DEVELOP THE FINANCING OF PUBLIC-PRIVATE PARTNERSHIP (PPP) PROJECTS

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ABSTRACT

Public private partnerships (PPPs) are procurement models used in the provision of public infrastructures and involving private, as opposed to public, finance. The PPP model differs from the traditional public procurement model in this sense and in the unprecedented degree to which the private sector is involved. All things being equal, the rationale for choosing a PPP instead of a traditional public procurement model is if it provides a better Value for Money. As a result, a crucial issue to address is to find the key drivers of Value for Money in PPP projects and most importantly, to analyze the relationships between those key drivers and the complex notion of Value for Money.This study is based on a large overview of the literature together with contributions of informal interviews and my own opinions. Emphasis is put on the importance of risk management from financiers' perspective and its consequences on Value for Money. The findings highlight the current problems in the Value for Money assessment that make the analysis hardly reliable. Good and bad practices in Value for Money assessment are discussed and potential solutions and guidance toward more Value for Money are provided.

Keywords: *Public private partnerships, public, finance, Value for Money*

INTRODUCTION

Financing of ppps: risks and strategies

My first idea was to focus on the construction risk since it is the risk I have more familiarity with due to previous internships in building companies. Then I acquired more knowledge and I understood that the notion of risk in PPP projects was much more complex than I thought and could not be limited to "construction risks" only. After having carefully read and studied articles and reports from the financier's perspective but also from non-financial perspectives, it turned out that financial-related risk was a risk to consider carefully because of its central importance and its interdependencies with some other important risks.

According to Kurniawan *et al.* (2010), a sound financial evaluation is of great importance in large infrastructure projects like PPPs where strong financial support is needed. Moreover, even construction risks are assessed by financial institutions like Moody's or Standard and Poor's. Their role is to evaluate different

construction risks in financial terms so that financial stakeholders in the project can have a wider picture of risk management. The methods of financial risk analysis and strategies are normally applied before launching the tender, according to the European PPP Expertise Center (EPEC, 2011). My study deals with this phase as well.

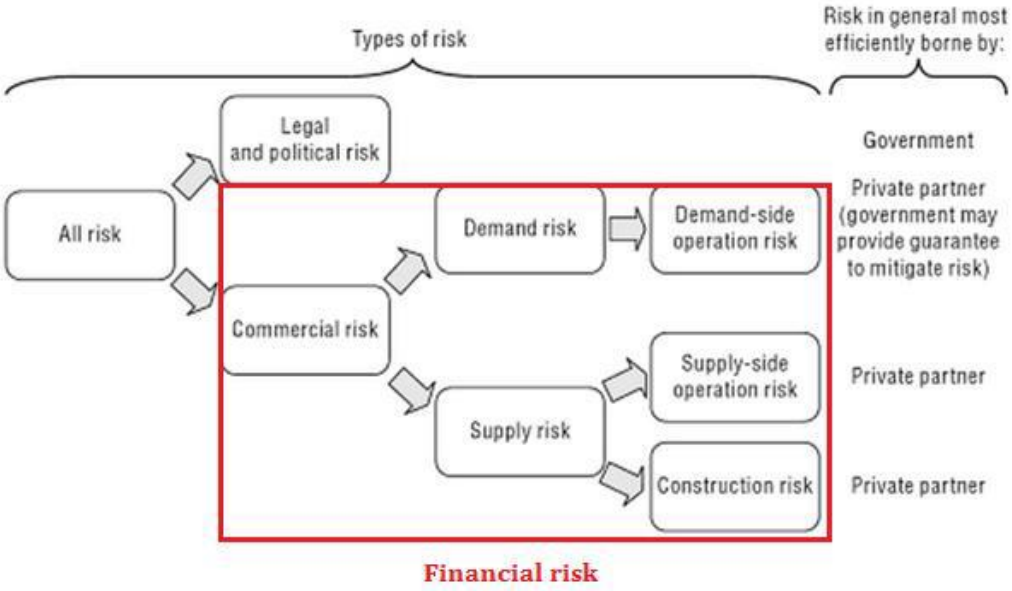


Figure 1. *Risk classification and interdependencies with financial risks*

If we look at the figure 6.1, we can notice that "Legal and political risks" are much harder, if not impossible to assess and quantify correctly compared to "Commercial risks". Within "Demand risk" and "Supply risk" categories I explain to what extent financial-related risks are ubiquitous and how they are assessed. The significance of financial aspects explains why I have chosen them as common determinant. Moreover, financial risk is the only risk perceived as a major risk during both preparation phase, tendering phase, construction and operation, whereas other risks like operation risks are only present during a specific phase17 (Demirag *et al.*, 2011). Even if "Legal and political risks" are out of the scope of this paper, they have a strong influence on financial-related risks: a report from the EPEC (2011) states that a lack of confidence in the stability of the regulatory framework represents a considerable risk for investors.

