PIMCO

LDI Programs: Finding a Better Replacement for Treasury STRIPS

A holistic LDI portfolio may provide a superior liability hedge.

AUTHORS

Rene Martel, FSA, CFA
Managing Director
Head of Retirement

Vijendra Nambiar
Executive Vice President
Pension Solutions Strategist

The primary objective of liability-driven investing (LDI) is a simple one – managing risk. Yet defining LDI is complex because this common investment strategy comes in a variety of flavors. All of them, however, typically seek a better alignment between a pension plan's liability risk factors (such as duration) and its liabilities. In practice, LDI investors will often be looking to extend the duration of their portfolios to match the long-dated nature of liabilities.

Fortunately, plan sponsors have many tools to amplify the interest rate sensitivity of their portfolios – from repositioning their existing fixed income allocation toward longer-duration bonds to increasing their fixed income allocation to implementing derivatives overlays. The options are sufficient to accommodate the wide range of preferences and circumstances plan sponsors face.

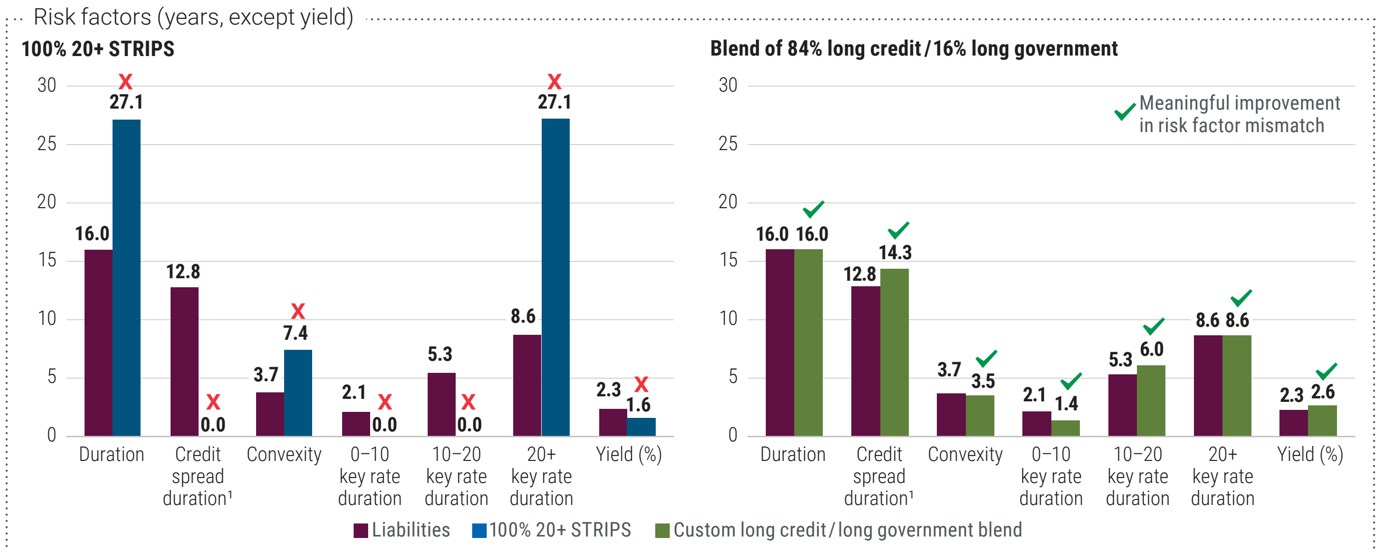
One option, using long Treasury STRIPS, may seem interesting on the surface. These instruments tend to have very long durations (about 27 years); they can help plan sponsors achieve their duration-extension targets with limited capital commitment to fixed income, or achieve a relatively high duration hedge ratio for a given commitment. However, upon deeper analysis, the drawbacks of long-dated STRIPS appear to outweigh their advantages – and we find this to be especially true in today's historically low interest rate environment. As such, we favor other options to seek to achieve duration hedging targets in a capital-efficient manner.

