CHAPTER 1 An introduction to the theory and practice of project finance

Learning objectives

After studying this chapter the reader should be able to:
- Identify the factors that characterize project finance deals
- Identify the economic reasons that make project finance appealing
- Understand the difference between corporate finance and project finance
- Understand the nexus of contracts of a project finance deal and identify the main counterparties involved in a project finance transaction
- Understand the contamination effect of projects on existing firms
- Evaluate the trade off between contamination risk and co-insurance effects

Concept review questions

1. **In project finance initiatives, the borrower is:**
   a) the sponsor, as "originator" of the deal.
   b) a specially created company which is financially and legally dependent on the sponsor.
   c) a specially created company which is completely independent of the sponsor.

Answer: C Source: Ch. 1 – Section 1.1 What is project finance?

In project finance initiatives, the debtor is a project company set up on an ad hoc basis that is financially and legally independent from the sponsors. This company is often called a Special Purpose Vehicle (SPV) or a project company.

2. **In terms of the use of cash flow generated from project finance deals, the priority is:**
   a) to fund operating costs and service the debt.
   b) to pay dividends to sponsors.
   c) to pay parties identified in specific clauses in the contractual framework of the venture.

Answer: A Source: Ch. 1 – Section 1.1 What is project finance?

In project finance initiatives, cash flows generated by the project must be sufficient to cover payments for operating costs and service the debt in terms of capital repayment and interest. In other words, as the priority use of cash flow is to fund operating costs and service the debt, only residual funds after the latter are covered can be used to pay dividends to sponsors.

3. **Complete the following sentence: With the ..... model, the Public Administration delegates planning and realization of the project to a private party, together with operating management of the facility for a given period of time. During this period, the private party is entitled to retain all receipts generated by operations but is not the owner of the structure:**

   a) BOT.
   b) BOOT.

c) BOO.

Answer: A Source: Ch. 1 – Section 1.3.2 Public sponsors with social welfare goals

In a BOT framework (see Table 1-2), the Public Administration delegates planning and realization of the project to the private party, together with operating management of the facility for a given period of time. During this period the private party is entitled to retain all receipts generated by operations but is not the owner of the structure concerned. The facility will then be transferred to the Public Administration at the end of the concession agreement without any payment being due to the private party involved.
A BOOT framework differs from the above inasmuch as the private party owns the works. At the end of the concession term the works are transferred to the Public Administration and in this case a payment for them can be established.
Lastly, the BOO framework has characteristics in common with the other two. The private party owns the works (as in the BOOT case) but ownership is not transferred at the end of the concession agreement. Therefore the residual value of the project is exploited entirely by the private sector.

4. **In project finance initiatives, sponsors normally offer:**
   a) collateral to lenders of the SPV.
   b) collateral on their personal assets to lenders of the SPV.
   c) the assets of the SPV as collateral to lenders as security for the project's receipts and assets.

Answer: C Source: Ch. 1 – Section 1.1 What is project finance?

A typical characteristic of project finance deals is the need for collateral given by the sponsors to lenders as security for project receipts and assets. This collateral is represented by the project assets (i.e. only the assets owned by the SPV)

5. **Corporate finance based lending is not the optimal solution for realizing new projects when such initiatives:**
   a) involve sizeable flows in currencies other than the home currency.
   b) are less risky than up-and-running projects.
   c) are very large with respect to the current size of the company concerned.

Answer: C Source: Ch. 1 – Section 1.5.1 Separate incorporation and avoidance of contamination risk

There are cases in which the corporate finance-based lending approach doesn't work, or rather, it may give rise to more problems than advantages. Specifically, circumstances which denote overall uncertainty (contamination risk) are when the project in question is very large considering the company's current size, or when it has a higher degree of risk than the average risk level for the asset portfolio in the balance sheet, or when it could potentially be closely linked to the company's own core business.

6. **Contamination risk refers to the possibility that:**
   a) a project won't be realized because other similar projects are already underway.
   b) default of the project will jeopardize up-and-running projects.
   c) a project's risks can't be allocated to the different participants in the deal.

Answer: B Source: Ch. 1 – Section 1.5.1 Separate incorporation and avoidance of contamination risk

When a new project takes on considerable dimensions with respect to the company's total existing assets, possible default of this venture would jeopardize continuation of the company's other businesses. This risk can be defined as contamination risk.

