



April 18, 2023

IBTTA

Global Outlook: Forecasting Post-Pandemic Toll Revenues

Market Commentary – Intended for Institutional Clients and Advisors Only.

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Volatility Across Markets has Increased Since 2020

Several key inputs and risk factors used to forecast toll demand and revenues have experienced unprecedented volatility since May 2020, as summarized below:

- Federal, state, and local government responses to the **COVID-19 pandemic**
- The federal government has provided over **\$4 trillion** in COVID-19 relief funding¹
- **Inflation** reaching its highest level in 40+ years²
- Increased geopolitical risks and the impacts of the **Russia-Ukraine Conflict**
- **Oil prices** went from negative in 2020 to \$100+ in 2022, causing record high gas prices³
- **Interest rates were lowered** to 0% overnight in March 2020
- **Interest rates rising** at their fastest pace in history
- **The 2nd and 3rd largest bank collapses** in U.S. history

U.S. toll road traffic and revenue performance has been resilient despite challenging economic and market conditions

1. U.S. Government Accountability Office ([Link](#))

2. Federal Reserve Bank of St. Louis ([Link](#))

3. U.S. Energy Information Administration ([Link](#))

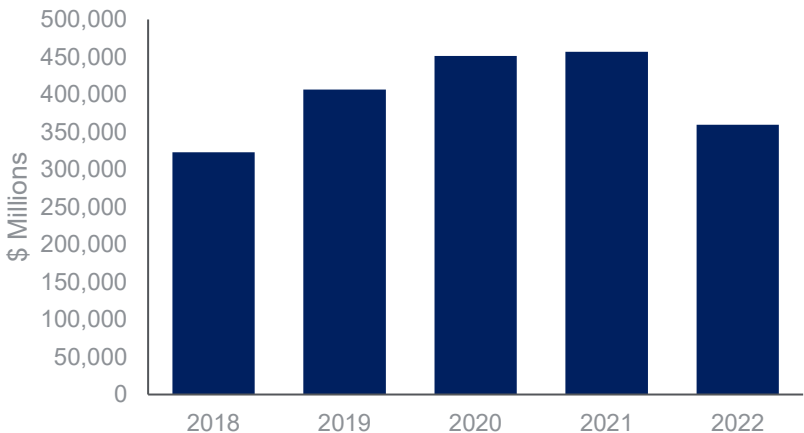
Municipal and Toll Revenue Bonds Issuance

U.S. Toll Revenue Bonds represent approximately 3.2% of the overall municipal bonds issued since 2018.

- Several factors have impacted U.S. Toll Revenue bond volume over the past five (5) years:
 - **2018:** Impacts from Tax Cuts and Jobs Act of 2017
 - **2020:** Effects of the COVID-19 Pandemic
 - **2022:** Elevated market volatility and a sharp increase in borrowing costs
- Frequent toll issuers have become more episodic
 - **Prior to March 2020**, frequent toll issuers spent **359 days between issues** on average
 - **Since March 2020**, the average time between deals for frequent toll issuers has **increased to 453 days**
- In 2023 year-to-date, there have been **three (3) toll transactions** representing approximately **\$1.45 billion in par**, or 1.8% of total supply

