Citi Global Wealth Investments

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CIO Strategy Bulletin

Buying Bonds after the Bond Rout

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SUMMARY

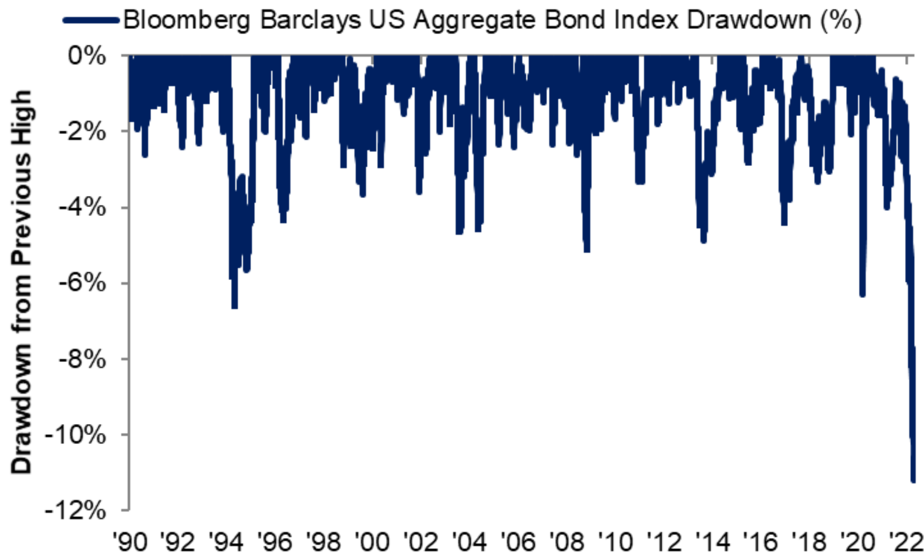
- The Federal Reserve's response to inflation is responsible for the violent speed of the bondholder's reversal of fortune. The Fed has made one of its most abrupt "about faces" in history. Taken at its word, the Fed will begin "rapid" Quantitative Tightening (QT) roughly 2 months after halting Quantitative Easing (QE). The central bank will go from encouraging fiscal expansion to reinforcing a fiscal contraction. Its projected short-term interest rate increases in the year ahead will roughly match the largest for any annual period in history.
- We already see a material slowdown underway in the global economy. The absence of fiscal support this year amid high inflation is now forcing consumer demand to drop. We have accordingly cut our 2022 US growth forecast to 1.9% from 3.5%.
- Rates of 2.5%-3.0% on US government bonds in a period of slower global growth look attractive. And one can imagine rates going lower at some point in 2023. There is a good reason for this: In all seven Fed tightening cycles since 1980, the central bank has sustained its maximum policy rate for only 7 months on average before cutting rates. If the Fed continues to tighten through the slowdown into 2023, the probability of a policy reversal will be very high.
- With recent valuation changes in bonds, we see an opportunity to build "negative correlations" in asset back into portfolios. When bonds are expensive and stocks are, too, asset allocation between them provides fewer benefits. With bonds having repriced so massively, the asset allocation value of bonds has risen proportionately.
- In our view, there is a 70% probability of peak rates in 2022. Only in our Robust scenario, where the economy actually accelerates, would this likely not be the case (see **figure 5**). This is why we believe that adding bonds to portfolios now may make sense. Note that we are talking about government bonds and high-quality corporates. We would not advise taking material credit risk at this point in the market cycle.
- Please see our revised Asset Allocation guidance and Global GDP forecasts herein.

Bonds Crushed, Value Destroyed

Stocks and bonds are both down considerably since the beginning of 2022 with the world equity market falling into "correction" again last week, off 10% from its peak. But relative to equities, it is the bond market that has been truly crushed. The value of 30-year US Treasury securities – the benchmark "long bond" – has fallen 18% year-to-date. Its cumulative total return has been -34% from its March-2020 peak.

Three years ago, 40% of the world's government debt was negative yielding. That figure is less than 10% today, mostly in short duration Japanese and European debt. The 10-year US Treasury, at 2.90%, has a higher yield today than during 90% of the last decade. The same is true for investment grade debt that has seen its largest drawdown in price, most of it not due to spread widening, but to higher rates (**figure 1**).

