pfm asset management

Four Pillars of Local Government Investing

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Agenda

- Investment Policy Development
- Short-Term Investments
- Long-Term Investments
- Bond Proceeds

Developing an Investment Policy

Building Blocks for a Strong Investment Program

How do we communicate results?	Communication, Reporting & Benchmarks
How should we implement our strategy?	Strategy Execution
How much/how should we invest?	Strategy Development *Cash Flow Analysis and Investment Policy*
What is our return objective and our risk tolerance?	Goals and Objectives

Developing a Strong Investment Policy

- An Investment Policy should be structured to place the highest priority on the:
  - Safety of principal
  - Liquidity of funds
- The optimization of returns shall be secondary (yet important—maximize earnings through diversification
- Compliance with legal restrictions/regulations
- Flexibility/Simplicity
- Provides a roadmap during periods of volatility

Investment Policy Best Practices

- ✓ Update language to meet current industry standards and best practices
- ✓ Update language to conform to current Code requirements
- ✓ Revaluate use of different investment sectors
- ✓ Reevaluate maturity limits
- ✓ Incorporate diversification and maturity standards
- ✓ Strengthen controls
- ✓ Establish an appropriate benchmark

Investment Policy

- Scope of the Policy
- Investment Objectives
- Responsibility
- Standard of Prudence
- Internal Controls
- Permitted Investments
- Maximum Maturities
- Diversification
- Use of Derivatives
- Competitive Selection of Investment Instruments
- Portfolio Trading
- Safekeeping and Custody
- Performance Benchmarks
- Selection of Depositories
- Selection of Brokers/Dealers
- Reporting Requirements
- Investment Policy Adoption

Responsibility

- Explicit delegation of authority to investment officer
- Investment Committee
  - Define role
  - Name members
  - List Responsibilities

Permitted Investments

- Define general universe
- Consider capabilities of investment staff
- Specific security limitations
  - Term
  - Credit Quality
  - Collateral Requirements
- Restrictive clauses

Permitted Investments in PA

- U.S. Government Securities
- Federal Agency or Instrumentality
- PA General Obligation Municipal Bonds
- Bank deposits and Certificates of Deposit (CDs), FDIC-insured or collateralized under Act 72
- Commercial Paper
- Negotiable Certificates of Deposit
- Bankers' Acceptances
- Repurchase Agreements
- Government and Prime Money Market Funds
- Local Government Investment Pools

Permitted investments under relevant Pennsylvania statutes, as supplemented by Act 10 of 2016 (i.e., the First Class Township Code, Second Class Township Code, Borough Code, City Code, Third Class City Code, County Code, Second Class County Code, and the Public School Code of 1949). Please see the appendix at the end of the presentation for additional information.

Maximum Maturities

- By type of security
- By type of fund
  - Operating Funds
  - Reserve/Core
- Average maturity of portfolio

Diversification

- Purpose: to reduce overall portfolio risks while attaining a market average rate of return
- Set limits on
  - Specific asset classes
  - Holdings of one issuer
  - Concentration in a specific maturity sector
  - Illiquid securities

Competitive Selection of Investments/Trading

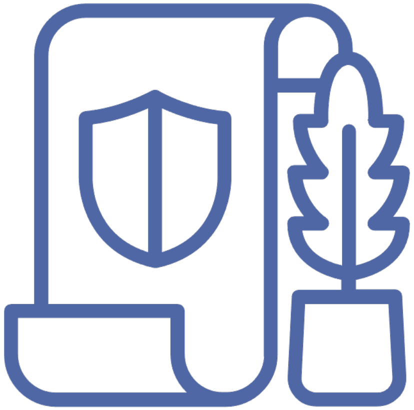
- Bidding requirements
- Reporting/recordkeeping
- Policy regarding portfolio trading

Selection of Trading Partners

- Screen out institutions that:
  - Lack economic viability
  - Have records of criminal activity
- Formal approval process
  - Review of financials
  - Questionnaire
  - Acknowledge receipt of investment policy
  - Designation by Investment Committee
- Ongoing review process

Security Safekeeping/Control

- Define safekeeping requirements
  - Third party
  - Delivery versus payment
- Collateralization of deposits



Reporting Requirements

- Frequency
- Content
- Performance Measurement
- Regular versus Emergency

Image Source: https://blogs.cfainstitute.org/marketintegrity/2016/09/01/the-role-of-data-and-technology-in-transforming-financial-reporting/

Short-Term Investments

Roles of the Treasurer/Finance Director

Funds Management

Banking System Administration

Liquidity Management

Forecasting

Investment of Public Funds

Liquidity

Why Does a Government Need Liquidity?

- Cash inflows are not synchronized with disbursements
- Unpredictable disbursements
- Forecasts of revenue and expenditures may not be accurate
- Emergencies
- Maintenance of strong credit ratings

Sources of Liquidity

- Cash
- Tax receipts
- User fees
- Unused short-term borrowing capacity
- **Readily marketable short-term investments**

How Much Liquidity is Enough?

