

Understanding the CPI



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Introductions

Name: Jeff Feyerer

Role: Moderator

- *Assistant Superintendent for Finance and Operations/CSBO, Fairview School District 72*



Name: Sheetal Shah Rai

Role: Speaker

- *Executive Director, Institutional Sales, Vice President, Fifth Third Capital Markets*



Name: Matt Bubness

Role: Speaker

- *Director, Baker Tilly Municipal Advisors*



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CPI and Related Indicators

Produced by the US Bureau of Labor Statistics (BLS):

- Consumer Price Index (CPI) - <https://www.bls.gov/cpi/>
- Producers Price Index (PPI) - <https://www.bls.gov/ppi/>
- Employment Cost Index (ECI) - <https://www.bls.gov/eci/>

Link to recent article discussing CPI, PPI and ECI trends/impacts - <https://www.bakertilly.com/insights/inflation-and-the-labor-market--interconnected-and>



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Market Update

- Producer prices excluding food, energy, and trade services — which strips out the most volatile components of the index — increased a less-than-expected 0.1% in March, the smallest advance since 2020.
- Production at US factories fell in March for the first time this year amid weaker capital goods orders and softer consumer spending.
- US retail sales fell for a second month in March, indicating household spending is cooling with Americans challenged by high inflation and rising borrowing costs.
 - Eight out of 13 retail categories fell last month, led by gasoline stations, general merchandise and electronics. The report showed vehicle sales declined 1.6% in March. The value of sales at gasoline stations slid 5.5%, the most since April 2020.
 - Momentum is slowing in household spending and the broader economy as financial conditions tighten and inflation persists.



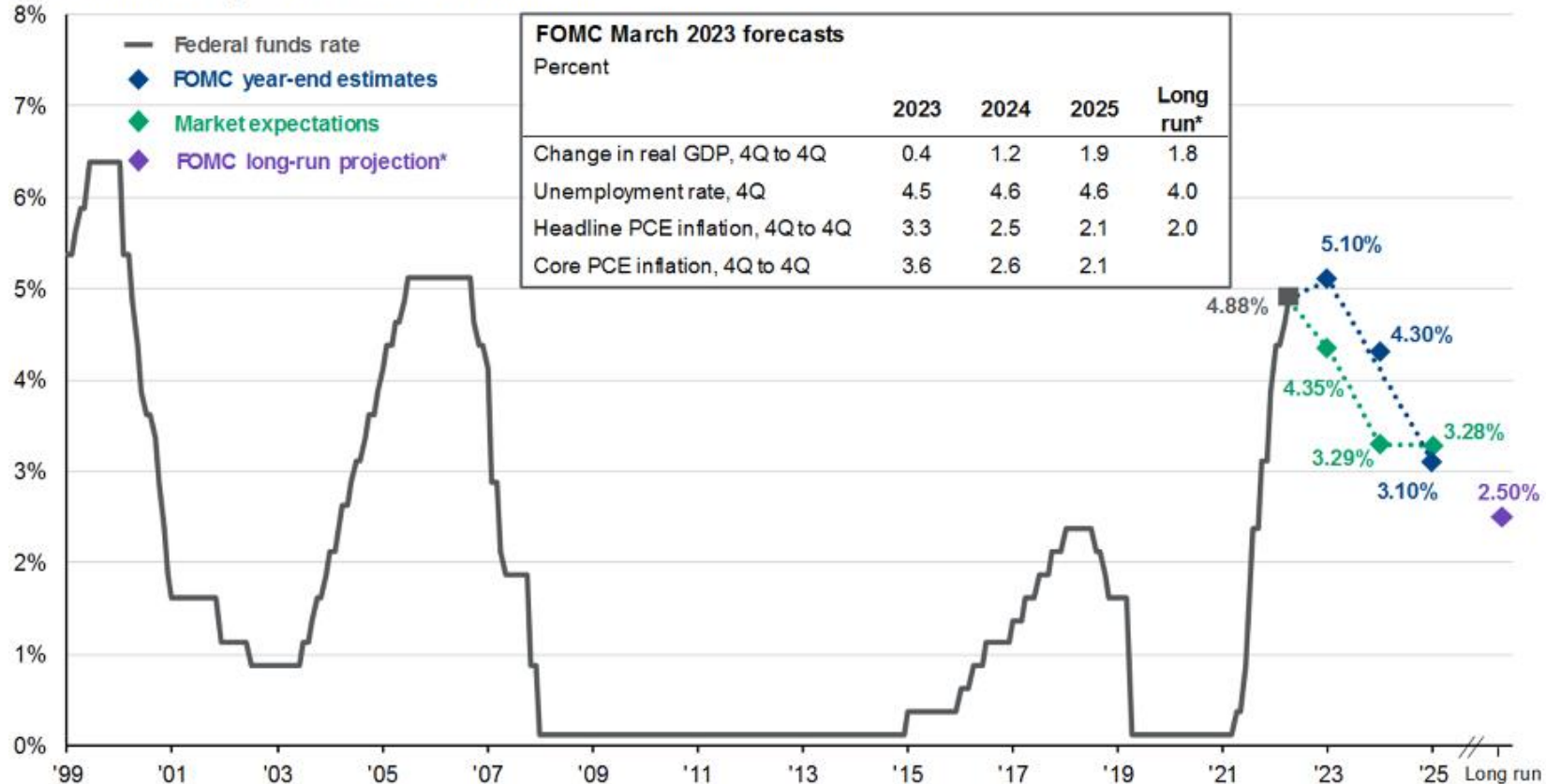
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Let's Set Some Expectations

Federal funds rate expectations

FOMC and market expectations for the federal funds rate



Source: J.P.Morgan Asset Management

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Source: J.P.Morgan Asset Management

