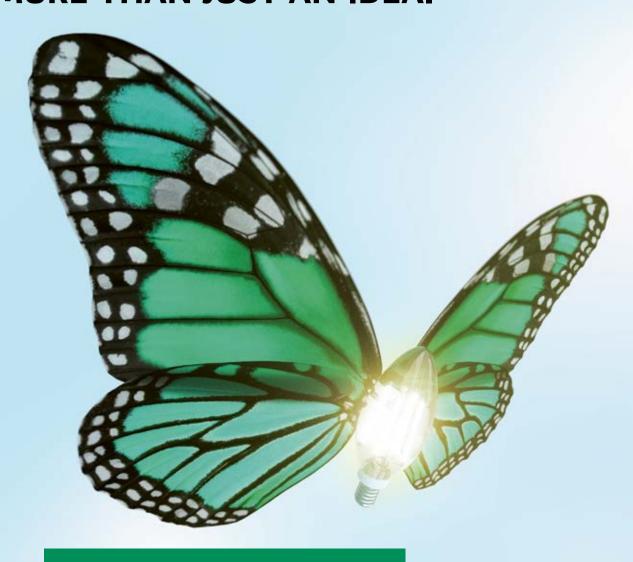
BUILD BACK BETTER







IN A CHANGING WORLD, ENERGY TRANSITION IS MORE THAN JUST AN IDEA.



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At BNP Paribas Asset management, because we focus on delivering long-term sustainable investment returns for our clients, we select companies that are dedicated to finding solutions that address climate change and contribute to the transition towards a low-carbon economy. Discover how we drive sustainability for you www.bnpparibas-am.com



The sustainable investor for a changing world



BUILD BACK BETTER

We're back! For the first time since February 2020 our roundtable discussion series has been held in person.

Zoom was a great alternative, given the circumstances, but you cannot beat the interaction between people who are sitting together in the same room.

And what better topic to debate in our first live event following the lockdowns than build back better? It is a slogan that has been used by organisations, campaign groups and governments around the world. In the UK, it is the basis of Boris Johnson's plan to not only jumpstart the economy after the impact of the pandemic, but to make us more resilient to future shocks. The main one being, of course, climate change. Levelling up the country is another goal of the plan.

Yet improving infrastructure, creating jobs and making the world greener is expensive. The US has allocated \$2.2trn (£1.6trn) to the strategy, but it is estimated that there is a \$15trn (£11.3trn) shortfall to provide adequate infrastructure globally, according to the Global Infrastructure Hub.

So, governments cannot fund their plans alone and so need the support of those responsible for large pots of private capital, such as pension schemes and insurers.

We brought such investors together with asset managers to not only discover where the opportunities are and if the risk is worth the reward, but what is needed to ease their capital into the right projects.

We hope you enjoy reading the discussion from page 8 as much as we enjoyed hosting it.

Mark Dunne

Editor

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BUILD BACK BETTER IN FIGURES

\$94trn

The investment needed to provide adequate infrastructure globally

Source: Global Infrastructure Hub

\$15trn

The funding gap to provide adequate infrastructure globally by 2040

Source: Global Infrastructure Hub

5.57%

China's infrastructure investment as a percentage of GDP in 2018

Source: Statista

0.92%

The UK's infrastructure investment as a percentage of GDP in 2018

Source: Statista

3%

European pension schemes' average allocation to unlisted infrastructure in 2021

Source: Mercer

\$2.2trn

The size of the US' infrastructure bill which was approved in November

Source: US government

PARTICIPANTS



Julien Halfon Head of pension & corporate solutions **BNP Paribas Asset Management**

Based in London, Julien Halfon is responsible for constructing customised solutions for institutional investors, including balance sheet management, multi asset solutions and overlays. He has extensive asset management, investment banking and investment consulting experience gained at Mercer, P-Solve, Lazard, Hewitt, Bacon & Woodrow and Goldman Sachs. Halfon began his career as an economist at the French Finance Ministry, before working for the European Commission.



Ted Frith Chief operating officer GLIL Infrastructure

Ted Frith has been responsible for all noninvestment matters at GLIL since joining the infrastructure investor in November 2018. He also has a seat on the executive committee. Prior to this, the Oxford graduate spent three decades working as an investment banker and asset manager at firms including Orion Royal Bank, Midland Montagu, Citibank, Aspect Capital and Dresdner Kleinwort Was-

More recently, Frith ran a third-party marketing business, was a consultant and non-executive director.



Christine Farguhar Partner and head of credit Cambridge Associates

Christine Farquhar oversees manager and market research across public, hedge fund and private credit investment strategies. She has more than 30 years of industry experience and has been with the firm since 2007. Prior to her current role, Farquhar managed the firm's global fixed income research efforts with a particular focus on investment-grade bonds, foreign exchange and income-oriented real estate.

Before joining Cambridge Associates, she was head of fixed income research at Hewitt B&W Investment Consulting and was an executive vice president and head of fixed income at Lombard Odier.

The economics graduate has headed fixed income, derivatives and alternative asset management for investment managers, including Insight Investment.



Paul Rhodes Trustee Reach Pension Plan

Paul Rhodes is a member-nominated trustee for the Reach Pension Plan. A national newspaper journalist for more than 20 years, he has worked on The Scotsman, Daily Express and Daily Mirror. He is currently chief subeditor of The Daily Star.

Rhodes also co-founded the Climate Impact Initiative, which aims to make a climate impact investment option available for all defined contribution savers.



Tom Sumpster Head of private debt direct origination Phoenix Group

Tom Sumpster brought 20 years of structured finance experience to Phoenix when he joined in March 2021. Prior to that he was head of infrastructure, across equity and debt, at Legal & General Investment Management. An accountant by training, Sumpster has also been a managing director and head of acquisition finance at Royal Bank of Canada, focusing on infrastructure debt. He has held related positions at BayernLB.

Dexia. Santander and PwC.



Stuart Trow Credit strategist European Bank for Reconstruction & Development

Stuart Trow joined the EBRD following a career on the sell side. As senior credit strategist his role spans high-grade credit management, emerging market strategy, ad hoc portfolio "firefighting" and the development of credit pricing strategies. He also sits on the bank's retirement plan investment committee. Trow has head of EU credit research at National Australia Bank on his CV as well as head of market & credit analysis at Norinchukin International.

A graduate of the London School of Economics he has also written several editions of The Bluffer's Guide to Economics and presents his own financial radio show.



Build back better

The various build back better strategies that have been launched around the world could be a great opportunity for long-term investors to earn the consistent and secure revenues they need.



Yet where are the opportunities? Are they of institutional quality? And is the government approaching the plan in the right way?

We brought pension schemes and an insurer together with asset managers to discuss if the plans to restart economies following the Covid pandemic are a good fit for cash-hungry institutional investors.

