

The Evolution of Financing Conditions for PPP Contracts: Still a Private Financing Model?

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1 Introduction

For public entities, resorting to PPPs¹ may be relevant not only because of the economic advantages it entails (integration of the construction and operations phases, innovation capacity of the private sector, incentive nature and performance orientation of the contract, . . .) but also for financial reasons. This may seem paradoxical, to say the least, since, in theory, having the private sector assume the debt leads to additional costs compared to a public financing model, realized in principle at a risk-free rate. Despite the difference in interest rates between public and private debt (Arrow & Lind, 1970; Rochet & Martimort, 1999), the financial net impact of PPPs can remain in favor of PPPs. Their initial disadvantage can be counterbalanced by certain benefits that mostly have to do with the predictability of the public entity's commitments and the incentive nature of the contractual structure.

In theory, a PPP protects the public party against cost overruns or delays in the construction and operation phases. Such cost and delay excesses are important hidden costs in traditional public procurement² (Domberger & Jensen, 1997). In a

¹While most chapters in this book deal with different aspects of PPPs in the broad sense of the term (traditional procurement, concessions (user-pay PPPs), availability contracts (public-budget pay PPPs), this chapter mostly focuses on availability contracts (as most PFIs in the UK and Marchés de Partenariat in France), and the term “PPP” refers exclusively to them in this chapter.

²In a sample of infrastructure projects, Flyvberg (2009) assessed that cost overruns amounted to 20.4% in road projects and 64.7% in rail projects.

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PPP, the private contractor takes responsibility for these risks since payment flows associated with the contract are independent of its costs but are determined by the availability of the service and the satisfaction of quality and performance objectives assigned by the contract. A PPP enables the public authority to benefit from a fixed-price contract, at least in principle (Laffont & Tirole, 1993). In this respect, it can be considered that the additional financial costs compared to direct public financing are counterbalanced by such a cover. In this regard, additional financial costs can thus be viewed as an insurance premium³ (Blanc-Brude, Goldsmith, & Väililä, 2009). However, these financial costs, and therefore the level of the premium, closely depend on the conditions of access to the loanable funds market. An increase in the risk premiums required by the investors or a higher cost of resources (due to a credit crunch phenomenon or to a tightening of the prudential rules applicable to banks or insurance companies) may drive this insurance premium to levels that are too high for such a cover to continue to make sense from an economic perspective. In other words, if the cost differential between private and public financing becomes too high, it is preferable for the public entity to limit itself to traditional public procurement and management schemes. It is more efficient for the public entity to remain its own insurer, i.e., to accept to cover itself the potential cost overruns and delays of traditional procurement.

PPP arrangements are also particularly sensitive to the situation in the loanable funds market, not only because of the scope of the investments required but also because of the financial engineering methods they involve. The latter are based on arrangements with strong financial leverage. A substantial proportion of debt (compared to equity) makes it possible to reduce the additional cost of private financing. Indeed, based on the model of British Private Finance Initiative contracts, PPP projects that are most substantial from a financial point of view use project finance techniques. Companies that have formed a consortium to pool the

³Nevertheless, with PPPs, the public entity cannot really be guaranteed that the payment flows will be predictable from the moment the contract is signed and stable over time. Firstly, contracts quite naturally include price adjustment clauses. Secondly, they are subject to frequent renegotiations (see Chapter “Renegotiating PPP Contracts: Opportunities and Pitfalls” in the second part of this book). Incidentally, the latter may be considered ambivalently. First, renegotiations may proceed from a phenomenon of contractual holdup. Once the threat of competition has been removed, the public entity’s contractor may adopt an opportunistic behavior and exploit the gray areas of the contract (which can never be complete in the economic sense of the term) to renegotiate it to its own advantage (see Guasch, 2004). A frequently renegotiated fixed-price contract soon becomes a cost-plus contract, which essentially amounts to a double inefficiency for the public entity, with a risk premium *ex ante* and low incentive quality *ex post*. Renegotiations may also be associated with new requests from the public entity to bring about a change in the service. For the public entity, such requests can generate additional costs that may lead to reevaluate the economic appropriateness of the contract [25% of cost overruns in PPP projects in the construction phase are related to changes initiated by the public authority, according to a study by Standard & Poor’s (2007)]. Nevertheless, they can be essential to satisfy the mutability requirement of the public service. Besides, renegotiations are fundamental in a long-term contract to maintain the economic equilibrium of the contract, which is a *sine qua non* condition for the efficiency of the partnership relation.

necessary expertise and financial resources to respond to a call for tenders create a joint company that will be awarded the contract. This *ad hoc* company (also called SPV for Special Purpose Vehicle) is dedicated solely to the contract. Although companies that are at the origin of the SPV (the sponsors) make equity investment, most of the resources of the SPV come from bank or bonded debt. In order to minimize financing costs, the proportion of debt financing must be maximized. Indeed, it is necessary to play on the leverage ratio (gearing) between equity and debt, since the cost of the latter is logically lower, as it is exposed to lower risks compared to those assumed by the shareholders. Indeed, not only is its rate of return fixed, but debt repayment has priority over equity in the event of liquidation. Giving priority to debt reduces the weighted average cost of capital and therefore the cost of private financing. However, the higher the proportion of debt is, the more its repayment. The debt service will absorb a substantial share of the SPV's revenue, thereby equally reducing its ability to cope with operational hazards. Thus, the probability of default increases in proportion to the leverage effect for a given level of risk. The ability to raise debt is thus limited by the investors' risk aversion. If the latter increases, the cost of PPP arrangements rises inexorably.

However, the cost of the debt that is subjected to the risk of default of the SPV—which is known as *project debt*—is limited by two mechanisms. First of all, debt is all the less costly as liquid assets have been abundant in the markets, because of exceptionally low interest rates due to the policy of the American Federal Reserve following the bursting of the dot-com bubble and the 9/11 terror attacks. Then, beyond this favorable macroeconomic context, financial and contractual engineering made it possible, until the 2008 crisis, to implement measures capable of reducing the special purpose vehicle's risk of default. Project finance techniques, which require substantial investment amounts due to the transaction costs incurred, often relied on payment mechanisms based on service availability rather than on user-pay mechanisms (tolls paid by end users for example), since the latter introduced a second type of risk, in this instance a demand-related risk. Here, the two main groups of PPPs become apparent once again, namely, contractual arrangements that fall largely into the category of availability-based contracts (as most PFIs in the UK) and concession arrangements (user-pay contracts).

In this chapter, we aim to trace the evolutions of financial arrangements used in PPP contracts over the last 20 years and to underline how sensitive they are to the conditions of access to the loanable funds market (Bensaïd & Marty, 2013). First, we will show how PPPs were initially developed in a favorable financial context, which allowed them to benefit from abundant and inexpensive funds. Additionally, project initiators could use financial tools limiting the additional cost of private funds compared to sovereign debt. The tightening of the conditions of access to credit following the financial crisis of 2008 had a noticeable impact on the conditions of financial close for PPP transactions. We will therefore assess the extent to which this challenging of the canonical model of PPP financing structures brought about a change in risk allocation between private and public partners. Finally, we will consider the future of the PPP financing model in light of the longevity of the

current replacement of traditional bank financing by financing based on insurance funds, investment funds, or pension funds, in the context of regulatory evolutions.

2 A Private Financing Model Introduced in a Favorable Context

PPPs are contracts whereby a private operator takes responsibility for financing an infrastructure and gets its money back by way of an exclusive operation right. While their origin undoubtedly lies in the concession arrangements (called public service delegations) implemented in France since the sixteenth century, as illustrated by the case of the Canal des Deux Mers (Bezançon, 2004), their modern “rediscovery” is indisputably British.

This rediscovery hinges on a double dynamic. The first one has to do with the rise of new public management, especially in the Anglo-Saxon world (Skelcher, 2005). This approach considers that instead of focusing on controlling the regularity of resource consumption (inputs), the main emphasis should be on evaluating policy results (outcomes). As the service provided to the user is the essential dimension at stake, it does not matter whether it is produced by a public or a private entity, as long as its definition and the control of its delivery are carried out by the public authority. Considering the incentives to which private actors are subjected, it seems desirable, in terms of efficiency, to replace the interventionist State by a regulatory State (Marty, Trosa, & Voisin, 2006). The second dynamic that favored the development of PPPs has to do with the phenomenon of *fiscal stress* (Lüder, 1994). Public authorities are faced with a scissor-like movement, with on the one hand growing financing needs to satisfy a strong societal demand for public services and infrastructure and on the other the distinctly growing scarcity of resources available to them, especially because of the loss of taxpayers confidence in the authorities’ ability to manage public resources efficiently. This results in lesser acquiescence to tax and a will to limit the public authorities’ ability to raise debt, which is in direct contradiction to the ever-growing demand for public goods and services.

