

FGFOA

School of Governmental Finance

The Mechanics of a Public Bond Offering

October 19, 2023



Capital
Markets

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SECTION I:

Overview of the Municipal Bond Market

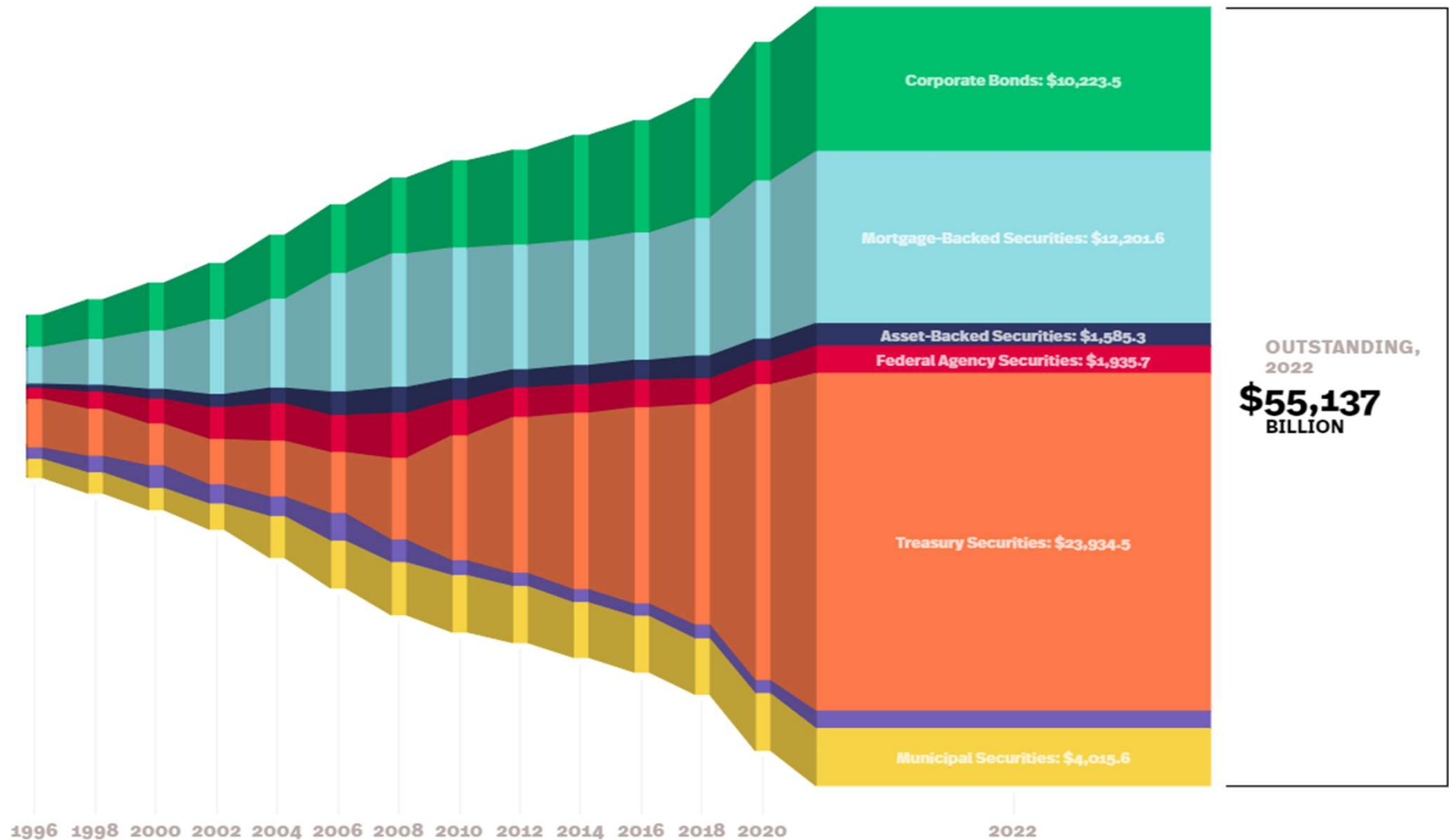


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What is a Municipal Bond?

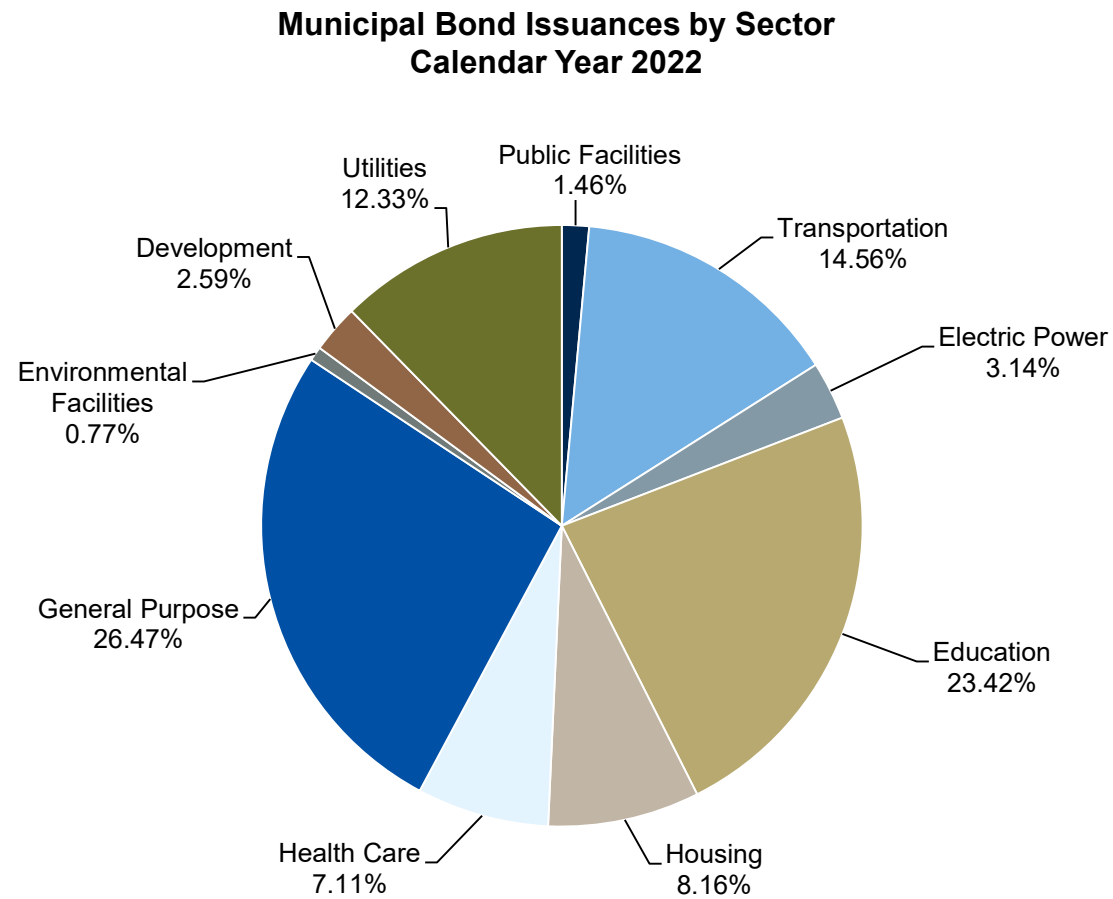
- A municipal bond is a debt instrument issued by a state, local government, agency or special district (~ 80,000 issuers in the U.S.)
- Municipal bonds can be issued as tax-exempt, taxable, or subject to AMT (private activity bonds)
- Interest earned on tax-exempt municipal bonds is exempt from federal income tax and, in some cases, state and local income tax; hence, resulting in lower interest rates for state and local government borrowers
- Interest is traditionally paid semi-annually with annual principal payments
- Commonly issued municipal bonds in Florida:
 - General Obligation (property tax / ad valorem tax – requires voter approval in Florida)
 - Revenue Bonds (utility revenues, sales tax, tolls, airport, seaport, hospital, university, etc.)
 - Certificates of Participation (leased backed subject to annual appropriation)
- Short-term municipal bonds are referred to as Notes (TANs, BANs, RANs)
- Municipal bonds can be issued as fixed rate or variable rate (VRDBs, VRDOs, FRNs, etc.)

Size of the U.S. Municipal Bond Market



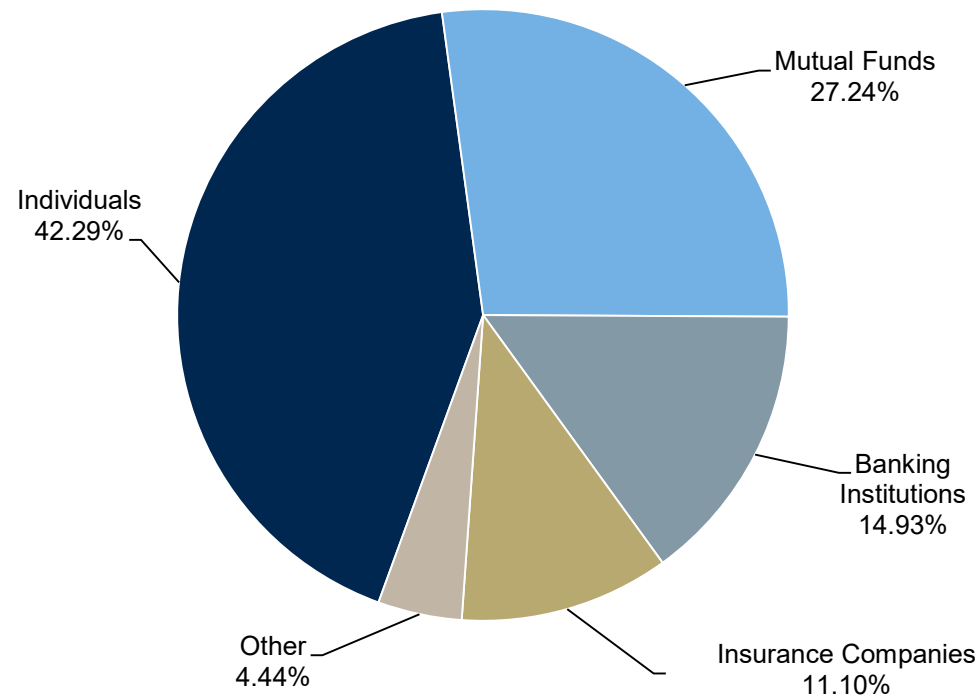
Source: SIFMA
Issuance is long-term instruments only.
ABS/MBS outstanding data lags by one quarter.

Types of Projects Financed by Municipal Bonds



Source: Bond Buyer

Holders of Municipal Bonds (1Q23)



SECTION II:

The Math Behind Municipal Bonds



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▪ Tax Advantage of Municipal Bonds (Example)

- Most municipal bonds issued are tax-exempt; meaning that investors don't pay federal income tax (state and local income tax in some cases) on the interest earned from holding the bonds

$$\text{Taxable Equivalent Yield} = \frac{\text{Tax-Exempt Yield}}{(1 - \text{Tax Bracket})}$$

Corporate Investor

4.25% Tax-Exempt Yield

21% Tax Bracket

$$\text{TX Equivalent Yield} = \frac{4.25\%}{[1 - (0.21)]}$$

$$\text{TX Equivalent Yield} = \mathbf{5.38\%}$$

▪ Risk Profile

- As an investor or lender, the most important consideration before investing or lending is how likely are you to get your interest and principal back
- Municipal bonds have historically had a very low level of default

Calculating the Price of a Bond (Example)

■ Primary Components of Bond Pricing

- **Principal/Par Amount:** Face value or amount due at maturity (typically issued on \$1,000 basis)
- **Coupon Rate:** Fixed rate paid to the investor (Period) through final maturity based on face value
- **Yield:** Current market interest rate of a bond (subject to market change)
- **Maturity:** Date in which principal payment is due
- **Current Bond Price:** Present value of future interest and principal payments discounted at the Yield (typically quoted on a per \$100 basis)

Par Bond													
Par/Principal Amount Issued:	\$1,000		Current Bond Price	=	$\frac{C1}{(1+Y)^n}$	+	$\frac{C2}{(1+Y)^n}$	+	$\frac{C3}{(1+Y)^n}$	+	$\frac{C4}{(1+Y)^n}$	+	$\frac{C5 + \text{Par}}{(1+Y)^n}$
Coupon Rate (Fixed Rate - Payable Semiannually):	4.25%												
Yield (Current /Market Drive Rate of Return):	4.25%		Payment Periods		1		2		3		4		5
Final Maturity:	2028		\$1,000.00	=	$\frac{\$42.50}{1.042500}$	+	$\frac{\$42.50}{1.086806}$	+	$\frac{\$42.50}{1.132996}$	+	$\frac{\$42.50}{1.181148}$	+	$\frac{\$1,042.50}{1.231347}$
Discount Bond													
Par/Principal Amount Issued:	\$1,000		Current Bond Price	=	$\frac{C1}{(1+Y)^n}$	+	$\frac{C2}{(1+Y)^n}$	+	$\frac{C3}{(1+Y)^n}$	+	$\frac{C4}{(1+Y)^n}$	+	$\frac{C5 + \text{Par}}{(1+Y)^n}$
Coupon Rate (Fixed Rate - Payable Semiannually):	4.00%												
Yield (Current /Market Drive Rate of Return):	4.25%		Payment Periods		1		2		3		4		5
Final Maturity:	2028		\$988.95	=	$\frac{\$40}{1.042500}$	+	$\frac{\$40}{1.086806}$	+	$\frac{\$40}{1.132996}$	+	$\frac{\$40}{1.181148}$	+	$\frac{\$1,040}{1.231347}$
Premium Bond													
Par/Principal Amount Issued:	\$1,000		Current Bond Price	=	$\frac{C1}{(1+Y)^n}$	+	$\frac{C2}{(1+Y)^n}$	+	$\frac{C3}{(1+Y)^n}$	+	$\frac{C4}{(1+Y)^n}$	+	$\frac{C5 + \text{Par}}{(1+Y)^n}$
Coupon Rate (Fixed Rate - Payable Semiannually):	5.00%												
Yield (Current /Market Drive Rate of Return):	4.25%		Payment Periods		1		2		3		4		5
Final Maturity:	2028		\$1,033.16	=	$\frac{\$50}{1.042500}$	+	$\frac{\$50}{1.086806}$	+	$\frac{\$50}{1.132996}$	+	$\frac{\$50}{1.181148}$	+	$\frac{\$1,050}{1.231347}$

Source: RBCCM

Bond Price Sensitivity to Changes in Yields (Example)

- **Modified Duration** – Measures a bond's price sensitivity to changes in interest rates or yields or (linear measure or 1st derivative of how bond price changes with respect to changes in interest rates)
- **Convexity** – Second derivative of a Price function (non-linear relationship)

Current Market vs. Lower Rates			
	Par Bond	Discount Bond	Premium Bond
Par Amount	\$100.00	\$100.00	\$100.00
Date Purchased	1/1/2024	1/1/2024	1/1/2024
Coupon Rate	4.25%	4.00%	5.00%
Yield at Purchase	4.25%	4.25%	4.25%
Maturity/Call Date	01/01/2054	01/01/2054	01/01/2054
Bond Price at Purchase	\$100.00	\$95.78	\$112.65
THREE MONTHS LATER - YIELDS FALL BY 50 BASIS POINTS (0.50%)			
Yield at Current Market	3.75%	3.75%	3.75%
Bond Price at Current Market	\$108.96	\$104.48	\$122.40
Percentage Change in Price	8.96%	9.08%	8.65%
Municipal Bond Portfolio (\$ Billion)	\$50.00	\$50.00	\$50.00
Portfolio Gain (Mark to Market - \$ Billions)	\$4.48	\$4.54	\$4.33

