

## Introduction to Project Finance

MGMT 676  
Project Finance

## What is Project Financing?

- Project Financing can be arranged when a particular facility or a related set of assets is capable of functioning profitably as an independent unit.
- If sufficient profit is predicted, the project company can finance construction of the project on a project basis.

## Financing on a project basis

- Involves the issuance of equity securities (generally to the sponsors of the project) and of debt securities that are designed to be self-liquidating from the revenues derived from project operations.

## Project Financing defined...

- The raising of funds to finance an economically separable capital investment project in which the providers of the funds look primarily to the cash flow from the project as the source of funds to service their loans and provide the return of and a return on their equity invested in the project.

## Cash Flow Importance

- The terms of equity and debt securities are tailored to the cash flow characteristics of the project. (from the Project Proforma).
- For their security, the project debt securities depend, at least partly, on the profitability of the project and on the collateral value of the project's assets.

## PF's Basic Features

- Agreement by financially responsible parties to complete the project and make funds available to do so.
- Contractual arrangements for the product or service that outlast debt service period.
- Assurances by financially responsible parties that disruption funds will be made available through insurance, etc.

## PF vs Conventional Financing (CF)

- Project financing should be distinguished from conventional direct financing, or what may be termed financing on a firm's general credit.
- In CF...lenders look to the firm's entire asset portfolio to generate the cash flow to service their loans, AND the assets are integrated into the firm's liabilities and assets

## Project Financing requires...

- Careful financial engineering to allocate the risks and rewards among the involved parties in a manner that is mutually acceptable.
- Strong demand where parties will enter into long-term agreements to take project output.
- Strong contracts where lenders will lend to the project on the basis of the contracts.

## Project Financing Identified

- Some element of reliance on project assets and cashflows without full recourse to the sponsors or, in some cases, the borrower.
- Specialist technical and economic evaluations of the business, the project and thorough on-going monitoring by the lenders.
- Lengthy and complex loans - and security - documentation, quite probably involving innovative structures.
- Higher margins and fees due to risks.

## Creditworthiness

- A project has no operating history at the time of the initial debt financing. Consequently, its creditworthiness depends on the project's anticipated profitability and on the indirect credit support provided by third parties through various contractual arrangements.

## Lenders Require...

Assurances of the following:

- The project will be placed into service.
  - once operations have begun, the project will constitute an economically viable undertaking.
- The availability of funds to a project will depend on the sponsor's ability to convince providers of funds that the project is technically feasible and economically viable.

## Requirements for Project Financing

- Technical Feasibility (the Technical Test)
- Economic Viability (the Economic Test)
- Availability of RAW materials (if needed)
- Capable management (Management test)

### **Ideal Candidates for PF are capital investment projects...**

- that are capable of functioning as independent economic units
- can be completed without undue uncertainty
- when completed, will be worth demonstrably more than they cost to complete.

### **Appropriateness of PF 5 factors to be considered**

- Credit requirements of the lenders in light of project profitability and third party support
- Tax implications and benefits to the parties
- Impact of the project on existing covenants
- Legal or regulatory requirements the project must satisfy
- Accounting treatment of project liabilities and contractual agreements

### **Common Misconceptions that make negotiation difficult**

- lenders should in all circumstances look to the project as the exclusive source of debt service and repayment
- lenders do not require a high level of equity investment from the project sponsors
- project loans are 100% secured on the assets of the project

### **More Misconceptions**

- technical and economic performance of the project will be measured objectively according to pre-set tests and targets
- risk of project failure is shared equally by lenders and project sponsors
- lenders assume political risks in project finance

### **Reasons for Choosing PF**

- Risk-sharing
- Accounting treatment
- political risks
- restrictions on borrowing
- tax benefits

### **Higher Cost of PF over conventional financing**

- time spent by lenders, their technical experts, and their lawyers
- increased insurance cover: consequential loss and political risk cover
- costs of policing the loan during project life
- charges made by the lenders (and possibly others) for assuming additional risks.

### Rationale for PF

- The NEED for contracts
- The ADVANTAGES of a separate entity
- Special FORM of organization - finite life and distribution of cash flows without retainment by corporate managers as is found in conventional organizations.
- Main results and variations of management control in various debt-equity scenarios.

