The case is set in June 2000 when the International Finance Corp (IFC)’s Board was scheduled to vote on funding a $4 billion Chad-Cameroon Petroleum Development and Pipeline Project.

**The Project:** Is a $3.7 billion project that would be developed in two parts:

**A Field System** ($1.5 billion) to extract oil from the Doba basin in Chad: Consists of 300 wells in 3 fields, a treatment facility to upgrade the oil and an operations center to support production. Studies suggested that the area to be developed had total proven plus probable reserves of 917 million barrels and could produce up to 250,000 barrels a day.

**An Export Promotion System** ($2.7 billion) to transport oil to the coastal city of Kribi. This would consist of a 670 mile underground pipeline that would be connected to a floating storage and offloading vessel. The sponsors (ExxonMobil, Petrobas and Chevron) agreed to buy the output at market prices and in proportion to their ownership shares.

**Funding structure:**

The Field System was to be funded via an unincorporated joint venture known as the Upstream Consortium which would own the System. The Upstream Consortium’s sponsors were ExxonMobil, Petronas (the Malaysian govt. owned oil and gas company) and Chevron. (See Exhibit 3a). The Export System would be owned by the Chad government and the Cameroon government with the private sponsors also contributing to its equity. More specifically, Tchad Oil Transportation Company (TOTCO), a special-purpose entity incorporated as a joint venture between the Upstream Consortium and the Chad Government would own the Chad portion of the pipeline. Similarly, Cameroon Oil Transportation Company (COTCO), an incorporated joint venture between the Upstream Consortium and the Chad and Cameroon governments would own the Cameroon section of the pipeline. EssoChad, a subsidiary of ExxonMobil would coordinate the project and the upstream operations.
Of the $3.7 billion, $2.3 billion would be equity financing of which $2.2 would come from the private sponsors. The International Bank for Reconstruction and Development (IBRD), a member of the World Bank would lend $77 million and the European Investment Bank (EIB) would lend $42 million.

The remaining $1.4 billion in debt financing would come from three sources: The IFC would make a $100 million “A loan” for its own account and upto $300 million “B loan” for syndication to other institutions. Two Export Credit Agencies (ECAs), Coface from France and the US Exim Bank would arrange $600 million of bank financing. The ECAs agreed to arrange financing in exchange for commitments to buy French and US equipment for the project. In addition, TOTCO and COTCO would issue $400 million in bonds.

**Time line of project:**

Construction for the project would begin in 2000 and would be completed by 2004. During this phase about 7,000 people would be employed. Once operations began, 500-800 people would be employed. About 80% of those employed were to be local citizens who had received extensive training.

The financial projections assumed that the fields would produce 833 million barrels of crude of the 917 million barrels of reserves. Distribution to Chad, Cameroon and the private sponsors would come in the form of royalties, taxes and ownership claims (dividends). (See the excel spreadsheet [chad-cameron.xls](#))

Some issues to think about:

How is the discount rate of 10% determined?

The rate could differ across the sponsors and the governments involved.

For the Chad and Cameroon governments, which take part in the oil-field development through royalties and the pipeline in the second phase of the project, the return on equity can be calculated using a CAPM model and appropriate betas. For instance assume the beta of integrated oil-field and pipeline companies is around 0.7. Given the projects’ debt/equity ratio of 60%, we get the equity beta of $0.7 \times (1+0.6) = 1.12$ which then leads to a return on equity of $6 + 1.12 \times 6 = 12.72\%$ (assuming that the long run risk free rate and long run market premia average 6%). This is the required return on equity. The required return on assets would be $6 + 0.7 \times 6 = 10.2\%$.

Since the equity return falls as the leverage ratio declines, the return on equity converges to the return on assets which is close to 10%.
From the sponsors’ perspective, sovereign risk may be considered in addition. The sensitivity analysis in exhibit 5 suggests that so long as prices of oil are at least $15 (which seems reasonable given futures prices and factoring in the 15% discount on Doba crude) and reserves are 900 mm bbl the project makes sense.

**Nature of financing structure:**
The case states that the Field system ($1.5 billion) will be funded using an unincorporated JV between three private sponsors. The assets to be funded were oil wells and there was to be no debt in the structure. The three sponsors took a part of the equity share with ExxonMobil taking 40% of the $1.5 billion or about $608 million.

