% Conversion)* (HCU)
- Vacuum Distillation Unit (VDU)

Full Conversion Phase

- Residual Fluidized Catalytic Cracking (RFCC) Complex
- Solvent De-Asphalting Unit (SDA)

Ancillary Units

- Sour Water Stripping Unit (SWS)
- Sulfur Recovery Unit (SRU)
- Amine Recovery Unit (ARU)
- Hydrogen Production Unit (HPU)

Role and Attributes of Project Finance

Why is a proper Project Financing strategy essential?

- **Refinery Plot Plant + Process Units of a 240,000 b/d petroleum refinery to be built on the Mediterranean coast**
- **Began in 2004; first presented to Technip in November 2008**
- **In May 2009, the Project sponsors signed a contract for Technip to perform Basic Design enhancement, FEED validation and preparation of an EPC proposal**

BUT

1. **Word wide financial and economical crisis**

   ⇒ **Lenders had less appetite for risk**

   ⇒ **assumptions of the Project's market survey looked increasingly optimistic**

2. **Weaknesses in some of the Project Finance building blocks**

   ⇒ **insufficient equity investment by Project Sponsors**

   ⇒ **too many contractors leading to potential Project completion issues**

   ⇒ **lack of involvement of financial advisor in key areas**

SPONSORS HAVE BEEN UNABLE TO RAISE FINANCING
AND THE PROJECT HAS REMAINED ON THE DRAWING BOARD

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Role and Attributes of Project Finance

Definition, Pros and Cons

The financing of long-term infrastructure, industrial projects and public services based upon a non-recourse or limited recourse financial structure were project debt and equity used to finance the project are paid back from the cash flow generated by the project.

Source: *International Project Finance Association (IPFA)*

Pros: **allocate Project risks to the parties best able to manage them**

Cons: **expensive (time and money) to arrange and monitor**

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Role and Attributes of Project Finance

Applications

Project Finance deals worth US$ 167.9 billion were arranged in the first half of 2010, up by 30% from US$ 129.5 billion in the first half of 2009.

Increasingly global

PF is the prevailing financing scheme for large Projects in high-risk countries

(Almost) all sectors

PF structures can be applied not only to traditional PF industrial sectors (e.g., mines, oil fields) but also - and increasingly – to transport, infrastructure (e.g., renewable energy plants), and even public services (e.g., hospitals). Yet in some sectors PF remains difficult to arrange:

- **Lack of full transparency (e.g., Defence)**
- **Uncertain returns (e.g., agriculture, research centers).**
- **New / untested technology**

