



Pricing day fundamentals

October 2022

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Pricing Day – How Did We Get Here?

- Bond pricing is one of the most important days of the issuance process
 - Investors are reviewing credit quality, terms and market conditions
 - Sales effort is typically focused on a single day
 - Interest rates and deal terms are finalized
 - Bonds are awarded to the original purchaser
- How did we get here?
 - Plan of Finance
 - Method of Sale (Negotiated, Competitive or Bank Purchase)
 - Legislative Authority
 - Disclosure (Preliminary Official Statement) and Credit Ratings



Negotiated sale

- Underwriting firm is selected well in advance of the proposed sale date.
- Underwriter proposes an amount of compensation known as underwriter's discount.
- The underwriting firm takes the lead in marketing the bonds to investors.
- Transaction may be sole managed or co-managed by a group or "syndicate" of underwriting firms.
- Managing (or senior) underwriter proposes interest rates at which various maturities will be offered to investors.
- Upon approval by the issuer, underwriter will approach investors to determine whether bonds can be sold at the proposed rates.
- Adjustments are made to the interest rate scale until final terms are reached reflecting the supply and demand for the bonds.
- Once terms for the sale have been reached a bond purchase agreement is signed by the issuer and underwriter (purchaser) agreeing to the final terms.



Negotiated sale

Advantages:

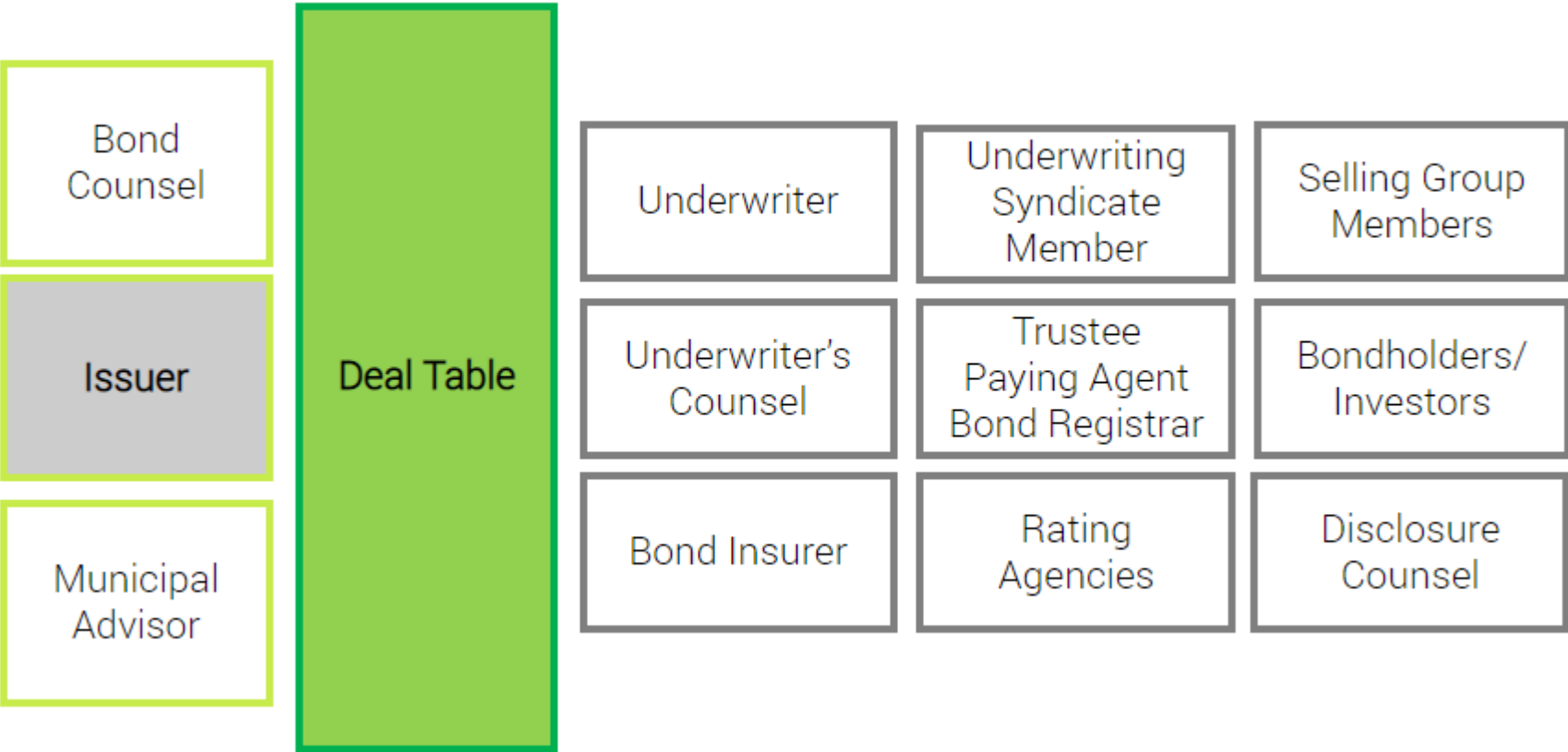
- Greater incentive for underwriter to engage in pre-sale marketing of the bonds to assess demand for certain structures and maturities.
- A negotiated sale provides the greatest amount of flexibility regarding structure and timing of the sale.

Disadvantages:

- Negotiated sales require issuers to make a greater effort to remain informed of developments in the municipal market to ensure that bonds are priced at favorable rates and the underwriting spreads are reasonable.
- Utilizing a municipal advisor can mitigate this risk.



Deal team – Negotiated issuance*



*Adapted from Municipal Securities Rulemaking Board (MSRB) – Professionals involved in a negotiated municipal bond transaction



Competitive sale

- In a competitive sale, the issuer solicits bids from underwriting firms to purchase its bonds.
- Issuer determines the size and other essential characteristics of the issue prior to soliciting bids.
- A Notice of Sale containing bid parameters and terms of the issue is distributed to underwriters.
- Each bid takes into account both the interest rate paid to investors and the amount of compensation paid to the underwriting firm for selling the bonds.
- Bonds are awarded to the firm or syndicate offering the lowest interest rate (highest price) bid.
- Final terms and underwriter who will purchase the bonds are outlined in the Certificate of Award.