Classification: Internal Use

Consumer Price Index

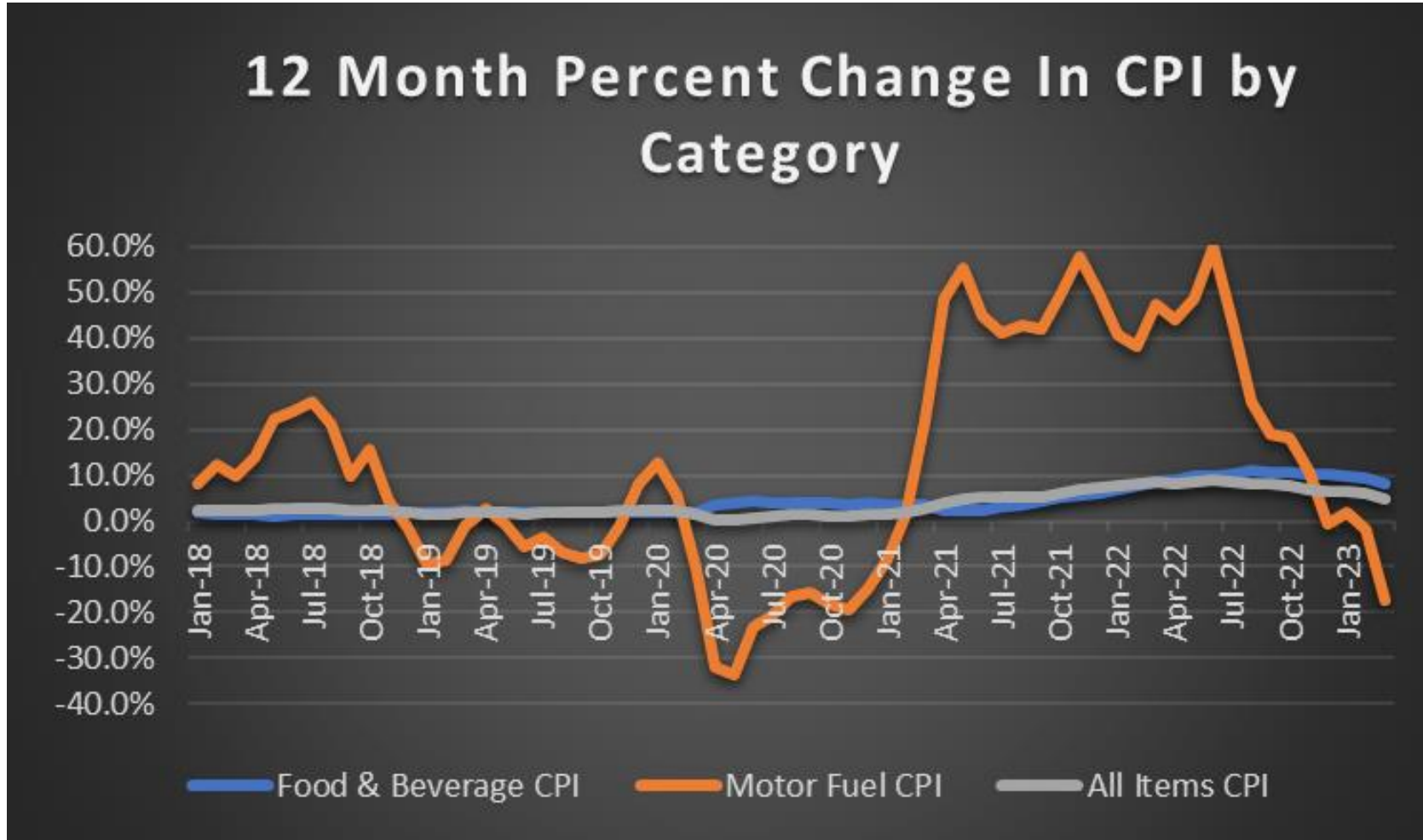
- Definition from BLS - “The **Consumer Price Index (CPI)** is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.”
- CPI for All Urban Consumers (CPI-U) is presented here – per BLS covers 93% of total population
- Information released mid-month for prior month – next release May 10th of April data
- Information collected in 75 urban areas from 23,000 retail and service establishments
- Seasonally adjusted shown in following – removes effect of seasonal influences that occur at same time/annually – such as weather changes, production cycles, model changeover, and holidays
- Data can be pulled for specific items and also some specific regions as well
- Data finder link - <https://www.bls.gov/cpi/data.htm>



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Consumer Price Index Trends



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Producer Price Index

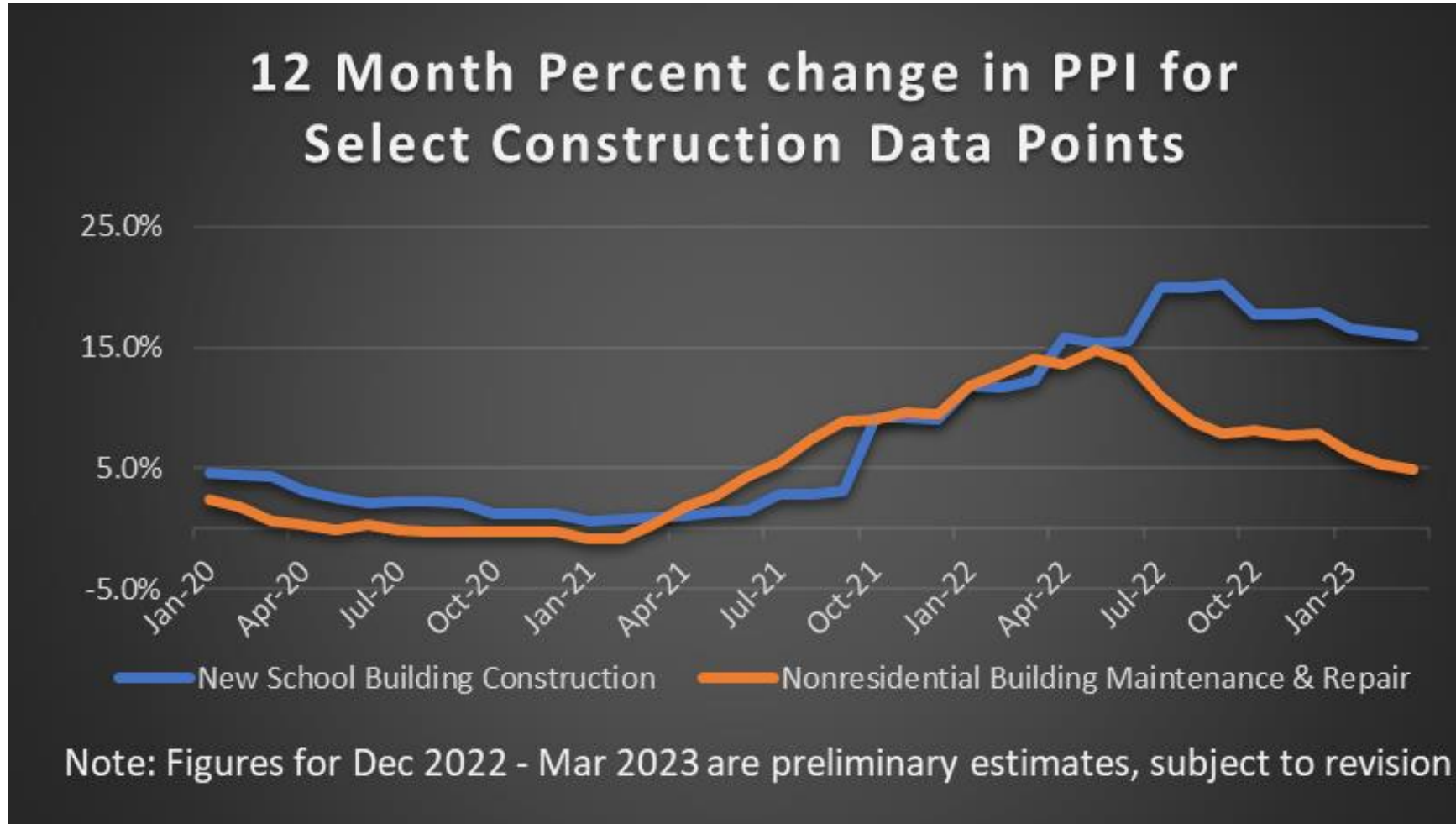
- Definition from BLS - “The Producer Price Index (PPI) program measures the average change over time in the selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services.”
- Similar to CPI - information released mid-month for prior month – next release May 11th of April data
- Voluntary participation by 16,000 establishments providing 64,000 price quotations per month
- As with CPI – PPI is seasonally adjusted, but not for some breakout categories (such as the ones shown in the following graph)
- Be aware that more recent months are issued as preliminary and can be adjusted based on refinement or addition of underlying data
- Data can be pulled for specific items