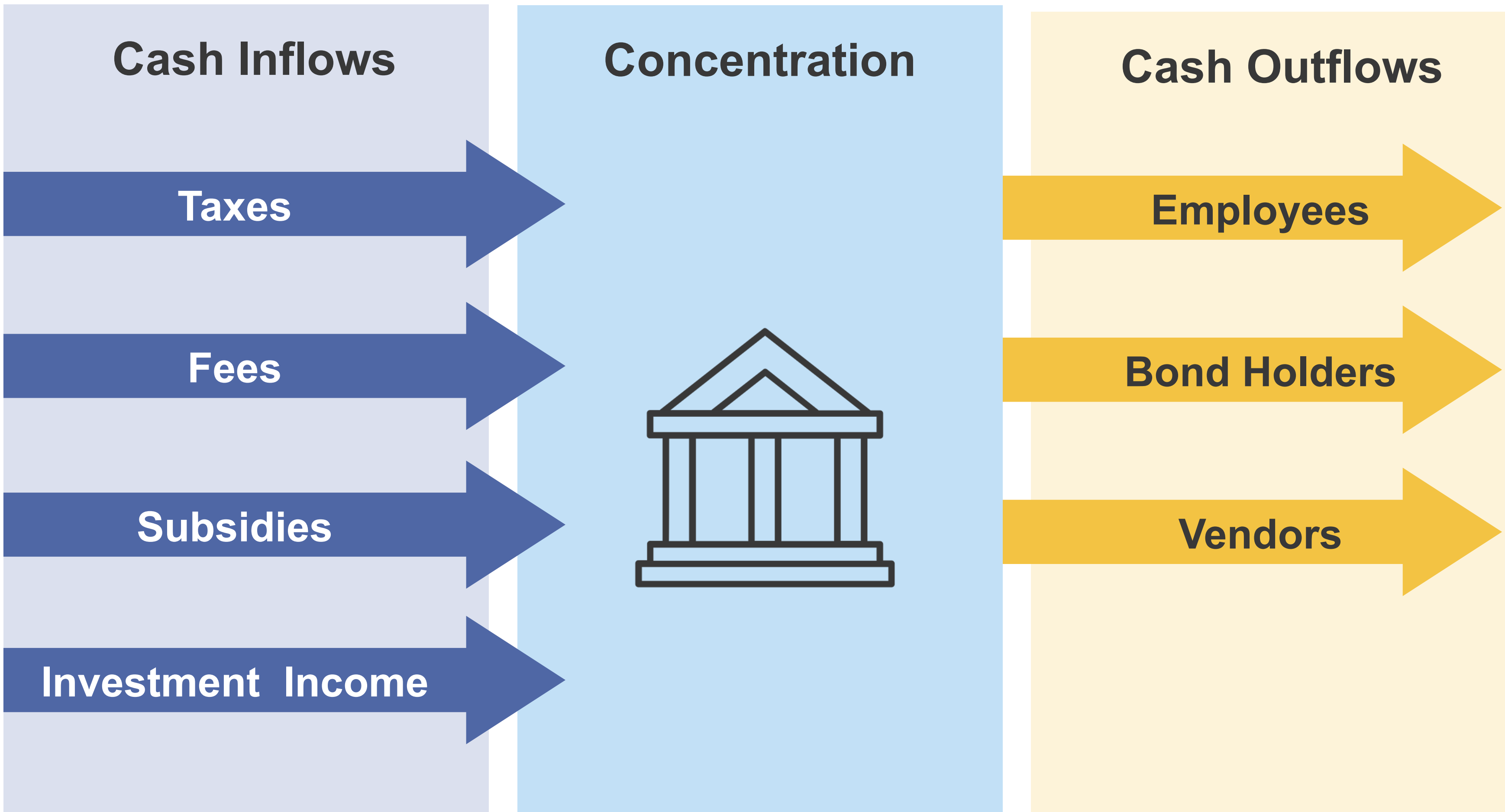
Cost of Insufficient Liquidity

- Delayed payments
- Additional interest costs
- Transaction costs
- Bad press

Cost of Excess Liquidity

- Lost investment income
- Bad press

Managing the Money

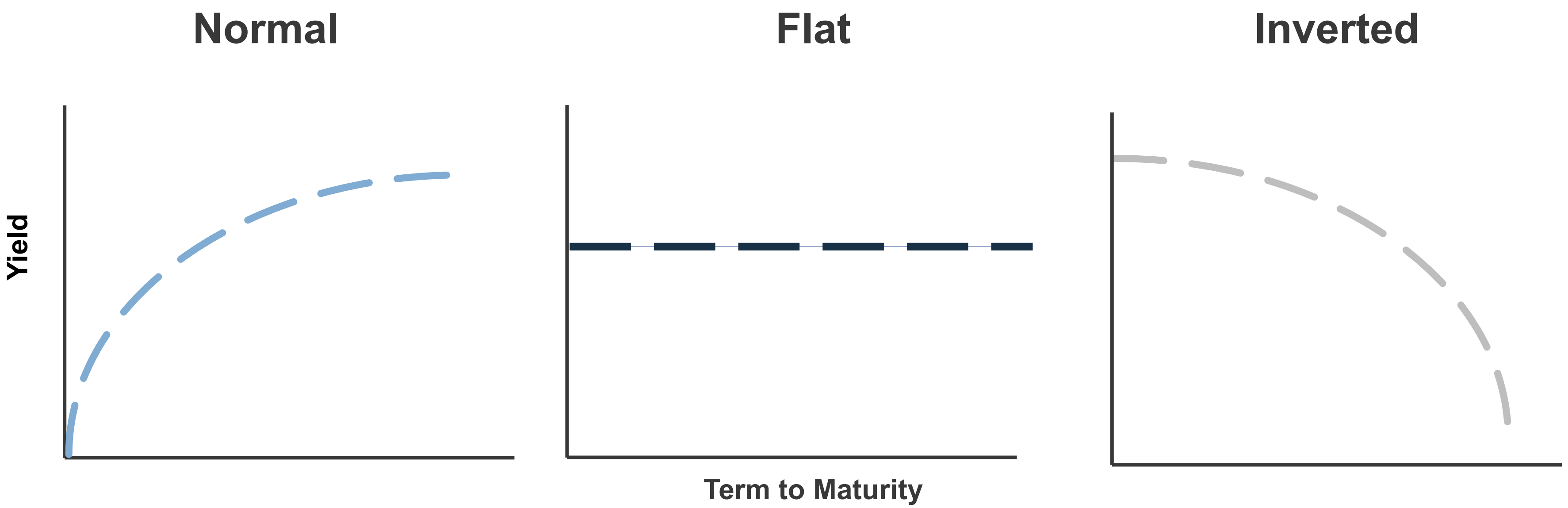


Investing in Fixed Income Securities

Yield Curves

KEY CONCEPT ALERT!