Competitive sale

Advantages:

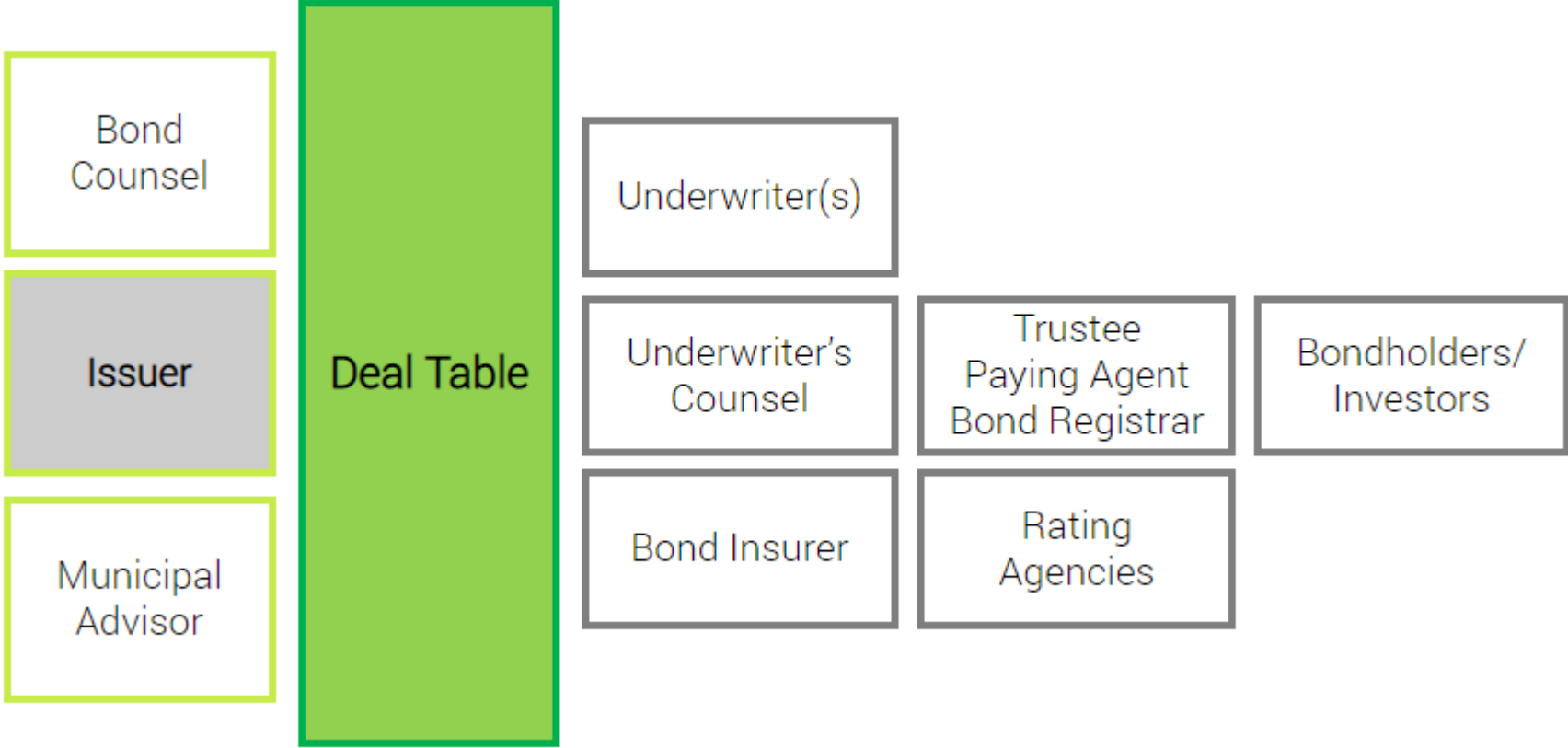
- Provides some assurances that bonds have been sold at the lowest interest rate given the current market conditions.
- Competitive sales promote the appearance of an open, fair process.

Disadvantages:

- Issuer may have less flexibility in adjusting the structural features to respond to investor interest in certain maturities, call provisions or other characteristics.
- Underwriters may build a “risk premium” into their bids to compensate for interest rate volatility and uncertainty in being able to sell the bonds at a particular interest rate.
- Complex financings or weak or unknown credits may have difficulty attracting bids.



Deal team – Competitive issuance*



*Adapted from Municipal Securities Rulemaking Board (MSRB) – Professionals involved in a competitive municipal bond transaction

