The Relevance and Benefits of LDI Customization

FIXED INCOME INSIGHTS – JULY 2023

PPMAMERICA

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KEY TAKEAWAYS

> Custom benchmarks could complement a pension fund's liability-driven investment (LDI) portfolio, as many investors require unique risk parameters (e.g., duration targets, credit quality, ESG considerations)

> Rising discount rates led to an increase in pension funding ratios and we believe fixed income assets need to be better calibrated to liability profiles, which is when customization can be useful

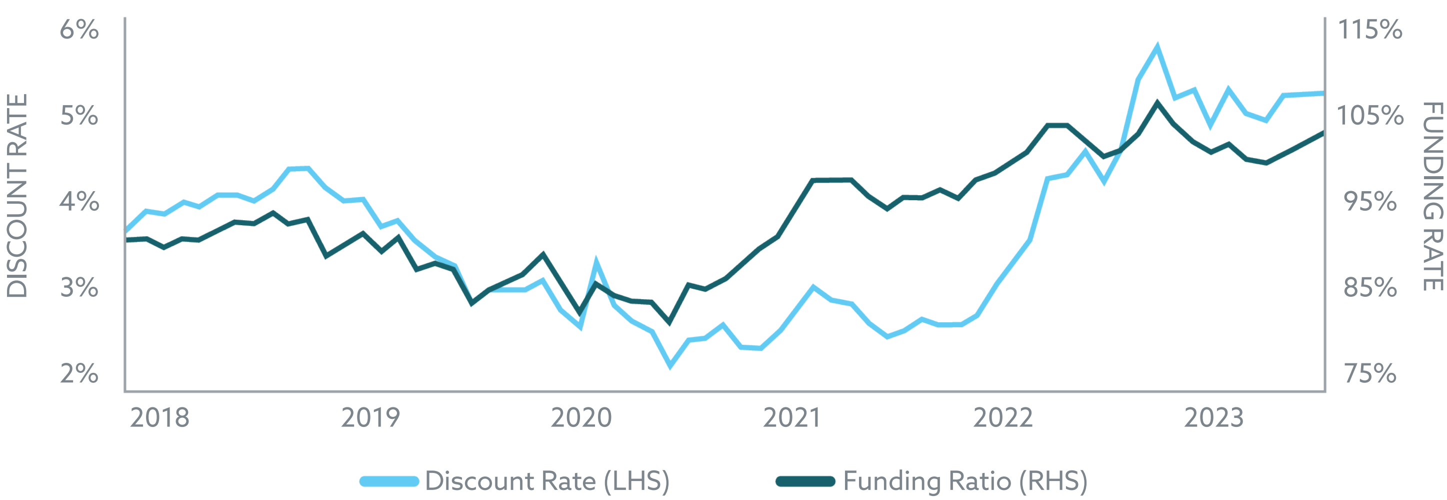
> At PPM America, Inc. (PPM), the vast majority of LDI-Long Duration assets we manage on behalf of clients use custom benchmarks

When discussing our LDI-Long Duration strategy with prospective clients, they often have questions about our custom benchmarks.[1] While LDI has become ubiquitous in the industry, it surprises us that the underlying investments used in these processes are often benchmarked against public indices that do not account for an investor's unique risk parameters.

THE BENEFITS OF CUSTOMIZATION

Pension liabilities and their long-term cash flows broadly resemble long-term bonds.[2] However, no one bond is the same. They represent different parts of the credit curve and have different credit qualities, among other items. As a result, bond indices represent an amalgamation of these bonds and their differing risk parameters. The indices do not, by themselves, represent the key risk parameters of a pension fund.

MOTIVATION FOR CUSTOM BENCHMARKS DRIVEN BY HIGH FUNDING RATIOS[3]



(1) As of 11 July 2023. Unless otherwise stated, the information presented has been prepared from market observations and other sources believed in good faith to be reliable. Information and opinions expressed by PPM are current as of the date indicated and are subject to change without notice. Past performance is no guarantee of future results. Forward-looking statements are subject to uncertainties that could cause actual developments and results to differ materially from the expectations expressed. (2) Pensions & Investments. "J.P. Morgan Institutional Strategist Expounds on LDI and the Future of Big Portfolios." 27 October 2022. (3) Bloomberg. Monthly data for the Milliman 100 Pension Funding Index through 30 June 2023.

