The Impact of Higher Interest Rates and Arbitrage Rebate Considerations on Bond Proceeds Investment Strategies

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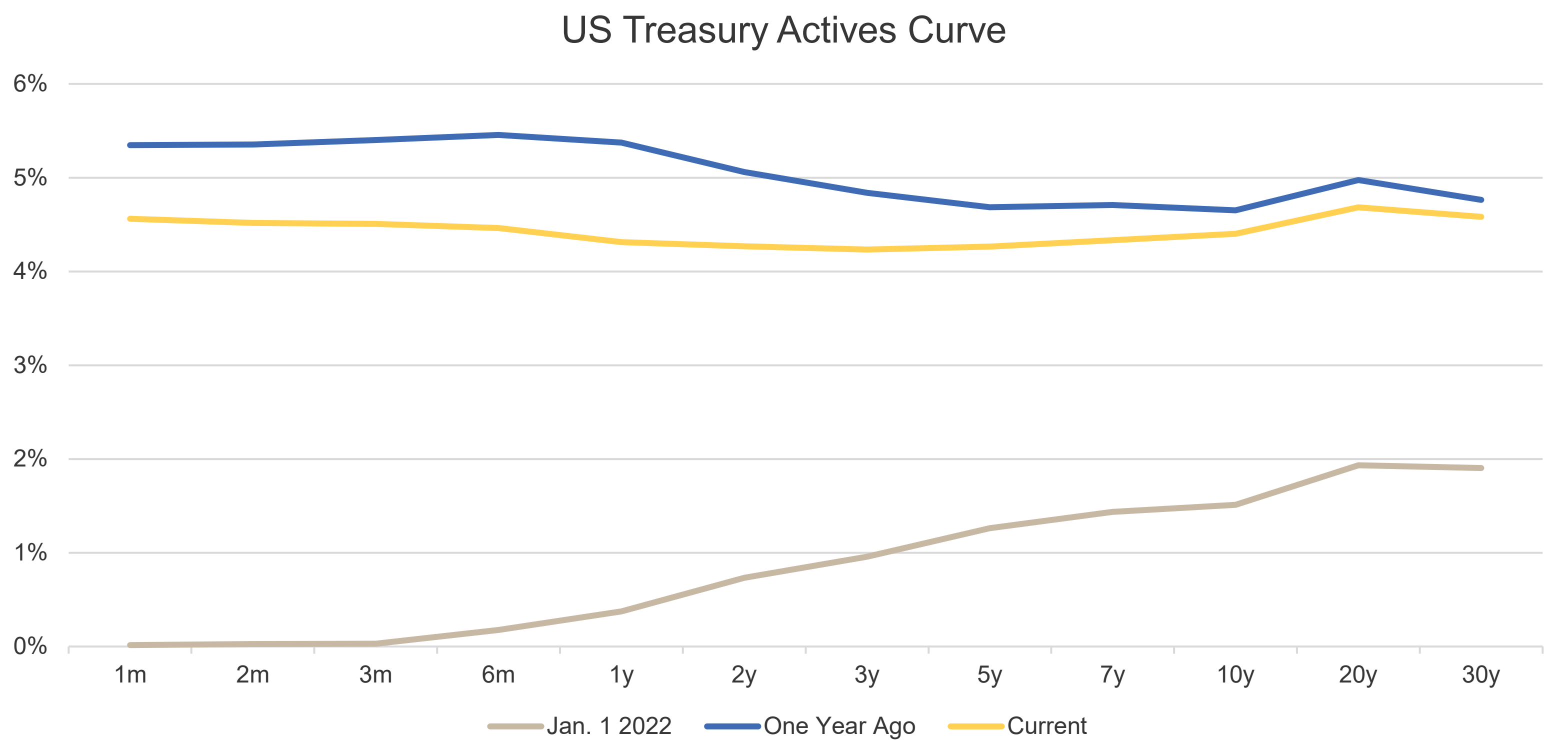
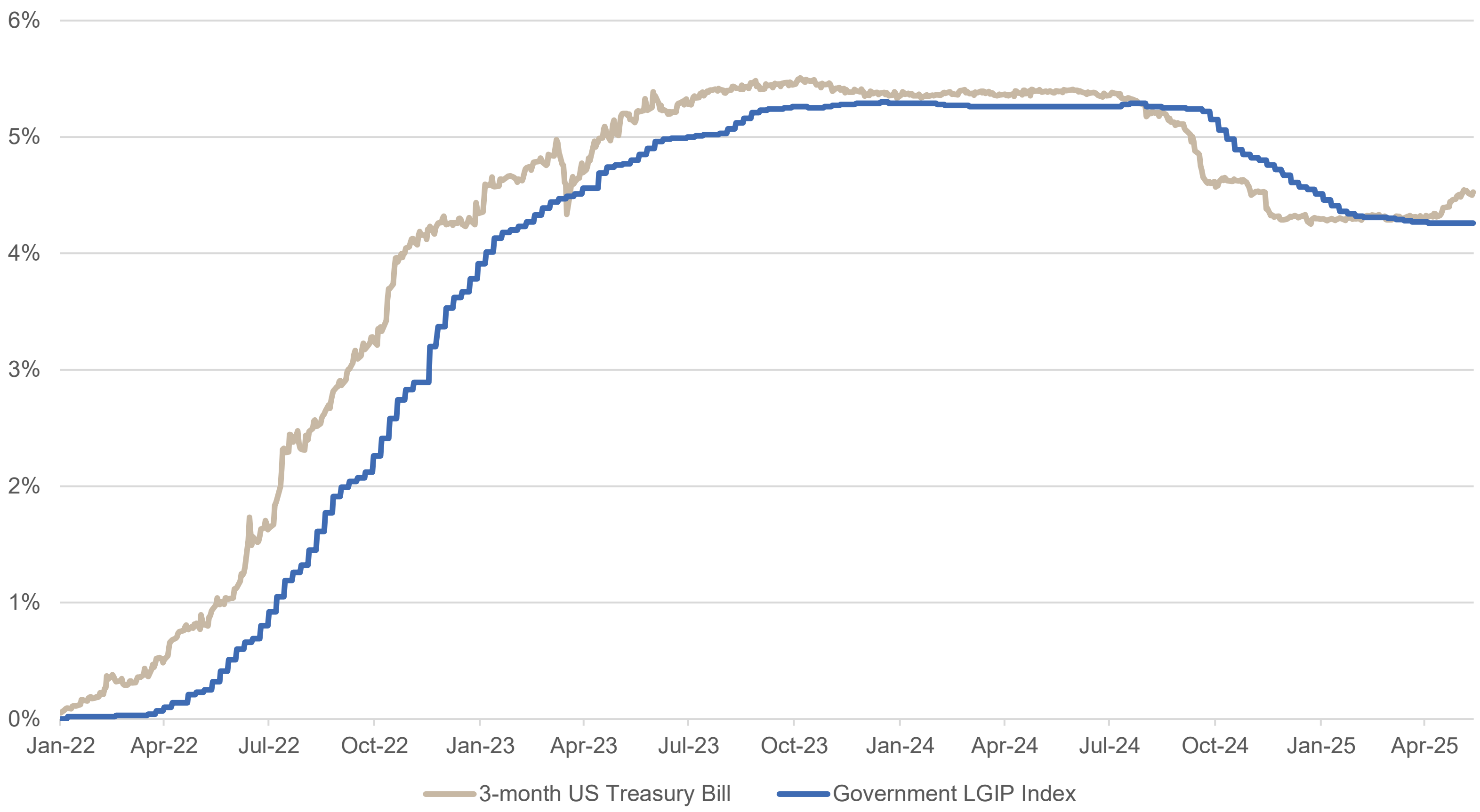
Overview of the Current Interest Rate Environment

