

**RISING AND INVERTED YIELD CURVES –
WHERE ARE WE NOW?
WHAT ARE THE IMPACTS AND OPPORTUNITIES?
WHAT ARE THE PROSPECTS FOR 2024?***

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Presented by:



**R. WADE NORRIS, ESQ.
NORRIS GEORGE & OSTROW PLLC**

1627 Eye Street, N.W., Suite 1220

Washington, D.C. 20006

wnorris@ngomunis.com

(202) 744-1888 (C)

Website: www.ngomunis.com

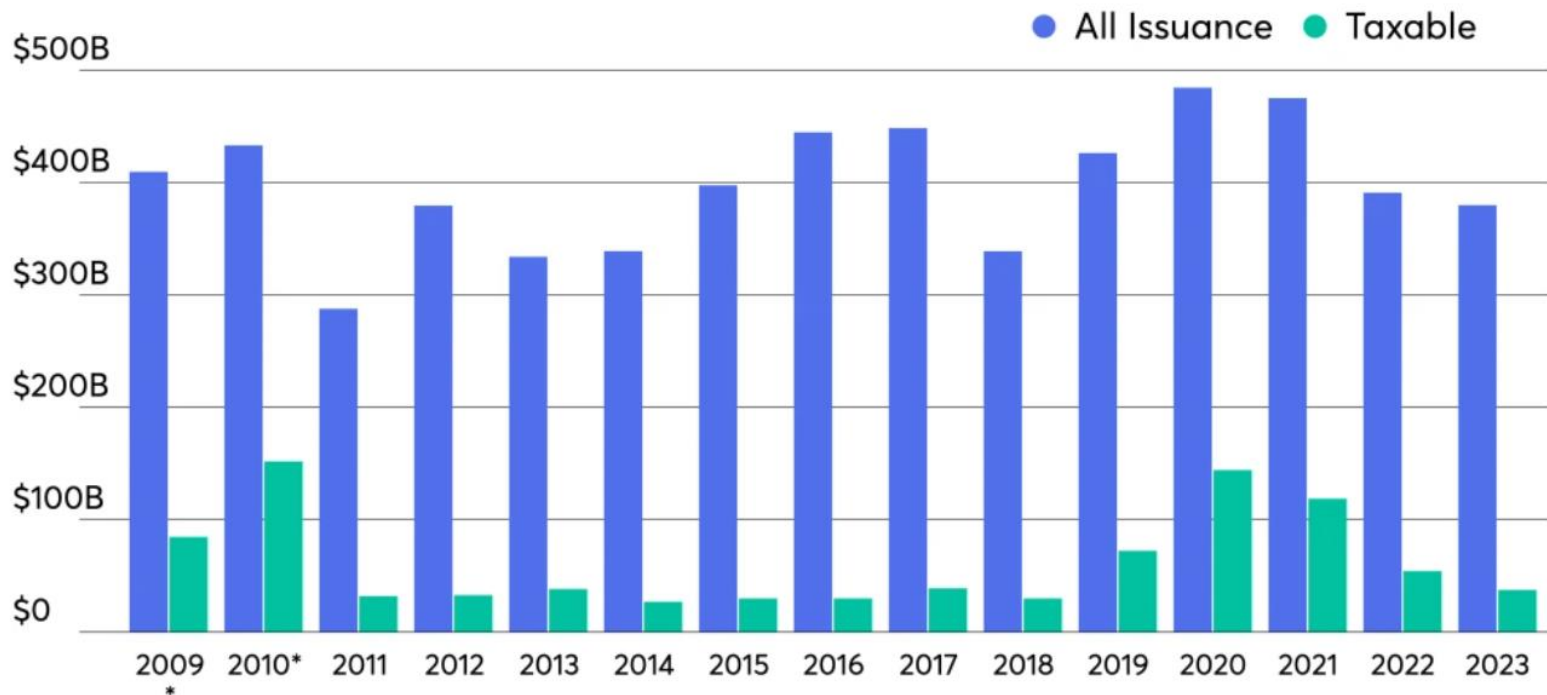


SAILING INTO THE WIND – BOND FINANCINGS IN A WORLD OF RISING INTEREST RATES

ANNUAL MUNI BOND ISSUANCE

Down About 20% From 2020 Highs

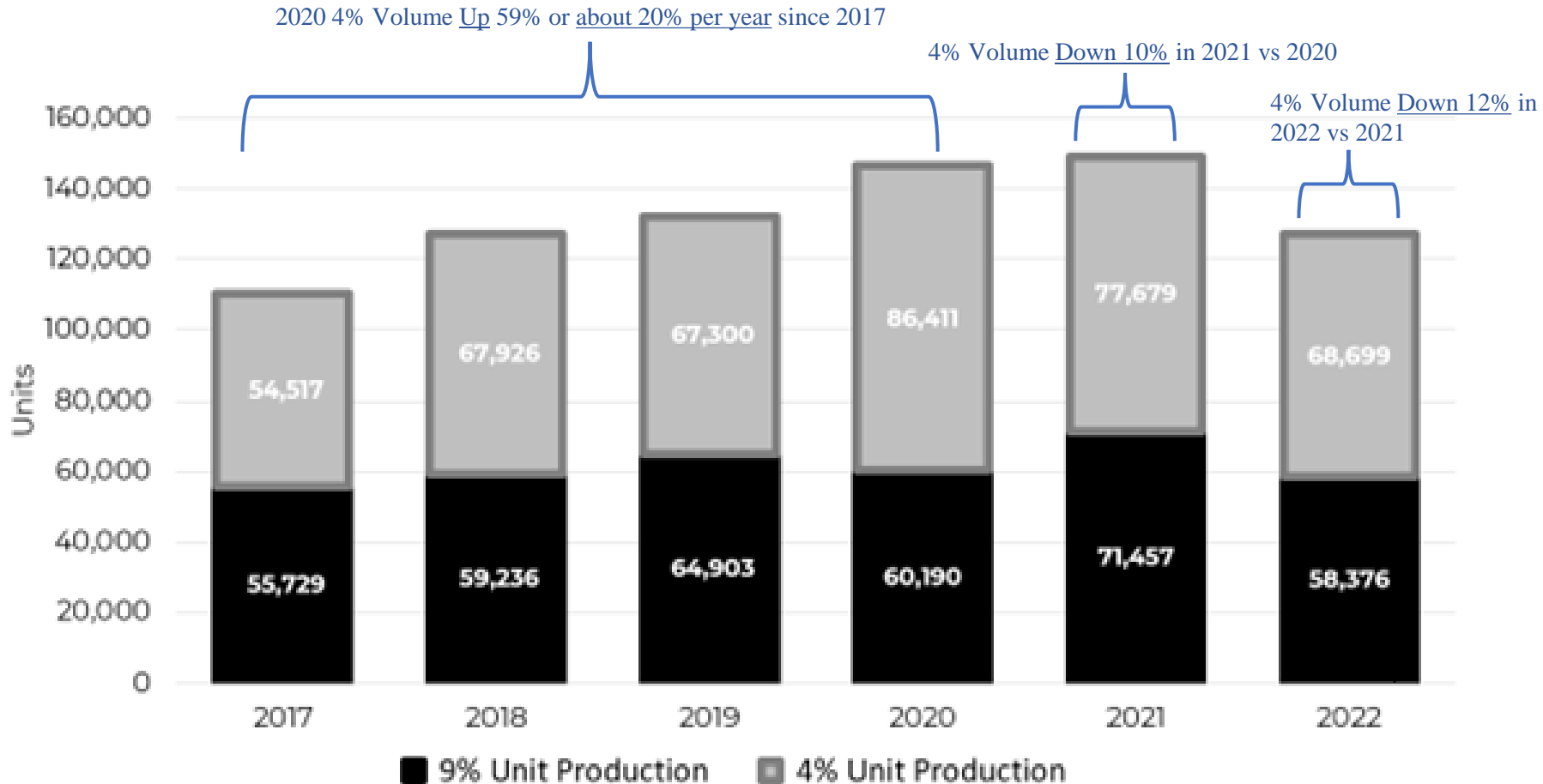
- Almost \$500 Billion per year in 2020 and 2021.
- Down to under \$400 Billion in 2022 and 2023.



Source: Refinitiv *Includes BABs* Year-to-Date; *The Bond Buyer* 1/2/2024

HOW ABOUT TAX-EXEMPT BONDS / 4% AND 9% LIHTC FINANCINGS?

