

# SESSION FOUR: PART ONE

## Market Dynamics & Pricing Concepts



**MATT RUDROFF, CFA, CPA**  
*Director*  
PFM Financial Advisors LLC

**NIKOLAI SKLAROFF**  
*Capital Finance Director*  
San Francisco Public  
Utilities Commission





- Bond Pricing Basics
- Financing Team Dynamics
- Week of Pricing
- Issuer Participation in Pricing Negotiations
- Market Factors Affecting Bond Pricing
- Structural, Credit, and State/Industry Specific Factors Affecting Bond Pricing



# Bond Pricing Basics



# Bond Pricing – Desk Speak Vocab

<b>Bump</b>	Lower yield, higher dollar price.	↔	<b>Cut</b>	Higher yield, lower dollar price.
<b>Cheap</b>	Yields higher (dollar price lower) than reasonable for specific credit.	↔	<b>Rich</b>	Opposite of cheap. Yields lower (dollar price higher) than reasonable for specific credit.
<b>Rally</b>	Decreasing yields in market.	↔	<b>Selling Off</b>	Opposite of rally. Increasing yields in market.
<b>Benchmark</b>	A tool used by issuers, investors and other financial professionals to describe the market, and to compare performance.	↔	<b>Spreads</b>	Delta between the benchmark and a specific bond yield. For example, quoted as spread to “AAA” BVAL index.
<b>Tightening</b>	Delta of spreads diminishing between the benchmark and credit categories	↔	<b>Widening</b>	Opposite of tightening. Delta of spreads increasing between the benchmark and credit categories.
<b>Over-Subscribed</b>	Number of orders exceeds the bonds available for a certain maturity	↔	<b>Underwriting /Inventory</b>	Underwriter takes in unsold bonds



# What is 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



## Taxable Benchmark

- Taxable Municipal Bonds, and Corporate Bonds use US Treasuries as a Benchmark

09:14											
Outright			Switch			Bfly					
4) Actives	5) Bills	6) Notes	7) TIPS	8) Strips	9) Sprds	10) Curves	11) FRN	12) Bfly	13) WI		
<b>Bills</b>						<b>Notes &amp; Bonds</b>					
31) 09/10/24		5.260 / 5.253		5.354 / 5.347	53) 4 <sup>1</sup> / <sub>4</sub> 254		101-08+ / 09+		4.175 / 4.173		
32) 10/08/24		5.175 / 5.170		5.289 / 5.284	54) 4 <sup>5</sup> / <sub>8</sub> 554		107-25 / 26		4.166 / 4.164		
33) 11/14/24		5.052 / 5.050		5.190 / 5.187	55) 4 <sup>1</sup> / <sub>4</sub> 854 30YR		101-15 / 16		4.164 / 4.162		
34) 12/10/24		4.988 / 4.983		5.141 / 5.136	<b>TIPS</b>						
35) 02/13/25		4.770 / 4.760		4.956 / 4.945	56) 2 <sup>1</sup> / <sub>8</sub> 429		101-24 / 101-25 <sup>1</sup> / <sub>4</sub>		1.733 / 1.724		
36) 08/07/25		4.243 / 4.233		4.443 / 4.432	57) 1 <sup>7</sup> / <sub>8</sub> 734		101-02 / 101-03 <sup>1</sup> / <sub>4</sub>		1.758 / 1.753		
<b>Notes &amp; Bonds</b>						58) 2 <sup>1</sup> / <sub>8</sub> 254	101-31 <sup>3</sup> / <sub>4</sub> / 102-03		2.035 / 2.030		
37) 4 <sup>7</sup> / <sub>8</sub> 526		101-13 <sup>7</sup> / <sub>8</sub> / 14 <sup>1</sup> / <sub>4</sub>		4.036 / 4.029	<b>Curve Trades</b>						
38) 4 <sup>5</sup> / <sub>8</sub> 626		101-03 <sup>5</sup> / <sub>8</sub> / 04		4.001 / 3.995	59) 2yr vs 5yr		-27.292 / -26.704		+0.060		
39) 4 <sup>3</sup> / <sub>8</sub> 726 2YR		100-24 <sup>3</sup> / <sub>8</sub> / 24 <sup>5</sup> / <sub>8</sub>		3.967 / 3.963	60) 2yr vs 10yr		-10.700 / -10.094		+0.880		
40) 4 <sup>5</sup> / <sub>8</sub> 627		102-07 <sup>3</sup> / <sub>4</sub> / 08 <sup>1</sup> / <sub>4</sub>		3.782 / 3.776	61) 5yr vs 10yr		16.420 / 16.782		+0.821		
41) 4 <sup>3</sup> / <sub>8</sub> 727		101-19 <sup>3</sup> / <sub>4</sub> / 20 <sup>1</sup> / <sub>4</sub>		3.783 / 3.778	62) 10yr vs 30yr		30.028 / 30.400		+0.736		
42) 3 <sup>3</sup> / <sub>4</sub> 827 3YR		99-29 <sup>3</sup> / <sub>4</sub> / 30		3.775 / 3.772	<b>Other Markets</b>						
43) 4 <sup>1</sup> / <sub>2</sub> 529		103-16 <sup>3</sup> / <sub>4</sub> / 17+		3.690 / 3.685	63) US Long(CBT)	09:04 d	123-22		+0-12		
44) 4 <sup>1</sup> / <sub>4</sub> 629		102-13 / 13 <sup>3</sup> / <sub>4</sub>		3.705 / 3.700	64) 10yr Fut (CBT)	09:04 d	113-15+		+0-08		
45) 4 729 5YR		101-11 <sup>3</sup> / <sub>4</sub> / 12		3.696 / 3.694	65) 5Yr Fut(CBT)	09:04 d	109-03 <sup>3</sup> / <sub>4</sub>		+0-05+		
46) 4 <sup>1</sup> / <sub>4</sub> 631		103-01+ / 02		3.743 / 3.740	66) Dow Jones Ind	08/12	39357.012		-140.527		
47) 4 <sup>1</sup> / <sub>8</sub> 731 7YR		102-09+ / 10		3.747 / 3.744	67) S&P 500 Ind	08/12 d	5344.390		+0.230		
48) 4 234		101-03 / 04		3.861 / 3.857	68) NYM WTI Crd	09:04 d	79.620		-0.440		
49) 4 <sup>3</sup> / <sub>8</sub> 534		104-04 / 05		3.863 / 3.859	69) Gold	09:14	2470.885		-2.015		
50) 3 <sup>7</sup> / <sub>8</sub> 834 10YR		100-03+ / 04		3.862 / 3.860	70) Global Agg	08/12	474.769		-0.074		
51) 4 <sup>1</sup> / <sub>2</sub> 244		103-07 / 08		4.255 / 4.253	71) US Agg	08/12	2217.634		+4.612		
52) 4 <sup>5</sup> / <sub>8</sub> 544 20YR		104-29+ / 30+		4.254 / 4.251	72) US Treasury	08/12	2331.687		+5.134		



## Tax Exempt Benchmarks

- The Tax-Exempt Municipal Market does not have a tradeable benchmark such as US Treasuries, however there are several benchmarks publicly available on the MSRB Emma website.

The screenshot displays the EMMA (Electronic Municipal Market Access) website interface. At the top, the EMMA logo is accompanied by the text "Electronic Municipal Market Access" and "A service of the MSRB". A search bar is located on the right, with the placeholder text "Search by CUSIP, Description, State, etc." and a green search button. Below the search bar, there are navigation tabs: "Browse Issuers", "Tools and Resources" (selected), "Market Activity", "MyEMMA", "EMMA Dataport", and "A- 100% A+".

The main content area is titled "Municipal Yield Curves and Indices" and includes a sub-header "View daily and historical yield curves and indices from third-party providers, and additional information, including the methodology used by each provider. For more information on yield curves and indices, visit EMMA Help." Below this, there is a list of seven providers, each with a logo, name, and description, and buttons for "Daily Yield Curves" and "Historical Yield Data":

Provider	Product	Buttons
Bloomberg	BVAL® AAA Municipal Curves	Daily Yield Curves, Historical Yield Data
bondwave	BondWave AA QCurve	Daily Yield Curves, Historical Yield Data
ICE	ICE US Municipal AAA Curve	Daily Yield Curves, Historical Yield Data
IHS Markit	IHS Markit Municipal Bond AAA Curve	Daily Yield Curves, Historical Yield Data
MBIS	MBIS Municipal Benchmark Curve	Daily Yield Curves, Historical Yield Data
S&P Dow Jones Indices	S&P Municipal Bond Index	Historical Index Data
Tradeweb	Tradeweb AAA Municipal Yield Curve	Daily Yield Curves, Historical Yield Data





- ◆ **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**
  - BVAL AAA Callable Curve refers to the AAA-rated G.O. Curve
  - 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



# Financing Team Dynamics

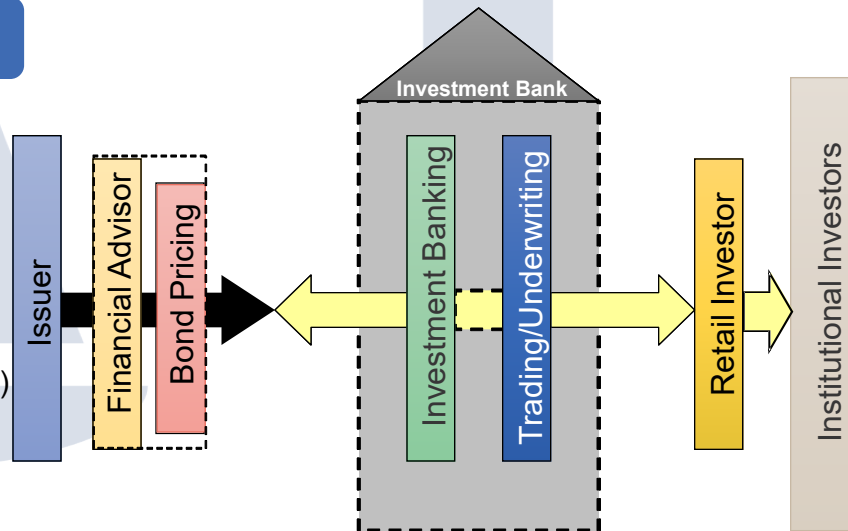


# Financing Team Dynamics

MSRB Rule G-17 excerpt: “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.”

