

# THE PRIVATE FINANCE INITIATIVE: A POLICY BUILT ON SAND

An examination of the UK Treasury's evidence base for cost and time overrun data in UK value for money policy and appraisal

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October 2005

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### Abbreviations

CUP	Central Unit of Procurement
FBC	full business case
FOIA	Freedom of Information Act
NAO	National Audit Office
OBC	outline business case
OGC	Office of Government Commerce
PFI	Private Finance Initiative
PPP	public private partnership
SOC	strategic outline case

## Summary and conclusions

The government claims that the extra costs of the private finance initiative (PFI) are offset by savings that are achieved by private sector managers. These savings are said to be the result of PFI projects coming in on time and to budget compared to conventional procurement. Cost and time overrun data play a crucial role in this argument.

The Treasury claims that evaluations show that 88% of PFI schemes are delivered on time, whereas 70% of non-PFI projects are delivered late and 73% over budget. These data are cited in support of PPP policy both at home and abroad and are incorporated into government guidance. Treasury guidance requires that estimated costs of non-PFI schemes are adjusted and uplifted by as much as 24% to take into account the risks of cost and time overruns. The adjustment is intended to counter ‘optimism bias’, the tendency among project appraisers to underestimate the likelihood of schemes going over budget or being delivered late.

The UK Treasury cites five research studies as the source of the cost and overrun data.

Our evaluation of the five reports highlights the absence of any evidence to support the Treasury’s claim and policy guidance. Of the five reports:

two were conducted by the National Audit Office (NAO) and were surveys and consultations with project managers. They do not have any primary data on cost and time over runs (*Modernising Construction* (2001) and *PFI Construction Performance* (2003));

a third study, cited by the NAO, was conducted by a private sector body, Agile Construction Initiative. It was designed to develop a method not to evaluate cost and time performance and has no data on cost and time overrun performance;

the Treasury’s own report contains no data to assess the cost and time overrun claim and its methodology is not in the public domain;

the fifth study was conducted by Mott MacDonald, a company which acts as a

technical adviser on PFI deals. The report has no data to support Treasury guidance although it is the only comparative study of PFI versus conventional procurement. Numerous flaws in study design and methodology lead to sample and measurement biases that render the study data uninterpretable:

- Although 500 PFI deals had been signed at a value of £28 billion, the Mott MacDonald sample is based on only 11 PFI schemes and 39 non-PFI schemes. There are too few cases to compare cost and time overruns in the procurement routes;
- conventional procurement is over-represented by unusual and atypical schemes whereas all high profile IT and other failures are excluded from the PFI sample;
- PFI cost and time overruns are measured at a much later stage in the procurement process than non-PFI, thereby wrongly inflating non-PFI costs in comparison with those of PFI;
- the conventionally procured sample includes projects from much earlier guidance periods than the PFI sample and so does not reflect recent improvements in performance that have been achieved in all types of procurement.

Although 677 PFI projects have been approved or completed since 1992, the Treasury has not fulfilled its objective of “a sound evidence base” for a “rigorous investigation” of PFI. There is no evidence to support the Treasury’s chief justification for the policy, namely, that PFI generates value for money savings by improving the efficiency of construction procurement. Government policy guidance on optimism bias is flawed and misleading.

## Introduction

### The role of cost and time overrun data in PFI policy

1 HM Treasury (2004), Quantitative assessment user guide, p.7.

2 HM Treasury (2003), PFI: Meeting the Investment Challenge, p.109.

3 HM Treasury (2003), PFI: Meeting the Investment Challenge, p.43.

*‘The Government is determined to ensure that a sound evidence base informs the rigorous investigation of where PFI is delivering better facilities and value for money benefits in practice. The PFI programme has progressed to a point where, with 451 projects operational, sufficient evidence is available to assess many aspects of the early performance of the programme.’*  
*Meeting the Investment Challenge, HM Treasury, July 2003, p.43*

The UK government accepts that private finance is more expensive than conventional procurement, but argues that the extra costs of private finance are offset by the transfer of risk and responsibility for performance to the private sector. According to the Treasury, “the private sector is better able to manage many of the risks inherent in complex or large scale investment projects than the public sector.”<sup>1</sup> Savings in the costs of construction make it cheaper than traditional, publicly financed procurement, because the incentive structure of PFI, whereby private firms risk losing their own money, brings benefits that outweigh “any cost involved” in using private finance.<sup>2</sup> Among the alleged benefits of private financing are savings due to the reduced incidence of cost and time overruns when construction projects come in over budget or late.

