Part 1

INVESTOR REQUIREMENTS FOR PROJECT FINANCE
CONTENTS

• what are the sources of equity capital?
• who are the Investors?
• what are their characteristics?
• under what constraints do they operate?
• the funding of existing v. new assets: privatisations
• corporate structure of a project
• the role of mezzanine finance
• the role of a secondary market for investors
• what specifically do Investors require in a project?
SOURCES OF EQUITY

Equity:
- Current profits from operations
- Retained profits
- New equity subscription
- In-kind contributions; development fees

Quasi Equity & Debt
- Preference shares
- Subordinated or mezzanine debt
- Debt / equity swaps.
SOURCES OF EQUITY

**Equity:**
- Equipment suppliers
- Operators & utilities
- Developers / entrepreneurs
- Private investment funds
- Development banks / institutions
- Private companies
- IPO’s [public issues]?
SUMMARY OF PROJECT FINANCE
FINANCE STRUCTURE

At Risk:

Equity
(e.g. 20%)

No Risk:

Debt
(e.g. 80%)

• Mezzanine equity & subordinated debt

• Grants and subventions
1:  **Payback Period**

Investment = ‘v’
Aggregate net revenues = ‘v’ in “y” years.

2:  **Net Present Value [ NPV ]**

Sum of project cash-flows period by period, discounted back to today’s value at a discount rate representing the opportunity cost of capital.

[NB. Need to quote discount rate and period]
MEASURES USED BY INVESTORS

3 : Internal Rate of Return [ IRR ] :

IRR = the discount rate at which the NPV of the project cash-flows period by period equals zero.

Which IRR to use?

(a) Project IRR : Revenues v. [capex + opcosts] [ ? ]

(b) Economic IRR : as for Project IRR, but incl. economic costs & benefits.
   [ NB. incl. inflation or not? ] [ yes? ]

(c) Equity IRR : Shareholder equity v. dividends YES
   [ NB. treatment of retained surplus/profits. ]
Equity (Shareholders’ Rate of Return)

Project Rate of Return = 
discount rate at which PV net revenues equals PV costs
[i.e. Net Present Value (NPV) of cash-flow = 0]  = 18.105%
# NPV v. IRR

<table>
<thead>
<tr>
<th>Period</th>
<th>Project A</th>
<th>Project B</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-$24,000</td>
<td>-$24,000</td>
</tr>
<tr>
<td>1</td>
<td>$0</td>
<td>$10,000</td>
</tr>
<tr>
<td>2</td>
<td>$6,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>3</td>
<td>$12,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>4</td>
<td>$30,000</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>NPV [(\text{@ 10%})]</th>
<th>IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$10,460</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>$7,700</td>
<td>24%</td>
</tr>
</tbody>
</table>
SUMMARY OF PROJECT FINANCE
FINANCE STRUCTURE

At Risk:

Equity
(e.g. 20%)

• Mezzanine equity & subordinated debt

No Risk:

Debt
(e.g. 80%)

• IRR / Equity IRR
• Investment Period

• Grants and subventions
EQUITY FINANCE

ISSUES FACING INVESTORS:

- rate of return over different periods; 5, 10, 20 years?
- dividend policy and availability; Lender constraints?
- currency convertibility and transfer; Insurance / IFI support?
- inherent project risks; NB. allocation of risks
- availability of equity in the construction period; source? ILOC?
- exit strategy; secondary market; Lender / Govt. constraints?
- partners and the sharing of risk; consortia approach
- availability of investment insurance; important in emerging mkts.
- taxation of SPV and economic/political stability; insurance available?
- corporate loans: mezzanine/subordinated debt; Lender constraints?
  Transparency?
OTHER SOURCES OF EQUITY

**Quasi - Equity & Debt**
- Preference shares
- Subordinated or mezzanine debt

**Reason:**
- Limit shareholders exposure and liability
- Limit impact on parent Bal. Sht.
- Taxation efficiency
- PR: improve equity returns

**Debt / Equity Swaps:**
- Debt restructuring reasons
- Inflationary? Local currency equity
Part 2

LENDER REQUIREMENTS FOR PROJECT FINANCE
CONTENTS

• what are the characteristics of credit / debt?
• who are the Lenders?
• under what constraints do they operate?
• Inter-Lender relationships
• procedures adopted by Lenders
• what do Lenders require in a project?
SUMMARY OF PROJECT FINANCE
FINANCE STRUCTURE

At Risk:

Equity
(e.g. 20%)

• IRR / Equity IRR
• Investment Period

No Risk:

Debt
(e.g. 80%)

• Mezzanine equity & subordinated debt

Why are lenders so risk averse??

