

## Chapter 12

### Project Finance

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#### Introduction

The purpose of this chapter is to provide an overview of Project Finance. This chapter will outline what Project Finance is, the key features which distinguish it from other methods of financing, the motivations and circumstances for utilising it and the typical structuring considerations therein. Moreover, it will be shown to be a method of infrastructure finance<sup>1</sup> which has become increasingly relevant in the wake of the Global Financial Crisis<sup>2</sup>.

#### What is Project Finance?

Project Finance can be characterised in a variety of ways and there is no universally adopted definition but as a financing technique, the author's definition is:

*“the raising of finance on a Limited Recourse basis, for the purposes of developing a large capital-intensive infrastructure project, where the borrower is a special purpose vehicle and repayment of the financing by the borrower will be dependent on the internally generated cashflows of the project”*

This definition in itself raises a number of interesting questions, including:

- What do we mean by 'Limited Recourse' financing – recourse to whom or what?
- Why is Project Finance typically used to finance large capital intensive infrastructure projects?
- Why is the borrower a special purpose vehicle (SPV) under a project financing?
- What happens if the internally generated cashflows of the project are not sufficient to repay the financiers of the project?

These points will be addressed throughout the course of this chapter.

The terms 'Project Finance' and 'Limited Recourse Finance' are typically used interchangeably and should be viewed as one in the same. Indeed, it is debatable the extent to which a financing where the Lenders have significant collateral with (or other form of contractual remedy against) the project shareholders of the borrower can be truly regarded as a project financing. The 'limited' recourse that financiers have to a project's shareholders in a true project financing is a major motivation for corporates adopting this approach to infrastructure investment.

Project financing is largely an exercise in the equitable allocation of a project's risks between the various stakeholders of the project. Indeed, the genesis of the financing technique can be traced back to this principle. Roman and Greek merchants used project financing techniques in order to share the risks inherent to maritime trading. A loan would be advanced to a shipping merchant on the agreement that such loan would be repaid only through the sale of cargo brought back by the voyage (i.e. the financing would be repaid by the 'internally generated cashflows of the project', to use modern project financing terminology).

As a more discernable financing technique, it was adopted widely during the 1970s in the development of the North Sea oilfields and also in the U.S. power market following the 1978 Public Utility

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<sup>1</sup> For simplicity, the term 'infrastructure' has been generically used to refer to any capital intensive asset or group of assets which provide essential goods or services (e.g. utilities, petrochemicals, transportation services, housing etc) and can be contractually structured to provide internally generated cashflows.

<sup>2</sup> The capitalised term 'Global Financial Crisis' has been used to refer to the global period of economic stagnation and instability in the banking markets, which started in 2008 and has continued into 2011.

Regulatory Policy Act (PURPA), which provided the regulatory impetus for independent power producers (IPP) through the requirement of long term offtake contracts for the power they produced.

Arguably the most prolific use of project financing has been the U.K. 'Private Finance Initiative' (PFI) which began in 1992 and has been actively promoted and managed by the successive British governments since then. PFI is the commoditisation of public-private partnerships (PPP) into a systematic programme. PPP is a specific form of Project Finance where a public service is funded and operated through a partnership of government and the private sector, typically structured under a long term concession arrangement. In return, the Project Company receives a defined revenue stream over the life of the concession from which the private sector investors extract returns. In the UK, the PFI framework has been used to procure a variety of essential infrastructure including street lighting, schools, military accommodation/equipment, roads, hospitals and prisons. In 1999, the UK government adopted the 'Standardisation of PFI Contracts (SoPC)' which has continued to evolve as a framework for PPP projects in the UK. SoPC effectively commoditised PPP in the UK, thereby enabling the Project Finance market (its contractors, advisors and lending community) to support a tremendously high volume of PPP contracts, some with transaction values as low as USD 40m which would otherwise be regarded as economically unviable due to the transaction costs and long lead times associated with most project financings.

### The Project Finance Market (2010)

The EMEA region (Europe, Middle East and Africa) and North America has traditionally been the focus of the global project financing market, particularly as a result of western governments' prolific utilisation of PPP as a method of funding essential national infrastructure. However, since the Global Financial Crisis, Asia Pacific transaction volumes made up nearly half of the total global Project Finance market, representing a significant shift in the balance of trade flows in the infrastructure market:

*Exhibit 1: Project Finance transactions by region*

	2010		2007	
	US\$m	%	US\$m	%
Asia Pacific	98,708.30	47.42%	44,842.30	20.38%
EMEA	83,931.20	40.32%	130,667.30	59.40%
Americas	25,534.50	12.27%	44,476.30	20.22%
<b>Global Total</b>	<b>208,173.90</b>	<b>100.00%</b>	<b>219,985.90</b>	<b>100.00%</b>