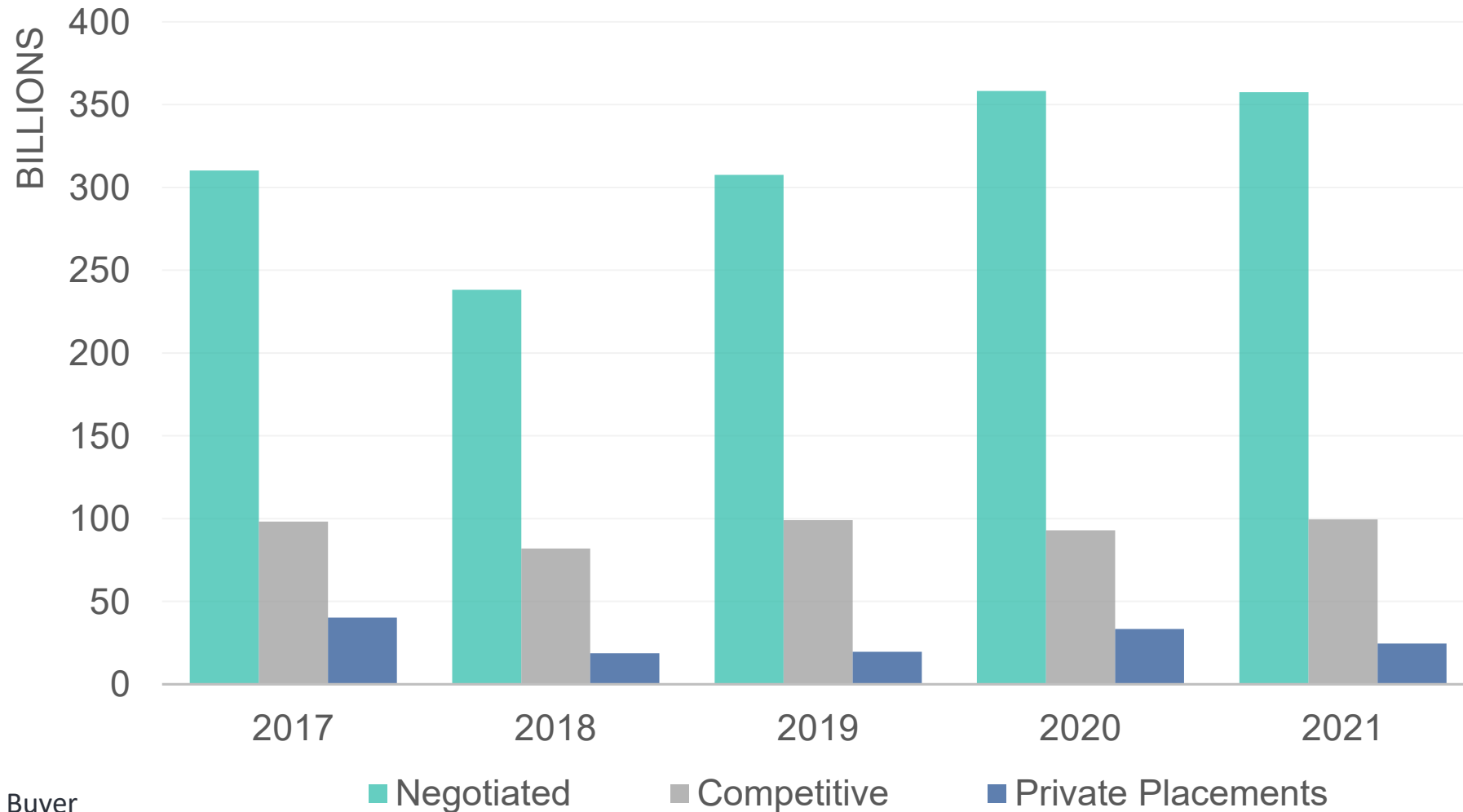
Private placement or direct bank purchase

- Method of sale in which the issuer sells bonds directly to a limited number of sophisticated investors or financial institutions without a public offering.
- Must be sold to 35 or fewer investors
- For governmental issues, bonds are typically sold to a bank or investment company
- Financial institution may hold the securities in its investment portfolio until maturity.
- Bonds may also have provisions to sell or transfer the bond to another sophisticated investor.
- Common for financings with shorter terms (weighted average maturity of approximately 10 years or less)
- Typically no offering document, rating, CUSIP or DTC
- Require sophisticated investor letters (aka “Big Boy Letters”)
- Typically exempt from continuing disclosure under Rule 15c2-12