• Grants and subventions
# TYPICAL PROJECT COMPANY: SIMPLIFIED CORPORATE ACCOUNTS

## Balance Sheet

### ASSETS

<table>
<thead>
<tr>
<th>Description</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Assets</td>
<td></td>
</tr>
<tr>
<td>Tangible assets</td>
<td>[a]</td>
</tr>
<tr>
<td>Investments</td>
<td>[b]</td>
</tr>
<tr>
<td>Total Fixed Assets</td>
<td>[a + b]</td>
</tr>
<tr>
<td>Current Assets</td>
<td></td>
</tr>
<tr>
<td>Stocks &amp; Work-in-Progress</td>
<td>[c]</td>
</tr>
<tr>
<td>Debtors</td>
<td>[d]</td>
</tr>
<tr>
<td>Cash</td>
<td>[e]</td>
</tr>
<tr>
<td>Total Current Assets</td>
<td>[c + d + e]</td>
</tr>
</tbody>
</table>

### LIABILITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Liabilities</td>
<td></td>
</tr>
<tr>
<td>Creditors (due within 1 yr.)</td>
<td>[f]</td>
</tr>
<tr>
<td>Tax (due within 1 yr.)</td>
<td>[g]</td>
</tr>
<tr>
<td>Total Current Liabilities</td>
<td>[f + g]</td>
</tr>
<tr>
<td>L-T Creditors (due after 1 yr.)</td>
<td>[h]</td>
</tr>
<tr>
<td>Capital</td>
<td></td>
</tr>
<tr>
<td>Paid-up Share Capital</td>
<td>[i]</td>
</tr>
<tr>
<td>Share premium</td>
<td>[j]</td>
</tr>
<tr>
<td>Revaluation Reserve</td>
<td>[k]</td>
</tr>
<tr>
<td>Profit &amp; Loss Account / Reserve</td>
<td>[l]</td>
</tr>
</tbody>
</table>

[Note: Net Worth = (\(a + b + c + d + e - f - g - h\))]
TYPICAL PROJECT COMPANY:
SIMPLIFIED CORPORATE ACCOUNTS

Profit & Loss Account

Revenues \( = p \)
Operating Costs \( = q \)
**Operating Profit** \( = [ p - q ] = r \)
Interest received & payable \( = s \)
Depreciation \( = t \)
Tax \( = u \)
**Net Profit** \( = r - [ s + t + u ] = v \)
Dividends \( = w \)
Retained Profit \( = [ v - w ] \)
TYPICAL LENDING BANK:
SIMPLIFIED CORPORATE ACCOUNTS

Profit & Loss Account

Interest received = p1
Fees & Commissions = p2
Dealing profits = p3
Administrative expenses = q

Operating Profit = \[ \sum p - q \] = r

Provisions for bad / doubtful debts = s
Losses for bad debts = t
Tax = u

Net Profit = r - [ s + t + u ] = v

Dividends = w
Retained Profit = [ v - w ]
# TYPICAL LENDING BANK: SIMPLIFIED CORPORATE ACCOUNTS

## Balance Sheet

### ASSETS

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangible Fixed Assets [less cum. depn.]</td>
<td>a</td>
</tr>
<tr>
<td>Intangible Assets [less cum. depn.]</td>
<td>b</td>
</tr>
<tr>
<td>Loans &amp; Advances to banks</td>
<td>c</td>
</tr>
<tr>
<td>Loans &amp; Advances to customers</td>
<td>d</td>
</tr>
<tr>
<td>Debt &amp; equity instruments held</td>
<td>e</td>
</tr>
<tr>
<td>Cash &amp; balances @ Central Bank</td>
<td>f</td>
</tr>
</tbody>
</table>

### LIABILITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposits by banks</td>
<td>f</td>
</tr>
<tr>
<td>Customer accounts</td>
<td>g</td>
</tr>
<tr>
<td>Other Liabilities</td>
<td>h</td>
</tr>
<tr>
<td>Capital:</td>
<td></td>
</tr>
<tr>
<td>Paid-up Share Capital</td>
<td>i</td>
</tr>
<tr>
<td>Share premium</td>
<td>j</td>
</tr>
<tr>
<td>Revaluation Reserve</td>
<td>k</td>
</tr>
<tr>
<td>P&amp;L Account / Reserve</td>
<td>l</td>
</tr>
</tbody>
</table>

Total Assets = [a+b+c+d+e+f]

Total Liabilities = [f+g+h+i+j+k+l]

**Notes:** Contingent Liabilities to be included?
IMPACT OF BASEL II

Banking Supervision

Current: if a bank lends $1 mn., it is required under capital adequacy rules for a loan with 100% weighting to own or hold, say, 8% (i.e. $80,000] of capital to match the loan amount.
Sovereign risk is generally seen as 0% weighting.

Basel II: “AAA” sovereign risk will be 0% weighting.
Less than “B-” rating will have 150% weighting.

Comment:
Specialised & corporate lending, e.g. project finance, will depend on the contractual structure. If the project and/or off-taker is underpinned by strong contractual obligations, then weighting could be low, et vice versa.

Result: Increased cost of PF loans??
SUMMARY OF PROJECT FINANCE
LENDERS’ MEASURES

Debt Service Cover Ratio [periodic] : = \frac{\text{Free Cash Flow}}{\text{Fixed Charges}}

\text{Free Cash Flow} = \text{Net Operating Profit} [\text{plus} : \text{depreciation} \& \text{amortization}]
less : \text{increase in working capital}
less : \text{incremental cap. expenditure}
less : \text{tax}

\text{Fixed Charges} = \text{loan principal} + \text{interest} [\text{plus} : \text{mandatory dividends}, \text{lease payts.}]
SUMMARY OF PROJECT FINANCE
LENDERS’ MEASURES

Project Life Cover Ratio: [over remainder of project]:

\[ \text{NPV of Future Free Cash Flow} \]
\[ \text{Book Value of Outstanding Debt} \]

[ NB: discount rate? Av. Cost of borrowing? ]
SUMMARY OF PROJECT FINANCE

FINANCE STRUCTURE

At Risk:

Equity

- IRR / Equity IRR
- Investment Period

No Risk:

Debt

- Mezzanine equity & subordinated debt
- Cover ratios for repayment

- Grants and subventions
SUMMARY OF PROJECT FINANCE
FINANCE STRUCTURE

At Risk: Equity

No Risk: Debt

Typical Debt/Equity Ratios:

- Hotels & property = 50/50
- Industrial projects = 70/30
- Infrastructure & power = 75/25
- Infrastructure & power = 80/20
SOURCES OF DEBT

- Development banks [eg. World Bank; ADB; IFC]
- Export credits: [eg. US Ex-Im; ECGD; SACE]
- Bilateral funds [OECF; OPIC; KfW]
- Commercial loans
- Capital markets / bond issues
- Private placements & institutional markets
- Islamic banking
- Leasing
- Barter
DEVELOPMENT BANK (“IFI”) LOANS
[e.g. World Bank; Asian Dev. Bank.]

ISSUES:
• preferred creditor status;
• hard currency loans
• priority access to borrower’s foreign exchange earnings;
• no impedance of foreign exchange remittances;
• sovereign guarantee required;
• limited support for non-recourse deals;
• procurement rules compliance;
• strict environmental requirements;
• can require lengthy negotiation period
• rather bureaucratic process
EXPORT CREDITS
[e.g. U.S. Ex-Im; ECGD; Coface; JBIC]

**Issues:**

- Terms governed by OECD Consensus
- Support for national exports of capital goods & services.
- Hard currency loans
- Usually longer term than commercial loans
- Up to 85% of export value of goods and services, plus up to 15% of local costs;
- Balance from commercial “complementary” loan
- Fixed interest rates governed by OECD
- Insurance fee payable by buyer/borrower.
- Check differences between national schemes
- Direct and indirect loans, depending on exporter scheme
- Can be tied into aid schemes, but must be overt
- Govt. gtee. & non-recourse deals possible
COMMERCIAL LOANS

Issues:

