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# Liability driven investing and the reassessing of risk

For institutional investors with defined liabilities, the recent adjustment in capital markets has proven to be particularly painful. The combination of faltering equity markets, low interest rates, and extreme volatility — most recently encountered in the 2001/02 recession and now persisting — has led to serious funding-ratio deficits. Pension plans and insurers face a worrisome mismatch between their assets and projected liabilities or disbursements. Liability risk is front-and-centre.

Unfortunately, there is no quick and easy fix to this liability-funding shortfall. Any remedy requires a fundamental risk-budgeting reappraisal: reviewing the risks that need to be managed, and reassessing how risk is defined, evaluated, assigned, and monitored. Finally, it entails shifting to a strategic approach that consistently manages risk in the context of a plan's liabilities and places that objective at its philosophical core: liability driven investing (LDI).

## LDI versus the asset-only approach

LDI, while certainly topical, is not always fully understood. The term is used in different ways depending on the source, leading to several misconceptions. That said, it may be easier to define it by stating what it is *not*: LDI is not one single solution. It is not merely a tool to hedge interest rates. It is not just about liability matching. Rather, it is a specific way of framing risk based on the central importance of funding liabilities. This reframing then leads to a variety of possible solutions for a portfolio.

Before describing the LDI approach in greater depth, it is helpful to first review what it is typically replacing; that is, the traditional investment strategy focused on asset-only total returns.

### The asset-only standard

An asset-only approach seeks to maximize rates of return and structures the asset mix to reach that goal. The typical total-return asset mix favours equities, based on the fact that equities have proven to outperform fixed income investments in the long run. The ubiquitous 60/40 equities/bonds asset mix is an example of this strategy in action. In an asset-only portfolio, risk management may play a key role, but it is the risk of underperforming that is of primary importance. The concern is that performance will fall short of a particular market index and peer group norm. The asset-only approach may start with a consideration of liabilities, but the asset-centric focus quickly takes over, and the typical 60/40 portfolio emerges.

While this traditional approach has been — and continues to be — a viable one for many investment portfolios, for pension plans and insurance companies it has arguably missed the mark. The reason? It has seriously underemphasized the liability risk of many investment decisions. This reduced emphasis on liability risk has resulted, as we have seen, in poor

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outcomes once market and economic conditions deteriorate.

Fixing this particular problem entails more than revisiting the asset allocation decision. It necessitates returning to the risk-budgeting decisions at the strategic level that led to this particular asset mix decision. It is from this fundamental point that the shift to LDI can begin.

### The LDI alternative: Risk redefined and resituated

LDI is based on the premise that, for portfolios with defined liabilities, failing to meet those liabilities is the critical risk. In this framework, investment decisions are made in the context of projected liabilities, and the goal is a low level of risk relative to the plan's liabilities rather than meeting a target return. Return, while important, is measured in the context of liabilities rather than

relative to a particular benchmark or peer performance. The LDI portfolio is structured and managed within the context of the plan's ultimate objective: delivering on its pension promise.

Using this strategic framework may lead to significantly different outcomes. The resulting portfolio may look quite different than the traditional total return 60/40 standard as well as the peer group universe. But there is no typical or standard LDI portfolio. In every case, the unique needs of the plan and its sponsors will ultimately determine the portfolio's composition.

### How it works: A focus on flexibility

LDI is very open and flexible in its implementation: it can incorporate any tools and techniques as long as they work effectively within the risk

budgeting framework. It almost certainly includes some form of interest rate hedging, but it is much more than just that. It focuses on closely matching liabilities, but it is not fixated on a rigid cash matching method that limits surplus returns.

From this perspective, literally any tool or technique that serves to mitigate liability risk can be part of the LDI strategy. In almost any plan, however, there will be two main elements: the liability-hedging component (matching portfolio), and the return-seeking component.

### The liability proxy: Matching and hedging

A pension plan's projected liabilities have attributes that are very similar to bonds such as duration, yield, and convexity. Because of this similarity, bonds, in particular longer duration bonds, provide for an excellent hedge to the liabilities.

## Exhibit A. Different strategies for different circumstances: Asset-only versus LDI

|                       | Asset-only strategy   | LDI strategy  |
|-----------------------|---|---|
| Objective             | High risk-adjusted returns over the long term.  | Manage risk relative to liabilities; Maintain stable asset/liabilities ratio.   |
| Risk Measure          | Volatility of return; Absolute gain/loss  | Volatility of funding ratio   |
| Benchmark             | Policy asset mix, peer group  | Liabilities   |
| Portfolio composition | Asset mix overweighed in equities to take advantage of equity risk premium e.g. 60/40 equities/fixed income | Matching portfolio strategy; Return seeking strategy; tools include traditional stocks and bonds, derivatives or alternative investments. |
| Reasoning             | Pension funds are long-term investments. Over time, asset growth will surpass liabilities.                  | Asset objective should be linked to primary plan objective: funding pension benefits and maintaining a stable funding ratio.              |

Like bonds, liabilities are highly interest rate sensitive. The longer the duration of a liability, the greater the impact of a change in interest rates. Declining interest rates, as experienced in the last decade, result in a disproportionately high increase in the value of the plan's liabilities. So when creating the liability matching/hedging part of the portfolio — the matching portfolio — the goal is to match the liabilities as closely as possible through the combination of assets that most closely mimics the duration and inflation sensitivity of the plan's liabilities.

