Blackstone

Fundamentals Are Yet to Get Their Day in the Sun

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I. Introduction

Acknowledging the Rising Recession Risk

In recent quarters we have continued to highlight the important strengths in the US economy—some of which remain, such as robust labor markets, healthy household balance sheets, and solid consumption patterns. In addition, recent data have signaled that headline inflation may have finally peaked as energy prices drift lower. However, we have consistently held the view that inflation would be sticky, and that the markets were underappreciating the lengths to which the Fed would go to tamp down price increases.

Until recently, market pricing and consensus forecasts have signaled an unwillingness to acknowledge these views, but now that they are being actualized, the risks of recession in the US and globally should not be underestimated. We think the UK is likely already in one, and the Eurozone will be there sooner than later. China's growth continues to sputter under the weight of ongoing zero-COVID lockdowns, while emerging markets struggle with the inexorable rise of the USD in 2022YTD. Market hope has sprung eternal that these challenges would resolve themselves on their own, with inflation drifting down such that central banks could avoid tipping their respective economies into contraction. That seems like wishful thinking now, as the world enters the most coordinated monetary policy cycle in decades, if not ever.

Markets May Be Giving Up on Fighting the Fed

A prime example of this wishful thinking has been the persistent trend wherein markets have priced in a path for Fed policy that has consistently lagged our view and the Fed's own projections. In last quarter's presentation, we noted that markets were pricing in a terminal rate of 3.5%, but that we thought the Fed would have to do more. Since last quarter, markets have shifted rapidly toward our view, and are no longer fighting the Fed. Both market pricing and Fed projections currently imply a terminal rate of at least 4.5%.

Now, the question is whether the Fed will ease off its plans or dramatically lower rates in response to a slowing economy. The trouble for that view is that certain key inflationary drivers have yet to signal a durable downward trend, and as such, the Fed may opt to keep rates elevated for longer. We have been sharing our view that this would be the case, and recent comments from Fed policymakers indicate a willingness to do just that. Because although the latest US Consumer Price Index reports show that headline inflation has all but certainly peaked for this cycle, there continues to be underlying momentum for inflation, ranging from rapid wage growth to accelerating shelter inflation.

Taking Stock of Market Turbulence

To be sure, markets are acknowledging the risks. Investors have felt historic pain this year, with the traditional 60/40 portfolio experiencing the worst YTD drawdown in the history of the US Aggregate Bond Index. This coordinated stock-bond volatility comes as both asset classes grind lower amid slowing growth, high inflation, and the end of the 40-year bull market in bonds. Unfortunately, there is likely to be more turbulence ahead. Because while earnings estimates have flattened out and in some cases are being revised downward, estimates for the S&P 500 are hovering at record highs for next year. S&P 500 multiples have compressed, but this has been almost exclusively due to falling prices. Now that analysts are beginning to cut earnings estimates, multiples will be rising again unless markets fall further.

With our view that growth is slowing significantly, and that inflation and rates will be elevated for some time, this puts increasing pressure on profit margins, which sit precariously at record highs right now. Further margin expansion is not the likely outcome in coming quarters, and as such, more volatility should be expected in equity markets. This environment has challenges for bonds, too. The relationship for stocks and bonds is not constant, and periods of higher inflation are associated with more positive correlations between the two asset classes. This means that this year's pain for the 60/40 portfolio may not be a one-time aberration. It should prompt everyone to reconsider the traditional assumptions that have underpinned investment strategies, and to consider anew what solutions exist that can provide diversification and attractive risk-adjusted returns in this uncertain and turbulent environment. With that, let's jump in.

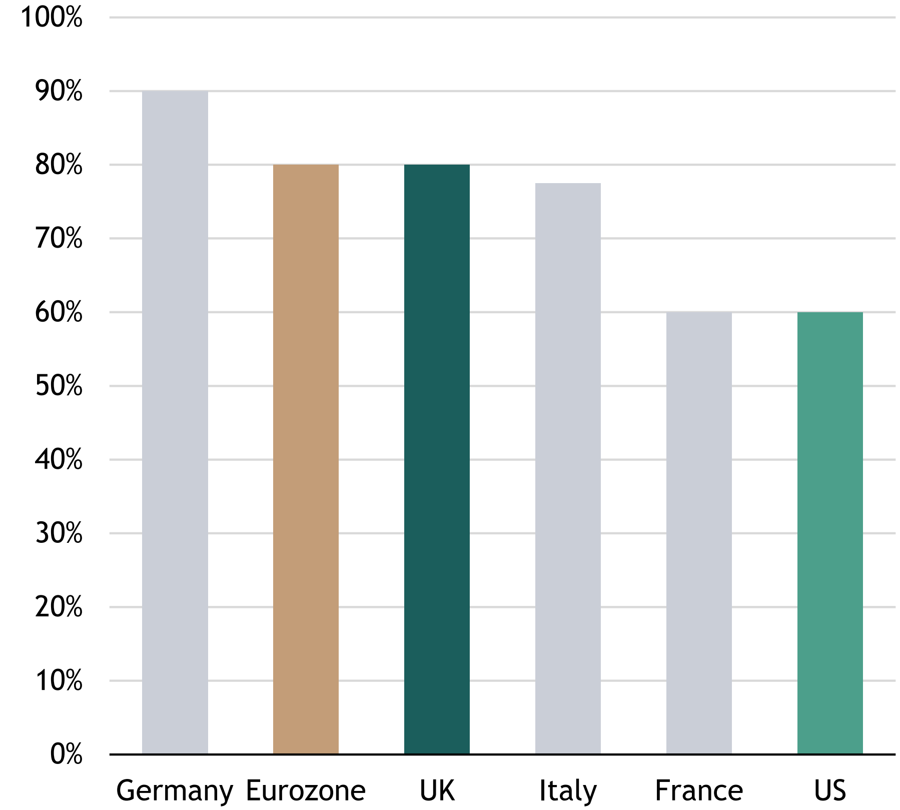
Note: As detailed in the "Disclaimers" section, the above and all subsequent commentary in this presentation reflect the personal views of Joseph Zidle, Senior Managing Director, and Byron Wien, Vice Chairman, and do not necessarily reflect the view of Blackstone.

II. Global Recession Risks On the Rise

Recession probabilities higher in European economies, largely thanks to the higher energy inflation they face

