Financial Analysis

For PPP projects, financial analysis forms a key element of the due diligence to be undertaken. Both the private sector and contracting authority need to know the project's projected financial performance and for the public sector this is provided by the Stage 2 financial analysis. The analysis will also indicate whether the project needs fiscal support and/or guarantees from Government.

Clearly, the assumptions used by the public and private parties may not/will not be the same. This would account for the differences in the results from financial analysis. Very likely these differences will be a basis for negotiation at a later stage.

Two commercial issues are relevant to this section, and comprise tariffs and fiscal support. These are discussed below.

Financial analysis uses costs and revenues and is focused on assessing the project from an investment viewpoint, usually from the point of view of the private sector or a corporation (Sometimes referred to as a Special Purpose Vehicle or Company (SPV or SPC)), specially created for the execution of the project.

The financial analysis is based on the standard methodology used by the private sector, and by the public sector for private sector oriented projects, in the analysis of project feasibility. The financial analysis uses debt service, the commercial weighted cost of capital, the return on equity and is expressed in current terms (i.e. with inflation/ escalation). It therefore differs from the standard financial analysis used by donor agencies and public sector.

It should be assumed, at least initially, that PPP projects will either not need any financial support from the government, or if needed, such support will be targeted and minimized.

Based on its assumptions, the financial analysis is able to show:
- If the project is financially viable (or bankable may be a better word, since a bankable project will always be financially viable, but a financially viable project may or may not be bankable) and and sets out the financial performance, including direct financial risk, of the project over its life. It should be noted that all risks have a financial dimension. Direct here is used in the sense of sensitivity of the project's financial performance to the variables used in the model e.g. toll rates, demand, costs, debt service etc.;
- What would be needed to make the project viable (bankable or acceptable to the private sector) if it turns out to be only marginally viable; and
- The clear identification, approximate costing and timing of any proposed project support measures, and through which financial instruments this support may be provided, minimized and scheduled.

Module 5

Financial Model Inputs

In order to assess a project in financial terms, it is necessary to develop a financial model. This is provided in the Toolkit (Module 6 -> Financial Models). By necessity, this is usually more complicated than the economic analysis in that in particular (i) revenue streams and (ii) debt servicing need to be detailed and projected based on a number of scenarios and assumptions. However, economic analysis of large multi facetted development projects can be equally complex.

The following are the key factors needed to be input to a financial model:

- Financial Project Costs (construction, land, engineering, surveys etc.) and by the year incurred
- Demand (traffic by type)
- First Year Tariffs (by type) and Tariff Escalation Formula(s)
- Annual Operating and Maintenance Costs (base year estimate plus an inflation related increase or can be related pro rata to the inflation related revenue)
- Types of Equity
- Debt to Equity Ratio (usually varies between 80:20 and 60:40, commonly 70:30)
- Debt service arrangements and costs (types of debt and interest rates, grace and repayment periods)
- Weighted average (opportunity) cost of capital
- Tax rates (national corporate rates)
- Depreciation basis allowed (national regulations)

The financial model structure, and these types of inputs, will be largely similar for all PPP projects. Road projects have much simpler traffic groups than say airports or ports where there are many more revenue streams.

Costs can be calculated by building up direct, indirect and overhead costs based on historic data or more usually as a percentage of project costs or as a percent of revenue. It should be noted that historic/actual data is paradoxically usually quite unreliable and the percentage (rule of thumb) basis at least as good and much easier to generate at this stage.

All projects suffer from forecasting difficulties and this should be borne in mind at both the modeling stage and risk assessment stage where inaccuracies in demand forecasts may substantially outweigh uncertainties in other model inputs/assumptions.

Project costs will be initially in base year values (i.e. when the analysis is undertaken) but price contingency will be added for each construction year and revenue and costs inflated by an appropriate index.

The Request for Proposals (RFP) should include the proposed index, or the proposed tariff escalation rates, which will be allowed under the contract. Tariff escalation should be a criterion in bidder procurement allowing bidders to compete on initial as well as future tariffs.

Financial Model Outputs

The model then outputs the Profit and Loss statement and the Cash Flow statement providing estimates of the key data for each project year. (Other supplementary accounting outputs are usually needed later, such as balance sheets).

