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consultancy engineering business environment

Pensions and infrastructure

Balancing risk, reward, return and market conditions

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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 fourth in ACE's infrastructure investment series and explores in more detail the current conditions within the market, and the implications they have on pension funds' investment potential into infrastructure.

Contents

Key findings

The scale of the global pensions fund market holds great potential for investment

- The OECD estimates that the funded pensions market is worth $24.6tr worldwide. However, these investors require certainty and longevity in terms of their returns. This is something that is not currently offered by the construction phase of PFI (Primary[3]), with pension funds mainly investing in the operation stage following asset completion (Secondary[4]).

Government role is important given the challenge ahead

- Government support and an understanding of its own role and importance with regards to reducing risks is key to providing investors, such as pension funds, with confidence.

- The scale of the challenge for government is significant. It must not only encourage investment from pension funds, but also needs the pension funds themselves to adapt their behaviour and scale towards that of the investments they are undertaking.

There is mutual benefit in pension fund investment into infrastructure

- There are benefits for both government and pension funds in encouraging further investment in infrastructure. Pension funds can diversify their assets further, improve returns, cover their liabilities and reduce cyclical and inflation risk, whereas government can benefit from private funding in a future of constrained public resource.

Infrastructure could help to improve pension funds' funding status

- A recent report by Milliman[5] found that for the 2011 fiscal year pension funds funding status (the ability of the fund to cover its liabilities) ranged from a low of 40% to a high of 147%. The average in 2011 fell to 79.2% from the previous year of 83.9%. In recent years, pension funds have found it increasingly difficult to maintain the position of covering their liabilities. Importantly, infrastructure, if packaged correctly, could provide a revenue stream that helps to bolster their long term financial positions.

The UK's pension fund market is fragmented and so restricts the scale of investment required by infrastructure; opening this up could generate £6bn of investment

- The UK's pension fund market is fragmented, with public funds collectively owning a significant number of assets, making them some of the largest in the world. Administering these through a wide number and variety of schemes makes it difficult for investors to commit funds to large investment projects.

- For example, the Local Government Pension Scheme (4.6 million members) is one of the UK's largest public sector pension schemes. The scheme is administered locally through 99 regional pension funds which hold more than £120 billion in investments and assets, and positive cash flows (income from investments and contributions) of approximately £4-5 billion every year[6]. However, this makes each fund small in terms of its scale and so investors are unlikely to be able to invest a large sum of this capital into an infrastructure project. If this fund was able to invest 5% of its assets into infrastructure this would unlock £6bn worth of funding.

- Lord Hutton's Pensions reform report, whilst focusing on the effect of pensions reforms on users/consumers, does raise some valid points about the structure of funds. The continual changes to schemes and the creation of a number of different schemes within the same pension fund makes investing significant funds more challenging. This is because it limits the scale of an individual scheme, and subsequently impacts on the risk the investor is able to take.

Culture and regulations within the UK need to change if significant investment is to take place

- For example, regulations within the pension market limit the degree to which investors can put funds into 'risky' or 'specialist' areas. So, the smaller the scale of the fund, the smaller the scale of the investment. This becomes even more important when we are asking pension funds in an area such as infrastructure to invest in primary projects where the risks are less understood.

- Another area that should be re-examined is that of the aim of pension funds. There are some indications that international pension funds (which already invest in infrastructure) are regarded as continually maximising return, whereas UK pension funds are perceived as operating purely to cover their liabilities.

Tailoring products and investment to pension funds needs is essential

- Consolidation within the pensions sector, or vehicles that allow the funds to pool together, would help to improve liquidity with funds able to maximise investment and minimise operating costs and fees. This would also improve the possibilities for investors to commit the scale of finance required to fund large investment projects such as infrastructure. For example the government Pensions Investment Platform (PIP) could play a role in this area.

- Pension funds will have a goal or outcome in mind when investing, such as mitigating inflation risk, by buying products which are linked to inflation. Alternatively, a fund may be looking for a fixed price stable return, or even an asset which provides a shorter, higher return which can then be sold on. When developing a policy and investment mechanism such as the Pensions Investment Platform (PIP), government needs to have these profiles and outcomes in mind.

