About UK-China Green Finance Centre

The UK-China Green Finance Centre is the evolution of a long-standing partnership between the City of London Corporation's Green Finance Initiative (GFI), which ran from 2016 to 2019, and the Green Finance Committee (GFC) of the China Society for Finance and Banking. The GFI-GFC partnership — which became known as the UK-China Green Finance Taskforce — has rapidly accelerated awareness of green finance opportunities in China and identified critical regulatory and market barriers to mainstreaming green investment flows.

The Taskforce is currently co-chaired by Alderman William Russell, 692 Lord Mayor of the City of London, and Dr MA Jun, Chairman of the Green Finance Committee (GFC) of the China Society for Finance and Banking.

With support from the UK Government's Partnering for Accelerated Climate Transitions (PACT) programme, this partnership has now been formalised under the banner of the UK-China Green Finance Centre.

The Centre's overarching mission is to enhance the UK and China green finance cooperation, to accelerate the global transition to an environmentally sustainable future. The Centre is co-chaired by Alderman William Russell, 692 Lord Mayor of the City of London, and Dr MA Jun, Chairman of the Green Finance Committee (GFC) of the China Society for Finance and Banking.
Foreword

The signing of the Paris Agreement in 2015 brought the countries of the world together in a commitment to limit global temperature rises to well below 2 degrees, and closer to 1.5 degrees. We now know that to keep that 1.5-degree limit within reach, we must halve global emissions. To accomplish this, the financial services sector globally will have a role to play.

As we look to participate in COP26 in November, one of the key goals for the Conference is to mobilise private finance flowing in the direction of global climate ambitions. To achieve this, private finance practitioners globally will need to learn from one another on how to rapidly unpack the implications of the low carbon transition and identify new opportunities for their existing assets.

The sustainable investment will be core to a global green recovery, and critical to maintaining growth in the UK, China and all emerging markets. Since the UK-China Green Finance Taskforce, co-chaired by the City of London Corporation and China Green Finance Committee, was established back in 2017, initiatives have been rolled out to support the financial services sector in building its capacity to advance the practice of green and sustainable finance in their operations and investments. This includes the ESG Leaders Forum, which was formed in early 2021, to create a platform for asset managers and asset owners to further embed ESG integration into the UK and Chinese investment communities, and to encourage sustainable bilateral capital flows between the two markets.

The Forum engages with leading global asset managers and asset owners based in the UK and in China to explore the aspect of active engagement framework and scalable solutions available in the public and private markets for investors. The goal is to enhance their knowledge and expertise in allocating investment into sustainable assets, in order to contribute to the carbon neutrality goals and net zero goals in the respective markets.

This research engaged with over 29 leading asset managers and asset owners in the UK and China. This report aims to highlight the scalable solutions in the current public and private markets. It also examines how investors can best set their respective ESG goals and contribute to the carbon neutrality goals and net zero goals in their respective markets through building stronger sustainable investment portfolios.

The challenge of investing in sustainable assets is pertinent for the UK and Chinese asset owners and managers. Covid-19 is accelerating the demand from investors for sustainable investments. Investment managers need to meet this demand with action and robust sustainability-focused strategies.

These unprecedented times represent a unique opportunity for the investment management sector to advance best practice in sustainable investment. As the global markets set out our respective climate goals, it is vital that we work together and strive to achieve our ambitions.

Alderman William Russell  
Co-Chair, UK-China Green Finance Taskforce

Dr MA Jun  
Co-Chair, UK-China Green Finance Taskforce
The competitive advantages to investment managers who successfully scale sustainable solutions and the benefits to asset owners from doing so, both financially and in terms of wider impact, are greater than ever. Investors are not just facing an evolving, but an accelerating need to navigate sustainability challenges in an ever-changing financial landscape. This report seeks to uncover and unpack some of the ways to achieve this successfully.

This work builds on the 2020 report “Resilience: Lessons to Scale Responsible Investment”. There has been impressive progress, an acceleration even, across various themes and recommendations from the previous report that included the creation of the ESG Leaders Forum (ELF) under the banner of the UK-China Green Finance Centre. We have witnessed the mainstream launch of net zero transition focused funds in Europe aligned with regulatory developments, growing support for a Chinese stewardship code and greater sophistication in integrating financially material ESG considerations into leading Chinese asset managers’ portfolios – with the financial benefits nascent but considerable.

However, recent improvements in the UK and China have not yet come close to achieving their potential. Challenges persist and there are certain areas where more action needs to be taken to enable asset owners to achieve their ambitions, such as the scaling of solutions through fixed income and private markets. There remains a great deal of work to accelerate scaling through widespread adoption of net zero goals, harmonisation of standards, pro-active outcomes-focused engagement and improved data availability.

This report, therefore, seeks to provide a fresh, pragmatic view on the current state of the sustainable solutions market, together with considerations for scaling effectively. It seeks to blend first principles for scaling investments with the best practice approaches and real world actions uncovered by 29 interviews and supplemented with practitioner experience. The interviews were conducted with market-leading organisations across different investor types (asset owners – including insurers and pension funds - and asset managers), markets (public and private) and geographies (China, UK, Europe and the US). We highlight many of the key insights through live case studies throughout the report.

These broad perspectives shed light on the different opportunities for building sustainable solutions, where the barriers lie and a path forward for achieving the magnitude of scale required to meet our greatest challenges. The interviews, and breadth of research behind this report, have been structured around a focused framework (see table below) that explored investors’ investment process, strategy and execution by considering goal setting, Task Force on Climate-Related Financial Disclosures (TCFD) reporting & stress testing, collaboration and partnerships.

This report and the interviews that underpin it have led to a number of key findings and recommendations, captured below. As part of this, we seek to answer the following questions.

1. What is the best practice for net zero investing and goal setting? What are the potential advantages?
2. How can investors access sustainable solutions today and what areas show promise for future innovation?
3. What benefits are there from asset owner and asset owner collaboration, and incorporating views from the ultimate beneficiaries, for sustainable solution development?
4. What are the best use examples of TCFD reporting and stress testing? Can these lead to tangible, innovative competitive advantages for early adopters?
5. How can Chinese investors assimilate, innovate and grow best practices as their capital markets continue to open?
Key Findings and Recommendations

Net Zero Goals: focus on outcomes and actions

1. Generating a groundswell of investors to target net zero goals is key to scaling investments and widening the total addressable market.

Over the last 12 months, net zero ambitions have dominated leading investors’ sustainability goals, causing them to re-examine their approach to investment. To date, very few Chinese investors have made this step. The Chinese government’s 2060 net zero commitment provides the perfect backdrop to change this.

Investors that combine outcomes and actions as part of their net zero approach – being clear what the end goal is from the outset, underpinned by credible targets and detailed implementation plans – stood out from their peers.

When investors – both asset managers and asset owners – can clearly, authentically communicate and commit themselves to net zero there are a host of potential benefits. There are reasons to suggest from our interviews that investors with clear sustainability goals will likely outperform those without over the next decade. Clear goal setting, coupled with authentic actions, in relation to net zero, can lead to competitive advantages across strategy setting, risk management, portfolio construction and ultimately security selection.

Leading asset owners are already voting with their capital and excluding managers that are not signalling their ambition to align with a net zero future. More and more investors will adopt this position in the next few years.

Recommendations

Outcomes and actions. To meet net zero ambitions investors need to adopt both outcomes and actions into their approach.

- A targeted ‘outcomes’ lens or approach – one that is clear what the end goal is from the outset with a clear link to the ultimate beneficiaries (e.g. pension fund members and the future world they will retire into).
- An ‘actions’ approach – one that underpins ambition with credible targets and detailed implementation plans.¹ Common steps include:
  i. Setting an overall net zero target for the portfolio or strategy e.g. net zero by 2050.
  ii. Setting interim 2025 and 2030 decarbonisation and sustainable allocation targets.
  iii. Developing detailed implementation plans for asset classes with the most data (e.g. listed equity and corporate bonds).

Chinese investors can set interim targets aligned with five-year economic plans and the 2030 carbon emissions peak goal.

Mandatory net zero-specific target setting. Regulators in both markets should find ways to introduce mandatory net zero-specific target setting (not simply climate change targets) and transition plans across financial market participants captured under the UK government’s TCFD roadmap - banks and insurers, asset managers and asset owners (see below for more on TCFD).

² The IIGCC, with its Net Zero Investment Framework, shows the practical next steps asset owners can take today within solutions and across asset classes.

Real World Approach

2. Taking a ‘real world’ approach to decarbonisation in strategy decisions and solution development is going to have the most impact. But this approach is not the easiest route despite the growing momentum.

Interviewees consistently highlighted the need to look through to the real economy and understand transition dynamics rather than rely on tilting or static approaches when looking to meet net zero targets. Asset owners are looking for asset managers to deliver real economic impact when they construct portfolios.

To do this effectively investors need a holistic approach to transition to navigate trade-offs and competing objectives, such as balancing meeting decarbonisation targets versus investing in emerging markets or sectors that are carbon intensive today. If these are not included as part of the investment solution there will be no global solution to climate change. It also needs to include new investments in emerging, sustainable, innovative companies (the flow) while also using proactive engagement and, where necessary, providing the finance for established companies to transition to low carbon business models (the stock).

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Recommendations

Consistent transition frameworks and engagement. Investors need to develop a holistic approach to navigating the low carbon transition by incorporating decarbonisation into strategy decisions and solution development. Critical to this are:

- Effective frameworks, with a total market view of transition and the use of relevant metrics, to find ways to include carbon intensive sectors and emerging markets (that are at a different stage of transition to developed markets) into the solution. This needs to include the use of backward (carbon intensity, green exposures, climate change management quality) and forward looking (implied temperature rise, alignment scores) metrics.
- Deep and meaningful engagement with companies, focused on actions and outcomes, to hold the most systemically important companies to account and track their progress as they transition to low carbon business models.

Roadmaps and taxonomies. Chinese and UK regulators can assist investors by:

- Developing clear, consistent national (e.g. China) and sector-level transition roadmaps enabling investors to find ways to include carbon intensive sectors and emerging markets into the solution and strategic decisions.
- Introducing transition taxonomies to support and reinforce green taxonomies such as the EU taxonomy. This will help ensure that any new infrastructure built as part of the Belt and Road Initiative is green and existing infrastructure is decarbonised over time.
Whole of Portfolio Approach

3. Achieving net zero requires adopting a ‘Whole of portfolio’ approach to sustainable investment which can drive innovation and capital into sustainable companies and those committed to transitioning their business models. As the number of net zero commitments grow, investors – particularly asset owners – are being driven to adopt an approach that encompasses all asset classes to achieve this aim.

The key to this approach is identifying asset classes with the most untapped potential, and to apply learnings from leading asset classes across the wider portfolio. Our interviews found both fixed income and private markets investments represent opportunities to scale, consistent with the findings of the previous report.

• Fixed income: Fixed income is an asset class with huge scaling potential due to the sheer size of the market and the role it can play in funding the transition. Asset owners, such as pension funds and insurers, are keen to do more through increased allocations to strategies with a net zero transition or alignment focus and environmental or social bonds. However, despite pockets of progress the broad market does not yet offer the types of solution they are seeking within the areas of corporate bond mandates, multi-asset credit, and loans.

• Private markets: From funding innovative, breakthrough green technologies, to building sustainable infrastructure and providing private capital for businesses to transition to low carbon business models – private markets have a crucial role to play. However, the need for deep expertise and scale continues to represent an issue for many private managers and there are challenges with data availability.

Dynamic collaboration and cross learnings between public and private markets can play a role in solving these two gaps.

Recommendations

Apply insights from leading private market strategies to sustainable fixed income offerings that already benefit from scale. Fixed income managers should learn from the authenticity and impact frameworks of leading sustainable private market funds in designing and scaling sustainable fixed income offerings. A growing number of green, social and even blue bonds makes this easier to do. This will lead to attractive solutions where every single holding has a clear link to sustainability. Applying this insight across listed market solutions more widely has the potential to create intentional, positive outcomes at scale.

Private market managers should focus their teams’ capabilities and product innovation on capturing the immediate net zero gap / opportunity in private markets. Private managers who are able to execute well in this area should be better placed to raise capital and scale rapidly, given increased allocation to alternatives generally, current lack of choice, and asset owners’ need to incorporate net zero into their growing private market allocations. Execution levers we have identified include:

• Skilling up: complement deal making capabilities with skilling up on sustainability and ESG topics, including leveraging third party networks and tools and techniques developed in public markets. Asset owners should support this journey by sharing best practices across their public and private managers.

• Thematic investing: tailor new solutions towards thematic sustainable investment opportunities. Managers should bias deal origination and portfolio construction towards companies and sectors benefiting from sustainability tailwinds and transition dynamics.

• Take a “whole deal life cycle” approach to sustainability. Managers should view sustainability through a value creation lens across the whole deal life, from origination, due diligence and monitoring / engagement, rather than as an investor or regulator-imposed requirement.

Collaborate to Create

4. There is an urgent need to speed up the innovation cycle in order to scale in time and this can only be achieved through dynamic collaboration. While our interviews uncovered a range of public and private market strategies available to asset owners today, there remains an urgent, albeit commercially attractive, opportunity to innovate across public / private markets and fill the ‘gaps’.

Chinese / UK / global asset managers have a unique opportunity to turn their deep insights into investable ideas while simultaneously moving quickly to meet investor needs – we don’t have time to waste. Our interviews identified a number of innovative solutions developed in partnership with asset owners.

Further, leading asset owners were exploring the views and insights of their beneficiaries to ensure they were in alignment and meeting their needs. Investment managers respond to incentives that are largely short term and financial. Asset owners need to change these incentives and act as a transmission mechanism between beneficiaries and asset managers so that asset managers allocate capital to sustainable opportunities.

The opening up of Chinese capital markets to international investors and, conversely, the growing ability of Chinese investors to invest overseas presents a unique opportunity for Chinese and UK investment managers to develop sustainable solutions through deep and meaningful partnerships. We found a number of instances where managers had formed partnerships leading to enhanced sustainable solutions better able to meet the needs of investors.

Recommendations

Investors should employ the three principles below to create sustainable solutions that are fit for purpose:

a. Collaborate: Capitalise on the opportunity to turn deep proprietary insights into investable ideas. Asset owners and asset managers should consider taking a prototype approach to solution development in partnership, dynamically enhancing the strategy over time.

b. Include: Asset owners enhance partnerships with managers if they can effectively understand and align portfolios’ return objectives with beneficiaries’ long-term goals. Look to leading asset owners to learn how to do this effectively through surveys and workshops.

c. Innovate: Look to other industries, academia, government and sustainability think tanks for innovative insights to apply to financial decision making across emerging themes such as physical risks from climate change and biodiversity. This not only drives improved understanding but can also lead to technical solutions such as physical risk modelling / mapping and more sophisticated transition alignment methodologies as identified in our interviews.