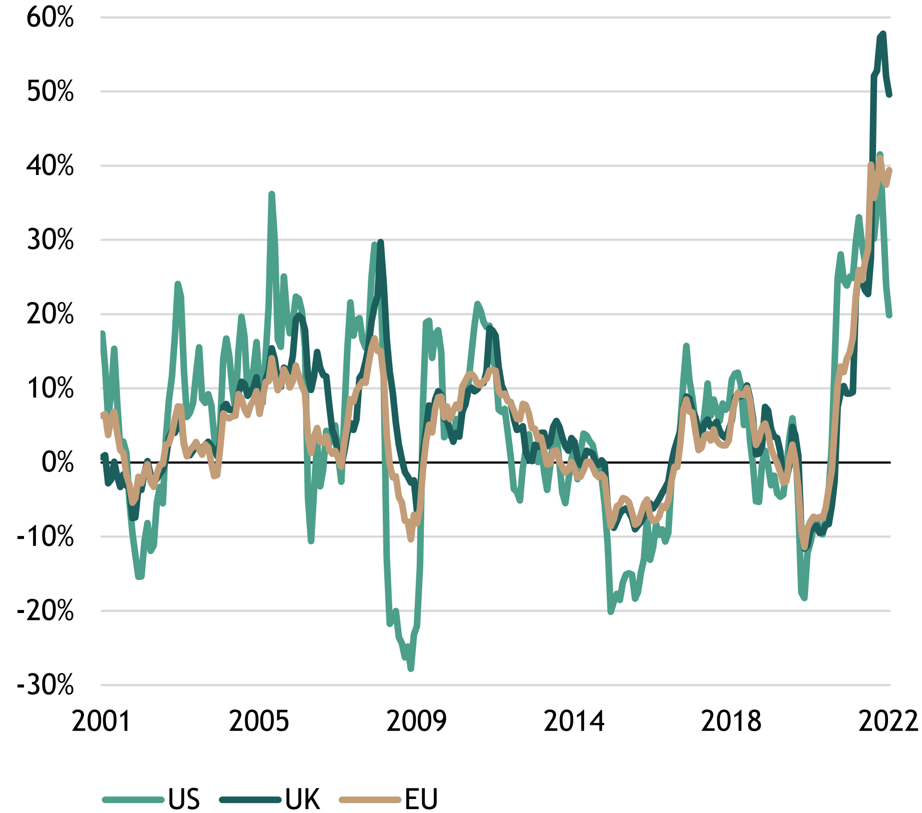
Consensus Estimates of Recession Probability in Selected Economies[1]

(over next 12 months)



Energy CPI in US, UK and EU[2]

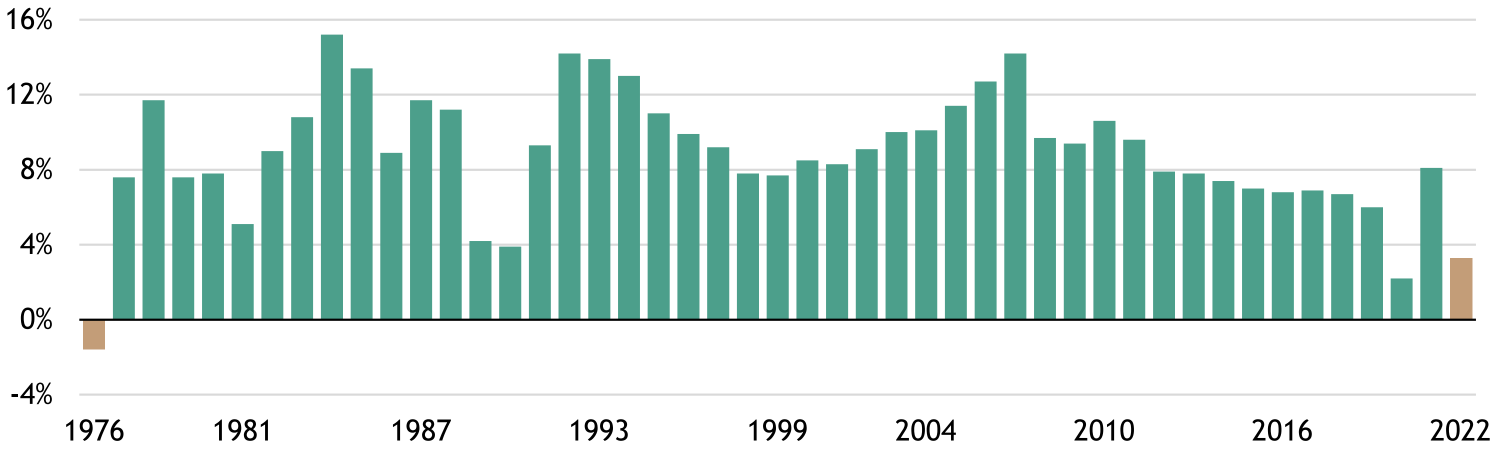
(YoY%)



(1) Source: Bloomberg, latest consensus forecasts as of 10/18/2022.
(2) Source: US Bureau of labor Statistics, U.K. Office of National Statistics, Eurostat and Bloomberg, as of 9/30/2022.

China Real GDP(1)

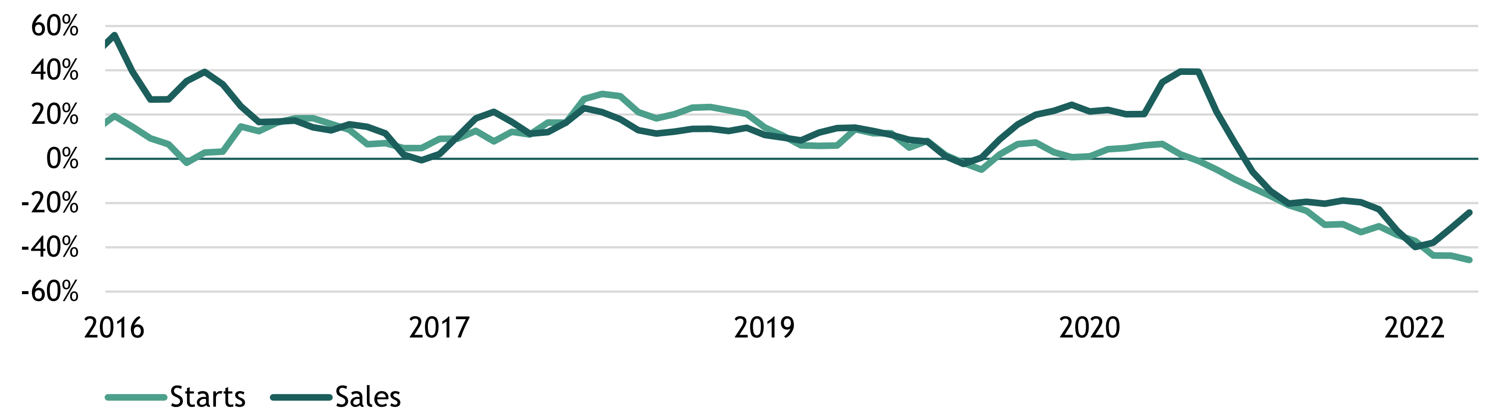
(YoY%)



Current estimates are for ~3% real GDP growth in 2022, which would be the lowest since 1976 (excluding 2020)

Total China Residential Property Starts and Sales Volume(2)

(YoY%)



China's historic property market downturn is a continued headwind for the economy as it faces rolling COVID lockdowns

(1) Source: Bloomberg, actual data as of 12/31/2021. Data thereafter represents consensus forecasts.
(2) Source: Bloomberg Intelligence, as of 8/31/2022.