4%/9% LIHTC UNIT PRODUCTION BY CREDIT TYPE




* Probably down another 10-15% in 2023

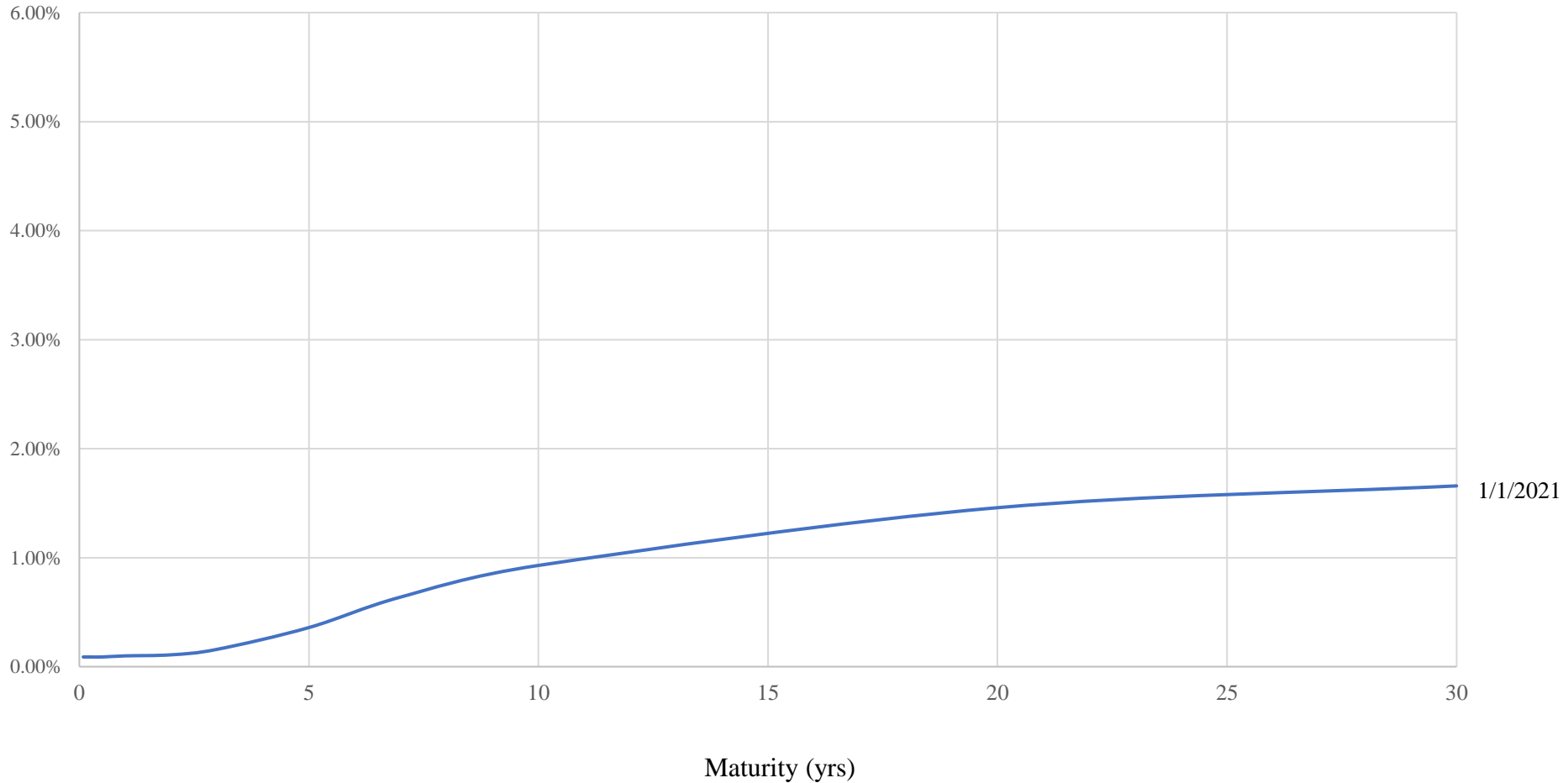
Source: NCHSA 2023 Factbook

Yield Curve Movements

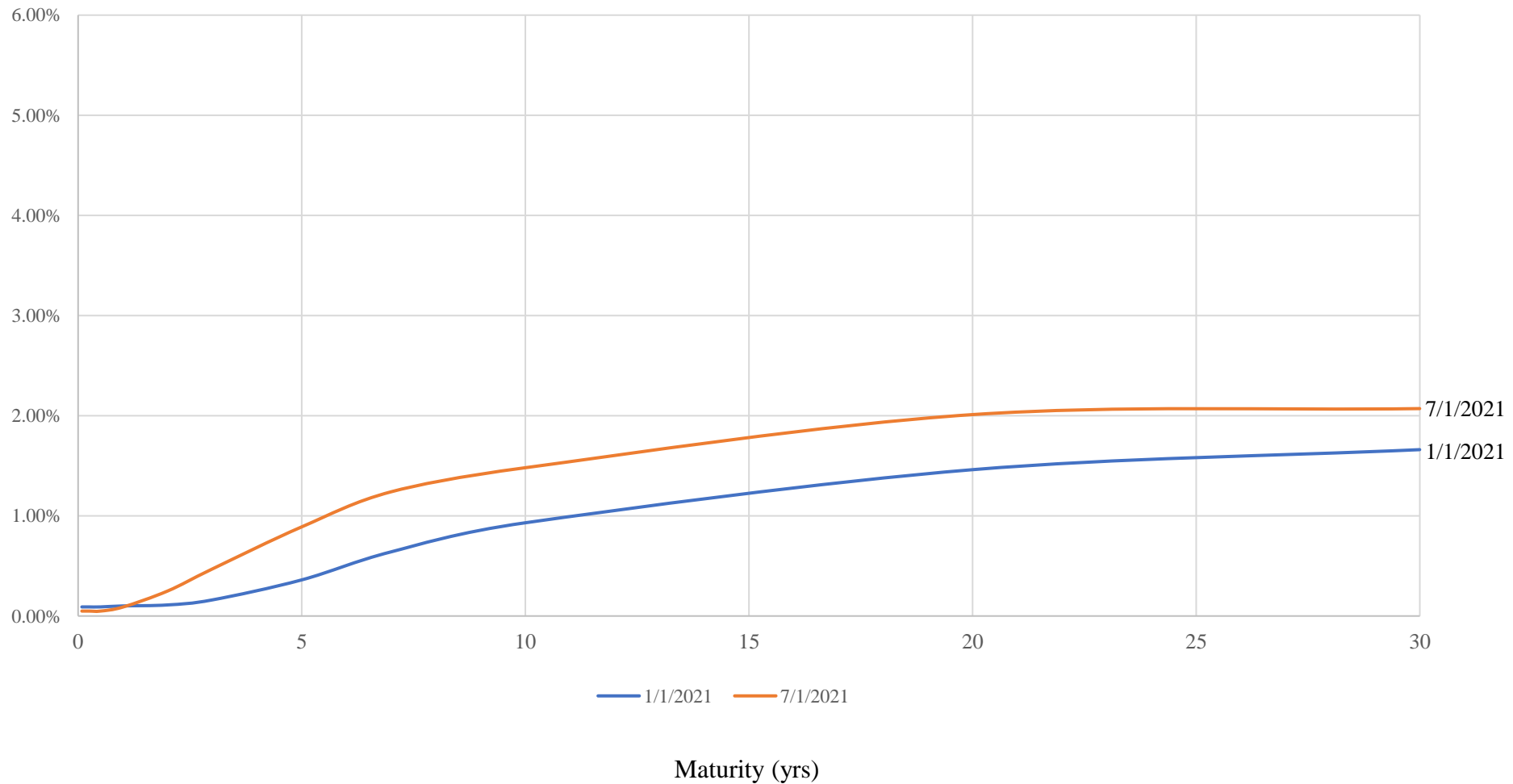
2021-2023

A Quick 6-Month Tour of
Taxable and Tax-Exempt Yield Curves
Since January 1, 2021 

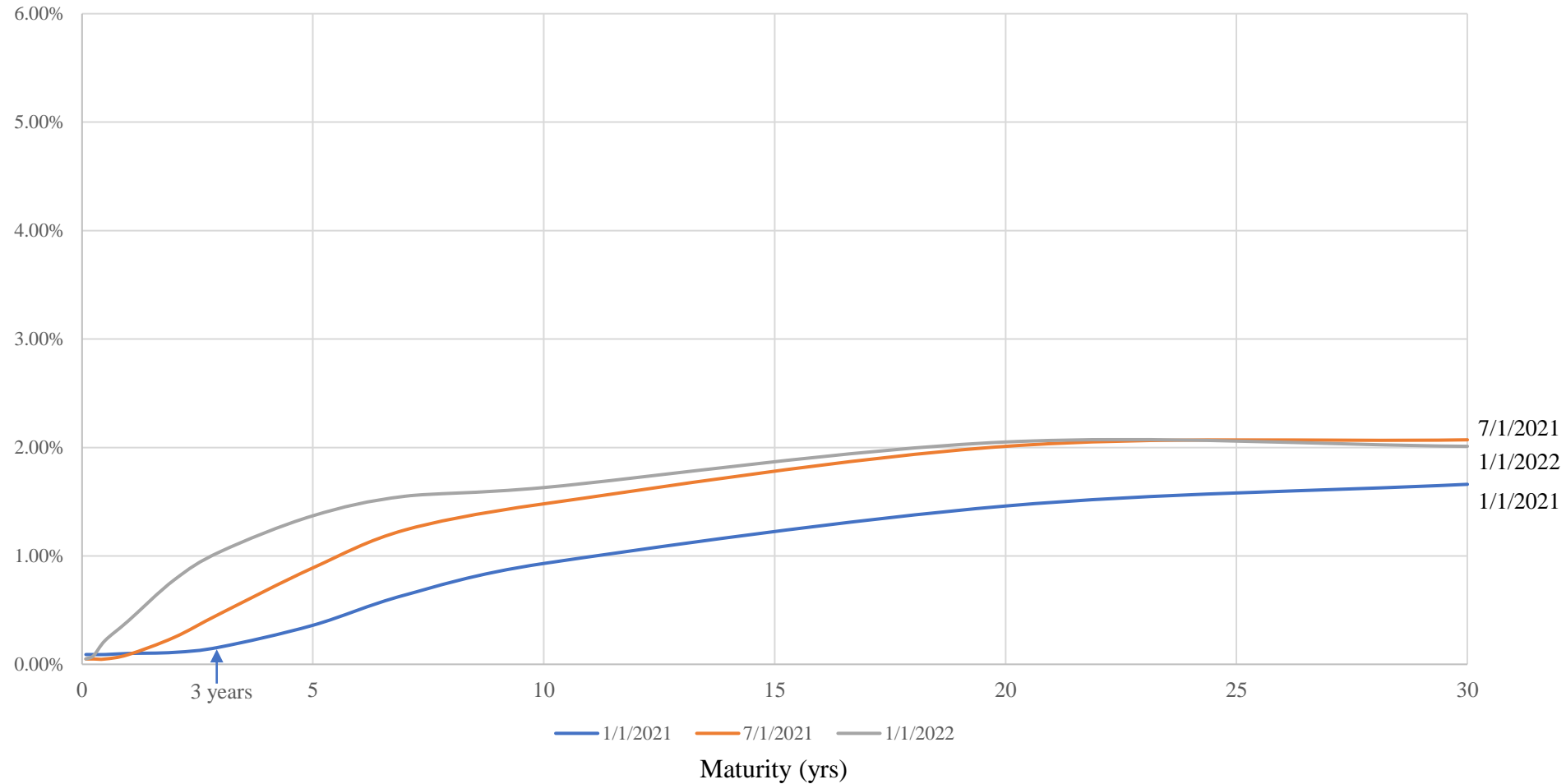
Rising, Inverted Treasury Yield Curves – 1/1/2021



