Finance Committee

Inquiry into methods of funding capital investment projects

The Implications of Evidence Released Through Freedom of Information on the Projected Returns from the New Royal Infirmary of Edinburgh and Certain Other PFI Schemes.

Jim Cuthbert and Margaret Cuthbert

Introduction.[1]

Because of the Freedom of Information Act, detailed financial projections are now becoming available for a number of PFI schemes, as prepared by the operating consortia in the weeks running up to the signing of the contract.

Section 1 of this note analyses in detail the projections which are now available for the New Royal Infirmary of Edinburgh, (NRIE), to demonstrate the scale of the financial returns which were being projected by the operating PFI consortium. This provides prima facie evidence that the scale of the returns being projected was large.

Section 2 provides summary information on certain other PFI schemes, (Hairmyres Hospital, James Watt College, Highland PP2 Schools, Perth and Kinross Office and Car Park, and, in England, Hereford Hospital), for which detailed financial projections are also now available. While the schemes all differ in detail, the broad picture, of very high projected returns to equity owners, is similar to the NRIE information examined in section 1.

Section 3 relates the information in the first two sections to earlier research, (Cuthbert, 2007), which had hypothesised that inappropriate indexation of the financing element of the unitary charge in PFI schemes could lead to excess profits. The new factual material now available provides strong additional support for this hypothesis.

The current paper is complementary to the paper "The Royal Infirmary of Edinburgh: A Case Study on the Workings of the Private Finance Initiative", by M. Cuthbert and J.R. Cuthbert, (2008), which has also been submitted to the Finance Committee.

I. THE FINANCIAL PROJECTIONS OF THE NRIE.

Background

1.1) The PFI contract for the design, build, maintenance and management of the NRIE, together with the provision of non-clinical services, was signed between the NHS Trust and Consort Healthcare in 1998. The capital value of the new facility was £196 million: allowing also for development costs, the total construction cost of the project was £201.4 million. The contract was for thirty years, (of which 25 is the management phase). However, after the end of the 30 year period, Consort has certain remaining rights in the site, and/or in the provision of further services. There is likely to be significant value attaching to these residual rights - but such value is not included in the financial projections analysed here.

1.2) At the end of 2007, the official documents surrounding the signing of the contract were released by NHS Lothian under the Freedom of Information Act. The financial projections analysed in this section were drawn from the Project Agreement, Schedule 12, Part 2, page 166 ff. The data taken from the financial projections for the purposes of the present study comprise the projected monetary amounts for the income of the consortium, and various headings of expenditure, (including debt service and dividends). All of the figures quoted here for Net Present Value, and Internal Rate of Return, (IRR), have been derived by the authors from these base figures.

[1] We are grateful to Professor Allyson Pollock and her colleagues at Edinburgh University for discussions while we were working on this paper. However, we take full responsibility for any errors and opinions expressed here.

1.3) Within the construction phase of the project there was a drawdown of £173.6m senior debt by Consort Healthcare. However, there was also land sale income of £12.27m to Consort Healthcare from Morrison, which, in the financial projections analysed here, was used for immediate prepayment of senior debt by Consort. So the net drawdown of senior debt for construction costs was £161.3m.

The following table summarises the net drawdown of construction debt:

	£ million	£ million
Senior Debt drawdown	173.6	
less land sales income	12.3	
Net Senior Debt Drawdown		161.3
Subordinate Debt		19.3
Equity		0.5
Net Drawdown of Construction Debt		**181.1**

The net drawdown of construction debt, plus the land sale income of £12.27 million, gives a total amount of funding from construction debt and land sales which is £8.1 million less than the total construction cost of the hospital, (£201.4 million). Since certain elements of construction, at a late stage of the construction process, were funded direct from operational revenues, we take the total funding for the construction phase of the hospital, net of land sales, to be £189.2 million, rather than the net construction debt drawdown of £181.1 million.

In addition to this finance for construction, rolled up interest of £40.6m on senior debt during the construction period, and £11.6m on subordinate debt, were also capitalised, that is, added to outstanding debt. These amounts of rolled up interest contribute to the future streams of interest charges and debt repayment.

The Non-service Element of the Unitary Charge

1.4) During the management phase of a PFI contract, the Trust pays a unitary charge to the consortium: this unitary charge covers both the cost of ongoing services, (like operations and maintenance), and also other costs like debt charges on senior and subordinate debt, tax, and projected dividend payments to the equity owners. The unitary charge, less the cost of ongoing services, (life cycle costs, ancillary services, and operating costs in the case of the NRIE), is denoted here as the non-service element of the unitary charge, or, more simply, as the non-service element. In the financial projections for the new Royal Infirmary of Edinburgh, the non-service element of the unitary charge is projected to be entirely used up by debt charges, tax, and dividends. Over the 25 year management phase of the project, the non-service element for the NRIE is projected to total some £760.2m in nominal, that is, cash, terms. It is important to stress that the non-service element of the unitary charge does not include lifecycle costs, ancillary services, such as portering, catering, cleaning, etc., and operating costs.

Net Present Value of the Non-service Element.

1.5) The £760.2m cash payment by the Trust for the non-service elements in the unitary charge compares with the original capital raised, (net of land sales), of £189.2m. This, however, is not in itself a very meaningful comparison. The figure of £760.2m is an aggregate of cash payments made over a 25 year period. Since a given amount of cash today can be invested, and earn interest, a specific amount of cash today is worth more than the same amount of cash at a particular time point in the future. Rather than simply adding up future cash payments, therefore, the relevant approach is to calculate the Net Present Value, (NPV), of a stream of payments by discounting future payments by an appropriate discount rate.