*Source: Thomson Reuters Project Finance International*

As shown in Exhibit 2, India's huge demands for domestic infrastructure development have provided more than a quarter of the total global volume of project financing in 2010:

*Exhibit 2: Project Finance transactions by country (2010)*

Country	US\$m	%
1 India	54,801.70	26.32%
2 Spain	17,376.10	8.35%
3 Australia	14,592.10	7.01%
4 United States of America	13,423.80	6.45%
5 United Kingdom	13,020.80	6.25%
6 Taiwan	12,064.40	5.80%
7 Saudi Arabia	10,000.20	4.80%
8 Switzerland	5,371.20	2.58%
9 France	5,350.70	2.57%
10 Italy	5,014.50	2.41%
<b>Top 10 Total</b>	<b>151,015.50</b>	<b>72.54%</b>
<b>Global Total</b>	<b>208,173.90</b>	<b>100.00%</b>

*Source: Thomson Reuters Project Finance International*

Exhibit 3 confirms that the Project Finance market continues to be dominated by the power and transportation projects. These sectors are highly capital intensive, form essential pieces of national

infrastructure, have long asset lives and typically have predictable revenue streams, making them ideal assets for project financing:

*Exhibit 3: Project Finance transactions by sector (2010)*

<b>Sector</b>	<b>US\$m</b>	<b>%</b>
Power	73,300.40	35.21%
Transportation	52,315.40	25.13%
Oil & Gas	25,950.80	12.47%
Leisure & Property	13,824.20	6.64%
Telecommunications	13,382.70	6.43%
Petrochemicals	11,306.40	5.43%
Mining	8,857.70	4.25%
Industry	6,306.00	3.03%
Water & Sewerage	1,577.50	0.76%
Waste & Recycling	1,266.60	0.61%
Agriculture & Forestry	86.30	0.04%
<b>Global Total</b>	<b>208,173.90</b>	<b>100.00%</b>

*Source: Thomson Reuters Project Finance International*

The volume, geographic spread and cross-sector penetration of project financing in 2010 was impressive and confirms that the infrastructure market remains resilient, although there have been notable implications for the product as a result of the Global Financial Crisis which are revisited later in this chapter.

### **Similarities to other forms of financing**

The extent to which Project Finance should be regarded as a distinct wholesale banking product, or as a financing technique which incorporates a number of disciplines, is debatable. As a method of debt finance, project financing shares a number of the techniques and approaches found in other areas of wholesale banking:

*Table 1: Comparison of Project Finance versus other wholesale financing techniques*

<b>Form of financing</b>	<b>Parallels/commonalities</b>	<b>Key differences</b>
Corporate Lending	<ul style="list-style-type: none"> <li>• Dependent on available cash flows to service debt</li> <li>• Term loan structures used</li> </ul>	<ul style="list-style-type: none"> <li>• Under an (unsecured) corporate loan, the lenders have recourse to all the assets of the company itself (regardless of whether the proceeds of the loan are used to finance a specific asset or not) or in the case of a secured loan, a specific asset of the company</li> <li>• In Project Finance, the borrower (the Project Company) is an SPV and the principle Lender security is are the future cashflows of the project itself – it is ‘cashflow lending’</li> </ul>
Securitisation (Asset Backed Securities)	<ul style="list-style-type: none"> <li>• The borrower is an SPV</li> <li>• A form of ‘off balance sheet’ financing for the originator</li> <li>• The SPV issues bonds to fund</li> </ul>	<ul style="list-style-type: none"> <li>• A securitisation can only occur for cash generative assets (e.g. a loan portfolio which is generating interest payments). Project</li> </ul>

		<p><sup>3</sup> projects</p> <ul style="list-style-type: none"> <li>• In a securitisation, there are typically a large volume of assets being financed via a single SPV (e.g. a portfolio of mortgages). The pool of assets may therefore be of a variable credit quality and hence the financing instruments (bonds) are usually tranced accordingly. In a project financing, a single (or very small number) of assets are funded via a single borrower, presenting a uniform credit profile for all Lenders</li> </ul>
Leveraged Buy-Out (LBO)	<ul style="list-style-type: none"> <li>• Highly leveraged transactions</li> </ul>	<ul style="list-style-type: none"> <li>• In a project financing, the shareholders to the transaction are not contractually at risk if the project vehicle (borrower) defaults on its loans</li> </ul>
Venture Capital	<ul style="list-style-type: none"> <li>• Discrete number of equity investors</li> <li>• High focus on equity return of an investment</li> </ul>	<ul style="list-style-type: none"> <li>• Venture Capital investments are speculative assessments of a company's potential to generate returns. A project financing is predicated on robust, long term and highly predictable financial modelling of forecast cash flows</li> </ul>

Source: Author's own

### Transactional stakeholders

The sophisticated contracting arrangements of a project financing are underpinned by a detailed allocation of risks between a number of 'project stakeholders'.