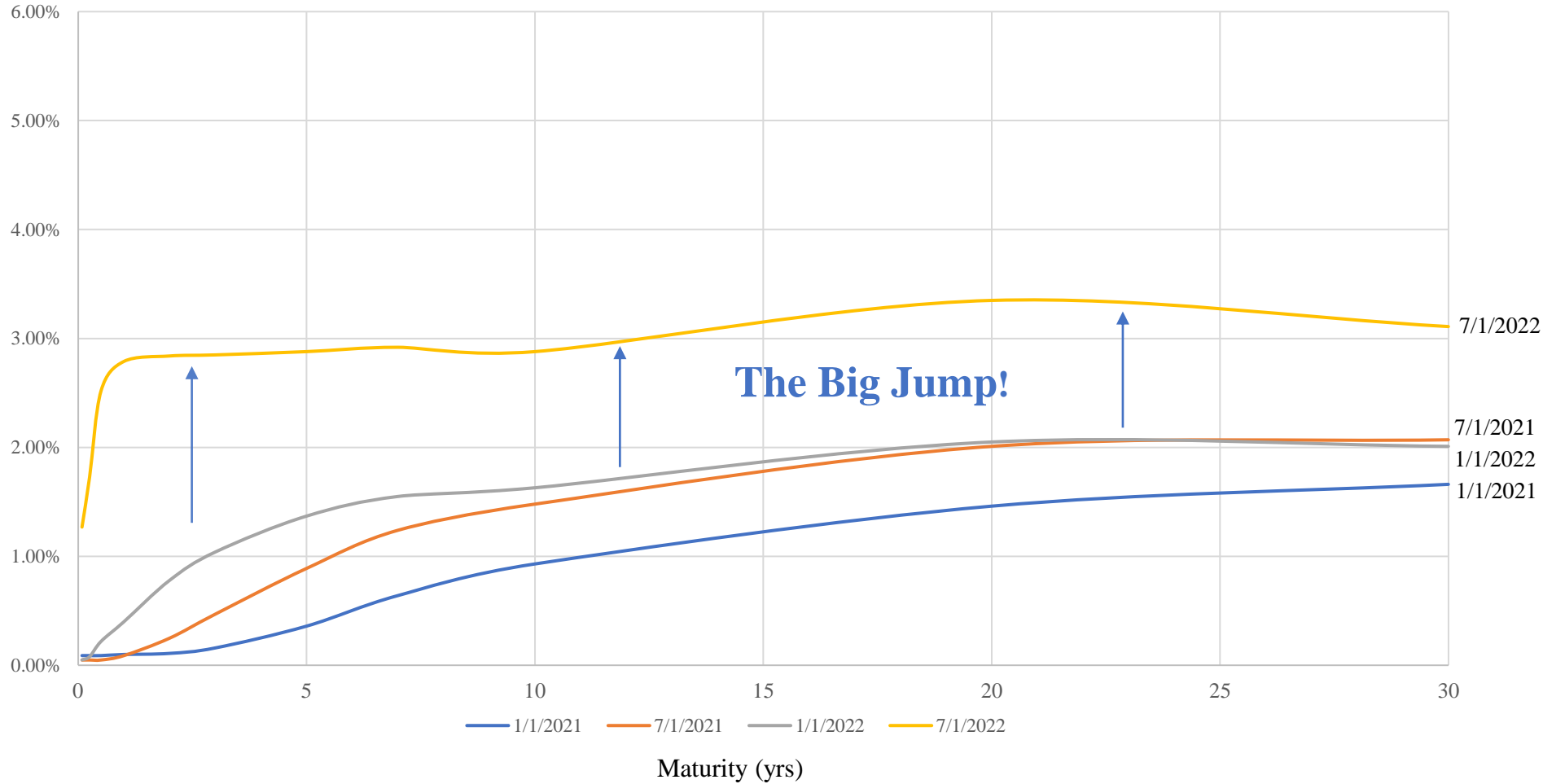
Through 7/1/2021



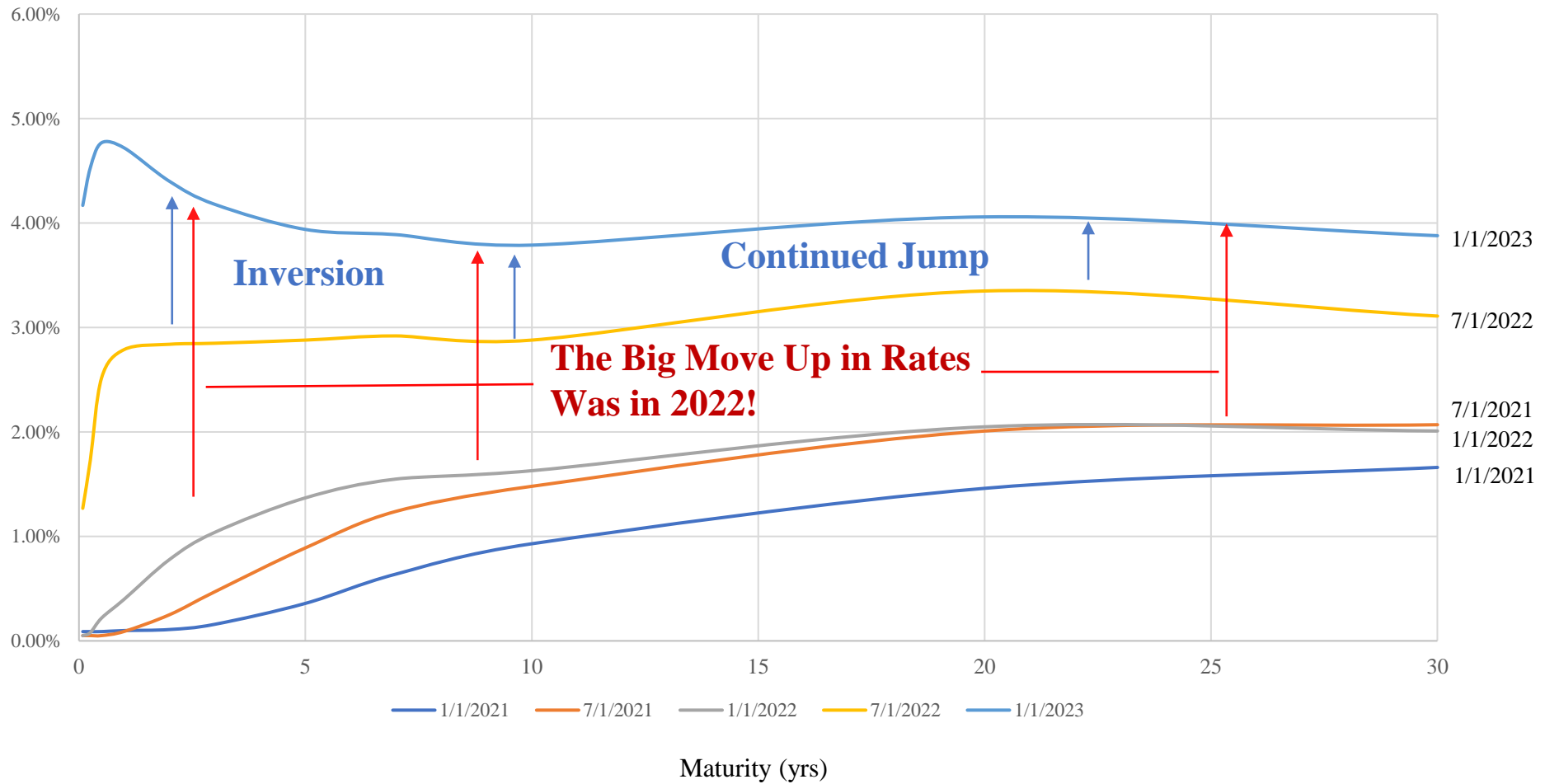
Through 1/1/2022



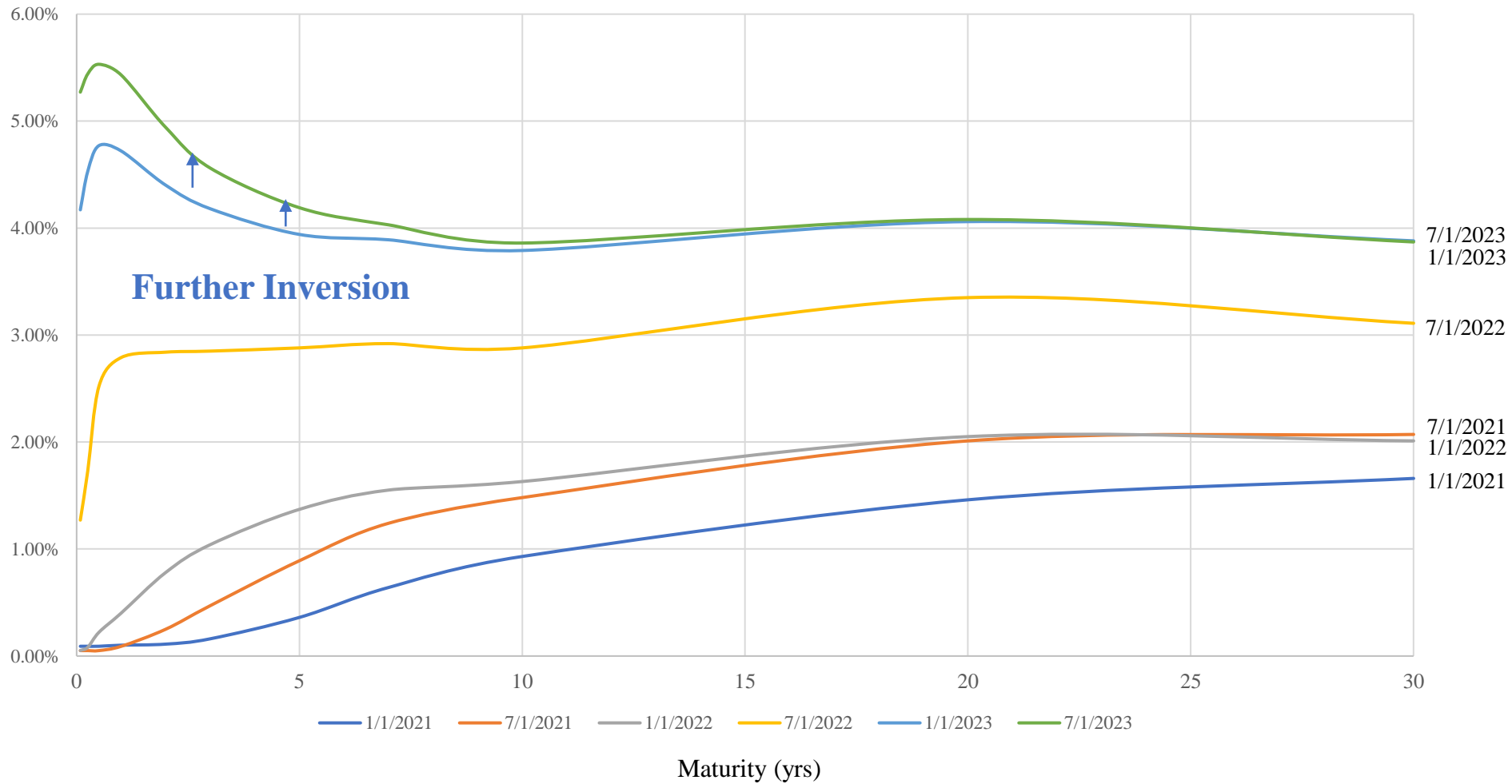
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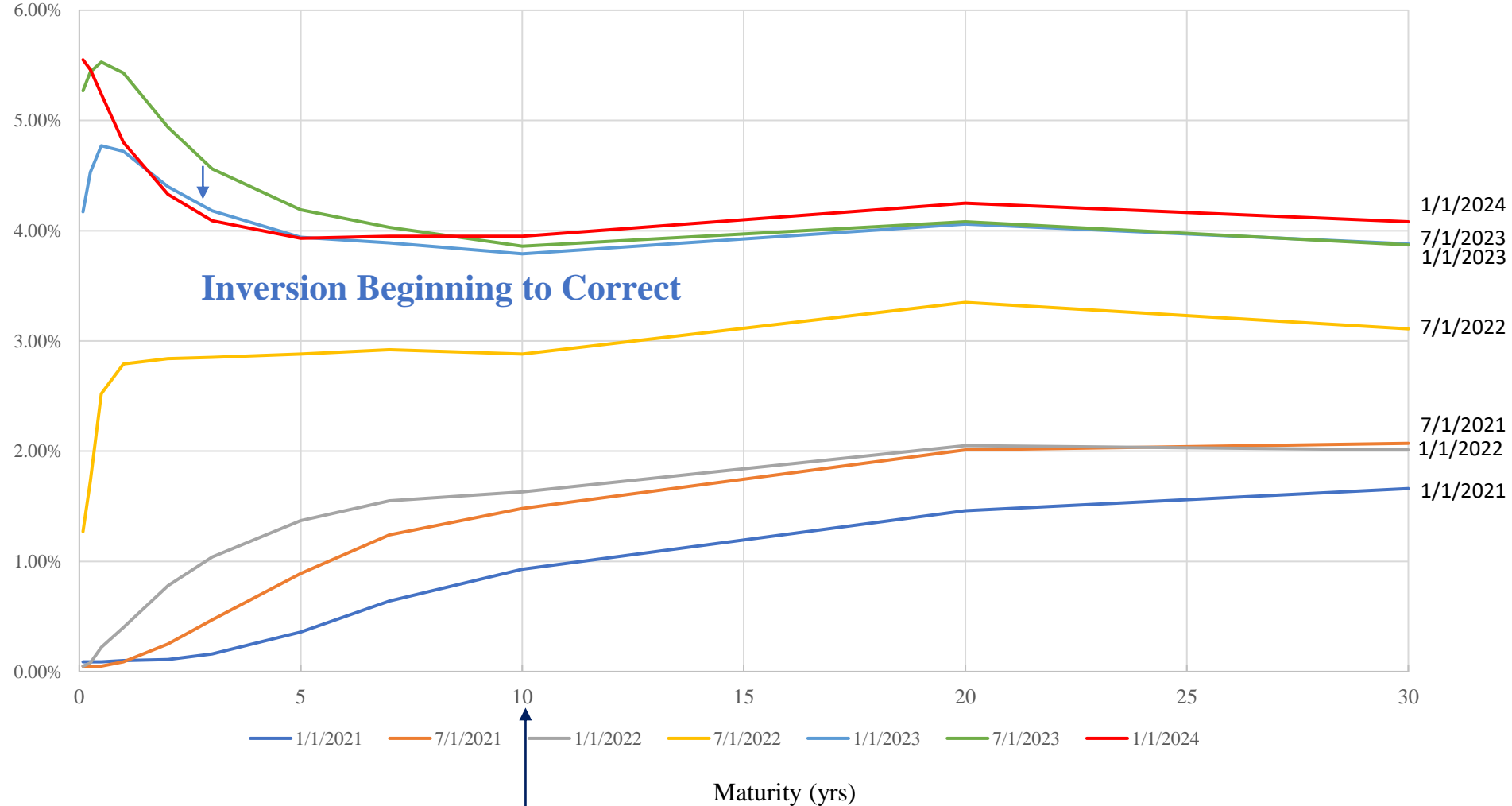
Through 1/1/2023