1.6) Table 1 shows the Net Present Value of the non-service element of the unitary charge, and also of the various uses on which the non-service element is ultimately spent. These uses include the payment of corporation tax, the payment of debt charges, (that is, interest charges and repayment of principal on senior and subordinate debt), and dividends to equity holders. In

calculating Net Present Values, there is no such thing as a unique discount rate which is appropriate for all purposes: different discount rates can, and indeed, should, be used to give different perspectives on the same set of data. Accordingly, in Table 1, Net Present Values have been calculated for three different discount rates: namely, 5%, 6.5%, and 8%. The differing perspectives implied by these differing discount rates are described further below.

Table 1: NRIE PFI: Net Present Values

	Capital Raised (£m)	Total Payment (£m,nominal)	NPV of Total Payment (disc@5%)	Ratio NPV/Cap (disc@5%)	NPV of Total Payment (disc@6.5%)	Ratio NPV/Cap (disc@6.5%)	NPV of Tota Payment (disc@8%)	Ratio NPV/Cap (disc@8%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Non-service element of u.c.	189.2	760.2	416.18	2.04	357.41	1.71	310.53	1.45
Corporation Tax		167.2	69.78		54.80		43.43	
Senior Debt	161.325	369.56	229.55	1.31	202.27	1.13	179.45	0.98
Subordinate Debt	19.27	60.66	38.45	1.85	34.22	1.61	30.70	1.41
Equity Proper	0.5	167.9	64.1	128.2	48.93	97.86	37.67	75.34
Sub Debt + Equity	19.77	228.56	102.55	4.80	83.15	3.80	68.37	3.05

1.7) The first row of Table 1 shows the Net Present Values of the non-service element as a whole:-

Net Present Value at 5% discount.
Discounted at 5%, the £760.2m nominal payment of the non-service element of the unitary charge has a Net Present Value of £416.18m, (at end 2001), which is 2.04 times the Net Present Value at 2001 of the £181.1m capital raised. The relevance of the 5% discount rate is that this is approximately the interest rate at which the public sector could have borrowed from the National Loan Fund. So, putting this another way: if the project had been funded by the public sector borrowing from the National Loan Fund, then for the same cost as the stream of payments projected in the non-service element of the unitary charge, the public sector could have borrowed 2.04 times the amount of capital which was actually raised for the NRIE.

This is not to say that the public sector could actually have gone down the road of borrowing from the National Loan Fund, and building more than two hospitals for the equivalent cost of the PFI approach, because:-

- access to National Loan Fund funding was severely restricted at the relevant date.
- account must be taken of the value of the risk transferred to the private sector under PFI: (although the extent to which risk is actually transferred under PFI is unclear.)

Nevertheless, the Net Present Value of the non-service element discounted at 5% is extremely relevant. If, (as seems likely), the public sector could have successfully achieved, or contracted for, the construction of the hospital for materially less than £416.18m, then this implies that a basic public sector design and build approach to the NRIE could have been cheaper, perhaps much cheaper, than the PFI approach.

Net Present Value at 6.5% discount.
This is the discount rate which would be relevant if funding had been obtained from the private sector at about 1.5% above base rate: (which would be the interest rate charged by banks on low risk loans). At this discount rate, the Net Present Value of the non-service element of the unitary charge is £357m, which is 1.71 times the Net Present Value of the capital raised. This implies that, under a funding model where the public sector was borrowing from the private sector, but giving sufficient guarantees for the private sector to lend at 1.5% above base rate, then this could have financed the construction of 1.71 hospitals for the same cost as the non-service element of the PFI unitary charge.

Net Present Value at 8% discount.
The relevance of a discount rate of 8% is that this is, to a reasonable approximation, equivalent to the cost to the Trust if it had been borrowing at 5% from the National Loan Fund, but if, in addition, inflation had been running at 3%, and the Trust was having to account for a capital charge on the value of the hospital assessed at current prices, and also for current cost depreciation on the hospital. The Net Present Value of the non-service element in this case is £310m, or 1.45 times the value of the capital raised. This suggests that, if the public sector procurement model involved the

public sector having to pay a capital charge on its capital assets, then the public sector could still have built 1.45 hospitals for the cost of the non-service element of the PFI unitary charge.

At first sight, given that hospital trusts do indeed have to account for a capital charge assessed at current cost on the capital assets which they own, it would appear that a high discount rate, such as 8%, would be the appropriate discount rate to use in assessing Net Present Values. This, however, would be a mistaken view. The Office for National Statistics, (ONS), decides, for each PFI scheme, whether that scheme involves sufficient risk transfer to justify the scheme being "off the Government's books". In the case of the NRIE PFI scheme, the ONS has decided that the scheme should be "on the Government's books". For an "on book" hospital scheme, the public sector still has to carry, on its accounts, a capital charge for the asset. The capital charge for the NRIE, therefore, is common to both a public sector approach to procurement, and to the present PFI scheme. Since the figures for the non-service element of the unitary charge from the NRIE financial projections do not include any allowance for the cost of a capital charge, it would be inappropriate to allow for the effect of the capital charge on a public sector procurement approach by deflating the non-service element by an index which included an allowance for a capital charge. Use of the 8% deflation factor in this case is therefore inappropriate: it is included in Table 1 merely as a curiosity.

