



Infrastructure investment

Policy summary

Key findings

Well chosen infrastructure investments can provide long-term, inflation-linked cash flows and are tangible assets that can support sustainable and socially responsible investments.

Infrastructure investments may provide assets that match the liabilities of pension funds and insurance companies.

Assessments of infrastructure investments should include social and environmental factors in addition to investment returns.

Applying a risk management approach to infrastructure investment ensures that risks and returns are considered over the long term and that projects remain robust in the face of changing external circumstances.

Future of
Investment
Policy

Background

Many institutional investors, such as pension funds and life insurers, have long term liabilities. To meet these they seek assets which provide a degree of security and a natural 'match'. Given that infrastructure assets are often integral to the effective functioning of society, they also have the potential to play a role in developing social resources in a sustainable manner. Like any investment, before deciding on the attractiveness of the returns, investors will wish to weigh up carefully the balance of return available against the risks.

This paper describes a risk management approach pioneered by the actuarial profession which is particularly well-suited to assessing infrastructure investments, and highlights the relevance of the actuarial skillset in this area. The paper also discusses recent developments in infrastructure investment by pension funds and life insurers.

A risk management approach to infrastructure investment

Risk Analysis and Management for Projects (RAMP) is an example of how actuarial risk management techniques can be of practical benefit to investors in assessing potential infrastructure investments. RAMP is the result of collaboration between the IFoA and the Institution of Civil Engineers.¹

RAMP provides a framework for analysing and managing project risk, placing emphasis on strategic and financial aspects, with the aim of promoting better decision-making and greater likelihood of success. This framework is already used by Crossrail – the company responsible for building a new £15 billion railway in London – in its risk-management process.

RAMP's authors characterise the essence of the approach as follows: "The key part of the process requires enquiring,

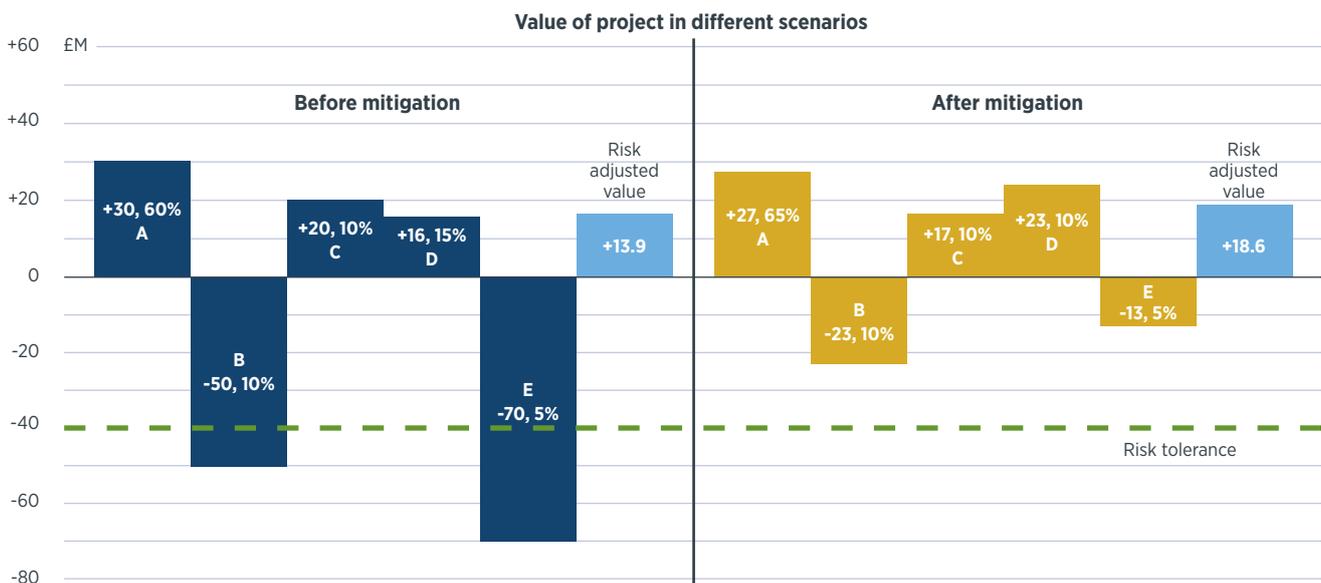
contemplative, imaginative and sceptical human minds, to identify risks and to devise future scenarios and ways to respond to risks." Specific features that distinguish RAMP from other risk management approaches include:

- An iterative, disciplined process that aims to carry out the analysis as efficiently as possible;
- A focus on quantifying the financial impact of risks wherever possible, while also giving due consideration to risks that cannot be quantified; and
- Close analysis of catastrophe scenarios even where they are considered unlikely to occur.

This approach encompasses all factors that influence project success – if the boundaries are too narrow, for example if long-term impacts are excluded, this may result in poor decisions and poor projects.