Expectations of returns and risk need to be realised by all parties

- A recent National Audit Office (NAO)[7] report found that equity investors in PFI projects expected to receive between 12% to 15% return. However, given reviews into the cost of projects and procurement methods such as PFI, returns at this rate are unlikely to be considered as acceptable by government in terms of providing value for money for the taxpayer. PFI for example was leveraged at approximately 90% debt and 10% equity and so government benefited from lower debt return requirements and equity investors taking significant risk with regards to being paid a reasonable return (as the debt proportion of the funding had to be paid off before returns were provided to equity investors).

- Increasing the involvement of equity investors such as pension funds with no other subsequent change in the risk profile to, say, a 50/50 split would therefore increase the cost to the taxpayer. For this reason, the government needs to

look at reducing the risk profile (using models such as those proposed in ACE's previous Public Private Procurment Models (PPFM) report) and investors need to align their return expectations to that of a level which is mutually beneficial for both parties. This means that the rate of return required by equity investors is likely to have to decrease if they are to be considered a viable source of long term financing, and so further discussions are likely to be needed between government and pension funds to secure investment going forward.

- As such, unless the risk profile is shifted utilising increased equity could raise the cost of financing.

Pension funds are not the answer to all the UK's investment requirements

- For example, the governments' National Infrastructure Plan (NIP) anticipates that "almost two thirds of the expected investment between 2011 and 2015 will be privately funded and the remainder will be either partially or fully publicly funded.[8]" However, the NIP includes significant investments in utility sectors such as energy and water, which will be primarily undertaken and financed by private companies and paid for by the end user. As such it is unlikely that pension fund investment will be required in these areas.

- It is true that pension funds may help to ease some funding issues. Given the scale of the investment required (£434bn by 2020[1]) and the need for structural and cultural change, it is unlikely that they are going to increase investment at the scale required (estimated as being between £20-£40bn), in the short term to solve our infrastructure crunch.

- Whilst pension funds may help to ease some funding issues the need for structural and cultural change is significant. It is therefore unlikely that pension funds are going to increase investment significantly in infrastructure or to the scale required in the immediate short term period. However, in the medium to long term as a source of finance they could prove to be a valuable.

Pension funds, risk and investment

Pension funds are viewed as being a significant potential resource in terms of infrastructure funding. For example:

- The 2011 Autumn Statement announced that government is working with pension funds to unlock an additional £20-£40 billion of investment into infrastructure from this source.

According to OECD calculations, the funded pensions market is estimated to be worth $24.6tr worldwide[9].

However, it is also important to recognise that as an investor, pension funds require certainty and longevity in terms of their returns. This is something that is not currently offered by the construction phase, with pension funds mainly investing in the operation stage following asset completion (secondary market).

It is also important to understand the issue government is trying to solve by encouraging pension fund investment into infrastructure. For example, if it is as a substitute for debt as a form of financing, pension funds could play a significant role. Alternatively if government wishes to encourage pension funds to take part as equity investors, without a significant change in the risk profile of infrastrucutre investment, this could raise the overall cost of projects.

Another important aspect to remember is that whilst pension funds may solve the finacing issue with regards to infrastructure, once complete, this infrastrucutre will need to be funded. This will be needed to pay for the service and return requirements of the investors.

As such, there is unlikely to be change without a significant shift in the risk profile of the early stages of Public Private Finance Models (PPFM).

A number of solutions have been discussed in ACE's Public Private Finance Model report, alongside calls from institutions such as the CBI in their An offer they shouldn't refuse report[10] for credit enhancement facilities to improve the prospect of investment Other possibilities include potentially having private banks working with pension funds under a guarentee scheme that covers construction risk. Thus the pension fund is taking on only the bank risk and not the construction risk itself making their involvement earlier in the process more likely (although solutions to enable this will properly would have to be resolved by government).

ACE's Barriers to Investment report, also discussed methods such as pooling which may help to incentivise some investment. But, the majority of pension investors will remain concentrated on the operational stage.

Pension funds' investment in the operational phase should not be underestimated in terms of its importance. It allows primary investors to recycle the capital they invested during the construction phase, and reinvest it into other projects.