RECESSION CHECKLIST

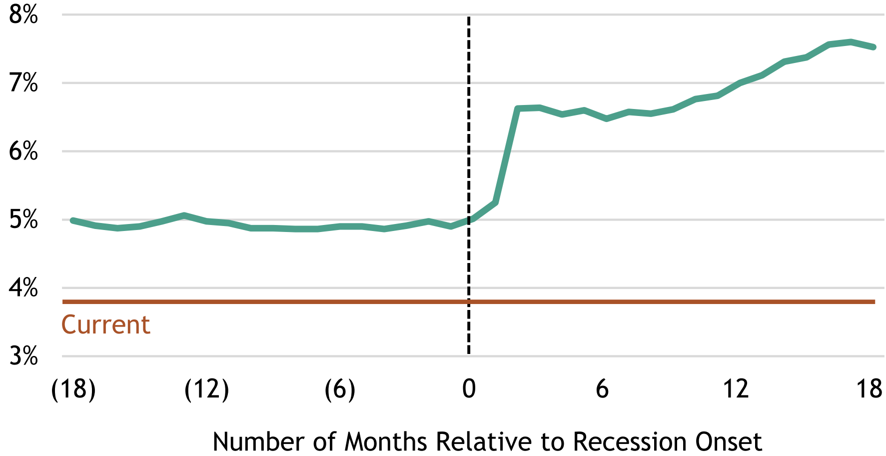
Indicator	Description	Tech Bubble (1999)	Housing Bubble (2007)	COVID-19 (2020)	Current	Note: Current
Primary Indicators ("Sufficient Conditions")						
Unemployment ("Sahm Rule")	▪ Signals the start of recession when the 3-month moving average of the unemployment rate rises 0.5% or more relative to the trailing 12-month period	✓	✓	✓	✗	Unemployment fell in Sept. 2022, and Sahm Rule indicator is at zero
Leading Economic Indicators Growth	▪ Growth in LEIs peaks and turns negative before recession	✓	✓	✓	✓	LEI growth turned negative in July 2022 and fell to -1% in August 2022
Yield Curve: 10Y/2Y Spread	▪ Inversion preceded each of the last six recessions, with no false positives	✓	✓	✓	✓	Spread was inverted by an average of 34 basis points in Sept. 2022
Secondary Indicators ("Necessary Conditions")						
Average Hourly Earnings Growth	▪ Growth of 4%+ creates concern of a wage-price spiral ▪ The Fed hikes to front-run inflation, and overtightens	✓	✓	✓	✓	Wage growth currently 5%+ YoY; Fed Chair Powell calls labor market "extremely tight" in Sept. 2022
Corporate Profits Growth	▪ Year-over-year growth always turns negative before recession	✓	✓	✓	✗	Profits growth remains positive and estimates for earnings growth in 4Q'22 and CY2023 remain positive
Consumer Confidence	▪ The spread between consumer confidence on "future expectations" less "present situation" turns negative and troughs before recession	✓	✓	✓	✓	Consumers are highly pessimistic about future expectations relative to their current situation

Source: Blackstone Investment Strategy, represents latest available data for each measure as of 10/18/2022.

AVERAGE CHANGE IN INDICATORS AROUND ALL RECESSIONS SINCE 1970

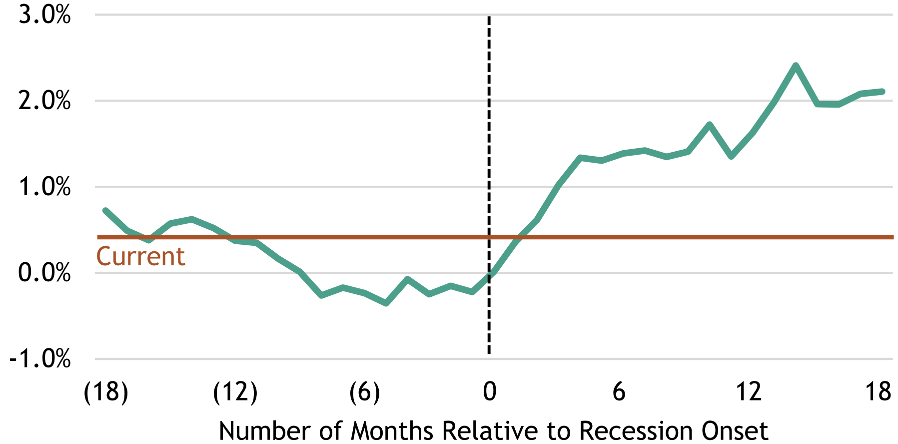
Unemployment Rate

(average change around onset of recession)



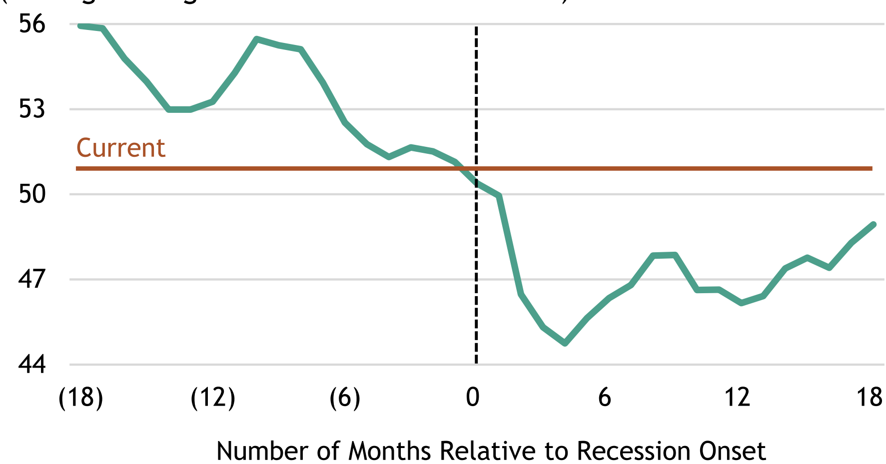
10Y-3M Treasury Spread

(average change around onset of recession)



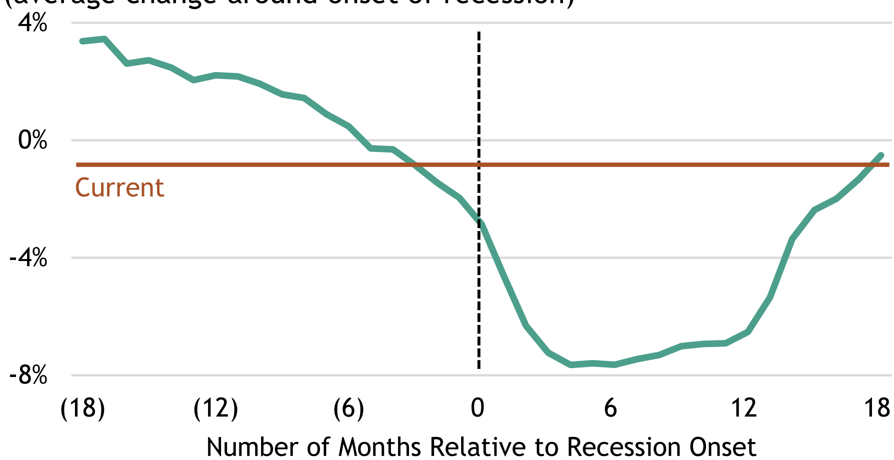
ISM Manufacturing PMI

(average change around onset of recession)



Leading Economic Index (YoY%)