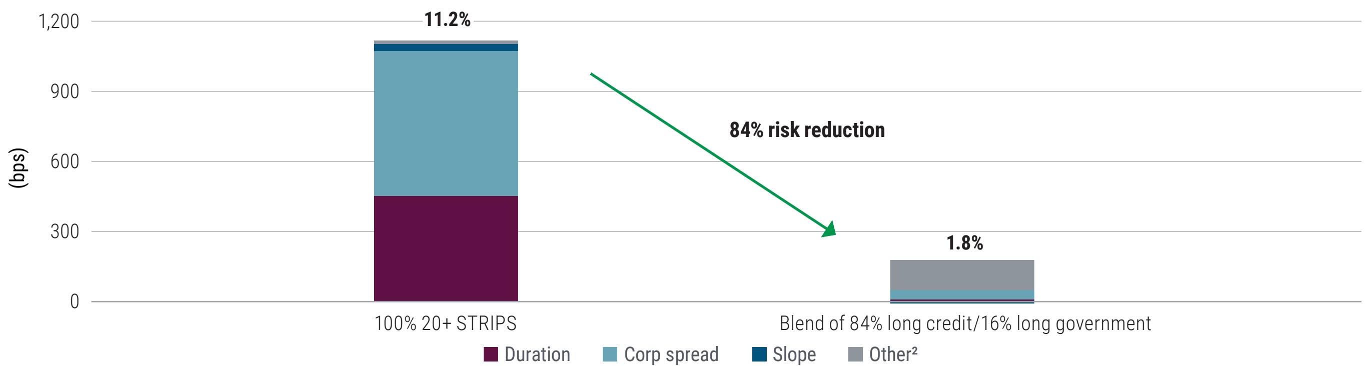
STRIPS AS A LIABILITY HEDGE?

Given how prevalent STRIPS are in some LDI programs, it may be a surprise that they are not a very good fit to pension liability risk factors compared with other approaches. As Figure 1 shows, **STRIPS-based strategies create significant mismatches relative to pension liabilities – across maturity profile and curve risk as well as credit spread hedge.** In contrast, a diversified blend of long credit and long government bonds potentially creates a more holistic match to key liability risk factors; they tend to have a very low tracking error risk profile to the liabilities relative to STRIPS-based strategies (1.6% versus 11%).

Furthermore, pension liabilities typically grow consistent with their discount rate (a blend of high quality corporate bond yields). As of 30 November 2020, long Treasury STRIPS were yielding 1.6% and average liability yields were 2.5%–2.75% (according to FTSE for 20+ STRIPS and the FTSE discount curve for the liability yield). Thus, portfolios with large allocations to STRIPS are unlikely to keep up with ongoing liability accruals, whereas portfolios with heavier allocations to long-dated credit (which were yielding about 3%, according to Bloomberg Barclays) will likely perform better.

Figure 1 – STRIPS as a liability hedge – worth reconsidering?





Source: PIMCO, as of 30 November 2020. **Hypothetical example for illustrative purposes only.** We assumed the following credit spread duration beta adjustment factors: Corp/Credit AAA=0.6, Corp/Credit AA=0.8, Corp/Credit A=1.0,Corp/Credit BBB=1.3, FAS Accounting (AA)=0.8, Treasuries=0.0. Figure is provided for illustrative purposes and is not indicative of the past or future performance of any PIMCO product.

1 Beta adjusted

2 Other factors include idiosyncratic (specific), convexity, and "style" factors, such as industry.

It is important to note that appropriate hedging strategies should perform not just under very specific or narrow scenarios (for example, when the back end of the yield curve flattens with no credit spread tightening), but also across a variety of market environments. After all, the point of hedging the liabilities is to recognize and prepare for the uncertainty in markets. This calls for more resilience in the design of the liability-hedging strategy, as it will need to work in almost any type of market environment. In preparing for any market environment, large STRIPS allocations are more of a subjective call on the shape of the yield curve than a robust liability hedge.