## 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

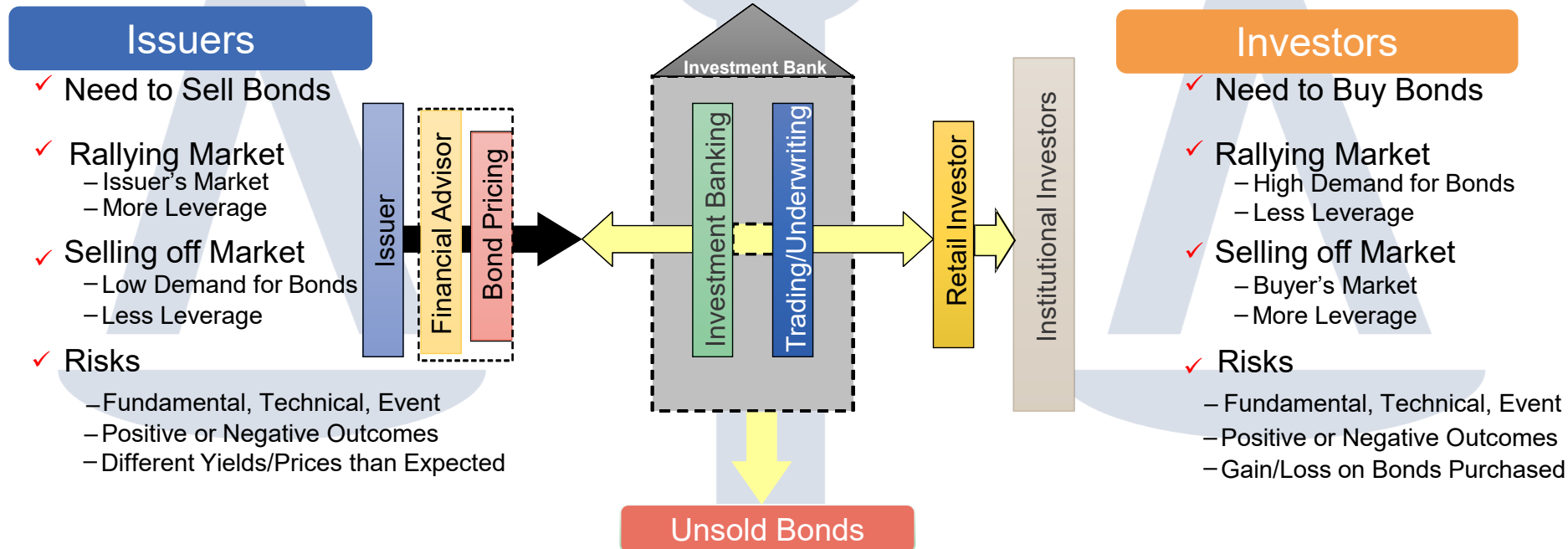
- ✓ Low Price/High Interest Rate
- ✓ Low Optionality
  - Non-Callable
  - Couponing
- ✓ Low Risk/Low Issuer Flexibility
  - Pledge
  - Covenants
  - Reserves
  - Insurance

Source: Interpretive Notice Concerning the Application of MSRF Rule G-17;  
<https://www.msrb.org>



# Navigating Risk In the Markets

Managing the duty to purchase and sell bonds at a fair and reasonable price is inherently more difficult when greater market risk is present.



- Bonds may be put into underwriter's inventory if an appropriate price is not readily available/determinable
- At this point, the Underwriter becomes the initial buyer and is subject to investor risks
- Underwriter's appetite and ability to purchase the bonds into inventory depends on the type of market and risks present.
- Adjustments to initial price/yields may be needed in order to protect against various risks, for example:
  - Interest Rate Risk that may affect the ability to sell bonds at the price put into inventory
  - Inventory levels: unsold par underwritten at acceptable total both within the current transaction and across transactions



# Week of Pricing Overview



# Typical Pricing Schedule

- The process begins weeks ahead of the sale date with discussions of general market conditions, potential couponing strategies, and the identification of comparable sales
- In a negotiated sale, the week following the POS posting provides the underwriting firm the opportunity to pre-market the bonds to investors

## Example Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
1	2	3	4	5
8	9	10	11	12
				<b>Post POS</b>
15	16	17	18	19
<b>Assess market conditions Possible investor calls</b>				
22	23	24	25	26
<b>Pre-Pricing with MA Pre-Pricing with underwriter</b>	<b>Pricing</b>			
29	30	31		



## Financial Advisor's Independent scale

- FA presents to the client a technical pricing analysis that includes an independent target scale

## Underwriter's Market Update

- Underwriter provides market updates, comparative bond sales, and their proposed scale

## Pre-Marketing Period

- Issuer and FA negotiate scale Pre-Marketing scale with underwriter
- Issuer signs off on pre-marketing scale for underwriter to talk to investors about specific levels



## Pre-Pricing Period

- Early morning (typically 6am-7am) call to review scale
- FA and UW take the tone of the market
- Issuer signs off on any agreed upon changes

## Order Period

- Underwriter takes orders from investors
- Financing team monitors market conditions

## Post-Order Period

- Issuer & FA look to negotiate lower yields where possible
- Issuer, FA, and underwriter decide on final adjusted yields as needed
- Issuer signs Bond Purchase Agreement





## What is a Retail Order Period?

- An order period designated and open to orders only “Retail” investor accounts
- Typically occurs 1 day prior to Institutional Order Period

## What is a Retail Account?

- Individuals – True “Mom and Pop” retail
- Professional Retail - Separately Managed Accounts (SMA's)

## When Can a Retail Order Period Make Sense?

- State with a strong retail presence with the ability to drive price
- Larger transaction
- Retail friendly structure
- Retail friendly credit

## Considerations During a Retail Order Period?

- Ensure Bonds are available for Institutional Investors (50% Rule and/or hold back maturities)
- Maintain flexibility to accelerate transaction
- Strong Reception can help drive Institutional Pricing; Weak Reception can detract

## Alternatives to a Specific Retail Order Period?

- During the normal Institutional Order Period:
  - Give “Individual” Retail First Priority
  - Maintain equal priority for Professional Retail and Institutional Accounts



# **Issuer Participation in Negotiated Transactions**



# Issuer Perspective: Pricing Takeaways

Know Your Objectives

Financing Team Selection

Bond Sale Timing:  
Control what you can control

Get Educated:  
Understand the team dynamic and factors

Voice Your Opinion





# Market Factors Affecting Bond Pricing



# Day of Pricing Market Dynamics

WEI World Equity Indices

Index	RMI	2Day	Value	Net Chg	%Chg	Δ AVAT	Time	Adv/Dcl	%Ytd	%YtdCur
Americas										
DOW JONES			39730.67	+9.31	+0.02%	+3.44%	15:41	18 / 12	+5.42%	+5.42%
S&P 500			5589.11	d -44.80	-0.80%					
NASDAQ			18324.26	-323.19	-1.73%					

Equity Indices – Risk On/Off

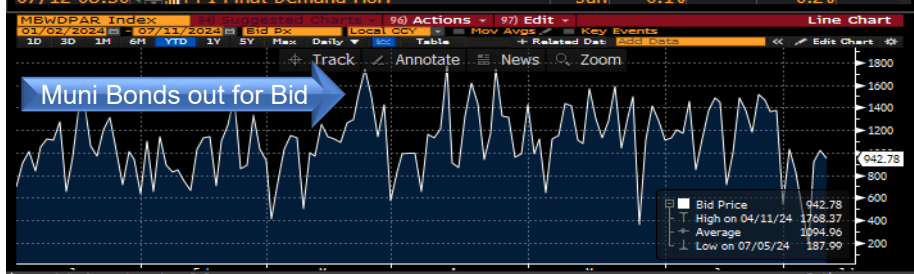
ECO Economic Calendars

United States 15:41:04 07/11/24 - 07/18/24

Economic Releases All Economic Releases

Date	Time	A	M	R	Event	Period	Surv(M)	Actual	Prior	Revised
07/11	08:30				CPI MoM	Jun	0.1%	-0.1%	0.0%	--
07/11	08:30				CPI Ex Food and Energy MoM	Jun	0.2%	0.1%	0.2%	--
07/11	08:30				CPI YoY	Jun	3.1%	3.0%	3.3%	--
07/11	08:30				CPI Ex Food and Energy YoY	Jun	3.4%	3.3%	3.4%	--
07/11	08:30				CPI Index NSA	Jun	314.614	314.175	314.069	--
07/11	08:30				CPI Core Index SA	Jun	318.780	318.346	318.140	--
07/11	08:30				Real Avg Hourly Earnings YoY	Jun	--	0.8%	0.8%	0.7%
07/11	08:30				Real Avg Weekly Earnings YoY	Jun	--	0.6%	0.5%	--
07/11	08:30				Initial Jobless Claims	Jul 6	225k	222k	238k	239k
07/11	08:30				Continuing Claims	Jul 6	1858k	1858k	1858k	1856k
07/11	14:00				Monthly Budget Statement	Jun	-\$76.1b	-\$66.0b	-\$347.1b	--
07/12	08:30				PPI Final Demand MoM	Jun	0.1%	--	-0.2%	--