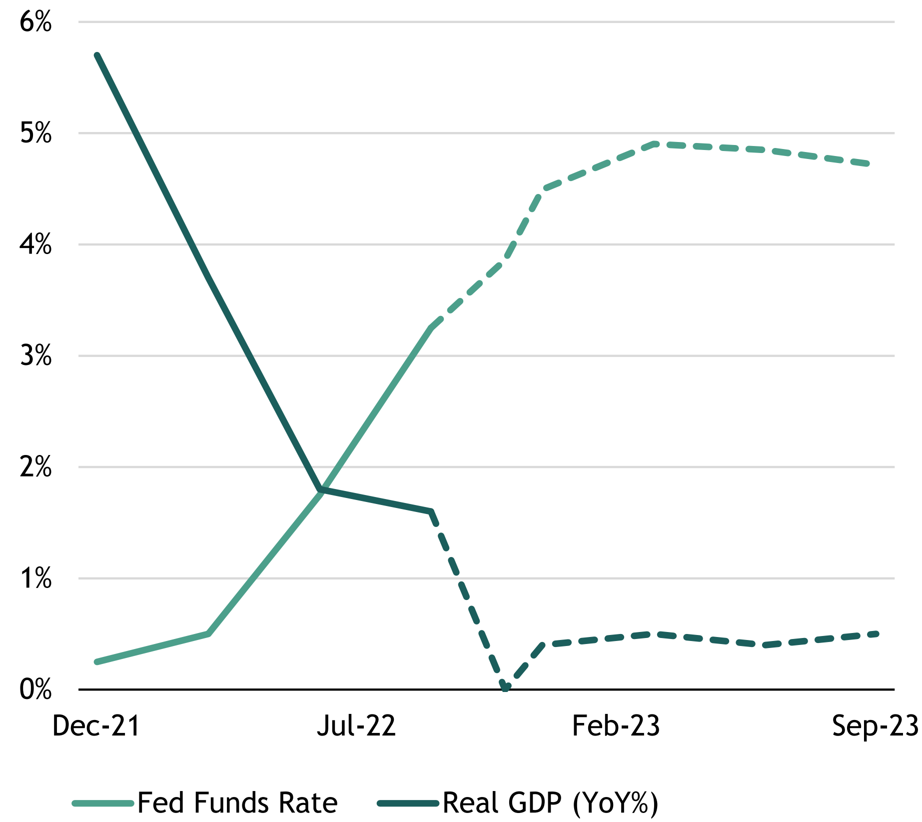
(average change around onset of recession)



Source: Blackstone Investment Strategy, Bureau of Labor Statistics, Federal Reserve, ISM, Conference Board and Bloomberg, as of 9/30/2022 (leading economic index on one-month lag). Represents the average of all recessions since 1970 (eight observations).

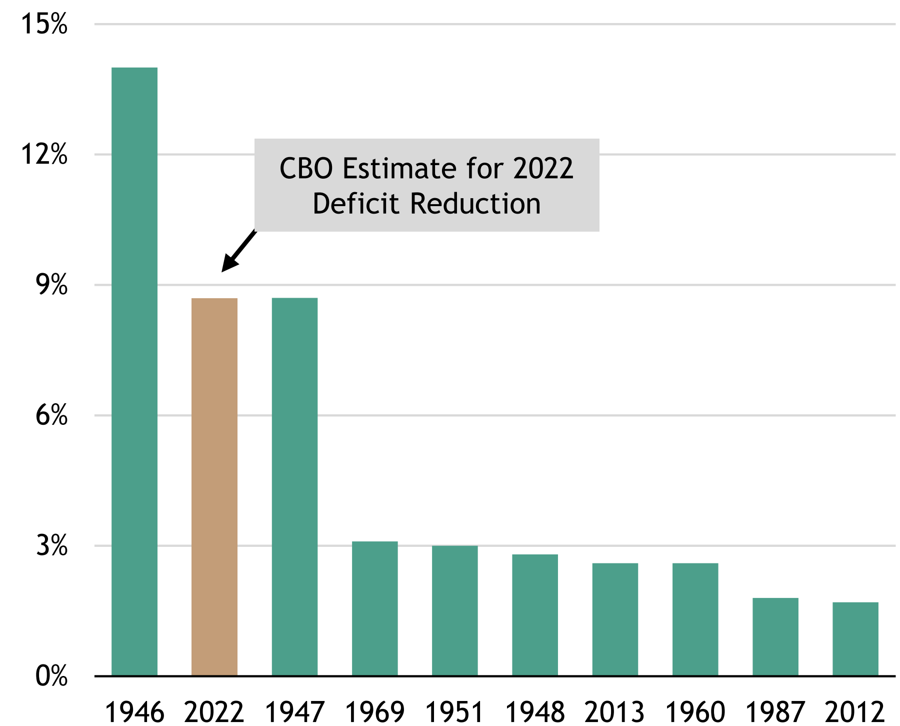
Fed continues to tighten as growth slows, while the US is facing the largest budget deficit reduction since 1947

Federal Funds Rate and Real GDP Growth(1)



Largest Post-War Reductions in US Federal Budget Deficit

(% of GDP)

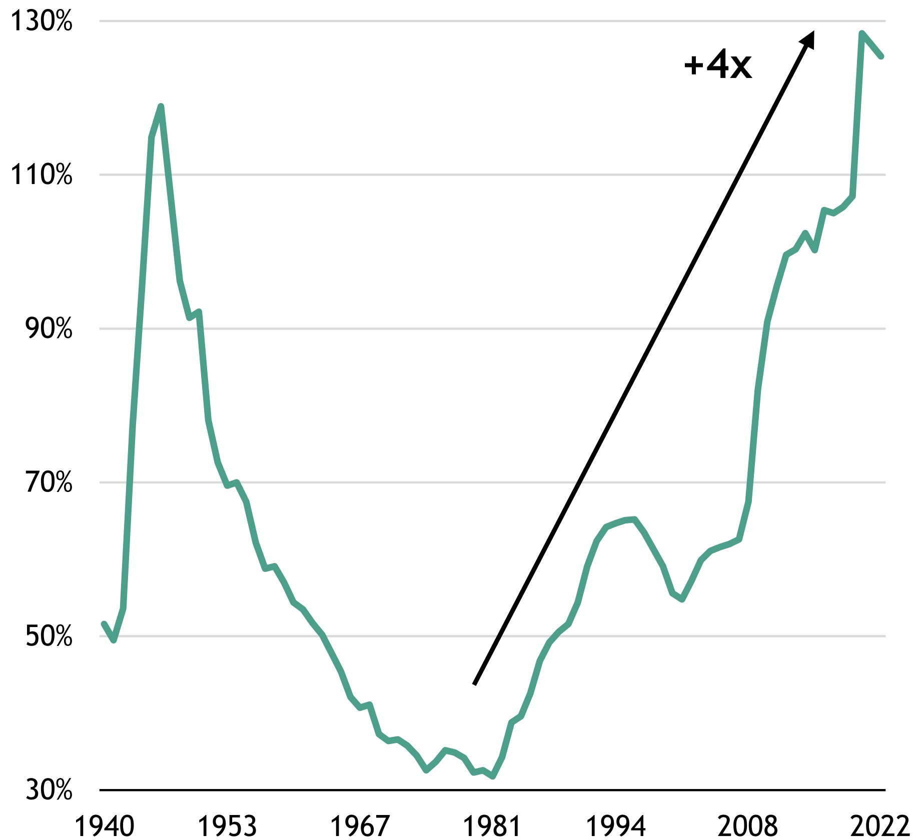


Source: Blackstone Investment Strategy, Federal Reserve, Bloomberg, Strategas Research Partners and CBO estimates, as of 10/3/2022 (Bloomberg consensus forecasts, as of 10/18/2022).
(1) Dotted lines represent market pricing for the Fed Funds rate, as implied by futures markets, and consensus forecasts for US real GDP growth.