Thus, although this is admittedly simplistic, it would be possible to consider that PPPs respond to a logic of a public infrastructure privately financed and managed, in order to prevent the inefficiencies that are viewed as an integral part of public investment and public management. Therefore, it is also a question of preempting the incentive biases highlighted by new public economics in terms of investment project selection but also of cost control and guarantee that the quality and performance objectives will be met. The great public infrastructure projects of the 1980s, such as the Channel Tunnel, already illustrated that logic. The first British PPP, a bridge between Dartford and Thurrock (launched in 1987 and heralding the introduction of the PFI policy in 1992), can be considered in light of Margaret Thatcher’s stance on the financing of the Channel Tunnel: *not a public penny*.

In its original sense, the British PFI was, as indicated by its very name, a *private financing initiative*. Indeed, PPPs fall into the category of contracts known as DBFO, which stands for *Design, Build, Finance, and Operate*.

Such private financing made it possible to introduce project finance into the public sphere (Lyonnet du Moutier, 2006). Although this financing technique cannot be found in all contracts, notably because of its excessive transaction costs for projects that only require limited investments, it constitutes an archetypal model highlighting the major characteristics of PPPs, namely, the global nature of the contract, the optimal risk sharing, long-term contractual commitment, and the implementation of financial and contractual engineering aiming to minimize the additional cost of private financing compared to public financing (Iossa & Martimort, 2015).

The first characteristic has to do with the global nature of the contract. PPPs are global contracts because of the pairing of the conception, construction, and operating phases (Hart, 2003) and also because of the fact that the contractor takes charge of financing the necessary investments. The second characteristic consists in contractual engineering that allocates risks in an optimal manner, each of them being assumed by the party that can bear it at the lowest cost, and from an incentive payment mechanism based on performance. Finally, the third characteristic relates to financial engineering techniques aiming to limit the additional cost of private financing compared to public financing. Indeed, we have noted that the latter is theoretically less costly since the State reputedly borrows at the risk-free rate, as it is supposed to be safe from any risk of default. . .

The analysis of these financial aspects of PPPs must be conducted starting from the tension lines between these last characteristics. The lower the additional cost of private financing compared to public financing, the more interesting it will be to have the private sector finance infrastructure through an incentive contract. If the additional cost is high, it will be more difficult for the potential gains associated with the incentive efficiency of the contract to cancel out this differential. Under such circumstances, limiting the additional cost of the PPP would imply that the public entity takes responsibility for a larger share of the risks, which would run counter to the microeconomic logic of the contract.

2.1 The Introduction of Project Finance Arrangements in the Public Sphere

When the situation in the financial markets is “normal,” the cost of public debt lies below that of private debt. Consequently, if we distance ourselves from the misconception according to which PPPs are an easy budgetary solution allowing the debt associated with public investments to be borne by the private sector,⁴ it

⁴For the public entity, private financing can also take on a significant interest in terms of budgetary equilibrium management. As observed by Dewatripont and Legros (2005): “PPP’s could be seen as

appears that the efficiency gains derived from the incentive nature of the contract must counterbalance the additional cost of private financing. Symmetrically, it is possible to consider that the more limited the additional cost of private financing is, the more projects eligible for a PPP arrangement there will be. Minimizing the (additional) cost of private financing is thus the cornerstone of the PPP financial model.

Considering the fact that equity is exposed to higher risks because it is repaid last in the event of the company's liquidation, but that it is also more remunerative (meaning that the investors require a high internal rate of return on the invested capital), the idea is to minimize its share in the financial arrangement. The higher the share of debt is, the lower the weighted average cost of the invested capital will be. Thus, PPP arrangements are often characterized by an equity share lower than 10% and therefore a debt share higher than 90%. Nevertheless, it should be noted that in practice, PPP contract financing structures do not rely solely on equity and debt, which is exposed to the risk of the special purpose vehicle's default. Between this first category of debt, known as *project debt*, and equity, there are other types of intermediary debt, which do not take priority over project debt in the repayment order.

attractive for governments, which try to make their accounts good by (ab)using accounting rules that not correctly capture their assets and liabilities." Indeed, a PPP investment does not affect public accounts—in particular the level of debt—in the same way as an investment realized in the traditional way. Partnership arrangements can appear all the more attractive as they are likely to allow the entity not to consolidate (i.e., recognize) in public debt the amount of investments associated with the financed asset. In times of serious budgetary constraints, recording the infrastructure as an asset in the contractor's balance sheet, and subsequently recording the debt as one of its liabilities, can seem like a decisive advantage for the concerned public authority (Marty, 2007). Resorting to PPPs can therefore appear as a mechanism of public debt derecognition that is all the more expedient as the debt is high and subjected to a ceiling imposed by rules of budgetary discipline (Helm, 2010; Maskin & Tirole, 2008). However, the use of PPPs as an off-balance sheet instrument is only possible to the extent that budget and accounting regulations offer a favorable framework for implementing such derecognition strategies, and one where market operators accept that the asset and associated liability be recorded in the private contractor's accounting statement. The private operators' ability to record the debt in their balance sheet is therefore a first retraction force. A second one has to do with public accounting rules themselves, which must provide a regular, sincere, and faithful image of the public entity's net situation. Paradoxically, the adoption of the International Financial Reporting Standards (IFRS) by private stakeholders has favored a better recognition of the commitments associated with PPPs in public accounts. Indeed, private international accounting standards are based on a control criterion that leads all companies involved in PPP contracts not to recognize them in their accounts. Adjusting to the practices of private actors, combined with a will to translate commitments associated with PPPs, has led the authority in charge of establishing public accounting standards to adopt a standard reflecting the IFRS. In October 2011, the International Public Sector Accounting Standard Board (IPSASB) thus enacted a new standard on the accounting recognition of commitments made by public authorities as part of PPPs (*IPSAS 32—Service Concession Arrangements—Grantor*), established on that basis. As for the UK, it directly implemented the IFRS for the establishment of its public accounts, abandoning its initial accounting standards that proved to be far too favorable to derecognition strategies (Hodges & Mellet, 2012).

It is the case, for instance, of subordinated debt, which is often called “mezzanine debt.” As it bears more risks, it is more remunerative than project debt. Subordinated loan can for instance be brought by the sponsors, especially those coming from the financial sphere (versus sponsors from the industrial sphere). Beyond the guaranteed remuneration, it is interesting for sponsors insofar as it reduces the volume of necessary debt. Indeed, it makes it easier to raise traditional debt by presenting potential lenders with more favorable debt/equity ratios, insofar as it is equivalent to quasi-equity. If the share of “normal” debt is lower, it is less likely that its service will not be honored (meaning that it will not be repaid at each due date), and the required interest rate will therefore be lower.

Project debt can come from two sources. First, it can be made up of loans granted by banks. This is the approach commonly used for contracts that only require moderately high investments and do not necessitate loans with very long maturity. However, bank loans are relatively costly, as an additional margin is debited by the credit institution in question. Bond loans can represent a less costly alternative in terms of rate. They also present the advantage of offering loans with significantly longer maturity. However, this requires concluding a public offering, which generates transaction costs that restrict this financing method to PPP transactions of large financial capacity.⁵ In the UK, prior to 2008, half of the projects with a capital value exceeding 200 million pounds were financed in this manner. In the favorable financial situation that accompanied the development of PPPs between 2001 and 2008, one of the risks specific to bond loans—namely, the level of subscription to the bonds—was lifted through the use of *syndication* (underwrite and syndicate approach). Under such an arrangement, a *financial stakeholder*—a credit arranger—may subscribe to the entire issue of debt securities at once. It then sells the securities, taking responsibility for the risk related to bond subscription. This lead arranger provides the corporate issuer with a double guarantee in terms of rate and fund availability.

Beyond the question of the sources of debt, the financial structure of a PPP can take on different forms. Indeed, debt can either be issued by the firm that was awarded the contract or the debt can be issued by the special purpose vehicle (SPV) created for the purpose of the project (Delmon, 2010).

The first type of financing corresponds to a corporate finance. Debt is raised by the winning firm and not by the SPV. The risk premium required by external resource providers will not depend on the risk profile of the project itself but on that of the firm as a whole. If this option presents the advantage of reducing the required risk premium in some cases (to the extent that the firm can be seen as a diversified portfolio of projects and activities), it creates a few difficulties in the case of PPPs. First, it requires the firm to recognize all assets associated with contract performance and the corresponding liabilities in its balance sheet. This can burden its balance sheet with debt and therefore reduce its ability to raise new debt for other projects. Such a phenomenon results in increasing the financing cost

⁵If only because this capacity must be rated by financial rating agencies.

of firms operating in the PPP market (and therefore the cost of their tenders) or even in reducing the firms' ability to apply for future contracts. Now, for public entities, it is essential to ensure a sufficient degree of *competition for the market* to guarantee that PPPs can meet their objectives in terms of value for money, bearing in mind that, in such long-term contracts, *competition in the market* is by definition drastically limited (Mougeot & Naegelen, 2007).

