

**Public Private Partnerships – the dawn of a new era for project financing?**

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## 1. OVERVIEW

### 1.1 What are PPPs?

The topic of Public-Private Partnerships (PPPs) has attracted considerable comment and attention in recent public policy debate in Australia. So what are PPPs? In essence, this is just a fancy new label to describe a broad spectrum of options through which the private sector contributes to the provision of public infrastructure.

PPPs bring together the public and private sectors into a long-term partnership for the delivery of infrastructure projects where there are clear mutual benefits from doing so. The objective of a PPP is to utilise private sector experience to provide a value for money solution which meets the Government's objectives through providing clear benefits to the public good and satisfying the political accountability for taxpayers funds.

PPPs recognise that both the public sector and the private sector have certain advantages relative to the other in the performance of specific tasks. By allowing each sector to do what it does best, public services and infrastructure can be provided in the most economically efficient manner.

There are many potential benefits that flow from the involvement of the private sector in infrastructure project delivery:

- \_\_\_ design and construction cost savings;
- \_\_\_ early project completion;
- \_\_\_ operating and maintenance cost savings;
- \_\_\_ transfer of significant risks to the private sector where appropriate;
- \_\_\_ financial innovation and discipline in raising funds and developing cost-effective solutions;
- \_\_\_ increased budgetary capacity and flexibility for governments;
- \_\_\_ improved service coverage and quality;
- \_\_\_ injections of capital without increasing the public sector borrowing requirement;
- \_\_\_ improved efficiency, by removing responsibility for operations from the constraints of public sector procedures, practices and employment conditions; and
- \_\_\_ a re-alignment of government functions from asset management to activities it is best placed to perform, such as policy development, regulation and the delivery of core public services.

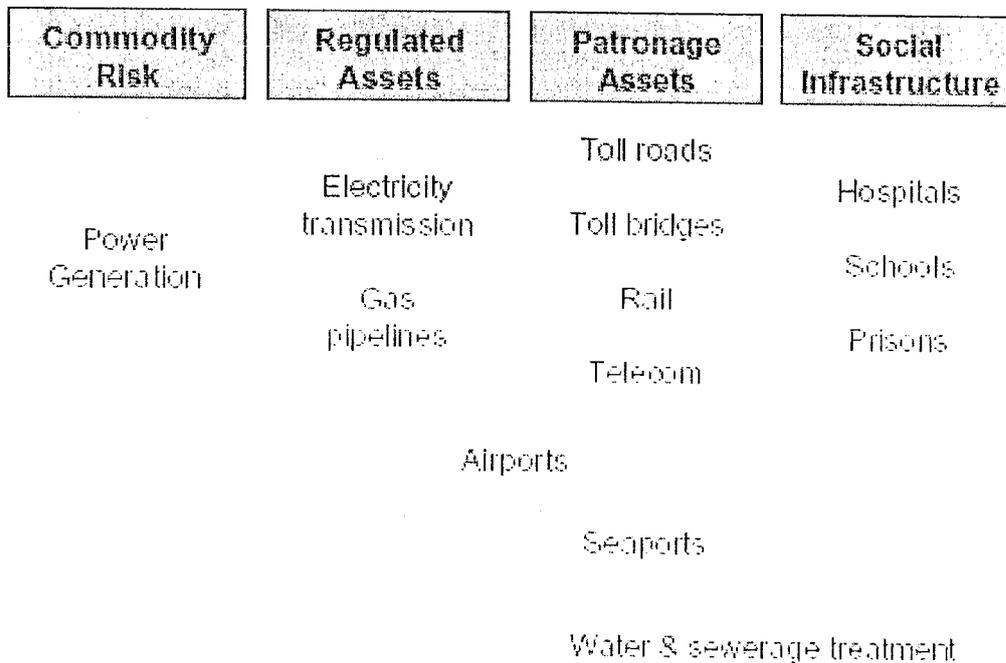
PPP arrangements vary from full private ownership (with government approval and regulatory oversight) to public projects in which the private sector partner serves as a contributor to the government-sponsored project. In addition to the more traditional economic, technical and financial appraisal requirements of project financing, infrastructure projects usually necessitate a much more thorough analysis of the regulatory, institutional and legal arrangements under which the project developers and promoters will operate.

Usually only those projects with sustainable cash flows compete for the attention of private investors. PPP's are a supplement to public financing of less self-supporting projects. Allowing the public sector to focus its resources on developing otherwise unfinanceable projects assists in filling the 'infrastructure gap' between what governments can afford and what the public needs.

## 1.2 Catalysts for private sector investment in infrastructure

Infrastructure assets are the 'backbone' to the economy and a key requirement for strong, industrial, economic and social development within any nation. Infrastructure in general is a very broad asset class with a multitude of differing sub-asset classes as shown in the following figure.

Figure 1.1 Types of Infrastructure Assets



All of these different types of infrastructure assets offer opportunities for private sector investment, depending on circumstances.

There are a variety of factors which have contributed to the growing trend towards private sector involvement in the delivery of public infrastructure, as follows:

- Limited government resources
  - ... Governments face the same basic economic problem as individuals, companies and other economic entities - wants and/or needs tend to be unlimited, whilst resources are limited. Over the last 10-15 years, increased community pressure for additional resources to be dedicated to core public services such as education, health, social welfare and aged care has placed enormous pressure on government budgets, such that the provision of necessary infrastructure has suffered.
- Growing need for new infrastructure
  - ... New infrastructure is necessary to support economic development and accommodate Population growth, especially in regions such as South East Queensland and other parts of the State which are experiencing rapid population growth, and are expected to continue to do so for the foreseeable future at least.

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 — Ageing assets need replacement

- Governments throughout Australia and around the world generally have not devoted sufficient resources or priority to the maintenance and/or replacement of existing assets. As a result, there is a growing backlog of maintenance work, and pressure to utilise ageing assets for longer time periods, even though deterioration in asset quality from lack of adequate maintenance may in fact reduce their useful lives.

## — History of public sector overruns

- There is a long history of overruns in both capital and operating/maintenance costs for public infrastructure where traditional public sector procurement methods are used. Such overruns place additional pressure on government or taxpayer resources, and significantly erode or undermine the achievement of value for money in public expenditure.

## — Better risk management

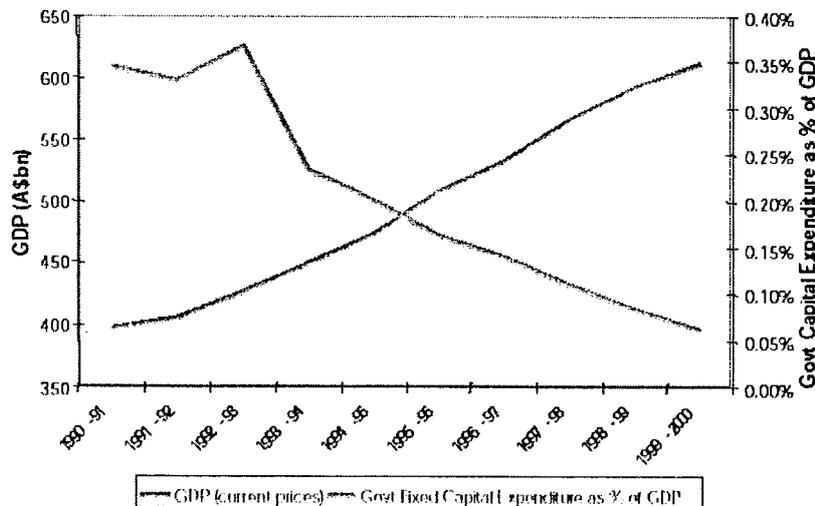
- Microeconomic reforms over the last 20 years have contributed to a more rigorous analysis and understanding of the numerous risks inherent in infrastructure delivery, and hence a search for better, more effective ways of managing those risks.

## — Emphasis on service delivery rather than asset acquisition

- As part of microeconomic reforms directed towards improvements in the productivity of the public sector, there has emerged a growing awareness that governments do not necessarily have to own assets in order to deliver core public services (although this remains an area of significant debate with divergent views based on social and philosophical considerations as well as economic factors).

As an illustration of some of the above points, Figure 1.2 below highlights the decline in public spending as a proportion of GDP over the past 10 years. Over this period, public capital expenditure on infrastructure in Australia has fallen from 0.35% to just 0.05% of GDP.

**Figure 1.2 Public Sector Investment in Infrastructure (% of GDP)**



Source: ABS 5206.0

This has significantly affected the quality of infrastructure within Australia as was highlighted by the Institute of Engineers in their 1999 report on the nation's infrastructure. It was found in that report that Australian infrastructure is subject to severe degradation in many sectors. Over the past decade, Australian Federal and State governments have been faced with this escalating problem of providing new and renewed infrastructure to a diverse and growing population, with limited financial resources. Consequently, alternative procurement models involving the private sector have emerged to address these problems.

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As the UK Treasury Taskforce stated: PPP's are not just about borrowing funds from the private sector, "it is about creating a structure in which improved value-for-money is achieved through private sector innovation and management skills delivering significant performance improvement and efficiency savings."

## 2.2 The Public Sector Comparator (PSC)

To assess value for money, private sector procurement options need to be evaluated against a benchmark which reflects the full cost to government to deliver the project itself. This benchmark is commonly referred to as the Public Sector Comparator (PSC) (or the "Benchmark Cost Comparison" in the case of the New South Wales Government).

The PSC is effectively the estimated risk-adjusted whole-of-life cost to government of delivering a particular infrastructure project. It enables a proper "like with like" comparison with private sector bids, and is largely a quantitative tool in the evaluation of value for money. However, there are a range of qualitative factors that also need to be taken into account, including:

- Non-quantifiable risks; and
- Proposed service levels, quality, capability and sustainability.

The PSC is expressed as a net present cost to government of providing the output under a public procurement, using discounted cash flow analysis. This enables comparison with private sector bids and makes allowances for the imputed cost to government of obtaining capital for a public procurement. In Partnerships Victoria, considerable attention is given to the construction of the PSC, with one of the three separate guidance documents being a technical note on the PSC.

In the Partnerships Victoria guidance material, the PSC comprises four components, as follows:

- Raw PSC
  - The base cost of delivering the services specified in the Project Brief.
- Competitive Neutrality
  - The removal of net advantages or disadvantages that accrue to a government business by virtue of its public ownership.
- Transferable risk
  - Value of risks allocated to government under a public procurement that are allocated to the private sector using a present value approach.
- Retained risk
  - Value of the risks retained by government under a present value approach is added to each private sector bid, to provide a true basis for comparison. This does not include risks associated with core services, as they fall outside the scope of the contract.