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Producer Price Index Trends



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Employment Cost Index

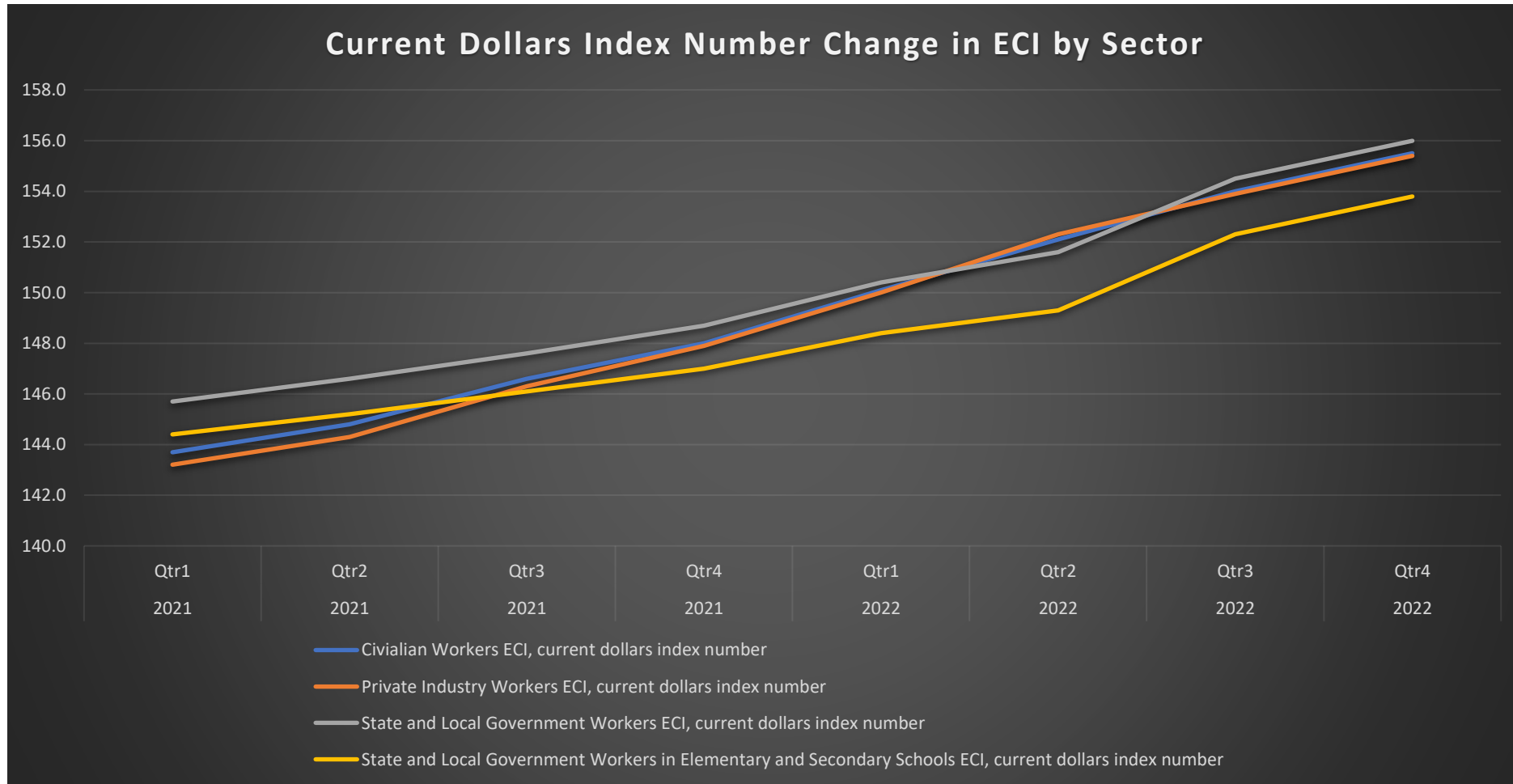
- Definition from BLS – “The Employment Cost Index (ECI) is a Principal Federal Economic Indicator (PFEI) that measures the change in the hourly labor cost to employers, independent of the influence of employment shifts among occupations and industry categories.”
- Includes wages, salaries and total benefits
- Released quarterly, approximately one month after close of quarter – release of first quarter for 2023 was April 28th
- Data collected from the National Compensation Survey (NCS)
- Data can be pulled for specific industries or types of employers – link to database - [One-Screen Data Search \(bls.gov\)](https://www.bls.gov/one-screen)



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Employment Cost Index Trends



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Considerations in Prepping Your Forecast

- What's the broader context?
 - Time frame
 - Magnitude of expense
 - Ease to breakout expense area
 - Ability to explain rationale of approach taken
- What other factors come into play?
 - Collective bargaining agreements – also pulse on inflation to anticipate and check what unions may be asking for
 - Large building projects – particularly with material costs
 - Food/fuel – higher inflationary impacts, ease to isolate within your general ledger/budget
 - Particular/local circumstances
- Are there other, better indicators to use?
 - Your historical data
 - State/local economic information
 - Peer data
- **Overarching question – is the time and effort to create more nuance within the projection worth it?**



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Avoiding Potential Pitfalls

- Be sure to:
 - Clearly articulate assumptions
 - Use caution in being overly conservative
 - Caveat any financial forecasts as being best estimates/guesstimates
 - Use care with how information is presented
 - Know your audience
 - Be concise, yet clear
 - How can you best control the narrative