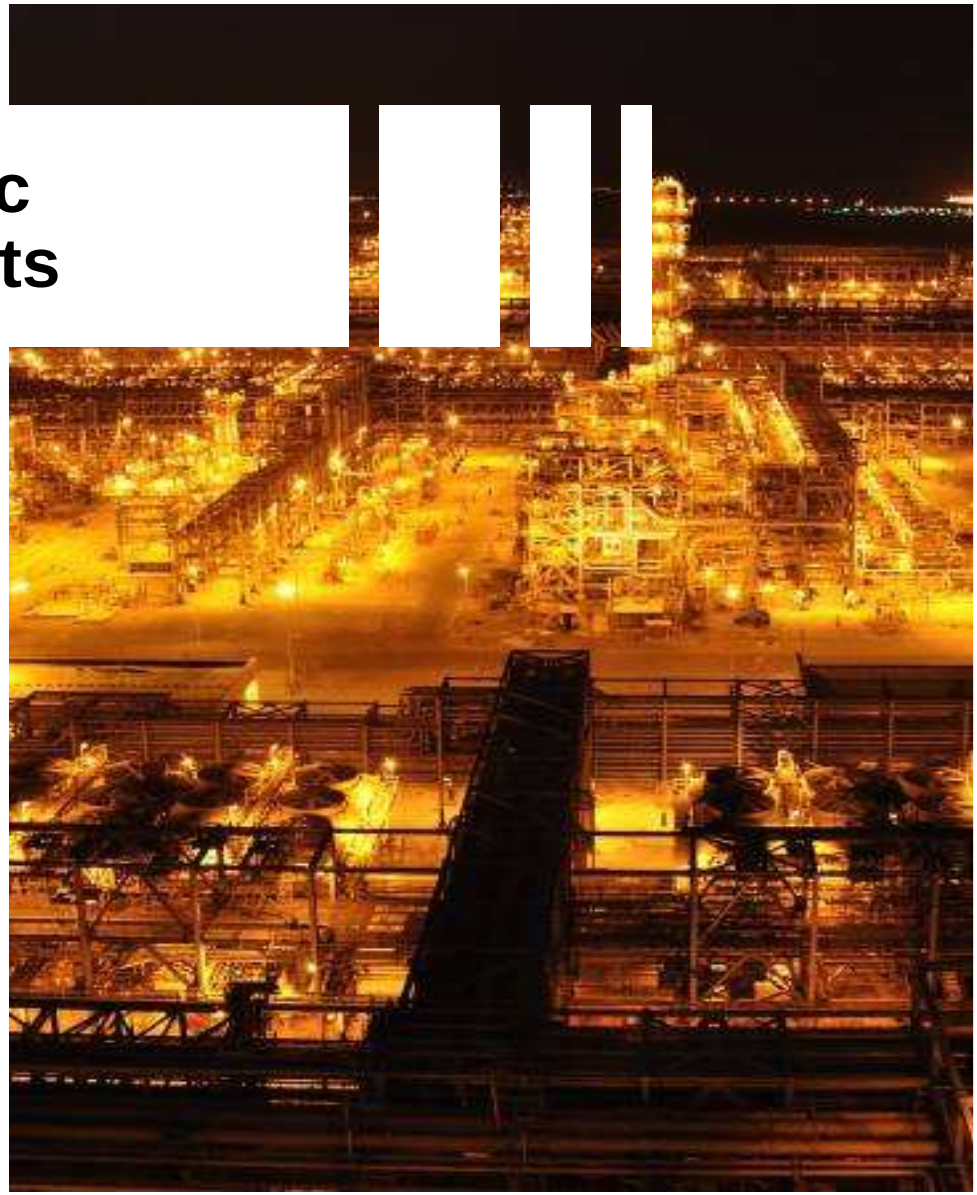
New funding counterparties

Increasing use of bond markets, especial local bond markets, and sovereign funds
More financial investors especially equity funds

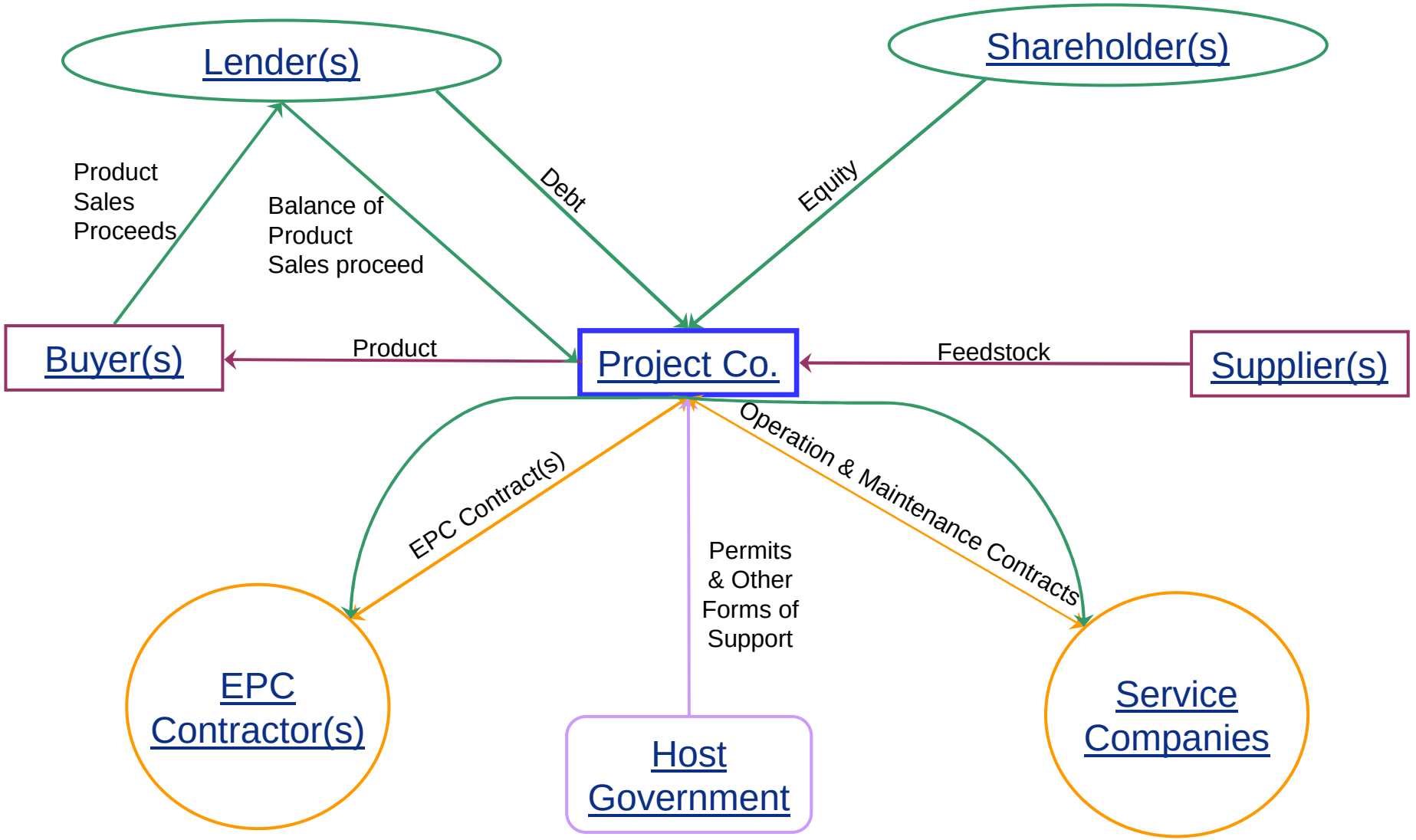
More risk-adverse Lenders

Hybrid corporate/structured/project finance structures
Monoline insurers in North/Latin America
BUT recovery from post 2008 financial crisis in terms of pricing and tenors