To enable a proper comparison of "like with like", private sector bids are adjusted to incorporate the retained risk plus the net present cost of service payments. Figure 2.2 shows the various components of the PSC and a comparison with illustrative private sector bids.

**Cost Over-runs**

The risk of cost over-runs is transferred from the public sector to the private sector. With traditional procurement methods, the public sector can typically incur cost over-runs ranging from 20-40% or even higher in some instances.

**Delivery Efficiencies**

The Arthur Andersen study in the UK indicated that the private sector could achieve delivery efficiencies (or savings) averaging 17% compared with the public sector. The savings arise from:

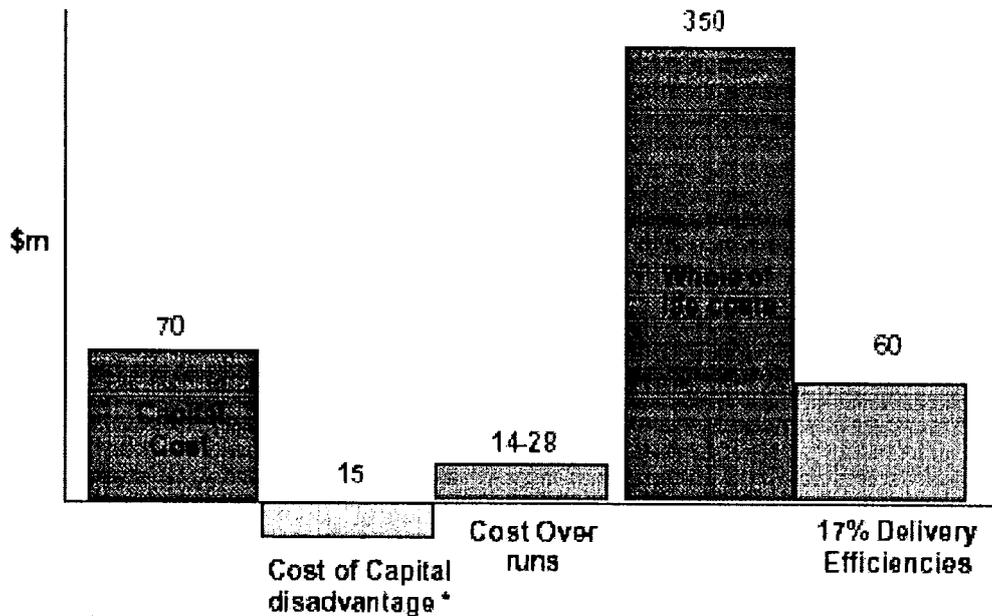
- Innovative construction, design and maintenance over the life of the contract;
- Greater efficiencies between design and operation; and
- Improvement in the quality of the asset through improved long-term maintenance regimes and cost structures.

The following diagram illustrates the cost advantages which can be derived from private sector funding of a 'soft' infrastructure asset. It illustrates cost variations for a hypothetical example of an asset with a \$70 million construction cost and a total cost (construction, operations and facilities management over the course of the concession period) of \$350 million.

Assuming a margin of around 1-3% over the government's cost of funds, the private sector faces a cost of capital disadvantage. However, the private sector can still produce a better value for money outcome for government by:

- Assuming capital cost over-run risk (which in some cases can represent 20-40% of capital costs for government projects); and
- Achieving delivery efficiencies of around 17% of whole-of-life asset costs.

**Figure 2.1 Value for Money Example**



\* Based on a debt repayment tenor of 15 years.

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- Non-quantifiable risks; and
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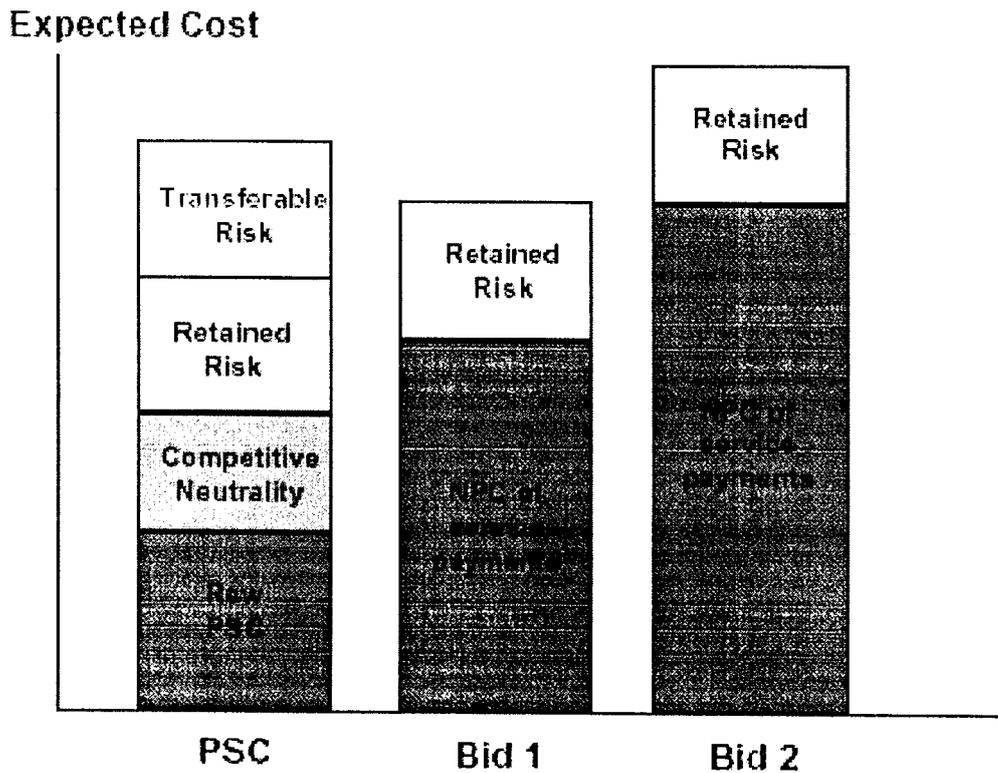
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To enable a proper comparison of "like with like", private sector bids are adjusted to incorporate the retained risk plus the net present cost of service payments. Figure 2.2 shows the various components of the PSC and a comparison with illustrative private sector bids.

Figure 2.2: Composition of PSC



Determination of the PSC is a complex task and there are certain concerns relating to its application, including the risk valuation methodology, the potential scope for error in calculating the PSC and the status of the PSC for project which a government cannot deliver. These concerns are addressed in more detail below.

### Risk Valuation Methodology

A requirement to value each risk on an individual basis and then add them to the raw PSC (non-risk adjusted valuation of the project) is potentially complex, subjective, time consuming and expensive. Some risks cannot be measured (eg change in law, force majeure) and the components of risk are generally not additive. Therefore the PSC may significantly overstate the value of risk which may prevent projects from being considered due to affordability concerns.

The concept of developing a raw PSC using Discounted Cash Flow (DCF) is consistent with private sector best practice for evaluating projects. The PSC must be discounted using a hurdle rate that is benchmarked against recent private sector financings both domestically and internationally for similar projects. Identification of all material project risks can be compared relative to the recent private sector financings and an appropriate level of gearing and equity rate of return can be established.

This hurdle rate should be applied to the raw PSC and then adjusted by the NPV of any competitive neutrality inclusions / exclusions. Bids of the private sector can then be assessed quantitatively (concurrent with qualitative assessments such as freeing up public sector capital, access to market edge solutions, delays in implementation if private sector not involved) by applying the same hurdle rate. Concerns arise when the PSC does not price the overall risk of the project through the application of an inappropriate hurdle rate.

As a component of the raw PSC, the third party revenue can be easy to overestimate. Relationships between price and demand are often difficult to predict even with detailed external studies. Importantly, the private sector is constrained by external financiers in accounting for third party revenues. Often financiers will be reluctant to take into account third party revenues in assessing a project, particularly if such cash flows have substantially more risk associated with them than the

- 
- who bears the risk of default by the construction contractor? (typically this risk is borne by equity);
  - who bears the risk of adverse site conditions? (liability for existing environmental damage may be accepted by the owner of the site, the risk for ongoing environmental damage is typically borne by equity, who will attempt to pass it on to the contractor); and
  - who bears the risk of force majeure events? (this is a complex issue which should be approached with a scope of possible events. Additionally, if the force majeure event continues for a sufficiently long period, and there is insufficient insurance proceeds to cover the costs of repair or reinstatement, then it is usually appropriate for either party to be able to terminate the agreement).

Given the project is generally not earning any revenue during this phase, but that interest on large amounts of borrowings is accruing, projects are very sensitive to construction phase risks.

### 3.2 Market and Revenue Risk

Market risk is the risk that there will be insufficient demand, usage or throughput to generate sufficient revenues to make the project financially feasible. Government would typically pass this risk to the project sponsors, who may require the debt providers to take part of this risk through a relaxation of financial covenants in the financing documents. If the purchaser of the infrastructure is a creditworthy public utility, then the project lenders normally accept this risk on the basis of a covenant by the private sector participant that an acceptable debt to revenue ratio is to be maintained.

In the case of transport projects, often the major risk is whether the projected traffic or patronage level will be achieved. Since this is most often the project's largest and main revenue source, the actual level of traffic that is achieved will substantially affect a project's financing structure. Furthermore, since many projects are financed by debt backed by toll revenues and have limited or no government guarantees, the accuracy and reliability of traffic or usage forecasts are very important for lenders.

Traffic or usage forecasts are influenced by many factors. These include the quality of available data, the rigour and effort with which modelling is undertaken, the amount of funds allocated to these activities and therefore the scope/comprehensiveness of work undertaken, the historic performance of comparable projects and the skill and knowledge of the traffic modelling team. While more resources and funds can resolve many of these problems, traffic forecasting still remains a difficult task. For example, the effects of population and economic growth, land-use patterns, location of employment, further development of shopping and residential centres, travel demand management policies and the presence of competing transport modes are difficult to model because of their long-term uncertainty and interrelated effects.

As the PPP model evolves to incorporate social infrastructure projects, risks that previously could be clearly allocated to either the private or public sector on a straightforward basis now require greater analysis on a case by case basis. The allocation of demand risk is one of the risk allocation issues that becomes more complicated in a social infrastructure project. Depending on the project, government may have total or no control over demand for an asset. A rigorous assessment of the value of transferring this risk should be undertaken especially in situations where the government is the sole user of the social infrastructure, for example in prisons or some defence applications.

