Pension plans across the world are continuing to innovate and design solutions focused on delivering the best outcomes for their members. However, to meet their own specific objectives, they are approaching similar challenges in different ways. Hence, it is of the utmost importance that we learn from our peers across the pensions world, especially where certain pension plans are taking the lead on important topics.

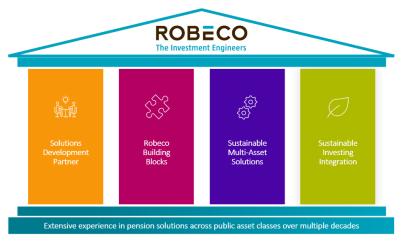
Clients consistently bring up one point, no matter which country they are from, which asset class they focus on, or whether they are involved in defined benefit (DB) or defined contribution (DC) pension plans. And that point is: there is an abundance of theory, but a lack of practical investable examples or case studies demonstrating how the more sophisticated and well-resourced pension plans globally are solving their own challenges, especially when it comes to sustainable investing.

"Tell me and I forget, teach me and I may remember, involve me and I learn ~ Benjamin Franklin, Founding Father of the United States of America

In that vein, this paper outlines some practical examples of how Robeco has worked collaboratively with pension plans and other leading investors globally to create innovative solutions to solve client-specific issues. When it comes to sustainable investing, we do not believe that we should tell our clients what shade of green they should adopt, but rather work collaboratively to help them better understand the expected impact different decisions have on risk and return expectations, and to show them possible best practices for achieving their specific goals and objectives.

The concept of 3D investing – which has been a central part of Robeco's approach since the 1990s – is a good place to start.

Figure 1 | Overview of Robeco's approach to pension solutions



Source: Robeco. For illustrative purposes only.

ARTICLE JUNE 2024

Marketing material for professional investors, not for onward distribution



Lukas J. Steyn FFAHead of Global Pension Solutions
Client and Sustainable Investing Solutions



3D investing as standard in the Netherlands

Robeco's overarching investment belief is that every investment decision should be research-driven to create wealth and well-being. In the Netherlands, we have seen an increasing number of pension plans starting to adopt 3D investing at a total portfolio level, in which the traditional two-dimensional approach to risk and return is reinforced with the third dimension of sustainable investing. This can take the form of the simple integration of environmental, social and governance (ESG) factors, to more advanced techniques that aim to make an impact, such as by contributing to the Sustainable Development Goals (SDGs).

This approach is expected to shape the future composition of pension plans portfolios in a more holistic manner. Adopting sustainability criteria (including exclusions) will invariably result in a notable reduction in the number or size of holdings in portfolios, with the goal to create meaningful change beyond purely financial metrics. We are also increasingly seeing pension plans focus on understanding each asset's purpose in the portfolio and evaluating its sustainability. This is the crossroads at which ESG integration moves over to sustainable investing.

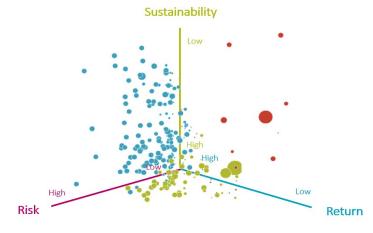
"3D investing is expected to shape the future composition of pension plan portfolios in a more holistic manner

At Robeco, we are able to leverage various sustainability frameworks to assist our clients in developing their own bespoke approaches. Our proprietary SDG Framework, which assesses the contributions that companies can make to one or more of the 17 goals, resonates very well with pension plans. In addition to being used in many of their individual portfolios, we are also seeing increased interest in the adoption of them at a total portfolio level. This has led to it forming an important building block in 3D investing solutions, which we have developed for both equity and fixed income portfolios.

To visualise 3D investing better, Figure 2 shows a 3-dimensial chart illustrating the portfolio analysis of one of our 3D quant equity solutions for a pension plan. Each circle represents a stock holding, with the different colors attributed to the key reason (risk, return or sustainability) for their inclusion in the portfolio. The circles' size represents the absolute portfolio weight of that particular stock.