Through 7/1/2023

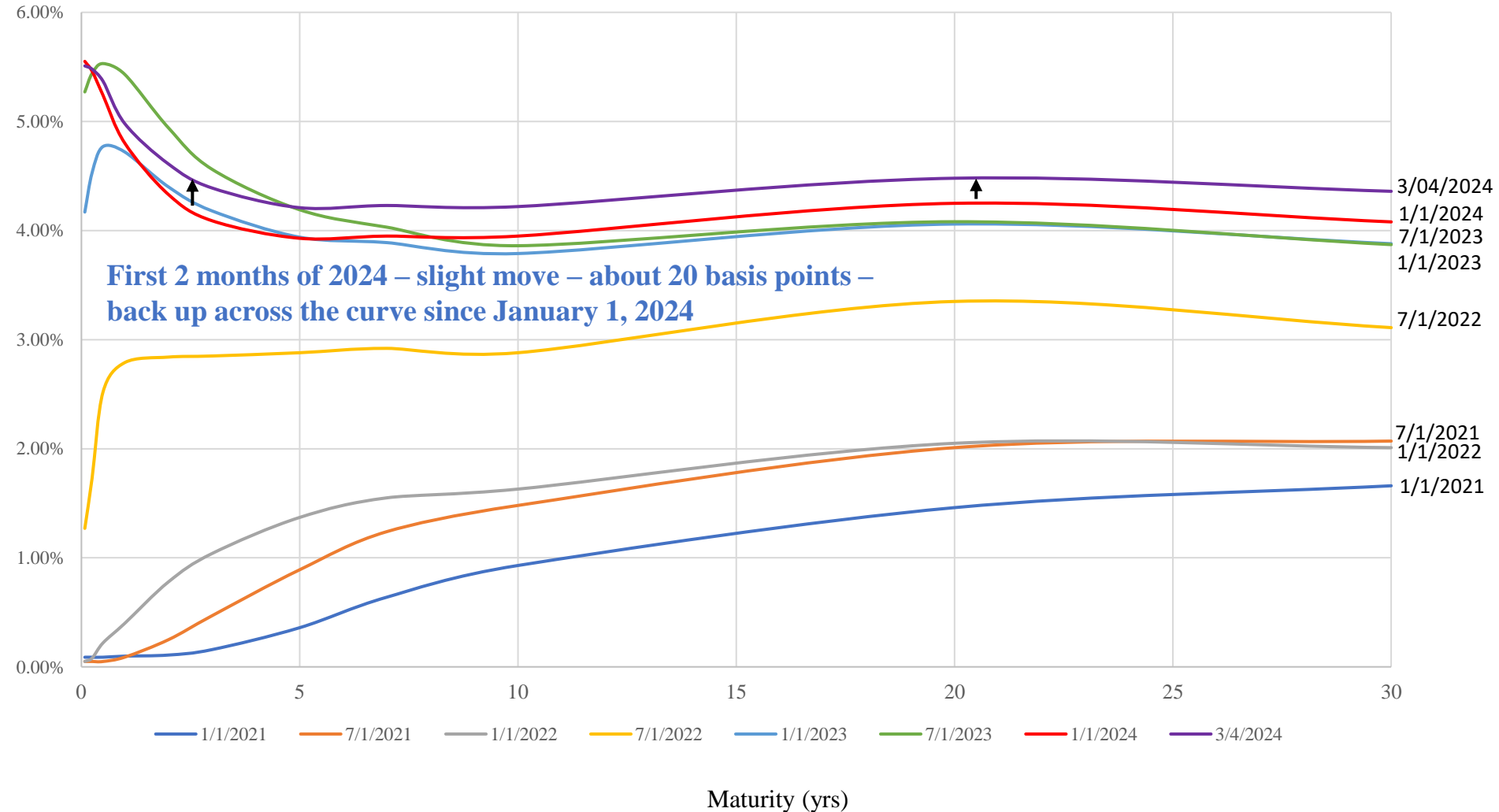


Through 1/1/2024*

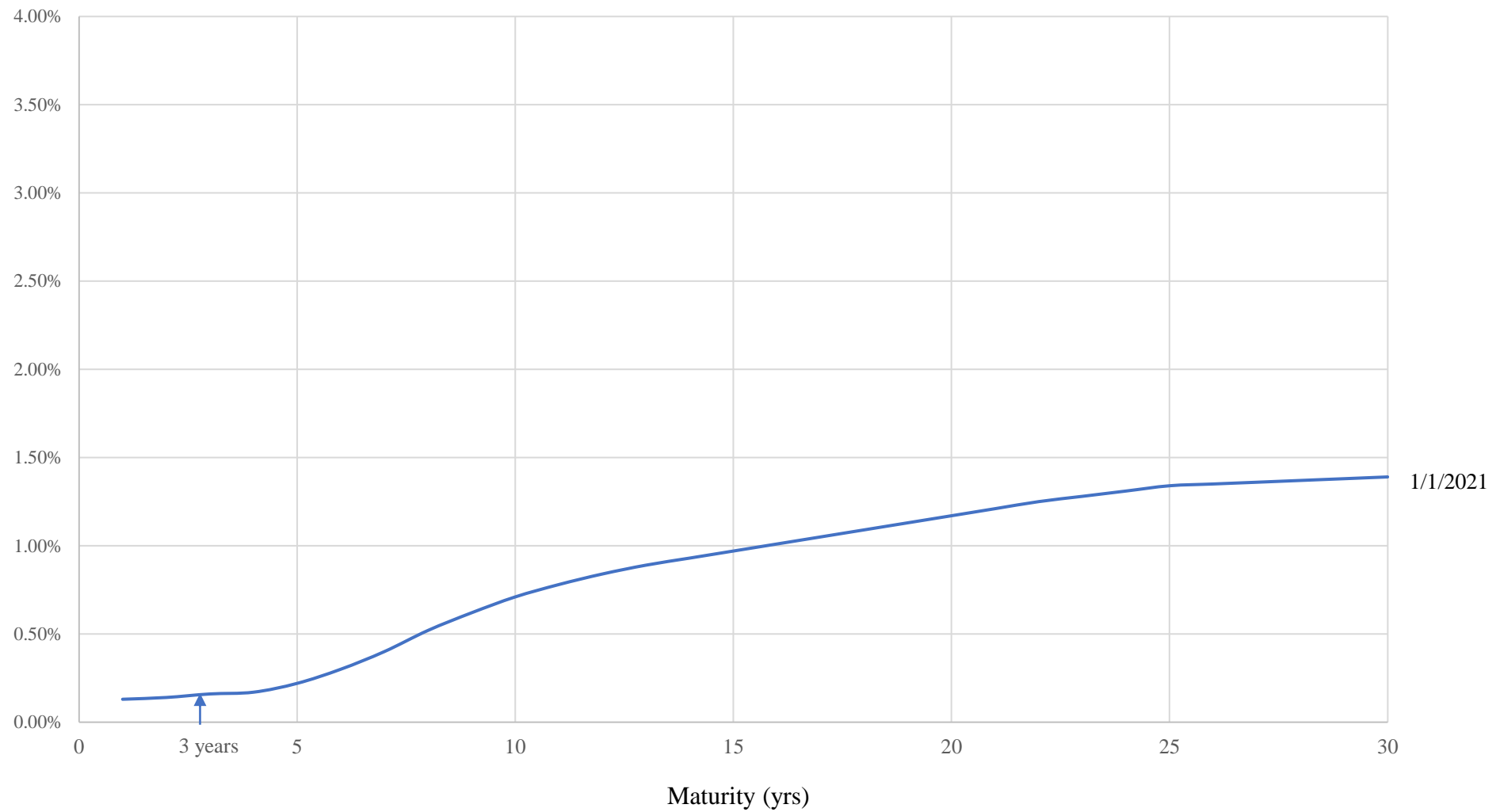


* Note that the 10-year U.S. Treasury yield hit a high of 4.98% on October 25, 2023, but fell back to around 4.0% at the end of the year.

