October 2025 Client Training
Bond Pricing

PFM Financial Advisors LLC

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- Opposing Objectives
- Scale Benchmarks
- PFM's Approach to Credit Spreads
- Structuring Considerations
- Competitive vs. Negotiated
- PFM's Pricing Process
- PFM's Post Pricing Analysis

Opposing Objectives

Poll Question 1:

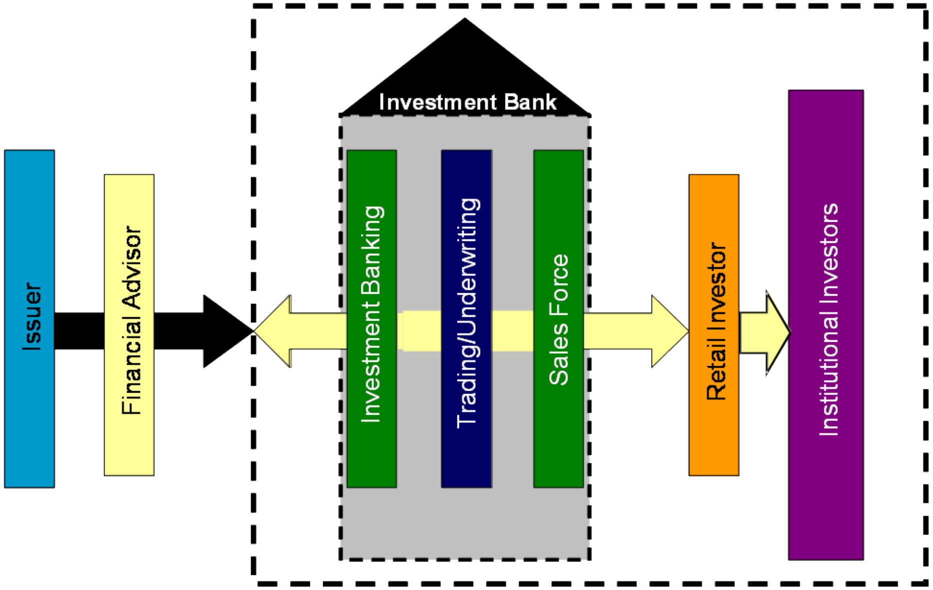
- What are underwriters required to disclose to issuers prior to a Negotiated sale.

- Underwriters have a fiduciary duty to the Issuer.
- Underwriters are required by federal law to act in the best interest of the issuer
- The Underwriters have financial and other interests that differ from those of the Issuer

The financial advisory industry is rooted in mitigating the inherent conflicts confronted by the investment banking industry

Issuer Objectives

- ✓ High Price/Low Interest Rate
- ✓ High Optionality
  - Callable
  - Couponing
- ✓ Optimal Security Structure/High Issuer Flexibility (Benefit vs. Cost)
  - Pledge
  - Covenants
  - Reserves
  - Insurance



Investor Objectives

- ✓ Low Price/High Interest Rate
- ✓ Low Optionality
  - Non-Callable
  - Couponing
- ✓ Low Risk/Low Issuer Flexibility
  - Pledge
  - Covenants
  - Reserves
  - Insurance

The effectiveness of a financial advisory firm is directly tied to its professional and technical resources and expertise

Investment Banks Represent Investors

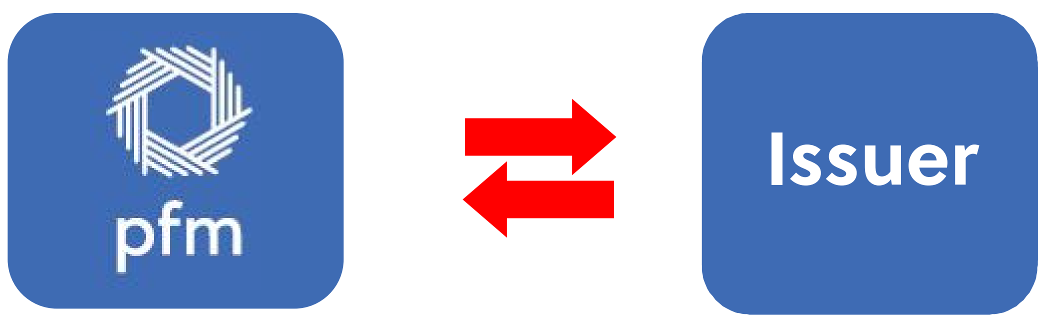
"The Underwriters **have financial and other interests that differ from those of the Issuer**.

Unlike a municipal advisor, the **Underwriters do not have a fiduciary duty to the Issuer** (or any other person or entity) under the federal securities laws and are, therefore, not required by federal law to act in the best interests of the Issuer or any other party without regard to their own financial or other interests.

The Underwriters **have a duty to purchase the Bonds from the Issuer at a fair and reasonable price, but must balance that duty with their duty to sell the Bonds to Investors at prices that are fair and reasonable**."

- Typical underwriter disclosure statement provided to Issuer under new MA regulations.

- PFM has a fiduciary duty to represent ***only the interests of the Issuer***



Scale Benchmarks

Poll Question 2:

- What are the characteristics of municipal Benchmarks?

- 5% Coupon
- 10 Year Par Call
- AAA
- All of the above

Characteristics of a Useful Benchmark

- **The "MMD Curve" historically has been most widely used benchmark in the municipal market.**
  - MMD Curve refers to the AAA-rated G.O. Curve
  - Municipal market's "risk-free" rate proxy
  - MMD represents the current market rate for various maturities, assuming a 5% coupon and a 10-year par call
  - MMD is produced by Refinitiv (TM3), an independent third-party market observer

- **The BVAL AAA Callable Curve offers an alternative benchmark that continues to gain interest from municipal market participants**
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  - Municipal market's "risk-free" rate proxy
  - BVAL AAA Callable Curve represents the current market rate for various maturities, assuming a 5% coupon and a 10-year par call
  - BVAL AAA Callable Curve is produced by Bloomberg, an independent third-party market observer

BVAL AAA Callable Curve

- The BVAL AAA Callable curve offers the accessibility, transparency, objectivity, methodology, supporting data, or timeliness needed to meet the demands of today's market.

- **BVAL AAA Callable Curve provides**:
  - Accessibility: publicly accessible to all on the MSRB's EMMA website: ***https://emma.msrb.org/ToolsAndResources/BloombergYieldCurve?daily=True***
  - Transparency: displays eligible trades and shows the movement from implied contributed sources
  - Objectivity: use real-time trades and contributed sources to reflect movement in the Municipal market as it is happening. AAA curves are monitored on an hourly basis by BVAL's team of municipal evaluators
  - Methodology: constructed using trades from the Municipal Securities Rulemaking Board (MSRB) and contributed data
  - Supporting Data: trade data algorithmic based model with viewable observations that have been incorporated into the curve
  - Timeliness: frequency of publication is dependable and predictable, produced hourly from 9am-4pm, and is also available on the MSRB's EMMA website
  - Adherence to IOSCO: Creates an overarching framework of Principles for Benchmarks used in financial markets

- **Additional attributes**:
  - Constant maturity: no monthly rolls
  - 32 tenor points: starting with a 3-month and 6-month tenor and every year from 1-30, allowing for better benchmarking inside 12 months

Why Use a Benchmark?

- A method of measuring the value of a section of the bond market
- A tool used by issuers, investors and other financial professionals to describe the market, and to compare the rate of return on specific securities
- A tool that allows performance to be compared relative to a point in the market, accounting for differences in couponing, call feature, and credit.
- A metric that should track the same spot in the market, so that performance can be measured across time and different market environments

PFM’s Approach to Credit Spreads

Poll Question 3:

- What type of price on a bond will result when the Coupon is greater than the Yield.