In August 2022, we launched our Sustainable Investing Open Access Initiative, initially to allow clients and academics to use to the information contained in the SDG Framework. This was expanded in May 2023 to include the

Figure 2 | Visualization of 3D investing in quant equity solutions



Source: Robeco. For illustrative purposes only.

Country Sustainability Ranking, which scores 150 countries on their ESG credentials. This has proved particularly useful when deciding which sovereign bonds to include in government bond portfolios.

For those interested in the more theoretical side of 3D investing, our quant team published a research paper that demonstrates how traditional mean-variance portfolio optimization can be enhanced by adding sustainability as the third goal.

^{1 &#}x27;3D Investing: Jointly optimizing return, risk, and sustainability' (Robeco white paper, January 2024)



Decarbonizing fixed income portfolios in Australia

The next big issue facing long-term investors is undoubtedly climate change. Meeting the Paris Agreement to combat global warming means achieving net-zero carbon emissions by 2050. Numerous pension plans globally have either signed up to the UN-convened Net-Zero Asset Owner Alliance and/or have made specific commitments to achieve net zero before or by 2050. However, we are now receiving more and more questions from pension plans on how exactly they should go about implementing these net-zero goals in their portfolios. Hence, we are seeing the shift from the policy setting and commitment phase to the actual implementation phase.

Take the case of Australia, a country vulnerable to climate change through its exposure to droughts, bushfires, storms, floods, and not to mention the endangerment of the Great Barrier Reef. The country's 'Your Future, Your Super' (YFYS) pensions regulation aims for its superannuation system to deliver better outcomes for its members. However, it currently has no specific ESG requirements, which may have implications for how these superannuation funds incorporate sustainability.

In fact, the annual performance test may even prevent the adoption of sustainable investing, since it could limit their ability to deviate from benchmarks, as this can incur higher tracking errors. Their fiduciary duty requires them to justify how their sustainable investing policy is consistent with working in the best financial interests of their members. Hence, we are seeing an increased interest from Australian superannuation funds to better understand the impact different types and levels of sustainability integration have on risk and return expectations.

At Robeco, we believe that we are well equipped to assist clients to better quantify and understand the trade-offs at play. We can design investment strategies to best manage the risk and cost implications, while still focusing on achieving alpha. Our long belief in 'quantifying sustainability'2, relying on facts and figures rather than emotion, provides our clients with a clear understanding of what they are investing in and the implications thereof.

"There's increased interest from Australian superannuation funds to better understand the impact of sustainability integration on risk and returns

Seeking tangible benefits

In Australia, most focus is placed on decarbonizing investment portfolios to achieve net-zero alignment without jeopardizing the overall financial outcomes for members. It is worth noting that purely excluding the highest emitters such as fossil fuel companies can achieve a material reduction in a portfolio's carbon emissions. However, we consider this to only form part of the solution, as it is important to focus on forward-looking metrics to achieve real-world impact, such as reduced carbon emissions, improved health, economic savings and environmental preservation.

A more sophisticated approach could include Robeco's Climate Solutions Scores, which rate companies' ability to provide solutions that enable economy-wide emission reductions. A forward-looking assessment of a company's alignment with the Paris goals could form an important component as well, for which we use our in-house Climate Traffic Lights. Moreover, active ownership via voting and engagement plays an important role in achieving impact.

Extensive work on decarbonizing portfolios has focused on the fixed income asset class, as defined by the Australian Prudential Regulation Authority (APRA), while taking into account the challenges presented by YFYS regulation. More specifically, we have focused on how best to achieve decarbonization targets for both corporate and government bonds, which present materially different challenges. Topics we have previously published on are now seeing client interest in implementing this research into their corporate bond³ and government bond portfolios⁴.