- While interest rates have dropped over the past year, they are still quite high
- As of January 1, 2022, short-term rates were essentially zero, and the yield curve was upward sloping (normal)



All yields sourced from Bloomberg and based upon market conditions as of May 13, 2025.

Short-Term U.S. Treasuries vs Government LGIP Index



Bond Proceeds Investments in a High-Interest Rate Environment

- Bond proceeds accounts differ in a wide variety of ways including:
  - Purpose of the fund
  - Length of time needed
  - Arbitrage rebate and yield restriction considerations

Account	Typical Fund Maturity	Typical Duration	Investment Yields	Arbitrage Condition
Bona Fide Debt Service Fund	Up to 40 Years	.083 to 1	4.14% to 4.16%	No Rebate Restrictions
Current Refunding Escrow	90 Days or less	Less than .25	4.17% to 4.29%	No Rebate Restrictions
Construction/Project Fund	1 to 3 Years	1 to 3	4.04% to 4.14%	Potentially No Rebate Restrictions
Debt Service Reserve Fund	Up to 40 Years	1 to 5	4.14% to 4.17%	Subject to Arbitrage Rebate
Cash Defeasance Escrow	Up to 10 Years	.083 to 10	4.16% to 4.54%	Subject to Arbitrage Rebate & Yield Restriction
Long-Term Sinking Fund	Up to 40 Years	.083 to 20	4.16% to 5.05%	Subject to Arbitrage Rebate & Yield Restriction

All yields sourced from Bloomberg and assume Treasury investments based upon market conditions as of May 14, 2025.

