TD Global Investment Solutions

Investor Knowledge 10 Minutes

A Transparent, Risk-Aware Approach to Retirement

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Selecting the right target date fund is not just about chasing returns - it's about delivering retirement outcomes that are reliable, resilient and easy to understand.

At TD Asset Management Inc. (TDAM), **Target Date Funds** (TDFs) are built on three principles:

1. **transparency,**
2. **robust risk management,**
3. **thoughtful diversification with meaningful allocation to alternative assets.**

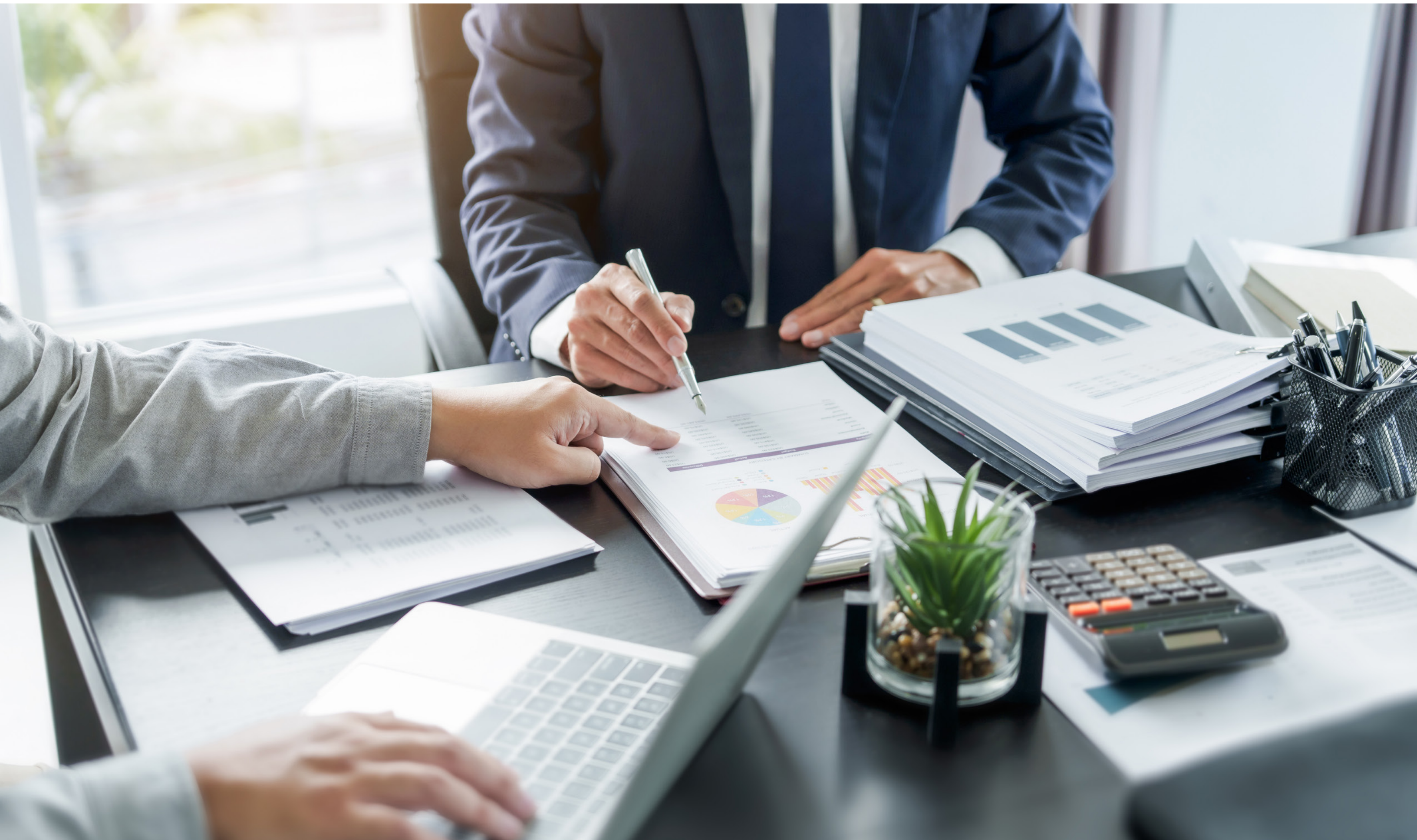
1 A Transparent and Thoughtful Approach

Our glide path design process avoids the pitfalls of unnecessary model complexity. Instead of over-engineered optimization algorithms, we use a parsimonious intuitive approach based on modern portfolio theory and simulation.

We begin by defining a robust set of long-term capital market assumptions that anchor a diversified set of asset classes. Using these inputs, we employ constrained mean-variance optimization to generate a series of portfolios across the efficient frontier. Each portfolio represents a different level of risk-return trade-off, bounded by constraints that ensure liquidity, turnover limits, factor diversification, and the manager's ease of implementation. These efficient portfolios are the building blocks of the glide paths.

By varying the sequencing of these efficient portfolios over time, we can construct glide paths in a variety of shapes. These glide paths are modeled using cubic Bezier curves to maintain smooth transitions, avoiding abrupt shifts in risk levels which often do not produce desirable outcomes in the market and add implementation difficulty. The choice of a parsimonious glide path construction is intentional: it ensures that the resulting glide path is flexible, meaningful and interpretable. Importantly, our glide paths are designed to reflect realistic and sensible investment behaviour. For instance, they allow for equity de-risking as retirement nears but avoid sharp one-year risk reduction that would create timing risk or lead to unnecessary portfolio turnover.