Current Market vs. Higher Rates			
	Par Bond	Discount Bond	Premium Bond
Par Amount	\$100.00	\$100.00	\$100.00
Date Purchased	1/1/2024	1/1/2024	1/1/2024
Coupon Rate	4.25%	4.00%	5.00%
Yield at Purchase	4.25%	4.25%	4.25%
Maturity/Call Date	01/01/2054	01/01/2054	01/01/2054
Bond Price at Purchase	\$100.00	\$95.78	\$112.65
THREE MONTHS LATER - YIELDS RISE BY 50 BASIS POINTS (0.50%)			
Yield at Current Market	4.75%	4.75%	4.75%
Bond Price at Current Market	\$92.05	\$88.07	\$103.98
Percentage Change in Price	-7.95%	-8.05%	-7.70%
Municipal Bond Portfolio (\$ Billions)	\$50.00	\$50.00	\$50.00
Portfolio Loss (Mark to Market - \$ Billions)	-\$3.98	-\$4.03	-\$3.85

	THREE MONTHS LATER - YIELDS FALL BY 50 BASIS POINTS (0.50%)				THREE MONTHS LATER - YIELDS RISE BY 50 BASIS POINTS (0.50%)		
Yield at Current Market	3.75%	3.75%	3.75%		4.75%	4.75%	4.75%
Bond Price at Current Market	\$108.96	\$104.48	\$122.40		\$92.05	\$88.07	\$103.98
Percentage Change in Price	8.96%	9.08%	8.65%		-7.95%	-8.05%	-7.70%
Municipal Bond Portfolio (\$ Billions)	\$50.00	\$50.00	\$50.00		\$50.00	\$50.00	\$50.00
Portfolio Change (Mark to Market - \$ Billions)	\$4.48	\$4.54	\$4.33		-\$3.98	-\$4.03	-\$3.85

Yield to Maturity vs. Yield to Call (Example)

- **Yield to Maturity (YTM):** Total interest rate earned by an investor that buys and holds the bonds until maturity
- **Yield to Call (YTC):** Total interest rate earned by an investor that buys and holds the bonds until the call date
- *Callable municipal bonds with a premium coupon structure must be priced to the worst (lowest) yield to the investor*

Bond Component	Maturity Date	Amount	Rate	Yield	Price	Yield to Maturity	Call Date	Call Price
Serial Bonds (Insured):	07/01/2034	5,220,000	5.000%	2.970%	117.315 C	3.116%	07/01/2033	100.000
	07/01/2035	5,480,000	5.000%	3.060%	116.475 C	3.314%	07/01/2033	100.000
	07/01/2036	5,755,000	5.000%	3.180%	115.365 C	3.509%	07/01/2033	100.000
	07/01/2037	6,040,000	5.000%	3.310%	114.177 C	3.688%	07/01/2033	100.000
	07/01/2038	6,345,000	5.000%	3.400%	113.364 C	3.816%	07/01/2033	100.000
	07/01/2039	6,660,000	5.000%	3.510%	112.378 C	3.945%	07/01/2033	100.000
	07/01/2040	6,995,000	5.000%	3.570%	111.845 C	4.027%	07/01/2033	100.000

- *While the 7/1/2040 maturity as a non-callable premium bond may trade at a spread to the 17-year MMD of 3.15% (AAA Tax-Exempt Index) of +50 basis points (0.50%) or a YTM of 3.65%, the YTM resulting from a callable premium bond is instead ~4.03%*
- *The “Kick” or difference between 3.65% and 4.03% (+0.43%), means that if the 7/1/2040 maturity is never called by the issuer, the issuer will pay more interest through final maturity as compared to a non-callable premium bond*

Option Adjusted Yield Models (Example)

	Bond				Total Value			Option Adjusted Yields			Benefit		
	Maturity	Coupon	Yield	Call Date	Bond	Option	Total	YTC	YTM	OAY	YTC	YTM	OAY
	1	2	3	4	5	6	7	8	9	10	12	13	14
5% Coupon, 10 Yr Call	09/01/2034	5.000%	1.850%	09/01/2029	128.45	8.86	137.31	1.85%	2.68%	2.38%	0.30%		0.11%
	09/01/2035	5.000%	1.900%	09/01/2029	127.93	9.63	137.57	1.90%	2.81%	2.48%	0.30%		0.09%
	09/01/2036	5.000%	1.940%	09/01/2029	127.52	10.48	138.00	1.94%	2.93%	2.55%	0.30%		0.07%
	09/01/2037	5.000%	1.980%	09/01/2029	127.10	12.34	139.44	1.98%	3.03%	2.58%	0.30%		0.07%
	09/01/2038	5.000%	2.020%	09/01/2029	126.69	13.17	139.86	2.02%	3.12%	2.64%	0.30%		0.05%
	09/01/2039	5.000%	2.060%	09/01/2029	126.28	13.94	140.22	2.06%	3.21%	2.70%	0.30%		0.04%
4% Coupon, 10 Yr Call	09/01/2034	4.000%	2.150%	09/01/2029	116.46	6.14	122.60	2.15%	2.66%	2.49%		0.02%	
	09/01/2035	4.000%	2.200%	09/01/2029	115.98	6.55	122.53	2.20%	2.75%	2.56%		0.06%	
	09/01/2036	4.000%	2.240%	09/01/2029	115.59	7.03	122.62	2.24%	2.83%	2.62%		0.09%	
	09/01/2037	4.000%	2.280%	09/01/2029	115.21	8.18	123.39	2.28%	2.91%	2.65%		0.12%	
	09/01/2038	4.000%	2.320%	09/01/2029	114.82	8.64	123.47	2.32%	2.97%	2.69%		0.15%	
	09/01/2039	4.000%	2.360%	09/01/2029	114.44	9.04	123.49	2.36%	3.03%	2.74%		0.18%	

	Bond				Total Value			Option Adjusted Yields			Benefit		
	Maturity	Coupon	Yield	Call Date	Bond	Option	Total	YTC	YTM	OAY	YTC	YTM	OAY
	1	2	3	4	5	6	7	8	9	10	12	13	14
5% Coupon, 10-Yr Call	09/01/2030	5.000%	1.620%	09/01/2029	130.89	5.80	136.69	1.62%	1.86%	1.78%		0.71%	0.11%
	09/01/2031	5.000%	1.690%	09/01/2029	130.14	6.15	136.29	1.69%	2.13%	1.99%		0.65%	0.15%
	09/01/2032	5.000%	1.750%	09/01/2029	129.51	6.94	136.45	1.75%	2.34%	2.16%		0.60%	0.15%
	09/01/2033	5.000%	1.800%	09/01/2029	128.98	7.98	136.96	1.80%	2.52%	2.27%		0.56%	0.14%
	09/01/2034	5.000%	1.850%	09/01/2029	128.45	8.86	137.31	1.85%	2.68%	2.38%		0.52%	0.13%
	09/01/2035	5.000%	1.900%	09/01/2029	127.93	9.63	137.57	1.90%	2.81%	2.48%		0.49%	0.12%
	09/01/2036	5.000%	1.940%	09/01/2029	127.52	10.48	138.00	1.94%	2.93%	2.55%		0.46%	0.11%
	09/01/2037	5.000%	1.980%	09/01/2029	127.10	12.34	139.44	1.98%	3.03%	2.58%		0.44%	0.08%
	09/01/2038	5.000%	2.020%	09/01/2029	126.69	13.17	139.86	2.02%	3.12%	2.64%		0.42%	0.07%
	09/01/2039	5.000%	2.060%	09/01/2029	126.28	13.94	140.22	2.06%	3.21%	2.70%		0.40%	0.07%
	09/01/2044	5.000%	2.200%	09/01/2029	124.85	17.24	142.10	2.20%	3.50%	2.90%		0.34%	0.06%
	09/01/2049	5.000%	2.250%	09/01/2029	124.35	20.98	145.33	2.25%	3.66%	2.96%		0.32%	0.07%
5% coupon, 7-Yr Call	09/01/2030	5.000%	1.500%	09/01/2026	122.96	15.40	138.35	1.50%	2.58%	1.89%	0.12%		
	09/01/2031	5.000%	1.570%	09/01/2026	122.44	14.75	137.18	1.57%	2.78%	2.15%	0.12%		
	09/01/2032	5.000%	1.630%	09/01/2026	122.00	15.30	137.30	1.63%	2.94%	2.30%	0.12%		
	09/01/2033	5.000%	1.680%	09/01/2026	121.63	16.15	137.78	1.68%	3.08%	2.41%	0.12%		
	09/01/2034	5.000%	1.730%	09/01/2026	121.27	16.91	138.18	1.73%	3.20%	2.51%	0.12%		
	09/01/2035	5.000%	1.780%	09/01/2026	120.91	17.57	138.48	1.78%	3.30%	2.60%	0.12%		
	09/01/2036	5.000%	1.820%	09/01/2026	120.62	18.32	138.94	1.82%	3.39%	2.66%	0.12%		
	09/01/2037	5.000%	1.860%	09/01/2026	120.33	20.80	141.12	1.86%	3.47%	2.66%	0.12%		
	09/01/2038	5.000%	1.900%	09/01/2026	120.04	21.56	141.60	1.90%	3.54%	2.72%	0.12%		
	09/01/2039	5.000%	1.940%	09/01/2026	119.75	22.25	142.00	1.94%	3.60%	2.77%	0.12%		
	09/01/2044	5.000%	2.100%	09/01/2026	118.61	25.25	143.87	2.10%	3.83%	2.95%	0.10%		
	09/01/2049	5.000%	2.200%	09/01/2026	117.91	28.82	146.73	2.20%	3.97%	3.02%	0.05%		

Source: RBCCM

SECTION III:

Impact of Common Bond Structuring Considerations



**Capital
Markets**

Tax Status (Example)

Tax-Exempt Debt Service

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$665,000	\$2,207,250	\$2,872,250
2025	700,000	2,174,000	2,874,000
2026	735,000	2,139,000	2,874,000
2027	770,000	2,102,250	2,872,250
2028	810,000	2,063,750	2,873,750
2029	850,000	2,023,250	2,873,250
2030	890,000	1,980,750	2,870,750
2031	935,000	1,936,250	2,871,250
2032	980,000	1,889,500	2,869,500
2033	1,030,000	1,840,500	2,870,500
2034	1,080,000	1,789,000	2,869,000
2035	1,135,000	1,735,000	2,870,000
2036	1,195,000	1,678,250	2,873,250
2037	1,255,000	1,618,500	2,873,500
2038	1,315,000	1,555,750	2,870,750
2039	1,380,000	1,490,000	2,870,000
2040	1,450,000	1,421,000	2,871,000
2041	1,520,000	1,348,500	2,868,500
2042	1,600,000	1,272,500	2,872,500
2043	1,680,000	1,192,500	2,872,500
2044	1,765,000	1,108,500	2,873,500
2045	1,850,000	1,020,250	2,870,250
2046	1,945,000	927,750	2,872,750
2047	2,040,000	830,500	2,870,500
2048	2,140,000	728,500	2,868,500
2049	2,250,000	621,500	2,871,500
2050	2,360,000	509,000	2,869,000
2051	2,480,000	391,000	2,871,000
2052	2,605,000	267,000	2,872,000
2053	2,735,000	136,750	2,871,750
Total	\$44,145,000	\$41,998,250	\$86,143,250

Tax-Exempt Financing Summary Statistics

Par Amount	44,145,000
Original Issue Premium (Discount)	5,857,285
Project Fund Deposit	50,000,000
Arbitrage Yield	3.308%
All-In True Interest Cost	3.949%
Average Life (Years)	19.027
Maximum Annual Debt Service	2,874,000
Total Debt Service	86,143,250

Taxable Debt Service

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$790,000	\$2,501,869	\$3,291,869
2025	820,000	2,469,321	3,289,321
2026	855,000	2,435,127	3,290,127
2027	890,000	2,399,473	3,289,473
2028	930,000	2,361,292	3,291,292
2029	970,000	2,320,465	3,290,465
2030	1,015,000	2,276,815	3,291,815
2031	1,060,000	2,230,633	3,290,633
2032	1,110,000	2,180,919	3,290,919
2033	1,160,000	2,128,305	3,288,305
2034	1,215,000	2,072,741	3,287,741
2035	1,275,000	2,013,935	3,288,935
2036	1,340,000	1,951,587	3,291,587
2037	1,405,000	1,885,391	3,290,391
2038	1,475,000	1,815,282	3,290,282
2039	1,545,000	1,742,417	3,287,417
2040	1,625,000	1,664,240	3,289,240
2041	1,705,000	1,582,015	3,287,015
2042	1,795,000	1,495,742	3,290,742
2043	1,885,000	1,404,915	3,289,915
2044	1,980,000	1,309,534	3,289,534
2045	2,080,000	1,206,376	3,286,376
2046	2,190,000	1,098,008	3,288,008
2047	2,305,000	983,909	3,288,909
2048	2,425,000	863,818	3,288,818
2049	2,550,000	737,476	3,287,476
2050	2,685,000	604,621	3,289,621
2051	2,825,000	464,732	3,289,732
2052	2,970,000	317,550	3,287,550
2053	3,125,000	162,813	3,287,813
Total	\$50,000,000	\$48,681,310	\$98,681,310

Taxable Financing Summary Statistics

Par Amount	50,000,000
Original Issue Premium (Discount)	-
Project Fund Deposit	50,000,000
Arbitrage Yield	5.100%
All-In True Interest Cost	5.100%
Average Life (Years)	19.007
Maximum Annual Debt Service	3,291,869
Total Debt Service	98,681,310

Source: RBCCM

Final Maturity (Example)

20-Year Term

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$1,310,000	\$2,170,000	\$3,480,000
2025	1,380,000	2,104,500	3,484,500
2026	1,445,000	2,035,500	3,480,500
2027	1,520,000	1,963,250	3,483,250
2028	1,595,000	1,887,250	3,482,250
2029	1,675,000	1,807,500	3,482,500
2030	1,760,000	1,723,750	3,483,750
2031	1,845,000	1,635,750	3,480,750
2032	1,940,000	1,543,500	3,483,500
2033	2,035,000	1,446,500	3,481,500
2034	2,140,000	1,344,750	3,484,750
2035	2,245,000	1,237,750	3,482,750
2036	2,355,000	1,125,500	3,480,500
2037	2,475,000	1,007,750	3,482,750
2038	2,600,000	884,000	3,484,000
2039	2,730,000	754,000	3,484,000
2040	2,865,000	617,500	3,482,500
2041	3,010,000	474,250	3,484,250
2042	3,160,000	323,750	3,483,750
2043	3,315,000	165,750	3,480,750
Total	\$43,400,000	\$26,252,500	\$69,652,500

