

An introduction to project finance in emerging markets

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Contents

Abstract.....	4
Introduction.....	5
Characteristics of project finance.....	5
Types of contracts.....	6
Project finance vs. venture capital.....	6
Project constituents.....	7
Comparison with traditional financing.....	7
Risk analysis and allocation.....	9
Symmetrical risks.....	9
Asymmetrical risks.....	11
Financial costs and risk rating.....	12
Conclusions.....	13
References.....	14

Abstract

The use of non-recourse project financing has grown steadily in emerging markets, especially in basic infrastructure, natural resources and the energy sector. Because of its cost and complexity, project finance is aimed at large-scale investments. The key is in the precise estimation of cash flows and risk analysis and allocation, which enables high leverage, and in ensuring that the project can be easily separated from the sponsors involved. Project finance is more difficult in emerging countries, which tend to pose unpredictable risks with unfavorably biased results. This imposes the need to introduce contractual, financing and structural elements that yield the maximum possible expatriation of operating flows.

Introduction

Unlike traditional leverage policies, which have been given extensive coverage in the finance literature in the wake of the seminal works of Miller and Modigliani (1958, 1961), project financing is unique in that it is not designed for businesses that are already under way but rather for the financing of large-scale projects.

Special financing for large-scale projects has increased steadily over the last 40 years, extending chiefly to the areas of oil, petrochemicals and gas, infrastructure (e.g., roads), telecommunications, electricity, water supply and waste treatment.

This is a type of financing that can facilitate the execution of projects anywhere in the world, but particularly in developing countries that face serious difficulties in securing financial resources. In this document we will introduce the topic of project finance with particular emphasis on the practice of this technique in emerging countries.

We will set forth the general characteristics of project finance, and how it differs from traditional corporate financing. We will describe each of the parties that usually participate and also the risks involved, and we will then go on to discuss criteria for allocating business flows and risks. We will finish by mentioning the important role played by credit agencies in this mode of financing¹.

Characteristics of project finance

Investments that are liable to be financed through this method have the following main characteristics:

1. Projects evolve through two clearly differentiated stages: construction and operation
2. As the financing is “made to measure”, its structuring tends to be costly, and therefore is only justifiable for large-scale projects

3. The bulk of the investment is aimed at tangible assets
4. The totality of the project’s assets are pledged to financial creditors
5. High leverage is usually employed
6. Investments are usually long-term (e.g., 20 years)
7. The only purpose of the financing is to complete the project, and as such it has a limited lifetime

Project finance tends to be used in projects with tangible assets and predictable cash flows in which the construction and operating targets can be easily established through explicit contracts (e.g., refineries, mines, roads, etc.). The reason for this is that in such cases it is relatively easy to assess whether or not the work has been carried out successfully and within the scope of the programme as it was originally laid down.

The key to project finance is in the precise forecasting of cash flows. In effect, the possibility of estimating cash flows with an acceptable level of uncertainty allows for the allocation of risks amongst the various interested parties based on their relative advantage. The ensuing certainty in cash flows renders the existence of high debt levels and enables the project assets to be separated from the companies and sponsors involved in it.

The separation of the business is structured through the creation of a Special Purpose Vehicle (SPV, also called the Project Company). This legal entity has a limited and independent life, and is the formal borrower under all loan documents so that, in the event of default (and/or bankruptcy), sponsors are not directly responsible before financial creditors. Instead, their legal claims are against the SPV assets (i.e., non-recourse financing).

The fact that all financial obligations are off-balance sheet to the sponsors presents the great advantage of limiting their exposure in case of financial distress. Nonetheless, the sponsors are bound by certain type of contractual obligations (under the commercial, financial and construction documents) that define the terms of action throughout the life of the project. For instance, it is common in emerging markets that sponsors provide project completion guarantees.

¹ We are indebted to Luis E. Paul Bello for helpful comments.

Types of contracts

We mentioned earlier that projects must evolve through two clearly differentiated stages: construction and operation. However, for the purpose of ensuring the neatest possible isolation, the separation of the enterprise from the rest of the activities of its sponsors and other interested parties must be very clearly established.