- ² 'Quantifying sustainability the numbers, the data, and the people' (Robeco, July 2023)
- ³ How to earn factor premiums sustainably: Sustainable innovations in factor credits' (Robeco, September 2020)
- 4 'Efficiently reducing carbon emissions in government bond portfolios' (Robeco, August 2023)



Paris alignment for high yield bonds in the Netherlands

High yield bonds are a different kettle of fish, since the sub-investment grade sector tends to have a higher carbon footprint compared to investment grade bonds. Many of its constituents, for example, are smaller scale energy companies involved in oil and gas, which represents about 10% of the total universe. In addition, the asset class typically contains a relatively similar proportion to both industrials and manufacturing, which increases the carbon footprint as well. However, as their name suggests, they do offer higher expected returns than investment grade bonds. So, how to decarbonize them?

A Dutch pension plan wanted to find out. They asked us to design a bespoke high yield bond strategy that adheres to the Paris goals. The pension plan is a strong believer in including high yield bonds in its asset allocation, given the attractive risk and return characteristics relative to other asset classes.

"The strategy Robeco created is one of the first worldwide to combine high yield bonds with a climate-related focus

The answer was to create a Paris-aligned benchmark in conjunction with the German index provider Solactive, against which the strategy's constituents success in decarbonizing could be measured. The high yield bond investment strategy created in tandem with the benchmark targets a 7% annual reduction in overall carbon emission intensity. The strategy integrates both backward-facing and forward-looking carbon intensity data to evaluate companies' climate risk, generating a proprietary Climate Score.

Moreover, the strategy and the Paris-aligned benchmark starts with a 50% lower carbon intensity than the current investment universe derived from the traditional benchmark. In this case, it does exclude fossil fuel-related activities. Subsequently, the strategy is classified as Article 9 under the European Union's Sustainable Finance Disclosure Regulation (SFDR), as one of the first worldwide to combine high yield bonds with a climate-related focus.

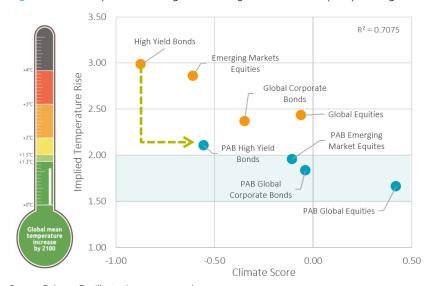


Figure 3 | The impact of moving to Paris-aligned benchmark (PAB) strategies

 $Source: Robeco. \ For \ illustrative \ purposes \ only.$

Hence, it shows that it is possible to create sustainable investing solutions for some of the more 'challenging' asset classes, even going as far as ensuring alignment with the Paris Agreement and achieving an SFDR Article 9 classification.



Finding alpha in climate transition in the United Kingdom

Besides learning from your fellow peers in pensions, it is also important to see how other leading investors are designing innovative investment solutions. Over the past few years, Robeco has collaborated with a leading UK long-term savings and retirement provider to design a bespoke multi-asset investment solution that not only mitigates climate risks, but captures the growth opportunities emerging from the transition to a net-zero economy.

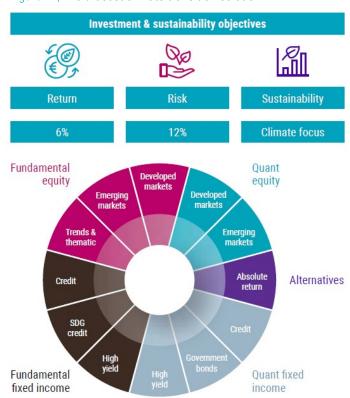
While learning how to de-risk and decarbonize portfolios over the long term was critical, the savings firm also wanted to capitalize on the solution providers that are enabling the transition. Robeco was able to draw from an extensive toolkit of investment methods and strategies to build a customized a solution. This bespoke strategy allows them to capture opportunities in clean and green technologies and drive the transition through active stewardship and engagement with companies.