Figure 1: Bloomberg IG Index Drawdown



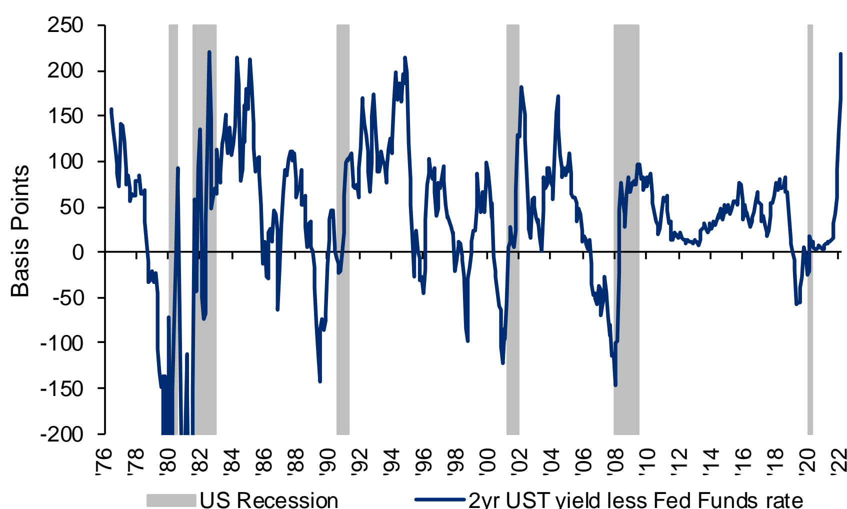
Source: Office of the Chief Investment Strategist, Bloomberg as of April 23, 2022. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment.

The Fed's About Face

There are many reasons for today's higher interest rates. The world is enduring a series of exogenous shocks – the pandemic shutdown, massive COVID stimulus, supply shortages, production and delivery shortfalls, the Russia/Ukraine conflict, punishing Russian sanctions – all of which have stoked inflation (see our March 1 CIO Strategy Bulletin).

But it is the Federal Reserve's response that is responsible for the violent speed of the bondholder's reversal of fortune. The Fed has made one of its most abrupt "about faces" in history. Taken at its word, the Fed will begin "rapid" Quantitative Tightening (QT) roughly 2 months after halting Quantitative Easing (QE). The central bank will go from encouraging fiscal expansion to reinforcing a fiscal contraction. Its projected short-term interest rate increases in the year ahead will roughly match the largest for any annual period in history (see **figure 2**).

Figure 2: US Treasury 2-Year Note Less Fed Funds Rate



Source: Haver Analytics and as of April 20, 2022. Note: Shaded regions are recessions.

The Risks to our "Resilient" View: Why 2022 is not 2009-12

Our revised baseline GDP forecasts are associated with our base case "Resilient" view. (See **figure 3** and **Appendix 1** for our three scenarios.) In this scenario, the global economy grows slowly through the world's large set of present challenges. While the European economy stalls briefly, global corporate earnings growth remains positive in the low single digits in 2022.

The most basic risk to our Resilient view is the present speed and degree of the Fed's actions. A look back to 2009 provides some background for this risk.

Figure 3: Citi Global Wealth Real GDP Assumptions (%) Change

	2020	2021	2022	2023
China	2.4	8.0	4.0	5.0
US	-3.4	5.5	1.9	2.0
EU	-5.9	4.8	2.3	1.8
UK	-9.7	6.0	3.0	2.0
Global	-3.2	5.6	2.6	2.7

Source: Citi Global Wealth Office of the Chief Investment Strategist as of April 19, 2022, Note: All forecasts are expressions of opinion and are subject to change without notice and are not intended to be a guarantee of future events. Past performance is not indicative of future returns. For illustrative purposes only.

Then and Now

In 2009, the US was recovering from a global financial crisis that left financial institutions weak and the economy in tatters. Real GDP had fallen 4.3% from its peak in 2007Q4 to its trough in 2009Q2, the largest decline in the postwar era until the pandemic. The unemployment rate peaked at 10% in October 2009.

The Economic Stimulus Act of 2008 and the American Recovery and Reinvestment Act of 2009 provided comparatively modest fiscal stimulus through both spending and tax cuts. The Fed provided monetary stimulus by lowering rates from 5.25% to near zero, attempting to increase inflation expectations (fighting the prospect of deflation). The Fed also provided “forward guidance” that attached its commitment to accommodative policies until a full recovery was achieved, maintaining its commitment to low rates to drive growth to mid-2013. In short, the 2009-13 Fed was consistent in its policies and was explicit that it would raise rates only when certain thresholds for sustained growth had been reached.

