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**Appropriate Financial Instruments
for Public-Private Partnership to
Boost Cross-Border Infrastructural
Development-EU Experience**

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Abstract

The member states of the European Union (EU) and the EU institutions have increasingly been using public-private partnerships (PPPs) to accelerate the development of (ambitious) trans-national infrastructure. This paper argues that in the EU (i) private sector partners remain risk-averse; and (ii) risk-pooling across a larger number of tax-payers tends to reduce the cost of risk to zero, making EU funds highly desirable and sought after for public infrastructure development. This paper argues that private equity has not been forthcoming to the extent that had been expected by those propagating this method of finance. In those instances where private non-publicly guaranteed resources have been used, the distribution of risks between public and private partners remained asymmetric, with public governmental bodies carrying the financial risks, which ultimately may become a contingent liability for the country's public finances. However, EU and European Investment Bank (EIB) public funding is used not simply because the risks are spread more widely, but rather because EU rules and regulations for using such funds lead to better preparation of projects and greater efficiency gains in project implementation and delivery.

JEL Classification: G32, H44, O19

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1. INTRODUCTION

A lack of infrastructure is proving a major constraint in sustaining and expanding Asia's economic growth, in particular in (re-) emerging fast-developing countries such as India, the People's Republic of China (PRC), Indonesia, and Viet Nam. Inadequacies of economic infrastructure mean that it is more difficult to make growth inclusive for the poor, many of whom reside in remote and sparsely connected parts of their countries.

Internationally, interest in public-private partnerships (PPPs) is growing because it seems to offer a solution that can overcome barriers to development due to a lack of infrastructure. Economic growth is to an important extent dependent on the development of infrastructure, particularly in transport and utilities such as water, power, and telecommunications. In addition, as countries develop, there is a need to improve social infrastructure for health and education, as well as many other facilities, including prisons.

PPPs allow governments to expand the provision of services by using market tools, rather than publicly provided and managed facilities. It increases the number of services that can be provided within a given state budget and, more importantly, it increases their value in terms of quality and performance. In some areas, such as information technology and defense, the combination of public and private interests can create commercial value to some applications.

In recent years several Asian governments have actively been promoting PPPs in the key infrastructure sectors of transport, power, urban infrastructure and tourism. Bringing in more private finance into key areas such as road building, waterways, power generation, seaports, airports, etc. would increase the capability of governments to tackle infrastructure deficits. PPPs could be an effective means to enhance the financing of the long list of essential infrastructure projects across the east and south-east Asian sub-regions.

The member states of the European Union (EU) as well as the EU institutions themselves have been increasingly using PPPs to accelerate the development of ambitious trans-national infrastructure. To build the planned so-called Trans European Networks will require a financial outlay estimated in excess of €500 billion. For the EU, these are a central part of its strategy to integrate the economies of the EU and create an effective and functioning single market, able to reap the growth benefits associated with EU-wide economies of scale.

This paper presents the EU's rationale for using PPPs and its experience, with numerous instances of successful PPPs using a wide variety of forms, does not offer a significantly different scenario from that of its member states. The novel feature is that the European Investment Bank (EIB) can and does provide a framework for co-operation and tying together several national governments. It can provide a technical capability for authoritative risk assessments. It can also provide financial resources. However, the number of cases where significant additional risk-bearing resources from non-public entities remain comparatively limited.

2. RATIONALE AND CONCEPTUAL FRAMEWORK FOR USING PPPS

In the last two decades there has been an important increase in the use of public private partnerships. The driver of these partnerships is often limited public funds combined with an increasing acceptance that the private sector is often better able to handle many of the traditional tasks of the public sector. Often the private sector has

shown better ability in increasing quality and efficiency of services, due to the need to integrate risks into the planning process.

One can summarize the reasons for implementing PPPs as follows:

- To provide additional capital;
- To provide better management and implementation skills;
- To provide more added value;
- To more efficiently allocate risks, thus improving the identification of needs and the optimal use of resources over the whole life of a project;
- The potential advantages of PPPs over traditional public procurement procedures are presented in Table 1 below.

Table 1: Potential Advantages of PPPs

Acceleration of infrastructure provision	PPPs allow the public sector to change the upfront capital expenditure of a project into a flow of yearly service payments, allowing projects to be delivered earlier and reducing public funding constraints.
Faster implementation	The incentives by the private sector to deliver on time and according to specifications increase. Risks of design and construction are transferred to the private sector. Payments based on delivery and quality, or the need to charge user fees encourages efficiency and quality.
Reduced whole life costs	While PPPs tend to be more expensive on paper, as these integrate risk costing, the final costs have been lower, as time and cost overruns have been cut considerably.
Better risk allocation	A core principle of PPPs is the allocation of risk to the partner best able to manage it.
Better incentives to perform	The allocation of risk to the private sector and the stricter links between delivery and the returns to the developers and operators increase efficiency and quality.
Improved quality of service	Depending on the PPP used, the private sector profit level may depend on the quality of delivery. Demand for the service and thus fee returns may depend on quality.
Generation of additional revenues	Due to increases in quality and efficiency the private sector may manage to increase profits, reducing the need of any subvention during the lifecycle of the project.
Enhanced public management	The involvement of private sector management in the public sector introduces (into the civil service) elements of performance benchmarking rather than the traditional delivery of services without seeking to achieve value for money.

Source: Authors' compilation.

Despite all these benefits, PPPs require a mature market with a well-developed private sector to ensure sufficient competition for the tenders. Contracting is complex, especially given the need to take into account the whole life cycle of the projects. The private sector does not have the same incentives as the public sector in the provision of public services, thus the specifications and outputs required from the public sector have to make commercial sense for the private sector. If there is a lack of infrastructure due to a market failure, the private sector will not participate if the social benefits of the project cannot be transformed into a financial return to the private

operator. Also, the level of risk may limit the interest of the private sector in large infrastructure projects, where returns only accrue in the long-term, increasing the risks of overestimating revenue streams. In some areas traditional public procurement is unavoidable, where the state finances, owns, and operates the facilities, with the private sector only providing specific services for a short time.

2.1 Risk distribution as a determining factor in the use of PPPs

The distinguishing feature between standard public procurement procedures and different types of PPPs is the distribution of risks. The kind of risk-sharing used determines the type of contractual agreement. This has been reviewed in a European Commission document¹ on regional policy. It specifies which PPPs are most suitable for which kind of projects, developing a “best practice” guideline. Other public inter-governmental institutions such as the Organisation for Economic Cooperation and Development (OECD) and the World Bank seek to propagate the use of PPPs.²

The kind of partnership between a public and a private partner depends on the distribution of responsibilities on the following risks (see also 7.2 below):

- Construction risk related to the design and the construction phase;
- Performance and availability risk related to the (mis)match between the contractual specification and the final product;
- Residual value risk where the market price of an asset at the end of the contractual agreement is lower than expected, for example the value of a public infrastructure asset when it reverts to the public sector after the end of the concession to a private entity;
- Financial risk linked to the interest rate and exchange rate fluctuations;
- Demand risk related to the risk that actual use of the asset after completion is lower than expected with the project perhaps becoming non-viable if service charges are supposed to cover construction and/or maintenance costs; and
- Governance risk, where the public authorities are unwilling or unable to adhere to the contractual obligations and stipulated terms and conditions.

It is important to emphasize that the first three of these types of risk are essentially of an additive nature. However, the latter three relating to financial, demand and governance risks are essentially of a multiplicative nature. This means that their impact on financial outcomes is likely to result in a much greater degree of uncertainty.

2.2 Choosing the right level of risk distribution

The value for money of a PPP project depends principally on (i) the distribution of risks between the public and private sector; and (ii) the quality of the project preparation. It is clear that PPPs have the potential to reduce the expenses for the government or at least spread them differently over time. However, the potential of PPPs to be more cost effective and require less total expenditures is based on very specific conditions, generally known as the Arrow-Lind conditions.³

¹ European Commission 2003.

² OECD. 2007

³ We are here concerned with total costs including public expenditure and user charges. PPPs are often used to transfer costs from the public purse to the private user.

In a seminal article, these authors discussed “whether it is appropriate to discount public investment in the same way as private investments”. They concluded that “when the risks associated with a public investment are publicly borne, the total cost of risk bearing is insignificant and, therefore, the government should ignore uncertainty in evaluating public investments”⁴ This radical suggestion was based on the notion that the impact of publicly-financed investments on the tax burden of individual taxpayers was much smaller than the potential impact on shareholders of private companies. The authors proved that if the number of taxpayers were infinite, the costs of risk-bearing “are negligible”.⁵ Of course, it will never be the case for a private equity investor that the number of shareholders will be infinite, and hence the attitude to risk will always remain fundamentally different. Private investors will therefore demand a higher risk premium than public-sector decision makers. The latter may indeed choose to follow Arrow-Lind’s conclusions and approach uncertainty as if it did not matter.

This section analyzes the conditions for optimal risk allocation in a context of certainty as well as of uncertainty. Three important conclusions are derived. First, the risk-spreading aspect of public investment, leading to a lesser risk-averseness than private investors, means that the optimal transfer of risk from public to private operators is fundamentally limited.

2.2.1 Optimal risk distribution without Uncertainty

From an accounting point of view, publicly financed infrastructure should be *less* expensive than private-sector financed infrastructure. The costs of construction and management should be the same for a project regardless who funds it. However, the private sector will require a profit and will demand high rates of return to cover the inevitable risks in complex infrastructure projects. Apart from the potential of spreading capital costs over time, there is no *a priori* reason for the Net Present Value of a project funded by the state to be more cost-effective than a privately funded and operated project. Only if wholly-publicly funded and operated infrastructure development is unable to achieve optimal efficiency in its management and resource use would PPPs be able to achieve cost-effectiveness.

One of the main reasons is the different attitudes to risk taken by private operators, in accordance with Arrow-Lind conditions.⁶ Being more risk-averse than the state, private-sector project preparation is undertaken in much greater detail. In PPPs the difficulty for the authorities is to strike the right balance between risk distribution, the risk premiums of the private sector, and the level of detail in the contract specification. Poor decision-making and bad preparation with regard to any of those three may rapidly erode the efficiency gains from any PPP.

Depending on the project characteristics, the optimal level of risk-sharing differs. Some risks are so high and unpredictable that it often requires some risk to be retained by the public sector to attract any private sector involvement. Exchange rate risks are a classic example of these and may require the state to engage in swap-arrangements and other methods of hedging for future payments in different currencies.

The principal rule is that the risks are carried by the party most able to handle and minimize the risks. Avoiding construction delays and cost overruns is often better handled by the private sector. However, the subsequent demand risk may be too high for the private sector to handle, with its requirement that profitability is high enough for repayment of capital and interests. This is particularly the case for public assets and services where demand is independent from private sector activity. For example,

⁴ Arrow and Lind (1970), p. 163.

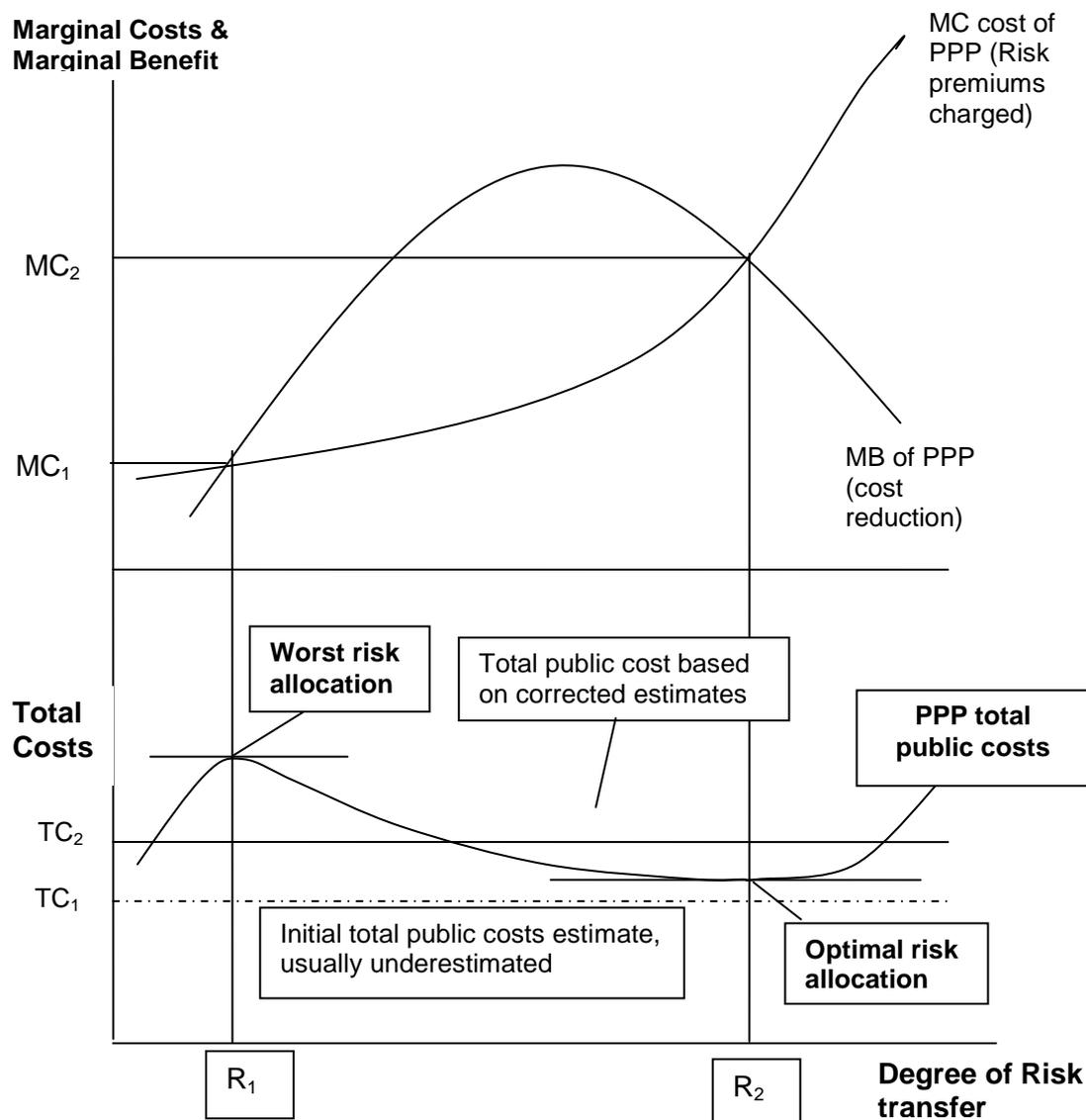
⁵ Arrow and Lind (1970), p. 174.