Economic Data



Municipal Bond Monitor

Region	AAA Curve	States/Sectors	Scales/Curves	Reinvestment	Issuance and Forward Supply	As of Date	07/10/2024
State	Outstanding	Armt Called	Armt Maturing Avail	Reinvest	Pct (%)	Total Supply	Net Supply
10 Total	3,961,737.32	4,714.78	21,793.37	26,508.15	0.67	13,980.17	-12,527.98
11 California	641,628.39	915.59	5,959.89	6,875.48	1.07	2,053.39	-4,822.09
12 New York	459,970.47	997.33	4,063.11	5,060.44	1.10	2,063.87	-2,996.56
13 Maryland	63,087.74	1.25	999.48	1,000.74	1.59	0.00	-1,000.74
14 New Jersey	112,689.48	85.59	1,101.42	1,187.02	1.05	187.28	-999.73
15 Massachusetts	114,730.51	91.09	896.08	987.17	0.86	50.86	-936.31
16 Connecticut	56,800.59	303.61	533.33	836.94	1.47	83.22	-751.72
17 Indiana	50,876.66	36.11	754.37	790.48	1.55	221.46	-569.02
18 Virginia	79,710.08	9.38	806.74	816.12	1.02	289.00	-527.12
19 Minnesota	59,184.47	56.72	585.80	642.52	1.09	130.89	-511.63
20 Washington	92,805.28	302.01	541.20	843.21	0.91	338.04	-505.17
21 Pennsylvania	138,953.02	66.26	404.71	470.97	0.34	21.34	-449.63
22 Puerto Rico	69,177.17	16.18	350.97	367.15	0.53	0.00	-367.15
23 Ohio	102,323.23	30.24	287.37	317.61	0.71	10.00	-307.61
24 New Mexico	15,001.51	14.90	275.02	290.92	1.94	11.96	-179.06
25 Kentucky	39,279.20	10.95	179.20	190.15	0.27	104.23	-125.94
26 Michigan	86,633.16	132.16	100.12	232.27	0.28	27.99	-128.45
27 Alabama	54,550.22	50.93	100.51	151.44	0.28	27.99	-128.45
28 Kansas	23,889.99	5.48	148.40	153.88	0.64	38.46	-115.42
29 Oklahoma	27,941.11	0.93	93.19	94.12	0.34	9.39	-84.73
30 South Dakota	7,232.13	1.38	69.72	71.10	0.98	0.00	-71.10
31 Rhode Island	12,235.16	10.54	112.56	123.10	0.86	45.14	-77.96
32 Iowa	24,995.00	0.19	79.13	79.32	0.32	16.80	-62.52

Net Issuance

CN News Feed - Municipal Bonds, "lipper"

Match All "lipper" Municipal Bonds

Muni-Bond Funds See \$775 Million Weekly Inflow: LSEG Lipper

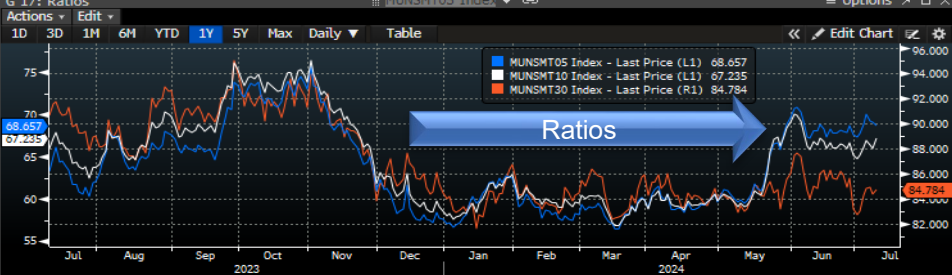
Muni-Bond Funds See \$498 Million Weekly Outflow: LSEG Lipper

Muni-Bond Funds See \$16 Million Weekly Inflow: LSEG Lipper

Muni-Bond Funds See \$154 Million Weekly Inflow: LSEG Lipper

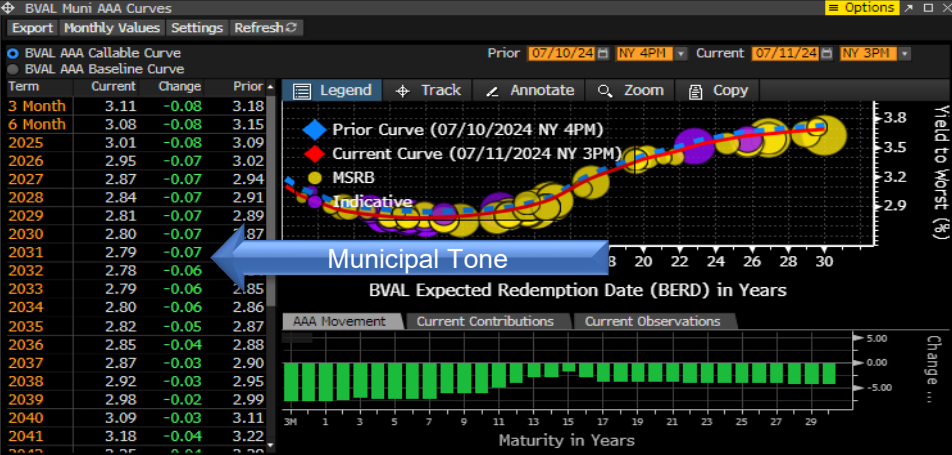
Muni-Bond Funds See \$549 Million Weekly Inflow: LSEG Lipper

Fund Flows



Term	Description	Treasury Bid Yld	Ask Yld	Bid Chg	Swap Sprd	Bid Swap	Ask Swap	Bid Chg
1 mo	B 0 08/06/24	5.330	5.322	-0.006	-3	5.327	5.327	-0.018
3 mo	B 0 10/10/24	5.349	5.339	-0.027	-6.6	5.283	5.283	-0.215
6 mo	B 0 01/09/25	5.208	5.198	-0.075	-6.1	5.153	5.153	-0.055
1 yr	B 0 07/10/25	4.903	4.895	-0.101	-5.7	4.847	4.853	-0.101
1 yr	T 4 3/8 06/30/26	4.513	4.511	-0.109	-18.8	4.325	4.330	-0.126
1 yr	T 4 3/8 07/15/27	4.277	4.274	-0.112	-21.5	4.062	4.066	-0.124
1 yr	(Interpolated)	4.206	4.204	-0.107	-29.0	3.917	3.921	-0.113
1 yr	T 4 3/8 06/30/29	4.137	4.136	-0.137	-29.9	3.838	3.841	-0.113
1 yr	(Interpolated)	4.144	4.142	-0.098	-34.9	3.796	3.799	-0.110
1 yr	T 4 3/8 06/30/31	4.151	4.148	-0.084	-34.9	3.776	3.776	-0.107
1 yr	(Interpolated)	4.170	4.168	-0.089	-40.8	3.762	3.766	-0.101
1 yr	(Interpolated)	4.189	4.186	-0.085	-43.0	3.768	3.768	-0.101
10 yr	T 4 3/8 05/15/34	4.204	4.202	-0.082	-76.1	3.698	3.703	-0.083
15 yr	(Interpolated)	4.362	4.361	-0.071	-80.0	3.611	3.616	-0.080
20 yr	T 4 3/8 05/15/44	4.511	4.509	-0.073				
25 yr	(Interpolated)	4.460	4.459	-0.070				
30 yr	T 4 3/8 05/15/54	4.412	4.411	-0.067				

Treasury Tone

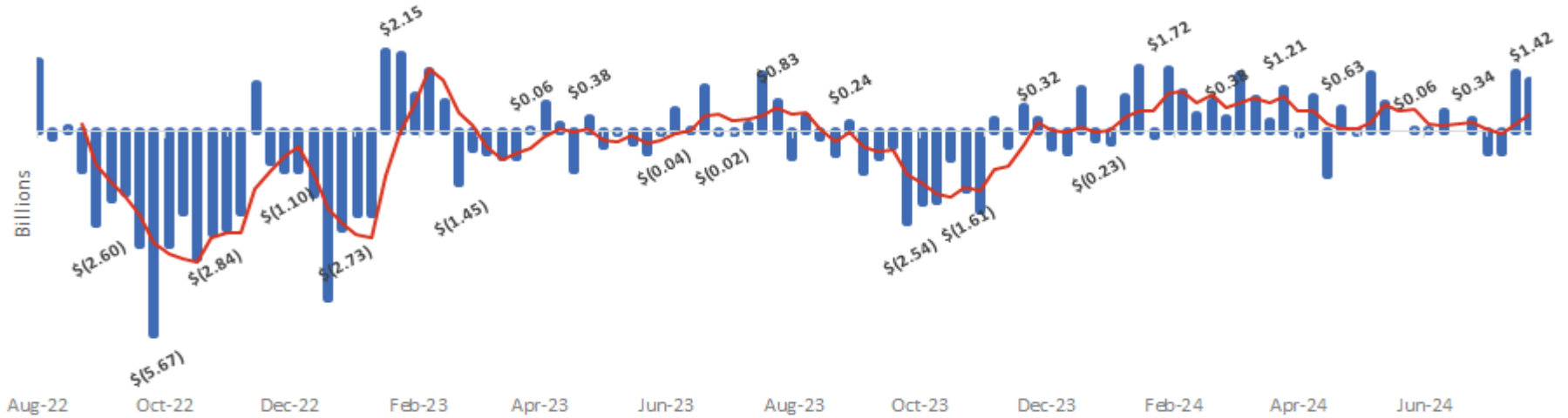




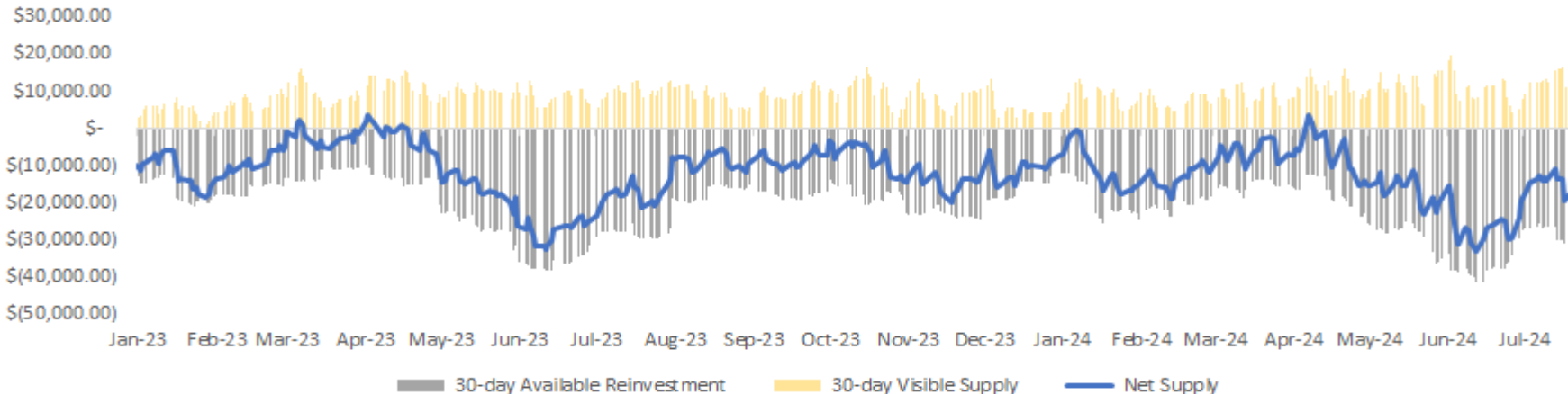
# Municipal Fund Flows and Net Supply

➤ Supply and Demand Dynamics can heavily affect credit spreads

### ICI Weekly Fund Flows (Past 24 Months)



### Daily Net Muni Supply





- Total Primary Market Supply on a given week can affect Investor demand
- State and Industry supply are also factors