For example, following the completion of HS1 the asset was sold to a number of pension funds. This allowed the original investors (banks and equity holders) to invest in 'new' projects. Unfortunately, data on the recycling of capital is hard to obtain given it is undertaken on a commercial basis (e.g. due to commercial sensitivity).

Why are UK pension funds not investing?

The fragmented nature of the UK's pension funds is one of the contributory factors to difficulties in large scale investment. Few individual funds have the ability to meet the scale of the infrastructure investment requirements, with UK pension funds concentrated towards smaller scale funds in comparison to other international markets.

Currently the number of open public sector occupational pension schemes in the UK is approximately 230, with the total number (including, closed, frozen and schemes that are winding up) being a little above 300[11]. The majority of these funds fall into the following six categories; police, teachers, armed forces, civil service, National Health Service and local government. They are funded as follows:

- Police - funded out of general taxation
- Teachers - funded out of general taxation
- Civil service - funded out of general taxation
- National Health Service - funded out of general taxation
- Local government –paid for by underlying investment funds
- Armed forces - funded out of general taxation

The large degree to which the liabilities of public sector pension funds are provided out of general taxation means that investment in significant infrastructure projects is not possible. This demonstrates how some pension funds have not been able to, or will continue to be unable to invest on the scale required to fund infrastructure.

Lord Hutton's pensions commission report[12] on the reforming the UK's pension scheme found:

- "The development of public service pension schemes has not been a planned and fully coherent process and that there is a plethora of complex provisions. A wide range of professions are covered by different schemes but also within the same scheme. Again, as the interim report noted, different schemes, designs and contributions apply to people employed in similar public service jobs, sometimes for the same employer, for example, teachers are generally in the Teachers Pension Scheme (TPS) and teaching assistants in the Local Government Pension Scheme (LGPS)."

Whilst this report focuses more on the effect of these variations for users, the continual changes to schemes, with employees entering different variations within the same pension's scheme makes investment more challenging. This is because it limits the scale of an individual scheme, and subsequently impacts on the risk the investor is able to make. For example, regulations within the pension market limit the degree to which investors can put funds into 'risky' or 'specialist' areas. So, the smaller the scale of the fund, the smaller the scale of the investment. This becomes even more important when we are asking investors in an area such as infrastructure to invest in primary projects where the risks are less understood.

For example, the Local Government Pension Scheme (LGPS - 4.6 million members) is one of the UK's largest public sector pension schemes. The scheme is administered locally through 99 regional pension funds which hold more than £120 billion in investments and assets, and positive cash flows (income from investments and contributions) of approximately £4-5 billion every year. However, this makes each fund small in terms of its scale and so investors are unlikely to be able to invest a large sum of this capital into an infrastructure project. If this fund was able to invest 5% of its assets into infrastructure this would unlock £6bn worth of funding.

This compares to the Ontario Teachers' Pension Plan which is the largest single profession pension plan in Canada and has net assets of (CAD) $96.4[13] billion[14].

The Unite report mentions that the LGPS is collectively the biggest pension fund in the country and fourth largest in the world. It is the 'collectively' issue that makes investment difficult on a large scale.

Looking at the scale of private funds[15] in the UK in comparison to its international competitors the difference in scale is noticeable.

- The UK's biggest fund is that of BT group (27th, $75bn assets, US dollars). This compares to the top 5 funds which have assets worth over $200bn each (with the top fund worth over $900bn – US dollars).

- Another sizable (private) UK fund is that of the Universities Superannuation Scheme which in 2010 was worth over £30bn (approximately 50bn Canadian dollars)[16]. However, again this is small in scale compared to its international equivalents.

Consolidation within the pensions sector, or vehicles that allow the funds to pool together, would help to improve liquidity with funds able to maximise investment and minimise operating costs and fees. This would also improve the possibilities for investors to commit the scale of finance required to fund large investment projects such as infrastructure.

The cost of pension fund investment

As can be seen from the above figures, there is potential for further infrastructure investment from pension funds. However, if pension funds were to be brought into primary investment to boost equity investment, they are likely to demand return similar to that of previous equity investors.