What infrastructure projects are you expecting to see as part of the government's build back better plans?

Ted Frith: We have received a couple of letters from the chancellor, but he is asking the wrong question.

Instead of asking how much money we have, he should be highlighting the projects that require financing and how we might go about investing the capital we have already committed to UK infrastructure.

Tom Sumpster: There is a wall of money available to invest in the build back better political theme. A difficulty we face are the regulatory restrictions on how pension funds can make investments.

We and GLIL have the capability to invest in the broader financial markets. If the regulator could be more flexible with how they allow us to invest it would provide a wealth of opportunities for large institutional investors to make a statement in sustainable investing and supporting government initiatives.

Christine Farquhar: Aggregation of capital is top-of-mind with a lot of investors. Being a seed investor or gathering money through a fund structure, getting that money to work is the challenge.

Assets such as infrastructure and clean energy are financially viable, so the issue is: how can investors direct capital to them safely.

Frith: The UK Infrastructure Bank, which we are engaging with, could play a big role as the broker between the providers of capital and the different risk-profile projects, which range from a couple of million to billions of pounds.

You need a broker to manage that process and marry the varying demands of the capital providers.

Sumpster: The European Investment Bank took an early role in renewables when offshore windfarms were not seen as stable investments for pension fund investors.

We need to be guided and form partnerships with multilateral organisations and governments because today's taxpayer is tomorrow's pensioner, so we are investing for the same person.

We need to speak with the UK Infrastructure Bank because we want to co-invest, we want strong partnerships with the public sector and multilateral organisations to ensure we maximise the economic and social value of our investments.

Frith: We are supportive of what the government is trying to achieve. We have made a couple of suggestions that might expedite what they are trying to do.

Julien Halfon: The distribution structures are another hurdle. Defined contribution pension plans have a fee cap and funding SMEs is expensive.

A fee cap of 50 basis points means we can only talk to large investors or defined benefit schemes, but not defined contribution plans, which would be the best possible investment for their younger demographic.



If there are restrictions on fees and liquidity, an enormous amount of the population is prevented from investing in something that could benefit them.

Julien Halfon, BNP Paribas Asset Management

At the other end of the spectrum, we see several strange operational limitations, such as defined contribution funds having to make highly liquid investments. Why would you need this if you are saving for 30 years?

That creates a lot of frictions when trying to invest in large illiquid projects. If there are restrictions on fees and liquidity, an enormous amount of the population is prevented from investing in something that could benefit them.

We are getting into a situation where mass-market utilities should go to smaller investors who could see the impact of their money. But the set-up is preventing almost anything from happening.

On top of that, many providers are not improving their platforms. This blocks innovation and limits defined contribution investment to ultra-liquid assets.

Farquhar: Our database has 600 managers and more than 1,000 dedicated impact strategies. It is not only about infrastructure. We have healthcare, social housing and private credit.

Those 1,000 strategies are ready and many are waiting for new capital.



Paul Rhodes: This is a problem we are seeing. How do you get into it? How do you price it?

It gets more difficult with funds worth less than £100m. The regulator says they must prove value for money, so their options are often more limited.

This is why there is a big move to master trusts. They have the scale to do this, but not everyone wants to be in a master trust. So, how can we work together to create impactful opportunities which are more assessable to defined contribution savers?

Is the EBRD acting as a broker when it comes to build back better?

Stuart Trow: Yes, but not to an ideal extent. As development banks go, we are one of the smaller ones.

It would be nice to leverage those strategies and get more people on board, but we can still take on multiple projects.

A problem is that because of the nature of infrastructure it is not a perfect market. Things get lumpy and you do not necessarily get an efficient mix of assets. It can end up one sided with too much wind power, for example.

Development banks could play a role, but it needs more guidance. What are we aiming towards? What does a green economy look like in terms of how it is financed and who will be the major players?

Frith: We have seen an effect of doing it piecemeal: you suddenly run out of power. Everyone suspects that if there are as many electric vehicles as they are planning to have by the end of the decade there is nowhere near enough electricity to power them. Are you going to account for that by importing electricity from overseas coal-fired power stations?

Halfon: One of the biggest challenges is that if you immediately close the coal-fired plants, you cannot power the entire grid.

There are discussions to be had on how we are going to implement the energy transition. Should it be piecemeal, should we replace everything or build on what is already there? BP and Shell, for example, are repurposing some of their North Sea platforms by building wind farms on them.

This is more complicated to do at the country level. Where do you put the wind farms, for example?

People need to think through the implications. The only one who has come close is the Carbon Tracker Initiative, and the numbers are mindboggling. It says that replacing oil would cost between $\pounds 3$ otrn and $\pounds 4$ otrn. This is just one sector. This number does not even include what is required for mining.

This is something people should keep in mind when going through the energy transition. When directing capital, some hard choices will have to be made. Where? How? Why? Is it cost effective? Should Sellafield be a hub for nuclear or wind farms? Frith: Politicians are catching up with the financial markets. Previously, there was government rhetoric and environment campaign groups, whereas now money is following opportunities. The financial community has achieved in the last two years, arguably, a lot more than the political rhetoric has in the past 30 to 40 years.

Sumpster: It has and it hasn't. There has been significant greenwashing over the past five or six years. There is a question over the flexibility of definitions for green bonds and whether the funds are really used for green purposes.

The financial community has a loud voice to help influence and change companies' behaviour. For example, taking a strong stance around coal use in the UK.

Is it necessary for the UK to have coal-fired plants? Possibly in

peak periods in the short term, but why isn't the consumer changing their behaviour as well, by running washing machines in non-peak periods or swapping halogen lights for LCD, for example. Behaviour is changing through consumers, government policy and emission zones in cities. Financial institutions will avoid investing in or vote against corporates who are not transitioning their behaviour to address climate change. We have a voice, and we intend to make a difference. We are focused on sustainable investing and make sure ESG is front and centre of our investment strategy. We accept that we are going through an energy transition where, ideally, we make increasingly more impact investments, but as we manage a large portfolio on behalf of pensioners, we must be responsible around the economics of going straight to impact.

We have sympathy for coal mines in Africa, which bring an energy source to local communities where there is no alternative, but less sympathy in the UK where there is a developed renewables and energy market.

Halfon: The changes in the financial sector have gone a lot deeper than anyone expected. In May, Shell lost a court case over their emissions, while Exxon and Chevron lost votes at their general assemblies. These are big behavioural changes, which were enabled by investors.



We have created an environment where what we need to invest in is unfashionable.

Stuart Trow, European Bank for Reconstruction & Development





There is a wall of money available to invest in the build back better political theme.

Tom Sumpster, Phoenix Group



At the trustee level, a survey by Mercer 18 months ago found that ESG was considered a factor when making investment decisions by 89% of institutional investors in Europe.

