

What Makes Public-Private Partnerships Work? An Economic Analysis¹

Jean Bensaïd² and Frédéric Marty³

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¹ The opinions expressed in this article are the authors' own and do not reflect the view of the institutions in which they work.

² **Jean Bensaïd** is a member of the executive committee and head of asset management, Greater Paris and Services, of Icade, a listed real estate company. From 2008 to 2014, he was CEO of CDC Infrastructure, an investment fund of Caisse des Dépôts in the infrastructure asset class (transportation, energy, telecoms). From 2004 to 2008, he was deputy director of the Finance and Strategy Division of the Caisse des Dépôts group and has been a member of its management committee since 2012. He is also a member of the boards of directors of Sécché Environnement. During the course of his career, he served successively as senior economist at INSEE, deputy director for social policy and employment at the *Direction générale du Trésor* of the French Ministry of the Economy and Finance, financial attaché of the Embassy of France in Washington D.C., and macroeconomic and tax policy adviser to French Prime Minister Lionel Jospin.

³ **Frédéric Marty** is a researcher for the French National Centre for Scientific Research (CNRS) in the Law, Economics and Management Research Department of the University of Nice Sophia Antipolis. He is a research affiliate of the Innovation and Competition Department of the French Economic Observatory (OFCE) – Sciences Po, and of the Ivanhoé Cambridge Real Estate Chair at the University of Québec Montreal. His research focuses on the economics of public contracts as well as competition law and economics.

Summary

Public-private partnerships are long-term, global, administrative contracts by which a public authority entrusts a private contractor with some or all of the missions of design, construction, funding, operation and maintenance of an infrastructure or the provision of a public service. The private contractor recovers its initial investment and collects revenue for the service provided by means of tolls paid by users (depending on the traffic) or rent paid by the public authority (depending on the availability of the required service and the satisfaction of criteria of quality and performance).

Criticized for their cost, rigidity and lack of transparency, condemned on the basis of a number of failures or difficulties in their implementation, public-private partnerships are nevertheless an appropriate instrument for the realization of certain projects and for the efficient exploitation of public assets and infrastructures. This *Prisme* presents a dispassionate analysis of these contracts, highlighting the economic and financial parameters that can lead public authorities to choose this solution within the context of the search for transparency and the need to make efficient use of public moneys.

Private funding may prove to be indispensable, given the constraints currently imposed on public finances, to meet the needs for infrastructure investment. Likewise, the public-private partnership may create an efficient incentive framework to protect the public authority from spiralling costs or delays and to guarantee a service of quality throughout the duration of the contract.

Having said that, these contracts are no magic solution that can be applied to every project or in every situation. This *Prisme* explains how far and under what conditions the public-private partnership can fulfil its promise. It places particular emphasis on the financial dimension, which is the cornerstone of these contracts in terms of both efficiency and budgetary sustainability. And lastly, it examines the changes undergone by this model, especially those related to funding conditions.

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1) Introduction

Because the socioeconomic utility of public facilities often outweighs their private utility, the public authorities have always played a prominent role in their design and funding, particularly in the case of infrastructure networks. Historically, the involvement of the private sector has also been strong in France, where there is a long tradition of public-private arrangements in the provision of infrastructure services. A concession regime, in which the building, funding and exploitation of infrastructure are contracted out to private initiative, has been widely used since the Middle Ages. Through the 19th century and up until the 1930s, steam power, gas, electricity, telegraphy, the railways, the metro, tramways and canals were all born in the form of concessions. Even after the Second World War, when some of the big transport and energy networks were nationalized, concession was still widely used, for motorways and water supplies, for example.

More recently, there has been a revival of interest in public-private partnerships (PPPs) for infrastructure in most European countries. Alongside concession and leasing, new forms of contract have been developed, like the Private Finance Initiative (PFI) in the UK or the *Contrat de Partenariat* (CP) in France. Although the public-private model draws partly on a contractual approach to public action, the implementation of these partnerships is based primarily on a number of economic advantages, which the debate over one or another contract should not obscure.

The aim of this *Prisme* is to inform the debate and take some of the heat out of it by evaluating the conditions of relevance and limits of these contracts. We intend to highlight the decisive factors that can lead a public authority, concerned about the good use of public moneys and the efficiency and quality of the services provided, to choose a form of partnership with the private sector. We will also describe the limits of such arrangements and the risks that may ensue if they are used inappropriately or if the terms of the contract fail to reconcile the interests of the two partners.

If we had to define the potential advantages of these contracts in a few sentences, we might differentiate two levels of analysis: one macroeconomic and the other microeconomic. First, the use of PPPs in the broad sense of the term

(concession, leasing, partnership contracts, and so on) enables large financial resources to be directed towards the funding of public infrastructures, which are key elements in the long-term growth potential of an economy. In this respect, the development of PPPs can help to orientate savings towards long-term investment and the financing of the real economy. Moreover, the rationale of private finance gives a leverage effect to public investments, useful not only from an economic perspective (PPPs as an instrument of the countercyclical public policy of a public investment-based fiscal stimulus package) but also from a structural perspective. It is thus possible to accelerate the implementation of public investment programmes. The almost simultaneous launch of the last three high-speed rail lines in France testifies to this leverage effect.

The construction of PPPs is also driven by motives of a microeconomic nature, particularly in terms of risk-sharing between the public and private partners. Each party assumes the risks that they are most capable of controlling, absorbing or diversifying at the lowest cost. The public party can cover the risks of cost overruns and delays that represent two of the hidden costs of traditional public procurement. Along the same lines, the global nature of the mission entrusted to the private partner and the functional nature of the invitation to tender (expressed in terms of the performance required) allow the public authority to offload all the missions of interface and to provide users with the benefit of innovations developed in other contracts, which would not have been possible to propose within the framework of a traditional call for tender. The global nature of the contract, which may go so far as to cover the whole economic lifespan of the asset, leads to a change in objective from minimizing the total costs of procurement to controlling the total cost of possession of the asset. The private partner no longer has any incentive to reduce the quality of the construction as a means to increase its profit margin because that could lead to an escalation in operating costs. Thus, the global contract can be used to safeguard spending on upkeep and maintenance, which is the first thing to be sacrificed to budget restrictions in the context of traditional public management. Because of the contractual framework of PPPs, the global cost related to delivery of the service can become more transparent (from the moment the contract is signed) and be easier to control. Additional guarantees in terms of the quality of the service provided to users also ensue.

So PPPs constitute an additional contractual tool at the disposition of the public authorities to manage investment projects and/or the services provided to users. And yet they have been the object of fierce criticism, both in the UK after the last parliamentary elections and at present in France. This criticism is often focused on the cost, opacity and rigidity of PPPs.

We wish to illustrate the parameters of public decision in favour of this contractual solution and to show how the financial structure of the contract is the cornerstone of the general economy of PPPs. We will discuss the three broad criticisms of additional burden on public accounts, the lack of transparency in financial arrangements and the irreversibilities caused by the long-term nature of the contract. We will also demonstrate that the appropriate contractual and financial engineering makes it possible to limit the cost of private financing, increase transparency and favour control of the economic equilibrium of the contract, so that the evolution of the contract can be managed throughout its lifetime. At the same time, the financial structure of the partnership can help to redirect savings towards long-term financing of the real economy, in particular public services and infrastructures that generate positive externalities for long-term growth.

This *Prisme* is organized into five sections that address in turn the development of public-private partnerships (2), the decisive budgetary and microeconomic factors (3), their financial model (4), the prospects opened up by new financing conditions (5) and finally, the conclusions that can be drawn (6).

2) The development of public-private partnerships before and after 2008

In this first section we aim to define precisely the different contractual realities covered by the concept of PPPs (A), before sketching a brief outline of the history and main characteristics of their development (B).

A. Some elements of definition: partnership contracts, delegation of public services

Public-private partnerships can take different forms and receive different qualifications. From the perspective of risk-sharing, we can distinguish two main categories: partnership contracts (PCs) and concessions.

In a concession, the public authority delegates to the concessionary, for a predefined period (20 to 30 years for motorways, 75 years for the Millau viaduct, a century for the Channel tunnel), the design, construction, financing, operation and maintenance of a public facility. The investment costs are often subsidized by the public authority, but the main component in the remuneration of the concessionary is the toll paid by users of the infrastructure, which is also overseen by the public authority. The concessionary, however, assumes the “traffic risk”, in other words the fact that the economic and financial equilibrium of the project largely depends on the concessionary’s capacity to forecast the rate of frequentation of the infrastructure. This is the case, for example, for motorways, the Channel tunnel, the Millau viaduct, airports and the Tours–Bordeaux high-speed rail line currently under construction. Obviously, this major risk affecting the income generated by the infrastructure makes the project more risky for the financial backers of the project, lenders and shareholders.

In a partnership contract, on the contrary, which is a recent contractual tool (created in 2004⁴), the public authority entrusts the whole mission to a private operator, who designs, finances, builds, operates and maintains an asset that will serve as a support to a set of services delivered to the public or to a public body. The traffic risk is neutralized for the private party, which is remunerated by direct payment from the public authority. This remuneration is spread over the duration of

⁴ PPP contracts were created by the decree of 17 June 2004, which defined them as “administrative contracts whereby a public body entrusts to a third party, for a period determined on the basis of the length of the payback period of the investment or the chosen methods of funding, a global mission relating to the financing of intangible investments, structures or facilities required for public service, to the construction or transformation of structures or facilities, as well as their maintenance, operation or management, and where necessary the provision of other services contributing to the exercise by the public body of the public service for which it is responsible.”

the contract and linked to performance objectives (availability, quality of service, and so on). It covers all the costs related to the project, including the capital invested by the private party, and is independent of the rate of frequentation of the infrastructure. It often takes the form of annual payments to the private party, resembling a rent.

This is the case, for the Brittany high-speed rail line currently being built between Le Mans and Rennes, which has given rise to a 25-year contract, and many public buildings such as prisons, hospitals and stadiums. This type of contract makes the funding of the project much less risky, especially since the mechanism known as the *cession de créances Dailly* (assignment of receivables) allows part of the remuneration due by the public authority to be paid directly to the lenders.

In this respect, the partnership contract in the strict sense of the term differs from the delegation of public service in that most of the income comes from payments made by the public authority, subject to the availability of the service and the satisfaction of quality and performance criteria, rather than payments from users, which would be the case in a concession. Strictly speaking, we could say that the partnership contract makes it possible to establish cooperation between public and private sectors in cases where there is no public service that can be delegated, where equilibrium subsidies would be too high for a real transfer of operating risks to the contractor, or where the demand does not come from users but simply from the public body.

Although the origins of public-private partnerships can be traced to continental Europe, its current reinterpretation is unquestionably an import from the UK. In this respect, modern PPPs are transplants of the British private finance initiative (PFI). We believe that this means of using private capital to fund assets and infrastructures that deliver public services should be analysed primarily from a finance perspective. The development of PPPs during the first decade of this century went hand-in-hand with an extremely favourable financial context. The survival of their model, despite the upheavals caused by the financial crisis of 2008 and the sovereign debt crisis that followed, implies a new financial engineering of the contracts, modifying their traditional economic equilibrium. The challenge is to perpetuate the PPP model in a much less favourable financial context, thus helping

public authorities to address the imperatives related to the financing of infrastructures and the energy transition.

B. Some stylized facts about the development of partnerships

Partnership contracts were mainly developed within a favourable financial context between 2000 and 2008, as evidenced by the UK statistics for the period 1990–2012 (Figure 1). In March 2013, 665 PFI contracts were in operation, with a total private investment value of £54.2 billion. Both in the UK and in continental Europe, this development was seriously undermined by the crisis that started in 2007. It was also challenged by new political majorities, as exemplified by the case of the UK. In 2011, the coalition government of Conservatives and Liberal-Democrats called into question the capacity of these partnerships to generate satisfactory value for the taxpayers, especially in view of the rising cost of private investment, before deciding, as we will see, to renew the model in the form of the PF2 (Marty and Spindler, 2013). Note, however, that between March 2012 and March 2013, ten contracts reached financial close for a total value of £1550 million (HM Treasury, 2013).

This trend away from the use of PPPs was also perceptible in Europe in 2012. The EPEC⁵ data presented in Figure 2 below testify to this: the total investment of €11.7 billion, very much concentrated on France and the UK, was down 35 per cent in relation to 2011 and represented the lowest level of total investment since 2003. Only 66 contracts were signed, in other words, 21 per cent less than in 2011. A small number of large projects accounted for a very big share of the total. Four contracts⁶ represented 52 per cent of investments in Europe in 2011. The changes recorded for the first six months of 2013 confirmed this trend towards concentration on large projects. Although only 24 PPPs reached financial close during the period, compared with 41 for the first six months of 2012, the average financial base of transactions doubled, reaching €370 million. Again, this result was due to four transactions in the transport sector that accounted for 70 per cent of total investments. For 2013 as a

⁵ European PPP Expertise Centre

⁶ These were the British Intercity Express programme for €3.2 billion, the Nîmes-Montpellier bypass for €1.8 billion, the port of Rotterdam for €720 million and the *Tribunal de Grande Instance* of Paris for €563 million.

whole, however, a slight change in direction can be observed. The number of contracts rose from 68 to 80, and the average value in terms of private investment rose from €188 to €203 million.

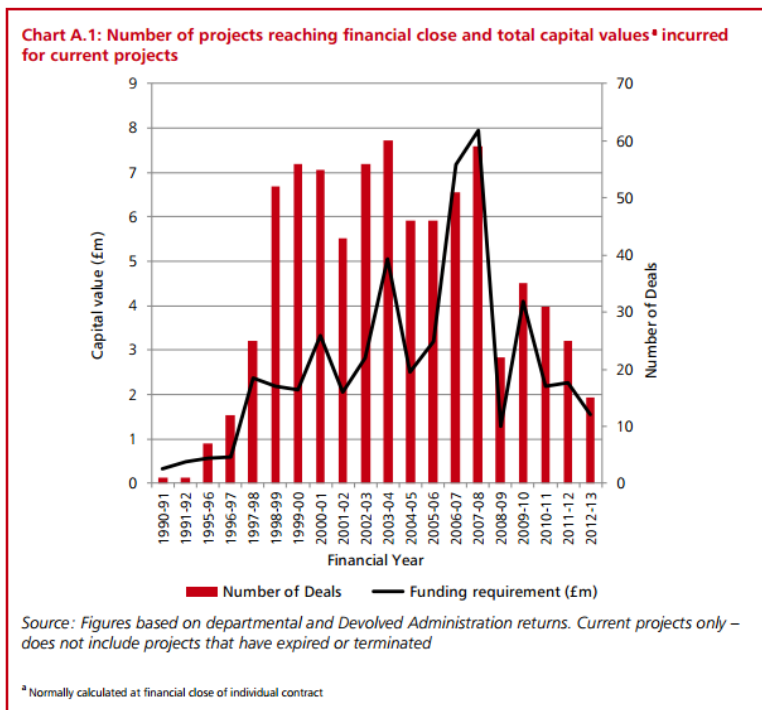


Figure 1: PFI contracts in the UK, 1992–2012 (source HM Treasury, 2013)

Apart from the UK, France was the exception in terms of PPPs, at least until 2013, when there were also strong investments in Italy. The use of partnerships expanded greatly in France after 2008 (as shown in Figures 3–6). Indeed, France was the leading user of PPPs in 2011, before falling away in 2012 and 2013. The stock of contracts is vast. In February, 2014, 196 partnership contracts had already been signed, of which 147 were with local authorities and 49 with the government and public bodies. In terms of flow, many projects are still at the stage of contracting

authority support before the call for tender or of competitive dialogue, as shown by the MAPPP⁷ data for 2014 presented in Figure 3.