2. Project Financing Basic Structure and Components



Project Financing Basic Structure and Components



Project Financing Basic Structure and Components
Project Company

- **Special Purpose Vehicle (SPV)**
  - established by the Project Sponsors to own the Project
  - usually but not necessarily located in the country of the Project
  - buys or leases land (issue of ownership of risk connected to Project site conditions)
  - enters into contracts with employees and third parties
  - act as Borrower under the financing package (or equivalent role under leases or Islamic tranches)

- **Established as early as possible**
  - (usually) established shortly after the Sponsors have validated the Project
  - (sometimes) established after the interest of Lenders have been ascertained
  - (often) certain commercial agreements (e.g., purchase of Long Lead Items) can also be made by Sponsors and subsequently assigned to the Project Company
  - (rarely) Project Financing documents are signed by Sponsor and transferred to the Project Company

- **For a long period of time**
  - Project Financing schemes typically assume a Project life of between 10 and 25 years (occasionally up to 30 years), although the Project continues to operate afterward
  - under certain schemes, such as Build-Operate-Transfer (BOT) or Build-Own-Operate-Transfer (BOOT), at expiry of a set period, the ownership of the Project is transferred back to the public sector.

Project Financing Basic Structure and Components
Shareholder(s)

- **Various types of Equity investors**
  - preferably industrial investors, typically either buyers or suppliers which have a strategic interest in the products or in supplying feedstock
  - trading companies and financial investors can support but not replace the former.
  - Contractors are rarely interested to finance Projects.
  - last but not least governments under Private Public Partnerships (PPPs)

- **Intervene at different stages of the Project**
  - establish the Project Company and fund initial Owner Expenses
  - inject cash as per the financing plan
  - provide completion guarantees, typically parent company guarantees or Standby Letters of Credit (SBLCs) for a percentage of the Debt amount

- **With a flexible but significant contribution**
  - Typically 30-40% of Project costs (inclusive of infrastructure, financial costs and extra cost contingencies)
  - More Equity required for higher-risk Projects
  - Sponsors must have enough financial strength to raise or provide the required Equity
  - Some Equity can be borrowed by Sponsors, yet the higher the “pure” Equity the stronger the Project

Project Financing Basic Structure and Components
Lenders(s)

- **Various types of Debts / Lenders**
  - commercial banks
  - International Financial Institutions (IFIs): multilateral, regional and bilateral development banks, such as the IBRD (=World Bank), regional or international aid / development agencies
  - buyer credits supported by Export Credit Agencies (ECAs) such as SACE for Italy
  - relatively new Lenders to PF: local or foreign bond markets (Project bonds), “sovereign” funds, Islamic tranches investors, long-term lease agreements

- **Provide Debt funding as main source of Project Financing**
  - typically 60-70% of Project costs are funded with debt, although some Lenders propose structures whereby up to 100% of project costs can be funded by debt against cash collateral
  - both senior (i.e. which takes priority and is typically highly secured) and junior (=subordinated) debt
  - typically a main medium or long-term loan (with repayment starting six months after Project completion) plus a short-term facility (in particular for working capital and VAT-related funding needs)

- **Intervene at different stages of the Project**
  - selection of Financial Advisor and of Mandated Lead Arrangers (MLA) (see Lead Tables in Appendix 1)
  - negotiation of initial Term Sheet and Due Diligence
  - syndication of the various Debt tranches ; application to ECAs (if applicable). Underwriting, i.e. guaranteeing availability of funds to Project Company, is optional and costly
  - signature of Loan(s) / security documents +achievement of Conditions Precedent ⇒Financial Closure
  - Loan(s) disbursement + related reporting and monitoring

- **Project loans have lower default rates than corporate loans**

Project Financing Basic Structure and Components
EPC Contractor(s)

- **Complete Scope of Work (SoW)**
  - Engineering, Procurement and Construction (EPC) of Project
  - Process Units, Utilities and Offsites (U&O) and distribution / access facilities (e.g., roads, ports)
  - Very large Projects can be split into smaller packages tendered separately

- **Key parameters are performance, cost and schedule**
  - Three interconnected dimensions of EPC contracts
  - EPC contractors typically “make good” the plant to reach certain minimum performance standards and pay Liquidated Damages (LDs) to the Owner of the Project (i) if performance is still below contractually agreed levels and (ii) for delays in completing the project, in both cases for reasons not attributable to Contractor

- **For Refinery / Petrochemicals Projects Lenders prefer:**
  - Lump Sum Turn Key (LSTK) contracts ; yet the increasingly popular Converted LSTK structure can be acceptable provided that financing is arranged based on a conservative ceiling price and/or arrangements are made for Sponsors / Shareholders to meet any cost increase
  - Either one EPC Contractor to act as single point of responsibility or arrangements to secure Project completion with more than one EPC Contractor

Project Financing Basic Structure and Components
Service Companies

- **Operation and Maintenance (O&M) Agreements**
  - give to an operator the responsibility to manage and maintain the Plant in line with agreed standards in terms of input consumption (fuel, water, electricity, etc.), performance… and costs
  - typically include a price structure based on a fixed fee plus a bonus/malus
  - last several years after Project completion (at least until Debt is repaid)

- **O&M Service Companies intervene after Project completion**
  - ownership of the Plant is usually transferred from Contractor to the Project Company (Owner) after Provisional Acceptance (PA) once performance tests are successful
  - Plant Owner can also provide part or all of the Plant's O&M requirements
  - O&M costs significantly affected by 1/ Process Design and 2/ U&O ownership