Negotiated, Competitive, and Private Placement Sales

2017 - 2021

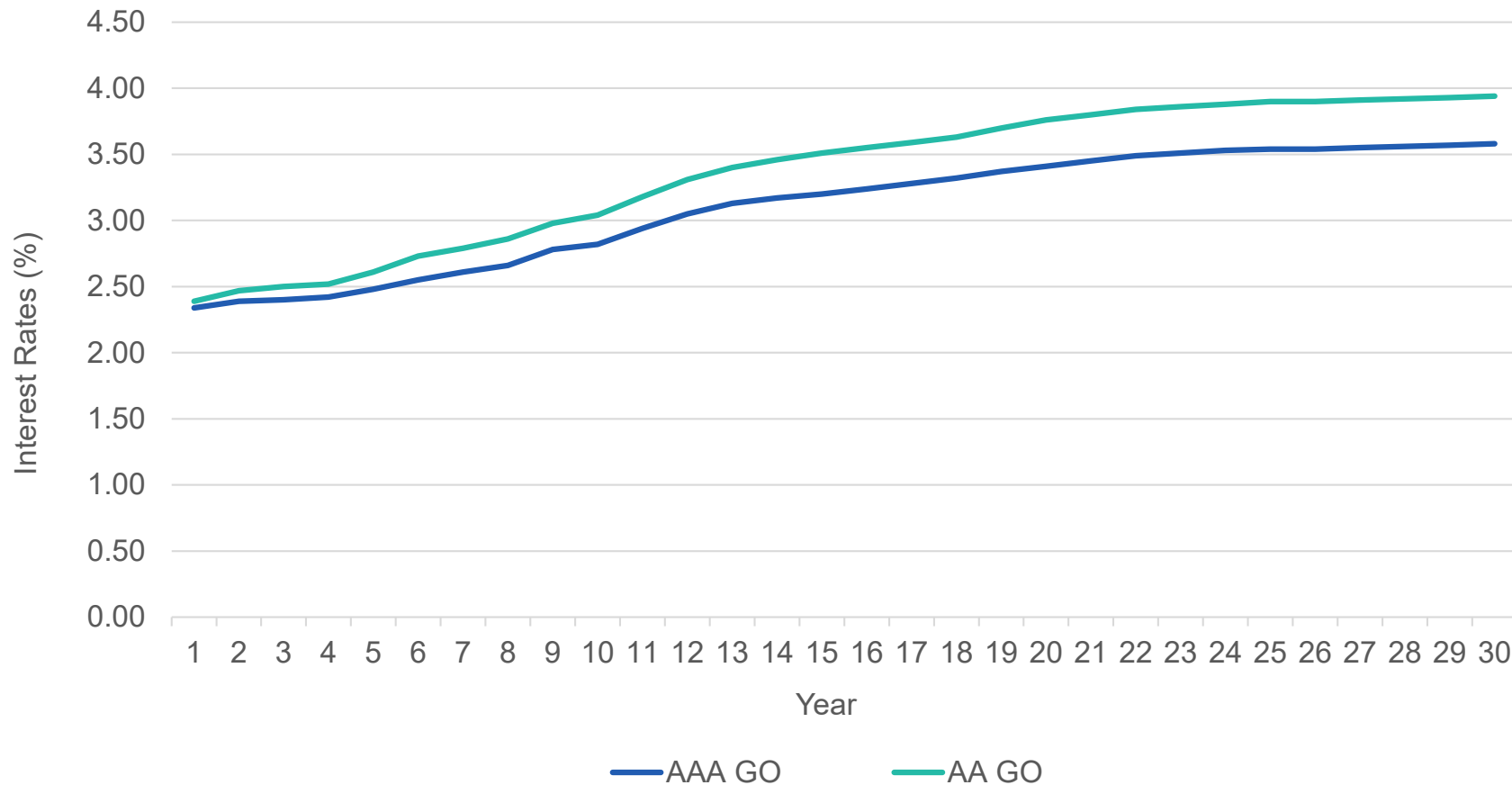


Source: Bond Buyer



Yield curve

AAA GO MMD vs AA GO MMD
As of September 13, 2022

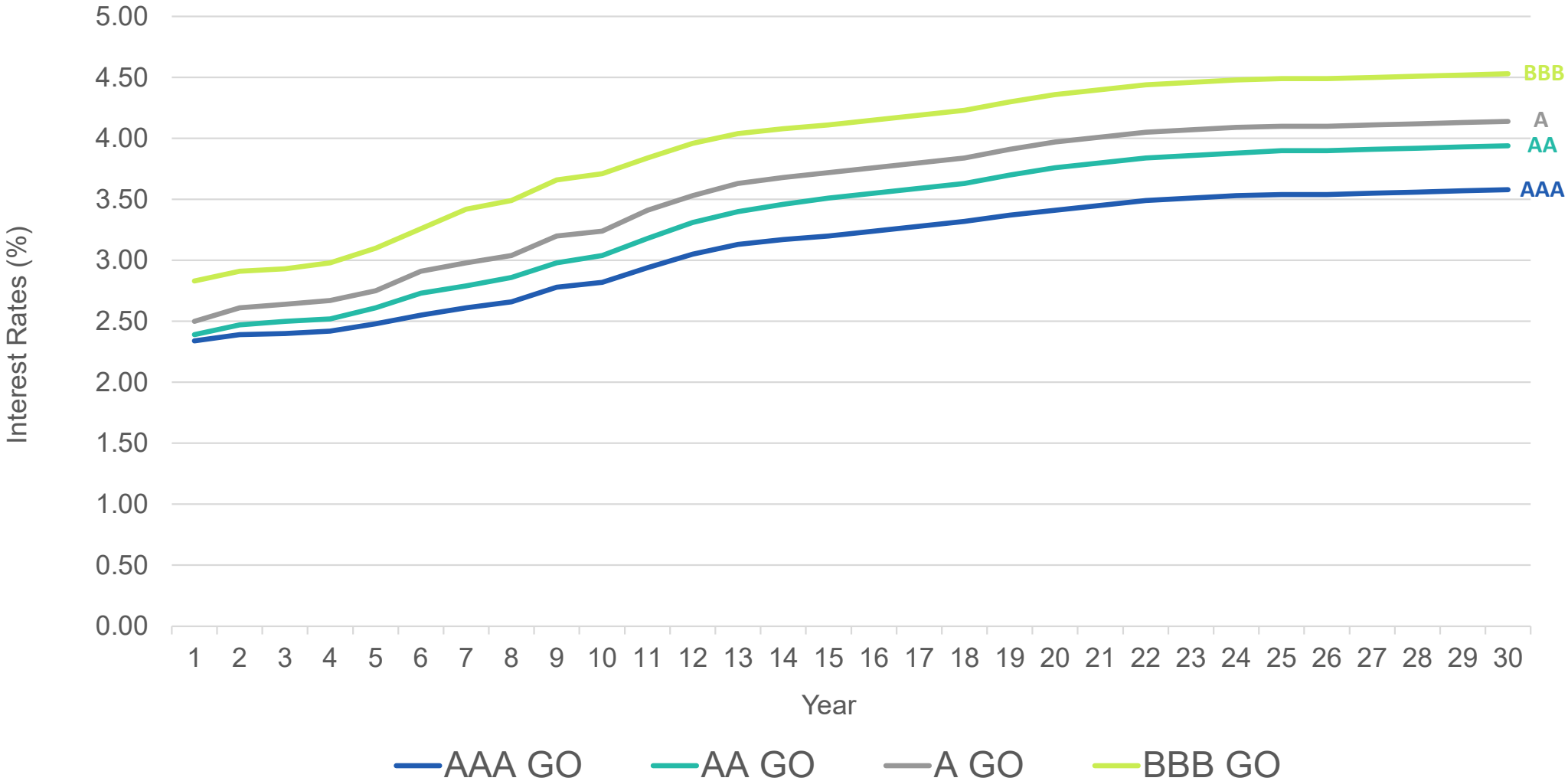


		MMD	
	Year	AAA GO	AA GO
1	2023	2.34	2.39
2	2024	2.39	2.47
3	2025	2.40	2.50
4	2026	2.42	2.52
5	2027	2.48	2.61
6	2028	2.55	2.73
7	2029	2.61	2.79
8	2030	2.66	2.86
9	2031	2.78	2.98
10	2032	2.82	3.04
11	2033	2.94	3.18
12	2034	3.05	3.31
13	2035	3.13	3.40
14	2036	3.17	3.46
15	2037	3.20	3.51
16	2038	3.24	3.55
17	2039	3.28	3.59
18	2040	3.32	3.63
19	2041	3.37	3.70
20	2042	3.41	3.76
21	2043	3.45	3.80
22	2044	3.49	3.84
23	2045	3.51	3.86
24	2046	3.53	3.88
25	2047	3.54	3.90
26	2048	3.54	3.90
27	2049	3.55	3.91
28	2050	3.56	3.92
29	2051	3.57	3.93
30	2052	3.58	3.94

Source: TM3.com



Ratings and interest rates



Writing an interest rate scale

- Start with the MMD for tax-exempt securities and US Treasuries for taxable securities
 - Current MMD vs Interpolated MMD
- Scale considerations:
 - Issuer
 - Tax status
 - Credit Rating
 - Security
 - Closing date
 - Call date
 - Transaction size
 - Maturity dates and final maturity
- Market conditions change daily and new comparative transactions are likely to impact pricings



Comparable transactions

- The items that we take into consideration for writing a scale are the same as what we look for in a comparable transaction:

- Issuer
- Tax status
- Credit Rating
- Security
- Closing date
- Call date
- Transaction size
- Maturity dates
- Final maturity