As we have already noted, project finance constitutes a particularly attractive alternative for contracts with sufficient financial capacity. Debt is no longer raised by the firm that won the contract but by an entity created for the occasion [sometimes called *ad hoc body*, *special purpose vehicle* (SPV), or *special purpose entity* (SPE)]. This type of arrangement presents several interests in the case of a PPP (Yescombe, 2007). First of all, the global nature of the contract means that, in many cases, no single firm will have all the expertise required to provide all the services at stake. That is why consortia are formed to respond to calls for tenders. Once the contract is awarded, it is only natural for each member to take its share in a joint company. The object of the latter is naturally restricted to the implementation of the contract. It will not engage in any other activity and its existence will come to an end with the PPP contract. In the meantime, it will not engage in internal or external growth strategies, which may always entail poorly remunerative investments and divert the management team from its responsibilities in managing the initial project. Moreover, the fact that the structure is dedicated to a single project makes it far easier for the various stakeholders to control it both *ex ante* and *ex post*, especially external providers of financial resources. Unlike companies involved in several projects, *a fortiori* under financial arrangements of the corporate type (in which project debt is directly raised by the recipient of the contract), such a financing scheme guarantees perfect transparency regarding the cash flows associated with the contract.

These characteristics contribute to the efficiency of the monitoring that can (and must) be implemented both by the public contracting authority and by subscribers to the project debt, insofar as, in theory, the latter's sole guarantee of repayment are the financial flows associated with the proper execution of the contract. Indeed, project finance arrangements are known as *non-recourse* arrangements, in that external financiers have no guarantee for the repayment of their loan other than operational resources.⁶ This risk constitutes a powerful incentive to invest enough

⁶It would actually be more fitting to use the expression "limited-recourse arrangement," in that the equity capital contributed by the sponsors constitutes a second source of guarantee. The higher the share of the latter in the pool of the special purpose vehicle, the lower the risk of default on debt service. The existence of additional guarantees, provided by sponsors, multilateral financial institutions, or the contracting public authority, is also likely to reduce the probability of the special purpose vehicle defaulting. As we will see in the next sections, the existence of such guarantees admittedly contributes to the reduction of the financing cost—by lowering the risk premium required by investors, but it equally reduces the external financiers' incentives to ensure the strength of the arrangement and the proper execution of the contract. The public authority will therefore be all the more exposed to risks of adverse selection and moral hazard.

resources to be able to assess the strength of the arrangement and business model of the contract *ex ante* and to monitor its execution *ex post*.

Despite the risks taken by lenders in such non-recourse financing arrangements with a strong leverage effect, these project finance techniques make it possible to raise abundant financial resources at a reduced cost. This financial structure makes it easier to implement the due diligence procedure, whereby lenders assess the *bankability* of the project, that is, the firm's ability to generate the necessary income flows to service its debt. Through this assessment, lenders evaluate the risks transferred by the contract to the special purpose vehicle and the ability of the latter to keep them under control throughout the operational phase. The volume and conditions of the financial contribution and especially the required interest rate (i.e., the risk premium) will depend closely on this assessment. The decisive nature of due diligence shows that the contractual risk allocation, as negotiated during the competitive dialogue phase, constitutes a key element not only in terms of efficiency of the public purchase (Engel, Fisher, & Galetovic, 2013) but also to obtain interesting financial conditions. Risk sharing is the cornerstone of the business model of PPPs. This model must not be driven by considerations of accounting off balance sheet treatment but by an allocation of each risk to the contracting party that can best manage it, cover it financially, or absorb it at the lowest cost. Optimal contractual risk allocation is key to minimizing the financing cost. Theoretically, it is reached when each risk is allocated to the party that is in a position to manage it (or insure it) at the lowest cost.

Two conclusions may be drawn from this. An excessive transfer of risk to the private sector is not in the public entity's interest, since it would be at least partly counterbalanced by an additional financial cost. In the same manner, the presence of external financiers serves the interests of the public entity. Indeed, the contract aligns the interests of external financiers with those of the public entity (Iossa & Martimort, 2015).

The ability of the vehicle created by the sponsors to honor its debt⁷ also depends on its ability to guarantee the service payments without incurring penalties due to underperformance. The costs associated with controlling the risks of adverse selection and moral hazard, which the public entity must face in a long-term contract, are thus shared with subscribers to the debt securities (Dewatripont & Legros, 2005). However, this effect only comes into play if the funds are concentrated among a **limited number of subscribers in order to avoid free-rider phenomena**. It should also be mentioned that the presence of an important public investor or the granting of large guarantees by the latter could remove all incentive for investors to incur the—significant—costs of these due diligence procedures.

Thus, project finance techniques make it possible to reconcile the interests of each stakeholder. The public authority benefits from lower rates, which has the

⁷A second related advantage has to do with the fact that private investors will be less reluctant than a public decision-maker to reevaluate a project whose costs are becoming excessive (De Bettignies & Ross, 2009).

effect of reducing the annual cost of money (thus strengthening budgetary sustainability). It also draws an advantage from the outsourcing of part of the control costs to external financiers. The latter enjoys better financial security than in the case of corporate financing, because of the transparency generated by the setting up of the special purpose vehicle and the traceability of the ensuing cash flows. Finally, as far as sponsors are concerned, this arrangement makes it possible to preserve the financial debt ratios and to maximize the rate of return on the equity invested in the special purpose vehicle because of the leverage effect between equity and debt. Project finance also presented the advantage—at least until the financial crisis of 2008—of allowing the development of contractual and financial engineering capable of reducing the level of risk to which subscribers to the SPV-issued debt securities were exposed. This protection has an impact on the cost of a PPP. If the SPV has to bear a lesser amount of risk, then the probability of seeing it default on its debt service is lower, and therefore the required risk premium is lower too. The subsequent limitation of the financing cost is in the best interest of the sponsors—who can then maximize financial leverage—and of the public authority—who can minimize the additional cost of private financing and therefore the amount of its payment commitments.

A contractual arrangement can provide a first solution to isolate the SPV from the risk of defaulting on its debt repayment, namely, the technique of **back-to-back contracts**. In such a model, the SPV subdivides the service into different phases (such as construction, operation, and maintenance) and assigns each of them to a different specialized SPV (subcontracts). If one of these SPVs fails to provide the expected service on time (or at the expected cost), it will have to pay contractual compensation to the main SPV. This compensation must be at least equal to the penalties provided for in the main contract with the public entity (see Fig. 1).

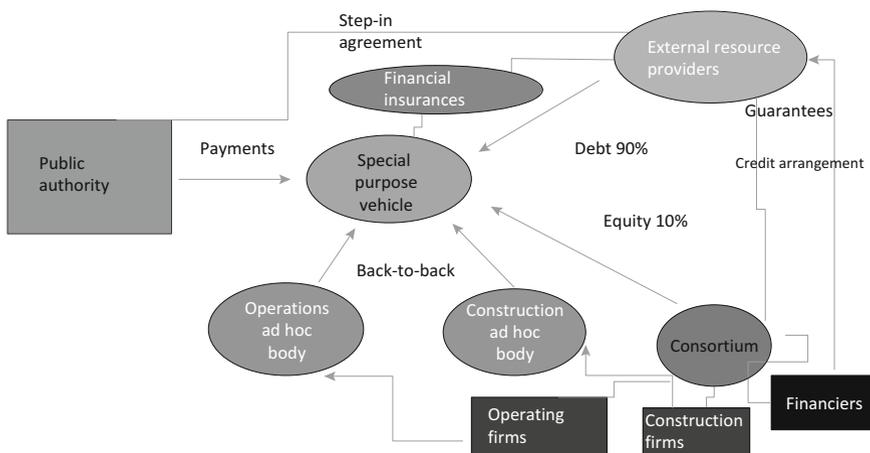


Fig. 1 Project finance arrangement with back-to-back contracts (used for the third unit of French prisons under availability contracts). Source: author

This way, the SPV is protected against the risk, insofar as lenders know that it will have the necessary resource flows to service its debt. Of course, such pass-through contracts rely on the subcontractors' ability to have the necessary funds available in order to pay liquidated damages of an amount equal to the penalties provided for in the main contract. This guarantee is in fact provided by the SPV's sponsors, who get involved jointly in the subcompanies corresponding to their field of expertise. For instance, group members from the building and construction industry will become involved in the SPV in charge of construction, while those specializing in facility management will become involved in the SPV in charge of operations. From a financial point of view, this arrangement helps isolate the various categories of risk assumed by the SPV and can thus reduce the level of required premiums at the global level (Faquharson, Torres de Mästle, Yescombe, & Encinas, 2011). Indeed, investors prefer financial assets characterized by one single category of risk for which their exposure is more easily measurable.