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Breaking Down CPI

Consumer Price Index, components

m/m % change, seasonally adjusted

	Weight	2021												2022												2023	
		Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
Headline CPI, y/y	100.0	2.6%	4.1%	4.9%	5.3%	5.2%	5.2%	5.4%	6.2%	6.9%	7.2%	7.6%	8.0%	8.5%	8.2%	8.5%	8.9%	8.4%	8.2%	8.2%	7.8%	7.1%	6.4%	6.3%	6.0%		
Core CPI, y/y	79.5	1.7%	3.0%	3.8%	4.4%	4.2%	3.9%	4.0%	4.6%	5.0%	5.5%	6.1%	6.4%	6.5%	6.1%	6.0%	5.9%	5.9%	6.3%	6.6%	6.3%	6.0%	5.7%	5.5%	5.5%		
Core svcs. ex-housing PCE, y/y*	-	2.9%	4.3%	4.3%	4.2%	4.4%	4.4%	4.3%	4.4%	5.0%	5.0%	4.9%	4.8%	4.7%	4.5%	4.5%	4.6%	4.0%	4.2%	4.5%	4.7%	4.4%	4.3%	4.7%	4.7%		
Headline CPI, m/m	100.0	0.5%	0.7%	0.7%	0.8%	0.4%	0.4%	0.4%	0.9%	0.8%	0.8%	0.6%	0.7%	1.0%	0.4%	0.9%	1.2%	0.0%	0.2%	0.4%	0.5%	0.2%	0.1%	0.5%	0.4%		
Core CPI, m/m	79.5	0.3%	0.8%	0.7%	0.7%	0.3%	0.2%	0.3%	0.7%	0.6%	0.7%	0.6%	0.5%	0.3%	0.5%	0.6%	0.6%	0.3%	0.6%	0.6%	0.3%	0.4%	0.4%	0.5%	0.5%		
Core svcs. ex-housing PCE, m/m*	-	0.6%	0.5%	0.4%	0.4%	0.5%	0.3%	0.2%	0.2%	0.6%	0.5%	0.2%	0.3%	0.5%	0.3%	0.3%	0.6%	-0.1%	0.5%	0.5%	0.4%	0.3%	0.4%	0.5%	0.3%		
Energy	6.9	3.5%	0.2%	0.3%	1.5%	1.7%	2.8%	1.5%	3.6%	2.6%	2.4%	0.8%	2.7%	8.2%	-1.0%	3.4%	6.9%	-4.7%	-3.9%	-1.7%	1.7%	-1.4%	-3.1%	2.0%	-0.6%		
Gasoline	3.2	6.3%	-0.6%	-0.1%	2.5%	2.5%	4.5%	1.5%	4.1%	4.2%	3.8%	-0.3%	4.7%	13.2%	-3.1%	3.2%	10.3%	-8.1%	-8.4%	-4.2%	3.4%	-2.3%	-7.0%	2.4%	1.0%		
Electricity	2.5	-0.1%	0.9%	0.4%	0.0%	0.2%	0.7%	1.0%	1.6%	0.7%	0.9%	2.7%	-0.3%	1.7%	0.9%	1.3%	1.5%	1.5%	1.2%	0.8%	0.5%	0.5%	1.3%	0.5%	0.5%		
Utility Gas	0.9	2.4%	1.6%	1.1%	1.2%	2.0%	1.6%	2.2%	6.7%	0.5%	0.1%	0.5%	2.0%	0.6%	2.5%	7.2%	7.5%	-3.8%	3.5%	2.2%	-3.7%	-3.4%	3.5%	6.7%	-8.0%		
Food	13.5	0.1%	0.3%	0.4%	0.7%	0.6%	0.4%	0.8%	0.9%	0.8%	0.6%	0.8%	1.0%	0.9%	0.8%	1.1%	1.0%	1.1%	0.8%	0.8%	0.7%	0.6%	0.4%	0.5%	0.4%		
Food at home	8.7	0.1%	0.3%	0.3%	0.8%	0.5%	0.4%	1.2%	1.0%	1.0%	0.6%	0.9%	1.3%	1.3%	0.9%	1.3%	1.0%	1.3%	0.8%	0.7%	0.5%	0.6%	0.5%	0.4%	0.3%		
Food away from home	4.8	0.1%	0.3%	0.6%	0.7%	0.8%	0.4%	0.5%	0.8%	0.6%	0.6%	0.7%	0.4%	0.3%	0.6%	0.7%	0.9%	0.7%	0.9%	0.9%	0.9%	0.5%	0.4%	0.6%	0.6%		
Core goods	21.4	0.1%	1.9%	1.7%	1.9%	0.3%	0.3%	0.3%	1.3%	1.1%	1.4%	0.9%	0.3%	-0.4%	0.1%	0.6%	0.6%	0.1%	0.4%	0.0%	-0.1%	-0.2%	-0.1%	0.1%	0.0%		
Apparel	2.5	0.1%	1.0%	0.8%	0.6%	0.0%	0.3%	-0.5%	1.0%	0.7%	0.9%	0.7%	0.6%	0.3%	-0.1%	0.4%	0.7%	-0.1%	0.3%	0.0%	-0.2%	0.1%	0.2%	0.8%	0.8%		
New vehicles	4.3	0.0%	-0.1%	1.1%	1.6%	1.4%	1.2%	1.3%	1.5%	1.6%	1.8%	0.3%	0.1%	0.1%	0.4%	0.6%	0.5%	0.5%	0.8%	0.7%	0.6%	0.5%	0.6%	0.2%	0.2%		
Used cars	2.7	0.6%	9.6%	7.7%	9.1%	-0.4%	-1.3%	-0.5%	3.1%	3.2%	3.9%	1.4%	-0.6%	-3.6%	-0.7%	1.9%	0.5%	-0.8%	-0.2%	-1.1%	-1.7%	-2.0%	-2.0%	-1.9%	-2.8%		
Medical care commod	1.5	0.1%	0.6%	0.0%	-0.4%	0.2%	-0.2%	0.3%	0.6%	0.1%	0.0%	0.9%	0.3%	0.2%	0.1%	0.3%	0.4%	0.6%	0.2%	-0.1%	0.0%	0.2%	0.1%	1.1%	0.1%		
Core services	58.2	0.3%	0.4%	0.4%	0.3%	0.3%	0.1%	0.2%	0.4%	0.4%	0.4%	0.4%	0.5%	0.6%	0.6%	0.6%	0.6%	0.4%	0.6%	0.8%	0.5%	0.5%	0.6%	0.5%	0.6%		
Shelter	34.4	0.3%	0.4%	0.3%	0.4%	0.5%	0.2%	0.4%	0.4%	0.5%	0.4%	0.3%	0.6%	0.5%	0.5%	0.6%	0.6%	0.6%	0.7%	0.7%	0.7%	0.6%	0.8%	0.7%	0.8%		
Rent of primary res.	7.5	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.4%	0.4%	0.4%	0.4%	0.5%	0.6%	0.4%	0.6%	0.6%	0.8%	0.7%	0.7%	0.8%	0.7%	0.8%	0.8%	0.7%	0.8%		
OER	25.4	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%	0.5%	0.6%	0.7%	0.6%	0.7%	0.8%	0.6%	0.7%	0.8%	0.7%	0.7%		
Medical care services	6.7	0.1%	0.0%	-0.1%	-0.1%	0.1%	0.2%	0.0%	0.6%	0.5%	0.5%	0.5%	0.1%	0.6%	0.5%	0.4%	0.7%	0.4%	0.7%	0.8%	-0.4%	-0.5%	0.3%	-0.7%	-0.7%		
Transportation services	5.8	1.1%	1.3%	1.9%	0.9%	-0.8%	-0.7%	-0.9%	0.0%	1.2%	0.5%	0.7%	1.1%	2.1%	2.2%	1.6%	1.8%	-0.4%	1.0%	1.9%	0.6%	0.3%	0.6%	0.9%	1.1%		