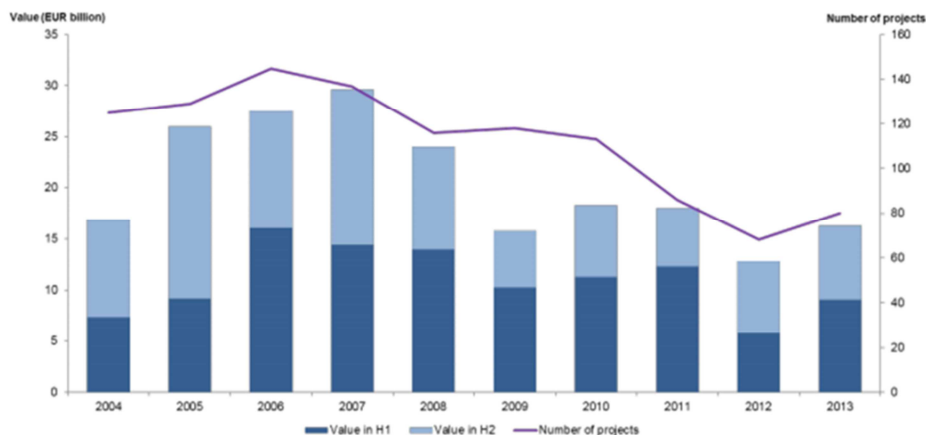


Figure 2: European PPP contracts 2003–2012

In its annual report for 2012, the *Mission d'Appui aux PPP* (MAPPP) of the French Ministry of the Economy and Finance noted that at the end of 2012, the total stock of investment generated by partnership contracts (PCs for short) since they first came into being stood at a total of some €13 billion, compared with €9 billion at the end of 2011. And when the sum of payments made by public bodies over the whole duration of the different contracts was taken into account, the total value of these contracts was €31 billion. Based on annual public investment of €90 billion, PCs account for between 5 and 7 per cent of this total, depending on the evaluations and the year considered. Although these volumes appear to be lower than those observed in the UK, where it was estimated (pre-crisis) that PFI investments represented 10 to 15 per cent of total public investment, it should be noted that the French data do not include the various different concessionary contracts.

⁷ *Mission d'appui aux partenariats public-privé*

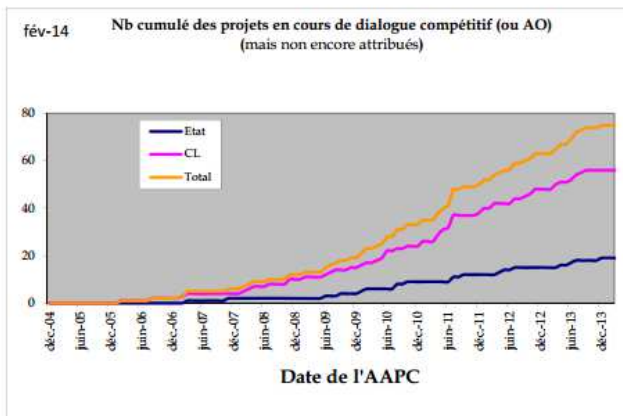
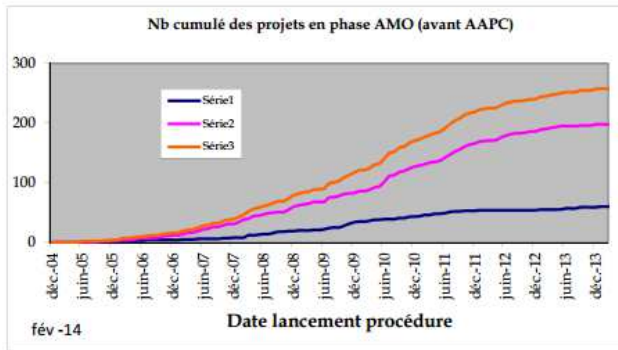


Figure 3: Flows of partnership contract projects (distinguishing between central government and local authority contracts) in France. The top graph shows the cumulated number of projects at the stage of contracting authority support (AMO) (before the notice of competitive public tender [AACP]) with the date at which each project began on the horizontal axis. The bottom graph represents the number of cumulated projects in the competitive dialogue process (but not yet attributed). The dark grey line represents the national government, the medium grey line local governments, and the light grey line the total of the two.

The French statistics should be viewed in the light of the complexity of their legal framework: the MAPPP only records partnership contracts in the strict sense of the term, as created by the decree of June 2004. These statistics do not include concessionary contracts, which are included in the PFI figures for the UK, or *contrats dérogatoires* ("contracts authorized by derogation", namely AOT-LOA, BEA and BEH⁸), used since 2002 for PPPs involving real estate in the justice, police, defence and health sectors.⁹ To appreciate the full scale of PPP use in France, we must therefore revise upwards the figures given by the MAPPP. Until the law of July 2008, special contracts benefited from a more favourable legal framework than PPP contracts governed by the decree of June 2004 (Marty et al., 2006). Only the latter were obliged to carry out a preliminary evaluation.

This evaluation takes place in two stages. First, it must be shown that the legal conditions are satisfied (criteria of urgency and complexity) that exempt the project from the rules governing standard public procurement. A comparative study must then be carried out between the different tools of public procurement to demonstrate the superiority of the PPP in terms of cost. Contracts of the types BEA, BEH and AOT-LOA, which are exempt from this evaluation, therefore benefit from an unfair advantage that leads public bodies to choose in their favour whenever possible, so as to avoid the constraints of preliminary evaluation. Changes to the law, however, have now created a level playing field between these different forms of contract (by making the preliminary evaluation mandatory for all of them) and simplified the multi-layered contractual landscape (notably by organizing the disappearance of BEH).

The graphs below, based on data from the *Centre d'expertise français pour l'observation des partenariats public-privé* (CEF-O-PPP), confirm the decline in the number of new PPPs (and hence the trend observed by the MAPPP for PCs alone). They also highlight the growth in the proportion of partnership contracts and their strong relative weight in terms of total private investment. These elements justify the

⁸ AOT: authorization for temporary occupation in the public domain; LOA: authorization to temporarily occupy publicly owned land bundled with a leasing contract; BEA: administrative emphyteutic (long-term) lease; BEH: long-term hospital lease.

⁹ Other forms of contract can also be employed in the real estate sector, such as leasing contracts.

approximation made in this *Prisme* between PPP and partnership contracts in the French case.

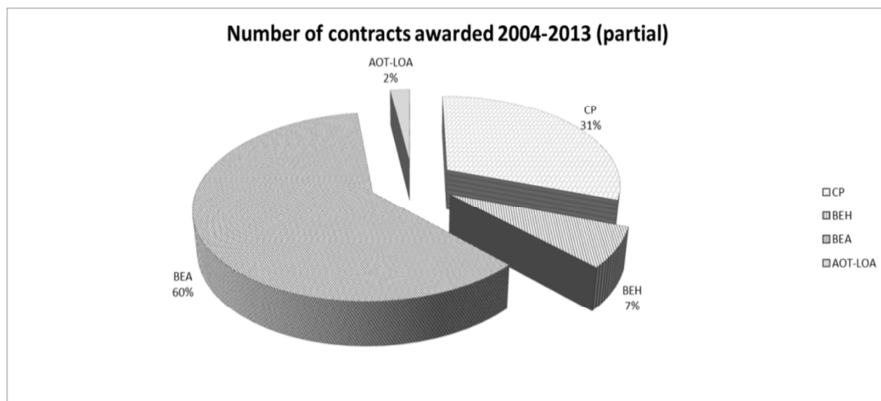


Figure 4: French PPPs (CP + AOT-LOA + BEA + BEH)

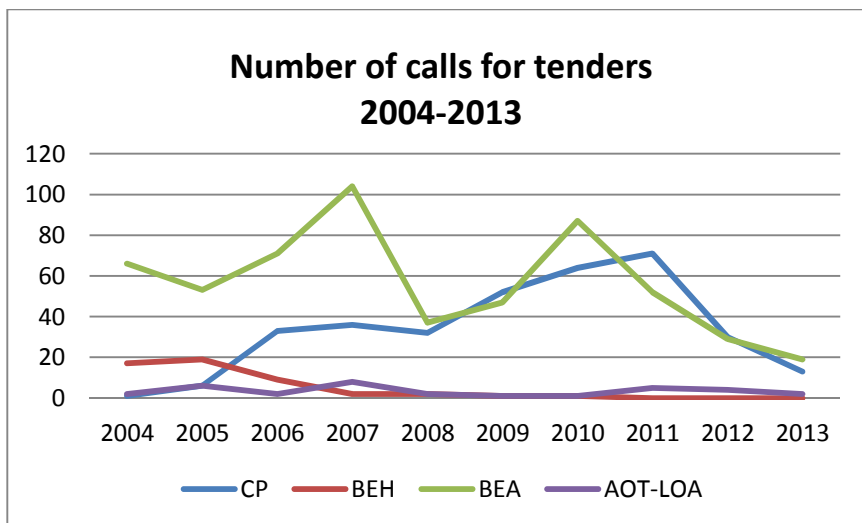


Figure 5: Annual PPP numbers by type of contract in France

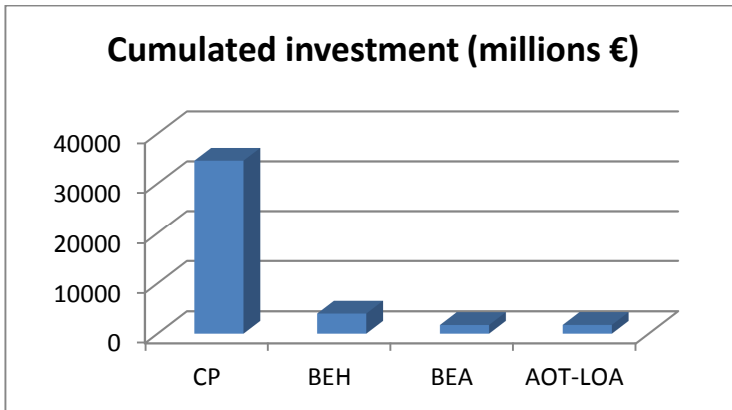


Figure 6: Total PPP investments by type of contract in France

How can one explain the resilience and transformation of PPP contracts despite the economic crisis?

3) The decisive factors in the development of a public procurement model

The age of the concession model – whether a matter of Roman law or secular French practices – testifies to the possibility of associating public and private funding for large infrastructure projects (Bezangon, 2005). The involvement of the private sector, as in some concession contracts in France (canal inclined planes), has often gone further than the simple advance funding of infrastructures by supplying technical innovations. Remaining in the domain of French law, but in this case with less of an exemplary nature, contractual arrangements have also been set up, particularly in the 1980s, for real-estate projects. In some ways, these METP (*marchés d'entreprises de travaux publics*, procurement contracts for public works) were precursors of real-estate PPPs and, whether it was desired or not, stressed the fact that such partnership arrangements could only bear fruit if they reached further than the stage of deferred payment and were governed by a legal framework guaranteeing the transparency of the public decision and financial commitment. As we will see, the legislators have always accompanied PPPs with a set of safeguards

against misuse, with the result that these contracts are much more tightly controlled and supervised than traditional public tenders.

Although the concession model originated on the continent, the current conventional PPP model is strongly influenced by the British experience, notably with the addition of a new variant in which payments are based on availability, allowing partnership agreements to be established in projects for which the main operating revenue cannot be obtained in the form of tolls paid by the end users. PFI policy was launched in 1992, after a first pilot contract in 1987. It only started to bear fruit in 1997 (see Figure 1 above), because of the time taken to negotiate the contracts and thanks to the decisive support given by the New Labour government in alleviating the political risk and creating an appropriate regulatory framework (method of comparing public and private costs, standardization of contracts, and so on).

The UK's decision to adopt a policy of public-private partnerships can be understood from the perspective of the privatization policies of the 1980s. The PPP model is based on the search for a third way that allows the public authorities to draw on the resources of the private sector (in term of skills and financial capacities) while retaining its missions of strategic orientation and control of the services provided to users. The "new public management" literature has sought to give coherence to this path (Hood, 1995), which implies a shift towards a regulatory and strategic government.

The UK example shows that PPPs are not a sort of last step before privatization or an ersatz, but another type of project structure, allowing the public authorities to keep control over the asset and over the service provided to the public (Trosa et al., 2003). Not only is the asset often destined to return to government ownership at contract end, but the contractual clauses allow the public authority to specify the terms of the service (beneficiaries, pricing conditions and standards of quality and performance). In keeping with the framework of new public management theory, the objectives of the public authorities become focused solely on the results of their action.

In this context, it is not surprising that the consolidation criteria of PPP contracts within the framework of international public sector accounting standards (IPSAS 32 – service concession agreements – Grantor) are based on this same criterion of control. Accountability for public action therefore involves control over the

results and no longer simply the respect of procedures in the expenditure of resources. Public action is then deployed through the implementation of an incentive contract as a function of objectives (for both the private operators and the public bodies). The public authorities must therefore acquire the appropriate capacities in terms of the negotiation and monitoring of contracts. This represents a transformation of the channels of public action far more than a restriction of its perimeters or ambitions.

There are two decisive factors in the reinvention of the model and its international diffusion: the building of an incentive-based contractual structure in terms of the management of public projects and services, and the access to relatively cheap sources of funding.

A. A system of incentives for stakeholders

Concern for the efficiency of public action is combined with a second decisive factor in the commitment of public bodies to PPPs, of a microeconomic nature. The challenge is to build an incentive structure that is effective not only in the processes of public procurement, but also in the management of public assets. This means implementing a contract in which the public body can set up an incentive structure for the contractor to produce efficiency gains, but also to cover against the risks of cost overruns and delays in public investment projects during both the building and operational stages. In addition to the safeguard against cost overruns, the contract also allows for incentives to guarantee the quality of service or the correct maintenance of the infrastructure. However, creating an incentive structure in a context of incomplete and imperfect information entails a trade-off between incentives to efficiency and giving up information rents (see Laffont and Tirole, 1993). The underlying fixed-price mechanism means that, unlike a mechanism based on the repayment of costs, contractors can capture the whole of the difference between this ceiling and their real costs.