Another option consists in using a different contractual arrangement that reduces the risk perceived by capital providers: the **step-in rights**, which are the object of a direct agreement between the public entity and lenders. They are measures authorizing the main financiers to **replace the contractor** with another firm if and when underperformances lead them to question the SPV's ability to repay its debt (Christophe, Marty, & Voisin, 2007). However, such substitution measures imply that there are actors in the market who are able to take over operations, or even to complete construction, which leads to strong assumptions regarding the level of competition for the market and the absence of asset and technology specificity. Indeed, banks must be able to quickly find industrial actors capable of taking over operations (so as to limit transaction costs) and of guaranteeing the proper execution of the contract (so as to obtain the restoration of financial flows coming from the public authority).

Before the financial crisis, these contractual tools were supplemented by a set of financial devices. These made it possible to reduce even more the risk to which external resource providers were exposed. First, there were guarantee mechanisms such as **surety bonds** and **performance bonds**. The former were bonds issued by banks that supported the sponsors and guaranteed the repayment of the SPV's debt in the event of a **delay in the construction phase**. Before the crisis, 15–80% of risks associated with penalties for delay and of the potential loss of profit could be covered this way. We should bear in mind that in principle, in a PPP based on the British model, payments to the public entity are only triggered by service delivery. Throughout contract performance, the risks of default on debt service could also be covered by issuing performance bonds. If the resource flows of the SPV were not sufficient to **cover the cost of debt repayment**, these bonds could be used to fill all or part of the differential.

Risk faced by lenders could also be minimized by implementing credit enhancement techniques aiming at benefiting from lower interest rates. In the case of bond financing, a rating agency is mandated to give a financial rating to the issued securities. The rating is all the higher as the probability of the issuer failing to repay its debt is low. Therefore, the rating must be as close as possible to the AAA

for the cost of debt to be minimal. Now, insofar as the firm bears some risks (otherwise, the PPP would be of no interest), it is unable to go into debt at the risk-free rate. It can nevertheless benefit from an attractive interest rate by resorting to the services of a **financial actor that is rated AAA**, thus allowing the SPV to enjoy a minimal interest rate (concept of **wrapped bonds**). This financial actor plays the part of an insurer. It guarantees that it will replace the debt issuer if the latter were to encounter difficulties repaying its debt. Thus, the risk of not getting repaid is no longer assessed in relation to the issuer but to the insurer (which is referred to as a monoline insurer). The premium that must be paid by the issuer is of course all the higher as the initial rating is remote from the AAA. In theory, the arrangement is interesting as long as **it is assumed that the insurer enjoys an informational advantage over individual subscribers and is more capable of diversifying risks**. Therefore, the profit realized through the reduction of the required risk premium more than counterbalances the payment of the insurance premium (Vinter, 2006).

2.2 Arrangements Facilitated by a Favorable Financial Context

Beyond the question of contractual and financial engineering, the development of PPPs benefited from a particularly favorable financial context, mostly between 2001 and 2008. The policy implemented by the American Federal Reserve after the **bursting of the dot-com bubble and the 9/11** terror attacks resulted in the availability of **abundant liquidities in the economy**. This had the effect of reducing bond rates and therefore of limiting the cost of private financing.

Moreover, the growth of the portfolio of signed PPPs, especially those in their operating phase, had the effect of reducing the risk premiums required by investors for bonded debt issued by SPVs. The issued securities appeared as a particularly attractive category of assets because of their risk–return combination (Blanc-Brude, 2013). Besides, most of the project risks are generally concentrated in the initial construction and commissioning phases. Once these are completed, the risks associated with the operating phase are easy to control. Thus, securities issued by SPVs are particularly interesting for pension funds, which must have stable resource flows available to be able to honor their pension payment commitments. Before the crisis, **the attractiveness of debt associated with PPPs favored refinancing operations**. These made it possible to reduce the debt rate significantly as long as the operation occurred after the initial stage of risk removal. In PPP contracts, rules governing the distribution of profits associated with such refinancing between the public and private parties are usually included among the initial provisions.

Resorting to structures based on an SPV also generated capital fluidity, which led the initial sponsors to gradually transfer their shares to other investors, which in turn resulted in a significant increase in the internal rate of return of their investment. The UK saw the emergence of a secondary market of securities associated

with SPVs, the evolution of which was likely to have a positive impact on the level of risk premiums required by all investors, whether equity investors or subscribers to project debt. This secondary market, which allowed the transfer of the SPVs' equity shares, also had the positive effect of increasing competition for the market, insofar as sponsors did not have to remain "stuck" within their pool throughout contract performance. They thus had the ability to engage and invest in other PPP contracts.

This favorable context was combined with a strong political will to support the development of PPPs, and this in spite of changes in power, as shown by the British case in 1997. The increasing tendency to resort to PPPs, such as could be observed in the UK until the end of the decade, can largely be explained by this political support that led some ministerial departments or local authorities to consider PPPs as the only game in town. Not only did the use of PPPs (availability contracts) make it possible to avoid recognizing the assets and corresponding liabilities in public accounts and to enjoy leeway with regard to the rules determining multiannual capital budgets, but it also allowed some public authorities to enjoy specific guarantee funds, or even additional subsidies. That is why the flow of signed PPPs represented as much as 10–15% of total public investment for several years (see Box 1).

Box 1: British PFIs: 1995–2011 Trends

The development of PPPs in the UK can be summarized in a few figures. Even if we exclude the three contracts initially concluded for the operation of the London underground, which represented a private investment (capital value) of 18 billion pounds, the total amount of private investments in PFIs represented around 62 billion pounds between 1995 and 2011. The budgetary burden associated with payments for PFIs in the performance phase amounted to 8.57 billion pounds for the 2011–2012 fiscal year and should reach 9.75 billion pounds in 2017–2018 (HM Treasury, 2011). As regards trends, Figs. 2 and 3, respectively, give the annual evolutions of the number of signed contracts and of the amounts of capital value between 1995 and 2011. From 1998 to 2007, the number of signed PFIs stabilized to reach a plateau of over 50 contracts per year (Fig. 2). The value of private investments increased until the brink of the crisis (Fig. 3), although one should bear in mind that the Royal Air Force contract relative to aerial refueling tanker aircrafts (FTSA contract) single-handedly represented a capital value of over 2.6 billion pounds in the spring of 2008.

Thus, the financial attractiveness of PPPs led to a distinct reduction in the additional cost of project debt relative to public debt, which rendered a very large number of public investments eligible for these arrangements. Major investments were realized in this form, from the contracts relative to the operation of London underground lines to the Royal Air Force's aerial refueling tanker aircrafts (NAO,

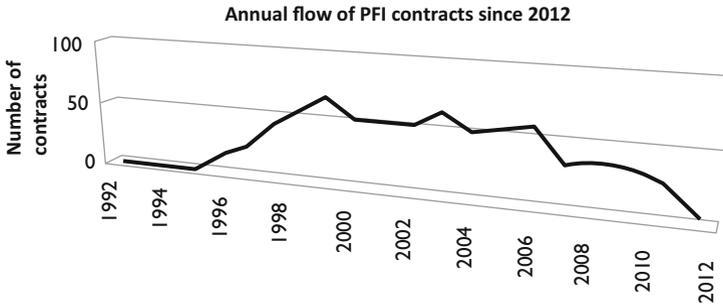


Fig. 2 Annual flow of signed PFIs, 1995–2011. Source: The author, based on data from HM Treasury (March 2012)

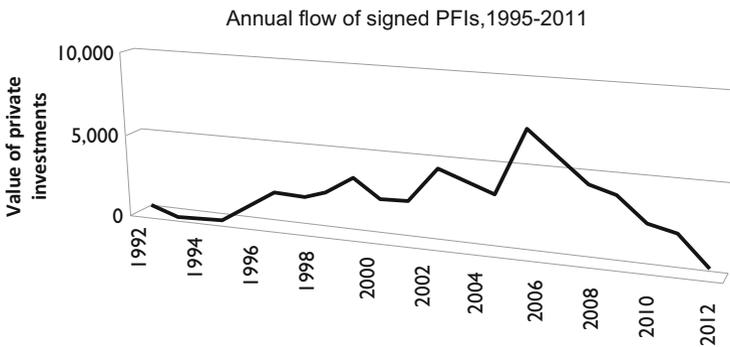


Fig. 3 Annual value of private investments in British PFIs. Source: The author, based on data from HM Treasury (March 2012)

2010a). The contract relating to these aircrafts, which was finalized just before the crisis during the summer of 2008, is particularly emblematic of the great PFI transactions before the sudden reversal of market conditions. Indeed, it resulted in an investment of some 2.69 billion pounds by the private partner. In order to minimize the financing cost, a separate competition was even organized to raise the necessary funds. This specific opening up to competition for the financial section, launched at the request of the public authority in the summer of 2007, concerned two billion pounds (Marty & Voisin, 2008). Consequently, the global nature of the contract no longer necessarily included financing, which was proof of the attractiveness of PPP arrangements for investors. Separating the “financing” section from the other components of the contract allowed the public authority both to reduce its costs by generating competition between numerous financial stakeholders and to receive valuable feedback from the markets about the economic equilibrium of the contract. Indeed, the risk premium required by financial investors theoretically constitutes a good reflection on the risks actually borne by the SPV.