⁶ Arrow and Lind (1970)

motorway building and maintenance companies have few, if any, instruments to influence the future level of traffic demand.

The “value-for-money” realized is thus a non-linear function of the degree of risk transfer from public to private operators. Figure 2 shows the relationship between risk premiums and savings due to efficiency gains of PPPs, assuming quadratic relationships. In this case, the analysis is straightforward. If the public sector and private sector had no efficiency differences, the total cost of a project would be cheaper than using private financial resources and private operators. The private sector exhibits Arrow-Lind behavior with higher risk aversion than the public sector and thus would demand higher risk premiums. A good example is a concession for an infrastructure asset where the state pays the operators according to demand. This could be a shadow toll for motorways. The payment would also need to cover the capital costs. The private financial sector and the operator would seek high risk premiums included in the shadow toll to take into account possible demand fluctuations. In addition the private sector seeks a net profit unlike the public sector.

Figure 1: Allocation of Risks without Uncertainty



Source: Author's compilation

It has been demonstrated that the public sector tends to underestimate considerably the total costs of projects. This is due to the weak integration of risk factors in estimations. Thus the total costs have repeatedly (and generally systematically) exceeded initial estimations. This has been extensively reported and discussed in academic literature and attributed mainly to 'optimism bias' and the incentive of strategic misrepresentation of costs (see e.g., Flyvbjerg, Skamris, Holm, and Buhl 2002 and 2005). Public operators are also generally considered to be less efficient in keeping costs down, because the profit incentive is missing. For that reason the financing, building and operating of infrastructure projects are better handled by the private sector, because the private sector has greater incentive to keep costs down and to account fully for risks.

Due to the size of the outlay, the long-term lifecycle and the large number of different types of risks linked to large public infrastructure, the private sector will in general not undertake the development of infrastructure without public sector support or guarantees. The PPPs offer *de facto* risk-sharing elements such as, for example,

guarantees on future revenues from operating the infrastructure, which makes the private investment viable.

Assuming that the total costs of a uniquely public sector development approach are known (i.e., certainty), there has to be a point of optimum risk transfer to the private sector. Initially, giving the private sector only very limited risk transfer at R_1 will eliminate the private sector's efficiency incentives, so that involving the private sector with a low risk transfer actually makes total costs (depicted on the y-axis) higher. Hence R_1 represents the "worst" allocation of risk from the point of view of the public sector. As the degree of transfer of risk increases (a movement from left to right along the x-axis of Figure 2 above), so do the efficiency incentives of the private sector. Assuming non-linear quadratic cost functions, the decision makers will seek to ensure that the marginal benefits (MB) of the risk transfer exceed the marginal costs MC. In effect, this is the case where the additional cost savings are higher than the additional costs of paying the private sector a risk premium.

The point of optimum risk transfer is where the $MB = MC$ at R_2 in Figure 2. With further risk transfers, to the right of this point, the MC of the additional risk premiums exceed the MB of the efficiency gains. Hence at point R_2 we have the lowest total costs, in effect below TC_2 , the costs which would have incurred without involvement of the private partners. This cost reduction, due to a PPP-approach, constitutes the 'social profit' of the risk transfer.

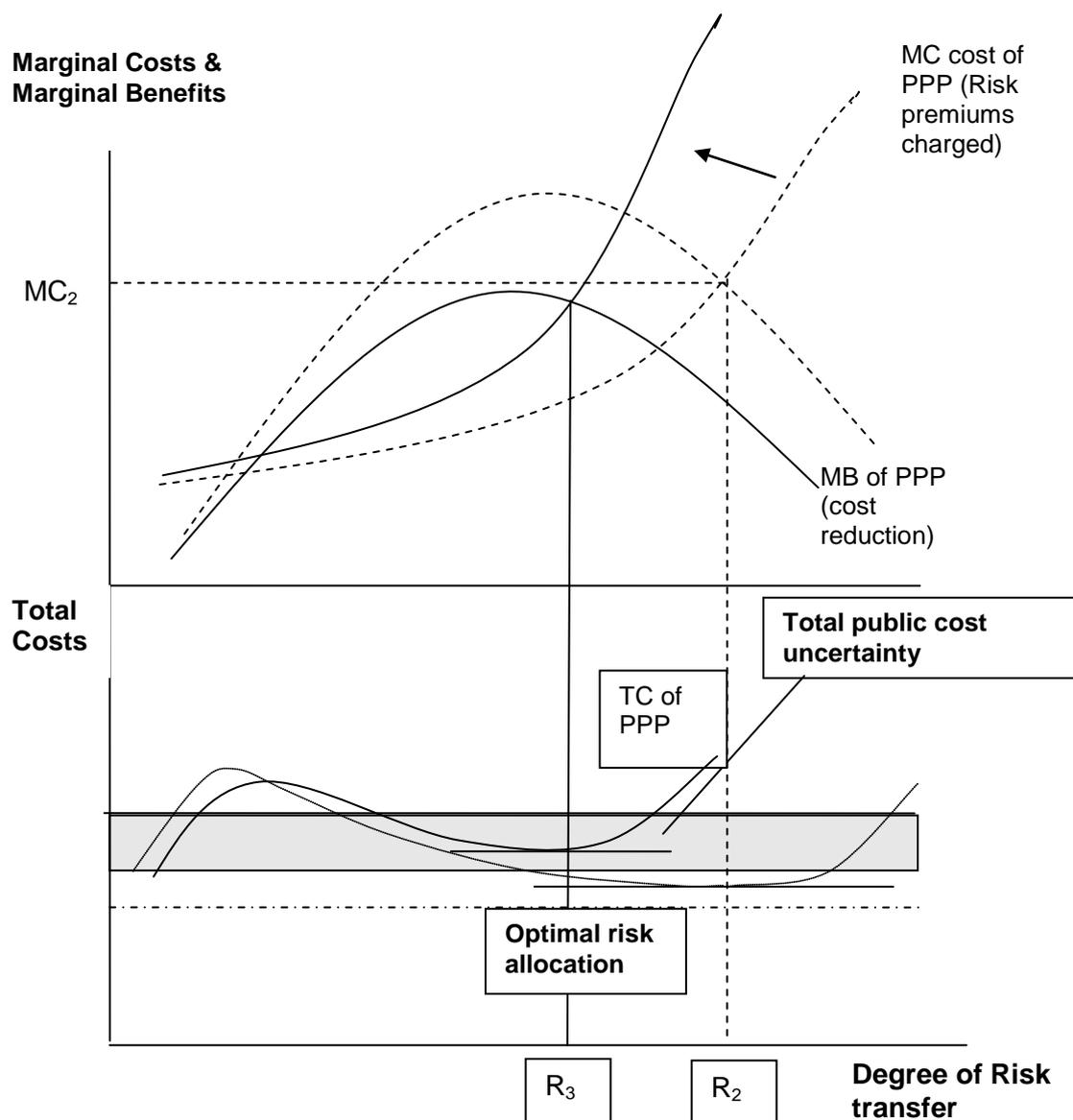
2.2.2 Optimal risk distribution with Uncertainty

However, there are various difficulties which decision makers encounter in the capture of this social profit through PPPs. The first is the inherent difficulty in estimating with certainty *ex-ante* what the total costs of a publicly-built and operated infrastructure project will be. The second is the incentive of the private sector to seek lower risk transfer while negotiating high risk premiums (and hence profits). Badly negotiated deals could make the projects costlier and more inefficient than wholly publicly built and operated ones. Figure 3 seeks to demonstrate these uncertainties and the behavioural effects which can strongly affect the viability of a project.

Figure 3 represents the case where the high premiums demanded by the private sector, as well as the uncertainty of the total costs of the project, affect strongly the benefits of risk transfers. The marginal cost curve shifts to the right, reflecting higher risk premiums demanded by private partners. Moreover, the marginal benefit curve may move to the right as well, reflecting the case in which the differences between private and public sector efficiency levels are less pronounced. In general, one of these two effects would be sufficient to yield the outcome depicted in Figure 3 below.

Figure 3 shows that the optimum risk allocation R_3 under uncertainty is to the left of R_2 obtained above—greater uncertainty leads to demands for higher risk premiums and possibly lesser private sector efficiency gains. Hence, the optimal degree of risk transfer from public to private partners is less and involvement of the private sector is reduced. The case drawn in Figure 3 remains "special" in the sense that the resulting transfer of risks still leads to net efficiency gains for the public sector. The total costs for the public sector is within the error margin of the total cost estimation of the infrastructure—without public-private partnership the total costs would have been higher. This critically depends on the degree of shift of the marginal cost and benefit curves in response to uncertainty and the resulting behavioral responses of private sector partners.

Figure 2: Allocation of Risks with Uncertainty and Behavioral effects



Source: Author's compilation

As discussed below, ensuring that the private sector offers a competitive cost for construction and operation can be ensured through competitive tenders. While for the level of interest charged by the private financial sector, the existence of strict selection procedures and solid loan guarantees can keep those down. The intervention of the EIB and the loan guarantee offered by the EIB in conjunction with the European Commission serves this purpose. Partial public co-financing can also reduce costs and risks for the private sector, but it also can reduce their efficiency incentives.

However, in complex and large infrastructures, the contractors able to provide the necessary technical ability are few. In some countries there may only be one capable of performing the work. This gives the contractors the power to negotiate terms and this may ultimately lead to the erosion of PPP benefits. In the EU, the rules attempt to limit the power of contractors through tendering rules and by allowing bids from companies based in any EU member state. However, problems in procurement and a certain national bias in the selection procedures appear to persist even in the EU's

internal markets. The transparency of procurement processes in a number of member states has been questioned.

3. PROCUREMENT SYSTEMS AND PPP EXTENSIONS

The different models of PPPs are presented in Figure 3 and based on international nomenclature as developed by the OECD and adopted by the EU. This figure represents the distribution of the project development and financial risks depending on the procurement agreement. Each PPP should try to ensure that risks are distributed to those parties best able to handle it.

In the traditional public procurement the private sector can compete for bids for design and construction of public infrastructure, but beyond this the role of the private sector is limited. Nevertheless, there are extensions to the traditional public procurement scheme. These extensions are (i) service contracts; (ii) operation and management contracts and leasing contracts. However, these extensions are rarely considered PPPs in a strict sense.

Service contracts are a very limited and specific form of public-private co-operation used for simple short term operational requirements. The private sector procures, operates and maintains an asset for a short period of time. As the management stays in public hands this is to be regarded more as a method for the use of the technical skills of the private sector.

Operation and management contracts transfer the responsibility for asset operation and management to the private sector. These are generally for a short period but extendable. The public sector bears the investment and financial risk, while the private sector is paid based on performance and the achievement of specific objectives. These agreements are to be found in the transitional periods of a privatization of a utility.

In the case of **Leasing** we have for the first time the full transfer of risks to the private sector of maintaining an asset. The private sector buys the operation and management of an asset for a fixed period of time. The private sector will have the incentive to operate the asset efficiently to reduce costs while meeting the operational efficiency. The public sector risk stays in the areas of construction, capital improvement and financing. Leasing is suitable for infrastructure assets that generate an independent revenue stream, such as public transport.

3.1 Turn-key procurement or Build-Operate-Transfer (BOT)

The aforementioned agreements, even if transferring some public sector operations to the private sectors, are only a very limited form of partnership with the private sector. When referring to PPPs, the first real form of partnership starts with BOT⁷ or more complex agreements. In BOT agreements the private party bears the responsibility for the whole operational life of the project: design, construction, and operation. The combination of these responsibilities under one single operator fosters efficiency gains.

While the public sector specifies in detail the standards and output quality requirements of the asset, the private party needs to consider how to reach the standards within the specified budget. Private parties need to take into account that any problems in design and construction will affect profitability during operation and maintenance.

⁷ Also called Design-Build-Operate-Transfer DBO or “turnkey”

From the public budget and expenditure point of view these BOT agreements help to avoid many of the known shortcomings and inefficiencies observed in publicly managed assets, including less rigorous financial discipline. Nevertheless, the public sector, having assumed the whole financial risk, needs to be extremely careful in the specification of standards and outputs. This form of PPP requires the public sector to finance the whole project cycle in full, which can extend over a period of 20 years. BOTs are often used for mass-transit or wastewater treatment plants.