- Shows the relationship between yield and maturity.
- Rates at the short end of the curve (under 1 year) are directly correlated to the **federal funds rate** established by the Federal Open Market Committee.
- The longer end of the curve typically reflects **investor expectations.**
- There are several types of curves:



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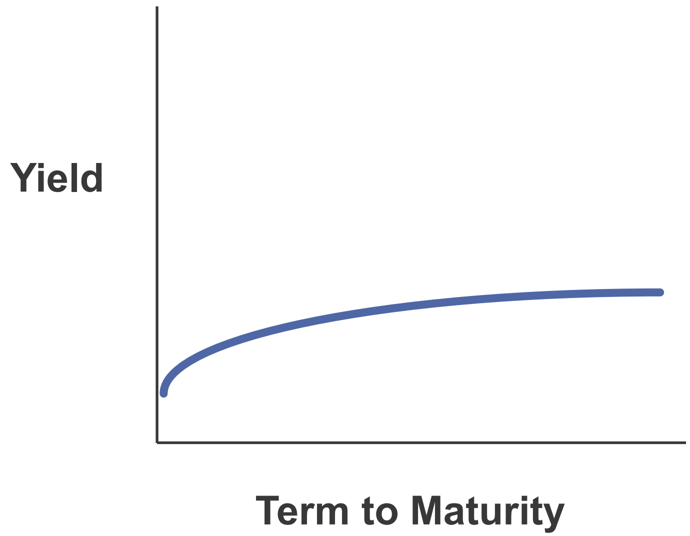
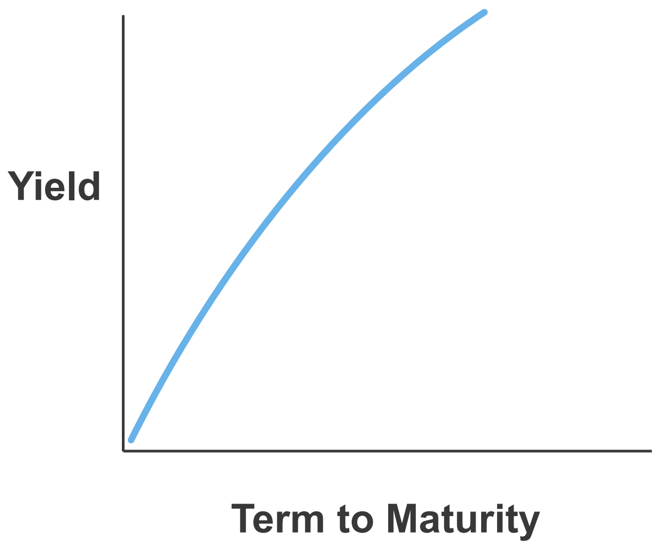
KEY CONCEPT ALERT!

Flat Yield Curve (still "Positive")



Steep Yield Curve (still "Positive")



Steepness of a positively slopped curve is a result of how much greater longer-term yields are versus short term yields.

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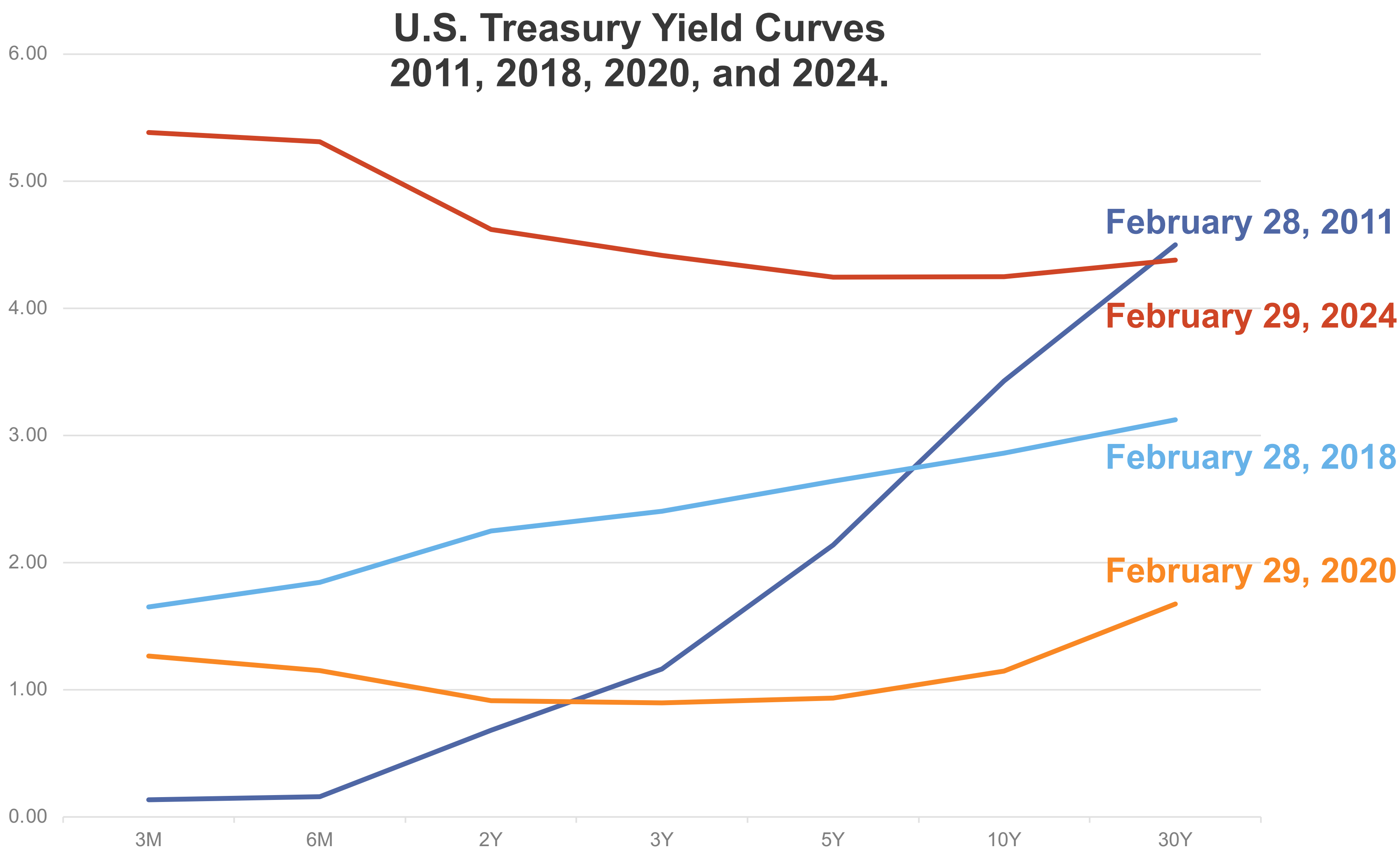
Yield Curve Shifts