Poll Question #1

- Money market funds and local government investment pools tend to lag the yield trends of short-term Treasury securities.

  A. True

  B. False

Poll Question #1

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  A. True

  B. False

Arbitrage Rebate

Arbitrage Basics

- Arbitrage rebate requirements apply to every tax-exempt borrowing and certain taxable subsidy obligations
- To get your positive arbitrage percent: actual investment earnings yield (-) average borrowing rate (aka, your arbitrage yield)
- Arbitrage rebate liability:
  - Earnings of bond proceeds invested in taxable securities less (-) earnings of bond proceeds invested at the arbitrage yield
    - **Positive arbitrage**: actual earnings are **greater than** your arbitrage yield
    - **Negative arbitrage**: actual earnings are **less than** your arbitrage yield
- Measured on an issue-by-issue basis
- Arbitrage rebate begins on the issue date

Exceptions to Arbitrage Rebate

- **The Small Issuer Exception**
  - $5 million of governmental bonds for municipalities, per calendar year
  - $15 million for public school construction, per calendar year
  - Must have general taxing powers, non-private activities bonds, at least 95% of the proceeds used for local gov't
- **The Spending Exceptions (*more info on following slide*)**
  - 6-month spending exception
  - 18-month spending exception
  - 2-year spending exception (most commonly used)
- **Bona Fide Debt Service Fund Exception**
  - Depleted at least annually except for the greater of i) previous year's earnings in the fund, or ii) 1/12th of previous year's principal and interest payments
- Electing to pay the 1.5% penalty in lieu of rebate
- Investing in tax-exempt obligations such as demand deposit SLGS (eliminating the "arbitrage")

Source: Treasury Regulations Section 1.148-7.

Spending Exceptions – Very Important With High Interest Rates

- **"Reward"** for spending bond proceeds quickly
- Allowed to keep positive arbitrage
- Simple way to establish compliance (no future value, no yields)
- Must meet each benchmark - no catch-up allowed

* Exception for 5% of the proceeds of the issue if spent within one year

** De minimis (lesser of 3% or $250K) and reasonable retainage (5% spent in 12 months) exceptions may apply for last benchmark

6-Month		18-Month		2-Year (ACP)	
All gross proceeds		All new money		Construction issues	
✓ 6 months	100% *	✓ 6 months	15%	✓ 6 months	10%
		✓ 12 months	60%	✓ 12 months	45%
		✓ 18 months	100% **	✓ 18 months	75%
				✓ 24 months	100% **

Source: *Treasury Regulations Section 1.148-7*.

Poll Question #2

- Which of the following is not an exception from arbitrage rebate?
  A. Small issuer exception
  B. Two-year spending exception
  C. Saving exception
  D. Bona fide debt service exception

Poll Question #2

- Which of the following is not an exception from arbitrage rebate?

  A. Small issuer exception

  B. Two-year spending exception

  C. Saving exception

  D. Bona fide debt service exception

Demand Deposit SLGS – Exempt from Arbitrage Regulations

- Demand Deposit SLGS are one-day certificates of indebtedness that pay interest based on a floating rate and **are exempt from arbitrage rebate and yield restriction**
- **Arbitrage rebate and yield restriction are two different calculations**
- Demand Deposit SLGS offer a unique investment opportunity due to the current high interest yield environment
  - The yield on the Demand Deposit SLGS is currently 3.40%, which is significantly higher than historical norms
  - The yield is higher than many tax-exempt bond arbitrage yields related to issuances from the past several years
  - As a result, an opportunity exists for issuers to earn and retain positive arbitrage by utilizing these securities

Market conditions as of May 19, 2025.
Does not represent tax or legal advice – always consult arbitrage rebate agent and legal team for guidance.

