



# CLIENT RESOURCE KIT

## FIXED INCOME

 First Trust

## INVESTMENT MANAGEMENT TEAMS

### LEVERAGED FINANCE

William Housey, CFA, MBA, 26 years  
 Jeffrey Scott, CFA, MBA, 33 years  
 Scott D. Fries, CFA, MBA, 28 years  
 Gregory Olsen, CFA, MBA, 30 years  
 Brian Kessler, CFA, CMT, 18 years  
 Sebastian Dassouli, 15 years  
 Natasha Kennedy, MBA, 8 years  
 Peter Fasone, CFA, MBA, 37 years  
 Berk Kisal, MBA, 25 years  
 Andy Rybak, CFA, MBA, 23 years  
 Jeffrey Johnson, CFA, 9 years  
 Ryan Kommers, 26 years  
 Cory Starkey, CFA, MS, 6 years  
 Daniel Nagode, CFA, 6 years  
 Daniel Waldron Jr., 6 years  
 Sam Cafi, MBA, 12 years  
 Brandon Nelson, 2 year

### SECURITIZED PRODUCTS

Jim Snyder, MBA, 33 years  
 Jeremiah Charles, MS, 19 years  
 Jud Tigerman, MBA, 26 years  
 Austin Stockfisch, 11 years  
 Alex DeRochie, 5 years  
 Minhua Wu, MS, 5 years  
 Owen Aronson, 15 years  
 Stephen Pennington, MS, 18 years  
 Samuel Cecil, MBA, 10 years  
 Danielle Vandolder-Beaudin, 2 years  
 Jordan Pflum, MS, 1 year

### INVESTMENT GRADE

Todd Larson, CFA, 29 years  
 Eric Maisel, CFA, MS, 29 years  
 Scott Skowronski, CFA, 26 years  
 Zach Natale, 15 years  
 Ying Timmerman, CFA, CPA, 14 years  
 David Worniak, CFA, 11 years  
 Nathan Simons, CFA, 10 years  
 Charles Kovarik, 3 years  
 Lee Mizell, <1 year

### GLOBAL BONDS

(First Trust Global Portfolios Limited)  
 Derek Fulton, 26 years  
 Leonardo DaCosta, CFA, 18 years  
 Anthony Beevers, CFA, 12 years

### CLOSED-END FUNDS

Ken Fincher, MBA, 33 years  
 Nick Grant, 1 year

### MUNICIPAL SECURITIES

Tom Byron, 41 years  
 Johnathan Wilhelm, JD, 31 years  
 Nick Novosad, CFA, 11 years  
 Jeff Samuel, 29 years  
 Sarah Schusler, CFA, 18 years  
 Shari Sikes, MS, 28 years  
 Aaron Cook, 21 years  
 John Loch, MBA, 28 years  
 Andrew Folland, MBA, 27 years  
 Allison Keller, 4 years

### PREFERRED SECURITIES

(Stonebridge Advisors LLC)  
 Scott Fleming, MBA, 40 years  
 Robert Wolf, MBA, 23 years  
 Eric Weaver, MS, 15 years  
 Angelo Graci, CFA, MBA, 27 years  
 Allen Shepard, PhD, 29 years  
 Connor Fleming, CFA, CIPM, 10 years  
 Scott Hubbell, CFA, 14 years  
 Jeff Vinca, 18 years  
 Marie-Belle Mikue, 9 years  
 Jeff Bernstein, MBA, CPA, 33 years  
 Celeste Guerrero, 16 years

## ECONOMICS

Brian Wesbury, MBA, 39 years  
 Robert Stein, CFA, 26 years  
 Strider Ellass, 15 years  
 Andrew Opdyke, CFA, MBA, 10 years  
 Gill Bryce, 7 years  
 Nate Gerze, 1 year  
 Mary Buchanan, 18 years

## MARKET ANALYSIS

Bob Carey, CFA, 34 years  
 Steve Claiborne, 32 years

## RESEARCH

David McGarel, CFA, CPA, 31 years  
 Jon Erickson, CFA, MBA, 31 years  
 Chris Peterson, CFA, MBA, 22 years

### EQUITY RESEARCH

John Sherren, CFA, MBA, 23 years  
 Jared Wollen, CFA, MS, 12 years  
 Tom Marsh, 7 years  
 Eric Glombicki, 1 year  
 Jack Wagner, < 1 year

### FIXED INCOME RESEARCH

Jim Vavrek, CFA, 22 years  
 Tom Evans, CFA, JD, 19 years  
 Steve Collins, CFA, MBA, 15 years  
 Orlando Becerra, 8 years

### PRODUCT SPECIALIST

Jeff Margolin, MBA, 25 years  
 Ryan O. Issakainen, CFA, MA, 20 years  
 Andrew Hull, 12 years  
 Bob Derochie, MBA, 36 years

### STRATEGY RESEARCH

Chris Bush, CFA, 16 years  
 Bob Hensley, CFA, MS, 19 years  
 Omar Sepulveda, CFA, 24 years  
 Graham Homberg, CFA, 15 years  
 Elliott Papineau, 14 years  
 Brad Phillips, CFA, 11 years  
 Steve Rinn, CFA, 6 years  
 John Bria, 8 years  
 Tyler Jones, CFA, 3 years  
 Simon Peterson, 1 year

### QUANT TECH

Dan Godoy, CFA, MBA, 16 years  
 John Hagerson, CFA, 23 years  
 Jeff Sommars, PhD, CFA, 8 years  
 Landon Kavlie, PhD, CFA, 7 years  
 Nathan Bliss, PhD, CFA, 5 years  
 Jon Larson, 2 years  
 Jordan Freitag, 2 years  
 Matt Adomshick, 1 year  
 Joel Stapleton, PhD, 1 year  
 Matthew Milone, < 1 year  
 Johannes Byle, < 1 year  
 Josiah Elliot, < 1 year  
 Nathan Jara, < 1 year

## MODEL INVESTMENT COMMITTEE

Daniel J. Lindquist, CFA, MBA  
 Chairman and Managing Director  
 29 years

David McGarel, CFA, CPA  
 CIO, COO and Managing Director  
 31 years

William Housey, CFA, MBA  
 Managing Director of Fixed-Income  
 26 years

Chris Peterson, CFA, MBA  
 SVP, Head of Strategy Research  
 22 years

Chris Fallow, CFA  
 SVP, Portfolio Oversight  
 21 years

Steve Collins, CFA, MBA  
 SVP, Senior Fixed-Income Analyst  
 15 years

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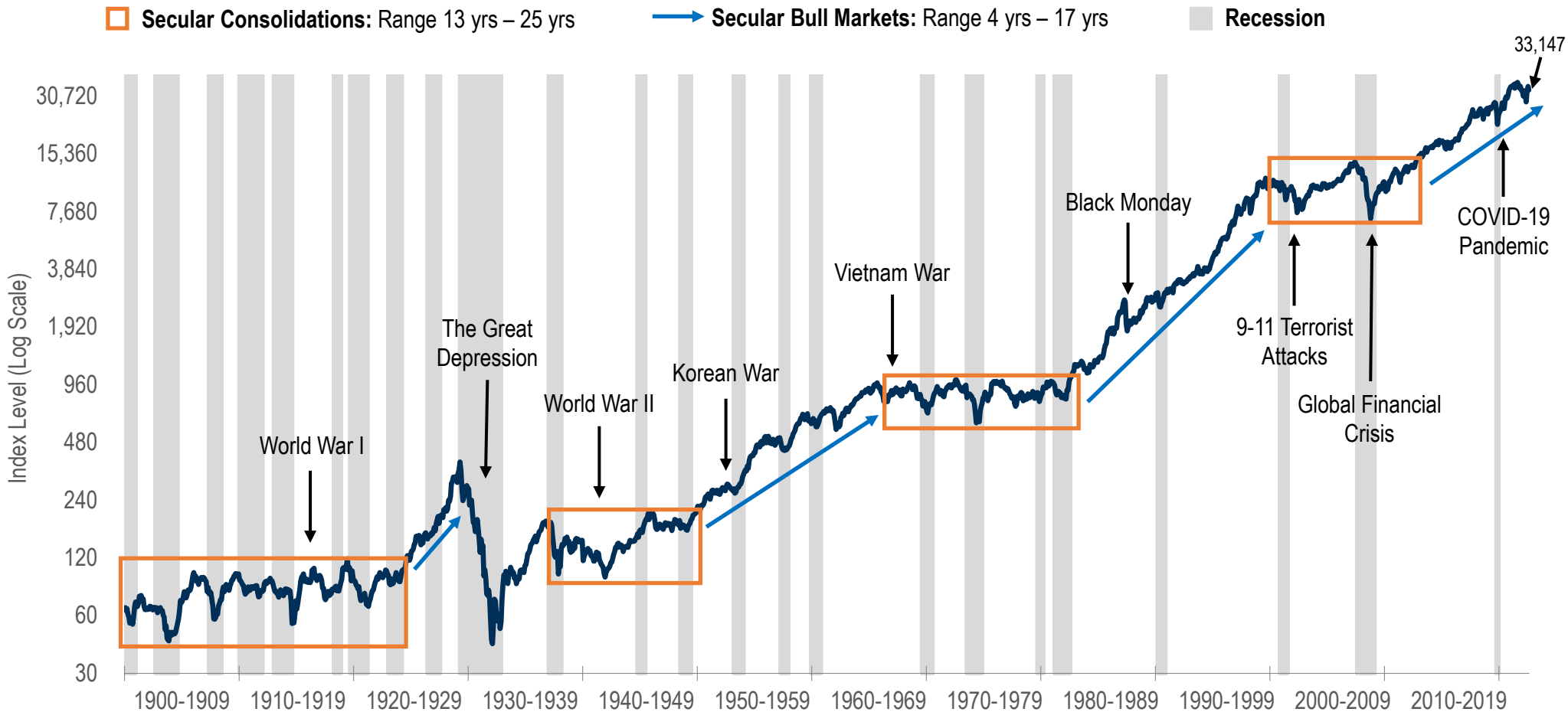
**All index data shown herein is for illustrative purposes only and not indicative of any actual investment. Index returns do not reflect any fees, expenses, or sales charges. Investors cannot invest directly in an index.**

The information presented is not intended to constitute an investment recommendation for, or advice to, any specific person. By providing this information, First Trust is not undertaking to give advice in any fiduciary capacity within the meaning of ERISA, the Internal Revenue Code or any other regulatory framework. Financial professionals are responsible for evaluating investment risks independently and for exercising independent judgment in determining whether investments are appropriate for their clients.

# SECULAR BULL AND BEAR EQUITY MARKETS

Dow Jones Industrial Average (January 31, 1900 – December 30, 2022)

## MARKET DATA

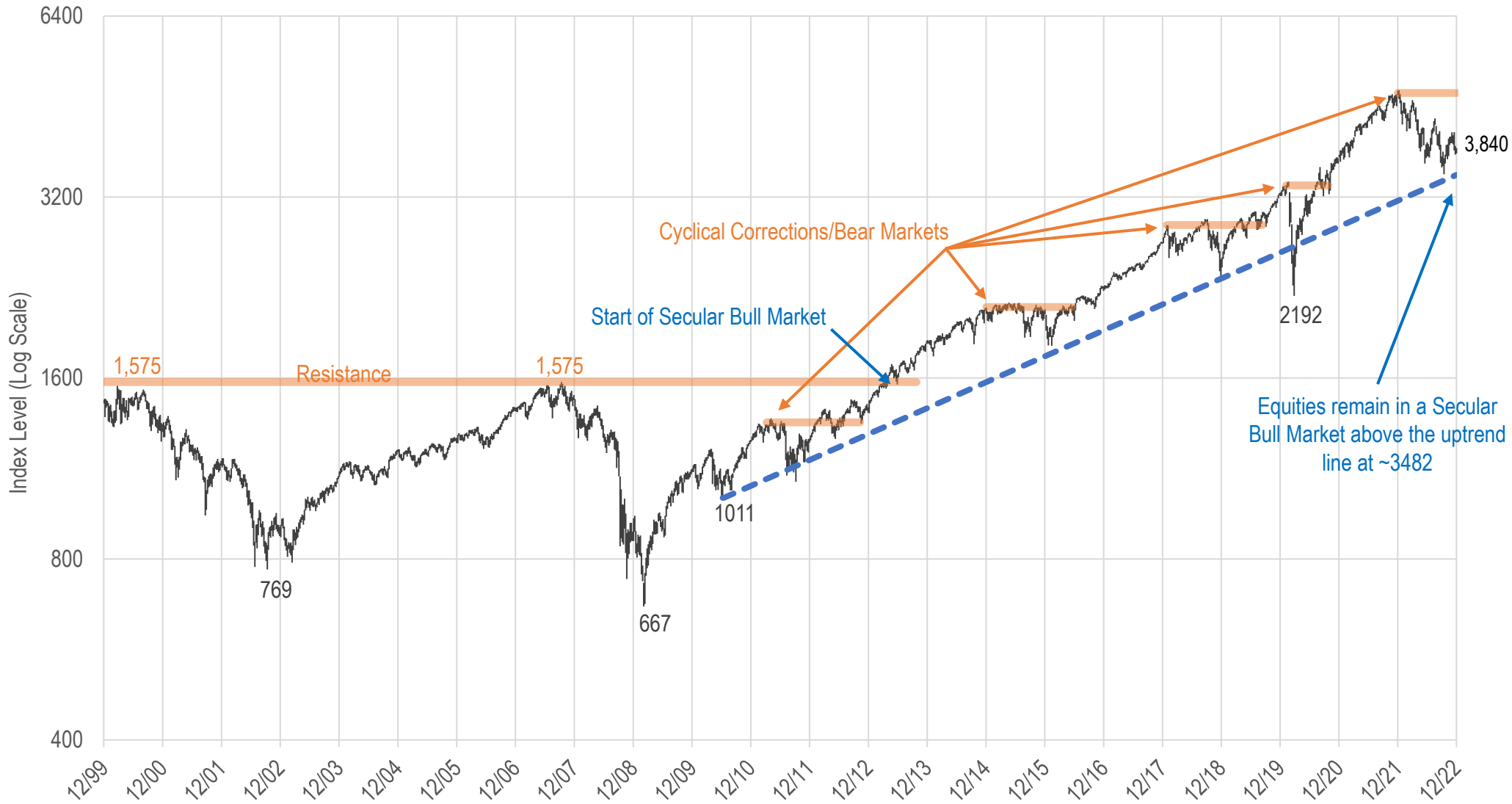


Source: Bloomberg. See Index Definitions.  
Past performance is no guarantee of future results.

# WEEKLY S&P 500 INDEX

December 31, 1999 – December 30, 2022

## MARKET DATA



Source: Bloomberg. See Index Definitions.  
Past performance is no guarantee of future results.

# WEEKLY 2 YEAR AND 5 YEAR U.S. TREASURY YIELD

December 31, 2005 – December 30, 2022

## MARKET DATA

### 2 YEAR U.S. TREASURY Q4 2022 RETURN: 0.45%



### 5 YEAR U.S. TREASURY Q4 2022 RETURN: 1.14%



Source: Bloomberg. **Past performance is no guarantee of future results.** The 2 Year U.S. Treasury return is represented by the ICE BofA Current 2-Year U.S. Treasury Index. The 5 Year U.S. Treasury return is represented by the ICE BofA Current 5-Year U.S. Treasury Index. See Index Definitions.

# WEEKLY 10 YEAR AND 30 YEAR U.S. TREASURY YIELD

December 31, 1999 – December 30, 2022

## MARKET DATA

### 10 YEAR U.S. TREASURY Q4 2022 RETURN: 0.65%



### 30 YEAR U.S. TREASURY Q4 2022 RETURN: -2.78%



Source: Bloomberg. **Past performance is no guarantee of future results.** The 10 Year U.S. Treasury return is represented by the ICE BofA Current 10-Year U.S. Treasury Index. The 30 Year U.S. Treasury return is represented by the ICE BofA Current 30-Year U.S. Treasury Index. See Index Definitions.

# MONTHLY 10 YEAR U.S. TREASURY YIELD 1980 - PRESENT

January 31, 1980 – December 30, 2022



## MARKET DATA



Source: Bloomberg. Past performance is no guarantee of future results. See Index Definitions.



# WEEKLY 10 YEAR GOVERNMENT BOND YIELDS (GERMANY & JAPAN)

December 31, 2005 – December 30, 2022

## MARKET DATA

### WEEKLY 10 YEAR GERMAN BUND YIELD



### WEEKLY 10 YEAR JAPANESE GOVERNMENT BOND YIELD



Source: Bloomberg. Past performance is no guarantee of future results. See Index Definitions.