So the partnership contract produces a factor of additional cost, to which we must add two further sources. The first of these derives from the transaction costs, both *ex ante* and *ex post* (that is, the costs of calling for tenders and drawing up the contract followed by the costs of supervision) generated by this recourse to the market (Dudkin and Väililä, 2005). The second stems from the extra cost of private finance,

due to the operator's profit margin, the remuneration of equity capital, or the additional financial cost relating to the *a priori* less favourable quality of the signature compared with that of a public body. This extra cost may be considered acceptable when it is weighed against the gains linked to the guarantee of service quality and coverage of the risks of cost overrun and delays. In other words, the possible extra cost of a PPP can be considered as an insurance premium paid by a public authority that is – paradoxically, from the viewpoint of the traditional hypotheses of public economics – risk-averse.

The final factor explaining the choice of PPPs is the funding issue. The acceptability of the extra costs generated by such partnerships is highly dependent on the situation on the market for loanable funds. If the interest rate spread can be kept at a reasonable level, it may be in the public body's interest to accept the cost of the insurance premium generated by the incentive contract. The public body will be all the more willing to accept the extra cost if it is facing debt constraints. Public authorities, both local and national, face budget restrictions to some degree (Lüder, 1994). This situation is related to the scissors effect between increasing social demand for public services and infrastructures and capacities that are ever more restricted in terms of raising revenue, due to low acceptance of taxes, high levels of debt and prudential macroeconomic rules, particularly at the European level.

This brings us to a third decisive factor in the recourse to PPPs, which also involves budgetary considerations. This relates to strategies of leverage for public investments (a logic of joint public-private funding within the framework of global economic strategies [environment, facilities, and so on], of catch-up or of stimulus through investment in the context of countercyclical economic policy). It can also relate to strategies to circumvent budget rules. The budgetary and accounting framework governing PPP contracts then plays a decisive role in averting the opportunistic use of them in off-balance sheet manoeuvres (deconsolidation of debt).

B. The funding needs of public authorities

The rise of PPPs is inseparable from the question of the funding of public infrastructures, particularly new investments as part of national or European policy in the field of large transport infrastructures or energy efficiency. The funding capacities

of governments and public bodies in general do not allow them to make the investments required to modernize and extend public infrastructures, despite the fact that they play a decisive role in the long-term growth potential of the economy.

At the European level, funding requirements for transport, telecommunication and energy infrastructures are estimated to be about €2,000 billion for the current decade (European Commission, 2011). Nearly €1,000 billion of investments are needed in the field of energy production, €500 billion for transport networks, €200 billion for the transport of energy and more than €300 billion for broadband and superfast broadband telecommunication infrastructures. At the French level, the government has announced an ambitious policy of infrastructure modernization, including the “superfast broadband” plan (€20 billion), the *Grand Paris* (€30 billion) and “energy transition”. The funding requirements can be estimated at about €100 billion for the next ten years, representing 5 per cent of gross domestic product (GDP).

In the face of these growing needs, public investment has remained at fairly low levels since the 1970s, as demonstrated by the data for the UK (Bardens and Rhodes, 2013).

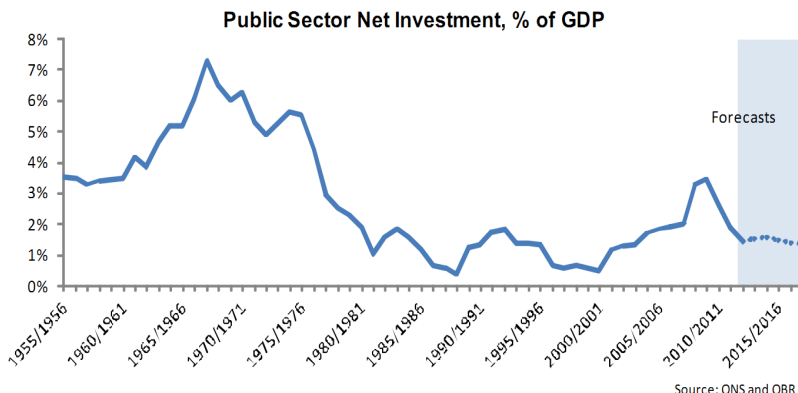


Figure 7: UK public investment

The relative increase in public investments in the UK up until the eve of the 2008 crisis can be partly ascribed to the development of the PFI policy. Given the

objectives for the UK as defined in the National Infrastructure Plan of 2011 (500 projects over 10 years for a total value of £250 billion) – notably in terms of transport and energy production infrastructures – the participation of the private sector appears even more necessary. Since the public sector cannot meet the funding effort on its own, the solution of private finance and public-private partnerships is once again on the agenda, despite the reservations expressed by the new parliamentary majority in 2010 and 2011 (Bardens and Rhodes, 2013; HM Treasury, 2011). For example, as shown in the graphs below, the objective for transport and energy infrastructures is to obtain 60 per cent of the funding from the private sector.

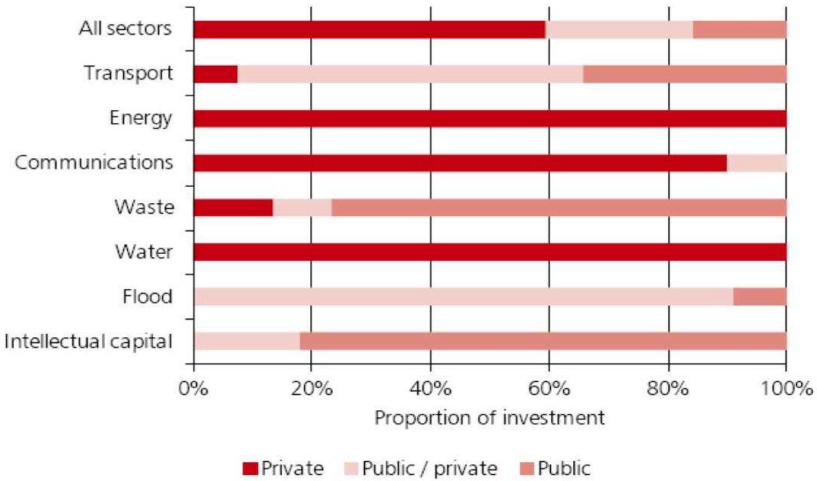


Figure 8: Types of infrastructure funding by sector (UK)

Infrastructure funding must, however, take into account the specificities of each project, namely the necessity of the service provided to users, the production of positive externalities (which justifies partial public funding), their frequent character of natural monopoly, their very high capital intensity (combined with relatively low operating costs) and their long lifespan (Bensaïd and Levita, 2013). The balance between public and private funding depends on these intrinsic characteristics,

constraints on the access to finance and the budget strategy of the public bodies concerned.

C. Decisive factors of a budgetary and microeconomic nature

Is the choice of PPPs motivated primarily by a strategy of deconsolidating the public debt or circumventing rules of budget discipline (i), or by the search for efficiency gains in the management of projects and/or public assets (ii)?

i. PPPs: an instrument of debt deconsolidation?

PPPs allow government organisms to avoid debt constraint by spreading the budgetary burden of a given investment project without its development being hindered by year-to-year funding availability. It also allows them to launch several projects at the same time for the purpose of building facilities and modernizing or even, as at the beginning of 2009 in France, as an instrument of stimulus in a context of budget constraints. Beyond the microeconomic advantages of PPP contracts, which make them more than simple instruments of funding, it is clear that their development cannot be fully understood without taking into account the financial situation of both the public authorities and the markets.

First, the development of PPPs is inseparable from the difficulties in access to funding experienced by public bodies, which can be divided into two groups. In the case of local authorities, these difficulties may concern access to bond markets (often because they lack the critical size or suffer from an unfavourable credit rating) or access to bank funding. The latter has been rendered particularly difficult in France due to the bankruptcy of Dexia, but it has been structurally compromised by the tightening of prudential laws that followed the crisis. In the case of national authorities, it may also involve strategies to circumvent prudential rules of a macroeconomic nature, such as those imposed by the Stability and Growth Pact, or strategies of debt deconsolidation within the framework of national public

accounting.¹⁰ The question then arises of the capacity of public bodies to choose PPPs for the purposes of deconsolidation, whether being faced with national accounting rules applied to calculation of the public debt, budget control or their own accrual accounting.

ii. From the perspective of European rules

According to the Maastricht treaty definition of public debt, first, PPPs can be used as instruments for deconsolidation of the public debt. Even in countries that are not committed to the Pact, the focusing of debate on public debt as defined in the European System of National and Regional Accounts (ESA 95) may have led to a preference for partnership arrangements, based at least partly on consideration of their impact on the debt. As the Treasury Committee of the House of Commons (2011) noted: "...efforts to meet fiscal rules at a national and European level may have contributed to the misuse of PFI [...] Given the salience of the public debt statistics in the current political climate, the attractiveness of the PFI method for any government has been evident whether it provides value for money or not".

The rules of consolidation were established in 2004 by Eurostat. They were the object of fierce criticism on the grounds that they left national governments with a great deal of room for manoeuvre to deconsolidate the debt linked to PPP contracts. A public body must acknowledge the debt associated with a PPP contract if it assumes the risk of construction and either the risk of demand or the risk of availability. Insofar as PPPs often entail the contractor taking charge of the construction and the flow of payments being contingent on availability, the right to deconsolidate appeared to be often acquired in advance. The jurisprudence, however, has evolved in the face of this criticism of the Eurostat doctrine. When the funding of the asset in question is predominantly of public origin, it must be consolidated into the public debt. In particular, in the French case, when the PPP benefits from a *Daily* assignment of receivables for the major share of its funding – which is nearly always the case – the project is *ipso facto* consolidated into the public debt. This evolution

¹⁰ PPPs, however, only represented 10 to 15 per cent of public investment in the UK during the first decade of this century. Prudence is therefore required in the interpretation of PPPs either as an off-balance sheet instrument or as the main response to the current lack of investment in public infrastructures.

was confirmed in the manual on government deficit and debt published by Eurostat in 2012.

iii. From the perspective of national budget rules

We must also examine the budget treatment of PPPs (insofar as the question arises of Parliamentary control over public spending) and of the recognition of the assets and liabilities linked to PPPs in the government's accrual accounting (which informs the buyers of public debt about the government's capacity to service the debt, among other things).

From a budgetary point of view, entering into a PPP is all the more likely to give rise to opportunistic strategies as it continues to be based on yearly budgets and cash-basis accounting. This undoubtedly creates a bias in favour of PPPs, because they only give rise to the payment of annuities spread over a large number of years, and which only start, theoretically, when the asset comes into service, whereas traditional investments represent an immediate disbursement (corresponding to the investment costs).

Such a framework fails to take into account the long-term liabilities entailed by PPP contracts. As a result, opportunistic strategies can easily be implemented. Just to take the French case, many budgetary safeguards have been introduced. One example is the Ministerial Memorandum of 14 September 2005 on the budget rules governing the signature of partnership contracts. This directive stipulated that partnership contracts are not covered simply by payment appropriations (*crédits de paiements*) corresponding to annual flows. They are also covered by commitment appropriations (*autorisations d'engagement*) from the moment the contract is signed, for a value corresponding to the investment costs, the compensation paid in the event of premature termination of the contract and the share of the annuity corresponding to the funding and operating costs.

This prudential effort was also extended to local authorities and to public hospitals and healthcare consortiums. The former were advised that the commitment corresponding to a PPP should be covered by an *autorisation de programme* (budget allocation) for the investment part and by commitment appropriations for the operating part (Ministerial Memorandum of 9 May 2012). Likewise, the decree

n°2012-1093 of 27 September 2012, which completes the provisions concerning the awarding of certain public contracts, makes it mandatory, in addition to the preliminary evaluation required for partnership contracts, to conduct a survey of the availability of credit and of all the consequences of these operations for the public finances. The survey must also examine compatibility with the orientations of the government's real-estate policy.¹¹ The signature is still dependent on approval by the ministers of the economy and the budget.

A last issue concerns the contingent liabilities incurred by the contracting public body. They cannot easily be covered by commitment appropriations, insofar as they are neither certain nor assessable when the contract is signed. They may derive from guarantees of revenue or on the service of the debt that have been given to the private contractor, or simply from the compensation paid to the contractor in the event of premature termination of the contract (Irwin and Mokdad, 2010). Some governments incorporate methods of recognition and evaluation into their internal procedures, or even make annual provisions for the risk linked to these liabilities based on the mathematical expectation that these clauses may be activated during the lifespan of the contract.

iv. From the perspective of accrual accounting

These contingent liabilities also play a decisive role in the question of the capacity of the third component of public accounting information – namely accrual accounting – to give an accurate account of the situation of the public body concerned. From the perspective of public accounting, the recognition of PPPs could not be effective within a framework of flow accounting as it existed in France before the *loi organique* of 2001 or in the UK before the Resource Accounting and Budgeting Act was passed in 1998. Even, however, when the government does take liabilities into consideration in its accounting, the possibility of using PPPs for their deconsolidation potential cannot be excluded.

¹¹ PPPs were criticized (the *Plan Campus* being a notable example) for encouraging public authorities to increase their real-estate holdings excessively. Not only is this costly in terms of public resources, but the authorities concerned may end up in great difficulty in financing the upkeep of their real-estate assets.

In this respect, the example of the UK provides a wealth of insights. The rules applicable to public sector accrual accounting were originally based on standards drawn from the UK GAAP (Generally Accepted Accounting Principles), leading to the use of a “risk/reward” criterion to decide whether the assets involved in these contracts (and of course the related debt) should be consolidated in the public accounts. Consequently, the large majority of PFIs were treated off-balance sheet. As the Economic Affairs Committee of the House of Lords observed (House of Lords, 2010): “around 78% of operational PFPs in England by capital value are not recorded on the balance sheet of public sector accounts and are thus excluded from the Public Sector Net Debt statistics part of National Accounts”. The possible reintegration of these liabilities into the public accounts would have serious consequences, as suggested by an evaluation made in 2011 for the Office of Budget Responsibility: the debt would have to be revised upwards by £35 billion, which would increase the national debt by 2.5 per cent of GDP (OBR, 2011).

The situation also underwent a perceptible change with the gradual application of International Financial Reporting Standards (IFRS) to the public sphere from 2009/2010. This led to the risks/rewards criterion being abandoned in favour of the criterion of control.¹² The evaluations carried out by Hodges and Mellet (2012), on the basis of UK Treasury data for PFI contracts signed before March 2011, illustrate the impact of the application of IFRS on the recognition of PFI contracts in public accounting. For the PFI contracts whose accounting by IFRS principles was known, the share of deconsolidation – both in numbers of contracts and in the value of private investments – fell from 72 to 11 per cent. Current UK rules also require an evaluation of the liabilities linked to PFI in the national accounts and more recently, within the framework of PF2, a ceiling on the stocks of assets and annual expenditure linked to off-balance sheet contracts (OECD, 2013).