Fortunately, the tactical position that some plan sponsors had with STRIPS allocations in their LDI programs paid off over the last few years as rates dropped dramatically and the yield curve flattened. More important, we feel there is an opportunity for plan sponsors who have benefited from STRIPS to prepare for future uncertainty by considering the following:

1. Lock in gains before they evaporate – this can help plan sponsors come out on the right side of that original tactical call.

2. Reposition the structure of their LDI program to make it more resilient and a true hedge that works in a wider array of market environments than STRIPS.

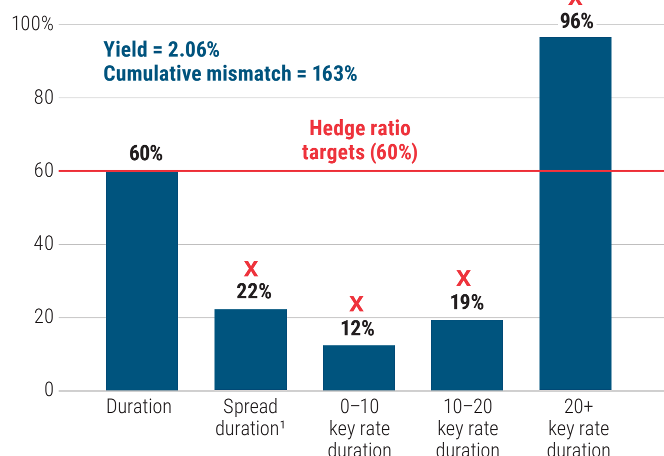
THIS MAY BE THE RIGHT TIME TO BUILD A MORE RESILIENT LIABILITY HEDGE

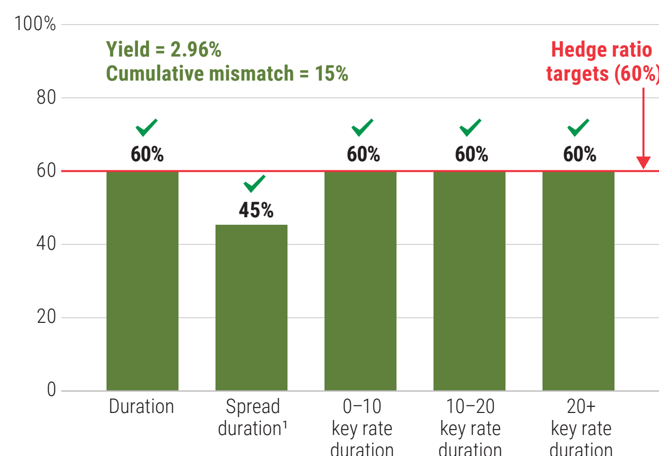
Plan sponsors with meaningful STRIPS allocations can take advantage of the current market environment to lock in any profits and seek to make their LDI program more resilient and better adapted to the years ahead. One option could be accomplished by redeploying STRIPS allocations into a long duration portfolio that better balances credit and government bonds, and is potentially paired with Treasury futures that in aggregate target the desired liability hedge (or align the duration with that of STRIPS), as shown in Figure 2. This approach has the following potential benefits:

- May allow for a more robust hedge that aligns the portfolio with each liability risk factor (duration, credit, curve, etc.) as opposed to overemphasizing one factor at the expense of others.
- Pivots to higher-yielding long corporate credit that is better aligned with the plan sponsor's liability yield, an important consideration in the current low yield environment. While long-dated STRIPS now provide a yield modestly above 1.5% and have limited opportunity for active management, long-dated credit yields are still hovering around 2.8%, according to data from Bloomberg Barclays. That creates ample potential for active management to seek to further enhance that yield advantage.
- Ability to maintain capital efficiency in line (or better than) STRIPS through the use of duration overlays paired with a more robust LDI portfolio.
- Bundling the robust LDI portfolio with the Treasury overlay can also streamline implementation of the hedge and reduce potential disruption in the composition of the LDI program. Treasury STRIPS mandates tend to be a standalone sleeve ("unbundled") in LDI programs. This can create frequent rebalancing needs in the LDI program and the potential to drift away from strategic hedge targets. (See our 2018 *Featured Solution*, "Treasury STRIPS in Capital-Efficient LDI Strategies: Missing the Mark.")