There is no upside in breaching ESG guidelines. You do not want to be the person responsible for investing in an oil company if one of their platforms blows up. So, the financial sector is ahead of the curve compared to the population, governments and the industrial world. Everyone is behind. We have moved further and faster than expected.

I first noticed an ESG strategy being implemented in a pension fund nine years ago. Now I do not know a scheme that has not created at least an exclusion list, if not changed its entire investment strategy.

Farquhar: It is not just what is in the investment portfolio, they look at the manager too. In the past two years I have not met a pension scheme that did not ask for clarity on a manager's ESG credentials.

Cambridge Associates is committed to net zero. We have made the pledge and are going to make that difference. We are walking that talk and making sure client portfolios have that opportunity to tilt.

Yes, there is a transition risk but there are also huge opportunities.

Sumpster: It is not just a one-off test. We see behavioural change

through certain performance indicators throughout the life of an investment.

Halfon: We passed the one-off test stage before Covid, but since Covid the acceleration has been massive.

Following COP21 in 2015, there were changes in the main mining countries. There have been legal changes in Australia, Canada and Chile, while the Netherlands is moving to impose prefunding for nuclear operators.

Rhodes: There is no value in investing in the status quo. It has to be sustainable.

Part of a fiduciary duty is investing in things that not only give our members a return but also a world to retire into. We need to back things that are creating change and will benefit from those changes. It would be ludicrous not to look at what is required.

Frith: I would take it above the ESG debate. Historically, local government pension schemes have made only a few investments in local infrastructure. There is a conflict of interest if elected officials ask their pension scheme for money to build pet projects in their backyard.

If Andy Burnham, for example, wants new trams in Manchester, instead of going to the Greater Manchester Pension Fund he should go to the UK Infrastructure Bank and put it on tender. He could open-up the whole system.

We do not know what is replacing the private finance initiatives (PFI) to pay for new schools and hospitals.

The UK Investment Bank should be able to provide locally elected officials with access to a new source of capital. There will be areas where the government will need to underwrite or de-risk some proposals, but there will be many projects for which there are willing investors.

Farquhar: You cannot look backwards when making assumptions about long-term returns from markets and private infrastructure. So much is changing.

Return to normal will be a new normal, that will need to factor in changes from carbon transition, as well as what is socially acceptable and what is sustainable for the planet. That is quite a challenge.

Frith: We need guidance from government in terms of broad policy. This is something that will be quite dramatic once it gets moving.

Halfon: On the pension side, one of the main UK retailers wanted to securitise their network of shops and the pension fund of another UK retailer bought their bonds.

They are doubling the risk on their retail exposure, but at the same time are transforming long leases into something different from their sponsor.

There are possibilities to do this in a decentralised way.

Frith: Airports are a good example. Twenty years ago, nobody was looking at airports beyond the odd Australian and Canadian pension fund. They were historically owned by governments or local authorities.

You knew airport valuations were getting toppy when pre-pandemic there were Eastern European cities you may never have heard of trying to sell their airports on very high multiples. That serves as a good example of what could happen in other areas of infrastructure.

Halfon: Airports are not airports anymore. The way they are sold now is one part is a transport hub and the other is a commercial hub. Terminal 5 at Heathrow, for example, is a shopping centre similar to Westfield.

It has dozens of shops and is a place people commute through, so they could potentially buy something expensive at Terminal

In practice, the idea of hubs, outside of airports and a limited number of train stations, has not been optimised. It will be interesting to see what happens with gas stations when we move out of petrol and into electricity. You may have a 45-minute stay while your car is recharging, but people could potentially do that at home.

Farquhar: If you follow Lord Bamford at JCB into green hydrogen, then you repurpose.

Halfon: Exactly. You can grocery shop while filling up.

Frith: It was not long ago that a different gas came down your

pipes into your kitchen. The gas works in the town once produced coal-gas. Subsequently, we switched everything over to North Sea Gas, which is methane, which is where we are today. So, it is quite feasible that we may switch over the infrastructure to deliver another gas in the future, perhaps Hydrogen.

I have a question. A nascent municipal bond market is apparently emerging in the UK. I can see that playing a role alongside what the UK Infrastructure Bank might do, but is there much going on in that regard?

Sumpster: Not at the moment, but it is, to a certain degree, bringing community funds into play.

For the large infrastructure projects there are billions of pounds available from bigger investors. But where can local communities put their money to work? Is the pipeline of opportunities there for them to invest in? It is not as clear as it could be, but the two could work hand in hand.

Can we go back to what replaces PFI? PFI fell away because it hurt the public and private sectors in the pocket and reputationally, partly because it was fixed contracts for far too long. Exceptional profits were being made by the private sector, but equally private sector construction companies were going bust. They shared too much of the pain as the risk allocation wasn't fair. In the changing world we have today with urbanisation, an aging population, climate change and technology all playing a part, more flexibility is needed in how we finance new developments. Pension capital like ours seeks a stable return with a conservative risk profile.

The larger ambition I have as an investor acting for Phoenix is looking at regeneration projects more broadly than just infrastructure. A local authority or city may take a land mass and think about its infrastructure and real estate requirements, such as developing social housing, commercial buildings and improved transportation links. Historically these would be individual financing opportunities, but why not procure under one big regeneration plan where local communities and other stakeholders can buy into the ambition and improve local communities. This could invigorate the private sector's involvement alongside development banks, the UK Infrastructure Bank, Homes England and other public sector bodies all playing a part.

The difficulty in the past has been that the public and private sectors have had conflicting needs. Yet there is an opportunity for long-term institutional capital to sit in partnership with the public sector.

We do not invest for exceptional profit. We are here to invest pension fund money for a reasonable return whilst taking conservative risks.

Farquhar: You do not need to leap straight to public market bonds. Good managers may also be good at managing portfolios of private bond placements, for example.





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We have seen that in Switzerland, which has a big, vibrant market with a strong flow of new issues. Some have government guarantees and some are infrastructure based, so the risk profiles are different. There is a well-established market, with a steady flow of money. It is not just talk; money is moving.

Frith: Once you get beyond the greenwashing, the amount to which green bonds have been oversubscribed shows how much capital is out there looking for green-related opportunities, but there will be demand for bonds with other risk profiles, too.

Most of our members are well-funded pension schemes and are looking for single digit returns. They are not looking for double digits. Why would they want to take the associated risks?

Halfon: If you earn 3% with a low risk profile nowadays, you should consider yourself happy. Over the past five years, we are roughly at 3% for senior debt, which is safe and should be on the books of most mature schemes, because they must absolutely avoid any shortfall with retirees.

Schemes want senior debt or other safe illiquid investments with low fees. Acquiring those risks is expensive and takes time. And yet some investors are not happy with 3%. The fact is that we cannot work miracles. There is a limit to what we can do.