ELF would be the ideal forum for Chinese and UK / international firms to showcase the solutions developed through collaboration / prototyping approaches and to form partnerships with others.

Critical Frameworks, Tools and Initiatives in Catalysing Action

5. The real power of TCFD is as a performance framework and climate risk management tool. While TCFD has helped shape investors’ approaches to climate change disclosures and risk, we should increasingly view TCFD reporting as a means to increase healthy competition between investors, leveraging its ability to highlight performance and progress in positioning portfolios for the systemic impact of climate change.
6. Leading UK asset owners are more advanced than investment managers in applying the practical insights from climate change scenario analysis and stress testing to their strategic asset allocation decisions, and using it as a means to increase allocations to sustainable solutions and further explore physical risk exposures. While both scenario analysis and stress testing have the potential to increase the quality and robustness of investment managers’ sustainable solutions – and to test their authenticity – to date we saw variable evidence of investment managers applying these tools consistently to their strategies. Small to medium sized private market managers in particular were slow in adopting potentially industry-changing scenario analysis and stress testing techniques.

The asset management industry needs a watershed moment akin to the introduction of stress testing to the banking sector following the 2008 Great Financial Crisis - but this time it needs to be in relation to climate change stress testing and scenario analysis.

7. By bringing peers together, net zero initiatives play a crucial role in giving confidence to large asset managers and asset owners to make their first commitment to net zero. They facilitate standardisation and the development of best practices, resulting in access to technical expertise, meaningful action and approaches such as the IIGCC Net Zero Investment Framework.

**Recommendations**

**Assess TCFD performance.** Regulators should use TCFD reporting to help stakeholders understand asset managers' and asset owners' climate change performance. This is most effective when comparison across peers is made possible (pension schemes, insurers, asset managers etc.). We are expecting this approach from the upcoming Local Government Pension Scheme (LGPS) regulation with an annual Scheme-wide TCFD report. Incorporating this into PRI assessments is another possible route.

**Require physical data disclosure.** Regulators should require enhanced physical location data, the history of previous climate change impacts and adaptation plans from UK and Chinese listed companies to enable investors to better assess physical climate risks.

**Stress testing can help asset managers design new solutions and asset owners explore new asset classes.** Investment managers and asset owners should explore using scenario analysis and stress testing to understand the pitfalls and opportunities from net zero and higher carbon pathways, and incorporate insights into solution design, investment processes and explore new strategies and asset classes.

**Private markets and stress testing.** Private market managers should aim to extend their already sophisticated scenario analysis toolkit to explicitly incorporate climate-related risks and exposures in their pre-investment stage decision making. We recognise the benefit of asset owners requesting this analysis and monitoring managers, and that small to medium sized asset managers will need support and help in up-skilling to do this.

**Stress test the asset management industry.** Regulators should consider a joint supervisory exercise to stress test large UK asset managers’ exposure to transition and physical risks. This could provide a much needed wake-up call to the industry and could ensure stress testing forms a mandatory part of this industry’s risk oversight. This exercise will also help socialize the best ideas and practices among asset managers by reducing research and development costs and allowing everyone to catch up.

8. The opening up of China’s capital markets, with its increased two-way capital flow, is already creating greater demand for sustainable solutions. However, creating a common policy foundation between China and international investors can help mobilise even greater cross-border investment by instilling confidence that investors are working towards common goals.

The UK’s upcoming introduction of TCFD reporting across the financial value chain from banks to insurers, asset managers and asset owners is prescient and signposts what can be achieved within China and internationally. Incorporating real world thinking by encouraging corporates to adopt credible net zero targets will enhance this effort and increase the investable pipeline.
The guidance. Companies with A- and H-shares in pilots and testing of and accelerate the transition. Include dual-listed to hold strategically important companies to account maps would equip domestic and international investors Linking this guidance/code with sector transition heat improve stewardship standards across the industry.

Consistent TCFD regulations within China will help lower barriers, improve communication and produce win-win relationships. Ultimately this should help drive the flow of capital to sustainable solutions both within China and internationally.

Introduce Chinese stewardship guidance/code with a clear link to sector transition heat maps. Consistent with the findings in our previous report, this would allow Chinese investors to coalesce around a set of ambitious standards focused on activities and outcomes, and improve stewardship standards across the industry. Linking this guidance/code with sector transition heat maps would equip domestic and international investors to hold strategically important companies to account and accelerate the transition. Include dual-listed companies with A- and H-shares in pilots and testing of the guidance.

Send policy signals through tangible actions.

Governments and policy makers should lead by example to catalyse global capital into sustainable solutions. For example, Japan has demonstrated one way forward by becoming the first G7 country to invest its FX reserves into ESG bonds in an attempt to manage its reserves sustainably. By investing its FX reserves in domestic green bonds China would send a strong signal about the depth and credibility of this market to domestic and international investors.

This report’s findings in the context of COP26

There is growing recognition with each Conference of the Parties (COP) that investors and their capital allocation decisions have a critical role to play in both shaping and meeting the COP agenda. As such the project team for this report approached the interviews and the report writing process itself with COP26 squarely in mind. A question put to each interviewee was “What do you want to see from COP26?” We summarise the insights below. Each would greatly enhance and accelerate the scaling of sustainable solutions.

1) Promote public/private funding partnerships via the development of blended finance solutions.

Governments should support the acceleration to net zero and the creation of sustainable solutions via the intelligent deployment of public funds aligned with net zero and in partnership with the private sector. Three areas identified where public intervention can make a difference include: de-risking emerging technology, infrastructure or certain jurisdictions to make them investable for the private sector; investing in innovative, sustainability focused, first-time asset managers that would otherwise struggle to scale; and supporting early-stage companies in sectors aligned to net zero to provide a maturing pipeline for private capital providers.

2) Accelerate the quality of mandatory TCFD reporting through industry channels like PRI

This recommendation would stop market participants from being deprived of insights obtained directly from asset managers and asset owners TCFD disclosures.

3) Glasgow Financial Alliance for Net Zero to commence a group to provide technical guidance on Scope 3 emissions.

Build on the strong momentum and commitments of Net Zero Asset Owner Alliance (NZAOA), Net Zero Insurance Alliance, Net Zero Asset Manager Initiative (NZAMI), Net Zero Banking Alliance and Net Zero Investment Consultants Initiative (NZICI) by commensuring a dedicated taskforce to develop and provide technical guidance on scope 3 emissions. The issue is not just that too few companies disclose scope 3 emissions but that the quality of disclosure is wide ranging amongst those that already do and this is partly due to a lack of consistent technical guidance. The GFANZ group can help solve the pressing problem for the largest and least accounted for scope of emissions. This would enable investors to incorporate scope 3 emissions without concern that they may be using poor data for investment decision making.

Definitions

Net Zero: Having a net zero carbon goal or target, refers to achieving net zero greenhouse gas emissions by balancing carbon emissions with carbon removal (including through carbon offsetting) or simply eliminating carbon emissions altogether, whether that is at the country, business or portfolio level.

Stewardship: Exercising active ownership through voting and engagement with underlying investee companies as well engagement with policymakers with the objective of financial system improvement.

Sustainable (Thematic) investment: Investment in themes and assets specifically related to sustainability (for example, green energy, green infrastructure, clean technology, energy efficiency, sustainable agriculture, mobility, education, health and development).

Impact investment: Investment strategy designed to produce measurable financial and environmental / social returns.
Whole of Portfolio Approach

Include all asset classes. Leading asset owners and asset managers should invest across asset classes, to create sustainable solutions at scale to ultimately achieve net zero.

Combine listed market scale with private market impact frameworks. Strategies that invest in listed markets, which already benefit from liquidity and scaling, must incorporate learnings from leading private market impact frameworks.

Invest to transform both existing companies and fund new sustainable solutions. Public markets can be used to transition mature industries towards net zero through engagement channels whereas private markets have a unique opportunity to fund new, innovative sustainable technologies to create solutions.

Focus on fixed income. Pension funds and insurers should look to fixed income, as they match liabilities, to benefit from the asset class’ scalability, and a clear link to sustainability outcomes through green, social and blue bonds.

Net Zero Goal Setting

Authentic goals: Leading investors should set clear, authentic and targeted outcomes, which can be tracked over time, to meet their net zero ambitions.

Outcomes focused: The outcomes should be set with the ultimate beneficiaries in mind and with a consideration of the future impact on the portfolio and the world.

Leverage initiatives and frameworks: Investors should join net zero initiatives (i.e. GFANZ group) that provide collaborative support and generate best practice approaches. Frameworks, like the IIGCC’s Net Zero Investment Framework, can be a useful source of tools and methodologies to help prioritise asset classes and form implementation plans.

Stewardship for change: Engagement should be used to encourage transition laggards onto a net zero pathway and to drive better data disclosure. The Transition Pathway Initiative is a critical tool for this approach.

Blend engagement with divestment (as appropriate): If carbon intensive companies are unresponsive to engagement efforts, divestment should be considered. There is a need to balance the potential to meaningfully reduce emissions through engagement and the financial climate change risks posed by companies if they are unwilling to change their approach.

Climate change benchmarks: Leading net zero investors should consider changing their benchmarks to a low carbon / Paris-aligned version to monitor more accurately the financial and carbon performance of portfolios.

Balance carbon reduction and offsetting priorities. Most net zero leaders are prioritising carbon reduction over offsetting. Offsetting is a critical tool in helping to establish a universally traded carbon price but many are reticent to prioritise it over a focus on real world decarbonisation.

Investor Best Practice for Scaling Sustainable Solutions

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TCFD and Stress Testing

TCFD to track climate change performance. Investors can use TCFD reporting from a disclosures and a performance perspective. It helps to structure an approach to climate change risk management, introduce metrics and inform strategic plans.

TCFD to increase transparency. Leading investors are using TCFD reporting as a means to increase transparency and scrutiny on how well they, as an asset manager or owner, are addressing key climate risks.

Scenario analysis to identify risks and opportunities. Best practice asset owners are using scenario analysis to better understand the low carbon transition premium and physical downside to various scenarios.

Stress testing to improve solution design. Investors should use stress testing to improve their assessment of company value, sustainability positioning and physical risks. It leads to improved authenticity, robustness and scale of sustainable solutions.

Stress testing to ensure alignment with net zero. Investors should use stress testing to better understand if they remain on track to meet their net zero targets as well as highlighting issues that may prevent them from meeting their goals (i.e. climate change-induced black swan events).

Physical risk mapping to undertake a deep dive on physical impacts. Leading asset owners are using independent experts to understand the physical risks within real assets and wider parts of the portfolio.

Prototype approach. Asset owners and asset managers should consider taking a prototype approach to solution development in partnership. The development of these partnerships will mean asset managers can turn deep proprietary insights into scalable, investable ideas.

Align with beneficiary goals. Leading asset owners can enhance partnerships with managers if they can effectively understand and align portfolios’ return objectives with beneficiaries’ long-term goals.

Look outside the financial industry for insights. Both asset owners and asset managers should look to other industries, academia and sustainability think tanks for innovative insights to apply to financial decision making.
Setting goals and targeting outcomes

The landscape of goal setting
One of the key developments over the last 12 months and highlighted throughout the interviews is the growing number of investors, both asset owners and asset managers, that have set net zero goals. These commitments will have profound implications for solutions development and asset allocation decisions. However, understanding the difference between setting aspirational goals and setting credible and relevant goals, with demonstrable outcomes, is crucial. As an investor, being crystal clear on your goals and how to achieve them authentically is likely to aid strategy setting, risk management, portfolio construction and ultimately security selection.

The importance of setting goals
Setting goals and objectives is one of the most important steps that investors take, but one that is often overlooked. Common across the industry leaders we spoke to was the importance of spending time to develop a robust, consistent and implementable set of objectives, clearly articulating the desired outcome before determining the best path to achievement.

The value of articulating your world view
One of the most striking parts of our interviews was the conviction and clarity from asset owners on the type of world they wanted their beneficiaries to retire into or prosper in. They had married this view with a conviction that investing in a manner that mitigated against the risks associated with climate change was consistent with their fiduciary duty and were in the process of repositioning and evolving their portfolios to achieve this.

In attempting to address and prevent the existential threat of climate change, asset owners’ motivations for achieving this shared outcome were driven by a variety of values, unique to each organisation. In addition to pushing for a better world for their beneficiaries, the Church of England Pensions Board have religious motivations to protect the world and its citizens, whilst the Environment Agency Pension Funds (EAPF) sponsor, the Environment Agency, is tasked with protecting the environment.

From an insurance perspective, this was most starkly illustrated by Aviva who explained that a 4 degree world was uninsurable and by extension unsurvivable for many of the businesses they insured. It was this insight that drove home the importance of investing capital in such a way that mitigated the impacts of climate change, thus creating an imperative Aviva and the rest of the insurance industry cannot ignore.

“As long-term investors, we have a fiduciary duty to secure our members’ futures. We believe that climate change is financially material across all major asset classes. In support of our duty, the risks and opportunities presented by climate change can be mitigated and benefit from asset allocation, individual investment decisions and purposeful stewardship. In doing this, we are also securing the long-term returns for our members and creating a better world for them to retire into.”

- Richard Williams, CIO, Railpen

“Climate change poses serious risks to both our savers and their investments. It has the potential to cause catastrophic damage and completely disrupt our way of life. No-one wants to save throughout their life to retire into a world devastated by climate change”

- Mark Fawcett, CIO, Nest
Growing beneficiary and public interest in outcomes

As the industry adapts to ever-increasing disclosure expectations and regulation, stakeholders such as pension scheme beneficiaries are becoming much more aware of what their money can achieve for themselves and others and are more curious about innovative ways to deploy “their” capital. Becoming present to the full value of finance and understanding the sources of risks, rewards, and impact of an investment ignites an appetite for a more tailored approach to capital allocation and a clearer framing of goals and desired outcomes.

Challenges with goal setting

The link between institutional investors’ beliefs and actual strategy and solution implementation can often be tenuous because the execution depends on several variables that investors cannot control. These, amongst others, are: 1) the ability of investment consultants to understand and implement clients’ unique and complex vision, 2) suboptimal access to relevant financial solutions, 3) potentially punitive costs of execution and 4) lack of robust and transparent attribution demonstrating if client’s expectations were met in full. This last point can lead to a lack of trust, mostly induced by complexity - more on this below.

In setting a net zero goal it is imperative that investors consider credible transition pathways. Setting a target 30 years away without considering shorter term interim targets is not helpful and has led to accusations of greenwashing. Similarly setting overly ambitious targets, ahead of regulatory or policy driven targets, without a clear pathway has led to scepticism that net zero ambitions will be met in practice. Regularly measuring and disclosing progress against shorter-term targets provides reassurance that those setting the goals today will be held accountable for meeting them.

