

Universität Leipzig, Faculty of Economics and Management Science,  
Institute of Public Finance and Public Management

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Public-Private Partnership – An Appropriate Institutional Arrangement for Public Services?

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# **Rationales for the (Limited) Use of Private Finance in Public-Private Partnerships**

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# Agenda

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- 1. Fundamentals on PPPs and private financing**
- 2. Economic rationality of private financing in PPP projects**
- 3. Role of private financing with respect to the objective of cost minimization in a PPP project**
- 4. Conclusions**

# Fundamentals on PPP (Public-Private-Partnership) projects

## Conventional procurement approach

- Separate tendering of each step in the value chain (in short-term contracts) or „in-house production“ by the public sector: construction, maintenance, operation
- Life-cycle-cost-optimization in the responsibility of the public sector

## PPP approach

### Definition / Main characteristics

- Purchase of a service within a long-term contract
- Output-oriented service description: quality of service to be provided is set by public sector
- Incentives for the optimization of life-cycle-costs (see e. g. HART (2003)) if the cost-related risks are borne by the private contractor
- Rules for the valuation of the quality of infrastructure assets, which have to be transferred back to the public sector at the end of the contract duration, should be included in the initial contract
- Here: focus on PPP projects in which the remuneration of private contractor is sourced from the public budget

### Areas of application

- Sectors: especially major roads (e.g. motorways) and buildings (schools, administrative buildings)
- Countries
  - UK: up to 15% of public investments through PPP-schemes (according to UK-government)
  - Germany: about 3 % of public investments through PPP-schemes, plans to enlarge significantly

# Contractor compensation and need for private financing

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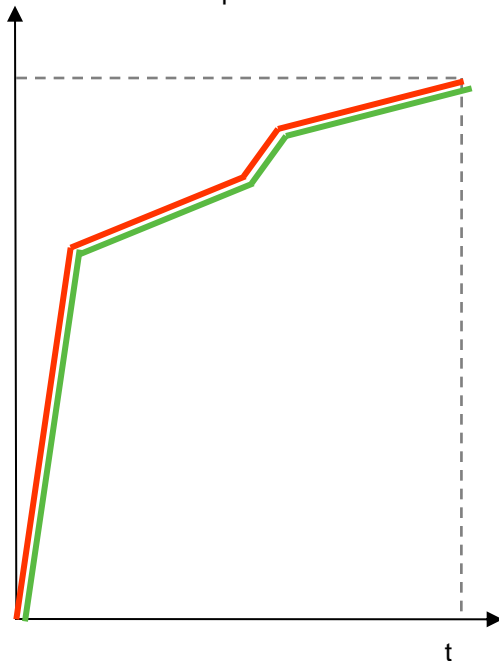
- **The need for private financing in PPPs results from the difference between the contractor's cash outflows for project implementation and cash inflows from the compensation.**
- **Outflows consist of payments for the investment required at the beginning of the project as well as the costs of operation and maintenance during the contract term.**
- **The contractor's cash inflows can be devised by the procuring authority through the design of the compensation scheme. Different compensation models are used in practice.**

# Temporal design of compensation scheme determines private financing need

## (a) PPP project with direct cost reimbursement

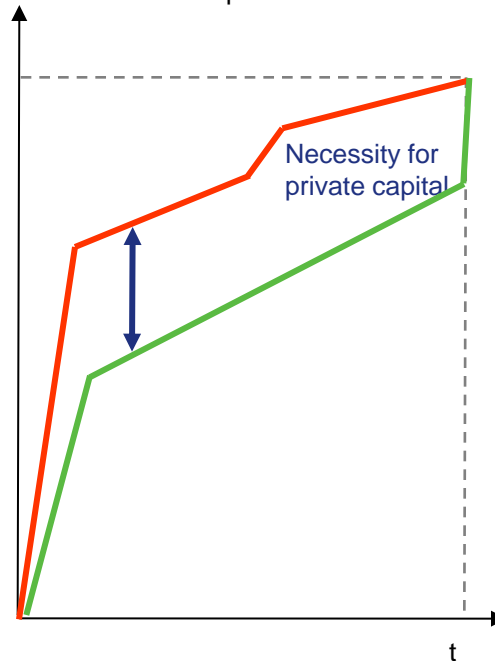
- no necessity for private capital
- analogous to conventional procurement approach