Although the issue of a separate funding competition for PPP contracts is creeping up again, the financial context has undergone radical evolutions since the subprime crisis, which have had significant impact on contract financing.

3 After the Crisis of 2008: New Financial Conditions

The 2008 financial crisis and its aftermath—the European sovereign debt crisis in particular—deeply upset the financing conditions of public–private partnership contracts. Our objective, in this second part, is to highlight the fact that these changes are not only cyclical but structural (Sect. 3.1) and that they entail significant transformations in the general structure of PPP contracts, especially in terms of risk allocation (Sect. 3.2).

3.1 *Far Less Favorable Conditions of Access to Financing*

While until then the abundance of available liquidities and widespread reduction in risk premiums on debt had favored arrangements with strong financial leverage, the crisis resulted in a deleveraging phenomenon. In broad outline, the drop in the valuation of financial securities (due to growing uncertainty regarding borrowers' ability to service their debt) forces banks to depreciate their debt in their accounts. Indeed, the IFRS accounting standards order that these should be measured at their fair value, which can be their market value or the value established through financial measurement models. Insofar as financial solvency ratios compare credits outstanding with asset value, financial establishments must at best restrict the granting of new loans and at worse transfer some of their debt in the market in order to improve their balance sheet. Such transfers exacerbated the fall in prices, thus initiating a snowball effect that led to a credit crunch phenomenon. From the beginning, this phenomenon resulted in a contraction of bank loans for PPP projects but also in a marked increase in interest rates. In this context, the rise of interest rates required by financial investors is correlated far less with an increase in intrinsic project risks than with the increase in the price of bank liquidities (Hellowell, 2013). Moreover, this phenomenon takes on a structural nature when prudential rules applicable to the banking industry render long-term loans particularly costly (Basel III). Thus, the crisis resulted in a significant increase in spreads, i.e., the difference relative to the risk-free interest rate, as regards project debt but also, as we will see in the third section, debt for which repayment is guaranteed by the public authority itself. As far as project debt is concerned, the margin relative to sovereign debt (i.e., reputedly risk-free debt, at least until the crisis) went from 0.75 to 3% (i.e., from 75 to 300 basis points). Based on assessments from the British National Audit Office, insofar as the net benefit associated with resorting to PPPs amounts to 5–10%, the increase in financing costs by 20–33% can generate an

additional cost of 6–8% on projects involving an important construction stage and therefore requiring heavy initial investments (NAO, 2011). Such an additional cost may lead to question the attractiveness of the PPP model for many public investment projects. These British evolutions were mirrored almost identically in France, with a spread on project debt ranging from 60 to 250 basis points between 2007 and 2009 (Dupas, Gaubert, Marty, & Voisin, 2012). Although interest rate differentials have decreased since the height of the crisis, the fact remains that the increase in the price of bank resources is not merely cyclical but turns out to be structural and that the difference relative to interest rates on public debt is heightened even more by public borrowing rates at a historical low (Helm, 2013).

These new financial circumstances result in clear pressures on debt. External resource providers are more and more watchful of the SPV's risk profile and **require additional safety margins** in terms of cover of the debt service. This rise in risk aversion can lead to an increase in interest rates on bank debt but also in a **necessary reduction of its share relative to that of equity** or other long-term financing sources. A consequence of this is a **significant increase in financing costs**, which leads to question the ability of PPP arrangements to achieve value for money. At the same time, replacing debt with equity would result in an excessive increase in the weighted average cost of invested capital and would question the very appropriateness of these contracts.

Even if these additional financing costs do not cancel out the efficiency gains associated with PPPs, the latter lead to an **increase in the contracting public authority's payment flows**. The public authority, in the context of heavy pressure on public accounts, is likely to question the budgetary sustainability of commitments associated with PPPs, which makes them very similar to ongoing budgetary commitments.

In the same way, the crisis deeply upset the conditions of access to the loanable funds market for SPVs. First of all, the **assessment of project-specific risks is conducted in a far stricter** way than before. The proposed rates reflect less and less the results of this risk assessment and more and more the **constraints relating to the internal procedures of the lenders' investment committees**. While at the international level some projects were canceled as a consequence of the crisis (such as a first project of seaward extension of the Monaco Principality over a dozen hectares, in 2008), others came back to traditional procurement schemes (the British Hartlepool NHS Foundation Trust, initially planned as a PFI, turned into a fixed-price construction contract of 450 million pounds). Above all, many projects suffered **long delays in reaching financial close**. Moreover, projects launched since then have **significantly lower financial capacity**. The growing share of brownfield projects (combining the renovation and operating phases) to the detriment of greenfield projects (involving new construction) can be analyzed in light of the increase in financing costs. Globally, one can also observe, especially in developing countries and emerging countries, a **reduction in the relative share of projects based on concession arrangements**—i.e., exposed to a **demand risk**—compared to arrangements for which payments largely come from the contracting authority,

based on service availability or performance (public-budget pay PPPs, or availability contracts) (Cuttaree & Mandri-Perrott, 2010).

Investors' risk aversion is even more heightened by the **disappearance of the financial guarantees of SPV-issued debt**. As monoline insurers lost their AAA during the 2008 crisis because their financial reserves collapsed due to numerous guarantee calls, credit enhancement through market instruments has then become impossible. Therefore, capital providers require **increasing guarantees from both sponsors and public authorities** themselves, or even from the relevant Ministry in the case of public institutions such as hospitals or universities, for instance. Doubts about the very solvency of certain public entities drive lenders to demand more protective covenants.⁸ *De facto*, this results in a **re-internalization of part of the risks by the sponsors and public authority**. Consequently, whereas project finance arrangements were traditionally nonrecourse arrangements, they **become arrangements with recourse**, since the contracting parties' financial exposure is no longer limited solely to equity contributions in the SPV.

For instance, external financing providers usually require of sponsors that they make commitments constituting additional guarantees in the event of adverse evolutions. These can take the form of **contingent equity commitments, cost overrun guarantees, or completion guarantees**. If unanticipated additional costs arise during the construction or operating phases, or if there are delays in construction, then sponsors commit to injecting new equity into the SPV to guarantee debt service. As for the public authority, it is **increasingly required to provide revenue guarantees** (Burger, Tyson, Karpowicz, & Coelho, 2009). Such guarantees are **likely to compromise the incentive nature of the contract** if the contractor is certain to have sufficient resource flows to service its debt and generate a reasonable rate of return on its invested capital.

Above all, the crisis resulted in an obvious transformation in the conditions of access to financing. The financial and contractual conditions of access to private financing are the arrangement parameters that are undergoing the most significant evolutions. Even **beyond the cost of resources, the conditions of access to financing have undergone substantial evolutions**.

The financing conditions offered by the private sector have experienced a major transformation with the **generalization of market flex and market disruption clauses**. Before the crisis, the various competing consortia guaranteed fixed-rate financing under conditions defined *ex ante*—thus facing the risk of unfavorable market evolutions during the long phase of contract negotiation and finalization. At the height of the financial upheaval, the private sector could no longer make such commitments. Incidentally, these entailed all the more risks as negotiations with the public entity lasted longer. Therefore, the legislator had to accept the fact that not only would financial bids be limited in time but that **consortia would now be allowed to choose not to commit to fixed rates** by introducing market flex clauses

⁸A covenant is a clause inserted in a loan agreement providing for anticipated debt repayment in case of nonfulfillment of the objectives assigned to the SPV.

in their bids. These led to formulating financial bids in terms of floating rates such as Euribor or Libor plus “x” basis points. Thus, the public entity assumes the risk of an increase in rates during the contracting phase. In the same way, market disruption or market-out clauses allow lenders to withdraw their offer if market evolutions go over a certain rate boundary defined *ex ante*.