Net zero goals are gathering momentum

The transition to net zero is quickly becoming a business priority for the investment industry because of the borderless nature of climate change and the imminent threat it poses to economies across the globe.

The financial risks related to climate change are not only real, but they are starting to challenge the existing capital structures across listed and private markets. No company or sector will be left unaffected. Besides risks, there are also rich opportunities within sectors, which are at different stages of innovation. Varied in the complexity of financing, opportunities span numerous areas including energy transition (alternative energy, storage solutions, etc.), transportation, and the fast-emerging segments of the future circular economies.

In this context, goals setting is not only helpful but crucial for investors, both asset managers and asset owners, to combat barriers embedded within some governance structures, the investment process and solutions, in order to replace them with a more proactive, purposeful, and measured approach.

Our interviews and the wider statistics confirm that the UK and European investors choosing to adopt the path of transition are still pioneers but no longer outliers. In China, it is clear from our interviews that Chinese asset owners stand ready to support the Chinese government’s 2060 net zero goal and a small number of investors have already made net zero commitments.

The newly formed coalitions of Net Zero Asset Owner Alliance (NZAOI), Net Zero Insurance Alliance, Net Zero Asset Manager Initiative (NZAMI), Net Zero Investment Consultants Initiative (NZICI) and Net Zero Banking Alliance significantly reduce individual execution risk by normalising the direction of travel and implementation errors at the portfolio level.

Initiatives such as the Institutional Investors Group on Climate Change (IIGCC) and its Net Zero Investment Framework are helping support investors with practical approaches to achieving portfolio alignment with a low carbon future.

Net Zero target setting is dominating sustainability ambitions

• Over the last 12 months a growing number of investors, both asset managers and asset owners have been setting net zero targets and working to understand their practical implications. In total, the NZAMI now has 128 signatories and $43 trillion in assets under management and the NZAOI is now made up of 56 institutional investors representing $9.3 trillion assets under management. These alliances alongside net zero frameworks mean that for the first time there are the tools and methodologies to set targets in a credible manner.

• Typically, the net zero targets have been set for 2050, primarily guided by the IIGCC and targets set at the national level. However, there have been a number of investors who have set targets to become net zero even earlier than 2050. The motivations for doing so have tended to vary by investor type and circumstance but can largely be divided into four buckets: 1) Internal and sponsor ambition, 2) Comparison and competition with the peer group ‘average’, 3) Risk mitigation, 4) A values-based desire to lower the probability of higher global warming. Whether the date to become net zero is 2050 or earlier, the target is usually, or should be, underpinned by interim decarbonisation milestones which are a vital lens through which stewards or those deploying capital can be held to account, preventing business as usual operations continuing until it is too late to fully decarbonise.

• Prominent asset owners such as insurers Allianz, Aviva and pension funds such as Environment Agency Pension Fund (EAPF), Railpen and Nest have all set net zero targets between 2040 and 2050. All have set interim targets, with a 25-30% reduction by 2025 and 50% reduction by 2030 as the most common. While these organisations have led the way in their sectors for setting targets, it is thought that most of their respective markets will follow in the next few years.

1 As of October 2021
More granular carbon and sustainability targets

In addition to net zero targets, investors are setting other ambitious green and sustainable goals. These come with their own challenges, most notably around definitions and measurement. The following are current examples of asset owner targets in this space:

- **EAPF** aims to always have at least 33% of its investments in sustainable assets. Sustainable assets are currently being classified in accordance with the FTSE environmental markets classification, with the future plan to report all assets in line with the UK and/or EU taxonomies for sustainable finance.

- EAPF are also targeting 17% of their investments for tackling climate change by 2025 by reducing emissions or building resilience.

- Aviva is aiming to invest £100 million in nature-based carbon removals by 2030.

Railpen has committed to having 100% of assets in material sectors either net zero, aligned to net zero, or aligning to net zero by 2040. See below for more information on its commitments.

### Alignment Targets

- **2020:** 100% of AUM in material sectors either already net zero, aligned to net zero, or aligning to net zero.
- **2025:** 75% currently net zero, 25% aligned to net zero or under engagement.
- **2030:** 50% currently net zero, 50% aligned to net zero or under engagement.
- **2050 or sooner:** Net Zero

### Engagement Targets

- **Today:** 70% either aligned to net zero or under engagement.
- **2030:** 90% either aligned to net zero or under engagement.

### Climate Solutions

Increased investment in the climate solutions required to meet net zero by 2050 or sooner.

*Measured by “Financed Emissions” (see Glossary)*

Goal Setting: the private market’s perspective

Private markets have historically been characterised by a focus on obtaining an illiquidity premium to compensate for the higher cost of execution and lack of liquidity.

The more targeted nature of the capital deployment and level of engagement power in private markets means that investors in this space are generally better placed to drive outcomes, as highlighted in this report, and reflect this in their goal setting.

There has been a notable increase in private market investment strategies launched over the last 24 months with defined impact, climate and other sustainability goals. This appears, however, to have been primarily driven by asset owner demand signals and / or a search for thematic alpha, with managers looking to capture elements of the “sustainability revolution” opportunity, rather than an explicit net zero target strategy or goal per se.

Sustainable Development Goals

If net zero is a destination, the UN Sustainable Development Goals (SDGs) are the closest we have to a strategy showing how to get to the world we want to create in a just and inclusive way. More than eight million people contributed to its creation through a survey in the three years preceding its launch, making it uniquely relevant and applicable in organisational and market constructs.

SDGs can also help solve the recurring debate about the influence and materiality of environmental and social factors in finance.

The SDGs were created in 2015 without the investing community in mind which has meant the financial technology leveraging the framework is still sparse and severely underutilised across asset classes. However, the SDGs do provide a framework through which investors globally can express their sustainable investment approaches. This commonality of language means sustainable solutions have a greater chance of scaling across geographies.

Throughout our interviews, we observed that investors typically use the SDG framework retrospectively, post investment, as a way to report how their capital is aligned to one or many of the SDGs. However, a crucial distinction should be made between alignment and contribution to an SDG. Whilst retrospective alignment can aid in telling a good investment story, when used in this fashion the analysis describes little about the actual influence or contribution an investment has towards achieving an SDG.

Instead, best practice would suggest the SDG framework is used as an idea generation tool pre-investment that can help guide capital to opportunities that focus on underserved parts of the market or environmental and social needs. In this way, the SDG Framework can be utilised to achieve growth in effective sustainable solutions.
Sustainable Development Goals – using them as a framework

Many asset owners and managers, including those interviewed for this report, have adopted the SDGs as a framework to categorise the world’s sustainability challenges, align their portfolio to the themes, goals and/or targets and communicate impact to beneficiaries. There was variable adoption of SDGs amongst UK, European, US and Chinese investors in our interviews.

Case Study 1: Integrating the SDGs – Ping An, Asset Owner (Insurance)

Ping An integrates the SDGs into five business ecosystems to achieve financial and social returns and to apply ESG criteria in sustainability strategies. Ping An has analysed businesses, products, and services in response to the SDGs and identified the following.

Ping An hopes to make positive impacts in the society and environment with the application of SDGs throughout business ecosystems in financial services, healthcare, automobile, real estate services and smart city services, along with partners and stakeholders, to

<table>
<thead>
<tr>
<th>Category</th>
<th>Corresponding (SDGs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance</td>
<td>3,10,11,12,13,17</td>
</tr>
<tr>
<td>Technology</td>
<td>1,5,8,12,13,14</td>
</tr>
<tr>
<td>Financial Services</td>
<td>2,3,6,7,9,11,17</td>
</tr>
<tr>
<td>Smart City</td>
<td>3,4,9,11,12,13,14,17</td>
</tr>
<tr>
<td>Healthcare</td>
<td>3,8,11,17</td>
</tr>
<tr>
<td>Ping An Rural Communities Support</td>
<td>1,2,3,4,7,8,9,10,17</td>
</tr>
<tr>
<td>Ping An Foundation</td>
<td>4,7,11,13,15</td>
</tr>
</tbody>
</table>

For more details, please refer to the “Ping An Group Community Impact Guide”.

Sustainable solution characteristics to consider within a goal setting approach

The table below looks at areas for investors to consider when allocating to sustainable solutions across listed and private markets to meet their goals.

<table>
<thead>
<tr>
<th>What to consider</th>
<th>Actions to take</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transparent and Authentic Goals</strong></td>
<td></td>
</tr>
<tr>
<td>1. An asset manager must set credible, identifiable sustainable outcome goals, beyond achieving superior risk-adjusted returns. An asset owner must use their unique consumer power to hold managers to account for these goals and terminate or penalise those managers that fail.</td>
<td></td>
</tr>
<tr>
<td>2. Asset owners need to act as a transmission mechanism between beneficiaries and asset managers so that asset managers can incorporate beneficiary views and insights into their goals.</td>
<td></td>
</tr>
<tr>
<td>3. An asset manager must be able to transparently demonstrate how invested proceeds have been used to achieve the targeted sustainable outcomes. This is harder in public markets than in private markets for two reasons; the link between buying a public company share and the company’s solution or service is indirect and, the financing terms of private investment can often be linked to the outcomes.</td>
<td></td>
</tr>
<tr>
<td>4. An asset owner must balance the extra influence and scale that the pooling of assets with an investment manager provides, with a certain loss of control over achieving their desired sustainable outcomes. In turn, the manager must demonstrate their competence and knowledge to deploy the capital effectively towards those outcomes.</td>
<td></td>
</tr>
<tr>
<td><strong>Investing in new and old businesses</strong></td>
<td></td>
</tr>
<tr>
<td>1. Asset owners and asset managers must allocate capital to new sustainable solutions “the flow”, as well as to transforming old, less sustainable industries “the stock”, for the scaling of sustainable solutions to be most effective.</td>
<td></td>
</tr>
<tr>
<td>2. To achieve their ambitious net zero or SDG’s objectives, investors tend to favour allocating to “the flow” but to maximise real-world impact, especially in emerging markets and environmentally lagging sectors, “the stock” must not be ignored.</td>
<td></td>
</tr>
<tr>
<td><strong>”Additionality”</strong></td>
<td></td>
</tr>
<tr>
<td>1. Asset owners and asset managers must consider whether their investments are creating an additional impact that otherwise would not have been achieved. <strong>”Additionality”</strong> is a crucial concept that helps investments target underserved areas of the market as well as environmental and social needs. Additionality is also an important consideration in unlocking public capital support and is particularly relevant to scaling blended capital solutions.</td>
<td></td>
</tr>
<tr>
<td>2. Asset owners must realise that, as with goal setting, demonstrating additionality in the public market is complex. However, they also must realise their allocations can serve to support the capital structures of less well recognised markets and companies that are providing sustainable solutions.</td>
<td></td>
</tr>
<tr>
<td><strong>Pooled funds versus separate accounts</strong></td>
<td></td>
</tr>
<tr>
<td>1. Asset owners and asset managers must use the focused and tailored benefits of segregated accounts to target innovative sustainable solutions that may not be accessible to a co-mingled, multi-asset owner, fund where multiple client sensitivities or insights on sustainability must be balanced. It provides the flexibility and remit to take a prototype approach which can help speed up innovation and scale viable solutions.</td>
<td></td>
</tr>
<tr>
<td>2. Asset managers, however, must also attempt to integrate the benefits of a segregated account with the scalable capabilities of a pooled fund. Solutions which can appeal to as many clients as possible, ideally across geographies, will play a crucial role in achieving scalable sustainable solutions.</td>
<td></td>
</tr>
</tbody>
</table>
One of the key insights of this report is that investors need to be clear on their desired sustainability outcomes and then make use of the strengths of each asset class to reach their end goal, rather than adopting them in an ad hoc fashion. To do this, investors should consider the following:

- The type of sustainable solutions available.
- Emerging themes and areas of innovation to meet requirements and generate outcomes.
- The capability of the solutions to deliver effective, authentic and scalable outcomes.

### 1) Sustainable Solutions Today

It is useful to consider the evolution and availability of sustainable solutions in the context of the spectrum of capital diagram, which moves from traditional investing to philanthropy.

<table>
<thead>
<tr>
<th>Approach</th>
<th>Traditional</th>
<th>ESG Integration &amp; screening</th>
<th>Sustainable Thematic</th>
<th>Impact Investing</th>
<th>Philanthropy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Goals</td>
<td>Market Competitive returns</td>
<td>Impact First</td>
<td>Accept lower risk-adjusted returns</td>
<td>Accept full loss of capital</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Investment Goals</th>
<th>Target competitive risk-adjusted returns</th>
<th>Mitigate ESG risks and avoid harm</th>
<th>Mitigate or reduce negative outcomes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Intentions</th>
<th>“I am aware of potential negative impact, but do not try to mitigate it”</th>
<th>“I want to reduce responsibility”</th>
<th>“I want to generate long-term returns, from sustainable opportunities”</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Manager Progress on ESG Integration*</th>
<th>Availability of Impact and Sustainability Themed Strategies**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Equity</td>
<td>Medium / High</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>Medium</td>
</tr>
<tr>
<td>Real Estate</td>
<td>Medium / High</td>
</tr>
<tr>
<td>Private Debt</td>
<td>Low / Medium</td>
</tr>
<tr>
<td>Private Equity</td>
<td>Medium / High</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>High</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>High</td>
</tr>
<tr>
<td>Hedge Funds</td>
<td>Low / Medium</td>
</tr>
</tbody>
</table>

Source: Bridges Fund Management, Impact Management Project and Mercer

Traditional investment solutions have moved along the spectrum by integrating material ESG issues as an information set, in a myriad of different ways, primarily to help identify risks and to a lesser extent opportunities. The table below illustrates the extent of ESG integration within each asset class. Over time we can expect to see continued progress across each asset class driven by market demand. There is already a growing body of research evidencing the benefits of integrating ESG issues into investment analysis and its link to company performance.

However, solutions that integrate ESG issues solely to inform analysis do little for the flow of capital to impactful solutions linked to environmental and social outcomes. Our interviews found that the investment industry needs to go further in creating a distinction between allocating to companies that demonstrate strong corporate behaviour and companies that have solutions or services that provide sustainable solutions. Therefore it is also important to consider the current availability of impact and sustainability themed solutions by asset class, which are further along the spectrum of capital.

Source: MercerInsight. Note: Low <5%; Low / Medium: 5-10%; Medium: 11-20%; Medium/High: 21-40%; High:>40% (As at July 2020).

*Refers to the per cent distribution of ESG1 and 2 rated strategies across all actively managed A-C rated strategies, where available.

**Refers to the per cent distribution of actively managed impact and sustainability themed strategies compared to the mainstream by asset class.

