

# Inflation and the Yield Curve

## Actionable Ideas Webinar Series



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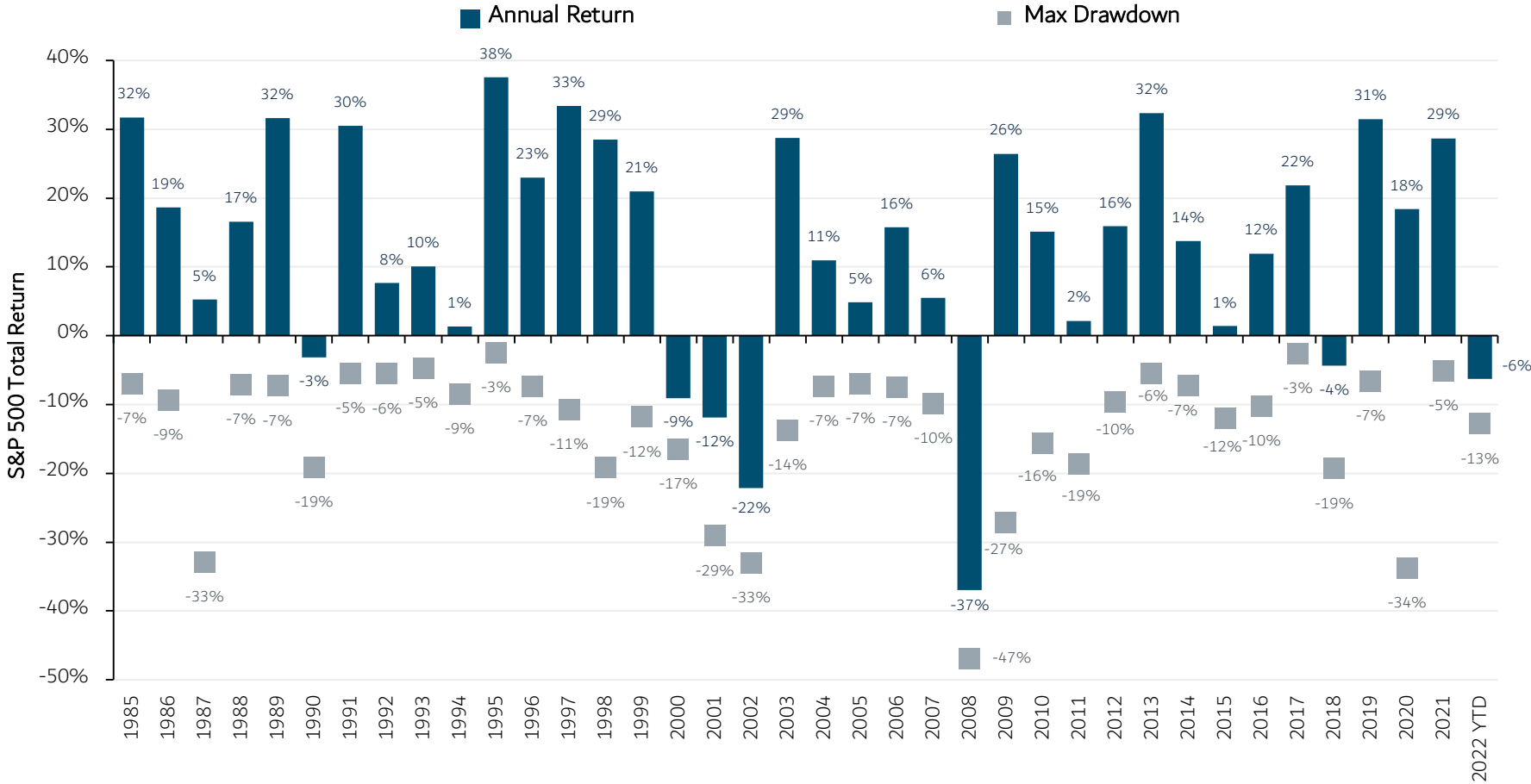


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# Drawdowns Are Not Unusual

## Intra-year drawdowns vs. year-end returns for the S&P 500 Index

Despite an average annual correction of 14%, annual returns have been positive in nearly 84% of the past 37 years



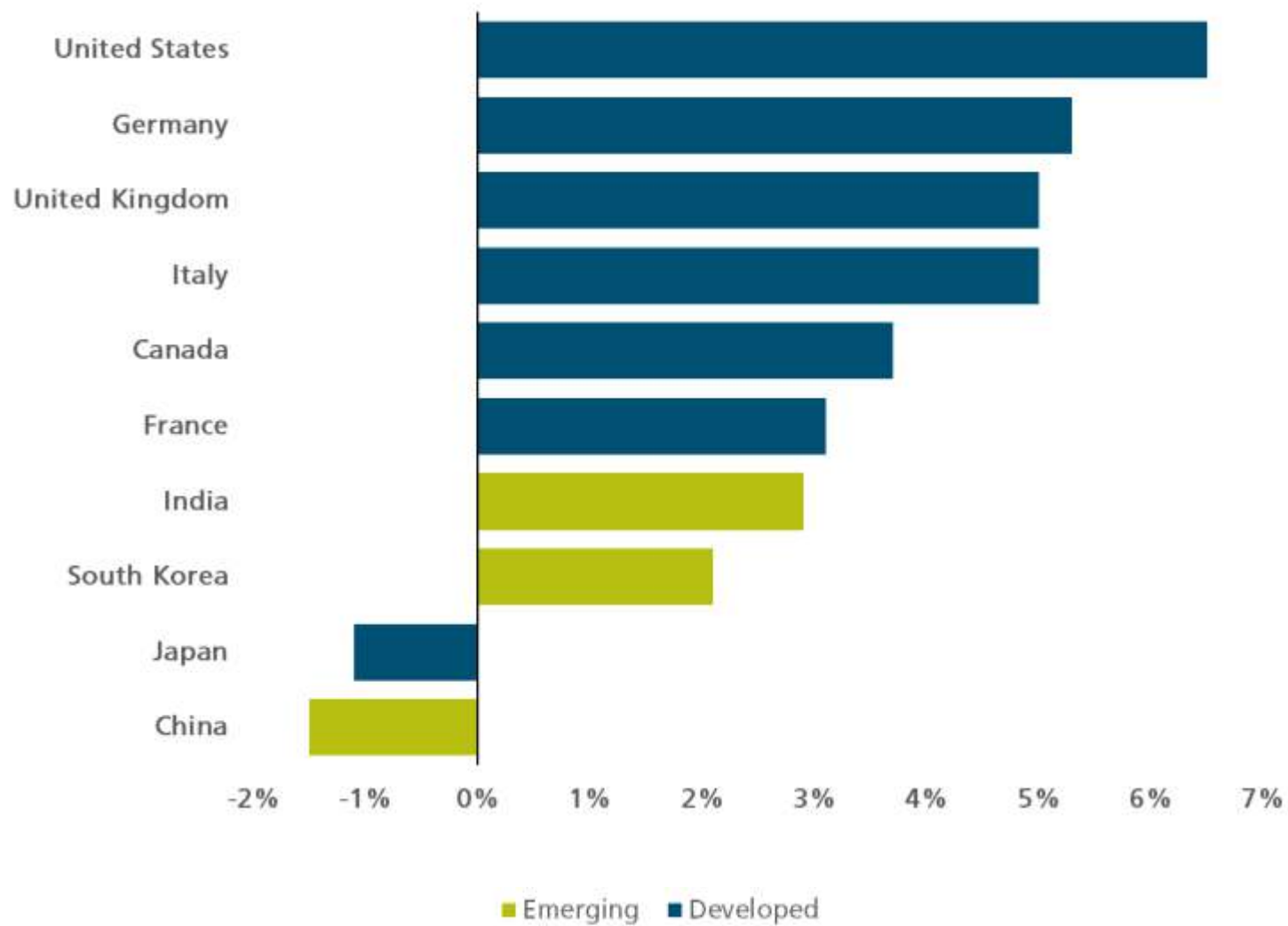
# Geopolitical Shocks Tend to be Short-Lived