A recent National Audit Office (NAO)[7] report found that equity investors in PFI projects expected to receive between 12% to 15% return. However, given reviews into the cost of projects and procurement methods such as PFI, returns at this rate are unlikely to be considered as acceptable by government in terms of providing value for money for the taxpayer. PFI for example was leveraged at approximately 90% debt and 10% equity and so government benefited from lower debt return requirements and equity investors taking significant risk with regards to being paid a reasonable return (as the debt proportion of the funding had to be paid off before returns were provided to equity investors).

Increasing the involvement of equity investors such as pension funds with no other subsequent change in the risk profile to say a 50/50 split would therefore

increase the cost to the taxpayer. For this reason, the government needs to look at reducing the risk profile (using models such as those proposed in ACE's previous Public Private Procurment Models (PPFM) report) and investors need to align their return expectations to that of a level which is mutually beneficial for both parties. This means that the rate of return required by equity investors is likely to have to decrease if they are to be considered a viable source of long term financing, and so further discussions are likely to be needed between government and pension funds to secure investment going forward.

This is where government can play a role, by minimising risks and providing certainty it could reduce the equity premium that would be required by investors moving forward.

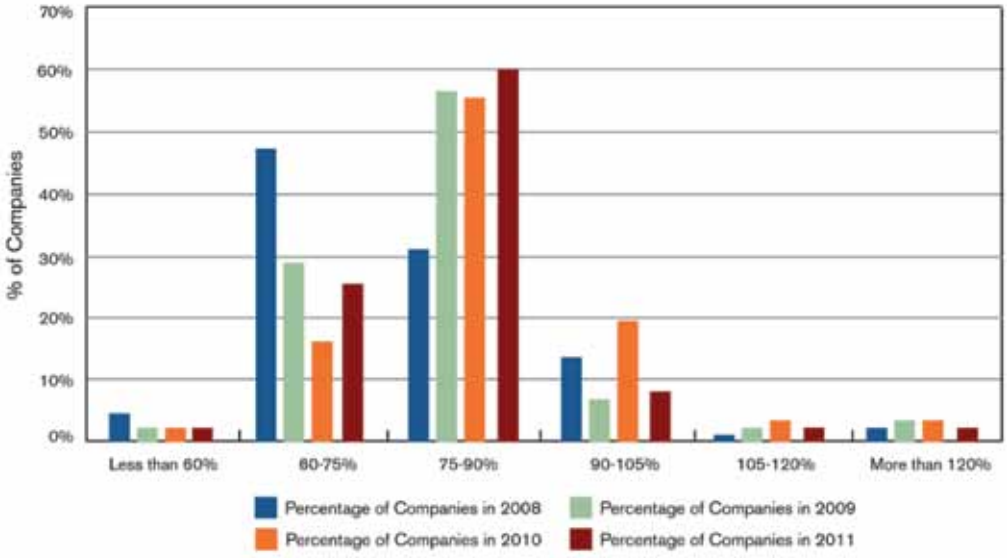
The funding status of pension funds

A recent report by Milliman[5] found that for the 2011 fiscal year pension funds funding status (the ability of the fund to cover its liabilities) ranged from a low of 40% to a high of 147%. The average in 2011 fell to 79.2% from the previous year of 83.9%.

Of the pension funds in the study, only seven out of eighty seven reported a surplus funding status at the end of 2011, which was similar to the previous two years. For comparison, in 2007 prior to the recession and financial crisis, 48 companies reported a surplus.

This shift in the funding status of funds can be seen in the diagram below.

Distribution by funded status – 2008 – 2011



Source: Milliman

This is important for two reasons. First it suggests that in recent years pension funds have found it increasingly difficult to maintain the position of covering their liabilities. Second and importantly, infrastructure, if packaged correctly, could provide a revenue stream that helps to bolster their long term financial positions.

There are benefits for both government and pension funds in encouraging further investment in infrastructure. Pension funds can diversify their assets further, improve returns, cover their liabilities and reduce cyclical and inflation risk. Whereas government can benefit from private funding in a future of constrained public resource.

Infrastructure and its current status within pension fund portfolios

Looking at a number of pension funds' annual reports and investment breakdowns, it is found that there is a significant difference between the degree to which they invest in infrastructure assets.