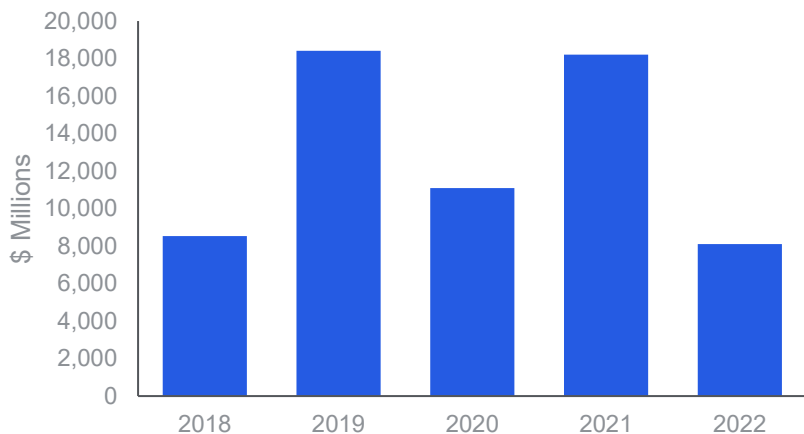
Total Municipal Bond Issuance¹

2018 - 2022



Toll Bond Issuance¹

2018 - 2022



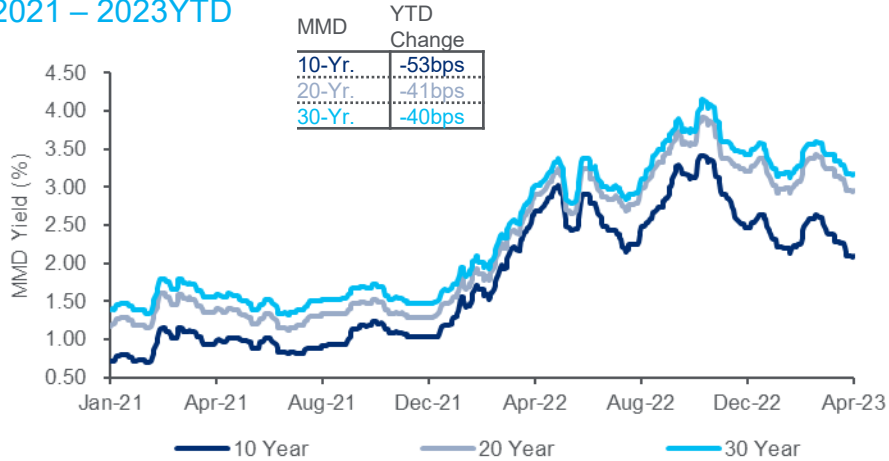
1. Refinitiv, SDC Platinum Financial Securities Data and Citi



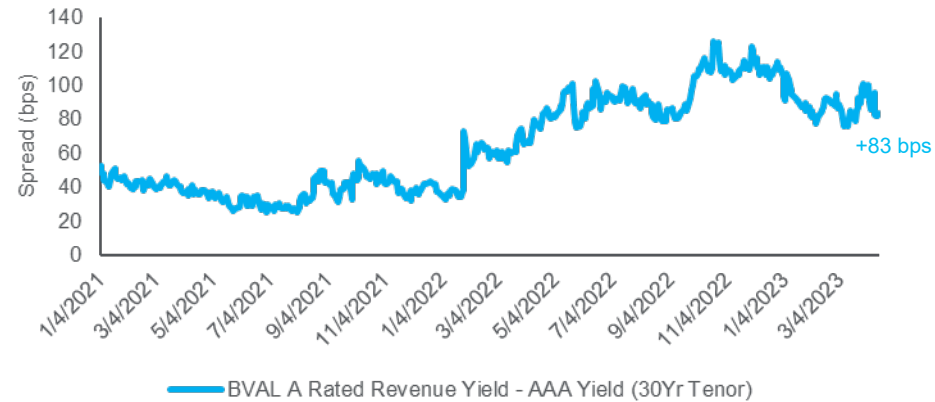
Municipal Market Developments

Recent developments include a flight to quality with municipals and treasuries moving lower in yield while municipals have outperformed as new issue supply has remained muted.