Issuer Name	[Issuer Name]	[Issuer Name]	[Issuer Name]	[Issuer Name]
Par Amount	\$50,000,000	\$10,000,000	\$25,000,000	\$100,000,000
State	ME	MA	NC	CA
Credit Type	General Obligation (Unlimited Tax)	General Obligation (Limited Tax)	General Obligation (Unlimited Tax)	General Obligation (Unlimited Tax)
Underlying Credit Rating (M/SP/F)	Aa1 / AAA / -	- / AAA / -	Aa1 / AAA / -	Aaa / AA+ / -
Credit Enhancement / Insurance	None	None	None	None
Enhanced Credit Rating (M/SP/F)	None	None	None	None
Sale Date	4/20/2022	4/19/2022	4/19/2022	4/11/2022
Dated Date	5/5/2022	4/28/2022	5/11/2022	4/28/2022
Call Date	5/1/2032	6/15/2031	3/1/2032	10/1/2031
AAA Interpolated MMD as of	4/20/2022	4/19/2022	4/19/2022	4/11/2022
Bank Qualified	No	No	No	No
Competitive / Negotiated	Competitive	Competitive	Competitive	Competitive
Underwriter	[Underwriting Firm]	[Underwriting Firm]	[Underwriting Firm]	[Underwriting Firm]

Year	Coupon	Spread	Yield	Coupon	Spread	Yield	Coupon	Spread	Yield	Coupon	Spread	Yield
2021												
2022										5.000%	+160 bps	1.60%
2023	5.000%	+5 bps	1.99%	5.000%	(3) bps	1.92%	5.000%	(9) bps	1.85%	5.000%	+3 bps	1.90%
2024	5.000%	+6 bps	2.25%	5.000%	(2) bps	2.17%	5.000%	(11) bps	2.10%	5.000%	+1 bps	2.05%
2025	5.000%	+6 bps	2.35%	5.000%	-	2.30%	5.000%	(11) bps	2.20%	5.000%	+2 bps	2.15%
2026	5.000%	+8 bps	2.40%	5.000%	+1 bps	2.34%	5.000%	(9) bps	2.26%	5.000%	+4 bps	2.22%
2027	5.000%	+10 bps	2.48%	5.000%	+1 bps	2.39%	5.000%	(8) bps	2.32%	5.000%	+4 bps	2.25%
2028	5.000%	+12 bps	2.55%	5.000%	+4 bps	2.47%	5.000%	(8) bps	2.38%	5.000%	+6 bps	2.30%
2029	5.000%	+14 bps	2.64%	5.000%	+5 bps	2.55%	5.000%	(8) bps	2.45%	5.000%	+7 bps	2.38%
2030	5.000%	+13 bps	2.68%	5.000%	+6 bps	2.61%	5.000%	(8) bps	2.50%	5.000%	+7 bps	2.43%
2031	5.000%	+12 bps	2.72%	5.000%	+5 bps	2.65%	5.000%	(8) bps	2.55%	5.000%	+7 bps	2.47%
2032	5.000%	+15 bps	2.80%	5.000%	+8 bps	2.73%	5.000%	(8) bps	2.60%	5.000%	+15 bps	2.59%
2033	3.000%	+31 bps	3.00%	4.000%	+31 bps	3.00%	4.000%	+3 bps	2.75%	5.000%	+16 bps	2.64%
2034	3.000%	+38 bps	3.10%	4.000%	+33 bps	3.05%	4.000%	+10 bps	2.85%	5.000%	+17 bps	2.68%
2035	3.125%	+45 bps	3.20%	4.000%	+35 bps	3.10%	4.000%	+12 bps	2.90%	5.000%	+18 bps	2.72%
2036	3.250%	+54 bps	3.30%	3.375%	+64 bps	3.40%	4.000%	+19 bps	2.95%	5.000%	+20 bps	2.74%
2037	3.250%	+57 bps	3.35%				3.250%	+52 bps	3.30%	5.000%	+20 bps	2.76%
2038	3.375%	+60 bps	3.40%	3.375%	+70 bps	3.50%	3.250%	+55 bps	3.35%	5.000%	+20 bps	2.78%
2039	3.375%	+63 bps	3.45%				3.375%	+58 bps	3.40%	5.000%	+20 bps	2.80%
2040	3.500%	+67 bps	3.50%	3.500%	+77 bps	3.60%	3.375%	+62 bps	3.45%	5.000%	+22 bps	2.83%
2041	3.500%	+71 bps	3.55%				3.500%	+66 bps	3.50%	5.000%	+22 bps	2.84%
2042	3.500%	+74 bps	3.60%	3.625%	+84 bps	3.70%	3.500%	+69 bps	3.55%			