The influence of IFRS on the accounting recognition of liabilities relating to PPP contracts was not limited to the UK. The International Public Sector Accounting Standards Board (IPSASB) derived its IPSAS 32 standard relating to service

¹² At present, the IFRS have only been implemented in the UK and Australia. In the case of France, the *recueil des normes comptables de l'Etat* (central government accounting standards) is a hybrid combining elements of IFRS and internal accounting standards.

concession agreements from the IFRIC 12 (International Financial Reporting Interpretation Committee), based on these same IFRS. The advantage of standards derived from IFRS lies in the fact that the chief criterion of accounting consolidation is control, defined in terms of control of the service provided to users (especially as regards pricing) and residual control rights over the asset at contract end.¹³ First, the adoption of IFRS by the UK and Australia, or the way they are reflected in the IPSAB accounting standards (for example IPSAS 32 vis-à-vis IFRIC 12), can be seen as a search for best practice. The criterion of control has more economic relevance than criteria like that of risk and reward that was previously used in the UK. The latter sometimes led contracting public bodies to deviate from the optimal allocation of risks in order to deconsolidate the contracts. Second, the choice of IFRS-based standards can be compared to the practices followed in private companies. As Irwin and Mokdad (2010) underline, it was the application of IFRIC 12 that led project companies to deconsolidate the assets and debt linked to PPP contracts, acting as a triggering factor for the adoption of similar standards on the public side.

It is not certain, however, that IFRS alone can resolve the problem of possible accounting bias that can prompt public bodies to choose partnership agreements even when they are suboptimal from a financial point of view. Such bias may arise, for example, in the treatment of contingent liabilities. Theoretically, in accordance with the rules set out in IPSAS 19 (“Provisions, Contingent Liabilities, and Contingent Assets”), these contingent liabilities should be included in the accounts of the public partner. Among these liabilities, IPSAS 32 groups together financial guarantees (concerning repayment of the debt service) and performance guarantees (minimum revenue or compensation for a one-off fall in receipts). The accounting treatment of these guarantees – which can be considered as insurance services – is complicated because their activation is uncertain and their cost for the public body is equally difficult to estimate in advance. The same is true for another type of contingent liability, corresponding to the compensation to be paid to the private contractor in the

¹³ IPSAS 32 – Service concession arrangements – Grantor, October 2011.

event of premature contract termination, which depends on the event and on which of the parties is responsible.¹⁴

So the national debt accounting rules, the budget framework and accounting standards can limit the risk of the opportunistic use of PPP contracts, where they are no longer motivated by considerations of economic efficiency but by strategies of debt concealment or the circumvention of budget discipline rules.

D. Microeconomic interests

The debate about the decisive factors in the recourse to PPP contracts is centred on the relative importance of motives relating to their potential for deconsolidation and of motives relating to their microeconomic effects on the management of public investment projects and infrastructures. From the beginnings of PFI policy, the UK Treasury stressed the fact that the main motivation was economic efficiency, not the transfer of debt to a third party: “The PFI is not about borrowing money from the private sector... [It] is all about creating a structure in which improved value-for-money is achieved through private sector innovation and management skills delivering significant performance improvement and efficiency savings” (Treasury Task Force, 1999).

This position was reaffirmed all the more often because of the doubts that remained about the motivations behind their accounting treatment: “Indeed, the market increase in PPP contracts worldwide is often attributed less to the intrinsic qualities of such contracts than to government’s attempts to evade budget constraints by tacking liabilities off the balance sheet” (Maskin and Tirole, 2008). Despite the initial hopes of the British, the savings linked to the use of PPPs turned out to fall far short of the forecasts. On average, the gain was only between 5 and 10 per cent (Shaoul, 2005).

Nevertheless, the use of partnership agreements did produce gains in efficiency. These derived first from the integration of the stages of construction and operation of the asset. In this sort of configuration, the contractor is dissuaded from adopting a strategy of construction cost minimization, because it could lead to

¹⁴ Among these contingent liabilities, some theorists include the potential cost of bailing out the project company if it is responsible for an essential service.

excessive operating or maintenance costs. These latter are externalities for the constructor in the context of separate contracts. However, in the context of a global contract combining the missions of construction and operation, they are internalized (Hart, 2003; Iossa and Martimort, 2012). It is in the contractor's interest to minimize the global cost of possession and operation of the asset subject to the constraints of performance and service quality specified by the contracting public body. At the same time, the construction costs are not necessarily higher within the context of a partnership, insofar as the private contractor can draw on its experience of previous contracts (and exploit economies of scale and scope or learning effects).

The efficiency of delegating a global mission to the private contractor depends on the incentive structure defined by the contract. In the case of a "cost plus fees" contract, the contractor has no ex-ante incentive to make the investments required to minimize the operating costs or to make every necessary effort ex-post to curb its costs.¹⁵ Since its costs are reimbursed, it does not have any suitable incentive to make costly investments with a view to reducing them. A fixed price contract, on the contrary, creates the necessary incentives for efficiency, because the contractor will ultimately be the beneficiary of the savings made. It is also possible that the choice of a fixed-price contract may dissuade companies that are not certain of being able to control their costs from submitting tenders. The theoretically fixed-price nature of the partnership contract protects the public partner from the risk of cost overrun in construction, which has been evaluated at an average of 20 per cent for public contracts involving infrastructure (Flyvberg et al., 2002). Likewise, this mode of payment, not based on the reimbursement of the contractor's costs, also allows the public body to protect itself against the overrun of operating costs so often observed in the fields of maintenance and fluids, like energy (Stewart, 2012).

The causes of cost overrun experienced in the construction stages of infrastructure projects can be grouped into two categories: risks of an idiosyncratic nature, which may occur in any type of contract (site risks, etc.), and risks deriving

¹⁵ The integration of different stages is also advantageous compared with a succession of two fixed-price contracts (the first for construction, the second for operation) when the quality of the construction (and more precisely the impact of the choices made on the future costs of operation and maintenance) cannot be observed by the contracting public body.

from information asymmetry (anti-selection and moral hazard), in other words from the form of the contract (Blanc-Brude, 2013). In theory, the integration of the construction and operation stages combined with delegation to a third, better-informed party through an incentive contract allows the contracting public body to control this risk. As we have noted, the efficiency gains from delegation to the private sector are also linked to the limits of purely public management. The latter has been criticized for the lack of incentive for public sector managers to reduce their costs (for which the reward is often a reduction in their budget the following year), the sacrifice of maintenance spending¹⁶ (Nilsson, 2012), the lack of incentive to maintain a standard of quality for the service provided and a tendency to overinvest (Megginson, 2005).

The very model of PPPs supposes that the contractor is only paid when the asset comes into service, which limits the risk of delays in the commissioning of the service.¹⁷ First, a PPP does not concern the procurement of a given facility, but the purchase of a flow of services provided by that asset. Second, this deferred payment is essential for encouraging the contractor to control construction delays. Any delay in completion will result in the absence of revenue for the contractor at the planned date, coupled with the first debt repayment. Conversely, early delivery will automatically increase the duration of payments and thereby constitute a windfall profit that will increase the return on equity.

The public authority, however, must weigh these gains against a set of additional costs. Just because the PPP solution protects the public body against cost overruns and delays in the management of public projects and the operation of public infrastructures does not mean that it satisfies the criterion of value for money (Hellowell, 2013). There remains the question of transaction costs and above all funding costs.¹⁸ The former are not reduced (far from it!) by the choice of a PPP

¹⁶ Upkeep and maintenance costs are often the first to be sacrificed in the event of budget restrictions, insofar as they appear to be “postponable” until the next financial year and are much less perceptible than the abandon or postponement of projects that have been announced or a reduction of the wage bill.

¹⁷ Contractors, however, are sometimes paid when the contract is signed. Although the efficacy of the incentive is affected, the cost of the PPP for the public body is reduced insofar as the contractor’s funding needs are smaller.

¹⁸ It should, however, be stressed that the public funds themselves have a social cost, because of the distortionary nature of taxation. Since the Lebègue report (2005), it is recommended to include in the economic calculations

structure. The complexity and length of the procedure that must be followed to enter into a PPP entails high transaction costs that the public body must take into account in its economic trade-off between the different contractual options open to it, and in its budget.

These costs can be divided into two groups. Ex-ante transaction costs can themselves be divided into two subgroups: the search costs associated with the procedure of competitive dialogue and the “ink costs” of writing the contracts, which must cover every possible detail because of the principle of “sanctity of contract”. The second set of transaction costs corresponds to the supervision costs of. It is no longer a question of managing the risks linked to ex-ante information asymmetries (minimizing the risk of anti-selection through search costs) but of dealing with the problem of moral hazard, which means not only ensuring that the contract contains the right incentive clauses but also possessing the wherewithal to administer their correct application. In other words, careful writing of the contractual clauses themselves is not sufficient to guarantee the efficacy of the incentive structure created by the contract. The apparent “completeness” of the contract does not prevent the use of opportunistic rent-seeking strategies in the context of its implementation (Tirole, 2007).

These transaction costs constitute a first source of additional cost that can reduce the efficiency gains of PPPs for the public body. Now, these costs are all the higher when the contract concerns a complex asset, requires a long-term commitment or entails the use of incentive clauses to guarantee performance and service quality. A study of 55 PFI contracts in the UK estimated an average level of transaction costs of 7 per cent of the total value of the private investment (Dudkin and Väilä, 2005).

If transaction costs increase with the complexity of the project,¹⁹ they are also very high for contracts covering small-size investments.²⁰ So what are the possibilities

an opportunity cost for public funds (COFP) of a coefficient value of 1.2. The Quinet (2013) report added a fictitious price of the scarcity of public funds (PFRFP), with a coefficient value of 0.05. This second coefficient takes into account the rationing of public funds, in other words the insufficiency of the budget envelope available to fund all the projects. To avoid discretionary rationing, a fictitious price is created (the Lebègue report of 2005 had advised that projects be classified according to their net present value).

¹⁹ The transaction costs incurred by two of the three PFI contracts for operation of the London Underground were estimated at about £500 million for total investment of £22.4 billion (Shaoul et al., 2012).

of using partnership structures for small contracts? Incidentally, transaction costs affect not only the public body, but also the bidders. As a result, they may affect the intensity of competition for these contracts. This justifies the meeting of some of these costs by the public authority during the second stage of the competitive dialogue, which is the most costly stage for the bidders.²¹

Although part of the supervisory function can be outsourced to the external financiers through the funding structure of the contract (Marty and Voisin, 2008), as we will see in the next section, it remains costly for the public body, but indispensable to the success of the PPP contract. The public body is making decisions in a context of incomplete and imperfect information, both about the type of its potential contractor (uncertainty about quality) and about the contractor's behaviour once the contract has been awarded (uncertainty about the level of effort).

Two risks remain, bearing in mind that the public body is the guarantor of last resort for the continuity of the service provided to users. The first lies in the phenomenon of the "winner's curse" (Thaler, 1988). There is a strong possibility that the candidate who made the most optimistic hypotheses about the costs of the service and/or the traffic potential will be awarded the contract, thus increasing the probability of business failure over the course of the contract. The second risk is that of opportunistic behaviour.²² Knowing that PPPs are long-term contracts for which the only competition is at the time of procurement, a consortium might be tempted to undervalue the costs when making its bid in order to be awarded the contract – and so get rid of its competitors – and then immediately renegotiate the contract to obtain more favourable terms, to the detriment of the public body since there is no longer any competitive pressure.

²⁰ Väilä (2005) shows that transaction costs can reach 10 per cent of the total private investment.

²¹ For example, in the context of the PFI contract PRIME evaluated by the National Audit Office (1999), the cost of the procedure for the public body was £10.9 million, compared with an initial estimate of £1.7 million. The total cost for the bidders was about £27 million.

²² The necessity that the public body consent to the investments required to accomplish its tasks of supervision and acquire the means to apply the contractual clauses effectively is justified by the economic evaluation of the impact of an effective application of the contractual penalty clauses in the event of lateness in the fulfilment of contractual obligations (Lewis and Bajari, 2013).

Nevertheless, the additional transaction costs are far smaller than the higher funding costs incurred by a private borrower as compared with a public borrower that is, theoretically, excluded from the risk of default and can therefore borrow at the risk-free rate. The preliminary evaluation reports on which the MAPPP gives its opinion testify to the fact that the static cost-benefit analysis is very rarely favourable, because of the extra cost of funding. We should therefore observe an inverse relation between the propensity to sign PPP contracts and the cost of credit on the market for loanable funds. Consequently, as the opinions produced by the MAPPP show, PPPs make sense primarily in terms of the management of risks in public projects. The fixed-price contract linked to the PPP protects the public body against possible cost overruns (Marty et al., 2006), as the figure below shows. It presents the comparison between public and private costs that was made in the context of the PFI contract for the renovation and management of the main building of the Ministry of Defence (National Audit Office, 2002).

The price proposed by the private sector was roughly equal to the estimated cost for carrying out the project through traditional methods of public procurement and management. However, whereas the private tender corresponds (theoretically, at least) to a fixed price and allows the contracting public body to ensure the financial viability of the project, the traditional solution only provides an expected cost, which must be considered in the light of a wide distribution of possible costs (obtained in the figure below by a Monte-Carlo simulation). In other words, choosing the PPP solution does, admittedly, deprive the public body of a set of favourable draws (using a lottery metaphor to illustrate the uncertainty of total project cost in a traditional public procurement procedure), but at the same time it protects the public body against the more unfavourable draws, which could threaten the viability of the project.

Even if the PPP entails an additional cost, this may be economically acceptable if it is considered as an insurance premium.²³ It is therefore essential for this financial cost (that is, the difference between the costs of public and private funding) to be minimized if PPPs are to be efficient. This recalls the classic definition

²³ It is also important not to equate the rent due under the terms of the PPP contract with repayment of a loan taken out by the contractor. The payment also covers operation of the asset and all the maintenance costs.

of PPPs as a tool for the optimal allocation of risks between the contracting parties, each one assuming the risks that they can manage (by pooling them or covering them financially) at least cost. Thus, two key parameters of the decision to use PPPs can be highlighted: the contractual allocation of responsibilities (and, consequently, the methods of risk evaluation²⁴ and the effectiveness of the transfer) and the funding costs.