When a slow-paced hiking cycle finally began in December 2015, the economy was accelerating modestly, and unemployment was still falling.

Fed Overconfidence: Raising Rates into a Slowing Global Economy

At the present time, Fed policymakers believe the underlying path of the economy is much more robust now than in 2012-13 when GDP growth was hovering at about 2.25%. We disagree.

We believe that the Fed is looking in the rear-view mirror. Growth in 2021of 5.6% was hyped by massive COVID stimulus. Unlike 2012-13, today’s economy is not overcoming a financial crisis, but is facing headwinds from a confluence of pandemic and war-related impacts, but most importantly, an “about face” in macroeconomic policy support.

Compared to our view last year that CPI inflation would end 2022 at a year/year pace near 3%, we now see it near 6.5% before falling to about 3.5% over the course of 2023. This assumes CPI inflation peaks in the near-term at about 8.5%. In other words, we believe the most rapid price rise in consumer prices has already occurred.

Higher bond yields naturally make sense in an inflationary period like this. But will today’s post-Covid, wartime circumstances be sustained for years? We think not. We already see a material slowdown happening in the global economy.

The absence of fiscal support this year amid high inflation is now forcing consumer demand to drop. Like Fed members, who have cut their median real economic growth view by 1.2 percentage points for 2022, we’ve cut our US growth forecast by a more severe 1.6 percentage points to 1.9% from 3.5%.

Thus, should the Fed raise rates too fast or remove liquidity too quickly, it may be the catalyst for the next recession.

Why “Asset Allocation is Back”

When bond yields were abysmally low, the value of bonds in portfolios was also low. At the miniscule yield of 0.5% for 10-year US Treasuries and 1.0% for 30-year bonds at the low of 2020, we saw asset allocation itself as a challenged portfolio concept. We see it quite differently now.

Rates of 2.5%-3.0% on US government bonds in a period of slower global growth look far more attractive. And one can imagine rates going lower at some point in 2023. Even with the recent shockingly hawkish warning issued from Governor Brainard, investors today price bonds with a view toward an eventual easing cycle.

There is a good reason for this: In all seven Fed tightening cycles since 1980, the central bank has sustained its maximum policy rate for only 7 months on average before cutting rates.

Will this happen again? We now believe that US real GDP will be slightly below 2% in the first half of 2022 based on already moderating demand. If the Fed continues to tighten through the slowdown into 2023, the probability of a policy reversal will be high.

Why Some Bonds Are Also Back

With recent valuation changes in bonds, we see a potential opportunity to build "negative correlations" back into portfolios.

Asset allocation works when parts of a portfolio "zig" while others "zag". When bonds are expensive and stocks are, too, asset allocation between them provides fewer benefits. With bonds having repriced so massively, the asset allocation value of bonds has risen proportionately.

In the event the Fed overreaches and slows the economy "too much", we will reach peak rates quickly. Then, long duration bonds will be quite valuable in portfolios. Long-term US Treasuries are one of the few traditional assets that most often maintain a negative correlation to equities during severe corrections. During equity market drawdowns of 20% or more during the past 35 years, long duration US Treasuries have had an average return of +12% (see **figure 4**).

Figure 4: Returns of Fixed Income Instruments during Periods of 20% or Larger Declines in S&P 500

Total Return in Fixed Income during 20% US equity correction(%)										
Date of drawdown	# days	US Treasury	UST short	UST intermediate	UST long	US IG corp	US IG corp short	US IG corp intermediate	US IG corp long	US HY corp
Mar-01	251	12.4	9.1	12.6	14.8	12.4	9.9	12.4	13.2	
Jul-08	197	7.6	5.1	8.4	9.4	2.2	3.9	3.2	0.4	(4.4)
Mar-20	17	4.3	1.5	3.1	10.7	(4.0)	(0.7)	(2.4)	(7.0)	(10.8)
Average	***155***	***8***	***5***	***8***	***12***	***4***	***4***	***4***	***2***	***(8)***

Source: Haver as of April 7, 2022. Past performance is not indicative of future returns. For illustrative purposes only. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only. Past performance is no guarantee of future returns. Real results may vary.

Let's assume that the Fed starts to go down the path of higher rates and Quantitative Tightening (QT) only to realize that the economy is weaker than thought and that inflation would head down of its own accord over the next 12-18 months. After several perhaps large rate hikes and QT, the Fed may look toward a less robust future for labor markets and begin to moderate its policy path. In that case, we will also see peak rates.