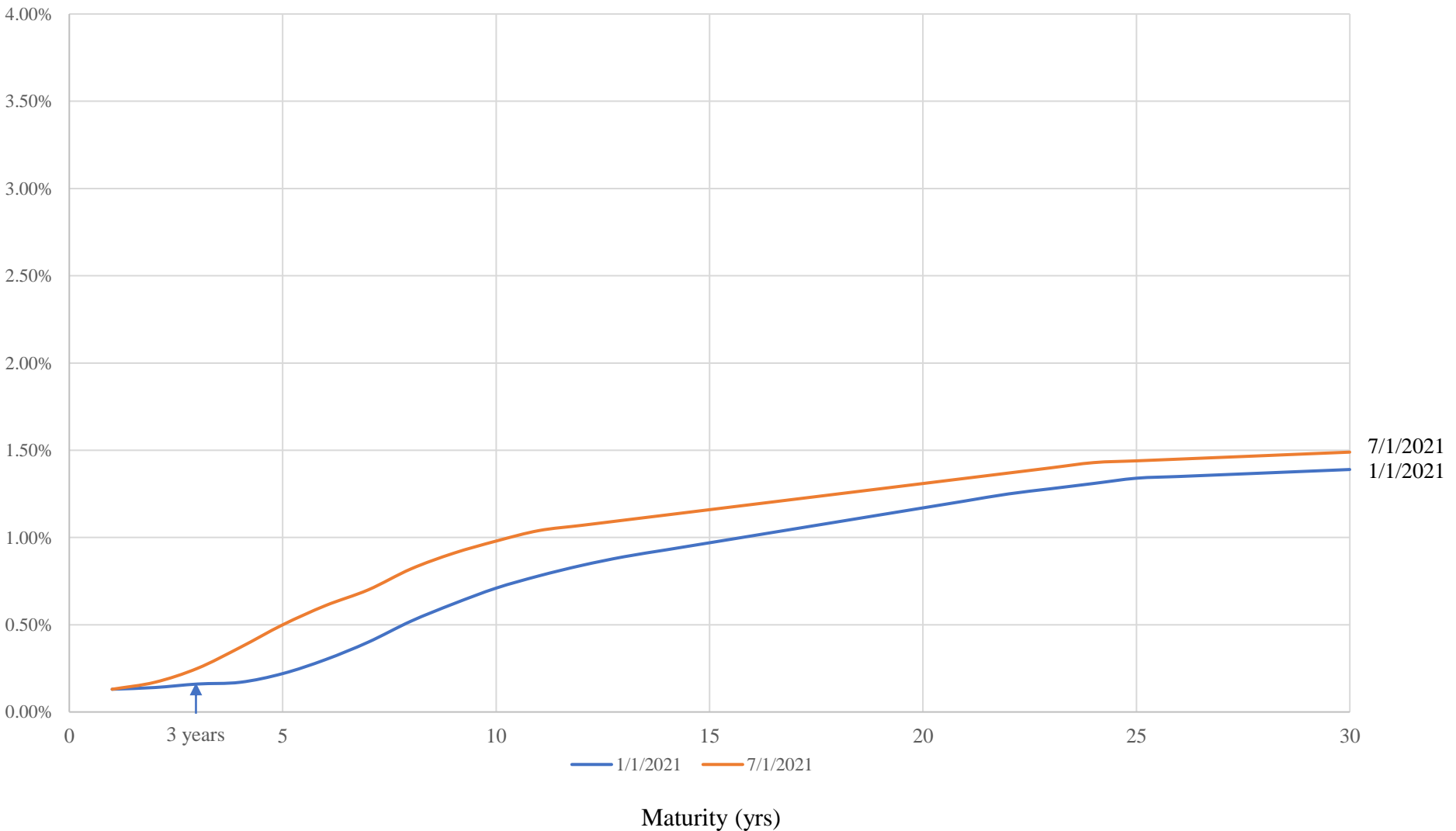
Through 3/04/2024



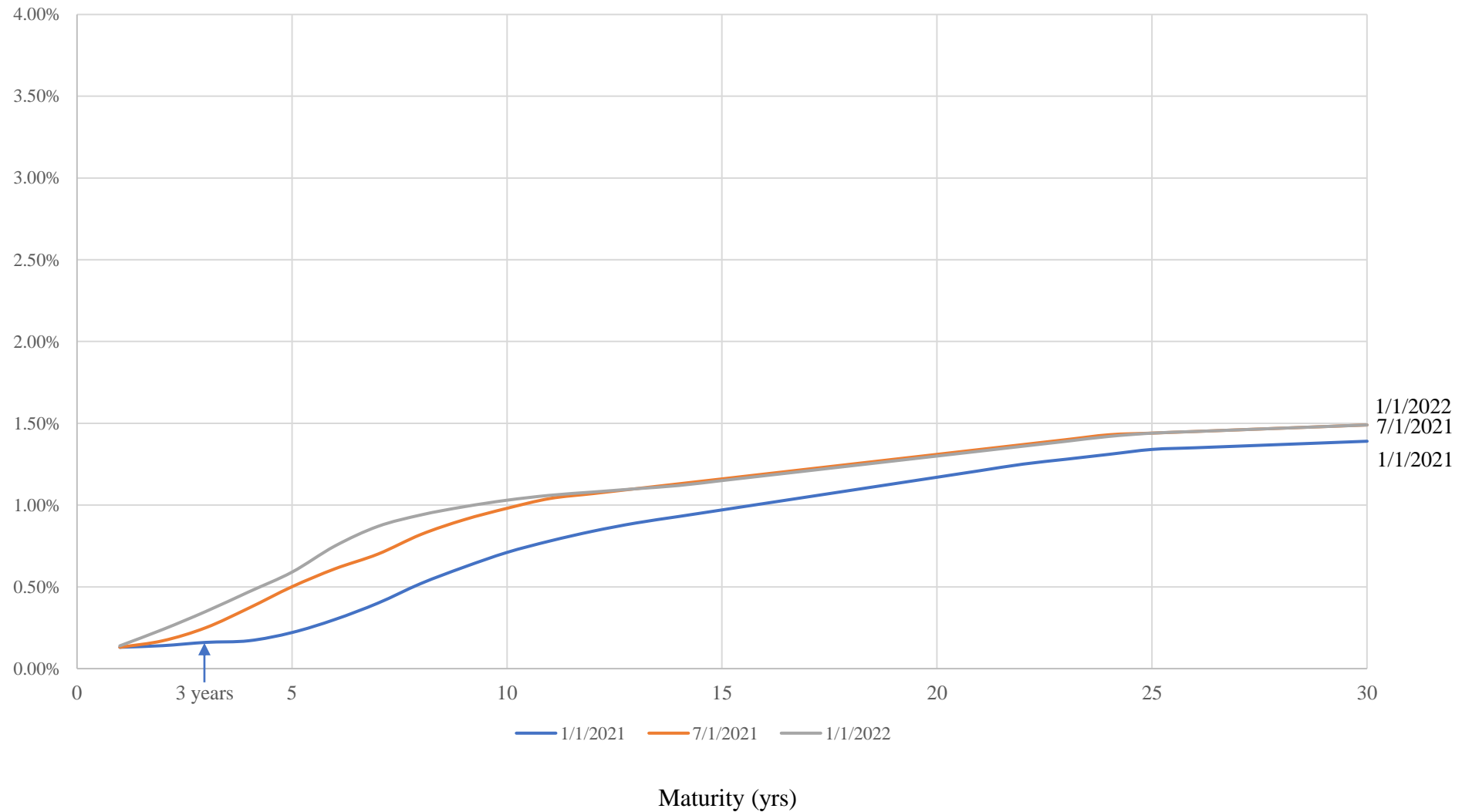
MMD Yield Curve – 1/1/2021



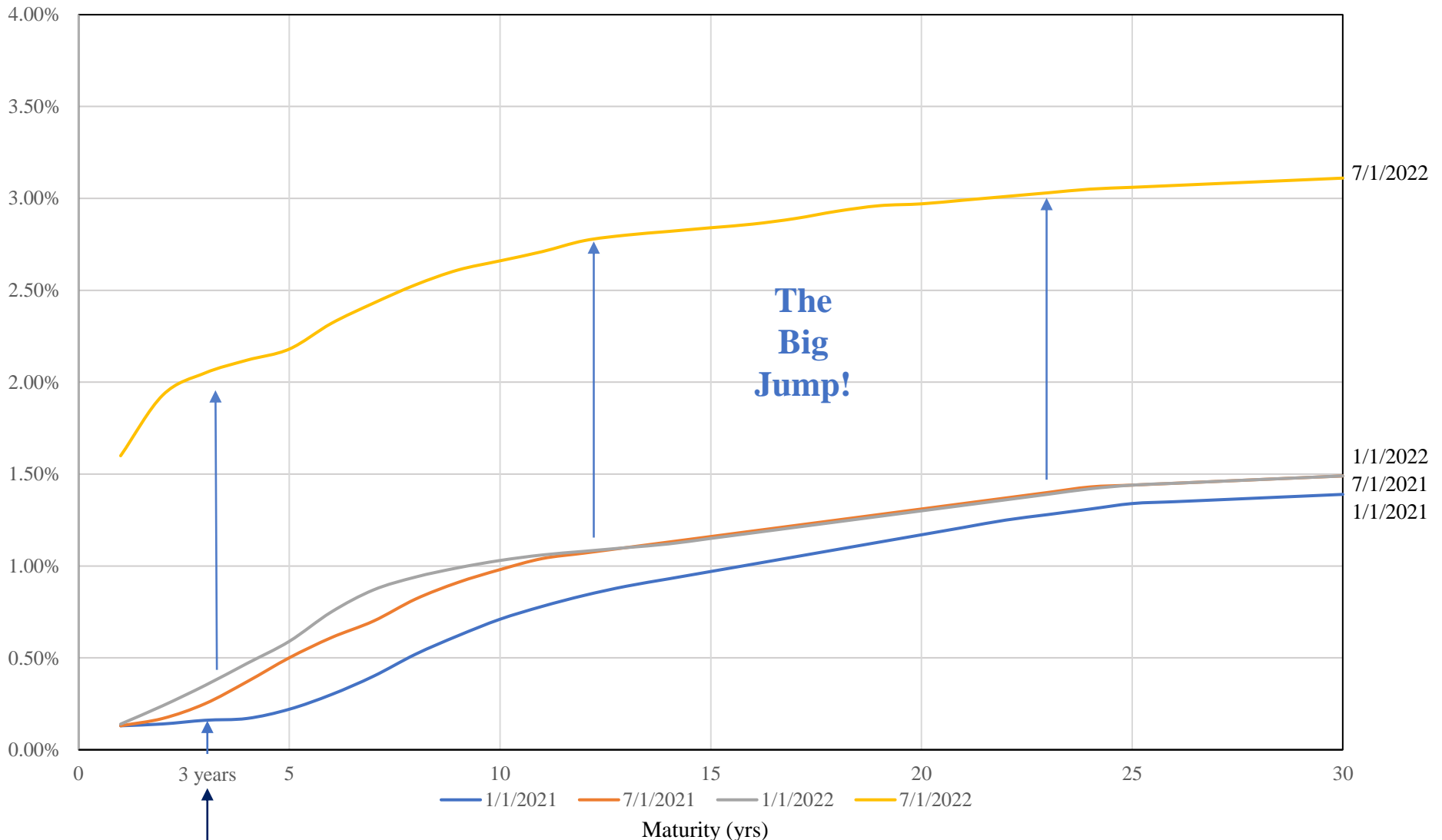
Through 7/1/2021



Through 1/1/2022

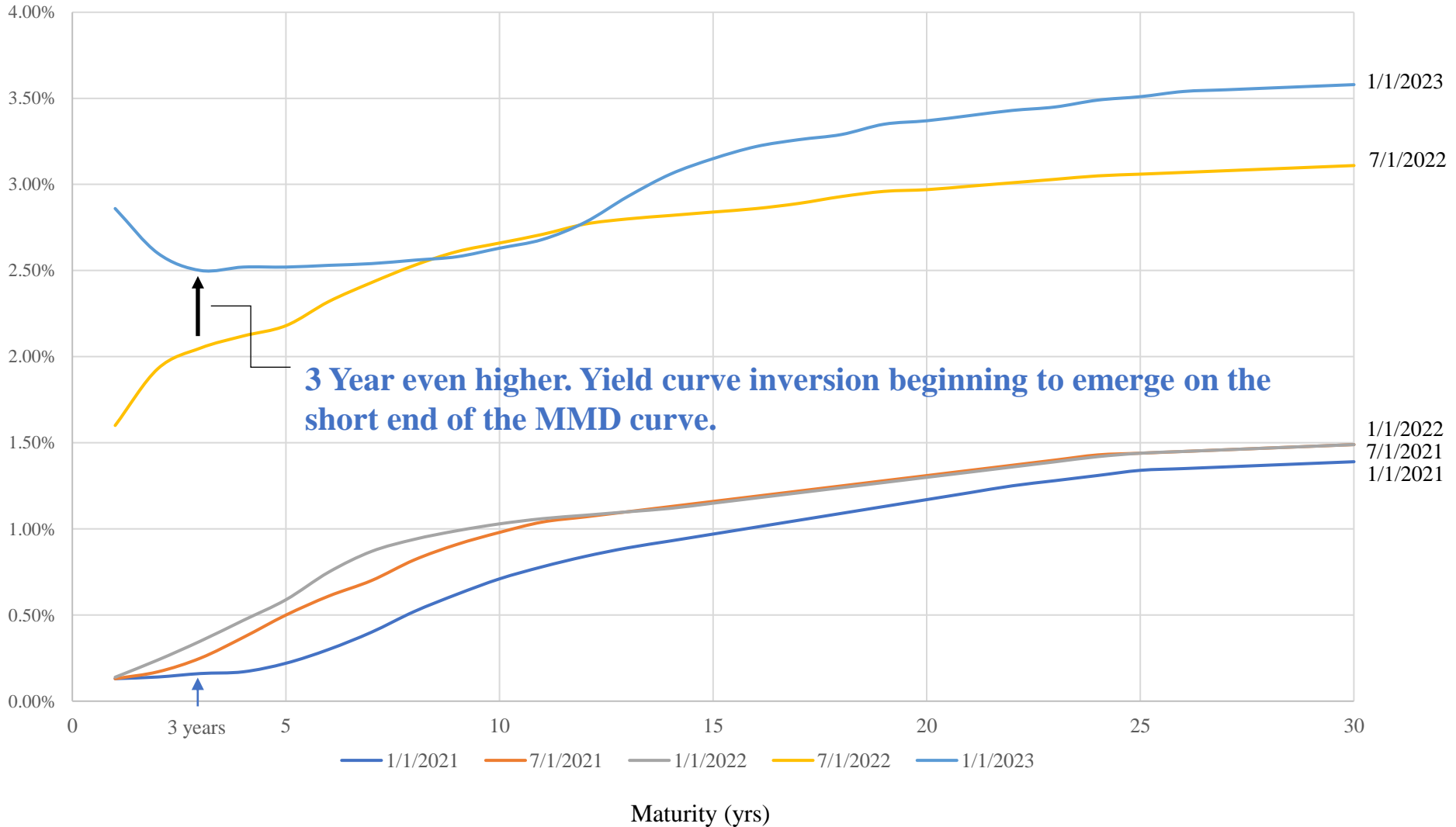


Through 7/1/2022

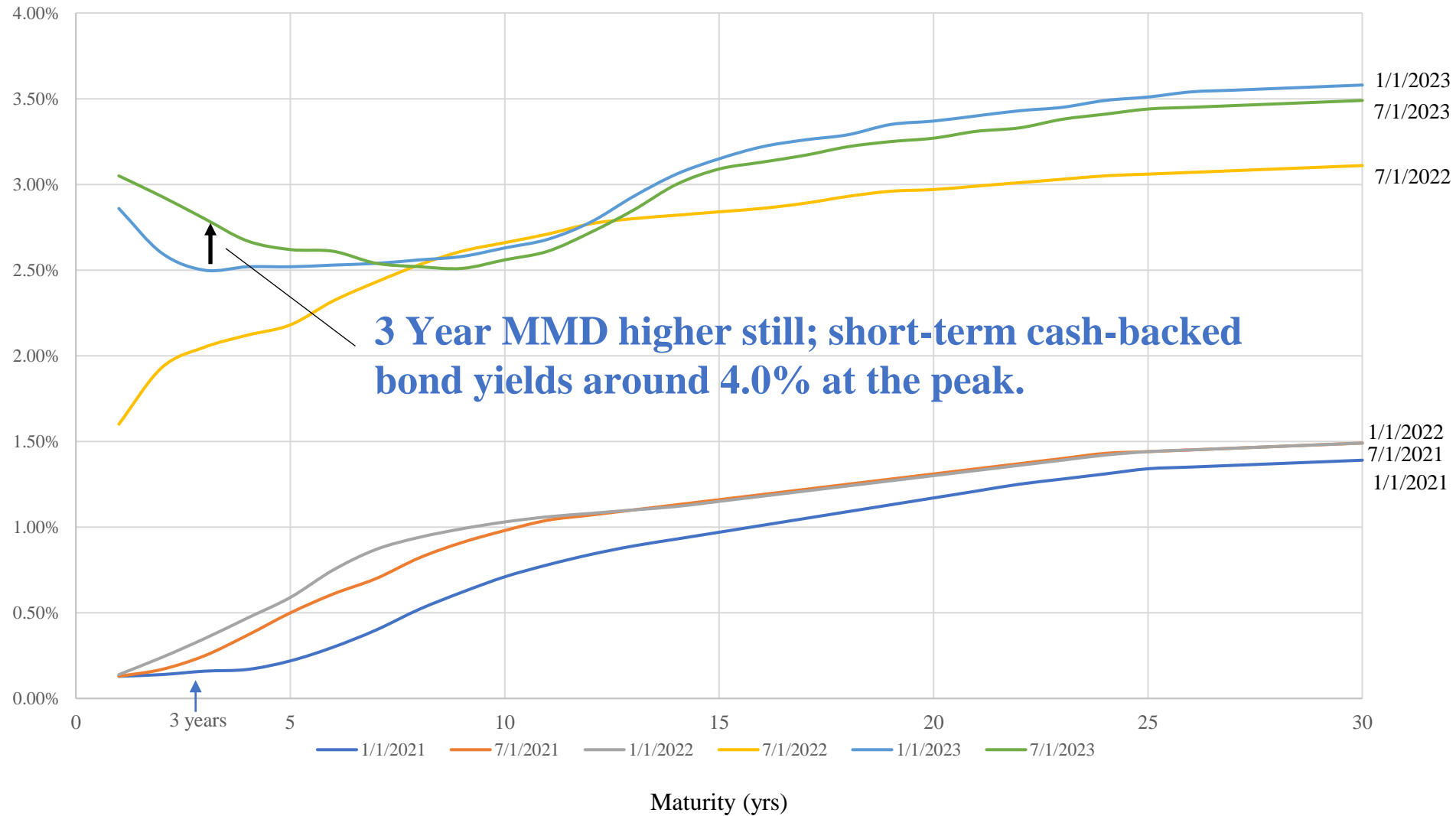


Note jump in the 3-year MMD. Short-term cash-backed bonds generally trade about 100 BPS over the corresponding MMD. So cash-backed bond yields shot from roughly 1% to about 3% in the first half of 2022.