### Countering the Underinvestment Problem

- This problem arises when a firm has a highly leveraged capital structure. A firm with risky debt outstanding may have an incentive to forgo a capital investment project that would increase its total market value.
- IF the business risk does not change, the firm's shareholders would have to share any increase in total market value with the firm's debtholders. The problem involves a bias against risk projects.

### Project Finance can counter the Underinvestment Problem

- By reducing AGENCY COST
- Increasing the value of the TAX SHIELDS WHY?
- Because more projects are financed, more debt is issued, and therefore, more interest tax shields are created.
- Project financing increases value by better aligning debtholders and shareholders

### Using PF for Shareholder Value

- The economic interests of debtholders and shareholders become better aligned when financing is accomplished on a project basis
- Debt is allocated between the project sponsor and the project's entity in a value-maximizing manner.

### Reallocating Free Cash Flow

- The discretion of corporate managers of not exposing their decisions to the discipline of the capital markets in project decisions and the reallocation of free cash flow...gives the corporate managers considerable power in determining the direction of the corporation.

### Shareholder Rights

- Whether this discretion is misapplied has become an important issue in the debate over shareholder rights.

### Reducing Asymmetric Information and Signaling Costs

- Issuing DEBT, rather than common stock, signals that the firm expects to generate sufficient cash flow to service the additional debt in a timely manner.
- Project financing reduces the signaling costs associated with raising capital under asymmetric information, particularly in the case of large-scale, high-risk projects.

### What is Asymmetric Information?

- this occurs when managers have valuable information about a new project that they cannot communicate unambiguously to the capital market.
- When a company announces a new project and how it intends to finance it, the best investors can do is try to interpret the announcement.

### A Second Barrier to Communicating

- Valuable information about what makes an opportunity potentially profitable must be kept from competitors in order to maintain a competitive advantage.

### PF offers a potential solution

- Managers can reveal sufficient information about the project to a small group of investors and negotiate a fair price for the project equity's securities. In this way, managers can obtain financing at a fair price without having to reveal proprietary information to the public. (the PRIVATE PLACEMENT of equity)

### Smart Management does... maintain and preserve flexibility

- Corporate managers choose project financing for projects that entail low informational asymmetry costs (so-called *transparent projects*). By doing so, they preserve their flexibility to use internally generated funds to finance projects that are available to the firm but cannot be fully disclosed to the public without disclosing valuable proprietary information to competitors.

### Preferred financing guide is

- where possible, internally-generated cash flow is preferable for financing information-sensitive projects.
- Internally generated cash flow is followed in descending order of preference: by secured debt, unsecured debt, hybrid securities, and external common equity (least desirable).

### Implications

- Sell (outside funds) projects that entail low informational asymmetry costs in order to preserve internal capital for those projects that have high informational asymmetry costs.
- Firms with the most attractive information-sensitive investment projects will be most likely to utilize project financing for their transparent projects.

### Interpretation of Management's Decision to use Project Financing

- Can be interpreted as a POSITIVE signal regarding the attractiveness of the firm's proprietary investment projects.
- Lenders deal with AGENCY COSTS by negotiating covenant structures that are contained in the loan agreements.
- Covenants facilitate monitoring the borrower's financial performance.

### More Efficient Corporate Organization and Compensation

- Project financing lends itself nicely to management incentive schemes, since it can be directly tied to the performance of the project.

### Advantages of Project Financing

- Capturing Economic Rent - by long-term c's
- Achieving Economies of Scale - two or more
- Risk sharing
- Expanded debt capacity
- Lower overall cost of funds
- Release of free cash flow
- Reduced cost of resolving financial distress
- Reduced legal or regulatory cost

### THE Questionable Advantage

- Practitioners often argue that project financing is beneficial when it keeps project debt off each sponsor's balance sheet.
- It is important to note that financial risk does not disappear simply because project-related debt is not recorded on the face of the balance sheet.
- The FOOTNOTE!!! (this is where we find it)

### The Disadvantages of PF

- Complexity of project financings
- Indirect credit support
- Higher transaction costs

## SECTION 1

## INTRODUCTION

## 1.1 What is project finance?

The term "project finance" is used to refer to a wide range of financing structures. However, these structures have one feature in common - the financing is not primarily dependent on the credit support of the sponsors or the value of the physical assets involved. In project financing, those providing the senior debt place a substantial degree of reliance on the performance of the project itself. As a result, they will need to concern themselves closely with the feasibility of the project and its sensitivity to the impact of potentially adverse factors.