Source: Bloomberg.

Understanding Liquidity Needs Through a Cash Flow Forecast

Benefits of Cash Flow Forecast

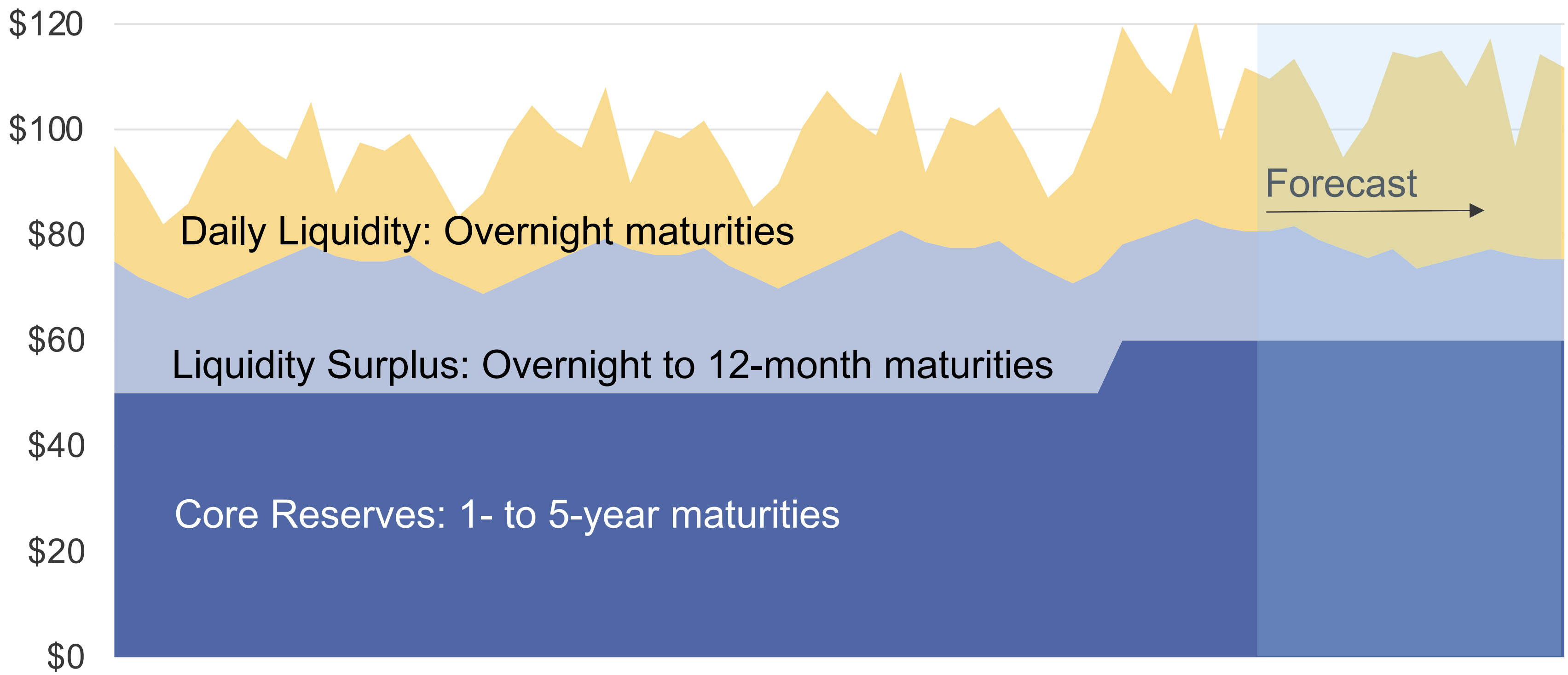
- Helps predict liquidity
- Can increase investment income
  - Amounts available for investment
  - Period of time to hold the investment
  - Assists with investment strategies
- Forecasts problems
  - Revenues not being collected properly
  - Expenditures exceed budget

Traditional Forecasting Process

- Identify Cash Flow Components
- Determine Degree of Certainty/Predictability
- Identify Data Sources
- Develop Cash Flow Forecast
- Compare Forecast to Actual Results

The Importance of Knowing Your Cash Flows

- Understanding your liquidity needs is vital to define investment strategies.
- There are opportunity costs to excess, as well as insufficient, liquidity.