Figure 2 – A better way to target your liability hedge

While a STRIPS portfolio can achieve a 60% duration hedge, it creates many mismatches with other key risk factors and under-yields the liability discount rate. In contrast, a holistic LDI strategy (on the right hand side) may better lead to a tight match across all liability risks with an improved yield profile.





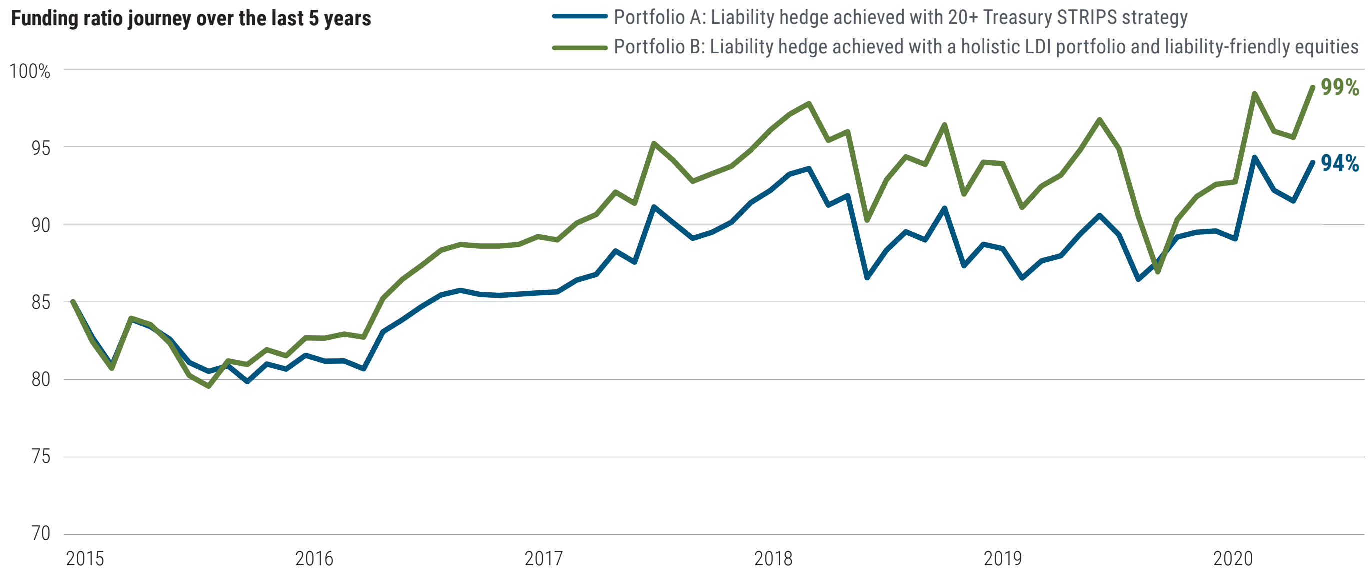
Source: PIMCO, Bloomberg and FTSE as of 30 November 2020. **Hypothetical example for illustrative purposes only.** Fixed income allocation of 50% and funding ratio of 85% assumed for illustrative purposes. Liability duration assumed to be 14 years. We assumed the following credit spread duration Beta adjustment factors: Corp/Credit AAA=0.6, Corp/Credit AA=0.8, Corp/Credit A=1.0,Corp/Credit BBB=1.3, FAS Accounting (AA)=0.8, Treasuries=0.0. Figure is provided for illustrative purposes and is not indicative of the past or future performance of any PIMCO product.

