Investment Solutions

Insights

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Breaking the Pension Funding Stalemate: LDI can help sponsors overcome low yields, downside risk and indecision to help improve plan funding status

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EXECUTIVE SUMMARY

U.S. defined benefit plan sponsors need new tools to break the stalemate many face regarding pension funding: unable to improve low-funding levels, sponsors have not implemented stronger plan risk-management practices to help them better align plan assets with future liability obligations.

Lower long-term bond yields since 2008 have raised pension plan liability values, with no indication yields will rise significantly in the near future. While plan asset values have recovered after the significant decline of the 2008 financial crisis, plan funding levels remain uncomfortably low for many sponsors. Those looking to remedy these concerns face a question with seemingly no good answer:

Should I purchase hedging/bond assets to secure current plan funding levels now?

> Answer "Yes" and the risk is that interest rates will rise and sponsors will regret overpaying for these assets, thinking they could have purchased them later for less.
>
> Answer "No – I will wait" and the risk is that yields fall further and these assets will cost more later. In addition, others purchasing these assets in the meantime may help to further suppress yields (and raise their price).

These are perfect conditions for a stalemate: plan sponsors face risks with either decision. Without a crystal ball to see where rates will go next, it is understandable why many sponsors seem frozen in indecision, even though the funding issue likely remains unresolved without action.

However, the evolution in liability-driven investing (LDI) strategies is creating new ways to approach this risk-management question. Today's more sophisticated, customized strategies may be able to help sponsors protect the downside of their plan assets while potentially earning relatively greater returns. With these tools in hand, sponsors may be able to end this stalemate, break free of their indecision, and begin to develop meaningful solutions to better align plan assets with liabilities.

RATES: STILL LOWER FOR LONGER?

At the end of the third quarter of 1981, long-term U.S. interest rates (e.g., the 30-year Treasury rate) were more than 15%. If those yield levels were to return today (with other aspects remaining constant), the U.S. defined benefit pension plan deficit problem would evaporate overnight. Most liability values would more than halve and the impact on bond assets would be much less, given pension plans' prevailing low allocation to bonds with the appropriate duration sensitivity relative to their liabilities.

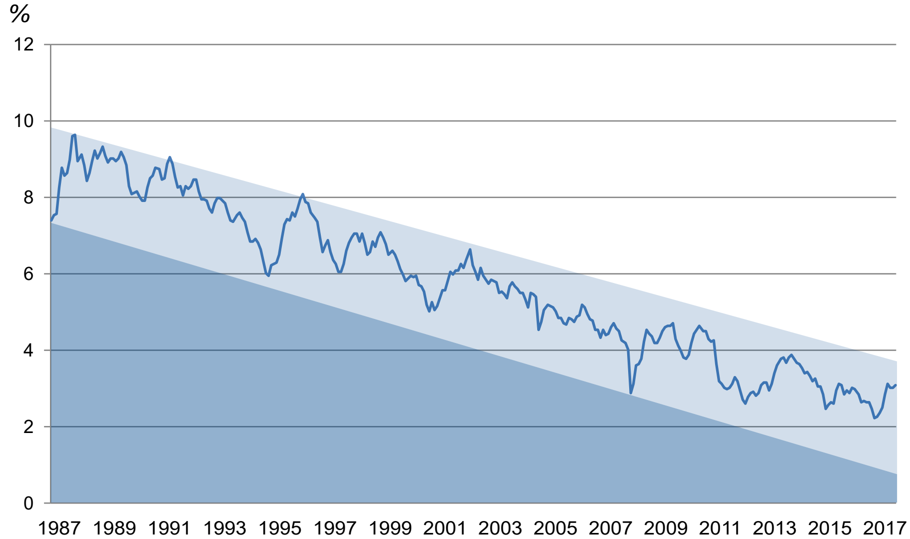
However, rates are not expected to change that drastically. As accrued pension benefits cannot be reduced, there are only two other levers pension plans can rely on to get themselves out of their hole: they can better position growth assets to outperform or they can make cash contributions to plug the deficit. However, looking at these levers or waiting for yields to rise ignores the elephant in the room: what if yields don't revert to historical norms before the bulk of pension plan liabilities is paid?

