consultancy engineering business environment

PPFM

Public Private Finance Models (PPFM) - moving forward

May 2012

Series introduction

This series of papers will examine how the UK can secure much needed investment in its social and economic infrastructure in the coming years.

Achieving this is important. Infrastructure has been highlighted as a primary driver for economic growth, as well as a means to deliver the UK's goal of a hi-tech, low carbon and globally competitive economy. However, the UK is acknowledged to have both a shortfall in quantity (estimated by some at £434 billion[1]) and quality (the UK was recently ranked 28 for the overall standard of its infrastructure by the World Economic Forum[2]), hampering efforts to achieve these goals.

The timing of this series is also important in relation to proposed solutions to the UK's infrastructure challenges. At the UK level, the National Infrastructure Plan is moving from its formative stage to delivery. Infrastructure solutions in the Devolved Nations are also taking shape, with examples, such as the formative Welsh Infrastructure Investment Plan being developed.

Developing sustainable models and sources of funding and financing for these proposed solutions, -especially in tough economic times with a restricted public purse- will require new thinking. Helping to identify these new models and sources of funding and financing and removing the blocks and challenges to them is the aim of this ACE investment into infrastructure series.

This series of papers will explore a range of options available to government as it looks to secure investment and raise the UK's standing for infrastructure standards. These include the development of the Green Investment Bank, the potential for pension fund investment, new public-private finance models and alternative methods.

Abstract

This paper is the second in ACE's infrastructure investment series and explores in more detail the rationale, performance and market conditions that surround Public and Private Finance Models (PPFM).

This paper explores a number of flexible models that should help to improve public and private sector performance. Whilst, encouraging the level of private finance required to improve the UK's aging infrastructure. Importantly, improving the models through which private finance is encouraged into infrastructure investment is key to providing savings for the taxpayer.

Contents

Key findings

Reviewing the Private public financing model

- The PFI model is in need of review by government following the financial crisis. A number of factors have changed, such as the higher cost and lower availability of capital. This has in turn called into question value for money, the relative cost of the public sector undertaking the project and attracting further investment into primary (greenfield/new build) projects.

- However, the National Audit Office (NAO)[3] has previously found that there are some positives that can be taken forward from the PFI miodel. For example:

  "Sixty nine per cent of PFI projects reported delivering to the contracted timetable in 2008."

  "Ninety four per cent of projects responding to our 2008 survey were reported to have been delivered on, or less than five per cent over, price"

- There needs to be greater flexibility built within models to allow a more efficient application to a wider set of scenarios. The PFI model has shown that there is an interest from the private sector. Areas such as construction risk can be improved, the financial crisis and the subsequent shift in attitudes away from higher risk projects have highlighted the need for the model to be improved.

- This paper outlines five Public Private Finance Models (PPFM) that aim to improve the prospects of private financing, its performance and value for money going forward.

Model 1

This model looks at the use of government equity within projects to reduce risk and provide funds at a preferential rate to that possible in the private sector.

This equity would provide an alternative to existing private equity (higher cost) and possibly to bank finance where costs have increased or availability fallen.

Currently, government is looking at greater involvement in financing from pension funds. However, structural and cultural change will be required for this investment to occur and this is going to take time. As such it is unlikely that pension funds are going to increase investment significantly or to the scale required in the immediate short term period.

If government were to increase its equity stakes it could provide confidence and trustworthiness (reducing concerns of short term changes in policy) in projects going forward, improve their credit rating and financing options.

However, government equity would come at a cost to the public sector, and so it is only prudent that a limit be placed on the level at which government is prepared to invest. Importantly government equity would need to be below the market rate to have an impact. As such, this report proposes that any stake pays a return that is benchmarked as being the midpoint between the average cost of private finance and that of government finance.

Whilst this model would help to alleviate some of the funding and cost issues surrounding the financing of projects. It should be noted that such investment is likely to have to be borrowed by government, unless it can provide equity via the sale of other assets. This in the short term could increase debt, but could also leverage significant private finance thereby boosting growth.

This model is likely to be used where government has built up a degree of capital for investment or has had funding allocated which it can use to leverage private finance. It also provides the private sector with a greater degree of confidence that it has political ‘buy in’ and backing suggesting that this model could also be used for more innovate small scale projects.

Model 2

This model explores how risk can be pooled to encourage investment. This could occur in two ways.

- The first is project pooling which groups projects and sectors together to reduce the overall risk to investors.

- The second is to pool finance itself so smaller investors can access and invest in projects.

This effectively spreads risks by diversifying the products in which you are involved.

One of the benefits of pooling projects is that it could hold the potential to bring forward pension fund investment, from that of the operation stage as a secondary investor, to one of being a primary investor. As mentioned previously, the reason for this is because, as projects are pooled, the relative cost of an overrun or problems within the construction phase of a project falls because this can be offset by the returns from other projects.

Given the scale of the investment challenge, unlocking the finances of smaller investors, business and consumers is important. So far, this has not been stressed enough within the infrastructure debate.

The disadvantage of this model is that project pooling can be expensive to administer. As such government would need to keep a tight control on costs. It would also need to ensure that the projects pooled matched the criteria of investors in terms of return and risk. An area where government could learn, and gain some expertise in such skills is by looking at the administration of infrastructure funds by the private sector. Another area of potential difficultly is that whilst having a single source of financing for multiple projects is beneficial, it can be difficult to extract specific benefits of individual projects.

This model is most likely to be used on mainstream investments where risks are better understood (schools, roads, rail) but market conditions have subsequently made a single investment unattractive to an investor. Alternatively this model would provide an opportunity for government to access the funds of smaller investors.

Model 3

This model looks at developing an alternative insurance based model to lower risk, following the demise of PFI insurance in the UK.

Following the financial crisis lending has been constrained, confidence between banks, consumer and businesses has been shaken and attitudes to risk have shifted dramatically.

This has meant that there have been significant changes in:

- The cost of capital becoming higher
- The cost of government borrowing becoming greater
- The difference between the two widening
- The private sector's ability to raise funds lowering
- Attitudes to risk becoming more conservative

Given, the importance of credit ratings and investment grade status for pension fund investors, this raises the question as to whether a mechanism to deal with risk needs putting in place.

An insurance mechanism would ultimately aim to ensure value for money for government and the taxpayer. This model should be designed in a way so that it allows projects to reach what is commonly known as an investment grade credit rating (AAA, AA, A and BBB) as opposed to (BB, B, CCC, etc.) which are commonly referred to as junk bonds. As such projects would be able to borrow from the market at a cheaper rate.

There are however some possible issues with such a model. This is that mitigating risk via insurance could create behaviour where a party has a tendency to take undue risks because the costs are not borne by the party taking the risk.

Finally, it is also important that government consider the effects of such a scheme beyond the construction stages of a project. Would such a scheme reduce the benefit of refinancing? Would lifecycle efficiencies be more significant given the lower risk of implementing innovative technologies?

The insurance model would be used by government to target particular areas of risk that arise within the market and aid the private sector in mitigating their effects. This model would allow government to target projects across all industries or within a sector. In addition, targeting the extent of risk within a project (low, medium or high) would allow them to target a specific area in which they feel private sector funding is failing or not delivering at a return which is considered best value for money for the taxpayer.