<https://www.bls.gov/news.release/cpi.nr0.htm>

Source: J.P. Morgan Asset Management



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Using Care in Being 'Conservative'

Assumes Annual Growth of 2% for Revenue, 6% for Expenditures

	<u>FY2025</u>	<u>FY2026</u>	<u>FY2027</u>	<u>FY2028</u>	<u>FY2029</u>
Projected Revenue	\$ 50,000,000.00	\$ 51,000,000.00	\$ 52,020,000.00	\$ 53,060,400.00	\$ 54,121,608.00
Projected Expenditures	<u>\$ 50,000,000.00</u>	<u>\$ 53,000,000.00</u>	<u>\$ 56,180,000.00</u>	<u>\$ 59,550,800.00</u>	<u>\$ 63,123,848.00</u>
Projected Annual Surplus/(Deficit)	\$ -	\$ (2,000,000.00)	\$ (4,160,000.00)	\$ (6,490,400.00)	\$ (9,002,240.00)

Assumes Annual Growth of 3% for Revenue, 4% for Expenditures

	<u>FY2025</u>	<u>FY2026</u>	<u>FY2027</u>	<u>FY2028</u>	<u>FY2029</u>
Projected Revenue	\$ 50,000,000.00	\$ 51,500,000.00	\$ 53,045,000.00	\$ 54,636,350.00	\$ 56,275,440.50
Projected Expenditures	<u>\$ 50,000,000.00</u>	<u>\$ 52,000,000.00</u>	<u>\$ 54,080,000.00</u>	<u>\$ 56,243,200.00</u>	<u>\$ 58,492,928.00</u>
Projected Annual Surplus/(Deficit)	\$ -	\$ (500,000.00)	\$ (1,035,000.00)	\$ (1,606,850.00)	\$ (2,217,487.50)