Experience in the UK market has shown that transfer of this risk has been difficult to achieve because it is the government which develops and administers justice and correctional policies and thereby influences the level of prison accommodation required. Demand risk generally should remain with government, where it is the primary user of services, and has the greatest control over demand for an asset, as it usually is the case for social infrastructure. However, the Victorian government was successful in the partial transfer to the private sector of a similar risk in respect of a project involving the construction of a County Court.

### 3. RISK IDENTIFICATION AND ALLOCATION

One of the main drivers of value for money in a PPP transaction is the issue of risk transfer. Traditional government procurement processes generally have failed to adequately identify, quantify or manage the substantial risks involved in the construction, operation and maintenance of infrastructure assets.

The Partnerships Victoria guidance material quotes the following useful definition of risk:

*“Risk is the chance of an event occurring which would cause actual project circumstances to differ from those assumed when forecasting project benefit and costs.”<sup>2</sup>*

Risk impacts both on project profitability (from the private sector’s perspective) and project efficiency (in delivering public sector objectives or outcomes). As a result, the identification, allocation and management of risk is fundamental to a PPP transaction.

Since each infrastructure project or asset always faces a different or unique set of risks, it is always advantageous to identify all of the key risks carefully at the outset and allocate them to the appropriate parties. In general, the preference is for structures which contractually allocate risks according to comparative advantage in minimising and managing risks - with the private sector having a proven advantage in managing construction and most commercial risks (including demand/patronage), but with government agencies typically having an advantage in managing certain regulatory, environmental and sovereign risks.

The basic principle of risk allocation is that risk should be allocated to the party best placed to manage that risk at the lowest cost. However this is not necessarily the outcome of actual risk allocation in practice. Quite often, it is the party that is the best negotiator who ends up bearing the least amount of risk, even if that party may be best placed to manage or bear a particular set of risks.

The remainder of this section canvases some of the major issues relevant to the key project risks likely to be apparent in PPP transactions.

#### 3.1 Construction Phase Risks

Construction phase risks include the risk that the project will not be completed on time, on budget, or to preagreed specifications. The project’s principal contractual arrangements should allocate responsibility in relation to the following issues:

- who bears any cost overruns? (typically this risk would be borne by the construction contractor);
- whether the government (as off taker) would be entitled to claim damages (arising from lack of output capacity) in the event of a delay in completion of the construction;
- who bears the additional costs if the government requests a change in specifications? (most project lenders and sponsors will insist that the government bears the responsibility for changes to specifications resulting from new environmental or safety standards, or other change in law);
- who bears any increase in finance costs? (typically this is a risk for the project i.e. equity, unless such costs result from delays caused by the construction contractor);

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<sup>2</sup> Chris Furnell, “Risk identification and risk allocation in project finance transactions”, paper presented at the Faculty of Law, the University of Melbourne, May 2000 quoted in Partnerships Victoria, “Risk Allocation and Contractual Issues” June 2001.

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- who bears the risk of default by the construction contractor? (typically this risk is borne by equity);
  - who bears the risk of adverse site conditions? (liability for existing environmental damage may be accepted by the owner of the site, the risk for ongoing environmental damage is typically borne by equity, who will attempt to pass it on to the contractor); and
  - who bears the risk of force majeure events? (this is a complex issue which should be approached with a scope of possible events. Additionally, if the force majeure event continues for a sufficiently long period, and there is insufficient insurance proceeds to cover the costs of repair or reinstatement, then it is usually appropriate for either party to be able to terminate the agreement).

Given the project is generally not earning any revenue during this phase, but that interest on large amounts of borrowings is accruing, projects are very sensitive to construction phase risks.

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As the PPP model evolves to incorporate social infrastructure projects, risks that previously could be clearly allocated to either the private or public sector on a straightforward basis now require greater analysis on a case by case basis. The allocation of demand risk is one of the risk allocation issues that becomes more complicated in a social infrastructure project. Depending on the project, government may have total or no control over demand for an asset. A rigorous assessment of the value of transferring this risk should be undertaken especially in situations where the government is the sole user of the social infrastructure, for example in prisons or some defence applications.

Experience in the UK market has shown that transfer of this risk has been difficult to achieve because it is the government which develops and administers justice and correctional policies and thereby influences the level of prison accommodation required. Demand risk generally should remain with government, where it is the primary user of services, and has the greatest control over demand for an asset, as it usually the case for social infrastructure. However, the Victorian government was successful in the partial transfer to the private sector of a similar risk in respect of a project involving the construction of a County Court.

Revenue risk relates to the pricing structure - that is the risk that the tariff structure is insufficient to provide the required amount of operating revenue. If the revenues are paid by the public (eg. road tolls) then the private sector participant takes more of a risk of revenue generation (with resulting risk for the project lenders). It may be appropriate for the relevant government or governmental agency to guarantee a specified minimum amount of revenues. In infrastructure project financings, the revenue risk may have a political dimension, as governments are often reluctant to approve increases to tariff structures

### 3.3 Operating Risks

There are a number of operating risks which should be taken into account:

- a default by the operator in the operation and maintenance agreement should result in the SPV being entitled to claim damages, draw on performance bonds, or terminate the operation and maintenance agreement and appoint a new operator;
- if during the operating phase, a force majeure event occurs, or there is an interruption in the operations of the asset as a result of an action or non-action by government, then the SPV may have grounds to seek an increase in tariff or an extension of the concession period; and
- the risks of strikes or other labour problems should be able to be mitigated by the SPV entering into binding labour agreements with the employees, or a union on their behalf. The SPV may seek to transfer this risk to the operator. Alternatively if a labour dispute is motivated by a change in law, the SPV should seek to ensure that the government assumes at least part of this risk by authorising a tariff increase or providing a way for the strike, boycott or labour dispute to be settled.

### 3.4 Financing Risks

Financing risks generally relate to changes in key financial parameters such as inflation, interest rates and exchange rates. Inflation is generally accepted as a project risk best managed by periodic increases in tariffs or other relevant charges, with such increases linked to the rate of inflation. Similarly, interest rate and exchange rate risks can be managed by appropriate hedging policies, although these necessarily involve certain costs.

There are mixed views as to the treatment of refinancing risks, particularly whether governments should be entitled to share in the benefits of a refinancing which results in cost savings. This has been a contentious issue in the UK where the refinancing of certain projects has produced significant benefits for project sponsors, resulting in heightened pressure for such benefits to be shared with government. (Of course, it should be noted that there may also be downside risks to refinancing, especially in a rising interest rate environment.)

The Partnerships Victoria guidance material adopts a cautious stance on refinancing risk, suggesting limited circumstances in which the government should be entitled to share in resultant benefits. The recently released Queensland draft guidelines are more definitive, stating that the government would expect to share in any gains from the refinancing of a project. What is not clear is whether the government would also expect to share in any losses arising from the refinancing of a project.

### 3.5 Taxation Risks

There are several major taxation provisions which can affect private sector investment in public infrastructure, as outlined below. It is critical to bear these taxation provisions in mind, and to structure any transaction to minimise the risk that these provisions will apply.

- 
- Operating and maintenance costs;
  - Throughout volume forecasts; and
  - Weighted average cost of capital (WACC).

### 3.8 Interface Risk

The main issue associated with the involvement of the private sector in social infrastructure is the integration of the services provided by the public and private sector and how the parties interface to ensure service delivery is not hindered. This issue is particularly important because both the private and public sector have ongoing substantive roles in the projects.

Interface issues are most apparent in assets where government provides core services which are supplemented by ancillary facilities management services provided by the private sector. Interface risk is the risk that the standard of delivery of the contracted services will prevent or hamper the delivery of core services or vice versa. An example of interface risk is when sub-standard ancillary service provision (such as sub-standard cleaning or inoperable security systems) may interfere with government's ability to deliver core services.

Interface risk can be effectively mitigated by establishing a complete and clear contractual framework that can be easily administered. This includes appointing and training experienced contract managers who have been involved in the project procurement process. The development of a communications strategy between the public and private sector will ensure that services are being integrated properly and the process is continually monitored and reviewed. This strategy should also include the creation of a dispute resolution policy for circumstances where interface issues cannot easily be resolved.

### 3.9 Residual Value Risk

Residual value risk needs to be addressed in terms of who bears the risk of variation in the value of the asset at the end of the concession period, particularly if the asset is then to be transferred back to government. This is a major issue, especially in respect of social infrastructure assets. On one hand, it is important to incentivise the private sector to focus on whole-of-life costing of an asset but, on the other, government is the party most likely to place the highest residual value on a social infrastructure asset.

This is further complicated in the case of say a prison, given uncertainties as to whether the form of correctional services will continue to be implemented in the traditional manner in the long term.

### 3.10 Political Risks

Political risks may include:

- development and operating consents, licences and permits not being provided at the time they are required (if at all);
- unexpected tariffs, duties, and taxes being imposed;
- access to utilities being denied;
- implementation of competing projects;
- changes in environmental regulations; and
- change in regulatory environment.

Political risks can be mitigated to some extent by seeking assurances from the appropriate government agency at the outset of the project.

- whether, where the period of the arrangement exceeds one year, the end-user is liable to carry out, or to expend money in respect of or to reimburse the owner or an associate for expenditure in respect of, repairs to the property;
- whether the period of the arrangement equals or exceeds 75% (50% for real property) of the property's effective life at the time the arrangement commenced;
- whether the payments to the owner are equal to or greater than 90% of the lesser of the property's cost or depreciated value when the arrangement commenced; and
- whether the ownership of the property is transferred to the end-user or an associate within one year after the arrangement ceases to be in force.

The Ralph Review on business taxation recommended that Section 51AD be abolished and that Division 16D be modified. The Federal Government has announced its intention to repeal Section 51AD by 1 July 2003, but it remains an obstacle in the interim and there is uncertainty as to any proposed amendments to Division 16D.

### 3.5.3 Other taxation issues

Other taxation issues which may need to be taken into account in structuring a PPP transaction include new provisions relating to:

- Depreciation and capital allowances;
- Thin capitalisation; and
- Tax consolidation.

### 3.6 Legal Risks

As governments enact laws, they may be best able to manage and/or control the risk of a change in law and accept the ensuing risk. This is rarely the case however, and governments usually attempt to pass any change of law risk on to the private sector. This may be due to many circumstances such as political or public policy pressures.

Furthermore, government is not homogeneous. The government structure in many countries consists of three tiers; federal, state and local. While one of these governments may be a party to a project, changes in the laws and policies of these third party governments are outside the control of both of the parties to the contract. Many project agreements may also be between a private sector developer and a corporatised government agency. This agency usually cannot make law. It may therefore legitimately argue that as it does not control certain risks, it should not bear them.