Model 4

This model involves project finance staggering, which would allow investors access according to the stage of project development and risk.

Currently the PFI model is considered to have two stages that significantly affect the cost of finance; construction and operation. However, this is over simplistic in is nature and as such could be considered as creating inefficiency within the project. This is because money is being borrowed at a higher rate than is necessary.

If these stages were staggered, and staged to more accurately reflect the risks involved in each. Lower risk financing could be brought forward into what were previously considered high risk areas.

Stage 1 is the most risky stage. At this point the project is just commencing, with the scale of projects sometimes limiting the number of suppliers and so resource efficiency. Given the nature of the work in this stage there are a significant number of uncertainties, which could lead to a wide variety of cost implications. As such, funding for this stage has to pay the highest return. This funding is likely to be the equity stake taken by the companies involved in the project and debt backed funding from institutions such as banks.

Stage 2 sees a significant reduction in the risk profile of the project as the structure and superstructure is complete. This eliminates a significant risk in terms of the probability and scale of higher cost variations. As such, there is no reason why the highest cost finance should be used to fund this stage of operation. Whilst alternative sources of income are still unlikely in this stage given its scale and risks, it should be possible to agree a reduced rate with lenders.

Stage 3 is where the risk becomes significantly reduced so that alternative funds could be utilised to bring down financing costs. At this stage, an investor only takes on the risk of cost variations in fixtures and fittings, and suppliers of such goods are much more varied and competitive, reducing the likelihood of problems.

Stage 4 is the operational stage and this would remain unchanged from its current arrangement under the traditional PFI model. As has been demonstrated by the sale of High Speed One, refinancing or sale of the asset at this stage has traditionally not been an issue.

One issue that may arise is balancing the cost of procuring finance for each staggered stage. Procurement time should be designed to reflect the risk being taken with the burden decreasing as risk decreases.

This model can be used by government where there are clear distinctions of cost and risk within the construction phase, or the construction phase is well understood. The example above outlines four stages, but within some projects there may be fewer than 4 stages given the distribution of cost and risk. For example, on tunnelling projects once the tunnel is complete the majority of the risk is mitigated and so for simplification this may be considered a two stage process.

Model 5

Locally Sourced Private Finance (LSPF), which explores the possibility of combining the Tax Increment Financing (TIF) model with that of the Private Finance Initiative (PFI) model.

The Locally Sourced Private Finance (LSPF) model's starting point is:

- A local authority/department makes clear the current cost of maintaining/ operating an asset.
- The local authority/department outlines the standard they wish to achieve for the asset in question.

On this basis, they would consult with the market to assess the degree to which the new standards/demands of the authority could be met if the local authority transferred its current rate of expenditure to the private provider on the basis of them privately financing and replacing the asset.

If a provider were to come forward with a proposal that meets these criteria, detailed bids could then proceed.

However, it is possible that, if the level of expenditure from the public sector on maintenance is to remain unchanged. The efficiency savings over the life of the project must be in excess of the requirement to fund the capital expenditure and the operation of the asset, whilst leaving a return.

This is where a procurement process would look at the degree to which money would be needed to finance the project using mechanisms such as those in traditional TIFs.

The issues with this model are likely to be the concept and detail of transparency, the potential for procurement to be too extensive and costly, the effectiveness of the model in lower density areas where there is less opportunity and benefit to funding if additionality is used within the local rates and views towards the loss of control over service provision by councils.

This model is most likely to be used where government feels services could be run better by the private sector if information on their costs were transparent. It would also be beneficial in areas where the density is high enough to fully utilise the principle of additionality within rates to improve asset performance and long term cost.

Developing a range of models

This paper explores a number of flexible models that should help to improve public and private sector performance. They should encourage the level of private finance required to improve the UK's aging infrastructure, and, importantly improve the models through which private finance is encouraged into infrastructure.

The rationale behind proposing a number of models is that it allows government to be flexible and apply the model that best addresses issues surrounding risk, finance and affordability for a given project. This ultimately should achieve a greater level of efficiency and value for money for the taxpayer.

The financial crisis and recession, and the effect they have had on the willingness of lenders to take on risk, is one of the key issues. As such, a number of the models touch on the relationship between the use of private finance and that of government funds where appropriate. Any use of government funding within a new model would need to be considered alongside state aid rules. Government initially could only provide funding at a rate that would mirror the private sector.

The models discussed in this paper are as follows:

- Model 1 - The use of government equity within PFI projects
- Model 2 - Pooling risk.
- Model 3 - Risk mitigation and credit enhancement
- Model 4 - Project finance staggering
- Model 5 - Locally Sourced Private Finance (LSPF)

Model 1 - The use of government equity within PPFM projects

Traditionally, the government has not held equity within PFI projects, the emphasis has been on the private sector providing finance in its entirety. However, given the current constrained financial markets, this is something the government should look further into because of the benefits it could create.

In countries such as Canada, governments have held equity to improve the trustworthiness (with a perceived reduction in the likliness of political changes) of projects and to improve their credit rating. However, there will be a limit to the extent to which the UK Government can take this approach given its goal of deficit reduction. Therefore, this paper proposes a cap be set as to the maximum amount of equity a government could invest into a project (for example 25%, but 15% or 20% could equally be applied). This cap would provide a clear indication to the market as to the scale and willingness of government involvement, whilst ensuring that financial safeguards are in place.

The first of these benefits would be to reduce the overall size of the funding requirement when going to market. This is especially important given the likeliness that private companies would currently be unable to raise large scale finance.

- For example, the Severn barrage was abandoned because of the funding requirements that would need to be met out of public funds. Therefore, whilst a private scheme has not been ruled out, it has proved impossible to date to source sufficient financing to allow the scheme to take place[4].

Second, a cap would reduce risk for the investor. This is not only because it reduces their financial commitment. Also, because government would have an interest in the project running successfully and so is less likely to implement policy changes that would have a detrimental effect on returns or performance.

Finally, in return for the government equity stake the government should be allowed to benefit from a level of returns that is reasonable over the project lifetime.

The NAO[5] found that equity investors in PFI projects expected to receive between 12% to 15% return. If government were to provide equity into projects, it would need to be below the market rate. This is because the benefit of its investment in comparison to raising private finance makes little overall difference to the risk and return profile if it requires the same return.

For example, why would a company borrow off government at 15% when it could borrow off the private sector at the same rate and negotiate custom terms and conditions?

Given that one of the issues mentioned in the 2011 Treasury Committee report[6] is the disparity between the cost of government and private finance. This report proposes that any equity stake taken by government pays a return that is benchmarked as being the midpoint between, the average cost of private finance and that of government finance.

Rather than setting a fixed rate, this agreement would mean that the policy would remain flexible as market conditions changed. If the disparity continued to increase as the Eurozone and sovereign debt crisis worsens, the benefit from

undertaking such a loan would increase. However, if the disparity were to fall, so too does the benefit of having government involvement.

The theory behind this kind of influence within the market is similar to that of the National Loan Guarantee Scheme (NLGS). The NLGS is a SME credit easing facility launched by government and uses government influence to reduce the commercial rate of borrowing for SMEs by what is expected to be 1% below the market rate. Within this reformed PPFM model government equity could do the same by providing a cheaper form of finance for a percentage of the project with the return set between that of the private and public rates of borrowing. The government is effectively playing the role of the bank, with the market able to take advantage of a lower rate on a larger degree of the project thus also reducing overall risk.