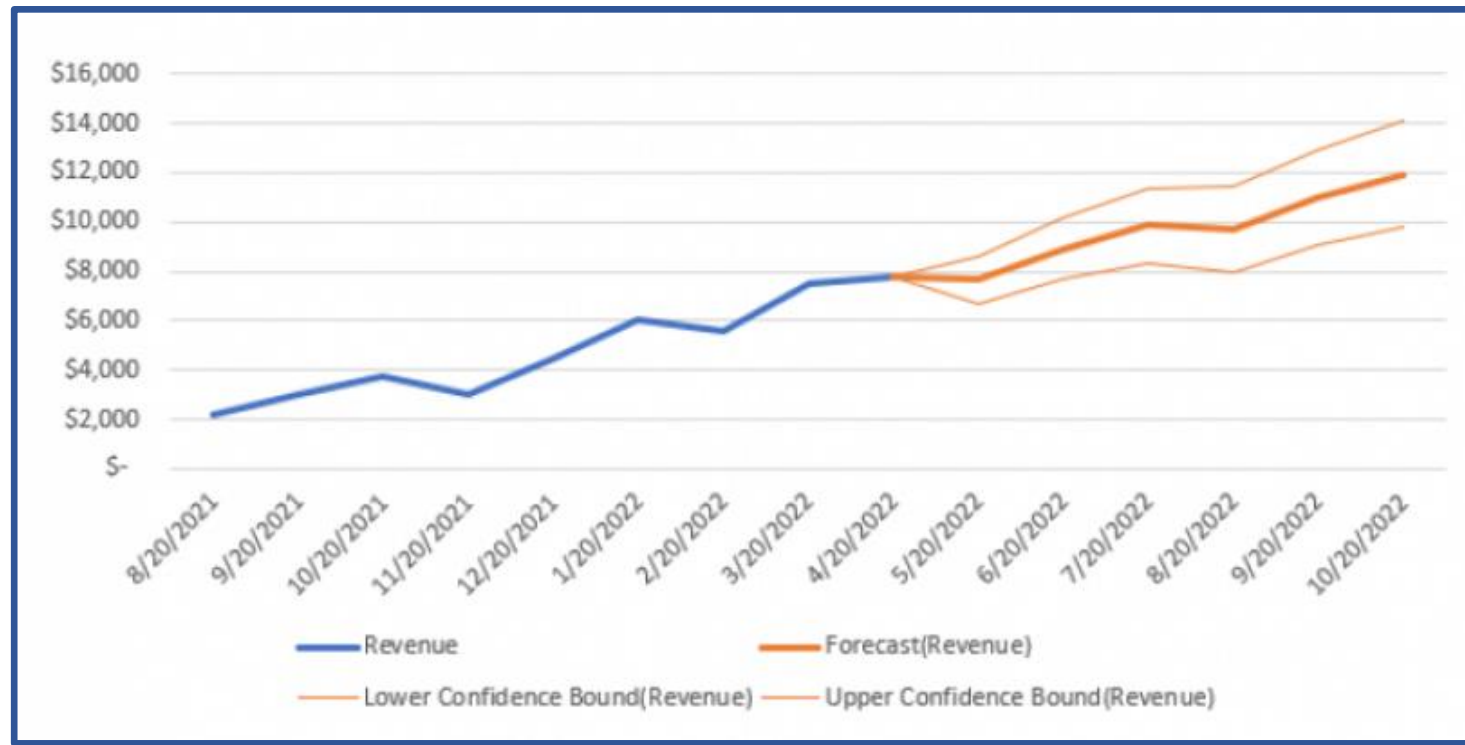


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Range of Projections

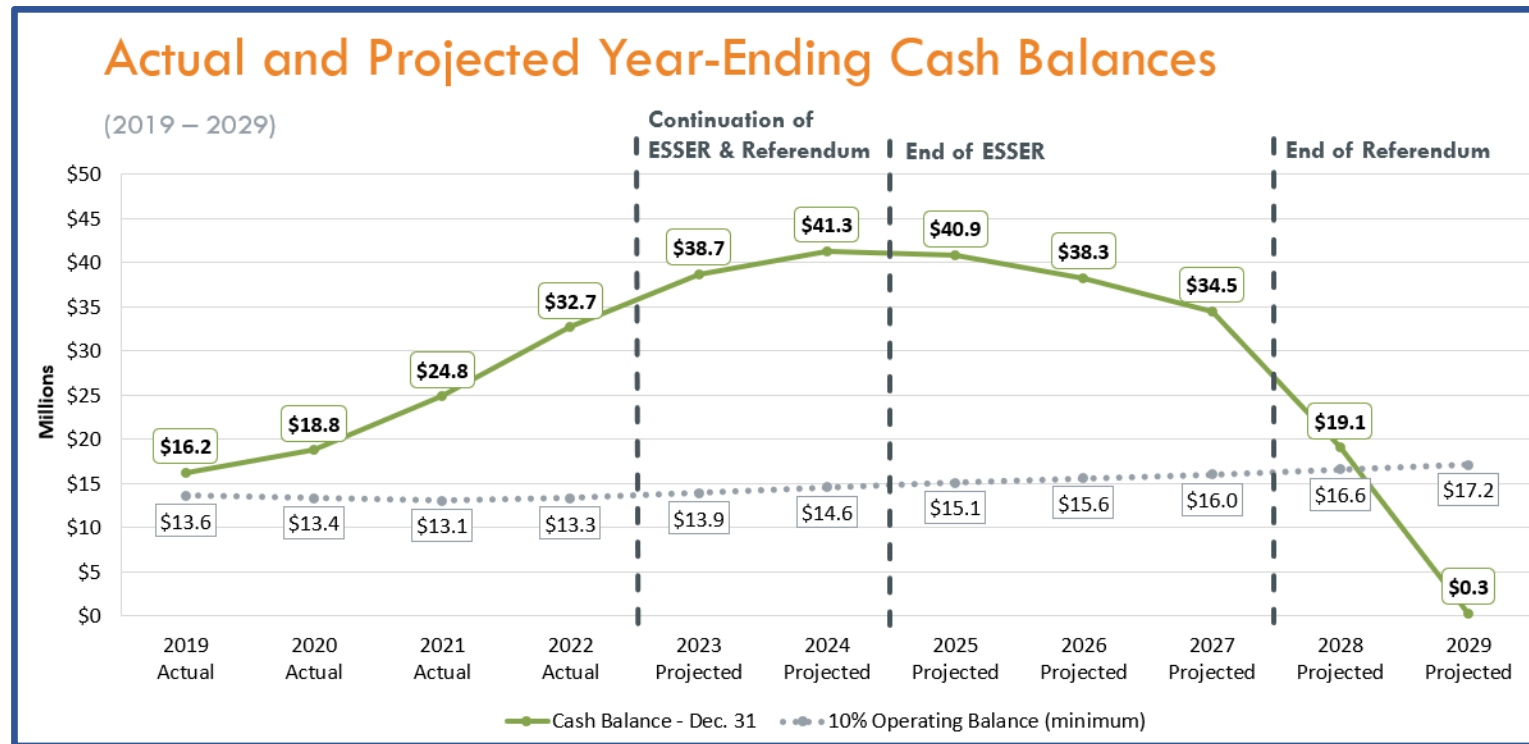
- Consideration of Historical or Future “Windfalls” “Recessions” “Bucks in the Trend”
- May help with credibility – not presenting a single line ‘target’



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Telling the 'Story'

- Are there major 'drivers' impacting the forecast? How to best message.



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Managing CPI Trends Against Revenue

- Understanding the market and mitigating increases/decreases of CPI against bottom line revenue
 - 70% Chance Fed increases Fed Funds rate another 25 basis points in May
 - Market Expects the Fed to be cutting rates by the end of the summer- 3 cuts by Jan 2024
 - Fed is still maintaining their position on bringing Inflation down to 2%



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FED DOT PLAN



- There is a direct correlation between Fed increases/decreases and money market funds

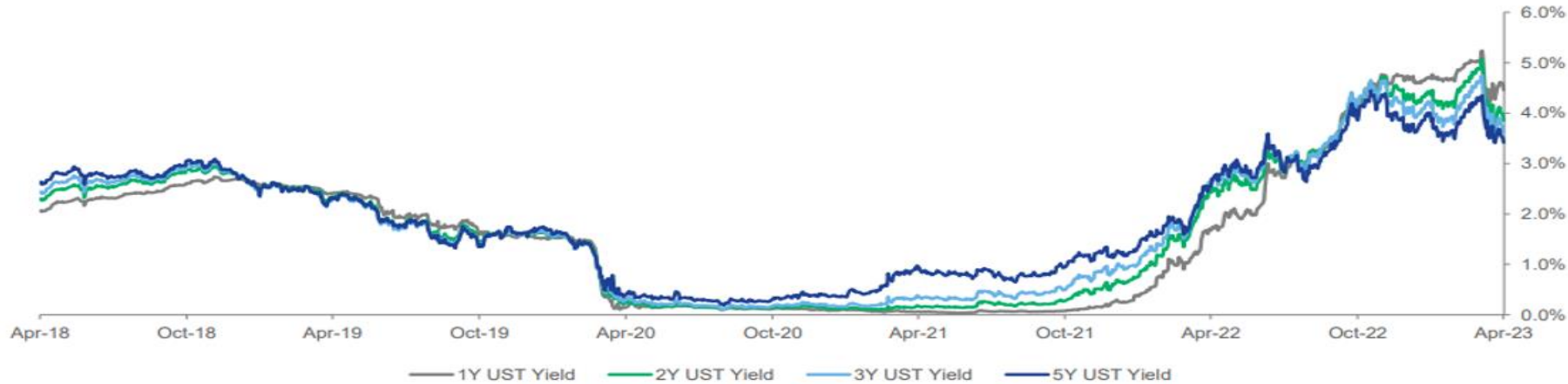
Source: Bloomberg



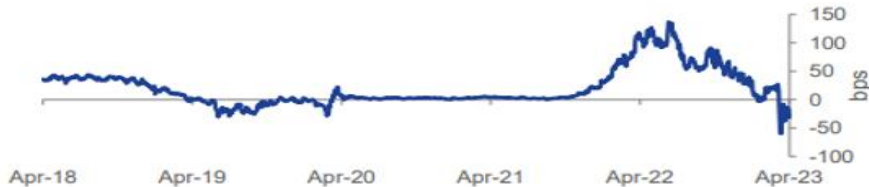
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Investment Strategies to offset CPI

US Treasury Yields - 5 Year Lookback



1 Year - 3 Month US Treasury Spread



Historical Treasury Spreads (bps)

Tenor	Last 5 Years (2022-2017)	Last 10 Years (2022-2012)
3M vs 1Y	21	21
3M vs 2Y	28	38
3M vs 3Y	33	54
3M vs 5Y	43	84