Finance-based approach - that tends to use private financing to satisfy the infrastructure needs. It relies on user fees and project demand to fund projects.

Service-based approach. - Under this approach the objective is to use the skills, innovations and management of the private sector in service delivery

Project finance is a method of financing where the lender accepts future revenues from a project as a guarantee on a loan, the repayment of debt is not based on the assets reflected on the sponsoring company's balance sheet, but on the revenues that the project will generate once it is completed. The sponsoring company must consider several factors when determining whether to use a corporate or project finance structure. Such considerations include the amount of capital needed, the risks involved (political risks, currency risks, access to

materials, environmental risks, etc.) and the identity of the participants (whether a government, multilateral institution, regional bank, bilateral institution, etc. will be involved). As the graph below demonstrates, corporate finance most often involves private investors who provide financing in return for ownership (equity) in a project company, however, is mostly on loans to the project company, with project revenues as the source of the return on the investment to lenders. Project finance greatly minimizes risk to the sponsoring company, as compared to traditional corporate finance, because the lender relies only on the project revenue to repay the loan and cannot pursue the sponsoring company's assets in the case of a default.

Value for Money is a critical issue in PPP projects. According to Grimsey and Lewis (2005), the most "critical accounting question" from the public sector's point of view is if the project represents a good Value for Money. For instance, it is more importantly considered than the fact that PPPs arrangements can be *on* or *off-balance* sheet and it should be more importantly considered than the question of affordability and bankability10 (EPEC, 2011).

First of all, a definition of the terms is necessary. As for the example of PPP, there are several definitions of Value for Money. The European Investment Bank describes it as a measure of the economic efficiency of a project (Thomson and Goodwin, 2005). But this definition can be more detailed since "economic efficiency" can be vague and lead to misinterpretation. Value for Money can also be defined as "the optimum combination of whole life cost and quality (or fitness for purpose) to meet the user's requirement" (Office of Government Commerce quoted in Grimsey and Lewis, 2005).

Before considering the determinants and evaluation process of Value for Money, one can notice that value (and to a greater extent "Value for Money") can be divided in two components: objective and subjective (Kelly *et al.*, 2004). The "objective" value refers to all economic aspects and it is possible to quantify it accurately in theory11 by knowing the price and costs of every step –feasibility studies, procurement, construction phase, operational phase–. The "subjective" value refers to social benefits and satisfaction. The concept of sustainability can be considered in this "subjective" value if we consider the social and ecological aspects. This "subjective" value is difficult to define because it depends on individual perceptions so it seems even more difficult to measure and quantify.

More specifically in the construction industry, the value achieved through the project is measured by the ratio of benefits delivered (from the owner's perspective) – to the resources used for the whole project (Dallas, 2006). It gives:

Value = Benefits Delivered / Resources Used

The term "Resources Used" can always be converted in money, whether it deals with raw material resources, technical resources or human resources. Therefore, this value ratio is often named as Value for Money. However, it is arguable that the term "Benefits Delivered" can be easily assessed since it consists of both objective and subjective components.