1.8) To summarise, therefore, the Net Present Value figures in the top row of Table 1 imply that, for the stream of non-service element payments which the Trust is projected to make, the Trust could have afforded 2.04 hospitals if it had borrowed from the National Loan Fund, or 1.71 hospitals if the Trust had borrowed from the market at base rate plus 1.5%. (This assessment does not allow for the cost of capital charges, which are irrelevant in this case, since the public sector has to pay them in any event, given that the NRIE PFI scheme is classified as "on book".) Nor does the comparison allow for the cost of the risk transferred to the private sector under the PFI deal. However, if the margin of 104% above the basic cost of the hospital is meant to represent the value of risk transferred to the private sector, then this appears to be an extraordinarily high margin. As we will now see, the major part of the margin is in fact accounted for, in the financial projections, by high returns to the equity owners of the consortium.

Net Present Values of the Components of the Non-service Element.

1.9) The lower rows of Table 1 show the Net Present Values of various sub-aggregates of the non-service element of the unitary charge: essentially, these are the various uses to which the non-service element is eventually put. The columns showing the ratios of Net Present Value to capital raised are particularly interesting, as indicators of the relative rewards projected for the different sources of funding. In particular, the equity injection of £0.5 million is projected to earn dividends of £167.9 million in nominal terms, with a Net Present Value, (discounted at 5%), of £64.1m: this gives a ratio of Net Present Value to capital raised of £64.1 million to £0.5 million, that is, a ratio of 128.2 to 1. (One way of looking at this is that the projected stream of dividends could be sold off immediately, with no time delay, to an investor who was looking for a 5% return on their capital, for 128.2 times the original equity injection of £0.5 million.) The corresponding ratios for subordinate debt and senior debt respectively are 1.85 to 1 and 1.31 to 1.

The final row of Table 1 shows the reward which the holders of equity, (that is, equity in the broad sense, of subordinate debt plus equity proper), are projected to receive. The total return, on the £19.77m invested in subordinate debt and equity, is projected to be £228.56m, with a Net Present Value of £102.55m, (discounted at 5%). In other words, this projected stream of payments has a potential worth, as at 2001, of £102.55m to an investor who is looking for a 5% return. This gives an indication of the potential profitability of their original investment to the equity owners.

Another point of interest in Table 1 is the Corporation Tax row: the total payment of corporation tax by the consortium is projected to be £167m, with a Net Present Value, (discounted at 5%), of almost £70m. Given that the Exchequer will also be receiving tax on the profits of the senior and subordinate debt lenders, the implication is that the PFI scheme involves what amounts to a significant transfer of resources from the budget of the Scottish Government to the Exchequer.

Internal Rates of Return on the Different Components of the Non-service Element.

1.10) An alternative way to look at the returns involved in the non-service element of the unitary charge and its different components is to consider internal rates of return. Given an initial drawing down of capital from the lenders, (perhaps over a number of years), followed by a series of payments, the internal rate of return is that rate of interest which implies that, by the end of the period, the original debt, plus outstanding interest, will be exactly paid off. Effectively, the internal rate of return is the rate of interest actually earned on the original drawing down of capital.

Another way of looking at the internal rate of return is that it is that discount rate by which we would have to discount the future stream of payments to produce a value equal to the value of the original amount of capital drawn down.

In the circumstances dealt with here, there will always be a unique internal rate of return implicit in a given series of capital drawdowns and then payments.

1.11) While internal rates of return associated with PFI schemes are commonly quoted on their own, this is actually a highly misleading practice. If the interest rate on a loan is high, and the lender defers taking interest for a significant period, then the outstanding debt, including accumulated interest, will rapidly escalate. In these circumstances, the total payment to the lender over the life of the loan will be much higher than in the case where outstanding interest is not allowed to accumulate - even though the internal rates of return in the two cases will be the same. What this means is that the total payment to the lender over the life of the project depends not just on the interest rate, (the internal rate of return), but on the average outstanding debt, (including accumulated interest), over the period of the loan. We denote this average outstanding debt, (including accumulated unpaid interest), as average notional debt. More formally, the relationship between these quantities is

Total Payment = Capital Raised + IRR * (average notional debt) * (number of years).

In this note, internal rates of return are always quoted in association with their average notional debts.

1.12) Table 2 shows the internal rates of return and average notional debts for the non-service element of the unitary charge and its components.

Table 2: NRIE PFI: Internal Rates of Return

	Capital Raised (£m)	Total Payment (£m,nominal)	IRR (%)	Average Notional Debt (£m)	Av Notional Debt as % of Capital
	(1)	(2)	(3)	(4)	(5)
Non-service element of u.c.	189.2	760.2	11.90%	166.10	87.8%
Corporation Tax		167.2			
Senior Debt	161.325	369.56	7.80%	107.31	66.5%
Subordinate Debt	19.27	60.66	12.40%	13.37	69.40%
Equity Proper	0.5	167.9	34.00%	16.97	3394.40%
Sub Debt + Equity	19.77	228.56	17.70%	40.63	205.5%

The internal rate of return of the overall non-service element is 11.9%, which is earned on an average notional debt over the life of the project of 87.8% of the £189.2m capital which was actually raised.

There are, however, startling variations within this overall average as regards the different sub-components of the non-service element.

Senior debt has an internal rate of return of 7.8%, which is earned on an average debt of 66.5% of the £161m capital raised by senior debt. So senior debt is both relatively cheap, (though still with a

margin some 2 percentage points above National Loan Fund rates), and is also paid off relatively quickly.

Subordinate debt has a higher internal rate of return, of 12.4%: but is still paid off relatively quickly, with an average notional debt some 69.4% of the capital raised.

The position on equity is radically different, however, with an internal rate of return of 34% on an average debt equal to 3394% of the capital raised.