Table 2 provides a generic overview of the principle parties which typically feature in most project financings. An example of the typical contractual relationship between these parties is shown in Exhibit 4 below:

Table 2: Typical stakeholders of a Project Finance transaction

Stakeholder	Summary of role in a project financing
Sponsors	<ul style="list-style-type: none"> <li>• The equity investor(s) and owner(s) of the Project Company – can be a single party, or more frequently, a consortium of Sponsors</li> <li>• Subsidiaries of the Sponsors may also act as sub-contractors, feedstock providers, or offtaker to the Project Company</li> <li>• In PPP projects, the Government/Procurement may also retain an ownership stake in the project and therefore also be a Sponsor</li> </ul>

<sup>3</sup> A new project, where one did not exist before and therefore no significant capital works are required on the project site or any existing assets located on the site. A Brownfield project will typically include the demolition or rehabilitation of existing assets on the project site.

Procurer	<ul style="list-style-type: none"> <li>• Only relevant for PPP - the Procurer will be the municipality, council or department of state responsible for tendering the project to the private sector, running the tender competition, evaluating the proposals and selecting the preferred Sponsor consortium to implement the project</li> </ul>
Government	<ul style="list-style-type: none"> <li>• The government may contractually provide a number of undertakings to the Project Company, Sponsors, or Lenders which may include credit support in respect of the Procurer's payment obligations (real or contingent) under a concession agreement</li> </ul>
Contractors	<ul style="list-style-type: none"> <li>• The substantive performance obligations of the Project Company to construct and operate the project will usually be done through engineering procurement and construction (EPC) and operations and maintenance (O&amp;M) contracts respectively</li> </ul>
Feedstock provider(s) and/or Offtaker	<ul style="list-style-type: none"> <li>• More typically found in utility, industrial, oil &amp; gas and petrochemical projects</li> <li>• One or more parties will be contractually obligated to provide feedstock (raw materials or fuel) to the project in return for payment</li> <li>• One or more parties will be contractually obligated to 'offtake' (purchase) some or all of the product or service produced by the project</li> <li>• Feedstock/Offtake contracts are typically a key area of lender due diligence given their criticality to the overall economics of the project (i.e. the input and output prices of the goods or services being provided)</li> </ul>
Lenders	<ul style="list-style-type: none"> <li>• Typically including one or more commercial banks and/or multilateral agencies and/or export credit agencies and/or bond holders</li> </ul>

Source: Author's own

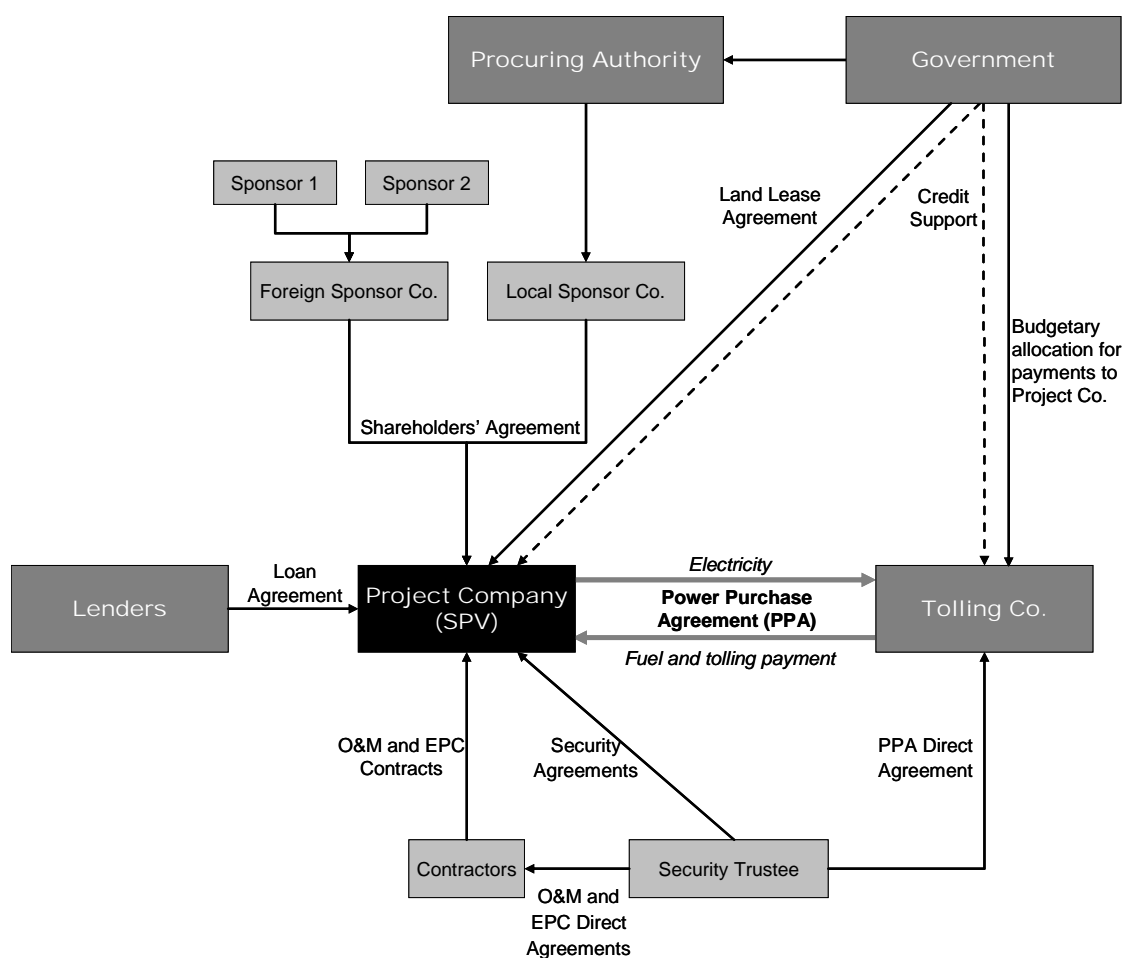
In addition to the core project stakeholders listed above, there are typically a host of other advisors, experts and professionals whom are either directly or indirectly involved in a project financing, including:

- Due diligence advisors to the Lenders which at a minimum will include technical and legal advisors but potentially also financial, insurance, auditing, tax, accounting, market and environmental advisors (depending on the specifics of the project);
- Advisors to the Sponsors - typically financial, legal and technical advisors at a minimum; and
- Under a PPP framework, advisors to the procuring authority/government – again, typically financial, legal and technical advisors.

### **Schematic contractual structure for a project financing**

Exhibit 4 illustrates a generic contractual structure for a power project PPP in an emerging market, where the head contract is structured as a 'tolling' agreement - the Project Company (the IPP) is provided the primary energy (e.g. gas, oil, coal etc) for free and the IPP paid to convert it to electricity. The Government is both a shareholder and provider of credit support to the 'Tolling Co.':

Exhibit 4: Example PPP contractual structure



Source: Author's own

### Ownership arrangements

The terms and conditions of the Sponsors' ownership of the Project Company will be covered under a Shareholders' Agreement and will codify matters relating to the control, corporate governance, funding, ownership, share transfer and termination of the SPV.

### Input and sales arrangements

Critical to the assessment of the creditworthiness of a project will be the input (e.g. feedstock or raw materials or fuel) and sales (purchase of goods or services either into a market or under a contract) arrangements of the Project Company. Lenders will ideally wish to have the security of long term, contracted input and sales agreements containing clear pricing mechanics<sup>4</sup>. Key considerations will include:

- The tenor of the contracts – noting that if the input/sales contracts have a shorter tenor than the proposed financing, there is a renewal risk for lenders
- The extent to which sales arrangements are subject to demand risk or if the offtaker of the goods/services will be insulating the Project Company from this risk under a form of 'Take or Pay' or 'Availability' contract – where the Project Company earns revenues merely for making the goods or services available, irrespective of demand<sup>5</sup>

<sup>4</sup> The extent to which long term sales agreements can be structured is industry dependent and projects can be structured with the Project Company retaining demand risk.

<sup>5</sup> Demand risk is a function of both price and quantity, each of which can be independently addressed. For example, a third party (offtaker) may accept quantity risk but only provide limited mitigation to price risk through cap/collar mechanisms.

In the contractual structure example shown at Exhibit 4, a classic tolling arrangement with a government supported feedstock provider/offtaker insulates the Project Company and its lenders from many of the risks associated with input and sales.

### **Stakeholder motivations for project financing**

Project financing is predicated on the equitable allocation of risks between a project's stakeholders through various contractual relationships between the parties. A well structured project provides a number of compelling reasons for stakeholders to undertake project financing as a method of infrastructure investment:

#### ***Sponsors***

In a project financing, because the Project Company is an SPV, the liabilities and obligations associated with the project are one step removed from the Sponsors. This provides a number of structural advantages to the Sponsors, including:

- **Limited Recourse**: A default under a corporate loan may enable the lender 'recourse' to (i.e. seek remedy against) the assets of the company. In a project financing, a Lender's only recourse is to the assets of the Project Company. This is an important consideration given the magnitude of the financing for many infrastructure investments may be far greater than the corporate balance sheets of the Sponsors. Notwithstanding the above, it would be inaccurate to surmise that project financing is always non-recourse to the shareholders, as commonly other forms of support in the form of contingent equity and partial or full completion guarantees may be provided directly by the Sponsors to the Project Company.
- **High leverage**: A project financing is typically a highly leveraged transaction – it is rare to see a Project Company financed with less than a 60/40 debt/equity ratio and in certain sectors such as social infrastructure, it is not uncommon for projects to be 90% debt financed. The key advantages to Sponsors of this high leverage, include:
  - Lower initial equity injection requirements, thereby making the project investment a less risky proposition;
  - Enhanced shareholder equity returns; and
  - Debt finance interest may be deductible from profit before tax (PBT), thereby further reducing the (post tax) weighted average cost of capital of the Project Company.

The advantages noted above will all help to lower the cost of a project and therefore are desirable from both Sponsor and Procurer perspectives. However lender covenants will invariably limit the extent to which Sponsors can 'lever' the Project Company. Moreover, it is not uncommon in PPP programs for the host government to restrict the maximum permissible gearing for a Project Company in order to promote meaningful levels of foreign direct investment through equity shareholdings.

- **Balance sheet treatment**: In a traditional corporate lending structure, the capacity of a corporation to raise debt financing is constrained by the strength of its balance sheet, commonly assessed by prospective lenders through various financial performance ratios such as Net Debt/EBITDA. Project financing allows the shareholders to book debt off balance sheet, although the extent to which this is achievable will generally be determined on the basis of the extent to which the Sponsor is determined to control the asset, with reference to the specific shareholding structure of a project and the contractual terms of any concession agreement.

Project financing also provides a vehicle for companies to hedge risks of their core businesses. Take the example of a power utility domiciled in a developed western nation with a domestic merchant<sup>6</sup> power market supporting most of its generating assets, the attractions of investing in an emerging market project financed IPP would include:

- (a) Expanding the geographic footprint of its asset base, thereby diversifying the macro-economic/political portfolio risk; and

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<sup>6</sup> A power utility market where the system generators sell electricity into a wholesale electricity market at prices determined by the market. The generator's revenue streams are therefore exposed to market pricing risk.

- (b) Diversification of the risk profile of its revenue stream through, for example, securing a source of long term contracted revenues under a PPP framework to balance the market risk inherent to its domestic merchant portfolio.

**Procuring Authority / Government**

Considerable advantages are presented to governments through adopting PPP frameworks as a method of infrastructure procurement:

- **Fiscal optimisation:** Traditional methods of infrastructure procurement require the government finance construction. PPP transfers the financing responsibility to the private sector, thereby allowing the government to amortise the cost of the asset over the term of the concession. The amortisation period will depend on the tenor of the financing achievable for the asset but 20 year commercial facilities are not uncommon in certain sectors
- **Process efficiency:** PPP has been shown as a way of eliminating inefficiencies from governmental infrastructure procurement, through tighter contracting and increased rigour of execution
- **Performance risk:** Under a PPP relationship, the risks of constructing and operating the asset are passed to the private sector through the head and sub contracts and the private sectors Sponsors are heavily incentivised financially to ensure full asset performance

**Lenders**

As with any form of financing, lenders to a project financing extract a return commensurate with the level of risk. In itself this is a motivation for any form of lending. Lenders to a project financing also typically extract additional returns through the provision of the associated products and services required by the Project Company (e.g. project accounts, trustee roles, hedging and advisory services).

Moreover, ‘behaviouralisation’ studies of project finance loans confirm that as a class of asset, they are generally robust. A Moody’s survey of 2,639 projects from 1983-2008 showed that 213 of the projects had a senior loan default, of which the average ultimate recovery rate was 76.4%<sup>7</sup>

**Project process sequence**

As noted above, the bulk of project financing transaction volume is related to the procurement of essential public infrastructure and therefore typically procured through a PPP programme.

In a PPP programme, the respective arm of government which is procuring the project on behalf of the government (which could be a state owned entity, such as a public utility) will typically be legally required to initiate a formal tender process for private sector involvement in the proposed project. A company or consortium of companies will be invited to bid for the right to implement the project as the private sector Sponsor (shareholder) in the Project Company. Table 2 outlines an example of the steps which could be expected in a PPP bidding process:

Table 3: Example outline of a PPP tender process

Step / Documentation	Description
Issuance of Request for Expressions of Interest (RFEOI)	<ul style="list-style-type: none"> <li>• An open sampling of the universe of potential companies who are in principle interested to tender for the project</li> </ul>
Issuance of Request for Qualification (RFQ)	<ul style="list-style-type: none"> <li>• A first stage tender document released to all companies which have expressed interest to tender for the project. Respondents are typically assessed on their basic financial and technical abilities to implement the project</li> </ul>