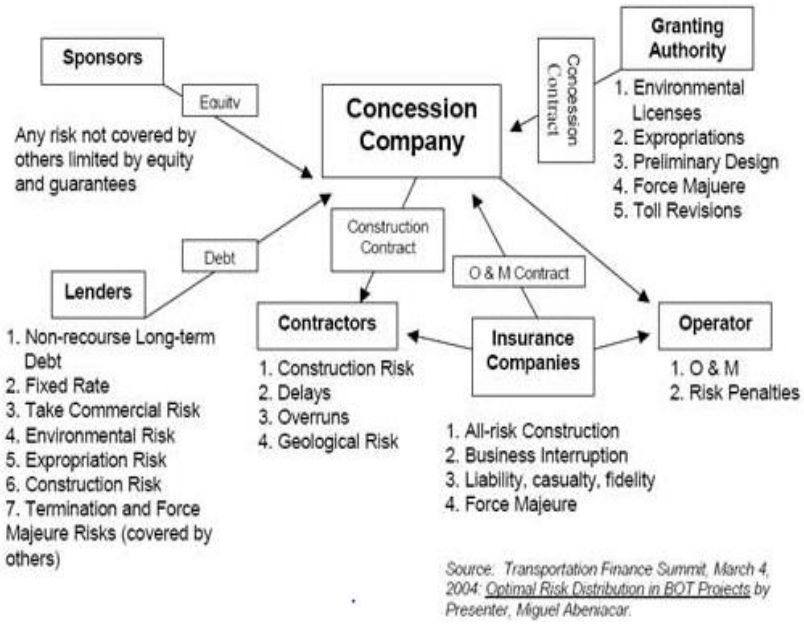
According to Atkin and Brooks (2009), Value for Money expresses "satisfaction with the cost of a good or service of given quality". Many organizations or clients whose aim is to improve Value for Money might adopt a

too narrow method. Theyare only focused on reducing the cost of a given service without trying to improve the quality or the economy, efficiency and effectiveness with which it is delivered. By having both cost and quality objectives and assessment program, clients are likely to improve their Value for Money compared with a cost reduction only. Normally best value is believed to be achieved when accepting "the lowest tender price in a competition where all other criteria (quality, performance, terms and conditions) are equal" (Atkin and Brooks, 2009).

The UK HM Treasury (2008) defines Value for Money as, "securing the best mix of quality and effectiveness for the least outlay over the period of use of the goods or services bought. It is not about minimising upfront prices..." This is true in a perfect world without moral hazard and adverse selection, both forming the so-called principal-agent problem. In reality and especially in difficult economic conjuncture, minimizing upfront price along with other initial costs is often prioritized over other criteria like quality and performance. This also implies a real competition between the bidders, which is not always possible when there is just one qualified bidder for complex projects like PPP. These limitations will be discussed later but it is important to keep them in mind.

For future discussions on Value for Money, I use indicators of economy and efficiency (that both form the "objective" value) on the one hand, and effectiveness and other sustainability indicators on the other hand (that both form the "subjective" value).

Project finance has many participants who participate at different stages of a project's development and operation. Because of the complex structure of project finance, not all projects follow the same structure and not all of the participants described below partake in all projects. Since the goal of project finance is to build large infrastructure projects by allocating risks to the party ablest to bear it, the following participants are usually involved in a project financed under a project finance model: The diagram below illustrates the relationship between the main parties in a project financing and the agreements that govern their relationships. The private party may be compensated from the public authority's budget or through charges or fees collected from users of the facility or a combination of the above.



The sponsor company, the special purpose vehicle, the host government,

financial institutions (multilateral, regional development banks, bilateral, and commercial banks), contractors, and infrastructure operators and off-take purchasers.

Determinants of Value for Money

Determining the value drivers or determinants of Value for Money regarding PPP projects is not an easy task because as underlined by Grimsey and Lewis, those considerations are usually made on a case-by-case basis. Nonetheless six main determinants of Value for Money can be highlighted (Anderson, 2000 quoted in Grimsey and Lewis, 2005)

- risk transfer
- the long term nature of contracts (including life-cycle costing)
- output specification
- competition
- performance measurement and incentives
- private sector management skills

Among those six factors, risk transfer and competition are seen to be the most important (Grimsey and Lewis, 2005, Gao and Handley-Schachler, 2003). My personal opinion is that those two determinants are specific to PPPs, whereas the others are present in most of the construction projects, whether it is a PPP or not. Those two pre-conditions for Value for Money are usually examined on case-by-case basis since risk allocation differs depending on each project's risk profile, while the competition for bids depends on project types and market & economic conditions. Typically, there is less competition in very complex and risky projects involving big initial investment when economic conditions are adverse.