- Premium Bond
- Discount Bond
- Par Bond
- None of the Above

Traditional Approach to Credit Spreads: Re-offer Yield

ISSUER PRICING ANALYSIS

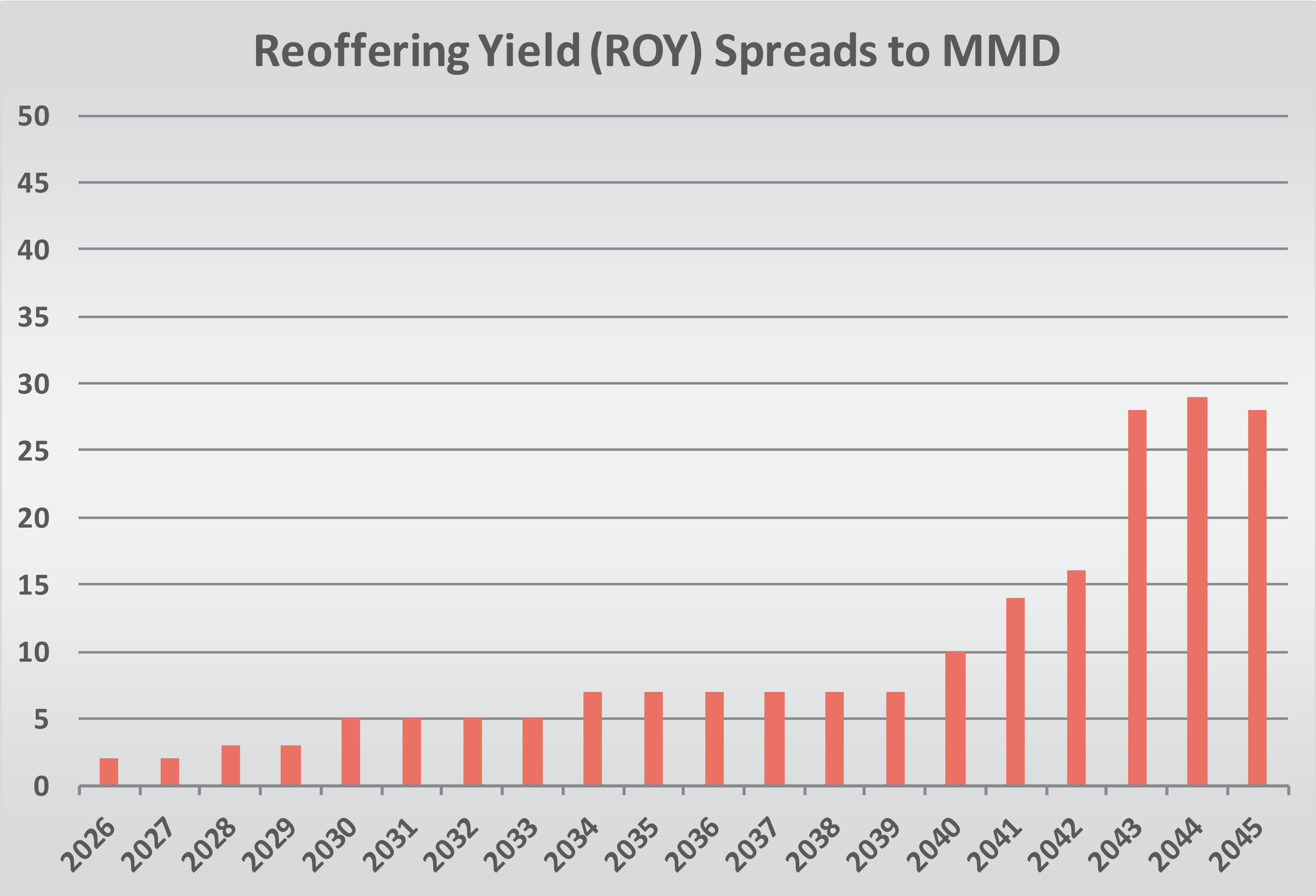
Series 2025

Maturity Date	Par Amount	Coupon	Reoffering Yield (ROY)	Yield To Maturity (YTM)	Non-Interpolated BVAL: 5% AAA G.O. Scale	Non-Interpolated BVAL: ROY Spread	Non-Interpolated BVAL: YTM Spread	Option Value Analysis: OAY	Option Value Analysis: Non-Call Scale	Option Value Analysis: OAY Spread
6/1/26	15,000,000	2.000%	0.320%	0.320%	0.300%	**2 bps**	2 bps			
6/1/27	15,000,000	2.000%	0.580%	0.580%	0.560%	**2 bps**	2 bps			
6/1/28	15,000,000	3.000%	0.910%	0.910%	0.880%	**3 bps**	3 bps			
6/1/29	15,000,000	3.000%	1.260%	1.260%	1.230%	**3 bps**	3 bps			
6/1/30	15,000,000	3.000%	1.550%	1.550%	1.500%	**5 bps**	5 bps			
6/1/31	15,000,000	4.000%	1.880%	1.880%	1.830%	**5 bps**	5 bps			
6/1/32	15,000,000	4.000%	2.190%	2.190%	2.140%	**5 bps**	5 bps			
6/1/33	15,000,000	4.000%	2.490%	2.490%	2.440%	**5 bps**	5 bps			
6/1/34	15,000,000	4.000%	2.740%	2.740%	2.670%	**7 bps**	7 bps			
6/1/35	15,000,000	5.000%	2.920%	2.920%	2.850%	**7 bps**	7 bps			
6/1/36	15,000,000	5.000%	3.080%	3.217%	3.010%	**7 bps**	21 bps	3.183%	3.025%	16 bps
6/1/37	15,000,000	5.000%	3.250%	3.478%	3.180%	**7 bps**	30 bps	3.364%	3.205%	16 bps
6/1/38	15,000,000	5.000%	3.420%	3.704%	3.350%	**7 bps**	35 bps	3.518%	3.393%	13 bps
6/1/39	15,000,000	5.000%	3.570%	3.888%	3.500%	**7 bps**	39 bps	3.655%	3.551%	10 bps
6/1/40	15,000,000	5.000%	3.720%	4.051%	3.620%	**10 bps**	43 bps	3.789%	3.690%	10 bps
6/1/41	15,000,000	5.000%	3.870%	4.198%	3.730%	**14 bps**	47 bps	3.919%	3.818%	10 bps
6/1/42	15,000,000	5.000%	3.990%	4.311%	3.830%	**16 bps**	48 bps	4.018%	3.918%	10 bps
6/1/43	15,000,000	4.125%	4.205%	4.205%	3.930%	**28 bps**	28 bps	4.117%	4.018%	10 bps
6/1/44	15,000,000	4.250%	4.317%	4.317%	4.030%	**29 bps**	29 bps	4.216%	4.118%	10 bps
6/1/45	15,000,000	4.250%	4.411%	4.411%	4.130%	**28 bps**	28 bps	4.314%	4.218%	10 bps

Issuance Par: 300,000,000

Average Life: 10.5 years

For Illustrative purposes



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Problem with Traditional Approach to Credit Spreads

The traditional approach of gathering comparable Issuer's re-offer yields and the Issuer's historical re-offer yields to derive a spread to the BVAL "AAA" doesn't allow for an apples-to-apples comparison for various coupon levels.

ISSUER PRICING ANALYSIS

Series 2025

Maturity Date	Par Amount	Coupon	Reoffering Yield (ROY)	Yield To Maturity (YTM)	Non-Interpolated BVAL 5% AAA G.O. Scale	ROY Spread	YTM Spread	Option Value Analysis OAY	Non-Call Scale	OAY Spread
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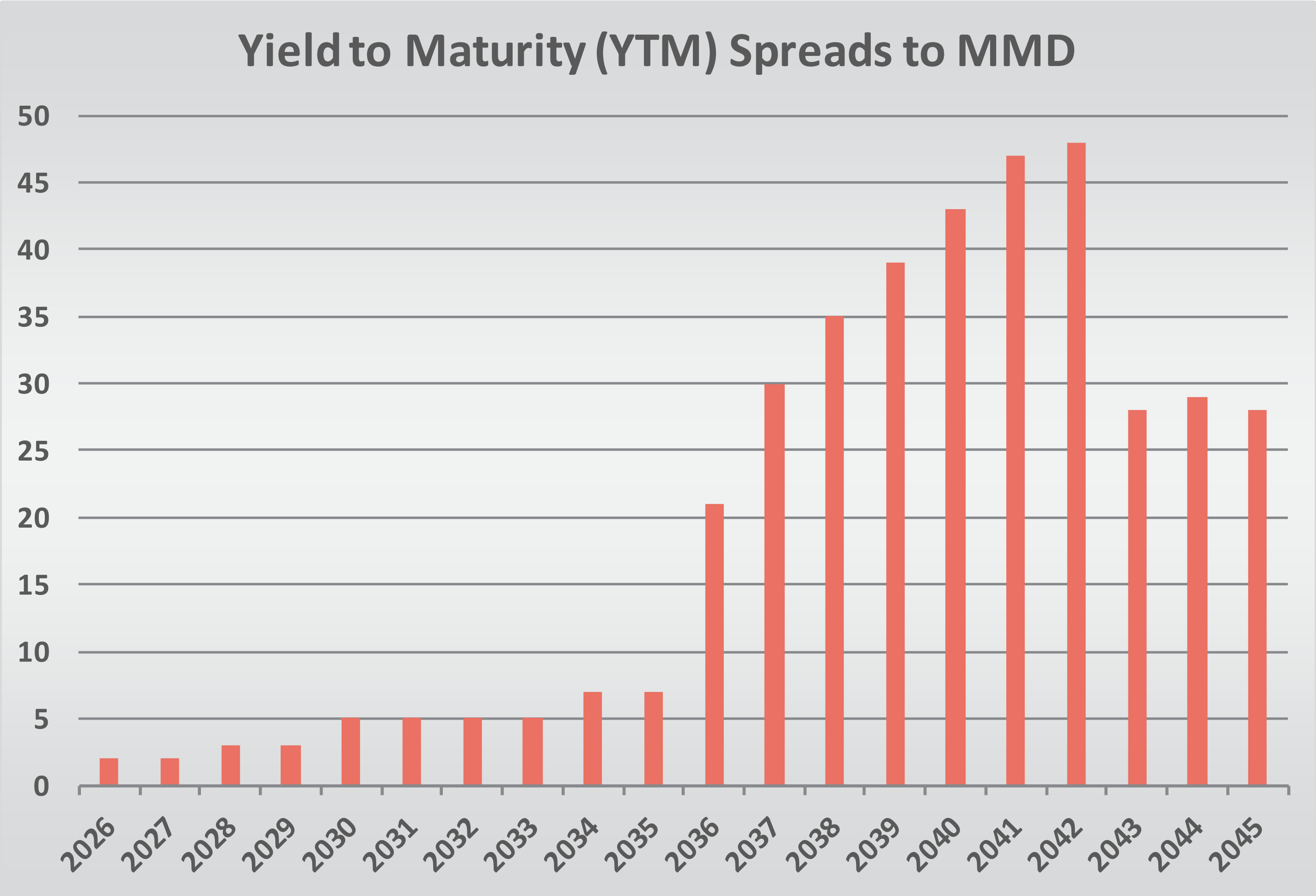
Average Life:	10.5 years									

For Illustrative purposes

YTM Approach to Credit Spreads



For Illustrative purposes

Problem with YTM Approach to Credit Spreads

The approach of gathering comparable Issuer's YTM and the Issuer's historical YTM to derive a spread to the BVAL "AAA" fails to recognize the relative value of embedded call options at various coupon levels and call dates.

Structuring Considerations

Poll Question 4:

- Which coupon will result in the greatest amount of proceeds with the same amount of principal issued at the same stated yields?

- Zero Coupon
- 3% Coupon
- 4% Coupon
- 5% Coupon

- Couponing
  - Industry Standard 5% CPNs vs 4% CPNs vs Discount CPN (<$100 $$ price)
- Call Feature
  - Industry Standard 10 Year Par Call vs Shorter Call Features (<10 years)
- Both impact borrowing costs and optionality
  - Lowest borrowing costs
    - Yield to Maturity (YTM)
    - Gross production
      - Par Amount vs Proceeds

Coupon University					
Year	Term	5% Coupon	Spread to Benchmark	Lower Coupon	Spread to Benchmark
2040	14.7	5.000%	13 bps	4.000%	43 bps
2045	19.7	5.000%	18 bps	4.000%	58 bps
2055	29.7	5.000%	30 bps	4.125%	75 bps

- Price Discussions generally begin with spread talk
- Spread for 5% coupons vs lower coupons are obtained for comparison
- With that information, what should an Issuer sell?

- Lower Coupons have higher YTCs
- Lower Coupons have lower YTMs
- How do you measure relative value between coupon structure?

Lower Coupon vs 5% Coupon					
Maturity	Call	Coupon	YTC	YTM	Price
2040	10yr	5.000%	3.180%	3.664%	115.072
	10yr	4.000%	3.480%	3.625%	104.242
			30 bps	-4 bps	$10.83
2045	10yr	5.000%	3.450%	4.059%	112.671
	10yr	4.000%	3.850%	3.912%	101.199
			40 bps	-15 bps	$11.47
2055	10yr	5.000%	3.780%	4.404%	109.817
	10yr	4.125%	4.350%	4.230%	98.228
			57 bps	-17 bps	$11.59

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Traditional 10-Year Par Call or Shorter Calls

Coupon University					
Year	Term	10 Yr Call	Spread to Benchmark	5 Yr Call	Spread to Benchmark
2040	14.7	5.000%	13 bps	5.000%	-2 bps
2045	19.7	5.000%	18 bps	5.000%	3 bps
2055	29.7	5.000%	30 bps	5.000%	15 bps

- Standard call feature is a 10-year par call
- Standard 10-year par call spreads vs shorter call spreads are obtained for comparison
- With that information, what should an issuer sell?

- Shorter calls have lower Yield-to-Call
- Shorter calls have higher Yield-to-Maturity
- How do you measure relative value between call?

10 Year Par Call vs 5 Year Par Call					
Maturity	Call	Coupon	YTC	YTM	Price
2040	10yr	5.000%	3.180%	3.664%	115.072
	5yr	5.000%	3.030%	4.213%	108.551
			-15 bps	55 bps	$6.52
2045	10yr	5.000%	3.450%	4.059%	112.671
	5yr	5.000%	3.300%	4.438%	107.328
			-15 bps	38 bps	$5.34
2055	10yr	5.000%	3.780%	4.404%	109.817
	5yr	5.000%	3.630%	4.635%	105.856
			-15 bps	23 bps	$3.96

For Illustrative purposes

- Methods to measure the relative value of Coupon and Call Feature alternatives.