- noting equities is a large universe the low relative number is not actually a low absolute number. Similarly where the availability of strategies looks to have decreased across private markets and infrastructure, this is due to the total number of strategies in the mainstream universe increasing.
Impact solutions
Impact investment solutions on the other hand target both returns and positive environmental / social impact, hence their position further along the spectrum of capital. In the listed markets impact solutions will typically target market competitive returns, whilst in private markets, some solutions target either competitive returns or take an impact-first approach, which is willing to sacrifice some return for a specific type of impact. Across public and private markets intentionality, additionality and measurability of the impact of a company’s product or service on an environmental or social need are built into the investment process, monitoring and reporting from the outset.

Understanding the opportunity set

The table below outlines the current availability of solutions across public and private markets that address and provide access to: impact, the climate transition, sustainability themes and new innovative, sustainable technologies. There are clear areas for solution development within assets classes such as fixed income but most notably the table suggests that a total portfolio approach, incorporating all possible asset classes, is required to produce a wide range of sustainable solutions. Private markets may be better for financing new sustainable technologies - “the flow”, whilst public market asset classes can aid in transitioning more mature industries - “the stock” - to a more sustainable position. We should not, however, underestimate the ability of public and private market managers to engage and influence, particularly the on the equity side, the “stock”.

### Impact solutions

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### Impact

<table>
<thead>
<tr>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>Fixed Income</td>
</tr>
<tr>
<td>Material products / services mapped to SDGs that have an additional impact and are measurable.</td>
<td>Material products / services mapped to SDGs that have an additional impact and are measurable.</td>
</tr>
</tbody>
</table>

### Climate Transition

<table>
<thead>
<tr>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity managed decarbonisation themes in developed and emerging markets. E.g. Renewable energy, energy efficiency, electrification.</td>
<td>Increasing number of corporate bonds (e.g. green and brown) and climate-aware and net-zero solutions.</td>
</tr>
</tbody>
</table>

### Other Sustainability Themes

<table>
<thead>
<tr>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity managed environmental / social solutions e.g. clean water, clean technology, small but increasing number of biodiversity / natural capital oriented funds.</td>
<td>Access to these themes is less available than in public equity but increasing.</td>
</tr>
</tbody>
</table>

### New Sustainable Technology / Innovation

<table>
<thead>
<tr>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPOs give some access to new technologies for public markets but are otherwise harder to access. The broader technology theme can be accessed as mentioned above.</td>
<td>Less access to new innovation through public fixed income solutions.</td>
</tr>
</tbody>
</table>
Deeper Dive on Climate Change

Investors typically focus on two types of risks and opportunities arising from climate change: transition and physical. Solutions for the former will seek to understand how sectors and companies are positioned for a transition to a low-carbon economy. Solutions to the latter will seek to understand how sectors and companies are mitigating or adapting to the physical risks of climate change. The table below illustrates a qualitative view of physical, transition and stewardship capabilities across asset classes.

Venture capital within private equity and infrastructure in particular offer exposure to new technologies and innovation in response to climate change. In addition, private market investment managers typically have relatively better access to company management allowing for effective engagement on how a company approaches climate change solutions.

A critical capability gap is how public equity and fixed income markets can incorporate physical risks and opportunities from climate change. Relative to private markets, the opportunities are less accessible in the public markets, however, the modelling of the impact of physical risks on public market investments is improving. This is explored further in the emerging themes and areas for innovation section below.

Availability of Climate Change Capabilities

<table>
<thead>
<tr>
<th>Motives</th>
<th>Transition Risk &amp; Opportunities</th>
<th>Physical Risk &amp; Opportunities</th>
<th>Stewardship</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEDIUM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIGH</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Public Equity (Active)**
- **Passive Equity**
- **Passive Fixed Income**
- **IG Credit**
- **Sovereign Debt**
- **HY Debt**
- **Private Debt**
- **Real Estate**
- **Private Equity**

**Key Variables**

<table>
<thead>
<tr>
<th>First generation</th>
<th>Second generation</th>
<th>Third generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing climate risks</td>
<td>Managing climate risks and targeting opportunities</td>
<td>Capturing climate transition</td>
</tr>
<tr>
<td>Fossil fuel exclusions</td>
<td>Potentially</td>
<td>Potentially</td>
</tr>
<tr>
<td>Carbon reduction</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Allocation to green revenues</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Climate-transition strategy</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>7% p.a. decarbonisation trajectory</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Aligned to net zero economy (to 2050)</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Third generation passive climate change transition solutions

Significant progress has been made in the passive equity sub-asset class to create indices that focus on climate transition and are either aligned to the EU labelled Paris-Aligned or Climate Transition Benchmarks. The table below demonstrates the evolution in this sub-asset class, which now offers asset owners a low-cost option to invest in a decarbonising solution with improved transparency, comparability and, importantly, small but growing, exposure to green solutions.
Case Study 2: Three Pillars of Sustainability – Ninety One, Asset Manager

Ninety One Global Multi-Asset Sustainable Growth targets a range of sustainability issues and outcomes within a single strategy using a sustainability assessment framework. This is an example of a strategy incorporating multiple elements described above – impact, net zero alignments and ESG integration.

In addition to a target real return outcome, there are three aspects to the sustainability goals:

- **Impact** – environmental and social impact through both fixed income and equities. The outcome is both ‘intentional’ and ‘measurable’. Through equities, for example, the strategy targets companies contributing towards decarbonisation and this is measured through a metric referred to as carbon avoided. In fixed income, the strategy invests selectively in green, social and sustainability-linked bonds.

- **Internal sustainability** – companies and countries that are exposed to structural growth drivers and manage their impact on the world through policies, business models and practices.

- **Net zero alignment** – a commitment to reduce climate risk in the real economy rather than just a portfolio outcome. The strategy targets companies and countries working to tackle climate risk in an inclusive fashion, either through transition plans or as solution providers.

This framework is also applied to other sustainable fund offerings including the listed equity Global Environment Strategy, which looks to invest across developed and emerging markets, and actively capture upside opportunities through climate solutions companies.

One of the key initiatives in helping Ninety One to identify sustainable investments is the ‘capitals’ framework, outlined below, which they have developed to assess the associated externalities across each capital. This can be applied across the full asset universe and is based on the belief that externalities will be valued and increasingly priced in by the market. Natural, social and human capital are analysed alongside financial capital:

<table>
<thead>
<tr>
<th>Natural capital</th>
<th>Social capital</th>
<th>Human capital</th>
<th>Financial capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deforestation and land protection</td>
<td>Extractive industry policies</td>
<td>Education and training</td>
<td>Profits</td>
</tr>
<tr>
<td>Productivity and food security</td>
<td>Water and waste management</td>
<td>Employee health &amp; safety</td>
<td>Taxes</td>
</tr>
<tr>
<td>GHG emissions and pollution</td>
<td>Marine protection</td>
<td>Health outcomes</td>
<td>Salaries</td>
</tr>
<tr>
<td>Biodiversity and land use change</td>
<td>Infrastructure management and investment</td>
<td>Wellbeing</td>
<td>Rents</td>
</tr>
</tbody>
</table>

Focus on green bonds in Chinese investor portfolios

Green bonds formed a much more prominent part of conversations with Chinese investors than with UK counterparts. This should not be surprising as China is now the second largest issuer of green bonds globally.

A number of investors with insurance arms that led them to favour fixed income heavy allocations referenced explicit allocations to green bonds. For example, China Re and China Life both discussed material investments in a range of green bonds. In the last few years, China has seen the introduction of new types of sustainable bonds, including sustainability-linked bonds, blue bonds, and carbon-neutrality bonds.

China’s commitment to bring green bond standards in line with international standards should ensure that international investors can benefit from accessing this opportunity.

Sustainable themes with Chinese investors

In line with national policy, Chinese investors emphasised their focus on green and sustainable development with balanced growth that incorporated social inclusiveness. More specifically they consistently identified sustainability themes that were aligned with the five-year economic plans and wider 2060 net zero goal. Consistent with this, clean technology and green energy came up repeatedly across interviewees as a critical area of focus.

In contrast to environmental factors, those interviewed provided a more diverse set of social themes from poverty alleviation & rural redevelopment to Covid-19 recovery & healthcare.
### 2) Emerging Themes and Areas for Innovation

#### Progress in Biodiversity

According to the UN Environment Programme, if we are to tackle the biodiversity crisis, climate change and land degradation crises by 2050 there is a $4.1 trillion financing gap that needs to be closed. Each of these planetary issues is interconnected and should not be viewed in isolation.13

The number of effective investment solutions focusing on biodiversity as a theme or as part of risk and impact analysis will increase, driven by three developments:

1. Growing investor demand. A number of investors we interviewed proactively referenced their interest in biodiversity. There is growing recognition that biodiversity risks and opportunities cannot be ignored going forward and that this will be a key theme this decade.

2. The improvement in the availability and quality of data.

3. The improvement in impact and reporting frameworks such that the biodiversity footprint, positive or negative, of the solutions is demonstrable.

The Taskforce on Nature-related Financial Disclosures (TNFD) was launched in 2021 to address these issues to some extent. The TNFD aims, “to support a shift in global financial flows away from nature-negative outcomes and towards nature-positive outcomes by delivering a risk management and disclosure framework for organisations to report and act on evolving nature-related risks”. The TNFD hopes to build on the TCFD and together they aim to provide comprehensive coverage of nature and climate-related risks.14

#### Progress in Fixed Income

One of the key takeaways of the previous sections and the project interviews is the unharnessed potential of fixed income to contribute to scalable sustainable solutions. As explained, publicly listed fixed income has the potential to offer clarity on the use of proceeds, at scale. In addition, industry thinking that stewardship and engagement are limited to voting on equity shares is rapidly changing. Fixed income investors can have significant influence over company management as financial stakeholders, at pre-, post- and re-issuance stages. As one example, the “maintain” aspect of buying and maintaining corporate bond strategies, which leads to longer holding periods compared to most other approaches and therefore a greater chance of ESG risks materialising, illustrates why investors have incentives to manage and influence long-term sustainability risks through engagement.

The demand for fixed income solutions is growing, particularly from insurers and pension schemes looking to match their liabilities. This increasing demand, together with the attractive characteristics of the fixed income asset class for scaling sustainable solutions has created a solution gap that needs to be filled as we look to scale effective solutions.

#### Case Study: Fixed income and physical risks – Wellington Management, Asset Manager

Our interview with Wellington Management demonstrated what can be achieved to close one of the solutions gaps in understanding how physical climate change risks affect public fixed income investing. Wellington Management’s partnership with Woodwell Climate Research Center has allowed it to develop its Climate Exposure Risk Application (CERA). Wellington Management uses CERA to map physical climate change risks (Heat, Drought, Water Access, Flooding, Hurricanes, Wildfire, Sea Level Rise and Air Quality) to global location, of the issuers assessed, is assigned the probability of each risk occurring and for fixed income securities this data can be fed into a climate-adjusted yield to maturity calculation. The model uses the location of a security’s operations, in addition to the other assumptions and inputs, to produce an adjusted yield and a probability that a credit downgrade event occurs.

In addition, the number of passive fixed income transition solutions that align to either the EU Paris Aligned Benchmark or Climate Transition Benchmark are increasing. Whilst not as developed as the equity versions, progress is being made by leading and smaller index providers alike to allow passive fixed income investors to access transition risks and opportunities.

#### Progress in Private Markets

As referenced earlier in this report, the availability of net zero aligned and sustainable thematic solutions in private markets are still reasonably low. Several asset owners in our interviews referenced an appetite for increasing their private markets allocation, but also the difficulty in finding genuine sustainability-oriented solutions that went beyond ESG integration, and particularly so for private debt strategies.

Over the last 24 months, however, we have seen increased levels of activity in several areas, where solutions development is accelerating, and we expect this to continue at pace. These areas include:

1. Sustainable infrastructure, covering both renewable assets and emerging infrastructure such as battery storage, hydrogen.

2. Energy transition funds.

3. Impact labelled funds, both across the buyout and growth stage.

4. Venture capital thematic funds with a focus on climate change and physical resilience, the environment and technology innovation to tackle sustainability challenges.

Particularly encouraging is the amount of activity from venture capital managers, with a long tail of managers currently raising impact and sustainability focused funds. In addition to climate change and energy transition, themes such as sustainable food & agriculture, natural capital, circular economy, mobility, water and healthcare are areas of significant market activity. There is also the emergence of “climate first” vehicles, with explicit carbon reduction impact metrics and targets built into the solution.

After a relatively slow start compared to private equity, we expect a proliferation of impact and ESG-driven private debt funds. ESG adoption in mainstream debt funds has started mostly via the incorporation of pricing ratchets linked to sustainability outcomes. Asset owners will continue to push for increased innovation on the part of managers to fill this solutions gap on the credit spectrum, coupled with the recognition that debt finance can play an important role in helping companies generate sustainable outcomes.

With investor signals still somewhat mixed when it comes to thematic investing in private markets, we would expect an increase in the tailoring of solutions, particularly where there are large asset owners that can allocate with conviction and influence. Overall, general asset owners are increasingly shaping solution innovation and raising industry standards.

The emergence of jointly developed separately managed accounts (SMAs) backed by asset owners that are prepared to “put their money where their mouth is” will play an important role in driving innovation and scaling sustainable solutions through delivering “proof of concept”, enhancing track records and de-risking and “financing” the creation of investment teams and the associated costs. Both Nest and the Environment Agency Pension Fund described the benefits of private market SMAs built around sustainability criteria and outcomes.

Whether it is through jointly developed SMAs, seeding funds or via acting as a cornerstone investor in first time funds, innovative and high conviction asset owners have a critical role in supporting solution innovation. This support can help overcome the lock of portable and auditable track records that many first-time managers looking to raise capital across an emerging sustainability investment theme face, and help overcome that difficult hurdle of raising “the first £30-50m”. A number of leading UK asset owners had uncovered key themes and sources of alpha by taking these approaches and scaling their own exposure to managers offering access to them.

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How to scale a pure-play sustainable investment firm across both public and private markets. GIM provides an example of a manager being able to innovate and scale sustainable solutions across different company maturities and public and private markets, underpinned by the clarity of goals and a strong collaboration mind-set.

GIM has leaned on several of the first principles highlighted in this report to deliver its strategy, including goal setting, competency build up, and collaborations to drive solution innovation. From its inception GIM has created internal research capabilities to incorporate sustainability thematic research and the use of ESG factors to reveal relevant and differentiated investment insights. The investment approach is underpinned by collaborations with a wide range of stakeholders to both scale sustainable capital and optimise investment processes through the development of relevant tools. Examples include:

- Carbon Data & Disclosure: fostering the development of tools to support investors such as Climate TRACE. ²
- Knowledge sharing: publication of Sustainability Trends report and Insight series.
- Promoter and founding signatory of NZAMI.
- GFANZ-a key role in COP26 Private Finance Hub and Portfolio Alignment Team.
- Working with stakeholders, including PRI Investor Working Group on Sustainable Commodities.

There is transparent goal setting (e.g. net zero commitment by 2040) which provides guidance to clients on how they should judge the organisation over the next five years versus its goals.

