TD Global Investment Solutions

Annual Glide Path Update () 15 Minutes





Creating the 2023 Strategic Glide Path

Consistent with the process for the TD Greystone Target Date Plus Funds (the Funds), on an annual basis the glide path is formally examined through the Annual Glide Path Update. This involves running the proprietary TD Asset Management Glide Path Analytics (GPA) to help incorporate any evolutions in available asset classes or funds, long-term asset class assumptions or demographics. The most recent Annual Glide Path Update was conducted in November 2022 and the resulting changes were implemented in January 2023.

Long-Term Asset Class Assumptions

Consistent with the firm-wide approach for multiasset solutions, TD Asset Management Inc. (TDAM) sets its Long-Term Asset Class Assumptions using an objective building block approach for expected returns, and historical quarterly returns for standard deviations and correlations.

TDAM's asset class assumptions are long-term in nature, 7 – 10 years. The strategic asset mix

decisions rely on intermediate and long-term trends rather than attempting to time the business cycle itself. For more information on how long-term asset class assumptions are set, please reference our Methodology paper, which is available upon request. The data in Figure 1 is based on inputs as of September 30, 2022.

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Figure 1: TDAM's Long-Term Asset Class Assumptions for Target Date Plus Funds

Equities		
2023 Annual Assumptions	Expected Return	Standard Deviation
Canadian Core	7.4	14.1
Canadian Low Volatility	7.4	9.8
Global Core	6.2	12.2
Global Income & Growth	6.2	11.4
All Country Low Volatility	6.0	8.8
China A-Shares	8.9	24.8

Fixed Income

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2023 Annual Assumptions	Expected Return	Standard Deviation
Canadian Short Bonds	4.2	2.0
Canadian Universe Bonds	4.2	4.1
Canadian Long Bonds	4.5	7.7
Real Return Bonds	4.0	7.3
High Yield Bonds	6.8	9.5

Alternatives

2023 Annual Assumptions	Expected Return	Standard Deviation
Commercial Mortgages	5.0	2.9
Global Real Estate	5.0	6.9 ¹
Canadian Real Estate	5.2	8.5 ¹
Global Infrastructure	7.2	7.1 ¹

¹We use a de-smoothing technique on the historical returns of real estate and infrastructure to correct for serial correlation. There is no assurance that expected returns will be achieved. Source: TD Asset Management Inc. As of Sep 30, 2022.

In the 2023 Strategic Glide Path, no new asset classes were added as available investments.

Within GPA, the long-term asset class assumptions are used to construct the efficient frontier, which provides the optimal asset mix given a defined standard deviation. Each point along the strategic glide path is then defined by a standard deviation, which corresponds to this efficient frontier.

Canadian Socio-Economic and Demographic Assumptions

Demographic assumptions used by GPA can be broken down to two categories: government-driven assumptions and population-driven demographic assumptions.

Government-Driven Assumptions

Government-driven assumptions are published directly on the Government of Canada or Bank of Canada website and are updated each year through the annual process (Figure 2). All year-over-year changes were higher than historical increases due to inflation, yet in line with expectations.

Figure 2: Government-Driven Assumptions

Metric	2022	2021	Year-over-year Change
Yearly Maximum Pensionable Earnings (YMPE)	64,900	61,600	5.4%
Old Age Security (OAS) (Maximum Payout Amount 65 to 74)	8,226	7,623	7.9%
Old Age Security (OAS) (Maximum Payout Amount 75 and over)	9,049	0	0
Canada Pension Plan (CPP) (Maximum Payout Amount)	15,043	14,445	4.1%
Inflation Target	2.0	2.0	0

Source: Bank of Canada, Government of Canada. As of Sep 30, 2022.

Changes to Old Age Security

TDAM monitors the Canadian landscape for material developments or changes that affect demographic and socioeconomic assumptions.

As of July 2022, seniors aged 75 and started to receive a 10% increase to their OAS pension. Through this year's Annual Glide Path Update, this change was incorporated into TDAM's decumulation assumptions within GPA.