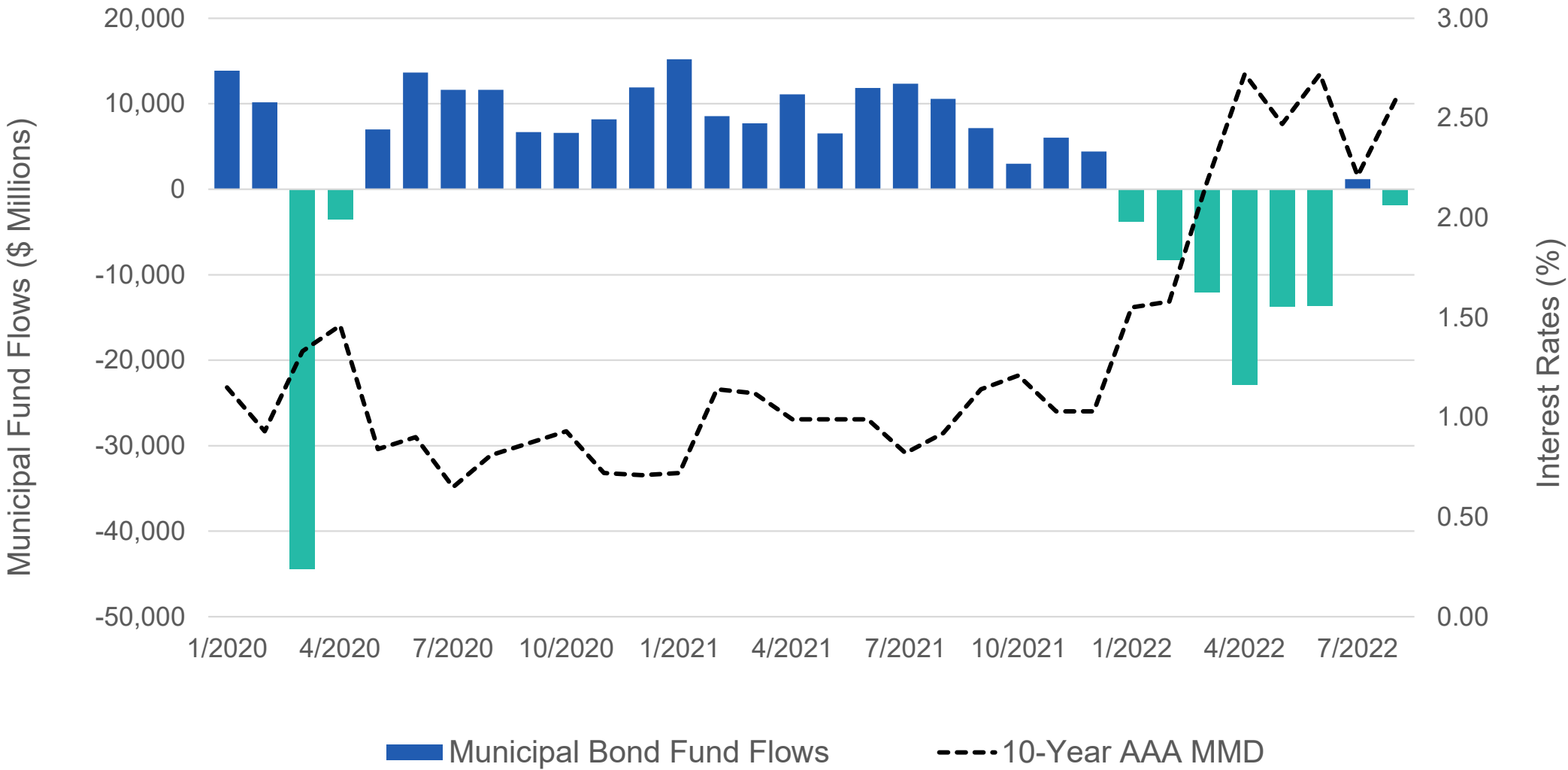


Market conditions

- Forward supply
- Muni inflows and outflows
- Other transactions in the market
- News, calendar of economic indicators
 - FOMC Meetings
 - CPI and Core CPI data release
 - Employment Situation Summary (Jobs Report)
- Changes in investor preferences
- Volatility



Municipal bond funds



Scale considerations

- Pre-pricing discussions set the tone and expectations of the bond sale.
- This occurs shortly after the distribution of the Preliminary Official Statement (POS).
- Issuer should be prepared to establish call provisions and have a good understanding of the spread levels being proposed by their Municipal Advisor and Underwriting team.
- Coupon structures and related spreads can have a major impact on overall cost and cash flow constraints.
- Callable bonds can have a considerable impact on cost and yield to maturity.



Scale considerations

- Yield to Call
- Yield to Maturity
- YTM Kick

Maturity Date	Principal	Coupon	AAA MMD	Spread	Yield	Price	YTM	YTM Kick	YTM Spread
5/1/2023	\$1,000,000	5.000%	2.19	+1 bps	2.20%	101.322	-	-	-
5/1/2024	\$1,200,000	5.000%	2.25	+4 bps	2.29%	103.915	-	-	-
5/1/2025	\$1,400,000	5.000%	2.28	+4 bps	2.32%	106.416	-	-	-
5/1/2026	\$1,600,000	5.000%	2.30	+4 bps	2.34%	108.834	-	-	-
5/1/2027	\$1,800,000	5.000%	2.32	+4 bps	2.36%	111.155	-	-	-
5/1/2028	\$2,000,000	5.000%	2.35	+8 bps	2.43%	113.106	-	-	-
5/1/2029	\$2,200,000	5.000%	2.40	+9 bps	2.49%	114.929	-	-	-
5/1/2030	\$2,400,000	5.000%	2.45	+10 bps	2.55%	116.583	-	-	-
5/1/2031	\$2,600,000	5.000%	2.53	+11 bps	2.64%	117.821	-	-	-
5/1/2032	\$2,800,000	5.000%	2.59	+12 bps	2.71%	119.027	-	-	-
5/1/2033	\$3,000,000	5.000%	2.67	+13 bps	2.80%	119.035	2.882%	+8 bps	+21 bps
5/1/2034	\$3,200,000	5.000%	2.80	+15 bps	2.95%	117.606	3.159%	+21 bps	+36 bps
5/1/2035	\$3,400,000	5.000%	2.86	+17 bps	3.03%	116.853	3.337%	+31 bps	+48 bps
5/1/2036	\$3,600,000	5.000%	2.90	+18 bps	3.08%	116.385	3.468%	+39 bps	+57 bps
5/1/2037	\$3,800,000	3.750%	2.93	+82 bps	3.75%	100.000	-	-	-
5/1/2038	\$4,000,000	3.750%	2.97	+85 bps	3.82%	99.186	-	-	-
5/1/2039	\$4,200,000	4.000%	3.01	+69 bps	3.70%	102.483	3.796%	+10 bps	+79 bps
5/1/2040	\$4,400,000	4.000%	3.05	+70 bps	3.75%	102.064	3.837%	+9 bps	+79 bps
5/1/2041	\$4,600,000	4.000%	3.10	+71 bps	3.81%	101.564	3.881%	+7 bps	+78 bps
5/1/2042	\$4,800,000	4.000%	3.14	+71 bps	3.85%	101.232	3.909%	+6 bps	+77 bps
5/1/2043	\$5,000,000	4.000%	3.18	+72 bps	3.90%	100.819	3.941%	+4 bps	+76 bps
Total Par Amount	\$63,000,000								



Call option analysis

Series 2022 New Money	8yr Call	10yr Call
Delivery Date	8/10/2022	8/10/2022
Par Amount	\$52,945,000	\$52,945,000
Bond Retirement Fund Deposit	\$5,978,930	\$6,544,717
Total Interest Due	\$30,937,735	\$30,937,735
Net Debt Service	\$77,903,805	\$77,338,019
All-In TIC	3.742%	3.634%
PV Benefit / (Cost) vs. 10-Year Call	(565,786)	n/a
Tax-Exempt Refunding @ First Call Date (Current Rates)	8yr Call	10yr Call
Par Refunded	\$35,465,000	\$31,075,000
Delivery Date	6/1/2030	6/1/2032
PV Savings (%)	9.17%	8.21%
PV Savings (\$)	\$3,253,513	\$2,550,747
PV Benefit / (Cost) vs. 10-Year Call	\$702,766	n/a
Net Benefit / (Cost) vs. 10-Year Call	+ \$136,980	n/a

Note: Future Refundings PV'd back to 8/10/2022 at the 10yr Par Call AIC of 3.634%.