11 The PSC represented as a distribution

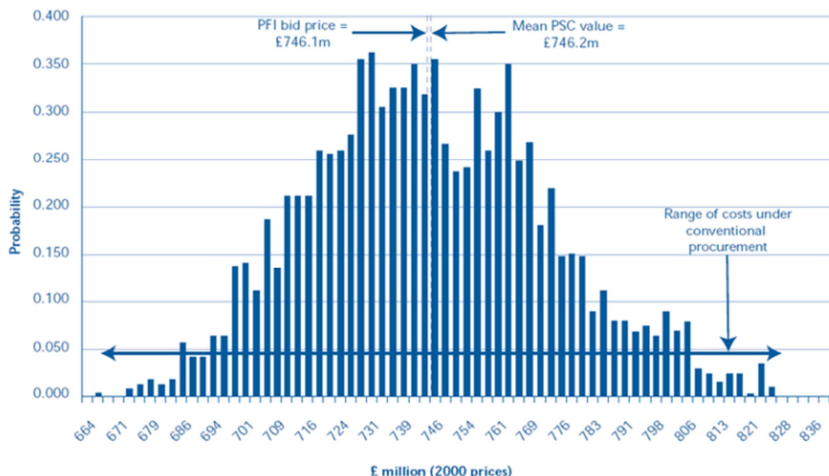


Figure 9: Monte-Carlo simulation for the PFI Main Building Redevelopment (MBR)

Before examining the financial dimension, it is important to highlight all the elements of the cost-benefit analysis of the partnership solution from the perspective of the public body. The predictability of the liabilities, due to the fixed-price nature of the payment, enables the public body to estimate the financial viability of future payment flows. PPPs, however, entail additional disadvantages.

First, the PPP contract is not really fixed-price over its whole duration. It is accompanied by rent review clauses (if only to maintain its economic equilibrium),

²⁴ The tipping point in the preliminary evaluations is often related to the probability law used for the distribution of risks.

and renegotiations may be indispensable not only for the viability of the contract but also for its adjustment to changes in users' needs (Beuve et al., 2013). Nevertheless, renegotiations and changes to the contract can no longer be conducted under the same conditions as during the initial stage of competitive tender (Mougeot and Naegelen, 2007). The situation is one of bilateral monopoly and the possibility of a contractual hold-up cannot be excluded.²⁵ In any event, renegotiations are risky and costly in transactions for the public body, and they are all the more numerous when the contract is long-term and the service is of an evolving and complex nature.²⁶ This is the case for infrastructures and more generally for many PPP contracts involving complex assets and requiring a large initial investment.

Because of the size of the contracts, the funding to be obtained and the technical skills required, PPPs are an oligopolistic market, in which competition is imperfect.²⁷ Although it has not been established that a small number of bidders leads to weak competition for the contract (Amaral et al., 2013), organizing a competitive tender in an oligopolistic market may nevertheless prove to be problematical. Likewise, PPPs lead to the concentration of public procurement on large groups, thereby raising the question, if not of the access of small and medium-sized firms to public procurement contracts,²⁸ then at least of their economic dependence on these large groups, for which they may intervene as subcontractors.

²⁵ Nevertheless, the risk is limited to the extent that the contractor will damage its reputation, which it will be reluctant to do in the context of a repeated game in terms of both future competitive tenders and future renewal of the current contract. Acting cooperatively has a favourable influence on the probability of winning a new contract (for example, a contract of operation and maintenance after the first global contract incorporating the construction). This line of reasoning explains why contractors continue to invest in the maintenance of assets towards the end of the contract, even doing more than simply fulfilling their contractual obligations with respect to the condition of the asset returned to the public authority (Gautier and Yrande-Billon, 2013; Chong and Huet, 2010).

²⁶ According to Shaoul et al. (2012), out of a total portfolio of £91 billion of PFI contracts signed in the UK, £35 billion have been the subject of renegotiations. Nevertheless, renegotiations in PPP contracts are not essentially due to ex-post opportunism on the part of the private partners (Guasch, 2004). On the contrary, it appears that the public partners are more often responsible for them.

²⁷ On taking imperfect competition into account in the economic calculation, see Quinet (2013).

²⁸ On the question of the economic impact of strategies of allotment, see Desrieux and de Brux (2012).

Lastly, the difficulty in grasping all the costs and liabilities inherent in a partnership contract highlights the classic biases that need to be considered in issues of public choice, whether they concern risks of electoralism and consequently of short-termism or intergenerational arbitrage, where the costs are deferred onto future generations. These risks are exacerbated by the fact that in practice, it is impossible to evaluate the opportunity of the choice through a counterfactual, even ex-post (OECD, 2013). It is therefore essential for the appropriate prudential framework to be in place in order to gauge the opportunity of the choice, the control of reality, the effectiveness of the risk-sharing and the minimization of additional financial costs.

4) Funding, the Gordian knot of PPPs, challenged by the crisis

How have the structure and conditions of funding that supported the PPP business model before the crisis (A) been affected since 2008 (B)?

A. The techniques of project finance and the project finance model of PPPs before the 2008 crisis

Although private finance is the main obstacle to the realization of value for the taxpayer due to the additional costs it entails, it can nevertheless play a stabilizing role in the general economy of the partnership contract by aligning the interests of the different stakeholders.

Two modes of funding can be considered for PPP operations: corporate finance and project finance (EPEC, 2012) schemes. A PPP gives rise to project finance when the companies in the consortium that has won the tender (often known as the project sponsors) form a joint enterprise that will finalize the contract with the public body and raise the loan without recourse to the member companies of the consortium. For projects of smaller size, one of the member companies may finalize the contract itself and borrow in its own name. This is the first type of funding arrangement, known as corporate finance. The interest rate of the loan will then no longer be defined according to the specific risks of the project, but with reference to the credit rating of the company.

The advantage of project finance for PPPs is that it involves third-party financiers whose interests are aligned with those of the public body. Ex ante, project finance helps to limit the risk of anti-selection by delegating the tasks of due diligence (prevention of the biases of optimism, . . . , assessment of the sustainability of liabilities, and so on) to a third party better equipped to accomplish them (in terms of both skills and financial resources). Ex post, the public body can delegate the task of supervising the project company, and thus limit the risk of moral hazard (Diamond, 1984).

i. **Minimizing the additional financial cost through the project finance model**

During the first decade of this century, the development of PPPs went hand-in-hand with a particularly favourable financial context. The very lenient monetary policy of the Federal Reserve allowed capital markets to remain exceptionally liquid, which favoured financial arrangements with strong leverage. British PFI arrangements were particularly favoured by this context, because the low interest rates made them attractive to investors while at the same time limiting the interest rate spread to an acceptable level. Because the depth of the PFI portfolio continued to increase without any major difficulties being observed (with the exception of very specific contracts like the London Underground), the risk premium required by investors fell significantly, reducing the rate spread even further. Moreover, the contractual and financial arrangements used made it possible to reconcile a reduction in the funding cost differential with an improvement in the possibilities of supervising the contract, both ex ante and ex post. The development of contractual engineering and the use of market tools like credit enhancement²⁹ made it possible to reduce the risk for investors even further, with the result that the additional cost of private funding fell to an extremely reasonable level, at 70 base points.

There is a dimension to the project finance scheme applied to PPPs that may at first appear paradoxical. Strong leverage is essential to make the contract financially viable for the public body (by minimizing the average weighted cost of the

²⁹ These are financial products that can be used for bond wrapping, in other words to raise the credit rating of the bond issue.

capital invested and thus the additional cost of private funding). Nevertheless, the higher the leverage, the greater the default risk, which should have a dissuasive effect on external financiers, particularly if the contract entails a transfer of demand risk. In fact, a high level of risk gives credibility to the investors' commitment to control the project company's business model and to supervise the execution of the contract (Blanc-Brude, 2013). But how can very high leverage be used in the context of arrangements for which the underlying assets are characterized by very high sunk costs, the impossibility of redeployment towards other projects and where little value can be recovered in the event of liquidation? Whereas the usual leverage ratio in project finance arrangements for infrastructure is 25/75, it can easily rise to 10/90 in PPPs (Blanc-Brude et al., 2010).

The use of project finance arrangements for public infrastructures presents a distinctive feature. Although the initial investments are high, the lenders have no guarantee of repayment other than the revenue flow produced by operation of the assets. The infrastructure itself can hardly serve as a guarantee. The project company created for that purpose has no other guarantee than the equity capital contributed by the sponsors. In other words, the rights over this asset are theoretical. At best, there is a possibility of compensation, that is, rights of a financial nature. The terminal value of the asset – its price when it returns to public ownership at contract end – is often equal to zero. Consequently, it is essential for the investors in the project to have the appropriate incentives to control the viability of the project and the correct execution of the contract.

In theory, high leverage results in a high risk of default on the service of the debt. In practice, however, it has a disciplinary effect (Etsy, 2004). The higher the leverage, the higher the return on equity for the sponsors, and so the greater their incentive to see the project through to a successful conclusion. Likewise, a high level of risk encourages the external investors to dedicate themselves sufficiently to the tasks of evaluating the soundness of the financial arrangement and supervising the execution of the contract. This supervision is also favoured by the financial transparency of a project company that has one single activity and is therefore unlikely to be tempted by external growth, often very costly in resources (Sawant, 2010). So, as Blanc-Brude (2013) pointed out, high leverage makes it possible both to minimize the funding cost and to establish the appropriate incentive structure to

minimize the risks.³⁰ For the public body, the project company's ability to raise a high percentage of the credit can be considered a sign of the soundness of the contractual arrangement (Fama and Jensen, 1985).

The interests of the lenders are thus aligned with those of the public body, in that satisfactory realization of the service is the only guarantee of the payments that are the only basis of debt repayment. They are prompted to meet the cost of the investments required to control phenomena of anti-selection and moral hazard. The over-optimism that often characterizes public projects, particularly in terms of traffic forecasts (Flyvberg, 2003), is taken into consideration all the more carefully since the lenders analyse ratios like the annual debt service to measure the default risk of the project company. The lenders are thus sensitive to the sharing of risks between the public and private partners. A contract in which the private contractor is allocated risks that he cannot control or an excessive demand risk will have trouble in reaching financial closure. Likewise, other key parameters of the project also come into play, like the duration. Although a long duration reduces the annual cost for the contracting public body, it may also require debt refinancing operations that carry additional risks, which will need to be allocated.

Thus, the delegation to third-party financiers of the tasks of evaluating the soundness of the financial arrangement and of supervising the execution of the contract is particularly effective because these lenders have no guarantee of repayment other than the revenue flows generated by the operation of the asset, all the more effective when the leverage is high. In addition to the measurement and evaluation of risks (and the delegation of these tasks to the economic agents who are best-equipped to perform them), the reduction of the rate spread also depends on tools of contractual engineering and the use of financial tools.

³⁰ PPPs are also characterized by a relatively high rate of recovery after debt service default (Moody's, 2013). This capacity is due to the fact that the risk profile is very different between the stages of construction and operation, and because lenders have little possibility of recovering part of their investment through the liquidation of assets. Everybody is therefore encouraged to overcome these difficulties, which are expected to be concentrated towards the beginning of the contract.

ii. Contractual engineering and the optimal allocation of risks

A first set of tools stems directly from the construction of the contract, or rather the nexus of contracts linked to the main contract between the public body and the project company. For the PPP to be efficient, the risks must be transferred to the latter. However, the higher the risks transferred, the higher the risk of debt service default. There must therefore be a trade-off between the effectiveness of the transfer of risk towards the project company and the minimization of that company's funding costs (which itself conditions the economic viability of the rent paid by the public body in accordance with the contract).

The idea is to protect the project company against the risk of default. It must be guaranteed the funds needed to service the debt, despite the transfer of risks from the public body, embodied in the contingent nature of its payment flows (conditional on delivery of the service and on satisfaction of quality and performance specifications). One way to attain this objective is to transfer the construction risk to a dedicated body or to a constructor (a member of the sponsoring consortium) through a fixed-price contract, and to do the same with the other companies in charge of operation or maintenance. Not only is the risk broken down into basic risks that are easier to manage, diversify (within a portfolio of projects) or to insure (through mechanisms of financial coverage), but the project company can write financial penalty clauses into these subcontracts that are equivalent to those stipulated in the main contract with the public body. A delay in construction, for example, would give rise to the payment of compensation covering the penalties due to the contracting public body, enabling the project company to deal with the absence of payment flows (if the latter are dependent on the commissioning of the infrastructure).

This technique of back-to-back contracts protects the project company against the risk of default. The illustration below describes the contractual arrangement used in the partnership contract for the third wave of French prisons. It brings to light the connections between the project company and the different stakeholders in the nexus of contracts (consortium companies, loan arrangers, and so on) and the subcontracts (construction, maintenance and operation) allowing the back-to-back arrangement to be established. It should be noted that other contractual mechanisms can be imposed

on the project company, such as the obligation to set aside part of its revenue flow (cash trap mechanism) in order to further limit (at least over the short term) the risk of debt service default.

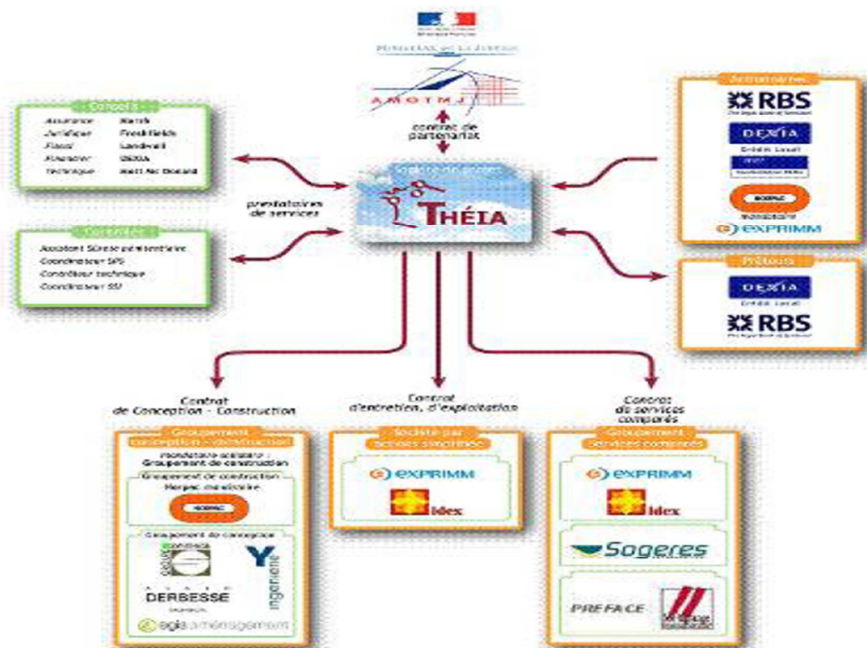


Figure 10: Contractual structure of a PPP – example of the third wave of prisons in France

It is thus up to the project company to best allocate the risks within a dense network of contracts in such a way as to secure its financial situation. Each risk, however, must be allocated to a player that has the technical capacity to control it, a portfolio of activities deep enough to diversify it and enough financial solidity to absorb it in the event that it materializes. The risks must not be shifted onto companies obliged to accept them because of economic dependence, but that are incapable of dealing with them if they arose, ultimately jeopardizing the whole structure. It is up to the contracting public body to ensure the structure is sound.