Another noteworthy consequence of the change in the financing conditions of PPPs since 2009, which is behind the increase in financing costs, is the virtual disappearance of syndication and the multiplication of club deals. Before the crisis, it was often possible to benefit from syndication mechanisms (the underwriter and syndicate model) whereby a financial stakeholder, often one of the sponsors, subscribed to the entire debt issued by the SPV and then took responsibility for selling it in the market. This way, fund availability was established from the moment the contract was signed and the rate was certain. This mechanism has now become especially difficult, if not impossible to implement, since banks now only have liquidities that are both expensive and limited. Therefore, the syndication model has had to give way to the club-deal model. In the latter, financing is no longer provided by a single financial stakeholder but by a pool of banking establishments. The emergence of club deals is thus a consequence of the drastic reduction in the financial actors’ individual commitment power (reduction in the average tickets). It may be necessary to call upon a pool of banks to provide all the capital required by large-scale PPP projects. This phenomenon inexorably results in an increase in financing costs. The reason for this is not only an irreversible alteration of funding competition but also the fact that the financing conditions applied by all banks (especially in terms of rate) are then determined by the marginal bank whose contribution is essential to reach financial close (see Box 2). Banking margins increase mechanically.

Box 2: Club Deals in British PFIs Signed in 2010

In the UK in 2010, the drop in average tickets for PFI transactions led to maximal capital injections of 25–50 million pounds. Thus, the financing of the Kirkcaldy hospital, which required the injection of 187 million pounds, could only be realized through the formation of a club deal including four banks that each contributed 42.5 million pounds (NAO, 2010b). In the same way, no <16 banks were involved in financing the PFI relating to the M 25 motorway, each of which contributed between 25 and 60 million pounds (NAO, 2010c).

One last consequence of the crisis on PPP contract financing should be highlighted, namely, the appearance of the mini-perm phenomenon, or the necessary refinancing of debt when the contract is ongoing, due to the unavailability of funding with sufficient maturity (Dupas, Marty, & Voisin, 2013). The rise in lender risk aversion and market illiquidity means that markets have difficulties granting loans that last as long as PPP contracts, which are inherently long-term contracts

when their objects are real estate projects or public service infrastructure. It follows that debt refinancing is necessary in the course of contract performance. These refinancing operations are not new at all. The very long duration of some concession contracts already made it necessary to resort to such operations before the crisis. Likewise, some British PFIs had been subjected to such refinancing over the last decade (NAO, 2006).

The difference lies in the fact that these operations occurred in a far more favorable financial context, marked by falling rates, and in a situation that was specific to the PPP contracts in question, that is, at a time when the initial risks (of construction and commissioning) had been removed. In that situation, the refinancing operation led to clear reductions in the debt rate. What was at stake then was the sharing of benefits among the contracting parties.

Despite this change in the financial context, an “early” refinancing of the initial debt can also be considered to work as a “claw back provision,” especially if the initial raising of capital was done under unfavorable financial circumstances. However, if the situation in the markets gets worse in the meantime, if the project encounters difficulties or if trust in the public authority’s ability to honor its payment commitments deteriorates, it is not certain that the refinancing will be realized at a more attractive rate, or even that all the necessary debt can be raised. As a consequence, a new risk must be taken into account when drawing up contractual clauses. Insofar as there is no insurance mechanism left in the market to provide financial cover, the public entity and sponsors must share responsibilities in order to face up to the risk of refinancing during contract performance.

Thus, the financial crisis that began in 2008 challenged the PPP model by causing the reappearance of a significant additional cost of private financing and by leading to a reallocation of risks between public and private contracting parties. Insofar as the tools provided by contractual and financial engineering no longer make it possible to cover the largest part of risks, the public entity largely takes over responsibility for these risks. Thus, not only is there now a limited number of projects still eligible (financially) for PPP arrangements, but it is less easy for the public entity to decide to resort to these from an insurance perspective, insofar as it increasingly has to act as last-resort guarantor for the repayment flows of the SPV-issued debt.

3.2 New Contract Balances Based on Risk Reallocation

Thus, public authorities are faced with a dilemma. Project arrangements of the kind that preexisted the crisis would now result in significant additional financial costs. Therefore, less projects would be eligible for PPP arrangements and these would have to be replaced by traditional procurement and financing methods. However, this would be tantamount both to renouncing the potential efficiency gains associated with PPPs and, above all, to financing the investments in question with public funds exclusively, at a time when budgetary leeway is tending asymptotically

toward zero. Thus, the necessary perpetuation of the model was brought about by a series of public supports aiming to reduce the risks weighing on subscribers to the SPV-issued debt, or even to limit the very share of this debt in the financing scheme of the transaction (Helm, 2013).

Indeed, there are two major approaches to limiting the cost of private financing and making it easier to subscribe to the SPV-issued debt. The first one has to do with a financial contribution from the public entity to the financial arrangements and the second one with its assuming a growing share of the risks in order to minimize the risk of default on debt service.

First of all, the financial close of PPP transactions is made more easily reachable by a series of public initiatives resulting in a marked relaxing of requirements regarding the conditions of financial contribution. In calls for tenders, applying consortia are no longer required to provide, as early as the tender submission stage, a comprehensive financing plan adhering to strict conditions, in particular in terms of fixed rates. Bids offering partial financing (often combined with market flex clauses, as we have seen) are now accepted. For this reason, the public entity runs the risk of discovering that its potential contractor is unable to raise the necessary funds at a very late stage in the negotiations, which makes it very difficult to go back because of the elapsed time and incurred costs. Symmetrically, refusing such bids would lead, in a difficult financial context, to a drastic reduction in the degree of competition for the market.

In the same way, refinancing risks are shared between public and private parties, so as to accommodate both the public entity's profit sharing in the event of a favorable evolution in market conditions and the limitation of risks faced by the contractor (Dupas et al., 2013). As shown in Fig. 4 below, which comes from a KPMG report (2009), the repartition of cost variations is differentiated according to a series of thresholds. Refinancing benefits are shared based on a 50/50 rule; additional costs are assumed by the private contractor up to 100 basis points; beyond this threshold, increases are shared, with a growing share being borne by the public party.

As a corollary, it is in the public entity's best interest to participate financially in the arrangements, in spite of the budgetary pressures it must face. Indeed, the higher

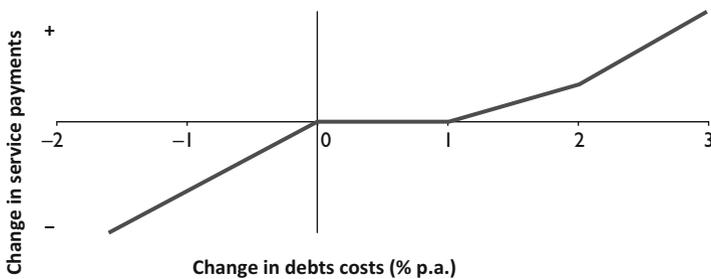


Fig. 4 Rules governing cost and benefit allocation in contractual provisions relating to mini-perms (source: KPMG, 2009, p. 14)

the share of debt, the lower the additional financial cost of the PPP. The aim is therefore both to reduce debt costs (which are all the higher as the SPV is facing substantial risks) and to increase the share of debt in the financing scheme as much as possible. Now, mechanically, the higher the share of debt, the less favorable the debt service coverage ratio will be. Indeed, a high percentage of debt implies that a large share of resources generated by the operation should be dedicated to debt repayment. Therefore, the public entity must assume a part of the risks which would previously have been borne by the private contractor and limit the weight of “project debt.”

A first solution consists in financial contributions coming from the public entity itself or from national or international financial institutions (see Box 3). Such contributions can be in the form of **equity** (public–private cofinancing model), of **subordinated debt**, or of **traditional loans granted at market conditions**. These mechanisms have the effect of improving the SPV’s financial ratios and so of reducing its financing need and cost.

The change of direction in British policy from PFIs to “PF2s,” initiated by a Treasury report published in December 2012 (HM Treasury, 2012), illustrates this evolution. The aim is to reduce the share of project debt, especially bank debt (see Fig. 5), by **favoring the entry in the pool of long-term investors, such as pension funds, long-term investment funds, or even sovereign wealth funds**, but also by **allowing public equity participation**, or even by authorizing the **subscription to all or part of the SPV’s debt**, in particular during its refinancing operations. The objective is to take advantage of the low cost of public resources compared to private funds, but also to reinforce control over the SPVs themselves, which have often been criticized for being insufficiently transparent and for granting excessive returns on capital invested by sponsors.