# WEEKLY 10 YEAR GOVERNMENT BOND YIELDS (U.K. & ITALY)

December 31, 2005 – December 30, 2022

## MARKET DATA

### WEEKLY 10 YEAR U.K. GOVERNMENT BOND YIELD



### WEEKLY 10 YEAR ITALIAN GOVERNMENT BOND YIELD

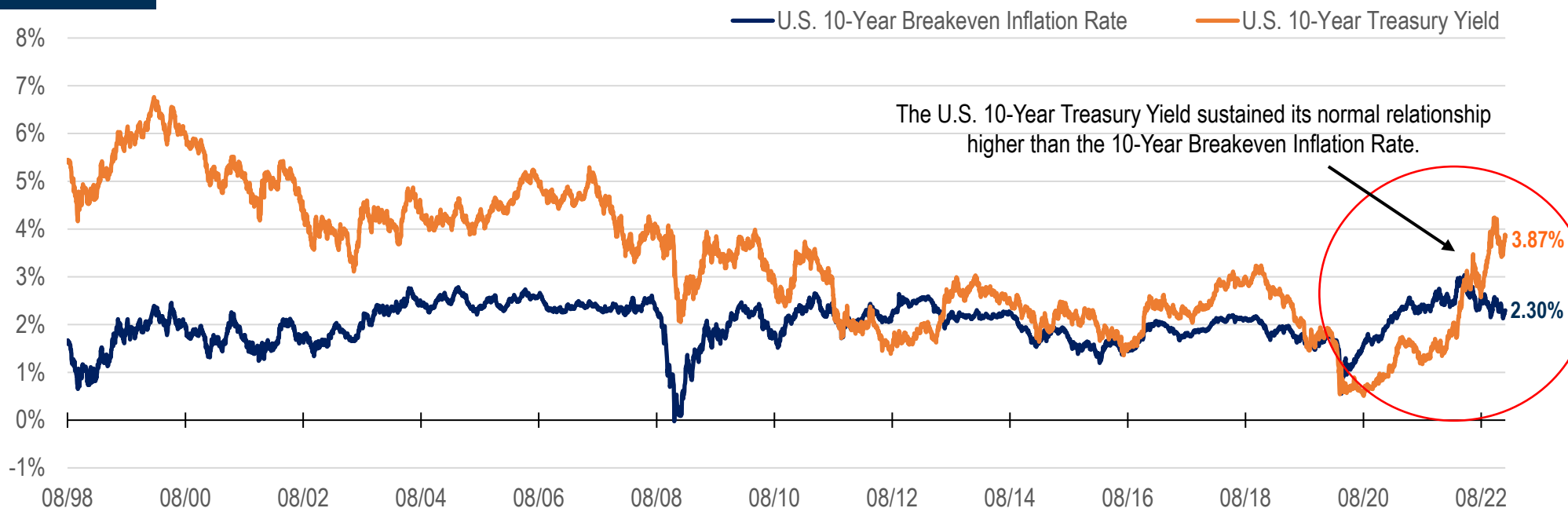


Source: Bloomberg. Past performance is no guarantee of future results. See Index Definitions.

# 10-YEAR U.S. TREASURY REAL YIELD

August 3, 1998 – December 30, 2022

## MARKET DATA



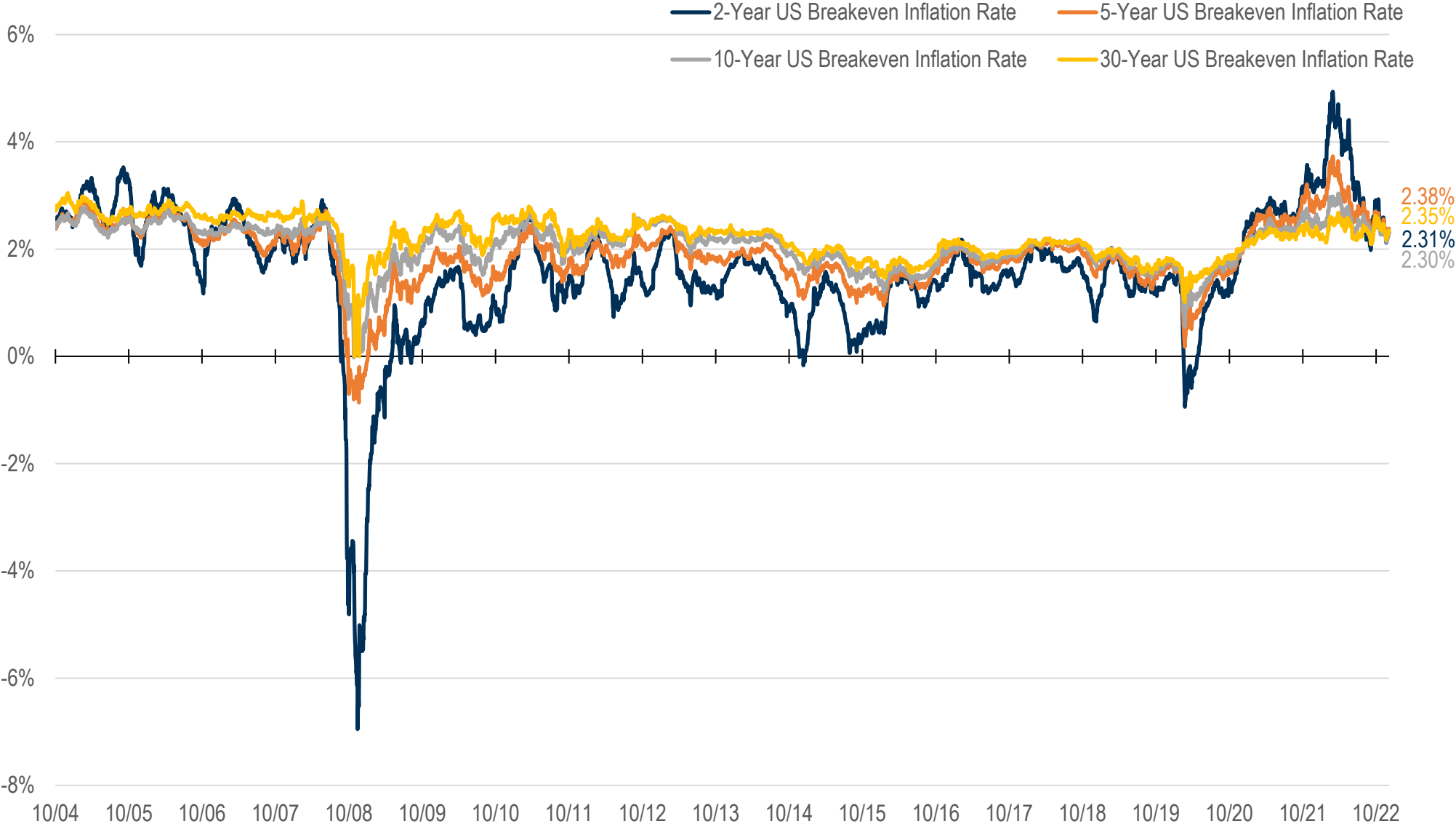
Real Yield is an interest rate that has been adjusted to remove the effects of inflation. Real Yield is calculated as the difference in yields between U.S. Treasury bonds and Treasury Inflation-Protected Securities (TIPS). The breakeven rate is a market-based gauge for the expected annual inflation. See Index Definitions.

Source: Bloomberg; Past performance is no guarantee of future results.

# INFLATION: BREAKEVENS

October 27, 2004 – December 30, 2022

## MARKET DATA



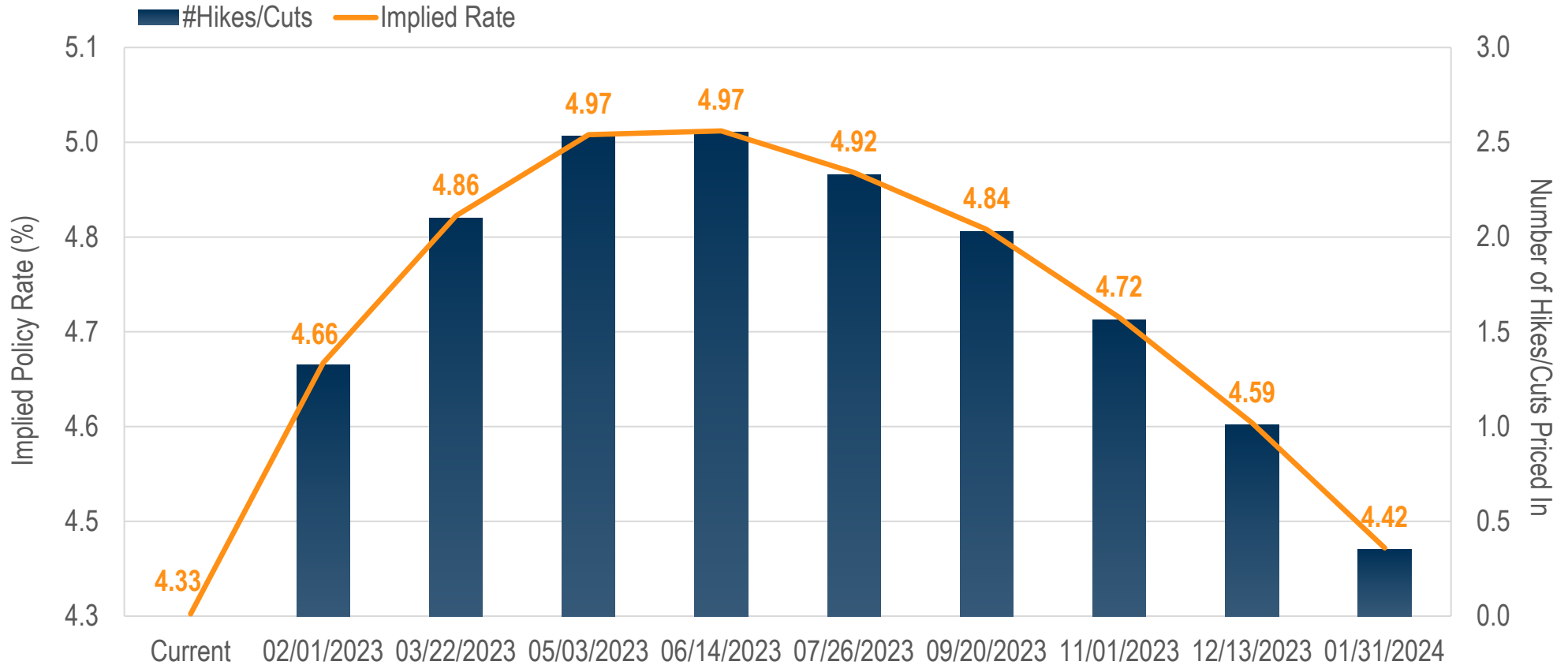
Source: Bloomberg: The breakeven rate is a market-based gauge for the expected annual inflation. Past performance is no guarantee of future results. See Index Definitions.

# IMPLIED FEDERAL FUNDS RATE & NUMBER OF HIKES/CUTS

As of December 30, 2022

## MARKET DATA

Federal Funds Futures indicate an implied forward rate peaking at 4.97% by June of 2023, which translates to approximately 2.6 hikes.



Source: Bloomberg.

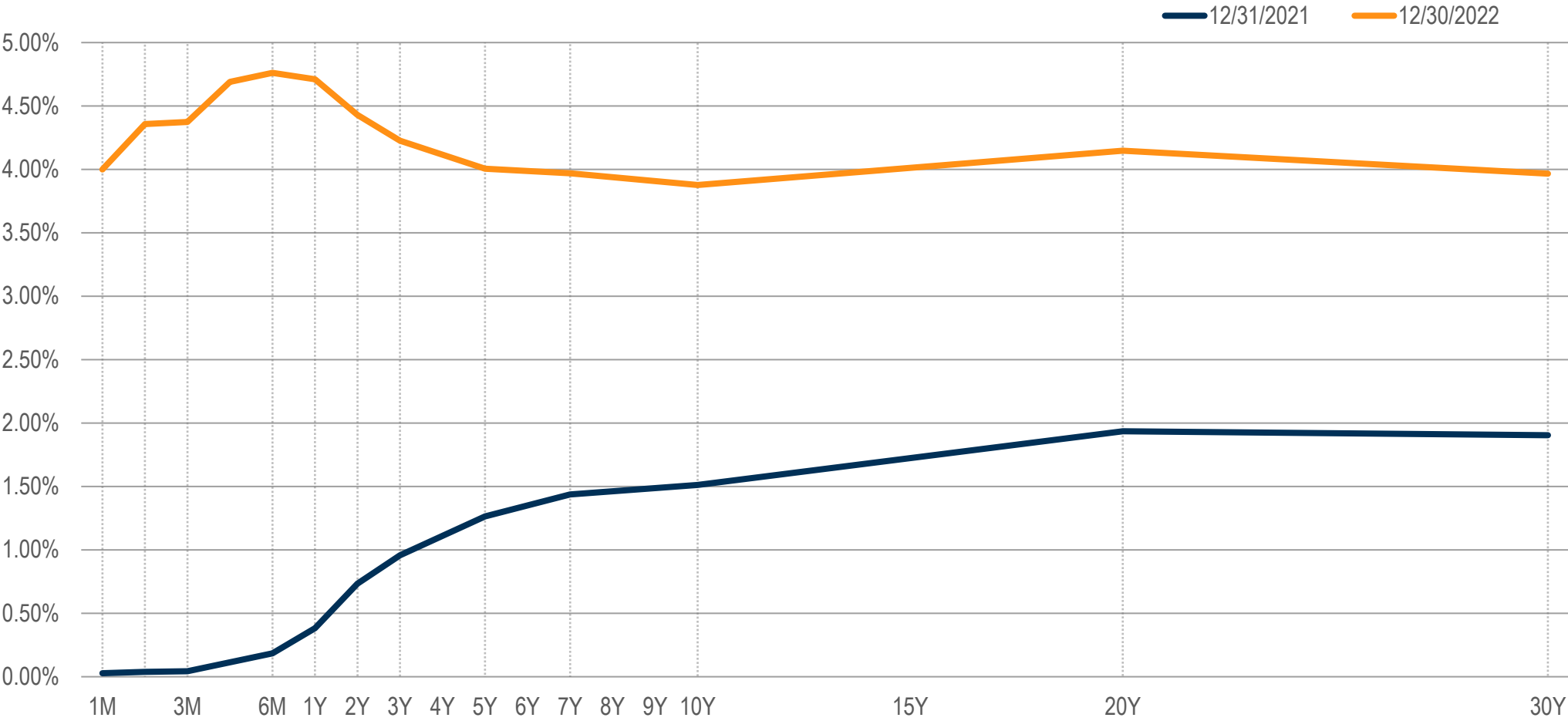
The assumed rate movement for one rate hike or cut is equivalent to +/- 0.25%. There is no assurance forecasts will be achieved.

The Federal Funds Rate is the interbank overnight lending rate for commercial banks' excess reserves. The Implied Federal Funds Rate for the US is the estimated forward rate for the United States and is derived from Federal Funds Futures contracts to determine the probability of the Federal Reserve changing monetary policy at a particular meeting.