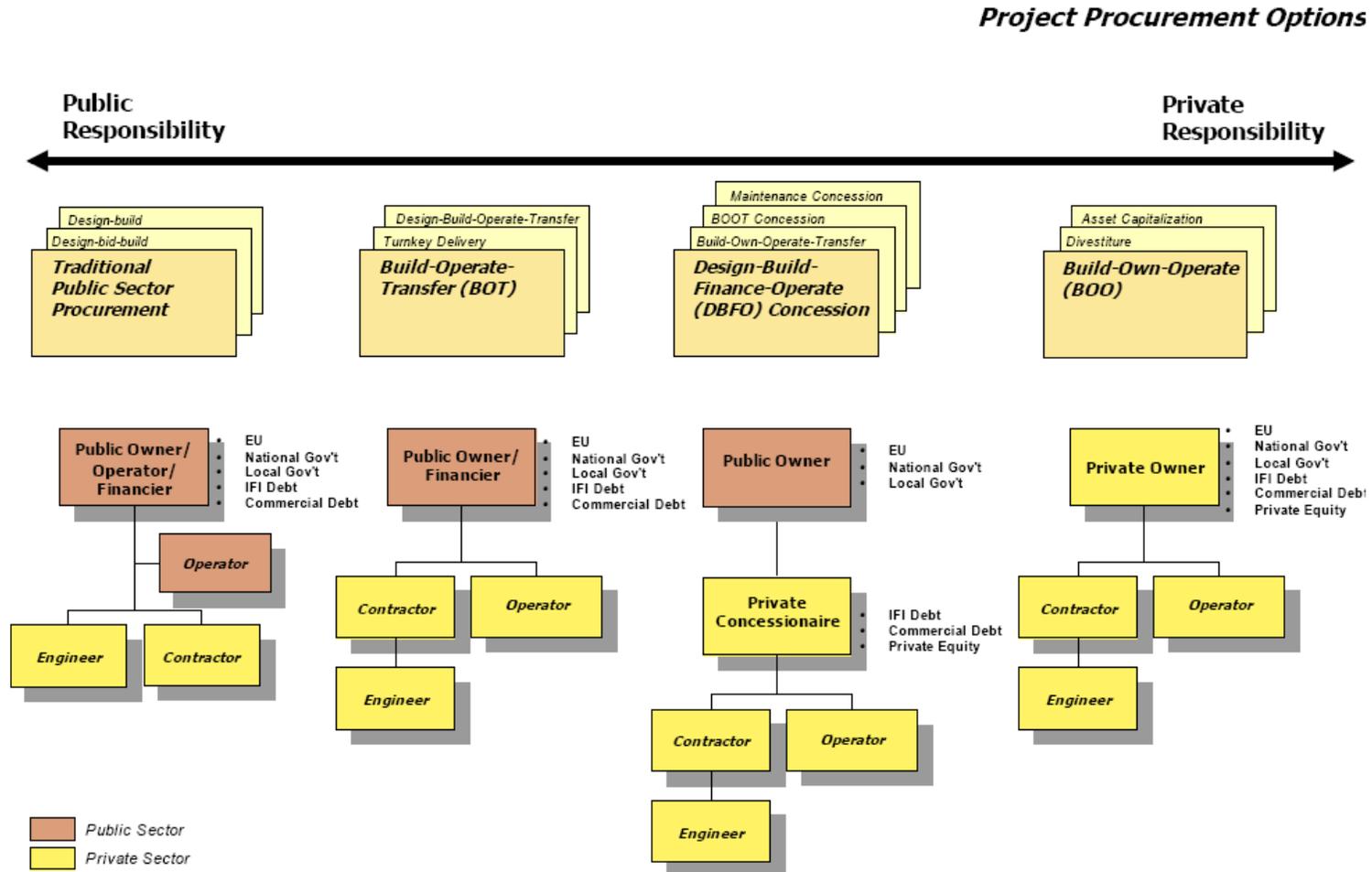
3.2 Design-Build-Finance-Operate (DBFO)

A further type of PPP arrangement emerges when the financial responsibility in the form of concessions is transferred to the private sector. This is usually referred to as a Design-Build-Finance-Operate (DBFO) PPP scheme.⁸ In this case the whole lifecycle and the finances of the project are taken over by the private party. This form of PPP usually grants an operator the right to build and run a public facility over 25 to 30 years, financing the investment through revenues generated by user fees, or alternatively shadow tolls i.e., payments by the state to the private operator based on the level of use of the asset. The private party will thus finance, build and manage the asset. It may be also be paid by the state in relation to its performance (e.g., shadow tolls based on the use of a motorway). Ownership of the asset will however remain in the hands of the state and it reverts to its control after the end of the concession.

This is the most common and most attractive form of PPP and is frequently found in EU member states, particularly for transport infrastructure. This reflects that it transfers the financial responsibility to the private sector, reducing public outlays. The level of risk taken by the private party can be total, with the government having to intervene if the standards and outputs are not satisfactory, i.e., taking control, or issuing a fine or even appointing a new private partner/contractor. However, more often than not governments do take a risk by guaranteeing that the private party is bailed out if overruns in project timing or costs affect the financial viability of the private party's operation, or if demand risks after construction can make the project non viable. It is clear that in the case of large public infrastructures of national interest the bankruptcy of a private operator will in any case *de facto* force the government to take over control of the operation. This reduces the risk for operators but also their incentive to be efficient. However, in projects with a long-term maturity and important risks, this may be the only way to ensure the private sector continues to participate in the provision of infrastructure perceived to be in the public interest.

⁸ Also referred to as maintenance concession, BOOT, or BOOT concession

Figure 3: Distribution of Responsibility/Risk According to Type of Procurement System



Source: European Commission. 2003, p. 18

3.3 Divestiture or Build-Own-Operate PPPs

Divestiture is a different method of partnership where the government sells shares of public assets to the private sector. This is usually the case with privatization processes. The difference with previously described forms of PPP is that the asset is now owned by the private sector. However, the state retains some control by regulating the activities of the company, e.g., avoiding monopolistic pricing, price discrimination, or the use of quota in the provision of the services.

The level of divestiture is variable, with partial divestitures being very popular. The government transfers part of a public company’s assets, blending the responsibilities between public and private parties. This introduces private management and operational efficiency while protecting the public interest and national assets. There is no blue print for such arrangements and detailed ownership and operational arrangements vary case by case.

In the case of BOO the government is transferring the full construction and management of a public asset to the private sector. This is the case where public services are given over to the private sector. The government, however, regulates the provision of the services.

These groups of PPP mechanisms have many variants, and EU member states may use different acronyms. For example, in the United Kingdom (UK) the DBFOs are called Private Finance Initiatives (PFIs).

The effectiveness of alternative PPP structures is presented in Table 2 below. DBFO is perceived to perform better than alternative procurement models on effectiveness criteria; however, the implementation constraints are considered to be “very high”.

Table 2: The Effectiveness of Alternative PPP Structures

	Improved Service	Enhanced Operational Efficiency	Enhanced Risk Sharing	Life Cycle Costing	Accelerated Implementation	Leveraging of Public Funds	Implementation Constraints
Private Outsourcing							
Service Contracts	Possible	Yes	No	No	No	No	Low
Management Contracts	Yes	Yes	No	No	No	No	Moderate
Leasing	Possible	Yes	Some	Possible	No	No	Moderate
Integrated Private Development							
BOT	Yes	Yes	Some	Yes			High
Private Investment							
DBFO Concessions	Yes	Yes	Yes	Yes	Yes	Yes	Very High

Source: European Commission. 2003, p. 30

4. PRECONDITIONS FOR SUCCESSFUL PPP IMPLEMENTATION

4.1 Procurement and the Development of Advanced Tendering Systems

The tendering phase is essential to ensure that the quality of the outputs is the same as that of public provision. PPPs have the potential of blending public interest and private efficiency, but this potential can only be unleashed if the tendering and public procurement process are very well managed. It requires a very high degree of expertise by the public sector.

To find the best contractors, it is necessary to have clear procurement regulators which inform properly the private sector and guarantee a level playing field in the process of awards. The tendering process has to be designed so as to maximize the benefit of a PPP relationship. This may mean that tendering processes may require separate stages and even complex pre-award discussions with companies to verify their capacity to deliver.

For complex developments, the EU has started using negotiated competitive tendering, which includes negotiations on the details of the tender after a pre-selection with two to three frontrunners. This is sometimes necessary when the public sector is not able to specify in detail each aspect of the wished asset or service and the private sector is requested to propose alternatives. The negotiated procedure has been used internationally to seek the best value for money, allocate risk better, and encourage innovative solutions.

Tender procedures are complex and may be difficult to sustain for some companies. Depending on the project and complexity, the public sector may cover costs associated with the tender procedure, especially after pre-selection. A guarantee of intellectual property protection should be guaranteed for the innovations which the tendering party is offering.

The allocation of risk is a cornerstone for efficient PPPs. Excessive risk for the private sector will damage the tendering procedure, and too little risk to the private sector may affect efficiency negatively.

4.2 Legal and institutional requirements

The development of successful PPP investments is influenced by a number of issues, in particular the legal framework and the availability of sufficient private enterprises with the know-how to perform the required works. Also, it is necessary that an “open economy” approach with national treatment is guaranteed in order to attract foreign companies. The lack of sufficient competition in tendering will result in a narrower choice of contractors, higher prices and the risk of not finding a sufficiently suitable private company, increasing the risk that the project objectives are not realized.

The legal framework has to be conducive to private involvement, in particular if private funding is sought from international commercial lenders. The legal environment is of paramount importance. Even in the EU, some member states, especially the newest, have encountered problems in the regulatory sphere. Regulatory uncertainty and unpredictability will keep financial institutions at bay. The legislative and regulatory provisions need to be well developed and articulated before attempting to implement PPPs.

There is a need to identify elements which would affect private sector participation, such as the viability of the project or market distortions. Public procurement regulations regulating relationships between the public sector and the private sector need to be clarified especially those concerning the benefits and obligations for each party and the distribution of risks over the life cycle of the project. The public sector needs to have specific teams specialized in setting up PPPs, able to respond to the needs of specific projects.

Some of the issues that need to be taken into account are the following:

- Legal capacity of the parties and the legal requirements of the state to provide services
- General legislation determining the role of the private sector in providing public services
- Legislation clearly setting the conditions for participation of foreign companies or financial institutions
- The existence of a legal basis for cost recovery mechanisms
- The ability to provide guarantees to the private contracting parties over the period of their involvement
- Clear land and property rights including intellectual property laws
- Clear land acquisition rules
- Planning permission requirements
- Licenses
- Transparency of national laws
- Administrative capacity to negotiate and follow the contracts
- Provisions for dispute settlement
- The role and requirements for any state finance participation
- Clear competition and antitrust legislation
- Clear labor and social security laws
- Clear tax and accounting liabilities
- Open and clear procurement procedures with very clear project specification requirements
- Rights to step in in the event of project failure and availability of alternative contractors
- Reputation (environmental, social) of the projects
- Credit standing of the public sector counterparty
- Certainty of the project cash flows to meet debt service requirements

The above list of desirable preconditions has been adapted from OECD and European Commission guideline documents with some additions from interviews with specialists.

In addition it is important to clarify requirements on environmental or social impact assessment, and in particular which requirements international lenders, especially institutional lenders such as the ADB, the World Bank and other publicly financed development banks would require if their funds are to be involved.

Depending on the kind of uncertainties and foreseeable problems with some projects, specific provisions can be used to eliminate some of the risks for private contractors, maintaining however the incentives to provide the goods on time and at specified cost using BOT PPPs or mixtures between BOT and DBFO. The European Commission (2003) has compiled a table of advantages and disadvantages (Table 3).