  - Option Adjusted Spread or Option Adjusted Yield analysis (OAS/OAY)
    - Traditional measure
    - Analysis used to assess relative value of various coupon and call date structures
    - OAS does not take into account the difference in gross proceeds to the Issuer
    - Investor metric

Implied Non-Callable Yield (OAS) = Callable Yield − Value of Embedded Call Option

  - Discount Cash-flow Analysis
    - Discounted Cash-flow Analysis takes into account gross proceeds and calculates all metrics on an NPV basis at the time of issuance
    - Analysis that factors in gross production
    - Issuer metric

Gross Proceeds		Bonds Issue
$100M	@$115	$87M
$100M	@$97	$103M
		$16M

PFM's Approach: DCF Model

- This approach monetizes the trade-offs between YTC and YTM, as well as the difference in principal issued of various coupon structures

- Discounted Cash-flow Analysis expresses relative on an NPV basis – Issuer Perspective

- PFM's Discounted Cash-flow Analysis uses the issuer's current yield curve (borrowing costs), and calculates the yield curve shift where an issuer would be indifferent to better help make structural decisions

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Issuer Maturity-by-Maturity Discounted Cash Flow Analysis
Savings (Loss) Under PFM Alt CPN / 9.8 yr PC Scale

Maturity Date	Coupon	Original Par	Par Amount Reduction (Increase)	% Par Amount Reduction (Increase)	PV DS to Maturity Savings (Loss)	% PV DS to Maturity Savings (Loss)	PV Option Value Savings (Loss)	% PV Option Value Savings (Loss)	1 Current Refunding Savings (Loss)	Breakeven Yield Shift* (bps) PFM 5% CPN / 9.8 yr PC Scale PFM Alt CPN / 9.8 yr PC Scale
6/1/2041	5% vs 5.25%	$3,070,000	$66,115	2.2%	($10,956)	(0.3%)	$15,361	15.9%	$13,106	257 bps
6/1/2042	5% vs 5.25%	$3,210,000	$69,206	2.2%	($15,388)	(0.4%)	$18,375	15.4%	$13,573	250 bps
6/1/2043	5% vs 4%	$3,380,000	($382,576)	(10.2%)	$28,684	0.7%	($74,911)	(52.6%)	($121,010)	216 bps
6/1/2044	5% vs 4%	$3,545,000	($401,711)	(10.2%)	$48,033	1.1%	($85,115)	(52.9%)	($125,641)	208 bps
6/1/2045	5% vs 4%	$3,725,000	($422,269)	(10.2%)	$68,627	1.5%	($98,049)	(51.9%)	($131,433)	202 bps
6/1/2046	5% vs 5.25%	$3,200,000	$69,504	2.2%	($29,587)	(0.7%)	$26,899	15.3%	$12,909	223 bps
6/1/2047	5% vs 5.25%	$3,370,000	$73,196	2.2%	($34,691)	(0.8%)	$30,320	15.3%	$13,881	204 bps
6/1/2048	5% vs 5.25%	$3,535,000	$76,780	2.2%	($39,898)	(0.9%)	$33,799	15.1%	$14,828	186 bps
6/1/2049	5% vs 5.25%	$3,715,000	$80,690	2.2%	($45,421)	(1.0%)	$37,466	15.4%	$15,846	169 bps
6/1/2050	5% vs 5.25%	$3,895,000	$84,599	2.2%	($51,092)	(1.1%)	$40,763	15.1%	$16,835	155 bps
6/1/2051	5% vs 4.125%	$3,060,000	($361,021)	(10.6%)	$56,083	1.5%	($96,484)	(44.0%)	($155,213)	112 bps
6/1/2052	5% vs 4.125%	$3,210,000	($378,718)	(10.6%)	$69,306	1.8%	($105,663)	(43.6%)	($163,277)	99 bps
6/1/2053	5% vs 4.125%	$3,340,000	($394,055)	(10.6%)	$82,265	2.1%	($114,245)	(43.2%)	($170,099)	93 bps
6/1/2054	5% vs 4.125%	$3,450,000	($407,033)	(10.6%)	$95,097	2.4%	($122,168)	(42.9%)	($175,989)	85 bps
6/1/2055	5% vs 4.125%	$3,625,000	($427,680)	(10.6%)	$109,965	2.6%	($132,440)	(42.7%)	($185,038)	81 bps
Savings (Loss)			($2,721,282)		$345,446		($647,403)		($1,158,117)	

PFM 5% CPN / 9.8 yr PC Scale REF Superior
PFM 5% CPN / 9.8 yr PC Scale MAT Superior
PFM Alt CPN / 9.8 yr PC Scale REF Superior
PFM Alt CPN / 9.8 yr PC Scale MAT Superior

For Illustrative purposes

Competitive vs. Negotiated

Poll Question 5:

- In a Competitive sale, what bid parameters are you able to set on your Notice of Sale?

- Minimum Price
- Minimum Coupon
- Maximum Price
- All of the above

PFM believes that mixing the use of competitive and negotiated sales is the optimal approach to an Issuer's financings:

- Empirical data suggest competitive sales produce lower TICs
- Competitive sales provide benchmarks for negotiated sales
- Negotiated sales motivate firms to bring innovative ideas to the Issuer
- Negotiated sales provide maximum flexibility to optimize the structure & execution of refundings and other complex transactions
- Rewarding firms that support the issuer' competitive sales by including them in future negotiated sale syndicates results in better pricing

Competitive vs. Negotiated: Decision Matrix

Attributes	Competitive Sale	Negotiated Sale
Issuer		
Type of Organization	Broad-based, general-purpose government	Special-purpose, independent authority
Frequency of Issuance	Regular borrower in public market	New or infrequent issuer of debt
Market Awareness	Active secondary market with wide investor base	Little or no institutional base, but growing dealer interest
Credit Quality		
Rating	"A" or better	**Below single "A"**
Pledged Revenues	General obligation	Project supported revenues
Security Structure	Conventional resolution and cashflow; rate covenant and coverage	**Unusual or weak covenants; subordinated debt**
Trend	Stable	Improving or under stress
Market Conditions		
Interest Rates	Stable, predictable market	**Volatile or declining market**
Demand	Strong investor demand, good liquidity, light forward calendar	**Oversold market, heavy supply**
Debt Structure		
Tax Status	Tax-exempt, no concerns	Taxable
Debt Instrument	Traditional serial and term, full-coupon bonds	Aggressive use of innovative bond structuring, derivative products, swaps, or variable-rate debt instruments

Attributes	Competitive Sale	Negotiated Sale
Marketing		
Use of Underwriters	Broad market participation	**Ability to select "best qualified" banker and direct business to local, regional, or MBE/WBE firms**
Investors	Process blind to ultimate investors	**Sale can be managed to achieve wide distribution or targeted allotments**
Pre-marketing	Limited need for pre-marketing – commodity, market pricing	Specific pre-sale activity to generate demand
Flexibility in Timing	Limited flexibility	Greatest flexibility in timing
Fine Tuning Structure	Limited options given to bidders	Unlimited ability to fine tune
Cost		
Gross Spread	Historically, spreads have been lower for competitive sales	Recent data shows negotiated spreads equal to or closer to competitive spreads
Interest Rate	Highest market price for commodity offered on day of sale	Best match of product with specific investor demand
Preparation		
Resolution/Structure	Issuer determines own preference for managing	Professional banking support and more direct marketing input in balancing security for investor vs. flexibility for issuer
Disclosure	Issuer relies on own program disclosure	Underwriters' counsel assists in the preparation of official statement

Tailoring Bid Terms to Market Conditions Will Enhance Pricing for Competitive Sales

PFM begins contacting trading desks at least a week in advance, to start marketing the sale and to understand current market conditions

PFM is constantly striving to provide the most flexible bid parameters for it's clients that current market conditions will permit PFM's bidding parameters table and NOS language allows:

- Flexibility in changing the par amount both maturity-by-maturity and in the aggregate
- Flexibility in changing the sale date
- Flexibility in adding or removing refunding components

Description		Description	
Dates		**Redemption**	
Dated Date:	Date of Delivery	Optional:	On or after June 1, 2033 at 100%
Delivery Date:	On or about June 6, 2024	Mandatory:	Each sinking fund installment date for term bonds at 100%
Interest			
Interest Payment Dates:	June 1 and December 1		
First Interest Payment:	December 1, 2024		
Coupon Multiples:	1/8 or 1/20 of 1%	**Pricing**	
Principal		Max Reoffering Price:	
Adjustment Increases:		Each Maturity:	110%
Each Maturity	+15%	Aggregate:	108%
Aggregate	+10%	Min. Reoffering Price:	
Adjustment Decreases		Each Maturity:	98%
Each Maturity	Any Amount	Aggregate:	99%
Aggregate	-10%	**Procedural**	
Term Bonds:	One or more on or after June 1, 2034 (Sinking fund installments must equal amortization	Sale Date:	May 25, 2024
		Bid Submission:	PARITY Only
		Bid Aware Method:	Lowest TIC
		Bid Confirmation:	Fax Signed PARITY
		Award of Bid:	Within 6 hours
		Good Faith Deposit	$1,000,000

Year (June1)	Principal Amount**	Year (June1)	Principal Amount**
2026	15,000,000	2036	15,000,000
2027	15,000,000	2037	15,000,000
2028	15,000,000	2038	15,000,000
2029	15,000,000	2039	15,000,000
2030	15,000,000	2040	15,000,000
2031	15,000,000	2041	15,000,000
2032	15,000,000	2042	15,000,000
2033	15,000,000	2043	15,000,000
2034	15,000,000	2044	15,000,000
2035	15,000,000	2045	15,000,000

NC: Non-callable
T: May be designated as sinking fund installments for term maturity or maturities
* If numerical (excluding page numbers) or date references contained in the body of this Notice of Sale conflict with the Bidding Parameters Table, the body of this Notice of Sale shall control. Consult the body of this Notice of Sale for a detailed explanation of the items contained in the Bidding Parameters Table, including interpretation of such items and methodologies used to determine such items
* Subject to change both before and after award as provided herein.

For Illustrative purposes

Senior Managing Underwriter

Runs the book, leads pricing negotiations, accepts orders, allocates the bonds, and pays takedown to syndicate members.

Co-Managers

Other firms in the syndicate, submit pricing thoughts, market bonds, and submit orders.

Selling Group

Other firms who assist in selling and marketing the bonds only during retail order period.

- **Takedown** - Sale commission, compensation to the underwriter for placing the bonds with investors.
- **Underwriting Fee** - Compensation for the risk entailed in underwriting the issuer's bonds.
- **Expenses** - The costs incurred to bring the deal to market. Expenses may include MSRB fees, Cusip fees, printing, calls, travel, and other direct costs.
- **Management Fee** - Fee paid to the senior manager for managing the deal. It includes the services that go along with being the manager such as structuring and cash flow analysis.

Underwriter Takedowns – Pricing Wire

Pricing Wire

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245750000

SERIES 2024

MOODY'S: A2                S&P: A                FITCH: A+

DATED:07/06/2024   FIRST COUPON:01/01/2025

DUE: 01/01

 MATURITY      AMOUNT*    COUPON   PRICE (Pts) ADD'L TAKEDOWN
    6/1/2026     1,045M     3.00%         0.65          3/8
                             (Approx. $ Price 102.695)
    6/1/2027     5,200M     3.00%         1.08          3/8
                             (Approx. $ Price 103.152)
    6/1/2027     3,965M     5.00%         1.08          3/8
                             (Approx. $ Price 108.321)
    6/1/2028     2,995M     4.00%         1.53          3/8
                             (Approx. $ Price 106.182)
    6/1/2028     6,805M     5.00%         1.53          3/8
                             (Approx. $ Price 109.676)
    6/1/2029    10,880M     5.00%         1.93          3/8
                             (Approx. $ Price 110.323)
    6/1/2030    12,470M     5.00%         2.36          3/8
                             (Approx. $ Price 110.005)
    6/1/2031    11,815M     5.00%         2.72          3/8
                             (Approx. $ Price 109.332)
    6/1/2032     3,595M     5.00%         3.07          3/8
                             (Approx. $ Price 108.111)
    6/1/2033    25,710M     5.00%         3.29          3/8
                             (Approx. $ Price 107.327)
    6/1/2055   161,270M     5.00%         3.47          1/2
                             (Approx. $ Price 106.537)

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CALL FEATURES:  No optional call

* - APPROXIMATE SUBJECT TO CHANGE
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Average Takedown

Maturity	Takedown	Weighted Par	Weighted Takedown	Compenstion
6/1/2026	3.75	0.43%	0.0159	3,919
6/1/2027	3.75	2.12%	0.0793	19,500
6/1/2027	3.75	1.61%	0.0605	14,869
6/1/2028	3.75	1.22%	0.0457	11,231
6/1/2028	3.75	2.77%	0.1038	25,519
6/1/2029	3.75	4.43%	0.1660	40,800
6/1/2030	3.75	5.07%	0.1903	46,763
6/1/2031	3.75	4.81%	0.1803	44,306
6/1/2032	3.75	1.46%	0.0549	13,481
6/1/2033	3.75	10.46%	0.3923	96,413
6/1/2055	5	65.62%	3.2812	806,350
Total		**100.00%**	**4.5703**	**1,123,150**

- Takedowns should be determined on a maturity-by-maturity basis

For Illustrative purposes

PFM's Pricing Process

Poll Question 6:

- What Data can be used to help determine a fair clearing level for a primary issuance of municipal bonds?