One of the funds with the greatest percentage of infrastructure investments is that of the Canadian Ontario Municipal Employees Retirement System (OMERS) fund with 15% of its assets held in infrastructure[17].

The Ontario Teachers' Pension Plan (OTPP), which has been mentioned in a number of our papers, currently has infrastructure investments of approximately $8.7bn which equates to 7.4% of its asset portfolio[18].

Looking at Australia, the cBus pension fund's financial report reveals that it has 12% of its assets in the (alternative) infrastructure field[19].

GIC, one of Asia's largest pension funds, currently has 10% of its assets held in private equity and infrastructure[20].

In comparison, the UK's largest fund the BT Pension Scheme (BTPS) has an infrastructure investment allocation of 1.5%[21].

A recent OECD report noted that current estimates for pension fund investment into infrastructure are less than 1%[22].

As can be seen from the figures above, the potential for a number of pension funds to enter the infrastructure market is significant. However, this is if there is sufficient expertise within pension funds with regards to balancing the potential returns and risks.

It is important to note that to date most infrastructure investment from pension funds is likely to be that of secondary projects and not primary ones.

Given that UK pension funds have traditionally been less active in infrastructure investment than some other international markets there is also an issue with skills and being able to effectively measure, manage and assess risks within projects. This makes investment less likely:

- "Investing in less liquid, longer term assets such as infrastructure calls for specific skills and appropriate staff in place at all levels – from fund managers to trustees. Although investors often use specialist consultants, they still require a good understanding of the products in which they invest and an effective system to monitor the strategies and activities of their asset managers. [23]"

- Pension funds such as the Ontario Teachers' Pension Plan can operate differently from UK funds, as the funds are more mature (and so are

approaching the point at which contributions fall and payments begin). This means they are more likely to have built up a solid base of investments, that are required to provide solid returns to cover the liabilities of its members.

- Another area that should be re-examined is that of the aim of pension funds. There are some indications that international pension funds (which already invest in infrastructure) are regarded as continually maximising return, whereas UK pension funds are perceived as operating purely to cover their liabilities.

Whilst, the government is unlikely to be able to directly influence this skills shortage in the short term, creating conducive investment conditions should encourage firms to train, hire or transfer the necessary individuals to meet this challenge.

The scale of the challenge for government is significant. It must not only encourage investment from pension funds, but also needs the pensions funds themselves to adapt their behaviour and scale towards that of the investments they are undertaking.

Therefore, whilst pension funds may help to ease some funding issues, the need for structural and cultural change is significant. It is therefore unlikely that pension funds are going to increase investment significantly in infrastructure or to the scale required in the immediate short term period. However, in the medium to long term they could prove to be a valuable.

Market conditions and legislation

There have been some concerns raised as to the effect of The Solvency II directive, currently being discussed in the European Union. For example, the previously mentioned An offer they shouldn't refuse report by the CBI[11] also outlined:

- "The government must ensure that Solvency II rules encourage rather than deter investment, at the very least by ensuring the "matching premium" is extended to include BBB- grade assets"

There is concern that, because the directive is increasing the amount of capital reserves that need to be held, investors will transfer more of their portfolio into items such as government bonds. This would reduce the incentive and money available for infrastructure investment.

However, the directive is focused primarily on the insurance sector with the new rules the European Commisions FAQ guidance stating[24]:

"Solvency II does not apply to pension funds covered by Directive 2003/41/EEC (the "occupational pension funds" Directive, or IORPs). The Commission is currently examining how suitable solvency requirements can or should be developed for pension funds."

So whilst the Solvency II directive is something that may have a knock on effect for investors and pension funds, discussions are still on going and the impact remains uncertain. For this reason it is important that industry continues to monitor the progress of this directive and its potential impact on infrastructure investment.

Pension funds and Public Private Finance Models

The market conditions outlined previously provide a number of challenges with regards to the possible involvement of pension funds in Public Private Finance Models (PPFM).

Traditionally, pension funds have invested in secondary markets (as was demonstrated by the purchase of HS1 by the Ontario Teachers' Pension fund). By focusing on secondary markets (completed projects), pension funds avoid the increased risk associated with primary projects and their limited expertise in this area.