Project finance in emerging markets is widely used by multinational companies willing to limit their exposure to country, commercial and financing risks inherent to developing economies. In such cases the multinational entity (sponsor) seeks to transfer most of these risks to banks, Export Credit Agencies (ECAs) and multilateral agencies. Multinational sponsors tend to play a central role in the financing, construction and operation of their projects.

When the sponsor is the host government of an emerging economy, the longest-established and most widespread method of project financing is BOT (Build, Operate and Transfer), in which the designated State agency develops bidding guidelines to attract multinational constructors and operators which will finance and operate the project. As its name indicates, the agreement starts with building, continues with the operation of the facilities for a pre-established period, and concludes with the transfer of the operations to the sponsor.

Under BOT the contractor assumes all the project risks, taking charge of financing arrangements, management, operation and maintenance for a predetermined period of time, after which the project's assets are returned to the sponsor.

From the viewpoint of the sponsor there are certain advantages and disadvantages associated with BOT:

Besides not having to participate as a financier, the main advantage is that the bulk of the project's risks remain with the contractor.

The main disadvantages are:

- The costs and complexities of setting up the contractual arrangements for the project's financing.

- The sponsor's control over the project is limited through a clearly-defined contractual arrangement.
- In principle, higher costs, given that the contractor expects a reasonable return on his investment.

In the general case where the sponsor does not have competitive advantages in managing the project, the final costs of developing it directly will undoubtedly exceed the final tally of any contractor. Hence, the last disadvantage might not apply in practice. This is especially true in those instances when the sponsor is an inefficient (and even corrupt) governmental institution, a common occurrence in many developing countries.

There are two main variants of BOT: BLT (Build, Lease and Transfer) and BOO (Build, Own and Operate).

Under BLT, once the project is finished and paid for, the sponsor leases the assets from the contractor for a certain period of time during which the sponsor retains control and operates the facilities. When the lease expires the sponsor takes final possession of the project's assets.

Under BOO, the contractor owns the assets, meaning that they are never returned to the sponsor. A longer horizon for exploiting the facilities should imply a more moderate yearly return on investment for the contractor and hence lower costs to the final consumer.

Over the years many other methods have been developed that provide for different patterns of ownership of the facilities and can include the original design of the project, the financial structuring and/or long-term management.

Project finance vs. venture capital

A clear distinction should be made between the type of projects that lend themselves to the use of project finance and those that require venture capital, in which the entrepreneurs are experimenting with something totally novel, the success or failure of which is not easily measurable, such as investments in new technologies.

Those projects that are best suited to project finance can be expected to display a higher probability of positive though relatively modest results, whereas venture capital projects are characterized by results that are potentially attractive but have a much lower probability of success.

Project constituents

Four well-differentiated groups have contractual arrangements with the SPV in a typical project: operating concerns, clients; government institutions; and the group of financiers.

The operating concerns consist of: sponsors, who take the initiative to promote the project; project planners, constructors and suppliers, who participate actively in the early stages of the project; and operators, who manage the project once it is up and running.

Then there are the clients, who acquire the products and/or services arising as a result of the project, and the government institutions that hold legal and regulatory responsibility.

Quite often it is state enterprises who take the initiative to carry out a project. Thus it is not unusual for the same government body to act as both sponsor and client.

The last group is that of the financiers, who share the risks of the project on the basis of a prior negotiation between all the interested parties. The financiers consist of:

Shareholders. In addition to the sponsors, they can include risk capital firms and minority shareholders. In developed economies mutual funds might participate and subordinated debt might be issued in the capital markets. However, both these practices are uncommon in emerging markets. In emerging countries it is usual to find foreign shareholders with controlling stakes. Occasionally sponsors might also participate as subordinated creditors or take some convertible debt.

Banks. They generally take senior debt and act as intermediaries for the flow of funds associated with the project (e.g., bank accounts, trusteeships).

Within this group we must differentiate between commercial banks and multilateral institutions (such as the IFC, CAF or IDB).