To put this in context, the average duration of a closed and frozen pension plan is around 13 to 14 years. It's been eight years since the global financial crisis, prior to which long-term (e.g., 30-year Treasury) rates were trading at around 4.5%. It has taken eight years for long-term yields to fall two percentage points to now trade in the 2.5%-3.0% range. Even if yields were to change course tomorrow, reversion back to a 4.0%-4.5% range might take years. By then, the duration (and hence yield sensitivity) of the average plan may have fallen to a fraction of what it is now, and the impact of higher yields materially improving funding levels would be markedly diminished.

And what if yields fall further? We may in fact be in a "new normal" economic environment, a period of prevailing low yield/low return financial markets. If this is the case, should plan sponsors focus more on managing the downside, i.e. additional rate declines? This is especially true given the risk-averse nature of a pension plan investor, per the fiduciary nature advocated for under ERISA legislation.

Exhibit 1 illustrates the downward trend of the long-term (30-year) Treasury yield since the late 1980s.

Exhibit 1: **Long-term (30-year) Treasury yield since late-1987**



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The trend also suggests a yield level of sub-3.0% for some future period, and market consensus is that long-term yields are unlikely to revert back to historical norms in the near future.

There are additional downward pressures on longer-term yields. One is the hedging purchases of longer-term bond securities made by long-term institutional investors such as defined benefit pension plans and insurance companies, as these investors take up better risk management techniques. Another is the global hunger for yield, pushing overseas investors to buy long-term U.S. bonds given their relatively more attractive yields.

Given this environment, it seems unlikely that sponsors' plan liability problems will be solved through a significant rise in long-term interest rates.

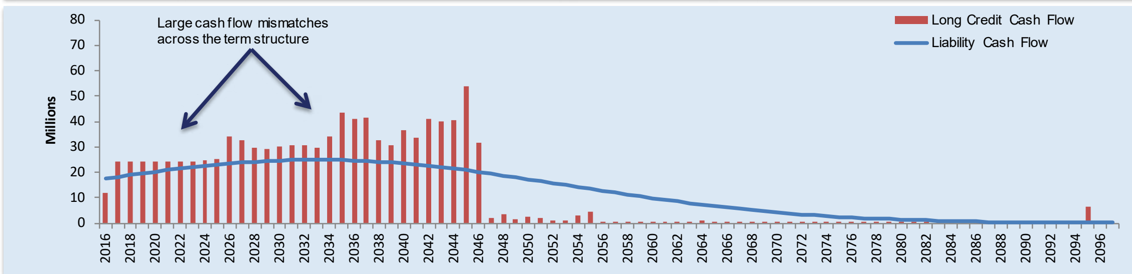
CUSTOMIZATION: AIMING FOR IMPROVED DOWNSIDE PROTECTION, UPSIDE OPPORTUNITY

LDI and its implementation have become more sophisticated compared to the early duration-matched strategies of a couple of decades ago, with one outcome being the development of strategies that can potentially deliver both greater downside protection and enhanced relative return.

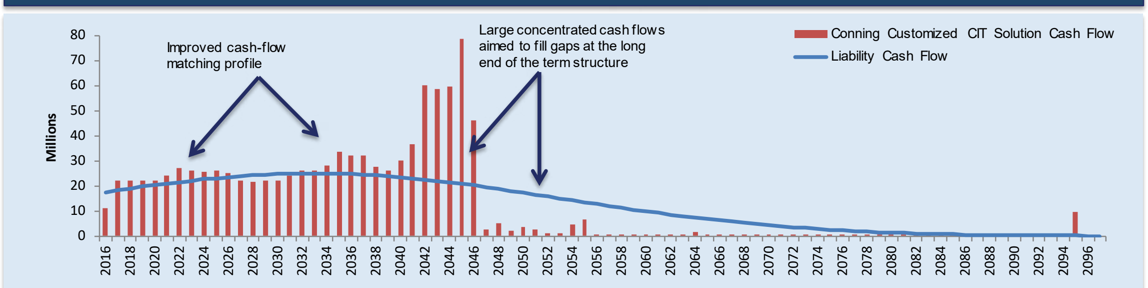
By way of example, we compare a basic LDI strategy, such as duration matching to plan liabilities, via a standard long-credit index benchmark and a more customized all-credit hedge. Exhibit 2 shows the term structure of asset cash flows against an average pension plan liability profile.