25-Year Term

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$915,000	\$2,189,750	\$3,104,750
2025	965,000	2,144,000	3,109,000
2026	1,010,000	2,095,750	3,105,750
2027	1,060,000	2,045,250	3,105,250
2028	1,115,000	1,992,250	3,107,250
2029	1,170,000	1,936,500	3,106,500
2030	1,230,000	1,878,000	3,108,000
2031	1,290,000	1,816,500	3,106,500
2032	1,355,000	1,752,000	3,107,000
2033	1,425,000	1,684,250	3,109,250
2034	1,495,000	1,613,000	3,108,000
2035	1,570,000	1,538,250	3,108,250
2036	1,650,000	1,459,750	3,109,750
2037	1,730,000	1,377,250	3,107,250
2038	1,815,000	1,290,750	3,105,750
2039	1,905,000	1,200,000	3,105,000
2040	2,005,000	1,104,750	3,109,750
2041	2,105,000	1,004,500	3,109,500
2042	2,210,000	899,250	3,109,250
2043	2,320,000	788,750	3,108,750
2044	2,435,000	672,750	3,107,750
2045	2,555,000	551,000	3,106,000
2046	2,685,000	423,250	3,108,250
2047	2,820,000	289,000	3,109,000
2048	2,960,000	148,000	3,108,000
Total	\$43,795,000	\$33,894,500	\$77,689,500

30-Year Term

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$665,000	\$2,207,250	\$2,872,250
2025	700,000	2,174,000	2,874,000
2026	735,000	2,139,000	2,874,000
2027	770,000	2,102,250	2,872,250
2028	810,000	2,063,750	2,873,750
2029	850,000	2,023,250	2,873,250
2030	890,000	1,980,750	2,870,750
2031	935,000	1,936,250	2,871,250
2032	980,000	1,889,500	2,869,500
2033	1,030,000	1,840,500	2,870,500
2034	1,080,000	1,789,000	2,869,000
2035	1,135,000	1,735,000	2,870,000
2036	1,195,000	1,678,250	2,873,250
2037	1,255,000	1,618,500	2,873,500
2038	1,315,000	1,555,750	2,870,750
2039	1,380,000	1,490,000	2,870,000
2040	1,450,000	1,421,000	2,871,000
2041	1,520,000	1,348,500	2,868,500
2042	1,600,000	1,272,500	2,872,500
2043	1,680,000	1,192,500	2,872,500
2044	1,765,000	1,108,500	2,873,500
2045	1,850,000	1,020,250	2,870,250
2046	1,945,000	927,750	2,872,750
2047	2,040,000	830,500	2,870,500
2048	2,140,000	728,500	2,868,500
2049	2,250,000	621,500	2,871,500
2050	2,360,000	509,000	2,869,000
2051	2,480,000	391,000	2,871,000
2052	2,605,000	267,000	2,872,000
2053	2,735,000	136,750	2,871,750
Total	\$44,145,000	\$41,998,250	\$86,143,250

20-Year Term Financing Summary Statistics

Par Amount	43,400,000
Original Issue Premium (Discount)	6,600,326
Project Fund Deposit	50,000,000
Arbitrage Yield	2.930%
All-In True Interest Cost	3.398%
Average Life (Years)	12.098
Maximum Annual Debt Service	3,484,750
Total Debt Service	69,652,500

25-Year Term Financing Summary Statistics

Par Amount	43,795,000
Original Issue Premium (Discount)	6,208,575
Project Fund Deposit	50,000,000
Arbitrage Yield	3.149%
All-In True Interest Cost	3.729%
Average Life (Years)	15.479
Maximum Annual Debt Service	3,109,750
Total Debt Service	77,689,500

30-Year Term Financing Summary Statistics

Par Amount	44,145,000
Original Issue Premium (Discount)	5,857,285
Project Fund Deposit	50,000,000
Arbitrage Yield	3.308%
All-In True Interest Cost	3.949%
Average Life (Years)	19.027
Maximum Annual Debt Service	2,874,000
Total Debt Service	86,143,250

Principal Amortization (Example)

30-Year Level

Maturity (10/1)	Outstanding Parity Debt	Principal	Interest	Debt Service	Aggregate Debt Service
2024	\$2,750,000	\$665,000	\$2,207,250	\$2,872,250	\$5,622,250
2025	2,750,000	700,000	2,174,000	2,874,000	5,624,000
2026	2,750,000	735,000	2,139,000	2,874,000	5,624,000
2027	2,750,000	770,000	2,102,250	2,872,250	5,622,250
2028	2,750,000	810,000	2,063,750	2,873,750	5,623,750
2029	2,750,000	850,000	2,023,250	2,873,250	5,623,250
2030	2,750,000	890,000	1,980,750	2,870,750	5,620,750
2031	2,750,000	935,000	1,936,250	2,871,250	5,621,250
2032	2,750,000	980,000	1,889,500	2,869,500	5,619,500
2033	2,750,000	1,030,000	1,840,500	2,870,500	5,620,500
2034	1,500,000	1,080,000	1,789,000	2,869,000	4,369,000
2035	1,500,000	1,135,000	1,735,000	2,870,000	4,370,000
2036	1,500,000	1,195,000	1,678,250	2,873,250	4,373,250
2037	1,500,000	1,255,000	1,618,500	2,873,500	4,373,500
2038	1,500,000	1,315,000	1,555,750	2,870,750	4,370,750
2039		1,380,000	1,490,000	2,870,000	2,870,000
2040		1,450,000	1,421,000	2,871,000	2,871,000
2041		1,520,000	1,348,500	2,868,500	2,868,500
2042		1,600,000	1,272,500	2,872,500	2,872,500
2043		1,680,000	1,192,500	2,872,500	2,872,500
2044		1,765,000	1,108,500	2,873,500	2,873,500
2045		1,850,000	1,020,250	2,870,250	2,870,250
2046		1,945,000	927,750	2,872,750	2,872,750
2047		2,040,000	830,500	2,870,500	2,870,500
2048		2,140,000	728,500	2,868,500	2,868,500
2049		2,250,000	621,500	2,871,500	2,871,500
2050		2,360,000	509,000	2,869,000	2,869,000
2051		2,480,000	391,000	2,871,000	2,871,000
2052		2,605,000	267,000	2,872,000	2,872,000
2053		2,735,000	136,750	2,871,750	2,871,750
Total	\$35,000,000	\$44,145,000	\$41,998,250	\$86,143,250	\$121,143,250

30-Year Level: Financing Summary Statistics

Par Amount	44,145,000
Original Issue Premium (Discount)	5,857,285
Project Fund Deposit	50,000,000
Arbitrage Yield	3.308%
All-In True Interest Cost	3.949%
Average Life (Years)	19.027
Maximum Annual Debt Service	2,874,000
Total Debt Service	86,143,250
Aggregate Debt Service	121,143,250

30-Year Wrapped

Maturity (10/1)	Outstanding Parity Debt	Principal	Interest	Debt Service	Aggregate Debt Service
2024	\$2,750,000		\$2,225,500	\$2,225,500	\$4,975,500
2025	2,750,000		2,225,500	2,225,500	4,975,500
2026	2,750,000		2,225,500	2,225,500	4,975,500
2027	2,750,000		2,225,500	2,225,500	4,975,500
2028	2,750,000		2,225,500	2,225,500	4,975,500
2029	2,750,000		2,225,500	2,225,500	4,975,500
2030	2,750,000		2,225,500	2,225,500	4,975,500
2031	2,750,000		2,225,500	2,225,500	4,975,500
2032	2,750,000		2,225,500	2,225,500	4,975,500
2033	2,750,000		2,225,500	2,225,500	4,975,500
2034	1,500,000	365,000	2,225,500	2,590,500	4,090,500
2035	1,500,000	385,000	2,207,250	2,592,250	4,092,250
2036	1,500,000	405,000	2,188,000	2,593,000	4,093,000
2037	1,500,000	425,000	2,167,750	2,592,750	4,092,750
2038	1,500,000	445,000	2,146,500	2,591,500	4,091,500
2039		1,970,000	2,124,250	4,094,250	4,094,250
2040		2,065,000	2,025,750	4,090,750	4,090,750
2041		2,170,000	1,922,500	4,092,500	4,092,500
2042		2,280,000	1,814,000	4,094,000	4,094,000
2043		2,395,000	1,700,000	4,095,000	4,095,000
2044		2,515,000	1,580,250	4,095,250	4,095,250
2045		2,640,000	1,454,500	4,094,500	4,094,500
2046		2,770,000	1,322,500	4,092,500	4,092,500
2047		2,910,000	1,184,000	4,094,000	4,094,000
2048		3,055,000	1,038,500	4,093,500	4,093,500
2049		3,205,000	885,750	4,090,750	4,090,750
2050		3,365,000	725,500	4,090,500	4,090,500
2051		3,535,000	557,250	4,092,250	4,092,250
2052		3,710,000	380,500	4,090,500	4,090,500
2053		3,900,000	195,000	4,095,000	4,095,000
Total	\$35,000,000	\$44,510,000	\$52,100,250	\$96,610,250	\$131,610,250

30-Year Wrap: Financing Summary Statistics

Par Amount	44,510,000
Original Issue Premium (Discount)	5,494,924
Project Fund Deposit	50,000,000
Arbitrage Yield	3.524%
All-In True Interest Cost	4.160%
Average Life (Years)	23.411
Maximum Annual Debt Service	4,095,250
Total Debt Service	96,610,250
Aggregate Debt Service	131,610,250

Source: RBCCM

Optional Redemption / Call Provision (Example)

5-Year Par Call Debt Service

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$695,000	\$2,307,500	\$3,002,500
2025	730,000	2,272,750	3,002,750
2026	765,000	2,236,250	3,001,250
2027	805,000	2,198,000	3,003,000
2028	845,000	2,157,750	3,002,750
2029	885,000	2,115,500	3,000,500
2030	930,000	2,071,250	3,001,250
2031	980,000	2,024,750	3,004,750
2032	1,025,000	1,975,750	3,000,750
2033	1,080,000	1,924,500	3,004,500
2034	1,130,000	1,870,500	3,000,500
2035	1,190,000	1,814,000	3,004,000
2036	1,245,000	1,754,500	2,999,500
2037	1,310,000	1,692,250	3,002,250
2038	1,375,000	1,626,750	3,001,750
2039	1,445,000	1,558,000	3,003,000
2040	1,515,000	1,485,750	3,000,750
2041	1,590,000	1,410,000	3,000,000
2042	1,670,000	1,330,500	3,000,500
2043	1,755,000	1,247,000	3,002,000
2044	1,845,000	1,159,250	3,004,250
2045	1,935,000	1,067,000	3,002,000
2046	2,030,000	970,250	3,000,250
2047	2,135,000	868,750	3,003,750
2048	2,240,000	762,000	3,002,000
2049	2,350,000	650,000	3,000,000
2050	2,470,000	532,500	3,002,500
2051	2,595,000	409,000	3,004,000
2052	2,725,000	279,250	3,004,250
2053	2,860,000	143,000	3,003,000
Total	\$46,150,000	\$43,914,250	\$90,064,250

5-Year Par Call Financing Summary Statistics

Par Amount	46,150,000
Call Date	10/01/2028
Original Issue Premium (Discount)	3,853,986
Project Fund Deposit	50,000,000
Arbitrage Yield	3.125%
All-In True Interest Cost	4.316%
Average Life (Years)	19.031
Maximum Annual Debt Service	3,004,750
Total Debt Service	90,064,250

10-Year Par Call Debt Service

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$665,000	\$2,207,250	\$2,872,250
2025	700,000	2,174,000	2,874,000
2026	735,000	2,139,000	2,874,000
2027	770,000	2,102,250	2,872,250
2028	810,000	2,063,750	2,873,750
2029	850,000	2,023,250	2,873,250
2030	890,000	1,980,750	2,870,750
2031	935,000	1,936,250	2,871,250
2032	980,000	1,889,500	2,869,500
2033	1,030,000	1,840,500	2,870,500
2034	1,080,000	1,789,000	2,869,000
2035	1,135,000	1,735,000	2,870,000
2036	1,195,000	1,678,250	2,873,250
2037	1,255,000	1,618,500	2,873,500
2038	1,315,000	1,555,750	2,870,750
2039	1,380,000	1,490,000	2,870,000
2040	1,450,000	1,421,000	2,871,000
2041	1,520,000	1,348,500	2,868,500
2042	1,600,000	1,272,500	2,872,500
2043	1,680,000	1,192,500	2,872,500
2044	1,765,000	1,108,500	2,873,500
2045	1,850,000	1,020,250	2,870,250
2046	1,945,000	927,750	2,872,750
2047	2,040,000	830,500	2,870,500
2048	2,140,000	728,500	2,868,500
2049	2,250,000	621,500	2,871,500
2050	2,360,000	509,000	2,869,000
2051	2,480,000	391,000	2,871,000
2052	2,605,000	267,000	2,872,000
2053	2,735,000	136,750	2,871,750
Total	\$44,145,000	\$41,998,250	\$86,143,250

10-Year Par Call Financing Summary Statistics

Par Amount	44,145,000
Call Date	10/01/2033
Original Issue Premium (Discount)	5,857,285
Project Fund Deposit	50,000,000
Arbitrage Yield	3.308%
All-In True Interest Cost	3.949%
Average Life (Years)	19.027
Maximum Annual Debt Service	2,874,000
Total Debt Service	86,143,250

Source: RBCCM

Coupon Structure on Project Fund and Debt Service

5% Coupon Structure Debt Service

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$665,000	\$2,207,250	\$2,872,250
2025	700,000	2,174,000	2,874,000
2026	735,000	2,139,000	2,874,000
2027	770,000	2,102,250	2,872,250
2028	810,000	2,063,750	2,873,750
2029	850,000	2,023,250	2,873,250
2030	890,000	1,980,750	2,870,750
2031	935,000	1,936,250	2,871,250
2032	980,000	1,889,500	2,869,500
2033	1,030,000	1,840,500	2,870,500
2034	1,080,000	1,789,000	2,869,000
2035	1,135,000	1,735,000	2,870,000
2036	1,195,000	1,678,250	2,873,250
2037	1,255,000	1,618,500	2,873,500
2038	1,315,000	1,555,750	2,870,750
2039	1,380,000	1,490,000	2,870,000
2040	1,450,000	1,421,000	2,871,000
2041	1,520,000	1,348,500	2,868,500
2042	1,600,000	1,272,500	2,872,500
2043	1,680,000	1,192,500	2,872,500
2044	1,765,000	1,108,500	2,873,500
2045	1,850,000	1,020,250	2,870,250
2046	1,945,000	927,750	2,872,750
2047	2,040,000	830,500	2,870,500
2048	2,140,000	728,500	2,868,500
2049	2,250,000	621,500	2,871,500
2050	2,360,000	509,000	2,869,000
2051	2,480,000	391,000	2,871,000
2052	2,605,000	267,000	2,872,000
2053	2,735,000	136,750	2,871,750
Total	\$44,145,000	\$41,998,250	\$86,143,250

5% Coupon Financing Summary Statistics

Par Amount	44,145,000
Original Issue Premium (Discount)	5,857,285
Project Fund Deposit	50,000,000
Arbitrage Yield	3.308%
All-In True Interest Cost	3.949%
Average Life (Years)	19.027
Maximum Annual Debt Service	2,874,000
Total Debt Service	86,143,250