GIM has developed solutions via:

- Significant AUM growth across the platform over the last 10+ years to >$36bn as of June 2021.
- Expansion of sustainable solutions from its public equities origin to scalable private market solutions, including:
  - In 2019, GIM closed its third growth equity fund, the Sustainable Solutions Fund, at $1bn, one of the first private market sustainability focused funds to reach that milestone.
  - In 2018, GIM entered into a long-term strategic partnership with La Caisse de Dépôt et Placement du Québec (CDPQ) to make large-scale long-term sustainable investments.

Ongoing process of solutions development via collaborations and stakeholder engagement:

- GIM is sponsoring the creation of a new business called Just Climate in 2021. This strategy will be an independently managed climate first investment business, with the mission to identify and invest in solutions that will help achieve net zero and 1.5°C. Its initial goal is to invest to bring about the avoidance or removal of one gigatonne of greenhouse gas (GHG) emissions per year by 2030.

3) Sustainable Solutions Capabilities and Considerations

Role of public and concessionary capital

Both public and concessionary capital can have a major supporting role in capacity building, driving innovation and helping scale up by ‘crowding in’ private capital.

Blended capital solutions can support scaling up sustainable solutions via:

- Unlocking a range of private projects and / or expanding the horizon of investable asset classes into new and emerging technologies (e.g. Green Investment Bank and its role in developing the offshore wind industry in the UK).
- Supporting innovative first time managers. Public capital support via vehicles such as the British Business Bank and the European Investment Fund has played an important role in channelling capital towards European SMEs, and also in the development of the alternative financing market through helping first time funds reach critical mass and getting off the ground. Similar support strategies geared towards supporting managers with sustainable solutions could help create the next wave of innovation in the market.
- Innovation in sectors deemed strategic (e.g. hydrogen UK strategy, offshore wind, roll out of charging networks), to unlock the necessary research & development and progress commercialisation.
- Alter / improve the financing landscape in situations of market dislocation (e.g. UK seeding of direct lending market post-Great Financial Crisis to provide an alternative to constrained banks ). This can in itself unlock and move the market. For example, the emergence of the direct lending market in Europe and resulted in the permanent establishment of the market, now a large and growing asset class in Europe.

- Corporate balance sheets also have an important role to play, and we are witnessing the development of several models, including concessionary capital models funded by large tech (and other) companies and / or their founders looking to address macro sustainability challenges. Public capital, blended capital solutions and the participation of the corporate sector via concessionary capital models will be critical in financing the next wave of zero carbon technologies for hard to abate sectors.

- Of equal importance to the current availability of sustainable solutions, is the solution’s ability to deliver authentic and tangible outcomes. For every solution, regardless of asset class, there are some general characteristics that can be incorporated to make it effective and scalable. Asset managers and asset owners should consider these factors when designing solutions and allocating capital.
### Sustainable Solution Characteristics

<table>
<thead>
<tr>
<th>Reason for Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESG Integration and Outcomes</strong></td>
</tr>
<tr>
<td>A sustainable solution should make a distinction between, and practice both:</td>
</tr>
<tr>
<td>- Integrating ESG issues as an information set to better understand financial risks and opportunities; and,</td>
</tr>
<tr>
<td>- Understanding the impact of an investment on the environment and society. This understanding helps target holistic, net-positive, sustainable outcomes.</td>
</tr>
<tr>
<td>By incorporating both of these, a solution is more likely to achieve superior risk-adjusted returns and sustainable, impactful outcomes.</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
</tr>
<tr>
<td>Sustainable solutions should possess an effective engagement approach for two reasons:</td>
</tr>
<tr>
<td>1) To supplement investment analysis and aid the investment process in exploiting the market’s mispricing of risk, return and outcomes.</td>
</tr>
<tr>
<td>2) To drive better corporate performance on ESG issues and their sustainable outcomes through disclosure and management. In turn, a positive feedback loop is created as the market could misprice sustainability improvements creating investment opportunity.</td>
</tr>
<tr>
<td>The ability to engage effectively to achieve either of the two points above varies across asset classes. The concentric circle diagram below illustrates the ability to engage within each asset class, with the strongest ability in the middle and weakest on the edge.</td>
</tr>
<tr>
<td><strong>Exclusions</strong></td>
</tr>
<tr>
<td>Exclusions are no longer just reflections of ethics or values. Instead, an exclusion list can help a sustainable solution's portfolio construction and avoid the riskiest stocks from a sustainability perspective (i.e. stranded assets).</td>
</tr>
<tr>
<td>Exclusions by themselves have limited real world impact unless a sufficient number of investors collaborate or exclude the same stocks. If exclusions are not implemented at scale they may not affect a company’s cost of financing or access to equity markets since there will likely be continued broad demand.</td>
</tr>
<tr>
<td>Investors can ensure that companies they are intending to invest in are credibly aligned to sustainability outcomes (e.g. 1.5 degrees warming world) before investing. In private markets, this can be assessed pre-deal, and then supplemented with subsequent conditions in the investment documentation.</td>
</tr>
<tr>
<td><strong>Transparency</strong></td>
</tr>
<tr>
<td>Reporting is an essential feature of a robust sustainable solution.</td>
</tr>
<tr>
<td>The purpose of reporting is to provide transparency on:</td>
</tr>
<tr>
<td>1) The sources of risk, return, and impact.</td>
</tr>
<tr>
<td>2) The outcomes relative to the portfolio goals.</td>
</tr>
<tr>
<td>3) The role stewardship has played in achieving the first two points above.</td>
</tr>
<tr>
<td>Reporting allows managers to offer value-add content and thought leadership to asset owners, boosting authenticity and building stronger partnerships along the way. It also has iterative benefit captured by the phrase “you manage what you measure”, providing an added impetus for improvement of the solution over time.</td>
</tr>
</tbody>
</table>

### Exclusions

One common finding from our interviews was that where investors, both UK and Chinese, had introduced exclusions they were often in relation to the dirtiest fossil fuels, such as coal. Further, with the UK and European investors there was a perceptible hardening of their stance with respect to climate change laggards. A growing swathe of investors, such as Legal and General Investment Management, are preparing themselves and their processes to exclude key climate change laggard companies where they perceive an unwillingness to engage and change their business models at sufficient pace.

Chinese investors also showed an increasing willingness to exclude high polluting companies and sectors, in line with national policy direction.

### The dirtiest fossil fuels, climate change laggards and exclusions

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Chinese investors also showed an increasing willingness to exclude high polluting companies and sectors, in line with national policy direction.
Case Study 5: Seven Years of Impact Reporting – WHEB, Asset Manager

Based on ‘Building back better’ 2020 Annual Impact Report.

WHEB published its 7th impact report in 2020. Originally developed in 2005, WHEB’s investment strategy focuses on nine investment themes – five environmental and four social. Each covers a range of business activities that deliver positive impacts for the society or the environment. In addition to the impact that is associated with the strategy, WHEB also quantifies the impact that is associated with £1m invested in the strategy. The WHEB website has an interactive impact calculator.

The ESG profile of WHEB’s investment strategy:

The Impact Engine
Systematic analysis of the positive impact of products / services.

The Impact Map
Rating of product / service impact
Impact Intensity

Fundamental quality
Integrating financial and ESG analysis of company operations

Asset Class Capabilities
In the below diagrams we show how individual asset classes rank relative to each other in terms of how transparently the invested capital is used under “Clarity of Uses of Proceeds” and “Ability to Scale”.

Figure A illustrates the typical transparency of how investment proceeds are utilised within private loans and securitized debt. Sovereign debt is the least clear on use of proceeds, given the opaque nature of government spending.

Where securitised debt and private loans may possess strong clarity on the use of proceeds, however, they are harder to scale, whereas the opposite is true for sovereign debt, as demonstrated in Figure B. In general, while private, one-off transactions (i.e. project finance) can be effective ways to deploy capital to sustainable solutions, they can take longer to scale due to capital being locked up for longer in most vehicles and the project-by-project nature of the investments.

However, the rise of green and social bond issuances across a range of issuers, including sovereigns, is changing the landscape, as the proceeds are ring fenced for particular projects. Impact bonds are forging a path that connects the demonstrable impact of invested capital with the scalability of public markets.

Private equity offers an ability to pursue new, riskier projects, where fixed income cannot. Therefore, whilst these assets may be harder to scale quickly than public market solutions (and provide lower clarity on the use of proceeds than some very targeted debt investments), they are an important tool in a total portfolio approach for creating sustainable solutions.

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Figure A: Clarity on Uses of Proceeds: Strongest (closer to core) to weakest.

Figure B: Ability Scale Impact of Investment: Strongest (closer to core) to weakest.
Extending stakeholder engagement

Companies have the most significant impact on people and the environment through their operations and economic activity. Some of the impact is regulated, and the ones deemed most severe or harmful are often heavily taxed, like tobacco.

However, not all impact relevant to the end beneficiaries is adequately captured by the regulation.

Because regulation usually follows country borders (or in the case of the European Union its borders), it can be slow or inflexible to deal with borderless and shared risks, like climate change or the depletion of natural resources. This is where engagement becomes vital.

By helping companies’ management combat their tunnel vision, usually induced by seasonal reporting requirements, investors have an essential role to play in correcting inefficiencies, holding them to account and attaining superior outcomes over the long term.

In developing new fit-for-purpose solutions, investor and company engagement is not the only relevant approach. Wider stakeholder engagement and collaboration is critical.

The figure below summarises the argument that superior risk-adjusted financial returns can only be achieved when the insights from all relevant stakeholders are effectively incorporated.

The beneficiaries of financial solutions or strategies (pensioners and savers) tend to benefit from the asset owners’ and asset managers’ respective superior strategic allocation and investment analysis skills, and knowledge of capital markets. However, they are usually far removed from the risks and opportunities that their investment face and unaware of their ownership rights. This is the main reason why financial regulation is most stringent when solutions are offered to unsophisticated investors, such as retail investors.

The most significant pillar of collaboration – harnessing beneficiaries’ views

To scale sustainable solutions successfully, we have an opportunity to unlock the remaining, most significant pillar of collaboration. Seeking beneficiaries’ feedback and allowing them to shape the debate on the impact priorities of investment portfolios is the most untapped opportunity to date.

Because of technological advancements in all sectors, specifically in finance, the public is quickly becoming better informed and alert to investment trends, underlying risks, and the potential for impact. This explains the exploding popularity of the distributed ledger technologies, robo advisors, and growing retail participation in complex financial transactions – basically, the commoditisation of finance.

However, there are scarcely any solutions that reflect beneficiary views, or meaningful action from investment managers to start building pathways to the end beneficiaries.

Giving access and including beneficiaries in the formation of impact outcomes is one of the largest commercial opportunities for asset managers, asset owners, and the technology sector to fill, as it has the potential to redefine and drive the asset allocation for the next 30-50 years.
**SCALING SUSTAINABLE SOLUTIONS**

**Case Study 6: Beneficiary Engagement – Nest Workplace Pension Scheme, Asset Owner (Pensions)**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Nest seeks to understand the views and preferences of its members who are the ultimate beneficiaries, and by extension financial stakeholders.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>To understand the values and requirements of the scheme members in order to help align investments with their expectations.</td>
</tr>
<tr>
<td>Actions</td>
<td>Nest issue regular surveys to their members to understand how they feel about investment and ESG issues. In addition, Nest’s member’s panel, consisting of a diverse range of professionals, creates a communication channel between members and Nest decision makers, ensuring that member’s concerns are raised at board level. Nest also strive to communicate with their members on recent decisions and research through email campaigns and digital content. Nest will consult their online member community to help make the content easy to understand and accessible.</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Nest was recognised by ShareAction as the only pension scheme ranked as “leading” in 2021. Nest was also ranked as “strong” in 2022. All other schemes were ranked “cautiously.” Nest continues to lead the way in engagement with beneficiaries, and by extension financial stakeholders.</td>
</tr>
</tbody>
</table>

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**Case Study 7: Beneficiary Engagement – Environment Agency Pension Fund (EAPF), Asset Owner (Pensions)**

<table>
<thead>
<tr>
<th>Topic</th>
<th>For every net zero commitment there will be specific drivers and motivations. For EAPF, one of their key catalysts for a 2045 commitment was their member’s views.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>To understand the actions the members want their pension scheme to take to tackle climate change.</td>
</tr>
<tr>
<td>Actions</td>
<td>In February 2020, EAPF asked their members for their views on responsible investment. 88% of responders thought that it is important to invest in sustainable and low carbon assets. In July 2020, EAPF ran a two-week Responsible Investment Forum that included polls, zoom focus groups, one-to-one sessions and online discussions to further understand members’ perspectives. One of the key outcomes was that 92% of members at the Forum wanted an ambitious net zero target.</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Consistent with its view on the financial materiality of climate change coupled with member input, EAPF set a net zero target by 2045 and an interim target to halve emissions by 2030.</td>
</tr>
</tbody>
</table>

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**Asset manager fiduciary duty and engagement**

The asset management industry is slowly realising that their fiduciary responsibility to the end client covers three properties of investment management - returns, transparency, and engagement. The main challenge in delivering these three properties is adapting existing financial structures to incorporate all elements without sacrificing investment returns, or even go a step further and enhance returns.

**Case Study 8: Linking transparency with engagement**

LGIM assess companies on quantitative and qualitative metrics from several data providers to create two publicly available ratings, a Climate Impact Pledge score and an ESG Score.

**Climate Impact Pledge Score**

As part of their Climate Impact Pledge, LGIM assess approximately 1,000 companies, in ‘climate critical sectors’ on their governance, scenario analysis approach, metrics and targets, risks and opportunities and strategy, as they pertain to climate change. The companies are rated on a traffic light system for each category, which is then made publicly available to allow companies, stakeholders and the market to transparently verify the progress. This increases the pressure on companies to improve as well as encouraging improvement in the data. The ratings then drive LGIM’s engagement approach which, when not successful, is followed by voting against management and even divestment.

**Climate Impact Pledge Scores from Latest 2021 Results**

<table>
<thead>
<tr>
<th>Average ratings (out of 100) in key regions and select countries</th>
<th>Europe (ex UK)</th>
<th>UK &amp; Ireland</th>
<th>North America</th>
<th>Emerging markets</th>
<th>Japan</th>
<th>Asia Pacific (ex Japan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2021 rating (avg.)</td>
<td>61</td>
<td>61</td>
<td>43</td>
<td>27</td>
<td>46</td>
<td>44</td>
</tr>
<tr>
<td>Change since 2020(%)</td>
<td>15%</td>
<td>5%</td>
<td>8%</td>
<td>21%</td>
<td>-3%</td>
<td>11%</td>
</tr>
</tbody>
</table>

**ESG Score**

LGIM’s ESG Score is a proprietary assessment of a company across 28 ESG data points and against global minimum standards. The 28 metrics were selected based on their availability, if they are quantifiable and reliability. These scores are also made publicly available to improve market standards, incentivise improvement and to aid the development of new solutions. The ESG data points include an assessment of disclosure and verification of ESG reporting standards.