Population-Driven Assumptions

Population-driven demographic assumptions are primarily derived from Statistics Canada's annual surveys or its quadrennial Census of Population. Typically, population-driven assumptions have a lag of 1 or 2 years before they are published. Our approach is to adjust each assumption as needed to help ensure a consistent base year for the data used in GPA.

There were no updates required for TDAM's assumption for Year of Entry and Year of Retirement. The assumption for Starting Salary at Age 25 increased by 5.4% to approximately \$51,500. The assumption for Retirement Expenditure increased by 6.9% to approximately \$70,800. TDAM's assumed contribution rate continues to follow a step pattern and ranges from approximately 10% to 12%.

Strategic Glide Path

The long-term asset class assumptions and demographic and socio-economic assumptions are inputs into GPA for the Strategic Glide Path. TDAM imposes constraints on its Annual Glide Path Update to help ensure that the Strategic Glide Path does not see volatile year-over-year swings between asset classes or individual funds resulting from changes in asset class assumptions (Figure 3).

Strategy	Constraint	Asset Class	Constraint
Canadian Equity	+/- 10%		
Canadian Low Volatility Equity	+/- 10%		
Global Equity	+/- 10%	Equity	+/- 5%
Global Income & Growth Equity	+/- 10%		
China Income & Growth Equity	+/- 10%		
ACWI Low Volatility Equity	+/- 10%		
Short Bonds	+/- 10%		
Universe Bonds	+/- 10%		
Global Unconstrained Bonds	+/- 10%	Fixed Income	+/- 5%
Long Bonds	+/- 10%		
Real Return Bonds	+/- 10%		
High Yield Bonds	+/- 10%		
Private Commercial Mortgages	+/- 2%		
Real Estate ¹	+/- 2%	Alternatives	+/- 5%
Infrastructure	+/- 2%		

Figure 3: Constraints for Year-Over-Year Glide Path Changes

¹ Includes domestic and global real estate. Source: TD Asset Management Inc. As of Sep 30, 2022.

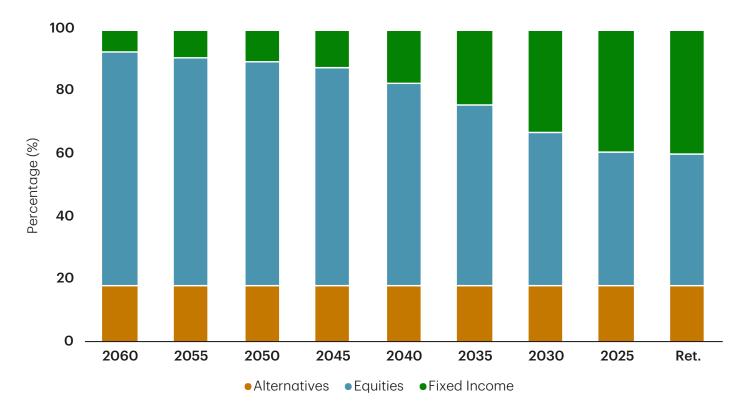
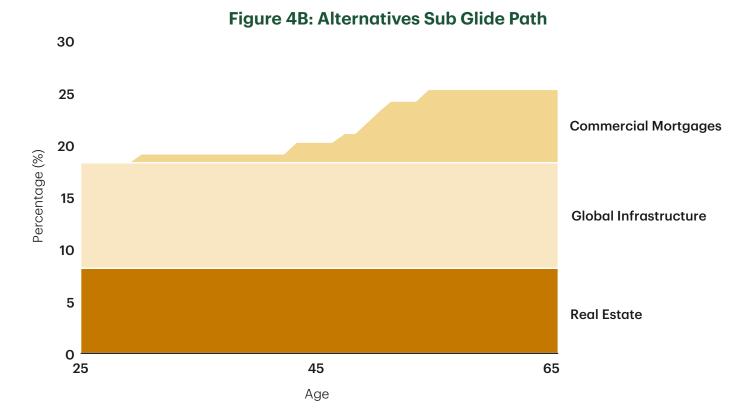