Federal debt has surged, but record low rates allowed debt service as share of GDP to remain relatively low

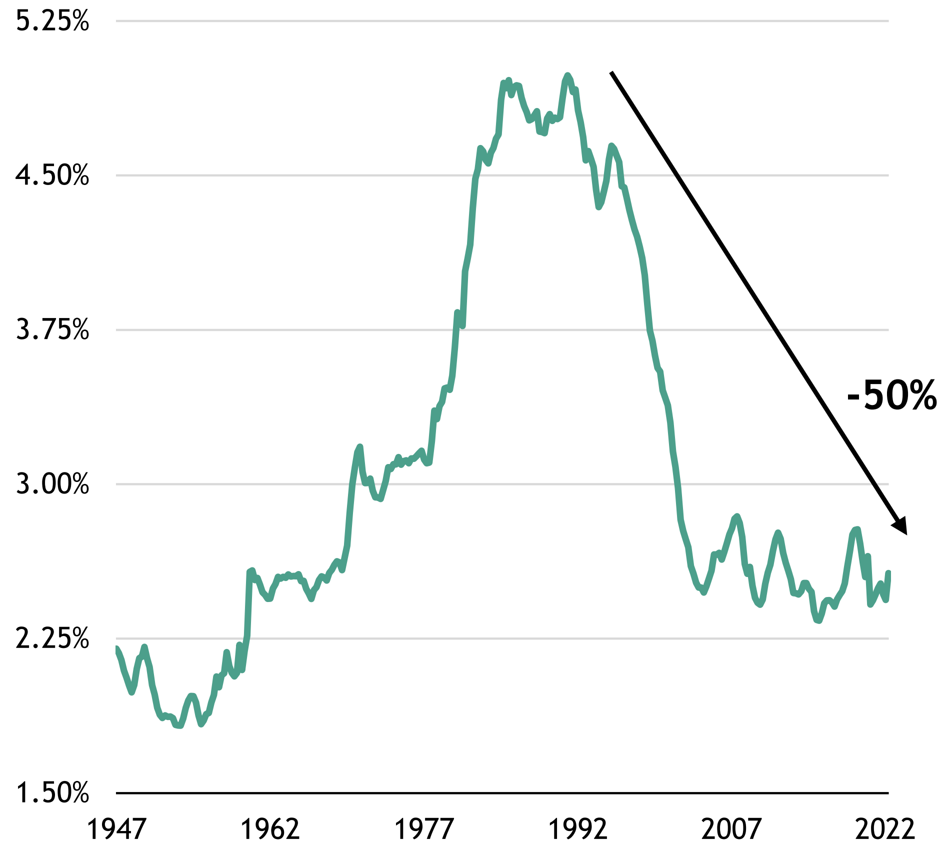
US Federal Debt

(% of GDP)



US Federal Government Interest Expense

(% of GDP)



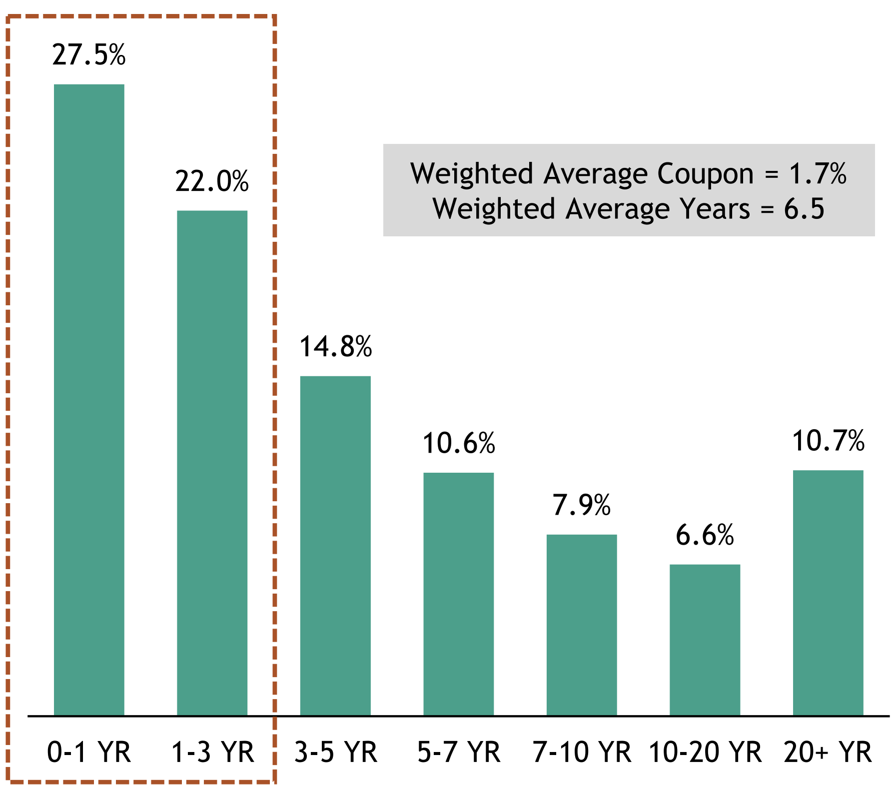
Source: Blackstone Investment Strategy and Bureau of Economic Analysis, as of 6/30/2022.

Now, federal interest expense is set to increase quickly

Nearly 50% of debt matures in the next three years and is likely to be refinanced with higher rates

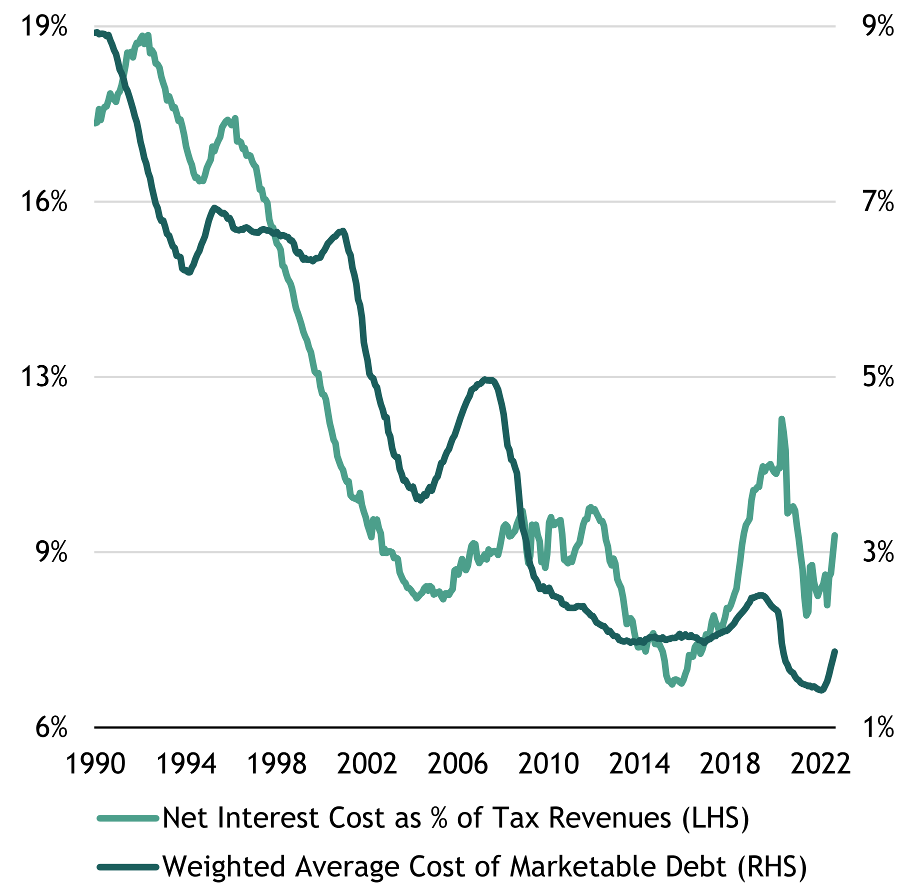
US Outstanding Marketable Sovereign Debt