It might be objected that internal rates of return on equity proper are somewhat misleading, given the relatively small amount, (£0.5 million) of equity capital actually raised. A more accurate picture of the overall return to the equity owners can be obtained by taking the broad definition of equity, as subordinate debt plus equity proper. On this basis, the internal rate of return on broad sense equity is 17.7%, and this is earned on an average notional debt of no less than 205.5% of the £19.77m capital raised by subordinate debt and equity.

1.13) What this analysis of internal rates of return shows, therefore, is that the financial affairs of the NRIE consortium have been arranged so that the component of funding which is relatively cheap, (senior debt), with an internal rate of return of 7.8%, is paid off quickly, (with average notional debt 66.5% of the capital raised.) On the other hand, that element of funding which has an internal rate of return of 17.7%, (broad sense equity), is paid off much more slowly - so that the interest rate of 17.7% is earned on an average outstanding debt of 205.5% of the capital raised.

Conclusion.

1.14) This section has analysed the non-service element of the unitary charge for the NRIE in a number of ways. This has included calculating the Net Present Values of the non-service element of the unitary charge, and its various uses, using three different discount rates. Given that the NRIE is “on balance sheet”, as determined by ONS, issues about correcting for the effects of the capital charge do not arise, since the capital charge is a common feature of both public and private procurement: hence the most appropriate discount rate for calculating Net Present Values is probably 5%, representing the cost to the public sector of borrowing from the National Loan Fund. At this discount rate, the Net Present Value of the non-service element is 2.04 times the amount of capital raised. This implies that the PFI approach is carrying a margin of something like 104% of the basic cost of the hospital. Given this is far larger than the size of margin conventionally associated with risk transfer under PFI, the implication is that the PFI scheme implies excessive profits for the PFI provider.

This conclusion is consistent with the analysis of the uses of the non-service element: in particular, the projected return on equity, (in the broad sense of subordinate debt plus equity proper), is worth over £100m at 2001 in Net Present Value terms (discounted at 5%), on an equity input of less than £20m. Moreover, this does not include the value to the consortium of their very significant residual rights in the site, and the project, after the 25 year concession period.

Another important conclusion to emerge from the analysis is the size of the transfer of resources from the Scottish Government’s budget to the Whitehall Exchequer, implied by this PFI project. The projected stream of Corporation Tax payments alone has a present day worth of £70m, and to this should be added tax payments which will accrue as a result of senior and subordinate debt interest payments. These tax transfers would not have taken place under a public sector procurement approach. (It should be noted, however, that according to a report in the Guardian of 3rd March 2008, ownership of several PFI schemes is now being transferred to companies registered in tax havens abroad: this would have the effect of converting a significant part of the prospective tax payment to the UK Government into even larger profits for the equity owners.)

One further conclusion to emerge from the study relates to the use of internal rates of return. The internal rate of return on equity, (again defined in the broad sense), is around 18%. This figure in itself is significant enough. But quoting the internal rate of return in isolation, (as is commonly done), conceals the fact that, in the case of the NRIE, this return is being earned on an outstanding debt which, over the life of the project, averages more than twice the original input of capital by way of subordinate debt and equity proper. This illustrates how internal rates of return should only ever

be quoted in conjunction with average outstanding debt figures - contrary to the common Treasury practice in this area.

II FINANCIAL PROJECTIONS FOR OTHER PFI SCHEMES: SUMMARY INFORMATION.

2.1) Table 3, (attached), shows summary information for the other PFI schemes for which, largely because of Freedom of Information[2], projections are also now available. Summary information is also repeated in Table 3 for the New Royal Infirmary of Edinburgh, for ease of comparison with the other schemes. The other cases for which details are given are Hairmyres Hospital, James Watt College, Highland PP2 Schools, Perth and Kinross Office and Car Park, and, in England, Hereford Hospital. The different data sources accessed are referenced at the end of this paper: all of the figures quoted here for Net Present Values, and for Internal Rates of Return, have been derived by the authors from the basic money amounts in these projections.

2.2) Table 3 gives, for the non-service element of the unitary charge and each of its main uses, the amount of capital raised, the total resulting payment, the Net Present Value of the payment discounted at 5%, internal rate of return and average notional debt, along with certain key ratios. For two of the schemes, for which the injection of equity capital is very small, it is not meaningful to calculate internal rates of return on equity proper.

One other point of detail to note about the tables is that the uses to which the non-service element is put typically sum to slightly more than the non-service element itself. This is largely because interest accrues on balances held by the PFI consortium, and is therefore available to be paid out in due course to the various uses.

2.3) Key points to note from Table 3 are as follows:-

a) With regard to the non-service element, the ratio of the Net Present Value of the stream of payments over the life of the project to the capital raised, (the middle figure in the top row in each table), can be regarded as an indicator of how expensive the PFI scheme is to the sponsoring body, as a way of raising a given amount of capital. The NRIE is, in this sense, the most expensive of all the schemes, with a ratio, as seen in the last section, of 2.04. The corresponding ratios for the other schemes are 1.97, 1.97, 1.82, 1.68 and 1.49: the latter figure corresponding to Highland Schools. So while there are variations, all of the schemes are, on this indicator, expensive: and three out of the six considered have a ratio which is close to 2 or above.

b) With regard to subordinate debt plus equity, the ratio of the Net Present Value of total payments to capital raised, (which is the middle figure in the bottom row in each table), can be regarded as an indicator of how profitable the scheme is projected to be for the equity owners. All of the schemes are projected to be extremely profitable, with the ratio being above 4 for all of the schemes apart from Highland Schools, where the ratio is almost 3. The most profitable scheme is projected to be Hairmyres Hospital, where the ratio is 6.69: i.e., for this scheme, the projected return to the equity owners is worth, (discounted at 5%), almost seven times the amount of capital contributed by the equity owners. The reason that Hairmyres is projected to be more profitable than NRIE, even though it is less costly, is that the cost of senior debt is less for Hairmyres, and Hairmyres is also projected to pay significantly less tax.

c) All of the schemes show the feature observed in the NRIE, of a high internal rate of return on subordinate debt and equity, which is paid on an average notional debt which is high relative to the amount of capital initially raised. For all of the schemes, the average notional debt on which internal rate of return is earned is larger than the capital raised by subordinate debt and equity: and for four of the schemes, the average notional debt is more than double the initial capital.