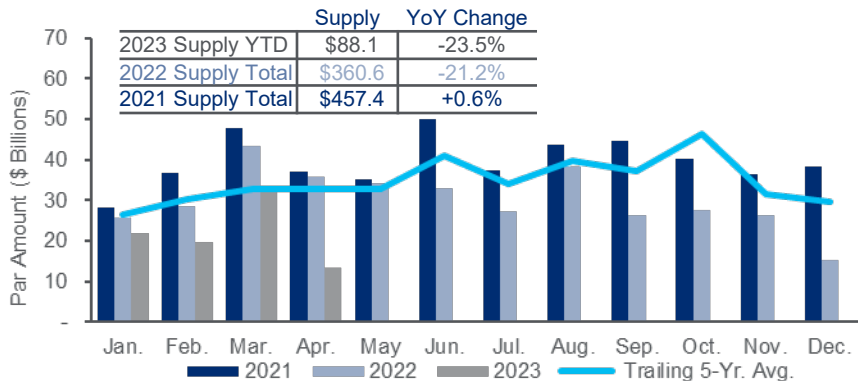
Municipal Rates¹ 2021 – 2023YTD



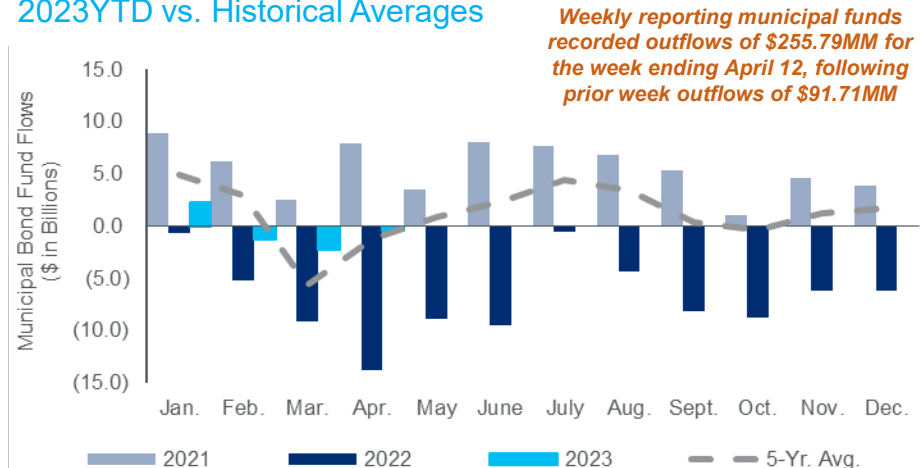
30 Year Credit Spreads¹ 2021 – 2023YTD



Historic Monthly Municipal Supply² 2023YTD vs. Prior Years and Historical Averages (\$BN)



Demand – Weekly Mutual Fund Flows³ 2023YTD vs. Historical Averages



1. Thomson Reuters, rates as of April 14, 2023; monthly spread data as of the first of each month; 2. Bloomberg U.S. long-term municipal supply as of April 14, 2023; 3. Lipper fund flows as of April 12, 2023.

U.S. Rate Forecasts

10-Year Treasury Yield Forecast

Citi and other economists forecast 10-Yr treasury rates to remain in-line by year-end



Rate Forecasts

2-Year Treasury	Current	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24
Citi's Forecast	4.08%	3.90	3.60	3.25	--	--	--
Economists' Consensus		4.31	4.25	3.95	3.80	3.50	3.21

5-Year Treasury	Current	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24
Citi's Forecast	3.60%	3.70	3.45	3.20	--	--	--
Economists' Consensus		3.83	3.79	3.58	3.50	3.33	3.25

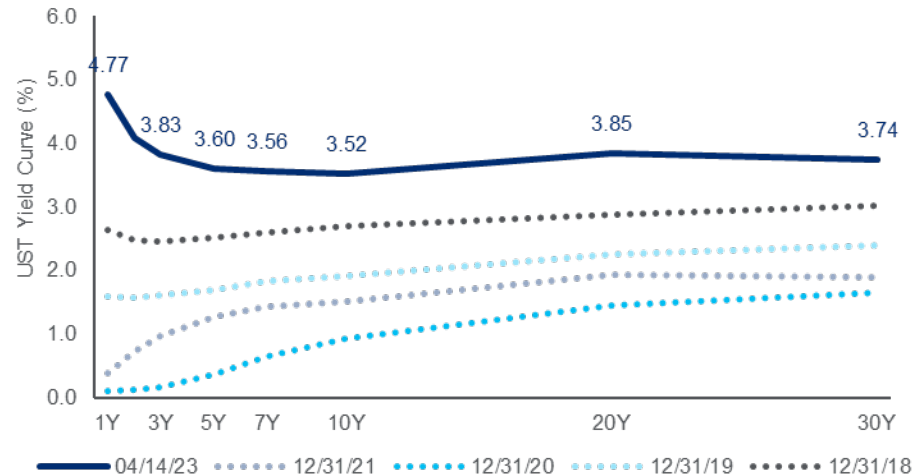
10-Year Treasury	Current	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24
Citi's Forecast	3.52%	3.55	3.40	3.25	--	--	--
Economists' Consensus		3.60	3.50	3.45	3.35	3.30	3.28

30-Year Treasury	Current	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24
Citi's Forecast	3.74%	3.50	3.40	3.35	--	--	--
Economists' Consensus		3.75	3.70	3.64	3.60	3.50	3.52

Fed Funds	Current	2Q23	3Q23	4Q23	1Q24	2Q24	3Q24
Citi's Forecast	5.00%	5.50	5.75	5.75	5.00	4.50	4.00
Economists' Consensus		5.25	5.25	5.25	4.75	4.25	3.88