# US TREASURY YIELD CURVE

As of December 30, 2022

## MARKET DATA



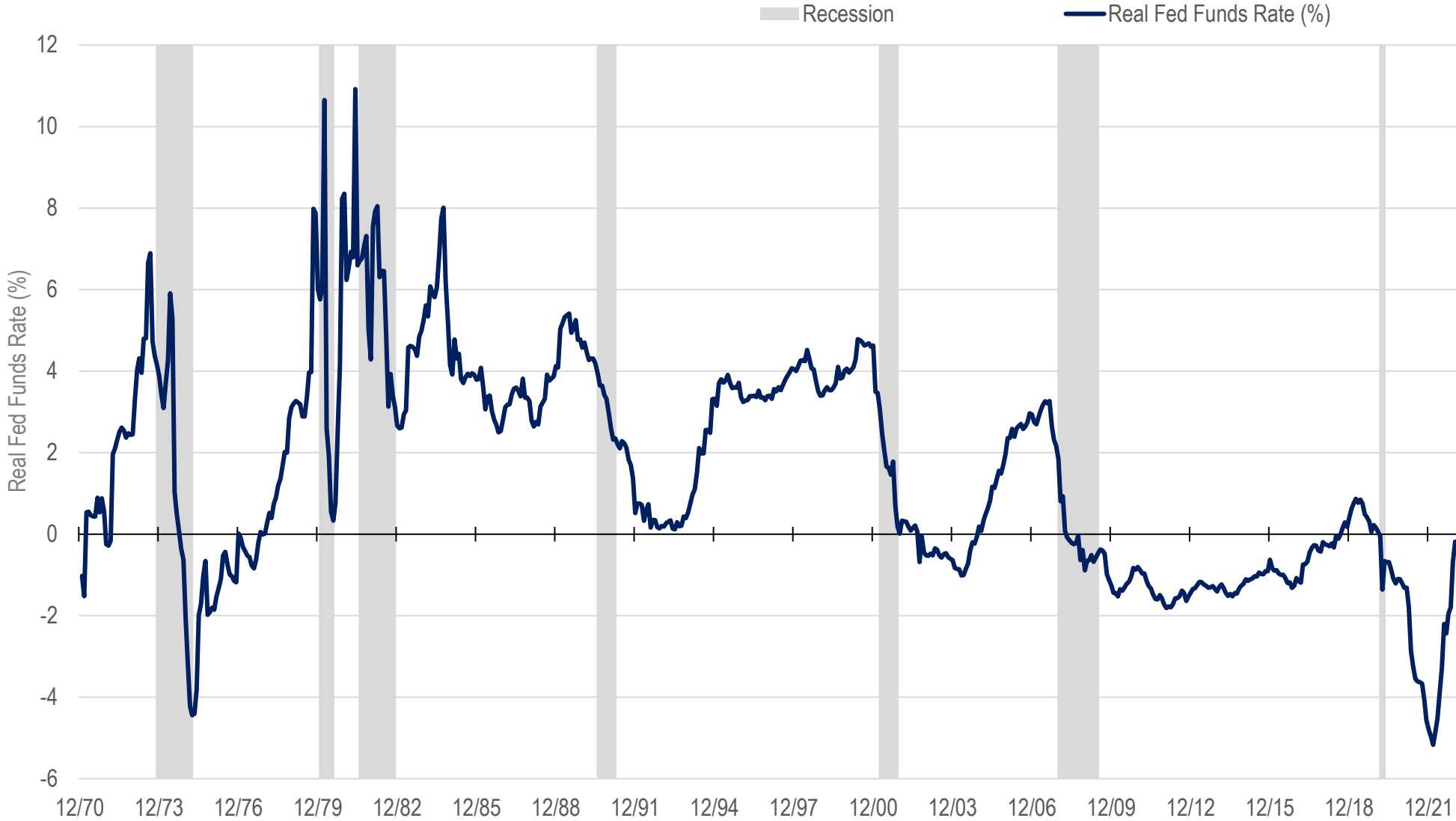
Source: Bloomberg. Past performance is no guarantee of future results.

# REAL FEDERAL FUNDS RATE

December 31, 1970 – December 30, 2022



## MARKET DATA

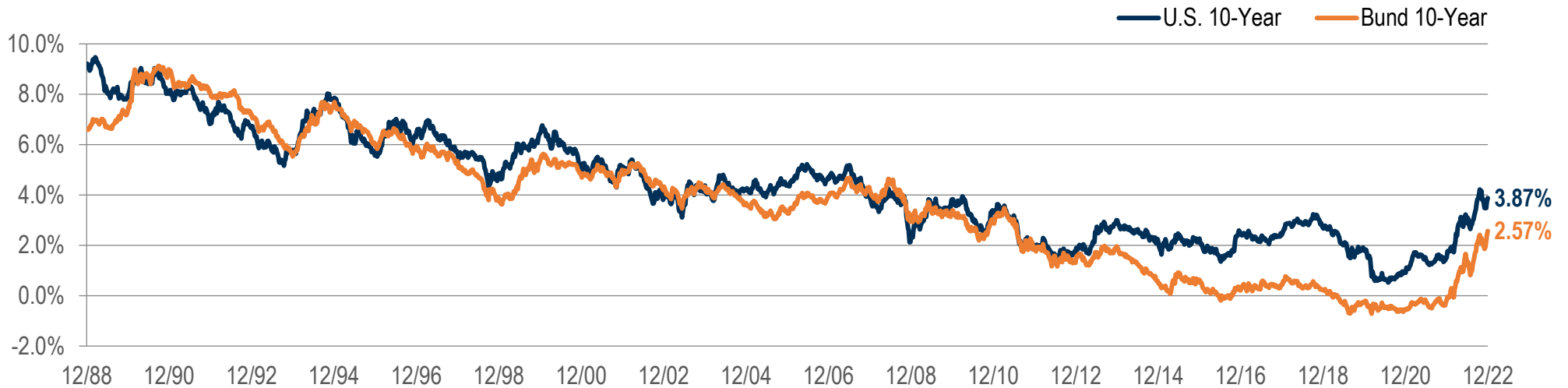


Source: Bloomberg, FRED. The Real Federal Funds Rate is the effective Federal Funds Rate minus 12-month core PCE inflation. The Effective Federal Funds Rate is the interest rate banks charge each other for overnight lending. See Index Definitions.

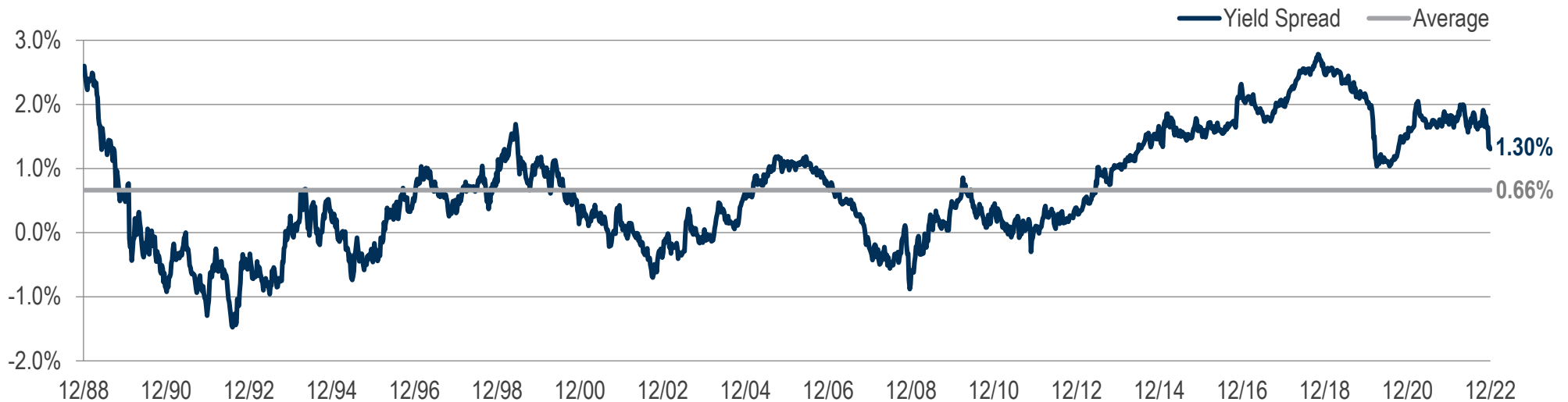
# 10 YEAR U.S. TREASURY YIELD AND 10 YEAR GERMAN BUND YIELD

December 31, 1988 – December 30, 2022

## MARKET DATA



## YIELD SPREAD BETWEEN THE 10 YEAR U.S. TREASURY YIELD AND THE 10 YEAR GERMAN BUND YIELD



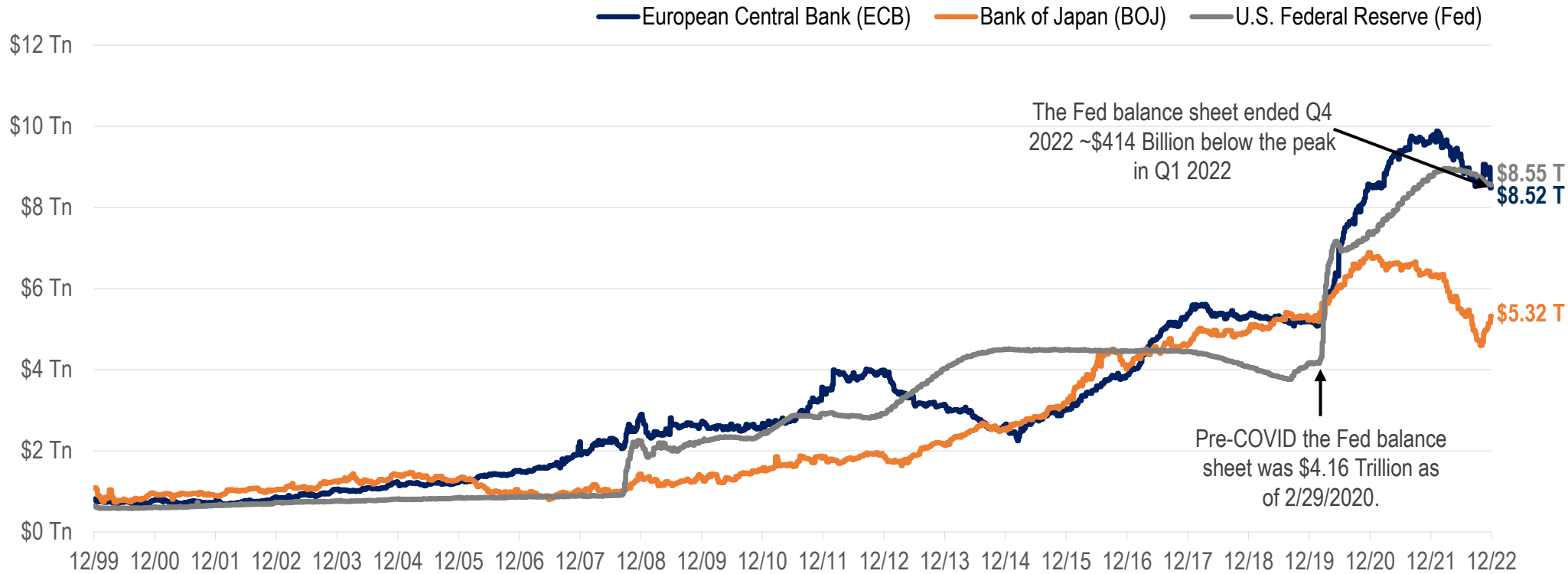
Source: Bloomberg. Past performance is no guarantee of future results. See Index Definitions.



# CENTRAL BANK BALANCE SHEETS

December 31, 1999 – December 30, 2022

## MARKET DATA

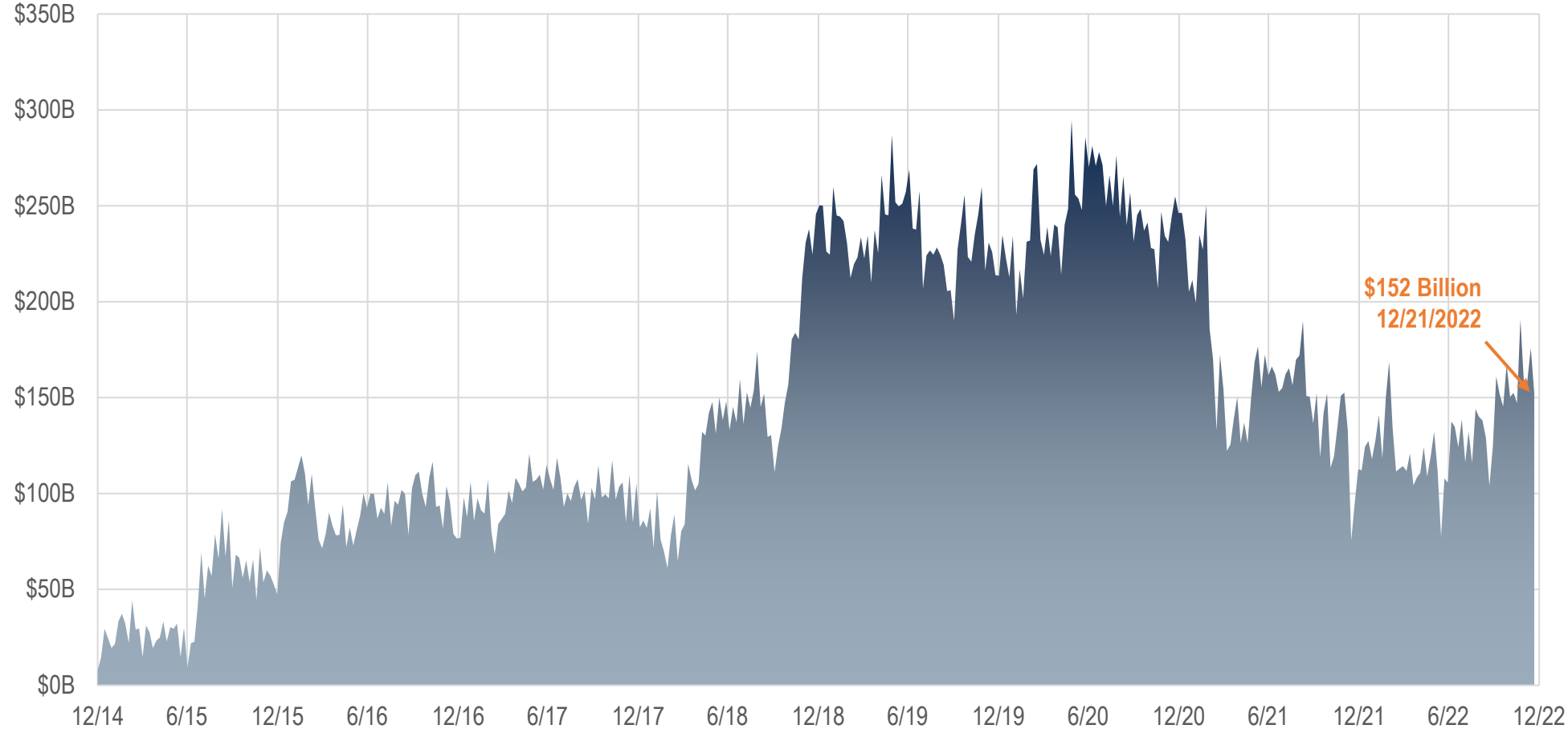


Source: Bloomberg. See Index Definitions.

# NET DEALER TREASURY HOLDINGS

December 31, 2014 – December 21, 2022

## MARKET DATA

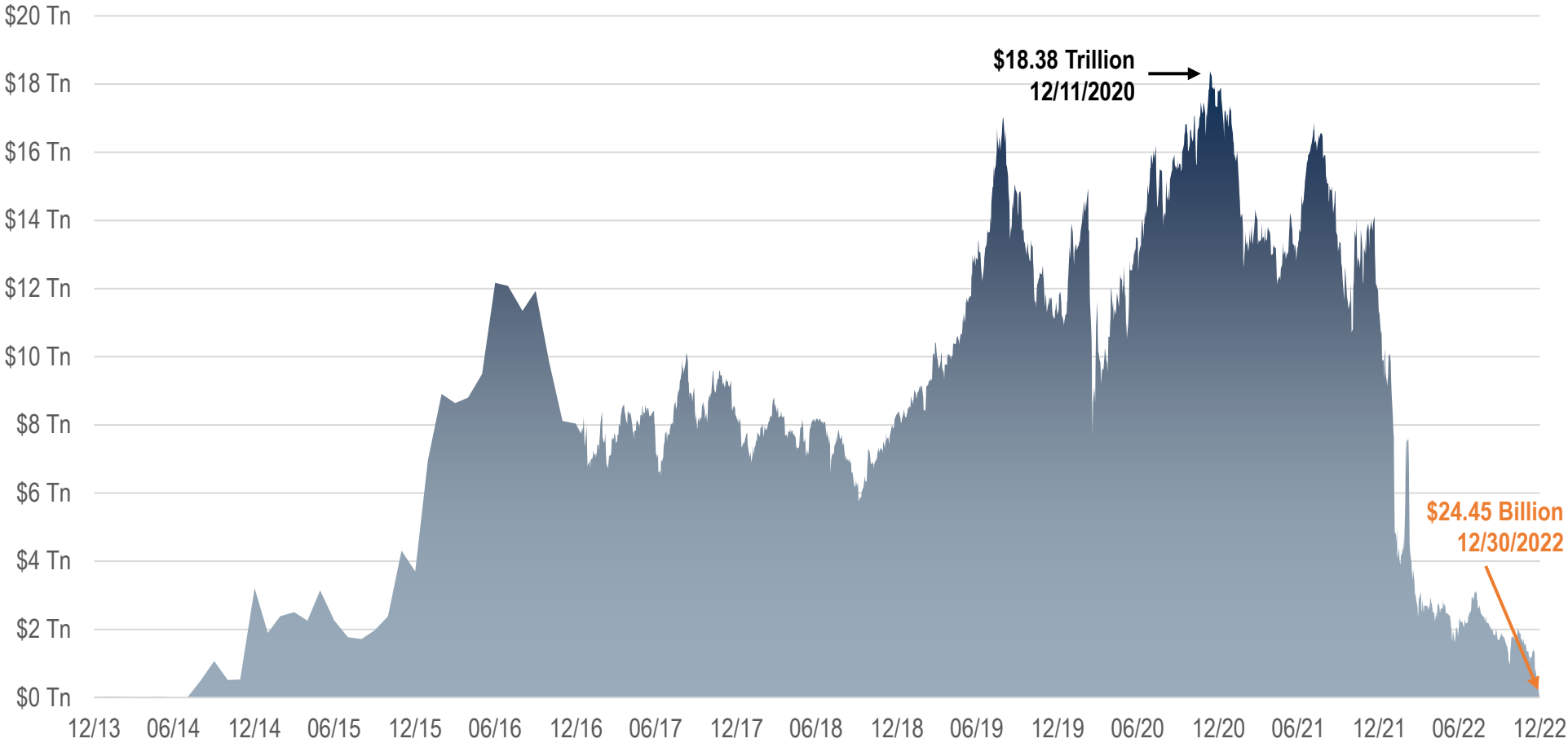


Source: Bloomberg, Federal Reserve. See Index Definitions.

