Presentation Outline

- Purpose and Definition of PSC
- Basis for comparison between Public v. Private
- Valuing risk
- Characteristics of Public Procurement
- PSC stages & principles
- Risk Matrix and risk allocation
- Discounted cash flow and discount rate
- Case Study of a typical Motorway PPP
- Overall Conclusions
Public Sector Comparator

• Purpose:
  “A Public Sector Comparator (PSC) is used by a government to make decisions by testing whether a private investment proposal offers value for money in comparison with the most efficient form of public procurement.”

• Definition:
  “The PSC estimates the hypothetical risk-adjusted cost if a project were to be financed, owned and implemented by government.”

• PSC provides a benchmark for estimating value for money from alternative bids.
Value for Money Comparison

- Expected Cost (£)
  - Risk Adjustment
  - Base Costing
  - Retained Risk

- Cost of Service Payments
  - Retained Risk

Public

Private

World Bank
Value of Risk

• Risk: “uncertainty as to the amount of benefits. This includes potential for gain and exposure to loss.”

• Two essential elements of risk:
  – it is a cost
  – it is a possibility and not a certainty, i.e. more than one outcome is possible.

• Uncertainty makes it difficult to identify and estimate the costs of risks
Public Sector Procurement

• Tends not to value risk,
  – Budgets for projects are often optimistic
  – Tendency to budget for the best possible, lowest cost and earliest completion outcome

• Estimates should be for the most likely outcome!

• Private sector generally includes risks in cost estimates.

• However, if most risks are transferred to the private sector, value for money will decline since the premium demanded will outweigh the benefit
PSC Stages

- Capital costs
- Operating costs
- Projected revenues
- Asset values
- Risk matrix
- Sensitivity analysis
- Discounted cash flow
- Comparison of alternative bids
General Principles

• Capital costs:
  – should reflect the full resource costs of the project, including opportunity cost of public assets used in the project, and adjusted for risks.

• Operating costs:
  – whole life cost of maintaining the asset to the same standard as required from the Private operator.

• Revenue streams:
  – Included only if bidders will be allowed to set tolls.
Risk Matrix & Sensitivity Analysis

• Construction of a risk matrix:
  – identification of risks involved in the project;
  – assessment of the impact of these risks;
  – assessment of the likelihood of such risks arising; and
  – the calculation of the financial impact and ranges of possible outcomes.

• Sensitivity analysis allows estimates to be made of the impacts and likelihoods of individual risks
  – Monte Carlo simulation is most often used for this;
  – The result provides the “most likely outcome”.
Discounted Cash Flow Analysis

• Selection of the Discount Rate is the most important issue:
  – Discount Rate should represent the real opportunity cost of capital, adjusted for inflation (& subsidies, if any), for public projects
  – Government issued bonds can be used as a guide.
• This is not the interest rate of private finance!
• IFI loans are generally subsidized and need to be adjusted to reflect commercial ratings
Case Study

Proposed Motorway PPP Project
Project characteristics

• Motorway project involves the design, construction, operation and maintenance of a high quality motorway

• Private sector bidders expected to:
  – undertake the detailed design and construction of the Motorway to the requirements of the Client
  – procure finance for the associated capital costs; and
  – operate and maintain the Motorway to the requirements of the Client over a concession period of 30 years
Capital cost estimates

• Construction costs characteristics:
  – Initial estimated cost by the Client = €388 million
  – estimate of the Client’s overhead costs = €49 million
  – Total capital cost to the Client = €437 million
  – Estimated construction period = 3½ years

• Past history of road construction:
  – Cost over-runs range from -11.5% to +138%, avg =+44% (adjusted for inflation over construction period)
  – Construction duration ranged from -27% to +230%, avg +84% of original estimate (but cost is included in over-runs)
  – expected value of the cost overrun is €172 million (44%),

• Risk adjusted total estimated capital cost = €609 million
O&M cost estimates

- No previous experience of public O&M costs to the specified standard
- Estimated annual costs for public O&M to the same standard ranged from €1.37 to 2.27 million, with an average of €1.45 million
- Economic and social costs of road closure for periodic maintenance assumed between 4% to 6% of total project benefits
Government payments

- Capital cost contribution to the project = €110 million
- Availability payments by the Client to Concessioners comprises fixed and indexed components in both local currency and €, with allowance for lane closures during periodic maintenance
- Weighted availability combines both local and foreign payments assuming long term currency inflation
- Total availability payments = €427 million over 30 years
# Summary of results

## 10% Discount Rate

<table>
<thead>
<tr>
<th>NPV (€ millions, discounted)</th>
<th>Public</th>
<th>Bid-1</th>
<th>Bid-2</th>
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<tbody>
<tr>
<td>Capital Costs</td>
<td>530.1</td>
<td>427.2</td>
<td>484.3</td>
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<tr>
<td>Economic &amp; Social costs of delay</td>
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<tr>
<td>Development costs</td>
<td></td>
<td>12.5</td>
<td>13.6</td>
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<tr>
<td>Administration &amp; Inspection</td>
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<td>30.4</td>
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<tr>
<td>Insurance</td>
<td>14.8</td>
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<td>15.6</td>
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<tr>
<td>Operating Costs</td>
<td>30.8</td>
<td>49.6</td>
<td>44.7</td>
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<tr>
<td>Periodic Maintenance/Rehabilitation</td>
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<td>27.6</td>
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<td>VAT</td>
<td>3.2</td>
<td>3</td>
<td>3.1</td>
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<td>Corporate Tax</td>
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<tr>
<td>Cost of Finance</td>
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<td>63.4</td>
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<tr>
<td>Total</td>
<td>669.7</td>
<td>647.3</td>
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<tr>
<td>Value-For-Money</td>
<td>22.4</td>
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<td>-34.8</td>
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</tbody>
</table>
Sensitivity analysis

Estimated Net Present Value of Total Costs

Probability Distributions

- NPV, Euro millions
- Probability

- PSC Cost
- PPP Cost
Outcome likelihood analysis

Probability Distribution of Value for Money
(-ve is not value for money)
Impact of discount rate

The value for money of the Project as a PPP depends on the discount rate used.
Key Conclusions

• The PSC is intended to provide a FAIR means of comparing PPP projects and/or competing bids against Public procurement.
• Inherent biases in public procurement (e.g. govt overheads, etc.) must be estimated and included
• Risks should be allocated and valued
• Sensitivity analysis provides an indication of the most likely outcome and not only the mean value.
• The main benefit of PPP is the value added through better construction, O&M and risk sharing.
Other risk adjustments

- Inflation
- Currency exchange between € and local currency
- VAT payment refund
- Timing of availability payments