## S&P 500 Returns After Historical Geopolitical Shocks

| Event                                     | Event Date | Duration of Selloff<br>(Trading Days) | Duration of Recovery<br>(Trading Days) | Size of selloff (%) | Return From Bottom: (%) |             |             |
|---|------------|---------------------------------------|--|---------------------|-------------------------|-------------|-------------|
|   |            |                                       |  |                     | 1 Month                 | 6 Months    | 12 Months   |
| WW-II Germany Annexes Czechoslovakia      | Mar-1939   | 22                                    | 108                                    | -20.5               | 8.3                     | 23.2        | 18.9        |
| WW-II Germany Attacks France              | May-1940   | 22                                    | 745                                    | -25.8               | 10.9                    | 18.0        | 9.2         |
| WW-II Pearl Harbor                        | Dec-1941   | 17                                    | 201                                    | -10.8               | 6.5                     | -1.1        | 15.3        |
| N. Korea invades S. Korea                 | Jun-1950   | 17                                    | 43                                     | -12.9               | 11.2                    | 29.2        | 31.4        |
| Cuban missile crisis                      | Oct-1962   | 7                                     | 9                                      | -6.6                | 15                      | 30          | 36.5        |
| Authorization of military ops. in Vietnam | Aug-1964   | 15                                    | 36                                     | -3.2                | 1.7                     | 7.3         | 5.8         |
| Iranian hostage crisis                    | Nov-1979   | 24                                    | 51                                     | -10.2               | 7.7                     | 7.3         | 29.3        |
| First Gulf War                            | Jan-1991   | 6                                     | 8                                      | -5.7                | 15.4                    | 20.7        | 34.1        |
| 9/11 attacks                              | Sep-2001   | 6                                     | 15                                     | -11.6               | 11.1                    | 19.4        | -12.5       |
| Iraq war                                  | Mar-2003   | 7                                     | 16                                     | -5.3                | 8                       | 20          | 32.8        |
| Ukraine Conflict                          | Mar-2014   | 6                                     | 13                                     | -2                  | -0.6                    | 7.8         | 11.5        |
| Airstrike on Syrian Airbase               | Apr-2017   | 32                                    | 16                                     | -2.8                | 2.7                     | 4.2         | 4.2         |
| <b>Median</b>                             |            | <b>16</b>                             | <b>26</b>                              | <b>-8.4</b>         | <b>8.2</b>              | <b>19.4</b> | <b>17.1</b> |

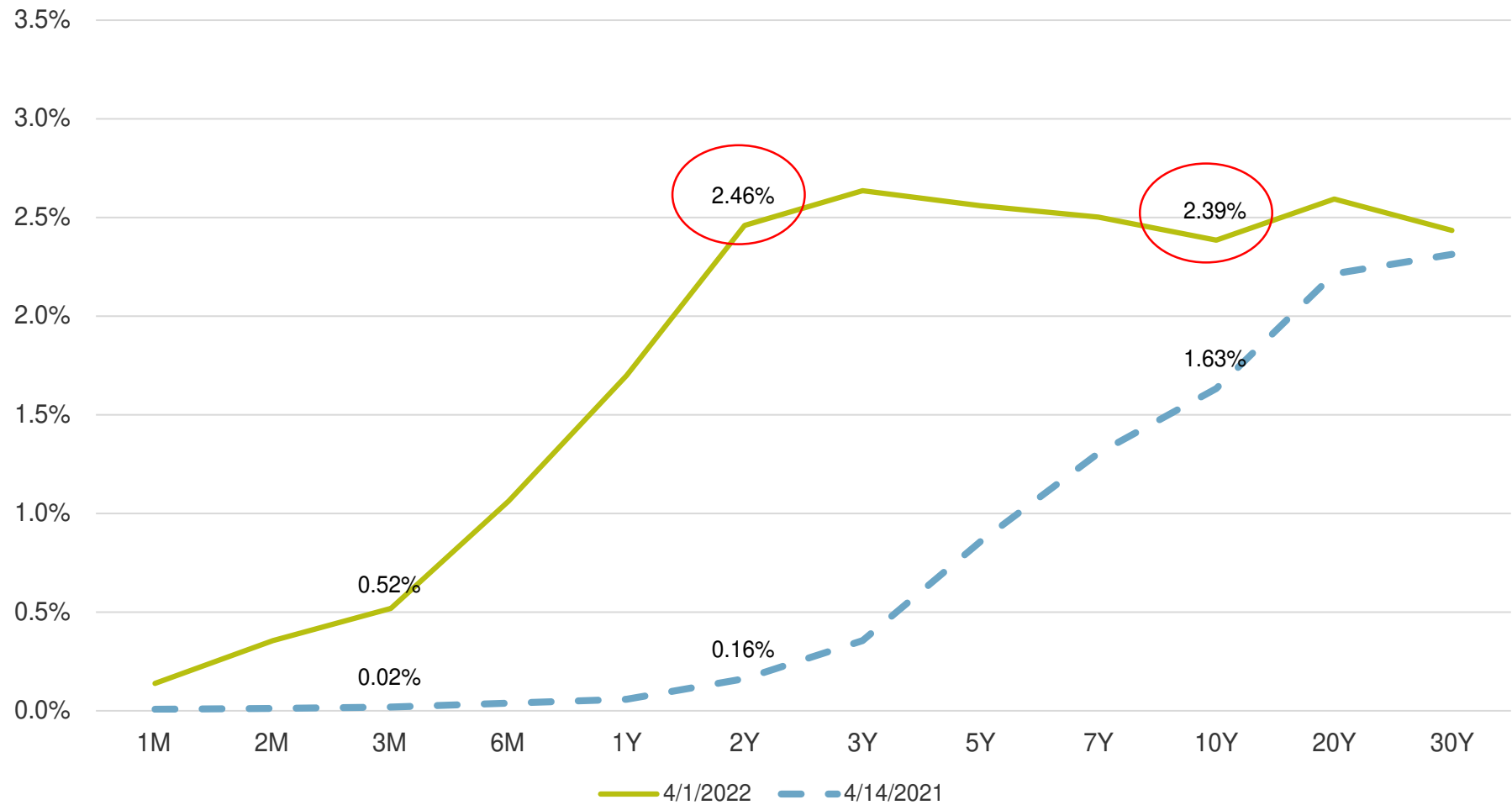
# Global Inflation Well Above Target

## Inflation in Excess of Target (%)



# Treasury Yield Curve Inverts in Early April 2022

U.S. Treasury Yield Curve (%)



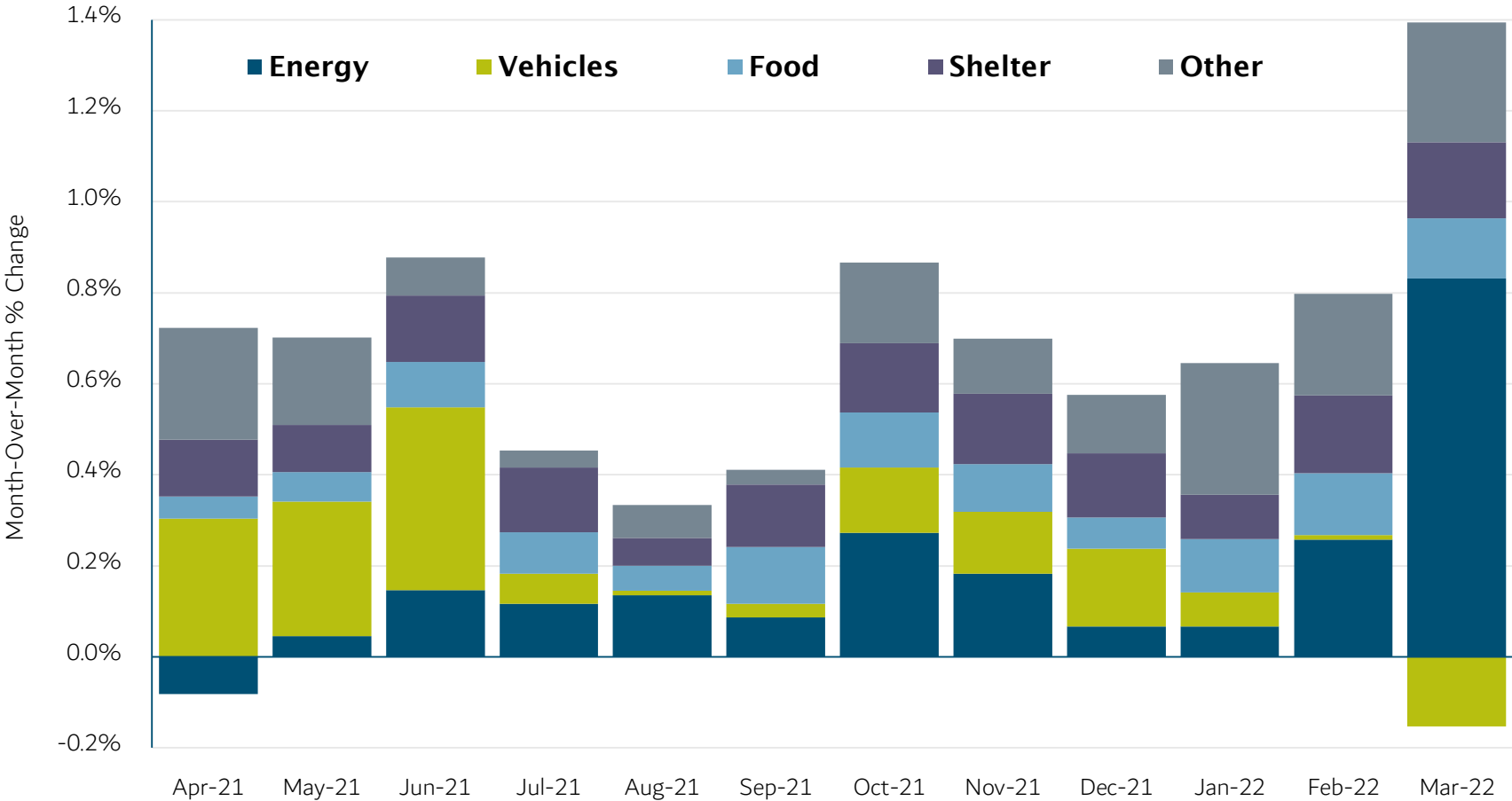
# Discussion Points

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- Inflation and Interest Rates
  - Inflation peak watch
  - Fed misstep and policy scope
- Inversion of the Yield Curve
  - Typical lead times
  - Alternate measures – 2-10 spread or 3m-10y?
  - Low term premium
- Economic and Earnings Growth