To aid decision-makers, RAMP uses scenario analysis to illustrate the value of the project if various key scenarios occur. This leads to a single figure that represents the value of the project after allowing for risk. In Figure 1, the left-hand section illustrates the value of the project before risk mitigation and the right-hand side shows the corresponding value if risk mitigation actions are implemented. In each section five scenarios, A to E, are shown, where A is 'as expected' and the other four scenarios illustrate the results if specific groups of risks materialise. The 'risk-adjusted value' of the project, displayed in the final column of each section, is the weighted average of the results from the five scenarios, allowing for the estimated likelihood of each scenario occurring as shown. In this example, the risk mitigation brings the outcome for each scenario within the board's level of risk tolerance for the project (the dotted green line). It also increases the risk-adjusted value of the project, even after allowing for the cost of the mitigation actions.

Figure 1: Scenario analysis



Specifically for infrastructure projects, RAMP highlights the need to include social and environmental risks as these factors could have long-term impacts. Social risks might include the quality of life for individuals and communities; and environmental risks include both impacts of the project on the environment, such as pollution, and risks resulting from the environment, such as flooding. This is important for pension funds and insurers that are seeking long-term investments in infrastructure.

The RAMP framework includes a description of the social cost-benefit analysis. A traditional cost-benefit analysis captures projected cost and revenue cashflows for a project under a range of scenarios. In a social cost-benefit analysis non-financial impacts can be imported into the analysis by converting them into monetary values. An example given is reduced street congestion resulting from a new underground railway. There are still likely to be impacts that cannot be quantified at all but need to be considered, such as a project's impact on a site of special scientific interest.

A risk management approach to infrastructure investment facilitates a disciplined, imaginative and balanced view of the risks investors might face when considering expected returns from potential investments, by considering a range of possible financial outcomes.

Infrastructure and actuarial expertise

Pensions, life insurance and investment are major actuarial practice areas, and IFoA Working Parties from these disciplines have produced recent papers which analyse in detail the key elements of infrastructure investing, such as risks, investment structures, market dynamics and regulation. Using RAMP and other techniques, actuaries also have the relevant skills to identify, analyse, measure and mitigate infrastructure project risks. This can demystify the investment process and give investors greater confidence in their decision making.

The IFoA believes that well-chosen infrastructure investments can provide long-term, inflation-linked cash flows and are tangible assets that can support sustainable and socially responsible investment.

Pension funds and the Pensions Infrastructure Platform

Investor benefits include an asset class that can preserve capital, provide a high and stable income and may protect against inflation.

In the UK, Government has identified a need for infrastructure investment – George Osborne, Chancellor of the Exchequer, stated in the 2012 Budget “We also want investment from British pension funds in British infrastructure – and we’re now working with a dozen of the largest pension schemes specifically on that.”

The Pensions Infrastructure Platform (PIP) was the result of a Memorandum of Understanding between the Government and UK pension funds signed in November 2011. The parties agreed to develop a facility to help UK pension funds invest more in UK infrastructure assets.

UK pension funds have historically invested relatively small amounts in infrastructure assets. This is because most UK pension funds lack the capacity and in-house expertise to invest directly and assess risks. The PIP is intended to help UK pension funds overcome these traditional difficulties by providing a platform for UK pension funds to invest in infrastructure.ⁱⁱ In July 2015 PIP announced that it had helped secure over £1bn of commitment by UK pension funds to invest in UK infrastructure.ⁱⁱⁱ

Under another Government initiative announced in 2015, the assets of 89 local authority pension funds will be pooled into six ‘British Wealth Funds’, reducing costs and enabling more expertise to be built up. The Government notes that only 0.5% of nearly £200bn in local authority pension fund assets is currently invested in infrastructure, compared to up to 8% in countries with a similar pooled structure.^{iv}

Appropriate infrastructure assets can provide pension funds with attractive risk / return profiles, liability-matching cash flows and diversification benefits.

Life insurance and investment in infrastructure

Insurers have a role in infrastructure investment as long-term investors. The Treasury’s 2013 paper ‘The UK insurance growth action plan’ announced “Aviva, Friends Life, Legal & General, Prudential, Scottish Widows, and Standard Life will work alongside partners with the aim of delivering at least £25 billion of investment in UK infrastructure in the next five years.”