4-5% Coupon Structure Debt Service

Maturity (10/1)	Principal	Interest	Debt Service
2024	\$745,000	\$2,038,800	\$2,783,800
2025	780,000	2,001,550	2,781,550
2026	820,000	1,962,550	2,782,550
2027	860,000	1,921,550	2,781,550
2028	905,000	1,878,550	2,783,550
2029	950,000	1,833,300	2,783,300
2030	995,000	1,785,800	2,780,800
2031	1,045,000	1,736,050	2,781,050
2032	1,100,000	1,683,800	2,783,800
2033	1,155,000	1,628,800	2,783,800
2034	1,210,000	1,571,050	2,781,050
2035	1,270,000	1,510,550	2,780,550
2036	1,335,000	1,447,050	2,782,050
2037	1,400,000	1,380,300	2,780,300
2038	1,470,000	1,310,300	2,780,300
2039	1,545,000	1,236,800	2,781,800
2040	1,605,000	1,175,000	2,780,000
2041	1,670,000	1,110,800	2,780,800
2042	1,735,000	1,044,000	2,779,000
2043	1,805,000	974,600	2,779,600
2044	1,880,000	902,400	2,782,400
2045	1,955,000	827,200	2,782,200
2046	2,030,000	749,000	2,779,000
2047	2,115,000	667,800	2,782,800
2048	2,200,000	583,200	2,783,200
2049	2,285,000	495,200	2,780,200
2050	2,375,000	403,800	2,778,800
2051	2,475,000	308,800	2,783,800
2052	2,570,000	209,800	2,779,800
2053	2,675,000	107,000	2,782,000
Total	\$46,960,000	\$36,485,400	\$83,445,400

4-5% Coupon Financing Summary Statistics

Par Amount	46,960,000
Original Issue Premium (Discount)	3,040,162
Project Fund Deposit	50,000,000
Arbitrage Yield	3.635%
All-In True Interest Cost	3.687%
Average Life (Years)	18.664
Maximum Annual Debt Service	2,783,800
Total Debt Service	83,445,400

Source: RBCCM

Insurance Breakeven Analysis (Example)

- Municipal bond insurance is quoted in basis points (1 bp = 0.01%) as a percentage of total debt service (i.e. total debt service of \$100 million with an insurance bid of 20 bps represents a premium of \$200,000)

		Bond Pricing												Benefit (Cost) of Insurance				Breakevens		Insurance Cost				
		Uninsured					Insured		Insured					Cost of Funds Benefit		Present Value Benefit		Spread	Premium Given Spread		Yield Equivalent Premium Cost		Premium Cost per 1 bp Yield	
Maturity Date	Par Amount	Coupon	Yield	Price	YTM	YTC	Coupon	Yield	Price	Insurance Cost	Net Proceeds	Adjusted YTM	Adjusted YTC	YTM	YTC	D/S To Maturity	D/S To Call	Given Premium	YTM	YTC	YTM	YTC	YTM	YTC
07/01/2024	\$5,235,000	5.000%	3.320%	101.493%	3.320%	-	5.000%	3.270%	101.538%	0.106%	101.432%	3.387%	-	-6.7 bp	-	(3,168)	-	11.7 bp	4.3 bp	-	11.7 bp	-	0.9 bp	-
07/01/2025	5,620,000	5.000%	3.250%	103.214%	3.250%	-	5.000%	3.200%	103.308%	0.111%	103.198%	3.259%	-	-0.9 bp	-	(940)	-	5.9 bp	8.6 bp	-	5.9 bp	-	1.7 bp	-
07/01/2026	5,665,000	5.000%	3.190%	104.991%	3.190%	-	5.000%	3.120%	105.190%	0.116%	105.075%	3.161%	-	2.9 bp	-	4,731	-	4.1 bp	17.4 bp	-	4.1 bp	-	2.5 bp	-
07/01/2027	10,285,000	5.000%	3.100%	106.945%	3.100%	-	5.000%	3.030%	107.212%	0.121%	107.091%	3.062%	-	3.8 bp	-	15,022	-	3.2 bp	22.3 bp	-	3.2 bp	-	3.2 bp	-
07/01/2028	12,040,000	5.000%	3.080%	108.686%	3.080%	-	5.000%	3.010%	109.020%	0.126%	108.894%	3.036%	-	4.4 bp	-	24,982	-	2.6 bp	26.8 bp	-	2.6 bp	-	3.8 bp	-
07/01/2029	12,645,000	5.000%	3.120%	110.074%	3.120%	-	5.000%	3.020%	110.643%	0.131%	110.512%	3.043%	-	7.7 bp	-	55,370	-	2.3 bp	43.9 bp	-	2.3 bp	-	4.4 bp	-
07/01/2030	13,275,000	5.000%	3.100%	111.736%	3.100%	-	5.000%	3.000%	112.397%	0.136%	112.261%	3.020%	-	8.0 bp	-	69,789	-	2.1 bp	49.2 bp	-	2.0 bp	-	4.9 bp	-
07/01/2031	2,845,000	5.000%	3.090%	113.312%	3.090%	-	5.000%	2.990%	114.065%	0.141%	113.924%	3.009%	-	8.1 bp	-	17,418	-	1.9 bp	54.0 bp	-	1.9 bp	-	5.4 bp	-
07/01/2032	2,990,000	5.000%	3.110%	114.609%	3.110%	-	5.000%	3.010%	115.450%	0.146%	115.304%	3.027%	-	8.3 bp	-	20,798	-	1.7 bp	58.2 bp	-	1.7 bp	-	5.8 bp	-
07/01/2033	3,140,000	5.000%	3.170%	115.458%	3.170%	-	5.000%	3.070%	116.382%	0.151%	116.231%	3.086%	-	8.4 bp	-	24,291	-	1.6 bp	61.8 bp	-	1.6 bp	-	6.2 bp	-
07/01/2034	3,295,000	5.000%	3.240%	114.816%	3.366%	3.240%	5.000%	3.140%	115.734%	0.156%	115.578%	3.289%	3.157%	7.7 bp	8.3 bp	25,121	25,121	1.7 bp	59.4 bp	59.4 bp	1.6 bp	1.7 bp	6.4 bp	6.0 bp
07/01/2035	3,460,000	5.000%	3.330%	113.996%	3.549%	3.330%	5.000%	3.230%	114.907%	0.161%	114.746%	3.477%	3.248%	7.1 bp	8.2 bp	25,933	25,933	1.8 bp	57.1 bp	57.1 bp	1.5 bp	1.8 bp	6.6 bp	5.7 bp
07/01/2036	3,630,000	5.000%	3.470%	112.736%	3.746%	3.470%	5.000%	3.370%	113.634%	0.166%	113.468%	3.680%	3.388%	6.7 bp	8.2 bp	26,587	26,587	1.9 bp	54.6 bp	54.6 bp	1.5 bp	1.8 bp	6.7 bp	5.5 bp
07/01/2037	3,815,000	5.000%	3.640%	111.228%	3.943%	3.640%	5.000%	3.520%	112.290%	0.171%	112.118%	3.865%	3.539%	7.8 bp	10.1 bp	33,986	33,986	1.9 bp	62.6 bp	62.6 bp	1.5 bp	1.9 bp	6.8 bp	5.2 bp
07/01/2038	4,005,000	5.000%	3.740%	110.352%	4.067%	3.740%	5.000%	3.620%	111.404%	0.176%	111.227%	3.993%	3.640%	7.4 bp	10.0 bp	35,075	35,075	2.0 bp	60.3 bp	60.3 bp	1.5 bp	2.0 bp	6.8 bp	5.0 bp
07/01/2039	4,205,000	5.000%	3.800%	109.830%	4.149%	3.800%	5.000%	3.670%	110.964%	0.181%	110.783%	4.072%	3.691%	7.7 bp	10.9 bp	40,052	40,052	2.1 bp	63.1 bp	63.1 bp	1.5 bp	2.1 bp	6.9 bp	4.9 bp
07/01/2040	4,415,000	5.000%	3.870%	109.225%	4.230%	3.870%	5.000%	3.720%	110.526%	0.186%	110.340%	4.143%	3.741%	8.7 bp	12.9 bp	49,204	49,204	2.2 bp	70.5 bp	70.5 bp	1.4 bp	2.1 bp	7.0 bp	4.7 bp
07/01/2041	4,635,000	5.000%	3.950%	108.539%	4.311%	3.950%	5.000%	3.800%	109.830%	0.191%	109.639%	4.227%	3.822%	8.4 bp	12.8 bp	50,967	50,967	2.2 bp	68.1 bp	68.1 bp	1.4 bp	2.2 bp	7.0 bp	4.6 bp
07/01/2042	4,865,000	5.000%	4.000%	108.113%	4.365%	4.000%	5.000%	3.850%	109.398%	0.197%	109.201%	4.285%	3.873%	8.0 bp	12.7 bp	52,954	52,954	2.3 bp	66.0 bp	66.0 bp	1.4 bp	2.3 bp	7.0 bp	4.4 bp
07/01/2043	5,110,000	5.000%	4.040%	107.773%	4.409%	4.040%	5.000%	3.890%	109.053%	0.202%	108.852%	4.332%	3.913%	7.7 bp	12.7 bp	55,115	55,115	2.4 bp	64.1 bp	64.1 bp	1.4 bp	2.3 bp	7.0 bp	4.3 bp
07/01/2048	29,060,000	5.000%	4.260%	105.928%	4.598%	4.260%	5.000%	4.110%	107.182%	0.227%	106.955%	4.531%	4.137%	6.6 bp	12.3 bp	298,442	298,442	2.7 bp	55.8 bp	55.8 bp	1.5 bp	2.7 bp	6.9 bp	3.7 bp
07/01/2053	36,250,000	5.250%	4.360%	107.096%	4.800%	4.360%	5.250%	4.210%	108.353%	0.260%	108.093%	4.741%	4.241%	6.0 bp	11.9 bp	361,306	361,306	3.1 bp	48.9 bp	48.9 bp	1.5 bp	3.1 bp	6.6 bp	3.3 bp
\$180,485,000														1,283,036		1,054,743								

Source: RBCCM

SECTION IV:

Factors Affecting Pricing

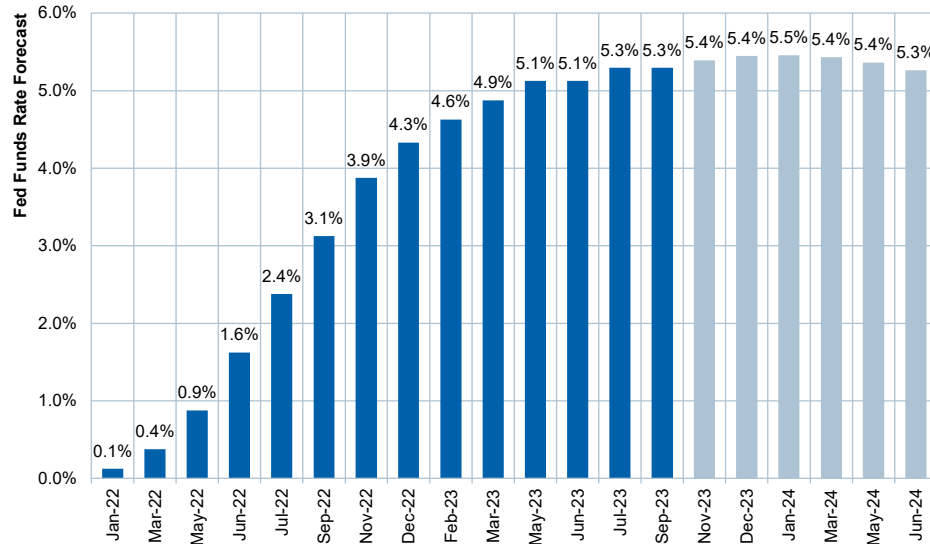


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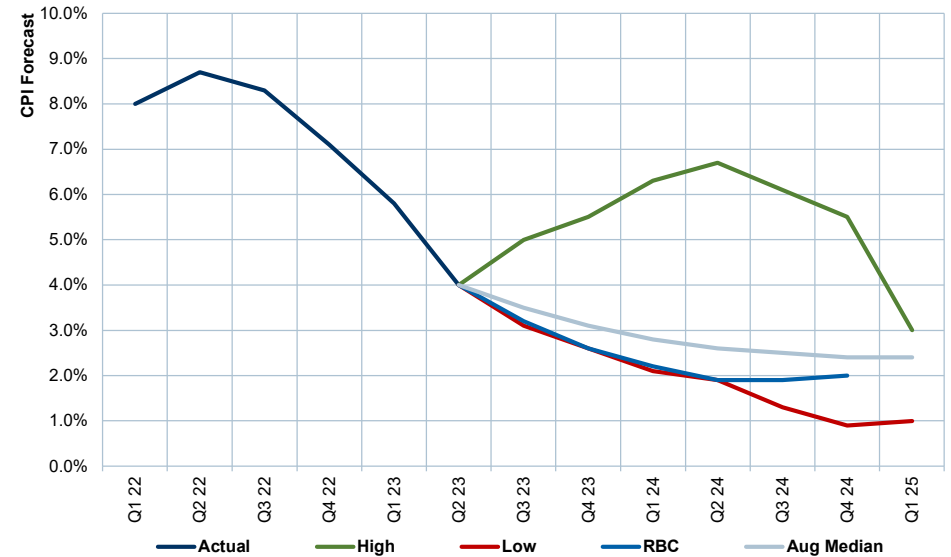
Inflationary Concerns Linger as Consumer Spending Remains Healthy

The Fed left target rate unchanged for September but signaled another potential hike in 2023 and removed two cuts from 2024 forecast