<sup>7</sup> Source: Thomson Reuters Project Finance International

Issuance of Request for Proposals (RFP)	<ul style="list-style-type: none"> <li>• A second stage tender document released to all companies or consortia of companies that were deemed 'qualified' under the terms of the RFQ</li> <li>• RFPs are characteristically highly detailed and prescriptive documents which outline the full financial, legal and technical bid documents required to be provided by the bidders and the terms/conditions of the tender competition</li> </ul>
Bid submission	<ul style="list-style-type: none"> <li>• Each bidder submits its tender documents to the procuring authority on a specified date</li> <li>• Typically tender prices (the cost of implementing the project – e.g. the NPV of total required revenues over the life of the concession) from each bidder are 'fixed' at this stage, subject to any agreed price re-opening mechanisms under the terms of the RFP</li> </ul>
Bid evaluation	<ul style="list-style-type: none"> <li>• The procurer and its advisors will undertake a detailed financial, technical and legal evaluation of each bidder's compliance with the tender evaluation criteria specified in the RFP</li> </ul>
Winning bidder selection, final commercial negotiations and 'Commercial Close' of project agreements	<ul style="list-style-type: none"> <li>• Assuming compliance with the terms of the RFP, procurers will usually specify price as being the final determinant of the tender competition – lowest (compliant) bidder wins</li> <li>• Commercial Close represents the finalisation and signature of the 'head contract' (the concession contract) and the supporting project documentation such as shareholder's agreements and sub-contracts</li> </ul>
Negotiation of financing documents, signature of financing agreements and Financial Close	<ul style="list-style-type: none"> <li>• Negotiation of financing agreements (loan agreements and direct agreements) can happen in parallel to the negotiation of the financing agreements, thereby allowing simultaneous Commercial/Financial Close</li> <li>• Financial Close has been achieved when all 'Conditions Precedent' to the financing documentation have been satisfied and the Project Company is therefore able to draw down debt to fund construction of the asset</li> </ul>

Source: Author's own

Formal tender processes such as this are viewed positively within the project financing market, as a way of:

- procuring essential public infrastructure in a robust and transparent manner, thereby maximising the potential pool of investors and Lenders;
- utilising the expertise of the private sector in structuring, financing and documenting complex infrastructure projects, thereby ensuring the project is delivered within the specified cost and time envelopes; and
- standardising the procurement of 'cold infrastructure' (i.e. asset classes such as utilities, transportation and social infrastructure) which inevitably need to be procured on a repeated basis in order to meet growing demand linked as a result of population growth.

PPP programmes similarly enable governments to demonstrate that the public funds which are used to amortise the cost of these assets over their concession life are being used efficiently and transparently.

### Pre-requisites to Project Finance

There are clear advantages to using Project Finance as a tool for financing large infrastructure projects. Nevertheless, there are a number of practical pre-conditions to financing a project on a Limited Recourse basis:

1. **Sustainable economics:** Whilst comfort can be gained from (a) undertaking detailed financial due diligence and modelling to stress-test the projected cashflows of the asset and (b) contractually mitigating revenue risk, experienced investors and bankers will ultimately look for a clearly identifiable demand for the project's goods or services in order to 'rationalise the credit'

2. **Identifiable risks:** An unidentified and unmitigated risk could potentially jeopardise the stability of a project. Tables 4 and 5 provide examples of common risks and mitigation strategies for project financing
3. **Accessible financing:** From both Sponsor and (if applicable) Procurer perspectives, high leverage and long-tenor financing is a de facto requirement to achieving attractive economics for large infrastructure financings
4. **Political stability:** Even if political ‘force majeure’ risk is contractually born by the government (as is common practise in many PPP programs), the efficacy of that remedy to Lenders/investors would be negated by a strategic sovereign default – expropriation/nationalisation of assets being one potential example. Whilst such risks cannot be mitigated against in the insurance markets, varying degrees of political risk insurance can be obtained through the use of financing products available from multilateral and export credit agencies

If the pre-conditions above are satisfied, there is good chance that a project financing for an infrastructure asset is achievable.

Nevertheless, the complex legal, technical and financial structures inherent to a Limited Recourse financing generally necessitate higher upfront transactional costs than traditional corporate lending (through advisors fees and higher debt pricing) as well as a longer execution timetable. However:

- additional transactional costs are usually capitalised into the overall project budget to be financed and will therefore represent a minor percentage of total Project Costs for a large infrastructure endeavour. Moreover, Project Finance debt facilities are typically structured with long repayment tenors (to better match the economic life of the underlying asset) and hence all capitalised costs are amortised over a long period of time; and
- although the execution timeline for a greenfield project financing can be anything from 12-18 months (from inception to financial close), this is principally a function of the sophisticated risk allocation and lender due diligence processes of Limited Recourse finance – processes which, it can be argued, provide a critical governance mechanism to the Sponsors/Procurer.