Figure 4A: TD Greystone Target Date Plus Funds - 2023 Strategic Glide Path





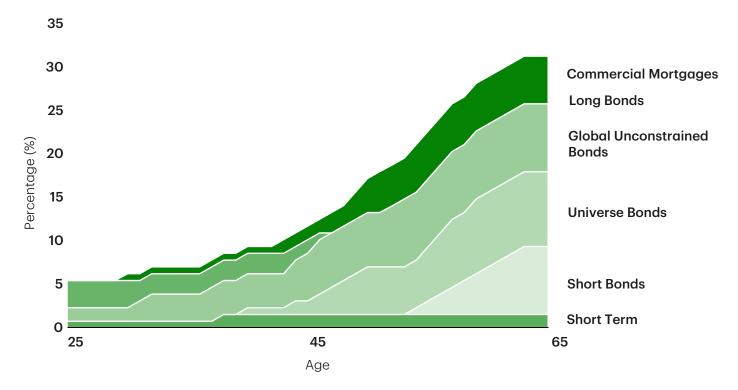
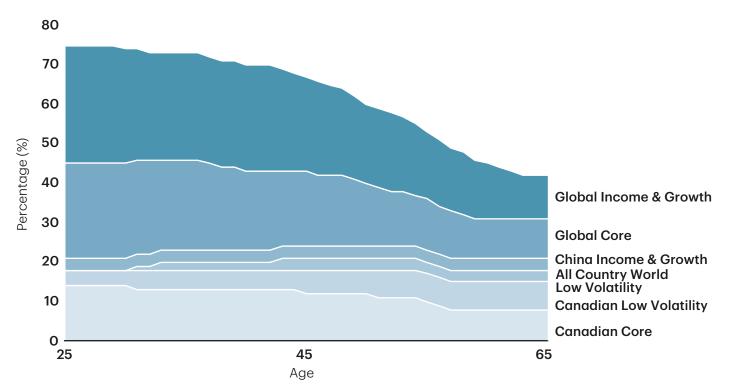


Figure 4D: Public Equities Sub Glide Path



Source: TD Asset Management Inc.. As of Dec 31, 2022. Glide path effective Jan 1, 2023 – Dec 31, 2023

Summary of Changes

Due to worldwide central bank tightening, bond yields increased significantly over the course of 2022, while credit and high yield spreads widened from their lowest levels in 2021. Long-term expected returns for equities increased modestly, but the spread between expected returns for fixed income and equities narrowed. The risk premium for real estate over public markets also decreased. Despite these changes, total portfolio returns remain challenged relative to objectives, and GPA continued to favour equities. As a result, we witnessed the following shifts:

- A modest increase to equity allocations across vintages.
- Within equities, allocations increased to growth/ low volatility strategies and decreased for dividend strategies.

Performance

We are proud of the demonstrated track record of the TD Greystone Target Date Plus Funds. The Funds have demonstrated strong absolute and peer-relative performance since inception. This performance has been achieved with below-median peer-relative

- Within fixed income, inflation-linked bonds were re-allocated to nominal bonds. High yield credit was preferred over investment grade credit, which was implemented through Global Unconstrained Bonds to help preserve liquidity.
- The yield curve structure enabled a decreased bond duration and increased allocation to cash/ short-term investments within shorter dated vintages without sacrificing yield.
- Real estate decreased by 2% due to the narrowing risk premium over public markets. With this reduction in real estate, commercial mortgages increased in shorter dated vintages. The weight to commercial mortgages was reduced in longer dated vintages with the overall decrease in fixed income.

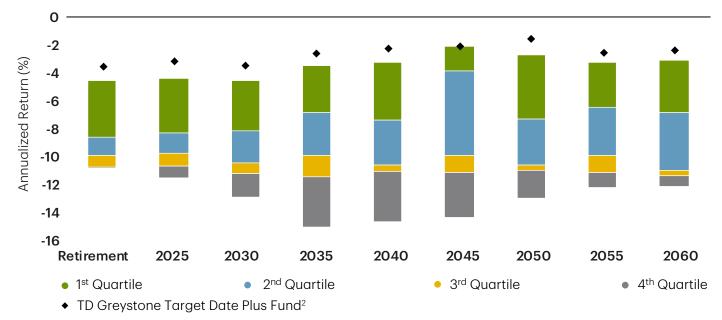
standard deviation, resulting in a high peer-relative Sharpe Ratio. We believe this is particularly relevant as plan members may be subject to behavioural biases triggered by investment volatility, which can negatively impact overall savings.

