Division of Bond Finance
Interest Rate Calculations

December 19, 2023

Division of Bond Finance
Calculation of Long-Term Interest Rate

Long-Term Interest Rate Information*	Low End	High End
Current Estimated Long-Term Interest Rate [1]	3.99%	3.99%
Plus: Volatility Spread [2]	1.40%	1.44%
Long-Term Interest Rate Range	**5.39%**	**5.43%**

[1] *Interest rate estimate for a 30-year bond issue based on 5% coupons and estimated yields and credit spreads as of December 14, 2023. Estimate represents the true interest cost, which factors in the cost of call optionality based on the market standard 10-year par call structure. Excludes costs of issuance and underwriter's discount, which would increase the true cost of borrowing.*

[2] *Used two measures to calculate interest rate volatility; (1) Bond Buyer 11 GO Bond Index maximum annual change over the last 20 fiscal years of 140 basis points and (2) TM3 Municipal Market Data ("MMD") 30-year AAA benchmark yield high-low range over the prior 12 months of 144 basis points.*

Long-Term Interest Rate:

The interest rate range noted above is based on the Division of Bond Finance's historical methodology that analyzes interest rate trends and volatility over the past 20 years and most recent 12-month period. Based on estimated yields and credit spreads as of December 14, 2023, the Division's methodology produces a range of 5.39% to 5.43% for the long-term interest rate.

Since the last conference in July 2023, the municipal market experienced a rapid selloff, with the 30-year AAA benchmark yield increasing by 111 basis points in just 68 trading days. But since peaking at 4.57% in late October, the 30-year AAA benchmark has decreased by 100 basis points as the municipal market saw a significant rally in interest rates. Investors have continued to shift funds out of the tax-exempt market, with year-to-date outflows from municipal bond funds totaling $12.8 billion as of December 7. Issuance of new money bonds has also picked up relative to the first half of the year, with year-over-year volume only down 6.5% through November (compared to a 20% year-over-year decline through June). However, these market dynamics took a backseat to macro-economic developments, as slowing economic growth, decreasing inflation, and a pause in rate increases by the Fed shifted the market's interest rate outlook. Based on these data points, the market moved ahead of the Fed's recent pivot towards potential rate cuts in 2024, but investor sentiment has not fully shifted positive yet (as noted by the continued fund outflows). If fund inflows resume, the municipal market could quickly return to the positive supply/demand dynamic that drove interest rates to historic lows in recent years. However, investor sentiment remains fickle and, as recent history has demonstrated, can shift rapidly based on economic data.