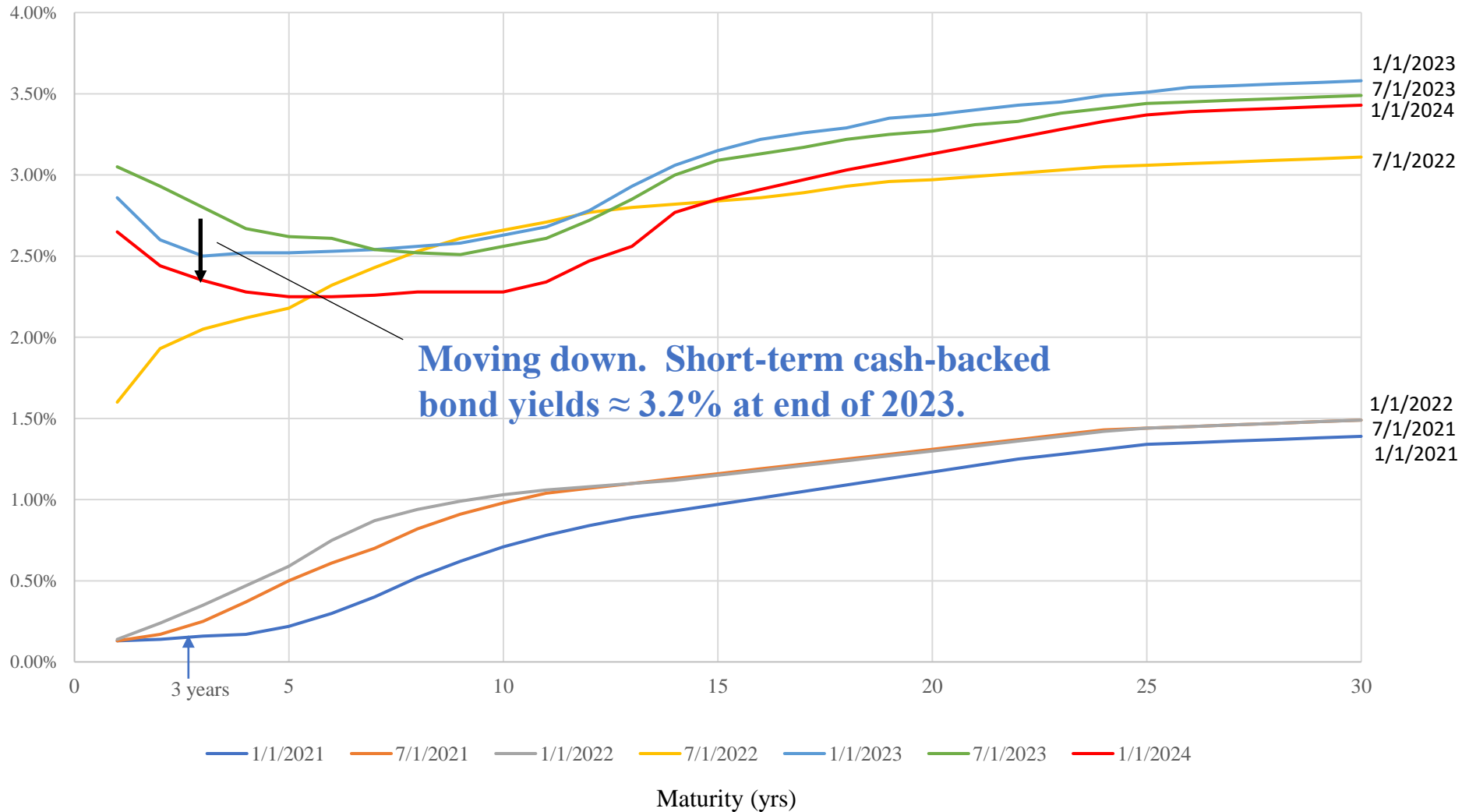
Through 1/1/2023



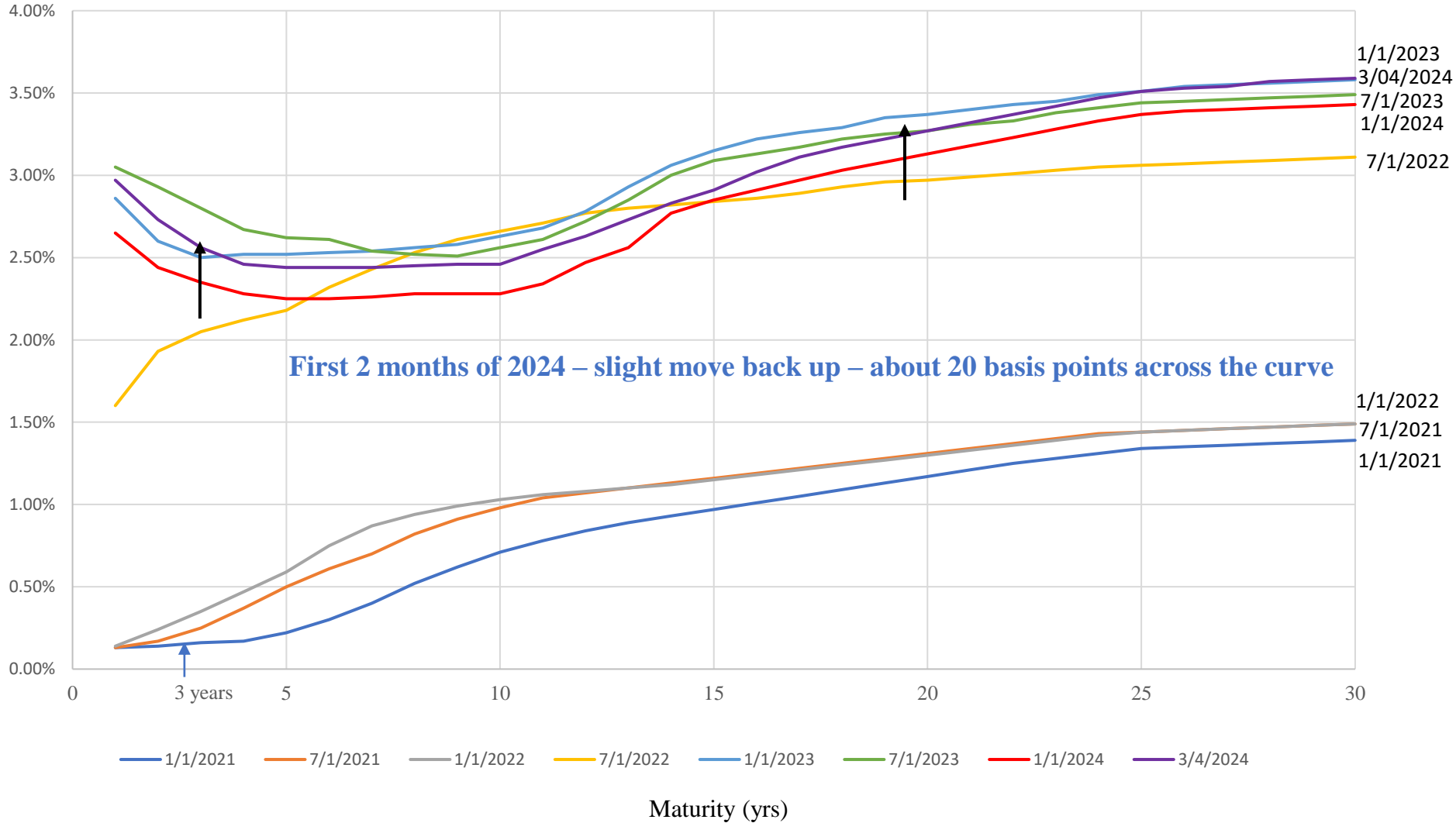
Through 7/1/2023



Through 1/1/2024



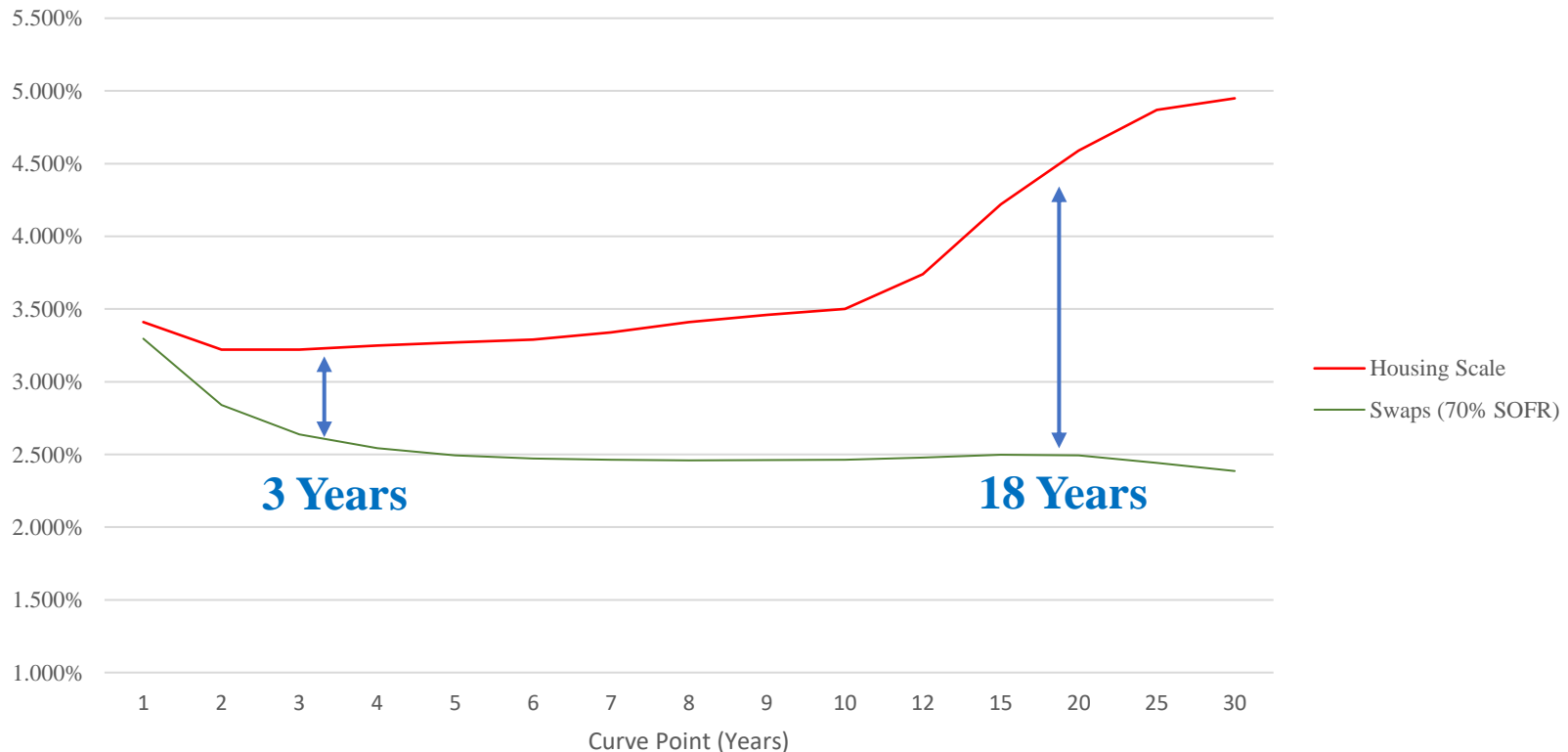
Through 3/04/2024



1. FIRST INVERTED YIELD CURVE OPPORTUNITY: USING DERIVATIVES IN PRIVATE PLACEMENTS

- In today's elevated, inverted yield curve markets, the **yield structure of the huge derivatives markets and the municipal markets differ widely**.
- **Derivative markets** tend to be reflective of rate expectations only in the huge derivatives markets (**Where do I think long-term rates will be a year or two from now?**), while **traditional lender permanent interest rates reflect lender projections of their borrowing costs** and are influenced by investor demand, term credit conditions, etc.
- In the current environment, **the swap markets can produce significantly lower permanent borrowing rates in certain situations**.