Their portfolio consists of a 60/40 split between equities and fixed income focused on investing in leading companies with decarbonizing strategies, as well as climate solutions providers that promote a green economy. In addition, the portfolio uses exclusions and ESG integration to enhance its risk and return profile, and leverages Robeco's SDG Framework to ensure that investments positively contribute to climate-related SDGs. Figure 4 gives an overview of the multi-asset climate transition solution.

So, why is this particular case study important and interesting to pension plans? Given the way the portfolio's construction and its 60/40 split between equities and fixed income, this is the type of investment solution that defined contribution (DC) pension plans could consider for their return portfolio.

Given the enhanced focus from DC members on sustainability, we are seeing increased interest from DC plans for return, matching and decumulation portfolios to be tailored to reflect the sustainability objectives of their respective members.

Figure 4 | Multi-asset climate transition solution



Source: Robeco, 2023. For illustrative purposes only.

Robeco's SDG Framework is increasingly being used for this purpose, given its ability to help design a consistent and tailored multi-asset solution to accurately reflect members' sustainable objectives. To obtain more insight into why Robeco's SDG scores can help create sustainable investment strategies that pursue positive impacts and avoid negative impacts, it is worth reading the white paper we published on the topic: 'ESG to SDG: Do sustainable investing ratings align with the sustainability preferences of investors, regulators, and scientists?' §

⁵ Measuring sustainability performance: comparing an SDG score with ESG ratings' (Robeco, September 2022)



Creating investable index solutions in Asia-Pacific

The investable solutions that we design for our clients stretch further than the typical fund management solutions. Nine years ago, we created the Sustainable Index Solutions business to meet the specific needs of an ultra-large sovereign wealth fund. This fund wanted to access Robeco's factor exposure intellectual property and also retain the execution of the transactions with their existing internal asset manager. Key drivers for this were transparency, low costs and scalability. Since then, Robeco has set up a separate legal entity, Robeco Indices BV, which fully complies with the EU Benchmark Regulation Act as an index administrator and offers custom sustainable and factor indices to a broad range of asset owners around the globe.

Just as clients' sustainability objectives evolve over time, so should their investment strategies. One of the best examples is our five-year-long cooperation with an Asia-Pacific sovereign wealth fund that reflects their evolving sustainability objectives. The fund decided to work with Robeco initially due to our factor exposure intellectual property and our extensive experience in ensuring that the index is truly an investable solution, taking into account the best practices with regards to liquidity, turnover and cost requirements. We were tasked with designing an investable index solution for their multi-factor global equity portfolio. However, the client preferred us to use an existing index replication manager, and a relationship bank to provide them with exposure via a total return swap.

Figure 5 | Overview of the steps involved in creating a Paris-aligned multi-factor index



Source: Robeco. For illustrative purposes only.

Over the latter years, they continued to evolve this solution with us, due to our ability to integrate their evolving sustainability objectives. From the start, they had an ambitious carbon footprint reduction target compared to other asset owners. Over time, their climate ambitions evolved, and they requested us to ensure the existing multifactor index would comply with the minimum requirements for Paris-aligned benchmarks, which we completed in 2023. In particular, the client was interested in our research and development in forward-looking climate transition risk measures, namely 'climate beta's.

The investable index solution maintains two key advantages. Firstly, during this process, the client's existing index was revised, instead of creating a whole new index. Secondly, the fund was sufficiently prepared in advance on key issues such as turnover, impact on tracking error, level of expected trading costs, etc.

No doubt this client solution will continue to develop further over the next few years, and we are looking forward to helping them on their evolving journey.

^{6 &#}x27;Introducing climate beta: a complementary climate risk metric' (Robeco, March 2023)



Making the journey a smoother ride in the US

The recent end of a decade-long bull market highlighted vulnerabilities in the traditional 60/40 portfolio, which experienced substantial drawdowns during equity and bond sell-offs, as illustrated in Figure 6. This marked the third instance of a decline exceeding 20% since 2000.