In the glide path selection process, we also try to avoid excessively complex optimization techniques. Typical utility function-based optimization, such as constant relative risk aversion (CRRA), or other recursive utility models are common approaches to fine-tune glide paths based on savers' risk preferences. However, these models require precise estimation of risk aversion parameters, time preference factors and intertemporal substitution elasticities. Even small errors could have a large impact on the results. Take a simple stylized example: mis-estimating the relative risk aversion coefficient by just 0.5 (on a base of 2.0) can shift optimal equity weighting by as much as 10 percentage points. Such parameter uncertainty can easily outweigh the theoretical benefits of the utility framework.



2 A Focus on Tail Risk, Not Just Averages

Our core philosophy is that managing to the median outcome is not enough. Investors are more penalized by poor outcomes than they are rewarded by exceptional ones. That's why our TDF framework puts substantial weight on evaluating how glide paths perform in tail-risk scenarios.

We use a Monte Carlo simulation engine that runs a large number of forward-looking scenarios per glide path. This simulation incorporates both capital market dynamics (expected returns, volatilities and correlations) and investor behaviour modeling (income, savings, spending and government benefits). It allows us to project both wealth accumulation and capital longevity for each glide path.

The performance of a glide path is evaluated across several metrics, such as wealth at retirement and capital longevity (i.e., the age at which assets are depleted). Each metric is measured across the entire distribution of outcomes with a focus on the left tail. Examples include outcomes at the different percentiles of the distribution and conditional Value at Risk (CVaR).

The emphasis on tail performance stems from our belief in diminishing marginal satisfaction with wealth. A retiree who ends up with more money than needed likely gains little extra satisfaction, but a retiree who outlives their savings faces severe hardship. Therefore, we prioritize glide paths that perform best in poor market environments, even if they rank only average under base-case scenarios.

This is not equivalent to dialing back on the risk curve and leaving money on the table. In fact, through simulation, we can see that if investors do not take enough risk, the shortfall in wealth creation at retirement is equally detrimental.

Keeping Humans in the Equation

Models are guides, not rules. Our process deliberately blends quantitative discipline with fundamental insights. For a quantitative model signal to be valid and actionable, it must be underpinned by a coherent fundamental rationale.

Nowadays, one of the most popular buzz words in AI training techniques is Reinforcement Learning from Human Feedback. A glide path modeling process is less of a black box than AI training, but the key lesson is the same – keeping humans in the equation to correct any bias will lead to a more robust outcome. In our process, the results generated from the glide path modeling are not used mechanically and in isolation. Instead, our portfolio managers incorporate them alongside their own market views, proprietary signals and qualitative overlays.

We understand the typical concern: more human discretion could mean less discipline. Indeed, it is harder for frequent tactical shifts to consistently generate value over time. That is why our bar for action is set high. At the same time, we are keenly aware that the models are not always perfect. Because of the way they are built, not all information is fully captured in the model, and this could lead to unintended bias. Following the result without questioning it risks costly mistakes.

For instance, capital market assumptions are the cornerstone of the glide path modeling. In the past several years, the projected return of Canadian equities was routinely higher than U.S. equities, which would suggest a higher allocation in the portfolio. But if we were to rigidly follow the number, the counterfactual outcome would be detrimental. From 2014 to 2024, on average, Canadian equities underperformed U.S. equities by 4.6% annually[1]. Any material Canadian overweight would have severely suppressed the TDF performance.

This underscores why our strategy layers in discretionary overlays and qualitative judgement, rather than mechanically following model forecasts. The world we live in is experiencing large and accelerating structural shifts, including tariffs, fiscal challenges and sticky inflation. The need to keep human judgement in the equation is greater than ever.

[1] Source: Bloomberg Finance L.P. As of December 31, 2024.

3 Differentiated by Alternatives

One of TDAM's advantages is our access to institutional-quality alternative investments, including real estate, infrastructure and private credit. These investments are thoughtfully integrated into our TDF allocations in an effort to improve risk-adjusted outcomes.

Alternative assets play a critical role in our portfolios.

> **Diversification:** With lower correlations to public equity and fixed income, alternatives might provide portfolio resilience during public market drawdowns
>
> **Stable income and inflation protection:** Real assets such as infrastructure and real estate generate contractual cash flows that are indexed to inflation and can potentially help preserve purchasing power
>
> **Access to illiquidity premiums:** Our institutional investment capabilities allow us to tap into private markets that are generally inaccessible to retail-focused TDFs. The long investment horizon of TDFs matches the nature of private assets such as infrastructure and real estate, which enables us to capture the illiquidity premium.

Our alternative allocation is integrated into the optimization process, subject to constraints on liquidity and implementation. We adjust the volatility and correlation of private assets using statistical techniques to avoid artificially low risk capture. The result is a glide path that reflects both strategic diversification and practical real-world limits.

A Disciplined, Client-Centred Philosophy

Our approach to TDF design reflects our goal to improve retirement outcomes for plan members. We value transparency and interpretability over unnecessary complexity, we focus on avoiding the worst outcomes, and we embrace diversity beyond traditional asset classes. While our model provides a structured lens to evaluate options, our portfolio managers retain the flexibility to adjust glide paths to reflect market regime shifts and operational realities, which are often hard to fully capture in a quantitative model. This dual reliance on modeling discipline and professional judgment aims to create a glide path which is not only theoretically sound, but also free of unintended bias and implementable. With a focus on transparency, downside resilience and thoughtful diversification, our funds are engineered to help investors stay on course through the uncertainty of the retirement journey. ■

Resilience

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