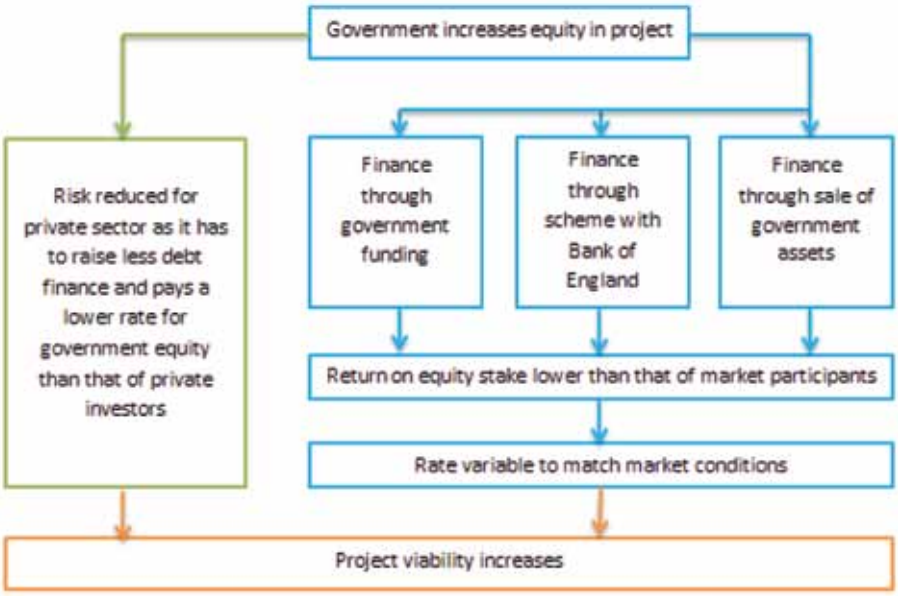
Whilst this model would help to alleviate some of the funding and cost issues surrounding the financing of projects. It should be noted that such investment is likely to have to be borrowed by government, unless it can provide equity via the sale of other assets. This in the short term could increase debt, but could also leverage significant private finance thereby boosting growth.

For this reason, it is important that government finds the most effective manner to leverage private funds. Projects should be prioritised where government can gain the greatest improvement in the availability of private funds given the degree of public input.

Doing this would maximise economic growth which subsequently should feed through into higher tax revenues, reduced unemployment liabilities and so limit or eliminate the cost to the public sector of the initial investment giving wide overall benefit to government.

This model is likely to be used where government has built up a degree of capital for investment or has had funding allocated which it can use to leverage private finance. It also provides the private sector with a greater degree of confidence that it has political ‘buy in’ and backing suggesting that this model could also be used for more innovate small scale projects.

Illustrative diagram of model 1

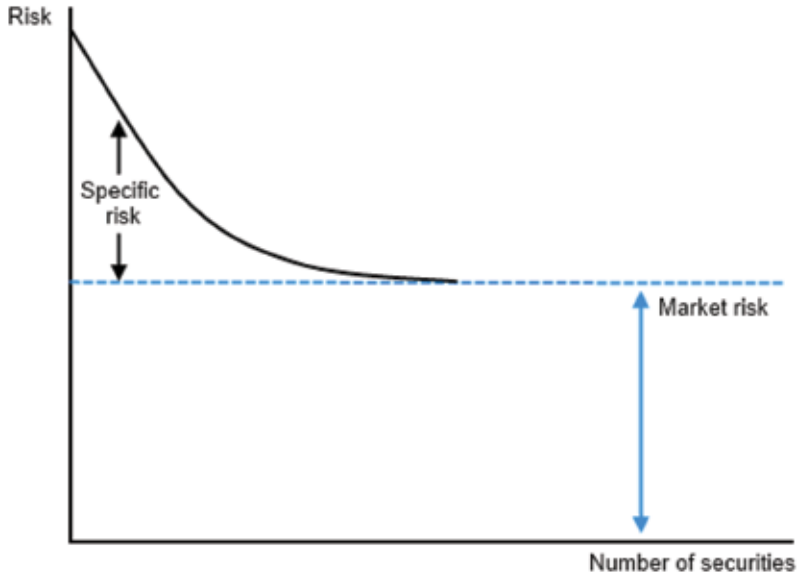


Model 2 - Pooling risk

Another way in which companies can reduce and share risk is to set up a system that pools risk. This effectively spreads risks by diversifying the products in which you are involved. As such, these could be an effective way of engaging risk adverse investors.

This works in a similar way to portfolio theory of investment which is used to maximise return for a given level of risk, or minimise risk for an expected return.

As can be seen from the diagram below, as an investor increases the number of securities he/she reduces the amount of specific risk he/she is taking. This is because as the number of securities increases (assuming they are all not in the same sector/area) so too does the extent to which returns vary across different securities, and each will not be affected by to the same degree. Some may even move in the opposite direction. This essentially means that any losses may be offset by the movement of other securities. This therefore reduces risk.



Similarly, in retention pools, companies spread of individual projects offsets the risk of each individual project against each other, reducing overall risk.

When looking at how models such as retention pools work in regards to items such as insurance, one of the criticisms is the cost of administering such a pool. Unlike independent pools that are formed freely by the market, a PPFM pool system should use government's expertise and size to set up a centralised team. For example, this team could be part of the current Efficiency Reform Group that has been set up to improve procurement across government departments. This team would therefore benefit from being able to drive down the costs of administering such a system, by using economies of scale and skills retention.

In relation to PPFM there could be two types of pooling. The first is project pooling and the second is the pooling of finance.

Project pooling

Projects could be pooled in a number of ways to reduce risk and improve return, making the market more attractive to investors. Projects could be pooled by sector (e.g. energy, water, rail), multi-sector (e.g. transport), and by size (capital projects greater than £500m investment).

These different profiles would appeal to different investors (such as banks and pension funds), while enabling government to create a number of attractive products for the market. Some examples of funds from the global market:

- Macquarie's MIIF Funds portfolio consists of Changshu Xinghua Port (CXP), Hua Nan Expressway (HNE), Miaoli Wind Co. Ltd (Miaoli Wind), Taiwan Broadband Communications (TBC), cash and cash equivalents. This fund focuses on the Asian market in particular.

- Barclays Infrastructure Fund offers a variety of sectors including healthcare, education, transport, water treatment, courts & custodial, public facilities and defence, across the EMEA, Asia Pacific and Americas

- The Infrastructure Development Finance Company Limited (IDFC) is a collaboration of the Indian government and financial institutions to facilitate investment into India's infrastructure. To do this it utilises tools such as India's Infrastructure Fund (IIF) to attract investment.

- The Rabo Bouwfonds Communication Infrastructure Fund focuses purely on investment in Dutch communication infrastructure.

As can be seen from the above, funds can focus on a number of different sectors, or a single sector, thus significantly changing their risk profile.

One of the benefits of pooling projects is that it could hold the potential to bring forward pension fund investment from that of the operation stage as a secondary investor to one of being a primary investor. As mentioned previously, the reason for this is because, as projects are pooled, the relative cost of an overrun or problems within the construction phase of a project falls because this can be offset by the returns from other projects.