- Secondary Trading Activity
- Primary Market Comparable transactions
- Issuer's prior primary market transactions
- All of the Above

- We enter every pricing with an independent opinion of where the issuer's bonds should price.
- We begin our pricing preparations a week or more before we receive the underwriters' target scales.
- We prepare an "Issuer Target Scale" prior to the pricing and distribute it to our client (and the bankers).
- We are proactive throughout the pricing by monitoring order flow, intra-day interest rate movements, and competing primary/secondary offerings.
- We conduct post-pricing analysis to demonstrate to our clients how well the financing priced on a relative basis and what, if any, improvements and/or corrective actions are required for the next sale.

Bond Pricing Timeline

Pricing Group Assistance
Bond Pricing Timeline

Days before the Sale Date	Activity	Party Responsible	Days before the Sale Date	Activity	Party Responsible
At earliest known time	-Provide projected sale date for issues in the next 60 days	Project Manager (PM)	1-2 Business Days	-Develop couponing and term bond strategies	PG/PM
	-Create tentative calendar of upcoming pricings	Pricing Group (PG)		-Assess current market conditions	PG
10 Business Days	-Confirm sale date	PM		-Establish target scale	PG
	-Send completed Bond Pricing Group Term Sheet to Pricing Group	PM		-Communicate pricing expectations to the senior manager	PG
	-Provide deal info (sale date(s), par amnt., final maturity, syndicate, etc.)	PM	Day(s) of Pricing	-Negotiate retail and/or institutional scales	PG
5 Business Days	-Find appropriate recent comparables	PG/PM		-Monitor sale	PG
	-Run OAS historical pricing analyses	PG		-Monitor orders	PG
	-Run OAS comparable pricing analyses	PG		-Monitor market	PG
	-Provide POS, Rating Agency write-ups, DBC #'s, etc	PM		-Negotiate and agree to final pricing with the underwriter	PG
3-4 Business Days	-Produce trade data reports	PG	Post-pricing	-Prepare post-sale analysis	PM
	-Discuss electronic order entry set-up with underwriter	PM		-Request secondary trading analysis from Pricing Group	PM
	-Develop pricing call schedule and circulate to the Pricing Group	PM		-Run Trade Evaluator model	PG

1) **Analyze the client's pricing history relative to market benchmarks**
2) **Analyze how comparable primary market deals are pricing relative to market benchmarks**
3) **Analyze how comparable secondary market trades are pricing relative to market benchmarks**
4) **Consider state-and sector-specific trading ranges**
5) **Adjust/interpolate credit spreads for the maturity date(s) of the current issuance**
6) **Create an initial target scale**
7) **Share target scale and pricing worksheet with client (and banking team) prior to pricing**

PFM's Quantitative Pricing Approach

1) **Analyze the client's pricing history relative to market benchmarks**
2) **Analyze how comparable primary market deals are pricing relative to market benchmarks**
3) **Analyze how comparable secondary market trades are pricing relative to market benchmarks**
4) **Consider state-and sector-specific trading ranges**
5) **Adjust/interpolate credit spreads for the maturity date(s) of the current issuance**
6) **Create an initial target scale**
7) **Share target scale and pricing worksheet with client (and banking team) prior to pricing**

Issuer:	**Mass AAA Water Deal**
Series:	**Series 2023**
Security:	**Water & Sewer/Revenue**
Tax Status/Sale Type:	**Tax Exempt (Negotiated)**
Underwriter:	**Morgan Stanley**
Financial Advisor	**PFM Fin Advisors**
Par Amount (Avg Life):	**209,495,000 (11.8 years)**
Sale Date / Dated Date:	**4/29/2023**
Last Call Date (Call Tenor):	**02/01/2033 @ 100 (9.9 Yrs)**
Underlying Ratings (M/SP/F):	**Aaa/AAA/AAA**
Insured Ratings (M/SP/F):	**-/-/-**

Maturity Year (TSY)	Maturity Date	Maturity Tenor	Bond Type	Ins	Par Amount	Coupon	ROY	Price	YTC	YTM_	BVAL AAA MUNICIPAL CURVE			
											Scale	ROY Spread	YTC Spread	YTM Spread
<1														
1	2/1/2024	0.8	Serial		7,635,000	5.000%	0.080%	$103.550	0.080%	0.082%	0.080%	-	-	-
2	2/1/2025	1.8	Serial		7,065,000	5.000%	0.090%	$108.450	0.090%	0.089%	0.090%	-	-	-
3	2/1/2026	2.8	Serial		7,390,000	5.000%	0.170%	$113.110	0.170%	0.171%	0.170%	-	-	-
4	2/1/2027	3.8	Serial		7,740,000	5.000%	0.300%	$117.380	0.300%	0.301%	0.290%	1 bps	1 bps	1 bps
5	2/1/2028	4.8	Serial		8,105,000	5.000%	0.420%	$121.390	0.420%	0.420%	0.410%	1 bps	1 bps	1 bps
6	2/1/2029	5.8	Serial		8,315,000	5.000%	0.550%	$125.030	0.550%	0.550%	0.530%	2 bps	2 bps	2 bps
7	2/1/2030	6.9	Serial		8,710,000	5.000%	0.700%	$ 128.190	0.700%	0.700%	0.670%	3 bps	3 bps	3 bps
8	2/1/2031	7.9	Serial		9,130,000	5.000%	0.840%	$131.040	0.840%	0.840%	0.800%	4 bps	4 bps	4 bps
9	2/1/2032	8.9	Serial		9,565,000	5.000%	0.950%	$133.820	0.950%	0.950%	0.910%	4 bps	4 bps	4 bps
10	2/1/2033	9.9	Serial		10,020,000	5.000%	1.030%	$136.640	1.030%	1.030%	0.980%	5 bps	5 bps	5 bps
11	2/1/2034	10.9	Serial		10,085,000	5.000%	1.120%	$135.640	1.120%	1.407%	1.050%	7 bps	7 bps	36 bps
12	2/1/2035	11.9	Serial		10,565,000	5.000%	1.170%	$135.100	1.170%	1.687%	1.090%	8 bps	8 bps	60 bps
13	2/1/2036	12.9	Serial		11,075,000	5.000%	1.220%	$134.550	1.220%	1.925%	1.120%	10 bps	10 bps	81 bps
14	2/1/2037	14.0	Serial		11,605,000	5.000%	1.260%	$134.120	1.260%	2.121%	1.160%	10 bps	10 bps	96 bps
15	2/1/2038	15.0	Serial		12,170,000	5.000%	1.300%	$133.690	1.300%	2.291%	1.200%	10 bps	10 bps	109 bps
16	2/1/2039	16.0	Serial		12,760,000	5.000%	1.350%	$133.150	1.350%	2.447%	1.240%	11 bps	11 bps	121 bps
17	2/1/2040	17.0	Serial		13,380,000	5.000%	1.400%	$132.610	1.400%	2.585%	1.280%	12 bps	12 bps	131 bps
18	2/1/2041	18.0	Serial		14,030,000	5.000%	1.440%	$132.190	1.440%	2.702%	1.320%	12 bps	12 bps	138 bps
19	2/1/2042	19.0	Serial		14,715,000	5.000%	1.480%	$131.760	1.480%	2.807%	1.360%	12 bps	12 bps	145 bps
20	2/1/2043	20.1	Serial		15,435,000	5.000%	1.520%	$131.340	1.520%	2.902%	1.400%	12 bps	12 bps	150 bps

For Illustrative purposes

Comparable Transaction Analysis

Issuer:	New Mexico AAA Water Deal	New York AAA Water Deal	Wisconsin AAA Water Deal	Virginia AAA Water Deal
Series:	Senior Lien Public Project Revolving Fund Revenue Bonds, Series 2024	Revolving Funds Revenue Bonds, Series 2024 (Green Bonds)	Environmental Improvement Fund Revenue Bonds, Series 2024 (Green Bonds)	Infrastructure Revenue Bonds, Series 2024 (Virginia Pooled Financing Program)
Security:	Gen Purpose/Pub Impt/Revenue	Gen Purpose/Pub Impt/Revenue	Water & Sewer/Revenue	Gen Purpose/Pub Impt/Revenue
Sale Type:	Tax Exempt (Negotiated)	Tax Exempt (Negotiated)	Tax Exempt (Competitive)	Tax Exempt (Negotiated)
Underwriter:	JPMorgan	Jefferies	Morgan Stanley	Raymond James
Financial Advisor	PFM Fin Advisors	PFM Fin Advisors;Independent Pub Adv	PFM Fin Advisors	Other FA
Par Amount:	$67,500,000	$326,775,000	$50,000,000	$39,175,000
Sale Date:	11/3/2024	11/1/2024	10/25/2024	10/25/2024
Last Call Date:	6/1/2034 @ 100 (9.7Yrs)	9/15/2034 @ 100 (10Yrs)	6/1/2034 @ 100 (9.7Yrs)	11/1/2034 @ 100 (10.2Yrs)
Underlying Ratings:	Aa1/AAA/-	Aaa/AAA/AAA	-/AAA/AAA	Aaa/AAA/-
Insured Ratings:	-/-/-	-/-/-	-/-/-	-/-/-

New Mexico AAA Water Deal

Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1					
1	700	$100.95	5.000%	3.090%	2 bps
2	5,000	$102.65	5.000%	3.180%	2 bps
3	3,500	$104.25	5.000%	3.220%	3 bps
4	3,000	$105.72	5.000%	3.260%	5 bps
5	3,500	$107.15	5.000%	3.280%	6 bps
6	3,800	$108.44	5.000%	3.310%	7 bps
7	3,900	$109.57	5.000%	3.350%	9 bps
8	4,200	$110.59	5.000%	3.390%	11 bps
9	4,800	$111.73	5.000%	3.400%	11 bps
10	3,500	$112.21	5.000%	3.480%	13 bps
11	3,500	$111.35	5.000%	3.580%	17 bps
12	3,200	$110.00	5.000%	3.740%	21 bps
13	3,300	$109.33	5.000%	3.820%	24 bps
14	3,200	$108.83	5.000%	3.880%	27 bps
15	3,200	$108.25	5.000%	3.950%	30 bps
16	3,100	$107.60	5.000%	4.030%	36 bps
17	3,100	$106.94	5.000%	4.110%	40 bps
18	3,000	$106.22	5.000%	4.200%	41 bps
19	3,000	$105.81	5.000%	4.250%	41 bps
20	3,000	$105.65	5.000%	4.270%	41 bps
25					
30					
35	590	$108.80	5.000%	3.900%	42 bps