7. **In project finance initiatives, the degree of leverage depends on:**
    a) the sponsors' leverage, and is normally higher than in corporate financing.
    b) project cash flows, and is normally lower than in corporate financing.
    c) project cash flows, and is normally higher than in corporate financing.

Answer: C Source: Ch. 1 – Section 1.2 Why do sponsors use project finance?

In project finance initiatives, the degree of leverage is primarily a function of project cash flows, and is usually much higher than in traditional financing.

8. **Co-insurance effect refers to:**
    a) the possibility that mutual benefits emerge for the project and the company.
    b) the possibility to use the same model for dividing up risk among various project finance deals.
    c) the possibility that the same project risk (e.g. technology risk) can be allocated to several different players.

Answer: A Source: Ch. 1 – Section 1.5.2 Conflicts of interest between sponsors and lenders and wealth expropriation

The co-insurance effect represents the positive side of contamination risk from a lender's standpoint. It refers to the possibility that the failure of a project would be covered by the success of other up-and-running initiatives, so that there would be no negative impact on sponsors or the interests of the SPV's lenders. The co-insurance effect can be what convinces the parties involved in a project to opt for on-balance sheet rather than off-balance sheet financing.

9. **Industrial sponsors are interested in participating in project finance initiatives:**
    a) to exploit the opportunity to build plants and facilities sold to the SPV.
    b) to exploit the opportunity to realize works while tying up little or no corporate finances.
    c) because the project is closely linked to sponsors' own core business.

Answer: C Source: Ch. 1 – Section 1.3.1 Industrial sponsors in project finance initiatives linked to core business

The project rationale for industrial sponsors lies in their view of the project financing as an initiative linked to their core business. Clearly their involvement in such projects reduces overall risk because their underlying interest is not purely financial, but instead is linked to industrial factors. For example, this type of sponsor may also be interested in acting as customer or supplier of the SPV.

10. **The contractor is:**
    a) the company or group of companies that are responsible for plant construction.

b) the company or group of companies that provide maintenance for the facilities for a given number of years, ensuring efficient operations in keeping with pre-agreed output parameters.
c) the supplier or customer, depending on the type of project finance deal.

Answer: A Source: Ch. 1 – Section 1.4.1 The contractor and the Turnkey Construction Contract (TKCC)

The contractor is the company (or consortium of companies) that wins the tender for the design and construction of a given plant on the basis of a fixed price turnkey contract. Contract obligations are taken on by the main contractor (who commits directly to the SPV) and are later passed on to consortium members.

Questions and exercises

1. What are the typical features of a project finance deal?
2. How is WACC calculated?
3. How are project finance transactions involving the Public Administration organized?
4. Complete the following table by putting an X in the column that corresponds to the following statements:

	Corporate finance	**Project finance**
The borrower's assets serve as guarantee on the financing.		
Leverage depends on cash flows generated by the project and is very high.		
Once the deal is in place, the borrower's financial elasticity is lower than before.		
As far as accounting, the only effect will be (debt or equity) participation in an external company.		
Future cash flows are the main variables used to quantify the financing.		

5. Referring to the different options given in the table below, calculate the payoffs for lenders and shareholders consequent to the decision to finance on-balance sheet or off-balance sheet for Project 2:

	Scenarios			
	1	2	3	4
Hypothesis				
Debt Project 1 (assets in place)	200	200	200	200
Debt Project 2 (new project)	100	100	100	100
Expected cash flows project 1 (assets in place)	75	75	150	150
Expected cash flows project 2 (new project)	100	180	100	180

Solution	Scenario 1	Scenario 2	Scenario 3	Scenario 4
On-balance				
Off-balance				

6. Are the following statements true or false?

	Scenarios			
	1	2	3	4
Hypothesis				
Debt Project 1 (assets in place)	200	200	200	200
Debt Project 2 (new project)	100	100	100	100
Expected cash flows Project 1 (assets in place)	50	230	50	230
Expected cash flows Project 2 (new project)	60	60	180	180

- In Scenario 1 both projects will probably default regardless of whether project financing is used.
- In Scenario 2 on-balance sheet financing and off-balance sheet financing will give the same results.
- In Scenario 3 the use of project finance makes it possible to have an investment payoff.
- In Scenario 4 the use of project finance allows creditors to better safeguard their new investment.
- In Scenario 3 the use of project finance prevents contamination risk in terms of the new project and the existing situation.