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10 https://www.eapf.org.uk/news/2020/12/responsible-investment
11 https://climatepledge.lgim.com/uk/en/
12 https://esgscores-lgim.huguenots.co.uk/uk/en/
13 https://climatepledge.lgim.com/uk/en/
To use the Transition Pathway Initiative (TPI) to create an investable sustainable solution, the Climate Transition Index was created and seeded with £600m.

To create effective sustainable solutions, the importance of asset owners collaborating with asset managers is highlighted.

1. Securing a continued vote of confidence and greater certainty of a relationship into the future empowers asset managers to be more confident in their thinking to deliver superior risk-adjusted performance over the long term.

2. Development of new solutions such as those developed by the Church of England Pensions Board and FTSE Russell, as shown below, Nest and its private market renewable energy portfolio and Generation with CDPQ on a long-term sustainable equity product. Collaborative solution development between asset owners and asset managers is an essential source of innovation that can benefit the wider market. The process harnesses asset owner insights and means the solutions can meet the desired outcomes of the asset owner - outcomes that are often shared by the wider market.

### Case Study 9: Asset Manager/ Index Provider and Asset Owner Collaboration for Solution Development - Church of England Pension Board (CEPB), Asset Owner (Pensions)

#### Topic
To create effective sustainable solutions, the importance of asset owners collaborating with peers and asset managers / index providers to prototype solutions cannot be overstated. In this example, CEPB worked with FTSE Russell to do just that.

#### Objectives
To use the Transition Pathway Initiative (TPI) to create an investable sustainable solution and in this case, an index.

#### Actions
- CEPB collaborated with Environment Agency Pension Fund (EAPF) to found and develop the Transition Pathway Initiative (TPI). The TPI allows investors to assess how management are addressing climate change risks, carbon performance of a company and which temperature pathway it is on.
- CEPB then partnered with FTSE Russell to develop the FTSE TPI Climate Transition Index (CTI). The index uses the TPI methodology to overweight companies that are aligned with the Paris Agreement goals.

#### Outcomes
CEPB seeded the Climate Transition Index with £600m. The TPI now informs investment research, drives engagement and adds to the industry’s decarbonisation efforts. Furthermore, investors are increasingly seeing climate transition indexes as an important tool for achieving net zero-aligned portfolios. As of August 2021, the TPI represents $29 trillion combined assets under management and advice.

### Asset Manager Collaboration with Sustainability Think Tanks or Academia

Our interviews also uncovered an emerging trend of investment managers teaming up with specialist think tanks, charities and universities to unlock specialist expertise. See examples in the box below.

Some of these partnerships are leading to new solutions while others are being used to improve risk management. Being able to access technical specialist insight, be it via recruitment of specialists, partnerships, or by contracting with a growing universe of technical consultancies is becoming increasingly important in developing investment insights, credibility vis-a-vis investors and execution capabilities. Initiatives, such as various net zero industry alliances, also provide a key avenue for investors to collaborate, share insights and learn from one another.

### Prototyping as a route to scaling sustainable solutions

The development of sustainable solutions has historically relied on close collaborations between asset owners, asset managers and other market stakeholders. Given how fast the market is evolving we are to some degree in an “age of discovery”, prototyping solutions via managed accounts structures and close partnerships is an avenue that should continue to be explored by high conviction asset owners and managers as a route to road test products, create track records and facilitate future scaling.

A number of examples of “prototyping” and managed account partnering emerged from our interviews, including:

- Wellington Management with the Woodwell Climate Research Center on mapping physical climate risks to global locations to inform investments across a range of asset classes.
- HSBC Asset Management with Pollination on biodiversity and natural capital as an asset class.
- GSAM with Conservation International and Apple to launch a fund (“The Restore Fund”) that will invest in forestr y projects to remove carbon dioxide from the atmosphere.
- Lombard Odier with University of Oxford on catalyzing research and education into sustainable finance and investment orientated towards climate change, nature and the circular economy.
- Ninety One with WWF on developing a ‘Climate & Nature Sovereign Index’ (CNSI) which uses real-time geospatial data and forward-looking projections to assess long-term climate and nature risks and opportunities for countries in developed and emerging markets.

### Engagement between different market participants

As part of our interviews we uncovered conventional engagement approaches - between asset managers and companies. But these are extending beyond listed equities in part due to the more rigorous expectations from the UK Stewardship Code.

Case Study 10: The SDGs and Bondholder Engagement – Federated Hermes, Asset Manager

Based on Federated Hermes SDG Engagement High Yield Credit 2020 Annual Report

Federated Hermes SDG Engagement High Yield Fund (SDGHY) is a fixed income offering targeting a dual objective of delivering superior risk-adjusted returns over a benchmark and delivering positive returns to society based on the fund’s financial stakes in investee companies.


Five key lessons from 2020 engagement:
1. Each company has a unique case for impact
2. SDG opportunities differ significantly by sector
3. Comparative sector analyses yield stronger impact hypotheses
4. Engagements resonate with high yield companies seeking constructive dialogue with, and impact on behalf of, investors and external stakeholders

Engagement in private markets

Many private markets strategies come with a high element of control, therefore bringing a very different perspective to the concept of engagement when compared to public markets. Private market managers can effectively dictate or meaningfully influence what happens in their investees’ businesses via positive (e.g. board, ownership) or negative (e.g. loan documentation or shareholder agreement restrictions) controls. In addition, a lot of the engagement in private markets takes place pre-investment, during the due diligence and documentation process. This is even more relevant in credit markets.

The engagement power of private markets can therefore be a critical tool in both encouraging the right corporate behaviours and providing high transparency and visibility to asset owners on how their capital is being deployed.

On a forward looking basis, private market managers will be expected to increase their level and consistency of engagement on sustainability and ESG matters with their portfolio companies. Asset owners are increasingly demanding visibility on ESG portfolio metrics, and we expect this to drive engagement activities as well.
Lessons from TCFD reporting, scenario analysis and stress testing

Taskforce on Climate-rated Financial Disclosure (TCFD)

The TCFD is an industry-developed framework for disclosing how climate-related risks and opportunities are measured, monitored and managed by companies, asset managers and asset owners. One aspect crucial to its success is that those that use it, including asset owners and asset managers, have developed it. It provides a high-level framework, across the four pillars shown below, for managing environmental and specifically climate-related financial risks while also providing detailed guidance for different financial market participants tailored to how these participants use the data in practice. It details recommended metrics for different participants and reviews these periodically to ensure the recommendations remain current.

At the most fundamental level, the framework aims to avoid a systemic market failure whereby mispriced climate risks lead to whole sectors, companies or assets becoming stranded with the impacts cascading into other areas of the economy (as we saw with banks during the Great Financial Crisis of 2008). To mitigate this risk the framework aims to help market participants price climate change risks through:

- Increasing investor focus on climate change
- Improving climate-related data quality
- Enabling more informed decisions
- Providing a consistent framework for comparison

UK regulations and TCFD – an ecosystem approach

In the UK, the regulatory landscape is clear and pressing, with large pension schemes required to report in line with TCFD from October 2021 under a ‘regulatory roadmap’ that includes other key market participants – asset managers, insurers, banks, companies – who will follow closely behind. This will lead to a financial ecosystem or approach where investors across the financial value chain will have to report.

Early adopter advantages

One clear message from our interviews was that there are advantages for the asset managers and owners who adopt the reporting early. For asset managers and insurers, there is a competitive advantage for those who actively seek to align to this framework in getting ahead of regulation. As a best practice framework, TCFD reporting was useful in shaping higher conviction, more robust solutions and portfolios, and in meeting increased client demand for metrics and assurance that climate change was being taken seriously as part of the investment process and across the firm.

TCFD can be used in a number of ways to materially improve investors’ approaches to identifying and managing key climate change risks. For many, their first report is a way of formally capturing their approach to managing climate change risks (backward looking) as well as identifying key gaps and signposting key areas of focus (forward looking). Incorporating TCFD in their process provided a valuable and comprehensive guide for understanding risks, setting relevant objectives, and formulating effective action plans. Captured on the right are the, ‘best use’ TCFD reporting examples from the interviews.

TCFD reporting best use examples – asset owner perspectives

- Decision useful. TCFD reporting done well is decision-useful from an internal planning perspective by providing a structured approach to climate change risk management, introducing metrics and informing strategic plans.
- Target setting. This is an overarching framework that can encompass net zero and other climate related metrics and targets. For many investors, first-time reporting provided the impetus to introduce climate change targets.
- Performance tracking. Reporting against the framework is useful for measuring climate change performance – by detailing work undertaken and progress to date. As we show below, Aviva has introduced a shareholder vote on TCFD reporting as a means to increase transparency and scrutiny of how well the company is addressing key climate risks.
On 6 May 2021, Aviva became the first insurer to put its climate-related financial reporting to an advisory shareholder vote. When voting, shareholders focused on how well aligned Aviva’s disclosures were with the TCFD framework. Aviva have made a series of ambitious targets, including becoming net zero by 2040, which are being submitted for validation by the Science-Based Target Initiative. The inclusion of the TCFD report within the Annual Report and Accounts will act as an effective tool to hold management to account throughout the duration of the target timeline.

Unlocking healthy competition through TCFD reporting

While this performance element is useful on an individual investor basis the framework’s wider potential can be unlocked by finding ways to compare investors’ TCFD performance between peers. There are steps afoot with yet to be drafted Local Government Pension Scheme (LGPS) TCFD regulations to have an annual Scheme-wide report. We expect this to improve comparability between LGPS Funds and drive healthy competition in improving their positions over time. Regulators should consider whether there are viable ways to extend this across investor segments and the financial sector. Another avenue would be to incorporate TCFD performance into PRI assessments.

TCFD reporting in China

From our interviews it was clear that TCFD reporting was still in an early stage for both asset managers and asset owners in China, although there are green shoots. Earlier this year Yi Gang, Governor of the People’s Bank of China (PBOC), promissed ambitious new climate disclosure requirements based on TCFD and international collaboration as part of efforts to drive a ‘green transformation’ of Chinese banking.

While only one Chinese interviewee had reported against TCFD, a number referenced the framework and were committed to reporting against it within the next few years. A few referenced ongoing internal discussions around how to integrate TCFD reporting into the wider ESG integration and risk control functions.

For the one investor that had undertaken the work, there was recognition that further research was required to understand how to transform the findings from the climate change stress test into easily-understood and accessible indicators for reporting to clients and how to combine the outcomes of climate change stress tests into investment guidelines. Few of those interviewed had begun carbon footprinting or were aware of their peers doing so. This highlights the benefit of partnership and forming coalitions of like-minded investors within China to commit to solving the challenges, such as data disclosure for carbon footprinting, together.

Case Study 11: TCFD as a means to measure performance – Aviva, Asset Owner (Insurer)

Blending an established approach with TCFD Framework – Janus Henderson, Asset Manager

Based on 2020 Annual Sustainability Report for the Global Sustainable Equity Strategy.

A core tenet of sustainable investment is intentionality. Janus Henderson Global Sustainable Equity Strategy investment approach seeks to intentionally generate positive impact and avoid doing harm with the use of both positive and negative (avoidance) investment criteria and by considering both the products and operations of businesses. Company engagement and active portfolio management are also essential for ensuring impact alongside financial return.

The team’s framework consists of four pillars of sustainability driven investment strategy.

Policy and Legal

The strategy avoids all technology that is associated with the extraction and refinement of fossil fuels. It also avoids high carbon emission industries and technologies. To demonstrate this, we have consistently made public our carbon footprint in comparison to our benchmarks. The ESG analysis includes consideration of a company’s use of technology to reduce its climate-related risks. We also engage with companies on this topic.

Technology

We believe that there is already a market shift taking place where companies that do not consider climate-related risk will be negatively impacted. Our investment framework seeks to invest in companies that have a positive impact on the environment and society, while at the same time helping us stay on the right side of disruption.

Market

We have made public our carbon footprint in comparison to our benchmark and also publish reports quarterly and annually on our investments and their performance. In addition, we consistently analyse the companies we invest in for climate-related controversies using controversy screening. We also engage with companies on this topic.

Reputation

As part of our ESG analysis, we consider the location of the companies we invest in as well as the location of their supply chain. As part of this, we use hazard maps to analyse acute and chronic risk associated with the companies we invest in. We also engage with companies on this topic.

Physical

Acute

Chronic


High level TCFD checklist

Below we provide a high-level checklist that asset owners (and asset managers) can use to begin their TCFD journey.

<table>
<thead>
<tr>
<th>Category</th>
<th>TCFD Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance</td>
<td>Who has oversight of climate change-related risks and disclosures (board / management)?</td>
</tr>
<tr>
<td></td>
<td>Is this documented?</td>
</tr>
<tr>
<td>Strategy</td>
<td>Have you considered climate change-related risks and opportunities for investment strategy?</td>
</tr>
<tr>
<td></td>
<td>Different climate changes scenarios?</td>
</tr>
<tr>
<td>Risk Management</td>
<td>Have you established risk assessment and reduction processes, including engagement with managers and low carbon allocations?</td>
</tr>
<tr>
<td>Metrics &amp; Targets</td>
<td>Have you assessed your portfolio carbon emissions (e.g. carbon footprinting) and considered targets for improvements?</td>
</tr>
</tbody>
</table>

Source: TCFD 2017

**Spotlight on UK Insurance Regulation: Prudential Regulation Authority (PRA) + Solvency II**

**PRA SS3/19:** The PRA released a supervisory statement (SS) to all UK insurance and reinsurance firms covering their expectations for how firms for taking manage the long term financial risks stemming from climate change. These include:

1. Embed the consideration of financial risks from climate change in their governance arrangements.
2. Incorporate the financial risks of climate change into existing financial risk management practices.
3. Use (long term) scenario analysis to inform strategy setting, and risk assessment & identification.
4. Develop an approach to disclosure on the financial risks from climate change.

The statement from PRA encourages insurers to take a longer term view on the risks from climate change than the 1-year time horizon that is used to calibrate capital requirements for Solvency II. The statement describes the financial and liability risks arising from both physical and transition risk factors. The supervisory statement places emphasis on conducting scenario analysis and stress testing to understand the financial risks from climate change, and there are clear overlaps in terms of the areas covered in the SS3 / 19 with TCFD requirements. The expectations outlined will become mandatory by the end of 2021 but the PRA have not been overly prescriptive with how insurers should embed their approach to managing climate-related financial risks.

**Solvency II:** The capital requirements to hold less risky assets may constrain a Solvency II insurer from investing in more innovative, riskier, sustainable solutions. By extension, investment into fixed income tends to be favoured over equities, which will also limit a Solvency II insurer’s ability to contribute to the required solutions to climate change.