New York AAA Water Deal

Maturity Year (TSY)		Par (M)	Price	Coupon	Yield	BVAL Sprd
<1						
1	Mar	1,410	$100.53	5.000%	3.010%	-3 bps
	Sep	5,645	$101.45	5.000%	3.080%	4 bps
2	Mar	1,635	$102.29	5.000%	3.150%	0 bps
	Sep	5,420	$103.15	5.000%	3.160%	1 bps
3	Mar	1,715	$103.96	5.000%	3.180%	0 bps
	Sep	5,565	$104.79	5.000%	3.180%	0 bps
4	Mar	1,810	$105.45	5.000%	3.230%	3 bps
	Sep	5,725	$106.24	5.000%	3.230%	3 bps
5	Mar	1,900	$107.01	5.000%	3.230%	3 bps
	Sep	5,885	$107.77	5.000%	3.230%	3 bps
6	Mar	2,000	$108.21	5.000%	3.290%	7 bps
	Sep	6,050	$108.92	5.000%	3.290%	7 bps
7	Mar	2,105	$109.32	5.000%	3.340%	10 bps
	Sep	6,220	$109.99	5.000%	3.340%	10 bps
8	Mar	2,205	$110.57	5.000%	3.350%	10 bps
	Sep	6,395	$111.13	5.000%	3.360%	11 bps
9	Mar	2,310	$111.68	5.000%	3.370%	10 bps
	Sep	6,570	$112.13	5.000%	3.390%	12 bps
10	Mar	2,435	$112.21	5.000%	3.450%	13 bps
	Sep	6,760	$112.67	5.000%	3.460%	14 bps
11	Mar	2,540	$111.97	5.000%	3.540%	16 bps
	Sep	6,950	$111.71	5.000%	3.570%	19 bps
12	Mar	2,650	$110.58	5.000%	3.700%	20 bps
	Sep	7,135	$110.49	5.000%	3.710%	21 bps
13	Mar	2,775	$109.72	5.000%	3.800%	25 bps
	Sep	7,320	$109.63	5.000%	3.810%	26 bps
14		10,410	$109.12	5.000%	3.870%	28 bps
15		10,715	$108.61	5.000%	3.930%	30 bps
16		11,030	$108.19	5.000%	3.980%	33 bps
17		11,335	$107.77	5.000%	4.030%	34 bps
18		11,660	$107.02	5.000%	4.120%	35 bps
19		11,770	$106.52	5.000%	4.180%	36 bps
20		12,080	$106.35	5.000%	4.200%	36 bps
25		64,475	$104.64	5.000%	4.410%	42 bps
30		74,170	$106.28	5.250%	4.450%	39 bps
35						

Wisconsin AAA Water Deal

Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1					
1					
2	2,835	$102.68	5.000%	3.200%	3 bps
3	2,970	$104.23	5.000%	3.250%	5 bps
4	3,125	$105.63	5.000%	3.300%	6 bps
5	3,275	$107.07	5.000%	3.310%	7 bps
6	3,445	$108.28	5.000%	3.350%	7 bps
7	3,615	$109.31	5.000%	3.400%	10 bps
8	3,790	$110.21	5.000%	3.450%	13 bps
9	3,980	$110.99	5.000%	3.500%	15 bps
10	4,180	$111.56	5.000%	3.560%	15 bps
11	1,320	$110.79	5.000%	3.650%	18 bps
12	1,390	$109.53	5.000%	3.800%	21 bps
13	1,460	$109.11	5.000%	3.850%	23 bps
14	1,530	$108.61	5.000%	3.910%	26 bps
15	1,610	$108.28	5.000%	3.950%	28 bps
16	1,685	$107.86	5.000%	4.000%	31 bps
17	1,770	$107.45	5.000%	4.050%	32 bps
18	1,865	$106.88	5.000%	4.120%	33 bps
19	1,950	$106.48	5.000%	4.170%	33 bps
20	2,050	$106.23	5.000%	4.200%	34 bps
25					
30					
35					

Virginia AAA Water Deal

Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1					
1	565	$101.72	5.000%	3.160%	1 bps
2	810	$103.37	5.000%	3.210%	3 bps
3	855	$104.90	5.000%	3.250%	5 bps
4	895	$106.26	5.000%	3.300%	6 bps
5	935	$107.67	5.000%	3.310%	7 bps
6	990	$108.56	5.000%	3.400%	11 bps
7	1,040	$109.64	5.000%	3.430%	12 bps
8	1,090	$110.63	5.000%	3.460%	13 bps
9	1,145	$111.37	5.000%	3.510%	13 bps
10	1,210	$111.89	5.000%	3.570%	15 bps
11	1,265	$110.92	5.000%	3.680%	18 bps
12	1,340	$109.52	5.000%	3.840%	24 bps
13	1,410	$108.66	5.000%	3.940%	31 bps
14	1,485	$108.32	5.000%	3.980%	33 bps
15	1,565	$108.06	5.000%	4.010%	34 bps
16	1,635	$107.72	5.000%	4.050%	36 bps
17	1,730	$107.30	5.000%	4.100%	37 bps
18	270	$106.37	5.000%	4.210%	42 bps
19	1,885	$99.37	4.500%	4.550%	71 bps
20	850	$105.54	5.000%	4.310%	45 bps
25	7,635	$106.29	5.250%	4.460%	47 bps
30	5,905	$97.65	4.750%	4.900%	86 bps
35					

For Illustrative purposes

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2) Analyze how comparable primary market deals are pricing relative to market benchmarks
3) **Analyze how comparable secondary market trades are pricing relative to market benchmarks**
4) **Consider state-and sector-specific trading ranges**
5) Adjust/interpolate credit spreads for the maturity date(s) of the current issuance
6) Create an initial target scale
7) Share target scale and pricing worksheet with client (and banking team) prior to pricing

Recent High Grade Water Trades

Maturity	Issuer	State	Sector	Underlying	Insurer	Tax Status	Trade Date	Par Amount	Price	Coupon	Yield	Spread to BVAL	Call Tenor
2028	Texas Water Development Board	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/09/24	$1,250,000	105.68	5.00%	3.23%	9 bps	Non-Call
2028	Texas Water Development Board	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/09/24	$1,250,000	105.65	5.00%	3.24%	10 bps	Non-Call
2028	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/08/24	$5,000,000	106.00	5.00%	3.22%	6 bps	Non-Call
2028	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/08/24	$5,000,000	105.98	5.00%	3.22%	6 bps	Non-Call
2028	Texas Water Development Board (TX)	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/07/24	$1,355,000	92.49	2.00%	4.09%	90 bps	Non-Call
2029	Texas Water Development Board (TX)	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/08/24	$1,500,000	107.56	5.00%	3.26%	9 bps	Non-Call
2029	Texas Water Development Board (TX)	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/08/24	$1,500,000	107.55	5.00%	3.26%	9 bps	Non-Call
2029	Trinity River Authority of Texas	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/08/24	$3,805,000	107.47	5.00%	3.28%	11 bps	Non-Call
2032	New York State Environmental Facilitie	NY	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/10/24	$1,750,000	113.04	5.00%	3.06%	0 bps	Non-Call
2032	New York State Environmental Facilitie	NY	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/10/24	$1,750,000	112.84	5.00%	3.09%	3 bps	Non-Call
2033	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/10/24	$1,265,000	113.21	5.00%	3.23%	15 bps	7.7Yrs
2033	The Metropolitan Water District of Sou	CA	Water & Sewer	Aa1/AAA/-		Tax Exempt	11/08/24	$1,000,000	114.25	5.00%	3.15%	-11 bps	Non-Call
2033	Texas Water Development Board	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/08/24	$4,985,000	103.08	4.00%	3.55%	29 bps	8.1Yrs
2033	Texas Water Development Board	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/08/24	$4,985,000	103.06	4.00%	3.55%	30 bps	8.1Yrs
2034	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/08/24	$1,185,000	111.09	5.00%	3.42%	13 bps	8.2Yrs
2034	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/08/24	$1,165,000	110.89	5.00%	3.45%	16 bps	8.2Yrs
2035	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/08/24	$1,950,000	109.99	5.00%	3.64%	26 bps	8.7Yrs
2035	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/08/24	$1,950,000	110.00	5.00%	3.64%	26 bps	8.7Yrs
2035	Texas Water Development Board (TX)	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/08/24	$1,460,000	111.65	5.00%	3.57%	18 bps	9.9Yrs
2035	Texas Water Development Board (TX)	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/08/24	$1,460,000	111.64	5.00%	3.57%	18 bps	9.9Yrs
2036	Iowa Finance Authority	IA	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/08/24	$1,100,000	108.76	5.00%	3.69%	21 bps	7.8Yrs
2036	Iowa Finance Authority	IA	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/08/24	$1,100,000	108.71	5.00%	3.69%	22 bps	7.8Yrs
2036	City of Cincinnati (OH)	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/08/24	$1,495,000	110.43	5.00%	3.64%	14 bps	9.2Yrs
2036	Ohio Water Development Authority	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/08/24	$1,770,000	87.26	3.00%	4.37%	87 bps	7.2Yrs
2036	Ohio Water Development Authority	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/08/24	$1,770,000	87.18	3.00%	4.38%	88 bps	7.2Yrs
2036	Ohio Water Development Authority	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/08/24	$1,100,000	107.83	5.00%	3.73%	23 bps	7.2Yrs
2036	Ohio Water Development Authority	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/08/24	$1,100,000	107.78	5.00%	3.74%	23 bps	7.2Yrs
2036	City of Cincinnati (OH)	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/09/24	$1,495,000	110.81	5.00%	3.59%	11 bps	9.2Yrs
2039	Gilbert Water Resources Municipal Pro	AZ	Water & Sewer	-/AAA/AAA		Tax Exempt	11/09/24	$2,300,000	109.29	5.00%	3.84%	20 bps	9.8Yrs
2039	Gilbert Water Resources Municipal Pro	AZ	Water & Sewer	-/AAA/AAA		Tax Exempt	11/09/24	$3,000,000	109.29	5.00%	3.84%	20 bps	9.8Yrs
2039	Western Municipal Water District Facil	CA	Water & Sewer	-/AA+/AAA		Tax Exempt	11/09/24	$2,795,000	109.17	5.00%	3.65%	0 bps	8.0Yrs
2039	Western Municipal Water District Facil	CA	Water & Sewer	-/AA+/AAA		Tax Exempt	11/09/24	$2,795,000	108.98	5.00%	3.68%	3 bps	8.0Yrs
2039	Ohio Water Development Authority	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/10/24	$3,470,000	99.22	4.00%	4.07%	58 bps	8.2Yrs
2040	Texas Water Development Board (TX)	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/08/24	$1,170,000	108.66	5.00%	3.92%	23 bps	9.9Yrs
2040	Texas Water Development Board (TX)	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/09/24	$1,170,000	109.92	5.00%	3.77%	9 bps	9.9Yrs
2041	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/08/24	$2,110,000	106.26	5.00%	4.20%	48 bps	9.7Yrs
2041	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/08/24	$2,110,000	106.02	5.00%	4.23%	51 bps	9.7Yrs
2041	City of Charlotte	NC	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/08/24	$1,880,000	109.95	5.00%	3.76%	4 bps	9.8Yrs
2041	City of Charlotte	NC	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/08/24	$1,880,000	109.95	5.00%	3.76%	4 bps	9.8Yrs
2042	New York State Environmental Facilitie	NY	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/09/24	$2,575,000	93.62	4.00%	4.53%	79 bps	9.7Yrs
2042	New York State Environmental Facilitie	NY	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/09/24	$2,575,000	93.58	4.00%	4.53%	79 bps	9.7Yrs
2042	New York City Municipal Water Financ	NY	Water & Sewer	Aa1/AA+/AA+		Tax Exempt	11/10/24	$1,100,000	104.89	5.00%	4.20%	62 bps	7.2Yrs
2042	City of Charlotte	NC	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/07/24	$1,735,000	109.19	5.00%	3.85%	6 bps	9.8Yrs
2042	City of Charlotte	NC	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/07/24	$1,735,000	109.09	5.00%	3.86%	8 bps	9.8Yrs
2042	Texas Water Development Board (TX)	TX	Water & Sewer	-/AAA/AAA		Tax Exempt	11/10/24	$1,700,000	102.80	4.65%	4.30%	71 bps	10.1Yrs
2043	Massachusetts Clean Water Trust (MA	MA	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/09/24	$1,650,000	107.61	5.00%	3.91%	14 bps	8.4Yrs
2043	Massachusetts Clean Water Trust (MA	MA	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/09/24	$1,650,000	107.36	5.00%	3.94%	18 bps	8.4Yrs
2043	City of Charlotte	NC	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/08/24	$1,795,000	108.77	5.00%	3.90%	10 bps	9.8Yrs
2043	City of Charlotte	NC	Water & Sewer	Aaa/AAA/AAA		Tax Exempt	11/08/24	$1,795,000	108.77	5.00%	3.90%	10 bps	9.8Yrs
2046	Ohio Water Development Authority	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/10/24	$2,450,000	105.33	5.00%	4.12%	40 bps	7.2Yrs
2046	Ohio Water Development Authority	OH	Water & Sewer	Aaa/AAA/-		Tax Exempt	11/10/24	$2,450,000	105.32	5.00%	4.12%	40 bps	7.2Yrs