Moreover, some members of the consortium, in particular the construction company, may be advised by the external investors to be present both in the capital of the project company and in the body in charge of one of the stages of the contract (in this case, the construction of the asset) to perfect the alignment of interests between the different links in the network of the contract. Likewise, the investors may request additional contractual measures to safeguard the repayment of the debt. This could involve parallel guarantees from the sponsors (in the form of covenants) or even step-in agreements arranged with the contracting public body and allowing the investors themselves to take charge temporarily.

The capacity of the project company to service its debt can also be strengthened by contractual guarantees made by the public body. This may involve, above all for the period following the 2008 crisis, as we will see, public guarantee mechanisms on the service of the debt,³¹ or guarantees of minimum operating revenue. This contractual structure, similar to a “take or pay” arrangement, helps to prevent operating difficulties from resulting *ipso facto* in a debt service default (Moody’s, 2013).

A second set of mechanisms allowing sufficient credit to be raised to minimize the private funding cost, while at the same time guaranteeing a transfer, involves the use of financial instruments. Project finance can come from bank loans or bond issues. Bank funding can be acquired, and its terms defined, as early as the competitive tender stage.³² In this case, it is still possible, after financial closing, for one of the banks to act as a loan arranger to transfer part of the debt to other credit institutions, in particular by means of syndication. Conversely, funding through bonds entails that the debt be placed after the contract has been awarded and a more standardized process is followed.

To give just a brief outline of the process, the first thing that is needed is an investment bank to act as a loan arranger and to underwrite the subscription. The credit must then be rated by one or two credit rating agencies. Once the rating has

³¹ Guarantees that can be repaid under market conditions and which therefore satisfy the criteria of the Market Economy Investor Principle and comply with the EU rules on government aid.

³² In practice, the rate is commonly defined on the basis of the Euro Interbank Offered Rate (Euribor) plus a certain margin (covered by an interest rate swap).

been obtained, it is possible to define an indicative rate (based on the current interest rates for securities of the same risk class or with underlying assets of the same class). The debt securities are then placed on the market, resulting in the definition of the definitive rate. Before the crisis, these costly arrangements were little used, particularly in France because of the competition between banks. They were only really used in the UK, in the context of separate funding competitions.

Classically, PPP credits rarely obtain a rating higher than A, but a set of financial tools was sometimes used before the crisis to push the rating up to AAA, in order to raise the funds required at the lowest possible cost. This was made possible through the guarantee of an insurer (known as “monoline” insurers, because their only activity was bond insurance) to pay the debt service in the event of default by the project company. The credit risk for external investors was that of the insurer, therefore equivalent to a AAA rating. The insurer’s premium was then based on the difference between the project company’s credit rating and this triple A. The bond insurers’ capacity to meet these guarantees (from their reserves or portfolio of securities) was the cornerstone of a mechanism that never survived the 2008 crisis. With the demise of these credit enhancers, many PPPs were no longer eligible for bond issues at a time when access to bank credit was considerably reduced.

B. The phenomenon of deleveraging

The financial crisis of 2008 had repercussions on the financial closing of PPP contracts (i), on the definition of the perimeters of contracts and on the allocation of risks (ii).

i. Funding conditions turned upside-down

What were the lasting consequences of the crisis on high-leverage structures? The tightening of credit conditions affected all PPPs, whatever the intrinsic risk level of the operation concerned. According to the National Audit Office (2010), the cost of credit in PFIs rose from 20 to 33 per cent. Consequently, the average annuity for the contracting public body rose between 6 and 7 per cent. This provoked two risks. The first concerns a threat to the sustainability of the liabilities connected to PPPs. To limit the cost of private funding, it would then be necessary to re-internalize many of the

risks and so undermine the optimal risk allocation on which the PPP business model is based, to the detriment of the objective of maximizing taxpayer value. The second risk would be to maintain the PPP model in the name of its microeconomic advantages (coverage of the risk of cost overruns, in particular) without really weighing them against the extra cost of private funding (that is, the premium level). If we view PPPs as a mechanism of guarantee against cost overruns in construction and operation, then the increase in premium levels may be considered to justify the public body in becoming its own insurer again by choosing a traditional process of procurement and management.

The effects of the 2008 crisis persist. Changes in banking and financial regulations have affected the conditions of funding, in particular, and the deterioration in terms of financial closing for PPPs has been not only economic but also structural. The tightening of the conditions of credit led first of all to a sharp rise in the spreads between the public debt and the debt raised by project companies within the framework of PPP contracts. This spread (which, as we have seen, can be compared to an insurance premium) rose from 80 to 250 base points during the financial crisis of 2008 and as high as 300 base points in early 2012 due to the sovereign debt crisis in Europe.

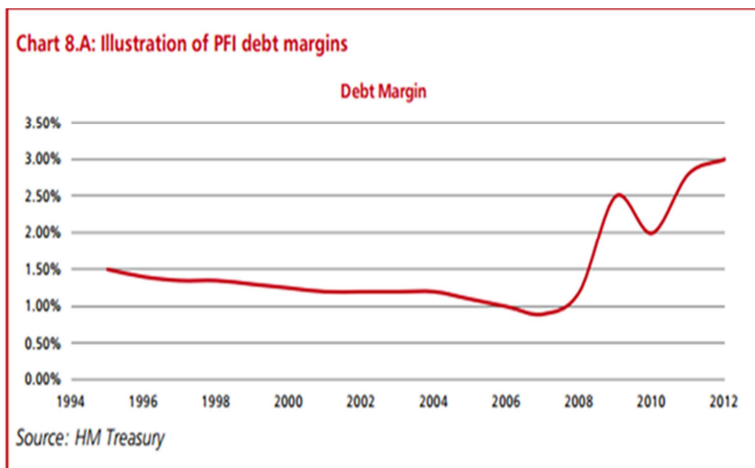


Figure 11: The public-private interest rate spread on UK PFI debt

The impact of the crisis was not limited to the cost of bank liquidities. The lending capacity of credit institutions has also been severely restricted, in terms of both volumes and maturities. A single bank, for instance, can no longer provide (or at least guarantee) the whole of the funding. Whereas before the crisis a bank could make a commitment, from the submission of the bid, for all the funding and the interest rate – taking charge of the placement of some of the debt with other credit institutions *ex post*³³ - this procedure of syndication disappeared with the crisis. Credit institutions can thus no longer commit themselves to the terms of funding during the submission of bids. The funding can be partial, and its terms can evolve according to market conditions (market flex clauses) or even be associated with suspensive conditions depending on pre-defined interest rate thresholds (market disruption clauses).

Uncertainty about the conditions of funding is not the only consequence of these changes. A second difficulty stems from the impossibility for an individual bank to provide all the funds required. It is also necessary to organize a club deal, that is to say a group of banks, to manage the hoped-for envelope. The formation of such groups runs contrary to the objectives pursued by public buyers on the eve of the crisis. The latter were hoping to generalize funding competition, following the example of that used in 2008 for Royal Air Force tanker aircraft. The situation has shifted from one of strong downward pressure on interest rates (through competitive tendering) to one in which the funding conditions have deteriorated significantly for the public buyer. First, the fact that some or all of the banks of a given financial centre meet to discuss or prepare a project tends to blunt the edge of competition. Second, the conditions of funding are defined by those necessary to the marginal bank, that is, out of the banks that are indispensable to fundraising, the one with the highest rate, meaning the one that has the most difficulty being refinanced on the interbank market. The cost of funding is therefore higher than it was before the crisis.

In the same way, banks can no longer commit to long maturities. As a result, it is more difficult to match the maturity of the contract to that of the funding. It is therefore necessary, especially for contracts concerning real estate and even more so for infrastructure, to carry out debt refinancing operations during the course of the

³³ A model referred to as “underwrite and syndicate”.

contract (Dupas et al., 2013). This additional risk cannot be carried by the private partner alone; it must be shared. Although the public body can treat this shared risk in the manner of a claw-back provision, if the situation of the capital markets (or at least of the banks) improves between the placement of the first debt and the refinancing operation, it may also give rise to a large increase in the cost of funding the contract during the second period if the situation worsens.³⁴

This change in the conditions of funding is structural. The crisis has provoked considerable tightening of prudential requirements in the regulation of banking activities. The Basel III rules make long-term loans particularly costly for banks. The capital requirement is to rise from 8 per cent in 2013 to 10.5 per cent in 2018. Rather than increase their equity (the numerator of the capital ratio), banks prefer to reduce their outstanding long-term loans (the denominator). Consequently, the deleveraging that was highlighted at the beginning of the crisis has become a constant, compromising the banks' capacity to make long-term commitments to project finance (Hellowell, 2013).

Furthermore, the toughening of funding conditions for PPPs has altered the quality of the signal given to the other stakeholders by the interest rate demanded by the lenders. Previously, the conditions set by external investors revealed their evaluation of the economic equilibrium of the contract and gave a signal of any obvious disequilibrium (Marty and Voisin, 2008). Since the crisis, funding conditions have been far less closely related to the intrinsic qualities of the arrangement (the level and distribution of risks) than they are to the conditions of access to liquidities and regulatory constraints faced by the banks (Hellowell and Vecchi, 2012). Likewise, it has been shown that the interest rate proposed by banks depends not so much on their evaluation of the specific risks of each project but on the functioning of in-house investment committees and requirements concerning the selection of projects to fund (Hellowell, 2013). In other words, it is the constraints of lending institutions (in terms of prudential regulations and internal rules of project selection) that determine the

³⁴ The refinancing risk is either shared between the public and private partners or assumed by the private partner up to a certain value. Beyond a threshold specified in the initial contract, an increasing share of the extra cost is borne by the public partner, up until another threshold, above which everything is borne by the public partner.

cost of financial resources to a far greater extent than the debt service default risk of the project company.

ii. The consequences on the definition of projects

The period 2000–2008 was a parenthesis. The current trend can be interpreted as a return to more natural arrangements, in that more acute attention is paid to the allocation of risks and to defining the perimeters of the contract.

The changes in the conditions of access to funding also resulted in a transformation in the contracts themselves, concerning their definition, their method of payment and the allocation of risks. This could be seen, for example, in the distribution between the two polar models of PPPs: on the one hand, concessionary arrangements (in the form of the delegation of public service) and on the other hand, partnership arrangements in the strict sense of the term (that is, partnership contracts). With the financial crisis, many concessionary arrangements, either planned or in the process of execution (such as motorways on the Iberian Peninsula), were reoriented towards models of payment on availability to protect the private contractor from demand risks, which are sensitive to the economic context and therefore likely to increase its funding costs.

As regards the definition of the perimeter of contracts, the projects started since the 2008 crisis are differentiated by their levels of private investment, which are either significantly higher (that is, large transport infrastructures benefiting from public guarantees and support from European institutions) or much smaller. Greenfield projects (built from scratch) are much scarcer, because of both the difficulty in finding the necessary funding and the high level of risk in the construction and commissioning (ramp-up) stages. There has been a shift towards contracts of renovation and/or operation (particularly in the field of energy performance in buildings) or even management contracts. In these contracts, used in the Spanish hospital sector, for example (Acerete et al., 2011), the idea is no longer to take advantage of the integration of the construction and operation stages, but to benefit from a fixed-price contract (allowing control over the costs of operation and maintenance) and from the experience and capacities of the private sector in terms of the introduction of innovation or the modernization of the service.

Another approach is that of back-to-back contracts, long used for French motorway concessions. Extension of the initial contract generates additional resources, produced by the existing sections of motorway, reducing the need to raise further debt for new investment spending on the existing networks (2013–2014 investment stimulus plan of French motorway companies).

5) The prospects for the partnership model within a new financial framework

The new funding conditions for partnerships are characterized by a larger share of equity capital, the return of bond issues and loans and guarantees provided by governments and multilateral financial institutions.

A. From the Private Finance Initiative to PF2

The very survival of the choice of partnership arrangements was undermined in the UK by the comparison between the opposing trends of the cost of the sovereign debt and the cost of the debt raised by project companies. First, the long rates on the sovereign debt had reached a historic low. It has been shown that an investment of £1 billion funded by PFIs entailed a repayment cost equivalent to an investment of £1.7 billion borrowed directly on the markets (House of Commons, 2011). In other words, if we make the assumption that a PPP does not generate any additional efficiency gains, the opportunity cost of private finance is about 42 per cent. PFIs are therefore subject to a scissors effect between the fall in the cost of public debt (3.30 per cent at 20 years in October 2013) and the rise in the cost of private funding (Marty and Spindler, 2013). The interest rate on the debt raised for PFIs was about 7 per cent in 2012 (National Audit Office, 2012). Assuming a leverage effect of 10/90 and a return on equity of about 15 per cent, the average weighted cost of funds in a British PFI could reach 8 per cent (Hellowell, 2013).

Following this line of reasoning, the UK government undertook a reform of PFI policy with the launch of PF2 (HM Treasury, 2012). This is based on the following three dimensions: a reduction in the share of funding from banks in favour of insurance and sovereign funds, an increase in the share of equity capital and a

change to the perimeters of the contracts (reintegration of certain risks by the public body and exclusion of certain services from the PPP contract).

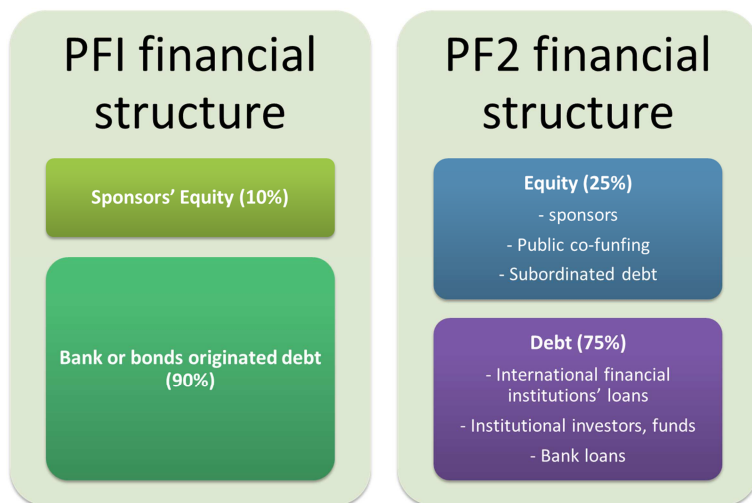


Figure 12: PF2 Funding model

One of the main objectives of PF2 is to replace funding from bank loans by funding from pension and investment funds. A framework agreement was signed with British pension funds to encourage them to invest in infrastructure. The objective of the Pension Investment Platform, launched in July 2012, is to redirect savings towards long-term investment. This independent structure aims to reach the target of £20 billion in 10 years. While pension funds in Canada and Australia invest 8 to 15 per cent of their cash flow in infrastructure funds, the figure is only 1 per cent in the UK (Bardens and Rhodes, 2013). It is a matter of removing the obstacles attributed to the absence of internal capacities to evaluate the risks.