# GLOBAL NEGATIVE YIELDING DEBT

December 31, 2013 – December 30, 2022

## MARKET DATA



Source: Bloomberg. Global negative yielding debt is comprised by summing the negative yielding debt within the Bloomberg Global-Aggregate Index. See Index Definitions.

# WEEKLY U.S. DOLLAR INDEX (DXY)

December 31, 2010 – December 30, 2022

## MARKET DATA

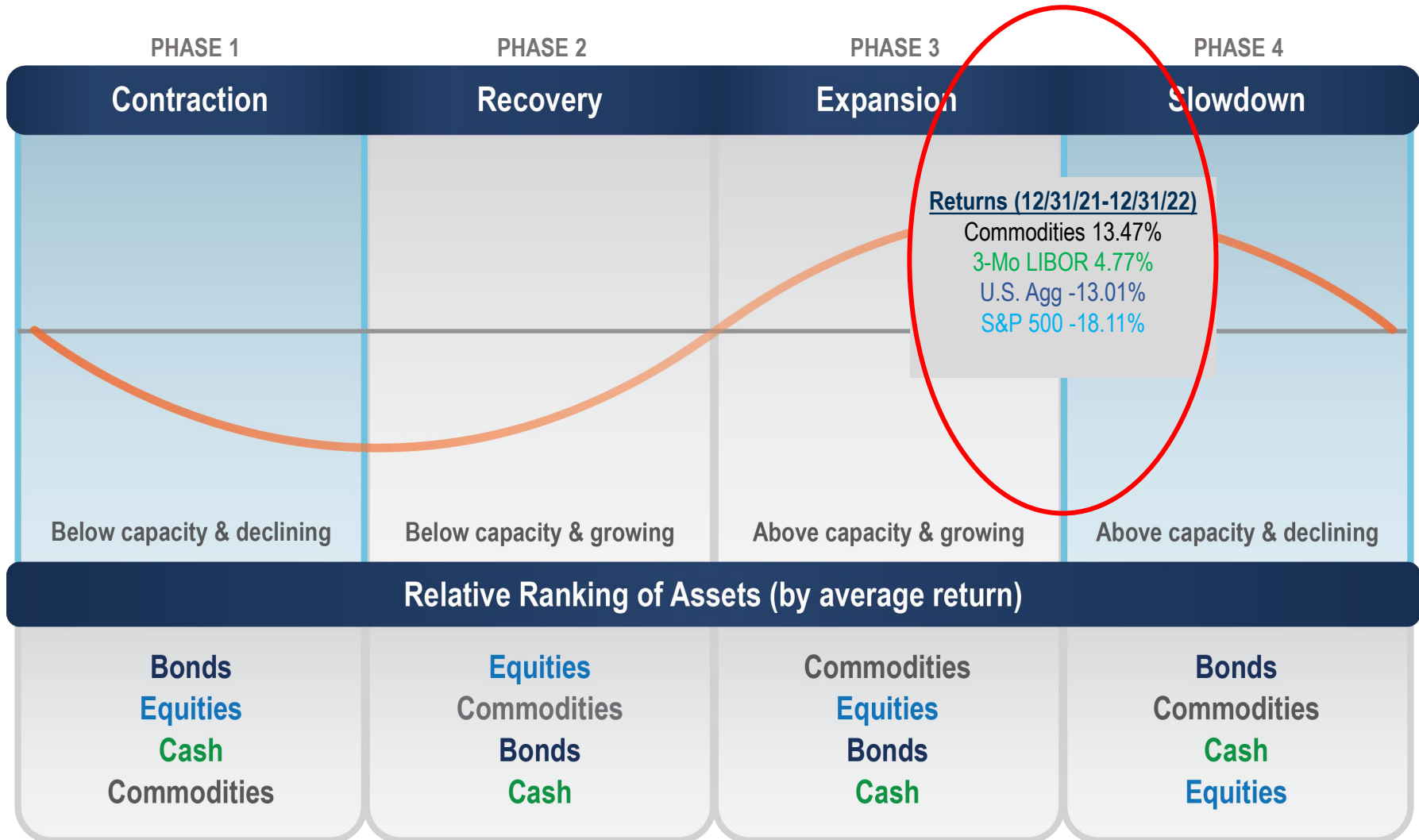
DXY is a measure of the U.S. dollar's value relative to the following currencies:

- Euro: 57.6%
- Japanese Yen: 13.6%
- British Pound: 11.9%
- Canadian Dollar: 9.1%
- Swedish Krona: 4.2%
- Swiss Franc: 3.6%



Source: Bloomberg. Past performance is no guarantee of future results. See Index Definitions.

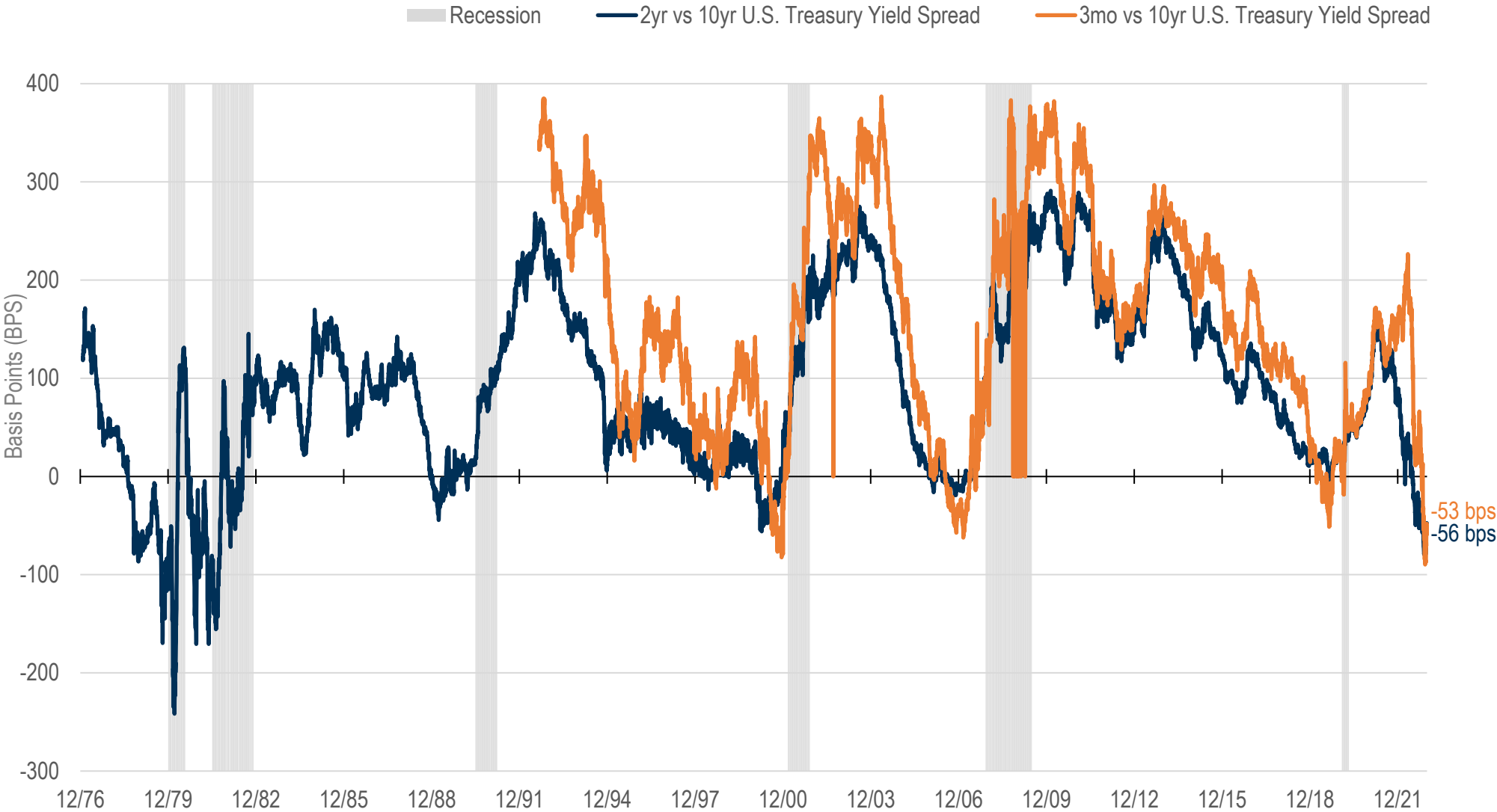
## LEADING INDICATORS



Source: Goldman Sachs Global Investment Research **Past performance is no guarantee of future results.** This chart is for illustrative purposes only and not indicative of any actual investment. See Index Definitions.

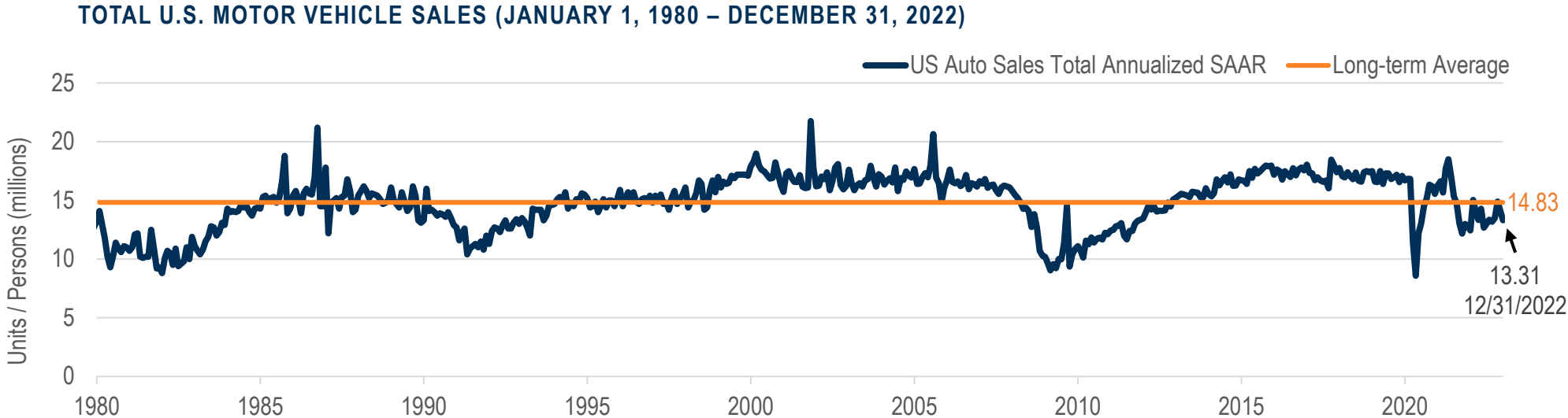
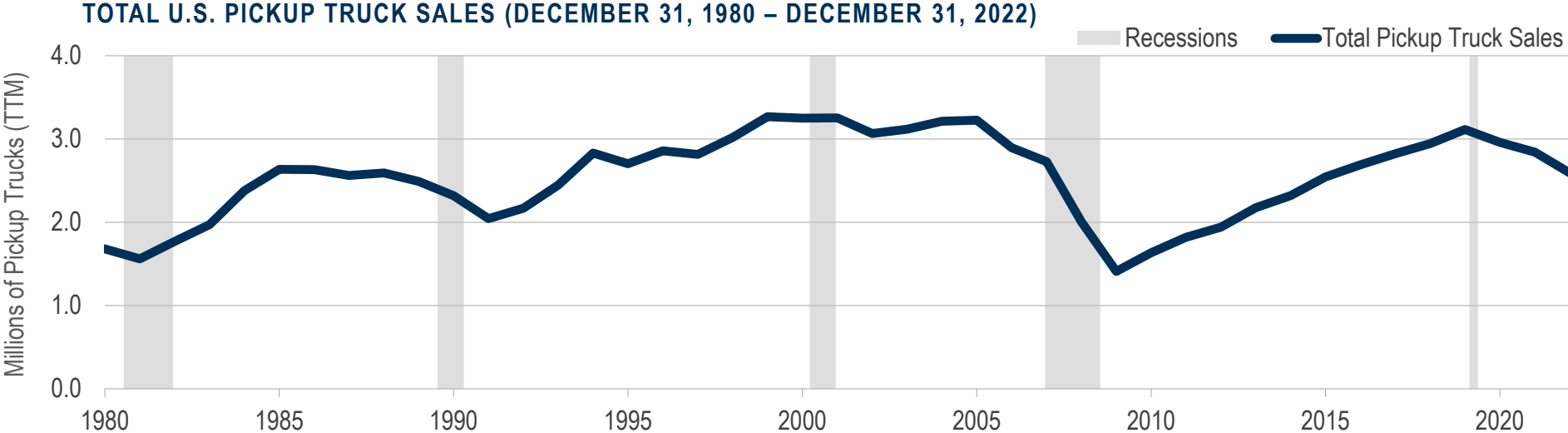
# 2 YEAR VS 10 YEAR U.S. TREASURY YIELD SPREAD & 3 MONTH VS 10 YEAR U.S. TREASURY YIELD SPREAD

LEADING INDICATORS



Source: Bloomberg, as of 12/30/2022. **Past performance is no guarantee of future results.** The yield spread is the difference between yields on the varying Treasury maturities. A basis point is a common unit of measure for interest rates and is equal to 1/100th of 1% or 0.01%. A 1% change is equal to 100 basis points. See Index Definitions.

## LEADING INDICATORS



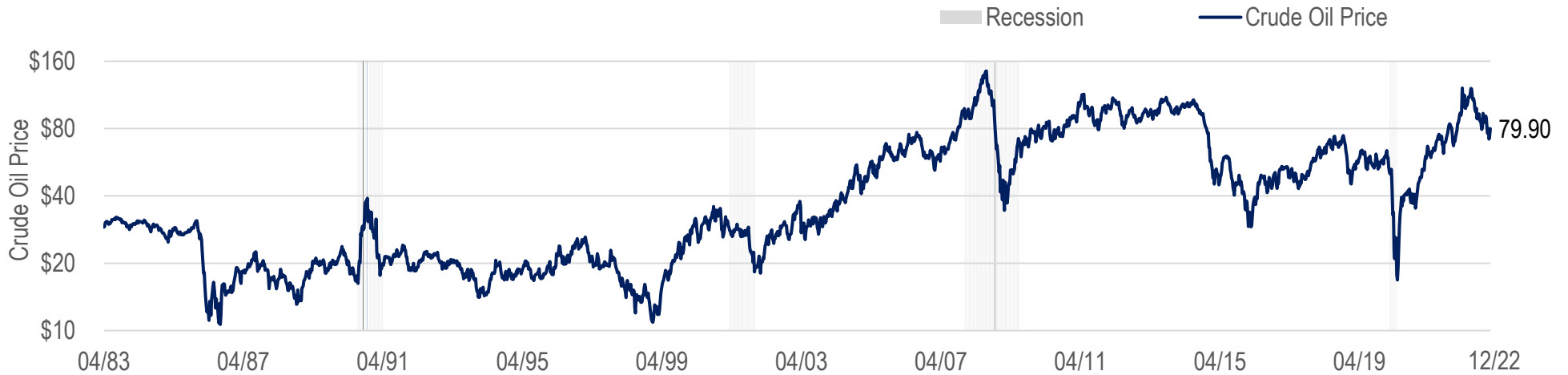
Source: Bloomberg, Citigroup Global Markets Inc., Motor Intelligence, GoodCarBadCar.  
U.S. Motor Vehicle Sales reflect the seasonally adjusted annual rate (SAAR) where data has been adjusted for the effects of seasonal patterns.