General Portfolio Structuring Considerations

Overview of Fixed Income Portfolios for Bond Proceeds

- **Gross vs Net Funding**
  - Net funding will help to lower financing costs, particularly in a higher interest rate environment.
- **Asset-liability Matching**
  - As a best practice, the Government Finance Officers Association (GFOA) recommends cash flow requirements are matched with investment maturities.[1]
- **Reinvestment Risk**
  - Money market funds and local government investment pools provide variable rates of return that may drop substantially if interest rates trend lower.
- **Budgetary Certainty**
  - Purchasing a portfolio of securities locks in earnings over an extended period of time.
- **Arbitrage Rebate and Yield Restriction**
  - Consider IRS rules regarding spending exceptions to arbitrage rebate, temporary periods, blending across different funds, and other factors that may impact retainable earnings.

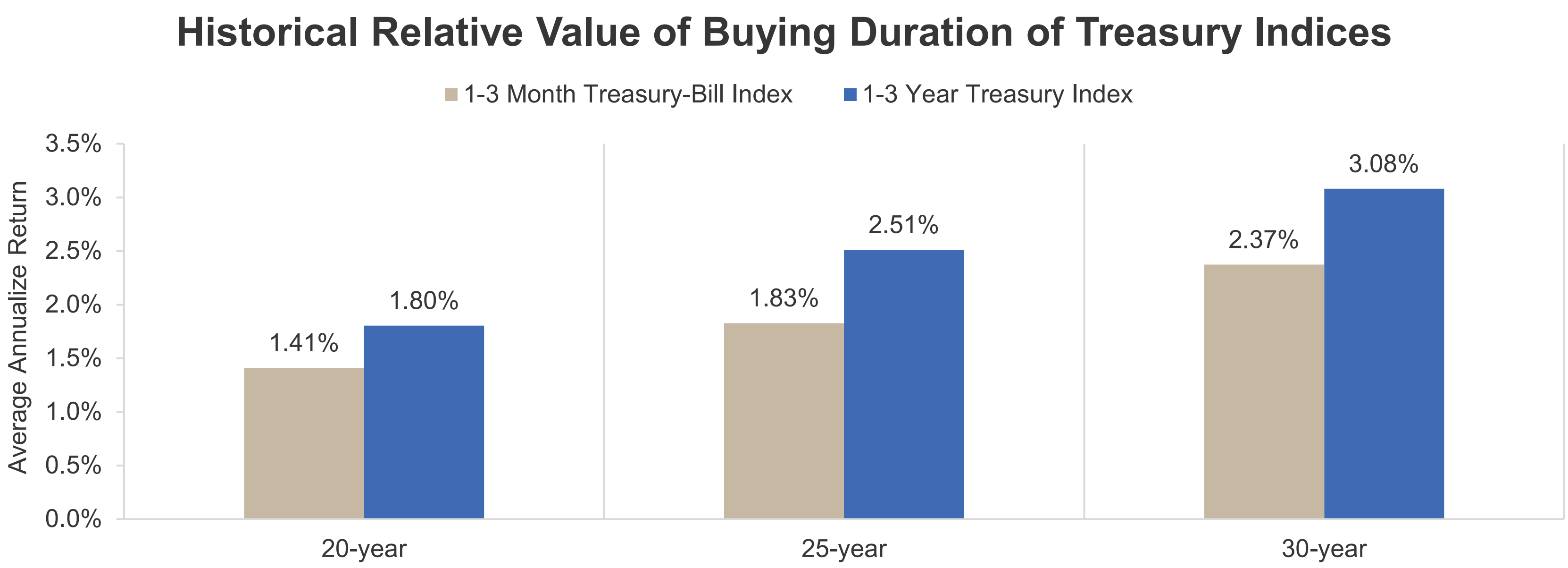
[1] (March 4, 2022). *Best Practices Investment of Management of Bond Proceeds.* GFOA. https://www.gfoa.org/materials/investment-and-management-of-bond-proceeds.

General Goals For Bond Proceeds Investments

- Main Factors
  - Safety
  - Liquidity
  - Yield
- What else is important?
  - Budgetary certainty
  - Complexity and ongoing administration
  - Fees and other transaction costs

Why Invest Out the Curve Instead of Keeping All Funds Very Liquid?