1 Beta adjusted

✓ Tailored to liability risks – matching across key risk metrics
✓ Improved potential to keep up with liability growth
✓ Enhanced liability credit spread hedging
✓ Lower tracking error to liabilities
✓ More resilient implementation of the liability-hedging assets

Figure 3 – Liability-friendly equities – improving funding ratio outcomes for the same hedge as STRIPS

This is a historical funding ratio analysis for two portfolios, which are designed to target a 60% duration hedge. Portfolio A (in blue) uses STRIPS, while Portfolio B (in green) uses a holistic toolkit that also includes long duration bonds and liability-friendly equities overlaid synthetically. The holistic toolkit portfolio (B) results in improved funding ratios relative to portfolio A because it was constructed in a resilient fashion as opposed to a blunt approach that uses STRIPS.



As of 30 November 2020. SOURCE: PIMCO. **Hypothetical example for illustrative purposes only.** Portfolio A represents a portfolio comprised of the S&P 500 Index, Bloomberg Barclays Long Credit Index, and FTSE 20+ STRIPS, rebalanced quarterly, to achieve a 60% duration hedge ratio. Portfolio B represents a portfolio comprised of the S&P 500 Index, a 75/25 blend of the Bloomberg Barclays Long Credit and Bloomberg Barclays Long-Term Government indices, and Liability-Friendly Equities [S&P 500 + BBG BC Long Gov't/Credit – 3M LIBOR], rebalanced quarterly, to achieve a 60% duration hedge ratio. Assumes a liability duration of 14 years at the beginning of the period; liability growth proxied using a weighted blend of FTSE Pension Liability Intermediate and Short Indices returns to match 14 year duration at beginning of period. Figure is provided for illustrative purposes and is not indicative of the past or future performance of any PIMCO product.

SWEETENING THE DEAL

In addition to increasing the resilience of their liability-hedging allocations with holistically tailored LDI strategies, plan sponsors can potentially achieve even better outcomes by further **enhancing their portfolios with an allocation to liability-friendly equity strategies.** In this strategy, we obtain equity exposure synthetically via derivatives (typically equity futures and total return swaps) and pair this exposure with an actively managed, high quality long bond portfolio that seeks a return roughly in line with the growth of an interest-rate-sensitive liability. It is designed to seek to provide equity returns over the growth of liabilities in a single portfolio. This allows plan sponsors to:

- Target a more liability-aware return-seeking allocation, which we believe to be instrumental for future funding ratio improvements (as you are earning equity returns on top of long bonds, which is a proxy for liability growth).
- Improve the plan's hedge to liability credit spread duration – important given liability corporate bond discount rate methodologies in the U.S.
- Maintain the same capital efficiency and duration hedge ratio the plan would have had with a STRIPS allocation, but with the possibility of higher expected return potential. We compared how two portfolios performed over the last five years (one used just STRIPS, while the other used a liability-friendly equity strategy). Relying on multiple sources of return, the portfolio with liability-friendly equities had significantly better funding ratio outcomes over the last five years (about five percentage points higher), as shown in Figure 3.

CONCLUSION

The unknowns of the post-COVID market landscape require greater attention to the composition of LDI programs. While plan sponsors who used Treasury STRIPS in their LDI allocation have certainly benefited over the last few years, the low level of Treasury yields and the realization that return prospects could be lower going forward provide an opportunity to take profits and redeploy them into strategies with the possibility of better liability-hedging potential and a diversified stream of returns. As illustrated earlier, these alternatives to STRIPS can target the same level of liability hedge but with improved resilience and potential for outperformance with diversified sources of return. As such, the prospects for building a high quality liability hedge are stronger than ever in our view.

PIMCO

The analysis included here is not based on any particular financial situation, or need, and is not intended to be, and should not be construed as a forecast, research, investment advice or a recommendation for any specific PIMCO or other strategy, product or service. Investors should consult their investment professional prior to making an investment decision.

The analysis contained in this paper is based on hypothetical modeling. HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH ARE DESCRIBED BELOW. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM.