In emerging markets, multilateral institutions are likely to play a key role in project financing for at least two reasons: a) given that they are considered “preferred lenders”, their loans are viewed as less risky and thus end up being less costly than regular bank loans, and b) their participation as financiers is read as a positive sign by commercial banks, which are therefore more willing to join in.

Export Credit Agencies. Government-owned banks who provide guarantees to project lenders. ECAs cover both political and/or commercial risks for that component of the project costs that is sourced from the incumbent country (e.g. US Eximbank will guarantee the financing of equipment manufactured in the United States).

One financing arrangement that has become increasingly popular in recent years is that of “A/B loans”, through which the multinational institution acts as the “lender of record” and then participates portions of the original loan to participant banks.

Funds. These are specialized funds that participate as distinctive lenders through so-called “mezzanine loans”. The return on these loans is variable and usually tied to the project’s free cash flow. Mezzanine financing is subordinated to all other types of debt financing and is only senior to shareholders.

Equipment Manufacturers. Who can finance their equipment sales directly (“vendor financing”) or in cooperation with export credit agencies.

Insurers. Who assume most of the risks that only involve the possibility of loss (known as insurable risks) and which are not undertaken by any of the other parties.

Comparison with traditional financing

We understand traditional financing as that which characterizes ordinary corporations whose debt and

equity instruments tend not to be directly linked to any of the firm's specific operations.

The main differences between traditional financing and project finance are summed up in the following table:

Corporate finance vs. project finance

Item	Corporate finance	Project finance
Destination of the financing	Multipurpose	Single purpose
Duration of the financing	Variable	Long-term and limited by the lifetime of the project
Financial structure	Debt-holders not related	Debt-holders tied by a general agreement
Risk analysis	Highly dependent on financial statements and cash flow	In addition, technical considerations, contractual agreements and the debt structure are all very important
Liquidity of the financial instruments	Can be high if they are negotiated on capital markets	Generally low, as the financial agreement is private, made to measure and impregnated with contractual relationships
Financial costs	Relatively low	Relatively high, owing to both the structuring costs and the low liquidity of the instruments
Room for management to make decisions	Plenty if the company has open capital	Little, owing to the rigid contractual structure
Agency costs	High if the company has open capital	Low, as the contractual structure leaves little margin for independent action by the partners

Some comments should be made in connection with this comparison.

In project finance, the costs of financial distress tend to be lower. This is because the negotiations between the financiers result in the sources and uses of funds being defined in great detail, leaving very little to management in the way of discretionary powers. This makes it possible to achieve higher levels of leverage than those that are usually seen in conventional corporate finance.

The higher level of leverage makes for two possible advantages: a) it guarantees the benefit of a more attractive income tax shield, and b) it

alleviates any capital restrictions to which the sponsors might be subject.

The final debt-to-equity ratio will hinge on both the particular characteristics of the project and the financing arrangements. The main determinants of leverage will be:

- Income level and risk. This is a particularly significant factor when income is tied to a regulated tariff structure that might be sensitive to political manoeuvring.
- Cost level and structure. The cost level determines net income whereas the cost structure,

meaning the relationship between variable and fixed costs, affects profit variability.

- Debt level and coverage, of both principal and interest.

The combination of the above factors will determine the final period-by-period free cash flows. The funding will be more secure and less costly the higher and less unpredictable these flows turn out to be.

In addition, risk allocation is carefully evaluated, structured and negotiated on the basis of the advantages that each party has for assuming these risks. Consequently the risks are allocated efficiently at the lowest possible cost.

The other side of the coin is that, owing to its complexity, the financial structuring tends to be very costly. For this reason, project finance requires the existence of a certain scale and only makes sense for large-scale investments.

Furthermore, given that project finance is ad hoc, its securities, both debt and equity, usually have a very low liquidity. This is a characteristic feature of this type of business and should be reflected in the expected yield of the respective instruments. Of course there is always the possibility of coming to private agreements guaranteeing the repurchase of the securities under certain conditions, depending on the wishes of each provider of funds.