7. What are the characteristics of sponsors and their approach to project finance deals?
8. Draw up a typical contractual network for a project finance deal, indicating the parties involved.

Answer 1:

The following features characterize a project finance deal:

- The debtor is a project company set up ad hoc which is economically and legally independent of the sponsors.
- Lenders have only limited recourse over sponsors (or in some cases none at all) after the project is complete.
- Project risks are allocated as appropriate among all project participants.
- The cash flow generated by the initiative has to be sufficient to cover operating costs, service the debt and pay relative interest.
- Sponsors provide collateral to lenders of the SPV as security for the project's receipts and assets.

Answer 2:

In analytical terms, WACC is a weighted average, as the term suggests. The weights are represented by the ratio of equity over total assets (for k_e) and debt over total assets (for k_d). Adopting weights calculated by using book values is not entirely accurate from a methodological standpoint; however, given that in project finance deals the value of assets depends on cash flows generated as opposed to the asset values themselves, this is an acceptable simplification.

Answer 3:
The role of the Public Administration in the context of project finance initiatives is usually based on a concession agreement which entails two possible options. First, the private party may build the work for the use of the same Administration, which pays for the product or service provided. Second, the concession may involve the realization of a project which provides a product or service that is purchased directly by the general public.
Technically, there are several acronyms that stand for the different kinds of concessions. The most common ones are:
- BOT (build, operate and transfer);
- BOOT (build, own, operate and transfer);
- BOO (build, operate, own).

In a BOT framework, the Public Administration delegates planning and realization of the project to the private party, together with operating management of the facility for a given period of time. A BOOT framework is almost exactly the same, except for the fact that the private party owns the works and at the end of the concession term transfers ownership to the Public Administration. With BOO framework, instead, the private party owns the works but ownership is not transferred at the end of the concession agreement. In this last case the residual value of the project is exploited entirely by the private sector.

Answer 4:

	Corporate finance	**Project finance**
The borrower's assets serve as collateral on the financing.	X	
Leverage depends on cash flows generated by the project and is very high.		X
Once the deal is in place, the borrower's financial elasticity is lower than before.	X	
As far as accounting, the only effect will be (debt or equity) participation in an external company.		X
Future cash flows are the main variables used to quantify the financing		X

Answer 5:

Solution 1: on balance sheet financing				
Total cash flows 1+2	175	255	250	330
Total debt 1+2	300	300	300	300
Payoff creditors	175	255	250	300
Payoff shareholders	default	default	default	30

Solution 2: off balance sheet financing				
Total cash flows 2	100	180	100	180
Total debt 2	100	100	100	100
Payoff creditors 2	100	100	100	100

Payoff for shareholders project 1 (dividends)	0	80	0	80
Dividends from project 2 (A)	0	80	0	80
Total cash flows 1 (B)	75	75	150	150
Total cash flow (A+B)	75	155	150	230
Total debt 1	200	200	200	200
Payoff creditors	75	155	150	200
Payoff shareholders sponsors	default	default	default	30

Solution	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 4**
On-balance	default	Default	Default	+30 cash-flow
Off-balance	Project 2: ok Project 1: default	Project 2: ok Project 1: default	Project 2: ok Project 1: default	Project 2: ok Project 1: +30 cash flow

Answer 6:

Solution 1: on balance sheet financing				
Total cash flows 1+2	110	290	230	410
Total debt 1+2	300	300	300	300
Payoff creditors	110	290	230	300
Payoff shareholders	default	default	default	110

Solution 2: off balance sheet financing				
Total cash flows 2	60	60	180	180
Total debt 2	100	100	100	100
Payoff creditors 2	60	60	100	100
Payoff for shareholders project 1 (dividends)	default	default	80	80
Dividends from project 2 (A)	0	0	80	80
Total cash flows 1 (B)	50	230	50	230
Total cash flow (A+B)	50	230	130	310
Total debt 1	200	200	200	200
Payoff creditors	50	200	130	200
Payoff shareholders sponsors	default	30	default	110

TRUE; FALSE; TRUE; FALSE; FALSE.