One important aspect of this pooling will be the transparency of the product. Investors should be able to see the projects involved in the pool, the risks attached to each, and overall projections of the entire portfolios expected return and risk.

Finance pooling

Another possibility is to pool investors. This would allow smaller companies and even possibly individuals that (who would ordinarily not have sufficient funds individually) to generate a large enough fund combined to finance a project.

For example, there are a number of micro financing companies such as Funding Circle that allow individual investors to provide small individual loans which are then pooled to secure an overall loan to businesses.

The return on this investment would be either set at a specified level or could be benchmarked in a similar way to that mentioned previously within the government equity section.

For businesses this would replicate the function of an infrastructure fund. For consumers, this could mean the evolution of a range of infrastructure ISA's or infrastructure bonds.

These would allow the government to pay back a relatively low (possibly tax free, if government were to further encourage investment) return, which would be below the current cost of private capital.

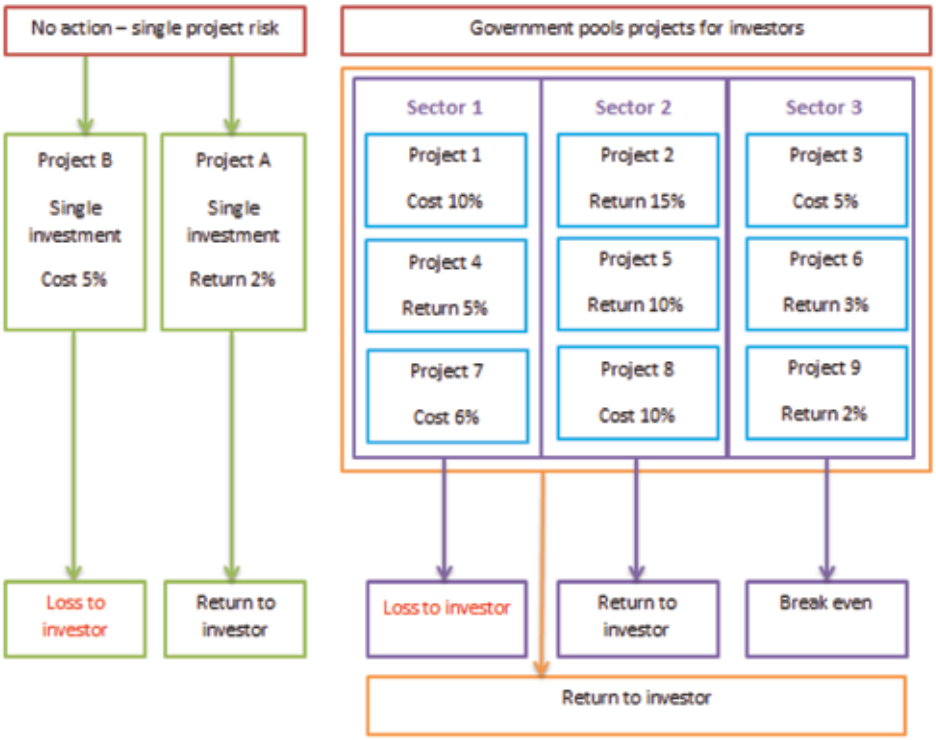
By investing these savings in infrastructure projects at a return higher than that paid out on the accounts, the government can benefit from the differential. This would allow them to fund further projects (in the same way banks currently operate).

Given the scale of the investment challenge, unlocking the finances of smaller investors, business and consumers is important. So far, this has not been stressed enough within the infrastructure debate.

The disadvantage of this model is that project pooling can be expensive to administer. As such, government would need to keep a tight control on costs. It would also need to ensure that the projects pooled matched the criteria of investors in terms of return and risk. An area where government could learn, and gain some expertise in such skills is by looking at the administration of infrastructure funds by the private sector. Another area of potential difficultly is that whilst having a single source of financing for multiple projects is beneficial, it can be difficult to extract specific benefits of individual projects.

This model is most likely to be used on mainstream investments where risks are better understood (schools, roads, rail) but market conditions have subsequently made a single investment unattractive to an investor. Alternatively this model would provide an opportunity for government to access the funds of smaller investors.

Illustrative diagram of model 2



For example, the diagram below for simplicity shows the outcomes if all projects required the same fixed investment, with the following outcomes:

Model 3 - Risk mitigation and credit enhancement

The financial crisis and recession have had a significant effect on the financial sector. Lending has been constrained, confidence between banks, consumer and businesses has been shaken and attitudes to risk have shifted dramatically.

This has meant that there have been significant changes in:

- The cost of capital becoming higher
- The cost of government borrowing becoming greater
- The difference between the two widening
- The private sector's ability to raise funds lowering
- Attitudes to risk becoming more conservative

As such, government should explore in more detail the extent to which it is prepared to pay for risk transfer.

A report[7] has found that, following the collapse of the insurance market, there was greater uncertainty and a lack of willingness among investors to finance projects which are not sufficiently geared to assess the risks associated with the investment. E.g. stable and reliable future demand.

One way of exploring this further is to look at markets where the insurance market for PFI did not develop in the way it did in the UK. For example, in Canada, the lack of an insurance based solution meant that PFI projects were designed to achieve higher ratings. As such, a wider base of investors have been willing to enter the market. The lower ratings in Europe are therefore likely to hinder wider investment in projects.

Given, the importance of credit ratings and investment grade status for pension fund investors, this raises the question as to whether a mechanism to deal with risk needs putting in place. This would help to account for the demise of the private insurance within PFI projects, and potentially trigger a new market for PPFM models in risk mitigation.

This mechanism would ultimately aim to ensure value for money for government and the taxpayer. It would also redistribute risk given the economic climate, as well as limit government's financial commitment.

If we consider the pool of PFI projects they would fall into the following four categories:

- Unviable – risks too high
- High risk
- Medium risk
- Low risk

The projects that are unviable would not occur in the current market. Neither would the majority of the high risk projects, given current confidence levels.

The NAO estimates in its report[8] that over two thirds of projects are delivered on time and budget. But since this report, the rising cost of capital is likely to have made staying within time and budget more challenging for a number of projects.

In the scenario below this report assumes that 50% of projects (the NAO report found that over two thirds of projects are on time and budget) are in the low to medium risk band.

This is where delivery of a project is more likely to be on time and on budget. Outside of this, there are a further 50% of projects which, given the higher cost of capital can be considered high risk.

Modelling the risk reduction

The models that follow show a number of scenarios that could occur if a government were to introduce a policy which mimicked the insurance market.

The model assumes the following:

- The reduction of risk shifts projects from a higher risk category to one of lower risk.
- The risk reduction only shifts a project one category (e.g. from unviable to high risk, from high risk to medium risk and medium risk to low risk)
- The reduction in risk increases the market appetite for the project.

Looking more specifically at the number of projects that shift between these risk bands the following three scenarios could occur:

- Scenario 1 – the reduction in project risk is consistent across all risk categories
- Scenario 2 – the reduction in project risk is greatest in the high risk categories
- Scenario 3 – the reduction in risk is greatest in the low end risk categories.

So, for example if we look at scenario one diagrammatically we can see that as the mechanism lowers risk the project is transferred along the red line to a lower risk category. Under scenario one each category undergoes the same risk transfer resulting in more projects being viable or lower risk.