February 2024



* Chart courtesy of Kensington Capital Advisors, www.us.jll.com/en/solutions/derivative-advisory. NGO is solely responsible for the content.

A. **Buying a Cap on Pre-Conversion Floating Rate to Reduce Cap I Reserve**

- No Cap: 1-Month SOFR 5.30 + 2.00 = 7.30 + 2.00 Cushion = 9.30%.
- Cap: 5.30%, or 4.30%, or 3.30%...
- Cost of Cap \approx Projected Savings in Interest; No Major Savings in Projected Interest Costs.
- **But: Free up as much as 3-5% of loan proceeds to cover other project costs!!!**

B. **Using a Forward Starting Swap to Reduce Permanent Loan Rate**

- As noted above, swap markets currently project lower long-term rates than many permanent lenders based on projected cost of carry.
- Possible Opportunity: Especially with some regional bank lenders, **using a 17-18-year swap can save up to 50 basis points or more** on the permanent lending rate.

- The potential benefits and risks of using a long-duration swap to set the permanent rate are discussed in Appendix A.
- The biggest risk to the borrower is that if the borrower's bank or other **counterparty defaults**, the nondefaulting borrower **may owe** its defaulting counterparty **a big swap termination payment (in addition to being fully liable on the tax-exempt loan)!!!**
- **And** the borrower and its investor limited partner **no longer have a fixed rate borrowing.**
- **Borrowers considering the use of a long-duration swap to lower fixed rates should consider the factors discussed in Appendix A**, which are discussed in much greater detail in the NGO presentation referred to on Slide A-4.
- In short, **hire the right IRMA** (“Independent Registered Municipal Advisor”) **and possibly swap counsel!***

*Kensington Capital Advisors, LLC and NGO have advised borrowers on these executions.

2. SECOND INVERTED YIELD CURVE OPPORTUNITY: ADDITIONAL TAX CREDIT BASIS AND PROCEEDS FROM CASH-BACKED BONDS

- Cash-Backed Bonds, under any structure, add two streams of construction period interest: (i) that on the **fully funded Cash-Backed Bonds** and (ii) that on the **taxable draw-down bank construction loan which funds construction or substantial rehabilitation**, in each case accruing before the placed-in-service date when a certificate of occupancy is obtained or rehab is complete.
- This includes not only short-term **cash-backed bonds used with FHA Insured and Rural Development Loans** but also **Fannie Mae Forwards M.TEBs** (which are cash backed for the first 2.5-3.0 years).
- In addition, in the last 18 months, **borrowers also added short-term cash-backed bonds to the front end of “forwards” tax-exempt perm loan private placements** to take advantage of this inverted yield curve opportunity.

• Additional Tax Credit Basis and Proceeds Available with Cash-Backed Bonds:

		Mid-2023 (4.00% Bonds)	Today (3.40% Bonds) (Down 15%)
Extra Cons Period Interest:	2.5 Yrs X Bond Coupon	10.00% of Bonds	8.50% of Bonds
If Project in QCT or DDA:	Multiply by X 1.3	+ 3.00%	+ 2.40%
If state tax credits available, add another:		+ 2.00-4.00%	+ 1.50-3.00%
Total Gross Additional Tax Credit Basis		15.00-17.00% of Bonds, or 7.50-8.50% of TDC*	12.50-14.00% of Bonds, or 6.25-7.00% of TDC*
Additional Syndication Proceeds to Borrower: 45%** X Additional LIHTC Basis		3.40-3.80% of TDC	2.80-3.15% of TDC
Less: COI on Cash Backed Bonds (if added to tax-exempt perm loan private placement), Additional Interest from Taxable Construction Loan, and Payment of federal income tax on escrow earnings under Section 266 election***		1.00% of TDC	1.00% of TDC
Total Potential Benefit to Borrower		Roughly 2.40-2.80% of TDC	Roughly 1.80-2.15% of TDC (Down About 25%)

* If Bonds slightly > 50% of TDC.

** Assumes the Tax Credits sell for up front proceeds equal to 45% of the additional eligible basis.

*** The cost of issuance of the Cash Backed Bonds (which is an additional cost when added to a private placement) may run about 1.0% of the bond amount or 0.5% of TDC. In addition, in that case there may be some incremental costs of the construction loan interest being taxable rather than tax-exempt, but a bank acquiring the 4% LIHTC (if that's the fact pattern) would be a related person, and thus construction loan interest would be taxable to it in any event. Finally, in today's market, in almost any cash-backed bond execution taking advantage of this opportunity, most borrowers will elect to capitalize interest under Section 266 of the Code to support including it in basis and will allocate to one or more constituent entities in the borrower responsibility to pay federal income tax on the interest earnings in the escrow. This will often be allocated to the tax credit investors, who are generally 21% federal income tax payers. Some, but not all, tax credit investors, especially if different from the taxable draw-down construction period lender, may reduce tax credit equity pricing by 1 to 3 cents (a cost equal to about 0.5% of TDC) to offset this. On the other hand, if a bank is both the draw-down construction lender and the tax credit investor, the benefit of serving in both of these roles may largely offset or more than offset this potentially negative factor.

- **Additional Potential Benefit Where Cash-Backed Bonds Are Combined with Tax-Exempt Permanent Loans – Retaining Positive Arbitrage*:**

	Mid-2023	Today
Positive Arbitrage:	2.5 Yrs X (4.50% - 4.00%) = 1.25% of Bonds = 0.65% of TDC**	2.5 Yrs X (4.50% - 3.40%) = 2.75% of Bonds = 1.375% of TDC**
Cash Benefit to Borrower from Additional Basis	2.40-2.80% of TDC	1.80-2.15% of TDC
Potential Retained Positive Arbitrage	0.65% of TDC	1.375% of TDC
Total Potential Benefits to Borrower	Roughly 3.05-3.45% of TDC*	Roughly 3.18-3.50% of TDC* (About the same as mid-2023***)

- **Net proceeds from additional basis from cash-backed bonds are likely to decline as short-term rates fall**, which we believe is likely over the next year. Developers should plan in advance.
- **Optimal structuring** involves at least five major elements and is **much more complex than most developers think**. Careful, forward-looking analysis and planning can avoid disappointing results and save \$100,000’s in these financings.

* Most, but not all bond counsel, will accept a “blended yield” approach which may allow positive arbitrage over the short-term cash-backed bonds to be retained to offset project costs. It is important to confer with bond counsel in advance on this issue.

** If bonds slightly > 50% of TDC.

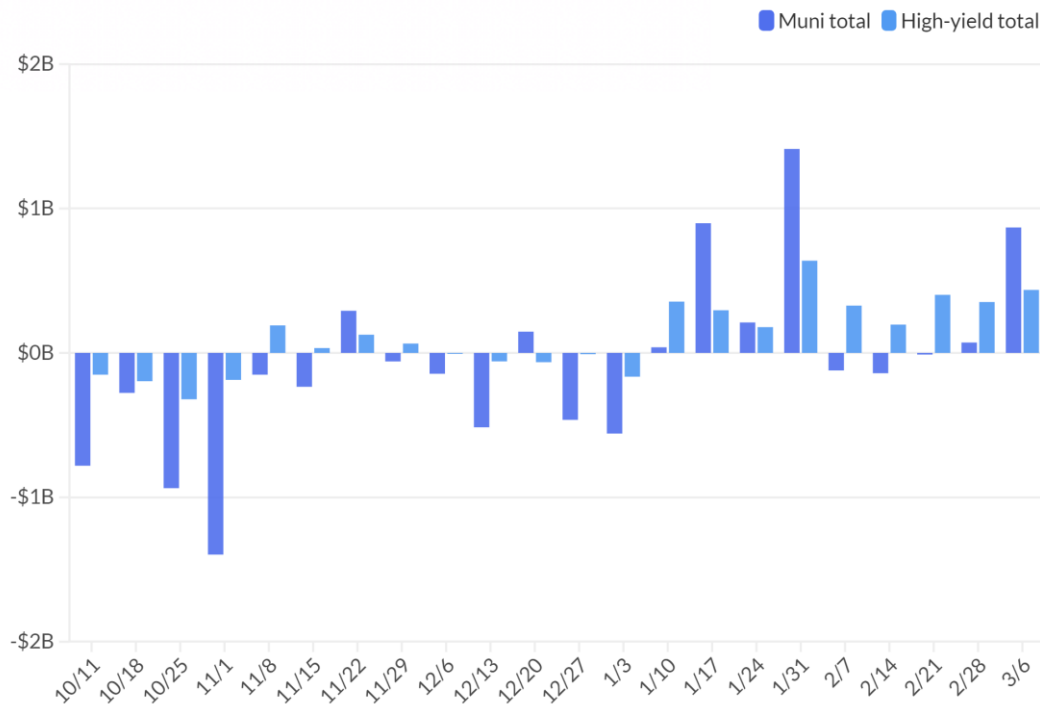
*** **Positive arbitrage** on short-term cash-backed bond financings is **very volatile**. The **primary reason for adding short-term cash-backed bonds to tax-exempt permanent loan private placements is the substantial increase in tax credit basis and proceeds described in the preceding slide.**

WHERE ARE WE NOW? WHAT TO EXPECT IN 2024?

TAX-EXEMPT PUBLIC MARKETS ARE STRENGTHENING

- BlackRock says Americans are sitting on \$17 trillion of cash equivalents (*e.g.*, money market funds at 4-5% yields).
- As yields go down, BlackRock expects an improved appetite for longer term bonds.
- Late fall to January, 2024: For the first time in two years, bond fund outflows for most of 2022-2023 appear to be moving to small, fairly consistent inflows. 😊

LSEG Lipper reports inflows for muni mutual funds



Source: LSEG Lipper; *The Bond Buyer* 3/7/2024

* Tax-exempt bond funds are about 25-30% of the \$400 billion annual municipal market.

TWO TIMELY TAX-EXEMPT PUBLICLY OFFERED DEBT PRODUCTS

Improving public markets have created two opportunities:

1. A+ RATED HOUSING AUTHORITY BACKED BONDS

- A number of housing authorities own multiple projects and have strong balance sheets and **investment grade (A or higher) ratings.**
- **If such an authority agrees to fund debt service shortfalls,** we can obtain its investment grade rating (*e.g.*, A+ or higher) **on tax exempt bonds** issued to acquire existing housing projects or build new ones.
- A **developer** can perform various functions in these financings and be paid competitive fees.
- Typical deal structure:
 - Issue A+ rated publicly offered bonds.
 - Recent **maturities: 10-year** – This is the sweet spot in the tax exempt yield curve and these authorities can handle refinancing risk.
 - **Yields** on 2 ≈ \$100 million financings in December 2023: **4.30 – 4.35%; now close to 4.10%.**
 - We are **now seeing these executions in multiple markets.**

2. FANNIE MAE FORWARD M.TEBS SHOWING NEW STRENGTH

- Some Recent Executions:

10-Year Treasury Yield	4.20%
“Spread” to the 10-Year	0.50*
	<hr/>
	4.70%
Guaranty/Servicing Fees	0.80**
	<hr/>
	5.50%

- Negative arbitrage during construction period very low (50-80 basis points).
- Eligible for an even greater Additional Basis Boost as discussed above if appropriate steps are taken.

* In several recent transactions, due to a resurgence of interest by traditional municipal bond purchasers, as noted above, the spread to the 10-year Treasury was even lower by simply restructuring interest payments from monthly to semi-annual.

** May be lower if green financing and other Fannie Mae programs used.

WHERE ARE RATES HEADED???