These statements show:

- The overall **project cash flow**.
- The **cash flow available** to the equity participants (investors).
- **Profitability/Viability**: The Financial Internal Rate of Return/Return on Equity (project FIRR/or ROE). This is based on the same mathematical process as the EIRR but instead uses financial costs and revenues over the project life. Further, it does not use incremental costs and benefits but actual costs and actual revenues.
- **Cost recovery**; the number of years to pay back the equity investment (the norm is 5-7 years for commercial projects but infrastructure projects may only generate payback over 10-15 years or more).
- **Debt Service Cover Ratio** (the projected cash flow must, at a minimum, be adequate to finance the projected debt service. (The usual requirement is that the net cash flow each year must be at least 1.2 times (depends on the risk profile) the debt payment due in that year)
- **The estimated FNPV**. (It may be useful to distinguish the NPV from the SCBA and financial analysis by using ENPV and FNPV).
- **Quantitative risk analysis** are also increasingly standard model outputs.
- Together, these make up most of the quantitative basis of bankability, although other aspects can also be important such as non-quantified risk.

Financial Model Assessments

Models can be used to assess the:

- Length of contract needed to generate an acceptable return on equity.
- The financial impact of different types of debt and equity and thus the optimum debt equity ratio.
- Losses in early years (if applicable) that need to be met by the PPP concessionaire (and/or by fiscal support/guarantees).
- Fiscal support that may be needed (and as input to the projection of the cost of guarantees)
- The financial impact and the subsequent optimum timing of the 'claw back' of subsidies (fiscal support).
- Corporate Tax revenue to government (when profits are made).
- Impact of changing key variables such as tariff, projects costs etc.
- Government returns if an equity participant (and if on different terms to the private sector e.g. secondary equity).

Hence key parameters are input to the model which then produces the financial estimates from which decisions on the PPP project can be made.

Generally, if a project is financially viable, it is usually economically viable. However, an economically viable project may or may not be financially viable as the revenue may not be adequate (Traffic or Tariff or both). For example, road projects generate high economic benefits but tariffs are set to be 'socially/politically' responsive.

Tariff Escalation

Tariffs and tariff escalation are normally determined to ensure a proper rate of return based on an efficient operation. However, a subsidy may be specifically allowed by the regulations and procedures with such funding being paid by the Government to the PPP concessionaire based on a lower toll rate related to estimates of the users' Ability to Pay concept.

The concept of an agreed financial return incorporates several important subordinate principles;

- The need for full cost recovery (capital, operating and financing costs) if at all possible i.e. the user pays.
- The application of non-uniform tariffs (tariffs determined by project not sector).
- The proposed tariff escalation also to be project based and written into the concession agreement.
- The tariff and/or subsidy, if necessary, should be determined through competitive bidding to ensure the best deal for the user/the lowest liability for Government.

What constitutes a proper or acceptable rate of return on equity (ROE) is not specified but might be around 18%-20% or more but would vary on a case by case and country by country basis. The macro economic situation including inflation and returns available in other sectors (opportunity costs) should also be included in the assessment of a fair return.

Risks and target profit levels are directly related in that generally the lower the risk, the lower is the private sector's target return on a project. Therefore, in assessing a 'fair' return to the private sector, it is critical that Government must understand this risk/ profit relationship in general and also specifically related to the subject project.

The more the risks of a project can be allocated to the best party able to bear and mitigate them, the lower the private sector's demands for a specific return will be (More accurately, the lower the private sector's demand for risk premiums, over and above a risk-free return will be) and the cheaper the cost of the services provided under the project will be.

The role of government is to negotiate a contract that neither provides for (i) more or (ii) less than around the approximate hurdle rate of return for the specific project in question. The former would mean too high a cost would be borne by the users and the latter means the project will probably not be implemented.

Therefore, Government should be clear that in trying to avoid what may be regarded as 'excessive' returns, it is not itself taking on unreasonable and/or excessive contingent liabilities and risks, nor negating legitimate commercial interest in the project.

Government must therefore be sufficiently flexible and agree to higher returns if project or other relevant circumstances demand.

This balance should be appreciated, by Government, as being a difficult and somewhat delicate issue on which adequate consideration (including consultation) should be included within the pre-or full FS study.

Financial Analysis and Concession Agreements

The Concession Agreement is a detailed contract between the parties that describes the project in technical and financial terms including risk management. Many projects suffer from vague contracts but a contract that may runs for up to 30 years or more has to anticipate all types of eventualities, at least, in broad terms to cover all wider, general and potential problems.

The financial analysis allows the Government to draft the financial aspects of the concession agreement with confidence for inclusion in the RFP. The pre- or full feasibility study contains the SCBA, the above financial analysis as well as other information which provides the key bases for negotiation on an equal playing field (which implies that all parties will have all of the appropriate information and no party will be disadvantaged by insufficient information at the time of negotiations) with the preferred bidder.

