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%)

• Mezzanine equity & subordinated debt

No Risk:

Debt
(e.g. 80%)

• Grants and subventions
MEASURES USED BY INVESTORS

1: Payback Period: X

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

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

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 + M&O costs] [ ? ]

(b) **Economic IRR**: as for Project IRR, but including economic costs & benefits.  

[ NB. include inflation or not? ] [ yes? ]

(c) **Equity IRR**: Shareholder equity v. dividends  

[ NB. treatment of retained surplus/profits. ]
**Equity (Shareholders’) Rate of Return**

**Value**

2004 [today]  
2005  
2006  
2007  
2008  
2009  
2010

PV = (120)  
PV = (152.4)  
PV = (90)  
PV = 66.8  
PV = 92.5  
PV = 89.2  
PV = 88.4  
PV = 336.9

**Time**

**Equity Capital Subscribed**

**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 vs. 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>
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<tr>
<td>3</td>
<td>$12,000</td>
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<tr>
<td>4</td>
<td>$30,000</td>
<td>$10,000</td>
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<tr>
<td>NPV</td>
<td>$10,460</td>
<td>$7,700</td>
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<tr>
<td>[@ 10%]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRR</td>
<td>22%</td>
<td>24%</td>
</tr>
</tbody>
</table>
SUMMARY OF PROJECT FINANCE
FINANCE STRUCTURE

At Risk:

Equity
(e.g. 20%)

• IRR / Equity IRR
• Investment Period

No Risk:

Mezzanine equity &
subordinated debt

Debt
(e.g. 80%)

• 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?
- exit strategy; secondary market; Lender / Govt. constraints?
- partners and the sharing of risk; consortia approach
- availability of investment insurance; important in emerging markets.
- 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 Balance Sheet
- Taxation efficiency
- PR : improve equity returns

Debt / Equity Swaps:
- Debt restructuring reasons
- Inflationary? Local currency equity
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%)
  - Mezzanine equity & subordinated debt

*No Risk:*

- Debt
  - (e.g. 80%)

- *IRR / Equity IRR*
- *Investment Period*

---

- *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>[less cum. depreciation]</td>
<td></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 = \[ \Sigma p - q \] = 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

- Tang. Fixed Assets [less cum. depr. ] = a
- Intangible Assets [less cum. depr.] = b
- Loans & Advances to banks = c
- Loans & Advances to customers = d
- Debt & equity instruments held = e
- Cash & balances @ Central Bank = f

LIABILITIES

- Deposits by banks = f
- Customer accounts = g
- Other Liabilities = h
- Capital:
  - Paid-up Share Capital = i
  - Share premium = j
  - Revaluation Reserve = k
  - P&L Account / Reserve = l

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 m, 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 and III: “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} [plus : \text{depreciation & amortization}]
less : \text{increase in working capital}
less : \text{incremental cap. expenditure}
less : \text{tax}

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

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

\[
\text{Project Life Cover Ratio} : \frac{\text{NPV of Future Free Cash Flow}}{\text{Book Value of Outstanding Debt}}
\]

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

At Risk:

Equity

- IRR / Equity IRR
- Investment Period

Mezzanine equity & subordinated debt

No Risk:

Debt

- Cover ratios for repayment

- Grants and subventions
SUMMARY OF PROJECT FINANCE
FINANCE STRUCTURE

At Risk:  

Equity  

Typical Debt/Equity Ratios:  

Hotel & property  = 50/50  
Industrial projects  = 70/30  
Infrastructure & power  = 75/25  

No Risk:  

Debt
SOURCES OF DEBT

- Development banks [eg. World Bank; ADB; IFC, FMO, KfW, Proparco, EBRD]
- Export credits: [eg. US Ex-Im; ECGD; SACE, Mexim, Coface, Hermes, Atradius]
- 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 (Berne)
- 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
- Government. guarantee & 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
BARTER / COUNTERTRADE

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 + (β 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 = $\Sigma$ (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%
Discount Factor