For the Export System, the sponsors chose project finance as the method of finance.

What is project finance and why use this special structure?
In 2001 almost $220 billion in capital expenditures was financed through project finance. The $16 billion Chunnel project connecting France and the U.K. was funded using a project finance structure. While it has been used for private sector financing, it is now being increasingly used for infrastructure development. This trend is likely to continue into the next decade given the staggering needs for infrastructure from the developing economies in Asia that is projected for the coming decade.

What is project finance – it is

* A financing of a particular economic unit in which a lender is satisfied to look initially to the cash flow and earnings of that economic unit as the source of funds from which a loan will be repaid and to the assets of the economic unit as collateral for the loan. (Nevitt and Fabozzi, 2000, *Project Financing*, 7th edition)

According to Ben Esty, in An Overview of the Project Finance Market, HBS, #9-203-040, *Project finance involves the use of limited recourse or non-recourse debt by a corporate parent to finance ownership in a legally independent, single purpose industrial asset that has a limited life*. The important points to consider here are:

- Single industrial purpose asset – Projects are created by combining economic assets that when combined create a single use e.g. extraction of energy, minerals that are then sold. Doing this makes the asset more transparent and the risks more apparent and hence can be negotiated
Non-recourse debt – Creditors have recourse to the cash flows from the project and the project’s assets only, not to the corporation’s cash flows and assets. Hence this is typically off-balance-sheet finance. In the Chad – Cameroon case, limited recourse means e.g. that sponsors have provided a guarantee for debt repayment through completion of the pipeline and the off-shore loading facilities – after completion there is no recourse. This coincides with the limited life of the industrial asset in this case, an oil export system which has a finite life limited by the running out of oil in 2032.

Generally project companies have concentrated equity ownership (one to three sponsoring firms). They usually employ high leverage by design (they are project finance companies since the use of regular corporate finance would not permit such large debt ratios). For instance with the Export system, the debt to total capital ratio was about 64% (see exhibit 3a). Contrast this with ExxonMobil’s debt to capital ratio which is closer to 23%. Having this project finance allows ExxonMobil to participate in a venture that is very highly leveraged without letting this affect its internal borrowing. Most of the financing comes from medium-term bank loans.

Project loan structures are characterized by: tailored debt payments, paying down of principal, stricter covenants, stronger monitoring by lenders. Given that project loans are amortizing debt, there is no refinancing risk. With straight corporate debt, rating agencies look beyond the debt to look at the firm’s ability to repay – this is not true for project loans. The repayment on the loans can be designed to match cash flows from the project.

In this case, why is the export system using project finance? Given EM’s cash flows that were close to $16 billion (see exhibit 2a) they could have financed the entire project on their own. There are several reasons why they chose project finance over straight
corporate debt. Some have to do with the traditional problems that are associated with debt financing and others to the unique nature of a large scale investment that has to deal with sovereign risk:

a. Over-investment in risky negative NPV projects (Risk-shifting) – With project finance since the funds are raised from independent third parties (in this case by the IBRD and the EIB, IFC, ECAs), this problem is taken care of.
b. Underinvestment in positive NPV projects (Debt overhang) – This problem arises because new lenders are unwilling to share the wealth gains from the project with the old lenders. With project finance, project returns are assigned to new investors. This is also very relevant when a firm has reached its debt capacity and cannot issue new debt either because of covenant restrictions or because of the debt overhang problem. The financial projections on Exhibits 4a and 4b show the distribution of revenues to all participants in the project. Often a trustee allocates cash flows in the predetermined manner.
c. Managers may avoid high risk projects which have positive NPVs since the distress costs can be significant and could jeopardize the firm as a whole. In cases where the new project is large so that its failure (which is nontrivially probable) could destroy the firm, management may be unwilling to undertake the project which nevertheless could have a positive NPV. In these cases, project finance is a good alternative to traditional debt financing since there is no risk contamination i.e. with corporate finance, the risk of the project and the risk of the firm are intertwined and are generally not separable. If the project and firm cash flows are positively correlated, the risk contamination argument becomes more relevant as in this case – the project was in the same line of business as ExxonMobil, Petronas and Chevron’s existing line of business. With project finance, the risk of the project is not allowed to alter the sponsors’ risk. Additionally, since the project risk is separated and identified, the sponsors are able to design ways to reduce the risk.