### 3.7 Regulatory Risks

Apart from legal risks, regulatory risks can arise as a result of changes to regulations governing economic activity, such as the regulatory oversight regimes introduced as part of National Competition Policy reforms in recent years. Regulatory regimes apply in respect of third party access and/or monopoly pricing for various infrastructure assets such as electricity transmission and distribution networks, gas transmission pipelines and railway track networks.

Where price-setting mechanisms are involved (eg access pricing regimes), significant regulatory risks can arise if there are differences in approach between the regulator and private sector investors on some of the following key issues:

- Optimised replacement cost of new assets (eg possible non-inclusion of the total value of the assets for price-setting purposes because they are considered to be "gold-plated");
- Depreciated optimised replacement cost (DORC) of the existing assets;

- 
- Operating and maintenance costs;
  - Throughout volume forecasts; and
  - Weighted average cost of capital (WACC).

### 3.8 Interface Risk

The main issue associated with the involvement of the private sector in social infrastructure is the integration of the services provided by the public and private sector and how the parties interface to ensure service delivery is not hindered. This issue is particularly important because both the private and public sector have ongoing substantive roles in the projects.

Interface issues are most apparent in assets where government provides core services which are supplemented by ancillary facilities management services provided by the private sector. Interface risk is the risk that the standard of delivery of the contracted services will prevent or hamper the delivery of core services or vice versa. An example of interface risk is when sub-standard ancillary service provision (such as sub-standard cleaning or inoperable security systems) may interfere with government's ability to deliver core services.

Interface risk can be effectively mitigated by establishing a complete and clear contractual framework that can be easily administered. This includes appointing and training experienced contract managers who have been involved in the project procurement process. The development of a communications strategy between the public and private sector will ensure that services are being integrated properly and the process is continually monitored and reviewed. This strategy should also include the creation of a dispute resolution policy for circumstances where interface issues cannot easily be resolved.

### 3.9 Residual Value Risk

Residual value risk needs to be addressed in terms of who bears the risk of variation in the value of the asset at the end of the concession period, particularly if the asset is then to be transferred back to government. This is a major issue, especially in respect of social infrastructure assets. On one hand, it is important to incentivise the private sector to focus on whole-of-life costing of an asset but, on the other, government is the party most likely to place the highest residual value on a social infrastructure asset.

This is further complicated in the case of say a prison, given uncertainties as to whether the form of correctional services will continue to be implemented in the traditional manner in the long term.

### 3.10 Political Risks

Political risks may include:

- development and operating consents, licences and permits not being provided at the time they are required (if at all);
- unexpected tariffs, duties, and taxes being imposed;
- access to utilities being denied;
- implementation of competing projects;
- changes in environmental regulations; and
- change in regulatory environment.

Political risks can be mitigated to some extent by seeking assurances from the appropriate government agency at the outset of the project.

### 3.11 Other risks

There are various other risks which also should be mentioned briefly, including site risks, design risks, network risks, natural disasters, force majeure, environmental risks, native title and cultural heritage risks, public liability, workers compensation and technology or obsolescence risk.

### 3.12 Debt Financier's Approach to Key Credit Issues

The level of risk, the allocation of risks between the project parties and external constraints (i.e. availability of funds and level of government support) will determine the level of gearing or funding provided by the lenders. A balance needs to be made between the advantages of gearing and the inherent risks of over-gearing.

For example, with regard to market risk, lenders are often required to assume part of this risk on the basis that:

- There is some history of traffic/patronage/usage.
- Where there is no history of traffic/patronage/usage, market exposures will need to be measured against a range of severe downside scenarios covering price, volatility and liquidity.
- Lenders will seek to limit their aggregate exposure to each market to a small percentage of the their capital base.

Lenders will always place strong emphasis on the operational, legal and political risks associated with the project. In more recent times, risks relating to regulatory oversight, native title and now terrorism have assumed increasing importance.

The following diagram summarises the approach of lenders to key credit risks.

**Figure 3.1 Debt Financier's Project Risk Assessment**

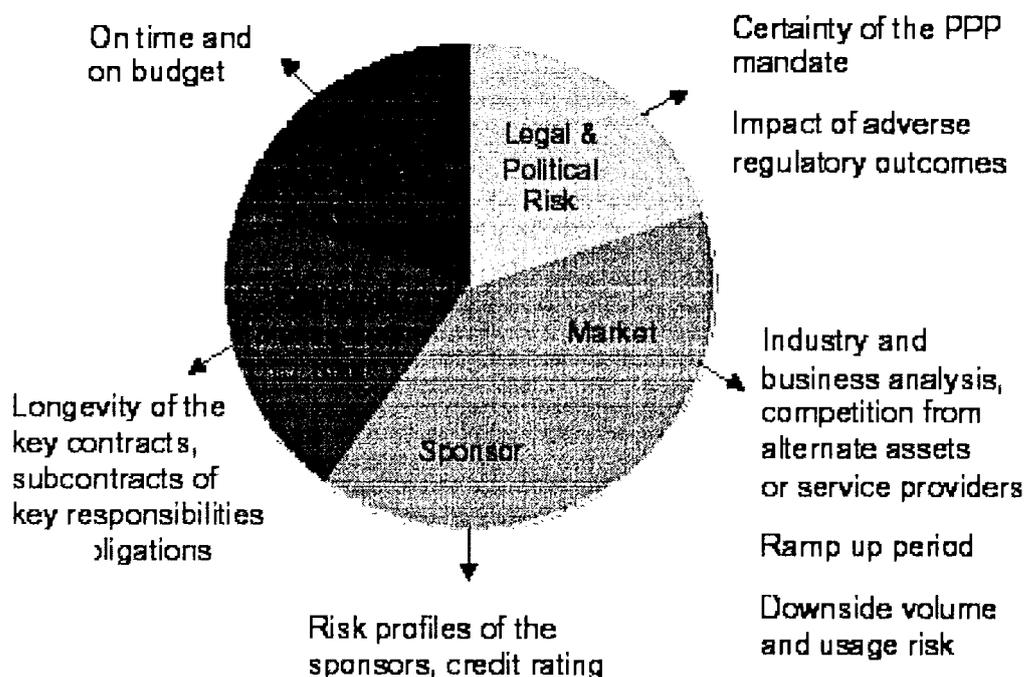


Figure 4.1: Infrastructure Procurement Models

Mechanism	Description	Advantages	Disadvantages
<b>Summary of Advantages &amp; Disadvantages</b>			
Option 7: Build, Own and Operate (BOO)	Private sector develops, constructs, owns, operates and finances the project.	<p>Allows the majority of project risks to be transferred to the private sector, resulting in clearly defined outcomes for government/taxpayers/users.</p> <p>Commercial/economic incentives of private sector promoting efficiency, innovation and use of new technologies.</p> <p>Private sector participation in direct economic projects reduces government debt burden and allows funds to be directed into social infrastructure.</p> <p>Competition in the tendering and negotiation phase allows government to allocate risks to those parties best able to assess (and price) those risks. This results in a more efficient outcome.</p> <p>Government avoids political risks associated with project failures or cost overruns.</p>	<p>Private sector will demand a risk premium for risks assumed. This may increase the "headline" cost of the project, in return for certainty.</p> <p>Price and other regulations may be required, thereby increasing administrative burden and reducing ongoing flexibility.</p> <p>Regulation reduces governments' ongoing flexibility to deal with interconnected infrastructure.</p> <p>Private sector may derive "unearned" benefits associated with any interconnected infrastructure.</p>
Option 8: Build, Own and Transfer (BOT)	Private sector develops, constructs, owns, and finances the project.	<p>Allow some of the project risks to be transferred to the private sector, resulting in clearly defined outcomes for government/taxpayers/users.</p> <p>Commercial/economic incentives of private sector promoting efficiency, innovation and use of new technologies.</p> <p>Ownership of the project returns to government at the end of a fixed term.</p> <p>Private sector participation in direct economic projects reduces government debt burden and allows funds to be directed into social infrastructure.</p> <p>Competition in the tendering and negotiation phase allows government to allocate risks to those parties best able to assess (and price) those risks. This results in a more efficient outcome.</p>	<p>As for Option 7, plus:</p> <p>Separation of the project into ownership and operations components may not produce the best solution, as a high degree of co-operation between developer, constructor, operator and financiers is required.</p> <p>Government will face operational risks unless operations contract has already been let to the private sector.</p> <p>Interface risk may arise due to separation of facilities manager and operator, which can affect long run maintenance costs and reduce asset lives.</p>

Figure 4.1: Infrastructure Procurement Models

Mechanism	Description	Advantages	Disadvantages
<b>Summary of Advantages &amp; Disadvantages</b>			
Option 3:  Government development with separate private sector D&C, & maintain (DBM) – Serviced Infrastructure Model	Government develops the project by tendering (to both the public and private sector), the design, construction and maintenance of the project. Government retains operational control – usually in the provision of core/essential services	Some construction risks can be transferred to the private sector.  Private sector provision of the various components can be benchmarked against public alternatives.  Government retains responsibility for delivery of core public services.	Separation of the project into components may not produce the best solution, as a high degree of co-operation between developer, constructor, facilities manager and operator is required.  Whole-of-life costs may not be minimised where construction, operating and maintenance roles are undertaken separately.
Option 4:  Government development with separate private sector D&C, own & maintain (DBFM) – Serviced Infrastructure Model	Government develops the project by tendering (to both the public and private sector), the design, construction, financing and maintenance of the project. Government retains operational control – usually in the provision of core/essential services	As for Option 3, plus  Asset maintenance and financing can be combined to provide whole-of-life cost reductions.	As for Option 3.
Option 5:  Government development with separate private sector D&C, & operation (DBO)	Government develops the project by separately tendering (to both the public and private sector), the design and construction and the operation of the project.	Some construction risks can be transferred to the private sector.  Private sector provision of the various components can be benchmarked against public alternatives.	Separation of the project into components may not produce the best solution, as a high degree of co-operation between developer, constructor and operator is required.  Separation of roles may detract from a seamless transfer of risk to the private sector.
Option 6:  Government development with separate private sector D&C, operation & financing (DBFO)	Government develops the project by separately tendering (to both the public and private sector), the design and construction, the operations and the financing of the project.	As for Option 5, plus  Government controls the timing of the sale of the components. This allows government to sell operations and financing either upfront (to reduce the amount of risk assumed) or as demand matures (to maximise sale proceeds).	As for Option 5

