

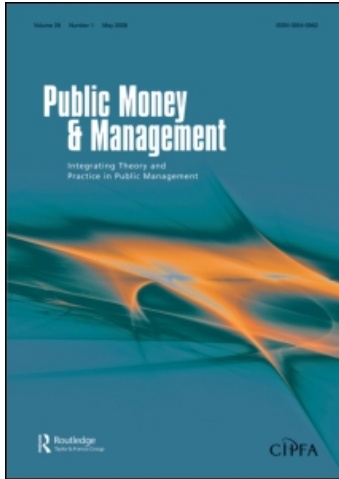
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Are Italian healthcare organizations paying too much for their public–private partnerships?

Veronica Vecchi, Mark Hellowell and Francesco Longo

Italy's health service—the Servizio Sanitario Nazionale (SSN)—has developed Europe's second largest market for healthcare public–private partnerships. This article describes the origins of private finance for SSN infrastructure, examines the programme's scale and key characteristics, and provides a capital budgeting analysis of rates of return on 14 privately financed schemes. Excess returns are being made by the investors in these projects, and there is potential for SSN procurers to achieve significantly better value for money for the Italian people than has been the case to date.

Across Europe, the importance of public–private partnerships (PPPs) in the financing and delivery of public services is increasing. A PPP is a long-term contract between a public authority and a private sector special purpose vehicle (SPV) in which the latter finances the design and build of new public facilities. The SPV takes on the risks of a project's construction and operation, and generates a return on its capital through leasing the asset to the public sector, in addition to a management fee for providing certain 'non-core' public services, such as maintenance, catering and cleaning.

The estimated construction value of healthcare PPP contracts in Europe was more than 33 billion euro at the end of 2009. The PPP model now accounts for a significant proportion of capital investment across a diverse array of publicly-funded sectors, such as national defence, public transport, roads, education, social housing and waste management.

By far the largest single market for healthcare PPPs is England's National Health Service, in which private financing of 73 billion euro has been committed through PPPs as of November 2009 (Department of Health, 2009). The Italian healthcare system, the Servizio Sanitario Nazionale (SSN), has developed the second largest PPP market in Europe and this is the focus of this article.

In December 2009, contracts for 30 Italian healthcare PPPs had been signed and an additional nine were in procurement. The scope of these projects varies from the construction of entirely new hospitals, to refurbishment projects, to the delivery of small non-clinical

assets, such as car parks and training centres. The total capital value of the SSN programme is 412 billion euro (*Osservatio Nazionale sulla Finanza di Progetto*, 2008).

In common with other EU member states; the government of Italy has supported PPP as a means of investing in healthcare capital while limiting the impact of this expenditure on the public finances. The use of private finance facilitates this, as the upfront cost of a PPP usually does not score against Public Sector Net Investment (PSNI), the main fiscal aggregate used to determine compliance with the EU Stability and Growth Pact, even though its long-run cost may be greater than public financing (Heald, 2003).

The policy framework adopted for PPP in the SSN has been strongly influenced by the private finance initiative (PFI) model used in the UK, about which there is an extensive critical literature. Research has demonstrated the implications of PPP contracts for hospital budgets and healthcare capacity (Gaffney and Pollock, 1999; Froud and Shaoul, 2001; Hellowell and Pollock, 2007); the distorted system of comparison between private and public finance alternatives (Pollock *et al.*, 2002); and the potential for high rates of return to be earned on private capital (Ball *et al.*, 2000; Broadbent *et al.*, 2003; Shaoul *et al.*, 2008).

This work has cast doubt on the economic merit of private finance in the NHS and the extent to which contracts are affordable.

Despite the increasing importance of private finance to the SSN, the Italian literature on this programme is more limited. The majority of research is descriptive in scope, and tends to

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focus on the scale of the programme and/or the type of organizational structures involved (for example Amatucci *et al.*, 2007). However, some recent evaluative work has now been undertaken on the impact of PPP on SSN finances (Vecchi, 2008a) and the risks presented by this model for healthcare organizations (Vecchi, 2008b).

This article is the first to examine the cost-efficiency of PPPs in the SSN—a matter of obvious significance for Italy's healthcare system and taxpayers. It is structured in three parts. It begins with a description of the institutional and financial design of the SSN, and a brief review of how capital investment has been financed. It proceeds to examine the key features of PPP in the SSN, focusing on the provision of public capital with the project structure, and the funding framework. It then outlines a framework for the economic evaluation of PPP and applies this to 14 SSN projects.