Scenario 1

This assumes the mechanism acts equally across all risk bands, so:

- 30 projects shift down a risk category, so 200 unviable projects fall to 170 as 30 become high risk.
- 50 high risk projects become 80 as the 30 unviable projects shift into the high category but then fall back to 50 as 30 of its projects become medium risk.
- 30 medium risk projects become 60 as the 30 high risk projects shift into the medium category but then fall back to 30 as 30 of its projects become low risk.
- 20 low risk projects become 50 as 30 previously medium risk projects shift into this category.

If this model is then repeated below for the second and third scenarios:

Scenario 2

Scenario 3

This raises the following issues:

- Would these 'viable with intervention' projects be considered value for money? These projects can only occur because the public sector is intervening and does this increase the potential for errors and rising costs?

- To what extent would this risk transfer improve the rating applicable to the project?

  For example, when the PFI insurance model operated it would enable projects to reach what is commonly known as an investment grade credit rating (AAA, AA, A and BBB) as opposed to (BB, B, CCC, etc.) which are commonly referred to as junk bonds. As such projects would be able to borrow from the market at a cheaper rate.

- Would such a scheme reduce risks sufficiently to encourage more institutional investors such as pension funds into the earlier finance stages of PPFM?

  For example, would reducing the risks associated with HS1 have pulled in finance from pension funds prior to completion?

  The Budget 2012 announced that under its new Pension Infrastructure Platform, it expects the next wave of £2 billion investment in infrastructure should occur by early 2013. This could possibly be seen as a first step towards pension funds becoming more active in greenfield investment.

- Should the risk reduction of such a scheme only apply to the construction phase or also extend into the operational phase?

  For example, the Royal Armouries Museum in Leeds suffered from user demand being insufficient compared to forecast figures (with forecast approximately 4 times that of actual visitor numbers). This ultimately resulted in the project being renegotiated with the public sector.

If government were to construct this mitigation scheme based on a compulsory scenario a small charge would be applied to all projects to provide a degree of risk security to ensure funding for a wider number of projects.

The removal of risk would improve not only the prospects of higher risk projects, but as is shown in the model, would reduce the risk across all projects. This

should subsequently improve the credit rating on all projects. This should lower the cost of finance improving value for money.

However, this raises a number of issues:

- Should the fee built into PPFM equate to no more than the differential and saving in cost of finance given the risk improvement? Doing this does not add additional cost to the PPFM process. However, if this is the case, is such a model sustainable?

- The insurance fee would need to generate sufficient funds to support projects when required.

In addition to the above, the government would need to consult with stakeholders to agree a reasonable point at which such a scheme would provide support.

- Should the proposed model provide support when costs over run by 10%, 15% or more?

- Would this proposed model cause any undue effects or behaviours within the construction phase which was traditionally considered as being managed well under PFI? For example, would it act as a disincentive to private companies and the special purchase vehicle in control costs?

  This behaviour is well known in the insurance market and is defined as Moral Hazard. This is where a party has a tendency to take undue risks because the costs are not borne by the party taking the risk. Thus, if the government agrees to mitigate a degree of cost increases there is less incentive for the project to finish on budget.

Finally, it is also important that government consider the effects of such a scheme beyond the construction stages of a project.

- Would such a scheme reduce the benefit of refinancing?

  For example, if the scheme were to reduce risk within the construction phase, would moral hazard (described above) occur and costs increase? Higher capital costs would increase borrowing, reducing yields and making refinancing more difficult.

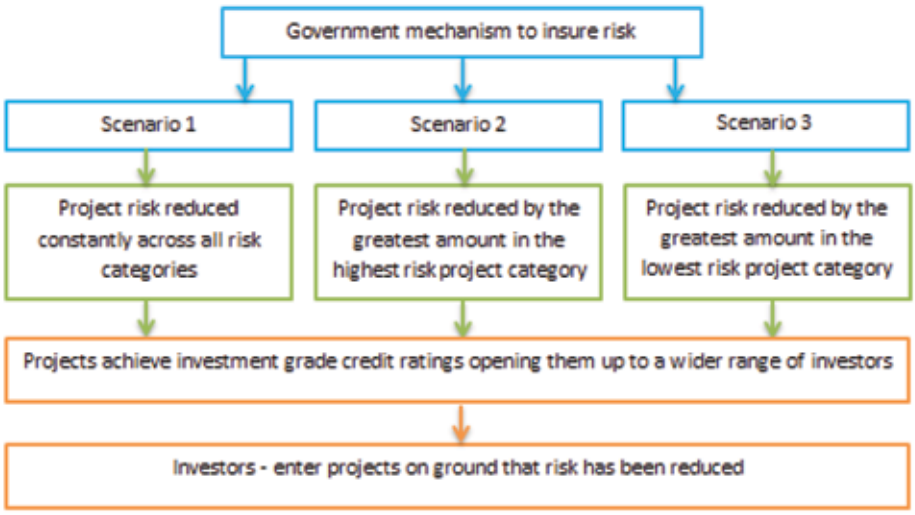
  Alternatively, lifecycle efficiencies could be more significant given the lower risk of implementing innovative technologies. Greater efficiency and cost control as a result of these technologies would therefore lower total operational costs, increasing yields making refinancing easier and potentially at a lower rate.

- Would allowing returns to the private sector at the refinancing stage be acceptable given the public sector is now taking an active role in risk reduction? Currently, the public and private sector have in place sharing arrangements for any benefit. However, where is the benefit for the public sector which has undertaken the risk, if projects do not overrun and come in on budget?

Whilst we have not provided the answers to the questions above, the exploration of such a model should be considered, especially given the shift in attitudes to risk within the finance sector. Countries such as Canada have shown that government support, and an understanding of their role and importance with regards to reducing risk, is key to providing investors with confidence.

The model would be used by government to target particular areas of risk that arise within the market and aid the private sector in mitigating their effects. This model would allow government to target projects across all industries or within a sector. In addition, targeting the extent of risk within a project (low, medium or high) would allow them to target a specific area in which they feel private sector funding is failing or not delivering at a return which is considered best value for money for the taxpayer.