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Cash Flow Seasonality

- Investment balances often show strong seasonality

Seasonal Factors

January	102%	
February	96%	
March	97%	
April	96%	
May	99%	
June	118%	Highest Month
July	98%	
August	94%	
September	93%	Lowest Month
October	94%	
November	96%	
December	116%	

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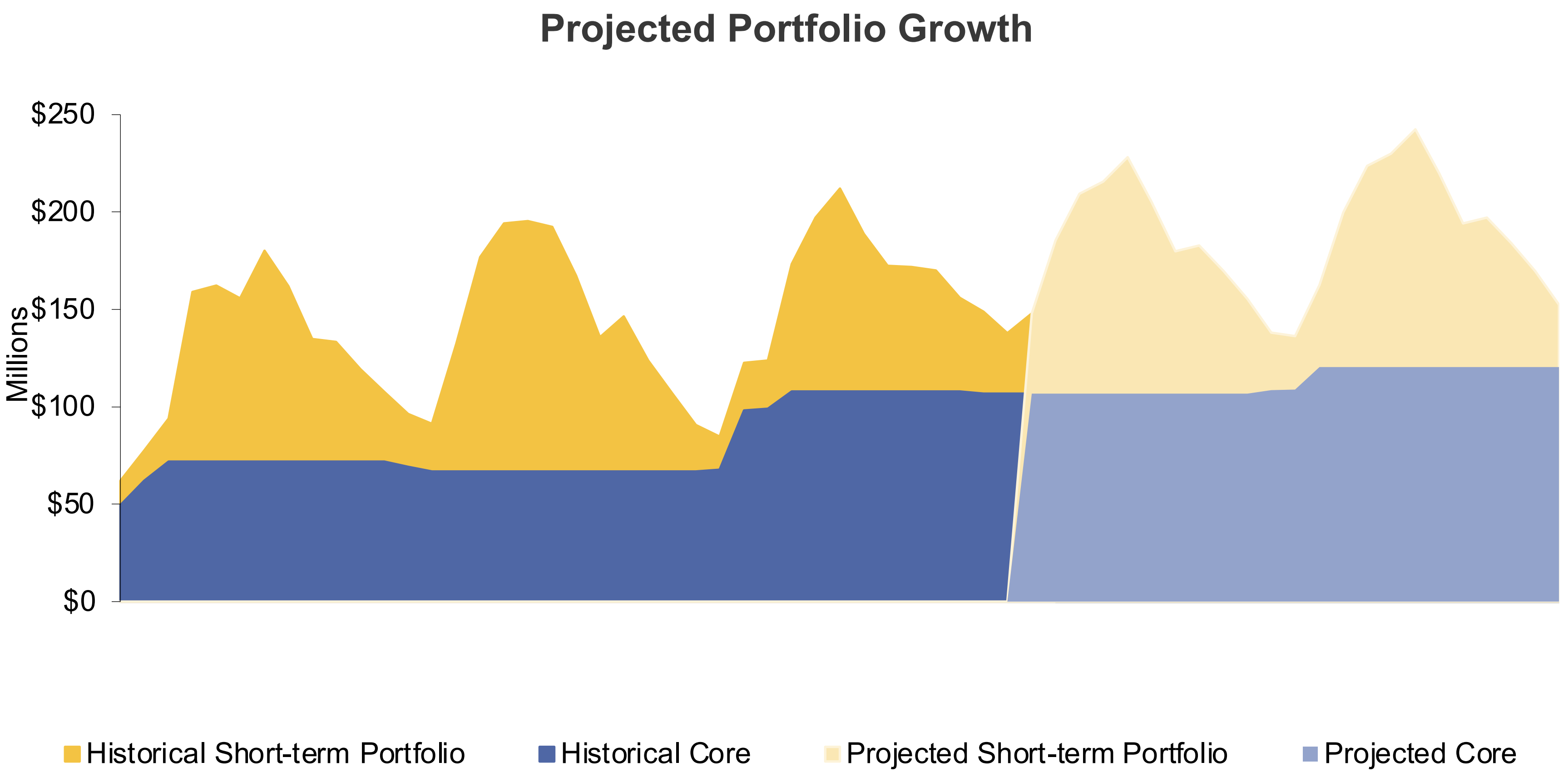
Portfolio Components

- **Liquidity Balance**
  - Highly liquid funds to meet daily disbursements needs and unforeseen expenditures
  - Funds to cover specific, predictable cash flows (i.e. payrolls, debt service)
  - Can be lower during periods of net cash inflow
  - Short-term money market instruments such as the bank deposits, money market mutual funds, government obligations, and commercial paper
- **Core Portfolio**
  - Funds that are not expected to be spent, but may be disbursed in extraordinary circumstances
  - Can be invested in longer-term securities to generate a higher return