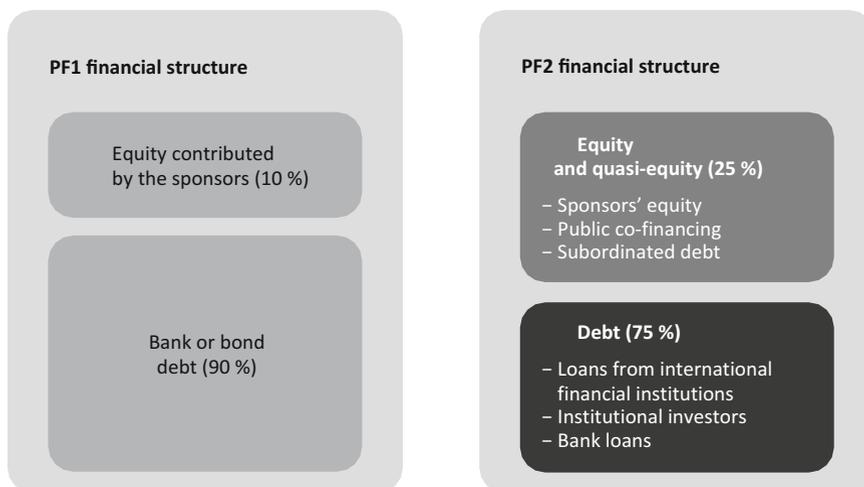


Fig. 5 Evolution of the financing structures between PFIs and PF2s

It should be noted that the rates applied in early 2013 on the project debt of British PFIs ranged from 6.25 to 7.5%. The weighted average cost of capital invested as part of these transactions [estimated based on a leverage effect of 10/90 and on the rates of returns required by equity investors (National Audit Office, 2012)] therefore ranged from about 7.13–8.25%. Simultaneously, the British government raised 20-year debt at <3.5% (Hellowell, 2013).

Public participation can therefore reduce the SPV's financing need and thus the financial cost of the transaction.⁹ In the same way, the resulting reduction in financial leverage (the PF2 counts on a 10–25% increase in equity share) makes it possible to reassure the SPV's lenders, insofar as they constitute a safety cushion in case an underperformance of the SPV should result in a reduction in operating revenue flows. However, it is necessary to **question the incentive effect** which this public participation can have both *ex ante* and *ex post* for third-party financiers. Indeed, the presence of a shareholder with theoretically extensive resources and who cannot accept a default from the firm in charge of the contract (the public entity acts as last-resort guarantor) can lead them to adopt a **free-rider behavior** and therefore reduce their incentives to invest in due diligence and monitoring procedures at a suboptimal level. Finally, there is also the issue of a **possible conflict of interest for an entity that will be both shareholder and customer of the SPV (de Brux & Marty, 2014).**

A second solution, less costly in terms of public funds, would be to grant **guarantees on debt service payments or on the collection of a minimal revenue flow during contract performance.** Such guarantees—which may require the drafting of comfort letters¹⁰—have the effect of reducing the risk premium required by subscribers to the debt issued by the SPV. Indeed, the debt subscribers have the guarantee, which is provided by the public authority, that the SPV will have sufficient resources available to face up to repayment deadlines (this technique is known as **debt underpinning**).

However, although this mechanism allows the public entity to limit the financing cost and thus to facilitate the budgetary sustainability of the PPP, it also results in the **re-internalization of a substantial share of the risks.** Because of this, gains associated with the incentive nature of the PPP contract are potentially reduced (the public entity's payment is guaranteed, whether the contractor honors its

⁹Here, the British case is characteristic. Net public investment now only represents 1.5% of the GDP for fiscal year 2014–2015, against 3.3% in 2009–2010. Forecasts for 2019–2020 predict that this effort will represent 1.2% of the GDP, a rate which is admittedly higher than in 1997–1998 (0.5%) but still far below the needs for investment in British infrastructure. This low level of public investment, despite very low long-term interest rates, has to do with objectives of public debt control. The British government's ambition is that investment projects designated as having priority (Infrastructure Pipeline 2014) will be financed up to 64% by private investors, 14% through cofinancing, and only 23% by public funds (Rhodes, 2014).

¹⁰These are letters of intent whereby banking establishments or auditing companies recommend subscribing to a firm's debt. They vouch for the sincerity of the financial data provided by the firm in question.

commitments or not) and a new budgetary risk arises (if the guarantees are called). We can more or less consider that the **public authority replaces mechanisms of credit standing enhancement** of the debt raised by SPVs, which disappeared with the 2008 crisis.

Box 3: Guarantees and Direct Official Support: British and French Examples

Starting from 2009, many states set up additional guarantee mechanisms to provide selected consortia with loans—at market conditions—so as to enable them to reach financial close. In principle, this is not to be considered as State aid, which must be the object of prior notification to the European Commission, insofar as conditions governing the allocation of loans are identical to those applied by a private investor (in terms of risk/return combination).¹¹ The TIFU—Treasury Infrastructure Finance Unit—was therefore created in the UK. It was intended to transfer its debts as soon as the situation in financial markets would allow it. The only time it was called upon was for the GMW PFI contract (Great Manchester Waste), for which it provided the 120 million pounds necessary to the close of a 582 million contract.

Lenders were provided with other types of guarantees in relation to revenue risks. It is the case, for instance, of the guarantees provided for transport infrastructure by the European Investment Bank as part of the LGTT program (Loan Guarantee Instrument for Trans-European Transport Network Projects). For example, the EIB supported the SEA high-speed line (HSL) project (South Europe Atlantic), which in 2011 was subjected to a concession arrangement, not only by way of this guarantee mechanism (to the amount of 200 million euros) but also through a contribution of one billion euros out of a total investment of 7.8. The debt raised with banks amounts to 2.4 billions, i.e., 31% of the debt to which the EIB subscribed at 8%, and the sponsors' equity contributions to 774 millions, i.e., 10% of the necessary funds. The remaining four billions (51%) came from both future revenue and subsidies. The amount of public financing represented 50% of the total investment amount. The guarantee by virtue of the LGTT covered 6.6% of the project debt, which was already covered up to 80% by the State in accordance with reflationary measures introduced in February 2009 (EIB, 2011). Between 2008 and July 2011, the LGTT European program thus

(continued)

¹¹The absence of government aid is of course debatable in that the contribution of public funds may be seen as a *sine qua non* condition for the contract to reach financial close. This official support can be analyzed as a way to render projects eligible for private investment. It would thus be a way to make up for a market failure. However, the private investor's criterion in a market economy can be all the more easy to satisfy as the mere simultaneity of public and private investments under the same conditions of risk and profitability is viewed as a sufficient criterion.

Box 3 (continued)

supported six PPP transactions in the transport industry, in France, Germany, Spain, and Portugal, for a cumulative amount of ten billion euros. However, *ex post* assessments of the program have led to qualify its actual incentive effect on supported projects (EIB, 2014).

A similar logic was implemented at the French level through the intermediary of the Caisse des Dépôts et Consignations (CDC), a State-owned bank, in favor of PPPs in the field of infrastructure, in the rail industry in particular (Quinet, 2012). The loans thus granted, capped at 25% of the debt (with the exception of the contract relating to the Nîmes-Montpellier bypass, which was the object of a dispensation whereby the rate was increased to 50%), make it possible to benefit from resources with a far longer maturity than bank loans and far lower rates than the margins of 200–300 basis points usually applied (see Table 1 below).

Table 1 CDC financing

Project	Loan from the CDC (m€)	Share in the bank financing scheme	Maturity (years)	Rate (%)	Margin over Euribor (in bp)
High-speed line (HSL) SEA—Tours-Bordeaux (concession, 2011)	757	25	40	4.62 (then 5.48)	51 (then 137)
HSL BPL—Le Mans-Rennes (availability contract, 2011)	254	25	25	4.22	30
HSL CNM—Nîmes-Montpellier (availability contract, 2012)	521	50	25	3.61	90

Source: Quinet (2012)

It should also be noted that in addition to project debt, a second type of debt may be used, namely, debt for which service payments are guaranteed by the public authority. In broad outline, the contractor's financing needs are reduced by facilitating the transfer of its claim on the public entity and by increasing the value of the claim in question through a pay-to-bearer commitment. Indeed, contracting firms can transfer their claims on the public entity to financial stakeholders. The transfer price will naturally depend on how much time is left until the due date, but also on the uncertainty associated with its efficiency, insofar as payment flows should not be taken for granted in an incentive contract. If the service is not provided or the quality and performance objectives are not met, the public authority will not pay at maturity. This risk no longer exists if the latter commits to repaying the debt seller in any case—and if it turns against its own contractor *ex post*.

The existence of a guaranteed debt indubitably causes a problem of incentive. Indeed, it is necessary for the SPV to remain sufficiently *at risk* to prevent any problem of moral hazard. A trade-off appears between minimizing the (additional) cost of private financing and preserving the incentive qualities of the contract, the terms of which are substantially affected by the crisis.