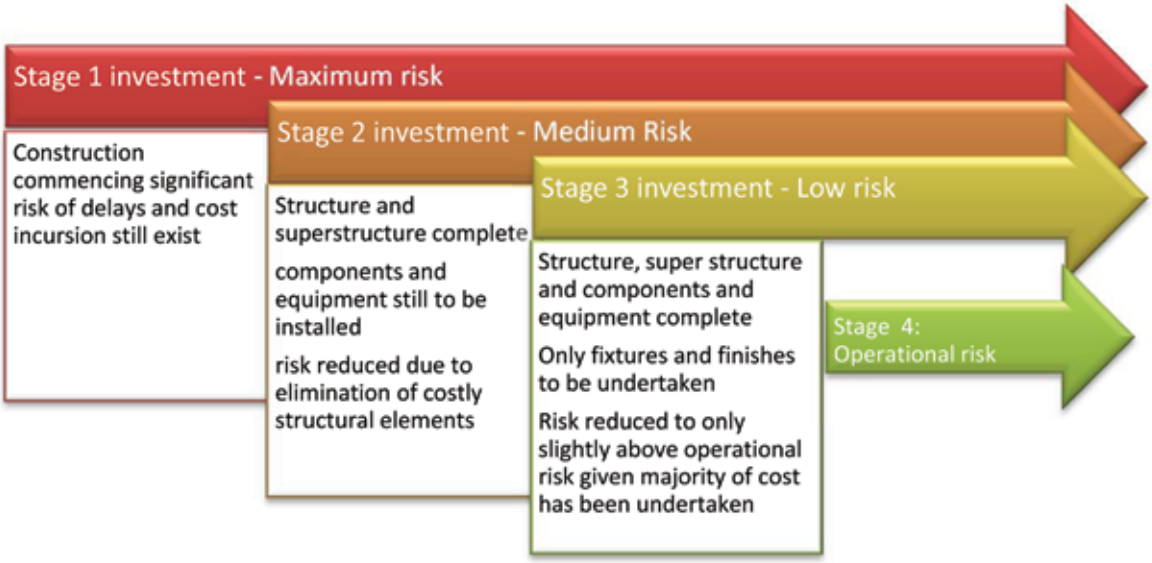
Illustrative diagram of model 3



Model 4 - Project finance staggering

Currently the PFI model is considered to have two stages that significantly affect the cost of finance; construction and operation. However, this is simplistic in is nature and as such could be considered as creating inefficiency within the project as money is being borrowed at a higher rate than is necessary.

Below, this report has split the construction phase of the PFI process into four categories. Each of these categories represents a different stage of the construction process and a significant change in the risk profile of the project. As such, government should be able to reduce the return paid to providers of finance at each of these stages to reflect the change in the risk profile. In addition, this



This model only looks at the risk attached with finance and its cost. As such it does not assume any change to the way in which the construction process takes place (with the Special Purpose Vehicle [SPV] likely to contract out the entire project). The model instead looks at how the SPV approaches different sources for financing given the various risks involved in the project's construction stages.

Stage 1 is the most risky stage. At this point the project is just commencing, with the scale of projects sometimes limiting the number of suppliers and thus resource efficiency. Given the nature of the work in this stage there are a significant number of uncertainties, which could lead to a wide variety of cost implications. As such, funding for this stage has to pay the highest return.

This funding is likely to be the equity stake taken by the companies involved in the project and debt backed funding from institutions, such as banks. As such this stage changes relatively little from the current model.

However, in the Staggered Private Finance Initiative model it is estimated that construction of structure and superstructure is estimated to be approximately 20% of the overall cost, with ground works and vertical transport accounting for a further 7% to 12% of the project's cost[9].

Stage 2 sees a significant reduction in the risk profile of the project as the structure and superstructure is complete. This eliminates a significant risk in terms of the probability and scale of higher cost variations. As such, there is no reason why the highest cost finance should be used to fund this stage of operation. Whilst alternative sources of income are still unlikely in this stage given its scale and risks, it should be possible to agree a reduced rate with lenders. The completion of internal divisions, and non-structural mechanical account for another 30% of project cost[10], with a further 30% attributable to machinery such as environmental systems, fire safety and security.

Stage 3 is where the risk becomes significantly reduced so that alternative funds could be utilised to bring down financing costs. At this stage an investor only take on the risk of cost variations in fixtures and fittings, and suppliers of such goods are much more varied and competitive, reducing the likelihood of problems. At this stage, using the estimates above, between 87%-92% of project costs have been accounted for.

Investors would receive a return above that of the operational stage, but lower than that of the previous stages.

However, an issue will be that the financing requirement for this stage is therefore also limited in terms of its scale. Given that only 8% to13% of the cost is still to take place.

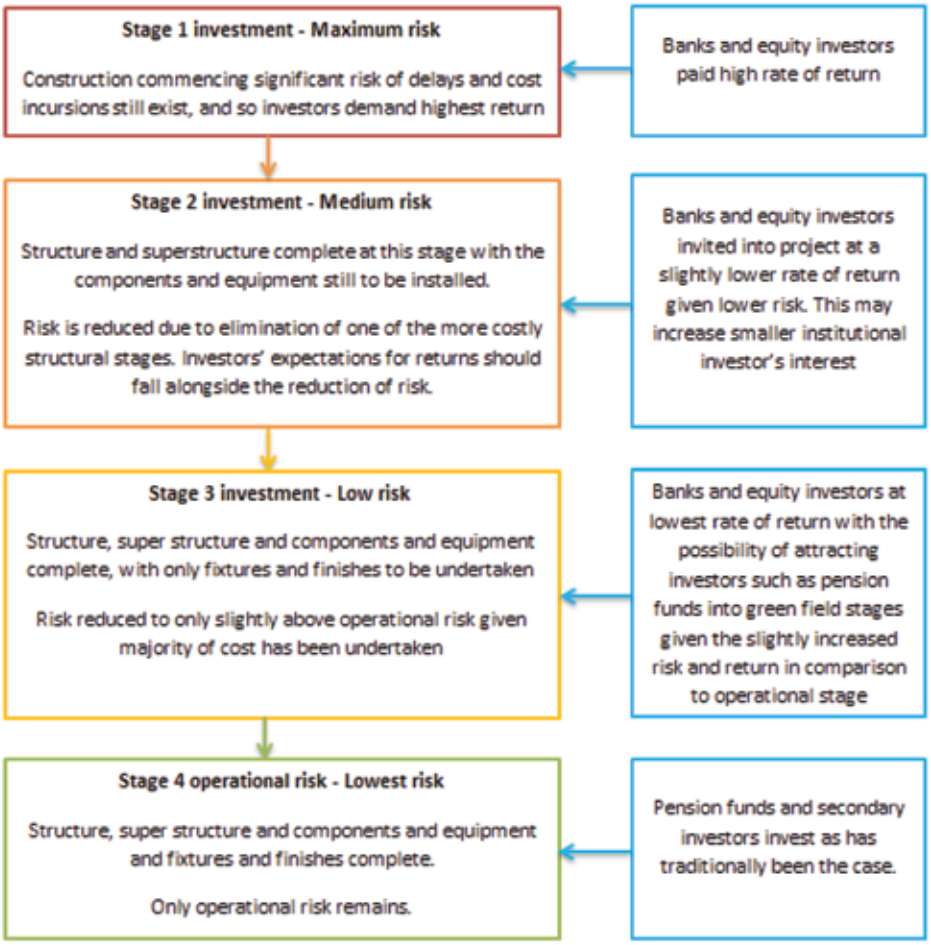
So it may be necessary to pool investors or projects or to provide a set return eliminating as many set up costs as possible. This should encourage the establishment of funds. This would also allow small or medium sized investors to get involved in PPFM financing who are prepared to accept a lower rate of return.

Stage 4 is the operational stage and this would remain unchanged from its current arrangement under the traditional PFI model. As has been demonstrated by the sale of High Speed One, refinancing or sale of the asset at this stage has traditionally not been an issue.

One issue that may arise is balancing the cost of procuring finance for each staggered stage. Procurement time should be designed to reflect the risk being taken, with the burden decreasing as risk decreases.

This model can be used by government where there are clear distinctions of cost and risk within the construction phase, or the construction phase is well understood. The example above outlines four stages, but within some projects there may be fewer than 4 stages given the distribution of cost and risk. For example, on tunnelling projects once the tunnel is complete the majority of the risk is mitigated and so for simplification this may be considered a two stage process.