Farquhar: For decades we had long-term assumptions that were fixated on equities returning 3% over bonds. That is a dream now.

But if pension funds can capture the attractive illiquidity premia on senior debt, which incidentally came through Covid with loss rates well below 1%, they could get much closer to the returns they need but are unlikely to see in their liquid public portfolios. You cannot have both.

What returns are you earning on green debt?

Trow: It is becoming increasingly evident that people are looking at the greenium to decide if it is worth going through the rigmarole of investing. It is not uniformed; it is supply and demand. If fund managers are trying to match an index, they will snap up any new issuance so the greenium will be around 6 basis points, but I am not sure that gets you to where you want to be.

One of the problems with the current investment horizon is the only way to make money is through capital gain, but we are



talking about projects that do not produce capital gains. Investors need income that is sustainable over time, and many do not invest for that anymore because interest rates are so low. It is all about developing capital gains.

We have created an environment where what we need to invest in is unfashionable. Rising asset values tell you the investment is not going to the right place. It is chasing the existing assets rather than creating new ones, which is what green infrastructure is all about.

I do not know how you square that circle because we have created an expectation that there will be capital gains to make up for the lack of income from bonds.

Frith: That is cultural in the UK. Other countries have traditional bond investor backgrounds.

Trow: Part of it is also that we have got rid of the expectation



Yes, there is a transition risk but there are also huge opportunities.

Christine Farquhar, Cambridge Associates

that inflation will always rise, but we have replaced it with an expectation that asset prices will always rise. With interest rates so low you are never going to get away from it.

Rhodes: Also, with DC savers it is what you save and how much return you get. For a mature defined benefit scheme 3% may cover their members' needs, but DC members are locking up their cash for a long period and 3% is not what they expect.

Frith: There is no legal obligation to pay a minimum pension in the DC world, but it needs to be attractive enough for people to put their capital in.

Rhodes: There is research that says some people will accept a lower return of up to 1% for a greener or more socially beneficial investment. There is a space for some plans to take out some of the volatility because it scares savers. They do not want to ride things out, even though, if they do, it will not harm

them so much. This could also help us engage with the saver. If savers know that they helped fund the new tram link in their city or the building they pass on their way to work, it could help drive greater engagement in the pension plan. One of the roles a trustee has is getting people interested, to get them to look beyond simply how much they could have at retirement.

Frith: That is the flip side of not wanting to invest in Shell or Exxon. We are being told what they want us to invest in and moral judgements are coming into it.

We had a call this morning with a water company we invest in because our members want to know about sewage outflows into rivers in the UK. It is topical, it is in the media.

Farquhar: If a company pollutes the water system, they get fined. Someone willing to work with such companies could alter their behaviour and help them fund the pipe-works to avoid polluting rivers.

The government could do more to incentivise water companies to invest in technology, to make a difference and get paid by the investment rather than fined when they don't.

Frith: They do get rewards from the regulator if they achieve, ahead of target, transformation in certain environmental projects.

Sumpster: As an equity investor and a shareholder, voting to change the behaviour of senior management in companies can be a powerful tool. On the credit side, are investors willing to take a lower economic return for improved ESG behaviour? Absolutely.

We have seen this in investments made where there are reductions in credit spread for meeting or exceeding certain ESG metrics. The credit argument being that you are future proofing the investment. If a company is not moving with investor sentiment its value could potentially deteriorate.

Has the nature of engagement changed?

Halfon: The financial sector has always engaged with institutional investors, but this engagement is no longer driven only by the fact that the investors have money. Other considerations such as protecting the money and not doing anything with it that will make you blush are taken into account.

In the past, engagement was about getting a 15% return whatever the consequences. Now it is making sure we earn the 3% we need in a way that will not embarrass us.

We all have mandates to protect the money before everything else. However, protection now goes with not just telling your clients you have made an 8% higher return than expected but telling them that you have done so without polluting the Thames.

The mandates have changed in the past two to three years, more so since Covid. Pension schemes talk about different things today when speaking to asset managers.





Part of a fiduciary duty is investing in things that not only give our members a return but also a world to retire into.

Paul Rhodes, Reach Pension Plan

Sumpster: People are looking for responsible investors to be the guardians of their money. We must be alert to the changing world we are living in.

Halfon: It is not only climate change, but not being involved in a corruption scandal, harassment or racism.

Sumpster: The benefit of private markets allows investors to get inside companies, form close relationships with them and really understand the assets. It is not just about making an investment decision but protecting it over its life.

You must consider other stakeholders. The taxpayer or end user, the government, the regulator, your investors, the senior management of a company – there are many people you have to partner with in the right way to demonstrate that you are a responsible investor.

Rhodes: Look at Danone. Their chief executive was not making enough of a return on investors' capital, so they got rid of him. People like the fluffy, but it needs to be balanced with making money.

Halfon: I agree, but you have to deliver what you promised. If you do not over promise, you do not have to take too much risk. **Trow:** On engagement, the industry is excluding anything that might be a risk, which eventually becomes a race to the bottom. By engaging with plan members, you could buy yourself a license to take a risk. If everyone is engaged and believes it is a

good option to invest in a tram system, you have that latitude if it goes pear shaped. We are talking about risk here and you can't not take any risk.

Halfon: Members are often more prone to risk taking than you assume. They will cut returns for environmental purposes, but I am not sure you are cutting that much because if a company you invested in gets fined for something they have done wrong, they risk making you lose a lot more.

Frith: Part of it is understanding the risks you are taking before deciding if you are happy to take them. You also do not have to fool yourself into low yield investment strategies just because the markets move there.

If you are earning 5% on a wind farm that used to pay 10%, are you comfortable owning it because it looks like a low yielding asset and therefore must be lower risk? You could be taking a lot of risk that you do not understand.

You have to be careful that you do not confuse a low return, low risk strategy with a low return strategy that has a lot of embedded risk.

Halfon: We have become more risk averse, and changing demographics are a factor. We have an aging society and risk takers are younger.

Because of the actuarial norms of discounting liabilities in defined benefit obligations, people do not want volatility

when they are about to retire. They have a very limited risk tolerance at that point, so only they tend to invest in assets that look like gilts.

This is changing in the Netherlands as they move from DB to collective DC. Instead of looking at a pension fund as something that has to be completely immunised against all risk, the younger generation can take some of the risk for the older ones. Rhodes: Managing illiquids is an issue with DC. If you are in a project that looked good, started out good and you are tied in for a long time but is not working out then you have a problem.

People are looking at the premium and asking how is this better than the liquid investments available. Why should we go with this? What is the benefit of allocating a proportion of our defaults to an illiquid asset?

Halfon: Illiquid assets bring more diversification. Your expected return could be maintained, but your risk level falls.