## Week of 8/12/2024 National Supply Calendar

Par (\$000s)	Issuer	State	Sector	Security Type	Ratings (M/S/F)	Sale Type	Tax Status	Lead Manager
643,110	CHICAGO-A	IL	General Obligation	G.O. Unlimited Bonds	/BBB+/A-	Negotiated	Tax-Exempt	HUNTINGTON SECURITIES INC
445,000	TRIBOROUGH BRIDGE -A-2	NY			//	Negotiated	Tax-Exempt	SAMUEL A RAMIREZ & CO INC
330,000	ALLEGHENY CO SAN AUTH-REF	PA	Water & Sewer	Revenue Bonds	Aa3/AA-/	Negotiated	Tax-Exempt	PNC CAPITAL MARKETS LLC
322,565	CHATTANOOGA HLTH EDUCTNL	TN	Hospital	Revenue Bonds	/A/A-	Negotiated	Tax-Exempt	MORGAN STANLEY & CO LLC
300,000	TRIBOROUGH BRIDGE -A-1	NY			/AA-/	Negotiated	Tax-Exempt	SAMUEL A RAMIREZ & CO INC
285,895	IL FIN AUTH -A-REF-REV	IL	Hospital	Revenue Bonds	Aa3/AA-/	Negotiated	Tax-Exempt	BANK OF AMERICA MERRILL
246,190	JACKSONVILLE -REV-REF	FL	Appropriation (Self)	Revenue Bonds	/-/AA+	Negotiated	Tax-Exempt	STIFEL NICOLAUS & CO INC
216,000	UNIV HOUSTON BRD RGTS-B	TX	Higher Education	Revenue Bonds	Aa2/AA/	Negotiated	Taxable	JP MORGAN SECURITIES LLC
205,540	ND PUB FIN AUTH-A-REF	ND	Water & Sewer	Revenue Bonds	Aaa/AAA/	Competitive	Tax-Exempt	
204,630	CABARRUS CO DEV CORP	NC			//	Negotiated	Tax-Exempt	BANK OF AMERICA MERRILL
187,420	EL PASO CO HOSP DIST-REF	TX	Hospital/Health District	G.O. Limited Bonds	//A-	Negotiated	Tax-Exempt	JP MORGAN SECURITIES LLC
185,655	MIAMI-DADE CO-A-REMK	FL	Hospital/Health District	G.O. Unlimited Bonds	Aa2/AA/	Competitive	Tax-Exempt	
160,000	ALLEGHENY CO-C-80	PA	General Obligation	G.O. Unlimited Bonds	Aa3/AA-/	Negotiated	Tax-Exempt	PNC CAPITAL MARKETS LLC
156,915	RENO-TAHOE ARPT-A-AMT	NV	Airport	Revenue Bonds	A3/A/	Negotiated	AMT	BANK OF AMERICA MERRILL
150,000	VIA MET TRANSIT ADVANCED	TX	Sales & Excise Tax	Revenue Bonds	/AAA/	Negotiated	Tax-Exempt	RBC CAPITAL MARKETS LLC
135,000	PROVIDENCE PUB BLDG-A	RI	Appropriation	Revenue Bonds	Baa1/BBB/	Negotiated	Tax-Exempt	RAYMOND JAMES & ASSOCS
121,695	OHIO ST#1	OH			//	Negotiated	Tax-Exempt	WELLS FARGO BANK NA
120,000	MAINE ST HSG AUTH-E	ME	State Multi-Family Housing	Revenue Bonds	-/-/	Negotiated	Tax-Exempt	BANK OF AMERICA MERRILL
101,060	JOSHUA ISD	TX	School District	G.O. Unlimited Bonds	/AAA/	Negotiated	Tax-Exempt	BOK FINANCIAL SECURITIES
100,000	DELAWARE VLY REG FIN-A-RE	PA	Loan Pool	Revenue Bonds	A1/A+/	Negotiated	Tax-Exempt	RBC CAPITAL MARKETS LLC
100,000	MD DEPT HSG & CMNTY DEV-D	MD	State Multi-Family Housing	Revenue Bonds	Aa1//AA+	Negotiated	Taxable	MORGAN STANLEY & CO LLC

## Week of 8/12/2024 California Supply Calendar

Par (\$000s)	Issuer	State	Sector	Security Type	Ratings (M/S/F)	Sale Type	Tax Status	Lead Manager
80,000	SANTA UNIF SD#2-C	CA	School District	G.O. Unlimited Bonds	Aa1//	Negotiated	Tax-Exempt	ROBERT W BAIRD & CO INC
60,000	FRESNO UNIFIED SD-C	CA	School District	G.O. Unlimited Bonds	-//	Negotiated	Tax-Exempt	PIPER SANDLER & CO
33,000	POMONA UNIF SD-REF	CA	School District	G.O. Unlimited Bonds	Aa3//	Negotiated	Tax-Exempt	STIFEL NICOLAUS & CO INC
31,000	CA HSG FIN AGY	CA	Housing	Single Family Housing	//	Negotiated	Tax-Exempt	STIFEL NICOLAUS & CO INC
27,035	CA SCH FIN AUTH-A	CA	Charter School	Revenue Bonds	/-/	Negotiated	Tax-Exempt	BC ZIEGLER & CO

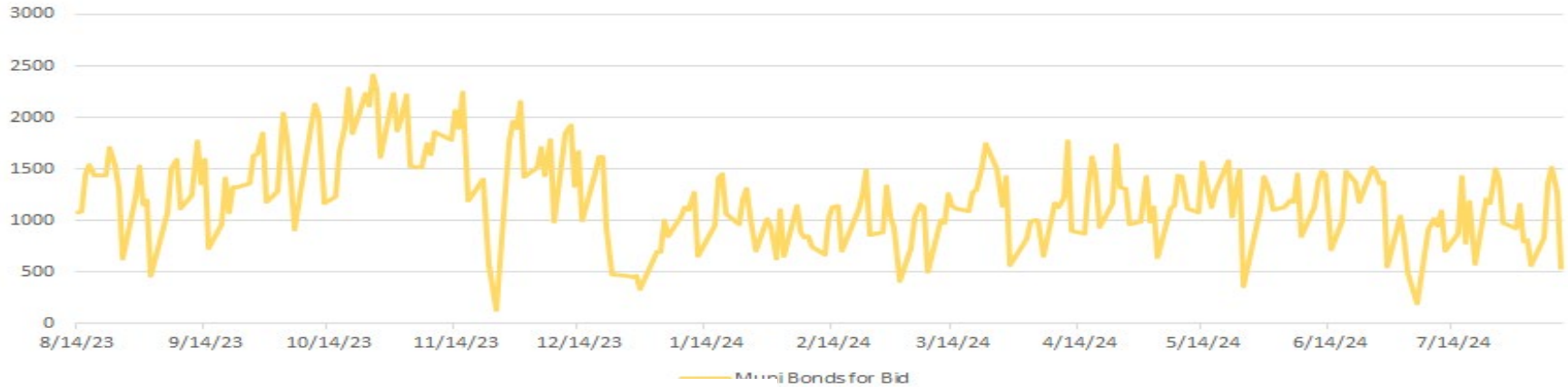




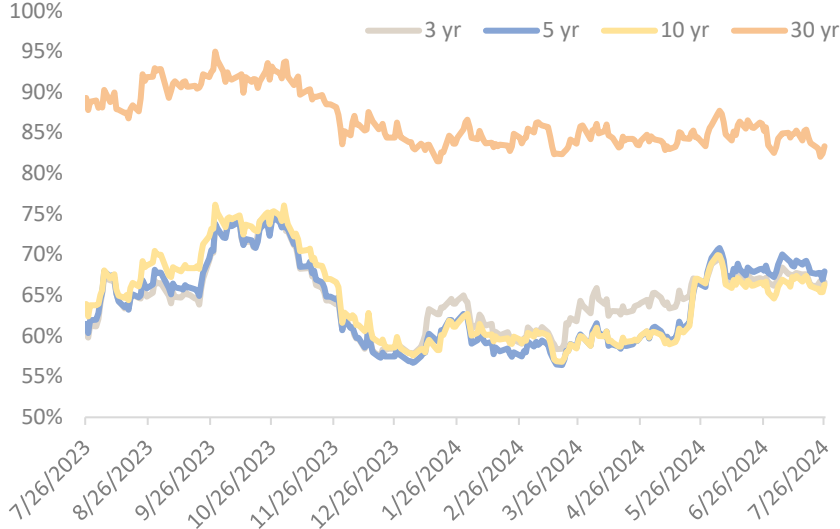
# Bonds out for Bid and Municipal/Treasury Ratios

- Secondary Market Supply during times of heavy selling can pressure primary issuance
- The Relative Value of Tax-Exempt Bonds compared to their Taxable Counterparts is a consistent driver of demand

Muni Bond Bid Wanted (000's)



AAA Municipal Yields as % of US Treasuries



Treasury Ratio (Cheap/Rich) Past 12 Months				
	30 yr	10 yr	5 yr	3 yr
Current	83.3%	66.3%	68.0%	66.6%
High	95.0%	76.2%	75.4%	75.6%
Average	86.6%	64.6%	64.0%	64.8%
Low	81.5%	56.8%	56.4%	57.6%