Figure 4.1: Infrastructure Procurement Models

Mechanism	Description	Advantages	Disadvantages
<b>Summary of Advantages &amp; Disadvantages</b>			
Option 7: Build, Own and Operate (BOO)	Private sector develops, constructs, owns, operates and finances the project.	<p>Allows the majority of project risks to be transferred to the private sector, resulting in clearly defined outcomes for government/taxpayers/users.</p> <p>Commercial/economic incentives of private sector promoting efficiency, innovation and use of new technologies.</p> <p>Private sector participation in direct economic projects reduces government debt burden and allows funds to be directed into social infrastructure.</p> <p>Competition in the tendering and negotiation phase allows government to allocate risks to those parties best able to assess (and price) those risks. This results in a more efficient outcome.</p> <p>Government avoids political risks associated with project failures or cost overruns.</p>	<p>Private sector will demand a risk premium for risks assumed. This may increase the "headline" cost of the project, in return for certainty.</p> <p>Price and other regulations may be required, thereby increasing administrative burden and reducing ongoing flexibility.</p> <p>Regulation reduces governments' ongoing flexibility to deal with interconnected infrastructure.</p> <p>Private sector may derive "unearned" benefits associated with any interconnected infrastructure.</p>
Option 8: Build, Own and Transfer (BOT)	Private sector develops, constructs, owns, and finances the project.	<p>Allow some of the project risks to be transferred to the private sector, resulting in clearly defined outcomes for government/taxpayers/users.</p> <p>Commercial/economic incentives of private sector promoting efficiency, innovation and use of new technologies.</p> <p>Ownership of the project returns to government at the end of a fixed term.</p> <p>Private sector participation in direct economic projects reduces government debt burden and allows funds to be directed into social infrastructure.</p> <p>Competition in the tendering and negotiation phase allows government to allocate risks to those parties best able to assess (and price) those risks. This results in a more efficient outcome.</p>	<p>As for Option 7, plus:</p> <p>Separation of the project into ownership and operations components may not produce the best solution, as a high degree of co-operation between developer, constructor, operator and financiers is required.</p> <p>Government will face operational risks unless operations contract has already been let to the private sector.</p> <p>Interface risk may arise due to separation of facilities manager and operator, which can affect long run maintenance costs and reduce asset lives.</p>

Figure 4.1: Infrastructure Procurement Models

Mechanism	Description	Advantages	Disadvantages
<b>Summary of Advantages &amp; Disadvantages</b>			
Option 9:  100% private sector BOOT	Government tenders the project on a BOOT basis to the private sector. Private sector designs, constructs, operates and finances the project.	<p>Allows the majority of project risks to be transferred to the private sector, resulting in clearly defined outcomes for government/taxpayers/users.</p> <p>Commercial/economic incentives of private sector promoting efficiency, innovation and use of new technologies.</p> <p>Residual asset risk is transferred to the private sector.</p> <p>Private sector participation in direct economic projects reduces government debt burden and allows funds to be directed into social infrastructure.</p> <p>Competition in the tendering and negotiation phase allows Government to allocate risks to those parties best able to assess (and price) those risks. This results in a more efficient outcome.</p> <p>Government avoids political risks associated with project failures or cost overruns</p>	<p>Private sector will demand a risk premium for risks assumed which it is not best placed to manage. This may increase the "headline" cost of the project. In return for certainty.</p> <p>Price and other regulations may be required, thereby increasing administrative burden and reducing ongoing flexibility.</p> <p>Regulation reduces governments' ongoing flexibility to deal with interconnected infrastructure.</p> <p>Private sector may derive "unearned" benefits associated with any interconnected infrastructure.</p>
Option 10:  Privatisation – private sector provision	Government sells the asset to the private sector which operates and finances the asset without any future government involvement	<p>Government receives an upfront payment that can be used more effectively through reducing government debt burden or allowing funds to be directed into social infrastructure.</p> <p>Allows all the project risks to be transferred to the private sector, resulting in clearly defined outcomes for government/taxpayers/users.</p> <p>Commercial/economic incentives of private sector promoting efficiency, innovation and use of new technologies.</p> <p>Government avoids embarrassment associated with project failures (eg. Victorian electricity assets).</p>	<p>Private sector will reduce sale price for certain risks that may be best managed by the public sector.</p> <p>Price and other regulations may be required, thereby increasing administrative burden and reducing ongoing flexibility.</p> <p>Regulation reduces governments' ongoing flexibility to deal with interconnected infrastructure.</p> <p>Private sector may derive "unearned" benefits associated with any interconnected infrastructure.</p> <p>No upside sharing arrangements with Government.</p>

Having regard to the risks identified in Section 3, the following table shows an illustrative allocation of risks for selected major procurement options.

For social infrastructure, payments generally are made by a contracting authority (usually a government agency) to cover all project costs plus a return to equity. For more traditional infrastructure such as roads, these payments will generally come from a combination of either user charges (i.e. tolls) paid by private users and/or usage charges paid by the contracting authority. A more detailed discussion on the types of payment mechanisms currently used are detailed in the following part of this Section. The SPV bears cost overrun risk in terms of construction and ongoing operation of the asset, although there may be provisions to realign government payments at regular intervals to market rates.

The SPV can mitigate these risks through the contractual arrangements made with the construction contractor and the service provider. Table 5.1 shows an example of risk allocation between various parties to a typical PPP transaction

**Table 5.1 Example risk allocation between parties in a PPP transaction**

Risk	SPV	Contractor	Service Provider	Government
Design			✓	
Construction and Commissioning				
Construction Cost			✓	
Time delays			✓	
Commissioning		✓		
Defiant Costs		✓		
Planning	✓			
Property Lease				✓
Revenue	✓	✓		
Operating				
Service Quality		✓		
Maintenance	✓	✓		
Asset Renewal	✓			
Economic				
Interest Rate	✓			✓
Inflation	✓	✓	✓	✓
Taxation	✓			✓
Insurance	✓	✓	✓	✓
Environmental	✓			✓
Discretionary Change in Law				✓
Other Change in Law	✓	✓	✓	✓

Some of the main financing issues relating to a standard PPP transaction include:

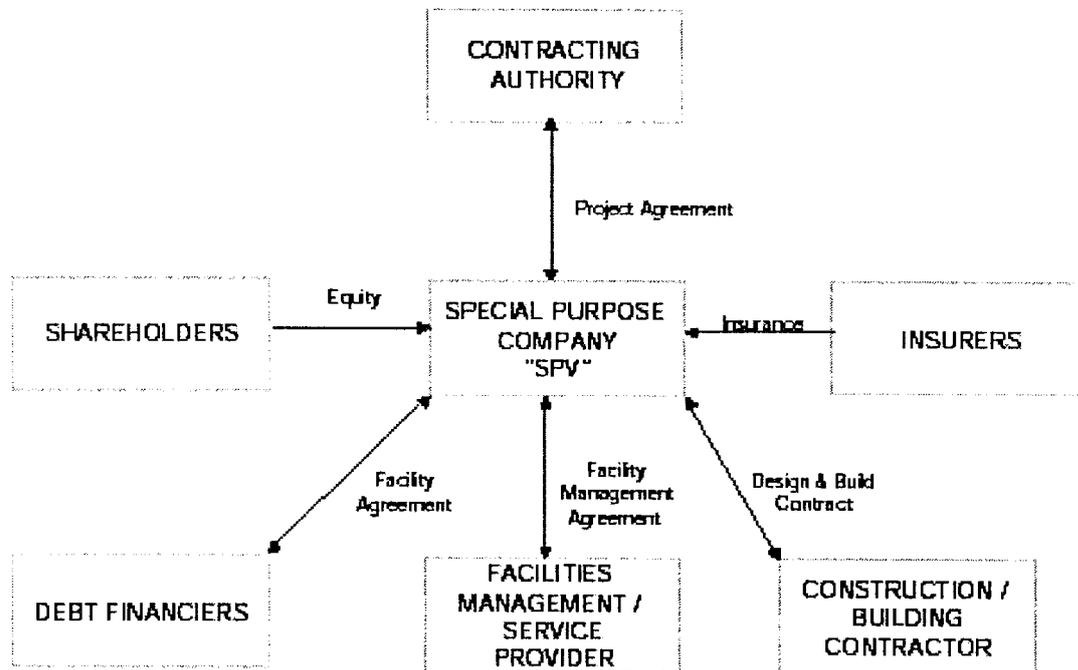
- Financing for the SPV is generally non-recourse to the sponsors and contractors, therefore debt financiers will typically have a facility agreement with the SPV so that in the case of default, they may replace the principal contracted parties if they so wish. It is the terms and inherent risks within this facility agreement, in conjunction with the Concession Agreement which will determine the conditions and price at which the debt providers will lend. The debt financiers will obtain independent technical advice to ensure the estimates made by the SPV and the subcontractors to perform the services are fair and reasonable.
- Both the Facility Agreement and the Concession Agreement will require adequate insurance through a reputable insurer to be carried by the SPV.
- The Concession Agreement contains termination clauses which deal with authority, contractor default, force majeure and rectification procedures.

## 5. COMMERCIAL STRUCTURES AND PAYMENT MECHANISMS

### 5.1 Commercial Structures

The diagram below provides an overview of the commercial and financial arrangements between the key transaction parties in a typical PPP deal for “soft” or social infrastructure.

Figure 5.1 Typical PPP Commercial Structure



The heart of the transaction and the key commercial agreement is the project or concession agreement between the contracting authority or government entity and a project company usually referred to as a Special Purpose Vehicle (SPV). The SPV comprises shareholders and equity sponsors who typically include the major construction companies, facility manager/operator and specialist equity funds or other investors. Depending on the nature of the transaction, equity can account for between 10% to 35% of the total project cost with debt finance representing between 65% to 90%.

The Project / Concession agreement details:

- The service the SPV must provide and the payment in return for that service.
- Obligations of both the contracting authority and the SPV.
- Abatement arrangements for penalties (such as reduced payments) to be imposed where services are not being delivered to the required standard.
- Procedures to amend the contract and scope of services.
- Termination and compensation clauses in case of default.

For social infrastructure, payments generally are made by a contracting authority (usually a government agency) to cover all project costs plus a return to equity. For more traditional infrastructure such as roads, these payments will generally come from a combination of either user charges (i.e. tolls) paid by private users and/or usage charges paid by the contracting authority. A more detailed discussion on the types of payment mechanisms currently used are detailed in the following part of this Section. The SPV bears cost overrun risk in terms of construction and ongoing operation of the asset, although there may be provisions to realign government payments at regular intervals to market rates.