Balance Projections

- Historic data can be used to predict future investable balances



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Long-Term Investments

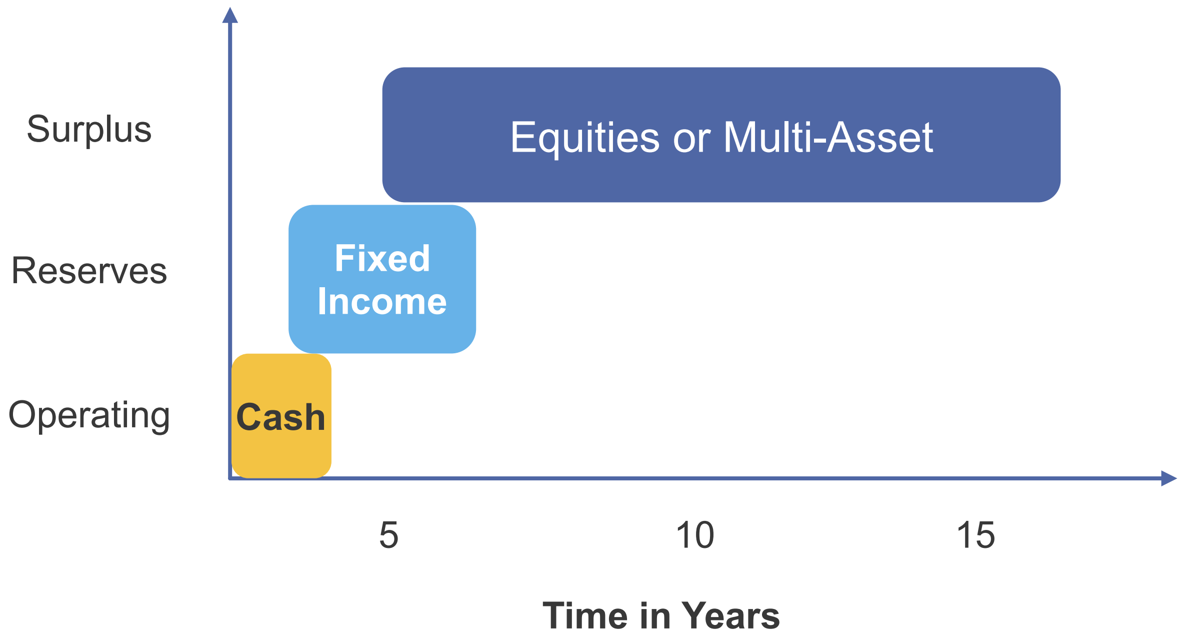
Purpose for Multi-Asset Portfolios

- What is a multi-asset portfolio?
  - A portfolio that combines different types of assets (such as equities, fixed income, cash, and alternatives) to create a diversified portfolio

- Why invest in multi-asset portfolios?
  - These portfolios offer investors the ability to achieve a number of investment outcomes

- Where is this approach utilized?
  - Usually this is an investment solution applied to either long duration assets or long-duration liabilities
    - i.e:
      - Pension/Retirement Funds
      - Other Post Employment Benefit Funds/Health Care Trust
      - Endowment Assets
      - Foundation Assets
      - Surplus Reserves (insurance or operating assets)

It is Efficient to Match Assets with their Liabilities' Time Horizon



Multi-Asset Portfolio Planning at a High Level

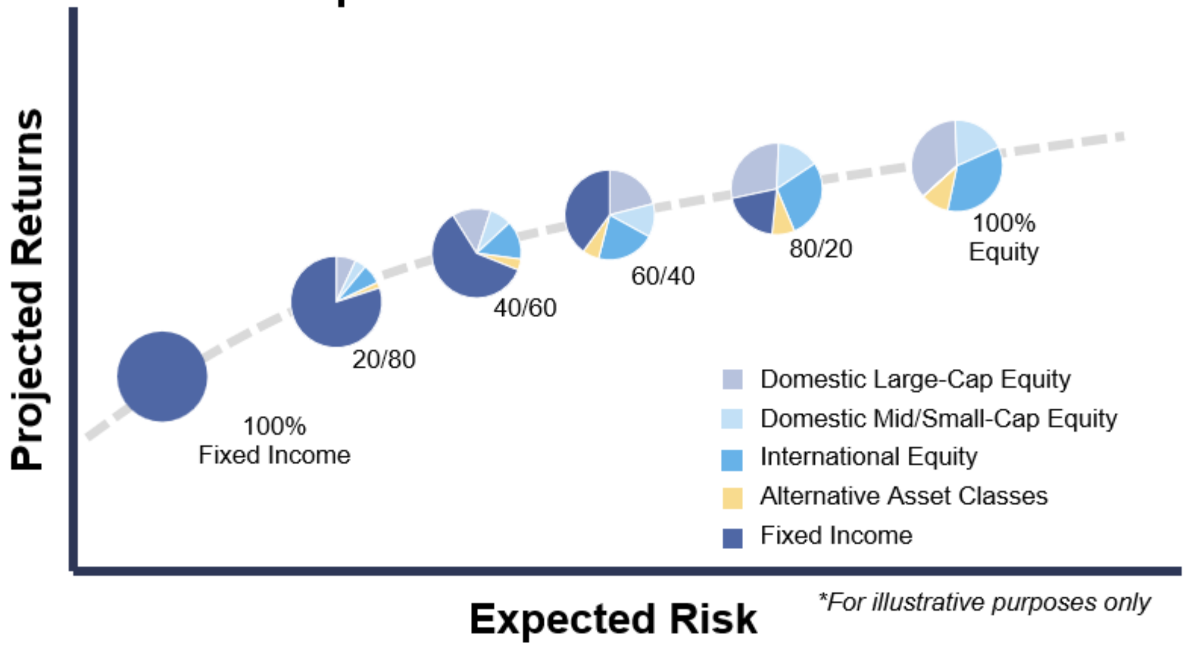
Investment Objectives
Cash Flow Expectations

Global Investment Universe
Capital Market Assumptions
Risk/Return Analysis

Organizational Factors
Strategic Priorities

Your Asset Allocation

Sample Multi-Asset Class Portfolios*



**For illustrative purposes only*

Traditional Investment Approach

Inputs

Client Goals and Objectives: Spending Needs, Strategic Initiatives, Cash Flows

Global Market Data: Capital Market Assumptions, Risk/Return Analysis

Strategic Asset Allocation

U.S. Equity | International Equity | Fixed Income | Alternatives

INVESTMENT STRATEGY VALUE ADDED

Asset Class Structure

Large | Mid/Small | Developed | Emerging | Gov't/Corp | High Yield | Alternatives

Blend Passive / Active

Invest in low-cost passive index funds unless catalyst exists for active management.