Funding and financing in the SSN

Organization and funding framework

The SSN, founded in 1978, is a similar entity to the UK's NHS. It is tax funded and provides care to the whole population, mostly free at the point of use. However, unlike the NHS, the SSN is almost totally decentralized, with regional government responsible for the funding and delivery of healthcare services. The 21 regional governments generate resources through local taxation, set healthcare budgets and direct resources to local health units (LHUs) on a capitation basis. In some regions, LHUs commission acute and specialist care from SSN independent hospitals (IHs), reimbursing them for the care they provide on a DRG (diagnosis related group) or fee-for-service basis. In this article, we use the term 'healthcare organization' to denote both LHUs and IHs.

The provision of finance for capital investment

While healthcare *funding* in Italy is regionalized, the provision of *finance* for capital investment has traditionally been the responsibility of central government. For the first 10 years of the SSN's existence, funding for capital was allocated on a per capita basis to regional governments which, in turn, channelled funds to healthcare organizations. However, these funds were widely regarded as insufficient to address the SSN's backlog of repairs and maintenance, the result of decades of under-investment in an estate that was mostly built prior to the Second World War (Ministero della Salute, 2001).

Public pressure for better healthcare facilities increased during the 1980s, and in 1988 the Italian health ministry launched a L30,000 billion (15 billion euro in 1988 prices) initiative for investment in the health sector, known as the 'Article 20 programme' (named after the instigatory law 67/1988 Art.20). The aim of this legislation was to provide the capital funds necessary to cover 95% of the investment planned by the regional authorities, with the regional governments covering the remaining 5% (these figures have, from 2006, become 85 and 15%—see Marsilio and Vecchi [2004]).

In 2002, a government-regions conference, tasked with co-ordinating national and regional policies, assessed that a fifth of SSN hospitals had to be replaced and 30% refurbished, and that the remaining resources from the Article 20 programme were sufficient to cover just half of the investment required (Conferenza Stato Regioni, 2002). The gap was estimated at 31 billion euro, and this formed the background for the introduction of PPP as a means of providing 'additional' investment to the Article 20 funds. The validity of the 'additionality' argument for PPPs is beyond the scope of this article (for a full discussion of the issues, see Heald, 2003).

The use of PPP in the SSN

The basic commercial model of PPP in the Italian healthcare sector is much the same as that used in other jurisdictions and sectors. Under the design, build, finance and operate (DBFO) model, an SPV incorporates a group of private investors—typically a construction company, a facilities management firm and a financial institution—which commit a limited amount of equity capital and subordinated loans to the project ('equity'), and raise the bulk of the private capital to be drawn down from banks or the capital markets ('senior debt').

Linking public and private finance

However, one distinct element of PPP in the SSN is the way in which public and private sources of capital are mixed together within the project finance structure. A large proportion (often more than 50%) of the upfront capital costs are provided by the SSN, through both Article 20 funds and a contribution of between 5–15% from the regional government. This reflects the fact that, in the SSN, PPP is explicitly used as a means of bridging the gap between Article 20 funds and the investment required under regional investment plans.

This capital grant is transferred from regional governments to healthcare

organizations, which pass it to the SPV in advance of the completion of capital works. It should be noted that this grant is a 'free good' for the healthcare organizations involved, in the sense that there is no interest to be paid on it (Marsilio and Vecchi, 2004). Again, this contrasts with the situation in other jurisdictions, such as the UK, where a 'capital charge' is levied on public authority assets. The level of the grant varies according to the type of project, but is on average 50% of the total capital cost of the scheme (Amatucci *et al.*, 2007).

Bearing the cost of PPPs

Regional authorities undertake to fund most of the revenue costs of projects, with the effect that the long-term revenue impact of PPP is borne largely at the regional level. However, if project costs exceed agreed limits, there is a risk that sufficient funds may not be forthcoming from government. In principle, this provides healthcare organizations with at least some incentive to negotiate deals that are affordable and good value from the perspective of the broader regional economy (Vecchi, 2008b).