Table 3: Advantages and Disadvantages of PPP Relationships

PPP Type	Main Features	Application	Strengths	Weaknesses
Contracting	<ul style="list-style-type: none"> Contract with private party to design & build public facility Facility is financed & owned by public sector Key driver is the transfer of design and construction risk. 	<ul style="list-style-type: none"> Suited to capital projects with small operating requirement. Suited to capital projects where the public sector wishes to retain operating responsibility. 	<ul style="list-style-type: none"> Transfer of design and construction risk. Potential to accelerate construction program. 	<ul style="list-style-type: none"> May increase operational risk. Commissioning stage is critical. Limited incentive for whole life costing approach to design. Does not attract private finance
BOT	<ul style="list-style-type: none"> Contract with a private sector contractor to design, build, and operate a public facility for a defined period, after which the facility is handed back to the public sector. The facility is financed by the public sector and remains in public ownership throughout the contract. Key driver is the transfer of operating risk in addition to design and construction risk. 	<ul style="list-style-type: none"> Suited to projects that involve a significant operating content. Particularly suited to water and waste projects. 	<ul style="list-style-type: none"> Transfer of design, construction and operating risk Potential to accelerate construction Risk transfer provides incentive for adoption of whole life costing approach Promotes private sector innovation and improved value for money. Improved quality of operation and maintenance. Contracts can be holistic Government able to focus on core public sector responsibilities. 	<ul style="list-style-type: none"> Contracts are more complex and tendering process can take longer Contract management and performance monitoring systems required. Cost of re-entering the business if operator proves unsatisfactory. Does not attract private finance and commits public sector to providing long term finance.
DBFO	<ul style="list-style-type: none"> Contract with a private party to design, build, operate and finance a facility for defined period, after which the facility reverts to the public sector. The facility is owned by the private sector for the contract period and it recovers costs through public subvention. Key driver is the utilization of private finance and transfer of design, construction & operating risk. Variant forms involve different combinations of the principle responsibilities. 	<ul style="list-style-type: none"> Suited to projects that involve a significant operating content. Particularly suited to roads, water and waste projects. 	<ul style="list-style-type: none"> As for BOT plus: Attracts private sector finance; Attracts debt finance discipline; Delivers more predictable and consistent cost profile; Greater potential for accelerated construction program; and Increased risk transfer provides greater incentive for private sector contractor to adopt a whole life costing approach to design. 	<ul style="list-style-type: none"> Contracts can be more complex and tendering process can take longer than for BOT. Contract management and performance monitoring systems required. Cost of re-entering the business if operator proves unsatisfactory. Funding guarantees may be required. Change management system required.
Concession	<ul style="list-style-type: none"> As for DBFO except private party recovers costs from user charges. Key driver is the "Polluter Pays Principle" and utilizing private finance and transferring design, construction and operating risk. 	<ul style="list-style-type: none"> Suited to projects that provide an opportunity for the introduction of user charging. Particularly suited to roads, water (non-domestic) and waste projects. 	<ul style="list-style-type: none"> As for DBFO plus: Facilitates implementation of the "Polluter Pays Principle"; and Increases level of demand risk transfer and encourages generation of third party revenue. 	<ul style="list-style-type: none"> As for DBFO plus: May not be politically acceptable Requires effective management of alternatives / substitutes, e.g., alternative transport routes; alternative waste disposal options)

Source: European Commission. 2003, p. 28

5. USE AND FINANCING OF PPPS IN THE EU

The use of PPPs in the EU has been increasing since the early 1990s, with the UK pioneering the process. It was soon taken up by Portugal, Spain, Greece, the Netherlands, Denmark, and Sweden, with other countries following suit. PPPs are generally perceived as having been a success and evaluations concord that PPPs have achieved higher levels of efficiency and a comparable and even superior service result compared with traditional public sector procurement methods.

This positive performance, however, is built upon certain strict regulatory and administrative prerequisites. If these are absent, there is a distinct likelihood that PPPs will be unsuccessful.

5.1 The legal and institutional framework for PPPs in EU member states

Each member state has a different approach to PPPs, and there is no overarching definition across the EU. It covers a wide range of contractual arrangements between the private and the public sector aimed at operating public infrastructure or delivering public services. While any PPP arrangement needs to fulfill the basic EU rules on public procurement to guarantee the proper functioning of the internal market, it is up to member states how to configure or regulate PPPs. Some countries possess a dedicated law or regulation, others a comprehensive legal PPP framework, and yet others no legal provisions at all. Several states have not yet gained experience in PPPs, see Table 4.

An important factor in the development of successful PPPs in member states is the existence of a specialized unit promoting PPPs. “Partnership UK” in the United Kingdom is at the forefront of promoting PPPs in the UK and abroad, and has adapted evaluation tools to measure their impact.⁹ In the new member states there is, for example, the recently established “PPP Centrum” in the Czech Republic, created specifically for such purposes.

As emphasized above, the legal frameworks can influence positively or negatively the performance of PPPs. Successful PPPs are characterized by the transfer of financial risk totally or in part to the private sector. This risk transfer is what makes the performance of PPPs superior, as private suppliers will tend to avoid running into time and cost overruns, even if PPPs do incorporate a risk premium. In Spain, however, legislation on PPPs exempts the private sector from risks by spelling out that the government always maintains responsibility in contracts involving the public party.

⁹ Comprehensive information on PPP use in the UK can be found at http://www.hm-treasury.gov.uk/DOCUMENTS/PUBLIC_PRIVATE_PARTNERSHIPS/ppp_index.cfm

Table 4: Status of PPP Institutional and Legal Structures in EU Member States

	PPP Unit	PPP law		Unit PPP	PPP law
Austria	▲▲▲		Cyprus	▲▲	
Belgium	▲	■	Czech Republic	▲▲	■
Denmark	▲▲		Estonia		■
Finland		■	Hungary	▲▲	■
France	▲▲	■	Latvia	▲▲	■
Germany	▲▲		Lithuania	▲▲	■
Greece	▲	■	Malta	▲▲	
Ireland	▲▲▲	■	Poland	▲▲	■
Italy	▲▲	■	Slovakia		■
Luxembourg	—		Slovenia	▲	■
Netherlands	▲▲▲		Bulgaria	▲▲	■
Portugal	▲▲	■	Romania	▲	■
Spain		■	Candidate countries:		
Sweden		■	Turkey	▲▲	■
UK	▲▲▲				

▲ Need for PPP unit identified and some action taken (or only a regional PPP unit existing)

▲▲ PPP unit in progress (or existing but in a purely consultative capacity)

▲▲▲ PPP unit existing (actively involved in PPP promotion)

■ Legislation being proposed

■ Comprehensive legislation being drafted / some sector specific legislation in place

■ Comprehensive legislation in place

Source: Adapted from PriceWaterHouseCoopers (2005)

5.2 European Commission Guidelines for PPPs

The decision to use or not to use PPPs lies in the hands of member states. The EU through its funds for structural development and the European Investment Bank are ready to co-finance projects which use the form of PPP for delivering public goods.

The EU is neutral as to whether or not public authorities choose to provide a public service themselves or entrust it to a third party. The form it is adopting, whether using normal public procurement, concessions or PPPs, is also for the member state to decide. However, the involvement of private parties in public works or services is regulated at EU level.

The law on public procurement and concessions aims to create an internal market in which the free movement of people, goods, services, as well as the right of establishment and the principles of equal treatment, transparency, and mutual recognition are guaranteed. While for PPPs the rules on public procurement and concessions are considered sufficient, the European Commission has produced an interpretation of the rules specifically for PPP. The current legislation on public procurement is the following:

[Directive 2004/17/EC](#) of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport, and postal services sectors (30.04.2004)

[Directive 2004/18/EC](#) of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts (30.04.2004)

Commission Regulation (EC) No 1564/2005 of 7 September 2005 establishing standard forms for the publication of notices in the framework of public procurement procedures pursuant to Directives 2004/17/EC and 2004/18/EC of the European Parliament and of the Council

In addition to the directives and regulations on public procurement, the Commission has issued Communications to clarify the application of this legislation on PPPs. In 2004 it launched a green paper combined with a public consultation to find issues that

have to be resolved at Community level on PPPs. This was followed by two Communications interpreting Community law for PPPs. Those are:

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Public-Private Partnerships and Community Law on Public Procurement and Concessions (COM/2005/0569 final)

Commission interpretative Communication on the application of Community law on Public Procurement and Concessions to Institutionalized Public-Private Partnerships (IPPP), C(2007)6661

There are many formats for PPPs used in the different countries. The EU legislation distinguishes mainly between two systems, the institutional PPPs and contractual PPPs. The first are characterized by the creation of an institutional joint company, a single purpose company or vehicle held by the public and private parties jointly. For the specific agreements the European Commission used the international nomenclature (OECD) for its own analytical purposes, but member states are not required to use this nomenclature.

6. RISK AND THE INVOLVEMENT OF PRIVATE EQUITY

The different parties in a PPP agreement have different objectives. In some cases PPPs are not possible if public sector goals are not compatible with those of the private sector. In the case of universal service provision, for example, the private sector is not prepared to make losses to ensure that there is universal coverage with an infrastructure asset or service. In such cases, funding and demand risk has to be borne by the state.

Table 7 identifies the different requirements of the partners in an agreement. Depending on what kind of project is planned, this can clarify the kind of approach to be taken.

It is clear that the private sector seeks profits while the public sector has considerations relating to maximizing social welfare as well as equity. The public sector has therefore an obligation to ensure that services for the population are improved, projects are concluded faster, and state budget expenditure is reduced. There are thus a number of areas where public and private sector interests may converge.

PPPs involving private financing are also likely to require loans from international financial institutions such as the EIB in Europe, ADB in Asia, or the World Bank, as well as from commercial banks. Such institutions require rigorous analysis of the financial returns of the project and the capabilities of the private contractors.

6.1 Financial Implications of Risk

Risk will determine the level of participation by the private sector as well as costs, as risk will be integrated in the form of a risk premium by the private contracting party. Revenue risks are the most fundamental factors affecting the private sector. Utilization levels and user fees or tariffs determine the future viability of a project. Depending on the sector, historic price data may or may not exist. For roads, traffic data, future potential, and willingness to pay are all used to assess the viability of a project. But there are always risks in the final estimates. The existence or quality of parallel routes may affect considerable future revenues. Often shadow pricing of tolls with additional compensatory payments are used if actual toll receipts fall short of forecasts.

Pricing of the potential contractors in the tender procedure also needs prior precise costs studies to be carried out by the state. To calculate whether bidders are putting forward reasonable figures (neither unreasonably and unrealistically low nor too high) there is a need for **public sector comparators**, based on similar projects previously undertaken by the state. This would help evaluate the value for money of proposed projects.

It has to be noted that experience partially contradicts the rules on risk distribution. There is in practice hardly any PPP where risks are fully transferred to the private sector. This is due to the public service nature of the projects financed. A collapse of a public service cannot be accepted. Governments around the world have usually bailed out private operators which could not cover the capital requirements.

Table 5: Requirements of PPP Partners under Different PPP Arrangements

Private Sector Requirements	Service Contracts	Management Contracts	Leases	BOT Agreements	DBFO Concessions	Partial Divestiture	Full Divestiture
Fair Profit	Required	Required	Required	Required	Required	Required	Required
Reward for Risk Mitigation	–	–	Desirable	Desirable	Required	Required	Automatic
Clear Legal / Regulatory Structure	–	–	Required	Required	Required	Required	Required
Growth Potential	–	–	Desirable	–	Desirable	Desirable	Desirable
Political Support	–	–	Desirable	Desirable	Required	Required	Required
Political Stability	–	–	–	Desirable	Desirable	Desirable	Desirable
Beneficiary Government Requirements							
Leveraging Funding	–	–	–	Yes	Important	Important	Important
Accelerating Project Implementation	–	–	–	–	Important	Important	Important
Improving Service Levels	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improving Service Coverage	–	–	–	Important	Yes	Yes	Yes
Efficiency Gains	Important	Important	Important	Important	Important	Important	Important
Ease of Implementation	–	–	Desirable	Desirable	Desirable	Desirable	Desirable
Lender Requirements							
Rigorous Financial Analysis	–	–	–	–	Required	Required	Required
Conservative Cost/Revenue Assumptions	–	–	–	–	Required	Required	Required
Certainty of Grant and State funding	–	–	–	–	Required	Required	Required
Clear Legal regulator structure	–	–	–	–	Required	Required	Required
Technical Ability of Owner/Operator	–	–	–	–	Required	Required	Required
Political Stability	–	–	–	–	Desirable	Desirable	Desirable

Source: Based on European Commission. 2003, p. 18

6.2 Type and allocation of risks

The public sector also runs risks by having to award to a company a public infrastructure development or service which in the end it may not be able to deliver. Another risk is that large contracts for long periods may create a monopoly provider in the private sector which will impact costs and quality. Finally, corruption can cause severe impacts on selection, costs and quality.

Construction risks for large infrastructures are important. Cost overruns and delays have been common in public sector procurement. In PPPs, however, these have been considerably reduced when the private sector has borne the costs of such risks. The tender will include a risk premium, but the overall costs of the project are often lower as the private sector tends to avoid overruns more efficiently.

For international operations **foreign exchange risk** is a considerable problem. Project viability can be affected if lenders are foreign. For developing countries this risk is not negligible.

Regulatory / contractual risk is a problem for the private sector. Governments may change their contractual terms. This is a risk especially for sensitive issues such as user fees. In some cases, public opinion on the infrastructure and the service charges may prompt the government to renege on its agreement. Such situations may cause strains also with financial lenders.

In some countries, **political risks** are considerable. These are not only to be found in countries with unstable political systems, but also in stable democracies. Infrastructure assets that have the potential to attract popular opposition, such as waste incinerators or roads and motorways, may create enough pressure for politicians to renege on their position; this is a **public acceptance risk**. When such risks exist, private contractors will require compensatory guarantees or risk insurance which adds to the cost of the project.

Unforeseen **environmental** concerns during project development or **archaeological** findings may also create calls to take mitigating actions which should be taken into account in the provisions of the PPP agreements.

Latent Defect risk may appear in privatized infrastructure assets, when concessions are given to improve and maintain existing infrastructures. The state of these assets may be worse than anticipated adding to costs.

Hidden Protectionism private contractors are concerned over preferences by public officials, often these are preferences to offer the contracts to national companies. Sometimes these preferences are caused by popular political pressure. Foreign contractors are sometimes mistrusted. This has occurred in the new member states. The Commission considers the popular opposition to the involvement of a foreign company as the cause for the abandonment of a concession for a motorway in Hungary. Interestingly the Commission notes that open public procurement, instead of reducing opposition to foreign participation, increases it, probably due to lack of information when contracts are awarded in a less transparent manner. Proper public procurement and PPPs should be carefully prepared and consulted with civil society if there is a risk of disruption. Table 9 summarizes the EU's guidelines on the allocation of risks.