The SPV can mitigate these risks through the contractual arrangements made with the construction contractor and the service provider. Table 5.1 shows an example of risk allocation between various parties to a typical PPP transaction

**Table 5.1 Example risk allocation between parties in a PPP transaction**

Risk	Government	Contractor	Service Provider	SPV
Design			✓	
Construction and Commissioning				
Construction Cost			✓	
Time delays			✓	
Commissioning		✓		
Bribe and Gifts		✓		
Planning	✓			
Property Lease				✓
Revenue	✓	✓		
Operating				
Service Quality		✓		
Maintenance	✓	✓		
Asset Renewal	✓			
Economic				
Interest Rate	✓			✓
Inflation	✓	✓	✓	✓
Taxation	✓			✓
Insurance	✓	✓	✓	✓
Environmental	✓			✓
Discriminatory Change in Law				✓
Other Change in Law	✓	✓	✓	✓

Some of the main financing issues relating to a standard PPP transaction include:

- Financing for the SPV is generally non-recourse to the sponsors and contractors, therefore debt financiers will typically have a facility agreement with the SPV so that in the case of default, they may replace the principal contracted parties if they so wish. It is the terms and inherent risks within this facility agreement, in conjunction with the Concession Agreement which will determine the conditions and price at which the debt providers will lend. The debt financiers will obtain independent technical advice to ensure the estimates made by the SPV and the subcontractors to perform the services are fair and reasonable.
- Both the Facility Agreement and the Concession Agreement will require adequate insurance through a reputable insurer to be carried by the SPV.
- The Concession Agreement contains termination clauses which deal with authority, contractor default, force majeure and rectification procedures.

- Default by the contracting authority involves either breach of contract or failure to meet payment obligations. In such circumstances, and if the concession agreement is terminated, the contracting authority would generally be required to pay the SPV the outstanding debt balance, equity contributions and anticipated returns.
- If the contractor defaults either through the SPV becoming insolvent, breach of contract or failure to provide services to a certain standard, after the issuance of a termination notice, the lenders may “step in”. The problem can either be rectified and the lenders “step-out” or the contract can be re-tendered if possible by the lenders (or by the contracting authority). If re-tendering is not possible, the contracting authority may pay compensation to the lenders based upon a calculated formula and terminate the concession agreement.
- In force majeure circumstances (eg acts of god), the outstanding debt balance and the nominal equity balance outstanding may be paid by the contracting authority.

The commercial structure above is generally applicable to most PPP projects, however the parties in each of the boxes and the relationships between them may change depending upon whether the project delivery option i.e. the closer to a D&C delivery option, the more involvement by public sector entities within the commercial structure.

## 5.2 Payment Mechanisms

The commercial viability of a PPP transaction depends critically on the payment mechanism applied. There are a number of payment mechanisms that can be used individually or in combination. They include one or more of the following basic elements:

- User charges – payments direct from the private users of the infrastructure or service (eg tolls)
- Usage based payments – payments from the government that vary according to usage of the infrastructure or service (including shadow tolls).
- Availability based payments – payments from the government for making infrastructure and/or service available to a certain standard.

The payment mechanism should be simple and flexible to implement, provide appropriate incentives to the private sector, be structured to ensure bankability and be affordable either to direct users and/or the contracting authority.

### 5.2.1 User Charges

User charges involve a payment by direct users of infrastructure, and generally apply where usage is divisible and a value or price can be placed on individual usage. User charges are most common for economic infrastructure eg in the form of tolls for bridges, tunnels and motorways; port levies; electricity tariffs for power generation; waste charges (in the waste management sector); and industrial and domestic charges (in the water sector). Under this mechanism (typically used in BOOT projects), the private sector has increased exposure to demand risk and therefore undertakes extensive market studies to assess this risk.

The applicability of user charges is influenced by the level and elasticity of demand. If demand is relatively elastic and the usage levels are forecast to be at levels that are not financially viable, user charges would need to be supplemented by government payments through other payment mechanisms discussed below. The cost-effectiveness of user charges depends on the certainty of forecast volume and revenues as this will affect the cost of financing the project through associated margins and required rates of return.

From the borrower's viewpoint, there are three major benefits to a project from using these bonds:

- ability to borrow larger sums: this is possible as the amortisation profile of a project's borrowing can be extended over a longer period of time than normal bank debt. This is because the purchasers of these bonds normally have a longer-term outlook eg insurance companies and superannuation (pension) firms are larger buyers of inflation-indexed bonds;
- better meet cashflow requirements: inflation-indexed bonds also have a low initial coupon which then escalates over time, enabling the project to meet its other obligations with a more comfortable margin in the normally difficult early years or "ramp-up" period. These bonds also provide a natural balance between costs and revenues when the project's revenue escalates in line with inflation; and
- extended tenor of debts: bank lending in Australia for infrastructure projects has generally had terms of up to 15 years, whereas CPI-indexed bonds can have terms of 25 to 30 years plus.

#### **6.1.5 Securitisation**

This is a term that describes the packaging of specific cashflows into a single-purpose bankruptcy-remote entity, which then issues bonds or commercial paper that is repayable using the packaged cashflows. The methodology for packaging the cashflows is typically an assignment of the receivables or other assets that generate the cashflows, but may also take the form of a secured loan over the assets. In addition, the seller or a third party may be required to provide the first loss reserve to enhance the credit quality of the assets.

In the context of infrastructure receivables, securitisations will only be beneficial when the risks are relatively small. This will be the case where there is a government guaranteed cashflow, and potentially for existing, high quality and low volatility projects which have a strong operating history. Securitisation may therefore grow in popularity as a form of financing for infrastructure projects as existing projects are refinanced. In the United Kingdom, securitisation has occurred in respect of the privatisation of the regional railway operators, where the government had guaranteed a minimum level of income on the previously state-owned rolling-stock.

#### **6.1.6 Leasing**

Companies are increasingly aware of the need to achieve the lowest cost of capital and to secure off-balance sheet funding. Leasing may provide a way of achieving these objectives.

The leased infrastructure asset is owned by a lessor who provides it to the lessee in accordance with provisions agreed in a lease document. The terms of the lease are generally well settled and typically provide a guarantee that the lessee's use of the asset during the term will be uninterrupted.

Leasing is perhaps the most common form of finance in the aviation sector, with virtually all of the world's airlines undertaking some form of lease financing. These have ranged from simple operating lease transactions through to highly structured cross-border lease transactions. Successful cross-border leases have been undertaken for aircraft, as well as other big ticket items such as buses, locomotives, electricity generation plant and electricity transmission equipment.

The rail sector has traditionally not used leasing as a means of finance because it has been dominated by government owned organisations (private sector lease financing has generally been unable to match a government's cost of funds) and because of the specialised and often non-standardised nature of the equipment. As the sector becomes more open to private operators through privatisation and competition policy, a greater usage of leasing seems likely.

Traditionally, operating leases (for accounts purposes) have been more difficult to secure than finance leases. There has been some movement towards a deeper market for transport assets in particular and thus the provision of operating leases.

### 6.1.7 Commercial Debt vs Bonds

There are a number of drivers which influence the choice between commercial bank debt and bond issuance. Some of these are project specific while others are market specific and change over time. Table 6.3 provides a summary of key points relevant to this debt structuring issue.

**Table 6.3 Commercial Bank Debt vs Bonds**

Factor	Commercial Debt	Bonds
Size of Project	Suitable for big projects More flexible on smaller projects i.e. below \$50-100 million	Suitable for big projects Not as flexible for small projects i.e. \$50-100 million
Maturity	Typically between 15 and 20 years but increasing in tenor due to competitive pressure of other funding mechanisms i.e. bonds	Tenor up to 35 years Suitable for longer concession periods
Pricing	Driven by swap market demand and supply Competitive tension between banks has reduced margins	Driven by gilt yields and corporate bond spreads reflecting investor's appetite for different credit risks. Rating and pricing can be enhanced with monoline insurance.
Deliverability	Generally considered more deliverable than bond finance. Cost of bank finance also likely to increase (in line with bonds) in tough market conditions as reflected in the swap market.	Amount raised dependent upon market conditions except if monoline wrapped. If not wrapped, certainty of pricing is an issue.
Flexibility	Generally more flexible than bond finance. Usually accept construction risk. Willing to deal with minor variations, debt re-schedulings to full-scale refinancings.	Less accommodating than bank finance on variations Usually bondholders do not accept construction risk though this risk is slowly starting to be accepted.

## 6.2 Equity Funding

Securing equity funding remains one of the most difficult tasks for infrastructure projects. Unlike sectors such as power and water, other infrastructure sectors such as transport and social assets lack the large number of international developers and operators with the ability to provide significant amounts of equity.

The various equity sources are sponsor equity (including the project developers, other project participants and industry participants who are not the project sponsors), institutional investors and increasingly, retail investors. The stage at which each of these equity parties prefers to become involved in a project varies.

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### 6.3.2 Grants

Just like loans, government grants may be provided to fill a gap between project costs and the level of debt and equity that is commercially available. These grants are relatively straightforward, in that they are a clear subsidy, are transparent and are often small.

### 6.3.3 Guarantees

A government may choose to provide various types of guarantee to assist a project. These can involve the government guaranteeing all or part of the usage levels (that is, the project's main revenue source or market risk), or all or part of the bank loans - on its own or in conjunction with certain multilateral finance agencies. While it is preferable for the private sector to bear the market risk where it directly controls the standard of service and pricing which consumers experience, practical constraints may result in some sharing of this risk with the public sector.

### 6.3.4 Tax Benefits

Governments have often provided certain tax indemnities to private sector investors across a range of different industries and sectors. Tax concessions in the form of indemnities or tax holidays are commonly used to attract private sector investment in major projects, including infrastructure projects. This is often the case if the government considers a project as beneficial but project revenues are insufficient to make the project self-funding. This type of subsidy creates risks for the project developers that the benefits may not be ongoing. The risk of changes in tax laws and rates generally have been borne by the private sector in Australia.

Increasingly, project financiers have demonstrated the capacity to create innovative structures and financial instruments to take advantage of specific government tax concessions. These concessions may enable the project to become either self-funding or attract funds at a lower cost. Naturally, the concessions will vary from one country to another. In Australia, the former infrastructure bonds scheme (known as 'Develop Australia bonds') is an excellent example of how a tax concession has been used to help several projects.