The point is, depending on the age of the members, you are not going to go above a 25% to 30% allocation to illiquids, unless the state ensures intermediate liquidity. If you invest 60% in illiquids, for example, and the state guarantees that you could drawdown five-tenths annually, this would allow investors to go more into illiquids, to generate more returns and reduce the immediate need for cash.

Does anyone have a final point to make on this topic?

Frith: The economic impact of investing in infrastructure is enormous, whether it is employment or regional re-development. It is great that our pension funds have allocations to infrastructure, but the wider picture is what it does to economic growth. That is a good story.

You should get as much money into infrastructure as you can if you are trying to rev the economy and drive future growth in

Farquhar: It is not just infrastructure, but sustainable investment, too. Part of it is to protect and ensure good outcomes for people and the planet, but the other part is to underpin growth, education and healthcare.

Trow: Infrastructure is at the heart of that. If something is a good investment for society and the economy, it will pay for itself. If it is not happening from the institutional or the private sector, the government needs to step in as a facilitator and enabler.

We are in a situation where we have tried to stimulate the economy with monetary policy, which has just chased asset prices up. We can do fiscal policy, which is just a sugar rush, but the next step is fiscal but doing the stuff we have talked about.

If it makes sense, it will pay for itself through tax revenue. If you get the incentives wrong it does not matter how much money you have.



You should get as much money into infrastructure as you can if you are trying to rev the economy and drive future growth in the UK.

Ted Frith, GLIL Infrastructure





Karen Azoulay is head of infrastructure debt at BNP Paribas Asset Management

EUROPEAN INFRA DEBT: AN INVESTMENT FOR THE POST-COVID ERA

While not immune to the consequences of Covid, infrastructure debt proved to be a resilient asset class by continuing to generate stable income. Key sectors, such as telecommunications and utilities, encapsulated this resilience through the essential nature of the services provided.

2020 proved to be an incredibly challenging year for markets as Covid-19 triggered lockdowns. The ensuing societal uncertainties raised volatility levels across most major asset classes.

While not immune to the effects of the pandemic, the proven resilience and stability earmarks infrastructure debt as the ideal investment solution in a post-Covid environment.

The growing demand and appreciation of renewable energy as countries embrace the energy transition, in tandem with the digitalisation movement, represent a significant tailwind for the asset class. For investors searching for stable income with contained volatility, infrastructure debt may be a compelling solution for 2022 and beyond.

The first true test of fundamentals

As an asset class, infrastructure debt possesses key characteristics that contribute to resilient performance. These include the large physical nature of the underlying asset, high barriers to entry for newcomers and stable revenues linked to the operation and/or construction of the asset.

These key characteristics have allowed a historically strong credit performance with low default rates and high recovery rates (of 0.34% and 76%, respectively) when compared to equivalently rated corporate debt.¹

Infrastructure debt typically also delivers relatively high yields compared to equivalently rated corporate debt by virtue of an illiquidity premium. As the projects being financed often have long-term lifespans (of more than 10 years), investors are compensated for their commitment with relatively higher yields.

Despite this attractive risk-return profile, it is worth noting that European infrastructure debt has been readily accessible to non-bank investors only since the late 2000s. This means that from an asset management perspective, the challenges arising from Covid were the first major test to the resilience of infrastructure debt.

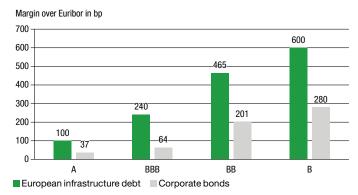
Key characteristics and fundamentals

Infrastructure debt broadly involves the financing of loans for projects that provide large, capital-intensive critical assets that underpin economic activity. Typical infrastructure debt finances utilities, power generation systems, telecommunications

systems, transportation systems (including roads, bridges, airports and rail networks), as well as other fundamental facilities that provide essential services.

Large physical assets: The projects financed are not only large physical assets, but typically operate in markets with high barriers to entry. These features are beneficial to investors from risk and performance perspectives. As infrastructure debt investments have significant underlying collateral in the form of the large physical asset, there is greater security and a higher recovery rate in the event of a material credit event. High barriers to entry reduce potential competition for the services that a project will provide, mitigating risk from a performance perspective. Stable revenues: Infrastructure debt typically involves regulated and/or contracted revenues. An example is the financing of a photovoltaic (solar) power plant, where there will be priority of dispatch off the grid. That is, there is contractual uptake of the service provided, ensuring stable revenues. Furthermore,

Exhibit 1: Yield premiums for European infrastructure debt relative to equivalently rated corporate debt



Source: BNP Paribas Asset Management, May 2021, Bloomberg. Corporate bonds: Average option-adjusted spreads by credit rating for non-financial corporate bonds (BAML, EN10/EN20/EN30/EN40/HE1C, 30 April 2021). European infrastructure debt: Estimated average based on a sample of market observations. many services produced by the infrastructure will bear low technological risk and resilience to economic cycles.

Cashflow-based lending: Investments in infrastructure debt relate to the operation and/or construction of a single asset or a portfolio of assets. From an investor (or lender) perspective, performance is cashflow-focused, with little to no emphasis on the price of the underlying asset.

Portfolio diversifier: As an alternative asset class, the nature and characteristics of infrastructure debt mean there is a low correlation to financial markets, especially against the more traditional asset classes (i.e. equities and core fixed income).

European infrastructure debt: A resilient asset class supported by future trends

While 2020 was an immensely challenging year for financial markets, infrastructure debt proved to be relatively resilient: Many essential projects continued to operate throughout the

height of the pandemic. This was not only testament to the quality of the asset class, but a timely reminder of its ability to generate stable income irrespective of market conditions.

Looking ahead, we believe European infrastructure debt is well positioned to perform in the coming years. The asset class is poised to benefit from the digitalisation and energy transition trends, which are a strong tailwind driving demand for telecommunications and renewable energy infrastructure.

Moreover, the infrastructure market should continue to need more financing for projects that provide essential services. In considering this positive outlook together with the core fundamental strengths of the asset class, we believe European infrastructure debt is – and looks set to remain – an attractive investment opportunity.

1) Moody's: Default and recovery rates for project finance bank loans, 1983-2019, Moody's definition of default



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TIME TO RE-THINK RISK?

The impact of the Covid-19 pandemic upended markets. While broad indices have soared to new heights there remain huge divergencies between the winners and losers. It has been a stark reminder that financial markets do not follow neat rules and their characteristics are not stable. Why should they be, when they reflect the interactions of people framed by the ever shifting social and institution context of today? The pandemic is a timely reminder of how a truly long-term investor should be looking at risk and about how recently we may all have been looking in the wrong place.