Exhibit 2: **Cashflow match of assets against liabilities for basic and more sophisticated LDI**

Barclays US Long Credit Index – Cash Flow Profile of Fully Funded Plan (Projected)



Conning Funds Provide Improved Match to Cash Flow Profile (Projected)



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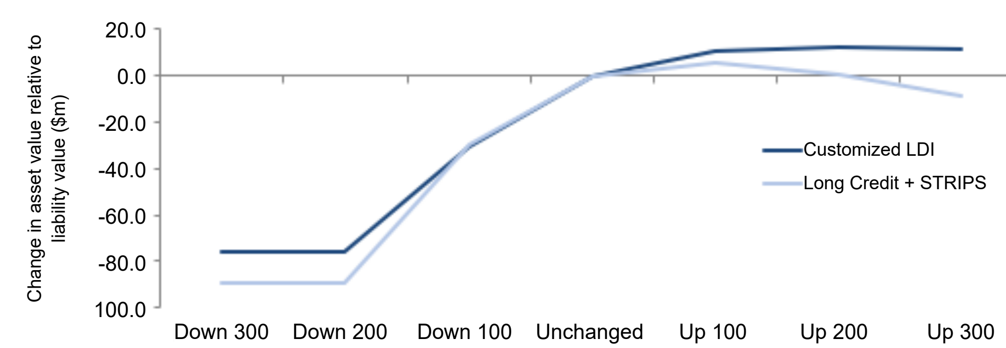
As displayed in the illustration, the customized benchmark provides a better overall fit to the liability cash flows and better represents the overall interest rate sensitivity.

Another example offers a more robust illustration of this evolution in LDI strategies. In this case, we use a slightly longer duration liability profile of 16 years and a discounted liability value on a U.S. GAAP basis of $2.5 billion. We compare a basic LDI (long credit plus long STRIPS) hedging approach with a more sophisticated, customized LDI credit portfolio approach.

Exhibit 3 shows the changes in asset value relative to liability value for interest rates moving up to 300 basis points in either direction.

As illustrated, the customized LDI strategy (dark blue line) protects both the downside and the upside more effectively than the basic (long credit plus long STRIPS) approach. Clearly, there is money left on the table from deploying a basic LDI strategy if yields were to move. This could be as much as 0.8% of the liabilities (or about $20 million for a $2.5 billion pension plan).

Exhibit 3: **Generic pension plan change in asset value relative to liability value**



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Further, given the launch of customized LDI commingled funds, modern LDI programs are no longer the preserve of the larger pension plans that can establish separately managed LDI hedging accounts. Plans that rely on growth assets to make up the difference between underperformance in hedging assets relative to liabilities as a consequence of utilizing a basic LDI strategy may be leaving money on the table and not maximizing the potential gain in both their hedging and growth portfolios.

LDI STRATEGY CAN BREAK THE STALEMATE

The potential of a strategy that allows both greater downside risk protection and enhanced relative upside performance may be of great value to U.S. defined benefit pension plans, which are at the very least unwitting participants in a stalemate.