However, if risks were reduced and returns matched to criteria important to pension funds (such as the term of the investment), there is no reason why a larger degree of funding could not potentially come from pension funds.

But, whilst the degree of funding may be increased, and some pension funds may be prepared to invest in primary market projects, it is likely to remain the case that the majority will not in the shorter term; given the structural, cultural and skills shift that would be required. Whilst pension funds may help to ease some funding issues (estimated as being between £20-£40bn), this is only between 5% -10% of the estimated scale of investment required (£434bn by 2020[1]). Such a step change in investment is unlikely to occur in the short term.

In addition it is also important to note that not all of this will come from pension funds, and assessing the true extent of their role in infrastructure investment going forward.

For example, the governments' National Infrastructure Plan (NIP) anticipates that "almost two thirds of the expected investment between 2011 and 2015 will be privately funded and the remainder will be either partially or fully publicly funded.[8]" However, the NIP includes significant investments in utility sectors such as energy and water, which will be primarily undertaken and financed by private companies and paid for by the end user. As such it is unlikely that pension fund investment will be required in these areas.

However, where required if government wishes to encourage pension fund investors into the primary market it needs to provide confidence. This means that the public/private sector needs to outline clearly what risk each party is prepared to accept and the return associated. The issues surrounding the balance of risk and meeting pension funds' requirements have been explored in a variety of ACE's previous research including its Barriers to entry and Public Private Finance Models (PPFM) report.

Addressing this issue is important, and so ACE would urge government to consider the following when considering private investment in a project:

- Is the income stream generated from the project secure and significant enough to ensure investors participation without adding to the risk premium?
- Is government prepared to pay a significant risk premium if it feels the private sector is best suited to deliver a project (such as nuclear power)?

- Is the project of significant benefit to the UK economy in terms of its growth potential or environmental credentials, and does this correlate to the potential return it would provide to an investor? If not, some degree of subsidisation or risk mitigation will be required from government.

- Is the length of the return of the project suited to the type of investor that is being approached? A ten year return may be too long for an investor (such as hedge funds) that wants short term returns, whilst too short for pension funds to consider as providing long term stability.

- Is the fee structure of the product aligned to pension fund requirements, as existing fee structures are considered as being too high.

In ACE's Barriers to investment paper, we identified a number of areas that should be considered by government with regards to barriers and encouraging further investment by pension funds. These include:

- Primary versus secondary market
- Equity versus debt finance
- Listed versus unlisted companies
- Direct versus indirect investment
- General partner versus limited partners
- Listed versus unlisted infrastructure funds
- Domestic versus international
- Single-sector versus multisector
- Liquidity
- Pricing
- Governance, management, operations, and experience
- Data and transparency
- Direct investment
- Short lifespan of investment funds
- Fees
- Regulatory, political and social risks
- Emerging markets, developed markets, and over supply

As mentioned previously, whilst government may be able to influence some of

these aspects in the short term, others will need to be part of cultural or medium to longer term change.

The areas mentioned above demonstrate a number of areas that pension funds will consider important, such as the fees charged to manage an investment. It is therefore important that government views the investments it is selling to pension funds in the manner in which they consider them as benefitting their portfolio.

Pension fund asset classes

Previous papers in this series, have looked at the possibility of pooling investors and pooling projects. The pooling of projects was explored in a number of ways such as by sector, multi sector, scale of capital investment, risk profile etc. However, there are other considerations that have to be taken into account for pension funds.

These funds will have a goal or outcome in mind when investing, such as mitigating inflation risk by buying products which are linked to inflation. Alternatively, a fund may be looking for a fixed price stable return, or even an asset which provides a shorter higher return which can then be sold on.

When developing policy and the investment mechanism for the Pensions Investment Platform (PIP), government needs to have these profiles and outcomes in mind. Whilst the pooling of projects in certain sectors may create profiles that match pension funds' needs, such as covering inflation risk, this may not always be the case. As such, it may be necessary to move away from the more traditional measures such as sector and size when pooling risk and focus effort on achieving a product tailored to meeting a specific financial goal.