- **Lenders require O&M Service Companies:**
  - to be financially strong and able to pay LDs if expected Plant performance levels are not achieved
  - to issue regular O&M reports to the Lenders' Project engineer
  - to abide by financing package requirements whereby cash flows are earmarked to a special O&M Reserve Account and payments made by Lenders for the duration of the O&M Agreement

Project Financing Basic Structure and Components
Supplier(s) - if applicable

- **For industrial Projects only**
  - **Some projects do not rely on external suppliers (e.g., Toll Road)**

- **Suppliers from nearby geographical markets**
  - **Projects are increasingly closer to their feedstock**

  ⇒ **Less Refinery/Petrochemicals projects in Europe, more Projects developed by Asian Sponsors in the Middle-East and in Russia/CIS**

  ⇒ **Projects rationale can be revised if feedstock can be sourced more cheaply elsewhere (usually closer)**

- **With a limited type of supply arrangements**
  - **By and large long-term supply agreements**
  - **Suppliers are often also Shareholders in the Project**

- **For Refinery/Petrochemical Projects, Lenders:**
  - **prefer supply agreement(s) to guarantee availability, volume, price and quality of feedstock**
  - **won't take the risk that feedstock won't be available upon Project completion**

Project Financing Basic Structure and Components
Buyer(s)

- **Buyers from all geographical markets**
  - Products/Services can be sold to local, regional or international markets; rare exceptions (e.g., Iran)
  - Project Financing arrangements typically rely on existing and/or valid commercial markets
  - Sales forecasts should be supported by an in-depth Market Survey

- **Relying on a wide-range of sales arrangements**
  - Depend foremost on the Project sector and on the Project Financing security package

    Energy Plant ⇒ Power Purchase Agreement (PPA) with Revenues based on both capacity and flow
    Toll Road ⇒ fees paid by users
    Hospital ⇒ subsidies paid by government agencies
  - Buyers are often also Shareholders in the Project

- **For Refinery/Petrochemical Projects, Lenders prefer:**
  - long-term sales agreements (=offtake contracts)
  - "take-or-pay" contracts ⇒ commitment from buyer(s)
  - with first-class international end-buyers
  - nominated and paid in hard currency
  - paid into an offshore escrow account with a first-class international bank
  - based on product prices either fixed or linked to a transparent benchmark
  - based on volumes sufficient to comfortably cover debt service and reserve requirements (or hedged)

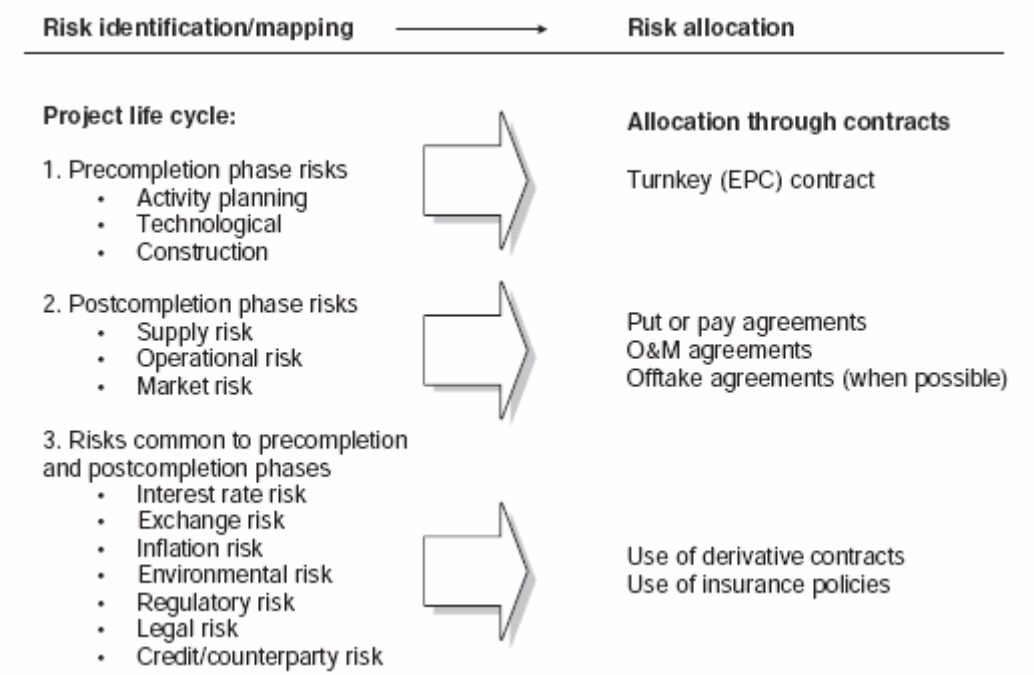
Project Financing Basic Structure and Components
Government

- **Governments are key stakeholders**
  - can perform any of the above functions directly or through state-owned companies that have a monopoly or oligopoly position in the market
  - typically always intervene in a key component, if not directly through letters of comfort or guarantees
  - Public-Private Partnerships (PPPs) still continuing to grow owing to shrinking government budgets