2.4) In conclusion, all of the schemes illustrated here show the same features observed in the detailed analysis of the NRIE: namely, the high cost of the scheme to the public sector client, and the very high projected rates of return to the equity owners. We should stress that we have not in

[2] The exception is the data for Hereford Hospital, which was made available to us by Professor Allyson Pollock of Edinburgh University, to whom we express our thanks. We also express our thanks to Unison, through whom three of the other projections were made available to us.

any sense cherry-picked the schemes illustrated here, by selecting particular examples that illustrate these conclusions. What we have reported here is all of the schemes for which detailed projections are currently available to us. The conclusion drawn here, that PFI schemes can be extremely profitable for the equity owners, is, however, supported by other evidence, in the form of reports of substantial profits realised by refinancing in certain PFI schemes shortly after the construction phase is completed.

III EVIDENCE OF INAPPROPRIATE INDEXATION OF THE UNITARY CHARGE.

3.1) In August 2007, it was argued by J. R. Cuthbert in the paper Cuthbert (2007) that inappropriate indexation of the unitary charge in PFI schemes could be a significant factor leading to excessive returns to the equity owners. The hypothesis advanced in that paper was that, because of the way indexation is commonly applied to the unitary charge in PFI schemes, the non-service element of the unitary charge would typically be flat, or even increasing through the life of the scheme. If the profile of senior debt charges had, however, been arranged so that senior debt charges declined through time, then the result would be that a large margin would, in due course, emerge between the non-service element of the unitary charge and its senior debt charge component. This margin would be available to equity holders as profit.

3.2) The original paper, Cuthbert (2007), was produced on the basis of the much more limited amount of information then available about how PFI schemes actually behaved. As will be seen below, the additional evidence now available through Freedom of Information fully confirms the hypothesis put forward in that paper. Before looking at this evidence, however, it is instructive to consider the reaction of Partnerships UK to the original paper. A copy of the paper was sent to Partnerships UK by the PFI Unit of the Scottish Government, and Partnerships UK responded with an attempted rebuttal to the paper: (a copy of the Partnerships UK response, and a rejoinder to Partnerships UK, can be found on the website at www.cuthbert1.pwp.blueyonder.co.uk). A key part of the Partnerships UK argument was the claim that, typically, the profile of senior debt charges in PFI schemes did not decline through time. To quote the Partnerships UK note: “Annuity style debt repayment profiles, (similar to domestic mortgages), or other more back-ended repayment profiles are the norm.”

Partnerships UK do not give any supporting evidence for this claim: but what they are saying is quite clear. Namely that, in typical PFI schemes, the profile of senior debt charges is flat through most of the life of the project, or even increases through time.

3.3) This Partnerships UK claim can now be subjected to test, against the evidence which has become available through Freedom of Information. This is most conveniently done graphically. Charts 1 to 6 show, for each of the PFI schemes for which we have detailed information, the overall unitary charge, the non-service element, and senior debt charges. The critical thing in the charts are the comparative profiles of the non-service element, and senior debt charges. In each case, it can be seen that senior debt charges decline well before the end of the project: indeed, in several cases, senior debt charges terminate completely, or become trivial, 5, or even 10 years before the end of the project. On the other hand, the non-service element of the unitary charge basically goes up, giving an increasing wedge between the non-service element and senior debt charges: this wedge is, effectively, available as profit to the equity owners. It is precisely this pattern of an increasing profit wedge which was hypothesised in the original paper Cuthbert (2007): and it is precisely this observed pattern which, according to Partnerships UK, does not occur.

(Note that the Hereford Hospital appeared in Cuthbert 2007 as “Hospital X”: the financial projections on the other five schemes considered here were not available when Cuthbert 2007 was prepared.)

3.4) The behaviour of the profile of senior debt charges, therefore, in each of the cases analysed, is totally inconsistent with Partnerships UK claim about the way senior debt charges are handled in PFI schemes. The evidence presented here, however, provides strong additional support for the original hypothesis in Cuthbert (2007), that inappropriate indexation of the unitary charge in PFI schemes could result in excess profits for the equity owners.

3.5) To say this, however, is in one sense to beg the really important question. While inappropriate indexation may be the key mechanism generating excess profits, the nub question is still unanswered: namely, what were the problems in monitoring and scrutinising PFI schemes that allowed this situation to arise.

CONCLUSIONS.

Main conclusions arising from this study are:-
a) the analysis demonstrates the high costs, and the high projected profits, associated with the six PFI schemes considered.
b) the evidence also confirms that the particular mechanism driving the high costs, and profits, appears to be inappropriate indexation of the non-service element of the unitary charge.
c) if adequate central monitoring of PFI schemes had been in place, then it would have been apparent early on that things were going wrong.

What this paper does not answer is the question of why problems were not picked up in the value for money and affordability comparisons that each PFI scheme has to go through. However, the complementary paper, (Cuthbert and Cuthbert 2008), which is also based on Freedom of Information material, highlights a number of issues and problems which undermine the standard value for money and affordability approaches.