In our view, there is a 70% probability of peak rates in 2022. In the Resilient scenario, the Fed stops short of causing a recession. In the Recession scenario, the Fed goes too far, focusing on abating inflation at the cost of a contracting economy. Only in the Robust scenario, where the economy actually accelerates, would this likely not be the case (see **figure 5**).

This is why we believe that adding bonds to portfolios now makes sense. Note that we are talking about government bonds and high-quality corporates. We would not suggest taking material credit risk at this point in the market cycle.

Our Revised Asset Allocation

Figure 6 outlines our current asset allocation for global portfolios.

After a -18% year-to-date return in long-duration US Treasuries, we have added an overweight for the first time since yields bottomed in 2020. We've shifted 2% of medium-risk global portfolios into long-duration Treasuries and may make further upward adjustments (We also continue to hold an overweight

in TIPS, at reduced scale). While a bear market is not our base case, along with a 2% overweight in gold, we have further shifted our asset allocation seeking to hedge downside risks.

Our overall global Fixed Income weighting remains -3% as we retain large underweights in European and Japanese government bonds. However, long-term European sovereign yields may also stabilize or fall in the year ahead.

Our global equities allocation remains 2% overweight. However, excluding our 4% allocation to natural resources producers and oil services, the weighting is -2%. While very large releases of strategic oil reserves have helped stem the oil price spike, most global commodities futures prices for the next two years have risen, signaling a rise in profits for natural resources producers at the expense of consumers.

Our thematic investments in natural resources are, however, a special situation within cyclical industries. With growth likely to slow, and government bond yields likely to peak, we would not shun high-quality growth equities (see CIO Bulletin: The Value of Growth in a Slowing Economy). We hold thematic overweights in pharmaceuticals, cybersecurity and fintech/payments shares.

We also hold the most consistent global dividend growth equities as overweight, while underweighting riskier small cap shares. These tactical allocations all emphasize balance sheet quality and profitability. Credit markets are firm, but will likely come under increased stress later in the central bank policy tightening cycle. Our overweights include firms that can sustain and grow their cash flows in a slowing economy, while our underweights focus on riskier companies in regions likely to face more significant headwinds from rising commodity costs.

Figure 5: Three Scenarios for the Economy and Markets

	Estimated Fixed Income Outcomes Under Three Scenarios (as of 3/31/22)		
	ROBUST	**RESILIENT**	**RECESSION**
10yr US Treasury (2.35% yield)	10yr UST to end 2022 at a 3.1% yield; This would result in an implied annualized total return of roughly -5.5%	10yr UST to end 2022 at a 2.3% yield; This would result in an implied annualized total return of roughly +3%	10yr UST to end 2022 at a 1.5% yield; This would result in an implied annualized total return of roughly +12%
US IG corporates (116bps spread, 8yr duration)	Spreads tighten to 90-110bps on improving credit from growing economy	Roughly flat spreads in 110-130bps range as issuers have easy access to capital/refinancing needs	Roughly 100-150bps of widening would bring IG spreads in-line with the previous three recessions
US HY corporates (325bps spread, 4yr duration)	Spreads tighten to 290-310bps as economy improves and financing cost increase is more gradual	Slightly wider spreads in 310-370bps range, though lower-rated issuers/sectors may find it more difficult to meet capital/refinancing needs	Roughly 400-500bps of widening would bring HY spreads to +700-800bps
EM USD debt (320bps spread, 7yr duration)	Spreads tighten to 250-270bps as dollar appreciation slowed	Roughly flat spreads in 300-340bps range	Roughly 200-300bps of widening would bring EM spreads to +500-600bps

Source: Haver as of April 15, 2022. Note: These tables provide three possible scenarios, blending economic, political and central bank information and future actions. While we believe these three to be the most likely outcomes, we note that upside and downside scenarios are also possible, and there is no assurance that any scenario will be achieved. Given the present level of uncertainty, the inputs to our scenarios are subject to change. All forecasts are expressions of opinion and are subject to change without notice and are not intended to be a guarantee of future events. Past performance is not indicative of future returns. For illustrative purposes only.

Figure 6: Global Investment Committee Tactical Asset Allocation Positions

We've raised Long-Term US Government bonds to an overweight for the first time since yields bottomed in 2020. The net position in US fixed income is not 6.3% overweight for medium risk global portfolios.