- Historical data indicates that buying long duration, relative to short, yields better return on an average annualized basis
- Below is a graphical representation of the performance of two indices: one with modest duration similar to a project fund (*1-3 year US Treasury Index*) and one with very short duration (*1-3 month US T-Bills Index*) over a 20-, 25-, and 30- year horizon



Source: Bloomberg U.S. Treasury: 1-3 Y (LT01TRUU Index) and U.S. Treasury Bills: 1-3 M (LD12TRUU Index).
Past performance does not necessarily reflect and is not a guaranty of future results.
Short-term market volatility can produce substantially different results.
Analysis of shorter time horizons omitted from the chart because a substantial rise in interest rates skews the results.

Why Might A One-Time Procurement Make Sense?

- **Active Managers Often Aren't Adding Value**
  - Many fixed income (FI) managers claim to outperform the market, but most of their returns just come from taking on common risks that anyone can access without paying for an active manager.[1]
- **Paying for Something You Could Get for Less**
  - Investors often pay high fees to active managers, but these managers might just be giving them the same type of returns they could get through a cheaper, passive approach.[2]
- **Outperformance Might Be Misleading**
  - It's not as easy as it seems for active managers to consistently beat the market, and when they do, it's often because they're taking on more risk than being more skillful.[3]
- **Losing the Safety Net**
  - By investing in riskier parts of the bond market, investors can end up with portfolios that behave too much like stocks, which defeats the purpose of owning bonds for safety and diversification.[1]
- **Research Supports Passive Strategies**
  - Studies suggest that passive strategies, which follow the market rather than try to beat it, often make more sense. They provide access to market returns without the high costs and risks of active management.[3]

[1] *Mattu, R., M. Devarajan, S. Sapra, and D. Nikalaichyk. 2016. "Fixed Income Manager Selection: Beware of Biases." PIMCO Quantitative Research.*
[2] *Asness, C., A. Ilmanen, R. Israel, and T. Moskowitz. 2015. "Investing with Style." Journal of Investment Management 13: 27–63.*
[3] *Brooks, J., T. Gould, and S. Richardson. 2020. "Active Fixed Income Illusions." Journal of Fixed Income: 5–19.*

Passive Portfolio Strategies

Project Funds

Project Funds

- A detailed and comprehensive draw schedule should be developed concurrent with the bond issue
- Key questions to consider include:
  - How large and complex is the project?
  - Are there substantial risks related to materials, contractors, weather events, or other factors that could cause substantial delays? If so, has the draw schedule been adjusted to reflect these risks?
  - Are there any remaining hurdles with permits or other required approvals that could delay the start of the project?
  - Is there any cushion for unexpected cost overruns?
    - How much does budgetary certainty matter (reliance on interest earnings to fund project costs)?
    - How much extra liquidity is appropriate to accommodate potential changes in the draw schedule?

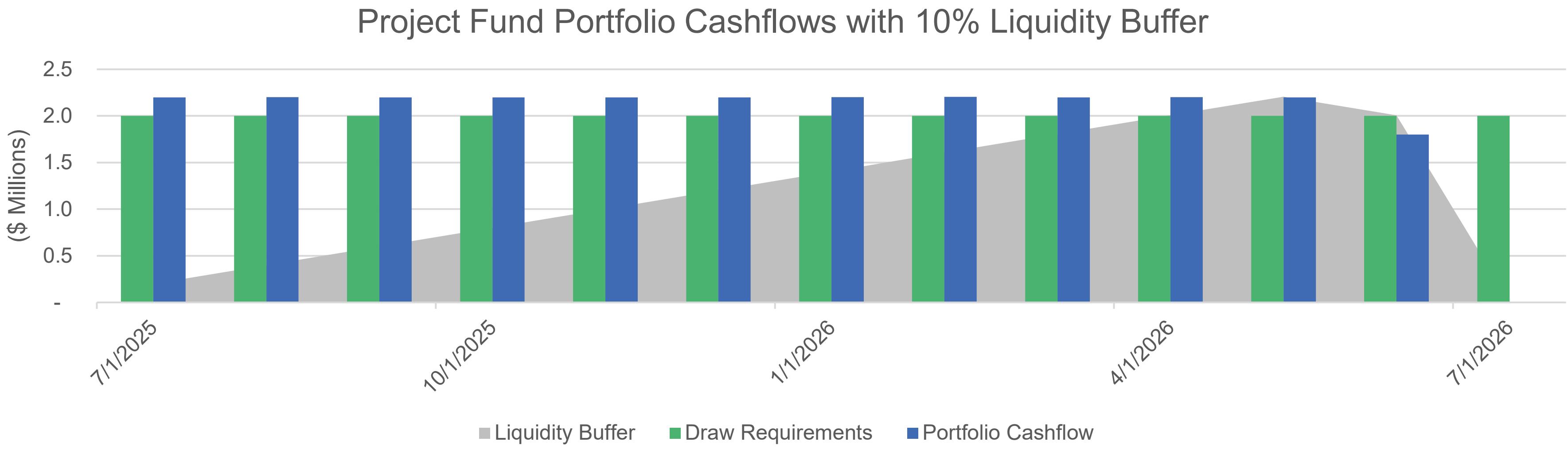
Project Fund Sample Portfolio – U.S. Treasuries & SLGS