It is thus a mechanism of *accepted debt assignment*, which in France is regulated by the Dailly law. This refers to the share of debt for which the public authority committed to making payments to the bearer, even if it means asking the SPV to pay back the amounts afterward. As a result of the crisis, the threshold for acceptance of debt assignments was raised to about 80% of the financing and investment shares of repayment flows. Insofar as this debt no longer bears the risks associated with contract performance, its rate is far more attractive than that of project debt. Not only has the limit for accepted debt assignments increased substantially since 2008, but, in many cases, project debt itself has disappeared, arrangements being closed using only equity, public subsidies, and Dailly debt (Dupas et al., 2012).

However, it should be noted that although this debt has virtually replaced project debt in the French case, it has also known an increase in spreads that is unexpected for a debt that is theoretically risk free, reaching 180 basis points in 2009. In September 2012, these spreads amounted to 200–250 basis points. The level of this risk premium, which reflects not only the markets' mistrust of sovereign debt but also the increase in bank refinancing costs, especially under the influence of compliance with "Basel III" prudential ratios, raises several issues. First of all, the only reason it is still bearable is because interest rates are at a historical low. An increase in rates could have far-reaching consequences as regards the level of applied risk premiums. Then, the hardening of these financing conditions affects local authorities in particular, for which access to financing is far more difficult and expensive.

As illustrated by Table 2 below, taken from Quinet (2012), these interventions nevertheless have the effect of reducing the risk borne by investors, limiting the need for costly bank resources, and thus reducing the global cost of private financing. In this respect, they have made it possible to ensure the continued existence of the PPP model, despite the crisis.

The limitation of the share of "project debt" of banking origin in the debt itself is all the more necessary as the banks' ability to provide long-term financing was paradoxically hindered by the strengthening of prudential rules (Basel III criteria). Thus, regulatory responses to the crisis result in promoting a type of market-based financing of PPPs that is closer to the American model than to the French precrisis model, in which financing was mostly bank based. In theory, bond financing should not be self-evident, insofar as many financial instruments of credit standing enhancement have disappeared with the crisis. Besides, the risk profile of PPPs is quite specific. Indeed, risks are concentrated in the infrastructure construction and commissioning phases and are very limited once the infrastructure is fully operational. Therefore, investors such as pension or insurance funds, which seek stable

Table 2 Impact of guarantee mechanisms on the financing cost of PPPs

	Public protections	Weighted average cost of capital invested in the project
WACC of the concession without official support		6.5%
Protection of the SPV against traffic risk	Transition from a concession arrangement to an availability contract (payment based on availability)	–80 bp
Protection of lenders during the operating phase	Acceptance of debt assignments (Daily)	–80 bp
Public loans to reduce the share of bank loans	Loans from savings funds (capped at 25%)	–40 bp
WACC in availability contract with official support		4.5%

Source: Quinet (2012)

and predictable resource flows rather than a high rate of return, may be tempted to contribute only during refinancing phases.

The current efforts of public authorities aim to favor investments by such actors from the initial phase, by providing, as we have seen, guarantees that replace the old market instruments or by creating specific institutional measures. It is the case for instance of the Pension Infrastructure Platform (PIP) in the UK, which was subjected to a memorandum of understanding between the Treasury and pension funds to secure their investments in public infrastructure. The idea is to create a support structure to enable these funds to invest in PF2 projects by providing resources in expertise to assess their risks, among other things. The aim is to bridge the gap between the British situation, where pension funds only invest 1% of their assets in infrastructure, and the situation in Australia and Canada where they invest 8–15% (House of Commons, 2013). In March 2013, the British platform provided its guarantee to ten investors for an investment amount of one billion pounds (Rhodes, 2014). Through such mechanisms, the public partner takes responsibility for the construction risks, which investors may be reluctant to assume (Helm, 2013).

Aside from pension funds, long-term financing can come from insurers. Again, the idea is to compensate for banking establishments' commitment limitations and to direct household savings toward infrastructure financing (OECD, 2014; Quinet, 2012). These arrangements also imply support from public authorities, in order to improve the rating of the debt issued by SPVs to make them eligible for the investment criteria of insurance funds. Such financing schemes have assumed growing importance in the close of PPP transactions, as shown for instance by the case of the L2 ring road in the French city of Marseille in the autumn of 2013. However, they are challenged by the implementation terms of the Solvency II rules, which might, like the situation of banking establishments, hinder insurers' long-term investments. Even more generally, so-called *patient capital* investments in public infrastructure in general and in PPPs in particular are determined by the

evolution of the European statutory framework (on this topic, see the European regulation on long-term investment funds, adopted on 17 April 2014). In this respect, experiments relating to project bonds, initiated jointly by the European Commission and European Investment Bank, and to debt funds (i.e., securitization mechanisms), already recommended by the European Commission (2014), possibly foreshadow the implementation of the Juncker plan (Dupas, Marty, & Voisin, 2015). We should bear in mind that the 315 billion euro investment plan will only come in the form of public funds to the amount of six billion euros. Guarantees provided by the Commission will amount to 15 billions and loans from the European Bank to 63 billions. For the most part, financing will come from the private sector.

4 Conclusion

What consequences do these evolutions have on the economic model of PPPs? Theoretical debates about PPPs have often revolved around the **two issues** of their **intrinsic efficiency** (Bennett & Iossa, 2006) and of their **possible budgetary opportunism** (Maskin & Tirole, 2008). To put it briefly, **a PPP can only satisfy the value for money criterion**, namely, creating value for a public investor, **if and only if the gains derived from its incentive nature exceed the additional cost of private financing**. Optimal risk allocation results from a balance between transfers of risks to the contractor and risk premiums required by financial resource providers. In the favorable financial context in which PPPs initially developed, it was possible to transfer a significant amount of risks to the contractors without it resulting in exorbitant financial costs. With the crisis, the financial cost of PPPs increased substantially and structurally. Now, either the SPV raises a debt strained by higher rates or it increases the share of equity. In both cases, the weighted average cost of invested capital increases, at the risk of jeopardizing the viability of the partnership arrangement.

All solutions implemented in European countries involved a re-internalization of part of the risks by the public authority. Such re-internalization can be achieved using contractual clauses themselves (risk allocation between the parties, sharing or capping measures for the risks assumed by the private sector) or participation or financial guarantees mechanisms aiming to reduce the risks borne by external resource providers.

From a certain point of view, this re-internalization process, especially in the form of debt service guarantee clauses, exposes the public sector to additional budgetary risks. These risks are all the more unwise as they are contingent commitments imperfectly transcribed into public accounts. Such risks could contribute to an increase in the markets' mistrust as regards the public authority's solvency. From a different point of view, one may also consider that the financial context of 2001–2008 constituted a highly specific parenthesis and that current arrangements

rest upon bases that are far more reasonable in terms of the decision to use a PPP and above all in terms of risk allocation (Marty & Voisin, 2006).

It is therefore possible to give a different reading of these ongoing evolutions. Admittedly, the public guarantees thus provided represent budgetary risks, but they are increasingly well recognized in public accounts (the new standards established by the *International Public Standard Accounting Board on Service Concession Arrangements* and the procedures of provisions for liabilities associated with the guarantees included in the Chilean finance acts both pertain to this logic). Then, risk re-internalization is also achieved through the close monitoring of markets. Indeed, as debt issued as part of PPPs is more or less guaranteed by the public authority, the financial rating of the debt raised by the SPV depends on that of its public counterpart... Consequently, the public authority is given incentives to ensure that the risks taken are reasonable compared to its own budgetary situation, and so, simultaneously, to guarantee risk allocation in the contract itself. In addition, public-private cofinancing schemes are legitimate for large-scale infrastructure projects characterized by a social return that is higher than the one an economic operator can capture. In this respect, purely private financing schemes may prove to be illusory and a stronger public involvement may be viewed as a return to normal financing conditions in the presence of externalities. However, the question of the appropriateness of resorting to private financing could be raised again when long-term public rates are extremely low in real terms and profits derived from a global contract including financing are challenged. Defending the option of a purely public financing of PPP contracts would mean forgetting the incentive gains associated with the involvement of external financiers whose interests are aligned with those of the public entity and who are capable of reducing the informational advantage enjoyed by the administration's contractor (Marty & Voisin, 2008). Thus, as highlighted by Iossa and Martimort (2015): "*Bundling private finance and operation is optimal when outside financiers have access to some informative signal on the operator's effort level. The power of incentives unambiguously raises and aggregate welfare improves with respect to public finance.*"

The impacts of the crisis on the financing conditions of PPPs thus have ambivalent effects. They favor realism in risk allocation and project design. They emphasize the interest of avoiding negotiation phases that are too long (to avoid negative evolutions in financial markets) and highlight the necessity to provide for renegotiation phases so as to allow for the evolution of a contract's financial arrangements.

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