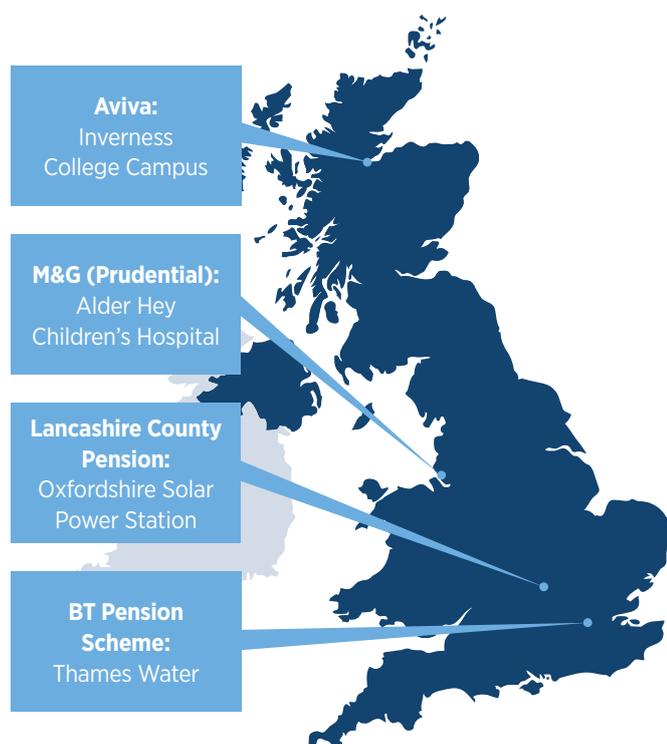
This announcement followed negotiations on the matching adjustment under Solvency II, which helps insurers to invest in social infrastructure projects such as power stations, housing and hospitals as it actively promotes long-term investment in growth and infrastructure.^v

Following consultation, on 29 September 2015 EIOPA published advice^{vi} suggesting a separate asset class to capture high quality infrastructure under the Solvency II standard formula for investments in infrastructure projects. This approach should meaningfully reduce risk charges for qualifying infrastructure investments in equity and debt. EIOPA recognises that these investments are complex and heterogeneous in nature and that analysis is needed of the governance arrangements under Solvency II to ensure the risks will be properly managed.

Long-term bonds used to finance infrastructure may be an appropriate match for annuities issued by insurers. Infrastructure equity investments may complement an insurer’s portfolio of listed equity shares with a different pattern of risks and volatility.

Infrastructure investment proceeds can match life insurers' liabilities - debt financing of infrastructure could be an appropriate fit for annuities, and infrastructure equity investment may complement a with-profits portfolio of listed equity shares.^{vii}

Insurers and pension funds are already actively investing in infrastructure projects:



ⁱ Institution of Civil Engineers, and Institute and Faculty of Actuaries (2014) RAMP: Risk analysis and management for projects: A strategic framework for managing project risk and its financial implications. London: Thomas Telford

ⁱⁱ House of Commons Library (2014) Infrastructure policy - Standard Note: SN/EP/6594

ⁱⁱⁱ Pensions Infrastructure Platform [Press release available online: www.pipfunds.co.uk/pensions-infrastructure-platform-hits-major-milestone-with-1bn-secured-for-investment-into-uk-infrastructure/ Published: 1 July 2015]

^{iv} National Infrastructure Commission (2015) Chancellor announces major plan to get Britain building [Press release available online: <https://www.gov.uk/government/news/chancellor-announces-major-plan-to-get-britain-building> Published 5 October 2015]

^v HM Treasury (2013) The UK insurance growth action plan

^{vi} EIOPA (2015) Final Report on CP 15/004 on the Call for Advice from the European Commission on the identification and calibration of infrastructure investment risk categories

^{vii} Comon, E. and Stephan, V. (2014) Infrastructure – Debt and Equity Investments for UK Insurers – Presentation at IFoA Risk and Investment Conference 2014



Institute and Faculty of Actuaries

Contact us

If you would like to know more about the IFoA's work on infrastructure investment please contact us at:

policy@actuaries.org.uk

Copies of Risk Analysis and Management for Projects (3rd edition) can be purchased on the Institution of Civil Engineers website.

London

7th Floor · Holborn Gate · 326-330 High Holborn · London · WC1V 7PP

Tel: +44 (0) 20 7632 2100 · **Fax:** +44 (0) 20 7632 2111

Edinburgh

Level 2 · Exchange Crescent · 7 Conference Square · Edinburgh · EH3 8RA

Tel: +44 (0) 131 240 1300 · **Fax:** +44 (0) 131 240 1313

Oxford

1st Floor · Park Central · 40/41 Park End Street · Oxford · OX1 1JD

Tel: +44 (0) 1865 268 200 · **Fax:** +44 (0) 1865 268 211

Beijing

6/F · Tower 2 · Prosper Centre · 5 Guanghua Road · Chaoyang District · Beijing China 100020

Tel: +86 (10) 8573 1522

Hong Kong

2202 Tower Two · Lippo Centre · 89 Queensway · Hong Kong

Tel: +11 (0) 852 2147 9418

Singapore

163 Tras Street · #07-05 Lian Huat Building · Singapore 079024

Tel: +65 (0) 6717 2955

www.actuaries.org.uk

© 2015 Institute and Faculty of Actuaries