Annualized Since Returns as of Dec 31, 2022 3 months 1 year 2 years 3 years 4 years 5 years Dec 31-14 **Retirement Plus Fund** 4.61% -3.56% 3.60% 5.04% 6.63% 5.78% 6.30% Benchmark 3.43% -7.58% 0.55% 3.51% 5.35% 4.70% 5.40% Difference 4.01% 1.53% 1.27% 0.89% 1.18% 3.05% 1.08% 2025 Target Date Plus Fund 4.73% -3.25% 3.59% 5.00% 6.73% 5.79% 6.40% Benchmark 3.45% -7.61% 3.50% 5.35% 4.68% 5.44% 0.53% Difference 1.28% 4.36% 3.06% 1.50% 1.38% 1.11% 0.96% 2030 Target Date Plus Fund -3.49% 3.74% 5.09% 7.04% 6.00% 6.72% 5.24% Benchmark 3.89% -7.56% 0.88% 3.76% 5.76% 4.91% 5.77% Difference 1.35% 4.08% 2.86% 1.28% 1.09% 0.96% 1.33% 2035 Target Date Plus Fund 5.82% -2.68% 4.80% 5.80% 7.86% 6.57% 7.53% Benchmark 4.40% -7.30% 1.73% 4.41% 6.50% 5.44% 6.47% Difference 1.42% 4.62% 3.07% 1.39% 1.36% 1.13% 1.06% 2040 Target Date Plus Fund 6.86% -2.36% 6.20% 6.75% 9.16% 7.59% 8.63% 5.71% 7.97% 7.56% Benchmark 5.16% -7.19% 3.17% 6.55% Difference 1.70% 4.83% 3.03% 1.05% 1.19% 1.05% 1.07% 2045 Target Date Plus Fund 7.28% -2.19% 6.86% 7.27% 9.75% 8.05% 9.08% -7.14% 8.58% 7.01% 8.03% Benchmark 5.52% 3.84% 6.24% Difference 1.76% 4.95% 3.02% 1.03% 1.17% 1.03% 1.05% 2050 Target Date Plus Fund -1.65% 7.39% 9.90% 9.27% 7.31% 7.12% 8.14% Benchmark 5.61% -7.04% 4.01% 6.31% 8.74% 7.11% 8.21% 1.16% 1.02% 1.06% Difference 1.70% 5.39% 3.11% 1.08% 2055 Target Date Plus Fund 7.58% -2.63% 6.32% 6.96% 9.48% 7.86% 9.12% Benchmark 8.29% 5.61% -7.04% 4.01% 6.36% 8.79% 7.21% Difference 1.97% 4.41% 2.31% 0.60% 0.68% 0.66% 0.82% 2060 Target Date Plus Fund 8.12% -2.19% 8.66% 7.54% 7.54% 5.98% 6.64% Benchmark -7.37% 4.34% 6.64% _ Difference 2.14% 5.18% 4.32% 0.90% 0.90% _ _

Figure 5: Performance of the TD Greystone Target Date Plus Funds turn

Note: Returns for periods over one year are annualized. Inception of Retirement – 2055 Fund is Jan 1, 2015. Inception of 2060 Fund is Jan 1, 2020. Each Target Date Plus Fund Benchmark is set at the beginning of each quarter based on the target asset mix for the following quarter. Details regarding benchmark mix are available upon request. C\$. Includes cash. Gross of investment management fees; may be subject to rounding.

Figure 6: 2022 Return



eVestment Alliance, LLC - Fund Category: TDF Income Fund - Canadian Universe. Current number of funds in the category:5-7. Note: Each TD Greystone Target Date Plus Fund is compared against Canadian dollar denominated peers within the respective vintage's eVestment peer group. Quartile rankings are intended to measure how well a fund has performed compared to other funds in its peer group. Quartile rankings are compiled by ranking all of the funds in a category by return over a given time period. The top performing 25% of funds in the category are assigned a quartile ranking of 1, the next 25% a 2, the next 25% a 3, and the bottom 25% of funds a 4. Quartile rankings can change over time. Source: eVestment Alliance, LLC. As of Dec 31, 2022. Data pulled Jan 16, 2023.