# Components of Headline CPI Inflation

## CPI Components – Contribution by Month

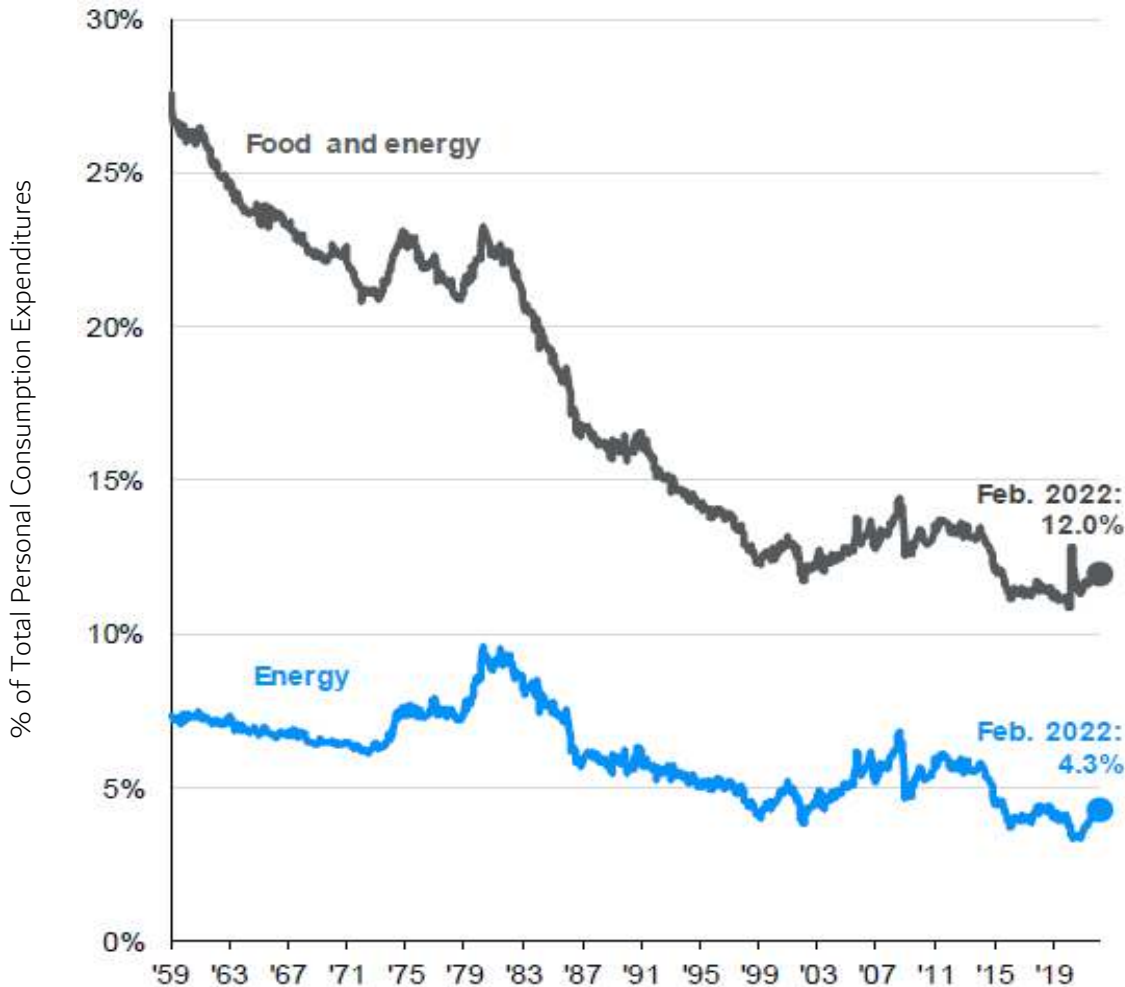


- Energy and vehicle prices have accounted for nearly 45% of CPI inflation over the past 12 months.



# Food and Energy are Smaller Components of Spending

### U.S. Consumer Spending on Food and Energy (%)

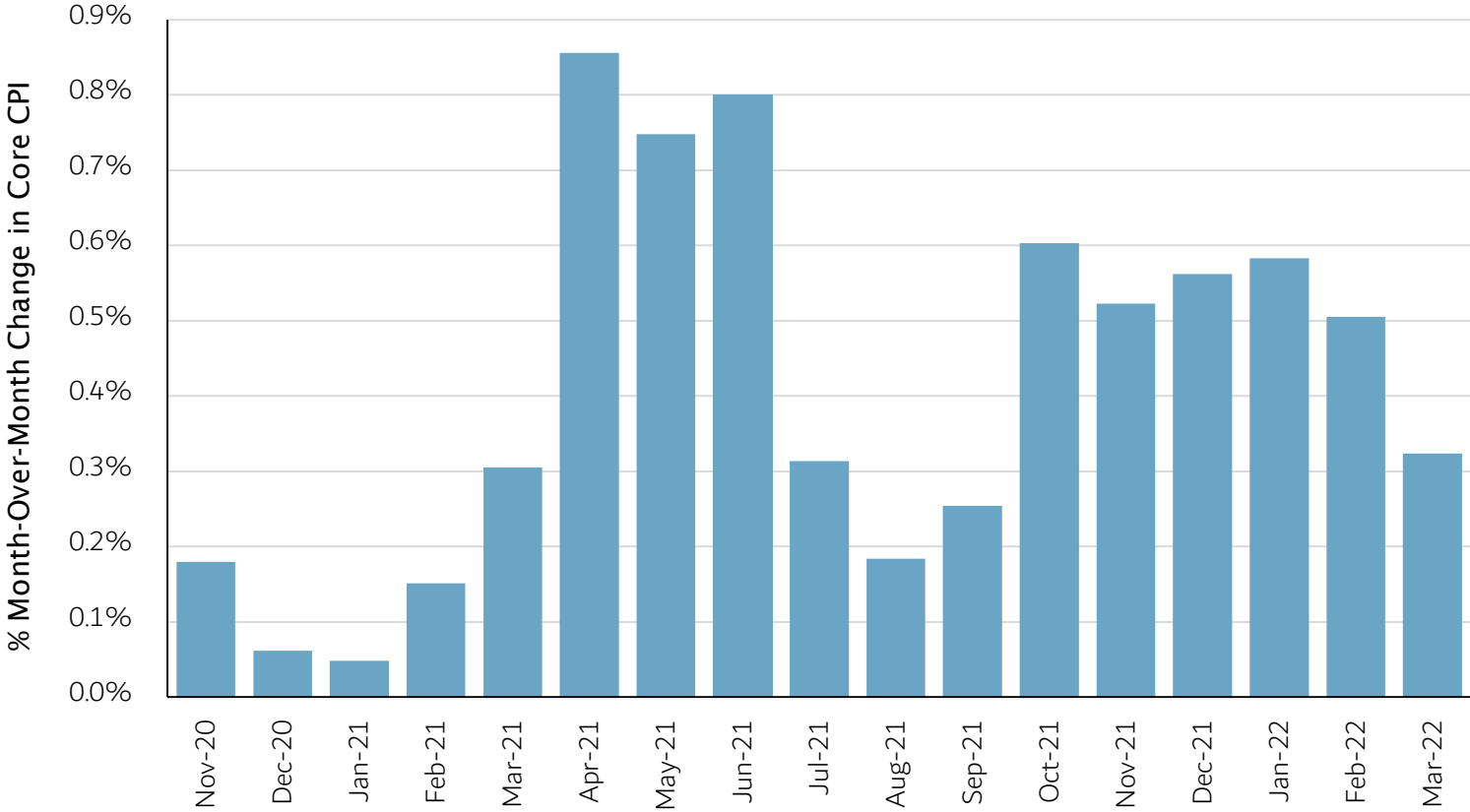


- Consumer spending on food and energy is less than half of what it used to be.