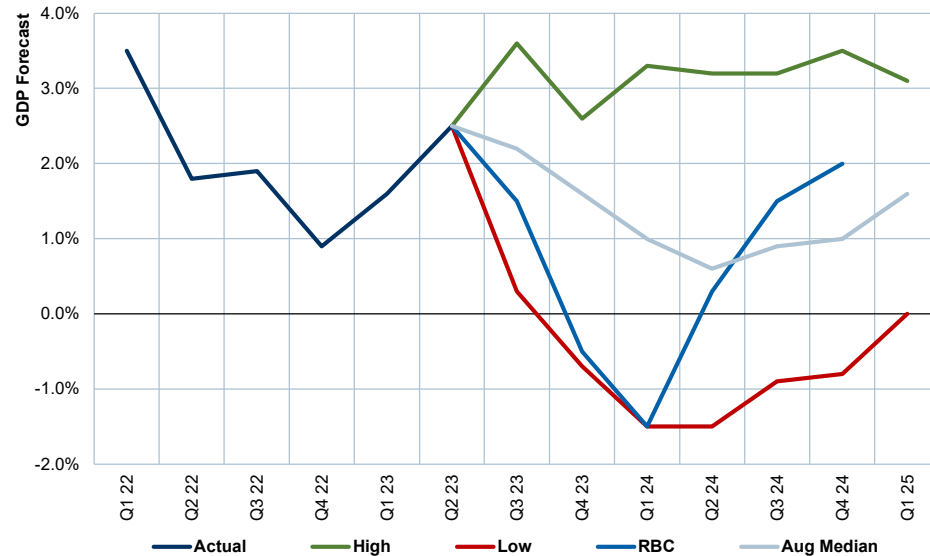
Fed Funds Rate Forecast ⁽¹⁾



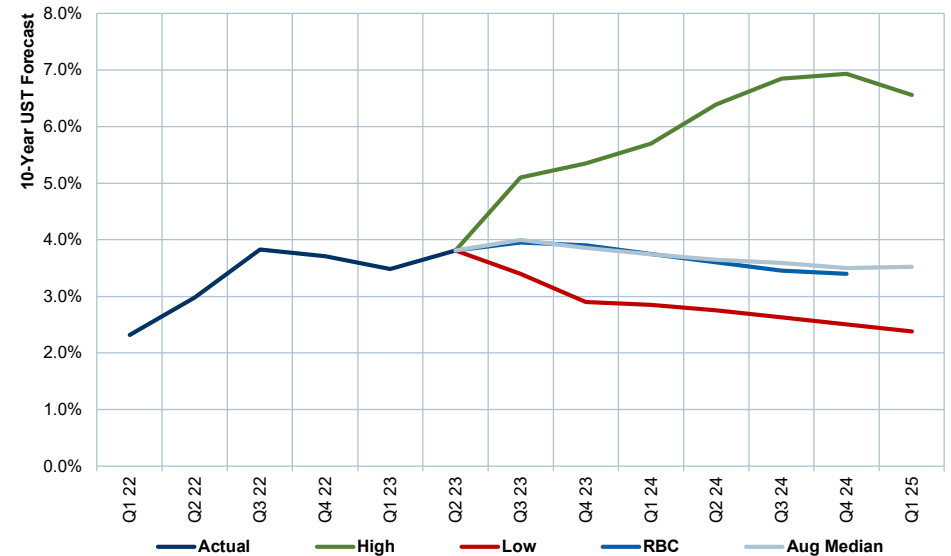
CPI Forecast ⁽¹⁾



GDP Forecast ⁽¹⁾



10-Year UST Forecast ⁽¹⁾

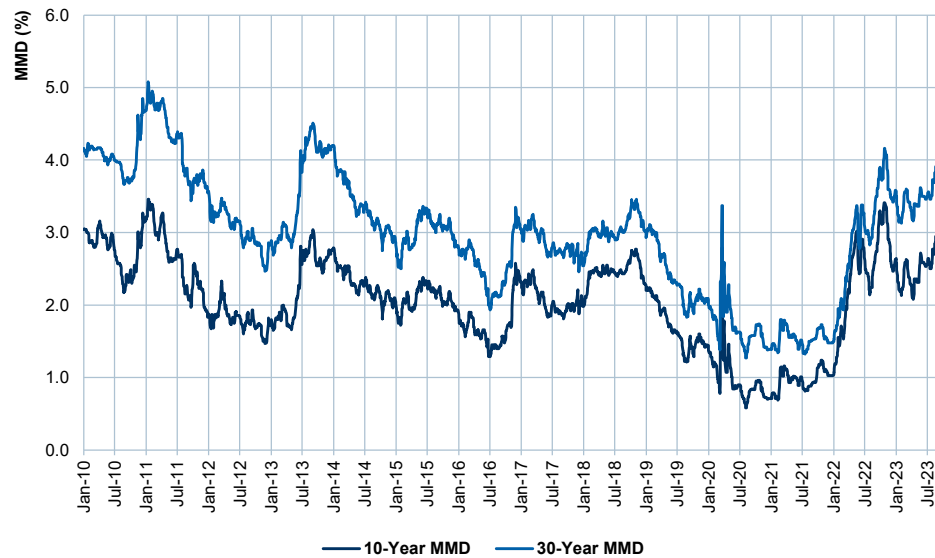


⁽¹⁾ Source: Bloomberg as of September 27, 2023

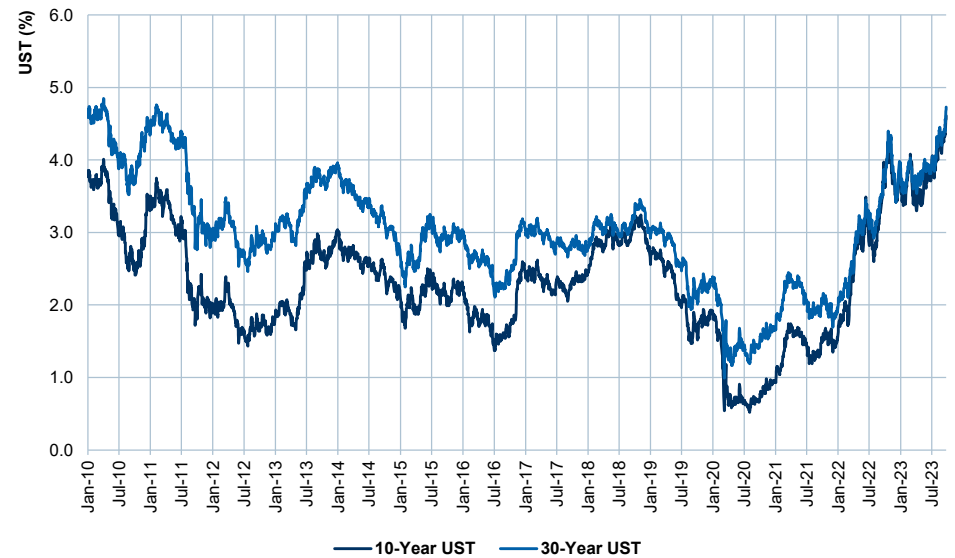
Interest Rate Movements and Ratios

Interest rates have risen for much of 2023 absent a pause in March and April

Historical MMD ⁽¹⁾



Historical UST ⁽²⁾



Historical MMD to UST Ratios ⁽³⁾

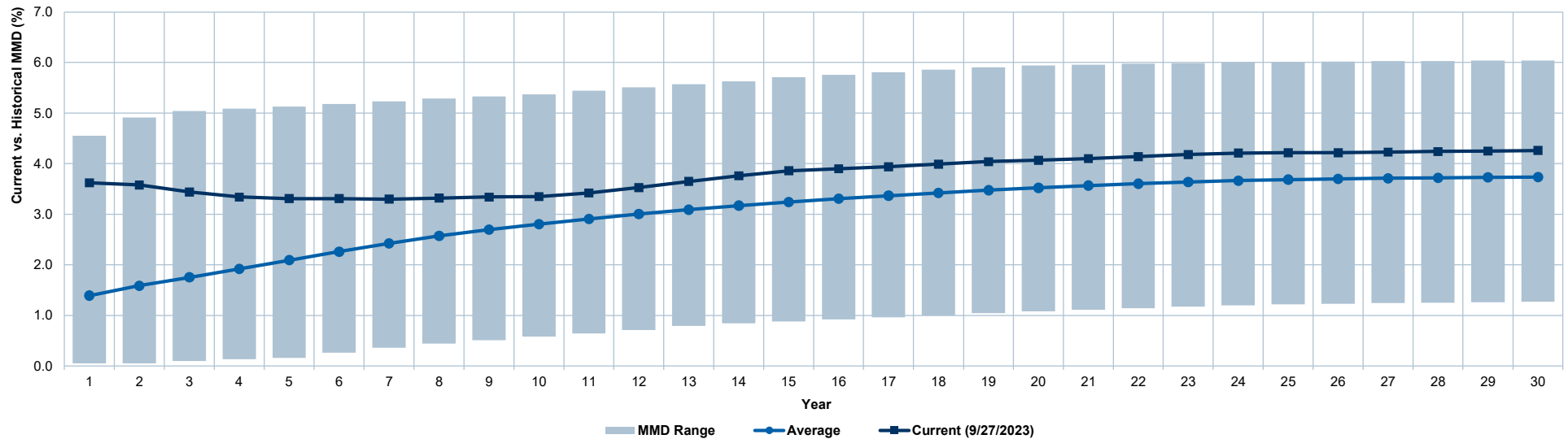


⁽¹⁾ Source: Refinitiv; ⁽²⁾ Source: Bloomberg; ⁽³⁾ Source: Refinitiv & Bloomberg; ⁽¹⁾⁽²⁾⁽³⁾ Rates as of September 27, 2023

A Closer Look at Tax-Exempt Interest Rates

While short-term tax-exempt rates remain elevated, mid-to-long term tax-exempt rates are on top of their historical averages since 2000

Current vs. Historical MMD (since 2000) ⁽¹⁾



MMD Statistics ⁽¹⁾

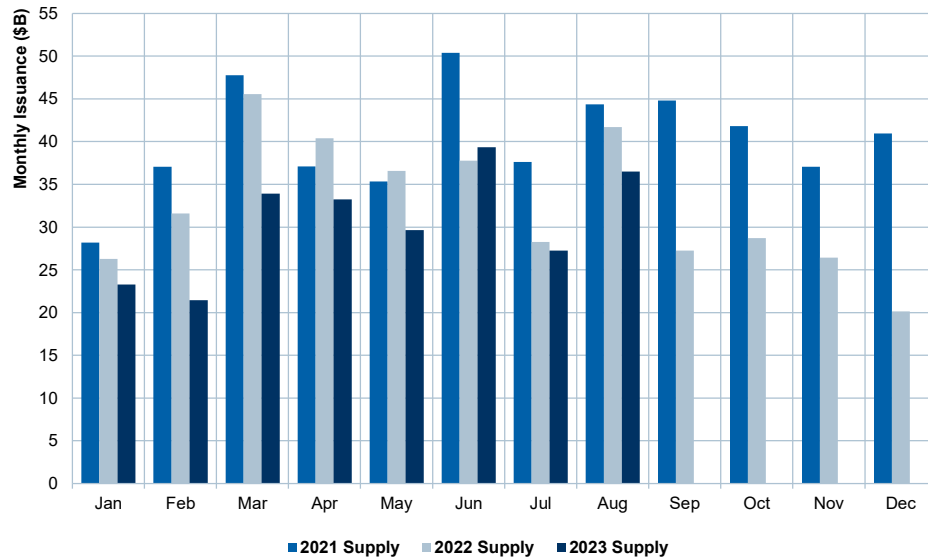
	1-Year	2-Year	3-Year	4-Year	5-Year	7-Year	10-Year	15-Year	20-Year	25-Year	30-Year
Current (9/27/2023)	3.62	3.58	3.44	3.34	3.31	3.30	3.35	3.86	4.07	4.22	4.26
Average (since 2000)	1.39	1.59	1.75	1.92	2.09	2.42	2.80	3.24	3.52	3.69	3.74
Spread to Average	2.23	1.99	1.69	1.42	1.22	0.88	0.55	0.62	0.55	0.53	0.52
Minimum	0.05	0.05	0.10	0.13	0.16	0.36	0.58	0.88	1.08	1.22	1.27
Maximum	4.55	4.91	5.04	5.09	5.13	5.23	5.37	5.71	5.94	6.01	6.04
% of Time Lower than Current	94.15%	91.96%	87.53%	84.48%	81.16%	73.98%	63.10%	63.04%	60.63%	59.53%	59.08%
Average (since 2010)	0.75	0.88	1.01	1.16	1.31	1.65	2.04	2.47	2.75	2.93	2.98
Spread to Average	2.87	2.70	2.43	2.18	2.00	1.65	1.31	1.39	1.32	1.29	1.28
Minimum	0.05	0.05	0.10	0.13	0.16	0.36	0.58	0.88	1.08	1.22	1.27
Maximum	3.62	3.58	3.44	3.34	3.31	3.30	3.46	4.32	4.89	5.05	5.08
% of Time Lower than Current	99.94%	99.97%	99.97%	99.97%	99.97%	99.80%	99.30%	98.02%	96.33%	94.55%	94.18%

⁽¹⁾ Source: Refinitiv as of September 27, 2023

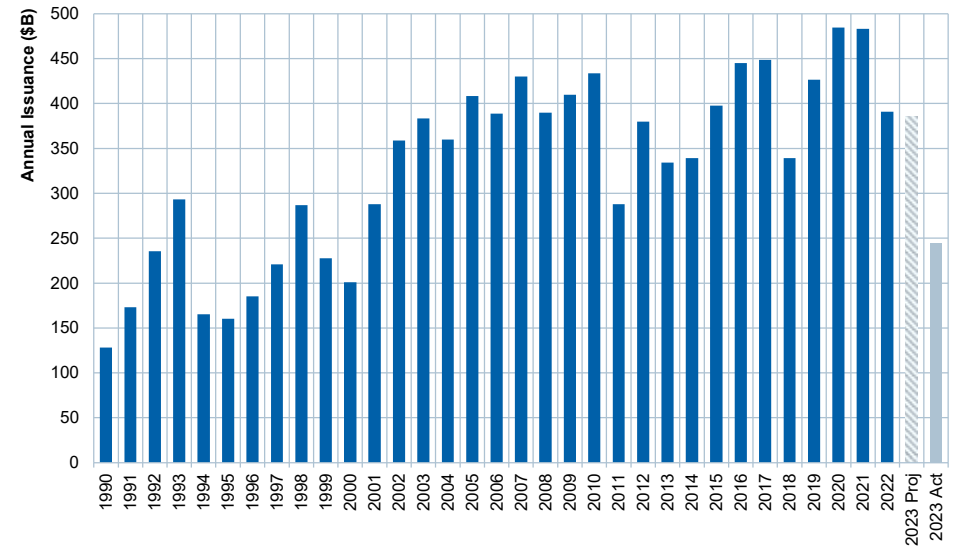
Municipal Supply

Primary market supply remains significantly below highs seen in 2020/2021; secondary market supply continues to be elevated

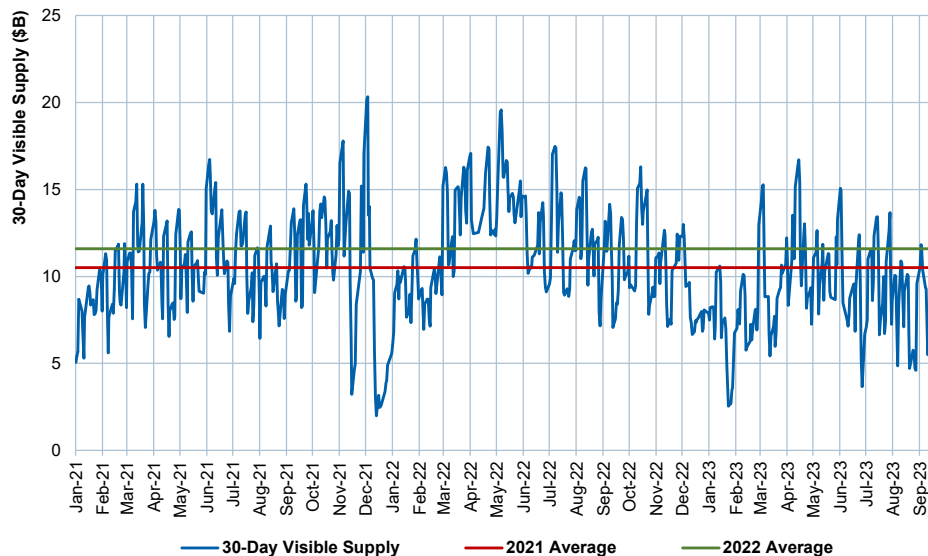
2021 vs. 2022 vs. 2023 Primary Market Supply ⁽¹⁾