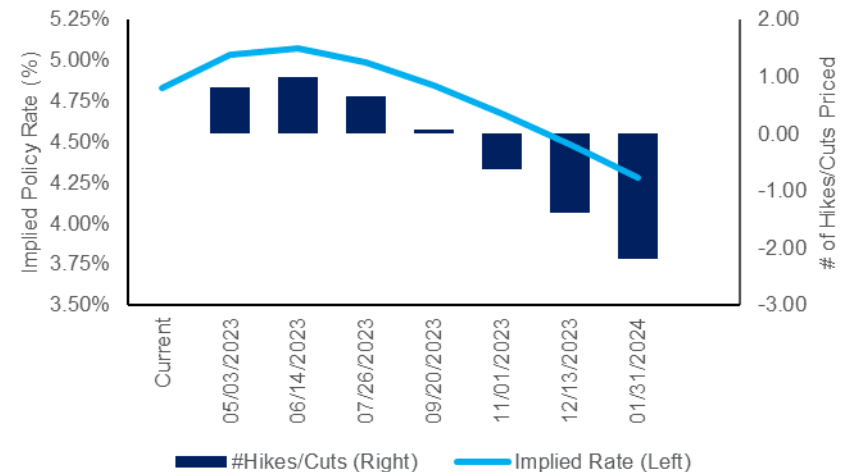
US Treasury Yield Curve

The treasury curve has flattened significantly in recent months amid aggressive Fed rate hikes



Expectations of Fed Change in Interest Rates (Market View)

The market is now pricing in rate cuts in the second half of 2023

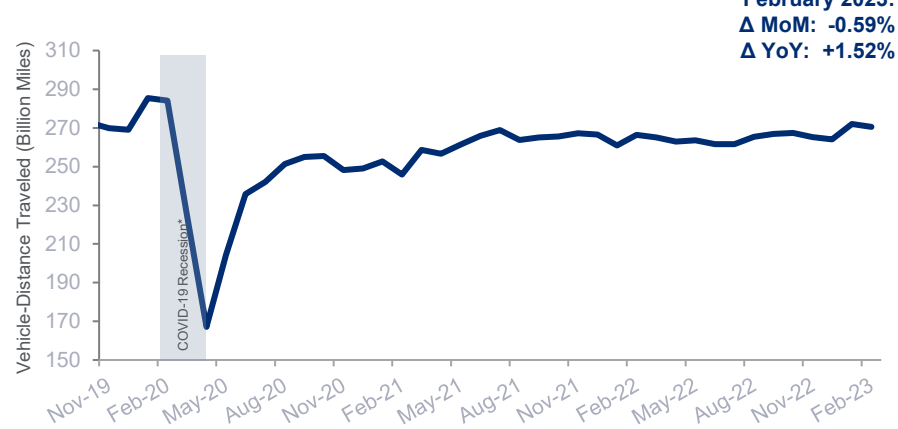


Source: Current rates and expectation of Fed hike as of April 14, 2023; expectations use the median of economists' forecasts as per Bloomberg as of April 14, 2023; Citi forecasts as of March 22, 2023 (Fed Funds, 10-Year, 5-Year, 30-Year).

Relevant Transportation Sector Data

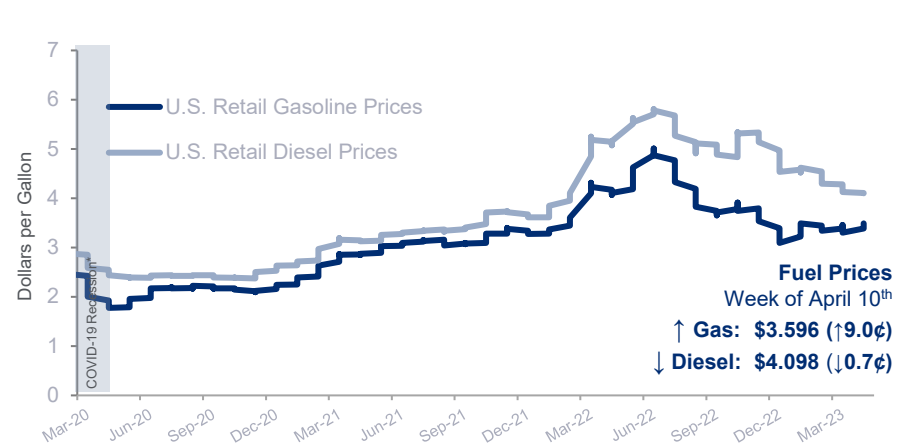
Seasonally adjusted VMT through February 2023 has remained steady despite fluctuating gas prices. Increases in the cost of infrastructure projects has significantly outpaced CPI growth as of the 3rd quarter of 2022.