### Project risks and mitigants

Project risks are usually bifurcated between the construction and operational periods of the project. Lenders are most ‘at risk’ during the construction period (and this is typically the period when most defaults occur). Hence, particular due diligence will be undertaken on the strength and contingent support associated with the construction contract.

*Table 4: Construction phase risks and mitigants*

<b>Risk</b>	<b>Typical mitigants</b>
Completion delay	<ul style="list-style-type: none"> <li>• Experienced, credit worthy construction contractor</li> <li>• Financial penalties (liquidated damages) payable from the contractor to the Project Company to cover loss of revenues due to completion delay</li> </ul>
Failure of completion for ancillary infrastructure	<ul style="list-style-type: none"> <li>• The risk that ancillary infrastructure which is required to operate the project is not completed on time, is usually born by the government under a PPP framework (e.g. utilities, feedstock supply etc)</li> </ul>
Cost overrun	<ul style="list-style-type: none"> <li>• A Lenders’ technical consultant will confirm the adequacy of the project budget</li> <li>• Standby debt and equity available from Lenders/Sponsors</li> </ul>
Force Majeure	<ul style="list-style-type: none"> <li>• Usually extensions of time and relief from liability</li> <li>• Project Company will also seek financial protection from insurers</li> </ul>
Sponsor credit risk	<ul style="list-style-type: none"> <li>• Lenders will assess the Sponsors credit worthiness and potentially require letters of credit sufficient to cover Sponsor equity commitments</li> </ul>

*Source: Author’s own*

Table 5: Operations phase risks and mitigants

Risk	Typical mitigants
Feedstock supply	<ul style="list-style-type: none"> <li>• (If applicable), usually mitigated through a robust, long term feedstock agreement with a credit worthy counterparty</li> </ul>
Sales	<ul style="list-style-type: none"> <li>• Contracted sales through an offtake agreement which clearly specifies agreed volumes/capacity/pricing</li> <li>• Non-contracted sales where market risk is a factor are supported by an independent market study and appropriate financial structuring to ensure sufficient downside protection</li> </ul>
Operations and maintenance	<ul style="list-style-type: none"> <li>• Experienced operator with a strong track record of operating assets of a similar nature and size. Contract to include liquidated damages in case of poor performance</li> <li>• Long term maintenance agreements, typically with the original equipment manufacturers</li> </ul>
Political (e.g. war, regulatory, permitting)	<ul style="list-style-type: none"> <li>• Procurer risk in most PPP frameworks, with financial relief availed to the Project Company</li> <li>• Contractual relief agreed between JV shareholders in non PPP transaction</li> </ul>
Cashflow	<ul style="list-style-type: none"> <li>• Robust project model with significant granularity at both the operational and financing levels</li> <li>• Cashflows stress tested under a number of downside scenarios (e.g. reduced demand, increased input/output pricing, macro-economic shock)</li> <li>• Model audited on behalf of lenders by an independent auditor</li> <li>• Additional project cashflow protection through lender cash reserve accounts</li> </ul>
Currency & Inflation	<ul style="list-style-type: none"> <li>• Currency risk either born by the government (if a PPP framework) or through matching the currency of revenues and debt financing</li> <li>• Inflation risk can either be contractually passed on through sales or mitigated through creating sufficient headroom in the project economics</li> </ul>
Interest rates	<ul style="list-style-type: none"> <li>• Interest rate risk typically largely hedged as a lender requirement</li> </ul>

Source: Author's own

## Financing considerations

### Sources of debt finance

There are a variety of debt finance products which can be applied in a project financing but the specific mix of products available to a project will depend on the sector, jurisdiction, project size, Sponsor profile, transaction risk profile and source of capital equipment. Because of the inherent benefits of leverage and tenor to a project's economics, Sponsors will invariably be drawn to the most liquid and long-term instruments available for a given project.

The principle sources of debt finance for a Limited Recourse, Greenfield project are:

- **Commercial bank loans:** Although traditionally structured as syndicated loans with large initial underwrites, Sponsors now look to build clubs of banks for projects following the collapse of the syndicated loans market during the Global Financial Crisis. Commercial funding for projects can be sourced both from international and local banks.
- **Export credit agencies (ECAs):** ECA finance was historically more relevant for financing projects in emerging markets due to the political risk cover obtained by commercial lenders utilising ECA cover. This picture has changed somewhat in the wake of the Global Financial Crisis (see below) and ECA finance is now a major source of global project lending. The majority of ECA financing is covered lending, where commercial banks provide the

- **Multilateral agencies:** Multilateral agencies are established by intergovernmental agreements and unlike ECAs are independent of the interests of any single country member or recipient government – they are designed to promote international and regional economic co-operation. They can provide direct lending, political insurance to other lenders and even equity participation. Because they are developmental in nature, they are predominantly emerging markets focused and will seek a strong socio-economic developmental rationale for a project to consider support.