For Illustrative purposes

PFM's Quantitative Pricing Approach

1) Analyze the client's pricing history relative to market benchmarks
2) Analyze how comparable primary market deals are pricing relative to market benchmarks
3) Analyze how comparable secondary market trades are pricing relative to market benchmarks
4) Consider state-and sector-specific trading ranges
5) **Adjust/interpolate credit spreads for the maturity date(s) of the current issuance**
6) **Create an initial target scale**
7) Share target scale and pricing worksheet with client (and banking team) prior to pricing

Initial Target Scale

Mass AAA Water Deal (Aaa/AAA/AAA) - SERIES 2024 Pricing Worksheet

						PFM 5% CPN / 9.2 yr PC Scale				Spread to
Year		Term	Avg Life	Principal	Coupon	ROY	YTC	YTM	Price	Interpolated BVAL
2/1/2026	1.1			$ 18,640,000	5.000%	2.63%			102.619	-1 bps
2/1/2027	2.1			$ 20,940,000	5.000%	2.68%			104.770	-1 bps
2/1/2028	3.1			$ 21,645,000	5.000%	2.72%			106.794	-1 bps
2/1/2029	4.1			$ 22,385,000	5.000%	2.77%			108.644	-1 bps
2/1/2030	5.1			$ 22,070,000	5.000%	2.79%			110.493	1 bps
2/1/2031	6.1			$ 22,745,000	5.000%	2.84%			112.071	3 bps
2/1/2032	7.1			$ 23,540,000	5.000%	2.85%			113.781	5 bps
2/1/2033	8.1			$ 24,370,000	5.000%	2.88%			115.266	5 bps
2/1/2034	9.1			$ 25,010,000	5.000%	2.90%			116.736	5 bps
2/1/2035	10.1			$ 25,910,000	5.000%	2.94%		3.10%	116.387	5 bps
2/1/2036	11.1			$ 14,050,000	5.000%	3.09%		3.36%	115.090	8 bps
2/1/2037	12.1			$ 14,525,000	5.000%	3.22%		3.57%	113.980	10 bps
2/1/2038	13.1			$ 15,010,000	5.000%	3.35%		3.75%	112.883	13 bps
2/1/2039	14.1			$ 15,530,000	5.000%	3.42%		3.86%	112.297	16 bps
2/1/2040	15.1			$ 16,070,000	5.000%	3.48%		3.96%	111.798	17 bps
2/1/2041	16.1			$ 16,540,000	5.000%	3.50%		4.01%	111.632	17 bps
2/1/2042	17.1			$ 17,135,000	5.000%	3.53%		4.07%	111.384	19 bps
2/1/2043	18.1			$ 17,755,000	5.000%	3.59%		4.14%	110.890	19 bps
2/1/2044	19.1			$ 18,400,000	5.000%	3.61%		4.18%	110.726	19 bps
2/1/2045	20.1			$ 19,075,000	5.000%	3.64%		4.22%	110.480	20 bps

Total Par	$391,345,000
Avg Life	10.1 years
PV01	$ 262,467

Call Date: 2/1/2034

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PFM's Quantitative Pricing Approach

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3) Analyze how comparable secondary market trades are pricing relative to market benchmarks
4) Consider state-and sector-specific trading ranges
5) Adjust/interpolate credit spreads for the maturity date(s) of the current issuance
6) Create an initial target scale
7) **Share target scale and pricing worksheet with client (and banking team) prior to pricing**

Negotiated Sales

NEGOTIATED SALE

↓

Hire underwriting syndicate

↓

Syndicate pre-markets BONDS

↓

PFM & Sr. underwriter negotiate pricing wire scale

↓

Pricing wire released & bonds offered directly to investors

↓

Underwriting syndicate takes orders

↓

Final price negotiated

Maturity	Consensus	Lead Underwriter	Co Senior Underwriter	Co Senior Underwriter	Co Managing Underwriter	Co Managing Underwriter	Co Managing Underwriter
2/1/2026	5 bps	7 bps	4 bps	3 bps	9 bps	7 bps	2 bps
2/1/2027	5 bps	7 bps	4 bps	3 bps	9 bps	7 bps	2 bps
2/1/2028	5 bps	7 bps	4 bps	3 bps	9 bps	7 bps	2 bps
2/1/2029	5 bps	7 bps	4 bps	3 bps	9 bps	7 bps	2 bps
2/1/2030	7 bps	9 bps	6 bps	5 bps	11 bps	9 bps	4 bps
2/1/2031	9 bps	11 bps	8 bps	7 bps	13 bps	11 bps	6 bps
2/1/2032	11 bps	13 bps	10 bps	9 bps	15 bps	13 bps	8 bps
2/1/2033	11 bps	13 bps	10 bps	9 bps	15 bps	13 bps	8 bps
2/1/2034	11 bps	13 bps	10 bps	9 bps	15 bps	13 bps	8 bps
2/1/2035	11 bps	13 bps	10 bps	9 bps	15 bps	12 bps	7 bps
2/1/2036	14 bps	16 bps	13 bps	12 bps	18 bps	15 bps	10 bps
2/1/2037	16 bps	18 bps	15 bps	14 bps	20 bps	17 bps	12 bps
2/1/2038	19 bps	21 bps	18 bps	17 bps	23 bps	20 bps	15 bps
2/1/2039	22 bps	24 bps	21 bps	20 bps	26 bps	23 bps	18 bps
2/1/2040	23 bps	25 bps	22 bps	21 bps	27 bps	24 bps	19 bps
2/1/2041	23 bps	25 bps	22 bps	21 bps	27 bps	24 bps	19 bps
2/1/2042	25 bps	27 bps	24 bps	23 bps	29 bps	26 bps	21 bps
2/1/2043	25 bps	27 bps	24 bps	23 bps	29 bps	26 bps	21 bps
2/1/2044	25 bps	27 bps	24 bps	23 bps	29 bps	26 bps	21 bps
2/1/2045	26 bps	28 bps	25 bps	24 bps	30 bps	27 bps	22 bps

For Illustrative purposes

NEGOTIATED SALE

↓

Hire underwriting syndicate

↓

Syndicate pre-markets <u>BONDS</u>

↓

PFM & Sr. underwriter negotiate pricing wire scale

↓

Pricing wire released & bonds offered directly to investors

↓

Underwriting syndicate takes orders

↓

Final price negotiated

Pricing Wire

```
$391,345,000*
  SERIES 2024
  MOODY'S: Aaa                  S&P: AAA                 FITCH: AAA
  DATED:12/14/2024   FIRST COUPON:08/01/2025
  DUE: 02/01
   MATURITY      AMOUNT*     COUPON   PRICE (Pts)
     2/01/2026    18,640M     5.00%          2.54
                          (Approx. $ Price 102.721)
     2/01/2027    20,940M     5.00%          2.56
                          (Approx. $ Price 105.025)
     2/01/2028    21,645M     5.00%          2.61
                          (Approx. $ Price 107.136)
     2/01/2029    22,385M     5.00%          2.63
                          (Approx. $ Price 109.216)
     2/01/2030    22,070M     5.00%          2.69
                          (Approx. $ Price 110.998)
     2/01/2031    22,745M     5.00%          2.74
                          (Approx. $ Price 112.671)
     2/01/2032    23,540M     5.00%          2.77
                          (Approx. $ Price 114.336)
     2/01/2033    24,370M     5.00%          2.79
                          (Approx. $ Price 115.973)
     2/01/2034    25,010M     5.00%          2.80
                          (Approx. $ Price 117.613)
     2/01/2035    25,910M     5.00%          2.82
                        (Approx. $ Price PTC 02/01/2032 117.437)
     2/01/2036    14,050M     5.00%          2.96
                        (Approx. $ Price PTC 02/01/2032 116.213)
     2/01/2037    14,525M     5.00%          3.08
                        (Approx. $ Price PTC 02/01/2032 115.176)
     2/01/2038    15,010M     5.00%          3.23
                        (Approx. $ Price PTC 02/01/2032 113.895)
     2/01/2039    15,530M     5.00%          3.33
                        (Approx. $ Price PTC 02/01/2032 113.051)
     2/01/2040    16,070M     5.00%          3.39
                        (Approx. $ Price PTC 02/01/2032 112.548)
     2/01/2041    16,540M     5.00%          3.40
                        (Approx. $ Price PTC 02/01/2032 112.464)
     2/01/2042    17,135M     5.00%          3.43
                        (Approx. $ Price PTC 02/01/2032 112.214)
     2/01/2043    17,755M     5.00%          3.49
                        (Approx. $ Price PTC 02/01/2032 111.715)
     2/01/2044    18,400M     5.00%          3.51
                        (Approx. $ Price PTC 02/01/2032 111.549)
     2/01/2045    19,075M     5.00%          3.54
                        (Approx. $ Price PTC 02/01/2032 111.301)
```

For Illustrative purposes

NEGOTIATED SALE

Hire underwriting syndicate

Syndicate pre-markets BONDS

PFM & Sr. underwriter negotiate pricing wire scale

Pricing wire released & bonds offered directly to investors

Underwriting syndicate takes orders

Final price negotiated

Mass AAA Water Deal Series 2024 Order Analysis

Quick Statistics

• Series Overview

Maturities: 50
Issuance Par: $391,345

% Subscription: 353.65%

• Account Overview

#Accounts 37
Total Priority Orders: 409

Total Orders: $1,384M
Full Orders: 99

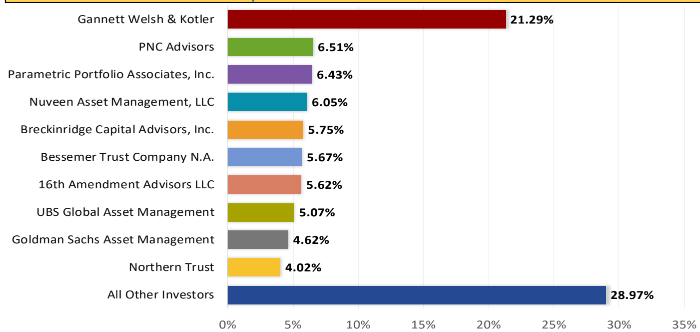
• Order Overview

• Order Statistics

Underwriter Overview - Top 5

Underwriter	# Orders	Total Priority	Institutional	Retail	Stock
BofA Securities, NY	342	$1,368,935	$521,590	$847,345	
Citigroup Global	24	$2,225		$2,225	$40,000
Ramirez & Co.	14	$200		$200	$32,500
UBS Financial Svc	4				$26,215
Raymond James & Asso	10	$1,615		$1,615	$20,000
Top 5 Underwriters Total:	394	$1,372,975	$521,590	$851,385	$118,715