Back in the 1920s and 30s, John Maynard Keynes at Cambridge and Frank Knight at the University of Chicago were writing about the difference between statistical risk (think standard deviation around a mean) and uncertainty – that there are things we just cannot predict or model. Knight criticised what he called:

"The near pre-emption of economics by people who take a view which seems to me untenable, and in fact shallow, namely the transfer into the human sciences of the concepts and products of the sciences of nature."

...by which he meant the use of simplistic static models of objectives and preferences to reflect human behaviour and therefore the characteristics of asset classes. And Keynes wrote in 1937:

"By "uncertain" knowledge...I do not mean merely to distinguish what is known for certain from what is only probable...The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the rate of interest 20 years hence, or the obsolescence of a new invention...About these matters, there is no scientific basis on which to form any calculable probability whatever."

But Keynes and Knight's thinking was superseded in the postwar period by a belief in models and quantification that became the dominant narrative in economics and finance. In this neoclassical narrative the economy tends inexorably toward an optimal equilibrium point. In the investment world this led to the belief in optimal portfolios where risk is simply what you used in mean-variance optimisation i.e., annualised standard deviation of returns – or volatility. It's a framework that sees risk as something akin to the probability of throwing two sixes with a fair dice; something controllable and calculable.

More recently, critics have challenged this framework. In his influential book Black Swan, Nassim Taleb wrote about the importance of extreme events which the familiar bell-curve of the normal distribution says are exceptionally unlikely but which seem anything but. It is now almost a cliché to quote the unfortunate David Viniar, CFO of Goldman Sachs, who wrote of the global financial crisis: "We were seeing 25-standard-deviation events several times a week". In his typically forthright style, Taleb writes: "The bell curve satisfies the reductionism of the deluded", which is a fancy but concise way of saying that typical statistical analysis as practiced in the investment business doesn't capture real world outcomes very well.

But neither the financial crisis nor the Covid-19 pandemic were really black swan events in Taleb's sense of being left-field events that could not have been predicted. Indeed, as Jeremy Farrar of the Wellcome Trust wrote in a Newsweek article: "A pandemic of this magnitude was not only predictable, it was predicted...We called for immediate, forceful and coordinated action. The response was non-existent."

Does that sound familiar? We could argue the same for climate change or antimicrobial resistance. And if you ask an investment strategist at the beginning of any given year to list the 10 risks that might derail the outcome, global pandemic is almost always on there. But we find it hard to deal with these kinds of risks.

Bringing together many of the critiques of modern risk management in one fascinating book¹, John Kay and Mervyn King coin the phrase 'radical uncertainty' to describe situations "when we know something, but not enough to enable us to act with confidence. And that is a situation we all too frequently encounter".

Perhaps it is precisely this radical uncertainty that truly long-term investors should put at the heart of their approach to risk management. For those long-term investors whose wealth is only valuable as a source of continuous spending (a perpetual foundation or university endowment, for example) the concern must be about what will be the return generating potential of the portfolio not just from today but from 20 years or 30 years hence. Not just the portfolio value at a point in time but how it generates the returns that are needed to support spending.

Here we perceive a convergence between sustainability broadly defined and plain old long-term investing. We want to be invested, in x years' time, in a set of assets that are capable of generating at least as much purchasing power as our assets do today. To do so, they will have to be as relevant to society in year x and will have survived the twists and turns of crises, along with social, political and technological changes.

Of course, this has always been the case, but we believe it will be even more so over the next 20 to 30 years. In a research report we published in 20212, we argued that a series of sustainability issues had reach a stage whereby they would have significant impact on investment returns and should not be ignored. This is particularly because they are themselves the source of increasing uncertainty. Sustainability issues such as climate change are not cyclical, they are directional; they take us somewhere new, where historical relationships are less useful or even downright misleading.

Thinking with a sustainability mindset is also helpful in encouraging us to think about economies and financial markets as dynamic systems that evolve and change through time, with few, if any fixed constants. Too much of today's investment risk management takes simplifying theorems and then defines them as laws and applies fixed constants for means, standard deviations and correlations, etc. Thinking in systems, by contrast, acknowledges not just that the parameters are constantly changing but also that there can be positive and negative feedback loops, which create big oscillations and tipping points. The big and sudden events that drive markets are often not so much black swans as the results of slowly accumulating pressure and converging trends. Like the moment thousands of tonnes of ice breaks from a glacier and falls into the sea.

While climate change is the elephant in the room of sustainability issues it is only one potential source of future instability. The world economic system has become increasingly fragile - witness the continuous expansion of debt as well as central bank support for/manipulation of asset prices - and carbon emissions are not the only trend which cannot be extrapolated without crisis. An economic model that requires ever increasing inequality and a smaller and smaller group of companies making larger and larger profits (in absolute terms and vs GDP) is similarly not something that can be rationally extrapolated; it is almost mathematically unsustainable. So, a prudent investor might anticipate a period of turbulence in coming years, where historical data-driven risk models prove increasingly vulnerable to radical uncertainty.

So what to do about this?

Firstly, avoid thinking about risk in too short a term, statistical, sense. If an investment manager comes to you promising to 'maximise your risk-adjusted return' ask them what risk? (What they are really promising is to maximise returns under one specific set of circumstances.) Instead, think of risk as being what threatens your overarching goals - staying in business, having cash to spend, avoiding permanent losses.

You can only maximise returns if you are confident in your model of the future. We have sought to argue that such confidence is unwise. Evolution favours those who survive, so a portfolio that is robust and resilient is preferred over one that tries to maximise or is suited to only one environment. That is the perennial argument for diversification - ordinary enough - but it is worth reconsidering in what way your portfolio is truly diversified.

Complex investment strategies are often (though not always) dependent on models and assumptions that may prove casualties of uncertainty. Applying leverage to them only amplifies this risk, in fact significant leverage applied to almost anything reduces its resilience to the unexpected and the ability to hold on. A curious exception seems to be trend following quantitative strategies which often seem to deliver outsized returns in periods of turbulence - perhaps because they are constantly adapting rather than anchored to a prior set of beliefs.

At a more granular level, we believe sustainability factors mentioned earlier can be an important tool to reduce lurking risks that have no obvious timing or quantification. Analysing businesses through a sustainability lens brings important fundamental information. Costs imposed on society by anti-social businesses - such as pollution, congestion, exploitation of the vulnerable - are often termed externalities or side-effects in that they do not form part of the economic model of the industry. But as John Sterman, director of the MIT systems dynamics group tells us, "there are no side-effects, only effects" and they can come home to roost with unpredictable timing and severity.