# Deceleration of Core CPI

### Month-Over-Month Change in Core CPI (%)



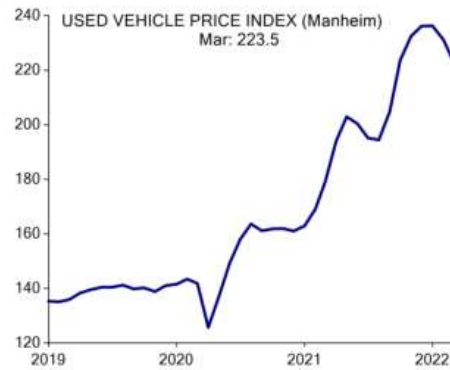
- Core CPI slowed in March 2022 on a month-over-month basis.

# Inflation Peaking?

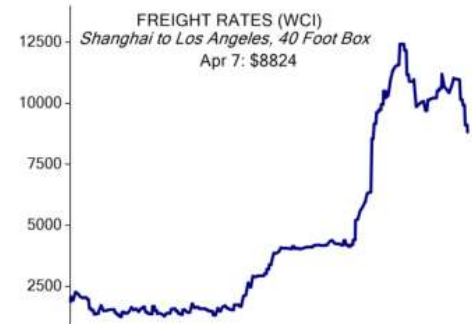
- Gasoline



- Used Cars

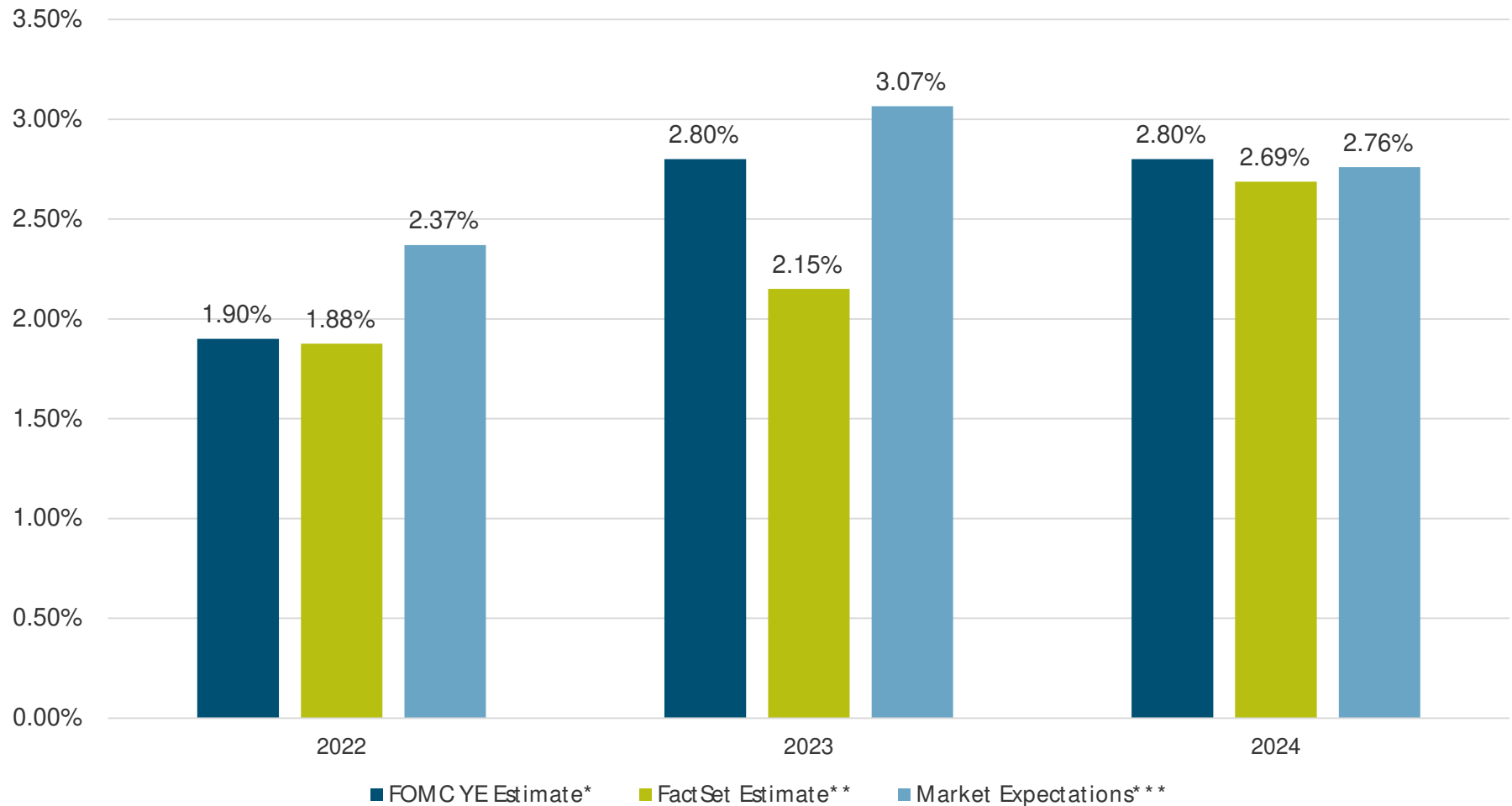


- Freight Rates



# Inflation and The Fed

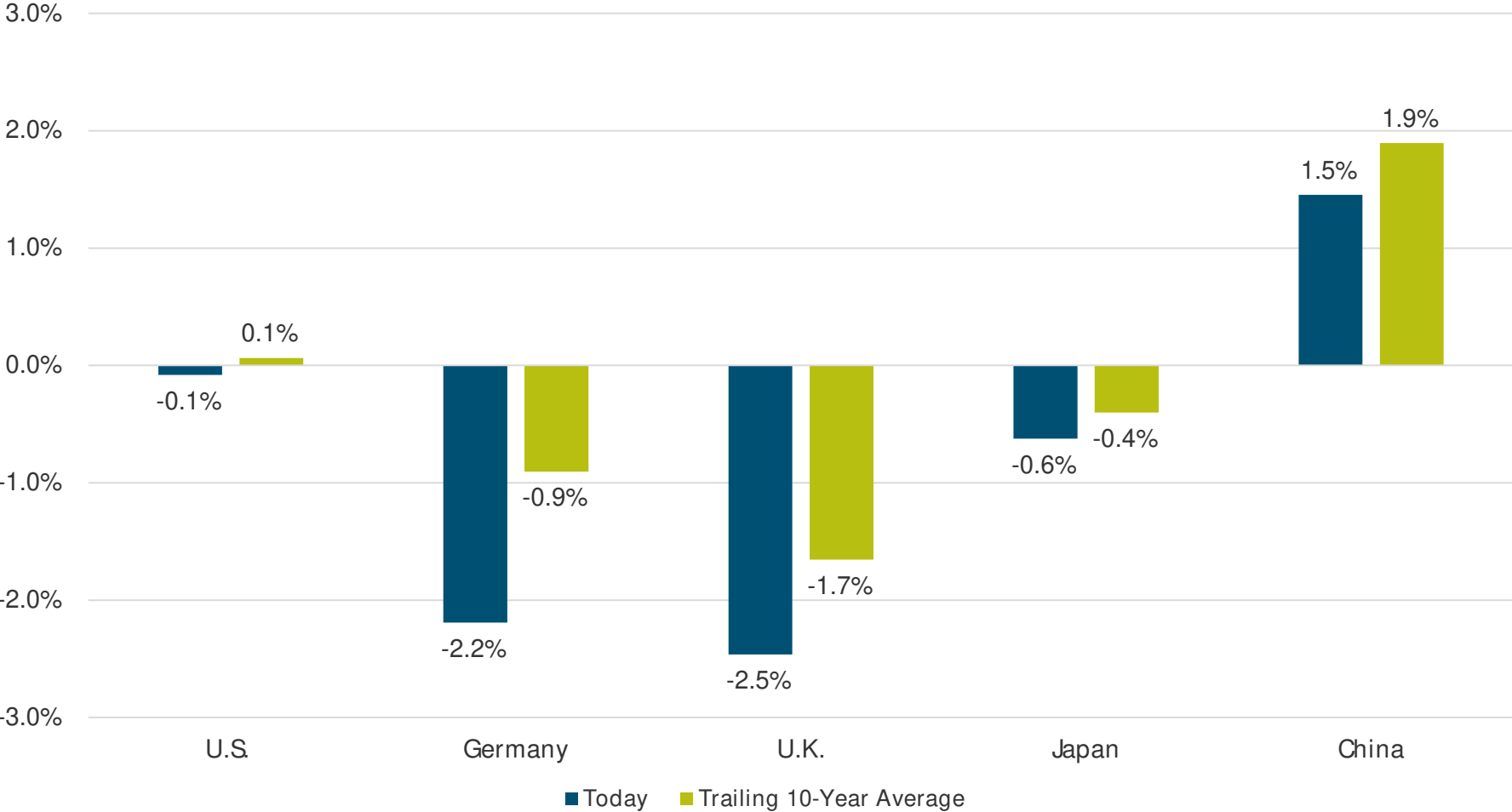
## Federal Funds Rate Expectations (%)