Traditional / Alternatives

Allocation to alternatives is dependent on client risk tolerance and liquidity needs.

Rebalancing

Can be done either systematically (monthly, quarterly, annually) or periodically based on your view of the mark

Strategic Asset Allocation

- **Strategic Asset Allocation: defining which asset classes to include in the portfolio and the long-term allocation to each**
  - Some example of asset classes: U.S. equities, non-U.S. equities, fixed income, real estate, commodities, etc.
  - Strategic Asset Allocation defines the policy portfolio.
- **Each asset class included is expected to serve some role in the portfolio**
  - Equities are expected to generate returns over time that are above inflation and above what other asset classes return.
  - Fixed income and real estate are included to provide diversification and help to lower the volatility of the portfolio.
  - Alternative Assets can be a diversifier that can increase return opportunities or manage volatility
- **Ideally, we want investments that generate a reasonable return and are driven by different factors with low correlations**
  - This is the primary argument for adding Alternative Assets (Privates) to portfolios

Diversification

- If equities are such a great investment, why not invest 100% in equities or, as an example, 100% in small-cap equities?
  - Equities are risky. While the experience of equity investing in the U.S. has been very good, equity investing outside of the U.S. has been mixed.
  - Equities are volatile and can experience long periods of poor performance.
- Diversification involves identifying and investing in asset classes expected to achieve reasonable returns for the risk taken (we want to be adequately compensated for the risk we are taking) and are not highly correlated with each other.

Source: Morningstar

Example : Employing Multi-Asset Solutions for Other Post Employment Benefits

Determining the viability and optimal asset allocation of a hypothetical OPEB plan

Summary of Hypothetical Actuarial Data:

- Plan Fiduciary Net Position: $32,624,947
- Total OPEB Liability: $31,864,555
- Funded Ratio: 102.39%
- Discount Rate: 6.50%
- Healthcare Cost: 2.75% for 2023 and ultimate trend rate of 3.75%
- Service Cost: $800,093
- Benefit Payments: $2,257,191
- Active / Retired: 1,959 / 305

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Inputs needed to determine the Asset Allocation parameters

- Spending Needs/Hurdle Rate
  - Discount Rate
  - Pension Bond
- Plan/Municipal dynamics:
  - Active vs. Retired
  - Change in benefits
- Strategic Initiatives
  - Future expectations for the Municipality (Growth rate, Budget changes)
- Cash Flows
  - Fiscal health of the Municipality
- Client Preferences
  - Risk Seeking/Aversion
  - Customized needs

Sample Asset Allocation Summary

	PFMAM 50/50 Model	PFMAM 60/40 Model	PFMAM 70/30 Model
Equity	**50.0%**	**60.0%**	**70.0%**
Domestic Equity	33.0%	39.0%	46.0%
International Developed Equity	12.0%	15.0%	16.5%
Emerging Markets Equity	5.0%	6.0%	7.5%
Fixed Income	**50.0%**	**40.0%**	**30.0%**
Core Fixed Income	25.0%	20.0%	15.0%
Int. IG Corporate	12.5%	10.0%	7.5%
Emerging Markets Debt	6.3%	5.0%	3.8%
High Yield	6.3%	5.0%	3.8%

Intermediate-Term (5 Years)			
Expected Return	7.7%	7.9%	8.1%
Standard Deviation	8.5%	9.7%	12.3%
Return / Standard Deviation	0.81	0.73	0.65
Probability of 7.00% Return	54.00%	55.00%	53.55%
Long-Term (30 Years)			
Expected Return	6.8%	7.0%	7.2%
Standard Deviation	9.4%	10.5%	11.7%
Return / Standard Deviation	0.72	0.67	0.61
Probability of 7.00% Return	41.45%	49.55%	53.05%

The information provided reflects standard risk and return metrics for the portfolio depicted and are based on our Capital Market Assumptions and the target asset class allocations shown above. Allocations and Percentages are subject to change. Please refer to PFMAM's Capital Market Assumptions presentation, available upon request, for key assumptions and the methodology utilized. The return data should not be relied upon as independently verifiable information.

Bond Proceeds

What is Arbitrage Rebate?

Arbitrage

- When the yield on taxable investments exceeds the tax-exempt restricted rate

Rebate

- Essentially a 100% tax
- Issuer's "rebate" or pay excess earnings to the IRS

Purpose

- Financial disincentive to violate the rules
- Non-compliance could result in taxable bonds

Arbitrage Rebate & Yield Restriction

To **prevent abuses**, the tax code limits the permitted uses of tax-exempt bonds

Prevents:

- Issuance of more bonds than are necessary
- Issuance of bonds earlier than is necessary
- Bonds from being outstanding longer than is necessary
- In other words, borrow what you need, when you need it, for an appropriate duration based on what is being financed.