UK Government procurement policy rests on Treasury claims that PFI has reduced both the frequency and the magnitude of cost and time overruns. According to the Treasury document *PFI: meeting the investment challenge*, 2003:

*‘PFI projects are being delivered on time and on budget. HM Treasury research into completed PFI projects showed 88 per cent coming in on time or early, and with no cost overruns on construction borne by the public sector. Previous research has shown that 70 per cent of non-PFI projects were delivered late and 73 per cent ran over budget’<sup>3</sup>*

These data have been used by the government to face down criticisms of the policy, to inform the Treasury’s guidance on PFI appraisal, and to support the whole of government public-private partnership (PPP) policy both in the UK and abroad. More importantly, the data are now

incorporated into government guidance. For example, the revised Treasury Green Book, which lays down the rules for evaluating public procurement, requires that all estimates of construction costs in non-PFI schemes are inflated to take account of the risk of cost underestimation and the risk of late completion. The Treasury Supplementary Green Book guidance provides a table of cost adjustments for cost and time overruns in different types of project (table1). In the case of standard buildings, the adjustment requires an uplift of between 2% and 24% to the original cost estimate and between 1% and 4% to the original estimate of works duration. According to the Treasury, the upper bound percentages in Table 1 are based on an estimate of the extent to which, on average, capital costs and construction periods have in the past been underestimated in conventional procurement.

**Table 1**  
**Recommended adjustment ranges for use by project appraisers during PFI appraisal**

4 HM Treasury.  
[http://www.hm-treasury.gov.uk/document/s/public\\_private\\_partnerships/ppp\\_pfi\\_stats.cfm](http://www.hm-treasury.gov.uk/document/s/public_private_partnerships/ppp_pfi_stats.cfm)

Project type	Works duration Optimism bias* (%)		Capital Expenditure Optimism bias* (%)	
	Upper	Lower	Upper	Lower
Standard buildings	4	1	24	2
Non-standard buildings	39	2	51	4
Standard civil engineering	20	1	44	3
Non-standard civil engineering	25	3	66	6
Equipment/development	54	10	200	10
Outsourcing	N/A**	N/A**	41	0

Source: HM Treasury, *Supplementary Green Book Guidance*, 2003.

\* *Optimism bias is defined by the Treasury as the “demonstrated, systematic, tendency for project appraisers to be overly optimistic” about the chances of schemes going over budget or being delivered late. (HM Treasury, *Supplementary Green Book Guidance*, 2003, p.1)*

\*\*N/A is not defined by the Treasury.

The data in the Treasury Table underpin the decision to use private finance and are crucial to government policy. As of December 2004, 677 projects had been signed with a capital value of £42.7 billion using PFI<sup>4</sup>, many of them on the basis of the value for money adjustments on cost and time overruns. For this reason we felt it important to examine the research and evidence base for the data which underpins Treasury guidance.

This report is in three parts. In Part 1, we describe the procurement and appraisal process and the biases that need to be avoided when designing a study to compare different procurement routes. Part 2 is an evaluation of the evidence base which underpins the data used by government in the appraisal process. Part 3 is a critique of the Mott MacDonald Report. This report is the main source of data underpinning the government’s guidance on optimism bias.

## Part I

### The procurement process and optimism bias

5 A randomised control trial in this context would be an experiment in which projects were randomly allocated to the alternative procurements routes and performance data collected with investigators "blind" to the actual allocation. This procedure would provide a high probability that observed differences in performance were the result of the procurement route and not a product of experimenter bias.

#### The procurement process

Government construction procurement refers to the purchase of buildings and other infrastructure from the private sector for use in the public interest. Since 1999 several methods of government procurement have been available to UK public commissioners of building projects. Three of these methods (design & build, prime contracting and PFI) involve not only different methods of funding and financing but the transfer of responsibility for time and cost overrun risks to the builder. The results of this transfer of risk which the Treasury claims to have evaluated and quantified in its appraisal guidance.

#### Procurement appraisal and optimism bias

The decision to use one procurement route over another is taken on the basis of a formal appraisal set out in the UK Treasury's Green Book and the "appraisal user guide". The appraisal requires a comparison of cost estimates for different procurement routes in order to assess value for money. The Treasury states that all projects are subject to "optimism bias", that is, the "demonstrated, systematic, tendency for project appraisers to be overly optimistic about risks" of schemes going over budget or being delivered late. The Green Book guidance therefore requires cost estimates for standard buildings procured under the conventional route (the public sector comparator) to be increased by 2-24% of original construction cost estimates. The revised estimates are then compared with the PFI cost estimates. These revised estimates are considerably higher than the original estimates and usually result in the decision to use PFI. Our interest in this study is therefore to evaluate the evidence base which underpins the data which are used to adjust the public sector comparator in the value for money appraisal.

In order to evaluate the research base which underpins the cost and time overrun data it is important to understand what type of study a government evaluation would commission and biases that have to be avoided.

#### Factors to consider when designing a comparative study

The ideal study design to evaluate cost and time overrun risks on project completion would be a randomised control trial where projects are randomly allocated to each procurement arm.<sup>5</sup> Alternatively a retrospective case control study might be conducted where PFI projects were matched with comparable projects in the conventional procurement group. Whilst these experimental methods are rarely used in the evaluation of government policy, they provide a yardstick for evaluating the UK Treasury's objective of "a sound evidence base" for a "rigorous investigation" of PFI. A robust study must also take account of the biases which might render uninterpretable the results of investigations.