- Fed, consensus and market expectations have all moved higher in recent weeks

# Financial Conditions Still Stimulative / Neutral

### Real 10-Year Government Bond Yields (%)



- Real bond yields are rising ... but from historically low levels

# Monetary Backdrop

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- Negative to neutral real yields
- \$9 trillion balance sheet is equivalent to -200 basis points of Fed funds rate
- More than 50% increase in M2 since pandemic
- Monetary policy works on a lagged basis

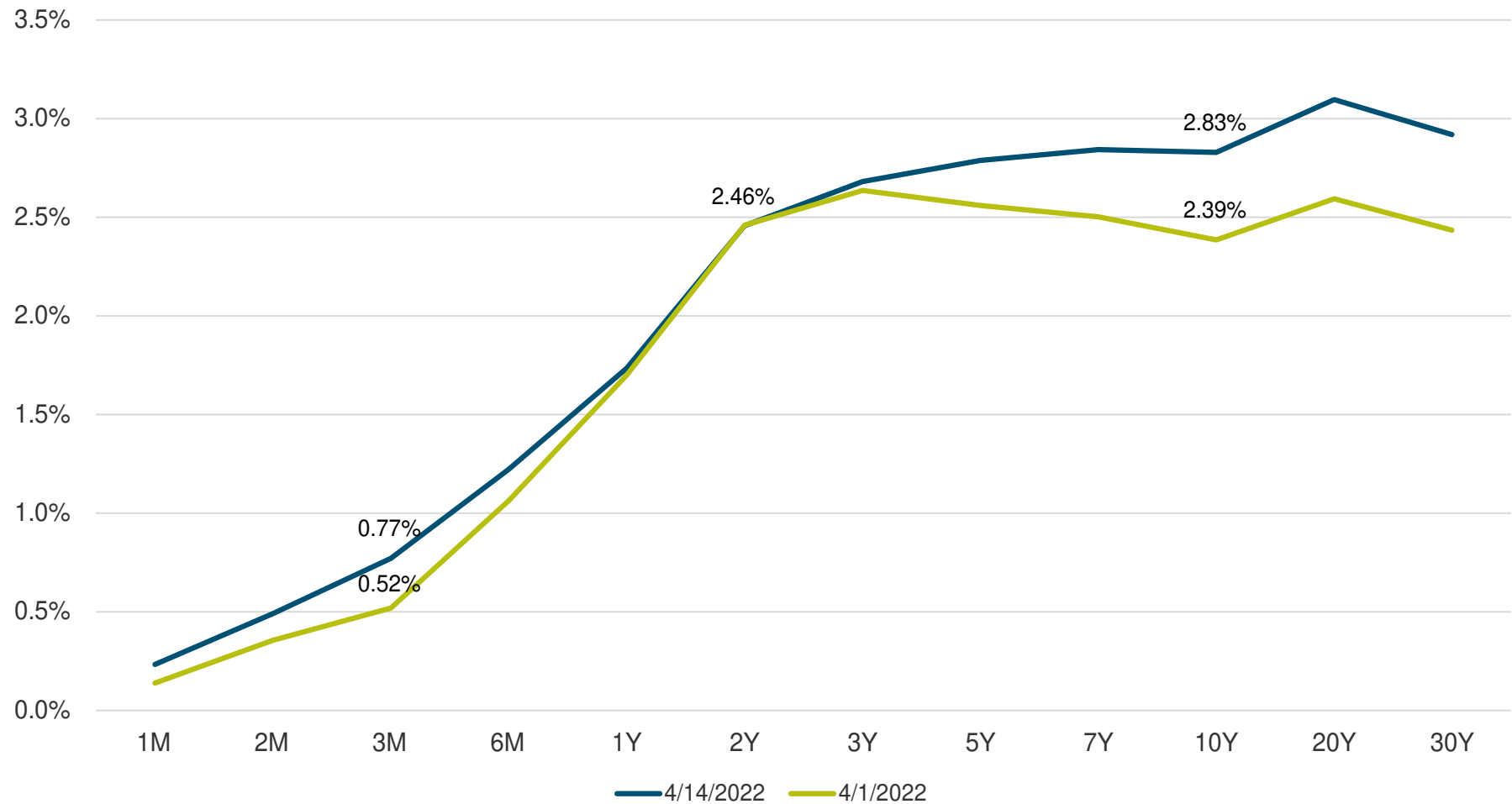
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# Yield Curve Inversion – Fleeting ... or Recurring?

U.S. Treasury Yield Curve (%)





# Average Lead Time from Inversion to Recession

Average Lead Time (months)

| <b>Inverted Yield Curve (10-Yr minus 2-Yr) and Recessions (1976 - 2022)</b> |               |  |                             |                                   |
|---|---------------|--|-----------------------------|-----------------------------------|
| Recession Start   | Recession End | Inverted Yield Curve Before Recession? | First Yield Curve Inversion | Lead vs. Recession Start (Months) |
| Feb-80  | Jul-80        | Yes                                    | Aug-78                      | 18                                |
| Aug-81  | Nov-82        | Yes                                    | Sep-80                      | 11                                |
| Aug-90  | Mar-91        | Yes                                    | Dec-88                      | 20                                |
| Apr-01  | Nov-01        | Yes                                    | May-98                      | 35                                |
| Jan-08  | Jun-09        | Yes                                    | Dec-05                      | 25                                |
| Mar-20  | Apr-20        | Yes                                    | Aug-19                      | 7                                 |
| ?   | ?             | ?                                      | Apr-22                      | ?                                 |
| <b>Average Lead Time</b>  |               |  |                             | <b>19</b>                         |

# Yield Curve Inversion: 2-10 or 3m-10y?

U.S. Treasury Yield Curve (%)



# Near-Term Forward Spread

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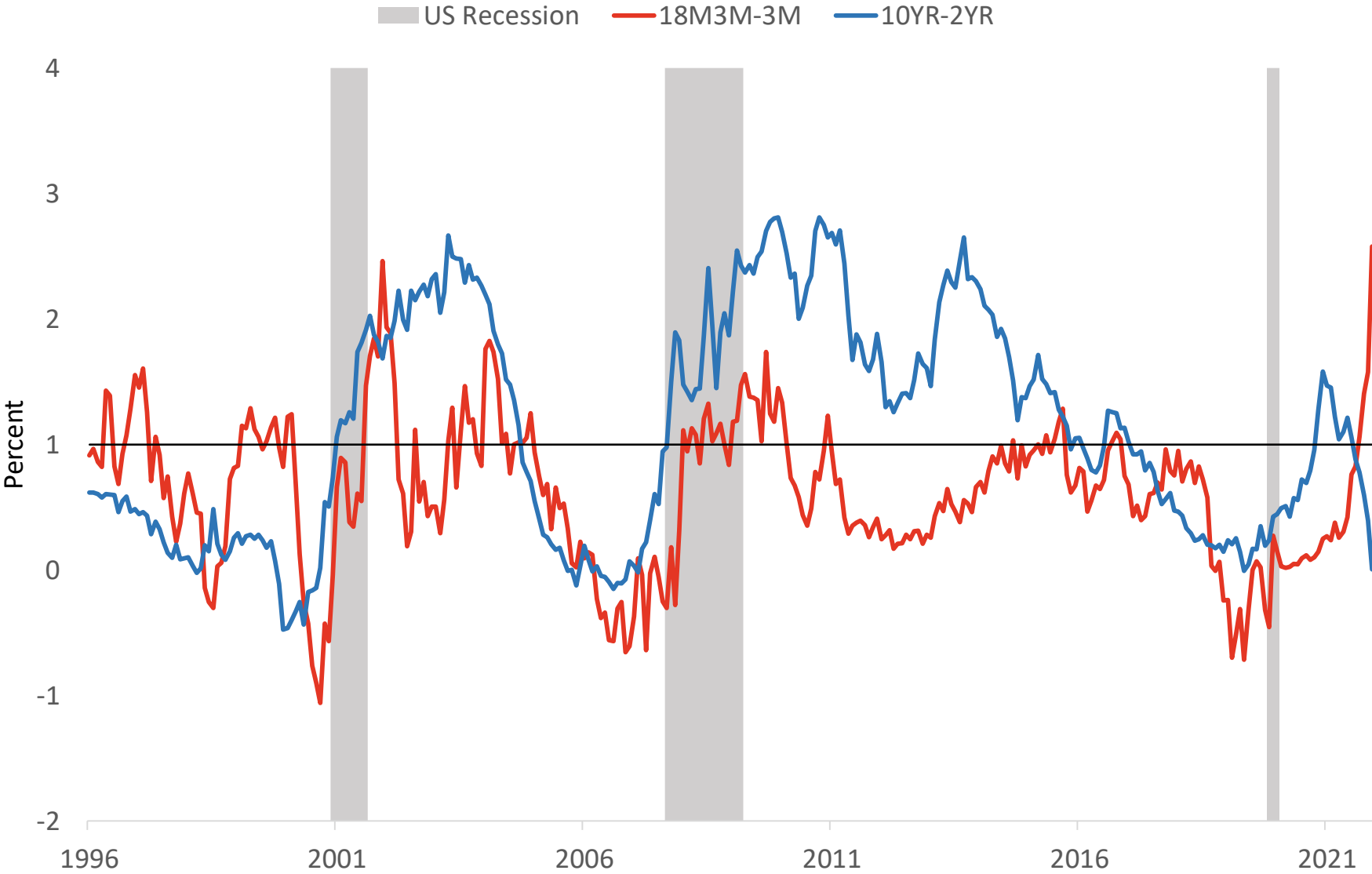
- Implied forward rate on the 3-month T-bill 6 quarters from now