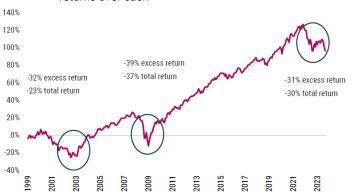
With equities and bonds often moving in tandem over the last few years (positive correlation), as illustrated in Figure 7, the need for a strategy that provides genuine diversification and capital protection has become more pressing. Since pension plans rely heavily on market premiums for long-term capital growth, how can they navigate periods of low market returns while also protecting capital against spikes in market risk?

Working with a large US public pension plan, we developed the Defensive Absolute Return solution to help mitigate these challenges. This innovative strategy combines conservative equities and conservative credits with the mantra of 'winning by losing less', using beta hedges and a defensive dynamic overlay to provide negatively correlated returns.

Functioning as a hedge without the typical costs of one, this solution is designed to yield strong positive returns in challenging markets and minimize negative returns during up markets, targeting a positive return over cash of 2% per annum (gross of fees).

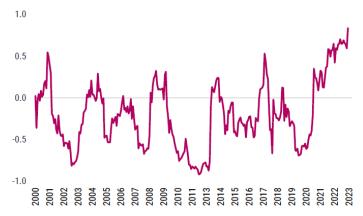
We analyzed the average monthly returns, differentiating between periods when the

Figure 6 | 60% global equities and 40% US long bonds cumulative returns over cash



Source: Robeco. Bloomberg: 60% NDDUWI Index and 40% LUTLRUU Index.

Figure 7 | Equity/bond 1-year rolling correlation



Source: Robeco. Bloomberg: NDDUWI Index and LUTLRUU Index.

60/40 portfolio had positive or negative performance. In scenarios where the 60/40 portfolio experienced downturns, the strategy demonstrated positive returns, effectively serving as a stabilizing force to the policy portfolio. Conversely, in periods of market upswings, the strategy's performance was on average slightly negative, reflecting its protective design.

While this US pension plan's reference portfolio is comprised of 60% global equities and 40% US long bonds, it is worth noting that the solution can be customized to the specific requirements of the pension plan, taking into account different asset allocations and objectives.

^{7&#}x27;A new era of diversification: How Defensive Absolute Return is changing the game' (Robeco, January 2024)



Transition is the next evolution of climate investing

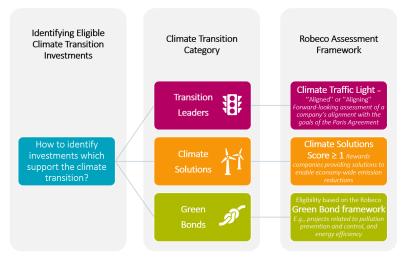
Supporting the climate transition is crucial for addressing the urgent challenges posed by global warming. As corporate bond portfolios often form a significant part of pension plans' asset allocation, we are actively working with pension plans globally on how to optimally align traditional benchmark-driven and more liability-driven credit portfolios to the climate transition.

Pension plans globally recognize their pivotal role in driving the shift to renewable energy and combating climate change. Paris-aligned benchmarks provide a standardized method to align investment decarbonization efforts while ensuring compliance with EU regulations. However, reducing portfolio carbon footprints alone – which is the focus when passively following a Paris-aligned benchmark – does not guarantee a decline in global emissions, as heavy emitters must actively transition as well.

A tailored, more active approach is therefore crucial for a climate transition credit portfolio, surpassing passive alignment with Paris-aligned benchmarks. Such portfolios have the opportunity to exhibit improved return, risk and sustainability characteristics, compared to traditional benchmarks.

To provide our pension plan clients with more insight on how to approach this topic, our article 'Actively funding the climate transition with Buy and Maintain credits's outlines the essential climate transition metrics for

Figure 8 | What constitutes a climate transition eligible investment?



Source: Robeco. For illustrative purposes only.

building climate transition credit portfolios. We illustrate their practical integration with qualitative analysis and additional quantitative portfolio metrics to construct climate transition-oriented, resilient buy-and-maintain credit portfolios.