A successful project financing structure will entail a satisfactory and economic allocation of project risk among the various interested parties. In addition to the project sponsors and the senior lenders, risk may be accepted to a greater or lesser extent by equipment suppliers, contractors, operators, raw material suppliers, product purchasers or end users, insurers and government agencies (including export credit agencies). The extent of the willingness of any party to shoulder project risk will vary with the return it anticipates it will receive. As an extension of this, the price required by different parties for taking a specific risk may vary significantly. In addition, some risks may be unacceptable to some parties regardless of the fees or margins that might be on offer.

In the case of banks, it is certainly true that they will rarely enter into project finance without some form of commitment on the part of the project sponsors. In some cases this might simply take the form of an equity investment in the project company; in others it might involve arrangements that - whilst not amounting to outright on-balance sheet guarantees - represent tangible credit support collateral to, but not dependent on, the performance of the project itself.

Whilst there is no strict definition of "project finance" the term connotes a financing that involves:

- some element of reliance on project assets and cashflows without full recourse to the sponsors or, in some cases, the borrower;
- specialist technical and economic evaluations of the customer's business, the project and thorough on-going monitoring by the lender;
- lengthy and complex loan - and security - documentation, quite probably involving innovative structures; and
- higher margins and fees to reflect the lender's exposure to project - and often political - risk.

## 1.2 How does project finance differ from other kinds of limited recourse asset-based finance?

The legal documentation used to create security for project financing is often very similar to that used for other forms of limited recourse asset-based financing.

For example, loans to acquire and/or redevelop property are sometimes structured so that the lender has no right of recourse to the borrower except to the extent of the proceeds of sale of the specific property and the rents derived from it. The security for such a loan would be a mortgage of the property and an assignment of rental income under the leases.

In other cases, ships are financed on the basis of long-term transportation agreements or bareboat charterparties where the assignment of earnings and insurances and a mortgage over the ship form the only security.

Likewise, in project finance it is usual for the security to take the form of a mortgage of the project's physical assets and an assignment of the rights to the cash flow from the project.

Project finance, however, requires the consideration of other factors, relating to the technical feasibility of the project ("the technical test") and its economic viability ("the economic test"). In the case of the technical test, the technology involved may be more sophisticated than, for example, that involved in a ship or property construction and the completion risk is thus much greater. In the case of the economic test, the value of the physical assets comprising the project may be substantially lower than the debt advanced and therefore the project's economic viability is crucial.

In addition, there is a need to decide how the risks associated with the project are to be allocated between the lenders and the other parties. These risks may be divided differently at different stages of the project.

## 1.3 The technical test

In satisfying itself on the technical feasibility of a project a bank will commonly rely on a feasibility study put together by independent experts such as mining engineers, oil engineers, construction consultants and the like. There is a preference for the adoption of tried and tested technology.

Most major banks have in-house technical experts who are often engineers with a career background in industry. For example, in the case of a road, bridge or tunnel, the expert will scrutinise design and construction schedules, review traffic flow forecasts and the feeder infrastructure. In the case of a power station, the focus will be on the design and operating proposals, there will be a review of start-up test procedures, completion criteria and the availability of the necessary transmission

infrastructure and grid capacity as well as an assessment of fuel supply, consumption proposals and grid requirements. Whilst the in-house experts can play an important role in protecting the lenders' interests, most lenders will still want to see an independent engineer involved in the assessment and monitoring of the project as well.

#### 1.4 The economic test

In brief, the economic test must show that - on the basis of cash flow projections - sufficient cash will be generated by the project to pay for all operating expenses, debt service, taxes, royalties and other expenses (with an ample cushion for contingencies such as changes in exchange and interest rates, taxes, inflation and market demand) and to leave sufficient surplus for the project company to meet its target for return on equity.

#### 1.5 Common misconceptions about project finance

The assumption that lenders should in all circumstances look to the project as the exclusive source of debt service and repayment is one misconception about the nature of project finance that can make negotiations between project sponsors, governments and lenders problematic. Others include:

- Lenders do not require a high level of equity investment from the project sponsors:

In fact, lenders frequently do look for substantial capital injections by the sponsors - to ensure a high degree of commitment to the project and to ensure that the sponsors are subordinated to the lenders and to reduce the project's debt service obligations; project finance is not the same as venture capital. Subordinated loans may often be acceptable in place of equity and there may be advantages to sponsors in making their funds available in this way.