**minus (-)**

the current yield on the 3-month T-bill

- Market's expectations of near-term monetary policy
- Leads onset of recession by about 12 months or so

# Near-Term Forward Spread vs. 2-10 Yield Spread

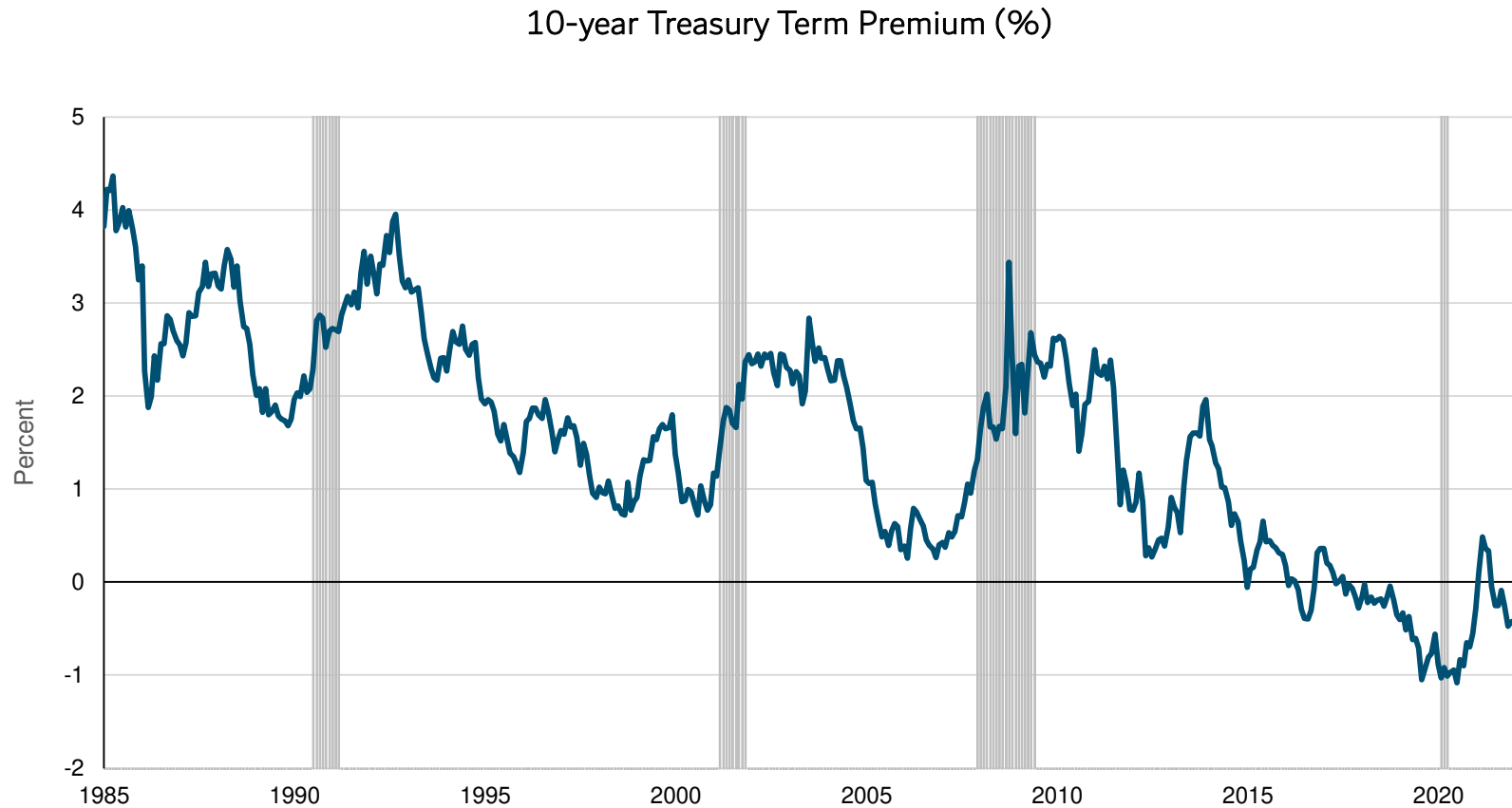


# Term Premium

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- Treasury yields are derived from two components
    - Expectations of the future path of short-term Treasury yields
  - plus (+)
  - Treasury term premium
- 
- Term premium is the compensation for bearing interest rate risk
  - Term premium is unobservable and needs to be estimated

# Secular Decline in the 10-Year Treasury Term Premium



- The term premium has declined steadily since 1985.
  - Central bank asset purchases and forward guidance, glut of global savings, foreign investors, disinflationary pre-pandemic pressures, demand for hedging long duration liabilities
- Low term premium makes inversions more likely and less reliable.

# Explanations for the Low Term Premium

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- Central bank asset purchases
- Glut of global savings
- Interest from foreign investors
- Demand for hedging long duration liabilities
- Disinflationary pre-pandemic pressures and forward guidance



# *Simulated* Frequency of Inversions by Levels of Term Premium

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| Time Period | Actual Average Term Premium (%) | Fraction of Time Yield Curve is Inverted |
|-------------|---------------------------------|--|
| Post-1985   | 1.62                            | 0.10                                     |
| Post-1999   | 1.02                            | 0.17                                     |
| Post-2006   | 0.73                            | 0.26                                     |
| Post-2012   | 0.16                            | 0.46                                     |

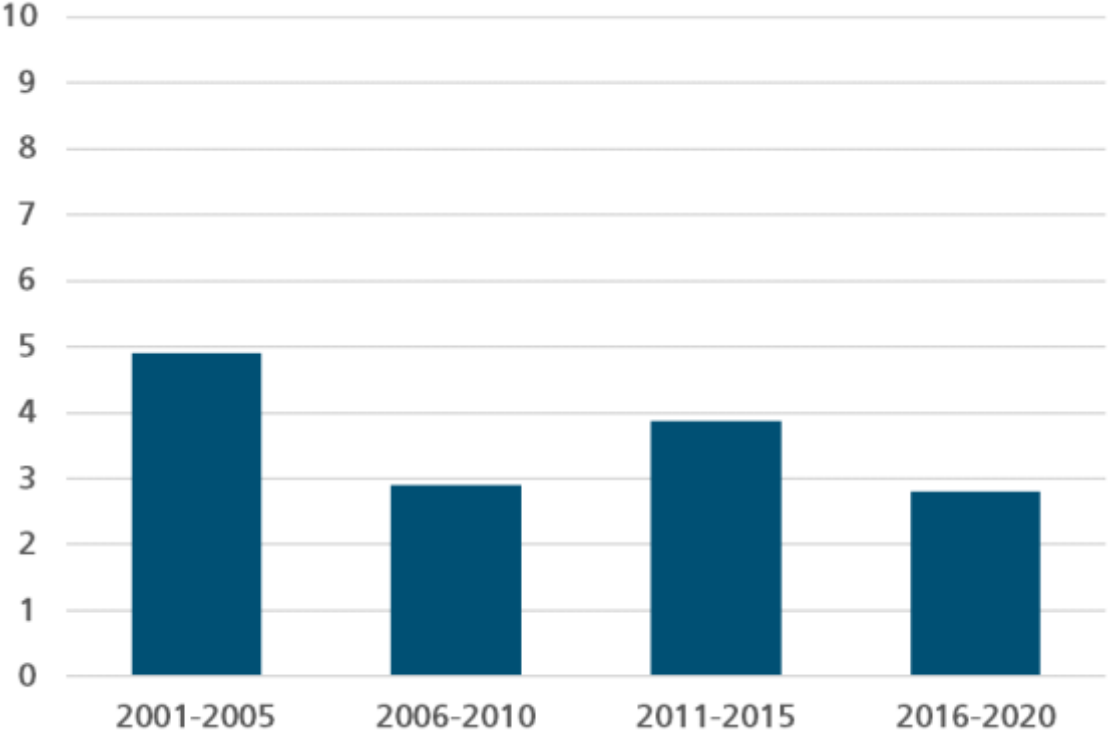
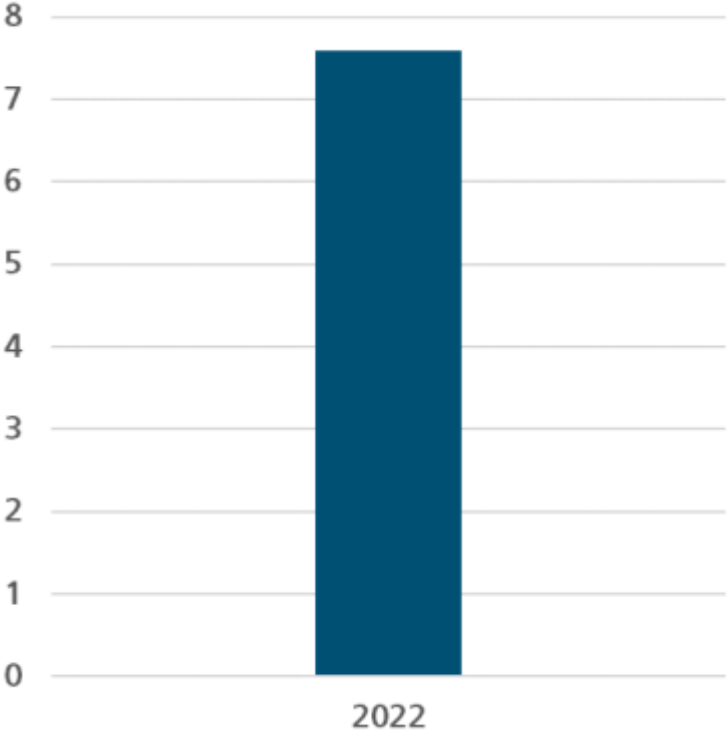
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- **Economic and Earnings Growth**