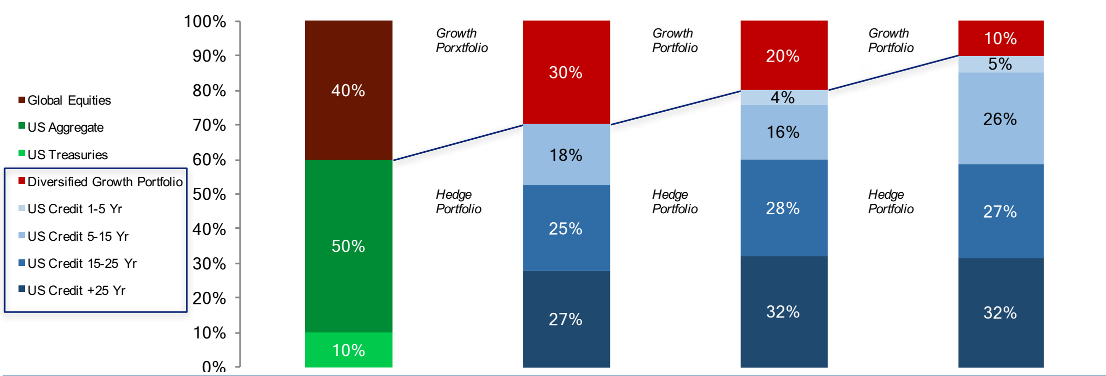
For pension plan sponsors, the prevailing tension is the level of long-term yields. A plan sponsor moving too quickly and purchasing hedging assets to secure the current plan funding level may regret not waiting to purchase hedging/bond assets more cheaply, should yields rise. Moving too slowly, however, might mean faster-moving plan sponsors are able to hedge by buying bonds more cheaply today should long-term yields fall further tomorrow. The fast-movers also compound the issue as the resulting downward pressure on yields from their purchases harms late-movers, who may have to hedge at even lower yields and thus face the full negative impact on funding from having lower hedge ratios as yields continue to fall.

In either case, these issues require making market-timing choices and calling yield levels, which most plan sponsors are not comfortable with, thus their paralysis in making any decision. The stalemate continues, and plan conditions could deteriorate in the interim.

While risk and return are easily measurable after the fact, before-the-fact confidence is higher when considering risk over return. In our view, it seems more sensible to make asset allocation decisions based on risk exposures rather than anticipated returns, particularly in the current low-return environment.

Conning incorporates downside-risk measurement into the construction of a traditional journey plan or "glide path" to improved financial health of the pension plan. Exhibit 4 illustrates a glide path based on a target strategy that would lead to self-sufficiency (i.e., an investment strategy with minimal probability of additional contributions) for a generic pension plan named "Client A." A self-sufficiency scenario is often of interest to both shareholders and senior management as it generally means much less time needs to be spent on pension plan management issues. (Unless otherwise stated, all liability valuations are calculated on a U.S. GAAP basis.)

Exhibit 4: **Downside risk managed/Value-at-Risk based glide path construction for Client A**



Client A	Current	Phase 1	Phase 2	Target Strategy
Funded Status / Trigger (%)	90%	90%	100%	110%
Hedge % / Growth %	60% / 40%	70% / 30%	80% / 20%	90% / 10%
Hedge Portfolio Benchmark	Current Benchmark	25% US Credit 5-15yrs 35% US Credit 15-25 yrs 40% US Credit +25 yrs	5% US Credit 1-5yrs 20% US Credit 5-15 yrs 35% US Credit 15-25 yrs 40% US Credit +25 yrs	5% US Credit 1-5yrs 30% US Credit 5-15 yrs 30% US Credit 15-25 yrs 35% US Credit +25 yrs
Hedge Portfolio Duration (yrs)	3.9	12.8	12.6	11.8
Hedge Ratio Target (%)	20%	70%-80%	80%-90%	90%-100%
Expected Return on Assets	3.6%	4.5%	4.1%	3.8%
Funded Status VaR ($m)	120	64	38	20

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Exhibit 4 illustrates a gradual reduction in downside risk exposure for each step in the plan (Funded Status VaR), accomplished by improving the interest-rate/duration, credit- and curve-matching properties at each phase. In this way, exposure to potential gains from interest rate increases is not fully removed and can contribute to reaching the final goal.

While return is not directly addressed, it is not ignored: in this example, all phases provide an expected return that is in excess of the current portfolio. The benchmark for each phase evolves as well, a critical part of the process, as LDI strategies in general require customized benchmarks to effectively measure the progress of a customized investment strategy.