- Project loans are 100% secured on the assets of the project:

Whilst lenders normally do take "belt and braces" security on project assets as well as cashflows, the realisable value of such assets alone may be negligible in the case - for example - of roads, tunnels and pipelines which cannot be moved or which cannot be used for any conceivable purpose other than in connection with the particular project; the value of a non-operating power station or petrochemical complex is likely to be far below its original cost. Security is often taken primarily for "defensive" reasons - to prevent third parties interfering with the project - rather than with the intention of providing a realistic method of ensuring repayment. Equally, the objective of taking security may be to permit a sale of the business as a going concern.

- **Technical and economic performance of the project will be measured objectively according to pre-set tests and targets:**

Lenders will always seek to reserve for themselves an element of discretion as to the satisfaction of performance conditions, particularly where these "tests" mark the transformation of the financing from a recourse to a non-recourse basis; borrowers will argue for objective tests to ensure that the transformation occurs automatically without any room for subjective value judgements on the part of the lenders.

- **Risk of project failure is shared equally by lenders and project sponsors:**

Lenders will often request provisions precluding the abandonment of a project so long as some surplus cashflow is being generated over operating costs, even if this level represents an uneconomic return to the project sponsors on the resources and manpower dedicated to the project.

- **Lenders assume political risks in project finance:**

Lenders will often seek assurances from the host government about the risks of expropriation and availability of foreign exchange; often these risks are covered by insurance or export-credit guarantee support, the costs of which are, usually, ultimately borne by the project and project sponsors.

#### 1.6 What kinds of projects are "project-financed"?

The techniques of project finance are applied to a wide range of ventures, from the exploration and development of oil and gas fields and other natural resources to the construction and operation of luxury hotels and even large scale agricultural developments.

Large scale infrastructure projects - power generating stations, roads, railways and airports - account for much of today's project finance activity, particularly in the newly industrialised countries of South-East Asia. In these projects, the "Build - Operate - Transfer" (B-O-T) structure is often used and an assessment of the political as well as the purely economic risk over the long term is particularly important.

#### 1.7 What are the reasons for choosing project finance?

Project finance is more expensive than conventional financing because of:

- the time spent by the lenders, their technical experts and their lawyers in evaluating the project and negotiating the - usually very complex - documentation;
- the increased insurance cover, particularly consequential loss and political risk cover, which may be required;
- the costs of policing the loan during the life of the project; and
- the charges made by the lenders (and, possibly, other parties) for assuming additional risks.

The advantages to the borrower must therefore be substantial to compensate for these additional costs. The more common reasons for preferring project finance are:

— **Risk-sharing:**

Where debt is wholly or partially non-recourse to the borrower and sponsors, all or some of the risks will be borne by the lenders if the project fails to produce sufficient cash flow.

This is an important factor where the borrower is small in relation to the size of the project. If the project fails as a result of risks assumed by the lenders, the borrower or the project sponsors may not be bankrupted.

— **Accounting treatment:**

More conventional forms of borrowing may have a greater adverse effect on the borrower's - or the project sponsor's - balance sheet than the techniques used in project financing. This is particularly true where the financing is non-recourse.

Commitments of sponsors under take-or-pay, tolling or throughput agreements or other arrangements, even where they correspond in commercial terms to guarantees, do not always appear as such in the balance sheet or the notes to the accounts.

— **Political risks:**

A borrower investing large sums overseas may wish to ensure that certain political risks - such as price regulation, taxation, import and/or export barriers, preferment of competitors, expropriation or nationalisation - are borne by the banks in respect of the bank debt.

Banks may seek to protect themselves against such risks by asking for assurances from the host government and by taking out political risk insurance where this is available.

— **Restrictions on borrowing:**

Where a sponsor has borrowing restrictions in its articles of association or existing credit facility documentation it will often be necessary or desirable to arrange the financing in such a way that the restrictions are not breached.

For example, restrictions which affect a conventional borrowing may not apply to a project financing that is structured as a forward purchase agreement, trustee borrowing or production payment arrangement.

— **Tax benefits:**

The existence of tax allowances for capital expenditure and tax holidays for new enterprises may encourage borrowers to think in terms of project finance. To take advantage of the tax holiday it may be necessary to set up a project company in the relevant jurisdiction. This company will be the borrower and all the project assets will be isolated within this borrowing vehicle. In other cases, the structure of the financing may be driven by tax considerations, as shown by the development in the US of production payment techniques - described in more detail in Section 3.3.