THREE DIFFERENT 10-YEAR TREASURY RATE FORECASTS

2/22/24

1. Wade's (and His Uber Driver's 😊) "Scientific" 10-Year U.S. Treasury Yield Forecast

	3 Month	6 Month	1 Year	10 Year	30 Year	3 Mo - 10 Yr	3 Mo - 30 Yr	1 Yr - 30 Yr
1/1/1980	12.00	11.37	12.00	11.43	11.27	-0.57	-0.73	-0.73
1/1/1985	7.72	8.06	8.42	10.62	10.79	2.90	3.06	2.37
1/1/1990	7.75	7.85	7.89	8.55	8.61	0.81	0.86	0.72
1/1/1995	5.66	5.82	5.94	6.57	6.88	0.91	1.22	0.94
1/1/2000	6.00	6.17	6.11	6.03	5.94	0.03	-0.06	-0.17
1/1/2005	3.22	3.50	3.62	4.29	4.56	1.07	1.34	0.94
1/1/2010	0.14	0.20	0.32	3.22	4.25	3.08	4.11	3.93
1/1/2015	0.05	0.17	0.32	2.14	2.84	2.09	2.79	2.52
1/1/2020	0.36	0.37	0.37	0.89	1.56	0.53	1.20	1.19
1/29/2024	5.42	5.19	4.76	4.08	4.31	-1.34	-1.11	-0.45
Average	1.84	4.87	4.98	5.78	6.10	0.95	1.27	1.13
Average - Pos Slope Yrs*	0.94	1.06	1.16	2.63	3.30	1.69	2.36	2.14

Average yield curve slope: 3-Mo to 10-Yr UST

1.69%

Guess at Market View of CPI**

+2.50%

Wade's Forecast 10-Year Treasury Yield 4.29%

* Ignores dates when yield curve was inverted.

** Plus or minus 500 Basis Points. 😊

2. A More Informed Forecast? Recent Report – Highly Regarded Investment Research Firm:

- It is hard to time the first Fed rate cut.
- But when the Fed starts cutting rates, the cuts will likely be faster than expected.
- This group expects inflation to be 2% by mid-year.
- They observe, in five rate cuts since 1974, when the Fed has begun to cut rates, it has always cut nominal rates faster than the decline in the inflation rate, leading to a significant and rapid drop in short-term rates.
- **This group expects a 3.6% yield on the 10-year Treasury** at year end. 😊

3. Chris Thornberg – Beacon Economics – Another Highly Regarded Economic Research Firm:

- Speaking at a Los Angeles conference on February 15.
- Expects 5.2% yield on 10-year Treasury at year end.

- ANSWER: NO ONE KNOWS ON LONG-TERM RATES! 😊

But short-term rates ARE likely to drop, perhaps quickly; more a matter of when.

- Overall: An encouraging backdrop for 2024. Perhaps at least a reduction in interest rate headwinds.



R. WADE NORRIS, ESQ.

wnorris@ngomunis.com
(202) 973-0110 (O)
(202) 744-1888 (C)

RYAN GEORGE, ESQ.

rgeorge@ngomunis.com
(502) 614-6853 (O)
(703) 867-1109 (C)

ETHAN OSTROW, ESQ.

eostrow@ngomunis.com
(202) 973-0111 (O)
(617) 821-5958 (C)

CATHERINE WOLTERING, ESQ.

cwoltering@ngomunis.com
(740) 504-7723 (C)

KIM GRIFFITH, ESQ.

kgriffith@ngomunis.com
(571) 243-9404 (C)

TOM DOWNEY, ESQ.

tdowney@ngomunis.com
(415) 260-4674 (C)

REGGIE NORRIS, ESQ.

rnorris@ngomunis.com
(202) 441-3996 (O)

MATT HOOD, ESQ.

mhood@ngomunis.com
(407) 456-4952 (C)

CASSANDRA PEREDA, ESQ.

cpereda@ngomunis.com
(850) 557-1384 (C)

MS. RAQUEL JONES

rjones@ngomunis.com
(202) 973-0120 (O)

MR. BRIAN JOHNSON

bjohnson@ngomunis.com
(614) 352-9337 (C)

MS. ISABELLE YOURICK

iyourick@ngomunis.com
(443) 878-5985 (C)

MS. ROSAURA FOX

rfox@ngomunis.com
(973) 714-8632 (C)

MS. GRACE BURT

gburt@ngomunis.com
(704) 458-9839 (C)

MR. QUINDLAN BERO

qbero@ngomunis.com
(443) 966-2984 (C)

MR. EVAN HERKINS

eherkins@ngomunis.com
(804) 572-9706 (C)

NORRIS GEORGE & OSTROW PLLC

1627 Eye Street, N.W., Suite 1220
Washington, D.C. 20006
www.ngomunis.com

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REWARDS AND RISKS OF LONG-TERM SWAPS

- As noted in the text, in limited situations, **especially with some regional bank lenders, the lender and the borrower may be able to reduce the perm rates by using a 17- or 18-year swap to set the perm rate** rather than setting a traditional perm rate based on the lender's projected borrowing costs. This Appendix attempts, in a good humored but serious way, to highlight the principal advantage but also the risks.
- Under this arrangement, the rate on the bonds or loan is a variable rate (*e.g.*, 80% of one-month SOFR) and the lender and the borrower enter into a separate swap in a “notional amount” equal to the principal amount of the tax exempt bonds or loan. Under the swap, which is usually separate from the bonds or loan, (i) the lender agrees to pay to the borrower the variable rate applicable to the bonds or loan on the notional amount of the swap and (ii) the borrower agrees to pay to the lender an agreed upon fixed rate.
- The net result is the borrower is paying a fixed rate (eg, 5.50%) on an amount equal (or approximately equal) to the amount of the tax exempt bonds or loan.
- **In limited situations, especially with some regional bank lenders, use of swaps can produce substantial savings in the perm rate as shown in the following chart.**

TERM STRUCTURE IN PRACTICE – 4 SAMPLE TAX-EXEMPT MULTIFAMILY PRIVATE PLACEMENTS IN 2023

	Case 1 – Perm Rate Swapped to Fixed	Case 2 – Perm Rate Swapped to Fixed	Case 3 – Traditional Perm Rate	Case 4 – Traditional Perm Rate
Principal Amt (Perm Loan):	\$40.0 Million	\$4.5 Million	\$17.5 Million	\$8.6 Million
Date of Rate Lock:	Q2 2023	Q3 2023	Q2 2023	Q2 2023
Perm Interest Rate:	4.77%	5.05%	4.875%	5.125%
10-Year UST Rate	<u>4.25%</u>	<u>4.32%</u>	<u>3.37%</u>	<u>3.79%</u>
Spread to 10-Year:	52 BPS	73 BPS	150 BPS	134 BPS
Weighted Avg Spread:	55 BPS		145 BPS	
Difference:	90 BPS			

- **This is a very small sample and should not be generalized** over all markets and financings. Underlying differences in projects, markets, debt structures, amortization schedules, construction period duration and other factors can play a major role in establishing permanent rates. **In most cases, the expected perm rate differential will be somewhat lower.**

BUT: WHERE THERE ARE OPPORTUNITIES, OFTEN THERE ARE RISKS!

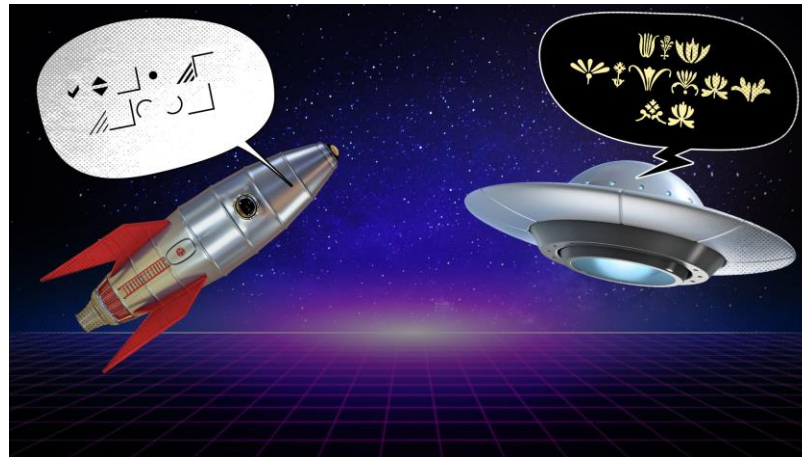
- Many borrowers, both governmental and profit motivated conduit borrowers, used swaps in 2004-2007 to lower borrowing rates and in the case of multifamily housing developers, to increase cash flow. **Many of these borrowers had no idea how swaps worked** and were shocked and **suffered major losses when these swaps unwound in late 2008** following the failure of formerly AAA/Aaa rated counterparties like Lehman Brothers, **even though the borrowers had performed on all of their obligations on their side of the deal.**
- Here's what one savvy investor had to say about derivatives **as early as 2002:**



“In my view, derivatives are financial weapons of mass destruction carrying dangers that, while latent, are potentially lethal.”

RISKS OF LONG DURATION (e.g., 17-18-YEAR) SWAPS*

- To put it bluntly, today, as before, **no borrowers really understand how these things work!**
- **ISDA swap documents** are written in a language from another solar system; **unintelligible to almost all humans.**



- **If you are not saving at least 20-40 basis points** over a traditional non synthetic perm rate, if available, we believe you **should be pursuing a traditional perm rate.**

* A very detailed discussion of the opportunities and risks associated with the use of derivatives and cash-backed bonds can be found in the February 1, 2024 NGO presentation “**Three Products of the Heightened, Inverted Yield Curve – Derivatives are Back!!! (Temporarily), Increased Financing Proceeds through Cash-Backed Bonds and Reduced PAB Oversubscription,**” which is available on NGO’s website: www.ngomunis.com.

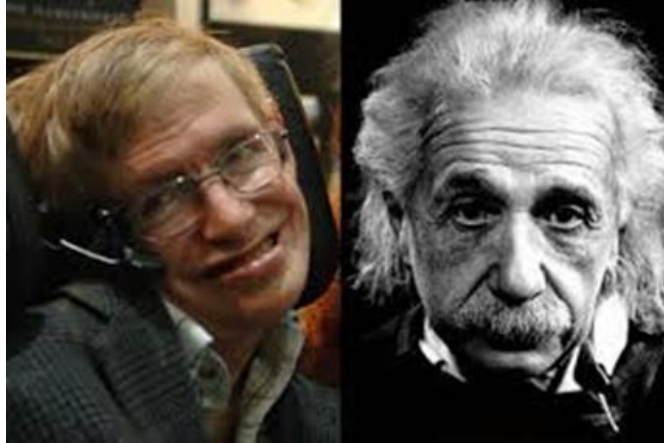
THE BIG COUNTERINTUITIVE RISK: COUNTERPARTY RISK

1. **If your bank or other counterparty defaults, you, the nondefaulting borrower, may owe your defaulting counterparty, a big swap termination payment (in addition to being fully liable on the tax-exempt loan)!!!**
2. **Oh yes! And you and your investor limited partner no longer have a fixed rate borrowing.**
 - A big termination payment? Really? How big?
 - On a competitively structured swap, perhaps 5-6% of the loan amount, but **we have seen as high as 10-12% of the loan amount** even if the default occurs right after closing!
 - Moreover, **this can grow as much as 1.5% of the loan amount per 10 basis points decline in long-term rates** if rates fall faster than the swap markets expect at the time of closing. **In extreme cases the additional liability could grow to 15-20%.**
 - As we found in 2008, over 18 years a lot can happen to the credit of even AAA/Aaa rated institutions, as was the case with Fannie Mae, Freddie Mac, Lehman Brothers and a host of banks in 2008.

- **How are synthetic perm rates set?**
- There are 3 components:
 - The base borrowing rate – based on swap markets at time of close.
 - Plus a loan spread.
 - Plus a swap spread.
- **What? You didn't know that?** And you can't read documents written in a language from outer space?
- **YOU NEED AN IRMA (an “Independent Registered Municipal Advisor”)**!!! And maybe special counsel to understand the risks and negotiate competitive terms.



- Does your IRMA have to be one of these guys?



- No (sadly, they are deceased). But **especially in long-duration (e.g., 17- or 18-year) swap transactions**, it is important that the IRMA have (i) **broad and deep derivatives experience** (ii) **representing borrowers** in the use of swaps (iii) **in tax-exempt multifamily bond transactions**. **All three criteria are important.**
- **The cost is very low.***
- Without this, you have no idea of (i) **whether the terms quoted are competitive** and (ii) **the magnitude of the additional risks you are incurring.**
- **Note:** It is likely that the **use of derivatives will begin to fade, perhaps quickly**, when the taxable and tax-exempt yield curves resume their normal positive slope and the current more favorable long-term rate forecast in the swap markets recedes.

* Kensington Capital Advisors, LLC and NGO have advised borrowers on these executions.