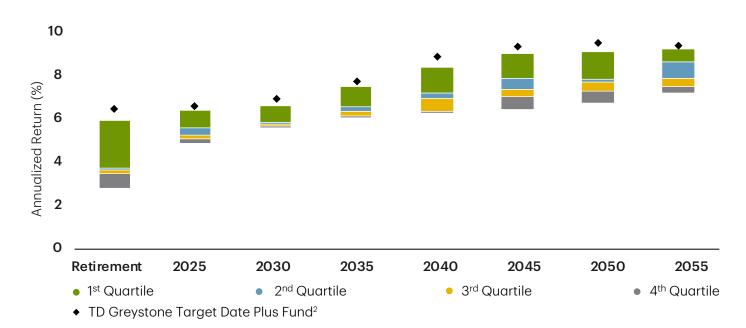


Figure 7: Since Inception Annualized Return

¹ Inception is Jan 1, 2015 (8 years). ² eVestment Alliance, LLC - Fund Category: TDF Income Fund - Canadian Universe. Current number of funds in the category 3-7. Note: Each TD Greystone Target Date Plus Fund is compared against Canadian dollar denominated peers within the respective vintage's eVestment peer group. Quartile rankings are intended to measure how well a fund has performed compared to other funds in its peer group. Quartile rankings are compiled by ranking all of the funds in a category by return over a given time period. The top performing 25% of funds in the category are assigned a quartile ranking of 1, the next 25% a 2, the next 25% a 3, and the bottom 25% of funds a 4. Quartile rankings can change over time. Source: eVestment Alliance, LLC. As of Dec 31, 2022. Data pulled Jan 16, 2023.

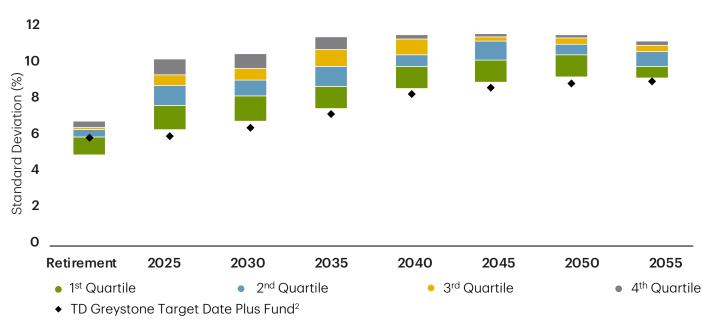


Figure 8: Since Inception Annualized Standard Deviation

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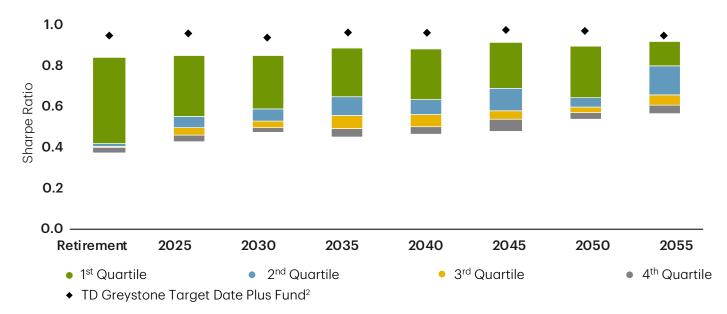


Figure 9: Since Inception Annualized Sharpe Ratio

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Numbers may not add due to rounding.

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Sharpe Measure is a ratio of returns generated by the fund, over and above the risk-free rate of return and the total risk associated with it and can change monthly. A high and positive ratio shows superior performance and a low and negative ratio is an indication of unfavourable performance.

Standard deviation is a statistical measure of the range of a fund's performance. When a fund has a high standard deviation, its range of performance has been very wide, indicating that there is a greater potential for volatility than those with low standard deviations.

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