Table 6: Typical Allocation of Risk

Risk Category	Allocation	Comment
Planning Risk	May be retained by contracting authority for pilot projects. However, there may be occasions when transfer in whole or part is appropriate or unavoidable	
Design and Construction Risk	Transferred to contractor through payment mechanism	Contractor bears risk of cost and time overruns. Contracting authority retains risk of changes to output specification
Operating Risk	Transferred to contractor under DBO, DBFO and concession contracts through payment mechanism.	Deductions are made from payments for failure to meet service requirements
Demand Risk	Often retained by contracting authority or shared. May be transferred under DBOF and concession contracts where the contractor can control demand and forecast revenues with reasonable certainty.	An example of demand risk transfer is when the contractor recovers its costs through user charges (e.g. road tolls).
Residual Value Risk	Retained under DB and DBO contracts May be transferred under DBFO and concession contracts to ensure fitness for purpose throughout the duration of the contract	Contractor carries residual value risk if asset not automatically transferred to contracting authority at end of contract
Other Financial Risk	Other financial risk often transferred (or shared) under DBFO and Concession contracts	An indexation mechanism may be used
Legislative Risk	Legislative risk often retained (or shared). Government is often best placed to control regulatory and legislative risks	Key issue is whether the regulatory or legislative change is discriminatory in respect of the specific project or sector

Source: European Commission. 2003, p. 85

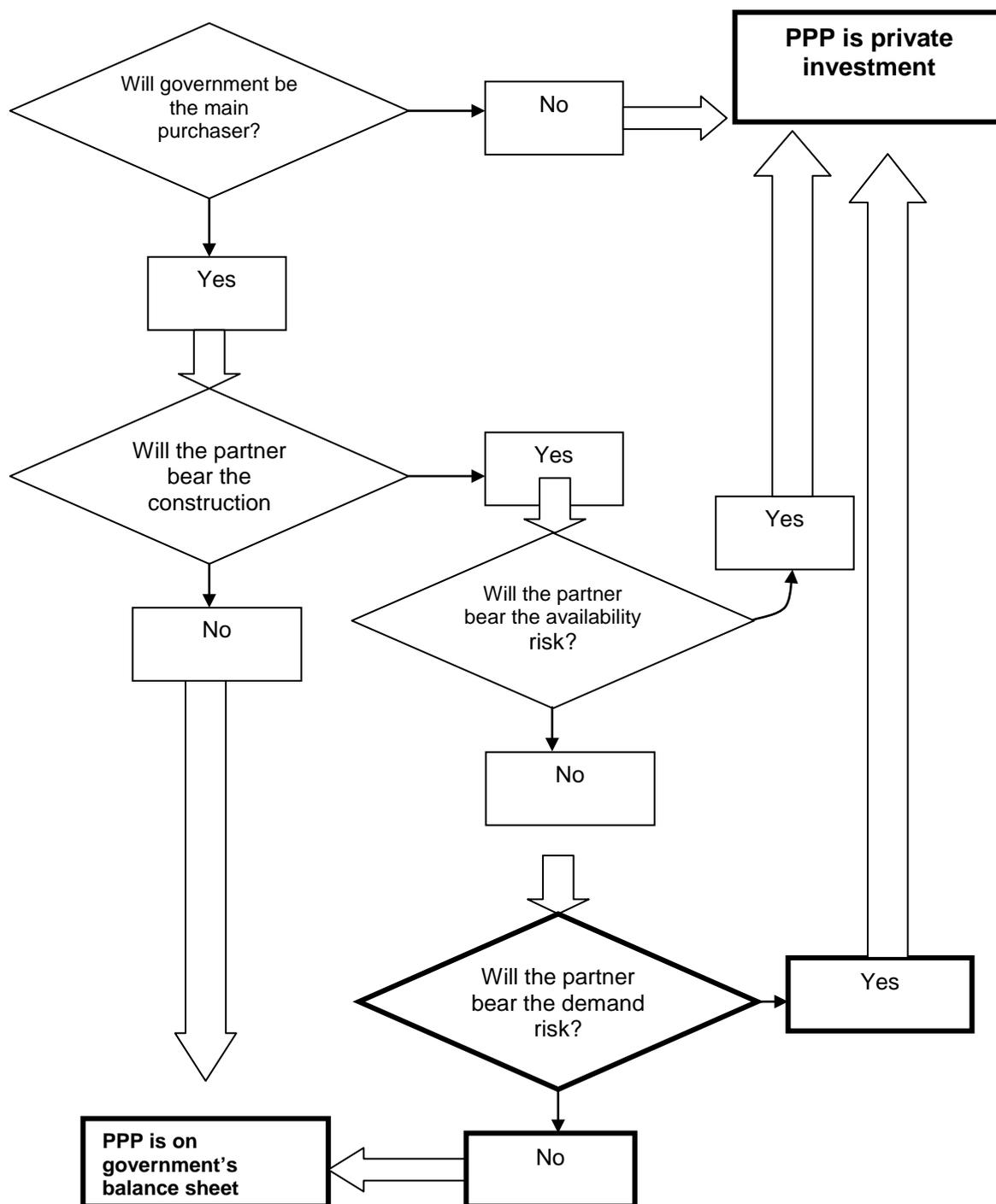
6.3 State budgeting of PPPs

One of the questions which had to be addressed by the EU is whether a PPP can be considered as 'off budget' and hence outside of the public balance sheet. This has important implications in public expenditure reporting and thus for the determination of the budget deficit. Within the EU, all budget deficit reporting is central because of the budget deficit criteria of the EU, especially for members of the Euro zone. The financial reporting (or not) of PPPs has therefore both economic and political importance.

PPPs can be off balance sheet if the private sector bears most of the financial risks of the PPPs. Concessions with user fees fully financing the project and with demand and construction risks can be treated off balance (Figure 3 presents a schematic view).

Projects where finance is private and the risks are fully held by the private sector are not to be included in the government budget.

Budget decision tree on DBFO contracts



Source: EIB 2004, p.20

6.3.1 Projects on balance sheet upfront

DBOF projects where the public sector partner carries the construction risk in relation to the project or carries both the availability and demand risk have to be budgeted up front.

If the DBOF project is **on the Government's balance sheet**, then the full construction costs count against the government budget over the construction period. The capital element of the subsequent annual payments by government does not affect the budget balance but the interest and service charge element does.

Design, Build, Finance (DBF) projects where the contract between the private sector partner and the government has the characteristics of a financial lease i.e. the government is effectively buying rather than hiring the asset and the balance of the risks and rewards of ownership lie with the government.

Projects that do not involve private sector finance. These could be either:

- a) Conventional public procurement projects;
- b) Design, Build, Operate (DBO) projects or
- c) Design, Build (DB) projects.

6.3.2 Projects off balance sheet with payments spread over the period of implementation

For DBOF projects where the private sector partner carries the construction risk and carries either the availability or the demand risk in relation to the project, the balance sheet will not be affected upfront but the impact will be spread over the PPP contract period. The same applies to Design, Build, Finance (DBF) projects where the contract between the private sector partner and the government has the characteristics of an **operating lease** i.e. the government is effectively hiring rather than buying the asset and the balance of the risks and rewards of ownership lie with the private sector partner.

In this case, during the **construction period** there is no impact on the budget balance or the national debt. However, after the construction period and during the **operating phase**, the government budget balance and the government debt are worsened by the amounts of the regular unitary payment paid by government to the private sector partner.

6.4 Hybrid PPPs and state budgeting

In some cases a project may be partially funded by capital grant from government and the balance funded by user charges. Government grants do not necessarily bring a project on balance sheet provided they do not cover the majority (more than 50%) of the capital cost. In cases where the capital grant from government exceeds 50% of the total capital cost, the asset will be recorded on the government's balance sheet over the construction period and will therefore affect the government budget over this period. However, the government budget and debt impact will be reduced by the imputed value of the sale of the concession to the private sector partner. The net impact on the budget upfront will therefore be the value of the capital grant paid to the private sector partner. The user charges will accrue to the private sector partner as they are paid and will have no impact on the government budget (except where there is gain-sharing provided for in the contract).

6.5 Performance of PPPs in the European Union

Reviews of PPPs in the EU were performed for the European Parliament (2006a and 2006b) and present the stages of adoption across EU countries. The mix of first movers can appear strange at first sight. On the one hand there are countries which are economically and administratively very developed and, on the other hand, poorer Mediterranean cohesion countries¹⁰. The wealthier and mostly Nordic countries considered the PPPs as an option to increase the value for money for the provision of public services. These countries considered that the private sector is able to deliver a certain number of goods more efficiently than the public sector and would be able to handle the financial risks better. For the Mediterranean

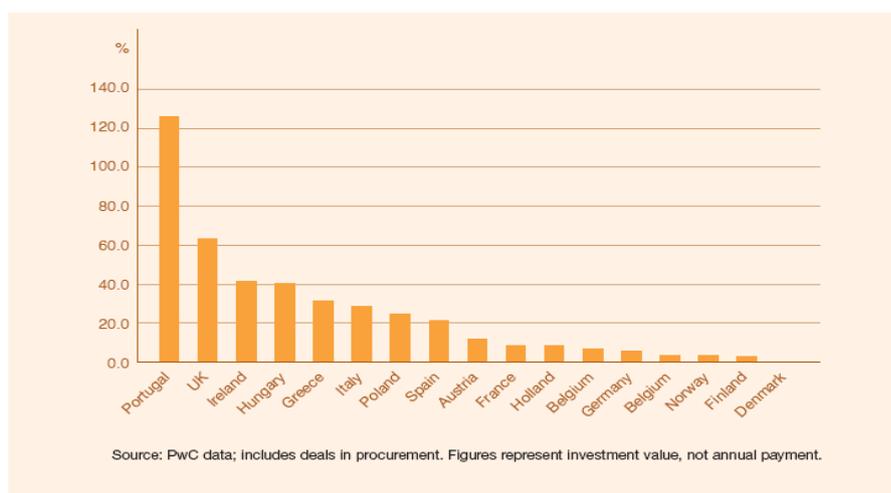
¹⁰ Cohesion countries in the EU are those which have an average gross domestic product (GDP) per capita below 90% of the EU average. The present cohesion countries are Bulgaria, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, and Slovenia. Spain is eligible for a phasing-out period after losing this status in 2006.

cohesion countries, PPPs were necessary to implement ambitious heavy infrastructural investment programs (especially in transport) which would not have been possible to finance through the public sector alone. However, PPPs were rarely used to cover the co-financing requirements of EU funds, but rather to finance other public projects, sometimes separate parts of a single project. This will be further discussed below.

Today the most advanced users of PPPs are not always those who started earlier. These are the UK, France, Ireland, Germany, and Italy. These advanced users have expanded PPPs to many sectors, including healthcare, education, and prisons and have the appropriate legal and regulatory tools, as well as specialized task forces to ensure that PPP expertise is developed and centralized.

It is estimated that in the EU (also including Norway and Turkey) PPP deals between 1995 and 2004 were estimated to be worth US\$120 billion. Of that total, the UK accounted for two-thirds, while Spain and Portugal each accounted for 9%–10% (Figure 4).

Figure 4: Average 2000 to 2005 PPP Activity as a Percentage of Mean GDP



Source PriceWaterhouseCoopers 2005, p.37

The UK has the largest program of PPPs, with 800 projects signed since 1992. The most common form of PPP is the PFI, with 650 developments worth a total capital value of £59 billion to date (data from UK HM Treasury, March 2008). The PFIs have the characteristic of being financed by the private sector completely with the public sector only providing technical and legal support. According to the EIB (2004) public procurement in the UK represents 25% of all PPPs in the EU. While the UK uses PPPs across the government expenditure portfolio, other countries use PPPs mainly for transport infrastructure, but they are being extended to other sectors, in particular to water, health and education.

The share of PPP in EU public expenditure has not yet been estimated in any detail, but that PPPs are nevertheless sparingly used can be inferred by the estimates for the UK for 2004/05 fiscal year (Sawyer, 2005). The value of PPPs in total public expenditure was less than 1% of public expenditure. However, using public investment after depreciation and asset sales as an indicator, one can estimate that the £4 billion directly contracted over the period represents a sixth of the total £22 billion public investment.

Other countries have been less enthusiastic in embracing PPPs. In some countries, transferring development and management of public infrastructures to the private sector runs counter to established public policy traditions. The transfer of healthcare, education or prison facilities to the private sector has encountered considerable resistance from citizens of some member states. For some utilities and transport infrastructure such popular constraints do not exist, but the administrative structures do not promote it. The vast majority of public infrastructure is still funded by public (national or EU) resources through traditional public procurement. While the success of PPPs in various countries is changing attitudes, heavy

administrative requirements combined with a prevailing view in some quarters that normal procurement methods can be cheaper keeps some public authorities away from embracing PPPs.

The “intermediate adopters” of PPPs are Spain, Portugal, and the Netherlands, where PPPs have been successfully used mainly in major infrastructure projects. In these countries the extension to other sectors has been hampered by political or administrative barriers. Greece has implemented some advanced PPPs for the building of Athens airport, roads and leisure facilities, but there is an absence of PPP initiatives in all other sectors. Figure 5 presents the use of PPPs in EU member states by sector.

Among the group of “latecomers” to PPPs, such as Luxembourg or Sweden, the main argument cited against the use of PPPs is the aforementioned resistance to allow the private sector to intervene in the public domain. It is also the case that the better management of public finances and larger public resources in such countries reduce the need for embarking on the often difficult route of PPPs to provide public services. Even within member states there are differences across regions.