The analysis of the rate of return on private capital

Data sources and data collection

Our analysis in this article is based on the financial models of 14 PPP projects commissioned by SSN healthcare organizations. The financial model is provided to healthcare organizations by the SPV prior to the contract being signed, and allows the purchaser to carry out 'reasonable checks' on the proposed financial solution. This document provides the data required to undertake a capital budgeting analysis of rates of returns on PPPs. It includes, for example, the sources of finance used by the SPV, the total projections of expenditure on construction and operations, and the projected risk-adjusted cash flows to providers of finance over the term of the contract. All of the figures quoted for measures of return were derived from these base figures.

Between May 2007 and May 2008, the authors sought financial models from all 47 healthcare organizations involved in the commissioning of PPP projects. Fourteen of these organizations agreed to provide financial models on strict condition of anonymity. These 14 PPPs included one new-build hospital car park; one hospital refurbishment; one new build for commercial and support services; eight new-build complete hospitals; and three involving a mix of new build and refurbishment.

Nine of the projects are located in the north of Italy, two in the centre and three in the south. On eight of these projects, financial close had been reached, while on six, contracts had yet to be finalized at the time that the models were received. The total capital value of the group was 1.76 billion euro. The average capital value of the projects assessed was around 125.5 million euro, of which, on average, 55% was provided by the SSN and 45% by the private sector.

Theoretical framework

When deciding the contract price to be offered on a project, an SPV has to consider what level of annual repayments will enable it to meet its input costs (such as capital expenditure and operating expenses), while providing an adequate return on the investment it has made. In assessing the adequacy of the return, an SPV will use two inter-related ratios: the Internal Rate of Return (IRR) and Net Present Value (NPV).

Measures of return

The IRR is the rate of interest which is required to pay off the private sector's debt and interest by the end of the payment period. In other words, it is the discount rate which reduces the value of the cash flow to the value of the original amount of capital drawn down. When calculating its required rate of return, an investor will seek to ensure that the IRR is greater than its cost of capital, i.e. the interest rate at which finance can be obtained from the market (Brealey *et al.*, 2006). This is determined by the *opportunity cost* of capital, i.e. the rate of return that is expected by a diversified investor for projects with a comparable risk profile. In considering the rate of return required on a project, the SPV and its member companies will calculate two distinct IRR ratios:

- *The project IRR.* This measures the rate of return on the project against the cost of all the sources of capital used to finance it, weighted according to their relative contribution. An SPV will compare this against an expected weighted average cost of capital (WACC), i.e. the weighted average of the expected cost of its equity and debt funding.
- *The equity IRR.* This is a measure of the rate of return on equity invested only. An SPV will compare this against the expected return on equity invested by its shareholders, or the opportunity cost of equity. This expresses

the average return for the shareholders generated by an alternative project characterized by similar risks (Brealey *et al.*, 2006).

In addition to rates of return, investors will take into account the NPV of cash flows on a project when considering whether to invest. The NPV is a measure of return on a project, calculated by discounting projected cash flows at the opportunity cost of capital (i.e. expected WACC for the project as a whole; and the opportunity cost of equity for returns to equity). For a rational investor to take part in a project, the NPV must be positive, which means that the project must generate enough resources to pay the investment carried out and the cost of financial resources, while leaving free cash flow for alternative investments or the remuneration of shareholders.

The NPV and the IRR are related since, if IRR is higher than the cost of capital, the NPV is positive; and if lower, the NPV is negative and a competent SPV will not invest. Meanwhile, as noted, the IRR is the discount rate that brings the NPV to zero.

The decisional rules for an SPV to meet its economic requirements from the project can be summarised as follows:

- The NPV of the project must at least equal zero.
- The project IRR must at least equal the expected WACC.
- The NPV of the return on equity must at least equal zero.
- The equity IRR must at least equal the opportunity cost of equity.

For all these rules to be met, the revenues generated by the PPP must be able to cover all the costs necessary for the construction of facilities and the management of services, the repayment of senior debt at the required interest rate, and the expected returns on the equity invested.

These ratios, NPV and IRR, are conventionally used in capital budgeting analysis to express the return on an SPV's investment, but they can also be used to assess the extent to which the rate of return is aligned to the expected rate in the financial markets. In other words, it is possible to use these ratios to assess the extent to which there are 'excess returns' to the SPV, by which we mean returns over and above what we would expect to see in a competitive

market.* Here, we assess for each of the 14 PPPs the presence of excess returns by examining whether, and the extent to which:

- The project NPV is higher than zero.
- The project IRR is higher than the WACC.
- The NPV of returns to equity is higher than zero.
- The equity IRR is higher than the opportunity cost of capital.