LEADING INDICATORS

WEEKLY BLOOMBERG COMMODITY (BCOM) INDEX (DECEMBER 31, 1990 – DECEMBER 30, 2022)



WEEKLY CRUDE OIL PRICE (APRIL 1, 1983 – DECEMBER 30, 2022)



Source: Bloomberg. Past performance is no guarantee of future results. See Index Definitions.



# FIXED INCOME DASHBOARD

10 Year Minimum and Maximum Option Adjusted Spreads (OAS)

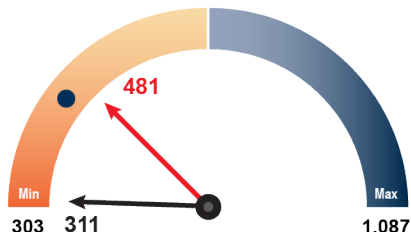
## FIXED INCOME OPPORTUNITY SET

As of 12/31/2021:

As of 12/30/2022:

Mean as of 12/30/2022:

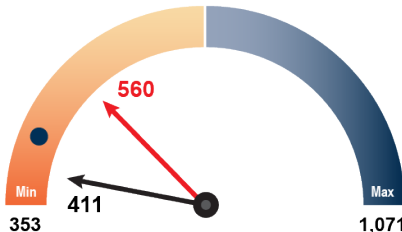
### HIGH-YIELD BONDS



OAS – ICE BofA U.S. High Yield Constrained Index

Current OAS	481	High OAS	1,087	3/23/2020
Mean OAS	448	Low OAS	303	12/28/2021
Std Dev	113			

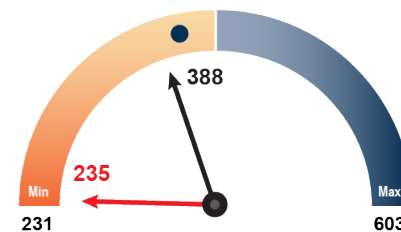
### SENIOR LOANS



STM – S&P/LSTA Leveraged Loan Index

Current STM	560	High STM	1,071	3/23/2020
Mean STM	463	Low STM	353	4/20/2018
Std Dev	78			

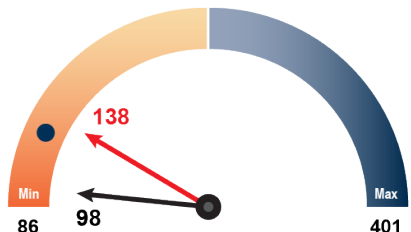
### PREFERRED



CYS – Preferreds Blended Benchmark\*

Current CYS	235	High CYS	603	3/23/2020
Mean CYS	398	Low CYS	231	12/27/2022
Std Dev	57			

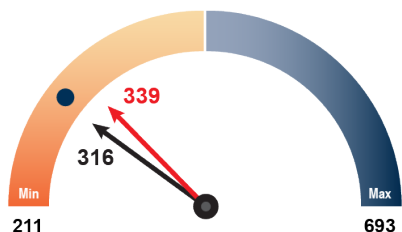
### INVESTMENT-GRADE CORPORATES



OAS – ICE BofA U.S. Corporate Index

Current OAS	138	High OAS	401	3/23/2020
Mean OAS	133	Low OAS	86	9/27/2021
Std Dev	31			

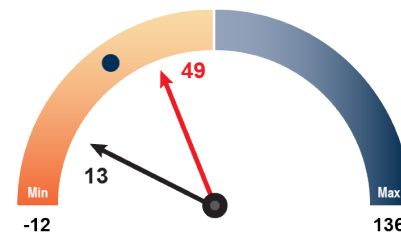
### EMERGING MARKETS



OAS – ICE BofA U.S. Emerging Markets External Sovereign Index

Current OAS	339	High OAS	693	3/23/2020
Mean OAS	319	Low OAS	211	2/2/2018
Std Dev	59			

### MORTGAGE-BACKED SECURITIES



OAS – ICE BofA U.S. Mortgage Backed Securities Index

Current OAS	49	High OAS	136	3/19/2020
Mean OAS	34	Low OAS	-12	4/30/2021
Std Dev	20			

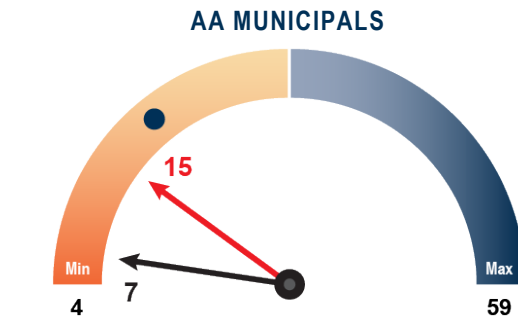
Source: ICE and Standard & Poor's Leveraged Loan Commentary and Data. **Past performance is no guarantee of future results.** Option Adjusted Spread (OAS) is the current spread over a Treasury security of similar tenor. Senior Loan STM is Spread-To-Maturity. Current yield is equivalent to the Index's annual income (face value multiplied by par weighted coupon) divided by the current price (full market value). Preferreds Current Yield Spread (CYS) is the current yield of the preferreds blended benchmark minus the current yield of the 10-Year Treasury Index (GA10), going back to 12/31/2013. \*The blended benchmark consists of 30% ICE BofA Core Plus Fixed Rate Preferred Securities Index (P0P4) / 30% ICE BofA U.S. Investment Grade Institutional Capital Securities Index (CIPS) / 30% ICE BofA USD Contingent Capital Index (CDLR) / 10% ICE BofA U.S. High Yield Institutional Capital Securities Index (HIPS). See Index Definitions.

# MUNICIPAL BONDS

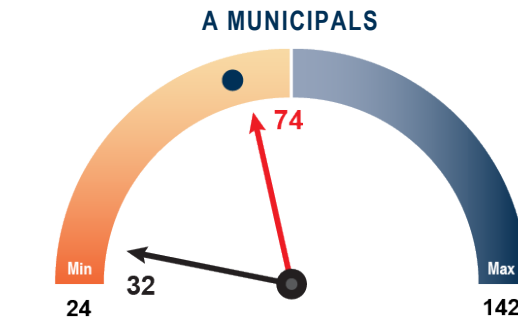
10 Year Spreads to AAA Municipals

**FIXED INCOME OPPORTUNITY SET**

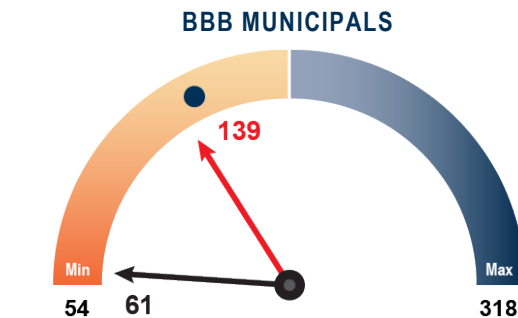
As of 12/31/2021:   
 As of 12/30/2022:   
 Mean as of 12/30/2022:



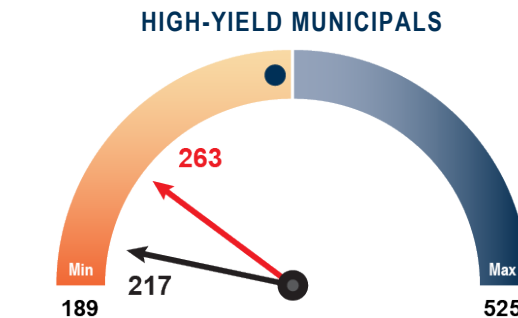
Bloomberg Municipal AA Index Total Return Index Value Unhedged USD				
Current	15	High	59	9/6/2013
Mean	19	Low	4	7/21/2021
Std Dev	14			



Bloomberg Municipal A Index Total Return Index Value Unhedged USD				
Current	74	High	142	12/6/2013
Mean	70	Low	24	7/21/2021
Std Dev	30			



Bloomberg Municipal BAA Index Total Return Index Value Unhedged USD				
Current	139	High	318	1/31/2014
Mean	144	Low	54	9/29/2021
Std Dev	59			



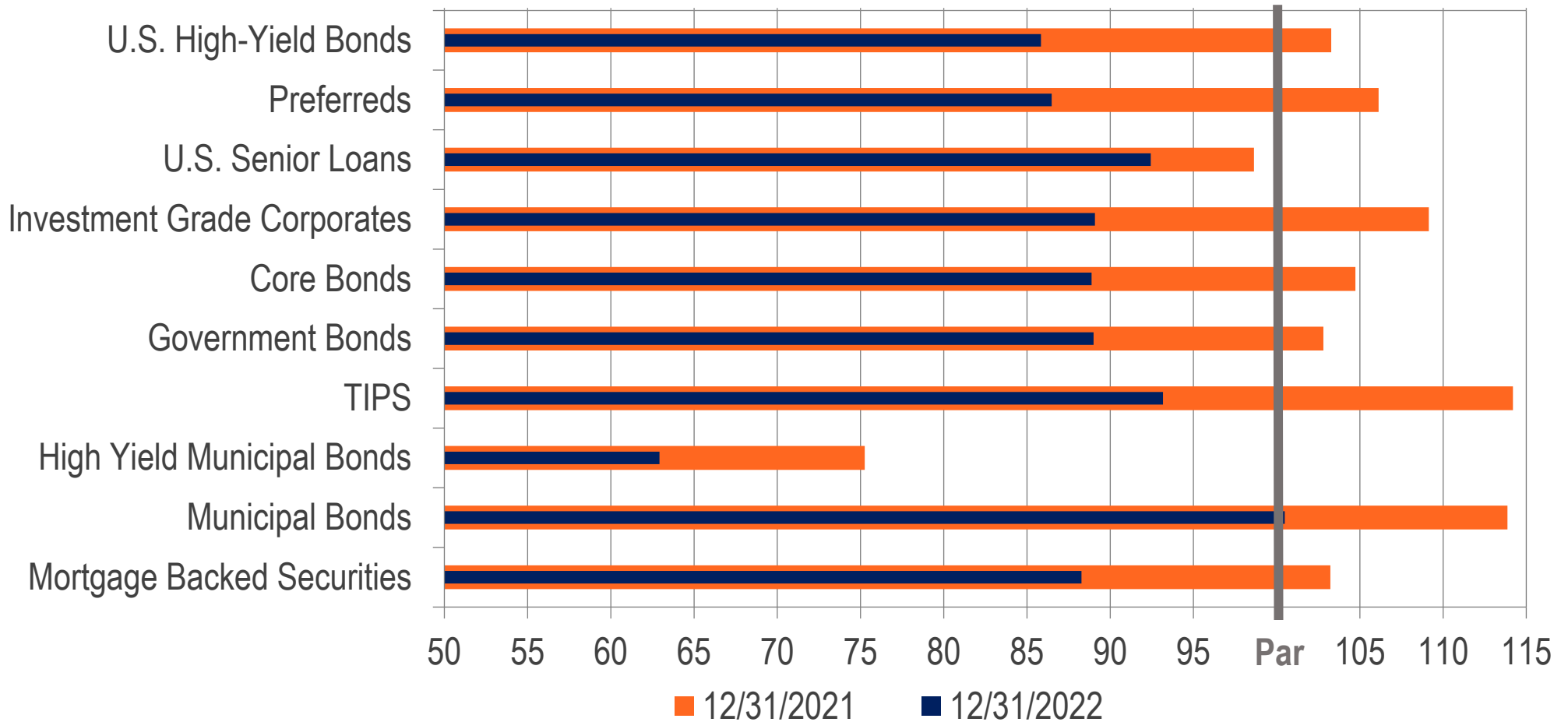
Bloomberg Municipal High Yield Total Return Index Value Unhedged USD				
Current	263	High	525	2/11/2016
Mean	353	Low	189	3/28/2022
Std Dev	104			

Source: Bloomberg. **Past performance is no guarantee of future results.** The spread is the difference between the benchmark shown and the Bloomberg Municipal AAA Index Total Return Index Value Unhedged USD. See Index Definitions.

# FIXED INCOME ASSET CLASS PRICE ANALYSIS

As of December 30, 2022

## FIXED INCOME OPPORTUNITY SET

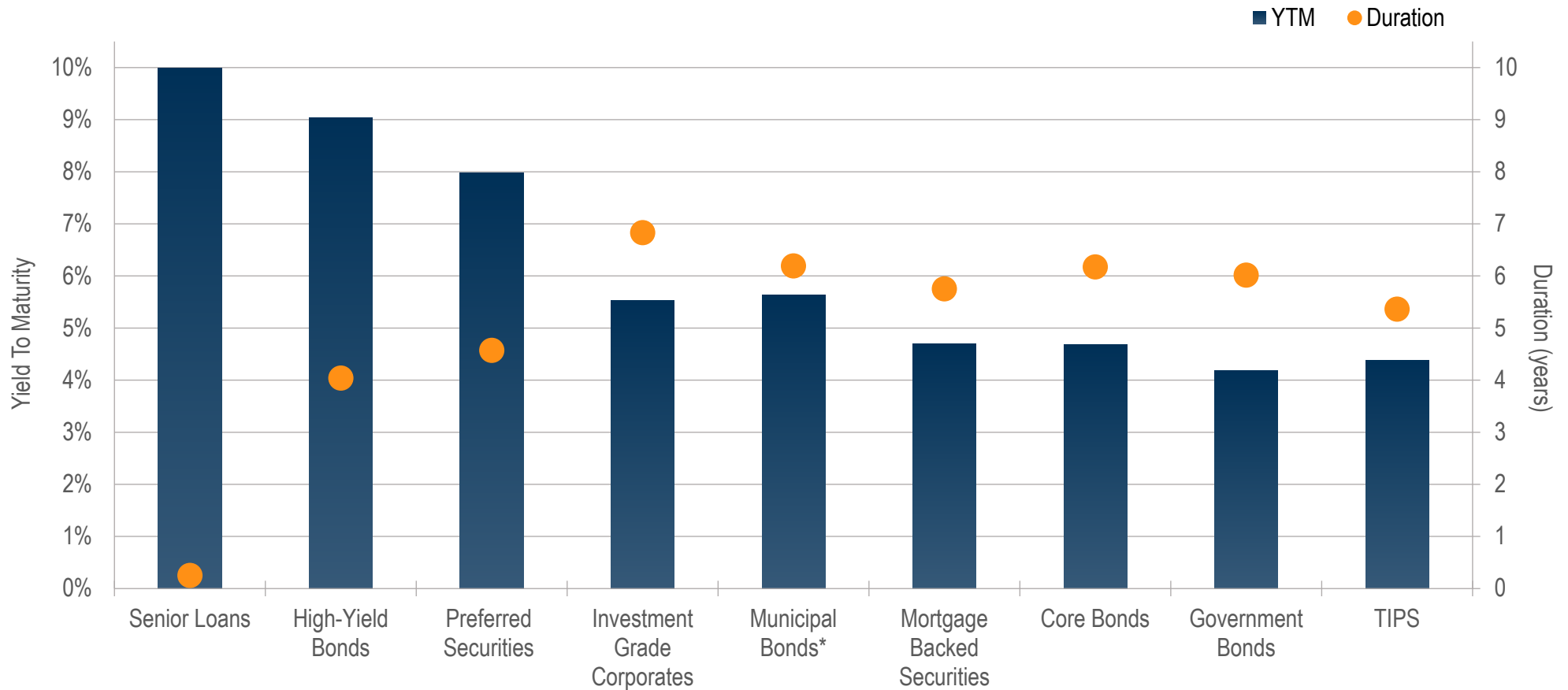


Source: S&P LCD and Bloomberg. **Past performance is no guarantee of future results.** U.S. High-Yield Bonds are represented by the ICE BofA U.S. High Yield Constrained Index. Preferreds are represented by a blended benchmark consisting of 30% ICE BofA Core Plus Fixed Rate Preferred Securities Index (POP4) / 30% ICE BofA U.S. Investment Grade Institutional Capital Securities Index (CIPS) / 30% ICE BofA USD Contingent Capital Index (CDLR) / 10% ICE BofA U.S. High Yield Institutional Capital Securities Index (HIPS); U.S. Senior Loans are represented by the Morningstar® LSTA® US Leveraged Loan Index. Investment Grade Corporates are represented by the ICE BofA U.S. Corporate Index. Core Bonds are represented by the Bloomberg U.S. Aggregate Bond Index. Government Bonds are represented by the Bloomberg U.S. Government Index. TIPS are represented by the Bloomberg US Treasury Inflation-Linked Bond Index. High Yield Municipal Bonds are represented by the Bloomberg Muni High Yield Index. Municipal Bonds are represented by the Bloomberg U.S. Municipal Index. Mortgage Backed Securities are represented by the ICE BofA U.S. Mortgage Backed Securities Index. See Index Definitions.