Additionally, bond financing has been used widely in project financing, particularly in the United States for the financing of power projects. However, the majority of project bonds for Greenfield financings have required significant Sponsor support undertakings (e.g. full completion guarantees) and hence it is debatable the extent to which these represent true Limited Recourse financings. Nonetheless, the bond market is an attractive option for project financing due to the availability of long tenor, fixed rate funding and there have been notable issuances recently in the market. Moreover, bonds present an attractive alternative source of liquidity for refinancing existing project finance loans.

### ***Equity***

Equity can be contributed by Sponsors using a variety of structures:

- Ordinary share capital; and/or
- Shareholder loans, which can provide two advantages, being (1) a tax shield through tax deductible shareholder loan interest and (2) an optimised returns distribution profile, where shareholder loan repayments of interest and principle are not restricted by balance sheet retained earnings; and/or
- A bank-funded equity bridge loan (which will be guaranteed by the Sponsors and typically repaid at project completion), the use of which optimises shareholders' return profiles through delaying the timing of equity contributions to the project

### ***Documentation and security***

Projects are commonly funded using multi-sourced debt financing structures. A number of individual facility agreements will therefore sit under a Common Terms Agreement, acting as an umbrella inter-creditor agreement for all lenders and outlining the common terms therein. A core element of this will be the exhaustive list of events of default and would typically include triggers such as failure to pay and breaches of representations and warranties made by the Project Company.

The security provided for under the financing documentation is a key issue as Lenders' only collateral is the project's assets (both tangible and intangible). Taking security allows the Lenders to take control of the project if necessary. A typical security package will therefore have a suite of Direct Agreements which allow Lenders to 'step-in' to the project agreements (see Exhibit 4). Without these, security over the project's assets themselves is of little value. Additional forms of security may include pledge of the Project Company shares, mortgage over the project site and its assets and a charge over the Project Company's bank accounts and project insurances.

### **Project Finance post the financial crisis**

A number of interesting trends and developments have occurred in the project financing market in the wake of the Global Financial Crisis. Notably, continuing pressure on bank liquidity has resulted in a smaller universe of banks with the appetite and balance sheet capacity to fund large infrastructure projects. The knock-on effect has been the de-facto suspension of the project finance primary syndication market, with banks less willing to take large underwriting positions.

Furthermore, for those banks that remain in the market, tightened regulatory requirements for the management of bank capital have been specified under the Basel III accords. Banks now have to assign a higher percentage of their liquidity to back long tenor commercial debt financing and this has placed

upward pressure on project finance 'pure commercial' debt financing. However, a far lower risk weighting (and hence, capital requirement) is apportioned to ECA backed finance.

These trends have created a significantly increased requirement for both ECA covered and ECA direct financing in the infrastructure market. ECAs have been under increased pressure to support their exporters and developers in their overseas businesses. Large international companies have been aggressively hunting for returns overseas, particularly to hedge against sluggish domestic markets with suppressed growth.

Infrastructure investment has proven an attractive safe haven. The emerging market economies have shown the strongest growth in the wake of the crisis and continue to require significant infrastructure development, particularly for basic 'cold infrastructure' such as utilities and transportation. Due to the funding pressures facing the commercial banks, ECA direct financing has therefore become an important feature of emerging markets Greenfield infrastructure finance, particularly for large PPP projects, where contractors are recognising the competitive advantage of strong ECA support.

Finally, the considerable increase in debt pricing witnessed during the Global Financial Crisis will create a number of refinancing opportunities for assets funded during this period as normality and stability returns to the markets. Nevertheless, Sponsors and Procurers alike are motivated not to deflect constrained commercial bank liquidity away from Greenfield project financings (where commercial banks are most suited) and instead to tap additional pools of liquidity for refinancing, such as project bonds. This may prove to be an attractive new class of asset for investors craving both yield and portfolio diversification.

### ***Summary***

The confluence of the factors above has created greater impetus for private and public sector parties to leverage the benefits afforded by Project Finance. Governments globally have recognised the importance of infrastructure development as both a pre-requisite for the provision of basic services and a catalyst for growth. Lenders looking for diversified earnings, particularly in the emerging markets, recognise this as a significant opportunity. Moreover, infrastructure projects provide an attractive investment opportunity for corporates looking for overseas returns, particularly when financed on a Limited Recourse basis.

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