Cover ratios and the tail period

When lending to a project, senior debt providers will assess the SPV's ability to service the debt from its cash flow. This is measured through the annual Debt Service Cover Ratio (DSCR), which specifies the amount of debt allowable on a project, in relation to the free cash flow to the SPV. The DSCR is positively related to the risk of a project—the greater the uncertainty of the cash flow to the SPV, the higher the DSCR the bank will require. There is a market norm for DSCR on accommodation projects such as healthcare PPPs, and this has been estimated as 1.15–1.2 (Yescombe, 2007). A higher than normal DSCR may be an indication that a project is high risk. Alternatively, it may suggest an excessive level of return to the SPV's investors.

Senior lenders to a PPP will also seek to ensure that there is a period towards the end of the contract when debt is scheduled to have been repaid, but annual charges continue to be levied by the SPV. This builds in a safety margin for the lender since, if an SPV is unable to pay its debt due to a shortfall of cash flow, there may be enough cash flow left to provide funds for debt repayment. For a normal accommodation PPP, the literature suggests the tail period should be no more than three years (Denton Wilde Sapte, 2006), and can be as low as six months in mature markets (Yescombe, 2007).

A longer tail period will lead to higher annual charges for the public sector because the debt must be repaid over a shorter period within the overall 'envelope' of the PPP contract term. An abnormally long tail period is indicative of excessive returns to the SPV.

*It should be noted that our analysis is based on projections—the rate of return expected to be earned by the private sector participants, not the returns actually received, which may vary according to performance and the degree to which risks have been well-managed. As yet, insufficient data is available on the returns actually achieved over the length of contracts to estimate whether the rate of return bid is likely to be matched by the final outturn.

Financial assumptions

For this analysis, it has been necessary to calculate a benchmark WACC and a benchmark cost of equity for the SPVs—that is, an estimate of the rate of return required by all investors and all equity providers respectively. In order to do this, it is necessary to determine the average cost of debt, the average gearing (the ratio between debt and equity), the corporate tax and the cost of equity. Calculating the first three of these elements is quite straightforward. The average cost of debt for the 14 projects is 6.5%; average gearing is 76% debt and 24% equity (project finance structures typically have high gearing since debt is less costly than equity); and the corporate tax rate is 33%.

Estimating the expected cost of equity on these schemes is more complicated, however. For listed companies, the cost of equity is conventionally calculated through the capital asset pricing model (CAPM), which is based on average returns on the stock market. But for PPPs, this is an inappropriate methodology since stock market fluctuations do not impact on equity returns, which are instead determined by factors that are endogenous to the project—for example, the successful management of the capital works.

Instead, the method here, reflecting contemporary practice in the financial literature, is to calculate the cost of equity as the sum of the risk-free interest rate plus a market equity risk premium (Sloan *et al.*, 2003; Vecchi, 2008b).

For PPPs in the Italian healthcare sector this is estimated at 9%—the sum of the 4% government gilt rate for a 30-year loan and a 5% market risk premium. This figure does *not* include a premium for project-specific risks, such as those which may arise in construction and/or operation. It would be inappropriate to do so as these risks are already taken account of in the calculation of projected cash flow.

We regard 5% as high, given the very low level of market risk in PPP investments,* but the figure has been arrived at in accordance with recent literature. It is the figure suggested by finance consultants UBS (2003) and PricewaterhouseCoopers (2002) and the Italian government's specialist PPP bureau, the UTFP (2002). It is also consistent with the real cost of equity suggested by most economists (for example Spackman, 2002; Ewijk and Tang,

2003; Quiggin, 2004).

Putting the above four elements together—cost of debt, corporate tax, gearing and cost of equity—generates a benchmark WACC of 5.17%.

Results

Equity and project NPVs and equity and project IRRs

The NPVs of the total returns on all capital deployed vary among the projects between 2.4 million and 45.8 million euro. The NPVs on returns to the equity vary between 1.9 million and 15.3 million euro. Project IRRs vary between 3.10% and 10.18%, and the equity IRRs declared in the financial models between 6.3% and 17%.

The comparison between project and declared equity IRRs with their respective benchmarks is illustrated in figure 1. (While project IRR has been collected for all 14 projects analysed, equity IRR is known for just nine projects because of a lack of data in the financial models.) Project IRRs are, in the majority of cases, much higher than the benchmark WACC, and just one project presented a lower figure. On average, project IRRs are 8.23%, compared with the 5.05% benchmark.