The financial analysis and model can also be used later to model the tenders received to assess the financial bids of tenderers for accuracy and realism.

One example is indicative of the difficult issues that often arise in dealing with the outputs of a financial analysis. Based on a 25-year concession, the Return on Equity (ROE) is about 18%. If this was assumed to be without major risks, that should be sufficient to get the private sector interested although they would prefer a return of the order of at least 20 %.

However, the model could show that other financial indicators are weak with a payback of 10 years and the debt service cover ratio (DSCR) does not become acceptable until between years 5 and 6 of operation. As the DSCR indicates, the cash flow is weak in the early years and the first three years show a negative cash flow.

A PPP project based on the above assumptions would be termed risky (or not bankable) in financial terms by the private sector even though Government might consider the FIRR/ROE was adequate. The sensitivity and risk analysis would show that should construction costs rise beyond that expected or if demand was lower than forecast, the financial returns would be less than 18%. In these circumstances, the key to financing infrastructure will be credit enhancement.

Credit Enhancement

The term "credit enhancement" is defined as taking those measures to improve the risk and return profile of a project (which is economically viable) to attract financing so that it will proceed to 'financial closure'.

The term "credit enhancement" may cover a variety of meanings. In principle, anything that improves a project's "bankability", may be considered credit enhancement. In broad terms, this may include (i) a sound, credible, transparent cooperation program and (ii) project identification and structuring which understands and addresses the concerns of the private sector.

It may include the following three types of measures;

- **Typical project finance techniques**. These include measures (such as escrow accounts, mezzanine financing, and securitization) which seek to minimize the typical types of risk found in any cooperation project. They include the measures agreed to by the sponsors and developers (the equity participants) and the debt participants, and usually do not directly involve the host government. It is important, however, for the contracting authority and other agencies of government that are involved, to be aware of and conversant with these techniques as a part of their oversight and due diligence responsibilities in procuring and monitoring the desired infrastructure services.

- **Government support**. This includes a range of policies and measures (such as off-take agreements, revenue guarantees, tax holidays) that the government can provide to reduce the levels of risk, and improve the finances of the project, or both, as perceived and analyzed by the PPP concessionaire, and especially the lenders.

- **IFI (and Donor) support**. This includes a range of instruments that IFIs and donor agencies, such as USAID/DCA, the IFC, the ADB, OPIC, EXIM banks and other bilateral and multilateral donors can provide to assist a country to develop its cooperation program and bring projects to financial closure and implementation. These typically come into force when the overall country risk is perceived to be high (thus making purely commercial financing difficult) even though individual projects may have sound financial and economic dynamics and deserve to be implemented as cooperation projects.

Therefore if a project has characteristics which indicate weak or marginal financial feasibility and/or higher than acceptable risks, the following steps would be considered by the private sector, each with different implications for the Government, such as;

- **Project Costs**: review/reduce costs, rephase/defer some costs
- **Tariff**: increase proposed tariff and/or agree higher or more rapid escalation rates
- **Funding/ debt service improvements** including seeking to reduce interest rates or increase loan tenor (repayment period) terms (possibly in conjunction with item 2 following)
- Seek to **reduce annual costs**
- Consider if donor support might enhance bankability partly through iii above and consider providing some kind of fiscal support

Guidelines on government guarantees are presented in the following section.

A typical layout of a financial model and financial template for a PPP highway project are shown in the Module 6 -> Financial Models.

Evaluating Government Financial Support

Government financial support is discussed in detail in Module 3-Financial Framework.

The challenge at this stage is that once it is established that a project needs support, to evaluate and value the different types of support. Assuming that all the types of support achieve the objective required, the aim is to select that support which ensures value for money and is in line with the Government's fiscal framework.

The types of support and the methods to determine costs of each type are shown in table below.

INSTRUMENTS OF FINANCIAL SUPPORT AND THEIR VALUATION		
Instrument	**Valuation**	**Comment**
1. Output Based Subsidies	Value of the Explicit Subsidy Discounted over the Period	Easy to estimate in early years but progressively more difficult over time. For short-term use standard forecasting techniques. For longer term use PV of expected expenditure. While there are difficulties, problems in estimating relatively small.
2. In Kind Grants	Opportunity Cost or 'At Cost'	Generally the 'easiest' to calculate. For example, land costs based on market value although other costs may be somewhat more difficult to value.
3. Tax Breaks	Opportunity Cost or Net Loss in Tax Revenue	Given that tax is included in the financial model, it would be possible to model with and without the tax breaks, the difference then providing the value of the tax break.
4. Capital Contributions	Opportunity cost of capital	Capital contributions are classified as a subsidy or commercially focused support depending on the cost of the support.
4.1 Debt	Return elsewhere compared to the return of this project	(Value of loan contribution) = (Amount of Loan) minus (Present Value of interest and principal discounted at an agreed discount rate (possibly commercial rates)).
4.2 Equity	Return elsewhere compared to the return of this project	As with debt, but with a risk premium. The risk premium and its derivation were described in the WB report.