Clearly, the specific issues identified in this paper, and in our complementary paper, need to be addressed. But in a sense, all these issues are symptomatic of a deeper problem. The overall picture that emerges points to worrying failures in the oversight of the public sector side of the PFI process. This can be seen, for example, in the apparent unawareness on the public sector side of the pitfalls associated with inappropriate indexation, or the dangers of uncritically quoting internal rates of return without paying attention to the associated average outstanding debt: another example is the apparent failure to set up adequate central monitoring of how PFI was actually performing. The reasons for these failures need to be probed, and rectified. One possibility is that there is a philosophical issue arising here: and that the view was taken that, since PFI was a market based solution to the public sector procurement problem, then in some sense an invisible hand would deliver an optimal outcome, without too much attention being paid to the detail. If any such view was current, then on the evidence presented here, it was badly misplaced.

Data Sources Accessed

New Royal Infirmary of Edinburgh: Base Case Financial Model: Model run of 18/08/98: vol.12.2, NRIE Bible of Documents.
Hairmyres Hospital: Part 1C of PFI Contract: Ernst & Young Base Case Financial Model: File 5, Model Run dated 01/04/98.
James Watt College: Version 4 Financial Model dated 26/10/98.
Highland Council: Education PP2 Full Business Case, 22nd December 2006: Financial Close Version: (but model run dated 16/07/07).
Perth and Kinross Office and Car Park: Full Business Case, Appendix 9A, model run Revision 01 dated 04/02/99.
Hereford Hospital: Appendix B14 Financial Model: Final Trust Revision, for 16th November 1997 close.

References

Cuthbert, J.R., (2007): “The Fundamental Flaw in PFI? The Implications of Inappropriate Indexation of That Element of the Unitary Charge Covering Capital Finance Costs”: paper to be published by STUC; copy available on website www.cuthbert1.pwp.blueyonder.co.uk

Cuthbert, M., Cuthbert, J.R., (2008): “The Royal Infirmary of Edinburgh: A Case Study on the Workings of the Private Finance Initiative”: note prepared for the Finance Committee of the Scottish Parliament.

Table 3: PFI Summary Tables

Summary Table: **New Royal Infirmary Edinburgh PFI**

	Capital Raised (£m)	Total Payment (£m,nominal)	NPV of Total Payment (disc@5%)	Ratio NPV/Cap (disc@5%)	Internal Rate of Return	Average Notional Debt	Avge debt as % Capital
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Non-service element of u.c.	189.2	760.2	416.18	2.04	11.9%	166.10	87.8%
Corporation Tax		167.2	69.78				
Senior Debt	161.325	369.56	229.55	1.31	7.8%	107.31	66.5%
Subordinate Debt	19.27	60.66	38.45	1.85	12.4%	13.37	69.4%
Equity Proper	0.5	167.9	64.1	128.2	34.0%	16.97	3394.4%
Sub Debt + Equity	19.77	228.56	102.55	4.80	17.7%	40.63	205.5%

Summary Table: **Hairmyres Hospital PFI**

	Capital Raised (£m)	Total Payment (£m,nominal)	NPV of Total Payment (disc@5%)	Ratio NPV/Cap (disc@5%)	Internal Rate of Return	Average Notional Debt	Avge debt as % Capital
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Non-service element of u.c.	73.38	330.15	158.57	1.97	10.4%	70.52	96.1%
Corporation Tax		53.72	18.52				
Senior Debt	64.98	147.11	89.98	1.25	7.2%	32.69	50.3%
Subordinate Debt	8.4	56.08	26.42	3.15	18.8%	8.44	100.4%
Equity Proper	0.0001	89.14	29.77				
Sub Debt + Equity	8.4	145.2	56.19	6.69	23.2%	19.66	234.0%

Summary Table: **James Watt College PFI**

	Capital Raised (£m)	Total Payment (£m,nominal)	NPV of Total Payment (disc@5%)	Ratio NPV/Cap (disc@5%)	Internal Rate of Return	Average Notional Debt	Avge debt as % Capital
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Non-service element of u.c.	6.5	23.6	12.91	1.97	12.7%	5.18	79.7%
Corporation Tax		4.58	2.04				
Senior Debt	5.82	11.41	7.44	1.27	8.3%	3.36	57.7%
Subordinate Debt	0.6	1.62	1.08	1.71	12.1%	0.47	78.3%
Equity Proper	0.08	7.14	2.55	30.36	27.3%	0.99	1237.5%
Sub Debt + Equity	0.68	8.77	3.65	4.93	18.1%	1.72	252.9%

Summary Table: **Highland PP2 Schools PFI**

	Capital Raised (£m)	Total Payment (£m,nominal)	NPV of Total Payment (disc@5%)	Ratio NPV/Cap (disc@5%)	Internal Rate of Return	Average Notional Debt	Avge debt as % Capital
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Non-service element of u.c.	20.31	55.21	30.53	1.49	9.2%	14.56	71.7%
Corporation Tax		9.46	3.99				
Senior Debt	18.36	36.2	21.72	1.17	6.8%	10.50	57.2%
Subordinate Debt	1.951	6.25	3.922	1.99	15.3%	1.17	60.0%
Equity Proper	0.000197	5.91	1.9				
Sub Debt + Equity	1.951	12.17	5.82	2.95	16.9%	2.30	117.9%