Declared equity IRRs are distributed in four cases below the 9% benchmark and are all the other cases considerably over it. The average declared equity IRR is 11.2%. The declared equity IRRs have been calculated (by the developers of the financial models) in a way which does not adequately reflect the true scale of investor remuneration. In particular, the declared returns do not take into account all the cash flow generated by the projects for equity investors once senior debt service and covenant requirements have been satisfied, but only the projected *dividends* available for distribution. The literature suggests that equity IRR should be calculated on *all* Free Cash Flow to Equity (FCFE) (Esty, 1999; Damoradan, 2006; Treasury, 2007).

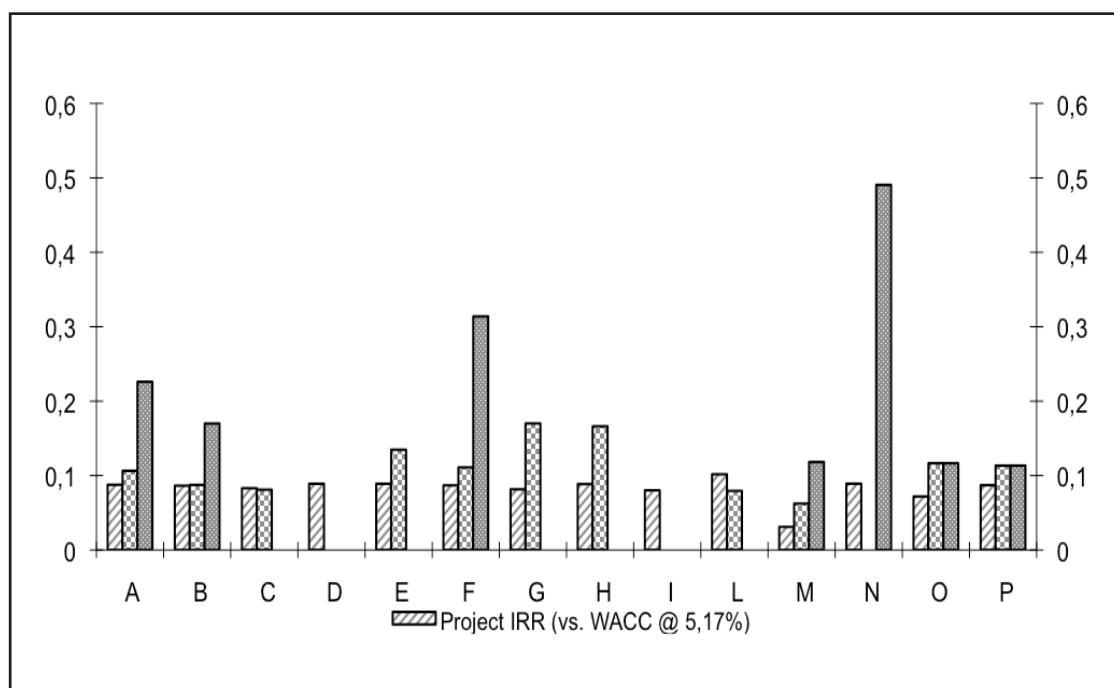
For seven of the projects analysed, the financial models provided the detailed financial data necessary to calculate the *effective* (as opposed to the *declared*) equity IRR on FCFE. In two cases, the declared and effective equity IRRs are the same, but in five cases the effective figures are considerably higher than those declared by SPVs in the financial models. This is also illustrated in figure 1.

Debt cover and the tail

At 1.43, the average DSCR is well in excess of the minimum acceptability level quoted by

*In SSN PPPs, demand risk is retained by the private sector, so no conventional market risk is transferred. However, some degree of risk is presented by political uncertainties and the potential for contractual difficulty.

Figure 1. Project, equity and estimated equity IRR versus WACC* and Ke* in the Italian private finance schemes.



Yescombe (2007) and this is consistent with the results outlined above, which suggest very high rates of return to equity. More striking, however, is the average length of the tail period indicated in these financial models. As noted, this is the period where the accumulation of profit for equity investors increases significantly because no debt is being paid and cash flows can be used for paying operational costs and returns to equity.

The tail period of projects in this group varies from 0 to 21 years, with a mean average length of 6.8 years. This compares with a minimum of six months quoted by Yescombe (2007) and the conventional requirement on larger schemes of around three years (Denton Wilde Sapte, 2006). The extremely long tail periods seen on some of these schemes (see table 1) will provide significant returns for investors during the later stages of the contracts.