# FIXED INCOME OPPORTUNITY SET – DURATION VS YTM

As of December 30, 2022

## FIXED INCOME OPPORTUNITY SET

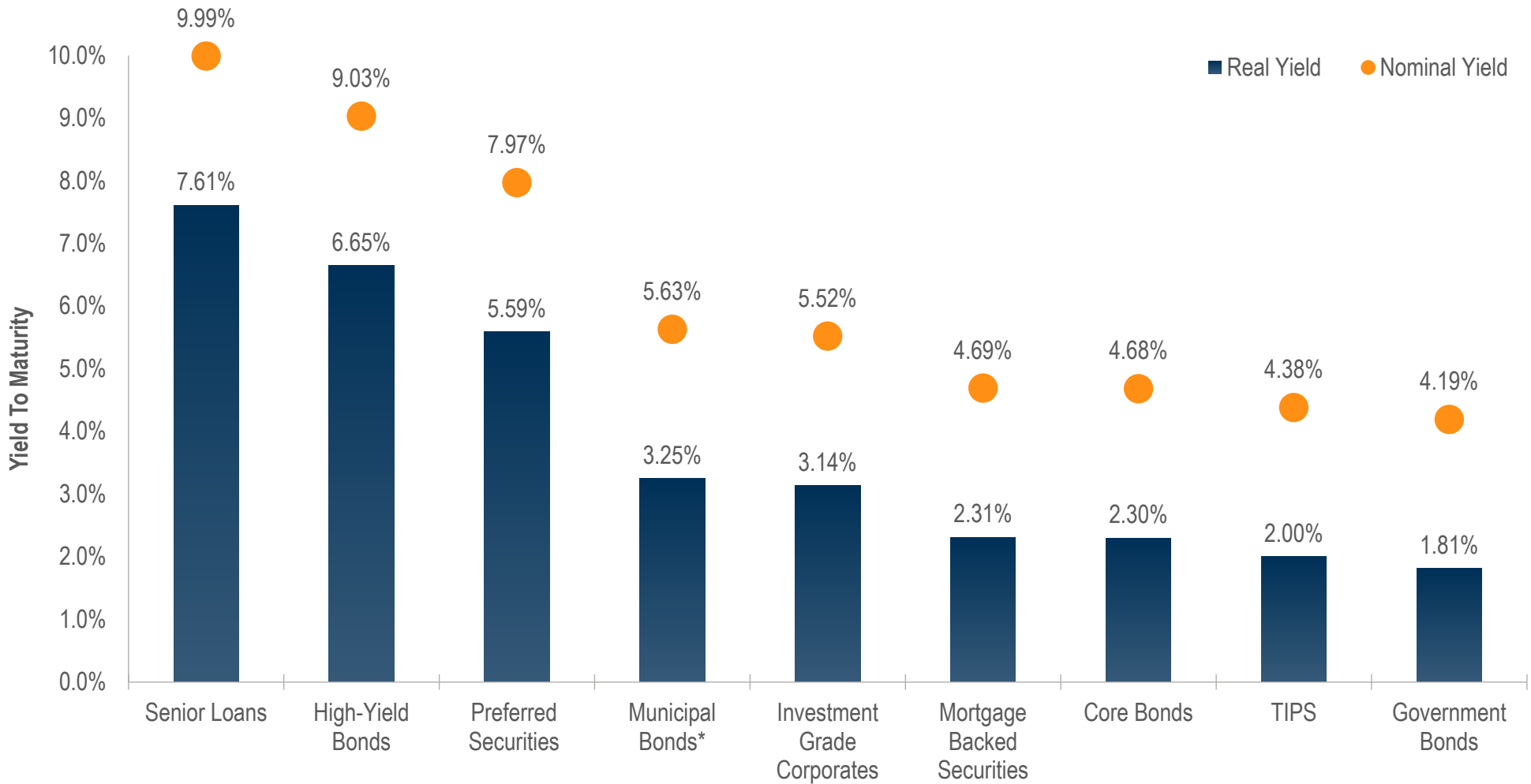


Source: S&P LCD, and Bloomberg. **Past performance is no guarantee of future results.** \*YTM represents the Tax-Equivalent Yield (TEY) for the highest tax bracket of 37%. U.S. Senior Loans are represented by the Morningstar® LSTA® US Leveraged Loan Index. High-Yield Bonds are represented by the ICE BofA U.S. High Yield Constrained Index. Preferreds are represented by a blended benchmark consisting of 30% ICE BofA Core Plus Fixed Rate Preferred Securities Index (POP4) / 30% ICE BofA U.S. Investment Grade Corporates are represented by the ICE BofA U.S. Investment Grade Institutional Capital Securities Index (CIPS) / 30% ICE BofA USD Contingent Capital Index (CDLR) / 10% ICE BofA U.S. High Yield Institutional Capital Securities Index (HIPS). Investment Grade Corporates are represented by the ICE BofA U.S. Corporate Index. Municipal Bonds are represented by the Bloomberg U.S. Municipal Index. Mortgage Backed Securities are represented by the ICE BofA U.S. Mortgage Backed Securities Index. Core Bonds are represented by the Bloomberg U.S. Aggregate Bond Index. Government Bonds are represented by the Bloomberg U.S. Government Index. TIPS are represented by the Bloomberg US Treasury Inflation-Linked Bond Index. See Index Definitions.

# FIXED INCOME OPPORTUNITY SET – NOMINAL & REAL YIELDS

As of December 30, 2022

## FIXED INCOME OPPORTUNITY SET



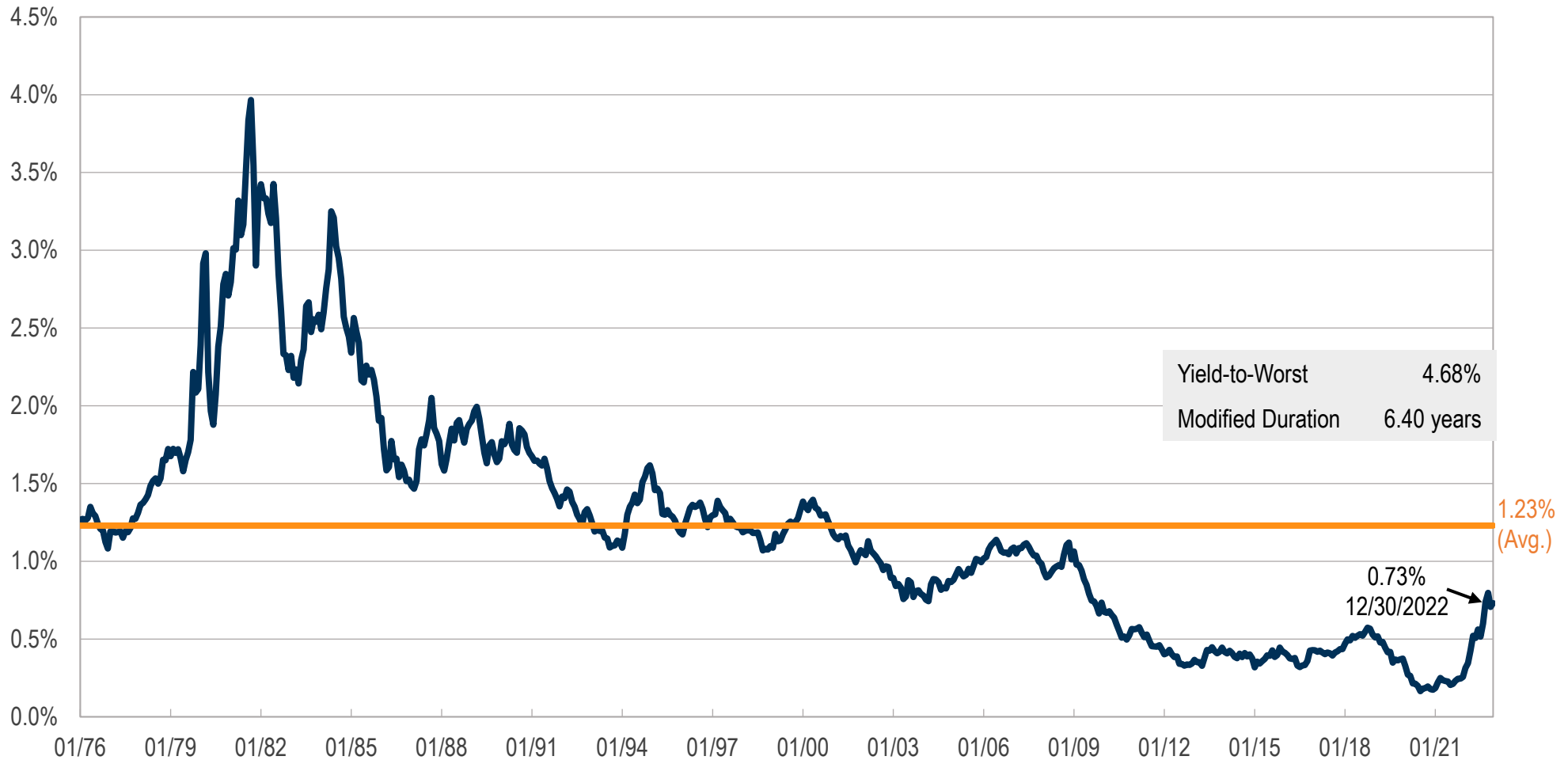
Source: S&P LCD, and Bloomberg. **Past performance is no guarantee of future results.** Real yield is represented by nominal yield-to-maturity minus the 5-yr inflation breakeven rate of 2.91%, which is calculated as the difference in yields between U.S Treasury bonds and Treasury Inflation-Protected Securities (TIPS).

\*YTM represents the Tax-Equivalent Yield (TEY) for the highest tax bracket of 37%. Senior Loans are represented by the Morningstar® LSTA® US Leveraged Loan Index. High-Yield Bonds are represented by the ICE BofA U.S. High Yield Constrained Index. Preferred Securities are represented by a blended benchmark consisting of 30% ICE BofA Core Plus Fixed Rate Preferred Securities Index (P0P4) / 30% ICE BofA U.S. Investment Grade Institutional Capital Securities Index (CIPS) / 30% ICE BofA USD Contingent Capital Index (CDLR) / 10% ICE BofA U.S. High Yield Institutional Capital Securities Index (HIPS). Investment Grade Corporates are represented by the ICE BofA U.S. Corporate Index. Municipal Bonds are represented by the Bloomberg U.S. Municipal Index. Mortgage Backed Securities are represented by the ICE BofA U.S. Mortgage Backed Securities Index. Core Bonds are represented by the Bloomberg U.S. Aggregate Bond Index. Government Bonds are represented by the Bloomberg U.S. Government Index. TIPS are represented by the Bloomberg US Treasury Inflation-Linked Bond Index. See Index Definitions.

# YIELD PER UNIT OF DURATION

Bloomberg U.S. Aggregate Bond Index (January 30, 1976 – December 30, 2022)

## FIXED INCOME OPPORTUNITY SET

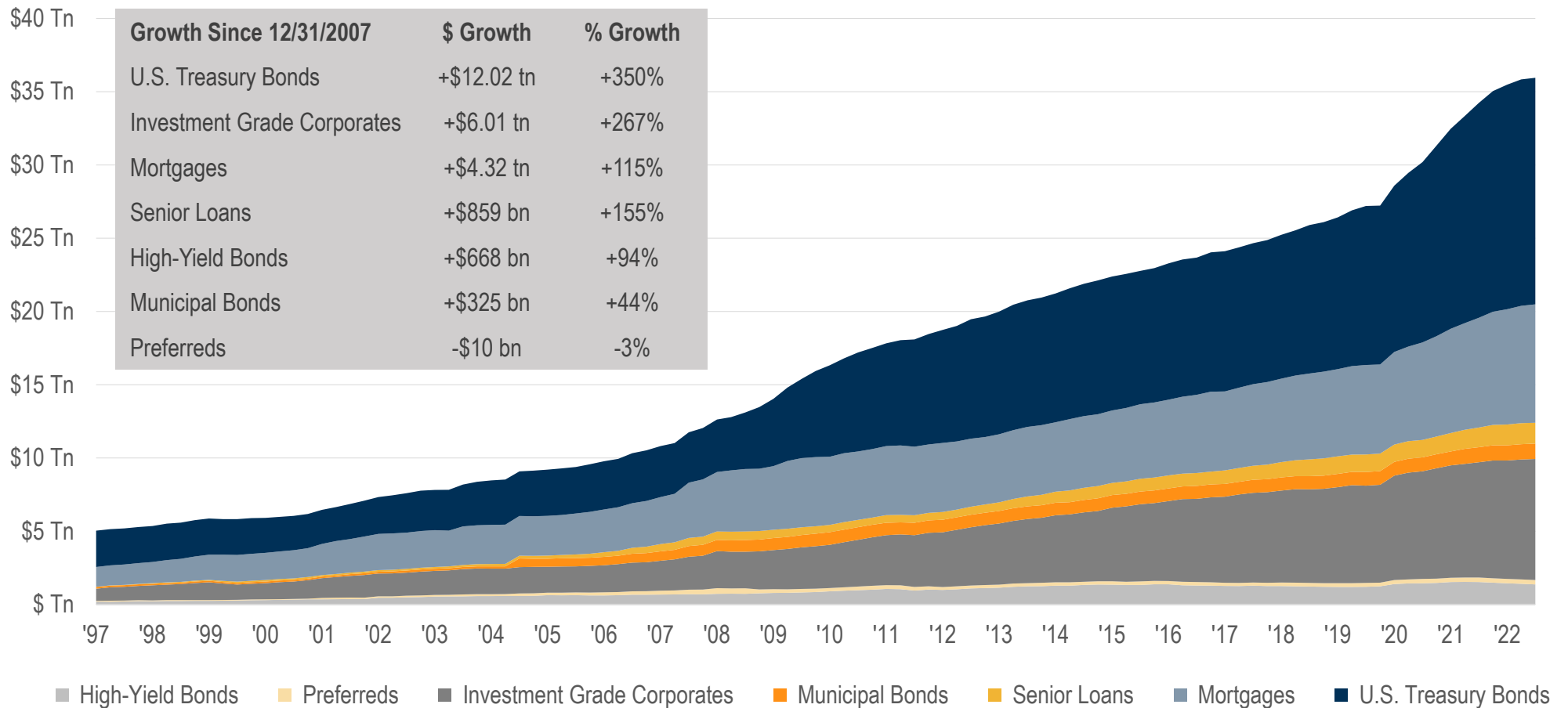


Source: Bloomberg. **Past performance is no guarantee of future results.** Duration is a measure of a bond's sensitivity to interest rate changes that reflects the change in a bond's price given a change in yield. See Index Definitions.