For the new member states, the PPP experience has been mixed and not immediately successful. Initially, PPPs were considered an appropriate solution given budgetary constraints in the public sector and the possibility to spread costs over the whole life cycle of a project and avoiding the need to finance the construction phase. Favorable lending conditions from international financial institutions encouraged this position. The use of PPPs has, however, been very limited. The main problem has been the difficulty in overcoming human resource deficiencies and administrative capacity. Some of the most common causes of problems were inappropriate risk evaluations and the overestimation of potential final demand¹¹.

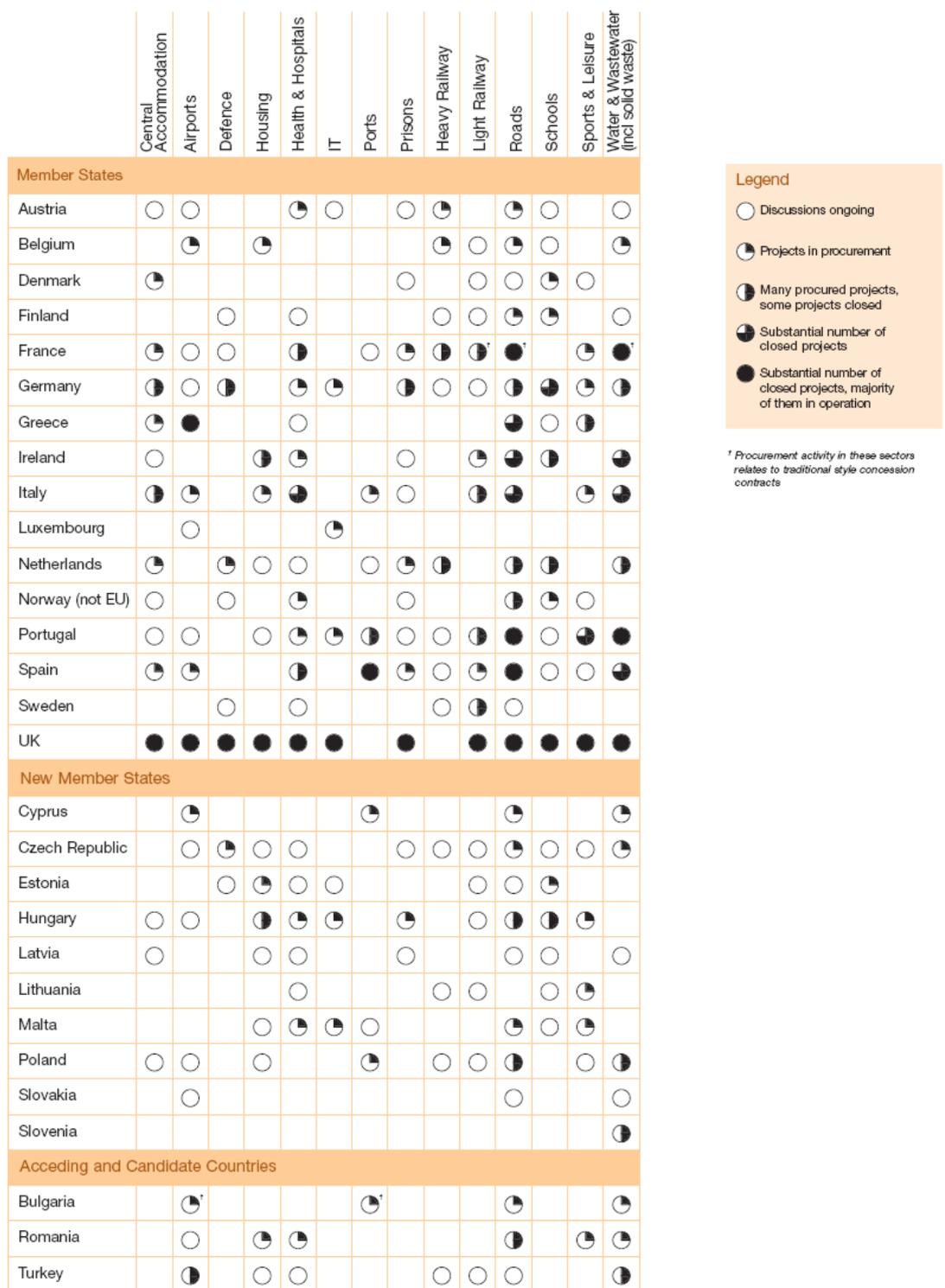
Some of the reluctance to use PPPs originates from within the European Commission itself, in particular the Directorate-General for Regional Policy. Its position with regard to PPPs is still lukewarm. By contrast, the DG responsible for Trans European Networks is actively promoting PPPs. The large discrepancy in budgetary means between the two institutions may well be a central reason for this divergence in position.

Most member states and the EU institutions have largely preferred a public finance only approach to infrastructure development, due to its relative simplicity. The EU provides considerable structural funding to poorer member states, either as grants, which for some countries can cover over 85% of costs or through loans by the EIB. However, with infrastructure requirements exceeding the joint capacity of EU support and national funding and with pressures to control public deficits, member states and the EU institutions have increasingly experimented with PPPs. The EIB has been of great help in providing the technical knowledge and necessary guarantees to attract private funding.

Usually PPPs are only considered where EU structural support is low compared to project size, such as is the case of Trans European Networks (TENs) in wealthy EU countries, where support is in the order of 10% of costs. In poorer member states with support covering up to 85% of public expenditure, PPPs are not encouraged as pressure to comply with expenditure timescale restrictions discourages the lengthy and complex PPP procurement and financial engineering requirements involved. Most of the efficiency gains and risk transmission to private operators is also lost when a large part of the infrastructure is financed by the public sector and thus risk transfer to the private sector is very limited.

¹¹ Brenck, A., et al. 2005, p. 82–111.

Figure 5: Use of PPPs in EU member states by sector



Source: PWC (2005), p.36

7. USE OF PPPS FOR EU CROSS-BORDER INFRASTRUCTURE

The use of PPP financing for cross-border infrastructure is a complex subject. The EU does not have a stated preference for PPPs, and it is in the hands of member states how to finance and run public projects. Hence, the use of PPPs varies considerably between member states. The use of PPPs has in effect been quite limited. In fact, most national governments view PPPs as a last resort, as these are time consuming and complex to prepare. Many TEN projects in poorer member states and regions are financed by a substantial contribution from EU funds. Thus the use of hybrid PPPs where public alongside private funding is involved is discouraged. Many wealthier member states avoid PPPs, with the exception of the UK and to a certain extent France and Italy.

The fact that co-financing of transport infrastructure can cover up to 75% (in some cases 85%) of costs in cohesion countries¹² discourages the use of private funding for remaining costs. According to PriceWaterhouseCoopers (2006) the way funds are officially reported discourages the combination of private funding with EU funds, even if the regulations do not exclude the use of private financing for “cohesion” projects.

What seems to be recurrent practice is to use different procurement systems for different sections of a project, such as transport projects. This means that a road from A to C through B is financed from A to B by public funds (EU funds and national) and from B to C through a PPP. For other infrastructure, such as water treatment plants, public funds may cover the construction, while the network itself is financed through private funds. The private sector then operates the whole system and uses fees to recover the capital investment and operational costs of the whole project, excluding the public grants. While this simplifies some of the administrative issues, it goes counter to the idea of a PPP containing the whole life cycle of an integrated infrastructure asset, blending capital and operational costs. One of the reasons that DPFOs offer value for money is that they reduce the risk of time and cost overruns.

Also worth noting is that in most cases, cross-border infrastructure is treated differently on either side of a border. Member states have their own administrative and financial systems to develop infrastructure in their territory and there is often little coordination between countries. Cases where cross-border infrastructure has been treated as a single joint project are very rare, but the EU has created a supranational regulation allowing for European companies. Not originally designed for this purpose, this regulation has facilitated the implementation of cross-border projects as a single operation.

7.1 Suitability and effectiveness of alternative PPP structures

The various forms of PPP all have advantages and disadvantages and are more or less suitable depending on the project. PPP structures are not a “better” solution to traditional procurement *per se* and have a number of significant drawbacks, particularly the rigorous requirements imposed on the tender procedure. Ultimately, the final choice will depend on the project contents and the sector of activity.

The case of transport infrastructure. Transport was one of the first areas where PPP was used. The decision to use a PPP as well as its type will partially depend on the potential profitability of the infrastructure asset. Traditional or BOT procurement systems are generally used where the public sector finances the totality of the infrastructure asset and the public sector will pay user fees based on the performance of the private sector, but taking over the

¹² Cohesion countries: Countries which have an average GDP per capita below 90% of the EU average.

demand risk. There is also another variant where the construction phase is in the hands of the private sector, but the public sector pays the fees over the operational period based on the private sector's performance. It is for the private sector to achieve the quality of service contractually required.

For motorways, DBFO could be based on a toll system. This is the case in projects which have long-term profitability. The private sector finances, maintains, and operates the motorway, repaying construction costs from toll returns. Tolls can be real or shadow tolls. Shadow tolls are payments by the state which are based on the use of the motorway, thus demand risk is in the private sector even if the public sector actually pays the whole lifecycle. With real tolls, the public sector transfers all the risks to the private sector and does not use public resources. Of course shadow tolls have disadvantages: as motorists do not pay for usage costs, allocation of resources may not be rational.

For small transport infrastructure projects PPPs are not recommended, unless bundled in a larger contract.

The case of water projects. The wastewater treatment and water distribution sectors have seen the participation of the private sector for a number of years. The EU has introduced very high standards in the water sector¹³ resulting in substantial capital requirements. Many countries are looking at PPPs to find the resources and expertise to handle the costs and operational needs. The reasoning behind the choice of PPP is similar to the transport sector and depends on the size of the projects, the ability to charge users and risk transfer. There is a tendency to transfer costs fully to water users to ensure the rational use by consumers, which favors a DBFO concession type of PPP with user charges. The public sector is increasingly less suited to operating the complex treatment processes.

In addition to transport and water infrastructure PPPs have been increasingly applied in the health and education services, where the private sector has financed and built facilities in exchange for a maintenance and operational contract for an extensive period after completion.

7.2 Hybrid PPPs in the EU: mixing grants with private funding

EU regulations for structural funds, cohesion funds, pre-accession funds or Trans European Transport Networks (TEN-T) allow for EU grant support to be co-financed by public or private funding. The use of financial PPP mechanisms to co-finance EU grants has however been scant.

The use of EU grants in PPPs has its strengths and weaknesses. Grants can add to the viability of a project, but increase the burden of the national authorities in a PPP procedure as the objectives of EU funds also need to be taken into account. The EU Commission has guidelines on the use of EU funds for infrastructures.

The concession of grants should in theory only occur if the financial viability of an infrastructure project of national and EU importance is not assured, thus not allowing a full PPP. In practice, however, grants have not been assessed according to the viability of the infrastructure under PPP arrangements.

Due to limitations in public budgets, especially in the new member states, there is an increased interest in mixing EU grants with private funding, such as to reduce the burden on the public budget for co-financing the operations. Hybrid PPPs are thus considered as ways to avoid national public expenditure contributions to infrastructure rather than making the projects viable for the private sector. There is pressure to commit EU funds to projects to

¹³ The EU has advanced and stringent drinking and waste water directives setting standards for all member states.

avoid losing the annual budgeted amount or the return of any under-spent amounts two or three years after committing to a project¹⁴.