- **Intervene always as regulators / facilitator**
  - give concessions and act as Lessor under BOT or BOOT schemes (when applicable)
  - release permits and authorizations (e.g., approve Environmental & Social Impact Assessment)
  - create investment-friendly conditions (e.g., payments and remittance schemes, tax exemptions)

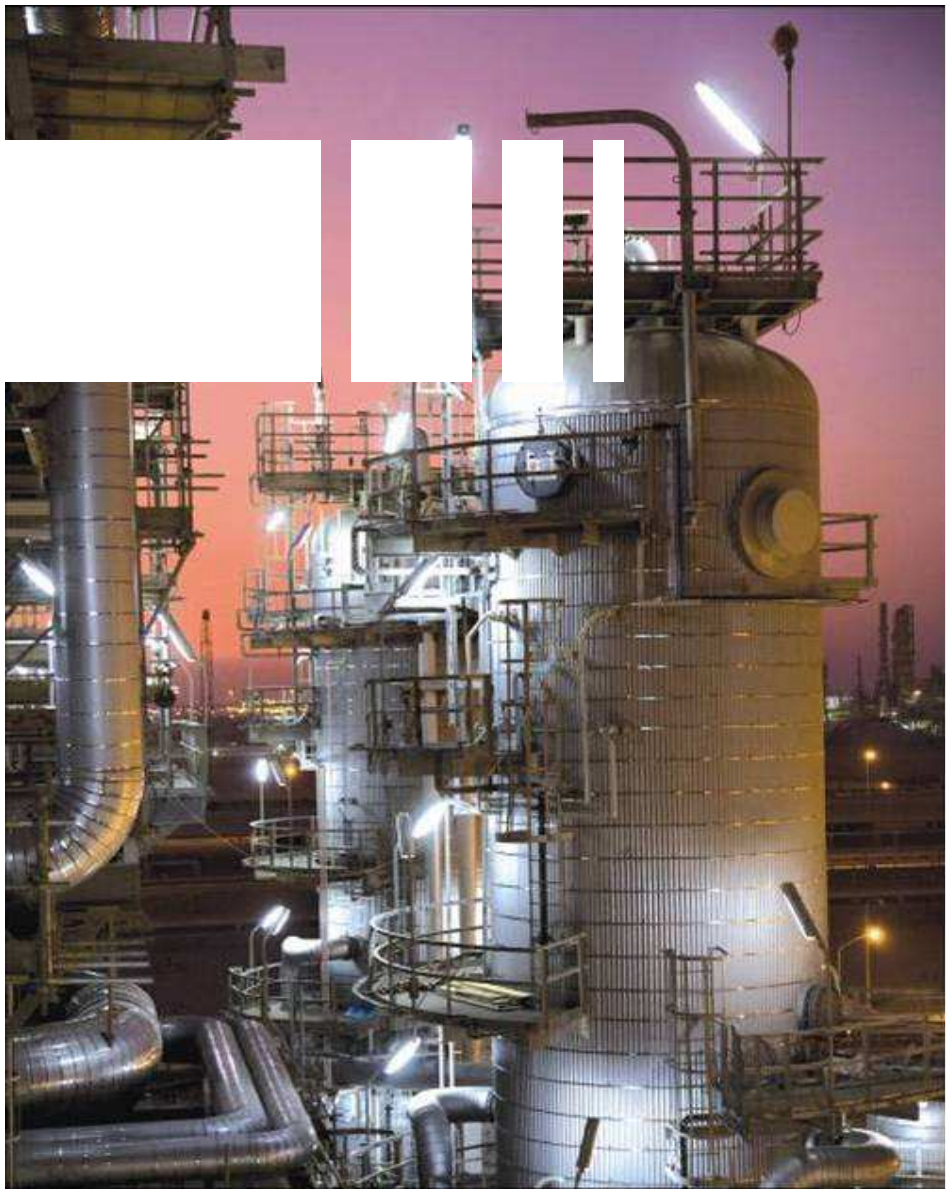
- **Sponsors/Lenders should ascertain the support of the country/government**
  - from the earliest stage of the Project
  - formalized in a Government Support Agreement (issues of rule of law / change in law)
  - not to be limited to the governing regime / party
  - if stability of Government or regulations is an issue, political risk insurance should be implemented

Project Finance Basic Structure and Components
Risk Matrix



Extracted from "Project Finance in Theory and Practice – Designing, Structuring and Financing Private and Public Projects by Stefano Gatti-2008" by permission of *Academic Press Advanced Finance Series.*

3.Project Cash Flows



Project Cash Flows
Characteristics

- **Operating cash flows**
  - are the basis of debt service although Lenders also take other security (see Appendix 2)

- **Prioritization of cash flows**
  1. cover operating expenses / fund an Operating Expenses Reserve Account
  2. cover debt service / fund a Debt Service Reserve Account
  3. released to investors provided that loan covenants and other conditions are met

- **Accurate Forecast**
  - supported by in-depth due diligence conducted by selected advisors. Their involvement at all stages and key dates of the Project (e.g., Mechanical Completion) is expensive but necessary:

    - Legal (incorporation of Project Company, Project and financing documentation, permits, etc.)
    - Technical (Engineers)
    - Environmental (Ecuador principles)
    - Insurance (conventional and financial insurance)

➔Project Bankability!!!