Applies to **every** tax-exempt borrowing and some taxable subsidy (eg, tax credit) obligations

- Measured on an issue-by-issue basis
- Arbitrage Rebate begins on the issue date
- Yield Restriction begins at the expiration of a temporary period

Tax law and regulations create financial disincentives to **prevent** issuance of tax-exempt debt for profit-driven reasons

- Yield restriction – IRC Section 148(b)
- Arbitrage rebate – IRC Section 148(f)
- Overlapping requirements – “Belt & Suspenders”

Exceptions to Arbitrage Rebate

- Small Issuer Exception

- Spending Exceptions
  - 6-month
  - 18-month
  - 2-year

- “Bona Fide” Debt Service Fund Exception

- Electing to pay the 1.5% penalty in lieu of rebate

- Investing in tax-exempt obligations (eliminating the “arbitrage”)

Exceptions to Arbitrage Rebate

Small Issuer Exception

Exception to Arbitrage Rebate Only

- Calendar year exception
  - $5 million of governmental bonds for municipalities
  - $15 million per year for public school construction
- Requirements
  - General taxing powers
  - Governmental bonds (not private activity bonds)
  - At least 95% of the proceeds must be used for local governmental activities
- Exclusion of current refunding issue in certain circumstances

Exceptions to Arbitrage Rebate

Spending Exceptions (Can Be Internally Monitored)

- **"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 to Arbitrage Rebate Only

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%**

Exceptions 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*

Spending Benchmarks – 2-year Test

- 2022 Bonds must be a "Construction" issue
  - At least 75% of the project is construction
- Must meet each benchmark, no catch-up allowed
- ACP = Available Construction Proceeds
  - Project Fund plus Expected Earnings

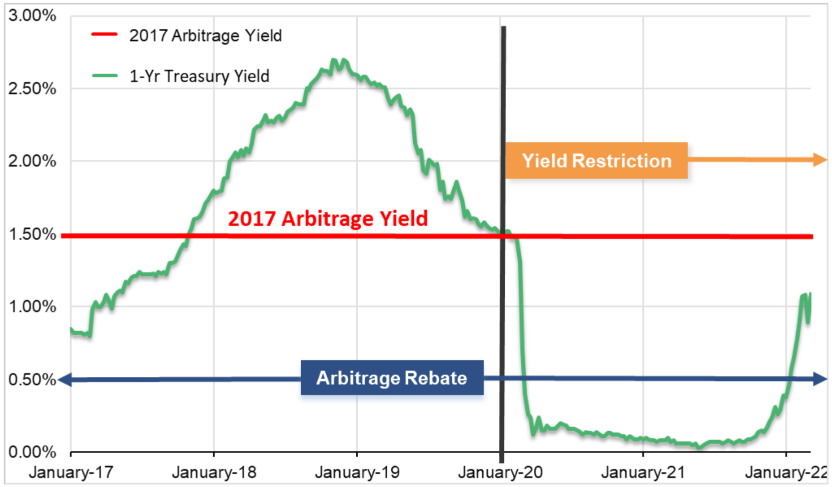
2022 Project Fund	$25,000,000
Expected Earnings *	$1,000,000
ACP - Denominator	**$26,000,000**

	Benchmark Date		**% Required Expenditures**	**$ Required Expenditures**	**$ Actual Expenditures**	**Met Benchmark?**
	Issue Date	10/26/2022				
	6 months	4/26/2023	10%	$2,600,000	?	Yes / No
	12 months	10/26/2023	45%	$11,700,000	?	Yes / No
	18 months	4/26/2024	75%	$19,500,000	?	Yes / No
	24 months	10/26/2024	100%**	$26,000,000	?	Yes / No

** Based on reasonable expectations as of the issue date*
*** De minimis (lesser of 3% or $250K) and reasonable retainage (5% spent in 12 months) exceptions may apply for last benchmark*

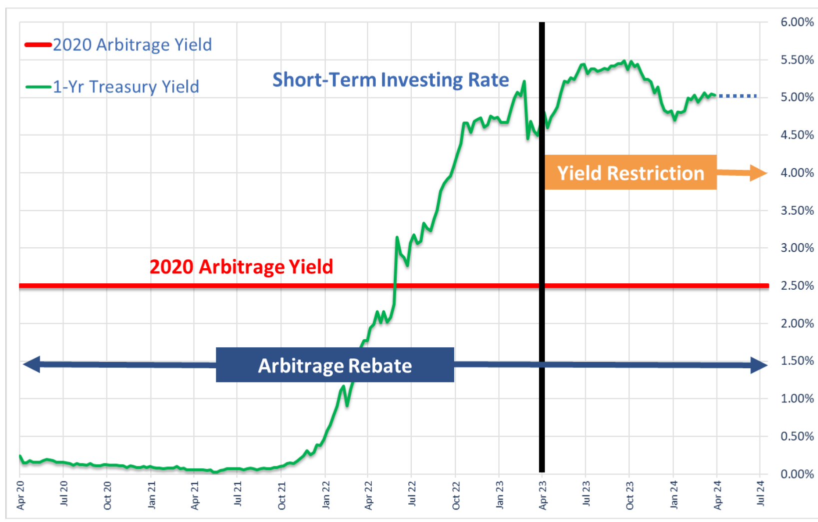
Yield Restriction Compliance

Yield Restriction Environment



5-year period starting in 2017…

Very different from 5-year period starting in 2020…



- Arbitrage Rebate and Yield Restriction are separate calculations
- Yield Restriction only applies to proceeds that are subject to yield restriction
- Cannot blend positive arbitrage of yield restricted proceeds with negative arbitrage of unrestricted proceeds
- Exceptions apply
  - Exception for “Reasonably Required” Reserve Fund
  - Minor Portion
  - Temporary periods

Source: Bloomberg, EMMA. See important disclosures at the end of this presentation.

Yield Restriction Compliance Methods

Active Yield Restriction

Investments must be purchased at fair market value

Tax exempt investments

Yield Reduction Payments

Rebate-like payments

Limited availability for advance refunding issues and defeasance escrows

Other Options

Longer construction fund temporary period (5-years vs. 3-years)

Waiver of temporary period at issuance

Calculation and Filing Requirement

- Payment due no later than 60 days after the computation date
  - No later than 5-years after the issue date
  - Every 5-years thereafter until the final maturity date
  - At least 90% of the liability
  - As of final maturity date, 100% of the liability
- Submit check & IRS Form 8038-T
- Do not submit calculations
- No filing required if no payment is due

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