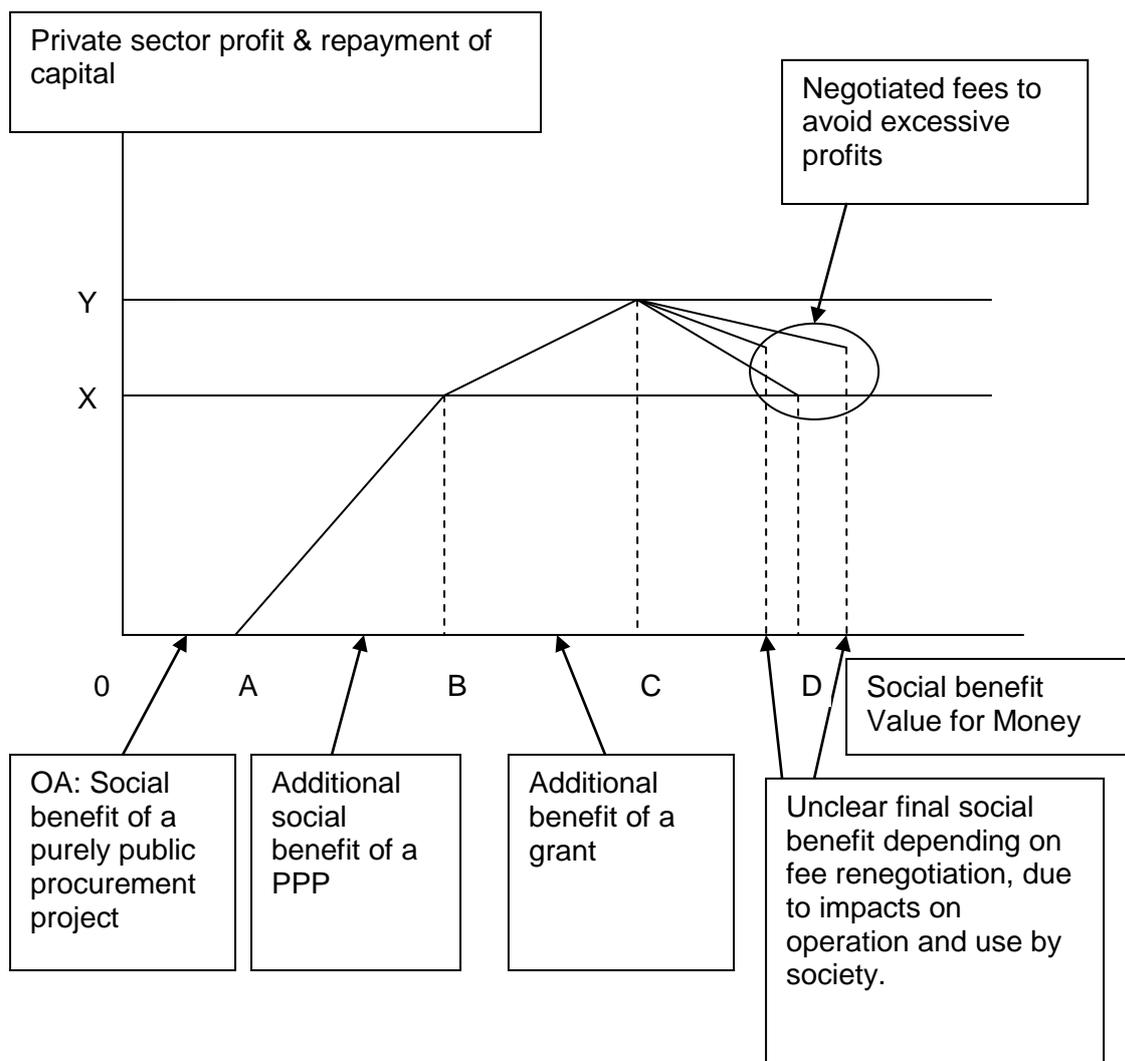
To a certain extent, the existence of an EU grant can attract private funding to the project. Project viability risks are reduced as well as political risks. On the downside, the efficiency gains of a PPP with a full lifecycle costing are partially lost and user fees and returns to investors will be distorted. The EU attaches conditions to the grants which can cause difficulties in reaching agreement on private involvement, in particular on restrictions in the level of profits for the private sector as grants for private infrastructure have strict limits on the level of profits from user fees. This is designed to discourage the public or private sector to rely unduly on the benefit of an EU grant. Concessions thus allow only for user fees that cover maintenance of the infrastructure, recovery of the costs from lending and a small determined margin of profit. Unfortunately, this also implies that user fees attached to any infrastructure developed with EU funding cannot incorporate the real cost of the development, which runs counter to economic theory on optimal use of infrastructure.

EU strategy on private sector profit requires that the private sector does not receive profits resulting from the receipt of a grant. Figure 6 describes the European Commission's objective, which is to eliminate from the charges of the operators undue profits (Y-X) generated by the additional social impact from B to C of the grant. This requires a calculation of what the benefits for the private operator would be in the absence of the project grant.

The diagram shows three outcomes where the negotiation totally or partially eliminates profits generated by the grant. Payments should limit the profits to the line X, which is based on the repayment of the privately-financed capital and normal profits in the absence of a grant. When the price negotiated is above the optimal, the final social benefit or value for money, however, may be lower or higher. This depends on the way users are charged. If payments are based on actual tolls, higher payments would reflect better the costs of the project and the use would be more rational. In transport it could reduce pollution increasing social benefits. It is for the public sector to determine the level of charges. Of course, with shadow tolls or other public payments to the operator over the lifetime of the project, payments should avoid being in excess of level X.

¹⁴ As a basic principle, the n+2 rule (n+3 for a transition period in new member states) requires that annual grant funds offered to member states need to be committed to projects in that year's budget and spent within two to three years.

Accounting for Private Sector Excessive Profits.



Source: Adapted and expanded version from European Commission (2003), p. 62

For new EU member states the initial tendency in any case has been to match EU funds directly to public funds, not leaving any space for private funding. This is partly because of lack of knowledge about PPPs within public administrations. In practice, even if PPPs were considered, the administrative capacity of the countries and the lack of appropriate bureaucratic procedures have impeded private involvement in infrastructure projects. Hence, limited private participation was not primarily a response to the rules regarding the use of EU grant funds.

Table 7: European Commission Requirements on Hybrid PPPs

Commission Requirements	Service Contracts	Management Contracts	Leases	BOT Agreements	DBFO Concessions ¹
Attaining European Standards	–	–	–	Relevant	Relevant
Maximizing Societal Benefits	Relevant	Relevant	Relevant	Important	Important
Transparency / Open Competition	Relevant	Relevant	Relevant	Important	Important
Reasonable Control of Grant Funds	–	–	–	Required	Required
Avoiding Undue Private Profit	–	–	–	Required	Required
Efficiency Gains	Desirable	Desirable	Desirable	Important	Important
Leveraging Private Funds	–	–	–	–	Yes

Source: Based on European Commission 2003, p. 18

Note: For partial or full divestiture the requirements are the same as for DBFO concessions

Hybrid PPPs using EU funding also have additional particularities. Although member states are responsible under strict EU guidelines for the approval and implementation of projects, for large infrastructure projects the EU has prior control in the approval process (this is for cohesion funds for transport infrastructure projects costing over €50 million and €25 million for environmental infrastructure). In the case of infrastructure funds for candidate countries to the EU, the European Commission always exercised prior implementation control, limiting considerably the room for manoeuvre of governments. The new Instrument of Pre-accession Assistance to candidate countries, (IPA), introduces better shared responsibilities in the approval and implementation of projects with a gradual transfer to national authorities. This is to improve the smoothness in the introduction of EU practices.

However, there are barriers in the use of hybrid PPPs, especially for DBFOs, even though these are increasingly used to spread the costs of infrastructure over time. This allows the initial costs to be carried by the private financial sector which is then repaid through yearly service charges which cover the repayments and interest from loans and a service fee for the operator, e.g., in relation to shadow tools. Unfortunately, such arrangements are discouraged if EU funds are used. First EU co-financing rules do not allow covering operational expenditure, although this can be circumvented as it is, in effect repaying capital expenditure. The most difficult barrier is the multiannual framework of the EU budget. The EU budget is a very rigid instrument which is agreed for seven years without the flexibility of national budgets. The EU cannot commit funds beyond these seven-year periods, creating a budgetary risk for the national government and the operator. The restrictions placed on EU expenditure discourage DSFO PPPs linking payments over the life of the project.

8. THE ROLE OF THE EUROPEAN INVESTMENT BANK IN PPPS

The European Investment Bank (EIB) was established by the European Economic Community in 1958 with a mandate to lend money to the public and private sectors for projects of European interest, such as:

- Regional cohesion and convergence
- Support for SMEs
- R&D and innovation
- Transport

- Environment
- Energy

The EIB is a non-profit making and policy driven bank and limits its activities to offering long-term loans for investment projects.

The EIB is owned by the member states of the EU and they jointly contribute to its capital, each country contributing in relation to its economic weight within the EU. The subscribed capital in 2007 was €164.8 billion. The statutory lending ceiling is set at 250% of subscribed capital.

Liquidity is monitored with a view to matching disbursement needs. Consistently earned profits are generally transferred to reserves and policies and controls are in place to manage risk.

As EU member states are the shareholders of the EIB, it carries the highest credit rating of triple-A (AAA). Hence, the EIB can easily raise capital at very competitive terms. The EIB cannot lend more than 50% of the total cost of any individual project.

The projects which the bank invests in have to be in line with EU objectives, and these must be sound economically, financially, technically, and environmentally, and should be able to attract other sources of funding. The EIB is an autonomous institution of the EU and it makes its own decisions purely on the merits of each project.

8.1 Role of the EIB in European PPPs

The EIB has traditionally borrowed to co-finance public infrastructure developments in member states, especially those receiving EU regional development grants. It has also borrowed for projects outside the EU. The bank concentrates its efforts on poorer member states and in 2005, 93% of its signed loans were granted within the enlarged EU with a large part benefiting from guarantees from member states or public institutions.

In 2006 the EIB lent €45,7 billion; with 87.1% of this amount going to EU member states, 7% to enlargement countries, 3% to Mediterranean neighbors, 1.8% to ACP-OCT-South Africa¹⁵ and 1.1% to Asia and Latin America (EIB data).

The EIB has no specific preference for lending to public or private funds but has been promoting a larger use of PPPs. The bank promotes its role as a complementary financial intermediary alongside other funders, i.e. commercial banks and capital markets. Many EIB loans to PPP projects are either bank-guaranteed or monoline-insured.

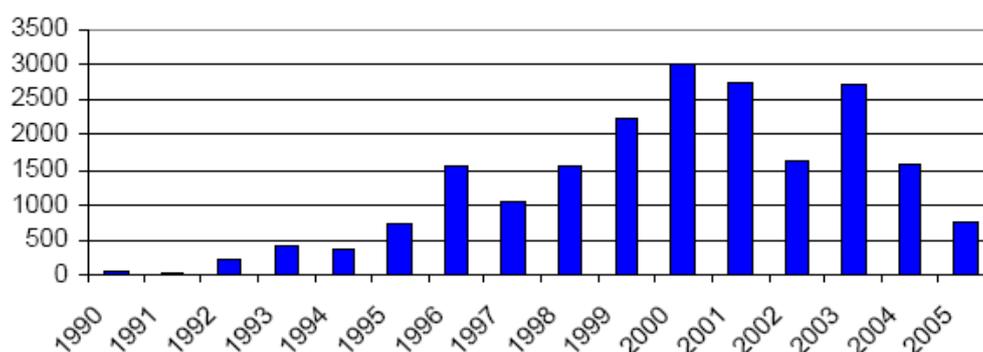
The bank is very attentive to credit tests and is known for its conservative approach to the quality of projects. EIB involvement in any project is considered as a strong guarantee for commercial banks in their decision to finance parts of a PPP.

Many PPPs are underpinned by public sector support; often some components of the risks are fully borne by the public sector, such as demand risks, which reduce the EIB's risks and also the risks borne by the private sector financier.

The role of PPPs has been steadily increasing in the EIB's portfolio: over €20 billion since 2006 (despite a fall in 2004–2005, Figure 6), but this only accounts for a small fraction of EIB lending, which is mostly given over to the co-financing with public funds.

¹⁵ ACP: African Caribbean and Pacific, OCT: Overseas Countries and Territories. The twenty-one OCTs depend constitutionally on four of the EU Member States: Denmark, France, the Netherlands, and the UK. OCT nationals are EU citizens. However, these countries do not form part of Community territory. Accordingly, Community law does not apply directly to them but they benefit from associate status conferred on them by the EU Treaty.

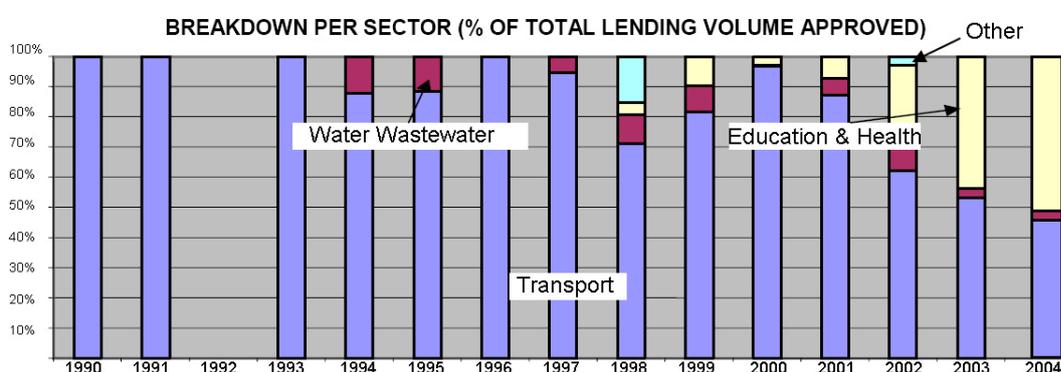
Figure 6: Value of PPP Signatures per Year, million €



Source: EIB (2005), p.21

A very large share of the bank’s lending has focused on transport, even if other sectors have increased in importance over recent years, such as significant investment in education and health in the UK (See figure 7).

Figure 7: Breakdown per Sector



Source: EIB (2005), p.21

The median loan maturity of transport projects is 20 years. An overall breakdown by maturity is presented in Table 8.

Table 8: Exposure to PPP Projects by Loan Maturity to end 2003

Loan Maturity	Exposure Signed (nominal) (EUR m)	% of total
Up to 19 years	2,490	17%
20 – 25 years	8,580	58%
26 – 30 years	3,339	23%
Over 30 years	312	2%
Total	14,721	100%

Source: EIB (2004), p.8

Table 9 below offers a sectoral breakdown of the EIB portfolio of PPPs by sub-sector, with roads and motorways taking the lion’s share followed by urban development, renovation, and transport.

Table 9: European Investment Bank Loans for PPP Projects 1990–2003 by Sector

Sector	Contract Amount (Euro million)	% of total
Roads and Motorway	9120	62.1%
Urban Development, Renovation, and Transport	2600	17.7%
Airports	999	6.8%
Traditional and High-Speed Trains	997	6.8%
Social Infrastructure (education and health)	549	3.7%
Power Generation, Transmission and Distribution	258	1.8%
Drinking and Waste Water treatment	165	1.1%

Source: Evaluation of PPP Projects financed by the EIB. Synthesis Report. Appendix I, p.32

The EIB has a positive influence on the stability and added value of the projects it co-finances. The bank offers long loan maturities and capital grace periods which are particularly appropriate for large infrastructure projects. This improves the affordability of the investment for the public sector, but also for potential private lenders. The solid analysis and input of the EIB in project appraisal and selection has also increased the economic quality of projects. The bank does not sell project debt until maturity, contrary to common practice with other lenders.