The case points out that “Geologic studies confirmed by independent consultants estimated that the fields contained total proven plus probable reserves of 917 million barrels, and could produce up to 250,000 barrels per
day using known technologies. ExxonMobil, for its part attempted to control upstream risk by making EssoChad, a wholly-owned subsidiary of ExxonMobil in charge of coordination and upstream operations. Since the sponsors agreed to buy all the output, there was little post-completion risk. Additionally Doba crude even with a 20% discount from the minimum price of Brent crude (given past data) of $9.00 will fetch $7.20 which is well above the project’s cost of $5.20 per barrel.

d. The structure of project finance also helps in reducing sovereign risk. By seeking the participation of the sovereign governments, the sponsors reduce the risk of expropriation by the host government. Additionally, the participation of multilateral lending agencies such as the World Bank also is possible only owing to the structure of the deal. The IFC lends only to projects not to firms. These multilateral agencies are also able to better monitor the project and the host governments in a way that private corporations would not be able to. This is important given the history of dictatorial regimes and the political unrest in Chad. For instance, in this case, the pattern of debt servicing (cash flows) suggests that the effective rate being paid on the total debt is 4.26% which is much lower than what the sponsors would pay if the debt appeared on their books and if the multilateral banks and export agencies were not involved. Having the IFC participate lowers the rate paid on debt. A rough calculation of the rate of interest that the sponsors are currently paying on their debt suggests a rate of 3.66%, 5.48% and 6.28% by ExxonMobil, Chevron and Petronas respectively. Given the risks of this enterprise, and the high political risks involved, the low effective lending rate on the project speaks to the way in which project finance reduces the cost of borrowing.

How is the project ensuring lower risk? For one thing, the timing of cash flow distributions shows that by 2010, Chad has received about 35% of its total (undiscounted) cash flows from the project whereas Cameroon has received 60% and the sponsors 66% of their total respective cash flows. This makes it incumbent on the Chad government to make sure that the project is
completed and forces them to ensure peace in the region – this is the sponsors’
way to reduce the risk of the project. If Chad has to be forced to “behave”,
then the timing of cash flows also reflects the higher political risk in Chad and
suggests that Chad probably has a very high cost of borrowing on
international markets. These factors lower the risk of default on the project.
Additionally, even under default, the costs of bankruptcy are lower with
project finance when compared to the regular corporate finance structure.
Project finance is generally associated with tangible assets that have a fixed
economic life where growth options are few. This reduces the cost of distress.

In the early 1980s more than two thirds of all project finance ventures in
the US were in power plants. Calpine Corp. which used this to fund its power
projects in the early 80s was able to use this structure to finance new projects
despite having a debt to capital ratio of 95%. In the 1990s Calpine used a
unique strategy of using project finance to fund new projects and converted
this to regular corporate finance once the projects started generating cash
flows.

e. Higher leverage is usually associated with higher monitoring costs. Project
finance is useful in such cases since it is generally easier (owing to greater
transparency of cash flows) to monitor the cash flows associated with a
project relative to the sponsoring firm’s cash flows.

Why not use project finance in all cases then? One of the major costs of project finance
is that it is costly to structure. EM as can be seen from the Treasurer’s comment on page
3 prefers internal funding. Footnote b in Exhibit 4a for example states that the
preparation costs were $15 million to put the deal together. Generally project finance is
associated with high transactions costs and makes sense only if the deal is a large or mega
project.

The Role of the World Bank and its agencies:
World Bank’s mission is to alleviate poverty and promote economic development and to
promote private sector led development of the area’s oil and gas resources– are they
achieving this by taking part in the deal?

By participating the WB could help with the assessment and control of environmental risks that private corporations may be loath to do in that part of the world, could by promoting sustainability help develop the infrastructure in the region, put together a revenue management plan (RMP) that allowed a part of the revenues from the project to go towards poverty reduction in future years.

By not participating there is the possibility of allowing oil revenues to be used for other purposes that are not related to poverty reduction.