There are three types of potential bias or error –

##### 1 Non-comparable populations

Bias arises as a result of differences in the populations being compared in the two sample frames. When undertaking a study of alternative procurement routes the underlying assumption is that the 'populations' which form the sample frame of the procurement routes being compared include similar projects. If the populations are not similar then there is no point in comparing them. For example, if conventional procurement always involves refurbishment and PFI always involves new build, then nothing would be served by comparing the two; like is not being compared with like because each type of project would carry with it different risks and cost structures. Therefore it is important to describe the range of projects in the two groups being compared.

Populations may differ by type of scheme or because they are drawn from different policy time periods. Public procurement has been the subject of government scrutiny for at least a decade and numerous reforms have been implemented to make the process more efficient. Following publication of the 1994 Latham report into the efficiency of the construction procurement process,<sup>6</sup> the government reformed procurement regulations and undertook a

series of further reviews and evaluations. The UK Office of Government Commerce (OGC), created in 1999, was itself the product of a procurement review (the Gershon review, 1999<sup>7</sup>). Sixty-one guidance notes (known as CUP or Central Unit of Procurement guidance) were transferred from the Treasury to the newly established OGC. About a third of the notes were withdrawn and most of the remainder subsequently superseded by new guidance. Only 4 of the original UK Treasury guidance notes are still current.

These reforms have led to improvement in all methods of government procurement since 1999, according to the National Audit Office (NAO). Following a review of performance in 142 projects completed between April 2003 and December 2004, the NAO reported greater cost certainty and fewer delays in both PFI and conventional procurement compared with results obtained in 2001.<sup>8</sup>

The policy time period is important when selecting the two samples. For example if one comparator group samples selectively from a population containing projects that pre-date the 1999 reforms then, for that reason alone, it could register higher time and cost overruns than a sample from a population only containing projects subsequent to 1999 changes to procurement.

## 2 Sample bias

This type of bias refers to factors that arise in the selection of projects for comparison. Where sampling bias is significant it will be impossible to say whether study results are produced by genuine differences or simply by the method of selecting the sample. Sampling bias can arise in two ways.

- a) Selection bias. The cases being sampled should always be representative of the procurement route which is being evaluated. Bias is introduced when the selected sample is not representative of the procurement route, for example, when atypical schemes are over-represented, or when the projects in the different procurement arms are not comparable in terms of project type or cost.
- b) Sample size. A sample is a subset of a population that is theoretically representative of the

population as a whole. Sampling is undertaken when it is impracticable to measure every individual member of the population. The representativeness of a sample will depend partly on its size. There is no single formula for determining when a sample is large enough to be representative of the whole population. Factors that have to be taken into account include the amount of variation that exists in the population and the confidence required in the survey results. Statistical tests that show whether or not survey results are significant cannot be carried out when samples are too small and so no conclusions can be drawn from differences between the two groups.

## 2 Measurement bias

Measurement bias occurs when different baselines are used to compare the two groups. Cost and time overrun data will be subject to error if insufficient account is taken of the procurement process in establishing the baseline or in establishing and adhering to a standard definition of costs.

The procurement process takes several years and consists of several stages which are set out in the Office of Government Commerce's (OGC)<sup>9</sup> Gateway Review guidance. This requires a series of business cases to be produced as negotiations take place. There are three main business case stages involved in contracting: the strategic outline case, the outline business case, and the full business case. In comparing cost escalation it is essential that the same baseline is used. (See Box 1)

Tables 2 and 3 show that significant cost escalation occurs between strategic and outline business case stages (SOC and OBC) and between outline and full business case stages (OBC and FBC), and therefore that the choice of baseline is crucial to the performance measurement. Table 2 shows that in five schemes reported to the Health Select Committee in 2003 PFI costs increased from SOC to OBC stages by between 64.7 and 171.7 per cent. (These data were only collected for one year and are no longer requested by the Health Select Committee). Table 3 shows that in first wave hospital PFI schemes PFI costs increased from OBC to FBC stages by between 33 and 229 per cent.

6 Latham, Sir Michael (1994). Constructing the Team. (Commissioned by the Secretary of State for the Environment).  
7 Peter Gershon (1999). Review Of Civil Procurement In Central Government.  
8 National Audit Office (2005). Improving public services through better construction, (HC 364-II).  
9 Strictly speaking, actual costs can only be determined at the point of full commercial settlement.



Table 2

PFI capital cost increases between strategic outline case and outline business case stages

NHS Hospital Project	Capital cost at SOC £m	Capital cost at OBC £m	Change %
Bradford	116.0	191.0	64.7
Tameside and Glossop	41.0	84.2	105.4
Plymouth	101.0	274.4	171.7
Colchester	79.0	127.0	60.8
Sherwood Forest	66.0	125.0	89.4

Source: Health Select Committee, *Public expenditure survey, session 2002-2003*

Table 3

PFI capital cost increases between outline business case and full business case, first wave NHS PFI schemes

Project	Capital cost at OBC £m	Capital cost at FBC £m	Change %
Swindon	45	148	229
Worcester	49	116	137
South Manchester	40	89	123
Norfolk	90	200	122
Bishop Auckland	26	52	100
South Tees	65	106	63
North Durham	60	96	60
Bromley	80	120	50
Dartford	97	137	41
Calderdale	55	77	40
Wellhouse	30	40	33

Source: Declan Gaffney and Allyson Pollock. 'Pump-priming the PFI: why are privately financed hospital schemes being subsidised?' *Public Money and Management*, January–March, 1999.