## SECTION 2

## ORGANISATION OF PROJECT FINANCE

## 2.1 Feasibility study

Before any project can be "sold" to commercial lenders, its feasibility - technical and economic - must be presented in a convincing and authoritative manner, this will involve co-ordination of technical experts, financial and legal advisers and a thorough review of all aspects critical to the viability of the project. It should address:

- the extent and certainty of reserves - in extraction projects;
- the likely throughput - in pipeline or tolling (processing) projects;
- the likely passenger or traffic flows - in transport projects;
- the costs of acquiring the project site, construction and development;
- the availability and cost of services to the project site: energy, water, transportation and communications;
- access to supplies of raw materials, either domestically or by importing; whether there are tariff or foreign exchange barriers to imports;
- the existence of accessible markets - domestic and/or foreign - for the product or service and the demand within those markets;
- the availability of necessary technology, management personnel and labour;
- the availability and transferability of operating licences and other official permits;
- projections of costs and returns, based on assumptions as to interest rates, exchange rates, inflation, taxes, delays and other contingencies;
- the existence of any potential for added value: e.g. property development or by-product sales; and
- the availability of insurance against project and country risks.

## 2.2 The parties involved

### The project sponsors:

The sponsors may be one company or a consortium of interested parties, such as contractors, equipment suppliers, suppliers of raw materials or users of the project's product; sponsors may include parties with indirect interests, such as the owners of land through which new transport facilities are to be built and who expect the value of their property to increase. In many cases host governments do not participate directly in project finance as borrower or as the owner of the project company, even in B-O-T (build-operate-transfer) infrastructure projects. However host governments may take an equity interest through an agency and/or be the main off-taker of the product or user of the service to be provided and, in the case of B-O-T, will inherit the project at the end of the concession period.

### The lenders:

The sheer scale of many projects dictates that the financing will be syndicated; a syndicate may be chosen from as wide a range of countries as possible to discourage the host government from taking action to expropriate or otherwise interfere with the project and thus jeopardise its economic relations with those countries; the syndicate might well include some local banks, particularly if there are restrictions on foreign banks taking security over project assets; pro rata sharing agreements can be arranged so that security taken by the local banks is effectively pooled for all lenders.

### The financial adviser:

In many cases the project sponsor will retain the services of a commercial or merchant bank as financial adviser. The adviser will have expertise and contacts in the country where the project is located and can advise on structures and local conditions as well as having the expertise and contacts to "sell" the project to the lending banks. The adviser may be a lender too, but this does involve the potential for conflict of interest. The adviser will prepare, but seldom accept responsibility for, an information memorandum outlining the nature and economic feasibility of the project, based on the relevant assumptions relating to project costs, market prices and demand, exchange rates, and so on together with a profile of each of the project sponsors - their financial results and their track record in similar projects.

### The experts:

Selected by the project sponsors or by the financial adviser, technical experts of international repute may be retained to prepare or at least vet the feasibility study for the project. The expert may have a continuing role in the monitoring of the progress of the project, possibly acting as arbiter in the event of disagreements between the sponsors and the lenders over the satisfaction of the performance covenants and tests stipulated in the finance documents.

**The lawyers:**

The complexity of the documentation and the international make-up of the parties in large scale project financing dictates the retention of experienced international law firms. Legal opinions will be sought in all relevant jurisdictions, including the home countries of the project sponsors and of any guarantors or where any secured assets are located. The banks' "main" lawyers will be responsible for co-ordinating this advice. It is advisable to involve the lawyers at the earliest stages to ensure that the structure of the financing is properly and economically conceived, to ensure that the necessary security arrangements can be put in place and that the anticipated tax and other advantages are indeed available.

**International agencies:**

Projects in developing countries may be jointly financed by the World Bank or International Finance Corporation or regional development agencies. These agencies have their own policies and standards on issues such as security, termination of the financing and enforcement which will influence the structure of a transaction. Projects tied to aid programmes or other concessionary finance will invariably be structured to take into account the wishes of the agency providing the cheap funds.

**The host government:**

Often the host government may be involved as a project sponsor, as a source of funds or - less directly but still in a crucial role - as the grantor of the relevant concession or operating licences or tax benefits, as guarantor of foreign exchange availability or as a committed off-taker.