# SIZE AND GROWTH OF THE U.S. DEBT MARKET

March 31, 1997 – December 30, 2022

## FIXED INCOME OPPORTUNITY SET

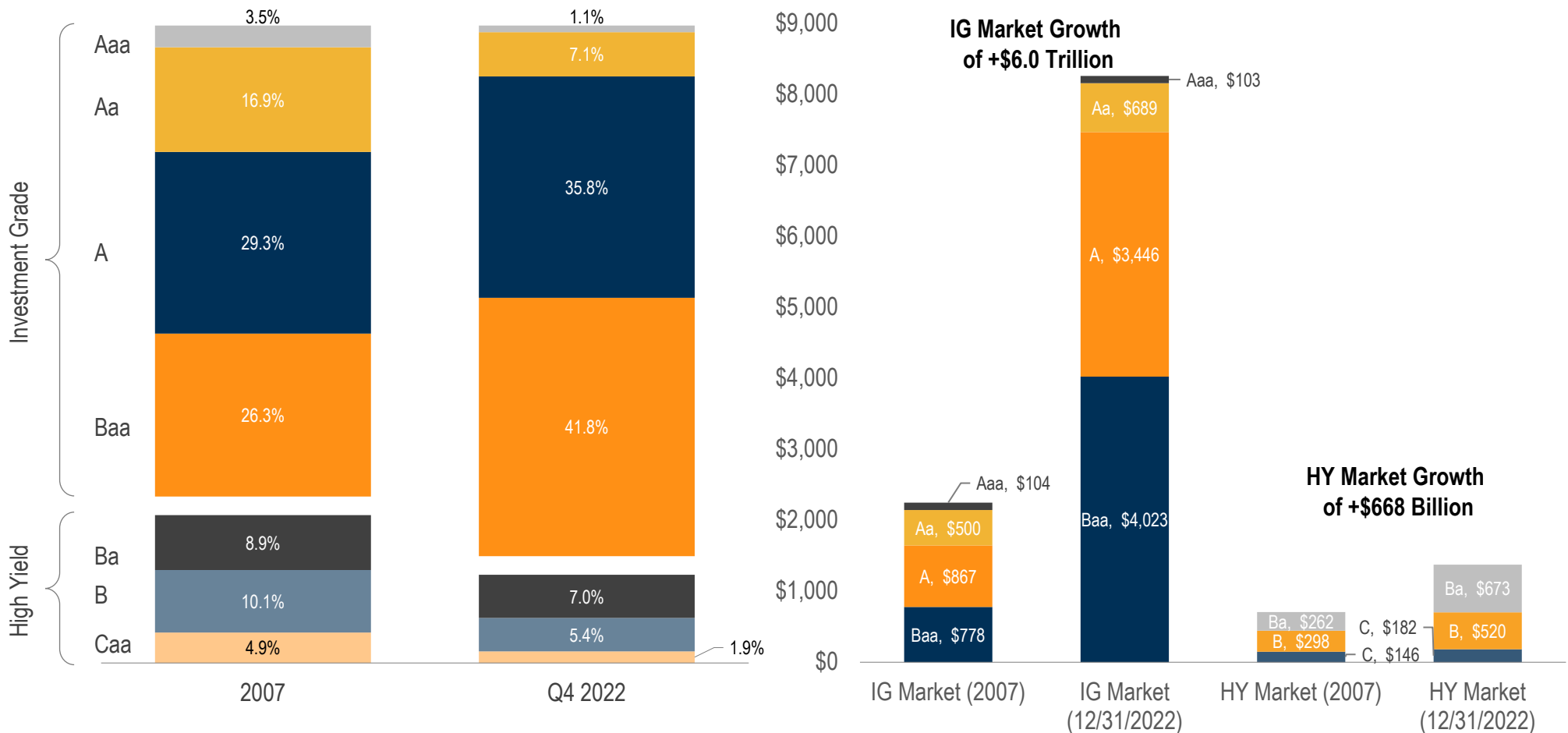


Source: ICE and Standard & Poor's Leveraged Loan Commentary and Data. U.S. High-Yield Bonds are represented by the ICE BofA U.S. High Yield Constrained Index. Preferreds are represented by the sum of ICE BofA Fixed Rate Preferred Securities Index and the ICE BofA Investment Grade Institutional Capital Securities Index. Investment Grade Corporates are represented by the ICE BofA U.S. Corporate Index. Municipal Bonds are represented by the Bloomberg U.S. Municipal Index. Senior Loans are represented by the Morningstar® LSTA® US Leveraged Loan Index. Mortgages are represented by the ICE BofA U.S. Mortgage Backed Securities Index. U.S. Treasury Bonds are represented by the ICE BofA U.S. Treasury & Agency Index. See Index Definitions.

# SIZE AND CREDIT QUALITY OF THE U.S. CORPORATE DEBT MARKET

December 31, 2007 vs. December 30, 2022

## FIXED INCOME OPPORTUNITY SET



Source: Bloomberg. Investment Grade represented by the ICE BofA U.S. Corporate Index. High Yield represented by the ICE BofA U.S. High Yield Constrained Index. The Index composite rating is a derived value that is used to classify bonds by credit quality in Bloomberg Indices. It is set as the middle rating of Moody's, S&P and Fitch; when a rating from only two agencies is available, the lower is used; if only one agency rates a bond, that rating is taken. Investment grade bonds have a rating of at least Baa3 from Moody's or BBB- from S&P and Fitch. High-yield bonds have a rating below Baa3 from Moody's or BBB- from S&P and Fitch. Credit ratings are subject to change. See Index Definitions.

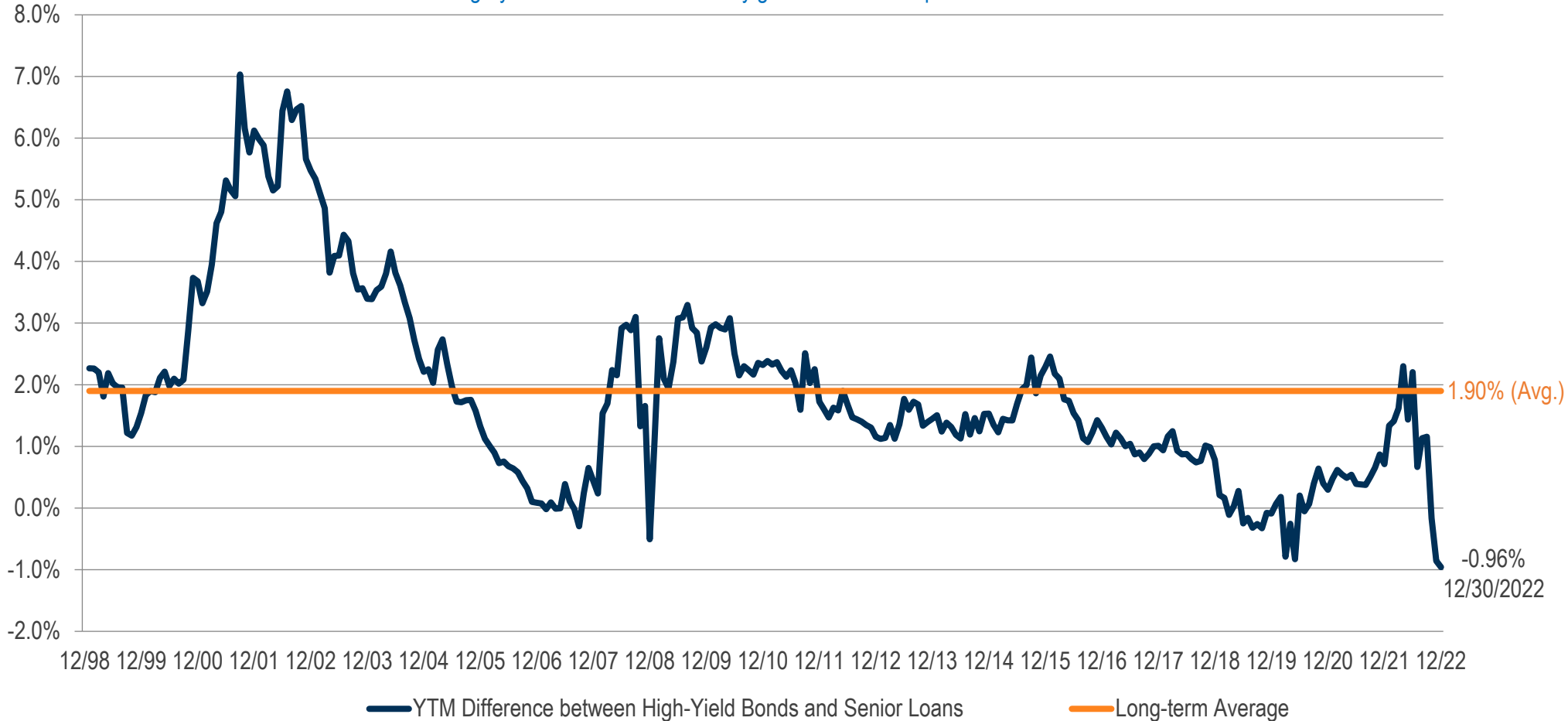


# YTM DIFFERENCE OF HIGH-YIELD BONDS VS LOANS

December 31, 1998 – December 30, 2022

## FIXED INCOME OPPORTUNITY SET

High-yield bonds are yielding 0.96% less than senior loans, which represents an inversion of the long-term average relationship where high-yield bonds have historically garnered a 1.90% premium to own.

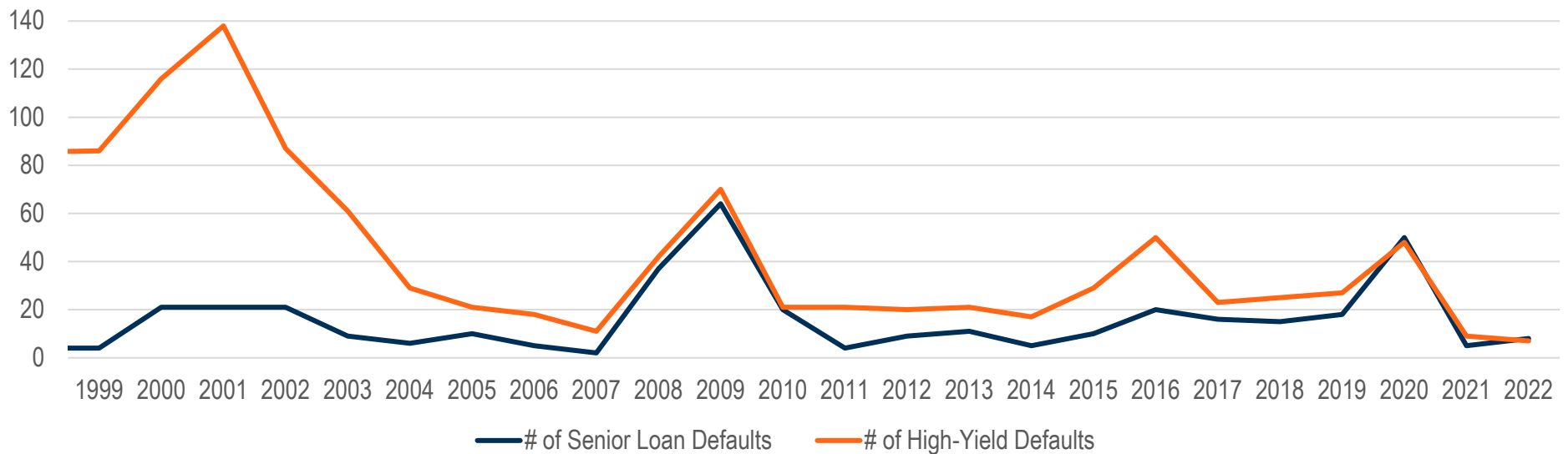
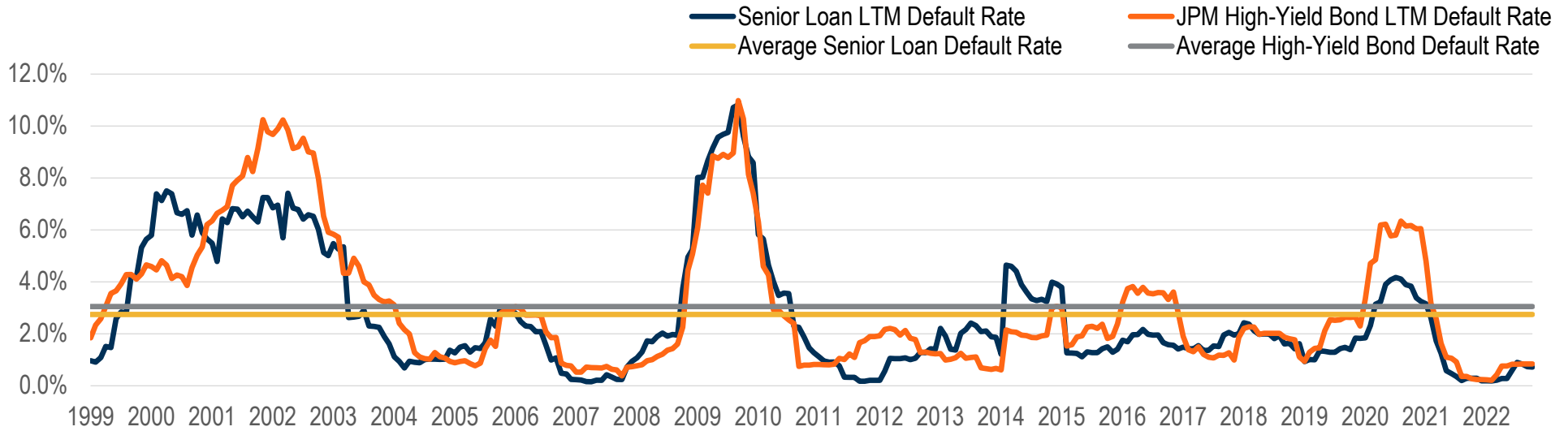


Source: Bloomberg and Standard & Poor's Leveraged Loan Commentary and Data. **Past performance is no guarantee of future results.** High-yield bonds are represented by the ICE BofA U.S. High-Yield Constrained Index (HUC0). Senior loans are represented by the Morningstar® LSTA® US Leveraged Loan Index (LLI). See Index Definitions.

# SENIOR LOAN AND HIGH-YIELD BOND DEFAULT RATE

March 31, 1999 – December 30, 2022

## FIXED INCOME OPPORTUNITY SET

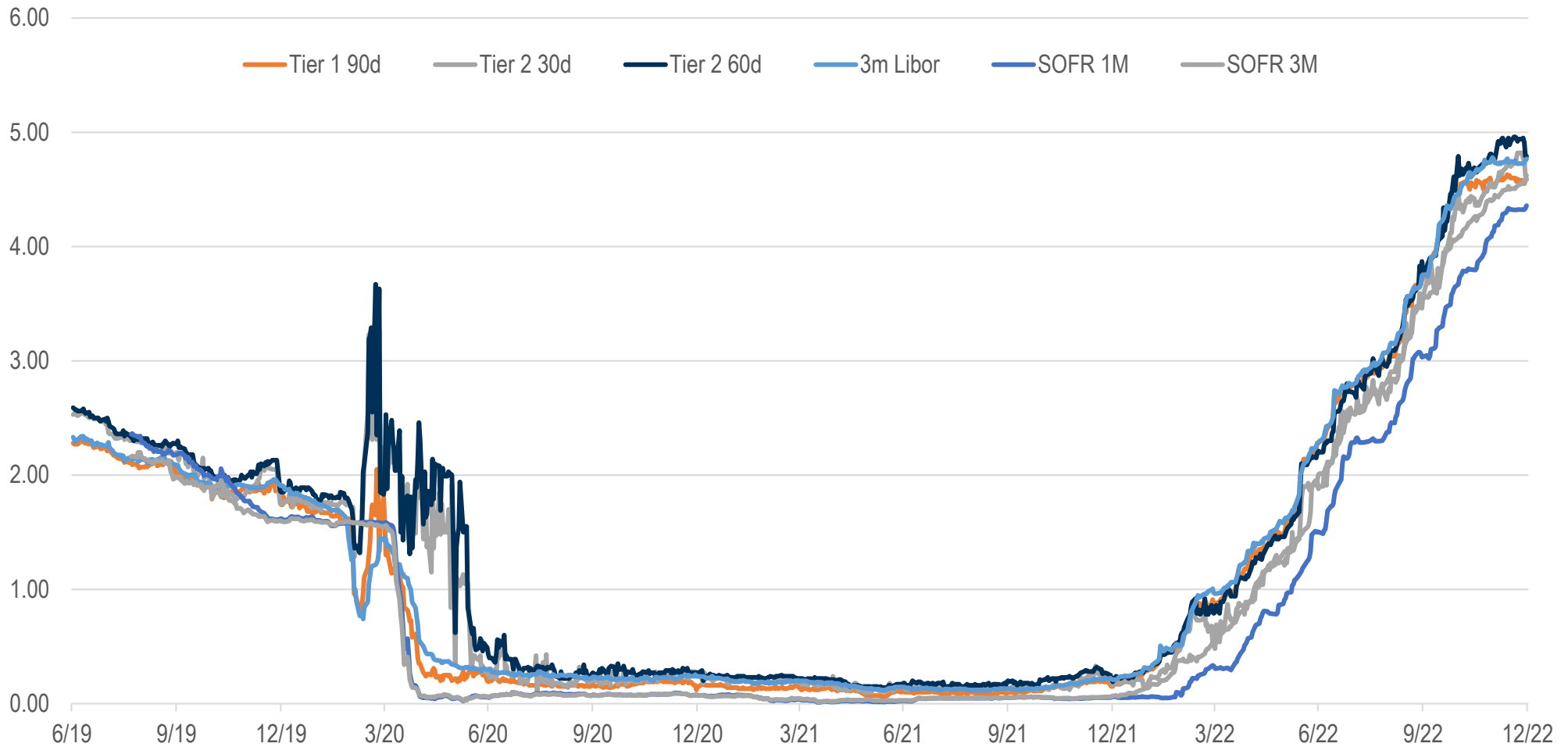


Source: Standard & Poor's LCD and JP Morgan high-yield research. **Past performance is no guarantee of future results.** High-yield bonds are represented by J.P. Morgan's high-yield bond universe based on the last twelve months (LTM). Senior loans are represented by the Morningstar® LSTA® US Leveraged Loan Index (LLI) and based on the LTM. See Index Definitions.