Illustrative diagram of model 4



Model 5 - Locally Sourced Private Finance (LSPF)

The rationale behind the LSPF model is to combine the benefits of PFI and Tax Increment Financing (TIF).

TIF schemes are an idea that are being promoted as a possible method of financing local urban projects within the UK.

TIFs effectively use anticipated tax increases to fund investment projects. This occurs via a mechanism in which local government creates a designated area in which public/infrastructure improvements are required. If we took the USA system as an example, once a project is approved the rate of tax is frozen at that point in time (base rate). Taxes collected after this period up to the base rate continue to go to the local authority. However, any taxes occurring above this level (derived from aspects such as increasing property values) are paid into a fund which has the sole purpose of paying off bond commitments (which are issued to finance the project), or paying for the development as it occurs.

This model has similarities to PFI given that money is sourced on the open market. However, the TIF model has been criticised as primarily only being suited to urban environments where the growth in business rates is sufficient to borrow against.

What important aspects can we take from PFI and TIF models?

TIFs provide some ways in which the UK could improve on the PFI model.

The first is the cost of improved facilities. Data on the operational cost of services could be a lot more transparent, with limited detailed data currently available. This therefore makes efficiency judgments difficult.

In addition, the attachment of the cost of operation to local tax rates not only provides a sense of cost to individuals and businesses but also therefore adds a true sense of value with regards to the service they will receive.

- For example, transparency on the cost of facilities is important as it provides individuals with the information required to make rational decisions. An individual, for example, would not undertake building work on their property without knowing the cost implications. As such, local people should be provided with the relevant information required to make choices between the service provisions they require. Whilst this should provide efficiency it is also important this process is managed to avoid it becoming a barrier to project/service progression.

- Another example of information provision relates to efficiency. Mortgage applications, annual council spending and financial companies (such as credit card providers) give a breakdown of spending according to a number of categories. Thus providing a clear and simple view as to where an individual's money is being spent and where efficiencies could be found.

Second, TIFs make a distinction between the current level of expenditure and that which would be attainable following the investment. For example, a hospital could have a current capacity of 1200 patients a week. Following refurbishment this capacity could increase to 1500.

Currently, with PFI the operational costs of projects go into departmental/authority budgets, increasing cost with little transparency or prospect of departments/ authorities extracting the surplus utility that is created from business and consumers as a result of the investment. As such, operational budgets will always be squeezed.

Using some of the theory behind the TIF model in combination with a PFI approach, the Locally Sourced Private Finance (LSPF) model's starting point is:

- A local authority/department makes clear the current cost of maintaining/ operating an asset.

- The local authority/department outlines the standard they wish to achieve for the asset in question.

On this basis, they would consult with the market to assess the degree to which the new standards/demands of the authority could be met if the local authority transferred its current rate of expenditure to the private provider on the basis of them privately financing and replacing the asset.

- If a provider were to come forward with a proposal that meets these criteria, detailed bids could then proceed. This would therefore result in:

  The asset being replaced

  The new utility costs being in line with the current rate of expenditure for the maintenance/operation of the old inefficient asset.

  The local authority being aware that it is able to meet its commitments

  The private sector being able to raise the finance on the grounds of a guaranteed income stream.

It is possible that, if the level of expenditure from the public sector on maintenance is to remain unchanged, the efficiency savings over the life of the project must be in excess of the requirement to fund, the capital expenditure and the operation of the asset, whilst leaving a return.

Whilst in some circumstances it may be possible to achieve these efficiencies (for example if services are being streamlined, or by integrating multiple inefficient sites etc.) it is also possible that the savings may not be great enough for the market to undertake such a project.

This is where a procurement process should look at the degree to which money would be needed to finance the project. As part of this it would look at current PFI concepts such as the user paying, departmental top up payments to guarantee income and importantly the incremental benefit that could be charged as part of future rates in the local vicinity.

This then means that:

- Local authorities to raise/use local business rates and taxes, where projects have local support. Importantly this model requires that the department/ authority went to market previously and it cannot provide the improved services within current operational spending requirements. This then provides a number of choices as to the degree to which locals want the asset replaced.

- There is another model available where local authorities are more involved.
- It encourages transparency with regards to current and future operational expenditure.
- It allows the private sector to challenge if a service can be delivered more effectively (using current budgets). It subsequently allows the private sector to directly borrow against a guaranteed public income. Whilst this does not differ greatly from TIF in this respect it does provide a much wider variety of income sources, and looks at current expenditure efficiency so the incremental increase to fund the project should be smaller.

Whilst the above model could offer a variety of new funding and asset replacement options, there may be a number of areas that would need further exploration to ensure value for money is maintained.

The first is the concept of transparency, and the level of detail that is required for an investor to adequately assess the risk and undertake a proposition for the replacement/refurbishment of a project. In addition, it also provides transparency to local communities who can then influence the type of service provision they require.

The second is that if not monitored and controlled tightly the level of procurement and cost to both councils and businesses could be significant.

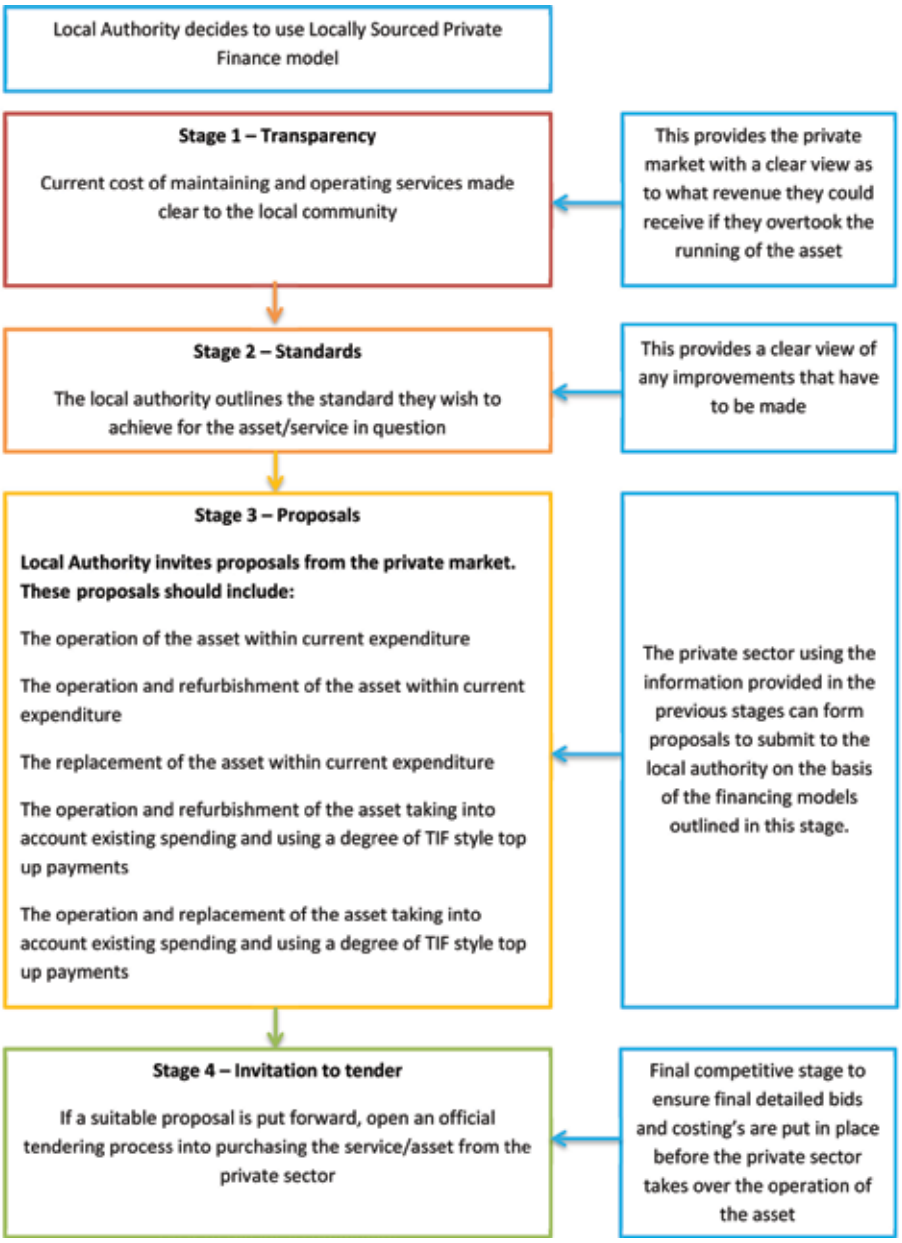
The third is that in areas where there is a lower density of businesses and residential properties, there is less opportunity to use additionality within the local rates to extract any additional funding requirements.