Risk analysis and allocation

Perhaps the most important key to success in any project finance scheme lies in risk analysis and allocation. We find two types of risks: symmetrical and asymmetrical risks.

Symmetrical risks

These risks may yield not only less favorable but also more favorable results than originally expected. Symmetrical risks comprise those inherent in the construction phase, risks of a business nature, and those associated with macroeconomic variables.

Let us take a look at each of these.

Construction risks

Here we are concerned with the risk of the project not being able to get under way as originally planned, or entailing unexpected delays or costs. The key elements for this type of risk are the category of the contractor, the quality, prices and volumes of the supplies during the construction phase, and the characteristics of the technologies adopted.

It should be noted that a technology that is tried and tested may be more reliable, but could rapidly become outdated, with grave consequences for the future competitiveness of the project. On the other hand, a highly novel technology may involve serious risks. Therefore it is important to choose a technology that not only suits the characteristics of the project but also strikes a balance between the overly novel and the overly familiar.

Given their know-how and the ability to control these types of risks, they are best assumed by the contractors and suppliers, each according to their area of responsibility. However, emerging market contractors often lack the required financial strength. Therefore, their responsibility ("liquidation damages") tends to be limited to a certain percentage of the project's value (e.g., 20%).

Another possibility is to set up an "Engineering, Procurement and Construction" (EPC) agreement by which the contractor is liable to finish his work within a predefined time period and for a stipulated amount of money (lump sum). However, he does not guarantee the debt.

In emerging markets, a sizeable portion of the risk that is not taken by the contractors is usually retained by the sponsors through a "completion guarantee" issued in favor of whoever commissioned the project. However, only rarely contractors are liable for damages once the project enters the operational phase.

Business risks

This sort of risk arises out of unexpected fluctuations in demand, selling prices and/or variable

costs, and may yield results that differ from those that were expected, with the possibility of far-reaching effects on debt servicing capacity, and on shareholder earnings.

As these are risks that are inherent in the business, they should in principle be borne by the shareholders. However, debt-holders usually retain part of this risk in exchange for larger collateral.

It is also common to transfer part of this risk through off-take agreements with clients or suppliers. These agreements are used to fix volumes and/or prices of inputs or end products beforehand with major suppliers or clients who usually have a better credit rating than that of the project. The standard practice in emerging markets is to tie off-take agreements to off-shore accounts in a developed country or a tax haven.

One ingenious though scarcely used solution to combat the risk of price fluctuation is to issue bonds whose yield is closely correlated with the price of the product. For example, the interest coupon can be linked to the price of a particular commodity.

One special case is that of *reserve risk*. This is a very specific kind of business risk that applies when the project is aimed at exploiting some natural resource (e.g., oil, mining) and refers to the uncertainty that may exist regarding the extent of the reserves to be exploited. This is a risk that is difficult to transfer and has to be negotiated between the sponsors and the business shareholders.

Macroeconomic risks

These risks have to do with general macroeconomic variables, particularly relevant in emerging countries, as many of them are known for the undisciplined management of their taxation and monetary policies.

Macroeconomic risks fall into three categories: foreign exchange risks; inflation risks; and interest rate risks.

a) Foreign exchange risk

Fluctuations in the exchange rate can affect the net cash flow of the project throughout both the

construction and the operation stages. The impact of the foreign exchange risk will depend on the imbalance between revenue and expenditure in the strong reference currency (e.g., US\$).

It is also important to take into account the correlations between cash flows in local currency and the exchange rate. When the company's cash flows in local currency are correlated with the exchange rate, the real foreign exchange risk is less than it would appear, as in this case the operating flows in local currency behave wholly or partly as cash flows in foreign currency.

Foreign exchange risks can be mitigated by seeking a balance between the sensitivities of revenue and expenditure to exchange rates, with the result that their impact on equity is as small as possible. One way of dealing with these imbalances is to negotiate agreements with the sources or destinations of the funds that in one way or another can shift part of the foreign exchange risk. A number of financial instruments are also available, either over the counter or on financial exchanges that enable these risks to be transferred totally or partially, at a cost.