LARGEST OVERWEIGHTS Previous	
+4.0%	Global Natural Resources/Oil Services
+2.0%	Global pharmaceuticals
+2.0%	Cybersecurity/Fintech/Payments
+2.0%	Gold
+1.0%	China equities
+2.0%	**Total equities and REITS**
+8.0%	Intermediate US Treasuries, Intermediate IG corporates, US TIPS
+2.0%	Variable rate loans

10.7% of total allocation in US/non-US dividend growth, 4% overweight

LARGEST OVERWEIGHT Latest	
+4.0%	Global Natural Resources/Oil Services
+2.0%	Global pharmaceuticals
+2.0%	Cybersecurity/Fintech/Payments
+2.0%	Gold
+1.0%	China equities
+2.0%	**Total equities and REITS**
+6.4%	Long-term and Intermediate US Treasuries, US TIPS
+1.5%	Intermediate-term IG bonds
+2.0%	Variable rate loans

10.7% of total allocation in US/non-US dividend growth or yield, 4% overweight

LARGEST UNDERWEIGHTS	
-9.7%	European, Japan government bonds
-2.1%	European, Japan Large Cap Equities
-5.0%	Global SMID
-2.9%	Cash, short-term US Treasuries
-4.0%	**Total fixed income and cash**

LARGEST UNDERWEIGHTS	
-9.7%	European, Japan government bonds
-2.1%	European, Japan Large Cap Equities
-5.0%	Global SMID
-2.9%	Cash, short-term US Treasuries
-4.0%	**Total fixed income and cash**

Source: Office of the Chief Investment Strategist as of April 21, 2022. All forecasts are expressions of opinion and are subject to change without notice and are not intended to be a guarantee of future events. Past performance is no guarantee of future returns. Real results may vary. Sub totals may not add to 100% as not every single position is shown.

An Example of What to Own: Opportunities in Municipal Bonds

Municipals have not been immune to the volatility caused by a more hawkish Fed this year and have shed -8.4% year to date. So far in 2022, 1-3 year maturities and high yield have outperformed as the increase in yields has been led by rates rather than credit.

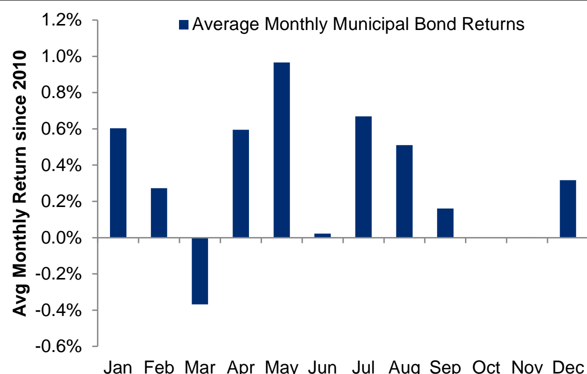
Given the volatility, investors have pulled money from municipal bond funds on top of the normal seasonal selling by some to pay their annual taxes, which traditionally makes April and May favorable times of the year for municipal bond returns (see **figures 7-9**).

Figure 7: Municipal bonds: returns and risk by sector, maturity, and credit rating