By providing heavy-emitting companies with credible carbon emission reduction plans and access to climate solutions providers, as well as engaging with their investee companies, pension plans can promote change and transition to a low-carbon future. Despite data uncertainties, forward-looking metrics like the Climate Traffic Light assessment* and our SDG Framework provide a powerful tool with which to identify climate transition investments and climate solutions providers.

Robeco as your solutions development partner

In conclusion, we strive to empower our clients by sharing practical examples and case studies from our global collaborations with pension plans and other investors. These insights highlight innovative solutions tailored to specific client needs, providing a roadmap for addressing their unique challenges. Our collaborative approach aims to enhance clients' understanding of the implications of various decisions on risk and return expectations. By showcasing best practices, we guide our clients towards achieving their specific goals and objectives.

⁸ 'Actively funding the climate transition with Buy and Maintain credits' (Robeco, February 2024)

⁹ 'Navigating the climate transition with forward-looking analytics' (Robeco, January 2024)



Important Information

Robeco Institutional Asset Management B.V. (Robeco B.V.) has a license as manager of Undertakings for Collective Investment in Transferable Securities (UCITS) and Alternative Investment Funds (AIFs) ("Fund(s)") from The Netherlands Authority for the Financial Markets in Amsterdam. This document is solely intended for professional investors, defined as investors qualifying as professional clients, who have requested to be treated as professional clients or who are authorized to receive such information under any applicable laws. Robeco B.V and/or its related, affiliated and subsidiary companies, ("Robeco"), will not be liable for any damages arising out of the use of this document. The contents of this document are based upon sources of information believed to be reliable and comes without warranties of any kind. Any opinions, estimates or forecasts may be changed at any time without prior notice and readers are expected to take that into consideration when deciding what weight to apply to the document's contents. This document is intended to be provided to professional investors only for the purpose of imparting market information as interpreted by Robeco. It has not been prepared by Robeco as investment advice or investment research nor should it be interpreted as such and it does not constitute an investment recommendation to buy or sell certain securities or investment products and/or to adopt any investment strategy and/or legal, accounting or tax advice. All rights relating to the information in this document are and will remain the property of Robeco. This material may not be copied or used with the public. No part of this document may be reproduced, or published in any form or by any means without Robeco's prior written permission. Investment involves risks. Before investing, please note the initial capital is not quaranteed. This document is not directed to, nor intended for distribution to or use by any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, document, availability or use would be contrary to law or regulation or which would subject Robeco B.V. or its affiliates to any registration or licensing requirement within such jurisdiction.

Additional Information for US investors

This document may be distributed in the US by Robeco Institutional Asset Management US, Inc. ("Robeco US"), an investment adviser registered with the US Securities and Exchange Commission (SEC). Such registration should not be interpreted as an endorsement or approval of Robeco US by the SEC. Robeco B.V. is considered "participating affiliated" and some of their employees are "associated persons" of Robeco US as per relevant SEC no-action guidance. Employees identified as associated persons of Robeco US perform activities directly or indirectly related to the investment advisory services provided by Robeco US. In those situation these individuals are deemed to be acting on behalf of Robeco US. SEC regulations are applicable only to clients, prospects and investors of Robeco US. Robeco US is wholly owned subsidiary of ORIX Corporation Europe N.V. ("ORIX"), a Dutch Investment Management Firm located in Rotterdam, the Netherlands. Robeco US is located at 230 Park Avenue, 33rd floor, New York, NY 10169.

Additional Information for investors with residence or seat in Canada

No securities commission or similar authority in Canada has reviewed or in any way passed upon this document or the merits of the securities described herein, and any representation to the contrary is an offence. Robeco Institutional Asset Management B.V. is relying on the international dealer and international adviser exemption in Quebec and has appointed McCarthy Tétrault LLP as its agent for service in Quebec.

© Q2/2024 Robeco