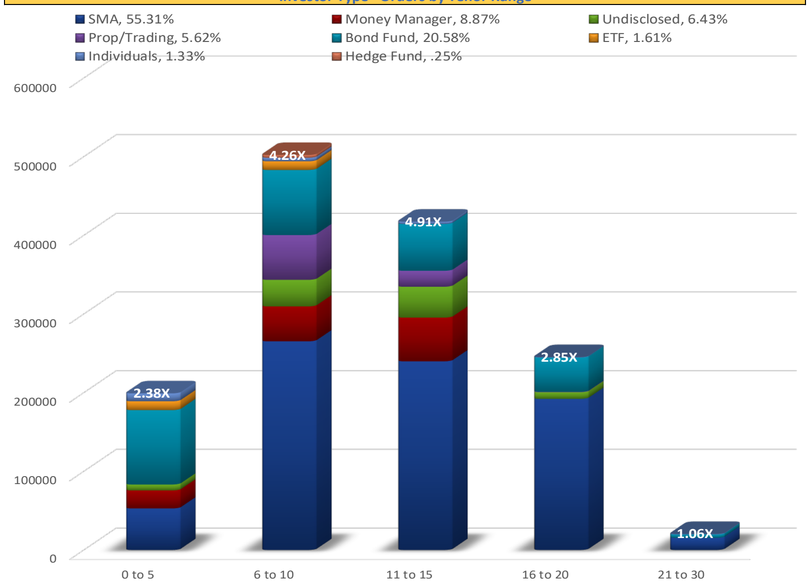
Top 10 Accounts - % Of Total Orders



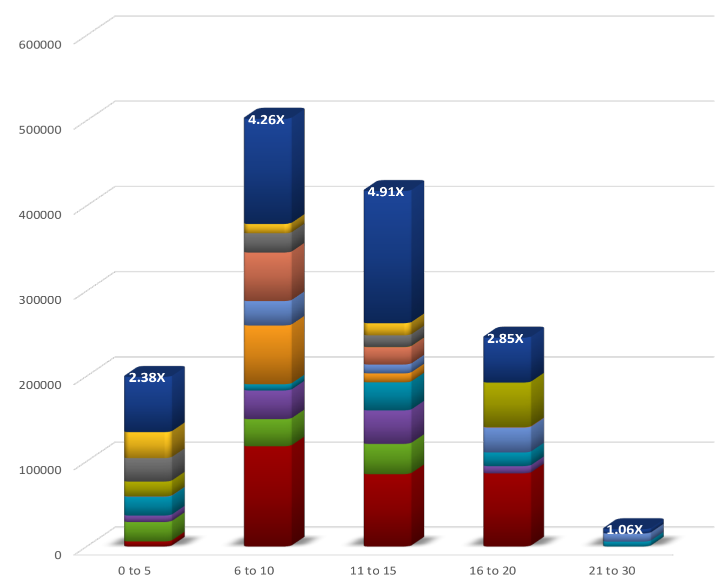
Top 10 Investors

Account	Type	Order Count	Full Orders	Total Orders	%Par	% Total Orders
Gannett Welsh & Kotler	SMA	38	36	$294,660	75.29%	21.29%
PNC Advisors	Money Manager	14	14	$90,060	23.01%	6.51%
Parametric Portfolio Associates, Inc.	Undisclosed	18	12	$88,995	22.74%	6.43%
Nuveen Asset Management, LLC	SMA	15	6	$83,670	21.38%	6.05%
Breckinridge Capital Advisors, Inc.	SMA	14	4	$79,620	20.35%	5.75%
Bessemer Trust Company N.A.	SMA	19	0	$78,420	20.04%	5.67%
16th Amendment Advisors LLC	Prop/Trading	28	0	$77,820	19.89%	5.62%
UBS Global Asset Management	SMA	13	5	$70,235	17.95%	5.07%
Goldman Sachs Asset Management	Bond Fund	12	9	$63,915	16.33%	4.62%
Northern Trust	Bond Fund	12	2	$55,630	14.22%	4.02%
Top 10 Invesors Total:		183	88	$983,025	251.19%	71.03%

Investor Type - Orders by Tenor Range



Top 10 Accounts - Orders by Tenor Range



For Illustrative purposes

Order Detail

Mass AAA Water Deal Series 2024 Order Detail Analysis																					
Maturity	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	Totals
Coupon	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
Par	18,640	20,940	21,645	22,385	22,070	22,745	23,540	24,370	25,010	25,910	14,050	14,525	15,010	15,530	16,070	16,540	17,135	17,755	18,400	19,075	391,345
Priority Orders	26,655	33,470	43,895	95,065	112,895	104,400	64,485	85,410	134,940	103,630	80,160	63,460	82,345	87,725	60,680	32,310	62,855	57,425	31,890	20,295	1,383,990
Subscription	143%	160%	203%	425%	512%	459%	274%	350%	540%	400%	571%	437%	549%	565%	378%	195%	367%	323%	173%	106%	354%
Gannett Welsh & Kotler		3000	3000		22070	22745	23540	24370	25010	25910	14050	14525	15010	15530	16070	16540	17135	17755	18400		294660
PNC Advisors	5245	5750	5860	5975	6095	6215	6345	6480	6625	6765	6920	7090	7255	7440							90060
Parametric Portfolio Associates, Inc.	55	30		7450	6930	7850	6080	6320	6580	6845	7130	7435	7755	10090	8445						88995
Nuveen Asset Management, LLC	5000	5500	5750	5500	5165	1000			1000				15010	17930	16070					5745	83670
Breckinridge Capital Advisors, Inc.					10315	22235		18050	18430		3500	7090									79620
Bessemer Trust Company N.A.			650		5160	6265	5560	5800	5900	8650	1750					2500	8565	8880	9200	9540	78420
16th Amendment Advisors LLC						14100	14650	14000	14200	13100	7000		100	100	210	155	80		50	75	77820
UBS Global Asset Management				17530										305			25735	26665			70235
Goldman Sachs Asset Management		5750	21645	200	6095	6215	700	3000	6625	6765	6920										63915
Northern Trust	9070	10130		11175	11040						7000	7215									55630
Cap Group				11195	11040	11375			12505												46115
Alliance Bernstein				15290											7445	12815	9340				44890
Eagle Asset Management, Inc.								6480	6625	6765	6920			7440	7625						41855
INSIGHT INVESTMENT MANAGEMENT									12600	12950	7100										32650
Blackrock Financial Management SMA	2685		170	2725	25	85		45	6640	3500	7100	10	100	4075					10		27170
RSW Investments LLC													11385	11810							23195
CW Henderson													12765	8105							20870
Franklin Fund	650	2465	2190	4610	1985	925	285	75	385	980	1290	1645	1050	1170				25	25		19755
Individuals	3635	845	4305	1210	315	190	2175	740	1040	150	100	75	1750	805	135	300			5	635	18410
Invesco-Van Kampen												7220	7510								14730
STERLING CAPITAL					8000					5000											13000
Eaton Vance																		4100	4200	4300	12600
American Century											2505	2505	2505	2505	2505						12525
Glenmede Trust Company												8500									8500
Deutsche Bank Asset Management									8000												8000
Evercore Wealth Managment LLC						5000	2000														7000
Appleton Partners, Inc.										6150											6150
Clark Capital Management Group Inc					6095																6095
Boston Company			300		25	100	125	50	175	100	125	150	150	175	2175		1000				4650
Colony Group					1500				2000												3500
Bailard Inc.							2000														2000
First Republic Bank				1000			1000														2000
Lord Abbett	115					100			600		725			245							1785
William Jones & Associates																	1000				1000
CIBC Private Wealth Advisors, Inc.	200		25								25										250
Columbia Management Advisors							25														25
Grand Total	**26655**	**33470**	**43895**	**95065**	**112895**	**104400**	**64485**	**85410**	**134940**	**103630**	**80160**	**63460**	**82345**	**87725**	**60680**	**32310**	**62855**	**57425**	**31890**	**20295**	**1383990**

For Illustrative purposes

Mass AAA Water Deal Series 2024 Order Summary Update

Maturity	Coupon	ROY	Spread	Amount	Retail	Institutional	Stock	Priority Orders	Priority Orders	Priority Balance	Priority Subscription	PFM Reprice	UW Reprice	Difference	Final Reprice	Final Spread	Final Yield
2026	5.00%	2.54%	0 bps	18,640	19,455	7,200	4,500	26,655	10	(8,015)	143%	-1	0	(1)	-1	(1)	2.53%
2027	5.00%	2.56%	0 bps	20,940	19,220	14,250	4,500	33,470	8	(12,530)	160%	-1	0	(1)	-1	(1)	2.55%
2028	5.00%	2.61%	0 bps	21,645	13,500	30,395	4,500	43,895	13	(22,250)	203%	-2	0	(2)	-2	(2)	2.59%
2029	5.00%	2.63%	0 bps	22,385	35,510	59,555	4,500	95,065	25	(72,680)	425%	-4	-3	(1)	-4	(4)	2.59%
2030	5.00%	2.69%	3 bps	22,070	63,355	49,540	4,500	112,895	27	(90,825)	512%	-5	-3	(2)	-5	(2)	2.64%
2031	5.00%	2.74%	5 bps	22,745	64,030	40,370	8,500	104,400	26	(81,655)	459%	-5	-3	(2)	-5	0	2.69%
2032	5.00%	2.77%	7 bps	23,540	45,825	18,660	12,845	64,485	18	(40,945)	274%	-3	-1	(2)	-3	4	2.74%
2033	5.00%	2.79%	7 bps	24,370	64,360	21,050	10,980	85,410	19	(61,040)	350%	-4	-2	(2)	-4	3	2.75%
2034	5.00%	2.80%	7 bps	25,010	78,010	56,930	19,125	134,940	31	(109,930)	540%	-4	-3	(1)	-4	3	2.76%
2035	5.00%	2.82%	7 bps	25,910	55,015	48,615	13,265	103,630	21	(77,720)	400%	-5	-3	(2)	-5	2	2.77%
2036	5.00%	2.96%	10 bps	14,050	39,035	41,125	6,500	80,160	23	(66,110)	571%	-5	-3	(2)	-5	5	2.91%
2037	5.00%	3.08%	12 bps	14,525	43,020	20,440	4,500	63,460	18	(48,935)	437%	-5	-3	(2)	-5	7	3.03%
2038	5.00%	3.23%	15 bps	15,010	68,700	13,645	8,500	82,345	21	(67,335)	549%	-5	-3	(2)	-5	10	3.18%
2039	5.00%	3.33%	18 bps	15,530	75,055	12,670	8,500	87,725	25	(72,195)	565%	-5	-3	(2)	-5	13	3.28%
2040	5.00%	3.39%	20 bps	16,070	56,175	4,505	3,000	60,680	14	(44,610)	378%	-3	-1	(2)	-3	17	3.36%
2041	5.00%	3.40%	20 bps	16,540	27,310	5,000	3,000	32,310	7	(15,770)	195%	-3	0	(3)	-3	17	3.37%
2042	5.00%	3.43%	20 bps	17,135	40,090	22,765	5,000	62,855	13	(45,720)	367%	-3	-2	(1)	-3	17	3.40%
2043	5.00%	3.49%	20 bps	17,755	35,535	21,890	3,000	57,425	10	(39,670)	323%	-3	-2	(1)	-3	17	3.46%
2044	5.00%	3.51%	20 bps	18,400	18,490	13,400	3,000	31,890	9	(13,490)	173%	-2	0	(2)	-3	17	3.48%
2045	5.00%	3.54%	20 bps	19,075	710	19,585	4,000	20,295	6	(1,220)	106%	0	0	0	0	20	3.54%
Totals:				**391,345**	**862,400**	**521,590**	**136,215**	**1,383,990**	**344**	**0**	**354%**						

For Illustrative purposes

Pricing Wire

$391,345,000*
SERIES 2024

MOODY'S: Aaa S&P: AAA FITCH: AAA

DATED:12/14/2024 FIRST COUPON:08/01/2025

DUE: 02/01

MATURITY	AMOUNT*	COUPON	PRICE (Pts)	
2/01/2026	18,640M	5.00%	2.54	(Approx. $ Price 102.721)
2/01/2027	20,940M	5.00%	2.56	(Approx. $ Price 105.025)
2/01/2028	21,645M	5.00%	2.61	(Approx. $ Price 107.136)
2/01/2029	22,385M	5.00%	2.63	(Approx. $ Price 109.216)
2/01/2030	22,070M	5.00%	2.69	(Approx. $ Price 110.998)
2/01/2031	22,745M	5.00%	2.74	(Approx. $ Price 112.671)
2/01/2032	23,540M	5.00%	2.77	(Approx. $ Price 114.336)
2/01/2033	24,370M	5.00%	2.79	(Approx. $ Price 115.973)
2/01/2034	25,010M	5.00%	2.80	(Approx. $ Price 117.613)
2/01/2035	25,910M	5.00%	2.82	(Approx. $ Price PTC 02/01/2032 117.437)
2/01/2036	14,050M	5.00%	2.96	(Approx. $ Price PTC 02/01/2032 116.213)
2/01/2037	14,525M	5.00%	3.08	(Approx. $ Price PTC 02/01/2032 115.176)
2/01/2038	15,010M	5.00%	3.23	(Approx. $ Price PTC 02/01/2032 113.895)
2/01/2039	15,530M	5.00%	3.33	(Approx. $ Price PTC 02/01/2032 113.051)
2/01/2040	16,070M	5.00%	3.39	(Approx. $ Price PTC 02/01/2032 112.548)
2/01/2041	16,540M	5.00%	3.40	(Approx. $ Price PTC 02/01/2032 112.464)
2/01/2042	17,135M	5.00%	3.43	(Approx. $ Price PTC 02/01/2032 112.214)
2/01/2043	17,755M	5.00%	3.49	(Approx. $ Price PTC 02/01/2032 111.715)
2/01/2044	18,400M	5.00%	3.51	(Approx. $ Price PTC 02/01/2032 111.549)
2/01/2045	19,075M	5.00%	3.54	(Approx. $ Price PTC 02/01/2032 111.301)