The Prudent Person Principle (PPP) of Solvency II reporting requires investments to be made in assets where the risks can be identified, measured, monitored, managed, controlled, and reported. Insurers must diversify their investments to avoid excessive accumulation of risks from climate change.

The European Insurance and Occupational Pensions Authority (EIOPA) published an advisory paper on the integration of sustainability in the Solvency II framework. They recommended that climate risks that are not captured in the 1 year time frame of Solvency II (of which most of them are not currently), should be considered through a company’s governance, risk-management structures and their Own Risk and Solvency Assessment (ORSA).

The advisory paper states that scenario analysis should be used to inform strategy at the planning and business levels. Insurance companies should at least create two long-term scenarios:

- Global temperature increase remains below 2 degrees Celsius, but preferably not above 1.5 degrees, in line with the EU commitments.
- Global temperature increase exceeds 2 degrees.

Insurance companies would then be required to conduct an analysis on the impact on the business of the climate scenarios. The scenarios should then be reviewed or updated at least every three years.

**Repurposing TCFD for Biodiversity**

It is TCFD’s flexibility and structure that has led investors to launch the Taskforce on Nature-related Financial Disclosures (TNFD). TNFD aims to deliver a risk management and disclosure framework for organisations to report and act on nature-related risks.

As detailed in the Sustainable Solution landscape, & innovation chapter we expect biodiversity related investing to grow rapidly in the coming years. One of the interviewees for this report, the Environment Agency Pension Fund (EAPF), became a TNFD signatory in October 2021 and have representation, as a member, on the TNFD forum.
Captured under the TCFD’s strategy pillar are scenario analysis and stress testing. The next sections look at how investors are using these two analytical tools to scale sustainable solutions.

**Climate Change Scenario Analysis**

For investors concerned with the short, medium and long term implications of climate change, scenario analysis represents a way to test how likely they are to achieve their desired outcomes vis-à-vis a range of what if carbon pathways before committing to a course of action. There are many components to scenario analysis, but four stand out:

A. **Time horizon.** Investors apply a variety of time horizons to their analysis. Short term risks may present themselves through rapid market re-pricing and are often captured by stress testing (see below for more information). Over the medium term (3-5+ years) many investors are focused on the risks associated with the transition to a low carbon economy that are likely to dominate. Over the longer term (10+ years) physical risks will increasingly come to the fore.

B. **Scenarios.** We have seen an increasing number of investors adopting the Network for Greening the Financial System (NGFS) scenarios in recent years. These typically focus on three types of scenario:

   a. **Orderly scenarios** assume climate policies are introduced early and become gradually more stringent. Both physical and transition risks are relatively subdued.

   b. **Disorderly scenarios** explore higher transition risk due to policies being delayed or divergent across countries and sectors.

   c. **Hot house world scenarios** assume that some climate policies are implemented in some jurisdictions, but global efforts are insufficient to halt significant global warming. Critical temperature thresholds are exceeded leading to severe physical risks and irreversible impacts like sea-level rise.

C. **Transition risks.** Transition risks are often split into policy and technology. These include the development of green and renewable technology and low carbon solutions. Policy, legislation and regulation are likely to also play a key role at the international, national and subnational level. Technology and policy changes are likely to produce winners and losers both between and within sectors and lead to stranded asset risks.

D. **Physical risks.** Over the long term, physical risks are expected to come to the fore. This includes the impact of natural catastrophes leading to physical damages through extreme weather events. Availability of resources is expected to become more important if changes in weather patterns (e.g. temperature or precipitation) affect the availability of natural resources such as water.

Our interviews uncovered a range of ways asset owners were using scenario analysis (and stress testing) to scale sustainable investments within their portfolios.

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22 https://www.ngfs.net/ngfs-scenarios-portal/

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**Scenario analysis best use examples – asset owner perspectives**

- **Informing the Strategic Asset Allocation.** Environment Agency Pension Fund (EAPF) is an example of an investor that used scenario analysis to better understand the investment case for real assets from a climate change perspective. It used this analysis to inform its first commitment to real assets in 2013.

- **Turning existing allocations green.** Asset owners are using scenario analysis to better understand the low carbon transition premium and physical downside to various scenarios. This is leading to increased conviction in the ability to capture upside from ‘flipping’ traditional allocations to equities, infrastructure and other assets classes into dedicated sustainable allocations.

- **Understanding physical risks.** By extending time horizons and assessing the potential impact of resource availability (water etc.) and natural catastrophes (wildfires, hurricanes, flooding) investors are better able to understand which asset classes and sectors represent the most physical risks under various scenarios. One investor we spoke to was in the process of commissioning an independent physical risk assessment on its real asset portfolio as a means to supplement the information from its investment managers.

- **Assessing funding level impacts and covenant strength.** UK pension schemes encouraged by regulatory tailwinds are extending scenario analysis beyond assets, to consider the impact of climate change on projected funding levels and the strength of the sponsor covenant.
Initial steps for those approaching scenario analysis for the first time

Below we propose high level steps investors can consider in relation to climate change scenario analysis when approaching it for the first time, adopted from the IIGCC guidance:

1. **Establish objectives**
   - Investors should set clear, well defined climate objectives that reflect their values, investment objectives and climate alignment aspirations as well as take any regulatory requirements into account. Investors can then determine a scenario analysis approach that is aligned to their desired climate outcomes.

2. **Select climate scenarios**
   - Investors should familiarise themselves with the different climate scenarios that can meet their objectives. The most well-known reference scenarios are published by the IPCC and the IEA but there are many others produced by governments, NGOs and other providers. Scenarios are based on a series of assumptions and parameters, including time horizon, temperature projection and emissions reduction trajectory. There is no “right” or “wrong” scenario as each represents a vision of the future, which is unknowable, however there may be more or less suitable scenarios depending on an investors’ circumstances and objectives.

3. **Model portfolio outcomes**
   - Scenarios should be used to produce investment-relevant data points which can be used to model the risks and opportunities a portfolio is exposed to under the climate scenarios. Investors should understand there are a range of different methodologies for mapping climate scenarios to investment portfolios. At a high level examples include: a top-down approach where climate scenarios are mapped to strategic asset allocation or a bottom-up approach where climate scenarios are mapped to individual securities or investment funds. Each have their advantages and limitations and their selection will depend on an investor’s preferences.

4. **Review findings and consider actions**
   - The outputs of climate scenarios should be an integral part of the overall structure of climate risk management, not a stand-alone exercise, so the value lies in reviewing the modelling outputs as well as the actions taken as a result of the analysis. The following are common points of interest when reviewing the output: magnitude of impact, timescale, effects on different asset classes, impact on valuation and drivers of physical and transition climate risk. The actions investors may take as a result of the outputs of the scenario analysis will depend on the initial objectives of the exercise, but can include reducing climate risks in the investment portfolio, implementing new climate opportunities, integrating outputs into existing risk reporting systems and disclosing the scenario analysis to internal and external stakeholders as well as regulators. In addition, the outputs from scenario analysis may also help inform more influential company engagement, creating a more effective channel for real world impact.

5. **Model portfolio outcomes**
   - The experience of investors undertaking scenario analysis is that it is a learning process enabling them to improve their knowledge and identify better approaches for future iterations. Climate data is improving rapidly and reference scenarios are updated regularly, so some investors will take a pragmatic approach by applying scenario analysis to asset classes which are relatively easier to model, such as equity portfolios, and will extend the methodology to other asset classes, funds or sectors as data improves. It is important investors keep themselves up to date to ensure they are using the latest methodologies in their climate scenario analysis.

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SCALING SUSTAINABLE SOLUTIONS

The portfolio impact of any potential weakness in green asset valuations. As asset owners begin to make net zero commitments with significant portfolio impacts, the transition, disorderly transition and a failed transition.

Tilting the portfolio away from high-emitting sectors was positive for risk factors in all scenarios, driven by a reduction in diversification (especially in the Paris disorderly scenarios) and a modest increase in portfolio volatility, offset by lower exposure to transition-related stocks.

Stress testing entails subjecting a portfolio, company or asset to a climate shock as a means of understanding the potential financial implications – positive or negative. Many investors use the scenarios developed as part of scenario analysis to assess how their portfolios react.

Climate change stress testing is useful for understanding whether the overall validity of the investment proposition would remain intact if an extreme (adverse) scenario were to happen.

Stress testing is widespread amongst the UK asset owners we interviewed and is typically carried out alongside scenario analysis. As with scenario analysis, many of the UK / European / US asset managers had either begun stress testing or were developing their approach. In most cases it was unclear how the firm's approach to stress testing was providing meaningful input into solution design or monitoring. There is clearly more work to be done here.

It has relevance across listed equity, fixed income and private markets. In fixed income investing, stress testing can often create tension between investors and companies' management because the investors' drive to protect the downside (in this case from climate change impacts) can clash with company management's drive for growth.

This approach needs to become a mandatory feature for assessing the health of the asset management industry in the face of climate change. In 2021, Banque de France conducted its first stress test focusing on the effect of climate change on the financial system. Bank of England is also due to publish its first stress test on climate change.

As with the banking system, if we are to drive awareness of, and action on, the real-world impacts of climate change then stress testing in the investment industry needs to become the norm. More specifically it needs investment managers to adopt it in a widespread manner and for regulators to supplement this with an industry-wide assessment of the risks and opportunities.

In fixed income investing, stress testing can often create tension between investors and companies’ management because the investors’ drive to protect the downside (in this case from climate change impacts) can clash with company management’s drive for growth. Hence, it is crucial to stress test any thesis to provide a base for analysis and guide the topics of engagement between investors and investees.

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Case Study 13: Net Zero Scenario Analysis – Railpen, Asset Owner (Pension Fund)

### Topic

As asset owners begin to make net zero commitments with significant portfolio impacts, climate scenario analysis becomes even more crucial to understand how the amended investment strategies will behave in certain climate conditions.

### Objectives

Railpen partnered with Ortec Finance to understand what the impact of their net zero commitment on 65% of their portfolio would be under three scenarios; orderly Paris transition, disorderly transition and a failed transition.

### Actions

For the analysis these scenarios were supplemented with global finance crisis-type scenarios combined with unsuccessful engagements, plus a slower than expected decarbonisation in high emissions sectors and forced divestments in 2024-2029 to meet net zero targets. In addition they analysed:

- The portfolio impact of any potential weakness in green asset valuations.
- The impact on the portfolio of reducing revenue thresholds for potential divestment of sands and coal to near zero.

### Outcomes

A summary of the findings were as follows:

- Expected impact from divestment and a switch to a representative low carbon benchmark is minimal for most scenarios.
- A Paris disorderly scenario with a switch in mid-2025 shows a very modest increase in returns from avoided losses on high-emitters.
- Portfolio performance was sensitive to the definition of green assets with further work needed in this area.
- Tilting the portfolio away from high-emitting sectors was positive for risk factors in all scenarios, driven by a reduction in diversification (especially in the Paris disorderly scenarios) and a modest increase in portfolio volatility, offset by lower exposure to transition-related stocks.

**Note:**

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Industry-wide future proofing.

- GHG Emissions (Scope 1, 2 and 3 emissions data as described in the GHG Protocol);
- Any revenue changes from climate change impacts;
- Signposting.

Emissions reductions goals; and

Plain English about the issuer’s climate risk management and adaptation plans.

Differentiating managers through superior risk management and solutions design. Stress testing can improve investors’ assessment of company value, sustainability positioning and physical risks, leading to improved authenticity, robustness and scale of sustainable solutions. It can enhance sustainable solution design by focusing on the impacts of the energy transition and physical risks and connecting this to security selection and superior risk management. This is an undervalued way asset managers can differentiate themselves from peers.

Stress testing best use examples – asset owners and asset managers

- Differentiating managers through superior risk management and solutions design. Stress testing can improve investors’ assessment of company value, sustainability positioning and physical risks, leading to improved authenticity, robustness and scale of sustainable solutions. It can enhance sustainable solution design by focusing on the impacts of the energy transition and physical risks and connecting this to security selection and superior risk management. This is an underappreciated way asset managers can differentiate themselves from peers.

Stress testing in private markets

Scenario analysis and stress testing is a standard tool widely applied, and critical in driving investment decisions, in private markets, where asset managers typically report a range of scenarios or sensitivities (including downside, breakeven, upside case) as a standard component of their investment analysis and approval processes. This is particularly relevant in the credit space, where limited to no access to upside drives asymmetrical returns and therefore downside scenario analysis is critical.

Despite the importance of stress testing and scenario analysis in private markets, we note that there is a significant gap in the level of sophistication in the context of climate risk assessment, an area where private markets lag public markets. Whilst some of the larger asset managers do have internal initiatives to create knowledge centres to assess and measure climate risk across their portfolios, this is not a widespread practice, driven by practical challenges and (to date) limited pressure from mainstream asset owners in this area.

A number of factors hamper private managers when it comes to climate risk assessment, some of which are inherent to the nature of the companies they invest in (i.e. smaller portfolio companies with limited amounts of ESG data and limited third party review), market structure (long tail of smaller managers with more limited resources and budgets), and lack of competency (lack of internal knowhow and expertise in relation to sustainability and climate).

The market is however moving fast in the right direction. We are witnessing the emergence of ESG as an explicit pre-deal due diligence workstream (alongside more traditional workstreams). This is supported by a plethora of third party providers offering life cycle assessments, carbon footprinting and broad ESG investing consulting services. We are also experiencing an increasing number of ratings by private companies to ESG rating agencies, as part of their internal assessment and benchmarking, as well as exit preparation.

We are also seeing the development of private market focused tools and standards to support impact analysis, environmental disclosure and best practice sharing. Examples include the Carbon Disclosure Project (CDP) private market pilot project, Science Based Target initiative (SBTi); consultation on private equity, best practice sharing and case studies by PRI and the Impact Management Project. The development of standardised tools will be critical to drive adoption in private markets, particularly for the smaller managers that lack the knowhow and resources to develop this in-house. Asset owners should support this journey with knowledge sharing when appropriate.

Case Study 14: Actionable Recommendation for Climate Disclosure – Wellington Management, Asset Manager

**Actionable Recommendation for Climate Disclosure – Wellington, Asset Manager**

Based on firms’ filings in response to SEC’s Request for Input on Climate Change Disclosures.

Example of a comprehensive technical response aiming to improve the quality of fundamental analysis by better understanding of companies’ value chain and socialising materially important information.

**Location Data**

With respect to location risks, US-listed companies disclose their principal properties in the “Item 2. Properties” section of their 10-K. The section requires that the “registrant only need furnish a brief description of the material properties of the registrant and its subsidiaries to the extent, in the opinion of the management, necessary to an understanding of the business done by the registrant and its subsidiaries.” As a result, US-listed companies usually have some level of location disclosure on their directly-operated facilities; however, this disclosure is often insufficient to assess location risk. Based on a review of a sampling of 100 companies from S & P 500 across industries for location disclosure in their 10-K filings, we concluded that over 90% of issuers disclosed insufficient location data for us to fully assess climate risk.