(by maturity timeline)



US Government Debt Interest Costs

(as share of tax revenues and weighted average cost)



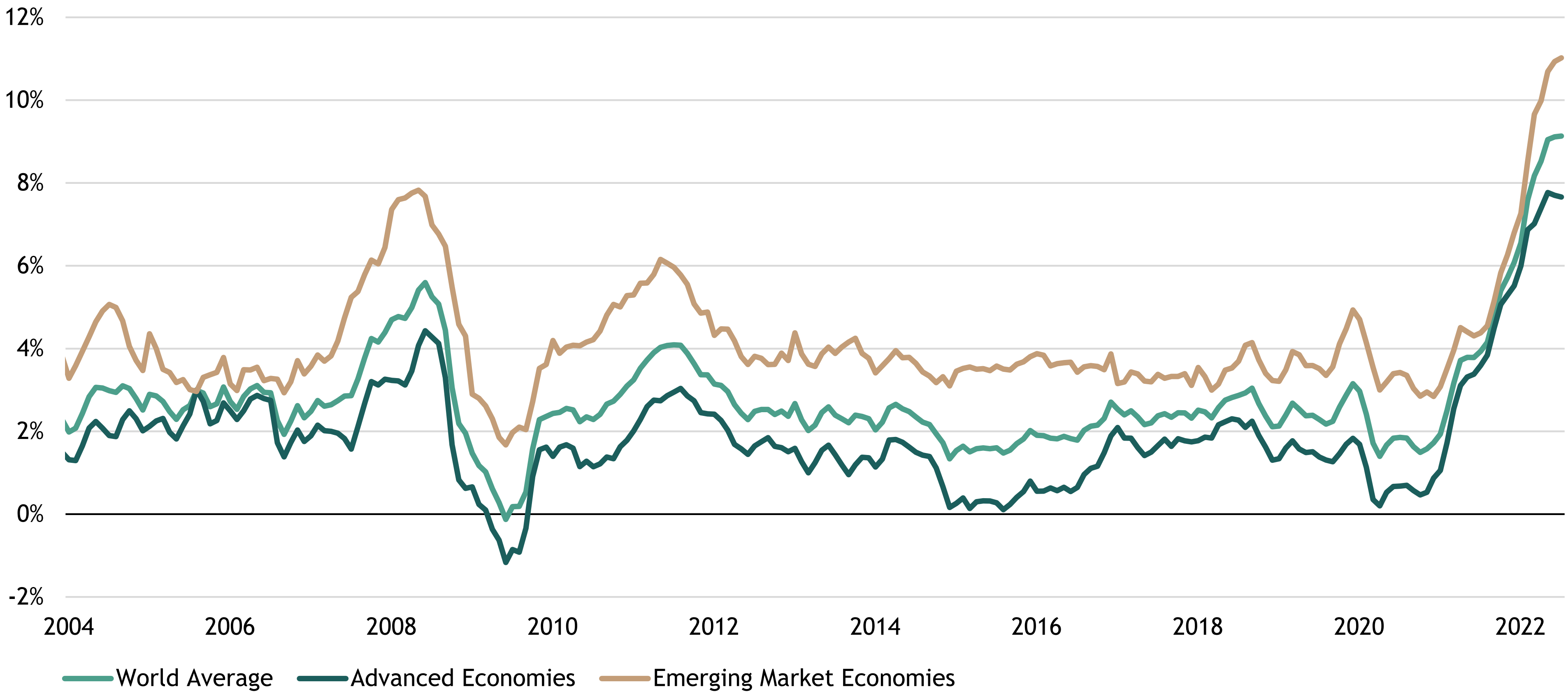
Source: Strategas Research Partners, as of 8/31/2022 (debt cost) and 9/30/2022 (debt maturity).

III. Inflation May Have It's Peaked, But It’s Sticky

Global inflation highest in at least two decades, and evident in both advanced and emerging economies

Consumer Price Index Growth

(YoY % change)

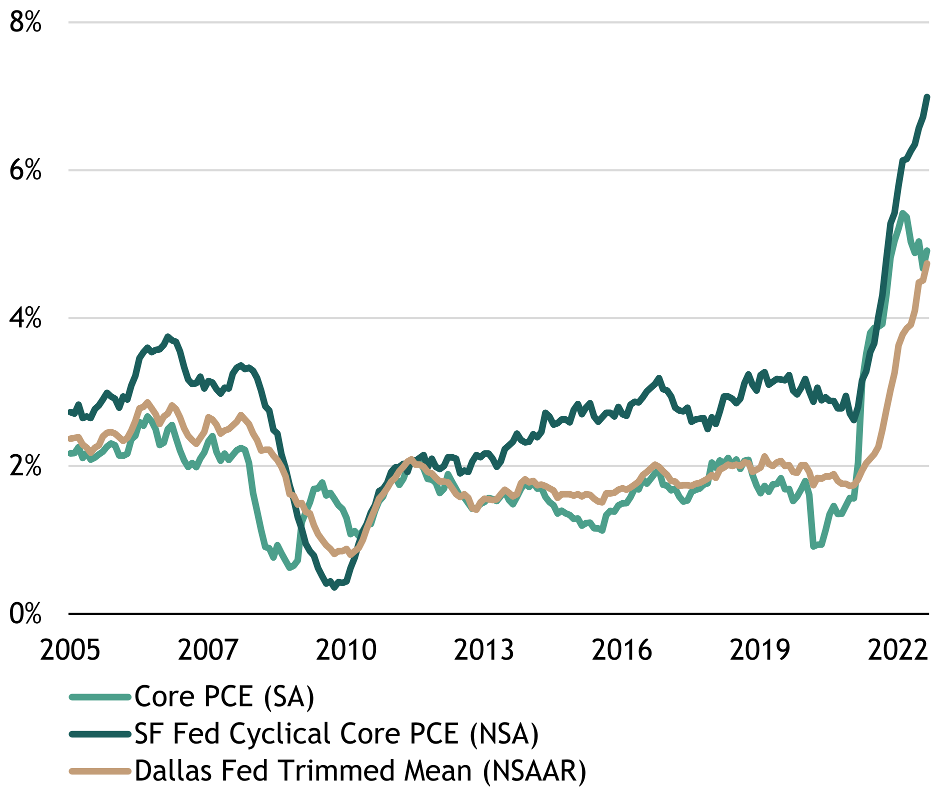


Source: Haver Analytics, as of 8/31/2022. "World Average" is calculated by Haver Analytics by averaging the composite CPI of Advanced Economies and the composite CPI of Emerging Market Economies, weighted by their shares of GDP in US dollars in 2015. "Advanced Economies" and "Emerging Market Economies" are calculated by Haver Analytics by averaging the CPIs of 22 advanced economies and 51 emerging market economies, respectively, weighted by each individual economy's share of total nominal GDP in 2015.