ONE OF THE LIMITATIONS OF HYPOTHETICAL PERFORMANCE RESULTS IS THAT THEY ARE GENERALLY PREPARED WITH THE BENEFIT OF HINDSIGHT. IN ADDITION, HYPOTHETICAL TRADING DOES NOT INVOLVE FINANCIAL RISK, AND NO HYPOTHETICAL TRADING RECORD CAN COMPLETELY ACCOUNT FOR THE IMPACT OF FINANCIAL RISK IN ACTUAL TRADING. FOR EXAMPLE, THE ABILITY TO WITHSTAND LOSSES OR TO ADHERE TO A PARTICULAR TRADING PROGRAM IN SPITE OF TRADING LOSSES ARE MATERIAL POINTS WHICH CAN ALSO ADVERSELY AFFECT ACTUAL TRADING RESULTS. THERE ARE NUMEROUS OTHER FACTORS RELATED TO THE MARKETS IN GENERAL OR TO THE IMPLEMENTATION OF ANY SPECIFIC TRADING PROGRAM WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS AND ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS.

Figures are provided for illustrative purposes and is not indicative of the past or future performance of any PIMCO product.

Past performance is not a guarantee or a reliable indicator of future results.

All investments contain risk and may lose value. Investing in the **bond market** is subject to risks, including market, interest rate, issuer, credit, inflation risk, and liquidity risk. The value of most bonds and bond strategies are impacted by changes in interest rates. Bonds and bond strategies with longer durations tend to be more sensitive and volatile than those with shorter durations; bond prices generally fall as interest rates rise, and low interest rate environments increase this risk. Reductions in bond counterparty capacity may contribute to decreased market liquidity and increased price volatility. Bond investments may be worth more or less than the original cost when redeemed. **Equities** may decline in value due to both real and perceived general market, economic and industry conditions. **Swaps** are a type of derivative; swaps are increasingly subject to central clearing and exchange-trading. Swaps that are not centrally cleared and exchange-traded may be less liquid than exchange-traded instruments. **Derivatives** may involve certain costs and risks, such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested.

The 3 Month USD LIBOR (London Interbank Offered Rate) Index is an average interest rate, determined by the ICE Benchmark Administration, that banks charge one another for the use of short-term money (3 months) in England's Eurodollar market. **Bloomberg Barclays Long-Term Government/Credit Index** is an unmanaged index of U.S. Government or Investment Grade Credit Securities having a maturity of 10 years or more. **Bloomberg Barclays U.S. Long Credit Index** includes both corporate and non-corporate sectors with maturities equal to or greater than 10 years. The corporate sectors are Industrial, Utility, and Finance, which include both U.S. and non-U.S. corporations. The non-corporate sectors are Sovereign, Supranational, Foreign Agency, and Foreign Local Government. **FTSE STRIPS Index,** 20+ Year Sub-Index represents a composition of outstanding Treasury Bond and Notes with a maturity of at least twenty years. The index is rebalanced each month in accordance with underlying Treasury figures and profiles provided as of the previous month- end. The included STRIPS are derived only from bonds in the FTSE U.S. Treasury Bond Index, which include coupon STRIPS with less than one year remaining to maturity. **S&P 500 Index** is an unmanaged market index generally considered representative of the stock market as a whole. The Index focuses on the large-cap segment of the U.S. equities market. It is not possible to invest directly in an unmanaged index.

PIMCO as a general matter provides services to qualified institutions, financial intermediaries and institutional investors. Individual investors should contact their own financial professional to determine the most appropriate investment options for their financial situation. This material contains the opinions of the manager and such opinions are subject to change without notice. This material has been distributed for informational purposes only and should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. Information contained herein has been obtained from sources believed to be reliable, but not guaranteed. No part of this material may be reproduced in any form, or referred to in any other publication, without express written permission. PIMCO is a trademark of Allianz Asset Management of America L.P. in the United States and throughout the world. ©2020, PIMCO.

PC500_69929

CMR2020-1211-1447184