Sector	Yield (%)	Duration	Composite Rating	YTD Return	2021 Return	Return Since 2010	Ann. Volatility Since 2009
BAML Muni Index	3.03	5.16	AA3	-8.4%	1.8%	1.8%	52.3%
GO	2.79	4.64	AA2	-7.8%	1.1%	1.1%	44.6%
Revenue	3.11	5.34	AA3	-8.6%	2.1%	2.1%	55.2%
Airport	3.48	5.48	A1	-9.3%	3.0%	3.0%	61.4%
Education	3.00	5.63	AA2	-9.0%	1.7%	1.7%	52.6%
Hospital	3.21	5.69	A1	-9.0%	3.2%	3.2%	72.7%
Leasing & Rental	2.90	5.00	AA3	-7.6%	1.8%	1.8%	51.0%
Multi-Family	3.39	7.91	AA2	-10.7%	2.2%	2.2%	45.6%
Pollution Control	2.52	4.26	A1	-7.3%	0.5%	0.5%	49.8%
Power	2.93	4.26	A1	-7.2%	1.1%	1.1%	41.5%
Single-Family Housing	3.30	7.41	AA1	-8.6%	1.2%	1.2%	54.3%
Transportation	3.21	5.48	A2	-8.6%	3.2%	3.2%	51.7%
Water	2.86	4.59	AA2	-7.6%	0.9%	0.9%	52.9%
1-3 Y	2.33	1.71	AA3	-2.9%	0.3%	0.3%	13.4%
3-7 Y	2.65	3.63	AA3	-6.5%	0.4%	0.4%	30.1%
7-12 Y	2.90	4.98	AA3	-8.4%	1.0%	1.0%	52.1%
12-22 Y	3.19	5.47	AA3	-9.2%	2.4%	2.4%	64.9%
22+ Y	3.62	7.98	AA3	-11.8%	3.5%	3.5%	71.5%
AAA	2.80	4.99	AAA	-8.3%	0.6%	0.6%	37.8%
AA	2.91	4.98	AA2	-8.2%	1.1%	1.1%	46.1%
A	3.23	5.29	A2	-8.6%	2.6%	2.6%	62.7%
BBB	3.50	6.03	BBB2	-9.3%	5.1%	5.1%	75.9%
High Yield	3.90	5.05	BB3	-6.7%	6.5%	6.5%	108.9%

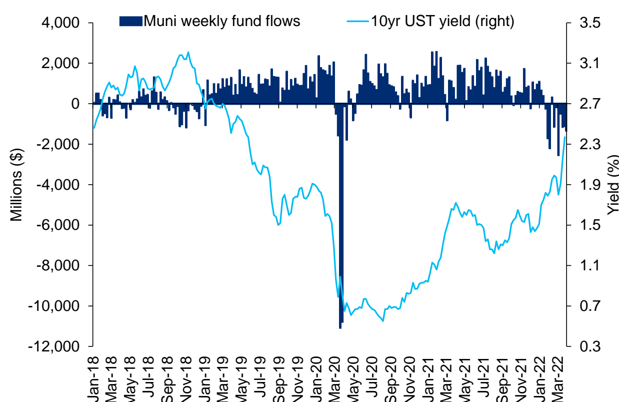
Source: FactSet as of Apr 19, 2022. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only. Past performance is no guarantee of future returns. Real results may vary.

Figure 8: Municipal bond seasonality



Source: FactSet as of Mar 31, 2022. Past performance is no guarantee of future results. Real results may vary. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only. Past performance is no guarantee of future returns. Real results may vary.

Figure 9: Municipal bond fund flows vs 10-Year Treasury yields



Source: Bloomberg as of Mar 31, 2022. Note: Tax equivalent yields adjust for top Federal and Affordable Care Act tax rate (40.8%). Past performance is no guarantee of future returns. Real results may vary

What's more, inflation and yields may be zeroing in on the upper end of their respective ranges. COVID-related income relief has run its course and the demand for goods is feeling the impact of inflation as well as a pent-up preference for services. The result has been a slowdown in freight shipment volumes, which often precedes lower levels of inflation (see **figure 10**). Turning to bond yields, the high end of the yield range is often approached when 2-year Treasury yields rise enough to catch up to 10-year Treasury yields, leading to a flat yield curve (see **figure 11**).

Figure 10: Shipments lead inflation

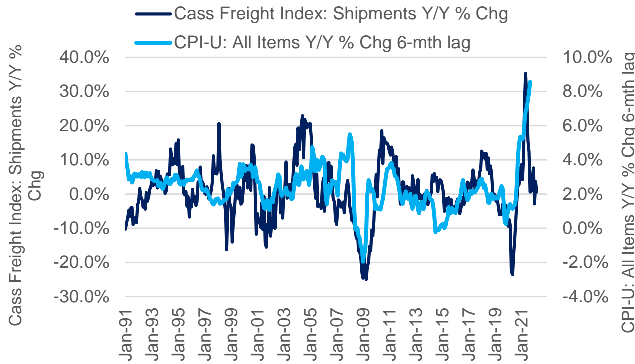
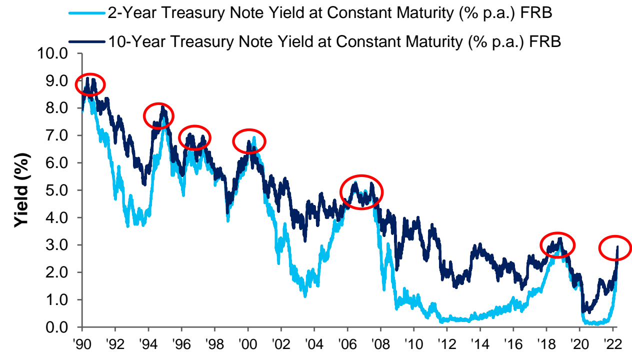


Figure 11: Treasury yields



Source: Haver Analytics and Bloomberg as of Apr 19, 2022. Past performance is no guarantee of future returns. Real results may vary. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only. Past performance is no guarantee of future returns. Real results may vary.