- Greater flexibility
- Complementary to ECA funding, etc.
- Floating & fixed interest rates (beware if linked to swap)
- Usually for shorter term than ECA funds;
- Arranging banks will syndicate to mitigate risks
- Possible requirement for lenders to make provisions (against possible future loss)
- Fees comparable to ECAs
- Competition possible
EXPORT CREDITS AND COMMERCIAL LOANS
TERM SHEET

- Borrower
- Amount
- Currency
- Lender(s)
- Security & Guarantees
- Drawdown procedures
- Interest Rate:
  - fixed or floating
  - margins over LIBOR?
  - capitalisation?
  - payment dates
- Loan Repayments:
  - amortisation schedule

- Fees:
  - negotiation fees
  - administration fees
  - commitment fees on outstanding balance

- Conditions:
  - effectiveness;
  - suspension; termination; prepayment
  - ratios & covenants;
  - reporting;
  - negative pledge;
  - dividend constraints
BOND ISSUES

Considerations:

- Local or foreign (hard) currency issue
- Short or long-term?
- Drawdown limitations
- Nature and location of bondholders
- Transaction costs
- Flexibility (e.g. re-negotiation)?
- Need for a “rating”
- Private placements
- Secondary market
- Bond wraps (AMBAC, FCIA; etc.)
ISLAMIC BANKING

- Comply with the principles of the Sharia
- Loan must be free from interest
  - *Loan must aid production of goods and services for society*
  - *Interest makes no contribution*
- Risks must be shared between borrower and lender, e.g. no predetermined profit
- Loan must be for benefit of society: financing of trade/commodities prohibited under Sharia not allowed
- Uncertainty (i.e. speculative contracts) not allowed
- Culturally and politically can represent key component
Considerations:

- Nature of goods
- Quality of goods
- Market for goods
- Availability of goods
- Timing of availability
- Magnitude of value
- Delivery point
CAPITAL MARKETS
INSTRUMENTS

- Interest rate swaps
- Foreign currency swaps
- Nature of contract: flexibility?
- Costs;
- Availability?
- Contingent liabilities & balance sheet implications?
LENDER REQUIREMENTS

• Identification of Risk
• Allocation of Risk
• Mitigation of Risk
• Inter-Lender Relationships
Risk

*Issues:*
- risk is fundamentally a subjective issue;
- risks can be identified;
- the impact of risks under chosen scenarios can be quantified;
- sensitivity testing can identify the most important risks;
- probability analysis can provide further insights into impacts;
- **risk is best allocated to those best able to carry them.**

*Further issues:*
- can risks be shared, and thereby mitigated? If so, how?
- risk changes over time.
- risk always exists

*The process of “due diligence”*
Financial risk

- Opportunity cost of capital = Required Rate of Return (from the perspective of the investors).
- Cost of Capital = Cost of Equity x Ratio of Equity + Cost of Debt x Ratio of Debt
- Cost of Debt = Interest Rates x (1 - Tax Rate)
- Cost of Equity = Risk-free Rate + ($ \beta$ x Equity Risk Premium)
- Discount rate = risk free rate + $\beta$(equity market risk premium)
- Beta coefficient = how the expected return of a stock or portfolio is correlated to the return of the financial market as a whole.
- Net Present Value = $\sum$ (discounted cash flows - discounted cash outflows)
- Internal Rate of Return = interest rate which the investment of capital will return
Discount rate

Discount rate = risk free rate + beta*(equity market risk premium)

- **Risk Free Rate**: The percentage of return generated by investing in risk free financial instruments.
- **Equity Market Risk Premium**: The return on investment that investors require above the risk free rate.
- **Beta coefficient**: how the expected return of a stock or portfolio is correlated to the return of the financial market as a whole.

The discount rates typically applied to different types of companies:

- Startups seeking money: 50 – 100 %
- Early Startups: 40 – 60 %
- Late Startups: 30 – 50%
- Mature Companies: 10 – 25%
The *discount factor*, $D(n)$, is the number which a future cash flow, to be received at year $n$, must be multiplied by, to obtain the current present value. A fixed annually compounded discount rate is:

$$D(n) = \frac{1}{(1+r)^n}$$

The fixed continuously compounded discount rate is:

$$D(n) = e^{-rn}$$
## RISK MATRIX

<table>
<thead>
<tr>
<th>Risk</th>
<th>Type</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-completion</td>
<td>- Cost over-runs</td>
<td>(a) Fixed price turnkey contracts</td>
</tr>
<tr>
<td></td>
<td>- Delays</td>
<td>(b) Warranties / penalties / incentives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) Fixed project specification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(d) Strong contractors</td>
</tr>
<tr>
<td>Post-completion</td>
<td>- Revenue forecasts</td>
<td>(a) Committed supply contracts</td>
</tr>
<tr>
<td></td>
<td>- Revenue build-up</td>
<td>(b) Committed off-take contracts</td>
</tr>
<tr>
<td></td>
<td>- Operating costs</td>
<td>(c) Strong operators</td>
</tr>
<tr>
<td></td>
<td>- Management failure</td>
<td>(d) Performance guarantees</td>
</tr>
<tr>
<td>Technical</td>
<td>- Performance</td>
<td>(a) Warranties</td>
</tr>
<tr>
<td></td>
<td>- Environmental</td>
<td>(b) Proven technologies</td>
</tr>
<tr>
<td></td>
<td>- Safety</td>
<td>(c) Public consultation and approval</td>
</tr>
</tbody>
</table>
# RISK MATRIX

<table>
<thead>
<tr>
<th>Risk</th>
<th>Type</th>
<th>Mitigation</th>
</tr>
</thead>
</table>
| Financial | - Debt/equity ratio  
- Return on capital  
- Risk / reward ratio  
- Foreign exchange  
- Interest rates  
- Debt service cover  
- Taxation | (a) 75/25 debt: equity ratio  
(b) Acceptable Equity IRR  
(c) Acceptable cover ratio (1.5-2.0)  
(d) Escrow and reserve accounts  
(e) Dividend constraints  
(f) Loan syndication  
(g) Insurance/financial instruments  
(h) Standby funding facilities | |
| Legal | - Regulatory framework?  
- Concession law? | (a) Experienced lawyers.  
(b) Clear simple documents & laws | |
| Political | - Regime stability  
- Force majeure aggt.  
- Political intervention | (a) Clear regulatory regime  
(b) Investment insurance  
(c) IFI support | |
LENDER RISK MITIGATION
USE OF INSURANCE

Construction Cover:
- Builders’ Risk: construction delays; material damage; loss of profits.
- Transit & Marine Risk: material damage; loss of profits

Operational Cover:
- All Risks: material damage; loss of profits.
- Machinery Breakdown / Explosion: material damage; loss of profits.

Political Risk Cover:
- Confiscation, Expropriation, Nationalisation & Deprivation: Loss of investment; loan principal & interest; inability to perform
- Political Violence & Strikes: damage & loss of profit
- Currency Inconvertibility:
- Frustration and non-Performance by Government: loss of profit
- Arbitration Default: loss of investment, etc.
LENDER RISK MITIGATION
USE OF INSURANCE

Note:
- Insurance claims have to be established before payout
- Guarantees: “pay now and argue later”!

Sources of Insurance:

Political Risk:
- MIGA
- ECA’s
- ADB; IFC
- OPIC

Comm. & Political Risk
- Lloyds, London Mkt.
- AIG; Zurich
- Sovereign (offshore)
- Spec. Private Ins. Co’s
Primary Loan Syndication

**Responsibilities:**
1. Draw-down
2. Interest
3. Repayments

**Participation Aggt.**

- Bank A
- Bank B
- Bank C
- Bank D
INFORMATION SOURCES
USEFUL SOURCES OF INFORMATION

- www.hm-treasury.gov.uk [PPP Guidelines]
- www.dft.gov.uk
- www.nao.gov.uk [PPP Reports]
- www.scotland.gov.uk
- www.parliament.uk PAC / TR. Ctee Reports]
- www.partnershipsuk.org.uk
- www.europa.eu.int [PPP Guidelines & Casebook]
- www.worldbank.org [“Private Sector”; Project Reports]
- www.ebrd.org [IFI Guidelines]
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- www.partnerships.vic.gov.au [PSC, VFM, etc.]
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- www.doe.gov [Energy]
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Infrastructure Journal [on-line info.]
PublicPrivateFinance

Misc. Sources:

ECI: Public Private Partnerships: A Review [June 2003]
EIC: White Book on BOT/BOOT [April 2003]
UNCITRAL: Legislative Guide on Privately Financed Infrastructure Projects [2001]

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THE END