The case states that in the past, the Bank has been involved with several projects around the world including about 10 major pipeline projects. In 70% of these cases, the pre-tax return has averaged 22% for the Bank. As well they claim that they have achieved their development activities although oil and gas projects in Africa have encountered special problems and resulted in lower returns.

These projects generally have precursors and follow-up activities that the Bank is also involved in e.g. projects that would sustain the Chad and Cameroon governments’ ability to support environmentally sound natural resource development programs through the offering of IDA credits.

**IDA (International Development Association)**

_IDA helps the world's poorest countries reduce poverty by providing "credits," which are loans at zero interest with a 10-year grace period and maturities of 35 to 40 years. These countries face complex challenges in striving for progress toward the international development goals. They must, for example, respond to the competitive pressures as well as opportunities of globalization; arrest the spread of HIV/AIDS; and prevent conflict or deal with its aftermath. To help these countries improve their prospects, the policy framework emphasizes:_

- **Accelerating broad-based growth through sound macroeconomic and sectoral policies, especially for rural and private sector development.**
- **Investing in people through strong support for the social sectors (see figure), including gender mainstreaming and efforts to counter the challenge and social impact of communicable diseases, especially HIV/AIDS.**
- **Building capacity for improving governance - including in public expenditure management - and combating corruption.**
Protecting the environment for sustainable development.
Fostering recovery in post-conflict countries.
Promoting trade and regional integration.

In determining eligibility of countries to borrow, the IDA uses criteria such as:

1. GNP per capita should be below some threshold – currently this is $875
2. The country is unable to borrow on market terms and needs concessional finance
3. Evidence that there are programs in place that promote growth and reduction in poverty

Every year the World Bank conducts an evaluation of the borrower’s performance – for details see Country Policy and Institutional Assessment (CPIA) Questionnaire - 2003.

For the 2002 CPIA ratings, please click here.

The 20 criteria are grouped into four clusters:

- Economic Management
- Structural Policies
- Policies for Social Inclusion/Equity
- Public Sector management and Institutions

Performance assessment also takes into account the performance of the country's active project portfolio and based on these factors a country rating is assigned that is used in allocating resources. Given the poor social and economic conditions in Sub-Saharan Africa, these countries also receive priority.

IFC: (International Finance Corporation)

The IFC promotes private sector investment in developing countries in an effort to improve their economic growth and reduce poverty. Founded in 1956 it is the largest source of private funding to the developing world and has funded over $21 billion in financing for its own account and arranged over $15 billion in syndicate financing. IFC’s members provide its capital and all funding is out of its paid in capital and retained earnings from project investments. Its loans are not backed by sovereign guarantees (government guarantee of its obligations). It participates in projects only when it has a role complementary role to the other participants.

It participates by providing loans or equity or quasi equity (convertible debt), syndicated loans and intermediary risk management functions such as facilitating currency and interest rate swaps). IFC debt funding could take the form of “A” loans which were part of IFC’s own portfolio and “B” loans which were then syndicated out to other lending institutions such as export agencies. Even in the case of B loans the lender of record was the IFC. Hence, the IFC took an active role even when the loans were syndicated.

IFC can provide financial instruments singly or in whatever combination necessary to ensure that projects are adequately funded from the outset. It can also help structure
financial packages, coordinating financing from foreign and local banks and companies, and export credit agencies.

**IFC charges market rates for its products and does not accept government guarantees.**

To be eligible for IFC financing, projects must be profitable for investors, benefit the economy of the host country, and comply with stringent environmental and social guidelines.

Even if projects involve government participation the IFC participates if there is some private investment also and the project is commercially viable. To ensure private investor participation, it limits its funding generally to 25% of total costs for a new project – for continuation projects, participation rates can be higher. In a lot of the cases, the presence of IFC investment acts as a vote of confidence on the project and spurs other private investment.

The IFC can be involved right from the appraisal stage to designing the financial structure to providing capital and also to controlling interference by hostile local governments. The IFC with its team of economists, lawyers and engineers is uniquely qualified to assess total risks associated with a project. In estimating the return on the project the IFC computes both a financial rate of return on the project to the sponsors and an economic rate of return that is the rate of return to the home country. Being a multilateral agency with capital contributed by many members, the IFC represented varied interests and hence, its appraisal and due diligence processes were known to be ‘fair’. The fairness was also an indirect way of ensuring the success of the project.