# MONEY MARKET RATES

June 30, 2019 – December 30, 2022

## FIXED INCOME OPPORTUNITY SET



Source: Bloomberg. **Past performance is no guarantee of future results.** Tier 1 90d - U.S. Commercial Paper Placed Top 90 Day Yield (DCPB090Y Index), Tier 2 30d - U.S. Commercial Paper Dealer Placed Second 30 Day Yield (DCPD030Y Index), Tier 2 60d - U.S. Commercial Paper Dealer Placed Second 60 Day Yield (DCPD060Y Index), 3m Libor- ICE LIBOR USD 3 Month (US0003M Index), 1m SOFR- CME Term SOFR 1 Month (TSFR1M Index), 3m SOFR- CME Term SOFR 3 Month (TSFR3M Index). For illustrative purposes only.

# FIXED INCOME ASSET CLASS RETURNS (%)

2000 – December 30, 2022



FIXED INCOME OPPORTUNITY SET																						
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	4Q '22
45.71	43.73	19.59	44.54	16.67	6.50	26.07	12.72	24.03	76.41	35.85	29.93	15.81	27.58	25.07	7.58	18.31	12.21	1.41	23.26	18.10	39.85	30.54
20.27	12.16	16.79	28.97	11.13	6.32	11.85	10.57	11.35	58.21	15.12	17.13	13.59	7.44	16.39	3.30	17.13	10.58	1.40	17.71	13.32	5.40	-1.06
16.20	9.84	11.92	14.78	10.33	5.69	8.10	9.81	10.23	44.87	13.66	13.88	12.73	6.15	15.44	1.39	10.22	8.53	1.28	15.11	9.50	5.28	-4.11
11.68	9.77	10.14	11.01	9.38	3.76	7.33	8.83	7.87	20.07	10.69	10.70	9.43	0.30	9.05	1.18	9.88	7.50	1.14	14.32	7.47	2.24	-7.77
11.11	8.22	9.60	10.43	7.70	3.51	6.44	7.41	7.62	16.80	9.97	7.90	8.10	-0.17	5.97	0.90	3.68	7.29	1.02	10.14	7.11	1.52	-8.53
10.26	8.16	9.28	9.43	5.60	3.20	4.84	6.98	-2.47	15.93	9.38	6.57	6.78	-1.34	4.80	0.41	2.32	5.45	0.01	8.17	6.95	-0.57	-9.40
9.46	8.15	8.69	6.91	5.11	2.74	4.61	5.60	-2.76	12.91	7.76	6.33	4.80	-2.12	4.16	-0.38	1.65	4.25	-0.38	7.54	5.77	-1.00	-10.77
9.21	5.28	7.66	5.31	4.48	1.56	4.49	3.60	-3.92	5.37	6.67	5.37	3.56	-2.55	2.57	-1.21	1.56	3.67	-1.84	6.29	5.21	-1.18	-11.19
7.74	5.13	6.46	2.85	4.35	1.42	3.71	3.36	-25.24	2.63	5.90	4.98	2.42	-3.65	2.45	-3.29	1.33	1.86	-2.08	5.86	3.68	-1.46	-14.60
4.94	4.21	1.12	2.48	4.08	1.36	3.51	1.88	-26.16	1.29	5.29	4.11	1.83	-4.30	2.06	-4.47	1.06	1.14	-4.34	5.59	3.07	-1.72	-17.47
1.43	2.65	-1.41	2.20	2.02	0.96	3.47	1.87	-28.75	-1.41	2.38	1.82	1.71	-6.62	0.66	-4.56	0.64	0.25	-6.76	5.22	2.78	-4.37	-25.29
-5.86	-1.37	-3.36	2.11	0.89	-6.66	1.85	-11.31	-36.91	-12.92	2.35	1.53	0.31	-12.66	-0.79	-32.59	0.25	-6.52	-12.42	3.31	-28.84	-6.60	-31.09

■ Floating Rate 
 ■ Global Treasury 
 ■ GNMA 
 ■ High Yield 
 ■ Intermediate Corporate 
 ■ Intermediate Treasury 
 ■ Long Corporate 
 ■ Long Treasury 
 ■ MLP 
 ■ Municipal 
 ■ Preferred 
 ■ Short Treasury

Source: Bloomberg. **Past performance is no guarantee of future results.** An index does not charge management fees or brokerage expenses, and no such fees or expenses were deducted from the performance shown. The asset classes shown here offer different characteristics in terms of income, tax treatment, capital appreciation and risk. High-yield securities, or "junk" bonds, are subject to greater market fluctuations and risk of loss than securities with higher ratings, and therefore, may be highly speculative. Fixed rate investment grade (IG) bonds are subject to fluctuations due to higher interest rates, economic recession, deterioration of the bond market or investors' perception thereof, possible downgrades and defaults of interest and/or principal. Diversification does not guarantee a profit or protect against loss. Asset classes are represented by the following indices: **High Yield** - Bloomberg U.S. Corporate High-Yield Bond Index. **Intermediate Corporate** - Bloomberg U.S. Intermediate Credit Index. **Municipal** - Bloomberg U.S. Municipal Index. **Long Corporate** - Bloomberg U.S. Long Credit Index. **Intermediate Treasury** - Bloomberg U.S. Intermediate Treasury Index. **Long Treasury** - Bloomberg U.S. Long Treasury Index. **Global Treasury** - Bloomberg Global Treasury Index. **Floating Rate** - Credit Suisse Leveraged Loan Index. **GNMA** - Bloomberg GNMA Index. **Short Treasury** - Bloomberg 2-Yr U.S. Treasury Bellwethers Index. **MLP** - Alerian MLP Index. **Preferred** - ICE BofA Fixed Rate Preferred Securities Index. See Index Definitions.

# ASSET CLASS CORRELATION

December 30, 2012 – December 30, 2022

## FIXED INCOME OPPORTUNITY SET

	S&P 500	Core Bonds	Senior Loans	High-Yield Bonds	Preferreds	EM	U.S. Convertibles	U.S. MBS	Municipals	IG Corporates	Government Bonds	MLPs	Commodities	Ann. Volatility
S&P 500	1.00													14.71
Core Bonds	0.26	1.00												4.10
Senior Loans	0.61	0.14	1.00											5.32
High-Yield Bonds	0.78	0.42	0.81	1.00										7.46
Preferreds	0.64	0.64	0.55	0.75	1.00									6.81
EM	0.60	0.66	0.62	0.80	0.74	1.00								8.58
U.S. Convertibles	0.86	0.29	0.72	0.81	0.62	0.61	1.00							12.33
U.S. MBS	0.24	0.92	0.02	0.33	0.58	0.55	0.21	1.00						3.72
Municipals	0.28	0.83	0.28	0.49	0.64	0.72	0.31	0.77	1.00					4.66
IG Corporates	0.51	0.88	0.54	0.71	0.79	0.84	0.56	0.72	0.79	1.00				6.05
Government Bonds	-0.02	0.92	-0.19	0.09	0.38	0.37	0.00	0.84	0.68	0.65	1.00			4.10
MLPs	0.65	0.07	0.72	0.68	0.49	0.43	0.64	0.00	0.12	0.40	-0.21	1.00		30.79
Commodities	0.42	-0.07	0.51	0.54	0.24	0.33	0.44	-0.05	0.06	0.14	-0.27	0.52	1.00	14.09

Source: Morningstar. **Past performance is no guarantee of future results.** Annual (Ann) Volatility is based on standard deviation which is a measure of price variability (risk). Equities are represented by the S&P 500 Index. Core Bonds are represented by the Bloomberg U.S. Aggregate Bond Index. Senior Loans are represented by the Morningstar® LSTA® US Leveraged Loan Index. High-Yield Bonds are represented by the ICE BofA U.S. High Yield Constrained Index. Preferreds are represented by the ICE BofA Fixed Rate Preferred Securities Index. EM is represented by the ICE BofA U.S. Emerging Markets External Sovereign Index. U.S. Convertibles are represented by the ICE BofA U.S. Convertible Index. U.S. MBS is represented by the ICE BofA U.S. Mortgage Backed Securities Index. Municipals are represented by the Bloomberg U.S. Municipal Index. IG Corporates are represented by the ICE BofA U.S. Investment Grade Corporate Index. Government Bonds are represented by the Bloomberg US Government Index. MLPs are represented by the Alerian MLP Index. Commodities are represented by the Bloomberg Commodity Index. See Index Definitions.

**Alerian MLP Index** - A composite of 50 prominent energy Master Limited Partnerships (MLPs).

**CAB Index** - Is designed and prepared in compliance with ACC's Antitrust Guidelines and FTC Safe Harbor Guidelines; does not use company-specific price information as input data; and data is aggregated such that company-specific and product-specific data cannot be determined.

**Bloomberg Commodity Index (BCOM)** - A highly liquid and diversified benchmark for commodity investments including but not limited to energy, grains, industrial metals, precious metals, softs and livestock.

**Bloomberg GNMA Index** - Consists of 30-yr and 15-yr pass-through GNMA and GNMA Graduated Payment Mortgages.

**Bloomberg Global Aggregate Index** - Measures the global investment grade debt from 24 local currency markets which includes treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging market issuers.

**Bloomberg Global Treasury Index** - Tracks fixed-rate, local currency government debt of IG countries, including both developed and emerging markets.

**Bloomberg High Yield Municipal Bond Index** - Measures the performance of U.S. dollar-denominated high-yield municipal bonds.

**Bloomberg Municipal Bond Index** - Tracks the performance of the tax-exempt bond market.

**Bloomberg Muni High Yield Index** – A flagship measure of the non-investment grade and non-rated USD-denominated tax exempt bond market.

**Bloomberg U.S. Aggregate Bond Index** - Measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, MBS, ABS and CMBS.

**Bloomberg U.S. Corporate Bond Index** - Measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD-denominated securities publicly issued by U.S. and non-U.S. industrial, utility and financial issuers.

**Bloomberg U.S. Corporate High Yield Index** - Measures the USD-denominated, high yield, fixed-rate corporate bond market.

**Bloomberg U.S. Corporate Investment Grade Index** - Tracks publicly issued, SEC-registered, U.S. corporate and specified foreign debentures and secured notes that have a maturity greater than one year, at least \$250 M outstanding par balance, and rated Baa3/BBB- or higher.

**Bloomberg U.S. Government Index** - Consists of securities issued by the U.S. Government.

**Bloomberg U.S. Intermediate Credit Index** - Measures the Investment Grade (IG), U.S. dollar (USD)-denominated, fixed-rate, taxable corporate and gov't-related bond markets with a maturity greater than 1 yr. and less than 10 yrs.

**Bloomberg U.S. Intermediate Treasury Index** - Consists of public obligations of the U.S. Treasury with maturities from 1 and up to 10 yrs.

**Bloomberg U.S. Long Credit Index** - Measures the IG, USD-denominated, fixed-rate, taxable corporate and gov't-related bond markets with 10 or more years to maturity.

**Bloomberg U.S. Long Treasury Index** - Consists of public obligations of the U.S. Treasury with 10 or more years to maturity.

**Bloomberg U.S. MBS Index** - Tracks agency mortgage backed pass-through securities (both fixed-rate and hybrid ARM) guaranteed by Ginnie Mae, Fannie Mae, and Freddie Mac.

**Bloomberg U.S. Municipal Index** - Covers the USD-denominated long-term tax exempt bond market.

**Bloomberg U.S. Treasury Index** - Measures U.S. dollar-denominated, fixed-rate, nominal debt issued by the U.S. Treasury.

**Bloomberg US Treasury Inflation-Linked Bond Index** - Measures the performance of the US Treasury Inflation Protected Securities (TIPS) market.

**Bloomberg 2-Yr U.S. Treasury Bellwethers Index** - Consists of U.S. Treasury bonds with an average maturity of 2 years.

**Credit Suisse Leveraged Loan Index** - Tracks the investable market of the USD-denominated leveraged loan market. All loans are funded term loans with a maturity of at least 1 year and are made by issuers domiciled in developed.

**Dow Jones Industrial Average® (The Dow®)** - A price-weighted measure of 30 U.S. blue-chip companies. The index covers all industries except transportation and utilities.

**Economic Surprise Index** - Measures data surprises relative to market expectations and has historically exhibited a positive correlation with 10-Year U.S. Treasury Yields.

# DEFINITIONS

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**ICE BofA Core Plus Fixed Rate Preferred Securities Index (POP4)** - Tracks the performance of fixed rate U.S. dollar denominated preferred securities issued in the U.S. domestic market.

**ICE BofA Current 2-Year U.S. Treasury Index** - A one-security index comprised of the most recently issued 2-year U.S. Treasury note.

**ICE BofA Current 5-Year U.S. Treasury Index** - A one-security index comprised of the most recently issued 5-year U.S. Treasury note.

**ICE BofA Current 10-Year U.S. Treasury Index** - A one-security index comprised of the most recently issued 10-year U.S. Treasury note.

**ICE BofA Current 30-Year U.S. Treasury Index** - A one-security index comprised of the most recently issued 30-year U.S. Treasury note.

**ICE BofA Fixed Rate Preferred Securities Index (POP1)** - Tracks the performance of fixed rate USD-denominated preferred securities issued in the domestic market.

**ICE BofA USD Contingent Capital Index (CDLR)** - Tracks the performance of investment grade and below investment grade contingent capital debt publicly issued in the major domestic and eurobond markets.

**ICE BofA U.S. Convertible Index** - Tracks the performance of publicly issued U.S. dollar denominated convertible securities of U.S. companies.

**ICE BofA U.S. Corporate Index** - Tracks the performance of U.S. dollar denominated investment grade (BBB/Baa-rated or better) corporate debt publicly issued in the U.S. domestic market.

**ICE BofA U.S. Emerging Markets External Sovereign Index** - Tracks the performance of U.S. dollar emerging markets sovereign debt publicly issued in the U.S. and Eurobond markets.

**ICE BofA U.S. High Yield Constrained Index** - Tracks the performance of U.S. dollar denominated below investment grade corporate debt publicly issued in the U.S. domestic market but caps issuer exposure at 2%.

**ICE BofA U.S. High Yield Institutional Capital Securities Index (HIPS)** - Tracks the performance of U.S. dollar denominated sub-investment grade hybrid capital corporate and preferred securities publicly issued in the U.S. domestic market.

**ICE BofA U.S. Investment Grade Institutional Capital Securities Index (CIPS)** - Tracks the performance of U.S. dollar denominated investment grade hybrid capital corporate and preferred securities publicly issued in the U.S. domestic market.

**ICE BofA U.S. Mortgage Backed Securities Index** - Tracks the performance of U.S. dollar denominated fixed rate and hybrid residential mortgage pass-through securities publicly issued by U.S. agencies in the U.S. domestic market.

**ICE BofA U.S. Municipal Securities Index** - Tracks the performance of U.S. dollar denominated investment grade tax-exempt debt publicly issued by U.S. states and territories, and their political subdivisions, in the U.S. domestic market.

**ICE BofA U.S. Treasury & Agency Index** - Tracks the performance of U.S. dollar denominated U.S. Treasury and non-subordinated U.S. agency debt issued in the U.S. domestic market.

**ICE LIBOR** - A benchmark designed to produce an average rate that is representative of the rates at which large, leading, internationally active banks with access to the wholesale, unsecured funding market could fund themselves in the market in particular currencies for certain tenors.

**J.P. Morgan's High-yield Bond Universe** - Consists of fixed income securities of domestic and foreign issuers with a maximum credit rating of BB+ or Ba1.

**Morningstar<sup>®</sup> LSTA<sup>®</sup> US Leveraged Loan Index** - The Index, formerly the S&P/LSTA Leveraged Loan Index, is a leveraged loan index which covers the U.S. Loan market. The Index reflects the market-weighted performance of institutional leveraged loans in the U.S. loan market based upon real-time market weightings, spreads and interest payments.

**S&P 500 Index** - An unmanaged index of 500 stocks used to measure large-cap U.S. stock market performance.

**U.S. Dollar Index (DXY)** - Indicates the general international value of the U.S. Dollar (USD). The index calculates this by averaging the exchange rates between the USD and major world currencies.

**Indices are unmanaged and investors cannot invest directly in an index.**



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