The industry has an established process that typically involves a completion manager who decides on asset allocation among LDI and rebalances to match the combined portfolio with liabilities. While proven, we believe this process can be arduous considering the need to consistently rebalance the underlying investments given the potential disconnect between public benchmarks and a pension plan's goals.

Custom benchmarks, meanwhile, could act as a complement to a pension fund's LDI portfolio. By employing a custom benchmark, LDI investors have mandated their managers adhere to the unique risk parameters investors require.[4]

> They may require a duration target

e.g., the ICE BofA 10+ Year US Corporate Index (Index) had an effective duration of 12.90 years on 30 June 2023, but what if the pension liabilities require a duration of 15, 17 or 20 years?[5]

> They may desire to limit credit quality

e.g., BBB rated bonds represented just under 50% of the Index, but as the pension moves up the glide path it could target bonds rated A and above[5]

> The client may have their own unique preferences

e.g., integrating ESG factors into their portfolio(s)

WHY NOW

Broad public benchmarks are useful when funding ratios are lower and more risk-seeking assets are needed (equities, privates) along with broad exposure to long duration credit. But when funding ratios are high, we believe fixed income assets need to be better calibrated to liability profiles. That is when customization can be useful.

Despite the financial market selloff in 2022, rising discount rates led to an increase in pension funding ratios. As can be seen in the chart on the previous page, the Milliman 100 Pension Funding Index, which tracks private pensions, has seen its funding ratio increase from a low of 82% in 2020 to 102% in June 2023.[6] Funding ratios for public pension plans are lower, but higher discount rates could increase those ratios as well. That means they could move up the glide path, and pension plans may want to begin shifting exposure to more risk-averse assets that can still generate returns, in particular bonds. We recommend they consider key risk parameters in their benchmarking.

DELIVERING CUSTOMIZED LIABILITY-DRIVEN INVESTING SOLUTIONS

PPM's size supports extensive resources, yet clients have access to key decision makers

SPECIALIZED EXPERIENCE

Firm size and extensive resources allow us to **take advantage of a wide range of securities** in both the primary and secondary market for long duration bonds, including:

- Less liquid issues/issuers
- Cross-overs
- Private placements

CUSTOMIZED SOLUTIONS

Manage **highly customized portfolios** for our clients, allowing modifications based on factors including:

- Specific duration targets
- Investment constraints
- Sector restrictions
- Non-USD base currencies

FLEXIBLE INVESTING

Offer **flexible solutions** and help implement an asset allocation according to our clients' needs:

- Design portfolios to strategically meet current and future liabilities
- Evolve with funding status and change the asset allocation

(4)The example parameters presented herein are for illustrative and discussion purposes only and no assurance can be given that they will be applied to any portfolio at any given time. (5) ICE Data Services. 11 July 2023. (6) Bloomberg. 7 July 2023.

PARTNERING WITH PPM TO CUSTOMIZE LDI BENCHMARKS

We believe custom benchmarking with PPM can better help an investor manage risk throughout the LDI process. PPM manages $7.38B in its LDI-Long Duration strategy, with the vast majority using custom benchmarks.[7] Our process involves understanding a client's liabilities, investment objectives, restrictions and risk parameters. The latter could include specific duration targets, sector restrictions and non-USD base currencies. We then use this information to build custom benchmarks.