Table 3, Continued

Summary Table: **Perth and Kinross Office and Car Park PFI**

	Capital Raised (£m)	Total Payment (£m,nominal)	NPV of Total Payment (disc@5%)	Ratio NPV/Cap (disc@5%)	Internal Rate of Return	Average Notional Debt	Avge debt as % Capital
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Non-service element of u.c.	20.65	73.8	38.1	1.82	11.0%	17.89	86.6%
Corporation Tax		10.9	4.86				
Senior Debt	18.62	31.89	20.53	1.1	7.0%	9.89	53.1%
Subordinate Debt	1.898	6.429	3.62	1.91	13.1%	1.37	72.2%
Equity Proper	0.136	24.36	7.71	55.47	39.0%	2.30	1691.1%
Sub Debt + Equity	2.03	30.79	11.33	5.57	18.6%	5.76	283.7%

Summary Table: **Hereford Hospital PFI**

	Capital Raised (£m)	Total Payment (£m,nominal)	NPV of Total Payment (disc@5%)	Ratio NPV/Cap (disc@5%)	Internal Rate of Return	Average Notional Debt	Avge debt as % Capital
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Non-service element of u.c.	74.942	257.35	137.07	1.68	9.8%	64.41	85.9%
Corporation Tax		49.57	19.39				
Senior Debt	65.95	133.78	90.15	1.24	7.7%	36.61	55.5%
Subordinate Debt	8.992	36.234	20.621	2.29	16.8%	6.24	69.4%
Equity Proper	0.001	55.671	18.58				
Sub Debt + Equity	8.993	91.905	39.2	4.36	20.8%	13.75	152.9%

Chart 1: NRIE: Unitary Charge, Non-service Element, and Senior Debt Charges: £k

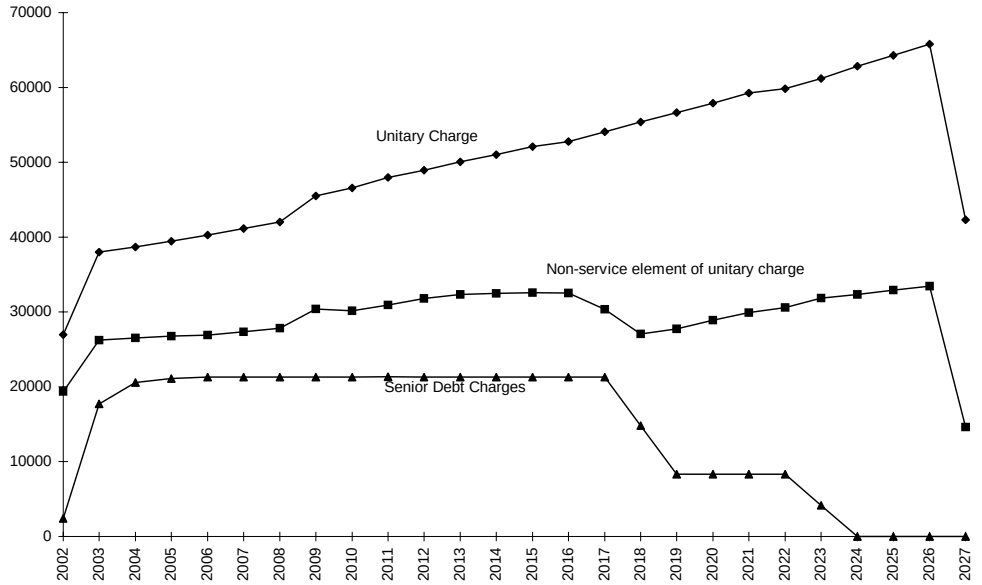

Chart 2: Hairmyres: Unitary Charge, Non-service Element, and Senior Debt Charges: £

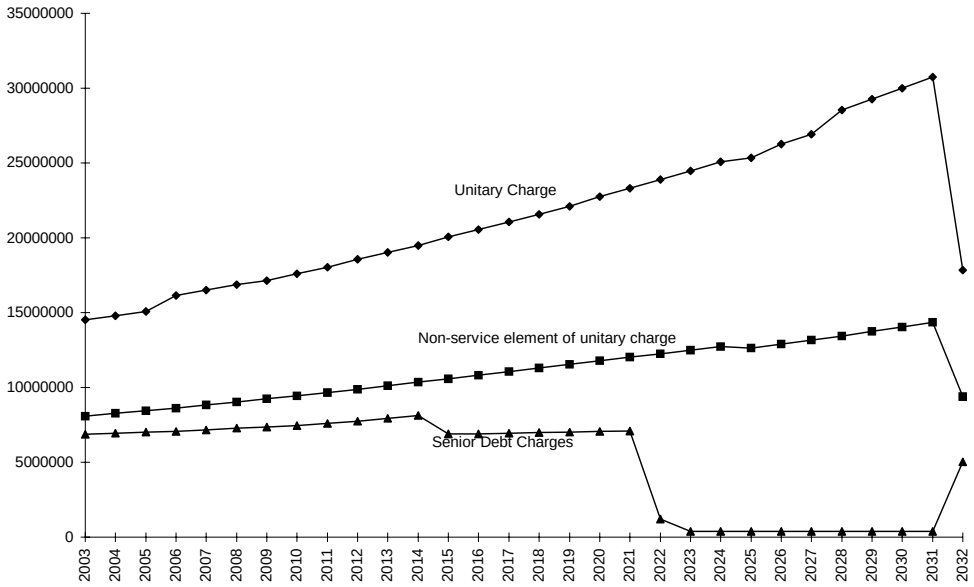

Chart 3: James Watt College: Unitary Charge, Non-service Element and Senior Debt Charges: £m