Inflation remains high in the US, with continued momentum in alternative measures of inflation

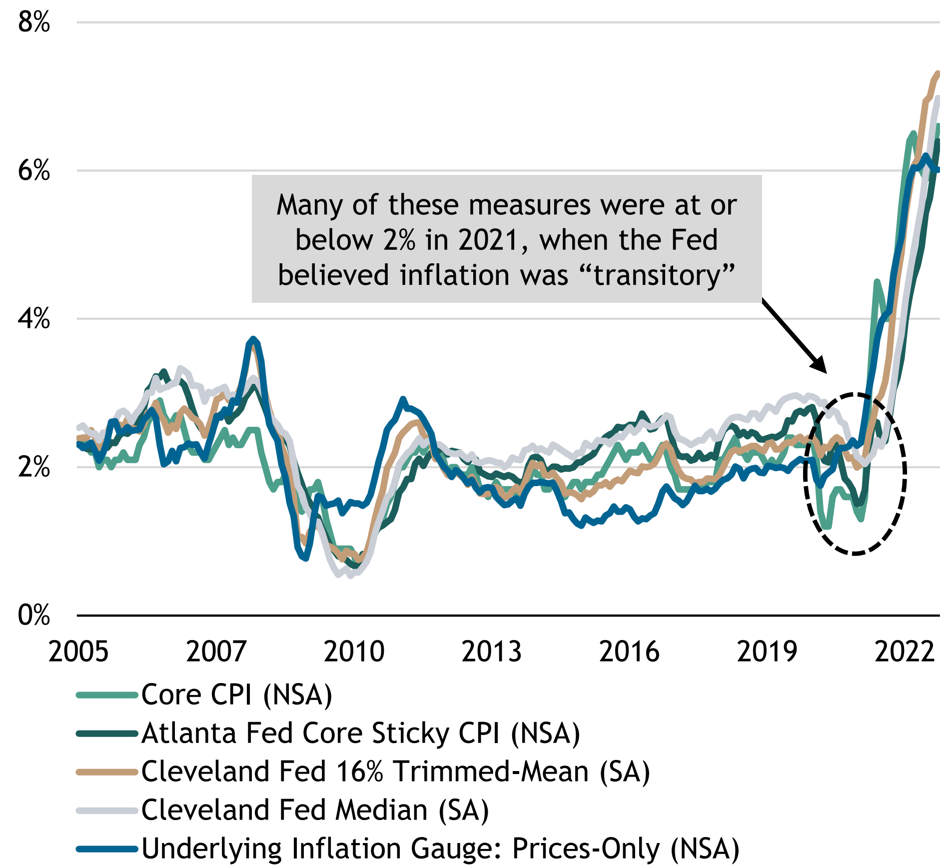
US PCE Measures(1)

(YoY%)



US CPI Measures(2)

(YoY%)

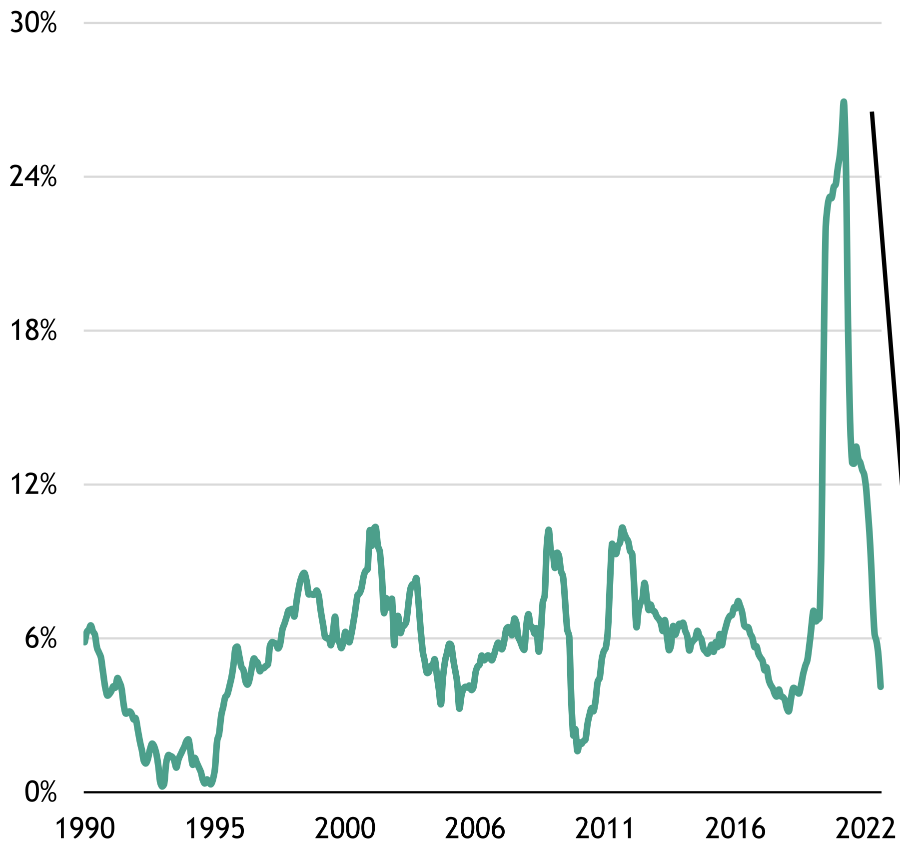


(1) Source: US Bureau of Economic Analysis, Federal Reserve Bank of San Francisco, Federal Reserve Bank of Dallas and Bloomberg, as of 8/31/2022.
(2) Source: US Bureau of Labor Statistics, Federal Reserve Bank of Atlanta, Federal Reserve Bank of Cleveland, Federal Reserve Bank of New York and Bloomberg, as of 9/30/2022.