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Project Cash Flows
Main Ratios and Sensitivity Analyses

- **Key Ratios are calculated and monitored until final Debt Repayment**

Average Loan Life (ALL)

Average maturity of all repayments weighted by the principal outstanding

Loan Life Cover Ratio (LLCR)

Net Present Value (NPV) of cash available for debt service from the calculation date to the final maturity of the debt divided by the principal outstanding on the calculation date

Debt Service Cover Ratio (DSCR)

Cash available for debt service divided by the total amount of debt service. Lenders require a higher DSCR (>2x) for less secure the Project cash flows (e.g., markets seasonability, price volatility)

Internal Rate of Return (IRR)

- The discount rate that makes the net present value equal to zero
- different IRRs should be calculated: Project IRR, Sponsors' IRR, Lenders' IRR
- IRRs are used to compare the profitability of a project with that of alternative investment or lending opportunities
- Financing package (mostly Debt-Equity ratio) should provide satisfactory IRRs to both Sponsors and Lenders
- IRRs should be attractive yet reasonable (credible)

- **Sensitivity Analyses**

- Static Analysis: alternative scenarios are elaborated by varying key parameters => impact on Project's profitability (do not a priori exclude values which may today seem extreme or impossible to reach: in 2004 CNRL presented its Business Plan for the Horizon Oil Sands Project with WTI crude oil prices ranging between US$13.30-US$17.50 /bbl!)

- Dynamic Analysis: Monte Carlo simulations are run on the Cash Flow Model to generate a distribution of results indicating the risk probability of key ratios falling below acceptable levels

4.Project Financing Support from EPC Contractor(s)

Project Financing Support from EPC Contractor(s)

Involvement of finance teams follows projects' industrial cycle

Supporting clients' Project Financing needs is often critical to win contracts

1/ Before Contract Award

Economic/financial feasibility study

- ⇨ **give input to assumptions used for debt-related calculations (e.g., interest rate)**

FEED

- ⇨ **help (if necessary) client select a financial advisor**
- ⇨ **discuss with financing parties to ensure Project Finance is compatible with EPC contract**

Pre-EPC Bid Due Date (BDD)

- ⇨ **negotiate and submit to client Letters of Intent (LOIs) from selected Export Credit Agencies (ECAs) and/or financing offers from banks**
- ⇨ **identify procurement constraints (if ECA involvement is required)**
- ⇨ **arrange bridging payment security for Contractor, e.g. SBLC (if necessary)**

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Project Financing Support from EPC Contractors

Involvement of finance teams follows projects' industrial cycle

Supporting clients' Project Financing is essential for financial closure + drawdown

2/ After Contract Award

EPC Contractor(s) comply with Project and Loan Documentation

- ⇨ **issue contractual bonds (= bank guarantees) in favor of Project Company, typically Performance / Warranty Bond + Advance Payment / Retention Bond (depending on EPC payment conditions)**
- ⇨ **sign tripartite agree with client and lenders, which governs lenders right to step-in in case of client default under the EPC Contract (if required)**
- ⇨ **assign EPC Contract and contractual bonds to Lenders (if required)**

Fulfill Commitments once EPC Contract is assigned to Project Administration

- ⇨ **(for ECA tranches) source as per the sourcing matrix and report to each ECA agent in line with respective ECA requirements**
- ⇨ **invoice Project Company and receive payment as per Project Financing arrangements (hedge eventual FX risk)**
- ⇨ **Note if the Project Company does not meet the Representations and Warranties or Covenants included in the Financing documents, drawdowns can be withdrawn (payment risk)**

5.Project Financing in Technip Projects

Project Financing in Technip projects

- **Greenfield investment**
  - YES - SATORP (50% Saudi Aramco / 50% Total France) – Jubail Export Refinery (JER) (EPC)
  - NO – Lukoil Neftochim Bourgas - H-Oil and VGO Residue Hydro Cracking Complex (E+P)
    ⇒ funded by parent, OAO Lukoil (Russia)

- **Single investment over a relatively short period**
  - YES – SOCAR (State-Owned Company of Azerbaijan) – Oil Gas and Petrochemical Complex (Feasibility Study)
  - NO – Canadian Natural Resources Ltd (CNRL) – Horizon Oil Sands Project (HOSP) Phase I (EPC)
    ⇒financed through debt capital markets and bank loans ; Phase II and III to be financed with Phase I cash flows

- **More than one investor**
  - YES – Yansab (51%Sabic / 35% Private investors) – 1.3 million MT Ethylene Plant (EPC-see Appendix 3)
  - NO - Saudi Aramco - Shaybah Natural Gas Liquid Program (EPC)
    ⇒ funded by Saudi Aramco's Cash

Many of Technip's projects rely on
hydrid Project / Structured / Corporate Finance arrangements

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Jubail Export Refinery Project, Saudi Arabia Packages 2A: Conversion Units and 5A: Interconnecting

- **Client: Saudi Aramco/Total JV (SATORP)**
- **Production: 400,000 BPSD**
- **Amount: US$ 1.9 billion (2A)**
  US$ 1.3 billion (5A)
- **Expected Completion (RSU): 2013 (2A)**
  2012 (5A)

Grass-root full conversion refinery with high technological content

Overall Progress 2A 47%; 5A 41%

Engineering 90% Model review completed

Construction Progress 2A 5%; 5A 15%

DHC/MHC Reactors arrived at site: first Heavy Lift

All itemized equipment purchased and bulk materials purchasing under completion

Civil works, Building and Steel structures ongoing, piping erection started.