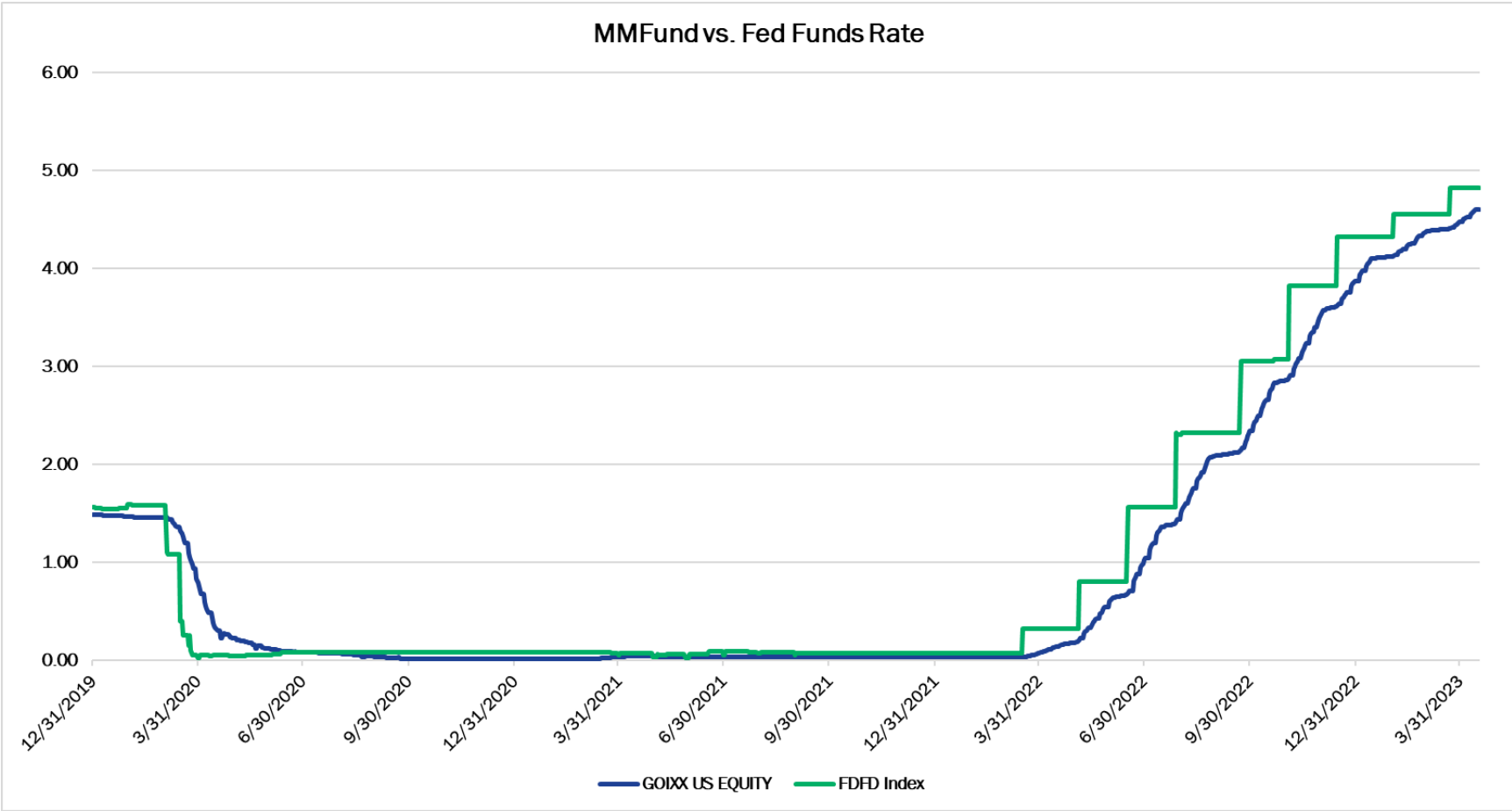
*Source: Bloomberg 04/04/2023



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Time to Get Off The Bench



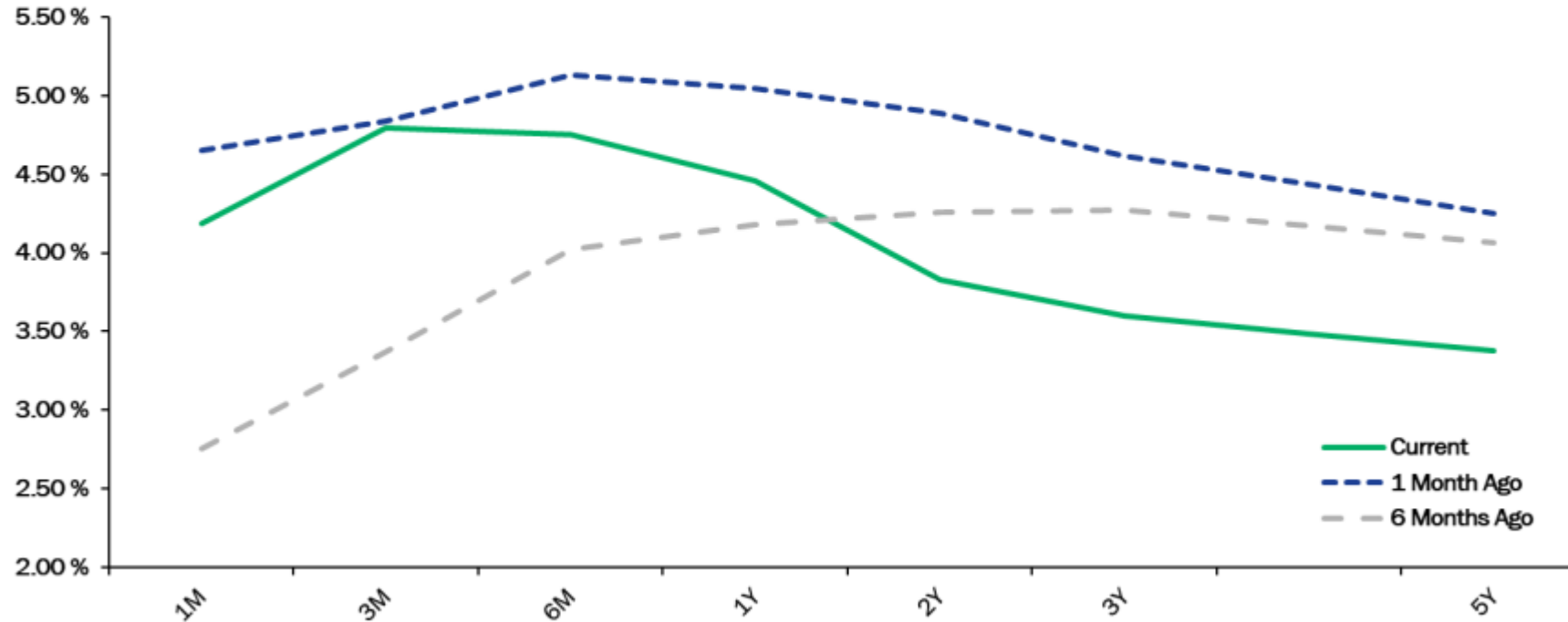
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Market is Dynamic...Not Static