- 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:

\[
D(n) = e^{-rn}
\]
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.
## 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>
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<tr>
<td>Technical</td>
<td>- Performance</td>
<td>(a) Warranties</td>
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<tr>
<td></td>
<td>- Environmental</td>
<td>(b) Proven technologies</td>
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<tr>
<td></td>
<td>- Safety</td>
<td>(c) Public consultation and approval</td>
</tr>
<tr>
<td>Risk Type</td>
<td>Mitigation</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Financial - Debt/equity</td>
<td>(a) 75/25 debt: equity ratio</td>
<td></td>
</tr>
<tr>
<td>- Return on capital</td>
<td>(b) Acceptable Equity IRR</td>
<td></td>
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<tr>
<td>- Risk / reward ratio</td>
<td>(c) Acceptable cover ratio (1.5-2.0)</td>
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<tr>
<td>- Foreign exchange</td>
<td>(d) Escrow and reserve accounts</td>
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<tr>
<td>- Interest rates</td>
<td>(e) Dividend constraints</td>
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<tr>
<td>- Debt service cover</td>
<td>(f) Loan syndication</td>
<td></td>
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<tr>
<td>- Taxation</td>
<td>(g) Insurance/financial instruments</td>
<td></td>
</tr>
<tr>
<td>Legal</td>
<td>(h) Standby funding facilities</td>
<td></td>
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<tr>
<td>- Regulatory framework?</td>
<td></td>
<td></td>
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<tr>
<td>- Concession law?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Budget and finance law?</td>
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<tr>
<td>Political</td>
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<tr>
<td>- Regime stability</td>
<td>(a) Clear regulatory regime</td>
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<td>- Force majeure</td>
<td>(b) Investment insurance</td>
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<td>- Political intervention</td>
<td>(c) IFI support</td>
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# RISK MATRIX

## Energy Efficiency

<table>
<thead>
<tr>
<th>Risk</th>
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<tbody>
<tr>
<td>Industrial company</td>
<td>- Interruption, lost production</td>
<td>(a) Management plan of implementation</td>
</tr>
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<td>- Delays</td>
<td>(b) Warranties / penalties / incentives</td>
</tr>
<tr>
<td></td>
<td>- Change of practices</td>
<td>(c) Management of change</td>
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<tr>
<td>Building efficiency/</td>
<td>- Revenue forecasts</td>
<td>(a) Committed supply contracts</td>
</tr>
<tr>
<td>lighting</td>
<td>- Change of user behaviour</td>
<td>(b) Education/training programmes/incentives</td>
</tr>
<tr>
<td></td>
<td>- Increase of use</td>
<td>(c) Management of usage</td>
</tr>
<tr>
<td></td>
<td>- Increase of operating costs</td>
<td>(d) Performance guarantees</td>
</tr>
<tr>
<td></td>
<td>- ESCO – no reduction/increased use of</td>
<td>(e) Performance contract, Measurement and Verification protocols and procedures</td>
</tr>
<tr>
<td></td>
<td>energy</td>
<td></td>
</tr>
<tr>
<td>Electricity system</td>
<td>- Demand/supply management</td>
<td>(a) Grid management</td>
</tr>
<tr>
<td>management</td>
<td>- Safety of supply</td>
<td>(b) Smart grids</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LENDER RISK MITIGATION
USE OF INSURANCE

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

**Sources of Insurance:**

<table>
<thead>
<tr>
<th>Political Risk:</th>
<th>Commercial &amp; Political Risk</th>
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</thead>
<tbody>
<tr>
<td>MIGA</td>
<td>Lloyds, London Market</td>
</tr>
<tr>
<td>ECA’s</td>
<td>AIG; Zurich</td>
</tr>
<tr>
<td>ADB; IFC</td>
<td>Sovereign (offshore)</td>
</tr>
<tr>
<td>OPIC</td>
<td>Spec. Private Ins. Co’s</td>
</tr>
</tbody>
</table>
LENDER RISK MITIGATION

Primary Loan Syndication

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