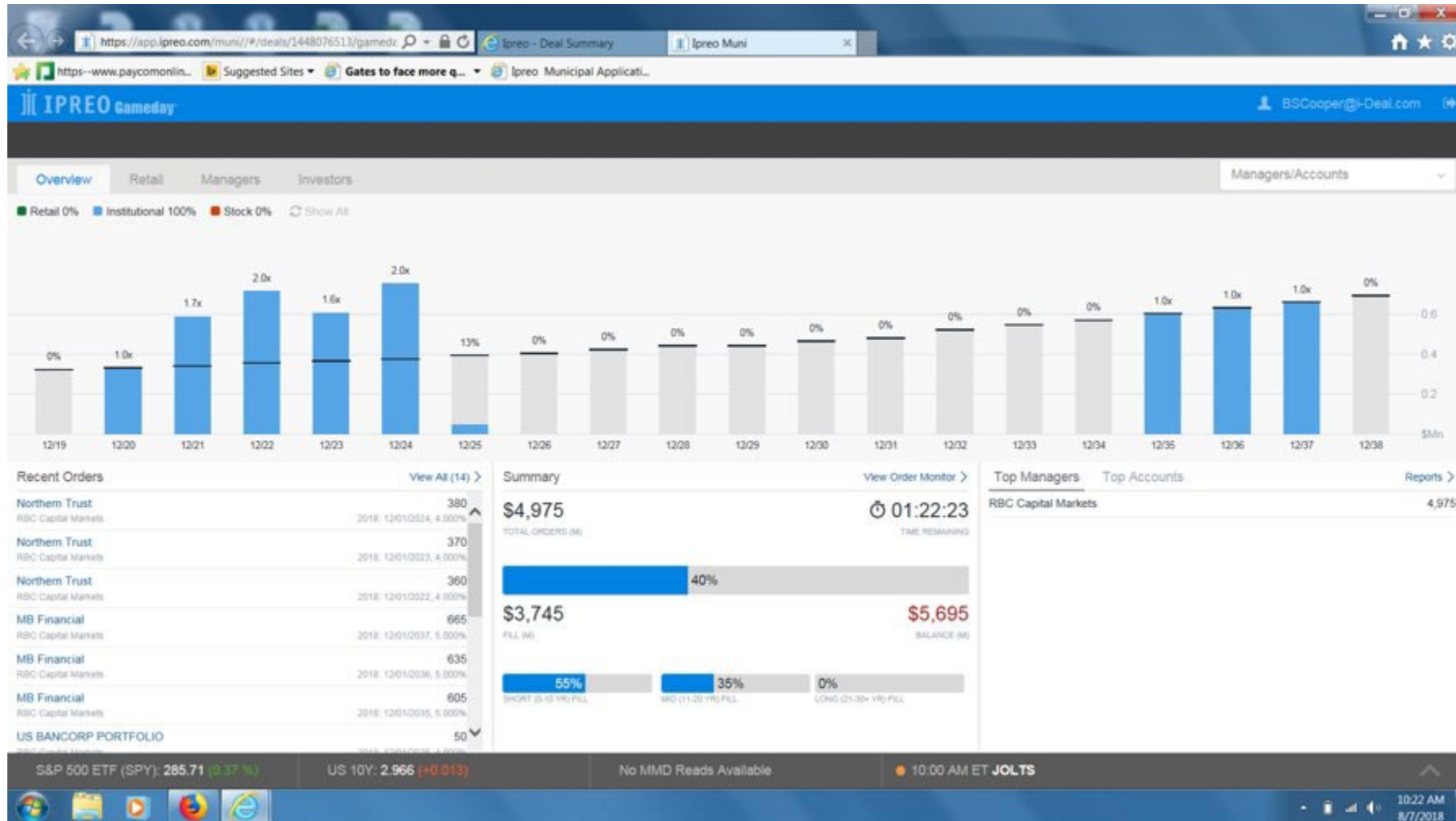


Negotiated Pricing

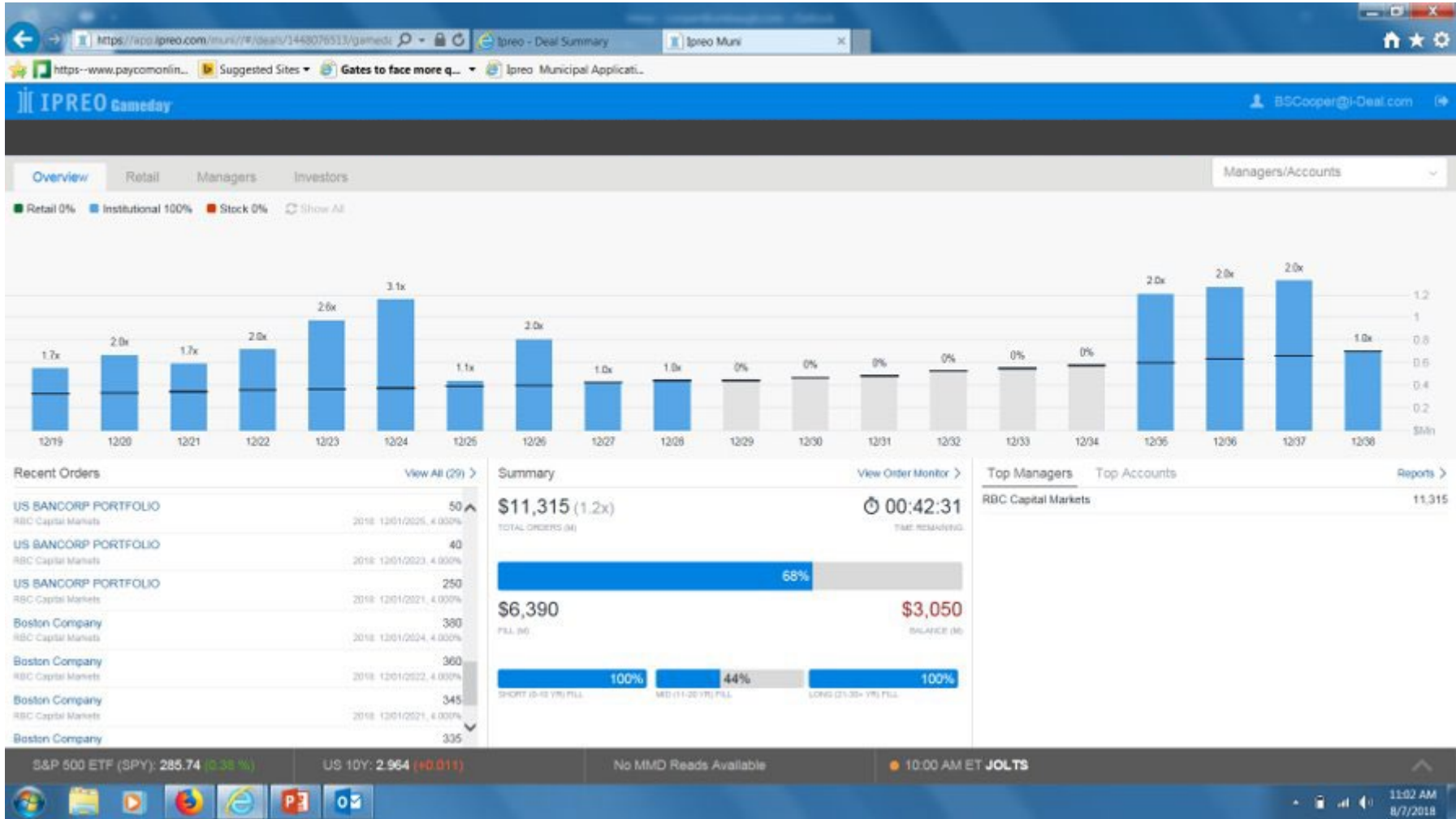
- Pre-marketing
- Order period
- Order period adjustments (repricing if necessary)



Negotiated Sale Order period



Negotiated Sale Order period



Order period adjustments

Series 2022 Bonds											
Maturity Date	Principal	Coupon	AAA MMD Interpolated	Consensus Going Out Spread	Order Period Adjustments	Final Spread	Final Yield	Price	YTM	Orders	Subscription
12/1/2023	\$1,890,000	4.000%	1.56	+15 bps	No Change	+15 bps	1.71%	103.014	-	\$1,545,000	0.82x
12/1/2024	\$2,205,000	4.000%	1.75	+18 bps	No Change	+18 bps	1.93%	104.788	-	\$3,400,000	1.54x
12/1/2025	\$2,495,000	4.000%	1.84	+20 bps	-2 bps	+18 bps	2.02%	106.501	-	\$7,830,000	3.14x
12/1/2026	\$2,590,000	4.000%	1.94	+22 bps	-3 bps	+19 bps	2.13%	107.913	-	\$8,165,000	3.15x
12/1/2027	\$2,690,000	4.000%	2.04	+25 bps	-3 bps	+22 bps	2.26%	109.021	-	\$9,965,000	3.70x
12/1/2028	\$2,810,000	5.000%	2.18	+27 bps	-4 bps	+23 bps	2.41%	115.449	-	\$10,760,000	3.83x
12/1/2029	\$2,945,000	5.000%	2.27	+30 bps	-5 bps	+25 bps	2.52%	116.964	-	\$15,155,000	5.15x
12/1/2030	\$2,130,000	5.000%	2.32	+33 bps	-4 bps	+29 bps	2.61%	118.400	-	\$8,255,000	3.88x
12/1/2031	\$2,240,000	5.000%	2.41	+35 bps	-4 bps	+31 bps	2.72%	119.360	-	\$8,685,000	3.88x
12/1/2032	\$2,065,000	5.000%	2.45	+37 bps	-5 bps	+32 bps	2.77%	119.794	2.823%	\$11,055,000	5.35x