Thank you

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6.Appendices

APPENDICES

Appendix 1- 2010 Project Financing Lead Tables

Global Financial Advisers – 31/10/09 – 31/10/10

Pos.	Financial Adviser	Amount ($m.)	No.	% share
1	Societe Generale	26,675.152	11	14.631
2	State Bank of India	21,437.073	30	11.758
3	Credit Agricole SA	9,709.765	4	5.326
4	IDBI Bank Ltd	8,857.359	18	4.858
5	BPCE SA	7,125.868	6	3.909
6	Banque Saudi Fransi (BSF)	7,112.500	1	3.901
7	Credit Suisse Group	6,045.000	5	3.316
8	Macquarie Group Ltd – MGL	5,744.885	11	3.151
9	PriceWaterhouseCoopers	5,642.687	22	3.095
10	KPMG LLP	4,647.061	26	2.549

Global Providers – 31/10/09 – 31/10/10

Pos.	Provider	Amount ($m.)	No.	% share
1	State Bank of India	11,972.070	83	5.089
2	BNP Paribas SA	8,225.448	71	3.496
3	Credit Agricole SA	7,458.445	86	3.170
4	Societe Generale	6,240.011	66	2.653
5	Mitsubishi UFJ Financial Group Inc	5,276.339	69	2.243
6	Banco Santander SA	4,958.088	77	2.108
7	BPCE SA	3,807.164	48	1.618
8	IDBI Bank Ltd	3,563.276	39	1.515
9	Infrastructure Development Finance Co Ltd – IDFC	3,521.733	28	1.497
10	UniCredit SpA	3,481.589	56	1.480

Oil & Gas Mandated Arrangers – 31/10/09 – 31/10/10

Pos.	Mandated Arranger	Amount ($m.)	No.	% share
1	Credit Agricole SA	3,173.730	19	7.775
2	BNP Paribas SA	3,083.745	17	7.555
3	Societe Generale	2,583.982	15	6.330
4	Royal Bank of Scotland Group plc	1,978.784	9	4.848
5	Mitsubishi UFJ Financial Group Inc	1,721.784	11	4.218
6	HSBC Holdings plc	1,637.739	8	4.012
7	State Bank of India	1,481.312	6	3.629
8	BPCE SA	1,389.919	11	3.405
9	UniCredit SpA	1,225.154	7	3.001
10	Standard Chartered plc	1,175.605	7	2.880

Global Mandated Arrangers – 31/10/09 – 31/10/10

Pos.	Mandated Arranger	Amount ($m.)	No.	% share
1	State Bank of India	22,830.487	57	10.023
2	Bank of Taiwan	12,039.406	2	5.285
3	IDBI Bank Ltd	10,825.484	25	4.752
4	BNP Paribas SA	8,912.001	68	3.912
5	Credit Agricole SA	7,251.994	78	3.184
6	Infrastructure Development Finance Co Ltd – IDFC	6,554.887	20	2.878
7	Axis Bank Ltd	5,667.423	18	2.488
8	Societe Generale	5,554.948	55	2.439
9	Mitsubishi UFJ Financial Group Inc	5,546.467	59	2.435
10	Banco Santander SA	4,985.705	72	2.189