# Nominal Growth is Still Projected to be High in 2022

Expected and Historical Nominal GDP Growth (%)



# Drivers of Growth in 2022

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- Headwinds

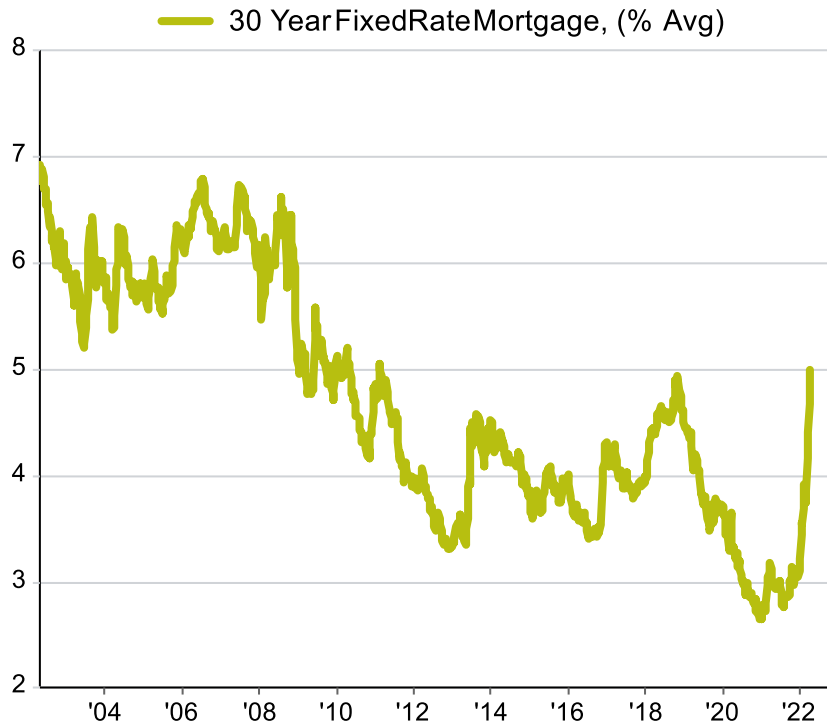
- Inflation
- Housing?

- Tailwinds

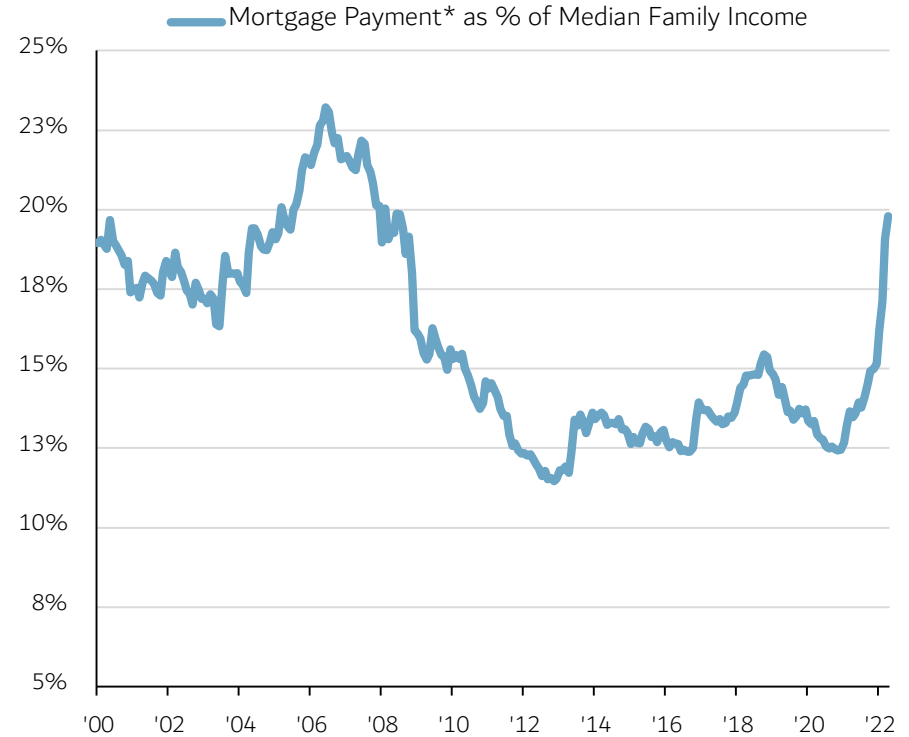
- Labor market
- Strength of consumer

# Housing Headwinds?

## Mortgage Rates



## Mortgage Costs



- Rising mortgage rates and housing prices have pushed mortgage costs to highest level since 2008

# Housing: Not a Repeat of the Financial Crisis

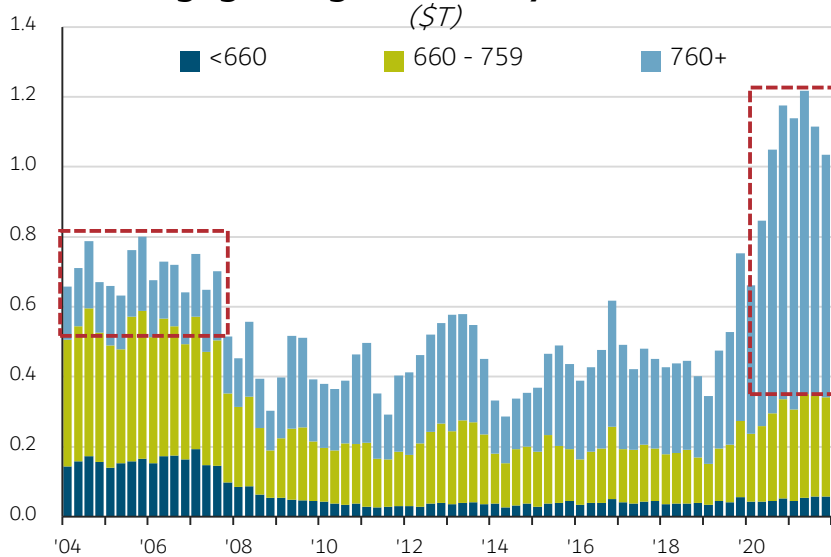
### Single-Family Home Inventory (months supply)