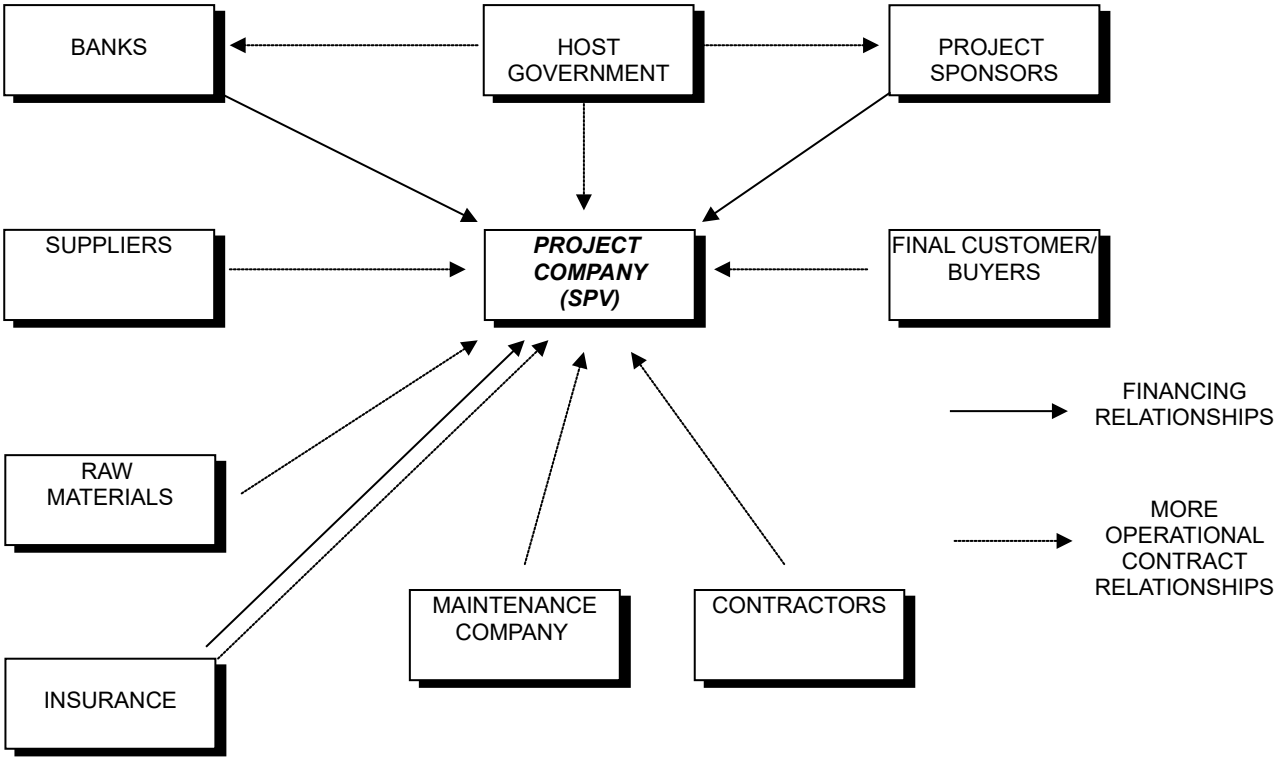
Answer 7:

Ideally, there are four types of sponsors:

- Industrial sponsors who see the initiative as a project that is upstream or downstream integrated or in some way linked to their core business
- Plant contractors or operators who are interested in participating in the initiative by conferring equity or subordinated debt
- Public sponsors (the central or local Public Administration, or municipal enterprises) with social welfare objectives
- Financial investors (infrastructure funds and Sovereign Wealth Funds)

The project rationale is different for each of the sponsors listed above.
For a more detailed analysis, see Section 1.2 and back-up slides for Chapter 1.

Answer 8:



The figure above serves simply as a generalization, since each project finance deal has its own distinctive organization, depending on the parties who participate, as well as the type of activity involved. (For example, project financing in the health field or in transportation is very different from project financing in the power or in the transportation sector.)