Treasury Ratio (Cheap/Rich) Past 5 Years				
	30 yr	10 yr	5 yr	3 yr
Current	83.3%	66.3%	68.0%	66.6%
High	251.7%	365.0%	649.9%	818.8%
Average	94.9%	82.4%	77.8%	79.3%
Low	67.2%	53.9%	37.3%	32.8%

Source: Bloomberg & treasury.gov 8/9/2024

PFM Pricing Group





- Economic Data can move Bond Market Yields
- Certain Economic Events can cause greater volatility (Positive or Negative)

## SEPTEMBER ECONOMIC CALENDAR

MON Sep 2	TUES Sep 3	WED Sep 4	THU Sep 5	FRI Sep 6
12:00 AM <b>Labor Day</b>	9:45 AM S&P Global US Manufacturing PMI 10:00 AM Construction Spending 10:00 AM ISM Indicators	7:00 AM MBA Mortgage Applications 8:30 AM Trade Balance 10:00 AM Factory Orders 10:00 AM JOLTS Job Openings 10:00 AM Durable Goods 10:00 AM Capital Goods 2:00 PM Wards Total Vehicle Sales	7:30 AM Challenger Job Cuts YoY 8:15 AM ADP Employment Change 8:30 AM Nonfarm Productivity 8:30 AM Unit Labor Costs 8:30 AM Initial Jobless Claims 8:30 AM Continuing Claims 9:45 AM S&P Global US Services PMI 9:45 AM S&P Global US Composite PMI 10:00 AM ISM Indicators 10:00 AM ISM Services Prices Paid 10:00 AM ISM Services Employment 10:00 AM ISM Services New Orders	8:30 AM Payrolls 8:30 AM Unemployment Rate 8:30 AM Avg Hourly Earnings 8:30 AM Avg Weekly Hours All Employees 8:30 AM Labor Force Participation Rate 8:30 AM Underemployment Rate
Sep 9	Sep 10	Sep 11	Sep 12	Sep 13
10:00 AM Wholesale Trade Sales MoM 10:00 AM Wholesale Inventories MoM 11:00 AM NY Fed 1-Yr Inflation Expectations 3:00 PM Consumer Credit	6:00 AM NFIB Small Business Optimism	7:00 AM MBA Mortgage Applications 8:30 AM Consumer Price Index 8:30 AM Real Avg Earnings	8:30 AM Producer Price Index 8:30 AM Initial Jobless Claims 8:30 AM Continuing Claims 12:00 PM Household Change in Net Worth 2:00 PM Monthly Budget Statement	8:30 AM Import Index 8:30 AM Export Index 10:00 AM Michigan Sentiment
Sep 16	Sep 17	Sep 18	Sep 19	Sep 20
8:30 AM Empire Manufacturing	8:30 AM NY Fed Services Business Activity 8:30 AM Retail Sales 9:15 AM Industrial Production 9:15 AM Manufacturing (SIC) Production 9:15 AM Capacity Utilization 10:00 AM Business Inventories 10:00 AM NAHB Housing Market Index	7:00 AM MBA Mortgage Applications 8:30 AM Housing Starts 8:30 AM Building Permits 2:00 PM FOMC Rate Decision 4:00 PM Total Net TIC Flows 4:00 PM Net Long-term TIC Flows	8:30 AM Current Account Balance 8:30 AM Philly Fed Busi. Outlook 8:30 AM Initial Jobless Claims 8:30 AM Continuing Claims 10:00 AM Leading Index 10:00 AM Existing Home Sales	
Sep 23	Sep 24	Sep 25	Sep 26	Sep 27
8:30 AM Chicago Fed Nat Activity Index 9:45 AM S&P Global US Manufacturing PMI 9:45 AM S&P Global US Services PMI 9:45 AM S&P Global US Composite PMI	8:30 AM Phil. Fed Non-Mfg Activity 9:00 AM FHFA House Price Index 9:00 AM S&P CoreLogic 10:00 AM GDP Indicators 10:00 AM Richmond Fed Manufact. Index 10:00 AM Richmond Fed Business Conditions	7:00 AM MBA Mortgage Applications 10:00 AM New Home Sales	8:30 AM GDP Indicators 8:30 AM Personal Consumption 8:30 AM Core PCE Price Index QoQ 8:30 AM Initial Jobless Claims 8:30 AM Continuing Claims 8:30 AM Durable Goods 8:30 AM Capital Goods 10:00 AM Pending Home Sales 11:00 AM Kansas City Fed Manf. Activity	8:30 AM Personal Income 8:30 AM Advance Goods Trade Balance 8:30 AM Personal Spending 8:30 AM Wholesale Inventories MoM 8:30 AM Real Personal Spending 8:30 AM Retail Sales 8:30 AM PCE Price Index MoM 8:30 AM PCE Price Index YoY 8:30 AM Core PCE Price Index MoM 8:30 AM Core PCE Price Index YoY 10:00 AM Michigan Sentiment 11:00 AM Kansas City Fed Services Activity



# Treasury and Equity Tone

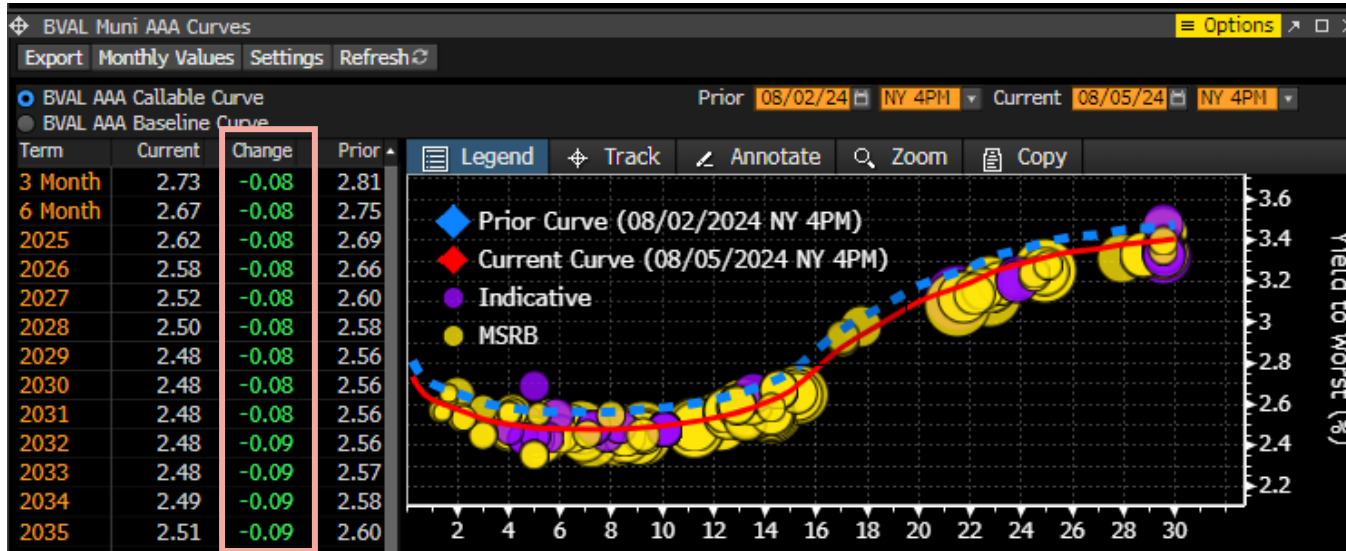
- Where is Investor Cash being put to work, and what does it say about Market Sentiment? – Stocks (risk on) or Bonds (risk off)
- Treasury Market – “Green on the Screen” = Positive Tone in Broader Fixed Income Markets

Index	RMI	2Day	Value	Net Chg	%Chg	Δ AVAT	Time	Adv/Dcl	%Ytd	%YtdCur
1) Americas										
1) DOW JONES			39464.80	-32.74	-0.08%	-38.23%	11:59	7/22	+4.71%	+4.71%
12) S&P 500			5343.71 d	-0.45	-0.01%	-25.54%	11:44	192/310	+12.03%	+12.03%
13) NASDAQ			16852.45	+107.15	+0.64%	-7.16%	11:59	1117/1807	+12.26%	+12.26%