The second dimension of the new UK PPP policy is also concerned with reducing the dependence on bank funding. The Treasury proposes that the share of equity capital in financial arrangements should be increased significantly. Increasing the share of equity, however, is not a neutral operation in terms of the average weighted cost of the capital invested. Moving from a leverage of 10/90 to a leverage

of 25/75 entails a rise in funding costs of between 7 and 8.5 per cent (Hellowell, 2013), bearing in mind that the interest rate on public debt in the UK is 3.30 per cent. On the positive side, this requirement limits the recourse to bank credit and increases the robustness of the arrangement, insofar as this equity capital can serve as a buffer in the event of adverse circumstances, such as a decline in traffic or the application of contractual penalties. On the negative side, it increases the cost of the operation and can lead to a reduction of competition for the market, since companies may have limited commitment capacity (OECD, 2013). In this context, introducing funding competition may be difficult and may affect the incentives exerted on the sponsors. Nevertheless, the UK proposal of direct public sector investment of 25 to 49 per cent (HM Treasury, 2012) would drastically reduce the cost of funding. To return to the numerical example given by Hellowell (2013), a share of 25 per cent of public equity investment would reduce the funding cost to 7.5 per cent and a share of 49 per cent would reduce it to 6.6 per cent.

The third dimension of the reform proposed in PF2 concerns the reallocation to the public partner of certain risks usually assumed by the private partner. These include risks relating to variations in the price of fluids (gas, electricity, and so on) and insurance costs. For the latter, this represents a reversal with respect to the traditional approach of PPPs, which put an end to the self-insurance of public assets by the government. Likewise, the perimeters of PF2 are redefined compared with those of PF1s through the exclusion from the contract of services in the category of facility management. Not only is it possible to organize regular competitive tenders for these services, which are “detachable” from the main contract (they are hardly characterized by external effects compared with the rest of the contract), but evaluations conducted by the National Audit Office suggest that the performance achieved in current PFI contracts often leaves something to be desired in this domain (Marty and Spindler, 2013).

B. Funding by “patient capital”?

As the PF2 illustrates, one of the paradoxical effects of the 2008 crisis and the resulting tightening of prudential banking rules lies in the return to disintermediated

modes of funding.³⁵ The funding of PPPs through bond issues has enjoyed a return to favour, as testified by the French and German cases (EPEC, 2013). Although this mode of funding has the advantage of longer maturity than bank loans (thus avoiding the need for debt refinancing during the course of the contracts) and lower interest rates, it raises its own specific difficulties, such as the lack of flexibility during execution of the contracts (if renegotiation entails an adjustment to the financial structure) or additional transaction costs, related to the need to get the bond issue rated by one or two credit rating agencies.

The funding of PPP five years after the start of the financial crisis opens new prospects for the funding of public infrastructure. Although France is characterized by a particularly high savings rate, very few of these resources go towards the long-term funding of the real economy. If we consider PPPs as a class of assets with an attractive long-term risk profile, then it is reasonable to imagine that investors with long-horizon liabilities could invest in them, particularly at the moment of refinancing, once the initial risks of the construction stage have passed, or even from the signature of the contract.

Although the development of PPP arrangements corresponds to a model of project finance, particularly affected by the crisis (like all the funding arrangements with high leverage), the risk profile of these arrangements nevertheless remains attractive to investors, as described in the box below, drawn from a survey by Moody's.

The credit rating agency Moody's (2013) analysed more than 4000 contracts with project finance carried out between 1983 and 2011. They found that PPPs were distinguished by a particularly attractive profile for long-term investors.

On a sample of 4067 projects representing 53.6 per cent of project finance operations carried out between 1983 and 2011, Moody's carried out a default analysis based on the criteria of Basel II. As a general rule, these arrangements appeared to be attractive "assets" for investors. Once the initial stages (construction and ramp-up) had been completed, the default risk decreased significantly, stabilizing at the level of an A-rated credit. In other words,

³⁵ The criteria applied to banks (Basel III) are more restrictive than those applied to the insurance sector (Solvency II).

the ex-ante and ex-post contractual mechanisms put in place, including the evaluation and allocation of risks, incentive mechanisms, and procedures of supervision by the stakeholders, helped to limit the risks of these arrangements, despite the high financial leverage and the fact that there is only the revenue flow generated by operation of the asset to service the debt. These results are particularly significant for contracts in the infrastructure sector, often characterized by inelastic demand, a situation of natural monopoly and revenues that are *a priori* resilient and can be forecast over the duration of the contract.

Within this sample, PPP projects (954 contracts), especially those concerning infrastructure, are characterized by a more attractive risk profile than average. The aggregate default rate at ten years is 3.9 per cent, compared with 5.2 per cent for the infrastructure subset and 9.3 per cent for the whole sample. Like the sample as a whole, most of the default risks for PPPs are situated in the first years of the contract (construction risk). After this stage, the marginal default rate presents an even more favourable profile than A-rated credits, showing how interesting these contracts can be to investors once the construction risks have passed.

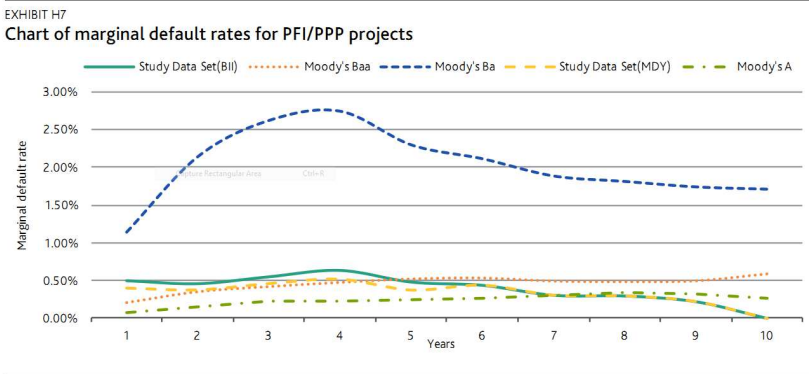


Figure 13: Default rates for infrastructure PPPs

Project finance arrangements for PPPs in public infrastructure can be of real interest to long-term investors. First, the debt is carried by a project company that protects itself against risks by transferring them onto downstream companies through a mechanism of back-to-back contracts. Second, the counterpart responsible for the

flow of payments to the project company is a public body; theoretically, the risk of default is therefore reduced. Third, PPPs in infrastructure bring into play an inelastic demand and therefore provide financial resources that are decorrelated from economic and stock market cycles.³⁶ The deadlock in the funding of public infrastructure could therefore be partly resolved through the intervention of infrastructure investment funds (pension funds, life insurance funds, sovereign funds).

Funding through bond issues can compensate for the limited funding capacity of banking institutions and provide more attractive funding conditions and longer maturity – thus averting the difficulties and risks involved in refinancing half-way through contracts (Dupas et al., 2013).

What are the additional constraints that need to be taken into account? First, public procurement procedures and the financial closing of contracts funded by bond issues are weighted down, compared with traditional bank funding, both by the issue of credit rating and by uncertainty about the conditions of placement of the debt (EPEC, 2012b). Second, although pension or insurance funds were present even before the crisis, during debt refinancing operations or the sale of equity, it was only once the construction and ramp-up risks had been left behind. The profile of these investments (implicit public guarantee, control of risks and appreciable returns) was consistent with their commitments.³⁷

It was more uncommon for such investors to be present from the beginning of infrastructure projects. That is because assuming the initial risks is inconsistent with their business model, and second, because these funds do not always possess the necessary capacities to implement the procedures of due diligence in this domain. The risk profile (and therefore the returns) specific to PPPs in the domain of infrastructure is non-linear. The first stage may be attractive for investors looking for a short- or medium-term return; the second stage is more suitable for operators wishing to cover their commitments towards savers. The investors who are apt to assume the risks of construction and ramp-up can target high returns (internal rate of return on capital invested of more than 15 per cent) by selling equity shares on the secondary market.

³⁶ Nevertheless, the resilience of investments in PPPs of which the underlying assets are infrastructure has been questioned (see Blanc-Brude, 2013).

³⁷ The OECD (2013) speaks of “patient capital”.

Pension funds, as the Canadian experience illustrates, are traditionally more likely to invest in the second stage, through operations of refinancing or by buying these equity shares on the secondary market.³⁸

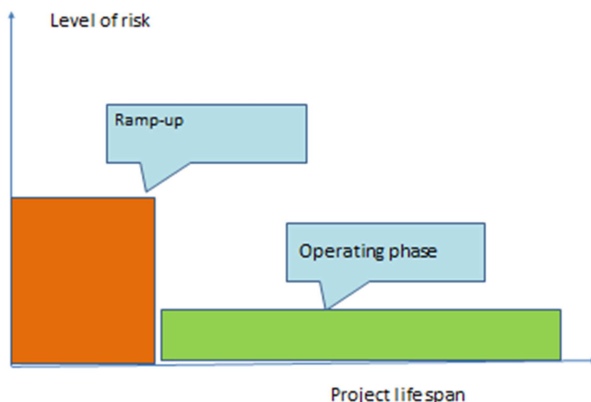


Figure 14: A differentiated risk profile for PPP contracts

The arrival of specialist infrastructure debt funds, financed by pension and insurance funds, is the major new feature of the post-crisis period. These players are capable of funding infrastructure projects by issuing bonds, even during the construction stage, at conditions that strengthen the competition with bank funding. Even the issue of the minimum credit rating of the debt, which long presented an obstacle, has been resolved: the debt funds require no more than an “investment grade” (BBB-). Today, more and more contracts are being funded by means of bond funding, such as the L2 ring road in Marseille or student accommodation at the University of Hertfordshire. In the case of the partnership contract for the L2 ring road, the private partners in charge of the funding, construction and operation of this asset succeeded in organizing funding based on a fixed-rate bond issue, underwritten by an insurer and covering the whole duration of the contract (30 years), including

³⁸ In the domain of the delegation of public service, the sale by Eiffage of 49 per cent of the shares in the Millau viaduct to the CDC in 2007 illustrates this sort of approach.

the period of construction. Such an arrangement would not have been possible with bank credit.

Consequently, the potential field of action of these funds has expanded considerably. The only real limit today is the allocation of risks: the “traffic” or “volume” risk remains an obstacle that prevents debt funds from funding, for example, a motorway concession from the construction stage. On the other hand, the same motorway funded as a partnership contract, in which the traffic risk is transferred to the public authority, poses no funding problem.

Lastly, the involvement of insurance funds and above all pension funds must be considered in the light of the applicable prudential regulations (Solvency II for the former and the proposed revision of the Occupational Pension Funds Directive for the latter). Prudential norms must not hinder the ability of insurance or pension funds to make long-term infrastructure investments.

C. What modes of public involvement in the PPP funding model?

Is public–private co-funding inevitable for public infrastructure projects in which the social return is greater than the private return? In a way, the crisis has reduced the financial returns that private investors can generate – if only because of the difficulties in access to funding. Where funding in the form of PPPs without additional public sector support used to be sufficient to trigger an investment, it is now necessary to provide public support.

		Social returns (integrating externalities)	
		low	high
Private returns (for an investor)	low	No investment	Direct public investment or public–private co-funding scheme)
	high	<i>Laissez-faire</i>	PPPs without financial public support)




Figure: 15 Public investment and private investment

This schema is particularly well-adapted to the issue of public infrastructure funding. Apart from the immobilization of particularly large amounts of capital for a very long time, public infrastructure is often characterized by a situation of natural monopoly and by the production of positive externalities on which the operator cannot fix a price. Public sector support is needed to align the financial profitability for the private investor with the socioeconomic profitability of the project (Boissinot and Waysand, 2012).

For many public facilities and infrastructures, exclusively private funding is often illusory, insofar as these are investments for which the social return is higher than the private return. Because of these positive externalities, the “spontaneous” level of private investment will be socially suboptimal. It follows that public financial support is indispensable. Likewise, because of the imperfections of the capital markets (and the impact of prudential rules on banking institutions, for example), investors may be very reluctant to commit to loans of a very large size, over the very long term or characterized by what they consider excessive risk (the traffic risk for concessionary arrangements, for example). Again, support from the public body (in the form of co-funding or guarantees) will be needed to bring the investment up to a socially desirable level. This configuration can be found in large infrastructure projects and in projects related to policies of urban planning or regional attractiveness, where the flows of revenue generated from operation may not be sufficient to meet all the costs connected to the asset (Liu and Wilkinson, 2013).

Public financial support may therefore be necessary in certain distinct but convergent cases (Boissinot and Waysand, 2012). The first of these stems from the existence of excessive differences between the flows of revenue that can be expected from operation of the asset, the second from disparity between the criteria of financial decision making and the collective values used in socioeconomic evaluations, and the third from too high a level of uncertainty for private investors as to the potential returns.

The public body can therefore support the private investment in a subsidiary way in order to restore an equilibrium that allows the investment to be made. In the case of a concessionary arrangement, we can consider that private investors are capable of funding a share of the investment equivalent to the net present value of the flow of revenue from future users. Public subsidies are then needed for the

remainder of the investment, as illustrated by many contracts of delegation of public service in France (the Tours-Bordeaux high-speed rail line known as the *Sud Europe Atlantique*, the total cost of which is around €8 billion, is funded by a public subsidy of about €4 billion, the rest being met by the private sponsors of the concession contract). Public support may also be needed when the evaluation of a project's profitability by private investors does not take into consideration the positive externalities (which are included in the public economic calculation) or when it adopts a shorter time horizon or more restrictive hypotheses because of an insufficient capacity to diversify the risks between different projects (Arrow and Lind, 1970; Gollier and Janci, 2010). Support taking the form of public guarantees aims to counteract the adverse effects of uncertainty for private investors. For example, this may involve reducing the investors' exposure to demand risk in concessionary arrangements (Regan et al., 2011). One example of this is the Loan Guarantee Instrument for Trans-European Transport (LGTT) of the European Investment Bank (EIB).³⁹

The possibility of "Daily" assignment of receivables makes it possible to reduce the risk borne by the project company (Quinet, 2012). The acceptance by the public body (during the operational stage of the asset) of the transfer of 80 per cent of the debt held against it by the project company also plays the role of a credit enhancement, because the banks that acquire this debt possess a guarantee of payment from the contracting public body.

Furthermore, the guarantees provided by the public body may lead to the creation of an intermediate model between the arrangements in which the payments by the public body are based on the availability of the service (no transfer of commercial risk) and those in which the flow of revenue comes from payments made by the end users (concessionary model in which the private contractor operates the service at its own risk and peril). These are hybrid concessionary models based on the sharing of commercial risk. The commercial revenue of the contractor is bounded by an upper threshold (above which the profits are shared) and a lower threshold

³⁹ If the presence of a public investor at the table reassures the private investors, this is even truer for the involvement of a multilateral financial institution, because it offers an additional guarantee in the face of political risk (Boissinot and Waysand, 2012).