US Treasury Yield Range					
90 Days	180 Days	1 Year	2 Year	3 Year	5 Year
4.79	4.75	4.46	3.83	3.60	3.38



Source: Bloomberg Finance LP & FTS 04/06/23



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Current Markets

Federated Government Money Market Fund					4.65				
	FDIC CD's	Treasury Bills	Government Agency Discount Notes (Discos)	A1/P1 CP		FDIC CD's	Treasury Notes	Government Agency Non-Callable (Bullet)	
30 Days	4.65-4.85	4.04	4.60	4.81	1 Year	4.60-5.00	4.57	4.66	
60 Days	4.60-4.80	4.57	4.66	4.93	2 Year	4.50-5.00	3.96	4.15	
90 Days	4.60-4.90	4.77	4.70	5.01	3 Year	4.55-5.10	3.73	3.86	
180 Days	4.70-4.90	4.68	4.71	5.06	4 Year	4.50-4.95	3.59	3.70	
270 Days	4.75-4.90	4.30	4.60	5.11	5 Year	4.40-4.90	3.47	3.62	



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Hedging Strategy

Report: **Book Yield by Final Maturity**
Account: School District
As of: 04/06/2023
Base Currency: USD

Final Maturity By Year	Base Current Units	Book Yield
2023	20,397,000.00	4.628
2024	28,030,000.00	4.707
2025	23,680,000.00	4.574
2026	9,615,000.00	4.541
2027	3,445,000.00	4.522
2028	4,210,000.00	4.776
		4.632



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Interest Income Vs CPI

Projected Cashflows For:		04/06/2023 - 04/06/2029	
Base Currency:		USD	
Date Groups	Transaction Type Group	Amount	Ending Cash Balance
04/06/2023 - 06/30/2023	Coupon/Dividend	642,792.43	642,792.43
07/01/2023 - 09/30/2023	Coupon/Dividend	863,374.84	1,506,167.28
10/01/2023 - 12/31/2023	Coupon/Dividend	750,485.04	2,256,652.31
01/01/2024 - 03/31/2024	Coupon/Dividend	835,241.72	3,091,894.04
04/01/2024 - 06/30/2024	Coupon/Dividend	554,665.67	3,646,559.70
07/01/2024 - 09/30/2024	Coupon/Dividend	634,187.39	4,280,747.10
10/01/2024 - 12/31/2024	Coupon/Dividend	426,483.30	4,707,230.39
01/01/2025 - 03/31/2025	Coupon/Dividend	476,652.74	5,183,883.13
04/01/2025 - 06/30/2025	Coupon/Dividend	289,324.01	5,473,207.14
07/01/2025 - 09/30/2025	Coupon/Dividend	313,412.49	5,786,619.63
10/01/2025 - 12/31/2025	Coupon/Dividend	309,662.80	6,096,282.43
01/01/2026 - 03/31/2026	Coupon/Dividend	194,085.56	6,290,367.98
04/01/2026 - 06/30/2026	Coupon/Dividend	92,053.94	6,382,421.92
07/01/2026 - 09/30/2026	Coupon/Dividend	102,775.64	6,485,197.55
10/01/2026 - 12/31/2026	Coupon/Dividend	80,284.30	6,565,481.86
01/01/2027 - 03/31/2027	Coupon/Dividend	75,701.51	6,641,183.37
04/01/2027 - 06/30/2027	Coupon/Dividend	51,213.64	6,692,397.01
07/01/2027 - 09/30/2027	Coupon/Dividend	54,342.55	6,746,739.56
10/01/2027 - 12/31/2027	Coupon/Dividend	38,092.75	6,784,832.30
01/01/2028 - 03/31/2028	Coupon/Dividend	45,464.37	6,830,296.67
04/01/2028 - 06/30/2028	Coupon/Dividend	2,284.88	6,832,581.55
07/01/2028 - 09/30/2028	Coupon/Dividend	745.07	6,833,326.62
—	Coupon/Dividend	6,833,326.62	6,833,326.62
Total Purchased Discount		\$842,439.67	
Total Purchased Premium		\$47,680.00	
Total Purchased Accrued Income		\$86,780.69	
Total Income		\$7,541,305.60	



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Understand Array of Products

Agency Rates

CD rates

Issuer	Mty	Yield			Cusip	Issue	Coupon/Yield	Maturity	Cost	FDIC
FED HOME LN DISCOUNT NT	6/26/2023	4.782			95763PLL3	Western Alliance Bk Phoenix	4.95	10/23/2023	100	57512
FED HOME LN DISCOUNT NT	7/28/2023	4.781			25432JCJ0	Dime Cmnty Bk Hauppauge New	4.90	11/14/2023	100	16012
FED HOME LN DISCOUNT NT	8/11/2023	4.863			066329DK6	Bankers Trust Co	4.90	1/19/2024	100	953
FED HOME LN DISCOUNT NT	9/25/2023	4.861			32026UJ72	First Fndtn Bk Irvine Ca	4.80	2/14/2024	100	58647
FED HOME LN DISCOUNT NT	10/27/2023	4.829			173684AH4	Citizens Bk Elizabethton Tenn	4.80	4/12/2024	100	14851
FED HOME LN DISCOUNT NT	11/27/2023	4.781			05600XNV8	Bmo Harris Bk Natl Assn Chicag	4.80	5/14/2024	100	16571
FED HOME LN DISCOUNT NT	12/26/2023	4.736			32026UJ98	First Fndtn Bk Irvine Ca	4.80	7/15/2024	100	58647
FED HOME LN DISCOUNT NT	1/26/2024	4.693			15987UBF4	Charles Schwab Bk Ssb Westlake	4.85	10/7/2024	100	57450
FED HOME LN DISCOUNT NT	2/26/2024	4.652			332135KV3	First Natl Bk Omaha Neb	4.70	4/14/2025	100	5452
FED HOME LN DISCOUNT NT	3/25/2024	4.611			27002YFV3	Eaglebank	4.65	4/21/2026	100	34742
FHLB 4.875	9/13/2024	4.37								
FHLB 4.625	3/14/2025	4.15								
FFCB 3.75	4/13/2026	3.90								



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Diversifying Risk

- What has SVB Bank failure taught us the importance of understanding overall risk
 - Understand the collateral that has been set aside for your large bank deposits- Are you monitoring your collateral?
 - What are your money market fund invested in?
 - Allocations in Commercial paper, corporates and mortgages..
- The Pandemic has taught us the importance of managing/hedging interest rate risk and bottom-line revenue
 - We don't want to be in a position where we are at zero rates



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Questions and Answers

We thank you for your time!



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