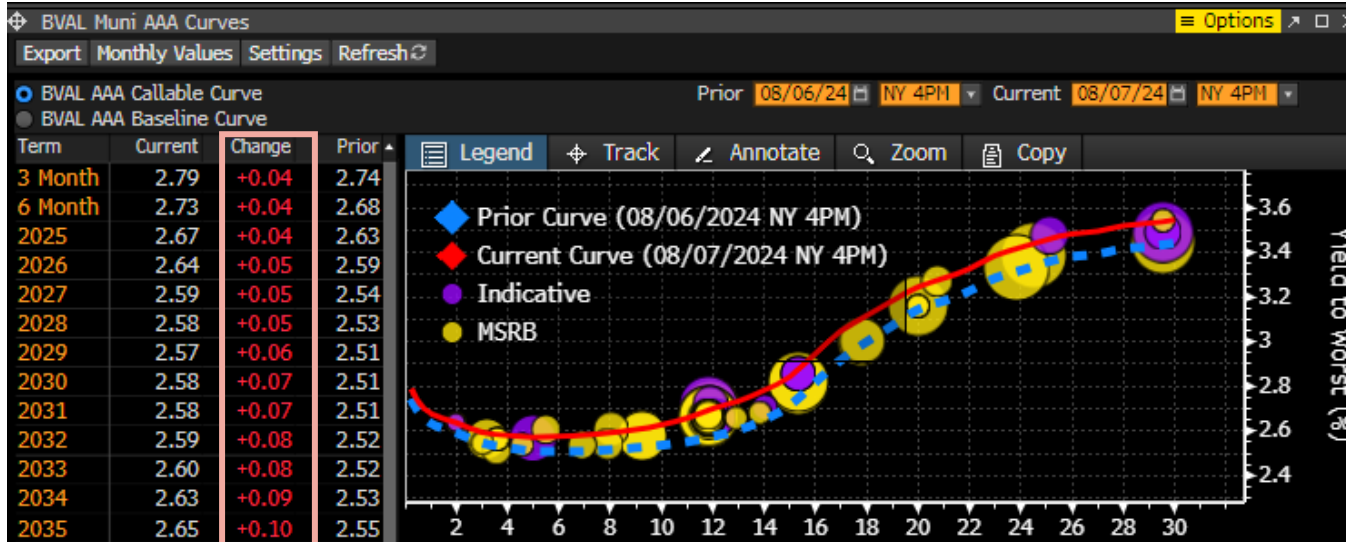
Term	Description	Treasury			Swap Sprd	Swap		
		Bid Yld	Ask Yld	Bid Chg		Bid Swap	Ask Swap	Bid Chg
1 mo	B 0 09/10/24	5.370	5.365	.009	-3.2	5.338	5.338	-.0028
3 mo	B 0 11/07/24	5.216	5.209	-.006	-8.6	5.131	5.131	-.0038
6 mo	B 0 02/06/25	4.995	4.984	.010	-16.6	4.828	4.828	-.0024
1 yr	B 0 08/07/25	4.489	4.475	.000	-12.4	4.365	4.371	-.010
2 yr	T 4 <sup>3</sup> / <sub>8</sub> 07/31/26	4.038	4.034	-.019	-20.4	3.834	3.839	-.023
3 yr	T 3 <sup>3</sup> / <sub>4</sub> 08/15/27	3.853	3.850	-.025	-23.7	3.616	3.621	-.029
4 yr	(Interpolated)	3.810	3.808	-.027	-29.6	3.514	3.518	-.028
5 yr	T 4 07/31/29	3.768	3.767	-.030	-29.9	3.469	3.473	-.027
6 yr	(Interpolated)	3.793	3.791	-.028	-34.0	3.453	3.456	-.026
7 yr	T 4 <sup>1</sup> / <sub>8</sub> 07/31/31	3.816	3.813	-.026	-36.8	3.448	3.451	-.023
8 yr	(Interpolated)	3.851	3.849	-.024	-39.9	3.452	3.455	-.022
9 yr	(Interpolated)	3.886	3.884	-.023	-42.5	3.461	3.464	-.021
10 yr	T 3 <sup>7</sup> / <sub>8</sub> 08/15/34	3.921	3.919	-.021	-45.0	3.471	3.474	-.019
15 yr	(Interpolated)	4.115	4.112	-.016	-58.3	3.532	3.536	-.012
20 yr	T 4 <sup>5</sup> / <sub>8</sub> 05/15/44	4.300	4.296	-.012	-76.8	3.532	3.536	-.008
25 yr	(Interpolated)	4.253	4.251	-.011	-78.9	3.464	3.468	-.005
30 yr	T 4 <sup>1</sup> / <sub>4</sub> 08/15/54	4.209	4.209	-.011	-82.5	3.385	3.389	-.003



# Municipal Tone



- In a **Rallying** Market, Benchmark Yields are decreasing.
- Tone is Positive
- Spreads to the Benchmark can **Tighten**



- In a Market that is **Selling Off**, Benchmark Yields are increasing
- Tone is Negative
- Spreads to Benchmark can **Widen**



# **Structural, Credit, and State/Industry Specific Factors Affecting Bond Pricing**



# Spreads – The Basis of Negotiation

California Water District (Aa1/AAA) - Series 2024A Pricing Worksheet

PFM					5% CPN / 10. yr PC Scale					Spread to 4/19/2024 Interpolated BVAL AAA	Benchmark 4/19/2024 Interpolated BVAL AAA
Year	Term	Avg Life	Principal	Coupon	Re-Offer Yield	Yield to Call	Yield to Maturity	Price			
4/1/2025	0.9		\$ 3,380,000	5.000%	3.22%			101.558	-19 bps	3.41%	
4/1/2026	1.9		\$ 3,020,000	5.000%	2.96%			103.733	-23 bps	3.19%	
4/1/2027	2.9		\$ 3,170,000	5.000%	2.81%			106.049	-20 bps	3.01%	
4/1/2028	3.9		\$ 3,330,000	5.000%	2.65%			108.644	-18 bps	2.83%	
4/1/2029	4.9		\$ 7,930,000	5.000%	2.57%			111.112	-15 bps	2.72%	
4/1/2030	5.9		\$ 8,335,000	5.000%	2.54%			113.391	-16 bps	2.70%	
4/1/2031	6.9		\$ 8,345,000	5.000%	2.57%			115.266	-11 bps	2.68%	
4/1/2032	7.9		\$ 8,350,000	5.000%	2.59%			117.109	-11 bps	2.70%	
4/1/2033	8.9		\$ 8,900,000	5.000%	2.59%			119.039	-12 bps	2.71%	
4/1/2034	9.9		\$ 8,925,000	5.000%	2.60%			120.822	-12 bps	2.72%	
4/1/2035	10.9		\$ 9,000,000	5.000%	2.71%		2.87%	119.760	-8 bps	2.79%	
4/1/2036	11.9		\$ 7,500,000	5.000%	2.87%		3.15%	118.235	-5 bps	2.92%	
4/1/2037	12.9		\$ 5,155,000	5.000%	2.99%		3.35%	117.107	-3 bps	3.02%	
4/1/2038	13.9		\$ 5,415,000	5.000%	3.12%		3.54%	115.899	-2 bps	3.14%	
4/1/2039	14.9		\$ 5,685,000	5.000%	3.21%		3.68%	115.071	-1 bps	3.22%	
4/1/2040	15.9		\$ 5,975,000	5.000%	3.34%		3.83%	113.888	2 bps	3.32%	
4/1/2041	16.9		\$ 6,270,000	5.000%	3.44%		3.94%	112.988	4 bps	3.40%	
4/1/2042	17.9		\$ 6,585,000	5.000%	3.53%		4.04%	112.186	6 bps	3.47%	
4/1/2043	18.9		\$ 6,915,000	5.000%	3.60%		4.11%	111.566	8 bps	3.52%	
4/1/2044	19.9		\$ 7,260,000	5.000%	3.72%		4.21%	110.513	10 bps	3.62%	

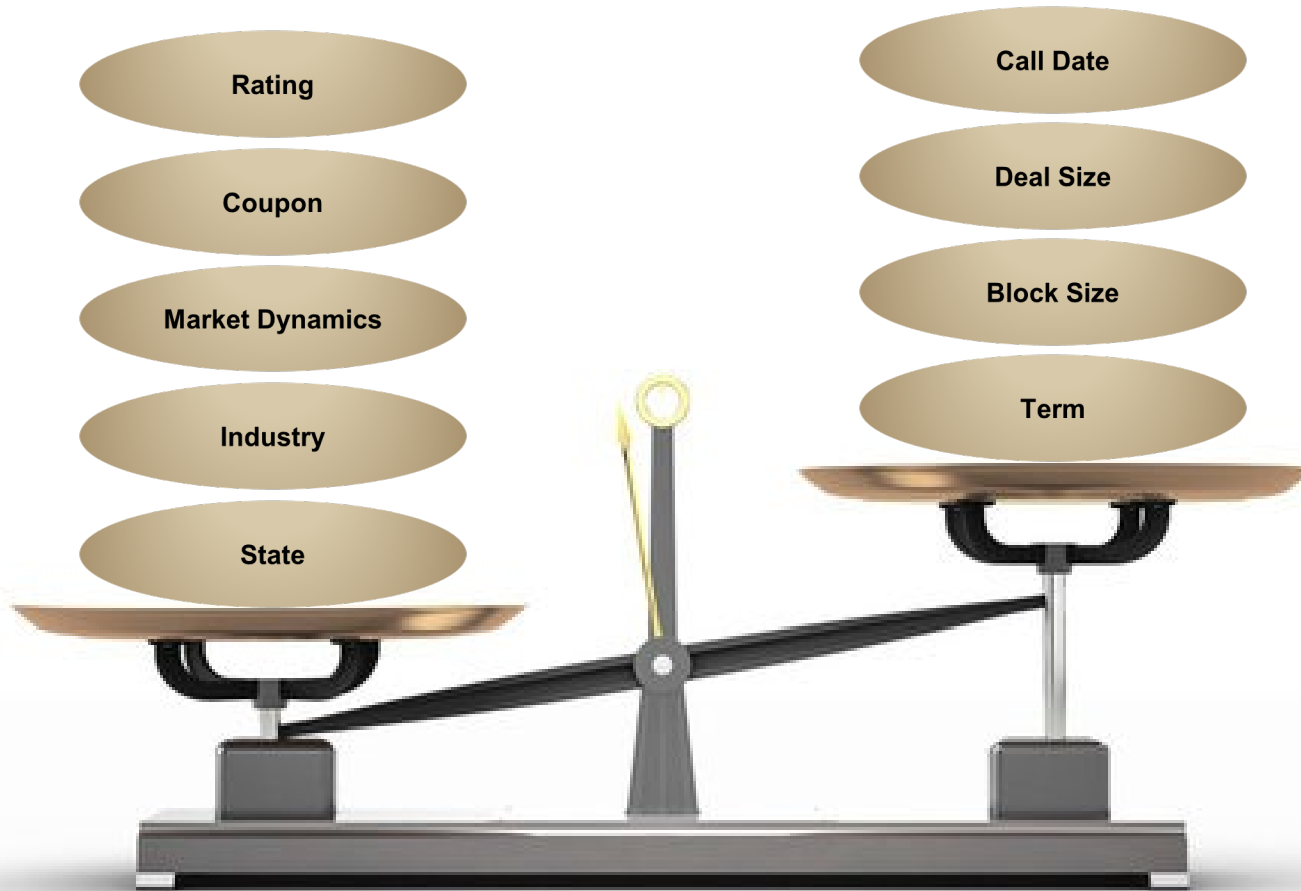
- Pricing Negotiations begin with determining the Spread to the Benchmark for each Maturity
- The Market Standard base case is a 5% CPN, 10 Year Par Call Scale
- Spread + Benchmark Yield = Re-Offer Yield
- Yield on pricing wires is quoted as the Yield to Worst to the Investor
- Premium Bonds are quoted as a Yield to Call Date
- Discount Bonds are quoted as a Yield to Maturity
- Focus of the exercise in Part II will be on a 5% Premium Bond Scale