Portfolio Statistics

Invested Amount	$25,423,718
Portfolio Duration [1]	0.522 years
Net Yield [2, 3]	4.094%
Net Earnings (Proj.)	$620,169

Strategy Overview

- $26 million draw schedule
- Money market fund used as liquidity vehicle for idle balances – yield assumed to be 4.08%
- 10% liquidity buffer



All yields sourced from Bloomberg and based upon market conditions as of May 16, 2025.
Net yield and net earnings include PFM fee for structuring and procurement of a portfolio.
[1] Portfolio duration is based on securities only.
[2] Includes earnings based on estimated MMF yield, decreasing over time aligned with Fed Funds Futures, for idle balances (liquidity buffer).
[3] Yield calculated on a 30/360 basis with semi-annual compounding.

Project Fund Sensitivity Analysis

- The below sensitivity analysis provides a comparison of locking in a portfolio of Treasuries relative to investing in a money market fund or local government investment pool
- **Base Case:** Assumes the MMF yield follows current market expectations for Fed cuts
- **Scenario 1:** Assumes the MMF yield is held constant throughout the entirety of the project fund
- **Scenario 2:** Assumes the Fed aggressively cuts rates such that the MMF yield falls to 2% by January of 2026

Base Case - Portfolio (MMF follows market expectations)	
Total Portfolio Cost	$25,423,718
Interest Earnings	$620,169
Net Yield	4.094%

Scenario 1 - Portfolio (MMF yield is held constant)	
Total Portfolio Cost	$25,423,718
Interest Earnings	$628,993
Net Yield	4.152%

Scenario 2 - Portfolio (MMF falls to 2% by start of 2026)	
Total Portfolio Cost	$25,423,718
Interest Earnings	$604,580
Net Yield	3.991%

Base Case – MMF Only (MMF follows market expectations)	
Total Portfolio Cost	$25,423,718
Interest Earnings	$559,198
Net Yield	3.761%

Scenario 1 – MMF Only (MMF yield is held constant)	
Total Portfolio Cost	$25,423,718
Interest Earnings	$616,498
Net Yield	4.139%

Scenario 2 – MMF Only (MMF falls to 2% by start of 2026)	
Total Portfolio Cost	$25,423,718
Interest Earnings	$439,136
Net Yield	2.964%

Preliminary, subject to change based on market conditions.
Net yield and net earnings include PFM fee for structuring and procurement of a portfolio.
All yields sourced from Bloomberg and based upon market conditions as of May 16, 2025.
Includes earnings based on estimated MMF yield.
Yield calculated on a 30/360 basis with semi-annual compounding.

Debt Service Reserve Funds

Debt Service Reserve Funds

- Unique challenge because funds are designed to be set aside for life of bond issue but may need to be drawn earlier in the event of a shortfall.
  - Should we think of this as a short-term or long-term investment?
- Willingness and ability to take risk must both be considered.
  - How is the reserve valued and at what frequency?
  - How risky is the project, and what stage is it in?
  - How strong is debt service coverage for the project?
  - Does the issuer value budgetary certainty or have a bias on the trajectory of interest rates?
  - Is a refunding being considered in the near term that would require a liquidation?
  - Is it appropriate to take credit risk inside of a debt service reserve fund?

Breakeven Analysis – Debt Service Reserve Funds

- Forward curve analysis allows the client to compare where rates will need to be in the future to be indifferent today.
- Below is an example for a 5-year investment horizon. The yields are color-coded to corresponding highlight where rates would need to be for the client to breakeven against a 5-year UST today.