12/1/2033	\$2,170,000	5.000%	2.54	+42 bps	-3 bps	+39 bps	2.93%	118.186	3.082%	\$6,910,000	3.18x
12/1/2034	\$2,280,000	5.000%	2.60	+47 bps	-3 bps	+44 bps	3.04%	117.066	3.301%	\$6,100,000	2.68x
12/1/2035	\$2,395,000	5.000%	2.65	+53 bps	-1 bps	+52 bps	3.17%	116.050	3.482%	\$5,680,000	2.37x
12/1/2036	\$2,515,000	5.000%	2.66	+58 bps	-1 bps	+57 bps	3.23%	115.318	3.618%	\$5,090,000	2.02x
12/1/2037	\$2,640,000	5.000%	2.68	+60 bps	No Change	+60 bps	3.28%	114.864	3.717%	\$5,105,000	1.93x
12/1/2038	\$2,775,000	5.000%	2.72	+65 bps	No Change	+65 bps	3.37%	114.051	3.833%	\$5,750,000	2.07x
12/1/2039	\$2,910,000	5.000%	2.75	+67 bps	No Change	+67 bps	3.42%	113.602	3.910%	\$5,685,000	1.95x
12/1/2040			2.79								
12/1/2041			2.84								
12/1/2042			2.86								
12/1/2043	\$11,200,000	5.000%	2.88	+72 bps	-3 bps	+69 bps	3.57%	112.357	4.122%	\$36,115,000	3.22x
Total Par Amount	\$52,945,000									\$161,250,000	



Post-pricing

- Verbal Award
- Bond Purchase Agreement (BPA)
- Certificate of Award (Competitive sale)
- Bond Counsel will finalize the legal documents including the tax certificates, final disclosure documents and bond opinion.
- Final closing letter with settlement instructions circulated to working group to coordinate closing process.
- Closing call via DTC scheduled with working group to (1) confirm receipt of funds and (2) release of bonds.



Questions?



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