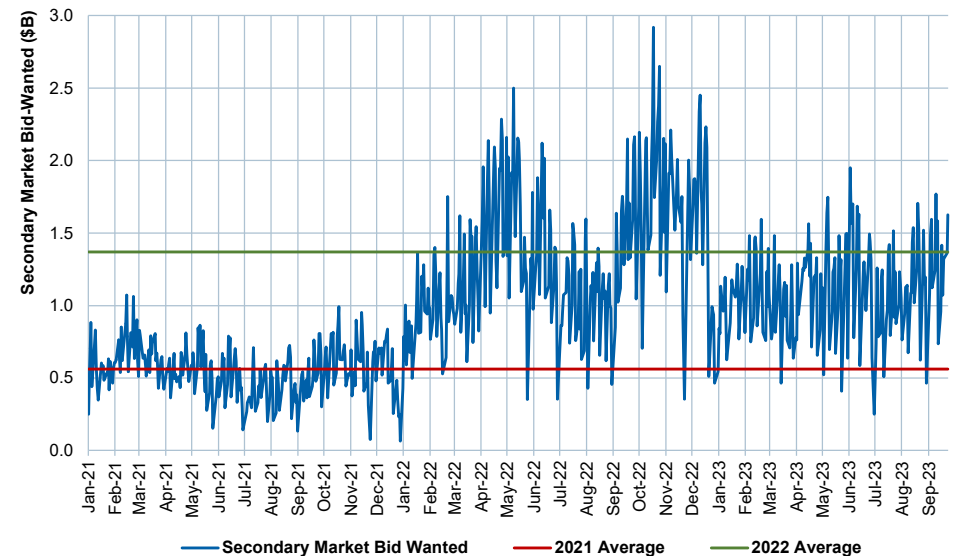
Historical Primary Market Supply ⁽¹⁾



30-Day Visible Supply ⁽²⁾



Secondary Market Bid-Wanted Volume ⁽²⁾

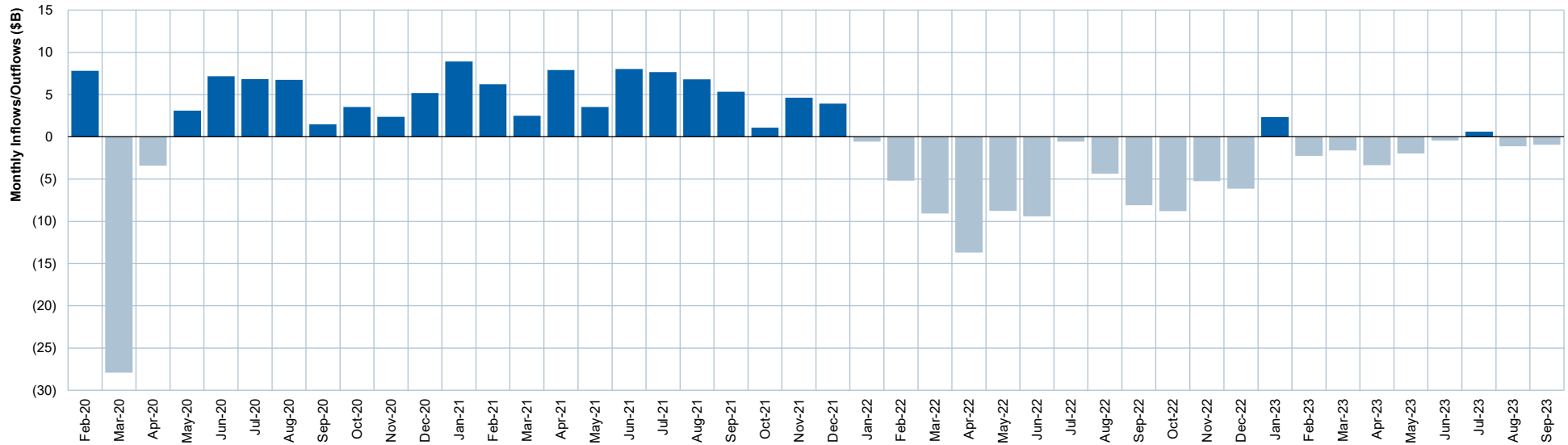


⁽¹⁾ Source: The Bond Buyer; ⁽²⁾ Source: Bloomberg as of September 27, 2023

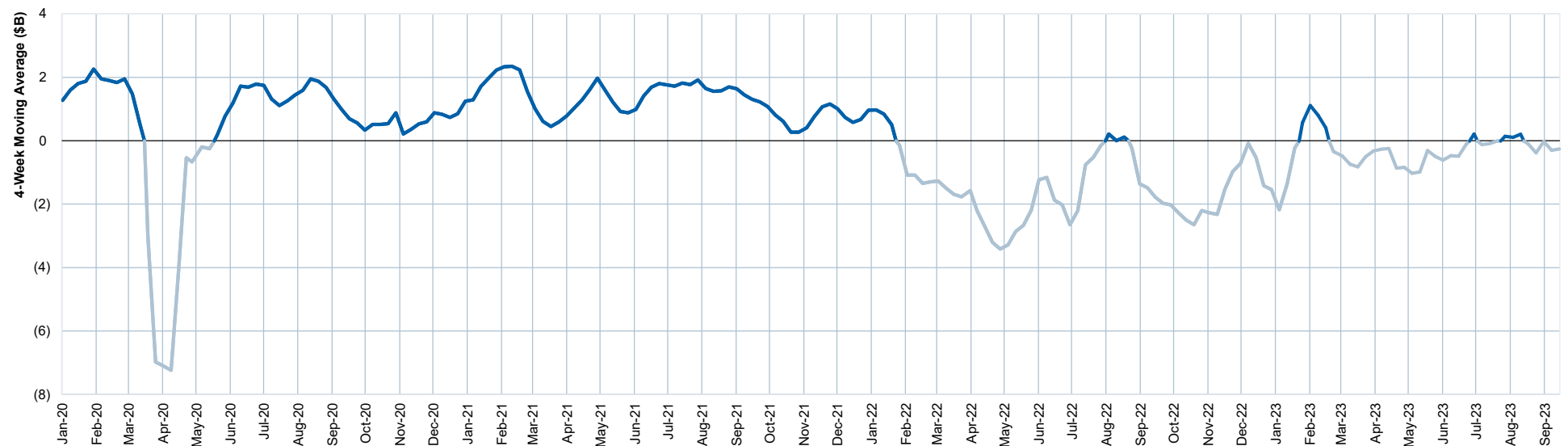
Municipal Bond Fund Flows

Municipal bond funds reported net outflows of \$80.8B in 2022 and continue to experience outflows with \$8.5B thus far in 2023

Monthly Inflows/Outflows ⁽¹⁾



4-Week Moving Average ⁽¹⁾



⁽¹⁾ Source: Lipper as of September 27, 2023

Credit Rating(s) - Scale & Common Rating Criteria

- Size and location as well as demographic statistics of local government and/or service area
- Financial position including fund balance, liquidity, debt service coverage (DSC), revenue raising flexibility, size and composition of debt portfolio, anticipated borrowing needs (CIP)
- Strength and stability of pledged revenues (security pledge)
- Covenants such as DSC requirements, additional bonds test (ABT), debt service reserve fund (DSRF), etc.
- Quality and strength of management including budgetary practices, policies in place (fund balance, debt, investment, etc.), capital planning, management stability

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Credit Rating(s) – Preliminary Utility Credit Scorecard (Example)

Rating agency scorecards can be used to predict credit ratings prior to approaching rating agencies

Moody's US Municipal Utility Debt

		Rating Value	Aaa 0.5 to 1.5	Aa 1.5 to 2.5	A 2.5 to 3.5	Baa 3.5 to 4.5	Ba 4.5 to 5.5	SG 5.5 to 6.5
City of Happyville, Florida								
System Characteristics		30%						
Asset Condition (Remaining Useful Life)	75 ≥ n > 25 years	10%		✓				
Service Area Wealth (Median Family Income)	75.1%	12.5%			✓			
System Size (O&M)	\$16 million	7.5%			✓			
Subtotal		0.80	0.00	0.20	0.60	0.00	0.00	0.00
Financial Strength		40%						
Annual Debt Service Coverage	1.63x	15%			✓			
Days Cash on Hand	1,062 days	15%	✓					
Debt to Operating Revenue	4.54x	10%			✓			
Subtotal		0.90	0.15	0.00	0.75	0.00	0.00	0.00
Management		20%						
Rate Management		10%		✓				
Regulatory Compliance and Capital Planning		10%			✓			
Subtotal		0.50	0.00	0.20	0.30	0.00	0.00	0.00
Legal Provisions		10%						
Rate Covenant	1.20x	5%			✓			
Debt Service Requirement	No DSRF	5%				✓		
Subtotal		0.35	0.00	0.00	0.15	0.20	0.00	0.00
Total		2.55	0.15	0.40	1.80	0.20	0.00	0.00

Notch Factors

Grid-Indicated Rating Accounting for Notch Factors

A1

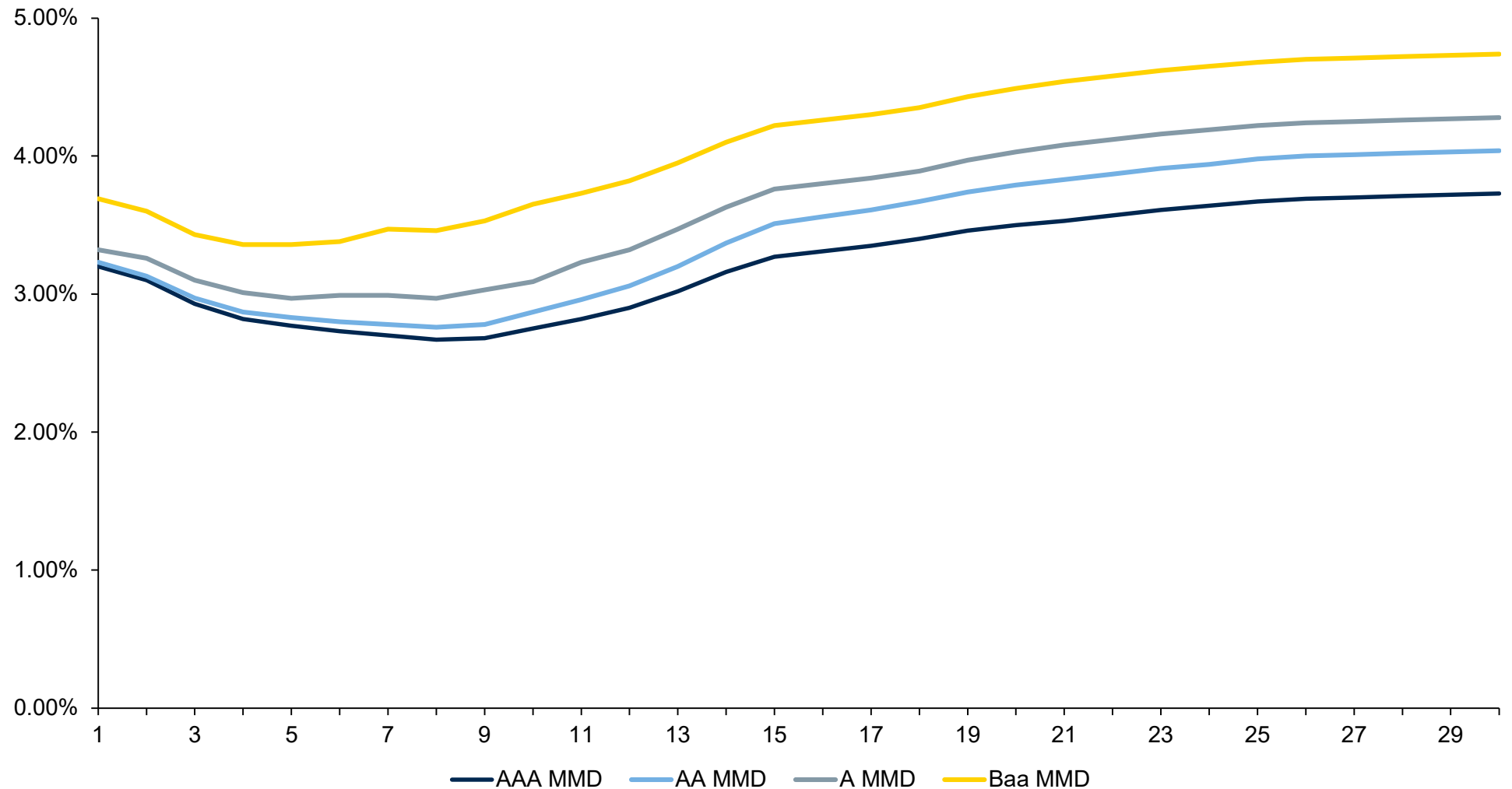
Composite Rating

Aaa	0.50 to 1.50
Aa1	1.50 to 1.83
Aa2	1.83 to 2.17
Aa3	2.17 to 2.50
A1	2.50 to 2.83
A2	2.83 to 3.17
A3	3.17 to 3.50
Baa1	3.50 to 3.83
Baa2	3.83 to 4.17
Baa3	4.17 to 4.50

Credit Rating(s) – Impact on Interest Rates

While the higher the credit rating the lower the interest rate on the bonds, there's a “happy medium” between rating and cost

Municipal GO MMD Index Yield Curves



Source: Refinitiv

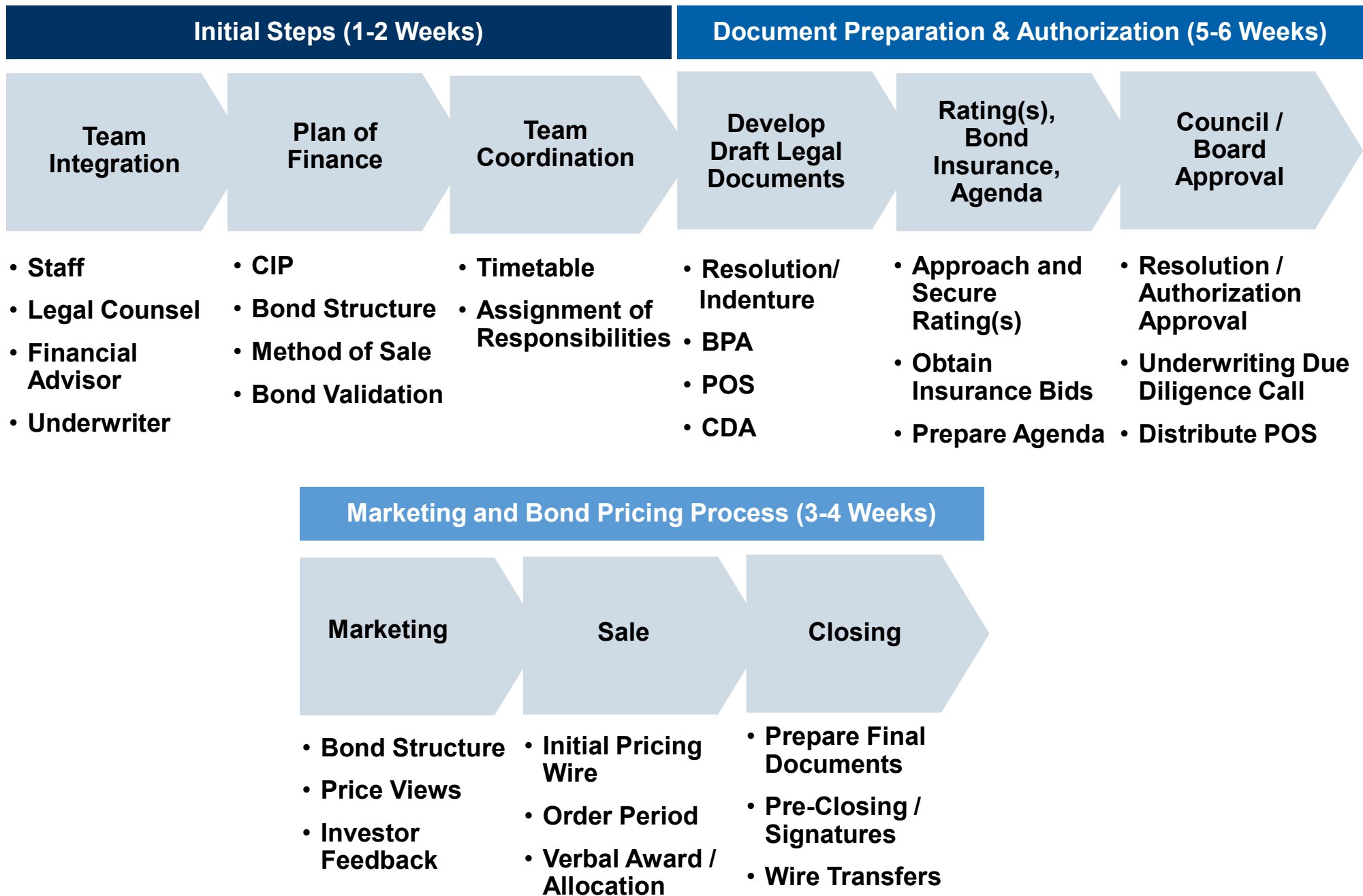
SECTION V:

Negotiated Municipal Bond Pricing Process



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Overview of Municipal Bond Issuance Process (Example)



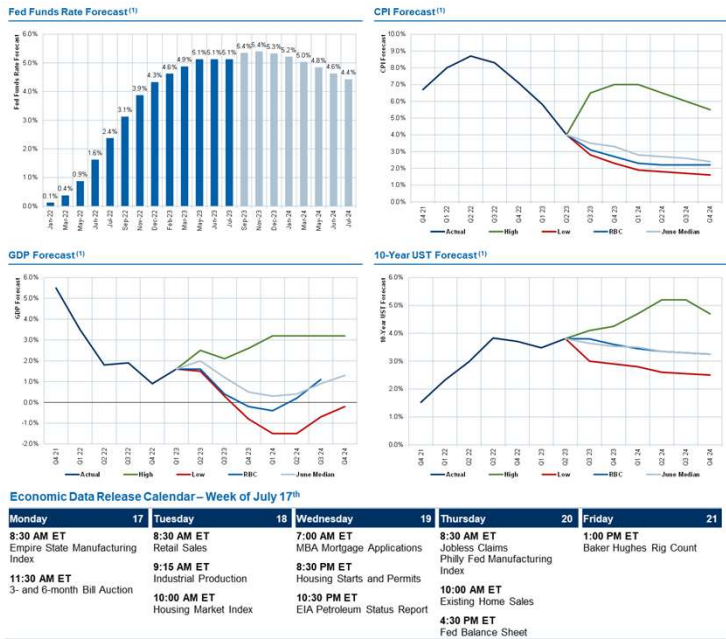
Source: RBCCM

Determine Preliminary Structure (Example)

- Preferred principal amortization structure
- Required project/construction proceeds
- Capitalized interest (if any)
- Debt service reserve fund (if any)
- Cost of insurance and/or surety policy (if any)
- Other sources of funds
- Other uses of funds

Year	Series 2023A	Series 2023B	Total
2024	1,890,000	3,350,000	5,240,000
2025	2,125,000	3,495,000	5,620,000
2026	2,230,000	3,435,000	5,665,000
2027	2,340,000	7,945,000	10,285,000
2028	2,460,000	9,580,000	12,040,000
2029	2,580,000	10,060,000	12,640,000
2030	2,710,000	10,565,000	13,275,000
2031	2,845,000		2,845,000
2032	2,990,000		2,990,000
2033	3,140,000		3,140,000
2034	3,295,000		3,295,000
2035	3,460,000		3,460,000
2036	3,630,000		3,630,000
2037	3,815,000		3,815,000
2038	4,005,000		4,005,000
2039	4,205,000		4,205,000
2040	4,415,000		4,415,000
2041	4,635,000		4,635,000
2042	4,870,000		4,870,000
2043	5,110,000		5,110,000
2044	5,365,000		5,365,000
2045	5,580,000		5,580,000
2046	5,805,000		5,805,000
2047	6,035,000		6,035,000
2048	6,280,000		6,280,000
2049	6,530,000		6,530,000
2050	6,870,000		6,870,000
2051	7,230,000		7,230,000
2052	7,610,000		7,610,000
2053	8,010,000		8,010,000

Pre-Pricing Call (Example)



Sale Date:08/30/2022
Par Amt out:\$212,025,000
Issuer:Manatee County, FL
Description:Improvement and Refunding Bonds
Ratings:Aa1 / NR / AA-
Call Date:10/1/2032 at par

Sale Date:08/30/2022
\$187,130,000
Palm Beach County Schools, FL
Certificates of Participation
Aa3 / NR / AA-
8/1/2032 at par

MMD (%)	Maturity	Par Amt (\$000's)	Coupon (%)	Yield (%)	Spread
2.20	10/01/2023	5,185	5.00	2.30	10
2.25	10/01/2024	5,640	5.00	2.39	13
2.28	10/01/2025	5,925	5.00	2.43	15
2.30	10/01/2026	6,515	5.00	2.47	17
2.33	10/01/2027	6,815	5.00	2.52	19
2.38	10/01/2028	6,880	5.00	2.60	22
2.41	10/01/2029	7,325	5.00	2.66	25
2.47	10/01/2030	8,695	5.00	2.74	27
2.55	10/01/2031	10,090	5.00	2.85	30
2.60	10/01/2032	6,195	5.00	2.93	33
2.69	10/01/2033	3,010	5.25	3.06	37
2.79	10/01/2034	4,265	5.25	3.20	41
2.85	10/01/2035	4,430	5.25	3.30	45
2.88	10/01/2036	4,705	5.25	3.38	50
2.91	10/01/2037	4,940	5.25	3.44	53
2.95	10/01/2038	5,185	5.00	3.61	66
2.99	10/01/2039	5,445	5.00	3.68	69
3.03	10/01/2040	5,720	5.00	3.74	71
3.08	10/01/2041	6,005	5.25	3.73	65
3.12	10/01/2042	6,305	4.00	4.20	108
3.16	10/01/2043	5.00	4.24	108	
3.18					
3.20					
3.22					
3.22	10/01/2047	36,585	5.25	4.00	78
3.22					
3.23					
3.24					
3.25					
3.26	10/01/2052	55,135	4.00	4.46	120

MMD (%)	Maturity	Par Amt (\$000's)	Coupon (%)	Yield (%)	Spread
2.19	08/01/2023	11,280	5.00	2.35	16
2.25	08/01/2024	11,385	5.00	2.46	20
2.28	08/01/2025	9,230	5.00	2.55	27
2.30	08/01/2026	8,900	5.00	2.58	28
2.32	08/01/2027	10,385	5.00	2.62	30
2.36	08/01/2028	10,910	5.00	2.70	34
2.40	08/01/2029	11,390	5.00	2.76	36
2.46	08/01/2030				
2.54	08/01/2031				
2.59	08/01/2032				
2.68	08/01/2033				
2.78	08/01/2034				
2.84	08/01/2035	16,590	5.25	3.46	62
2.88	08/01/2036	17,390	5.25	3.55	67
2.91	08/01/2037	18,260	5.25	3.61	70
2.95	08/01/2038	19,170	5.25	3.70	75
2.99	08/01/2039	20,130	5.25	3.74	75
3.03	08/01/2040	21,140	5.25	3.78	75
3.08					
3.12					
3.16					
3.18					
3.20					
3.22					
3.22					
3.22					
3.23					
3.24					
3.25					
3.26					

Source: RBCCM

Transactions						
	Date	Par Amount (\$ Millions)	Issuer	State	Tax Status	Ratings
Negotiated	Tuesday, July 18	574	Santa Clara Valley Transportation Authority	CA	Tax-Exempt	Aa2/AAA/NR
	Tuesday, July 18	200	Bexar County Hospital District	TX	Tax-Exempt	Aa1/NR/AA+
	Tuesday, July 18	200	North Dakota Housing Finance Agency	ND	Tax-Exempt/Taxable	Aa1/NR/NR
	Tuesday, July 18	194	South Carolina Economic Development Authority	SC	Tax-Exempt/Taxable	NR/NR/NR
	Tuesday, July 18	183	Forney ISD	TX	Tax-Exempt	NR/AA/NR
	Tuesday, July 18	130	Pasadena Area CCD	CA	Tax-Exempt/Taxable	Aa1/AA+/NR
	Subtotal	1,481				
	Wednesday, July 19	950	New York City Transitional Finance Authority	NY	Tax-Exempt	Aa1/AAA/AAA
	Wednesday, July 19	807	Trustees of the California State University	CA	Tax-Exempt/Taxable	Aa2/AA-/NR
	Wednesday, July 19	429	Salt Lake City International Airport	UT	Tax-Exempt	A2/A+/NR
	Wednesday, July 19	300	Maryland Department of Housing and Community Dev.	MD	Tax-Exempt/Taxable	Aaa/AAA/AAA
	Wednesday, July 19	274	Public Utilities Commission of City and County San Fran	CA	Tax-Exempt	Aa2/AA-/NR
	Wednesday, July 19	231	Dallas and Fort Worth International Airport	TX	Taxable	A1/A+/A+
	Wednesday, July 19	200	Southwest ISD	TX	Tax-Exempt	NR/AA/NR
	Wednesday, July 19	150	Las Vegas Convention Center and Visitors Authority	NV	Tax-Exempt	NR/AA/NR
	Wednesday, July 19	89	Fort Lauderdale	FL	Tax-Exempt	Aa2/AAA/NR
	Subtotal	3,430				
	Thursday, July 20	517	Lamar CISD	TX	Tax-Exempt	Aaa/AAA/NR
	Thursday, July 20	254	Board of Regents of Texas Tech University System	TX	Tax-Exempt/Taxable	Aa1/NR/AA+
	Thursday, July 20	202	School Board of St. Lucie County	FL	Tax-Exempt	A1/AA/A+
	Thursday, July 20	134	Indiana Housing and Community Development Authority	IN	Tax-Exempt/Taxable	Aaa/NR/AAA
	Thursday, July 20	94	Irvine Community Facilities District	CA	Tax-Exempt	NR/AA/NR
	Subtotal	1,201				
Total Negotiated Transactions		8,800				
Competitive	Tuesday, July 18	64	Bonham ISD	TX	Tax-Exempt	Aaa/NR/NR
	Wednesday, July 19	39	Horizon Regional MUD	TX	Tax-Exempt	NR/NR/NR
	Subtotal	103				
Total Competitive Transactions		788				
Total Transactions		9,588				

Maturity (7/1)	Senior Manager			Co-Managers						Average Spread (bps)		
	5.00% Coupon	5.25% Coupon	4.00% Coupon	5.00% Coupon	5.25% Coupon	4.00% Coupon	5.00% Coupon	5.25% Coupon	4.00% Coupon	5.00% Coupon	5.25% Coupon	4.00% Coupon
2024	12			8			18			13		
2025	17			12			20			16		
2026	22			15			25			21		
2027	24			18			30			24		
2028	27			21			35			28		
2029	31			24			40			32		
2030	34			27			43			35		
2031	36			30			45			37		
2032	38			33			48			40		
2033	40			35			48			41		
2034	42			38			48			43		
2035	44			40			48			44		
2036	46			42			48			45		
2037	47			43			48			46		
2038	48			44			48			47		
2039	49			45			50			48		
2040	50			47			52			50		
2041	53	48	85	48	45	85	55	47	92	52	47	87
2042	55	50	85	50	45	85	55	50	95	53	48	88
2043	55	50	85	50	45	85	55	50	95	53	48	88
2048	55	50	88	53	48	88	57	52	95	55	50	90
2053	60	55	90	55	50	90	60	55	95	58	53	92

Initial Pricing Wire – Open Order Period (Example)

Rec'd Date/Time (EST) Sender ST Wire Type/Title Master Message # Deal Type
07/21/23 10:57 AM RBC Capital Markets TX FINAL PRICING WIRE Neg

RE: \$ 216,885,000

CERTIFICATES OF PARTICIPATION, SERIES 2023A
REFUNDING CERTIFICATES OF PARTICIPATION, SERIES 2023B

WE HAVE RECEIVED THE WRITTEN AWARD. TICKETS ARE AT 1:00 PM ET.

THE ACCOUNT IS CLOSED.

\$ 153,275,000
CERTIFICATES OF PARTICIPATION, SERIES 2023A

MOODY'S: NR/A1 S&P: AA/NR
(underlying)
FITCH: NR/A+ KROLL:
(underlying)

Assured Guaranty Municipal Corp. Insured

DATED:08/03/2023 FIRST COUPON:01/01/2024

DUE: 07/01

INITIAL TRADE DATE: 07/21/2023 @ 1:00PM Eastern

MATURITY	AMOUNT	COUPON	PRICE	ADD'L TAKEDOWN (Pts)	CUSIP
07/01/2031	3,285M	5.00%	2.79	0.20	792075PG2
			(Approx. \$ Price 115.589)		
07/01/2032	3,460M	5.00%	2.82	0.20	792075PH0
			(Approx. \$ Price 117.069)		
07/01/2033	3,620M	5.00%	2.88	0.20	792075PJ6
			(Approx. \$ Price 118.163)		
07/01/2034	5,220M	5.00%	2.97	0.20	792075PK3
			(Approx. \$ Price PTC 07/01/2033 117.315 Approx. YTM 3.116)		
07/01/2035	5,480M	5.00%	3.06	0.20	792075PL1
			(Approx. \$ Price PTC 07/01/2033 116.475 Approx. YTM 3.314)		
07/01/2036	5,755M	5.00%	3.18	0.20	792075PM9
			(Approx. \$ Price PTC 07/01/2033 115.365 Approx. YTM 3.509)		
07/01/2037	6,040M	5.00%	3.31	0.20	792075PN7
			(Approx. \$ Price PTC 07/01/2033 114.177 Approx. YTM 3.688)		
07/01/2038	6,345M	5.00%	3.40	0.20	792075PP2
			(Approx. \$ Price PTC 07/01/2033 113.364 Approx. YTM 3.816)		
07/01/2039	6,660M	5.00%	3.51	0.20	792075PQ0
			(Approx. \$ Price PTC 07/01/2033 112.378 Approx. YTM 3.945)		
07/01/2040	6,995M	5.00%	3.57	0.20	792075PR8
			(Approx. \$ Price PTC 07/01/2033 111.845 Approx. YTM 4.027)		
07/01/2041	7,345M	5.00%	3.64	0.20	792075PS6
			(Approx. \$ Price PTC 07/01/2033 111.227 Approx. YTM 4.188)		

07/01/2048 42,605M 5.00% 3.96 0.275 792075PV9
(Approx. \$ Price PTC 07/01/2033 108.453 Approx. YTM 4.436)

07/01/2053 30,630M 5.25% 4.01 0.275 792075PW7
(Approx. \$ Price PTC 07/01/2033 110.055 Approx. YTM 4.626)

07/01/2053 19,835M 4.00% 4.30 0.275 792075PT4
(Approx. \$ Price 94.974)