The so-called *exchange rate lag* tends to be particularly important in emerging countries. It occurs when there is a strong divergence between the devaluation and inflation rates. When the local currency is devalued more slowly than the difference between inflation abroad and at home, a monetary overvaluation results and gives rise to an apparent advantage for indebtedness in foreign currency. The opposite happens when the local currency is revalued more slowly and there is an undervaluation.

The exchange rate lag is unsustainable in the long term, as sooner or later parity will tend to seek a balance with purchasing power. This generally takes place by means of maxi-devaluations (or maxi-revaluations) that heighten the risk, especially in the event of imbalances between assets and liabilities in different currencies. It should be mentioned that exchange rate lags, such as delays in the devaluation of the local currency, are much more common than exchange rate advances.

This risk also takes on importance when fluctuations in the exchange rate affect the balance sheet items (assets and liabilities) unequally. Thus, keeping check on the foreign exchange risk requires timely adjustment of both the items of revenue and expenditure and those of assets and liabilities in different currencies.

b) Inflation risk

In much the same way as with the exchange rate, inflation can affect the balance sheet items to the extent of jeopardizing the equity base. In order to protect it, constant vigilance and adjustment is needed in the composition of assets and liabilities.

Equally, the net operating flows are affected differently depending on the intensity with which inflation hits the different items of revenue and expenditure. Inflationary imbalances between net operating flows and financial commitments can be compensated financially, for example by issuing debt at a variable interest rate.

In general, the best way to mitigate exchange and inflation risk is by maximizing the proportion of cash flows in strong currencies to be channeled through off-shore mechanisms.

In the case of projects with regulated prices, exchange and inflation risk are best ameliorated by indexing tariffs. However, this strategy is quite sensitive to political risk, a topic to be dealt with further on.

c) Interest rate risk

Fluctuations in interest rates can also have an undesirable effect on cash flows and the equity position. This type of risk can be managed through duration or transfer techniques by means of swaps or other instruments available either over the counter or on the financial exchanges.

In today's international financial markets, there are instruments for managing the interest rate risk associated with the credit gap. The credit gap measures the borrower's credit risk and is equal to the difference between the interest rate on a bond and the rate of a treasury bill with the same maturity.

The volatility of the credit gap can generate great uncertainty regarding the cost of funds.

Standard & Poor's have two indices for the credit gap: one reflecting industrial companies with high solvency (investment grade) and the other for industrial companies with appreciable risk (speculative grade). The instruments derived from these indices offer an interesting way of covering the volatility of the credit gap.

In general terms the control of macroeconomic risks should be the responsibility of the financiers as a whole, but particularly the shareholders.

Asymmetrical risks

Unlike symmetrical risks, asymmetrical risks can only yield unfavourable results.

Among asymmetrical risks, we can mention environmental risks, breach of contract (e.g., contractors and financiers), accidents or insurable risks (e.g., fire), force majeure (e.g., wars, major earthquakes or floods), and especially political risks, which take on great importance in emerging countries.

We will take a closer look at two of these types of risks: political risks and the risk of breach of contract by financiers.

Political risks

These entail some unexpected government intervention causing default of obligations or significantly affecting the returns expected by the suppliers of funds. Failure to comply with contractual agreements, expropriations, changes in laws or regulations, price control and exchange restrictions are good examples of political risk.

Political risk needs not necessarily be assumed in its entirety by the shareholders, and can be managed in various ways. One fairly common practice that is particularly important in emerging markets is to incorporate influential local partners (including the government institutions themselves) who may be able to palliate or at least give some warning of any counterproductive measures.

Another frequent practice is to submit certain contracts associated with the project to the jurisdiction of courts in developed countries (e.g., USA). This serves to reduce the risk associated with the legal and institutional instability that is characteristic of many emerging countries.

There is also another highly relevant type of political risk that is associated with the issue of exchange rates: *transfer risk*. This risk refers to the impossibility of converting local flows into hard currency, or of remitting cash flows abroad, as a result of the introduction of exchange controls or other measures taken by the local authorities.