Re-Pricing Wire

$391,345,000*
SERIES 2024

MOODY'S: Aaa S&P: AAA FITCH: AAA

DATED:12/14/2024 FIRST COUPON:08/01/2025

DUE: 02/01

MATURITY	AMOUNT*	COUPON	PRICE (Pts)		
2/01/2026	18,640M	5.00%	2.53	(Approx. $ Price 102.732)	-1
2/01/2027	20,940M	5.00%	2.55	(Approx. $ Price 105.046)	-1
2/01/2028	21,645M	5.00%	2.59	(Approx. $ Price 107.199)	-2
2/01/2029	22,385M	5.00%	2.59	(Approx. $ Price 109.380)	-4
2/01/2030	22,070M	5.00%	2.64	(Approx. $ Price 111.251)	-5
2/01/2031	22,745M	5.00%	2.69	(Approx. $ Price 112.972)	-5
2/01/2032	23,540M	5.00%	2.74	(Approx. $ Price 114.545)	-3
2/01/2033	24,370M	5.00%	2.75	(Approx. $ Price 116.289)	-4
2/01/2034	25,010M	5.00%	2.76	(Approx. $ Price 117.966)	-4
2/01/2035	25,910M	5.00%	2.77	(Approx. $ Price PTC 02/01/2032 117.878)	-5
2/01/2036	14,050M	5.00%	2.91	(Approx. $ Price PTC 02/01/2032 116.649)	-5
2/01/2037	14,525M	5.00%	3.03	(Approx. $ Price PTC 02/01/2032 115.607)	-5
2/01/2038	15,010M	5.00%	3.18	(Approx. $ Price PTC 02/01/2032 114.320)	-5
2/01/2039	15,530M	5.00%	3.28	(Approx. $ Price PTC 02/01/2032 113.472)	-5
2/01/2040	16,070M	5.00%	3.36	(Approx. $ Price PTC 02/01/2032 112.799)	-3
2/01/2041	16,540M	5.00%	3.37	(Approx. $ Price PTC 02/01/2032 112.715)	-3
2/01/2042	17,135M	5.00%	3.40	(Approx. $ Price PTC 02/01/2032 112.464)	-3
2/01/2043	17,755M	5.00%	3.46	(Approx. $ Price PTC 02/01/2032 111.964)	-3
2/01/2044	18,400M	5.00%	3.49	(Approx. $ Price PTC 02/01/2032 111.715)	-2
2/01/2045	19,075M	5.00%	3.54	(Approx. $ Price PTC 02/01/2032 111.301)	0

For Illustrative purposes

After finalizing the structure for the bonds and making any necessary adjustment to the yields after the order period, the underwriters will provide the final interest rate scale.

Upon approval of the final scale, the underwriter will offer to buy the bonds, and ask for the verbal award.

PFM's Post Pricing Analysis

Poll Question 7:

- How long after a primary market transaction has priced can secondary trades typically be considered reliable indicators of the primary market clearing levels?

- 6 Months
- 1 Month
- Settlement
- 3 days

Trade Evaluator

Non-PFM Issuer

Series 2024

Original Par Amount	**Sale Date**	**Dated Date**	**Financial Advisor**	**Underwriter**	**Underlying Ratings**
1,871,420,000	3/18/2024	4/2/2024			Moody's -
					S&P AA+
Trade Start Date	**Trade End Date**	**Bond Insurer**	**Use of Proceeds**	**Tax Status**	Fitch AA+
3/18/2024	4/17/2024	Not Insured	Gen Purpose/Pub Impt	Tax Exempt	

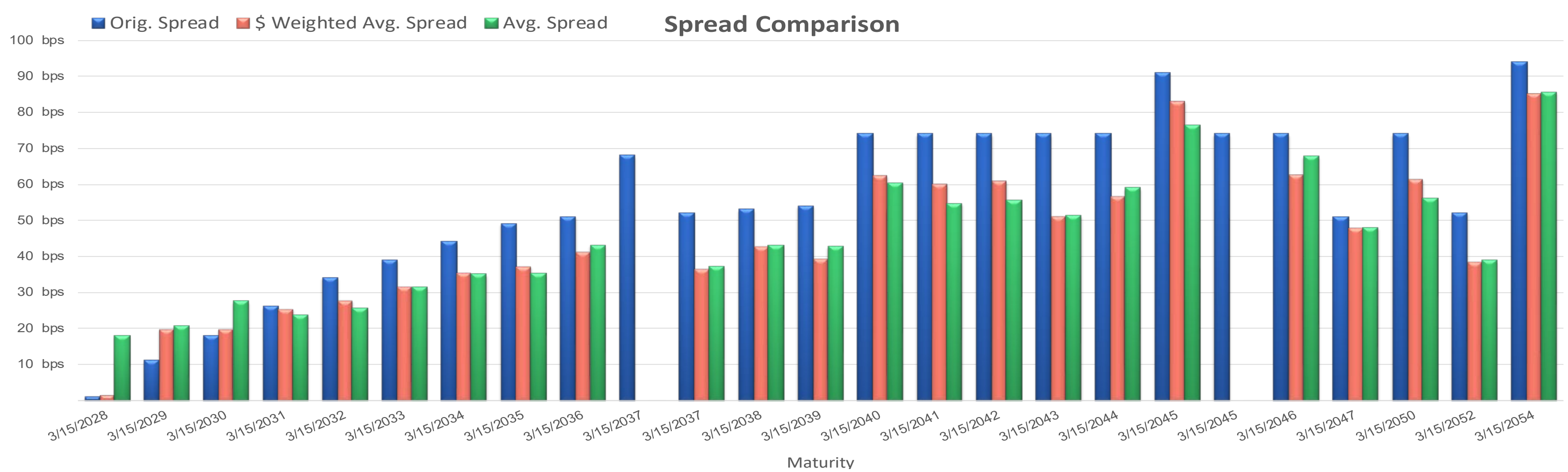
Original Pricing Information								Secondary Market Statistics						
Reoffering Scale								Trades from 3/18/2021 to 4/16/2021						
Maturity	Par ($000)	Coupon	Yield	Price	Insurer	BVAL	Yield vs. BVAL	Max Price	Total Volume ($000)	# of Trades	Avg. Price	Avg. Spread	$ Weighted Avg. Price	$ Weighted Avg. Spread
3/15/2028	25,315,000	5.000%	0.47%	117.806		0.46%	1 bps	117.806	3,300,000	6	117.281	18 bps	117.781	2 bps
3/15/2029	41,800,000	5.000%	0.68%	121.085		0.57%	11 bps	121.392	1,300,000	16	120.838	21 bps	120.834	20 bps
3/15/2030	86,620,000	5.000%	0.87%	123.984		0.69%	18 bps	124.735	3,185,000	17	123.959	28 bps	124.387	20 bps
3/15/2031	97,830,000	5.000%	1.07%	126.335		0.81%	26 bps	127.454	6,765,000	13	126.874	24 bps	126.425	26 bps
3/15/2032	102,725,000	5.000%	1.29%	128.020		0.95%	34 bps	131.361	55,980,000	23	129.305	26 bps	129.138	28 bps
3/15/2033	107,845,000	5.000%	1.47%	129.570		1.08%	39 bps	133.305	36,210,000	23	130.896	31 bps	130.506	32 bps
3/15/2034	113,255,000	5.000%	1.60%	131.223		1.16%	44 bps	135.490	120,965,000	30	133.145	35 bps	132.855	36 bps
3/15/2035	75,905,000	5.000%	1.70%	130.152		1.21%	49 bps	134.742	159,970,000	36	132.622	35 bps	132.186	37 bps
3/15/2036	79,705,000	5.000%	1.76%	129.514		1.25%	51 bps	135.033	60,630,000	61	130.806	43 bps	130.941	41 bps
3/15/2037	45,000,000	4.000%	1.98%	128.880		1.30%	68 bps			no-trades				
3/15/2037	38,690,000	5.000%	1.82%	118.197		1.30%	52 bps	134.087	19,255,000	18	131.449	37 bps	131.710	37 bps
3/15/2038	87,420,000	5.000%	1.88%	128.249		1.35%	53 bps	131.217	20,915,000	6	129.723	43 bps	129.712	43 bps
3/15/2039	91,790,000	5.000%	1.93%	127.727		1.39%	54 bps	131.598	81,160,000	20	129.584	43 bps	129.951	39 bps
3/15/2040	96,385,000	4.000%	2.17%	116.329		1.43%	74 bps	120.675	101,515,000	23	118.242	60 bps	117.880	63 bps
3/15/2041	100,235,000	4.000%	2.21%	115.941		1.47%	74 bps	120.701	184,010,000	37	118.751	55 bps	117.966	60 bps
3/15/2042	104,240,000	4.000%	2.25%	115.553		1.51%	74 bps	120.301	192,225,000	43	118.201	56 bps	117.450	61 bps
3/15/2043	108,410,000	4.000%	2.29%	115.167		1.55%	74 bps	119.776	15,000,000	3	119.287	51 bps	119.287	51 bps
3/15/2044	112,735,000	4.000%	2.33%	114.783		1.59%	74 bps	117.540	8,030,000	7	117.142	59 bps	117.247	57 bps
3/15/2045	8,225,000	3.000%	2.54%	114.400		1.63%	91 bps	106.798	10,250,000	8	105.898	77 bps	105.732	83 bps
3/15/2045	37,030,000	4.000%	2.37%	104.029		1.63%	74 bps			no-trades				
3/15/2046	46,985,000	4.000%	2.41%	114.019		1.67%	74 bps	115.824	14,250,000	11	114.731	68 bps	115.421	63 bps
3/15/2047	48,865,000	5.000%	2.21%	124.846		1.70%	51 bps	126.068	25,000	1	126.068	48 bps	126.068	48 bps
3/15/2050	124,770,000	4.000%	2.49%	113.260		1.75%	74 bps	118.455	48,805,000	78	115.496	56 bps	115.118	62 bps
3/15/2052	42,855,000	5.000%	2.29%	124.038		1.77%	52 bps	127.972	51,000,000	11	126.588	39 bps	126.874	39 bps
3/15/2054	46,785,000	3.000%	2.73%	102.342		1.79%	94 bps	105.810	64,225,000	54	103.589	86 bps	104.035	85 bps

For Illustrative purposes

Non-PFM Issuer

Series 2024

Original Par Amount	Sale Date	Dated Date	Financial Advisor	Underwriter	Ratings
1,871,420,000	3/18/2024	4/2/2024			Moody's -
					S&P AA+
Trade Start Date	**Trade End Date**	**Bond Insurer**	**Use of Proceeds**	**Tax Status**	Fitch AA+
3/18/2024	4/17/2024	Not Insured	Gen Purpose/Pub Impt	Tax Exempt	



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- **Question or Comments.**

Contact us at: PricingGroup@pfm.com

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