## Box 1

## Procurement phases for each type of procurement route and under the OGC's Gateway Review process

OGC Gateway Review	PFI procurement	Conventional procurement	Main phases used in this report
Develop Business Case	Strategic Outline Case Establish Business Need  Appraise the Options	Strategic Outline Case Project Identification  Option Appraisal	Strategic Outline Case or SOC
Define Programme	Outline Business Case and Reference Project	Outline Business Case	Outline Business Case or OBC
Develop Procurement Strategy	Developing the Team Deciding Tactics		
Execute Programme Competitive Procurement	Invite Expressions of Interest  Selection of Bidders (Short-Listing)  Refine the Appraisal  Invitation to Negotiate  Receipt and Evaluation of Bids	Advertise contract  Selection of Bidders    Evaluation of Bids	
Execute Programme Award and Implement Contract	Selection of Preferred Bidder and Final Evaluation in Full Business Case  Contract Award and Financial Close  Unitary payment specified in contract	Contract Award	Full Business Case or FBC
Close Programme Manage Contract	Contract Management  Refinancing	Contract Management	Building Works Completion

## Part 2

# An evaluation of the Government's time and cost overrun evidence base

<sup>10</sup> HM Treasury (2003), *PFI: Meeting the Investment Challenge*, p.45.

The UK Treasury cites five research studies as its authority for data on time and cost overruns in conventional and PFI procurement. The studies are a Treasury internal research project conducted in September 2002; two NAO reports (*Modernising Construction* (2001) and *PFI Construction Performance* (2003)) and two studies by the private sector (*Agile Construction Initiative: Benchmarking Stage Two Study* (1999) and the Mott MacDonald Report: *Review of Large Public Procurement in the UK* (June 2002)).

### 1 UK Treasury study (2002)

The Treasury study cannot be evaluated because it is not in the public domain although the Treasury stated that it would be published on the HM Treasury website in autumn 2003.<sup>10</sup>

In response to a request for the data made to the Treasury on 18 April 2005 under the Freedom of Information Act (FOIA), the Treasury replied on 13 May 2005:

The information requested is held by HM Treasury and all fall within provisions of the Act which exempt it from disclosure. Disclosure of the information may be detrimental to the commercial interests of specific PFI contractors or the financial interests of procuring authorities and would therefore be exempt from disclosure under S43 and S29. This is a qualified exemption and the Treasury is required to weigh the public interest in maintaining the exemption against the public interest in disclosing the information. We are still considering this issue and will let you know the outcome as soon as it has been resolved... We should be in a position to reply by 27 May 2005.

On 25 May 2005, the Treasury sent a second letter stating:

We are still considering this issue and need more time further to the deadline offered in the previous letter. We will let you know the outcome as soon as it has been resolved. The FOIA provides that while requests for information should be responded to within 20 working days from their receipt, this time limit

may be extended by such time as is reasonable when considering in the case of a qualified exemption whether the overall public interest is in disclosure or non-disclosure.

A request for clarification of the new deadline was made to the Treasury on 25 May 2005. In July 2005, the Treasury released the results of their study, which had already been summarised in *PFI: meeting the investment challenge*, 2003, but not the full research project. These data are uninterpretable and do not provide support for the Government's policy or its policy guidance.

### 2 The two NAO reports

The UK Treasury's statements about time and cost overruns cite two reports by the NAO, *Modernising Construction* (2001) and *PFI Construction Performance* (2003). Neither study compares performance under different procurement routes. The former is based on interviews with the industry about the scope for improved construction performance. The latter is a census of 38 PFI project managers. Neither study examines the relative performance of PFI compared with conventional procurement. Indeed the authors conclude: "it is not possible to judge whether these projects could have achieved these results using a different procurement route."

The NAO and the Treasury both cite data on conventional procurement from the NAO 2001 report. However the comparative data presented in the NAO report are derived from the 1999 Agile Construction Initiative: *Benchmarking Stage Two Study* – see below.

### 3 Agile Construction Initiative: Benchmarking Stage Two Study (1999)

The Agile study was designed to develop a method for comparing performance, not to evaluate performance. Although it is cited by the Treasury and the NAO as the source for the claim that, historically, time and cost overruns occur in 70% and 73% respectively of conventionally procured

projects, neither the research nor the data with respect to these claims are contained within the report.

The Agile Construction Initiative was set up in 1996 by Professor Andrew Graves to promote performance improvement in the construction industry. Originally funded by Balfour Beatty, its industrial partners today include PFI contractors Carillion and WS Atkins.

#### 4 Mott MacDonald Report: Review of Large Public Procurement in the UK (June 2002)

This is the only study of the five cited by the Treasury to compare PFI with conventional procurement. It is evaluated in the following section. The study was commissioned by the UK Treasury in 2001 to gather evidence for a review of the Green Book, which contains the guidance for investment (including PFI) appraisal.