Cumulative cash inflows and outflows of the contractor for public service



## (b) Intermediate solution

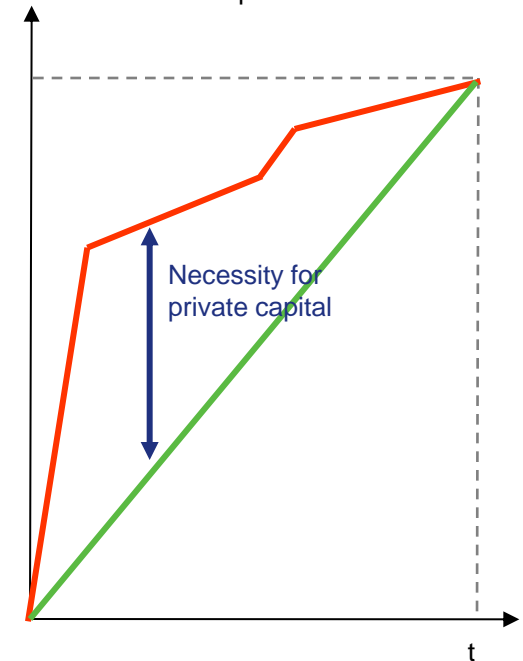
Cumulative cash inflows and outflows of the contractor for public service



## (c) PPP project with linear payments to private partner

- high necessity for private capital during project start (construction stage)
- high relevancy in praxis

Cumulative cash inflows and outflows of the contractor for public service



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# Motives for the realization of PPP projects and their economic rationality (1/2)

## 1) Cost-efficiency

- Cost-efficiency: minimization of the net present value of expenses of the public sector
- Cost-efficiency is always referred to as the main target in the realization of projects according to the PPP approach
- The economic rationality of this target is obvious
- In this presentation will henceforth be analyzed
  - the contribution of private financing to cost-efficiency in a PPP project and;
  - how the private financing is to be designed with respect to the objective of cost-efficiency

## 2) Mobilization of private funds for pre-financing infrastructure assets

# Motives for the realisation of PPP projects and their economic rationality (2/2)

## 1) Cost-efficiency

## 2) Mobilization of private funds for pre-financing infrastructure assets

### • How does it work?

- Budget rules (public debt constraints) can hamper the realization of projects according to the conventional procurement approach

Example: Public debt limits in the Treaty of Maastricht

- Currently, budgetary rules do not consider private funds in PPP projects as public debt
  - Hence; public entities can realize PPP projects with private capital involvement earlier than projects with public funding
- ### • High relevancy for the decision in favour of the PPP approach in practice
- ### • No economic rationality for prefinancing by private capital
- Rules that restrain self-interest oriented behaviour in policy making can be valuable; it can be assumed that self-commitment of politics in public budget decisions is generally reasonable  
→ the possibility of bypassing these rules through the realisation of PPP projects (and thereby the realisation of pre-financing effects) should be disapproved
  - Furthermore, the possibility of realizing pre-financing effects applying the PPP approach distorts the neutral realization of value-for-money-assessments by public entities as well as the incentives for an appropriate project design
- ### • Recommendation
- Budget rules should treat private and public capital in infrastructure financing equal



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# Basic reflections on risk allocation in PPP projects

## Effects to be considered with respect to risk allocation

- Trade-off in principal-agent theory
  - Incentives
  - vs.
  - Costs of risk bearing
  - Intermediate solutions with respect to risk allocation are regularly efficient („risk sharing“)
- Further effects
  - Impacts on the bidding behaviour possible (when contracts are tendered)
  - Transaction costs

## Risk allocation in PPP projects

- Among other things, the PPP contract allocates the risks from service provision to the different parties of the agreement, primarily the contractor and the responsible public authority
- This assignment determines which party has to bear the effects of the outcome of each particular risky variable
- Rules-of-thumb with respect to the allocation of individual risks in PPP projects
  - General allocation of cost-related risks to private contractor establishes incentives for the minimization of life-cycle-costs in PPP projects
  - Allocation of some specific cost-related risks to the public sector is reasonable, to reduce the cost of risk bearing (e. g. by indexation of payments to inflation)
- ***The possibilities of enforcing the contractual risk-allocation are significantly influenced by the degree of private financing***