Discussion

Projected rates of return to investors on SSN PPP schemes were very much higher than we would expect to find in a properly functioning and competitive market. Project IRRs were in all but one case higher than the opportunity cost of capital, the benchmark WACC, around which we would expect returns to be correlated. Declared equity IRRs were higher than the benchmark, in seven out of 11 cases. However, when all cash flow to equity providers is considered, returns to equity investors increase

significantly, between 11.82% and 49% on the five schemes for which we have data—higher than the reference cost of equity for all these projects.

It should also be borne in mind that the reference costs quoted are conservative, given the very low level of systematic risk for investors in PPP contracts.

This study also found extremely long tail periods on projects (a mean of 6.8 years), suggesting significant back-ended returns to equity. Equity investors may choose to bring forward these returns through refinancing their loans after construction is completed (taking on more debt to reimburse equity investors earlier than projected in the financial models), significantly increasing their rate of return on equity capital.

A similar process is now widespread in the UK PFI market, in which equity IRRs on hospital projects have increased from a market norm of 15% pre-refinancing to 60–70% after refinancing (National Audit Office, 2006). However, because this involves the private sector taking on substantially more debt than the original capital cost of the project, this implies additional risks for the public authority in the form of higher liabilities towards the end of the PFI period and extended contract periods. In the UK, public authorities are to some extent compensated for taking on this risk, through Treasury-mandated contractual clauses which specify a sharing of the

Table 1. The main figures analysed for the 14 Italian private finance schemes.

<i>Project ID</i>	<i>Project NPV (million euro)</i>	<i>Project IRR (versus WACC @ 5.17%)</i>	<i>Equity NPV (million euro)</i>	<i>Declared equity IRR (versus Ke @ 9%)</i>	<i>Effective equity IRR (versus Ke @ 9%)</i>	<i>Tail period (years)</i>	<i>ADSCR</i>
A	N/a	8.76%	N/a	10.64%	22.60%	21	1.3
B	10.66	8.64%	7.86	8.74%	16.99%	10	1.45
C	5.82	8.30%	N/a	8.10%	N/a	8	1.32
D	2.42	8.90%	N/a	N/a	N/a	8	1.35
E	45.82	8.90%	15.3	13.47%	N/a	5	1.39
F	N/a	8.68%	N/a	11.09%	31.39%	4	1.34
G	15.6	8.15%	8.24	17.00%	N/a	4	1.43
H	13.28	8.86%	6.34	16.62%	N/a	4	1.43
I	5.59	8.01%	N/a	N/a	N/a	4	N/a
L	N/a	10.18%	N/a	7.94%	N/a	5	1.31
M	3.63	3.10%	1.9	6.23%	11.82%	6	1.27
N	N/a	8.91%	N/a	N/a	49.06%	10.5	1.32
O	8.22	7.19%	3.8 1	1.65%	11.65%	6	1.27
P	4.64	8.70%	2.11	11.34%	11.34%	0	2.49

N/a = not applicable.

refinancing gain.

The contracts we have examined suggest that no such arrangements have as yet been implemented for PPPs in the SSN.

What steps can be taken to improve the efficiency of the SSN's PPP programme? Ultimately, the existence of significant excess returns to private investors in PPP must be a result of market conditions, in particular the degree of competitiveness in the industry and the procurement process.

One distinctive element of the SSN's private finance programme is the lack of contractual standardization. This is likely to protract the procurement process as each regional government 're-invents the wheel' in attempting to secure an effective bilateral contract, in turn leading to significant transaction costs and raising barriers to market entry. However, evidence from the UK National Audit Office (2007) shows that standardization is unlikely to be a panacea. The auditors show that, in recent years, procurement timetables have increased and levels of competition in the British PPP market have reduced, despite increasing levels of standardization, though it is not known what impact this has had on contract prices.

The provision by central or regional government of alternative sources of finance for SSN capital investment is probably the best way of securing greater efficiency. This would facilitate healthcare organizations in exiting procurements where they find themselves unable to secure a deal that is value for money

(for example, in the absence of a competitive market). If fiscal constraints make this impossible, perhaps the best hope of improving PPP outcomes is to invest in the skills of healthcare organizations themselves, in terms of planning, structuring and assessing schemes, especially with reference to financial and risk analysis, which appears to be lacking. ■

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