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# Real option application in PPP/PFI project negotiation

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## Abstract

Over the past two decades, many developing countries have grown to become more familiar with the notions and the use of public-private partnership/private financing initiative (PPP/PFI) schemes in building large-scale infrastructure assets. However, owing to higher levels of complexity and longer contractual durations, PPP/PFI projects are often embedded with higher risks. On the one hand, any private sector concessionaire would strive to secure some forms of subsidies or guarantees from the host government to alleviate its risk concerns. On the other hand, the host government would also attempt to counterbalance the grant of these incentives by introducing additional 'repayment' obligations, such as placement of a cap on the tariff or toll rates. Modelled as real options, support and repayment features found in the case of a wastewater treatment plant in Southern China are evaluated using a combination of Monte Carlo simulation and spreadsheet-based cash flow models. The objective is to

illustrate how a negotiation band incorporating these option values can be constructed, which would enlarge the feasible bargaining range for both parties. The risk implications of two disparate bidding scenarios found in the case will also be discussed.

Keywords:

[Concession](#) [negotiation](#) [real option](#) [public-private partnerships](#) [private finance initiative](#)

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[PFI/PPP, private sector perspectives of UK transport and healthcare](#)

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