Infrastructure bonds are quite similar in concept to the US municipal bonds, as investors in both types of bonds receive a tax free interest payment. However, an important difference between the two types of bonds is that the interest paid on infrastructure bonds is non-deductible to the issuer, while the issuer of municipal bonds obtains a normal tax deduction on the interest expense relating to the bonds.

Nevertheless, infrastructure bonds are a valuable tax loss transfer mechanism enabling projects to access cheaper funds for transferring their early year tax losses to third parties as these losses cannot be cost effectively utilised by the project sponsors.

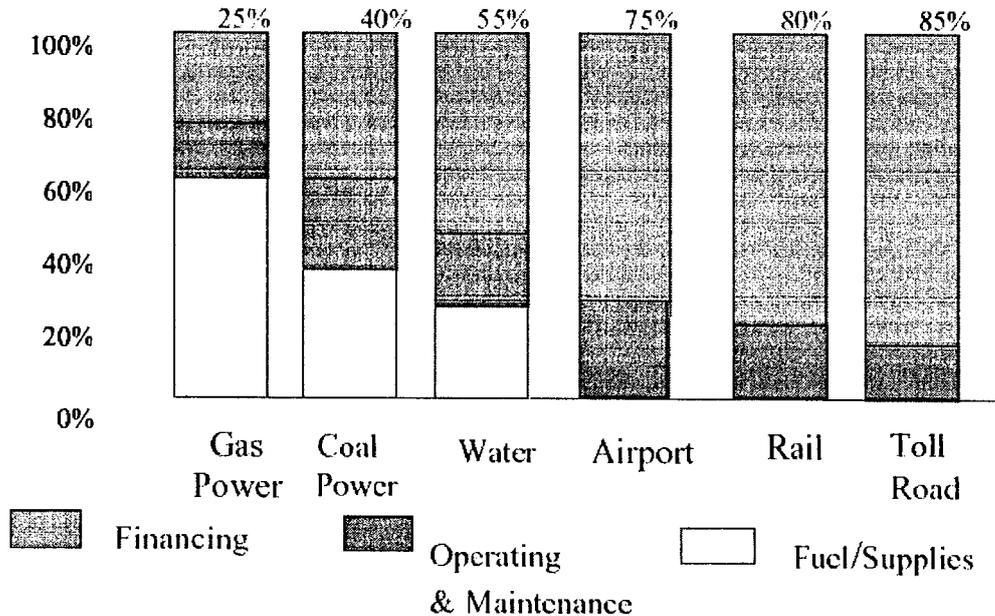
A wide variety of infrastructure assets have been financed by way of infrastructure bonds. They were an important component in the financing of the M2 Motorway and the Melbourne City Link projects. Many projects benefited from funding costs using infrastructure bonds of well under 70% of pre-tax cost of using traditional debt.

The infrastructure bond scheme has been discontinued and replaced with the scaled down 'Infrastructure Borrowings Rebate' scheme which acts in a similar way.

## 6.4 Optimising the Funding Structure

Each of the various funding options discussed above in this section cannot be considered in isolation, but needs to be viewed in terms of its contribution to an overall funding package. As financing costs typically represent a significant part of total project costs, optimisation of the funding package can significantly enhance project viability and add substantial value to equity investors. This is illustrated in the following figure which shows that financing costs can represent from 25% (in the case of gas power) to 85% of project revenues (in the case of toll roads) for various types of infrastructure.

Figure 6.1 % of Revenue to Cost components



Therefore, it is essential to understand the capacity of the debt and equity markets, their willingness to invest, their preferred risk profiles and the levels of return required. The structure should be tailored to ensure debt and equity issues will be successful within the constraints of the domestic financial market, and the international financial market (if the transaction size exceeds the capacity of the local market).

Market constraints must be carefully considered when developing a finance package. Generally, bank facilities for amounts of less than AUD\$1 billion can be funded in the domestic market. However the viability of syndication will be dependent upon prevailing market conditions, competing bank facilities in the market and the parties specific to the transaction. Market constraint was evident in the Melbourne City Link project as almost every major player was aligned with the two short-listed tenderers. If a third party had been shortlisted, fully underwritten finance would not have been possible from domestic sources.

Criteria such as gearing level, life of loan and debt service coverage ratios, distribution lock-up and default levels and the debt and maintenance reserve requirements are all critical in structuring the debt funding package. Refinancing must be planned for and debt repayment fees should be avoided. The corporate structure should allow for some or all of the original equity investors to sell down at a future date and the possible refinancing of debt and/or equity with minimal external costs.<sup>4</sup>

The funding structure selected should also be appropriate to the circumstances eg differences in structure will occur depending on whether the key revenue source is guaranteed payments from government as there is no contracted revenue. The structure used and strategy employed differs between competitively tendered deals and negotiated deals. With negotiated deals there is increased opportunities to tailor the overall

<sup>4</sup> Macquarie Corporate Finance Limited, "Project Finance – The guide to financing transport projects", 2<sup>nd</sup> edition, 2000

commercial arrangements to optimise the efficiency of the financial arrangements as all of the parties haven been able to optimise the risk / return allocation to each party.<sup>5</sup>

The method of optimisation depends upon what is being optimised. If the tender is to build, own and operate a new piece of infrastructure, the objective would be to bid the lowest possible tariff with zero government assistance if possible. If the tender is buy an existing infrastructure asset, the key is to be able to balance a low ongoing tariff while providing the seller with the highest purchase price. It should be recognised that a high upfront purchase price will generally mean a relatively high ongoing tariff. Minimum equity rates required by various bidders are reasonably similar and generally well known in the market, therefore the bidder with the best financing plan and a more optimistic view of the future will usually pay the highest price for the relevant asset.<sup>6</sup>

It is essential that there are sensible pricing requirements for debt and equity during negotiations. The pricing and terms are greatly influenced by the agreed risk allocation matrix. Over time, the private sector has been assuming a greater share of the project risks whilst reducing their required rates of return. Given the increasing interest expressed by private sector parties for various infrastructure projects, this trend is likely to continue.

## 6.5 Key Success Factors in Finance Plans

The following key factors or central features are critical in any private financing of infrastructure:<sup>7</sup>

### 6.5.1 Certainty of Delivery

Certainty of delivery of the financial structure is absolutely crucial. Theoretical or esoteric finance plan structures may be intellectually challenging but it is essential to develop practical financing structures. Assessors of competitive bids (such as government or regulatory bodies) are acutely aware of the political ramifications of bidders failing to deliver and therefore place a high priority on certainty of delivery. This has proven to be a dominant factor in determining the successful consortia in a number of recent competitive tenders for infrastructure projects.

### 6.5.2 Price of Finance

The price of finance is always a critical factor in the tender process and in the financing of the project. However, it is too simplistic to focus only on minimising the debt margins or maximising equity returns. The efficiency of the overall structure must optimise other aspects of financing costs such as minimum coverage ratios, reserve account requirements, timing of debt payments, equity distributions and the level of contingencies.

### 6.5.3 Flexibility

Infrastructure projects typically have long development lead times and the requirements of the parties involved are likely to change over this period. It is critical to ensure that the finance plan is flexible and can be tailored to cater for changing circumstances. The financial deal that is planned at the beginning is not usually the one that actually eventuates. Once the ongoing project cashflows are proven, refinancing in future years must be planned for. Refinancing can provide a large potential benefit for equity investors and should be capable of future incorporation in the financial structure at low or negligible cost.

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<sup>5</sup> ibid

<sup>6</sup> ibid

<sup>7</sup> ibid

#### **6.5.4 Recognise nature of assets**

The finance plan must take into account that different assets have different life cycles and therefore should be accounted for as such. The matching of the financing instruments to the life cycle eg. through indexed bonds for longer life cycle assets, is an example of this principle.

#### **6.5.5 Legal Issues**

All legal documentation needs to have particular regard to the long-term nature of such transactions. Over a period of more than 20 years, the balance of power will swing between the parties involved. Therefore, in drafting the legal documentation, parties should avoid the temptation to negotiate too fine a deal which the other parties may seek to reverse in the future.

#### **6.5.6 Taxation**

As for all large investment decisions, taxation is a very important consideration. Most infrastructure transactions generate substantial tax losses in their early years. Effective structuring and careful consideration of the tax profile of the assets have yielded significant benefits for a number of successful projects.

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## 7. RECENT PPP EXPERIENCE IN UK AND AUSTRALIA

A number of countries currently are examining the application of PPP models for infrastructure delivery. However, implementation of PPPs is most advanced in the United Kingdom, where some 400 contracts have been completed or are under way, since the original Private Finance Initiative (PFI) was commenced in 1992. In Australia, private sector involvement in infrastructure has followed a somewhat different path, with mixed results, but now appears to be converging towards the UK model.

This section briefly reviews key features of the recent PPP experience in the UK and Australia. There are some interesting comparisons and contrasts to be drawn from this analysis.

### 7.1 UK PFI and PPP Model

#### 7.1.1 Overview

The original PFI policy was designed to promote private sector involvement in the funding, development and operation of assets used by government agencies and public sector bodies for the provision of a variety of essential public services, such as hospitals, prisons, roads, housing and schools. The UK government considered the initiative to be the crux behind its modernisation program by "delivering better quality public services by bringing in new investment and improved management."

From a financing perspective, UK PPP projects typically have a structure viewed by the rating agencies as being at the low end of investment grade<sup>a</sup>. The main strengths of projects are:

- Important asset for the public sector
  - Generally, the asset is used to provide an essential service to the community. For this reason, if a project encounters difficulties, it is likely that the public sector will be prepared to adopt a constructive approach to keep the project viable, to avoid possible disruption to public services in the event of project failure.
  
- Highly rated entities as "off-takers"
  - Project revenues normally are in the form of payments from government agencies, and are therefore considered to be very secure.
  
- Low construction risk
  - Projects typically involve low technology or standard structures, rather than being leading edge or high risk types of infrastructure. Most contracts/developers are highly experienced and financially strong, supported by specialist architects, engineers and other consultants with relevant expertise.
  
- High degree of revenue stability
  - There is usually a high degree of revenue predictability and stability, with limited exposure to market risks such as usage or occupancy levels. While user charges (or payments based on usage) apply in some instances, the main form of payment mechanism is availability payments (with deductions for non-performance).
  
- Mature legal framework
  - The existence of a stable, reliable legal system and the development of standardised contractual arrangements has enhanced the credit quality of transactions.

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<sup>a</sup> Moody's Investor Service, "Public Private Partnership Projects in Europe: Lessons from UK PFI", April 2000.