(entailing *de facto* a guarantee of operating income). The arrangement thus resembles a sort of “take or pay” (or financial compensation) approach, which has the advantage of drastically reducing the risk of debt default by the project company.

All in all, public guarantees (of the contracting public bodies and of multilateral financial institutions) function at least partially as substitutes for the pre-crisis credit enhancers. These public measures should enable insurance and pension funds to invest in projects from the beginning. As we have seen, the involvement of insurance and pension funds in the early stages is not evident, given the risk profile and their lack of expertise in evaluating construction and ramp-up risks (Croce, 2011). In other words, the aim is implicitly to increase the credit rating (that is, reduce the default risk) of the project company in order to make its debt eligible for their long-term funding. Note that, like the UK Treasury proposals for PF2, the recommendations to increase the share of equity capital share the same motive of making the loans more secure. That is because if the reduction of leverage has an initial negative effect on funding costs (equity capital being more expensive because it is more exposed to risk), it also strengthens the guarantees for the project company’s lenders. The reduction in leverage therefore reduces the risk premium demanded by lenders.

These mechanisms of public guarantee should not, however, protect the private contractor entirely from the operating risks, because this would strip the partnership contract of its rationale by removing the fixed-price incentive dimension and dissuading external investors from due diligence in their evaluation of the soundness of the arrangement and in their supervision of the execution of the contract. For these external investors, the “non-recourse” character of the project finance arrangement appears to be the key incentive. When a recourse exists – through the guarantee provided by the public body – the incentive to make the costly investments needed *ex-ante* and during the whole duration of the contract disappears. In other words, it is necessary for both the project company and the lenders to remain sufficiently at risk if the PPP contract is to succeed in aligning the interests of the different stakeholders, and this alignment is the essential condition of the contract’s efficiency.

The same concern affects all the initiatives aimed at reducing the share of project debt in PPP arrangements. The difficulties, however, encountered in obtaining

funding, due to the tightening of bank credit, mean that a trade-off must be made between the (theoretical) incentive qualities of the contract and the access to long-term funding. In addition, beyond the guarantees needed to attract investment funds, the diminution in the share of bank funding may be achieved through the injection of public capital or, more frequently, loans made by public authorities or para-public financial institutions, like the savings fund of the *Caisse des Dépôts et Consignations*, or the EIB.

In France, loans by the *Caisse des Dépôts et Consignations* to PPPs in infrastructure, notably in the rail sector, are motivated by this line of reasoning (Quinet, 2012). The loans made, limited to a maximum of 25 per cent of the debt (except for the contract for the Nîmes–Montpellier bypass, which was granted a dispensation raising the ceiling to 50 per cent), provide funds with much longer maturities than those of bank credits and with rates much lower than the margins of 200 to 300 base points usually applied (see Table 1).

Table 1: CDC funding (source: Quinet, 2012)

project	CDC loan (M€)	Share of funding	Maturity (years)	Rate (%)	Margin on Euribor (in BP)
LGV SEA – Tours-Bordeaux (concession, 2011)	757	25	40	4.62 (then 5.48)	51 (then 137)
LGV BPL – Le Mans-Rennes (partnership contract, 2011)	254	25	25	4.22	30
LGV CNM – Nîmes-Montpellier (partnership contract, 2012)	521	50	25	3.61	90

As Table 2, taken from Quinet (2012), shows, the effect of these interventions has been to reduce the risk borne by the private investors, to limit the need for costly bank funding, and thus to reduce the total cost of private funding.

Table 2: The impact of public support on the financial cost of PPPs

	Public protection	Average weighted cost of capital invested in the project (AWCC)
AWCC of the concession without public support		6.5%
Protection of the project company against traffic risk	Shift from concessionary arrangement to partnership contract (payment on availability)	-80bp
Protection of lenders during the operating phase	Acceptance of Dailly assignment of receivables	-80bp
Public loans to reduce the share of bank loans	Loans of savings funds (limited to 25%)	-40bp
AWCC in partnership contract with public support		4.5%

The partnership contract involves not only direct liabilities (annual payment flows, in other words the rent) and contingent liabilities (possible call of guarantees) but also known risks (as detailed in the risk matrix) and unknown risks (ex-ante unlisted risks that are allocated ex-post during renegotiations). It involves explicit risks (specified in the contract) and implicit risks (entailing the indispensable bailing-out of a contractor in difficulty if they provide an essential service). As this last risk is a question of “too essential to fail”, it should be taken into account in the economic trade-off leading to the choice of a partnership contract (Corbacho and Schwartz, 2008). The contracts for the operation of the London Underground were the object of such a return to public ownership; the same could obviously hold true for contracts in the health domain.

D. What lessons to be drawn for the public body?

The economic efficiency of PPP contracts is related to two distinct economic dimensions, the first of a financial nature and the second linked to the incentive structure created by the contract.

The first dimension exerted its full influence until 2008, thanks to a financial context particularly favourable to arrangements with high leverage. The radical and structural change in the conditions of access to long-term liquidity from banks did not, however, hinder PPPs from accessing financing. Faced with critical needs in terms of public infrastructure development and the funding of energy transition, the capacity of PPPs to attract long-term savings may help to solve the problem of redirecting savings towards supports liable to fund the long-term needs of our economy.⁴⁰ The risk profile of PPPs and the low level of uncertainty about the flow of revenue during the second stage of these contracts can reconcile the interests of long-term investors with those of the global economy in terms of infrastructure funding.

The second key dimension in the efficiency of PPP contracts lies in the incentive structure that they create. First, they help to operate a shift in focus from the minimization of the cost of procurement of a given asset to the control and optimization of the global cost, at least over the duration of the contract,⁴¹ if not over its whole lifespan, if this also covers its deconstruction. Second, it organizes an optimal allocation of risks between the partners and creates incentives to efficiency that purely public management cannot achieve.

It nevertheless appears that the gains of PPPs are highly dependent on the quality of the initial contract and on the investments made by the contracting public body to accompany the execution of the contract. With a PPP, the public partner's tasks evolve towards missions of regulation for which it must acquire the necessary

⁴⁰ It should be noted that the crisis had two negative effects on long-term funding. First, the tightening of prudential rules for banks reduces their ability to transform savings into long-term funding (Glachant et al., 2010). Second, savings — which quickly recovered — are only marginally oriented towards supports that allow for the funding of long-term investment (Lorenzi and Navaux, 2012).

⁴¹ Note that one of the major interests of the project is to guarantee the maintenance of assets and safeguard against the risk of deferred maintenance investments, or even their cancellation on the grounds of budget restrictions.

internal and external competences. This requires the establishment of monitoring teams to manage the dialogue with the private contractor and to prepare the inevitable renegotiations.⁴² It also requires the presence of external consultants. These constraints obviously generate considerable transaction costs, the scale of which must be evaluated before the PPP solution is chosen. This dimension emphasizes the necessity for the public body to possess resources of expertise and to capitalize on its experience in order to reduce asymmetries of information, to improve its project selection, to increase the soundness of its evaluations, to choose the most appropriate mode of contract and to conduct a dialogue with the private bidders.

It should also be noted that controlling projects solely at the level of the preliminary evaluation can raise problems. Not only are the public costs ill-known – for lack of effective management accounting – but the supply from the private sector is little better. The evaluation of taxpayer value and economic viability can only really be carried out after the final negotiations that have definitively allocated responsibilities and after the financial closing of the contract. It would be preferable to implement a succession of steps of authorization, like the gateway process adopted in South Africa (Corbacho and Schwartz, 2008). Nevertheless, it is necessary to recognize the importance of irreversibilities (transaction costs, delays in public investment) that can hamper the implementation of such a procedure.

One of the contributions of the partnership contract has unquestionably been the rehabilitation of public economic calculation (Marty and Voisin, 2007). Despite its limits, the requirement of a preliminary evaluation helps to enlighten the choice of the public decision maker, to make it more transparent (accountability of public action) and above all to uncover all the key information as to the risks of the project, vital to the forthcoming negotiations. The preliminary evaluation is, however, only one of three stages in the evaluation that the public decision maker must make. The first is the socioeconomic evaluation of the project and the third involves the sustainability of the liabilities incurred in the project. In terms of the socioeconomic evaluation, the main objective is to avoid the funding, through PPPs, of projects that

⁴² Conflictual or even litigious management of the partnership relations can be counterproductive for the public body, although it must remain a credible threat to maintain the effectiveness of the incentive clauses in the contract.

are not the most socially useful and to avert the oversizing of projects with respect to what would be optimal, insofar as the very functioning of the contract induces a phenomenon of budget smoothing.⁴³ These risks of bias in investment decisions⁴⁴ are not specific to PPP contracts, but they can have particularly harmful repercussions in their case, because of their financial weight. A solution was provided by article 17 of the law of 31 December 2012 on the long-term programming of public finances, which extended the obligation to conduct a preliminary socioeconomic evaluation (which already existed in the domain of transport) to all civil investment projects carried out by the government, public establishments and the health and hospital sector. Furthermore, when these projects exceed a certain level of investment, a second opinion becomes mandatory. In this way, the progress made in the socioeconomic evaluation of public projects helps to prevent these risks of bias, for both projects carried out in the traditional way and for PPP projects.

Thus, whatever the mode of funding used, the evaluations of taxpayer value and budget relevance are essential for enlightened public decision. The accounting and budgetary framework in which public action is exercised must remove any temptation to adopt an off-balance sheet strategy by giving a true, proper and faithful account of all the liabilities, even conditional, tied to PPP contracts. It is therefore important to establish the appropriate prudential rules in terms of accounting, both to prevent the use of partnership arrangements for off-balance sheet

⁴³ The global effect of PPPs on the sizing of infrastructure is rather ambiguous. It can also lead to relative oversizing that turns out to be positive in terms of the collective interest. It protects against the risk that the level of resources immediately available (or the direct borrowing capacity) determines the characteristics of the investment, thus avoiding the development of infrastructures that will very quickly become undersized, generating congestion costs. PPPs also make it possible to internalize some of the positive externalities related to the public project by defining perimeters that allow the operator to generate commercial revenue that reduces the annual rent paid by the public body. In the extreme, the additional funding generated by the partnership arrangement may allow the public body to adopt a real option approach, and thus to consider the extra cost of oversizing as an option value, with the idea that the oversized infrastructure may be required in the future to adapt the service provided to meet growing demand from users. In other words, the cost of oversizing becomes the price of future flexibility.

⁴⁴ Which can also lead to the prioritization of a project whose socioeconomic utility is debatable (or at least dominated by other projects), simply because it is eligible for a partnership arrangement (the bias is then the selection of projects according to their bankability).

purposes and to measure the possible budget impact of the liabilities incurred by the public body. The recommendations of the International Monetary Fund (IMF) (Funke et al., 2013) should be considered from this perspective. The prevention of any biased strategy requires first that the asset concerned in the PPP contract and all the commitments related to it should appear in the account statements of the public body from the moment it has charge of them, in keeping with the recommendations of the standard IPSAS 32 relating to public accrual accounting. It also requires that PPP contracts be included in budget plans in the same way as traditional projects, and that they be subject to the same rules of approval, entailing for example a commitment appropriation approved by the competent authority for the spending incurred over the whole duration of the contract. Finally, it requires that future spending forecasts be produced and included in budget forecasts in order to assess the sustainability of the public debt.⁴⁵

6) Conclusion

The crisis has not sounded the death knell for public-private partnerships. Public bodies still need to draw on the experience of the private sector within the framework of global incentive contracts and to find leverage effects for public investment. This public-private cooperation is particularly important given the need for investment in infrastructure and the increasingly tight budget constraints facing public decision makers.

⁴⁵ For example, the legal framework in Chile requires an annual forecast of treasury flows relating to PPP contracts, an exhaustive publication of the number of current contracts and an estimate of the budget risks entailed (OECD, 2013). Originally, the Chilean measures were applied to airport and road concessions. The contractors had a guarantee of revenue whose net present value was 70 per cent of the expected costs of the project. Although this guarantee was not directly tied to the service of the debt, it nevertheless reassured the lenders. It appeared all the more important to control these arrangements since Chile's finance laws required that the budget be in surplus (since amended to require a balanced budget. The risk of favouring PPPs, not for their incentive qualities, but to evade this structural surplus rule, was therefore great (Irwin and Mokdad, 2010). In addition to the preliminary evaluation required for commitment to a partnership contract, an annual quantitative evaluation of the budget risks linked to the guarantees is also required. A financial model was built with the help of the World Bank to evaluate all these contingent risks (World Bank, 2003). This evaluation is appended to the finance law each year.

Until 2008, the situation of the capital markets allowed PPPs to be used as an inexpensive tool – a tool, moreover, that allowed public bodies to delegate the evaluation of the soundness of financial arrangements and the supervision of the execution of contracts to third parties, namely the external investors whose interests were aligned with those of the public body. Since the crisis, however, the new conditions of funding have transformed the structural context. Public bodies now have to compensate for the insufficiency of bank loans by an increase in the equity capital required, by co-funding, by the re-integration of certain risks and by providing guarantees that allow the investors of “patient capital” to come to the table, in the shape of pension funds, sovereign funds and of long-term savings vehicles. Control of the economic opportunity and equilibrium of PPPs requires greater expertise from the different players in the public sphere (contracting bodies, public centres of expertise, para-public investors and multilateral financial institutions) and constant improvement in the institutional framework around PPPs, including the regulation of contracts for current projects. In other words, efficient PPP policy calls for focus on two of the founding principles of New Public Management, that is, the accountability of public action (choice of investment, additional value created by the choice of a public-private partnership and budgetary viability of commitments) and a regulatory state capable of accompanying the partnership relationship, particularly during phases of conflict or renegotiations, and of intervening in a subsidiary manner (through guarantees and investments of capital or subordinated debt).

Contracts with little synergy between the stages of construction and operation or with low initial investment requirements are not suitable for such partnerships, insofar as there will be little compensation for the complexity involved. Likewise, partnerships are more difficult to organize in sectors with fast-evolving technologies or public regulations. Taking into account the imperative of adaptability of the public service or foreseeing risks of technological obsolescence implies the choice of short-term contracts (at the risk of paying high rents) or of accepting frequent renegotiations (at the risk of unbalanced outcomes).

If we had to define briefly the conditions of success for a PPP in public infrastructure in the financial environment of 2014, we would propose the following prerequisites:

- the socioeconomic utility of the project must be unquestionable;

- the project must involve an asset with a very long life, operating in a sector or geographical situation providing it with a monopoly or strong entry barriers;
- the project must entail a strong predominance of capital spending compared with operating costs;
- the technology on which the project is based must not become obsolete before the end of the contract (stable service over time);
- the sharing of the risks associated with the construction and operation of the infrastructure must generate measurable efficiency gains compared with a purely public project;
- the sharing of the risks associated with the construction and operation of the infrastructure must allow for funding under the best possible conditions, which may entail the "traffic risk" being assumed by the public body.

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