Finally, as an increasing number of services are run by private providers, the degree to which the councils can directly control these services falls. Whilst performance targets can be set, these would have to be flexible enough to account for future changes in demand conditions, and allow investors a reasonable return at a reasonable risk.

However, if such obstacles were overcome councils would have a method of replacing assets, ensuring operational efficiency and building a long term infrastructure improvement and growth plan.

This model is most likely to be used where government feels services could be run better by the private sector if information on their costs were transparent. It would also be beneficial in areas where the density is high enough to fully utilise the principle of additionality within rates to improve asset performance and long term cost.

Illustrative diagram of model 5



Moving forward

As can be seen from the proposals in this paper there are a number of ways in which government could look to improve the efficiency of private involvement in projects by adding additional flexibility via new financing models. As part of this they need to look significantly at the financing requirements and risk distribution of projects.

Doing so will not only make more projects viable but it would also help to encourage private finance into infrastructure investment and provide value for money for the taxpayer.

Whilst, the models in this paper have primarily concentrated on the risk and finance elements the next paper in its series will look in more detail on how procurement can be changed to help achieve some of these goals and efficiencies.

End notes

[1]Helm, D, Wardlaw, J & Caldecott B, 2009, Delivering a 21st Century infrastructure for Britain, Policy Exchange

[2]World Economic Forum Comprehensive report 2011-2012 (click here)

[3]National Audit Office – Performance of PFI Construction, October 2009 (click here)

[4]BBC news, New talks on Severn barrage plan from Cardiff to Weston, December 2011, (click here)

[5]National Audit Office, Equity investment in privately financed projects, February 2012 (click here)

[6]House of Commons – Treasury Committee, Private Finance initiative, Seventeenth Report of Session 2010-12, 18 July 2011 (click here)

[7]Bridgcourt & Company – Developing a market for unwrapped PFI/PPP Bonds – the Canadian Example, January 2010 (click here)

[8]National Audit Office – Performance of PFI Construction, October 2009 (click here)

[9]All estimates taken from Steve Groak, The idea of building, published by E & FN Spon (1992)

[10]Estimates taken from Steve Groak, The idea of building, calculated by adding infill and envelope percentages

ACE economic and policy papers

This paper forms part of a growing portfolio of research by ACE into the effects of infrastructure on the wider economy. The papers below outline the case for funding, a variety of funding methods including traditional and new forms of infrastructure spending stimuli, and more detailed sector specific issues such as retrofitting and microgeneration.

Performance of PFI
This paper is the first in ACE's latest infrastructure series and reviews the performance of historical PFI data to learn lessons for the development of new financing models

The 2012 budget
ACE's analysis - A comprehensive analysis of the 2012 budget, the economic and fiscal outlook from the Office for Budget Responsibility and the Infrastructure Delivery Update

Budget submission 2012
Budget submission to HM Treasury for 2012

ACE reports on detail of Autumn Statement
A full analysis of the Chancellor of the Exchequer's Autumn Statement, the updated National Infrastructure Plan and the Office of Budgetary Responsibility report on the economy.

Barriers to Investment
Explores a wide variety of aspects that act as barriers, or significantly change the risk profile of an investment project. These processes are important within the investment cycle and should be understood by all parties involved

Infrastructure: A case for funding
This infrastructure report reviews and analyse a range of material that is openly available to ascertain what effect infrastructure investment has on the economy.

The Infrastructure Investment Trust
ACE proposes a supplementary model to PFI initiatives, to read the executive summary please click here

Retrofitting the UK's housing stock
This paper is intended as a conversation starter on how retrofitting might be taken forward in the residential sector

Department for Infrastructure
ACE makes the case for a new department to support government and infrastructure

Spending efficiency
This paper makes the case for a balanced scorecard approach to achieving efficiency

Infrastructure funding
a range of options in its latest policy paper: Infrastructure Funding

Avoiding the infrastructure crunch
ACE identifies the problems and suggests policy solutions

Infrastructure bank
ACE sets out the case for an infrastructure bank

Infrastructure gilts
ACE's proposal to create an infrastructure gilt to drive investment in transport, energy and utilities and

Infrastructure assessment
ACEs proposal for an audit of the UKs existing infrastructure

Microgeneration
ACE finds that support for the development of microgeneration technology needs to be increased if the UK government wishes to speed up the adoption of microgeneration technology.

Further information

For further details about this publication
please contact the author:
Graham Pontin
Senior Economic Analyst
0207 227 1882
gpontin@acenet.co.uk
www.acenet.co.uk

About ACE

ACE represents the business interests of the professional service providers in the built and natural environment in the UK. ACE is the leading business association in the sector, with around 600 firms employing 90,000 staff – large and small, operating across many different disciplines – as its members.

Those members are some of the world's leading consultancy and engineering businesses. Renowned for the quality and excellence of their work, they regularly win awards for engineering innovation and achievement.

ACE's powerful representation and lobbying to government, major clients, the media and other key stakeholders, enables it to promote the critical contribution that engineers and consultants make to the nation's developing infrastructure.

ACE's publications, market intelligence, events and networking, business guidance and personal contact, we provide a cohesive approach and direction for our members and the wider industry. In recognising the dynamics of our industry, we support and encourage our members in all aspects of their business, helping them to optimise performance and embrace opportunity.

Our fundamental purposes are to promote the worth of our industry and to give voice to our members. We do so with passion and vision, support and commitment, integrity and professionalism.

Association for Consultancy and Engineering
Alliance House, 12 Caxton Street, London
SW1H 0QL
T: 020 7222 6557
F: 020 7990 9202
consult@acenet.co.uk
www.acenet.co.uk