5. Guaranteed Risks (Not under government Control)	PV of expected payouts	Payments should be capped. Based on what is expected to be paid out 'on average'. Can also estimate payments Government is likely to make and calculate PV based on the methodology described in Section 3.8.
6. Guaranteed Risks (Under government Control)	Same as 5. in principle	Because of difficulties with such guarantees such as the failure to raise tariffs as contracted, WB advises against such valuation.

Source: Public Money for Private Infrastructure Deciding When to Offer Guarantees, Output- Based Subsidies, and Other Fiscal Support Timothy Irwin. World Bank Working Paper No. 1

Financial Rationale for the Provision of Government Fiscal Support

The evaluation of Government financial support should be considered from several viewpoints. The starting point for support assessment by Government should initially be based on the objectives of the subsidy. The Government should link the objectives with the financial performance of the project including its riskiness without any support.

If support is needed, the Government should base its support on the need to;
- Attract the private sector to participate, and on fair and equitable terms
- Minimize its risks
- Minimize its financial obligations
- Maximize certainty in providing support
- Reduce risks to the private sector in order to reduce the cost of private sector borrowing and/or to reduce the risk premium on equity
- Recoup any financial support in later years

Estimating the Expected Cost of Fiscal Support for a PPP Project

This section describes a method for estimating the expected cost to or payout by the government if it were to commit to a particular type of fiscal support.

The proposed method is appropriate for all types of fiscal support including:
- Capital grant;
- Minimum revenue or demand guarantee, including government-backed off-take or power purchase agreement;
- Full debt service guarantee;
- Revenue rights to other infrastructure facilities;
- Tax honeymoon or holiday; and
- Operating subsidy.

Module 5

The method is intended primarily for the contracting agencies, as they are the best party to take an informed view on the commercial aspects of a PPP project.

At this stage, any need for fiscal support for a PPP project needs justification by the contracting authority. An assessment of the likely cost of the various types of fiscal support that are considered appropriate would be required by;

- The PPP cell, node or PPP unit in the relevant line ministry;
- The PPP center; and
- The PPP cell, node or Risk Management Unit (RMU), at a Ministry of Finance.

The assessment would assist the line ministry to decide if it would submit the evaluated project to the central agencies. The PPP center, in turn, would then decide on the basis of the due diligence conducted by the contracting authority whether to negotiate with the RMU for fiscal support for the PPP project in question.

However, the RMU would make its own assessment of fiscal support, using possibly a similar, but more sophisticated, method. Its decision would also certainly take into consideration the government's fiscal policy and balance sheet (both present and future). The final arbiter on providing government financial support for a PPP project is usually a MOF.

The Method of Valuing the Future Cost of Fiscal Support

The method is based on a probabilistic model, specifically the expected utility model. It calculates the expected cost of a particular type of fiscal contingent support in present day (present value) terms. In order to simplify the analysis, it is assumed that the opportunity cost of a monetary unit for all forms of fiscal support is the same.

This approach results in the estimated Present Value (PV) of the support options. Through estimating the future (year 1 to 'n' of the project) costs of each method of support, each type can be brought back to PVs by using the appropriate discount rate and compared.

An Excel model can be developed to apply this model. Its application requires the contracting authority to;

define the forecast volume of demand for each year (this is calculated as part of the financial analysis);

- define the period of fiscal support;
- define the outcome scenario for each year (demand is, say 50%, 75%, 85% and 100% of forecast);
- calculate the value of each outcome i.e. the amount of fiscal support; and
- define the probability for the occurrence of each outcome in the scenario.

Thus, for each year there would be a number of outcomes with a probability assigned to each outcome.

The results can be integrated into the Toolkit financial model.

Table below shows a template example of the valuation of fiscal support.