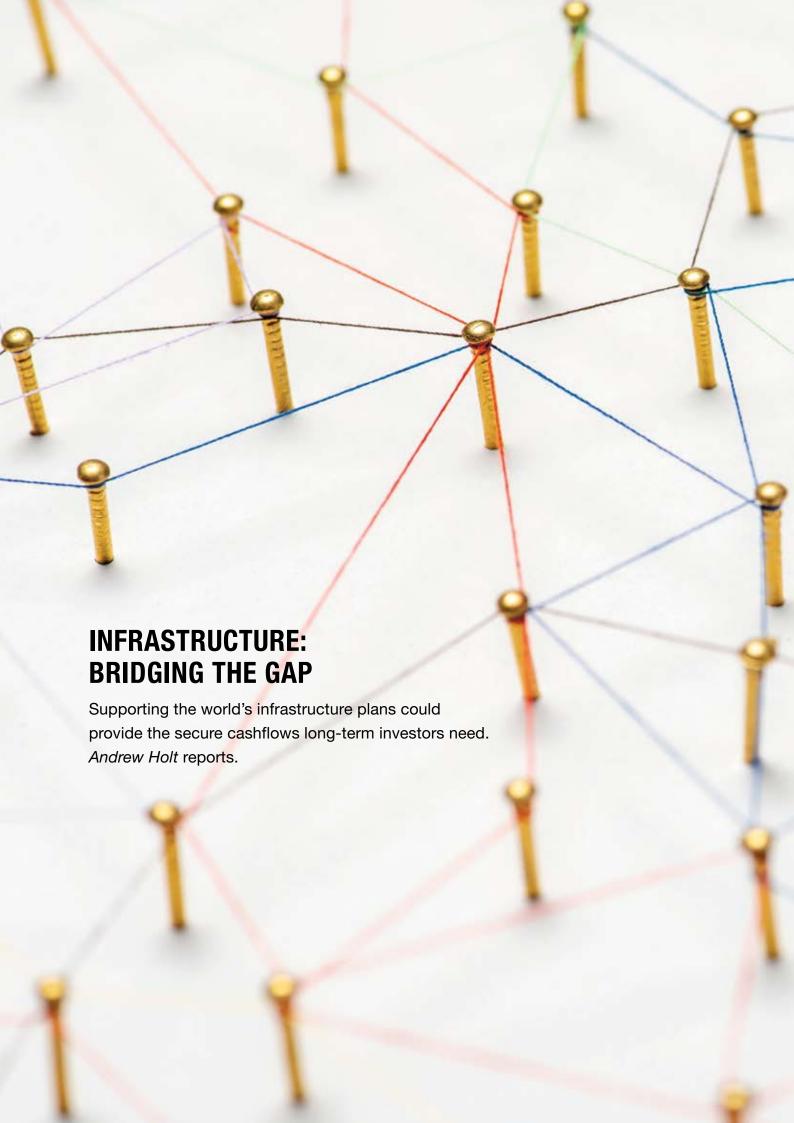
Finally, remember that uncertainty has upsides; how can investors be best positioned to benefit as the uncertain future unfolds? Venture capital, properly handled, can offer a diversified investment in the future. Most new ideas fail but those that don't can offer spectacular gains, sometimes at the expense of established businesses that may already be in your portfolio.

Seeing the economy as a dynamic system rather than a fixed mechanism is fundamental to this view of managing uncertainty so it is appropriate to finish with a quotation from 3Donella Meadows, environmental scientist and early systems thinker:

"Let's face it, the universe is messy. It is non-linear, turbulent and chaotic. It is dynamic. It spends its time in transient behaviour on its way to somewhere else, not in mathematically neat equilibria. It self-organises and evolves. It creates diversity not uniformity. That's what makes the world interesting, that's what makes it beautiful and that's what makes it work."

- 1) Radical Uncertainty, Decision-making beyond the numbers, by John Kay and
- Mervyn King 2) The Materiality of Sustainability, Cambridge Associates 3) Thinking in Systems: A Primer, 2008







Infrastructure is a portfolio diversifier with benefits. The good news is that the outlook for the asset class teases plenty of opportunity for institutional investors to collect secure, regular cash returns. The government faces a steep upgrade and modernisation bill, which could be good news for long-term investors, such as pension schemes, who could help fund their plans. "Infrastructure is seen as a diversifier," says Ted Frith, chief operating officer at GLIL Infrastructure. "You can define that mathematically in terms of correlation co-efficiency or look at it in a more simplistic way, in that you can achieve returns which are equity like with characteristics of the debt market and typically lower volatility."

But you have to select the right assets, warns Stephen O'Neill, Nest's head of private markets. "It's clear that when chosen and managed carefully, unlisted infrastructure equity assets can offer stable, long-term returns even in difficult market conditions. These also provide a diversifier for growth away from equities."

Such an attractive mix understandably appeals to investors. "This has brought in many of the larger investors over the last few years," Frith says. "Also, if you are a pension fund, you are making a real contribution to the facilities your pensioners might want to use, such as new trains, schools or hospitals and a contribution to the wider economy," he adds.

Nick Silver, co-founder of the Climate Bonds Initiative, adds: "Pensions should be investing in infrastructure because this is a 'real' asset.

"Infrastructure is also a good match for pension fund liabilities as it generally provides a steady inflation-linked return," he adds.

Huge opportunities

Infrastructure's role in boosting UK plc can be seen as a big contributing factor for investors. It is also an area where a great deal of innovation is happening, with investors having the chance to share in and exploit many of the infrastructure initiatives taking place. For example, for Britain to meet its climate goals, accounting firm PwC estimates that infrastructure spending needs to double to £40bn a year.

And pension funds have a role to play in boosting and benefitting from this outlay. The unlikely advocate in this scenario is the government, which in its National Infrastructure Strategy sets out the enthralling prospects for pension schemes.

"There is a huge opportunity for pension funds to support the UK's infrastructure investment ambitions," notes the strategy. It puts real numbers on these opportunities. "The industry anticipates that pension funds and insurers will be able to invest between £150bn and £190bn in infrastructure over the next 10 years."

That is a big investment opportunity. There is also a good harmonisation benefit for long-term investors, such as pension funds which are well matched to the long-standing nature of infrastructure investment.

"We look for projects that essentially align well with pension fund liabilities – very long-term opportunities, 25-years plus," Frith says, "and tailored to what the pension fund wants in terms of capital, deployment, risk and cashflow."

Nest focuses its infrastructure equity mandates on core operating assets globally, with some room for core-plus assets as well as some greenfield renewable projects.

"We have divided our infrastructure equity mandates into three: core/core plus global; European renewables; and UK core. We also allocate to global infrastructure debt," O'Neill says.

The opportunities highlighted by the National Infrastructure Strategy are already apparent to O'Neill. "We see some great deals in the UK in our managers' pipelines, which provide strong origination opportunities in onshore wind and other renewables," he says.

"We also like that we will be allocating a meaningful amount of our portfolio to UK assets with a strong linkage to inflation in their return profile," O'Neill says. "This helps support our long-term investment objectives, which are earning a spread over the UK Consumers Price Index.