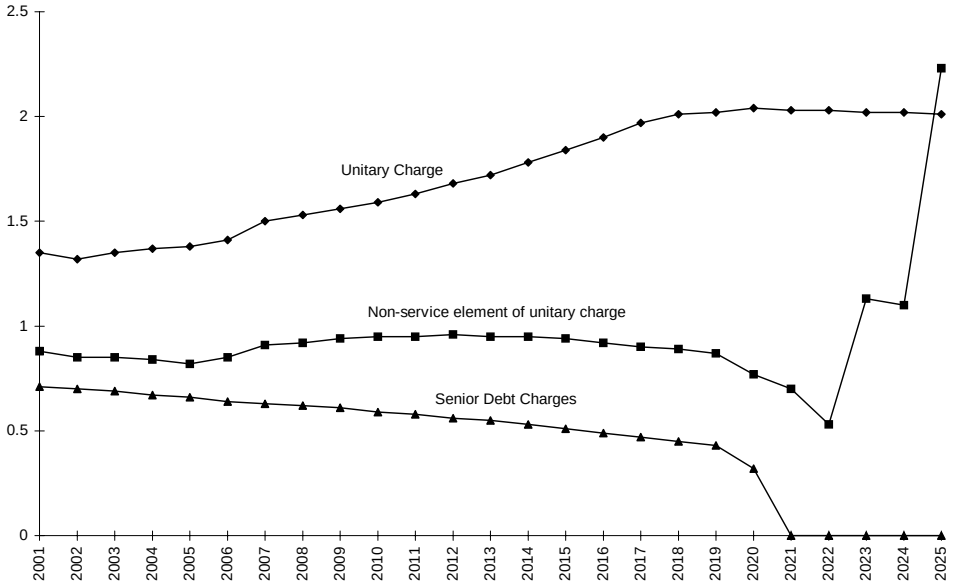

Chart 4: Highland Schools PP2: Unitary Charge, Non-service Element and Senior Debt Charges: £

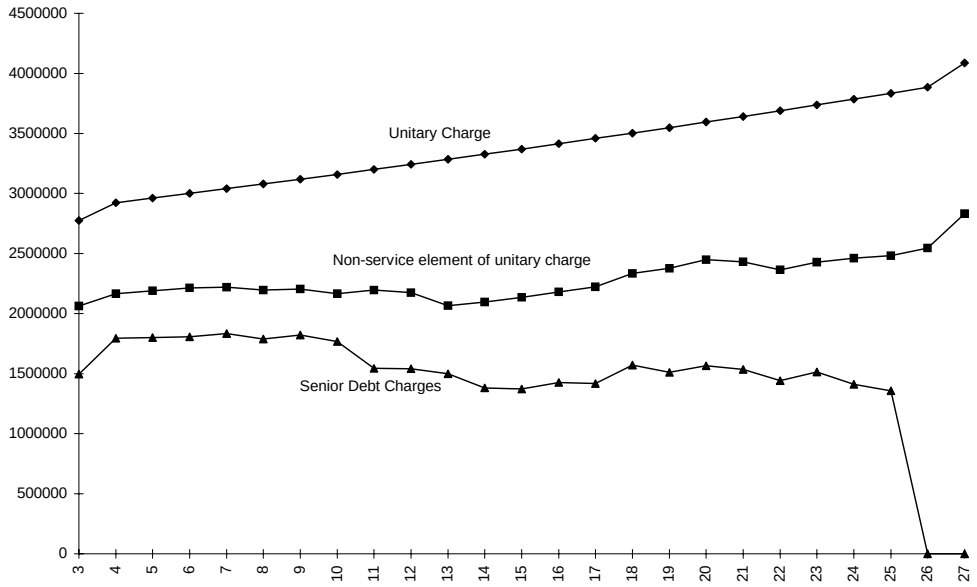

Chart 5: Perth and Kinross Office and Car Park: Unitary Charge, Non-service Element, and Senior Debt Service: (£k)

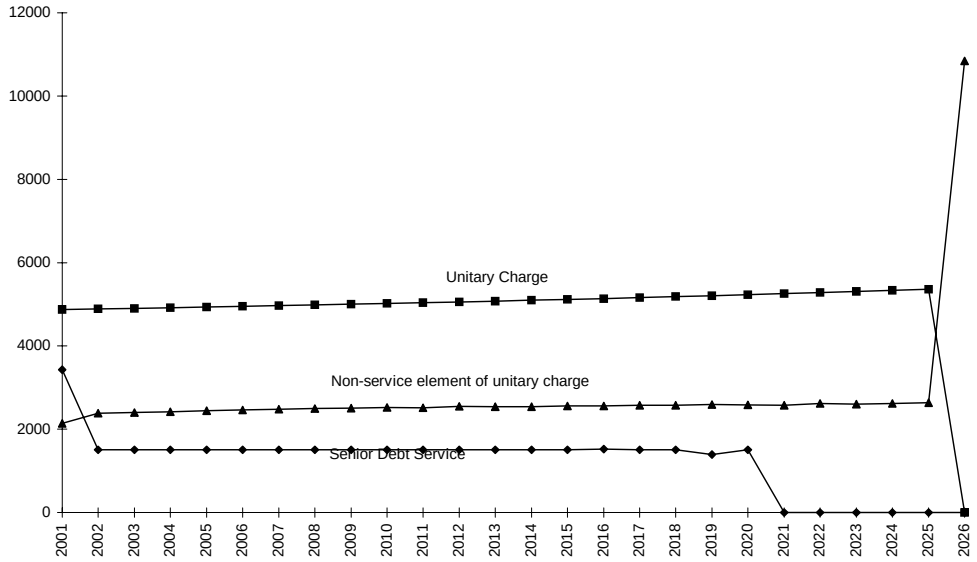

Chart 6: Hereford Hospital: Unitary Charge, Non-service Element, and Senior Debt Service. (£k)