Vehicles Miles Traveled (VMT)^{1**}



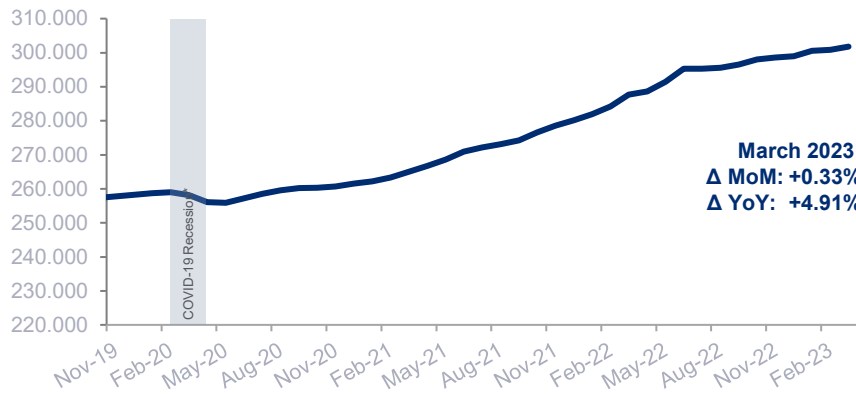
1. U.S. Department of Transportation, Federal Highway Administration ([Link](#))

Gasoline and Diesel Prices²



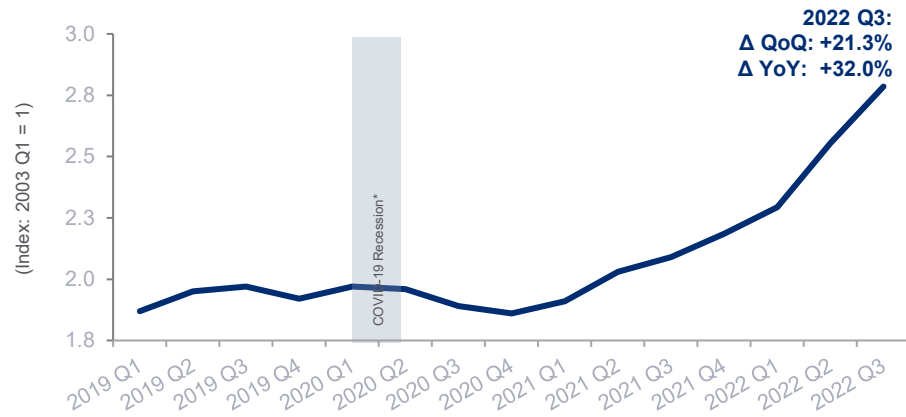
2. U.S. Energy Information Administration ([Link](#))

CPI for All Urban Consumers (CPI-U)³



3. St. Louis Federal Reserve ([Link](#))

National Highway Construction Cost Index⁴



4. U.S. Department of Transportation, National Highway Administration ([Link](#))

* National Bureau of Economic Research declared that the COVID-19 recession lasted from February 2020 through April 2020 ([Link](#))

** Seasonally Adjusted

Observations from Recent Forecasts and Disclosures

Updates to Bring Down Letters of traffic and revenue (T&R) forecasts and Official Statement disclosures over the past 12 months have generally included the following themes.

1. Continued Impacts of COVID-19 on Forecasts

- Negative impacts of the pandemic have diminished over time, but the lingering effects of COVID-19 are expected throughout the forecast period
- Increased prevalence of telecommuting in lieu of commuting to work is assumed for the long-term
- Specific travel patterns may still be impacted (bottlenecks locations, duration of peaks, etc.)

2. Updated Economic Inputs and Analysis

- Bring Down Letters have included updated economic data (GDP, regional demand, employment, among other factors)
- Inflation and inflation-linked toll schedules
- Elevated gas prices and the impact on demand

3. Accelerated Shift Toward All-Electronic Tolling

- The pandemic has accelerated the transition to an all-electronic and cashless payment system for many toll roads
- T&R studies have been updated to account for increased transponder and “leakage” rates

4. Pandemic and Volatility Risk Disclosures

- In general, recent Official Statements have included a discussion on the impact COVID-19 Pandemic, Public Health Considerations, and Market Volatility as Risk Factors / Investment Decisions

Looking Ahead - Traffic and Revenue Forecasts

We expect that future traffic and revenue forecasts will examine the effects of the following issues as they become more widespread.

Potential Issues for Future Traffic and Revenue Forecasts

- Congestion pricing** projects and studies in the United States

- Impacts of baseline or rapid **Electric Vehicle adoption** scenarios
 - Implementation of **Road User Charging** programs to replace fuel taxes

 - Continued study and analysis of **statewide tolling** programs

- Use of **smartphone and in-vehicle connectivity** on tolling applications

- The ability for toll roads to accommodate **Autonomous Vehicles**

**Thank you for your time and I would be
happy to answer any questions during Q&A!**

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