Mott MacDonald is an engineering and management consultant company which provides technical assistance on PFI projects to the PFI industry, UK government departments, government agencies and the NHS. It is engaged in global PPP consultancy with operations in Mexico, Iraq, Latvia, Slovakia and Portugal. It describes itself as “the leading provider of PFI/PPP advisory services in the UK, acting for the public sector, funders, and developers”. It earns fees from providing due diligence and legal work during PFI negotiations. The firm profits from the PFI procurement process that the Treasury commissioned it to compare and evaluate. (Appendix 3 – Box 2)

## Part 3

# A Critique of the Mott MacDonald Report: Review of Large Public Procurement in the UK (June 2002)

The Mott MacDonald Report is the only study of the five cited by the Treasury to compare PFI with conventional procurement. The study was commissioned by the UK Treasury in 2001 to gather evidence for a review of the Green Book, which contains the guidance for investment (including PFI) appraisal.

### Study aim

The aim of the MacDonald study was:

*“to gather a representative sample of projects procured traditionally and through the Private Finance Initiative (PFI) and implemented over the last 20 years (in order to) assess past delivery of major projects in the UK procured by the public sector over the last 20 years and from the lessons learned provide best practice guidance for reducing optimism in project estimates for current and future projects.” (Mott Macdonald Report, p.6)*

The objective was to measure “optimism bias” in a sample of PFI and conventionally procured schemes.

### Results of the study

Table 4 shows the numbers of projects included in the study by one of five categories ( non-standard building, non-standard engineering, standard building, standard engineering, other), and the cost and time overrun data. Note both the small number of studies and the absence of data on some schemes.

### Critique of the study

Our analysis consists of a review of the study design and methodology. Our review highlights the fact that the appropriate study would have been a randomised or retrospective case control study. Mott MacDonald did not do either. Moreover, their methodology reveals the following problems and failures in design with respect to sampling and measurement.

### The Sampling methodology

- 1 The sampling methodology is not described. Although eighty projects were selected, sixty by the Treasury and twenty by Mott MacDonald, the population and the time period from which the sample was drawn is not described. Furthermore, although twenty-nine projects had to be excluded from the sample because of insufficient data. The characteristics of the excluded projects are not known.
  - 2 The populations from which the samples were drawn is not described. There is no description of the population of projects in either of the procurement groups under comparison nor are they broken down by sector, year of procurement, or type of project or value.
  - 3 It is not known how representative the schemes are of the populations from which they are drawn. There were only 11 schemes in the PFI sample, although more than 500 deals had been signed at the time of the study. This compares with 39 schemes in the non- PFI sample, although by 1999 there were very few non- PFI deals. However, there is evidence that the populations are not comparable and that selection is biased – see below.
  - 4 The conventionally procured project sample includes projects commissioned under different policy guidance periods and overall time periods from that of the PFI projects. Most conventional procurement projects predate the procurement reforms of 1999 and some predate the introduction of PFI by more than two decades. For example, of the following schemes included in non-PFI procurement, the Thames Barrier was conceived in the 1960s, commissioned in the seventies and completed in 1982; the first lines of the Tyne and Wear Metro were opened in August 1980; and the Jubilee line extension was inaugurated in 1979.
- Comparison of PFI with procurement performance from these eras is pointless because procurement guidance and government policy has changed radically.

5 There is evidence of selection bias with over-representation of atypical schemes in the conventional procurement sample and under-representation in the PFI arm. The PFI arm comprises 7 (70%) standard projects compared with 17 (44%) in the conventional procurement arm. By contrast, the PFI arm has no non-standard projects in either building or engineering categories compared with 20(40%) in the conventional arm. It does not include any of the many failed IT PFI projects such as NIRS2 and the Passport Office. The inclusion of so many non-standard projects in the conventional procurement arm is problematic because they usually involve more cost increases because of the problems of their complexity. At least three of the 14 standard publicly procured schemes included in the sample (Guys Hospital, the Jubilee Line Extension and the British Library) were referred to in the Public Administration select committee as examples of “overruns remaining a serious problem in conventional public sector capital procurement” and have been regularly cited by ministers.<sup>11</sup> But the alleged failings of two of these schemes should be treated with caution because no attempt is made to identify possible causes of failure – (see box 2).

### Box 2: Inefficiencies that are not PFI related

Although Guy’s Hospital is frequently cited as an example of inefficient conventional procurement, the scheme was originally described by government as the first hospital public-private partnership and the cost increases recorded at Guy’s are partly attributable to the collapse of the partnership and its eventual completion using conventional procurement.

Jubilee line time and cost overruns were attributed by the government not to the method of procurement but to geological conditions. Lord Whitty told parliament in November 1998: “It is the case that even less than 100 years ago we were told that, geologically, south London could not have a tube line. The methods of construction therefore have had to be particularly careful... [That] was the major cause for delay on the jubilee line.”<sup>12</sup>

11 The appendix provides examples of the use made by ministers of alleged poor public sector procurement performance.  
12 Hansard, 16 November 1998, Column 975.