Total Par \$ 129,445,000  
 Avg Life 11.0 years  
 PV01 \$ 100,074





# Factors Effecting Credit Spreads







# Rating Impact to Credit Spreads

- Different Ratings result in a greater perceived level of Credit Risk
- Credit Spreads will be different depending on the rating.
- Lower Ratings = Higher Credit Spread
- Higher Ratings = Lower Credit Spread

U.S. Tax-Exempt Municipal Credit Spreads to AAA (30 year Spot)



Issuer:	Transportation Issuer - Senior Lien					Transportation Issuer - Subordinate Lien				
Series:	Revenue Refunding Bonds, Series 2024-A					Revenue Refunding Bonds, Series 2024-C				
Security:	Toll Roads/Highways/Streets/Revenue					Toll Roads/Highways/Streets/Revenue				
Sale Type:	Tax Exempt (Negotiated)					Tax Exempt (Negotiated)				
Par Amount:	\$386,210,000					\$1,022,495,000				
Sale Date:	7/23/2024					7/23/2024				
Last Call Date:	8/15/2034 @ 100 (10.2 Yrs)					8/15/2034 @ 100 (10.2 Yrs)				
Underlying Ratings:	A2/A/A+					A3/A-/A-				
Insured Ratings:	-/-					-/-				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1										
1										
2										
3										
4										
5										
6										
7						108,855	\$110.38	5.000%	3.330%	56 bps
8	40,000	\$112.50	5.000%	3.220%	45 bps	80,555	\$111.52	5.000%	3.350%	58 bps
9						133,010	\$112.51	5.000%	3.380%	61 bps
10						144,545	\$113.31	5.000%	3.420%	64 bps
11	68,375	\$113.86	5.000%	3.360%	56 bps	84,035	\$112.86	5.000%	3.470%	67 bps
12	97,105	\$113.40	5.000%	3.410%	59 bps	69,560	\$112.41	5.000%	3.520%	70 bps
13	96,230	\$112.86	5.000%	3.470%	62 bps	85,445	\$111.87	5.000%	3.580%	73 bps
14	84,500	\$112.59	5.000%	3.500%	60 bps	110,800	\$111.51	5.000%	3.620%	72 bps
15						49,395	\$111.25	5.000%	3.650%	70 bps
16						51,865	\$110.71	5.000%	3.710%	65 bps
17						54,455	\$110.27	5.000%	3.760%	60 bps
18						49,975	\$109.49	5.000%	3.850%	62 bps



# Coupons Impact to Credit Spreads

- Different Coupons will result in different spreads
- The Lower the Coupon, the Lower the cash flow an Investor receives, and the higher spread/yield the investor will require
- The Higher the Coupon, the higher the cash flow an Investor receives, and the lower the spread/yield the investor will require
- Issuers will need to evaluate with their Financial Advisor the various tradeoffs as they are presented with different coupon options.

Issuer:	California School District				
Series:	Election of 2020, General Obligation Bonds, Series C				
Security:	Primary & Secondary Education/Ult G.O.				
Sale Type:	Tax Exempt (Negotiated)				
Par Amount:	\$74,000,000				
Sale Date:	7/24/2024				
Last Call Date:	9/1/2034 @ 100 (10.3 Yrs)				
Underlying Ratings:	-AAA-				
Insured Ratings:	-/-				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1					
1	2,930	\$102.39	5.000%	2.710%	-22 bps
2	3,080	\$104.69	5.000%	2.650%	-23 bps
3	310	\$106.91	5.000%	2.640%	-18 bps
4	630	\$109.00	5.000%	2.650%	-17 bps
5	970	\$111.32	5.000%	2.600%	-20 bps
6	1,140	\$113.21	5.000%	2.630%	-15 bps
7	505	\$114.91	5.000%	2.670%	-10 bps
8	805	\$116.73	5.000%	2.680%	-9 bps
9	2,410	\$118.92	5.000%	2.640%	-14 bps
10	2,725	\$120.45	5.000%	2.670%	-12 bps
11	3,070	\$119.96	5.000%	2.720%	-9 bps
12	3,440	\$119.47	5.000%	2.770%	-6 bps
13	3,835	\$118.89	5.000%	2.830%	-3 bps
14	4,260	\$118.79	5.000%	2.840%	-7 bps
15	4,715	\$118.03	5.000%	2.920%	-5 bps
16	5,210	\$117.17	5.000%	3.010%	-7 bps
17	5,740	\$103.52	4.000%	3.580%	40 bps
18	6,240	\$102.92	4.000%	3.650%	40 bps
19	6,775	\$102.25	4.000%	3.730%	42 bps
20	7,330	\$101.83	4.000%	3.780%	40 bps
21	7,880	\$101.32	4.000%	3.840%	42 bps

Cal Coupon University					
Year	Term	5% Coupon	Spread to Benchmark	Lower Coupon	Spread to Benchmark
2038	14.7	5.000%	13 bps	4.000%	43 bps
2043	19.7	5.000%	18 bps	4.000%	58 bps
2053	29.7	5.000%	30 bps	4.125%	75 bps

Lower Coupon vs 5% Coupon					
Maturity	Call	Coupon	YTC	YTM	Price
2038	10yr	5.000%	3.180%	3.664%	115.072
	10yr	4.000%	3.480%	3.625%	104.242
			30 bps	-4 bps	\$10.83
2043	10yr	5.000%	3.450%	4.059%	112.671
	10yr	4.000%	3.850%	3.912%	101.199
			40 bps	-15 bps	\$11.47
2053	10yr	5.000%	3.780%	4.404%	109.817
	10yr	4.125%	4.350%	4.230%	98.228
			57 bps	-17 bps	\$11.59





# Call Date Effects on Credit Spreads

- Different Call Dates may have different spreads
- Depending on the rate environment, the spread on a shorter call may be higher or lower than the spread on a standard 10 Year par Call redemption.
- Current Rate Environment – Shorter call dates tend to have wider spreads
- Low-Rate Environment (2020/2021) – Shorter call dates tended to have tighter spreads

Issuer:	High Grade Issuer - 10 Year Par Call						High Grade Issuer - 2 Year Par Call					
Series:	Revenue Bonds, Series 2023A-1						Revenue Bonds, Series 2023A-2					
Security:	Gen Purpose/Pub Impt/Revenue						Gen Purpose/Pub Impt/Revenue					
Sale Type:	Tax Exempt (Negotiated)						Tax Exempt (Negotiated)					
Par Amount:	\$36,655,000						\$39,120,000					
Sale Date:	5/16/2023						5/16/2023					
Last Call Date:	6/1/2033 @ 100 (10.2 Yrs)						6/1/2025 @ 100 (2.1 Yrs)					
Underlying Ratings:	Aa1/AAA/-						Aa1/AAA/-					
Insured Ratings:	-/-						-/-					
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL	Spred	Par (M)	Price	Coupon	Yield	BVAL	Spred
<1												
1	5,475	\$101.86	5.000%	3.100%	25	bps						
2	3,615	\$104.17	5.000%	2.840%	13	bps						
3	2,730	\$106.70	5.000%	2.660%	12	bps						
4	2,875	\$109.30	5.000%	2.540%	12	bps						
5	1,965	\$111.78	5.000%	2.480%	12	bps	2,700	\$104.09	5.000%	2.880%	52	bps
6	1,465	\$113.97	5.000%	2.480%	15	bps						
7	1,560	\$116.45	5.000%	2.430%	13	bps						
8	1,625	\$118.42	5.000%	2.450%	15	bps						
9	1,435	\$120.04	5.000%	2.500%	20	bps						
10	1,515	\$121.80	5.000%	2.520%	18	bps	4,210	\$103.93	5.000%	2.960%	62	bps
11	1,550	\$121.01	5.000%	2.600%	17	bps						
12	1,965	\$119.65	5.000%	2.740%	17	bps						
13	1,715	\$118.02	5.000%	2.910%	18	bps						
14	1,240	\$116.51	5.000%	3.070%	21	bps						
15	1,155	\$115.58	5.000%	3.170%	23	bps	5,370	\$103.03	5.000%	3.420%	48	bps
16	1,200	\$114.93	5.000%	3.240%	27	bps						
17	1,250	\$114.11	5.000%	3.330%	31	bps						
18	1,305	\$113.83	5.000%	3.360%	30	bps						
19	1,015	\$113.56	5.000%	3.390%	28	bps						
20							6,860	\$102.48	5.000%	3.700%	56	bps



# Industry Effect on Spreads

- Different Industries may require different credit spreads to gain investor attention.
- Perceived Credit risk within an industry, scarcity/surplus of supply in an industry, and will determine the appropriate credit spread.