**Rating agencies:**

Some projects may be financed by way of debt securities, backstopped by banks, either for tax reasons or to achieve finer rates. If the paper needs to be rated then the relevant rating agencies should be consulted at an early stage; they may have policies which have a bearing on the structure of the financing. In this case, the ratings of the backstop banks will be critical.

**2.3 Restrictions on borrowers/sponsors**

The organisation of a project finance may be affected by restrictions imposed on the borrower company or on one or more of the project sponsors by:

- its articles of association or equivalent constitutive documents or by the laws of its own jurisdiction;
- the restrictive covenants (*pari passu* clauses, borrowing limitations, negative pledges, cross-default clauses) applicable under its existing financial documentation or that of its affiliated companies; or

- the provisions of the joint venture agreement between it and its co-sponsors or licensing agreements with relevant authorities. These may take the form of pre-emption rights, negative pledges or commitments to withdrawal or abandonment of the project which are blatantly inconsistent with the requirements of the lenders (ways in which lenders may mitigate these problems are considered in Section 5.1 below).

#### 2.4 Restrictions on lenders

Project sponsors and their advisers should also be aware that prospective lenders may be subject to restrictions which will not allow them to finance the project in the way that sponsors might expect:

- some commercial banks (particularly in the US) are subject to restrictions on doing business other than banking, and cannot undertake commercial activity or maintain significant equity holdings in commercial enterprises;
- some jurisdictions may restrict the ability of foreign banks to acquire security interests;
- involvement beyond the basic banker-client relationship may result in banks assuming a range of liabilities that they are not prepared to accept, for example owners' liabilities to third parties or for environmental damage;
- banks in certain countries may be subject to regulatory restrictions on participating in facilities involving specific country risk; and
- banks will have their own policies regarding customer, country and possibly industry exposure.

Structures are often developed to avoid problems such as these.

## SECTION 3

### PROJECT FINANCE STRUCTURES

#### 3.1 Types of finance

Whilst every project finance has its own special features, the basic structure is often either:

- a limited or non-recourse loan, repayable out of project cashflows; or
- a purchase of an interest in the project output (translated into sales proceeds) in consideration for the payment up front of a capital sum either as a "forward purchase" or a "production payment".

In each case, "hell or high water" commitments on the part of suppliers, purchasers or users connected with the project may operate effectively to "guarantee" the receipt of re-sale proceeds equivalent to payment of principal plus a commercial rate of interest. Alternatively, lenders may be prepared to take market risk.

In appropriate cases, these basic structures may be adapted to accommodate a number of other financing techniques, including:

- lease financing: in some circumstances leasing can be an attractive method of financing part, or even the whole, of the project cost, particularly in those jurisdictions where leasing permits the benefit of tax allowances for capital expenditure on the project to be front-ended. However, because of the increased political risk exposure, leasing is a technique which is not commonly found in financings of projects in Third World countries;
- export credits: where export credits are available, the basic financing structure can be adapted to accommodate the requirements of the relevant export credit agencies; and
- issues of securities: in some cases it may be possible to provide finance at a lower all-in cost by the issue of securities (such as commercial paper), backed by commercial bank or other guarantees.

#### 3.2 Loans

The basic structure of a limited or non-recourse project loan is conventional; if the borrowing entity is a limited liability vehicle established by the project sponsors, the documentation may not provide for any overt restriction on recourse, the lenders

accepting that the repayment obligation is that of the vehicle, not of the shareholders. If the borrower is not a "vehicle" then the limitation on recourse to the borrower and/or its assets will need to be dealt with in very clear terms.

Typically, the loan agreement will recognise at least two distinct stages in the project:

- the construction or development phase; and
- the operation phase.

During the first phase the loan will be disbursed and debt service will be postponed by rolling-up interest pending the generation of cashflows in the operation phase (or by disbursements of loans to pay interest prior to the operating phase).

The construction phase is the period of highest risk for lenders - and it is not uncommon for financing to be fully recourse at this stage, through legally binding guarantees of the project sponsors. Alternatively, higher margins may be payable than during other phases of the project.

In such cases, the recourse may fall away - or the "higher" margins may be lowered - upon the satisfactory completion of the project according to the pre-set standards agreed between all parties in the documentation and verified by independent experts; completion will mark the beginning of the operating phase when cashflows can be expected and the debt starts to be serviced and/or amortised.