Table 4

Time and cost overruns as percentage of original estimates by type of procurement and project reported by Mott MacDonald

Description of projects		Number of schemes	%of total	Time overrun optimism bias %	Cost overrun optimism bias %
Non-standard buildings	PFI	0	–	–	–
	trad	7	(18)	39	51
Non-standard engineering	PFI	0	–	–	–
	trad	13	(33)	15	66
Standard buildings	PFI	3	(30)	-16	2
	trad	14	(36)	4	24
Standard engineering	PFI	4	(40)	no info	no info
	trad	3	(8)	34	44
Other	PFI	4	(40)	28	no info
	trad	2	(5)	54	214
Total	PFI	11	(100)		
	trad	39	(100)		

Source: Mott MacDonald report

13 National Audit Office (1996) Progress in completing the new British Library, HC 362 1995/96.  
 14 Mott MacDonald (2002), Review of Large Public Procurement in the UK, p.8.  
 15 Mott MacDonald (2002), Review of Large Public Procurement in the UK, p.x.  
 16 National Audit Office (2003), PFI Construction Performance, p.5.  
 17 Mott MacDonald (2002), Review of Large Public Procurement in the UK, p.x.  
 18 Mott MacDonald (2002), Review of Large Public Procurement in the UK, p.x.

The examples shown in the box highlights the need for scrutiny of all the schemes before cost increases can be attributed to the method of procurement.

6 There were only 11 projects in the PFI arm. Three were ‘standard’ buildings. Two were standard engineering. There were no non-standard categories of PFI schemes and so no comparison of cost and time overrun could be made. In the standard categories for both PFI and non-PFI schemes the numbers were too small to undertake statistical tests. (See Table 4) The authors acknowledge that this is a weakness: “Statistically, the sample of projects in the Mott MacDonald study is necessarily small because, in the time period studied, large public sector procurement was restricted to a relatively limited number of projects.”<sup>13</sup>

The study samples are not representative of projects procured either traditionally or under PFI.

### Measurement biases

7 Mott MacDonald researchers found variation in capital cost definition among the schemes studied. “Often when developing a business case, a contingency allowance is added to the estimate of ... capital expenditure [cost]. In some cases Mott MacDonald experienced difficulties determining whether the figures quoted in the reference material used included contingencies.”<sup>14</sup> It is impossible to say on the basis of the report when real cost overruns are being measured or simply the addition of contingencies. The study measures changes in works duration, not late delivery, and it is therefore not possible to distinguish projects which were delivered late from those projects which were delivered on time even though works duration increased. Mott MacDonald state: “The measured optimism bias does not give any indication of whether the project was delivered on time, but only reflects the extent to which the works duration had increased.”<sup>15</sup>

Although the Mott MacDonald study does not measure late delivery, it has nevertheless been cited as a source of such data by the NAO.<sup>16</sup>

8 Cost change in PFI projects is measured from full business case (FBC) stage whereas cost change in conventional procurement is measured from either strategic outline case (SOC) or outline business case (OBC) stages.<sup>17</sup> (See Diagram 1) Thus cost escalations included in conventional procured projects are excluded from PFI procured projects. (The potential scale of these exclusions from measures of cost changes under PFI is illustrated in Tables 2 and 3). The result is to inflate the cost changes of conventional procurement and deflate those of PFI.

### Diagram 1

Cost change stages aggregated by Mott Macdonald in comparison of time and cost overruns in certain conventional and PFI procurement projects (sample size not specified by MacDonald)

Procurement stages	SOC to OBC	OBC to FBC	FBC to building works completion
Conventional procurement	→		
PFI procurement			→

Mott MacDonald explain that the use of different baselines for measuring cost changes is an accident of data availability not a deliberate part of the study design: “The optimism bias levels for traditionally procured projects tended to be measured from either the strategic outline [business case] or the outline [business case] and also at contract award. Private Finance Initiative (PFI) projects tended to be based on the full [business case] as the outline [business case] was not available.”<sup>18</sup>

The decision to use different baselines to compare cost and time overruns in PFI and conventional procurement was misleading.

### Conclusion

No comparison can be made with non-PFI projects even though approximately 500 PFI deals worth around £28 billion had been signed by the time

Mott MacDonald undertook their research. The study samples are not representative of projects procured either traditionally or under PFI. For all projects, the numbers in the PFI arm are so few as to provide no meaningful data. Measurement bias confounds the interpretation of data. PFI performance can not be evaluated from this study. Treasury guidance on optimism bias is not supported by this evidence.



## Appendix I

### Ministers' use of time and cost overrun data to support PFI

“The public sector has also historically demonstrated difficulty in managing the delivery of certain facilities and services. In particular there have often been weaknesses in the delivery of complex investment projects. These are difficulties that follow from a lack of expertise and a lack of commercial incentives. These are the failings that led to the completion of Guy’s Hospital 3 years late and £124m over budget; or the Trident submarine berth in Scotland two and a half years late and £214m over budget; or the Jubilee line extension almost two years late and £1.4bn over budget. That is why we need to enlist the efficiency and management skills of the private sector.”