"With that said, we are a global investor and want opportunities in developed countries around the world," he adds.

Banking on infrastructure

Possibly the most far-reaching development in this area is the arrival of the National Infrastructure Bank, which was announced towards the end of 2020 by the chancellor of the exchequer, Rishi Sunak. According to the National Infrastructure Strategy, the new bank has a big, far-reaching remit. It will "co-invest alongside private-sector investors including banks, institutional investors, sovereign wealth funds, pension funds and global infrastructure investors".

It will also use "a range of tools to support private projects: as well as offering guarantees through the existing UK Guarantees Scheme, it will offer debt, equity and hybrid products."

Commenting on this, Frith says: "What I hope is that the National Infrastructure Bank does two things: one is that it can play a co-ordinating and strategic role. Secondly, I hope it can generate more supply of projects to provide more opportunities for investors. I am encouraged by what I have heard. The proof will be what happens in the next couple of years."

But while a supporter of the National Infrastructure Bank, Silver is sceptical about its funding. "Its balance sheet is \pounds 22bn compared to \pounds 2.2trn [market size], which isn't going to make much of a difference," he says.

In another measure, the government announced in the Budget that it would like defined contribution (DC) schemes to invest in more alternative assets – widely seen as a hint that they should be free to invest in infrastructure. "There is a lot going on at the moment to make this work," O'Neill says.

"The Department for Work and Pensions are consulting on performance fees within the charge cap while the government has set up a taskforce to look at how a 'long-term asset fund' can be created to meet these ends.

"We believe this is an important push to help DC schemes overcome the hurdles, operational and commercial, which have effectively prevented them from allocating to infrastructure in the past," he adds.

Come together

Although investing in infrastructure can come with a big price ticket, which can put the asset class beyond the reach of many funds, there are examples of schemes coming together to pool their assets. In November, a group of local government pension schemes announced they would be pooling $\pounds 84$ om to invest in infrastructure projects through Brunel Pension Partnership.

"You get the benefit from buying in scale, which drives down fees and other costs as well as potentially bringing things in-house," Frith says.

And the range of portfolio initiatives are ever expanding. Infrastructure, which is to make up 5% of Nest's portfolio by the end of the decade, has seen the auto-enrolment pension

It's clear that when chosen and managed carefully, unlisted infrastructure equity assets can offer stable, long-term returns even in difficult market conditions.

Stephen O'Neill, Nest





Investment in illiquid assets generally comes with higher investment costs.

Tim Pike, Pensions Policy Institute

scheme establish a partnership with a private infrastructure investor and GLIL to invest £3bn directly in global core and core-plus projects.

The projects Nest are interested in include fibre networks, social housing, water and waste treatment plants and seaports. "Nest's investment strategy is evolving at pace in line with the growth in our assets under management, opening up new assets classes in the pursuit of the best risk-adjusted returns for our members," O'Neill says.

"We believe direct infrastructure equity investments can offer diversification benefits and a return premium to public market equities, at lower levels of risk."

Insurer advantage

In addition to the wide range of infrastructure opportunities, Legal & General's The Power of Pensions report indicates how small pension schemes can get involved by looking to manage their liabilities through the pension risk transfer (PRT) insurance market.

The insurance market's involvement in pensions is well established: pension liabilities are sold to an insurer, which then pays the pensions.

In reference to the development of PRT, Gavin Smith, head of pricing and execution, pension risk transfer at Legal & General Retirement Institutional, says: "While these [small] schemes may want to invest in infrastructure and ESG-related holdings, the need for diversification and the illiquid, long-term nature of some of these investments can make it harder to incorporate them into their portfolios in a cost-effective way.

"In addition, typical fund structures have tended to be less accessible to smaller schemes," Smith adds.

Smaller players

Looking at this in more detail, there are around £1.6trn of defined benefit (DB) pension assets on UK company balance sheets. Most British DB schemes are closed to new members and a large number are small - relatively speaking - with the Pension Protection Fund's Purple Book 2020 showing that 72% of Britain's schemes have less than £100m of assets.

"Over recent years, we have seen developments on the investment and insurance side to open up this asset class to a wider set of smaller schemes depending on their circumstances," Smith says.

"As funding levels improve, by securing their members' benefits with an insurer through a PRT transaction, smaller pension schemes could also benefit from the fact that the insurer will be invested across a wide pool of infrastructure projects, including those with ESG credentials, which will allow them to offer a lower premium to the scheme," he adds.

This pension money could then be invested in projects that make a real impact around the UK, including affordable homes, roads, new technologies and renewable energy.

"In fact, more than £24bn of our UK annuity portfolio is invested in direct investments that deliver a social, economic or environmental application," Smith says.

Infrastructure improvement

Infrastructure is also an area primed for investor improvement. According to the Pensions Policy Institute's (PPI) DC Future Book, currently around 1% of master trust default funds – where most scheme members reside - are invested in infrastructure.

Putting this into perspective, Tim Pike, the PPI's head of modelling, says: "Investment in illiquid assets generally comes with higher investment costs."

Therefore, larger, cash-positive schemes, such as master trusts, are more likely to be able to lock away a proportion of funds in anticipation of a potentially increased future return. "In this environment, costs are driven to a minimum to be able to offer a competitive charging structure and investment related expenses are typically around 15 basis points or lower," he adds. "For such schemes to invest further in asset classes such as infrastructure, investment approaches need to consider returns and volatility measured net of charges - above the minimisation of headline charges - and for this to be recognised by those selecting schemes for their workplaces."

But for Frith, the infrastructure outlook is positive. "There is a lot of investor appetite at the moment," he says, although he offers a caveat. "Like anything, all investors should be guided by wise advice on what is suitable for their scheme.

"Don't just follow the herd and get dragged along by the madness of crowds," he adds.

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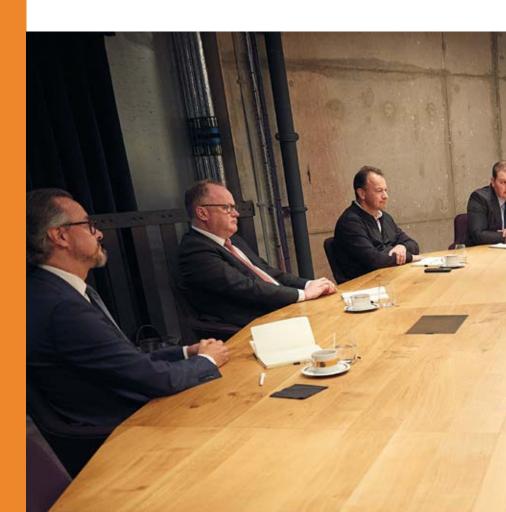
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