5 Year Investment Strategy

U.S. Treasury	Current yield	1 year from now	2 years from now	3 years from now	4 years from now
1-year	4.01%	3.67%	3.81%	4.12%	4.13%
2-year	3.84%	3.74%	3.96%	4.13%	
3-year	3.83%	3.86%	4.02%		
4-year	3.90%	3.92%			
5-year	3.94%				

Market Value Sensitivity Analysis – Debt Service Reserve Funds

2-year U.S. Treasury Note[1]		
Change in Yield	**Value**	**Difference**
- 100 bps	$10,191,132	$191,132
- 50 bps	$10,095,101	$95,101
-	$10,000,000	$ -
+ 50 bps	$9,905,815	$(94,185)
+100 bps	$9,812,533	$(187,467)

[1] *Yield of 3.834% and duration of 1.89 as of May 5, 2025.*

3-year U.S. Treasury Note[2]		
Change in Yield	**Value**	**Difference**
- 100 bps	$10,279,557	$279,557
- 50 bps	$10,138,762	$138,762
-	$10,000,000	$ -
+ 50 bps	$9,863,234	$(136,766)
+100 bps	$9,728,428	$(271,572)

[2] *Yield of 3.819% and duration of 2.76 as of May 5, 2025.*

4-year U.S. Treasury Note[3]		
Change in Yield	**Value**	**Difference**
- 100 bps	$10,368,834	$368,834
- 50 bps	$10,182,591	$182,591
-	$10,000,000	$ -
+ 50 bps	$9,820,980	$(179,020)
+100 bps	$9,645,452	$(354,548)

[3] *Yield of 3.883% and duration of 3.62 as of May 5, 2025.*

5-year U.S. Treasury Note[4]		
Change in Yield	**Value**	**Difference**
- 100 bps	$10,460,147	$460,147
- 50 bps	$10,227,215	$227,215
-	$10,000,000	$ -
+ 50 bps	$9,778,349	$(221,651)
+100 bps	$9,562,115	$(437,885)

[4] *Yield of 3.931% and duration of 4.49 as of May 5, 2025.*

All yields sourced from Bloomberg and based upon market conditions as of May 5, 2025.

Hypothetical Analysis for Debt Service Reserve Funds at Valuation Date

Security	2-year T-Note	3-year T-Note	4-year T-Note	5-year T-Note
Purchase Date	5/6/2025	5/6/2025	5/6/2025	5/6/2025
DSRF Amount	$19,983,515	$19,983,515	$19,983,515	$19,983,515
Par Amount	$20,015,000	$20,021,000	$19,455,000	$20,034,000
Price	99.840	99.809	102.715	99.746
Coupon	3.750%	3.750%	4.625%	3.875%
Yield	**3.834%**	**3.819%**	**3.883%**	**3.931%**
Annual Coupon Payments [1]	$750,563	$750,788	$899,794	$776,318
Valuation Date	5/6/2026	5/6/2026	5/6/2026	5/6/2026
Remaining Life	1 year	2 years	3 years	4 years
Breakeven Yield [2]	**7.958%**	**5.925%**	**5.325%**	**5.031%**

All yields sourced from Bloomberg and based upon market conditions as of May 5, 2025.