*Andrew Smith, Chief Secretary to the Treasury, 2001*  
<http://archive.treasury.gov.uk/speech/cst/cst231001.htm>

“As we know, many public sector projects also had serious problems and we all paid the price: Guy’s hospital - over 3 years late and £124 million pounds over budget; The Trident submarine berth – over 2 years late and £214 million pounds over budget; The British Library – opened 15 years after construction started and more than £60 million over budget; The Air Traffic Control Centre – before it was rescued – 5 years over due and £180m over budget; and The Jubilee Line extension – £2.1 billion became £3.5 billion and it came in 2 years over due. The cost over-runs of these and countless other projects were staggering and in all cases it was the tax-payer that shouldered the burden and carried the risk.”

*John Prescott, Deputy Prime Minister, 2002*  
<http://www.ogc.gov.uk/index.asp?docid=2044>

“We need PPPs to help us manage increased investment efficiently, and to make the money we invest go further. We need PPPs to create the incentives to innovate, to manage risks effectively, and to deliver projects on time and on budget. You only have to look at the Jubilee line extension – almost two years late and £1.4 billion over budget – to realise that the public sector can’t always do this on its own.”

*Andrew Smith, Chief Secretary to the Treasury, 2002*  
[http://www.bmtreasury.gov.uk/newsroom\\_and\\_speeches/press/2002/press\\_06\\_02.cfm](http://www.bmtreasury.gov.uk/newsroom_and_speeches/press/2002/press_06_02.cfm)

“The results of previous misincentives are all too clear to see in the UK’s record of traditional procurement. For example: How could our National Health Service plan a long-term hospital provision programme if, as with one hospital, cost estimates could more than quadruple from £36 million to a final cost of £160 million, and only deliver much needed hospital beds over 3 years late? That is what we were up against in the NHS. How could the step-change in performance of public transport in London possibly be achieved if, as for the London Underground’s Jubilee Line extension, costs could overrun by £1.4 billion on a single project or, as in the Central Line resignalling, work was to be completed 6 years behind schedule? So for those who pine for the halcyon days of traditional public investment in the London Underground, I say just look at the facts. And so, my point is, the UK Government’s use of PFI must be seen against the background of the past.”

*Paul Boateng, Chief Sec to Treasury, 2003*  
[http://www.bmtreasury.gov.uk/newsroom\\_and\\_speeches/speeches/chiefsecspeeches/speech\\_cst\\_271103.cfm](http://www.bmtreasury.gov.uk/newsroom_and_speeches/speeches/chiefsecspeeches/speech_cst_271103.cfm)

## Appendix 2

### Treasury PFI study released in July 2005 under the Freedom of Information Act

In July 2005 the Treasury released an Excel file containing results of an internal survey of PFI procurement performance summarised previously in PFI: meeting the investment challenge (2003). The spreadsheet does not include an explanation of the study methods or standard definitions for the terms employed. The results cannot therefore be interpreted.

The Excel file is available on the Public Health Policy Unit website –  
[http://www.ucl.ac.uk/spp/about/health\\_policy/index.php](http://www.ucl.ac.uk/spp/about/health_policy/index.php)

## Appendix 3

### PFI projects involving Mott MacDonald

Source: PartnershipsUK Projects database 25 July 2005

#### Summary

**No. of Projects: 14**

**Capital Value: £1297.7m**

**Projects Operational: 7**

Mott MacDonald have acted as technical advisor to the public sector in 12 projects, and as adviser to the private sector in 2 projects. In addition they are named as one of 7 companies identified by Partnerships for Schools (PfS) as part of their national frameworks for technical services, to act as advisers to the many schools embarking on the huge schools refurbishment and renewal processes that includes PFI.

Project Name	Capital Value £ m	Public Sector Authority Advisor(s)	Private Sector Advisor(s)
Dartford-Thurrock Crossing	180	J Schroeder Wagg – Financial Ashurst Morris Crisp – Legal <b>Mott MacDonald</b> – Technical	
Manchester Metrolink Extension 1	160	Pannoni & Partners – Legal Mott MacDonald – Technical Investec Bank (UK) Ltd – Financial	
National Physical Laboratory Rebuilding Project	89	PricewaterhouseCoopers (PwC) – Financial Herbert Smith – Legal Lambert Fenchurch – Insurance Turner & Townsend – Technical Hulley & Kirkwood – Technical <b>Mott MacDonald</b> – Technical Arup – Technical Llewelyn-Davies Architects – Other Parkman – Other Rowe & Maw – Legal Babtie – Technical	
Property Review – Greater Manchester Divisional/Sub Divisional HQ & Police Stations	60	Ernst & Young – Financial Eversheds – Legal <b>Mott MacDonald</b> – Technical Aon – Insurance Malcolm Hughes – Other	
Kinnegar Waste Water Treatment Works PFI	12.4	Mott Macdonald – Technical Allen & Overy – Legal Greenwich Natwest – Financial	PricewaterhouseCoopers (PwC) – Financial Linklaters – Legal