YIELD TRIGGERS – ADDING PRECISION TO ASSET DECISIONS

The triggers in Exhibit 4 are, ignoring contributions, based on funding-level improvements due to growth assets outperforming liabilities and/or rising interest rates causing liabilities to underperform assets.

Ignoring contributions, funding-level-based triggers encapsulate a combination of rises in yields and outperformance of growth assets. Once a trigger is breached, risk can then be taken off the table in terms of moving a proportion of the growth asset allocation into hedging assets.

However, if the funding-level trigger is breached due solely to growth-asset outperformance and no improvement in yields, purchasing more hedging/bond assets at that time may not be the most efficient use of resources. Risk may still be taken off the table (i.e., a reduction in growth asset exposure, but no subsequent purchase of hedging assets) but not to the same degree as a full switch into hedging assets from growth assets.

The stalemate plans face in yields could be navigated by decomposing the trigger-based-phase switch into its two sub-component portfolios (i.e., hedging and growth portfolios) and using synthetic interest rate instruments to better target more attractive yield levels.

Pension plans that implement a modern LDI strategy may be able to both augment the expected return in their hedging portfolio and increase their risk management effectiveness.

This process is focused on locking in yield improvements as and when they present themselves, rather than waiting and missing an opportunity to buy bonds at cheaper yield levels, but it does not prevent a move to more hedging assets if the growth assets outperform and push the funding level to the next (phase-based) trigger point. As and when yield levels marginally improve, synthetic interest rate exposure is obtained to capture these marginal yield rises. Once growth assets have increased to breach a funding-level trigger shown in Exhibit 4, growth assets can be sold and physical hedging assets purchased while simultaneously unwinding the (no longer required) synthetic interest rate exposure.

This approach is agnostic in terms of when an appropriate degree of outperformance in growth assets should be locked in because the switch happens automatically when a funding-level trigger is breached.

The process would also increase the time taken to reach the next phase, or the probability of reaching the next phase over a given period, as a consequence of yield rises since increased hedging exposure reduces the funding-level-increase benefit afforded by yield increases when compared to a more unhedged position.

What this process does give you, however, is leverage to break the stalemate because a pension plan that has this type of synthetic interest rate hedging yield-level-based trigger will be actively capturing yield improvements and getting to a better hedged position at the expense of late-movers.

CONCLUSION

Conning's intention is to provide broad consideration of the main challenges facing U.S. defined benefit pension plans, particularly from an LDI perspective, and how they may be addressed.

The current low-return and low-yield environment is unlikely to be resolved in the near term. Indeed, many economists and industry experts point to things getting worse for long-end yields before they get better.

The prevailing low-yield environment also creates a stalemate for sponsors whereby they are wary of the regret risk from buying hedging/bond assets at too low a yield (if they in hindsight do rise) and are also negatively affected by falls in long yields associated with faster-moving pension plans purchasing hedging/bond assets ahead of them, thereby putting continued downward pressure on yields.

A compelling way for pension plans to navigate this stalemate is to create yield-level-based triggers that automatically purchase synthetic interest rate hedging exposure as yield levels marginally improve. This enables sponsors to take action at more attractive yields, while avoiding becoming a late-mover and facing the prospect of even lower yields in the future.

This yield-trigger-based process can be managed within an outcome-orientated asset allocation glide path, which is calibrated around a downside risk management-based framework. Further, return is no longer considered solely a percentage change in asset values over time, but more as the time to reach (or the probability of reaching over a given period) a future phase on the glide path toward a target investment strategy.

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Conning (www.conning.com) is a leading global investment management firm with almost $113 billion in global assets under management as of March 31, 2017.* With a long history of serving the insurance industry, Conning supports institutional investors, including pension plans, with investment solutions and asset management offerings, award-winning risk modeling software, and industry research. Founded in 1912, Conning has offices in Boston, Cologne, Hartford, Hong Kong, London, New York, and Tokyo.

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