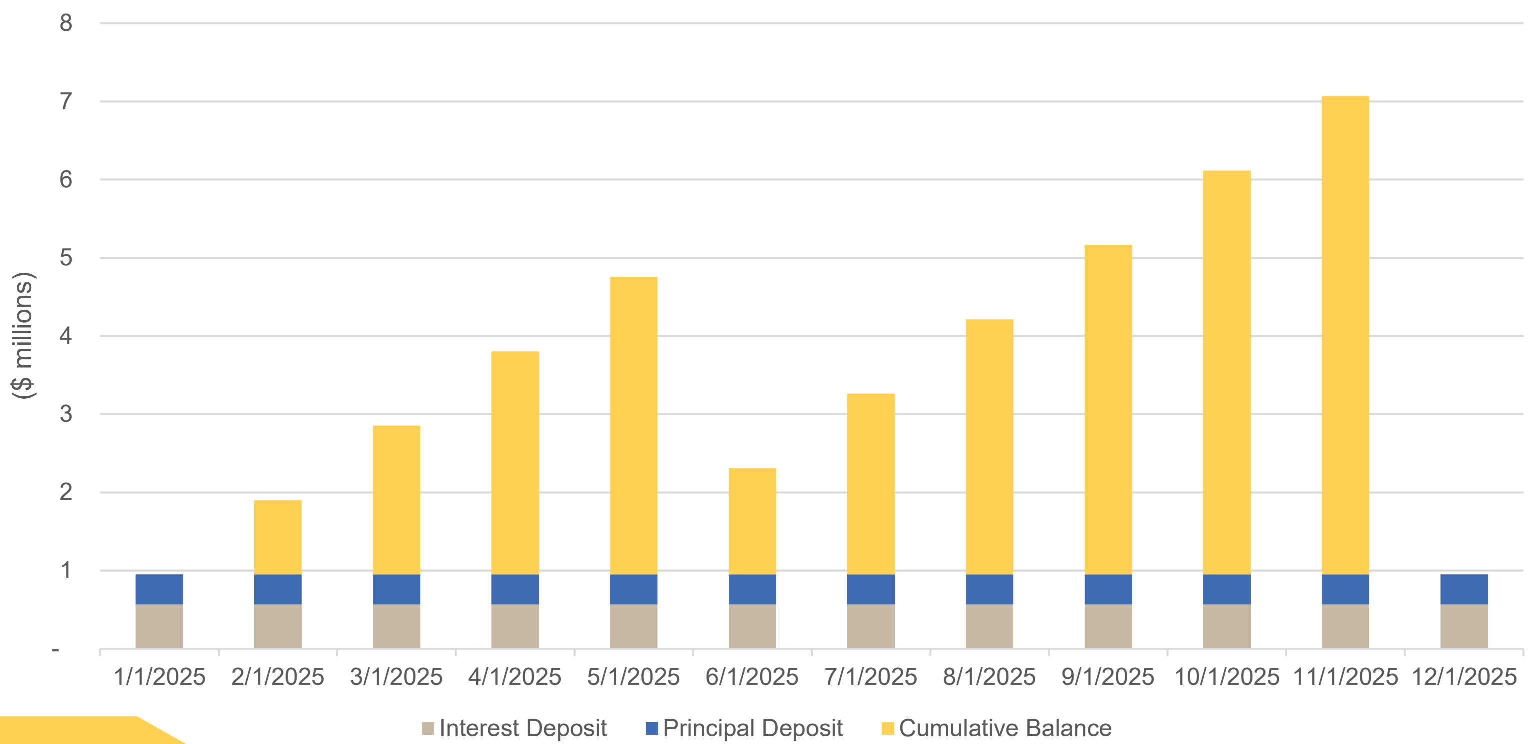
[1] Coupon payments vary based upon the characteristics of each security, and the yield of each security is realized over time through a combination of coupon payments and price amortization to par.

[2] Yield at which market value loss on security offsets income earned over the course of one year.

Debt Service Funds

Debt Service Funds

- 1/6th of interest payments and 1/12th of principal payments are deposited monthly into a debt service fund to meet required debt service payments.
- Often invested in a liquidity vehicle but securities purchases also an option – what has value?
- Managing the cash flows to maintain bona fide debt service fund status can be very valuable.



Earnings calculated from Treasury yields sourced from Bloomberg and based upon market conditions as of November 12, 2024.

Structured Investments

Structured Investments Landscape

- **Uncollateralized Guaranteed Investment Contracts (GICs)**
  - Unsecured pledge to pay principal and interest on investment; historically provided by insurance companies or banks
- **Collateralized Guaranteed Investment Contracts**
  - Referred to as Collateralized GICs – pledge to repay principal and interest is secured by collateral posted to a third-party custodian
- **Repurchase Agreements**
  - Referred to as Repo, Flex Repo, Term Repo – agreement to purchase securities and resell back to counterparty in the future at a guaranteed yield; typically provided by broker-dealers and banks
- **Forward Delivery Agreements (FDAs)**
  - Referred to as Forward Purchase (Purchase and Sale) Agreements (FPAs) – agreement stipulating the outright purchase of securities from a counterparty through time; typically provided by broker-dealers and banks
- Counterparties (“providers”) vary depending on agreement type

Structured Investments – Important Considerations

- **Different structures have different risks**
  - Credit risk and concentration risk
  - Bankruptcy treatment
- **Bidding regulations**
  - Meeting the safe harbor rules requires procurement of 3 disinterested bids – in the current market, this may be a challenge
    - Can you and your legal team get comfortable with being outside of the safe harbor?
- **Arbitrage rebate implications**
  - Carefully evaluate risk/return dynamics of investment along with corresponding tax risk

Poll Question #3

- Which of the following is an important consideration of structured investments?

  A. Safe harbor rules and your ability to meet them

  B. Tax risk

  C. Credit risk and concentration risk

  D. All of the above

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  A. Safe harbor rules and your ability to meet them

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Questions/Discussion

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