CALL FEATURES: Optional call in 07/01/2033 @ 100.00

By Lot Sinking Fund Schedule

2048 Term Bond

07/01/2044 7,710M
07/01/2045 8,095M
07/01/2046 8,500M
07/01/2047 8,925M
07/01/2048 9,375M

By Lot Sinking Fund Schedule

2053 Term Bond

07/01/2049 5,515M
07/01/2050 5,805M
07/01/2051 6,110M
07/01/2052 6,430M
07/01/2053 6,770M

By Lot Sinking Fund Schedule

2053 Term Bond

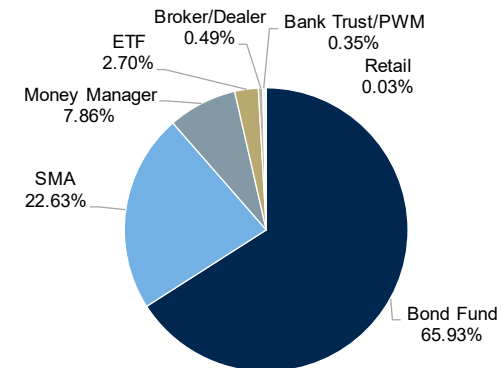
07/01/2049 3,665M
07/01/2050 3,810M
07/01/2051 3,960M
07/01/2052 4,120M
07/01/2053 4,280M

Summary of Order Book (Example)

Series 2023A&B COPs

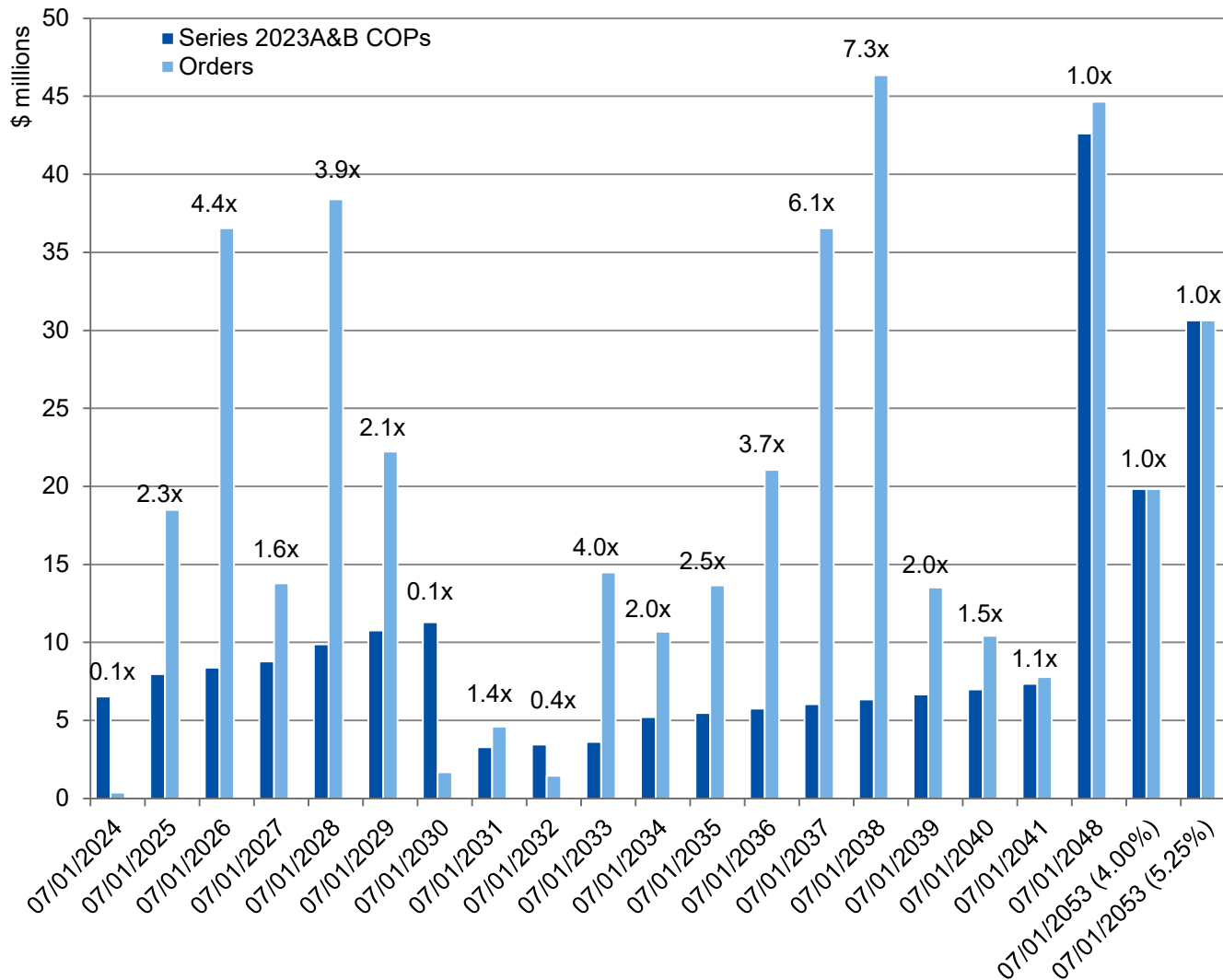
Maturity	Coupon	Amount (\$000)	Retail (\$)	Institutional (\$)	Stock (\$)	Total (\$)	Balance (\$)	Subscription
07/01/2024	5.00%	6,540	-	380	6,660	7,040	6,160	0.1x
07/01/2025	5.00%	7,975	-	18,495	500	18,995	(10,520)	2.3x
07/01/2026	5.00%	8,385	-	36,540	500	37,040	(28,155)	4.4x
07/01/2027	5.00%	8,785	-	13,785	500	14,285	(5,000)	1.6x
07/01/2028	5.00%	9,875	-	38,390	500	38,890	(28,515)	3.9x
07/01/2029	5.00%	10,760	-	22,220	500	22,720	(11,460)	2.1x
07/01/2030	5.00%	11,290	-	1,680	10,110	11,790	9,610	0.1x
07/01/2031	5.00%	3,285	-	4,605	1,750	6,355	(1,320)	1.4x
07/01/2032	5.00%	3,460	-	1,460	4,000	5,460	2,000	0.4x
07/01/2033	5.00%	3,620	-	14,480	2,000	16,480	(10,860)	4.0x
07/01/2034	5.00%	5,220	-	10,680	2,750	13,430	(5,460)	2.0x
07/01/2035	5.00%	5,480	-	13,650	2,750	16,400	(8,170)	2.5x
07/01/2036	5.00%	5,755	-	21,060	3,000	24,060	(15,305)	3.7x
07/01/2037	5.00%	6,040	-	36,550	3,250	39,800	(30,510)	6.1x
07/01/2038	5.00%	6,345	-	46,350	3,250	49,600	(40,005)	7.3x
07/01/2039	5.00%	6,660	-	13,525	3,500	17,025	(6,865)	2.0x
07/01/2040	5.00%	6,995	-	10,420	4,000	14,420	(3,425)	1.5x
07/01/2041	5.00%	7,345	-	7,775	8,000	15,775	(430)	1.1x
07/01/2048	5.00%	42,605	-	44,650	17,500	62,150	(2,045)	1.0x
07/01/2053 (4.00%)	4.00%	19,835	-	19,835	-	19,835	0	1.0x
07/01/2053 (5.25%)	5.25%	30,630	130	30,500	22,500	53,130	0	1.0x
Total		\$216,885	\$130	\$407,030	\$97,520	\$504,680	-\$190,275	1.9x

Investor Type	Order Amount (\$000)	Order Size (%)
Bond Fund	\$268,450	65.93%
SMA	92,150	22.63%
Money Manager	32,005	7.86%
ETF	11,000	2.70%
Broker/Dealer	2,000	0.49%
Bank Trust/PWM	1,425	0.35%
Retail	130	0.03%
	\$407,160	100%



Source: RBCCM

Summary of Order Book (Example)



Investor Category	Order Amount (\$000)	
Bond Fund	\$	62,330
Bond Fund		42,360
SMA		40,015
Bond Fund		35,020
Money Manager		32,005
Bond Fund		28,745
Bond Fund		25,000
Bond Fund		24,800
Bond Fund		19,835
Bond Fund		18,140
SMA		13,290
SMA		11,935
Bond Fund		10,245
ETF		10,000
SMA		6,000
SMA		5,220
SMA		5,185
SMA		5,000
SMA		3,000
SMA		2,505
Broker/Dealer		2,000
Bond Fund		1,975
Bank Trust/PWM		1,425
ETF		1,000
Retail		130
Stock		97,520
	\$	504,680

Live Tracking of Order Period (Example)



Source: Ipreo, RBCCM

Pricing Progression (Example)

				Wednesday, 7/19 Morning Pre-Marketing			Wednesday, 7/19 Afternoon Pre-Pricing Thoughts				Thursday, 7/20 Morning Pre-Pricing				Thursday, 7/20 Afternoon Post-Pricing			
Maturity (7/1)	Par Amount	Maturity Type	Coupon	MMD (7/18)	Spread (bps)	Yield	MMD (7/19)	Spread (bps)	Yield	Δ in MMD	MMD (7/19)	Spread (bps)	Yield	Δ in Spread	MMD (7/19)	Spread (bps)	Yield	Δ in Spread
2024	6,540,000	Serial	5.00%	2.99%	18	3.17%	2.97%	18	3.15%	-0.02%	2.97%	18	3.15%	-	2.97%	18	3.15%	-
2025	7,975,000	Serial	5.00%	2.86%	21	3.07%	2.84%	21	3.05%	-0.02%	2.84%	21	3.05%	-	2.84%	21	3.05%	-
2026	8,385,000	Serial	5.00%	2.73%	21	2.94%	2.71%	21	2.92%	-0.02%	2.71%	21	2.92%	-	2.71%	19	2.90%	-0.02%
2027	8,785,000	Serial	5.00%	2.59%	24	2.83%	2.57%	24	2.81%	-0.02%	2.57%	24	2.81%	-	2.57%	24	2.81%	-
2028	9,875,000	Serial	5.00%	2.54%	27	2.81%	2.52%	27	2.79%	-0.02%	2.52%	25	2.77%	-0.02%	2.52%	23	2.75%	-0.02%
2029	10,760,000	Serial	5.00%	2.53%	32	2.85%	2.51%	32	2.83%	-0.02%	2.51%	30	2.81%	-0.02%	2.51%	30	2.81%	-
2030	11,290,000	Serial	5.00%	2.49%	35	2.84%	2.46%	35	2.81%	-0.03%	2.46%	35	2.81%	-	2.46%	35	2.81%	-
2031	3,285,000	Serial	5.00%	2.45%	37	2.82%	2.42%	37	2.79%	-0.03%	2.42%	37	2.79%	-	2.42%	37	2.79%	-
2032	3,460,000	Serial	5.00%	2.46%	39	2.85%	2.43%	39	2.82%	-0.03%	2.43%	39	2.82%	-	2.43%	39	2.82%	-
2033	3,620,000	Serial	5.00%	2.53%	41	2.94%	2.50%	41	2.91%	-0.03%	2.50%	40	2.90%	-0.01%	2.50%	38	2.88%	-0.02%
2034	5,220,000	Serial	5.00%	2.59%	43	3.02%	2.56%	43	2.99%	-0.03%	2.56%	41	2.97%	-0.02%	2.56%	41	2.97%	-
2035	5,480,000	Serial	5.00%	2.67%	44	3.11%	2.64%	44	3.08%	-0.03%	2.64%	42	3.06%	-0.02%	2.64%	42	3.06%	-
2036	5,755,000	Serial	5.00%	2.80%	45	3.25%	2.77%	45	3.22%	-0.03%	2.77%	43	3.20%	-0.02%	2.77%	41	3.18%	-0.02%
2037	6,040,000	Serial	5.00%	2.94%	46	3.40%	2.91%	46	3.37%	-0.03%	2.91%	44	3.35%	-0.02%	2.91%	40	3.31%	-0.04%
2038	6,345,000	Serial	5.00%	3.03%	47	3.50%	3.00%	47	3.47%	-0.03%	3.00%	45	3.45%	-0.02%	3.00%	40	3.40%	-0.05%
2039	6,660,000	Serial	5.00%	3.07%	48	3.55%	3.04%	48	3.52%	-0.03%	3.04%	47	3.51%	-0.01%	3.04%	47	3.51%	-
2040	6,995,000	Serial	5.00%	3.11%	50	3.61%	3.08%	50	3.58%	-0.03%	3.08%	49	3.57%	-0.01%	3.08%	49	3.57%	-
2041	7,345,000	Serial	5.00%	3.16%	52	3.68%	3.13%	52	3.65%	-0.03%	3.13%	51	3.64%	-0.01%	3.13%	51	3.64%	-
2042	6,510,000	Serial	5.00%	3.19%	53	3.72%	3.16%	53	3.69%	-0.03%	3.16%	53	3.69%	-				
2043	6,840,000	Serial	5.00%	3.23%	53	3.76%	3.20%	53	3.73%	-0.03%	3.20%	53	3.73%	-				
2048	42,605,000	Term	5.00%	3.44%	55	3.99%	3.41%	55	3.96%	-0.03%	3.41%	55	3.96%	-	3.41%	55	3.96%	-
2053	19,835,000	Term	4.00%												3.46%	84	4.30%	n/a
2053	30,630,000	Term	5.25%	3.49%	55	4.04%	3.46%	55	4.01%	-0.03%	3.46%	55	4.01%	-	3.46%	55	4.01%	-

Source: RBCCM

Final Allocation of Bonds (Example)

Maturity	Order Amount (\$000)	Allotment Amount (\$000)
07/01/2024	\$ 6,540	\$ 6,540
Stock	6,160	6,160
Happy Days	300	300
Seinfeld	80	80
07/01/2025	\$ 18,495	\$ 7,975
Cheers	7,975	3,450
Silver Spoons	7,975	3,450
Jefferson's	2,000	830
Frazier	500	200
Family Ties	25	25
Full House	20	20
07/01/2026	\$ 36,540	\$ 8,385
Frazier	8,385	2,000
Happy Days	8,385	2,000
Family Ties	8,385	1,750
Cheers	8,385	1,750
Seinfeld	2,000	485
Full House	500	200
Silver Spoons	500	200
07/01/2027	\$ 13,785	\$ 8,785
Stock	8,785	4,750
Home Improvement	3,000	2,500
Scrubs	1,000	785
Frazier	1,000	750
07/01/2028	\$ 38,390	\$ 9,875
Seinfeld	9,875	2,500
Home Improvement	9,875	2,500
Scrubs	9,875	2,385
Brady Bunch	3,000	1,000
Big Bang Theory	3,000	750
Golden Girls	1,700	425
Family Ties	1,000	250
Happy Days	65	65

(\$000)	Priority Business		Retail Business		Member Business		Total Business		%	%	%
Underwriter	Orders	Allotment	Orders	Allotment	Orders	Allotment	Orders	Allotment	Orders	Excl. Member Orders	Allotment
Senior Manager	\$ 407,030	\$ 198,910	\$ -	\$ -	\$ 17,770	\$ 17,845	\$ 424,800	\$ 216,755	84.2%	100.0%	99.9%
Co-Manager	-	-	130	130	61,250	-	61,380	130	12.2%	0.0%	0.1%
Co-Manager	-	-	-	-	18,500	-	18,500	-	3.7%	0.0%	0.0%
Total	\$ 407,030	\$ 198,910	\$ 130	\$ 130	\$ 97,520	\$ 17,845	\$ 504,680	\$ 216,885	100%	100%	100%

Source: RBCCM

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