**Transition Risk Data**

We further need more information to assess the transitions risks faced by issuers as a result of climate change. Specifically, we believe a disclosure framework should require the following minimum elements:

- GHG Emissions (Scope 1, 2 and 3 emissions data as described in the GHG Protocol);
- Emissions reductions goals; and
- Energy / water usage of operations.

In addition to the above, we also believe investors would benefit from a qualitative disclosure of the physical climate change risks faced by an issuer including specifically:

- The historical impact of climate events, if any;
- Any revenue changes from climate change impacts; and
- Plain English about the issuer’s climate risk management and adaptation plans.
China, regulation and partnerships

China's sustainability momentum

China is the world’s largest greenhouse gas emitter, and it has the world's second largest asset management industry. It follows therefore, that the actions its government, regulators and asset managers / asset owners take will have a lasting impact on global sustainability efforts. Encouragingly, China is also on the move. In 2020, China announced a ground-breaking target to be carbon neutral by 2060. This is expected to accelerate the growth, in size and number, of new sustainable investment funds, as well as the widespread integration of ESG issues and sustainable investments by mainstream investors. This announcement was part of a wider trend as China has seen a rapid rise of ESG investing and wider sustainability trends over the last 5 years. We capture some highlights below:

- ESG mutual funds have witnessed dramatic growth of ESG solutions since 2015. More than 20 ESG mutual funds were issued in 2020, reflecting double the rate in 2019 and the fastest growth on record. A total of 127 pan-ESG mutual funds have been launched by 49 fund management companies by October 2020. The size of the ESG mutual fund market is estimated to grow at a rate of above 20% per annum in the next five years.20
- China is the second largest green bond market, with an issuance volume of over CNY1.2 trillion and a balance of CNY813.2 billion by the end of 2020.
- The number of PRI signatories was 52 as at December 2020, up from 35 in 2019.
- The China national carbon emission trading scheme (ETS), the world’s largest carbon market by volume, made its debut in July 2021.

Much of this progress has been underpinned by national policy and more specifically the move from “GDP first” to an emphasis on green and sustainable development, through balanced and inclusive growth. There is no GDP target for the 14th Five-Year Plan, but instead its goals, focused on the environment and the wellbeing of citizens, are having nascent but profound implications to the way Chinese investors are allocating to sustainable capital and positioning their portfolios.

Regulation driving change

Financial market directed sustainability and ESG regulations have also played a critical role (see below for a summary of current and future regulatory developments). At present, China’s progress on environmental disclosure has been targeted at Chinese listed companies, with mandatory disclosure a key part of this effort. This is a critically important area of focus as our interviews reinforced the fact that the level and quality of ESG data disclosure remained a persistent and pressing barrier to investing.

Moreover, ESG attitudes and ambition is rapidly changing. Amongst Chinese institutional investors:

- 87% are willing to support ESG investment
- 71% are exploring ESG integration
- 16% are already integrating ESG

Despite this momentum, sustainable mutual funds only accounted for $18.9 billion, or 2.2%, of the Chinese market assets under management in 2020, demonstrating the need and huge potential to scale investments.

20 Pan-ESG funds include those fund considering one or more than the three issues of E, S or G
21 China Sustainable Investment Review 2021 (Syntao)
22 China SIF
23 Global Sustainable Investment Review 2020 (GSIA)
24 Website of UNEP FI, collected by China SIF.
25 China Sustainable Investment Review 2020 (Syntao).
26 China Sustainable Investment Review 2020 (Syntao).
China’s Green Finance Committee was established in Beijing; carrying out in-depth research on green finance, striving to promote the innovation of green investment and financing solutions and services, and actively promoting the concept of green finance.

Outline of the 13th Five-year Plan for Economic and Social Development of the People’s Republic of China clearly proposes to establish a green financial system, develop green credit and green bonds, and establish green development funds. Building a green financial system has become China’s national strategy.

Asset Management Association of China (AMAC) issued “Green Investment Guidelines (Trial)”. China Securities Regulatory Commission (CSRC) revised “Code of Corporate Governance for Listed Companies in China” and established a basic framework for environmental, social responsibility and corporate governance (ESG) information disclosure.

Before being listed on the Science and Technology Innovation Board (‘Sci-tech board’), Shanghai Stock Exchange (SSE) issued 10 supporting rules and guidelines including the Rules Governing the Listing of Stocks on the STAR Market of Shanghai Stock Exchange, which requires mandatory disclosure of ESG-related information.


Shanghai Stock Exchange (SSE) issued “SSE Guidelines No.2 on the Application of Self-Regulation Rules for Listed Companies on SSE STAR Market - Voluntary Information Disclosure”, which included ESG information disclosure.

Green Bond Endorsed Project Catalogue was updated in April 2021, to harmonise domestic and international standards and specifications for green bonds.
However barriers to investors’ efforts remain. We list four below.

1. While Chinese investors saw the benefit of fully integrating peak carbon by 2030 and carbon neutrality goals into the investment decision-making process, there was still a considerable amount or work required on “what does it mean” from an investment risk and opportunity point of view, and how to apply it across multiple asset classes. Western investors are working on many of the same key questions in-house, or as part of net zero initiatives, making this a fruitful area for UK-China learning and collaboration.

2. One critical point that was identified, but not resolved, in our interviews was how can Chinese managers (and companies) reconcile international investors’ net zero expectations and targets with China’s emissions peak by 2030 and 2060 target? This could be in conflict with UK investors setting 2050 (or earlier) net zero targets and looking to decarbonise their portfolios today. This remains a wider issue for emerging market investors and was a key factor in some UK asset managers’ reluctance to join net zero alliances where they had a high allocation to emerging markets.

3. A number of Chinese investors described their approach as optimising asset allocation by shifting investments from brown (high carbon intensity, low transition capacity) to green over time. However this categorisation misses the ‘in between’ or transition companies that are not green or brown, who currently represent a mix of carbon intensities but with a critical role to play in the transition to a low carbon economy. Further discussions highlighted the benefit of having a taxonomy coupled with a transition taxonomy or heat map, in addition to a green taxonomy, to support this process. A transition taxonomy, to support this process. A transition taxonomy coupled with a credible national transition roadmap would allow investors to navigate the complexities of a low carbon transition across the most relevant industries and drive positive changes to the real economy. A successful taxonomy would translate a 2060 net zero agenda and economic plans into sector-level roadmaps.

4. Carbon footprinting analysis, a critical tool for managing carbon risks and setting targets, used widely by UK asset managers and owners, was rarely undertaken due to the lack of disclosure. Carbon footprinting is a key part of TCFD reporting under the metrics and targets pillar and reflected one area for mandatory, not voluntary, company disclosure.

Each of these areas represented significant potential for partnership and collaboration in sharing best practices, through case studies on how to apply scaling lessons, investment processes and innovation, and stress testing / climate related knowhow.

Most importantly, a China-specific net zero guidance would significantly reduce individual execution risk by normalising the direction of travel and helping to disseminate and develop tools and methodologies. Ping An argued that both investment managers and clients need time to digest the implications of a carbon peak and carbon neutrality by 2050, and understand the portfolio implications. Investors were willing to move but they cannot simply adopt UK investors’ approaches or frameworks because the Chinese economy’s structure and stage of development is very different. Engagement on climate change with companies remained difficult for investors and could benefit from this type of initiative as well.

QDII & Foreign Investor ESG Expectations

The opening up of capital markets is producing mutually beneficial partnerships between Chinese and UK, European and US asset owners – facilitating a flow of knowledge and capital. Two growing trends driving this flow of capital are the Qualified Domestic Institutional Investor (QDII) programme and international investors who bring with them their ESG expectations.

The QDII programme that allows domestic institutions and fund managers to invest in offshore investments, within quotas, is having a positive impact and we expect this to grow. A number of the offshore funds being introduced have an ESG or environmental focus allowing Chinese investors to access these strategies and new sources of global alpha. While discussions revolved around listed equity, more thought should be given to the wider set of sustainable global opportunities facilitated through this programme for fixed income and how it can be extended to include private market strategies.

Conversely, international capital is flowing into Chinese ESG funds and A-share companies as well. In terms of investor demand, foreign investors who invest in Chinese assets have brought their standards on ESG when investing in China, driving improved reporting by Chinese firms and asset managers. In our interviews, Chinese asset managers discussed how international investors with sophisticated approaches to ESG were driving them to improve their investment processes and stay ahead of their peers.

The interviews explored how domestic managers were partnering with international managers to offer ESG funds. These partnerships allowed domestic investors to gain exposure to international managers’ ESG and sustainable investment processes and knowhow. At the same time, international managers benefitted from the relationship by being better able to assess Chinese companies, navigate cultural nuances and understand the best way to engage constructively with Chinese companies.

A number of interviews identified the opening up of capital markets as driving better ESG performance from companies. One interviewee went so far as to claim the poorest companies from an ESG perspective will be eliminated from the market, with international investors accelerating this trend. Both domestic and international investors were engaging on different topics with China A-Share / H-share companies leading them to have to deal with a different sets of demands from each.

Chinese and UK investors could learn a great deal from highlighting the best of these partnerships through case studies and workshops under the umbrella of the ELF so that other market participants can learn and find other investors to partner with.

First Mover Benefits for Leading Asset Managers and Owners – Early Advantages

One of the most striking points from our interviews was the amount of progress made by asset managers and asset owners since the first report in June 2020. Our interviews highlighted the considerable growth and innovation from Chinese investors across listed equity, fixed income and private markets. Those interviewed were first movers and saw the competitive advantages of staying as leaders as the market for sustainable investments develop.

A number of managers cited the alpha generated by their ESG equity funds as early indications of the power of sustainable investing - albeit they recognised the life span of their funds was still short. However, it also highlighted the need for Chinese investors to move beyond ESG integration and explore a fuller sustainable opportunity set across public and private markets.

For the interviews and survey respondents, the opportunity set is explored further in the Solution development & execution and the Investment Landscape Chapter.
Case Study 15: Focus on innovation of ESG integration and the use of Artificial Intelligence – Ping An, Asset Owner (Insurance)

In order to implement a responsible investment policy, Ping An has established a series of tools such as the CN ESG corporate profile system for listed companies and the ESG assessment of bond issuers, covering ESG issues such as environmental disclosure, solution liability, corporate governance, and human capital etc. The tools integrate Chinese market specific indicators, and are based on algorithms driven by machine learning to carry out intelligent scoring. Ping An will continue to develop and improve these tools over time, particularly as invested companies improve their disclosure.

(From Responsible Investment Policy of Ping An 2020)

Ping An was particularly forceful in its view that ESG momentum is unstoppable. Therefore while barriers remain it will be important from an investment view point to be heading in the same direction as sustainability trends instead of fighting them. National policy direction is clear, as is the change required from companies.

Those Chinese asset managers and asset owners who have already identified the benefits of organic integration of ESG are increasingly focused on formalising their approaches. They are making them systematic and embedding them across asset classes, within more formal structures such as ESG committees and working groups, with reporting lines to senior management. We saw a marked shift from listed equity managers focusing on ESG integration to more fixed income managers taking a systematic approach to ESG excellence in sustainable investment in areas such as private equity, they did not appear to be well integrated within the wider sustainable finance ecosystem – something guidance and regulation could help with.

In the Chinese context the sheer scale of the Belt and Road Initiative means that it will have a significant real world impact, making decision useful guidance all the more critical.

A number of potential areas for further initiatives, guidance and regulation stood out:

- Climate change risk disclosure regulations based on TCFD.
- Transition taxonomy. As referenced above, a successful taxonomy would translate a 2060 net zero agenda and economic plans into sector-level roadmaps. In turn, this may catalyse the creation of transition-focused funds similar to what we have seen in the UK and Europe.
- A Chinese UK Stewardship Code. Consistent with the findings in our previous report, this would allow Chinese investors to coalesce around a set of ambitious standards focused on activities and outcomes, and improve stewardship standards across the industry. Linking this Code with a transition taxonomy would

What role do investors need to play?

Local guidance and regulation is expected to accelerate allocations to sustainable investment and harmonise regulations across markets, creating common sustainable goals and processes for approaching sustainable investment. This guidance should extend beyond listed equity into other asset classes such as fixed income and private markets. While we saw pockets of innovation and excellence in sustainable investment in areas such as private equity, they did not appear to be well integrated within the wider sustainable finance ecosystem – something guidance and regulation could help with.

A number of Chinese asset managers and asset owners were encouraged by the Governor of the People’s Bank of China announcing plans to launch new climate disclosure requirements for banks based on TCFD.

A number of interviewees noted that managing pension scheme and insurance assets requires a mind-set similar to that behind ESG-integrated strategies: both were focusing on long-term risks.

The interviews unearthed a number of new and innovative ESG funds:

- Changjiang launched is first sustainable “Golden Growth 6” insurance fixed income fund to allow investors to access socially responsible and sustainable investments.

This is a fixed income portfolio insurance asset management solution, focusing on ESG factors, preferring bond issuers with strong ESG credentials.

- Ping An continued the roll out of its CN-ESG data for China A-shares powered by Artificial Intelligence. In addition, Ping An promotes a number of ESG solutions that leverage their investment managers’ insights to meet the specific objectives of investors as well as broader market requirements.

- Asia Green Fund was creating sustainable private market funds that are investing in innovative sustainable business models and technology.

The Chinese interviews unearthed a strong desire by investors to incorporate ESG issues into the core of their investment philosophies and processes. In order for this to be effectively executed there was recognition of the importance of working with international peers and the role of initiatives such as the Principles for Responsible Investment. For some, the systematic integration of ESG integration was referred to as a need for a more advanced, international ESG language to run through the entire investment management industry.

This progress has in part been enabled and accelerated by forums such as ELF, and highlights their continued value going forward.

Local guidance as a means to enable the transition

Despite an ambitious 2060 net zero target, and the huge strides made by investors over the last few years, there is one clear gap identified through our interviews: Chinese investors are looking for guidance, initiatives and regulations to be ‘localised’ to make them relevant to the Chinese market. Most of the ESG regulations to date have focused on company disclosure, rather than helping investors directly to take a more sustainable investment approach. On the other hand, there was recognition that one cannot apply international approaches without first making them fit for purpose for the unique Chinese market.

A set of best practice regulations, with a climate change focus aimed at institutional investors, will help take Chinese investors beyond ESG integration. They will open the door for more sophisticated approaches to allocating to sustainable thematic investments and effective stewardship. They will guide pent-up demand to invest sustainably, drive investors to understand the implications of various codes and initiatives, and ultimately bridge the gap between the government’s 2060 commitment and
Appendix

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