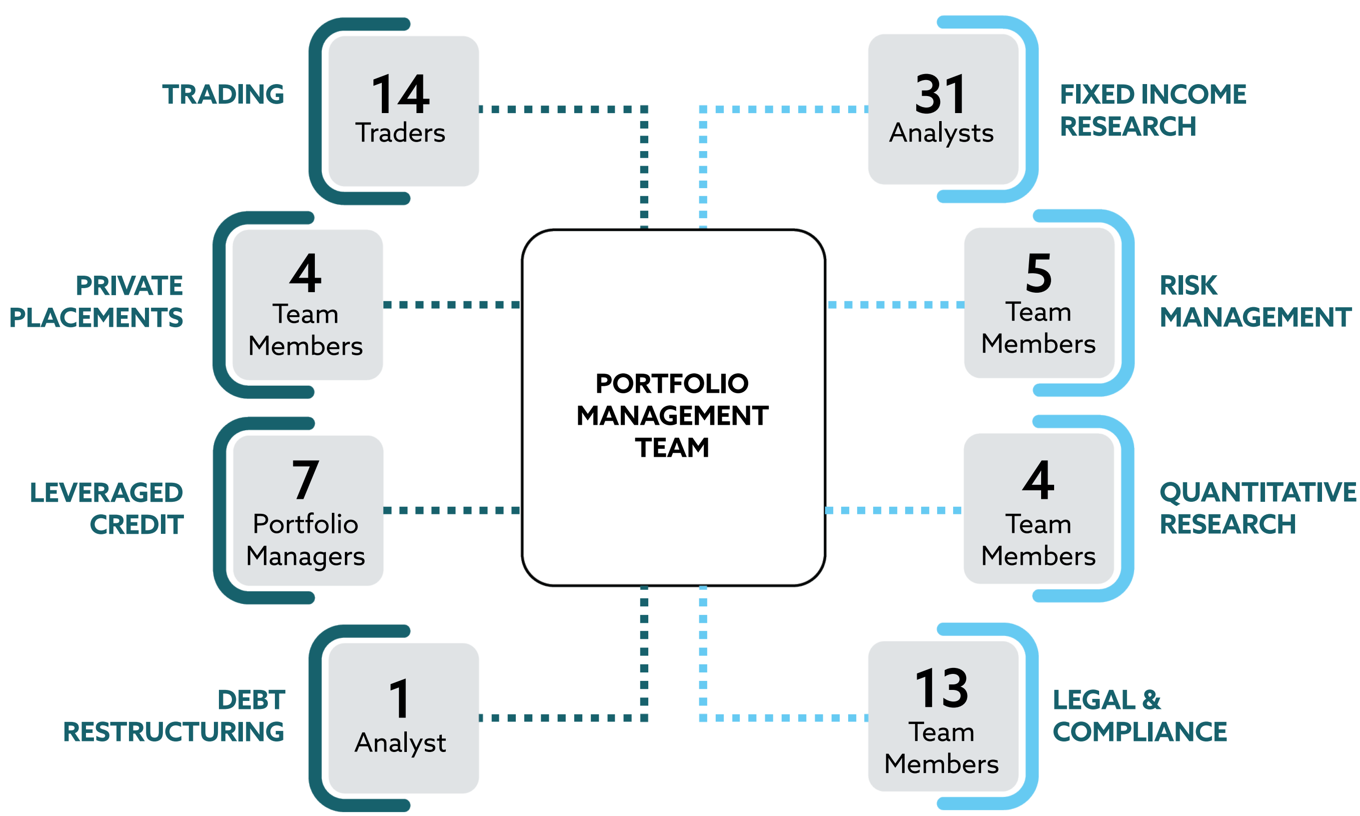
For example, we built a custom benchmark at the very long end of the duration spectrum (25+ years) to meet a client's parameter, and similarly, we added ESG focuses to several client portfolios in recent years that include goals such as reducing emissions intensity.

We believe all of this is possible through PPM's robust and long-tenured LDI-Long Duration team.[8] Our team of portfolio managers is supported by:

- 31 analysts to conduct fixed income research
- 14 traders to provide the flexibility needed to move into and out of investments
- 9 additional analysts that handle risk management and quantitative research
- Access to alternative asset classes, such as investment grade private credit, that can enhance returns in the liability matching profile

CROSS-TEAM COLLABORATION, COMMUNICATION AND SUPPORT[8]

LDI - Long Duration Portfolio Management Team



(7) As of 31 March 2023. (8) Data in bullets as of 31 March 2023.

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PPM America, Inc. (PPM) is a client-focused investment manager. PPM has the experience, global reach and resources to provide our clients with investment solutions across markets, including fixed income, private equity and commercial real estate. However, like a smaller shop, PPM remains nimble, investment-led and responsive to the opportunities that our teams discover together.

Our mission is to deliver specific client solutions and service to investors around the world with the goal of meeting investors' unique investment objectives. In addition, PPM employees are committed to building our community and supporting local nonprofits that strengthen families and increase economic opportunities.

Past performance is no guarantee of future results. Investments involve varying degrees of risk and may lose value.

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The ICE BofA 10+ Year US Corporate Index is a subset of ICE BofA US Corporate Bond Index including all securities with a remaining term to final maturity greater than or equal to 10 years. The ICE BofA US Corporate Bond Index provides a broad measure of the USD-denominated investment grade corporate debt securities publicly issued in the US domestic market.

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