On the other hand, PFI projects also exhibit certain weakness, such as:

- \_\_\_ Highly leveraged financial structure
  - \_ Leverage in PFI transactions typically is very high. Debt may represent as much as 85-90% of total funding, with the remainder comprising (minimal) equity and deeply subordinated debt.
- \_\_\_ Low debt protections
  - \_ Depending on the stability and certainty of revenue streams, debt service coverages can be as low as 1.25x-1.30x.
- \_\_\_ Single asset nature of most projects
  - \_ Project viability and security normally centres around the performance of a single asset, such as a hospital, prison, road or bridge.
- \_\_\_ Main participants may not have strong credit profiles
  - \_ There may be limited scope for a project company or major contractor to pass risks on to facilities management subcontractors or other subcontractors, if they do not have sufficient financial capacity.
- \_\_\_ Political and other event risk
  - \_ Political and other events can affect project viability, given the long-life nature and exposure to a single asset. Performance and monitoring regimes and dispute resolution procedures are relatively untested, and need to be sustainable and applicable over the entire period of the concession.

Some of the early PFI deals offered attractive features to the private sector and there was an initial market perception that PFI was equivalent to government-backed public sector risk. However the underlying credit profiles of PFI transactions to date in the UK have been of low investment grade. The PFI market has seen average debt protections weakening, thinner margins and longer tenors being negotiated.

However this is also a result of an enhanced market understanding of complex deals and other credit enhancements eg index-linked bonds. The use of capital markets is increasing with a wide range of funding options now available, such that PFI projects are starting to look like normal, long-term projects.

### **7.1.2 Lessons learnt from UK Experience**

Not surprisingly, PFI suffered teething problems. The Bates' Reviews perhaps best summarise the initial difficulties associated with PFI<sup>9</sup>. The recommendations made in the Bates' reviews have in most cases been implemented.

#### **7.1.2.1 First Bates' Review**

The recommendations of the First Bates Review fall into four main categories which are summarised below.

#### **Institutional structure**

Bates made a number of recommendations regarding the institutional structure supporting the PFI process. These recommendations included the establishment of a Treasury Taskforce to oversee the procurement of PFI projects.

<sup>9</sup>The Bates' Reviews were undertaken for the UK Government by Sir Malcolm Bates, Chairman of the Pearl Group.

**Table 7.1: Transfer of Risk to the Private Sector on Toll Road Projects in Australia**

Project	Year	Construction Risk	Traffic Volume	Tax Risk	Financial Risk	Network Risk	Force Majeure
Gateway Bridge	1983	Shared	X	X	X	X	X
Harbour Tunnel	1986	✓	X	Shared	Shared	X	X
M4 Motorway Upgrade	1990	✓	✓	✓	Shared	X	X
M5 Motorway	1992	✓	✓	✓	Shared	X	X
M2 Motorway	1992	✓	✓	✓	✓	Shared	Shared
Melbourne City Link	1995	✓	✓	✓	✓	Shared	Shared
Eastern Distributor	1997	✓	✓	✓	✓	✓	✓

Similarly, funding mechanisms have evolved and changed as financial markets have become more comfortable with the nature and management of risks entailed in private sector investment in infrastructure. This is shown in the following table, which highlights the diverse range of funding instruments utilised in more recent toll road projects, compared with early projects where there was a tendency to rely on some form of government guarantee or other support.

**Table 7.2: Evolution of Funding Mechanisms for Toll Roads in Australia**

Project	Year	Funding Mechanism
Sydney Harbour Tunnel	1986	Government Guarantee
M4 Motorway Upgrade	1988	Bank Debt / Existing Motorway
M5 Motorway	1990	Bank Debt, Government, Contractor
M2 Motorway	1994	Listed Equity, CPI Bonds, Bank Debt
Melbourne City Link	1995	Listed Equity, CPI Bonds, Bank Debt, Infrastructure Bonds
Eastern Distributor	1996	CPI Bonds, Bank Debt, Infrastructure Bonds, Subordinated Debt

Project financing in Australia went through an embryonic phase in the 1980s and early 1990s. Key features of project financing in this period are summarised in Table 7.3.

**Table 7.3 Project Financing in Australia – Early Features**

Equity	Debt
Small levels of investment funds.	Tenor of between 12 and 15 years was considered long.
Usually private placement.	Bank market was the only source of funds.
Provided in majority by the contractor / operator.	Very restrictive bank terms and conditions applied.
Return requirement of 20-25%+ after tax.	

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However with increasing experience and knowledge of the financial markets and industry participants, some significant trends have emerged over the past 5-10 years, where high quality financial assets are in increasing demand. Recent trends in project financing are summarised in the following table.

**Table 7.4 Recent Trends in Project Financing in Australia**

Equity	Debt
Financial institutions such as superannuation funds, insurance companies and funds managers are now interested with many of them establishing separate infrastructure teams.	Capital Markets
Public listings are now considered a serious option.	— Capital markets have become more accessible and flexible.
Listed infrastructure funds are emerging and increasing in number and specialisation (i.e. by region or by type of infrastructure e.g. airports).	— A variety of capital market products are available eg. indexed, nominal, convertible, subordinated bonds.
Pre-tax IRR's can be as low as 12-15% per annum with investors preferring pre-tax cash distributions.	— Terms up to 35 years through capital markets are available.
	— Competitive debt service coverage ratios and terms.
	— Accept full project risks except for construction.
	Bank Debt
	— Tenor has lengthened to 20 years plus, given the competition by the capital markets.
	— Margins are reducing and debt coverage ratios and security requirements have also reduced.

Although the BOOT approach has evolved into a robust model for private sector investment in economic infrastructure, its application to social infrastructure is more problematic, given the absence of reliable independent on third party revenue sources, and the consequent reliance on a government revenue stream to achieve commercial viability. In part, this has prompted the growing interest in the PPP model adopted in the UK, with its greater emphasis on social infrastructure, and on developing delivery options centred around partnerships designed to bring together the relative skills and comparative advantages of both the public and private sectors.

### 7.3 Comparison of UK and Australian Approaches

Table 7.5 provides a concise summary which compares and contrasts the key features of the UK and Australian approaches to private sector investment in infrastructure.

**Table 7.5 Comparison of UK and Australian Approaches**

Australian Model BOOT	UK Model PPP
Project Driven	Policy outcome driven
Priorities set by financial payback	Priorities set by community need
Financial viability required	Economic viability is the test
No net cost to Government	Defined price for defined outcome
Maximum risk transfer	Appropriate risk transfer
User pays; some CSO/ concession make-up	Government can set pricing policy
Government input generally limited to corridor acquisition	Government funding generally involved
Adversarial contract based approach	Partnership

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## 8. LOOKING TO THE FUTURE

In Australia, the opportunity for applying funding alternatives to PPPs has been shown in the past few years by several major developments including:

- The successful listing in equity markets of shares for the M2 motorway (Hills Motorways) and Melbourne City Link (Transurban) and the direct participation of retail investors in these transport projects. The listed equity in both projects is currently trading at sizeable premiums to the original issue prices phase: 400% and 350% respectively;
- The entry of major fund managers, life offices and superannuation funds (also called pension funds) into infrastructure investment - an area which was formerly considered as being of little interest because of the illiquid nature of the equity and the relatively long period before such projects become cash positive to equity investors. Now, superannuation funds are being considered as the natural investors in this sector, given their willingness to become involved as patient capital and their reduced need for immediate cashflow;
- The development of several dedicated infrastructure funds. These funds aim to attract both institutional life insurance capital, superannuation and retail capital into infrastructure investments. In Australia, around A\$2 billion of such funds have been established or are planned, to seek and manage investments in infrastructure projects. There are also a growing number of dedicated infrastructure investment funds throughout Asia;
- The use of innovative debt instruments like consumer price index (CPI) indexed bonds and other capital market instruments which access institutional funds; and
- The fact that traditional providers of project finance have responded to these competitive pressures and are now willing to provide funds at more competitive interest rates and for a longer maturity (20 years plus) than was previously available. Further, banks have displayed a willingness and capacity to underwrite inflation indexed bonds, infrastructure bonds and other long-term capital markets instruments.

However the application of these funding mechanisms and the future involvement of debt financiers and investors in PPPs in Australia (especially in social infrastructure) will be dependent upon the following:

- government commitment at all levels to create and implement a national PPP framework eg State PPP policies are developed with a view to encouraging a consistent national framework;
- a regulatory legal and tax environment which is conducive to private investment (eg amendments to tax legislation in particular Section 51AD and Division 16D);
- development of better processes (eg. in the clear definition of the scope of works) and standardised documentation;
- movement towards optimal allocation of risks rather than the previous "all or nothing" approach to risk transfer; and
- financial arrangements through a combination of payment mechanisms which allow the private sector to finance long term investment whilst delivering value for money.

An environment has been created in Australia that allows for the assessment of different models of private sector involvement in a diverse range of infrastructure projects. The range of projects is matched by the diversity in financial, economic and political need resulting in a multiplicity of approaches relative to jurisdiction and industry. The policy statements and guidelines released in the last twelve months by State Governments will lead to government departments undertaking more long term planning and development of infrastructure projects.

In the past, the Australian PPP model was typically focussed on project driven objectives with essentially no net cost to government and maximum risk transfer. This approach was suitable for hard infrastructure assets such as tollroads but was less appropriate for "soft" social infrastructure assets e.g. hospitals, schools, prisons. The various PPP guidelines released by State Governments around Australia will encourage greater emphasis on 'value for money', true partnership, optimal risk transfer and sustainability of outcomes as is the approach adopted in the UK.

Project financing for economic infrastructure in Australia is relatively advanced with a high understanding by investors, financiers and capital markets. This has resulted in a range of available funding options from senior debt to indexed bonds to specialist infrastructure funds which have evolved over a 20 year period. Typically project financing for infrastructure in the 1980s was dominated by senior bank finance, however competition from the capital markets through bond issuances has lengthened the tenor of debt and reduced margins, thereby providing a competitive debt market for quality infrastructure assets. The addition of specialist infrastructure funds over the past 10 years has provided sophisticated equity capital to many infrastructure projects in Australia.

These trends are likely to continue, with the development of more complex or hybrid funding instruments and their broader application to social infrastructure projects. There will be further deepening of capital markets in Australia, but international sources of capital will be increasingly important for large-scale infrastructure projects.

The recent interest in pursuing a broader set of PPP arrangements in Australia has created hope for the dawning of a new era in project financing. Whether these hopes are realised, or this is just a false dawning, depends on both governments and interested private sector participants working together in genuine constructive partnerships with the objective of providing better and more productive infrastructure for our growing nation.