Municipal valuations have improved in 2022 versus other bonds, too. As an example, the generic 10-year AAA municipal bond yield has risen more than 150 bps year-to-date to 2.64% on April 19, its highest level since March 2020, and its yield ratio versus 10-year Treasuries increased to 90.0%, near the high end of the range since November 2020 (see **figure 12**). As such, longer maturities are joining intermediate maturities as being attractively priced, in our opinion. As a reminder, longer maturities have a higher duration – a measurement of their sensitivity to interest rates - than shorter maturities.

Now that the market is discounting several Fed interest rate hikes ahead, most measures of the yield curve are relatively flat. But because the Fed is just getting started in making these moves, the front-end of the yield curve – from cash out to 2-years - is still very steep. As a result, we currently see little value in holding excess cash or cash equivalents.

A Longer-Term Focus

Finally, after a rough start to the year, we think it is important to remind investors that the municipal bond asset class has a track record of producing positive total investment returns on a rolling 5-year basis (see **figure 13**) as measured by the BAML Muni index.

In our view, this is an attribute that may benefit investors with a longer-term focus.

Figure 12: AAA-Municipal 10-year Yield Ratio vs Treasuries

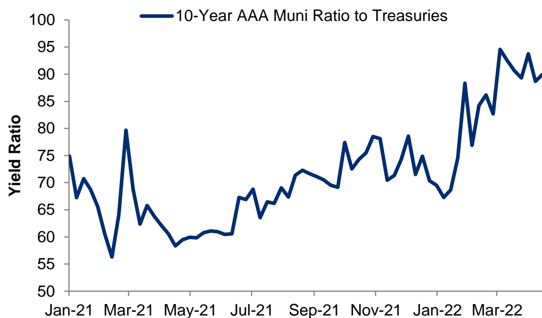
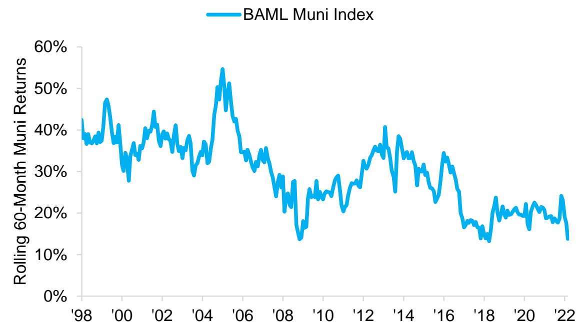


Figure 13: Rolling 60-month Muni Returns (Not Annualized)



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Appendix 1: Three Scenarios for the Economy and Markets

		ROBUST	RESILIENT	RECESSION	
	5%	25%	40%	25%	5%
US economy	Stronger outcomes	US growth exceeds 2.5% in both 2022, 2023	US growth slows toward 2% in 2022-2023, with brief periods below	US recession in 2023 after 2% growth in 2022	Weaker outcomes
Global economy		Europe in very brief contraction within 1H, other regions firm	Europe contracts for half year, weaker US imports slow Asia's recovery	Europe contracts, US import weakness causes global trade retrenchment in 2023	
Inflation		US CPI decelerates from 8% to 2.5% or below in 2023	US CPI peaks above 8.5% near term, stays above 3% on average in 2023 before slowing	US CPI peaks above 8.5%, decelerates to average 3% in 2023, weaker beyond	
Fed		Raises rates 25 bps per meeting, begins QT. Fed slows tightening in response to slower US growth and inflation in 2H 2022	Raises rates at each meeting (50 bps, then 25 per meeting) begins QT, keeps tightening until inflation slows sharply	Raises rates 25 or 50 bps per meeting, begins QT, keeps tightening until recession drives inflation down.	
Global equities		Rally 10% to end 2022 positive, poised for 2023 gains	Single-digit EPS and dividend growth drive broad markets toward near-flat 2022 return. Fed tightening stems sharp rallies along the way.	US equities fall a further 20%, global equities -25% by late 2022	
US yields		10-year yield reaches 3% and stays sustainably above 2.5%; Fed funds rate stays at or below 2% during 2023.	10-year yield reaches 2.5%-3% range, but can't sustain above 2.5% with market volatility driving bond inflows (despite Fed QT)	10-year yield peaks near 2.5%, falls to 1.5% by early 2023 on future Fed easing steps. Yield curve inverts sharply	
Russia/Ukraine		Both sides make a compromise agreement to end warfare resulting in minor sanctions relief.	No presumptions of end point for Russia/Ukraine hostilities; Russia/Ukraine commodity exports decline sharply but not entirely	Russia hostilities spread, attacks widen. Russia/Ukraine commodity exports decline very sharply.	
China		Purchases Russian exports without sanctions, limiting the global supply shock while other producers ramp up production.	Purchases Russian exports without sanctions, but quantities limited. Producers from outside region gradually ramp up supplies over 2 years.	US-Europe/China economic relations devolve further including possible economic sanctions against China.	