Fortunately, as we've noted, LDI is extremely flexible — all tools and techniques are open, as long as they are pursued with reference to the liabilities of the portfolio. These can include: inflation-linked bonds, long duration bonds, and interest rate swaps and overlays. For example, in the case of the traditional 60/40 equity/bond mix, which offers too little interest rate exposure, it would be possible to modify it in LDI terms by increasing the bond allocation in an immunization strategy. This would both increase the liability matching and hedge the interest rate risk.

But while migrating to an immunization strategy provides a solution to one kind of risk, it introduces another: too low returns. As we know, there is an inverse relationship between the matching qualities of an asset and its return. So while bonds may match a plan's liabilities very well, they also tend to deliver a lower level of return, and will necessitate a higher level of contributions to the plan.

Thus while helping to mitigate

liability risk on one hand, over-reliance on matching assets increases the risk that the returns may not be high enough to cover other risks like inflation, longevity risk, rising salaries, and the general imperfection in valuing liabilities over time. Therefore, along with fixed income investments, an LDI plan needs to take some mismatch risk by investing in higher yielding assets, including equities and alternative investments.

Interestingly, while interest rate risk is extremely important to LDI and gets most of the attention, it is equity risk that is the greatest generator of surplus risk in a portfolio, which is then reflected in high funding-ratio volatility.

### The return-seeking portfolio

The desire for excess return explains why so many plans have a high equity position — to take advantage of the equity risk premium. The challenge for LDI lies in delivering the desired return while sufficiently mitigating the risk that equities introduce. If you want to maintain equities and still get more interest rate exposure, consider an overlay. TDAM offers a bond overlay fund that can help to implement this type of solution easily and cost-effectively.

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add a high level of volatility to the portfolio which is then reflected in high funding-ratio volatility. Nevertheless, equity risk is a compensated risk, and one that many believe is worth taking as long as it is managed in the overall context of the plan's liabilities.

There are several LDI-based solutions that allow plans to maintain the equity risk premium and still manage the overall surplus risk. Some TDAM-specific solutions on offer include:

**Low volatility portfolio.** The LVP is an equity portfolio built with the explicit objective of minimizing the absolute risk of the portfolio. The portfolio is similar to traditional equity portfolios in that it is composed entirely of equities. No derivatives, shorting, or leverage are used. However, where benchmarks and traditional portfolios are focused on market capitalization — that is, weightings are based wholly on size, irrespective of risk — the LVPs we have developed are built with a view to delivering better risk-adjusted outcomes.

TDAM uses optimization techniques and risk models (incorporating standard deviation, correlation, and covariance analysis) to determine the optimal weighting of these stocks in the portfolio and to drive down volatility.

**Portable alpha strategy.** Portable alpha strategies use leverage to enable a portfolio to obtain both exposure to the market (the beta), and a separate absolute return strategy (the alpha) to deliver return from non-correlated assets.

While portable alpha is usually

considered return enhancement for traditional asset classes, it can also be used in LDI as a risk minimizing tool. By shifting some of the equities in the portfolios into bonds, this will serve to increase the matching characteristics of the portfolio without sacrificing the equity risk premium.

**Options overlay.** An options overlay strategy is designed to dampen overall portfolio volatility. It is, in effect, an insurance policy, where a portfolio buys and sells options to protect its down side risk by selling some of its upside potential. Most attractively, the options sold cover the costs of the options purchased. (Currently the TDAM option overlay strategy is only available in segregated solutions.)

Each of these alternatives remain tethered to the core LDI philosophy, while being flexible enough to take advantage of the greater compensated risks on offer. Note that in upcoming FOCUS pieces we will discuss these solutions in far greater depth.

### An alternate way forward

LDI is not a new concept. It has been rising in popularity for several years in the EU — notably in the UK — driven by their more stringent regulations, and followed by the U.S., in particular, after the recession

of 2001/02 where many plans faced substantial liability deficits. American accounting and regulatory changes, many also stemming from the 2001/02 recession, also encouraged the shift to LDI. Some Canadian plans have also adopted these approaches and recent market events have persuaded many others to take another look at LDI.

### A challenging mental adjustment

LDI requires us to revisit our preconceived notions of risk and return in order to achieve the objective of meeting funding liabilities. Viewing the ability to meet plan liabilities as the yardstick of success requires a significant change in most investors' mindsets. As investors, we tend to be mentally and emotionally invested in the game of total returns in the asset-only model. Our default position is to fixate on the performance of various indices and of our peer group.

In the context of LDI, these familiar goalposts are no longer useful tools to judge our success: they are located in a different game with a different objective from the one in which we are playing. Any comparisons are false since their criteria are completely different.

Since most investors have long been focused on traditional benchmarks as a measure of their success, it requires

a critical conceptual shift to judge success in these new terms. A certain amount of education will be required to provide all stakeholders with a comprehensive understanding of, and comfort level with, the new LDI strategy.

### Finding a perfect fit

As a pension plan sponsor, you must determine which strategy is most appropriate based on your specific situation — there is no one-size-fits-all solution. But it is worth the time to find out more about the solutions available under the LDI umbrella: they are many and diverse and offer the flexibility to meet a wide range of needs.

Done effectively, an LDI portfolio can deliver reduced volatility and less liability risk through a good fit between plan liabilities and assets, and a more stable — and positive — funding ratio. As the economy continues to stagnate in a low interest rate, low return, high-volatility environment, it may be time for plan sponsors to consider the possibilities offered by LDI. In these uncertain times, LDI may help to place your plan on a more prudent path to success. ♦

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