Source: *Project Finance Magazine*

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APPENDICES

Appendix 2 - Sample Project Financing cash flow forecast

Millions of US$	Source: *Technip Licensing & Feasibility Studies Department*												
Year	***Y-3***	***Y-2***	***Y-1***	***Y1***	***Y2***	***Y3***	***Y4***	***Y5***	***Y6***	***Y7***	***Y8***	***Y9***	***Y10***
Total Investment Costs	-91.4	-271.4	-96.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Working Capital Increase	0.0	0.0	0.0	-20.6	-2.0	-2.0	0.2	0.0	-1.4	0.0	0.0	0.0	0.0
Variable Operating Costs													
Raw Material Cost	0.0	0.0	0.0	-43.6	-49.0	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5	-54.5
Utilities & Auxiliary Mtls Costs	0.0	0.0	0.0	-27.2	-30.6	-34.0	-34.0	-34.0	-34.0	-34.0	-34.0	-34.0	-34.0
Fixed Operating Costs	0.0	0.0	0.0	-12.8	-12.8	-12.8	-9.8	-9.8	-14.3	-14.3	-14.3	-14.3	-14.3
Total Operating Costs	0.0	0.0	0.0	-83.6	-92.4	-101.3	-98.3	-98.3	-102.8	-102.8	-102.8	-102.8	-102.8
Sales Net Revenues	0.0	0.0	0.0	154.6	173.9	193.3	193.3	193.3	193.3	193.3	193.3	193.3	193.3
*** PROJECT CASH FLOW (Before Taxes**	-91.4	-271.4	-96.2	50.4	79.5	90.0	95.2	95.0	89.1	90.5	90.5	90.5	90.5
*** Cumulated Project Cash Flow (B.T.)**	-91.4	-362.8	-459.0	-408.6	-329.1	-239.1	-143.9	-48.9	40.2	130.7	221.2	311.7	402.1
Taxes Payment (Project Cash Flow)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-15.9	-15.9	-15.9	-15.9	-15.9
*** PROJECT CASH FLOW (After Taxes)**	-91.4	-271.4	-96.2	50.4	79.5	90.0	95.2	95.0	73.2	74.6	74.6	74.6	74.6
*** Cumulated Project Cash Flow (A.T.)**	-91.4	-362.8	-459.0	-408.6	-329.1	-239.1	-143.9	-48.9	24.3	98.8	173.4	248.0	322.5
Grant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loans Drawing	80.0	212.0	74.0	20.6	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interests / Financing Charges	-11.4	-21.1	-31.5	-30.9	-27.8	-24.7	-21.4	-18.2	-15.0	-11.7	-8.5	-5.5	-3.4
Loans Repayment (Principal)	0.0	0.0	0.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-39.0	-27.2	-27.2
*** EQUITY CASH FLOW (Before Taxes)**	-22.8	-80.5	-53.7	1.2	14.8	28.4	34.8	37.8	35.2	39.8	43.1	57.8	59.9
*** Cumulated Equity Cash Flow (B.T.)**	-22.8	-103.2	-156.9	-155.7	-140.9	-112.5	-77.7	-39.9	-4.7	35.1	78.2	135.9	195.9
Taxes Payment(Equity Cash Flow)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-10.7	-11.8	-13.0	-14.0	-14.8
*** EQUITY CASH FLOW (After Taxes)**	-22.8	-80.5	-53.7	1.2	14.8	28.4	34.8	37.8	24.5	28.0	30.1	43.8	45.2
*** Cumulated Equity Cash Flow (A.T.)**	-22.8	-103.2	-156.9	-155.7	-140.9	-112.5	-77.7	-39.9	-15.4	12.6	42.7	86.5	131.7
DEBT SERVICE COVERAGE													
Cash Available for Debt Service				71.0	81.5	92.0	95.0	95.0	90.5	90.5	90.5	90.5	90.5
Total Debt Service Obligation				69.8	66.7	63.6	60.4	57.2	53.9	50.7	47.4	32.7	30.6
Debt Service Coverage Ratio				1.0	1.2	1.5	1.6	1.7	1.7	1.8	1.9	2.8	3.0

APPENDICES

Appendix 3 - Selected Project Financing Deals of the Year

Middle East Petrochemicals Deal of the Year 2006

- **Sponsor:** Saudi Basic Industry Corporation (SABIC)
- **Owner:** Yanbu National Petrochemicals Company (51% SABIC, 35% public, 10% private investors, 4% employees
- **Description:** Greenfield petrochemical complex with over 4 million MT of various petrochemical products including 1.3 million MT of Ethylene; 400,000 MT of Propylene; 900,000 MT of Polyethylene; 400,000 MT of Polypropylene; 700,000 MT of Ethylene Glycol; 250,000 MT of Benzene, Xylene and Toluene, 100,000 MT of Butene-1 and Butene-2
- **EPC contractors:** Technip (ethylene and propylene plant), Fluor (utilities and facilities); Aker Kvaerner and China Petrochemical Corporation (polyolefins plant); TEC (ethylene glycol plant)
- **Project Cost:** US$ 5 billion
- **Debt:** US$3.5 billion debt, including SAR 4 billion ($1,067 million) 13-year tranche from the Public Investment Fund (PIF); a $850 million 12-year Islamic tranche (forward lease); a $700 million ECA tranche (ECGD $150 million, SACE $550 million); a $350 million revolver working capital facility; and a $533 million 12-year uncovered commercial tranche.
- **Gas Feedstock:** From Saudi Aramco with Ethane/fuel gas on a fixed-price basis until 2015 and Propane on a fixed discount (until 2011) to international price of Naphta
- **Product sales:** Marketing agreement with SABIC for 100% of the Production
- **Initial mandated lead arrangers:** ABN Amro; Saudi Hollandi
- **Mandated lead arrangers:** ABC/ABC Islamic; Apicorp; BNP Paribas; BoTM UFJ; Citibank; Fortis; GIB; Islamic Development Bank; ING; Mizuho; Saudi British Bank (HSBC); SAMBA Financial; SMBC; Standard Chartered
- **Lead arrangers:** Arab Bank; Banque Saudi Fransi; National Commercial Bank
- **Financial advisers:** ABN Amro (underwriter of all the $3.5 billion debt); Saudi Hollandi Bank
- **Borrower legal counsel:** Baker & McKenzie
- **Lender legal counsel:** Clifford Chance
- **Consultants:** Foster Wheeler; Marsh; Chemical Market Associates; URS Corporation; Nexant
- **Status:** Signed 18 June 2006

APPENDICES

Appendix 4 – Selected References

- **Project Finance in Theory and Practice – Designing, Structuring and Financing Private and Public Projects by Stefano Gatti *(Academic Press Advanced Finance Series, 2008)***
- **Modern Project Finance – A Casebook by Benjamin C. Esty *(John Wiley & Sons, Inc., 2004)***
- **Project Financing 7°Edition by Peter K Nevitt and Frank Fabozzi *(Euromoney Books)***
- **Project Finance Magazine: http://www.projectfinancemagazine.com/**
- **Harvard Business School – Project Finance portal: http://www.people.hbs.edu/besty/projfinportal/**