The Pension Investment Platform (PIP)

One area where such issues may begin to be addressed is under the government's new Pension Investment Platform.

This is currently under development by government and relevant parties in the pension sector. The platform was outlined as part of the 2012 Budget[25] when government reported:

"The establishment of a new Pension Infrastructure Platform owned and run by UK pension funds, which will make the rst wave of its initial £2 billion investment in UK infrastructure by early 2013."

This platform has been said to be looking at a capital structure of up to 50/50 equity debt split. However, there are limited details beyond this currently.

Whilst it is still uncertain how this platform will operate it should provide products that are more closely tailored to pension funds' requirements, therefore encouraging investment into primary infrastructure projects.

The interaction of this platform with the market will also be important. Its potential alignment with other investment methods, such as listed funds, unlisted funds, listed equity, unlisted equity etc, will determine how pension funds consider its return/risk ratio and the degree to which funding can be diverted into the platform.

Appendix A: Market conditions and legislation

So what is the Solvency II directive?

According to the European Council and European Commission[26] the Solvency II directive:

"Provides a modern, risk-based system for the regulation and supervision of European insurance and reinsurance undertakings. These new rules are essential in order to ensure a safe and solid insurance sector that can provide sustainable insurance products and support the real economy through long-term investments and additional stability."

The rules are intended to create a minimum level of financial resources that insurers and reinsurers are required to have in order to meet their risk exposure. In addition, the rules outline the principles to guide the overall process of risk management.

So how does the directive intend on doing this?

The Solvency II directive focuses on three areas which are, quantitative requirements and how to calculate them, qualitative requirements such as risk management and supervision and the requirements for supervisory reporting and disclosure of information.

For the quantitative requirements, the directive explores minimum capital requirements, solvency capital requirements and both technical requirements and investment rules.

Qualitative elements include the capabilities of regulators and the governing and managing of risk.

Finally the disclosure and reporting aspect is intended to set out principles which lead to greater transparency within the market improving efficiency and highlighting areas of concern.

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]Also referred to as greenfield investment

[4]Also referred to as brownfield investment

[5]Milliman, 2012 Pension Funding Study - 2012 (click here)

[6]Unite, Ten top facts on local government pension scheme, January 2010 (click here)

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

[8]HM Treasury, National Infrastructure Plan 2011, (click here)

[9]Inderst, G. (2009), "Pension Fund Investment in Infrastructure", OECD Working Papers on Insurance and Private Pensions, No. 32, OECD publishing, © OECD. doi:10.1787/227416754242

[10]CBI, An offer they shouldn't refuse – 2012 (click here)

[11]Office of National Statistics - Occupational Pension Schemes Survey, 2011 (click here)

[12]Lord John Hutton, Independent Public Service Pensions Commission: Final Report, 10 March 2011 (click here)

[13]Canadian Dollars, 98.66 US Dollars at a rate of 1.023 , at December 31, 2009

[14]The Ontario Teachers' Pension Plan, 2009 Annual report, (click here)

[15]The P&I/Watson global 300 ranking, the worlds 300 largest pension funds, 2006 (click here)

[16]Universities Superannuation Scheme Ltd Report & Accounts (click here)

[17]OMERS, Asset mix – 2012 (click here)

[18]OTPP, Fast Facts – 2012 (click here)

[19]cBus, Annualreport addendum – 2010/11 (click here)

[20]GIC, Annual report – 2010/11 (click here)

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[22]OECD, Pension Funds Investment in Infrastructure – 2011 (click here)

[23]Croce, R. D. (2011), "Pension Funds Investment in Infrastructure: Policy Actions", OECD Working Papers on Finance, Insurance and Private Pensions, No. 13, OECD Publishing. (click here)

[24]European Commission, 'SOLVENCY II': Frequently Asked Questions (FAQs) (click here)

[25]HM Treasury, The Budget – 2012, (click here)

[26]European Council, European Commission - Proposal for a Directive 2009/138/EC on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) – 2012 (click here)

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.

Procurement in PPFM
This paper is the third in ACE's infrastructure series and examines how to improve procurement in Public Private Finance Models (PPFM)

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

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 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

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.

Further information

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