FISCAL SUPPORT VALUATION TEMPLATE							
General Assumptions					**Cost of Support (PV millions)**		
			Unit		**Both Risks**	**Demand Risk**	**Price Risk**
Project Cost		500	USD million	Model Result	123	95	28
Length of Concession		30	years				
Projected initial demand		90	units				
Demand Increase per year		0,05					
Projected initial Price	1	per unit					
Price Increase per year		7.5%					
Discount Factor		0,12					
Period of Support		10	years				
RESULT SUMMARY							
Year			1	2	3	4	5	6
Projected Revenue	USD	(a)	90	102	115	129	146	165
Expected Value of Support per year	USD	(b)	34	30	26	18	12	14
(a) - (b)			56	71	89	111	134	151
			-	-	-	-	-	-
Total Expected Value of Fiscal Support	USD	(10 Years)	199	-	-	-	-	-
			-	-	-	-	-	-
PV of Fiscal Support (Both Scenarios)	USD		123	-	-	-	-	-

Module 5

RISK#1: DEMAND SCENARIO								
		Year	**1**	**2**	**3**	**4**	**5**	**6**
Base Case		0	0	0	0.05	0.2	0.5	0.6
Shortfall 1		0.1	0	0.05	0.1	0.5	0.45	0.35
Shortfall 2		0.2	0.05	0.1	0.6	0.2	0.05	0.05
Shortfall 3		0.3	0.1	0.7	0.2	0.1	0	0
Shortfall 4		0.4	0.8	0.15	0.05	0	0	0
Shortfall 5		0.5	0.05	0	0	0	0	0
	Sum	1.5	1	1	1	1	1	1

RISK#1: PRICE SCENARIO								
		Year	**1**	**2**	**3**	**4**	**5**	**6**
Base Case		0	1	0.9	0.8	0.7	0.6	0.5
Shortfall 1		0.05	0	0.1	0.15	0.2	0.25	0.3
Shortfall 2		0.1	0	0	0.05	0.1	0.1	0.15
Shortfall 3		0.15	0	0	0	0	0.05	0.05
Shortfall 4		0.2	0	0	0	0	0	0
Shortfall 5		0.25	0	0	0	0	0	0
	Sum	0.75	1	1	1	1	1	1

Notes:

(1) Actual Model Years is 10 but simplified for presentation.

(2) Probabilities are entered manually by user.

(3) See section 3.8 for explanation on how to use

(4) Source: Draft PPP Operational Guidelines Manual, Indonesia, 2006

Criteria for Fiscal Support to PPP Projects

A number of criteria are suggested to help assess whether fiscal support should be provided to PPP projects. These include;

- The support complies with the national laws.
- The proposed project has been selected as a priority within the national planning process.
- The company requesting support has been selected/procured under a fair, transparent and competitive process with no conflicts of interest.
- The level of support meets fiscal criteria of the MOF.
- Other methods of support, policies or other measures would not yield equivalent or greater socio-economic benefits.
- The project is consistent with sector strategy.

The above criteria are a useful checklist but all of these criteria must be met.

Procurement and Negotiating Strategy and Fiscal Support

Based upon its above assessment, Government must determine its procurement and negotiating strategy with regard to fiscal support.

The feasibility study will have already indicated to Government whether support is necessary and approximately how much will be needed.

It is a vitally important principle that subsequent to the study, the government will decide for that project whether any support will be forthcoming and the preferred type or types.

It is therefore necessary that discussions will take place with the center and MOF at an early stage in the project cycle to ensure coordination and that projects have not proceeded to study stage that have little hope of support.

The RFP can either indicate a maximum level of support or indicate no figure at all, and one of the bid criterion must be the minimization of support (or no support) requested by bidders.

Fall back Strategy

Given that the actual agreed support will depend on negotiation with the private sector, the Government must have a maximum level of support that it will not go beyond. The government must therefore determine the fall back negotiation position i.e. the point at which it considers the type/costs and/or risks of support are not justified.

Summary of Policy Guidelines on Government Support

The Government requires more and better infrastructure while maintaining fiscal prudence. However, if the project is risky and/or cannot generate sufficient revenue (demand is less than projected and/or users do not pay enough) the government through taxpayers must make up the difference.

Government needs to know whether it should contribute any support and, if so, how much support should it provide and its timing.

It is clear that each project will have different characteristics and therefore support will vary.

The guidelines for support are therefore as follows:
- Assess if support is necessary through the results of the feasibility study
- Determine the objectives of the support
- Ensure the support meets the criteria for fiscal support set down by the MOF (as described above)
- Assess how to target/focus support and its timing
- Assess how to minimize support and risks
- Assess the costs and risks of the different types of support

- Assess the best support strategy from the Government's viewpoint
- Decide on the maximum support that would be justified for the project
- Agree on the Government's appropriate initial support strategy before proceeding to tender
- Confirm and/or refine the Government's support strategy in the light of project tenders
- Negotiate on the basis of the above information which can be refined during the PPP project cycle.

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