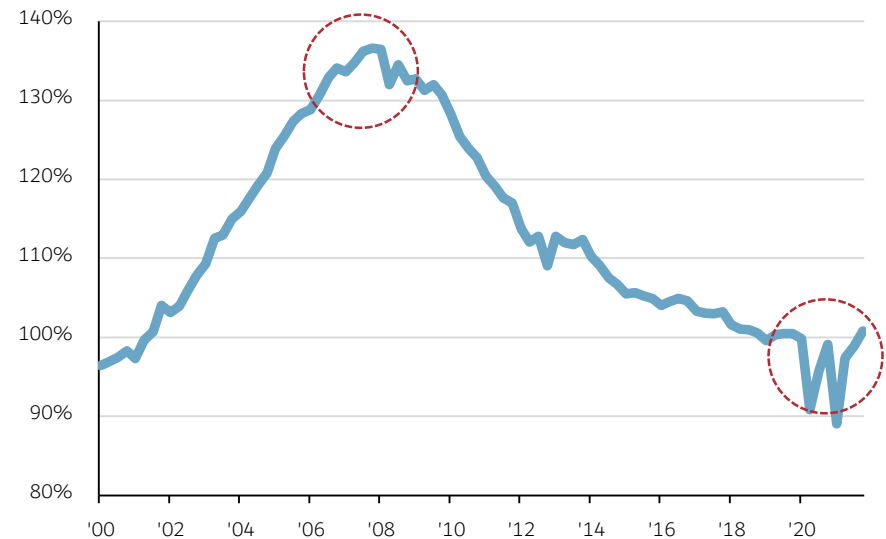
### ARMs as % of Mortgage Applications



### Mortgage Originations by Credit Score

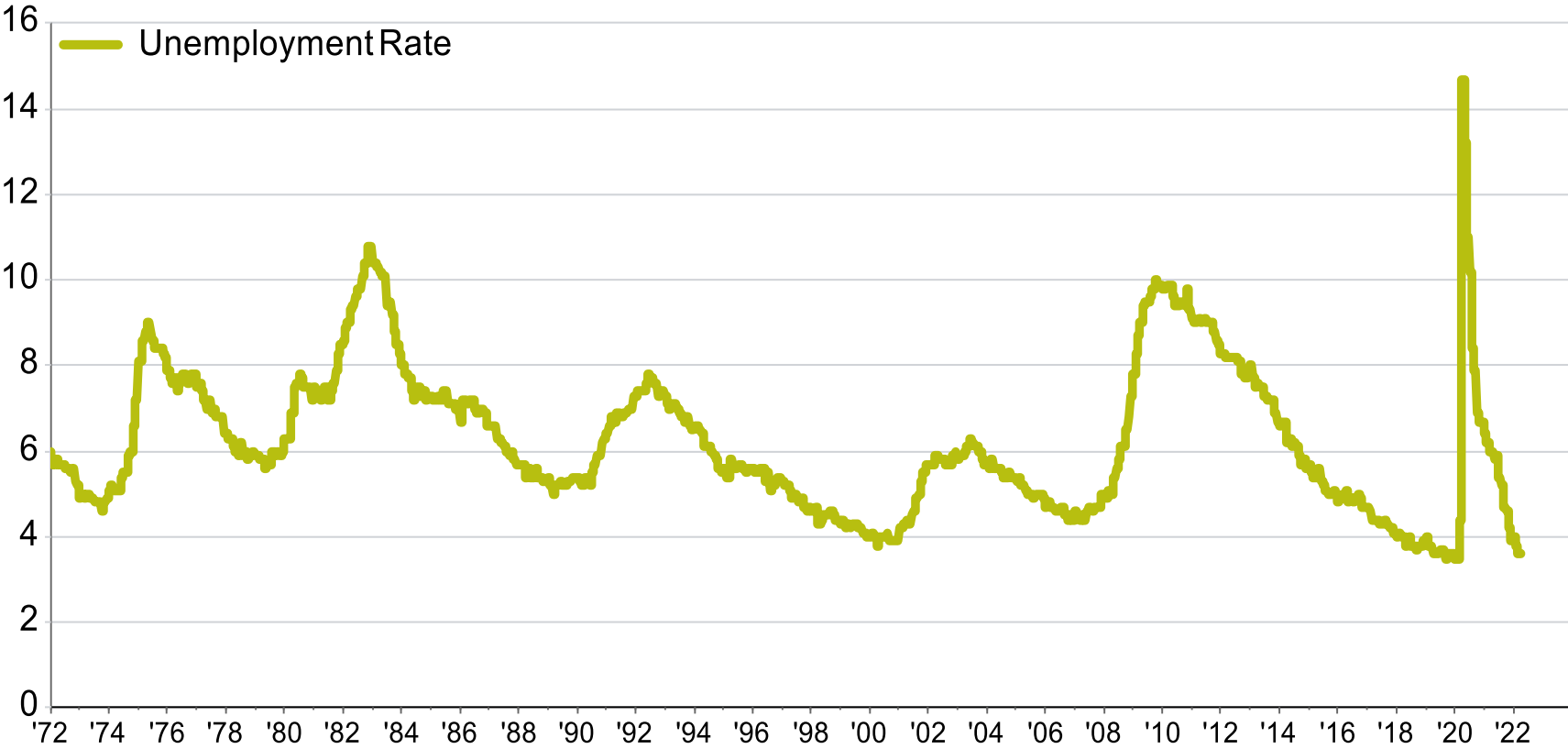


### US Household Debt-to-Income Ratio



# Robust Jobs Market

Unemployment Rate (%)



- Labor market is approaching full employment



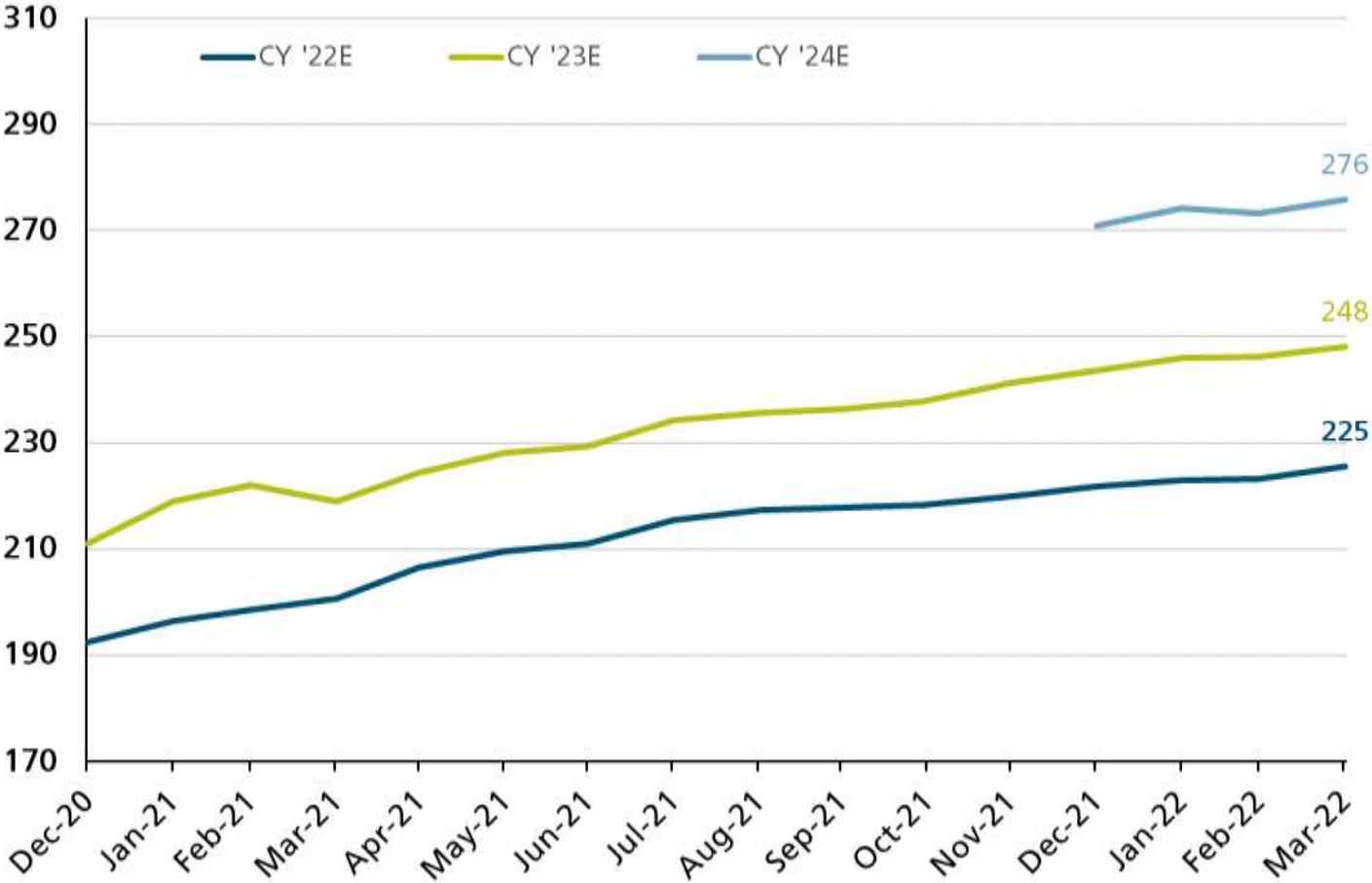
# Credit Spreads Remain Fairly Tight

Baa Spreads (%)



# Earnings Continue to Grow

## S&P 500 Earnings Estimates Over Time



# Summary and Key Takeaways

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We believe:

- Inflation remains the biggest economic and market risk
- Inflation may peak soon but will remain well above target in 2022 and 2023
- Ukraine war and China covid policy will impede the recovery of supply chains

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- Term premium in the last decade has been unusually low and close to zero
- Yield curve inversions are statistically more likely when the term premium is low
- Yield curve indicators may now be a less reliable recessionary signal

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An aerial photograph of a winding asphalt road that curves through a dense, green forest. The road starts from the top left, curves down and then right, forming a large loop. A single car is visible on the road in the upper left section. The forest is thick with various shades of green trees. The overall scene is peaceful and scenic.

Thank you.

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