To keep only one main determinant, I chose to deal with the notion of risk. Indeed, in some cases competition can be linked to the notion of risks. For instance, a poor competition is often due to complex projects that create high construction risks turning to high financial risks from the lender's and sponsor's viewpoints. This prevents companies from tendering (a very expensive process in PPP projects) and lowers the competition. Moreover, the Organisation for Economic Co-operation and Development (OECD, 2008) stated that achieving Value for Money was dependant on the "ability of the public and private actors to identify, analyse and allocate risks appropriately [...] the failure to do so translates into financial costs"

To conclude this part, it appears to me that for a one parameter analysis of Value for Money in PPP project, the risk is the variable to consider. It is crucial to find common determinants and interconnections in order to simplify the analysis. Even with this simplification, the analysis remains multifaceted since there are different types of risks involving different processes of risk allocation in order to achieve the optimal Value for Money. Besides some authors emphasize that risks are multi-dimensional, and can combine and interact to create instability so that projects become "ungovernable" (Grimsey and Lewis, 2004). Section 5 and 6 will deal with the concept of risk in greater details.

Evaluation process of the economical aspects of Value for Money

In this section I explain the basic evaluation process of the economical aspects of Value for Money in order to understand that the concept of risk is at the center of this process. This is to justify that I focus on the risk analysis only in section 5 and 6. The evaluation processes of efficiency are related to contract management and the evaluation processes of effectiveness are highly subjective; they are not presented in this section.

For a PPP project to be considered successful, literature suggests that it should provide more Value for Money than if it was procured using traditional procurement, using the same amount of money the public sector would spend for a similar project. This definition can be ambiguous since the "amount of money" spent by the public sector over a 20 or 30-year period (including construction, operation and maintenance costs) on a specific project is hard to compare with PPP projects that are still in the beginning of their operation phase, in other words whose payments to the private sector are not ended yet.

There are at least two basic factors showing the difficulty to prove rigorously that Value for Money is achieved when using the PPP route. First, PPP projects are anchored in a long-time perspective and only a few have reached the end of contract. Second, the lack of systematic evaluations with standard methodology and feedback on ongoing PPP projects makes it difficult to judge if Value for Money assessment is suitable. As I will present them in section 6, most of the analytic tools and studies are focused on cost and risk analysis depending on quantifiable and (partly) objective variables. It seems even more complicated to assess the "subjective" component of Value for Money and only a few authors challenged this task12. I am aware of those limitations; moreover, I will deal with only a small part of the objective and quantifiable variable of Value for Money by focusing on risk analysis and strategies only.

Characteristics of Project Finance

The establishment of a special project company and the predictability of the future cash flows are the most prominent characteristics of a project financing. But there are a number of other characteristics as well:

- Cession to the Lenders of the Borrower's rights to project assets, (including shares, physical assets, material contracts, funds on account).
- Involvement of "deep-pocket partners" with vested interest in the success of the project, e.g. government, sponsors, contractors, insurers, suppliers, off-takers, etc
- Step-in rights, with tighter covenants to trigger renegotiations before significant credit deterioration.
- Sponsors are often counterparties, e.g. off-takers, giving them a vested interest in the success of the project.
- Restrictions on facility drawdowns, use of proceeds, and mandatory prepayments in favour of the lenders.
- Contract structure apportions risk amongst the parties.
- Contractual obligations, penalties, and remedies influence the activities of the sponsors in favour of the lenders.

- Offshore and debt service accounts to mitigate cash flow volatility.
- Commercial value of project can survive the demise of a sponsor, supplier, contractor, etc.
- Syndication of loans appeal to a broad retail market, limits aggressive loans, and all lenders benefit from recovery process.

Types of funding

The funding of a project company consists of 2 main categories, i.e. equity funding and debt funding.

- Equity - the funds contributed by the sponsors and other shareholders. It represents the risk capital of the project and gives the shareholders of the project company ownership rights including the right to returns subject to the performance of the project and after the debt funders have been paid.
- Senior debt – Debt (loans) that rank ahead of any other finance in the event of repayment, security or action, i.e. for the lower risk that it takes it earns a lower rate of interest.

Bonds are normally interest only loans in the sense that they pay interest (coupon) during the term of the loan and principal at the end of the loan period (at maturity). CPI-linked bonds were used in toll road financings in South Africa. The capital and/or interest payments on these bonds are linked to an inflation index, e.g. CPI.

Sources of funding

There must be synergy between the objective of the funding source and the attributes of the financial instrument, e.g. an institution requiring high returns in exchange for risk will invest in equity and an institution requiring certainty of repayment at low risk will invest in debt.