# Enforcement of the contractual risk allocation in privately financed PPP projects

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- **Project financing**

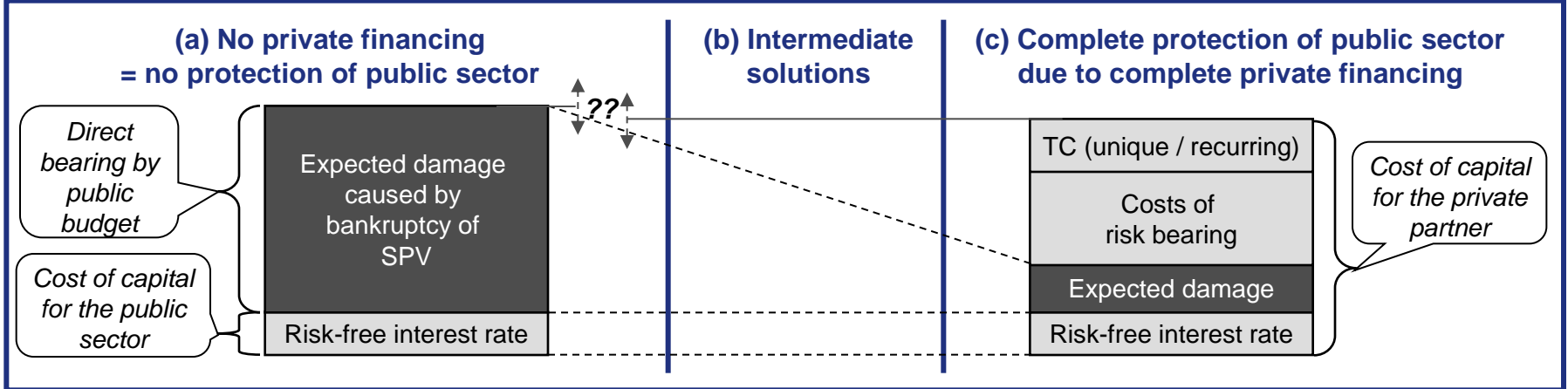
- Awarded bidder (as contractor for the public sector) establishes a project company (SPV) and endows it with capital for the project execution
- No financial liabilities of the holding company of the SPV
- Empirically relevant for PPP projects
- **The project will be pursued by the private contractor as long as expected future cash inflows to the SPV exceed cash outflows from the SPV**
- **The later public payments are being made (and hence the more private capital is involved), the more willing the SPV will be to bear possible losses (in terms of deviations from initial plannings) due to negative risk realization**

- **Private financing**

- **represents a threshold level with respect to risk assumption by the private contractor,**
- **supports therefore the enforcement of the contractual risk allocation and,**
- **protects the public sector against losses to the respective extent**

# Optimal degree of enforcement of the contractual risk allocation ( $\leftrightarrow$ amount of private capital $\leftrightarrow$ temporal structure of payments)

## Polar and intermediate solutions



## Conclusions

- Intermediate solutions with respect to private financing will be efficient
- The „optimal intermediate solution“ has to be identified for different stages of the contract duration
- The optimal degree of protection of the public sector will be influenced by the expected development of the infrastructure asset quality

# Different approaches to private finance in European PPPs

	Basic approach for initial financing in past projects
UK	100 % private finance
The Netherlands (road projects)	100 % private finance
Austria (road projects)	100 % private finance
Norway (road projects)	100 % private finance
Germany (motorway projects, „A-Model“)	frequently very high share of private finance
Germany (municipal projects)	very low risk capital (private funds presumably used for bypassing government debt limits)

*supposed to be reduced in future projects*

# Monitoring as a substitute for private financing in PPP projects

## Monitoring by the public sector in connection with intervention rights

- The intervention of the public sector in the field of activity of the contractor in general can cause disputes due to possible (negative) effects of the intervention on the maintenance strategy pursued by the private contractor
  - generally inappropriate for output-oriented service description
- However, monitoring and intervention rights for the public sector may be reasonable to avoid extreme developments within the project, for which the damage is not fully covered by private capital
  - the public sector should contractually define its rights of information and auditing; intervention rights should exist for the case of extreme project failures; in this case the public sector will regularly terminate the PPP contract due to malperformance of the private contractor

## Monitoring of infrastructure asset quality by the public sector and possible reduction of private capital provision

- How does it work?
  - Contractual definition of different states of the infrastructure asset quality at different points of time during the contract term
  - Assessment of the asset quality at the respective points in time
  - The contract allows for reduction of the private capital amount when a certain threshold of asset quality is reached as possible damages to the public sector due to malperformance are limited
- Cost savings are possible due to imperfections in capital markets
- Empirical evidence: this kind of contractual design is applied in some PPP projects in the road sector

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# Conclusions

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- **The objective of pre-financing through the realization of PPP projects lacks economic justification**

Hence public budget rules should treat public and private capital equal

- **Cost minimization should be the main criterion to determine the optimal degree of private financing, intermediate solutions with respect to the degree of protection of the public sector will regularly be efficient**

This implicates renouncing from the actual practice in Germany, where the private funding is mainly aimed at realising pre-drawing effects

- **Monitoring has a limited use as a substitute for private financing**



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**Thank you very much for your attention.**

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