Issuer:		California Essential Service Issuer					California Higher Ed Issuer					California School District Issuer - Special Tax				
Series:		Electric Revenue Bonds, 2024 Series					General Obligation Bonds Election of 2014, Series 2024B					Special Tax Revenue Bonds, Series 2024A				
Security:		Electric & Public Power/Revenue					Higher Education					Primary & Secondary Education/Special Tax Obligation				
Sale Type:		Tax Exempt (Competitive)					Tax Exempt (Negotiated)					Tax Exempt (Negotiated)				
Par Amount:		\$166,890,000					\$35,000,000					\$50,620,000				
Sale Date:		2/15/2024					2/14/2024					2/14/2024				
Last Call Date:		2/1/2034 @ 100 (10.1 Yrs)					8/1/2034 @ 100 (10.6 Yrs)					9/1/2033 @ 100 (9.7 Yrs)				
Underlying Ratings:		-JA+/A+					Aa3/AA-/					-A+/-				
Insured Ratings:		-/-					-/- (Insured)					-/- (Insured)				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	
<1						5,225	\$100.78	5.000%	3.030%	1 bps	2,665	\$100.92	5.000%	3.160%	*15 bps	
1	2,330	\$102.02	5.000%	2.760%	-17 bps	5,250	\$102.93	5.000%	2.850%	-3 bps	1,615	\$103.04	5.000%	2.920%	*5 bps	
2	2,640	\$104.55	5.000%	2.560%	-23 bps	1,695	\$105.36	5.000%	2.680%	-4 bps	1,755	\$105.26	5.000%	2.810%	*10 bps	
3	2,775	\$107.32	5.000%	2.390%	-22 bps	965	\$108.17	5.000%	2.480%	-10 bps	1,915	\$107.71	5.000%	2.680%	*11 bps	
4	2,910	\$110.15	5.000%	2.280%	-22 bps	715	\$110.54	5.000%	2.460%	-3 bps	2,080	\$109.83	5.000%	2.670%	*18 bps	
5	3,055	\$112.69	5.000%	2.260%	-18 bps	810	\$112.94	5.000%	2.430%	-3 bps	2,255	\$111.86	5.000%	2.670%	*21 bps	
6	3,210	\$115.11	5.000%	2.260%	-17 bps	880	\$115.34	5.000%	2.400%	*-5 bps	2,440	\$113.70	5.000%	2.690%	*24 bps	
7	3,370	\$117.46	5.000%	2.260%	-16 bps	950	\$117.39	5.000%	2.420%	*-3 bps	2,635	\$115.46	5.000%	2.710%	*26 bps	
8	3,540	\$119.69	5.000%	2.270%	-17 bps	1,040	\$119.51	5.000%	2.420%	*-5 bps	2,845	\$117.21	5.000%	2.720%	*25 bps	
9	3,715	\$121.85	5.000%	2.280%	-17 bps	1,120	\$121.58	5.000%	2.420%	*-9 bps	3,060	\$118.89	5.000%	2.730%	*22 bps	
10	3,900	\$124.03	5.000%	2.280%	-23 bps	1,210	\$123.60	5.000%	2.420%	*-16 bps	3,295	\$118.89	5.000%	2.730%	*14 bps	
11	4,095	\$123.13	5.000%	2.370%	-22 bps	1,305	\$122.16	5.000%	2.560%	*-13 bps	3,540	\$117.97	5.000%	2.830%	*13 bps	
12	4,300	\$122.24	5.000%	2.460%	-27 bps	1,405	\$121.24	5.000%	2.650%	*-18 bps	3,795	\$117.16	5.000%	2.920%	*8 bps	
13	4,515	\$121.26	5.000%	2.560%	-32 bps	1,505	\$120.13	5.000%	2.760%	*-21 bps	4,075	\$115.81	5.000%	3.070%	*9 bps	
14	4,740	\$119.52	5.000%	2.740%	-27 bps	1,615	\$119.33	5.000%	2.840%	*-24 bps	4,360	\$115.18	5.000%	3.140%	*6 bps	
15	4,980	\$118.47	5.000%	2.850%	-24 bps	1,640	\$118.34	5.000%	2.940%	*-21 bps	4,000	\$114.48	5.000%	3.220%	*7 bps	
16	5,230	\$117.24	5.000%	2.980%	-17 bps	1,755	\$116.98	5.000%	3.080%	*-12 bps	4,290	\$113.34	5.000%	3.350%	*15 bps	



# State Specific Effects on Credit Spreads

Issuer:	California AAA School District					Texas AAA School District				
Series:	Election of 2020, General Obligation Bonds, Series C					School Building Bonds, Series 2024 (Permanent School Fund Guarantee Program)				
Security:	Primary & Secondary Education/Ult G.O.					Primary & Secondary Education/Ult G.O.				
Sale Type:	Tax Exempt (Negotiated)					Tax Exempt (Negotiated)				
Par Amount:	\$74,000,000					\$52,040,000				
Sale Date:	7/24/2024					7/24/2024				
Last Call Date:	9/1/2034 @ 100 (10.3 Yrs)					2/15/2034 @ 100 (9.7 Yrs)				
Underlying Ratings:	-AAA/-					Aa2/-AA+				
Insured Ratings:	-/-					Aaa/-AAA (PSF)				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1										
1	2,930	\$102.39	5.000%	2.710%	-22 bps	8,340	\$100.95	5.000%	3.020%	*2 bps
2	3,080	\$104.69	5.000%	2.650%	-23 bps	5,275	\$102.91	5.000%	2.980%	*7 bps
3	310	\$106.91	5.000%	2.640%	-18 bps	5,490	\$104.88	5.000%	2.950%	*10 bps
4	630	\$109.00	5.000%	2.650%	-17 bps	7,495	\$106.78	5.000%	2.940%	*12 bps
5	970	\$111.32	5.000%	2.600%	-20 bps	8,805	\$108.64	5.000%	2.930%	*12 bps
6	1,140	\$113.21	5.000%	2.630%	-15 bps	1,325	\$110.21	5.000%	2.970%	*18 bps
7	505	\$114.91	5.000%	2.670%	-10 bps	1,285	\$111.71	5.000%	3.000%	*22 bps
8	805	\$116.73	5.000%	2.680%	-9 bps	1,245	\$113.03	5.000%	3.040%	*27 bps
9	2,410	\$118.92	5.000%	2.640%	-14 bps	750	\$114.24	5.000%	3.080%	*31 bps
10	2,725	\$120.45	5.000%	2.670%	-12 bps	785	\$115.51	5.000%	3.100%	*32 bps
11	3,070	\$119.96	5.000%	2.720%	-9 bps	820	\$115.33	5.000%	3.120%	*33 bps
12	3,440	\$119.47	5.000%	2.770%	-6 bps	875	\$115.07	5.000%	3.150%	*33 bps
13	3,835	\$118.89	5.000%	2.830%	-3 bps	920	\$114.71	5.000%	3.190%	*35 bps
14	4,260	\$118.79	5.000%	2.840%	-7 bps	965	\$114.10	5.000%	3.260%	*38 bps
15	4,715	\$118.03	5.000%	2.920%	-5 bps	2,225	\$113.40	5.000%	3.340%	*41 bps
16	5,210	\$117.17	5.000%	3.010%	-7 bps					
17	5,740	\$103.52	4.000%	3.580%	40 bps					
18	6,240	\$102.92	4.000%	3.650%	40 bps					
19	6,775	\$102.25	4.000%	3.730%	42 bps					
20	7,330	\$101.83	4.000%	3.780%	40 bps	2,280	\$110.32	5.000%	3.700%	*36 bps
21	7,880	\$101.32	4.000%	3.840%	42 bps					
22										
23										
24										
25						3,160	\$96.51	4.000%	4.230%	*66 bps

- State specific factors will cause credit spreads to differ across states
- State Income Tax Rates derive a different relative value of the tax exemption, depending on the state
- Supply/Demand dynamics in various states will additionally affect credit spreads



# Deal Size, Block Size, and Term

Issuer:	California School District						California School District					
Series:	2024 General Obligation Refunding Bonds						General Obligation Bonds 2020 Election, 2024 Series C					
Security:	Primary & Secondary Education/Ult G.O.						Primary & Secondary Education/Ult G.O.					
Sale Type:	Tax Exempt (Negotiated)						Tax Exempt (Negotiated)					
Par Amount:	\$9,570,000						\$38,000,000					
Sale Date:	7/18/2024						7/17/2024					
Last Call Date:	8/1/2034 @ 100 (10.2 Yrs)						8/1/2032 @ 100 (8.2 Yrs)					
Underlying Ratings:	Aa3/+-						Aa3/+-					
Insured Ratings:	-/-						-/-					
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd		
<1												
1	290	\$102.13	5.000%	2.820%	-12 bps	545	\$102.15	5.000%	2.770%	-18 bps		
2												
3	320	\$106.44	5.000%	2.750%	-7 bps							
4												
5	405	\$110.54	5.000%	2.730%	-7 bps							
6	475	\$112.43	5.000%	2.740%	-4 bps	335	\$112.69	5.000%	2.690%	-9 bps		
7	540	\$114.24	5.000%	2.750%	-2 bps	515	\$114.55	5.000%	2.700%	-7 bps		
8	620	\$115.98	5.000%	2.760%	-1 bps	705	\$116.34	5.000%	2.710%	-6 bps		
9	700	\$117.57	5.000%	2.780%	1 bps	920	\$116.18	5.000%	2.730%	-4 bps		
10	785	\$119.27	5.000%	2.780%	0 bps	1,145	\$116.18	5.000%	2.730%	-5 bps		
11	885	\$118.69	5.000%	2.840%	4 bps	635	\$115.72	5.000%	2.790%	-1 bps		
12	980	\$118.12	5.000%	2.900%	8 bps	750	\$115.25	5.000%	2.850%	3 bps		
13	1,080	\$117.64	5.000%	2.950%	10 bps	875	\$114.87	5.000%	2.900%	5 bps		
14	1,185	\$117.45	5.000%	2.970%	8 bps	1,005	\$114.72	5.000%	2.920%	2 bps		
15	1,305	\$116.98	5.000%	3.020%	7 bps	1,155	\$114.33	5.000%	2.970%	2 bps		
16						1,310	\$113.27	5.000%	3.110%	5 bps		
17						1,480	\$112.44	5.000%	3.220%	6 bps		
18						1,660	\$111.70	5.000%	3.320%	9 bps		
19						1,850	\$111.40	5.000%	3.360%	6 bps		
20						2,060	\$111.10	5.000%	3.400%	3 bps		
21												
22												
23												
24						10,500	\$98.78	4.000%	4.080%	53 bps		
25												
26												
27						10,555	\$98.38	4.000%	4.100%	48 bps		

- Deal Size and Maturity Block size can affect the liquidity of Municipal Bonds
- Larger transactions will generally command greater attention from investors; however at a certain level there can also be a size concession.
- Institutional size maturities can result in a lower credit spread;
- Longer Maturities generally will have a greater credit risk, and thus a greater spread/yield, than shorter maturities
- Different Types of Investors may also focus on different maturity terms.

# QUESTIONS?



**MATT RUDROFF, CFA, CPA**  
*Director*  
PFM Financial Advisors LLC



**NIKOLAI SKLAROFF**  
*Capital Finance Director*  
San Francisco Public  
Utilities Commission