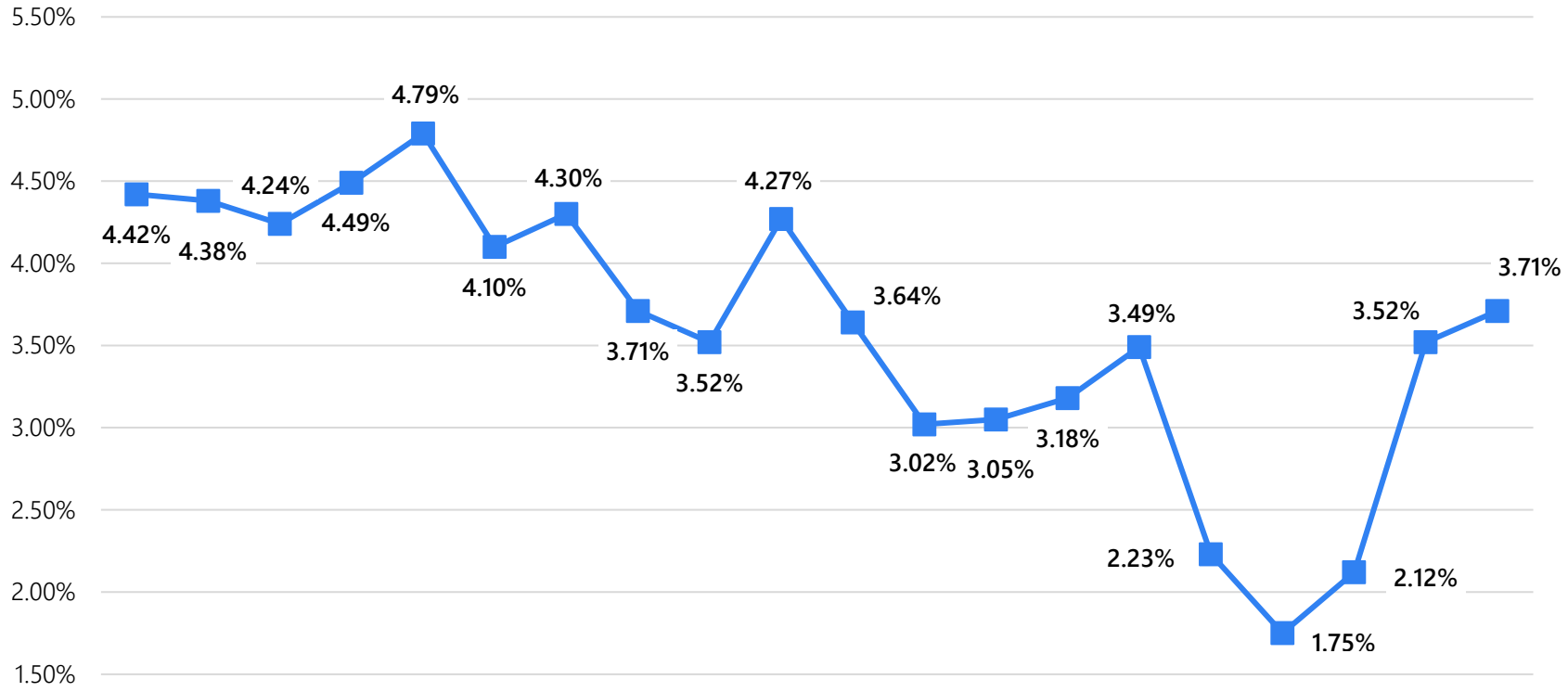
Short-Term Interest Rate:

The State does not have any outstanding variable rate debt and there are no current plans for the issuance of additional variable rate debt. As a result, the Division has not produced a short-term interest rate analysis for this conference.

* *The Division of Bond Finance has supplied the above interest rates to assist the REC in adopting official rates that would be used by State agencies for planning and budgetary purposes. There can be no assurance that actual interest rates for any particular bond issue will not exceed the rates shown above.*

Long-Term Interest Rate Volatility
Change in Bond Buyer 11 GO Bond Average Annual Interest Rates
Last 20 Years

The largest year-over-year change in the annual average Bond Buyer GO Bond Index over the last 20 fiscal years is 140 basis points.



Fiscal Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 YTD	Average
BB 11 GO Avg	4.42%	4.38%	4.24%	4.49%	4.79%	4.10%	4.30%	3.71%	3.52%	4.27%	3.64%	3.02%	3.05%	3.18%	3.49%	2.23%	1.75%	2.12%	3.52%	3.71%	3.59%
YOY Change	(0.28)%	(0.04)%	(0.14)%	0.25%	0.30%	(0.69)%	0.20%	(0.59)%	(0.19)%	0.75%	(0.63)%	(0.62)%	0.03%	0.13%	0.31%	(1.26)%	(0.48)%	0.37%	1.40%	0.21%	0.42%*

**Average calculated using absolute values of year-over-year changes.*

Long-Term Interest Rate Volatility
Change in 30-Year Benchmark AAA MMD Rate
Last 12 Months

The 30-year benchmark AAA MMD interest rate ranged from a low of 3.13% to a high of 4.57% over the last 12 months, a difference of 144 basis points. These are stated yields assuming 5% coupons and do not factor in costs of issuance, underwriter's discount, or the effect of call optionality.