- Equity – Investors in equity look to the returns of the project and are prepared to accept the risk if the upside potential is attractive. Exit strategies are important considerations for these investors.
- Sponsors.
- Equity funds.
- Institutional investors.

• Debt – The bulk of a project's financing consists of debt. Debt holders are interested in the cash flow of the project to ensure that debt service - payment of principal and interest - takes place.

- Banks
- Development Finance Institutions
- Capital markets for bonds
- Export Credit Agencies (ECA) can be a source of funding for a project where the applicable country's products and services are inputs to the project. It often comes with political risk insurance.

Cash Flows

Underlying a project financing is the aim to maximize the certainty of cash flows.

a. Revenues
   In a market where both these items are subject to the moods of market demand, market research studies become essential in an attempt to forecast future revenues. Where the sale of the product or service is subject to an off-take agreement, e.g. electricity sold in a Power Purchase Agreement (PPA) between an Independent Power Producer (IPP) and a Gov., the revenues are far more certain and probably only subject to off-taker credit risk.
b. Interest rates
   Due to the fact that debt is the major portion of a project financing, interest becomes a significant expense and instruments that ensure certainty of interest rates, will, at least for banks, serve as mitigation. In general terms a swap is a contractual agreement to exchange a stream of periodic cash flows between two counterparties. Interest rate risk can be hedged by entering into a swap with counterparty.
c. Inflation rates
   An estimate of the future inflation rates will provide an indication of the expected nominal and real returns of the project. Cash flow certainty can however only be achieved if cost increases are passed onto the purchaser through price increases in the product. By tying this up in a pass-through contract, the risk of price escalation will be mitigated.
d. Exchange rates
   The availability of foreign exchange is subject to supply and demand of that currency. The exchange rates will be influenced by factors such as inflation rate- and interest rate differentials between the domestic and foreign currency and the purchasing power of the currency. It is sensible to ensure that the currency of the financing and the currency of the revenue coincide. If this is not possible a currency swap can be enteredinto which is similar to an interest rate swap except that there is also an exchange of principal involved.
e. Using stochastic methods to forecast
   Notwithstanding the aim to maximize certainty of cash flows, especially for a banker, this seldomly happens. Bankers are inclined to develop best case, base case and worst case scenarios on which decisions regarding finance are based. This methodology does however not assign probabilities of occurrence of the particular scenario. There is a case to be made for utilising Monte Carlo simulation analysis to allow for uncertainties of critical input variables to determine the probability of occurrence of essential output variables.
f. Financial modeling
   The most important decision making instrument in the financing of a project is its financial model. The model ties up the revenue model, capital

structure, and other inputs to provide projected multi-year financials, e.g. income statement, balance sheet and cash flow statement with appropriate ratios, IRRs, etc. The model can also be programmed to do scenario testing, sensitivity analysis and stochastic analyses.

Interdependence between Value for Money and Risk Management

According to Grimsey and Lewis (2004), PPP cash flow models are highly dependent on risk and uncertainty and most of all, these are dependent on the way risk and uncertainty are assessed. There is still no consensus on the correct approach but this interdependence between PPP cash flow modeling (and consequently Value for Money) and risk assessment is clear. It brings us to the concept of risk management and especially risk assessment, in order to discuss the good and bad practices that lead to more or less Value for Money than in traditional procurement.

The difficulties in the assessment of Value for Money are well captured by English *et al.* (2010) who argue that judging performance regarding economy and efficiency is hard because of the poor specifications of performance measurements at both practical and theoretical levels. It is even harder with the effectiveness issues.

CONCLUSIONS

Evaluation of the Economy is made with the Public Sector Comparator, in order to assess the cheapest solution comparing a PPP and a traditional procurement given the same quality standards. Financial risk assessments and risk allocation processes are led by financiers and they have a significant influence on the Economy. To prevent the private sector from bad practices that lead to higher costs for the public sector, a stronger regulatory context is needed together with better financial audit institutions and processes.

The Efficiency is dependent on the private sector abilities as well as the way contracts are managed. Better Efficiency could be achieved if contract incompleteness is reduced and if there is more transparency so that uncertainties are not buried in complex contractual terms. With a standardization of contracts, Efficiency could be increased but on the other hand it would reduce flexibility whereas flexibility is required so that future clauses in the contracts can integrate the changing goals of sustainability. The right balance between standardization and flexibility still needs to be found, probably modeled on practical rather than theoretical studies.

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