In general, sovereigns treated loans from multilateral agencies such as the World Bank, the IFC, IBRD with greater priority, since often in the worst cases, these agencies are the only resort for these countries. Also, we find that, country risk ratings go up subsequent to IFC financing a project in that country and it has participated generally in countries which have no other source of funding.

**IFC offers a wide variety of financial products to private sector projects in developing countries.** In order to be eligible for IFC funding, a project must meet a number of IFC criteria:

- The project must be located in a developing country* that is a member of IFC.
- It must be in the private sector.
- It must be technically sound.
- It must have good prospects of being profitable.
- It must benefit the local economy.
- It must be environmentally and socially sound, satisfying
A company or entrepreneur, foreign or domestic, seeking to establish a new venture or expand an existing enterprise can approach IFC directly by submitting an Investment Proposal. After this initial contact and a preliminary review, IFC may proceed by requesting a detailed feasibility study or business plan to determine whether or not to appraise the project.

The proposal can be submitted to an IFC industry sector department or to an IFC regional department at IFC headquarters in Washington, DC. The proposal can also be submitted to the IFC field office that is closest to the location of the proposed project.

The Export-Import Bank (EXIM bank or EIB):

Founded in 1934, the EIB, which is an independent government agency, finances projects that involve the sale of U.S. goods and services abroad (U.S. exports). It takes an interest in projects which commercial lenders will not participate in. It tried to help exporters that faced a tough market abroad owing to tariffs imposed by foreign governments. EIB provides support in the form of working capital guarantees, export credit insurance (to protect firms against political or commercial risks of foreign counterparties default- The Intergen-Quezon power project in the Philippines purchased an Eximbank guarantee for expropriation, political violence and currency inconvertibility) as well as funding to foreign importers who purchase the U.S, exports. The EIB provides letters of interest at the initial stage (to help the exporter negotiate the contract), Preliminary commitments (offer of funding subject to approval of the project) and final commitment once the export contract was in place. The EIB took into account environmental effects of projects in their evaluation process. (They turned down the Three Gorges Dam project in China on environmental concerns).

Given these criteria, the project justifies World Bank funding on account of the following reasons:

- Chad needs aid to improve economic conditions – 80% of their population lives on less than $1 a day and GDP has declined over time.
- Infant mortality is extremely high and life expectancy is lower even when compared to other African countries.
- Access to safe water is not the norm and the country runs a huge government
deficit year after year.

- The Revenue Management Program (RMP) will attempt to ensure fairness in distribution of cash flows and also make sure that the ultimate objective of ameliorating poverty is achieved.

Opposition:

- Civil war and unrest in Chad has gone on too long to imagine that peace can actually exist.

- President Deby has been criticized by the US State Dept. and by Amnesty International for violating human rights. Why should he be trusted to run the RMP?

- Cameroon while better than Chad deals with government corruption.

- Not a fair deal

- Environmental risks are large – using a single hulled off-shore tanker rather than a double hulled tanker and transporting acidic corrosive oil which is more likely to leak is a big risk that the countries are facing.

- At high discount rates, the NPV is negative
Exxon Mobil’s funding – project finance versus corporate finance

<table>
<thead>
<tr>
<th>Financing</th>
<th>Field system</th>
<th>Export system(uses on average about 63% D/TC)</th>
<th>Total investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate finance</td>
<td>1,521 million</td>
<td>2,203 million</td>
<td>3,723 million</td>
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<td>EM = 100% owner</td>
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<tr>
<td>Corporate finance</td>
<td>=0.4 x 1,521 = 608 million</td>
<td>=0.4 x 2,203 = 881 million</td>
<td>1,489 million</td>
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<tr>
<td>EM = 40% owner</td>
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<tr>
<td>Corporate finance for field system and Project finance for Export system</td>
<td>=0.4 x 1,521 = 608 million</td>
<td>=0.4 x (123 + 680) = 321 million</td>
<td>929 million</td>
</tr>
<tr>
<td>Project finance for both</td>
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<td>0.16 x 2,203 = 352 million</td>
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