Source: Haver as of April 15, 2022. All forecasts are expressions of opinion and are subject to change without notice and are not intended to be a guarantee of future events. Past performance is not indicative of future returns. For illustrative purposes only. Note: These tables provide three possible scenarios, blending economic, political and central bank information and future actions. While we believe these three to be the most likely outcomes, we note that upside and downside scenarios are also possible, and there is no assurance that any scenario will be achieved. Given the present level of uncertainty, the inputs to our scenarios are subject to change.

Appendix 2: Annualized Absolute Returns of Individual Asset Classes, Diversified Asset Allocation and Risk-Adjusted Returns (Sharpe Ratio).

1950s	1960s	1970s	1980s	1990s	2000s	2010s	Avg 10-Year Return	Risk-Adjusted Return
World ex-US Equities 20.8%	US Small Caps 15.5%	EM Govt USD Bond 14.4%	World ex-US Equities 22.8%	US Equities 18.2%	EM Govt USD Bond 12.9%	US Equities 13.6%	US Small Caps 12.0%	Asset Allocation 0.53
US Equities 19.3%	US Equities 7.8%	US Small Caps 11.5%	US Equities 17.5%	US Small Caps 11.6%	G7 Govt Bond 6.4%	US Small Caps 10.5%	US Equities 11.6%	US Equities 0.49
US Small Caps 16.9%	Asset Allocation 5.4%	World ex-US Equities 10.1%	Asset Allocation 17.4%	Asset Allocation 11.0%	US Investment Grade 6.4%	Asset Allocation 7.7%	World ex-US Equities 10.5%	EM Govt USD Bond 0.43
Asset Allocation 12.1%	World ex-US Equities 5.1%	Asset Allocation 8.0%	US Small Caps 15.8%	G7 Govt Bond 8.0%	Asset Allocation 3.4%	EM Govt USD Bond 6.3%	Asset Allocation 9.3%	US Small Caps 0.38
EM Govt USD Bond 5.3%	Cash 4.1%	Cash 6.5%	US Investment Grade 12.8%	US Investment Grade 8.0%	Cash 2.7%	World ex-US Equities 6.0%	EM Govt USD Bond 8.1%	World ex-US Equities 0.37
Cash 2.0%	EM Govt USD Bond 3.5%	US Investment Grade 6.1%	G7 Govt Bond 12.8%	EM Govt USD Bond 7.7%	US Small Caps 2.2%	US Investment Grade 4.3%	US Investment Grade 5.8%	US Investment Grade 0.18
G7 Govt Bond 0.4%	US Investment Grade 2.4%	G7 Govt Bond 6.1%	Cash 9.1%	World ex-US Equities 7.3%	World ex-US Equities 1.6%	G7 Govt Bond 3.7%	G7 Govt Bond 5.7%	G7 Govt Bond 0.17
US Investment Grade 0.4%	G7 Govt Bond 2.4%	US Equities 5.8%	EM Govt USD Bond 6.4%	Cash 5.0%	US Equities -0.9%	Cash 0.6%	Cash 4.3%	

Source: Office of the Chief Investment Strategist as of April 2022. Note: the Sharpe Ratio is calculated as the average return less the 3-month US Treasury bill yield divided by the standard deviation of the return. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only. Past performance is no guarantee of future returns. Real results may vary.

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