Transfer risk and other political risks can be transferred to private insurers and government sponsored insurance institutions (e.g., the Overseas Private Investment Corporation or OPIC, in the USA).

The participation of export credit agencies and multilateral banks as financiers is an implicit mechanism to ameliorate country risk, since any lack of compliance with these institutions affects not only the project but the creditworthiness of the country as a whole, with potentially costly political and economic consequences at the international level.

Risk of breach of contract by financiers

The risk considered here is that of the project not receiving the sums of financing on time and in the amounts initially planned. The magnitude of this type of risk should be estimated by setting up scenarios reflecting what might happen in relation to the financial capacity of the providers of funds in the future.

This type of risk has a direct impact on the capitalization of the project. The more significant it is, the greater the additional contribution of funds must be.

Symmetrical risks tend to reflect a probabilistic profit structure that is more or less balanced around the mean, whereas asymmetrical risks tend to cause bimodal behavior in the results. Given that project finance is only attractive when there

is a minimum of certainty that the creditors will have sufficient funds to repay their credits, this mode of financing becomes less recommendable as asymmetrical risks become more manifest. This constitutes a problem for emerging countries, which is precisely where these risks tend to be most in the forefront.

Financial costs and risk rating

Risk raters play an important part in the cost of financing projects. Not only does a moderate leverage ratio have a positive effect on the credit rating but furthermore, if a project in an emerging country has undergone well-managed risk analysis and allocation, the project may even achieve a more favorable credit rating than that of the country in which it is to take place.

The key elements for this to happen are as follows:

- The operations should preferably be undertaken in a sector of critical importance for the local government, given that under such circumstances governments are less likely to take decisions that are harmful to the venture.
- No leading political actor should have incentives to affect project operations negatively.
- Where applicable, sovereign immunity should be eliminated and the reference legal system should be one with satisfactory risk (e.g., US).
- The project's legal structuring should be safeguarded against the greatest possible number of unforeseen circumstances.
- Penalties and other costs for breach of contract should be high.
- The project should generate a major flow of exports, and a large part of the corresponding cash flow should be deposited in foreign bank accounts from which many of the debts with financiers and suppliers of materials and equipment can be written off. Furthermore, it is desirable for a large portion of the exports be subject to off-take contracts.

Conclusions

The activities that are most likely to be successfully financed through project finance are characterized by being large-scale investments with a strong tangible asset component and two clearly differentiated stages: construction and operation. The central purpose of the financing must be the execution of the project in question.

Unlike venture capital projects, which are characterized by results that are potentially attractive but have a low probability of success, those projects that are best suited to project finance display a higher probability of positive yet modest results.

The key to project finance is in the precise estimation of cash flows and risk analysis and allocation. This gives rise firstly to the possibility of high leverage at an acceptable risk level, and secondly, the easy separation of the project itself from the firms involved and the sponsors, in order to limit any collateral damage which might be caused by the failure of the enterprise.

The other side of the coin is that, owing to its complexity, the financial structuring tends to be very costly. For this reason, project finance requires

the existence of a certain scale and only makes sense for large-scale investments.

The risks must be studied, evaluated and negotiated bearing in mind each party's advantages for assuming these risks, with the aim of ensuring their efficient allocation at the lowest possible cost.

Two main categories of risks can be identified in project finance: symmetrical risks, which tend to reflect a probabilistic profit structure that is more or less balanced around the mean; and asymmetrical risks, which tend to cause bimodal behaviour in the results. Project financing becomes less recommendable as asymmetrical risks become more manifest. This constitutes a problem for emerging countries, which is precisely where these risks tend to be most in the forefront.

The key factors for the financial costs of project finance in emerging countries to be as low as possible are: that the project should affect a strategically important sector for the host country; that its cash flows should be channeled and allocated outside the local financial system; and that the contracts should be safeguarded against the greatest possible number of unforeseen circumstances and, insofar as this is possible, tied to a high-credibility legal system.

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