As an impartial not-for-profit organization, the bank participates closely in the whole project, from design to selection of contractors and monitoring. The EIB has developed flexible financing structures for PPPs and adapts the financial system to the needs of the project. The bank has reinforced specific procedures for facilitating PPPs. One area is the extension of different financial mechanisms and of securitization to facilitate the participation of private lenders.

The EIB also has set up a Structured Finance Facility (SFF), in order to match the types of funding to the requirements of projects with a high-risk profile. This facility assists in pursuing its equity financing and guarantee operations in favor of large-scale infrastructure schemes. The EIB had total reserves of €750 million over the period 2004 to 2007 for the purpose of generating operations amounting to between €1.5 billion and €2.5 billion, providing a broad mix of financial products:

- senior loans and guarantees incorporating pre-completion and early operational risk;
- subordinated loans and guarantees ranking ahead of shareholder subordinated debt;
- mezzanine finance, including high-yield debt for industrial companies in transition from SME scale or in the course of restructuring;
- project-related derivatives.

The aim of the SFF is increase the added value of priority projects by complementing the commercial banks and capital markets.

8.2 Impact of PPPs on the EIB

The increasing importance of PPPs in the EIB has required an increased in the bank's appraisal, structuring and negotiating capacity. The appraisal of risks requires the coordinated work of different parts of operational branches of the bank. The analysis of the promoter's technical and market studies, in-house assessment of risk and the capacity to perform detailed analysis of the technical merits of contracts is necessary.

The bank has had to increase its monitoring capacity, in particular in cases where projects rely on revenues from the asset. The increased demands also needed proper integration in the pricing and cost recovery agreements negotiated with the borrowers.

The EIB's success in operating in the EU is partially due to the EU's solid regulatory framework and the relatively low political risks involved when lending to projects linked to EU objectives and national objectives which are underpinned by the support of governments in the beneficiary countries.

The imposition by the EU of public procurement rules to member states has facilitated the work of the EIB, avoiding the need for the bank to create the basic structures of public procurement in each country and every case. The member states can rely on the guidance of the EU and the assistance of other member states in developing the needed structures. The bank nevertheless advises the countries on adapting the procurement procedure to the needs of PPP contracts.

9. ILLUSTRATIVE EXAMPLES OF PPP IN THE EU

Four case studies have been selected for their particular characteristics and the different lessons than can be drawn from them. The text concentrates on these lessons rather than the details of the project development. The case studies chosen are: the Channel Tunnel Rail Link between France and the UK; the Beiras Litoral and Alta Shadow Toll Road, Portugal; the M5 tolled motorway, Hungary; the Perpignan Figueiras Rail Concession, cross-border link between France and Spain; the Trakia Motorway Project, Bulgaria.¹⁶

9.1 The Channel Tunnel Rail Link (CTRL)

The Channel Tunnel rail link is a good example of a highly complex and very costly cross-border project. Interestingly, the planning and financing of the service and the UK side of the development were undertaken separately to the French side of the construction. France has provided the rail tracks and the French Eurotunnel company was set up to use half the tunnel's capacity. The trains themselves are made in France using tested TGV¹⁷ technology.

This paper only discusses the British side of the Channel Tunnel. This was envisaged as a PPP concession, with the private sector designing, building, financing and operating the CTRL for 90 years. Initially, Eurostar was owned and launched by SNCF, SNCB¹⁸ and British Rail. In June 1996, the UK operations were sold to London & Continental Railways (LCR). In October 1996, LCR changed the name to Eurostar UK Ltd (EUKL).

The first part of the CTRL was completed in 1993. However, passenger numbers were less than half expectations. These were vastly overestimated and also did not take into account the emergence of low-cost airline companies. LCR would not be able to recover the investment. However, as a private initiative, the planning permission only mentioned the private consortium LCR as promoter. The government could not offer state aid without the European Commission's approval.

Finally, a complex refinancing agreement was agreed in which LCR would complete the project and sell it to rail operator Railtrack, which was formerly state-owned but is now privatized. LCR obtained guarantees from the UK government on financing the design and construction work. Unfortunately, Railtrack was unable to finance its operations and had to be taken into administration by the government. In 1998 LCR awarded a management contract to Intercapital and Regional Rail, owned by the National Express Group, SNCF, SNCB and British Airways.

¹⁶ The main source of information is the European Commission's Resource Book on PPP case studies from 2004. For the Bulgarian Trakia concession, recent reports have been used.

¹⁷ Trains à Grande Vitesse—French for Fast Speed Train

¹⁸ French and Belgian national public railway companies

While the CTRL was completed with a delay of seven years and at a cost of £5 billion, it is important to note the positive points: private engineering and building companies were able to deliver results on time and in budget. It was the rather weak estimates on passenger use and lack of financing for the development of links with the remaining rail network that affected the project. In fact the government did not link the CTRL properly to the national rail grid, nor did it develop other high speed train routes within the UK. The TGV which in France and Belgium was able to run at 300 km/h had to reduce speed to 140 km/h in the UK. After the eventual completion of the CTRL trains were finally able to run at 270 km/h in the UK.

Interestingly enough, difficulties in the airline sector due to prolonged security controls combined with shortening train travel times have increased the demand for Eurostar services. Nevertheless only ten million passengers a year were expected in 2010, compared with the original forecast of 21 million.¹⁹

9.2 Beiras Litoral and Alta Shadow Toll Road, Portugal

Portugal is a frontrunner in the use of PPPs for infrastructure. One of the country's projects was a 167km motorway which links with the Spanish road infrastructure. The government launched bids for a PPP DBFO, where the recovery of costs is handled with shadow tariffs based on vehicle distance usage. No EU funds were used, but the project was supported by an EIB loan.

Problems started at an early stage. The government did not specify clearly standards of quality and service in the tendering process. This meant alterations to the specification at later stages affected the bidding process. This caused delays and led to a repetition of the tendering process. Final costs turned out to be three times the original estimates and shadow tolls had to be raised as a consequence.

Costs estimates from bidders were not assessed well because there were no public sector comparators. It was thus not possible to assess if the PPP was offering a better outcome than traditional public procurement.

The mishandling of precise specifications and requirements meant that the government subsequently had to cover the delays and costs of implementing environmental Impact assessments as a result of which projects were adapted. The private operators cannot be blamed for these administrative errors.

The increases in shadow tolls due to the larger-than-expected costs meant that the state budget from the highway agency was unable to cover the shadow toll payments. This has prompted the government to introduce actual tolls. Luckily usage of the highways is high and toll cost requirements are therefore sustainable.

In the meantime Portugal has created a specialized unit for PPPs to avoid similar problems with future PPPs.

9.3 M5 toll motorway, Hungary

The M5 toll motorway is an important part of the Trans European Network. Interestingly, the PPP uses no EU grants. The sources of funds have been equity from the concessionaire AKA as well as loans from the EBRD and commercial banks. The concession transferred all risks to AKA but emergency provisions were agreed.

Construction was a success, completed in 1997 on schedule and even ahead of schedule for some sections. However, traffic volumes were below expectations as road-users diverted

¹⁹ In November 2010 the British Government sold a 30-year concession to run the rail tunnel to a Canadian pension fund for £ 2.1 billion. Industry sources estimated that usage of the tunnel was still one-third below its capacity.

to national roads to avoid tolls. AKA thus had to request support from the revenue shortfall mechanism provided in the agreement to operate the motorway. This allows for AKA to draw support from the state for several years, repayable after debts to senior lenders have been repaid and if revenues allow.

In 2004 the toll system was changed to a vignette system, where users buy a permit to use motorways for a specified period of time, e.g. a week, month or year. The motorway is thus now financed through availability payments, independent of traffic flows, thus eliminating the user risks of the operator.

9.4 Perpignan—Figueiras Rail Concession, cross-border link between France and Spain

While not yet completed, this cross-border rail link is a good example of a successful PPP with very complex institutional challenges. This link is part of the Trans European Network and it is considered a priority to link the Spanish to the French and European rail networks.

A BOT concession was developed and a European Company was set up. The design of the project is in the hands of the two countries and the private sector will build and operate the link for 50 years. A substantial subsidy consisting of an EU grant and state subsidies will be provided which cover 57% of the construction costs. The remaining funds have to be offered by private partners, in the form of own equity and commercial loans.

Interesting in the agreement is that the private party will be levying fixed tolls to train operators, tolls which are publicly approved. Maintenance standards and availability performance are set very high, with penalties for non-performance, including termination of the contract.

This PPP is presented as a flagship example of how to set them up in a highly complex infrastructure challenge in a cross-border area. The procedure was robust and took into account the specific needs to draw in technically apt bidders. Standards have been set high, the state subsidy allows for the private sector to take on risks which would not be possible without such support. Thus the state does not transfer the whole costs, but it does transfer demand and availability risks.

9.5 Trakia Motorway Project, Bulgaria

The Trakia motorway negotiations for a concession for a motorway stretch of 190 kilometers recently collapsed. Negotiations have been difficult and have gone on for several years. The start of construction is more than two years behind schedule.

The Trakia motorway is an important link between the capital and one of the major town and ports of the country, Burgas. Other parts of the motorway have already been completed. The reason for the recent collapse of the negotiations is to be found partially in the external market environment. While the Bulgarian government had awarded a concession to a Bulgarian-Portuguese consortium, this consortium has failed to obtain private finance. Given the credit crunch and rising interest rates, the banks' perspective of the project's forecasts and profitability have been affected. A deep crisis in the present government and the freezing of substantial amounts of EU support to the country under allegations of fraud also makes it difficult for the PPP to be easily renegotiated.

The Trakia motorway concession process was complex and arduous and suffered from considerable problems and delays due to administrative mismanagement of the tendering procedure which was investigated by the EU. Initial government guarantees violated EU state aid rules. Once these barriers were removed, however, the reduced availability of private credit, reflecting the fall-out from the "sub-prime" financial crisis has effected the agreement.

Political instability, the already complex uncertainties of the project and the credit crunch have led to guarantees and the risk premiums for commercial banks being raised. The banks are pulling out as the state is not in a position to renegotiate the agreement. The new guarantees and demands also put into question the viability and the value for money arguments for the use of a PPP rather than normal procurement.

10. CONCLUSIONS AND LESSONS LEARNED

This discussion paper has analyzed the conditions for optimal risk allocation within PPPs in a context of certainty as well as of uncertainty. Three important conclusions can be observed.

First, the risk-spreading aspect of public investment, leading to less risk-averseness than private investment, means that the optimal transfer of risk from public to private operators is fundamentally limited.

Second, the larger size of the EU budget and its specific methods of funding through a share of VAT indirect taxes will indeed mean that the perception of risks borne by individual taxpayers tends to be negligible, although these are definitely not zero. Irrespective, neither the EU nor the EIB, assume high risks in their investment or co-financing of public infrastructure in the EU. Whereas the budget of the European Communities contributes grant funding to trans-national infrastructure, the lending policy of the EIB tends to be quite conservative and assume low, if not zero, risks. In all cases, final contingent liabilities remain with national governments rather than supra-national institutions.

Third, the main contribution of the EU to trans-national infrastructure appears to be ensuring that the marginal benefits of private sector involvement—in effect efficiency gains—remain quite high. Grant funding for feasibility studies and preparation, combined with supra-national coordination and regulation have meant that the quality of project and investment preparation has remained high.

The EU continues to pursue ambitious plans to develop the Trans European Networks. The costs are estimated over two decades to exceed €500 billion. For this reason, the EU institutions and member states have increasingly explored the use of PPPs to achieve the needed infrastructure development.

PPPs have demonstrated themselves to be generally less costly than normal procurement due to the increased efficiency of the private sector. In the EU, however, PPPs are still limited in number, due to their complexity and in many cases a lack of administrative experience in this field. Setting up PPPs for large infrastructure projects is complex and mistakes in the development process can create higher costs in the future than normal procurement. The use of PPPs has thus been highly variable across countries and even regions within countries.

For large infrastructure projects planned for crossborder operations, PPPs pose a particular challenge. Transfer of risks to the private sector is hampered by the large scale and long-term horizons involved. Governments thus have to offer important guarantees, such as demand guarantees, or grants. The failure of a private operator of a large public infrastructure asset forces the state to take over its operations. Failed PPPs will ultimately always be taken over by the public sector.

Another area of concern for the public sector is the possible failure of PPPs due to changes in the financial sector, such as changes in the risk premiums due to financial crises.

PPPs can potentially allow countries to develop infrastructure faster and at lower cost, but PPPs are not a panacea, bringing with them also higher risks of failure if project details, service level requirements and risk allocation are not extremely well planned, defined and

agreed. Governments need thus to create specialized units to handle the process and often hire specialized consultants.

In Europe, the European Investment Bank has played a pivotal role in organizing PPPs for European projects. By handling difficult procurement systems, such as competitive tender procedures and helping to develop administrative capacity, the EIB has become a point of reference for large and complex projects. The involvement of the EIB in infrastructure projects presents clear guarantees to private financial institutions of the viability and quality of projects, leading to reduced risk premiums. The EIB also offers credit guarantees. In this particular sense, the EIB does provide a useful role model for the Asian Development Bank's operations across Asia.

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