The rate of debt service and repayment will usually be related to the anticipated level of output and receivables of the project; a "dedicated percentage" of net cashflows will go to the lenders automatically; the terms of the loan will frequently provide for this to be increased to anything up to 100% in circumstances where output or demand for the product is lower than expected or where the lenders may have cause to feel uncertain about the prospects of the project, the sponsors or the surrounding economic or political climate.

Net cashflows will more commonly be calculated on an after-tax basis. In some cases, there may be reasons why the project sponsors will wish to see net cashflows calculated on a pre-tax basis. Lenders may be willing to accept a pre-tax basis if they can be assured by other means that the project cashflows will not be at risk through failure by the project sponsors to meet their tax liabilities.

### 3.3 Production payments

The production payment is most closely identified with US oil, gas and minerals project financing where it evolved as a more tax-efficient structure than the conventional loan. Although the tax advantages associated with this technique are no longer available to the same degree, production payment remains a common

method of achieving non - or limited - recourse financing with complete security (through ownership rather than through assignment or mortgage) over the product and sales proceeds.

Briefly, the technique involves the lenders establishing a special purpose vehicle to purchase an undivided interest in the oil, gas, minerals or other product from the project company.

The use of a special purpose vehicle will help to get round restrictions on banks' conduct of commercial activities and to isolate any potential liabilities arising out of ownership of the reserves or product.

In order to secure the tax advantages available in the US, the production payment structure must be arranged so that:

- the exclusive source of "repayment" and "debt service" is the production of the project;
- the finance must be repaid over a period shorter than the anticipated economically viable productive life of the project; and
- the "lender" must not be responsible for financing operating expenses of the project.

The production payment structure depends upon the project company having good title to the reserves to transfer to the purchaser/lender before production. This is not always the case, for example in the UK oil fields where the pre-production rights of the oil companies are merely to operate the fields on the basis of licences and ownership of oil in the ground remains with the state.

The lender may be entitled to all - or an agreed fraction - of the project's production until the debt is repaid, together with an interest element. In this structure, the repayment and debt service profile is determined by regarding the price paid by the lenders as the net present value of future production proceeds.

The structure will usually oblige the project company to re-purchase the product delivered to the lenders or to sell it as agent for the lenders to realise cash; sales may be anticipated as market sales or - more commonly - as sales under "hell or high water" take-or-pay or similar arrangements; the lenders do not expect to take actual delivery; the costs of the financing will include premiums for risk insurance taken out by the lenders for any liabilities arising out of their nominal ownership of the production.

### 3.4 Forward purchase

More flexible than the production payment, the forward purchase structure shares

many of its characteristics. Lenders may set up a special purpose vehicle to purchase agreed quantities of future production and/or the cash proceeds; the project company's obligation to deliver the product or proceeds will be formulated to match the agreed amortisation profile and service the debt.

The purchase contract will normally require the project company either to buy-back the production or to on-sell it to third parties as agent for the lenders either to the market or under sponsored "take-or-pay" or comparable arrangements.

As in the case of production payments, the lenders will take out insurance cover against risks attributable to their ownership - albeit momentary - of the product.

### 3.5 B-O-T

The structure known as B-O-T, standing for "build-operate-transfer", is sometimes regarded as a type of privatisation but this analysis may be somewhat misleading. Except where the concession period approaches the project's useful life expectancy, an essential element of the B-O-T structure is the transfer back of the operational project to the relevant state authority. It is therefore perhaps better to think of a B-O-T structure as a method of turning over to the private sector, for a limited period, the development and initial operation of what would otherwise be a public sector project.

The reasons for a government adopting a B-O-T approach may be various but it will often be motivated by a desire:

- to minimise the impact on its capital budget, thus enabling it to implement a project at a time when it could not itself provide the requisite funds or, alternatively, leaving it free to use its resources for other schemes which may be of less interest to the private sector; and/or
- to introduce increased efficiency from the private sector; and/or
- in developing countries, to encourage foreign investment and the introduction of new technology.

A B-O-T structure is normally based on a concession agreement between a government, or a government agency, and the vehicle company established by the sponsors to carry out the construction and operation of the project. This is not invariably the case, however, and in an early application of this structure in China, the Shajiao B Power Station, the concession was effectively granted through a Chinese co-operative joint venture contract between the responsible Chinese enterprise and the foreign investment vehicle.

In addition, where the liabilities undertaken by the project vehicle are substantial and the vehicle itself has been incorporated specifically to obtain the concession, the sponsors may themselves be required to provide support for the vehicle's