Project Name	Capital Value £ m	Public Sector Authority Advisor(s)	Private Sector Advisor(s)
St Genevieve's High School	11.5	PricewaterhouseCoopers (PwC) – Financial Dibb Lupton Alsop (DLA) – Legal Chesterton – Technical	KPMG – Financial Nabarro Nathanson Solicitors – Legal Mott MacDonald – Technical Mullholand & Doherty – Technical Willis Corroon – Insurance
Highland Sewerage PFI	45	Mott Macdonald – Technical Babtie Group – Technical Deutsche Morgan Grenfell – Financial Allen & Overy – Legal PricewaterhouseCoopers (PwC) – Financial Dundas & Wilson WS – Legal	
Tay Wastewater Project	90	Mott Macdonald – Technical Babtie Group – Technical Deutsche Morgan Grenfell – Financial Allen & Overy – Legal	
Salisbury District Hospital Redevelopment	24.1	Secta – Financial Mott Macdonald – Technical Bevan Brittan – Legal Aon – Insurance	Operis – Financial Dundas & Wilson WS – Legal Contractsure – Insurance James Nisbet & Partners – Technical Capita Symonds – Other Hulley & Kirkwood – Other Upton McGougan – Other
North Kirklees Primary Care Centres	25		Mott Macdonald – Technical Bevan Brittan – Financial
St James University Hospital & Leeds General Infirmary Redevelopment	265.2	Dickinson Dees – Legal Grant Thornton – Financial Mott MacDonald – Technical Donald Smith Seymour & Rooley – Other Jacobs Babtie – Other AEDAS – Other Turner & Townsend – Other Willis Corroon – Insurance	PricewaterhouseCoopers (PwC) – Financial Dibb Lupton Alsop (DLA) – Legal Faber Maunsell – Technical Faithful & Gould – Technical Jardine Lloyd Thompson Risk Solutions Ltd – Insurance

## Appendix 3

Project Name	Capital Value £ m	Public Sector Authority Advisor(s)	Private Sector Advisor(s)
NHS Tayside – Forfar Infirmary and Whitehills Health and Community Care Centre	22.5	Deloitte & Touche – Financial <b>Mott MacDonald</b> – Technical Dundas & Wilson WS – Legal	Quayle Munro – Financial Maclay, Murray & Spens – Legal
Newcastle upon Tyne Hospitals NHS Trust – Transforming the Newcastle Hospitals	295	PricewaterhouseCoopers (PwC) – Financial Dickinson Dees – Legal <b>Mott Macdonald</b> – Technical Willis Corroon – Insurance	Macquarie Bank – Financial Denton Wilde Sapte – Legal Aon – Insurance
Cheshire Police – Centralised Custody	18	Grant Thornton – Financial Pinsent Masons – Legal Mott Macdonald – Technical	Wragge & Co – Legal NIB Capital – Financial services

## Resources

### UNISON reports on PFI

Title	Stock No.
School meals, markets and quality (September 2005)	2442
PFI – Against the public interest: <i>Why a ‘licence to print money’ can also be a recipe for disaster</i>	2353
*Public Risk for Private Gain?: <i>The public audit implications of risk transfer and private finance</i> (July 2004)	2350
Not so Great: <i>Voices from the front-line at the Great Western PFI Hospital</i> (Oct 2003)	2255
What is Wrong with PFI in Schools (Sep 2003)	2251
LIFT: Local improvement Finance Trust	2235
The PFI Experience: <i>Voices from the front line</i> (March 2003)	2187
Profiting from PFI (February 2003)	2158
Stitched Up: <i>how the Big Four Accountancy Firms have PFI Under their thumbs</i> (January 2003)	2147
PFI: <i>Failing our future: A UNISON Audit of the Private Finance Initiative</i> (September 2002)	2108
*A web of Private Interest: <i>how the Big Five accountancy firms Influence and profit from privatisation policy</i> (June 2002)	2092
*What’s Good about the NHS: <i>and why it matters who provides the service</i> (April 2002)	2053
*Debts, Deficits and Service Reductions: <i>Wakefield Health Authority’s legacy to primary care trusts</i> (April 2002)	2034
*Understanding the Private Finance Initiative: <i>the school Governor’s essential guide to PFI</i> (January 2002)	1967

#### Websites

UNISON has a special page on its website devoted to PFI [www.unison.org.uk/pfi](http://www.unison.org.uk/pfi) as part of UNISON’s Positively Public campaign [www.unison.org.uk/positivelypublic](http://www.unison.org.uk/positivelypublic)

\*these reports were also researched and written by Allyson Pollock, David Price and colleagues at the UCL Public Health Policy Unit

*All reports are available from UNISON Communications or from the UNISON website.*

#### Public health policy unit websites:

[www.ucl.ac.uk/spp/about/health\\_policy/index.php](http://www.ucl.ac.uk/spp/about/health_policy/index.php)  
[www.health.ed.ac.uk/iphp](http://www.health.ed.ac.uk/iphp)



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