Money supply growth has collapsed, while goods inflation continues to decline rapidly

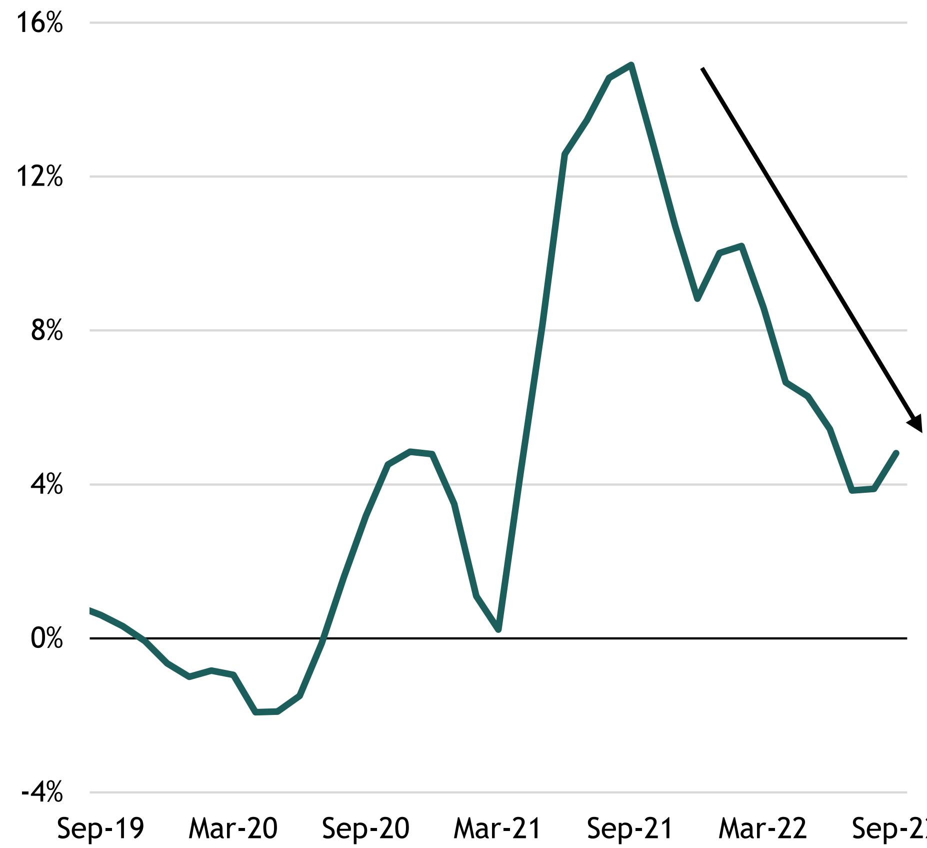
US Money Supply (M2) Growth

(YoY%)



CPI: All Goods Less Food and Energy

(6-month CAGR)

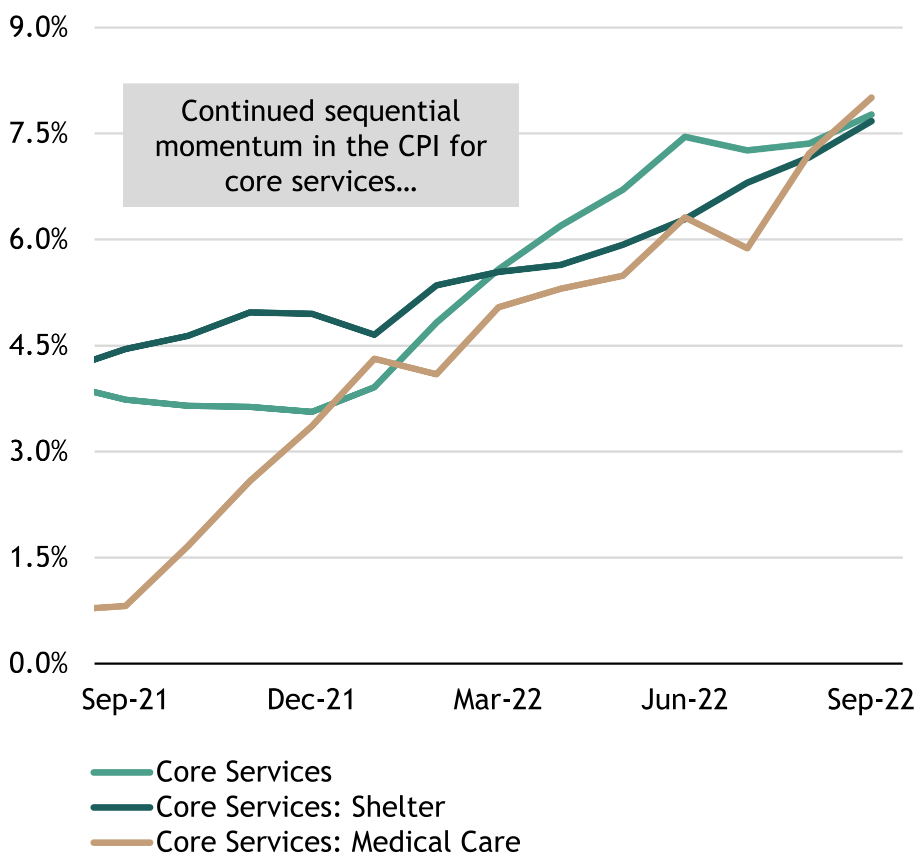


Source: Blackstone Investment Strategy, Federal Reserve, Bureau of Labor Statistics, and Bloomberg, as of 8/31/2022 (money supply) and 9/30/2022 (CPI).

Continued sequential momentum in core services while the CPI for shelter continues to accelerate on YoY basis

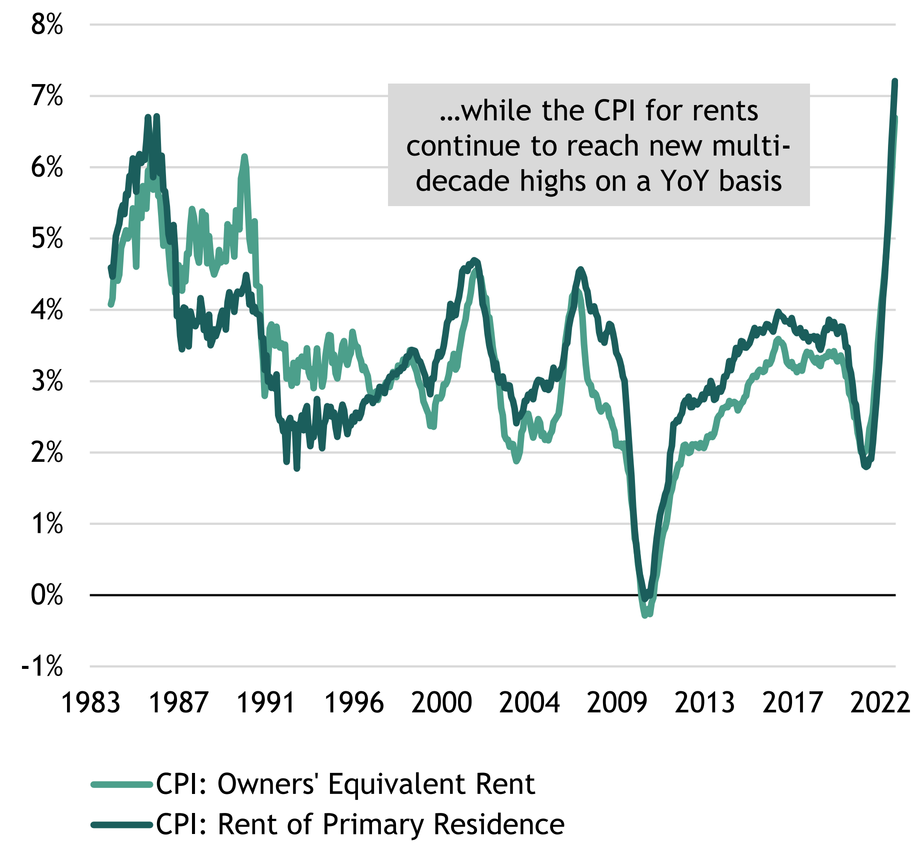
CPI: All Services Less Food and Energy

(6-month CAGR)



CPI for Shelter (Rent Components)

(YoY%)

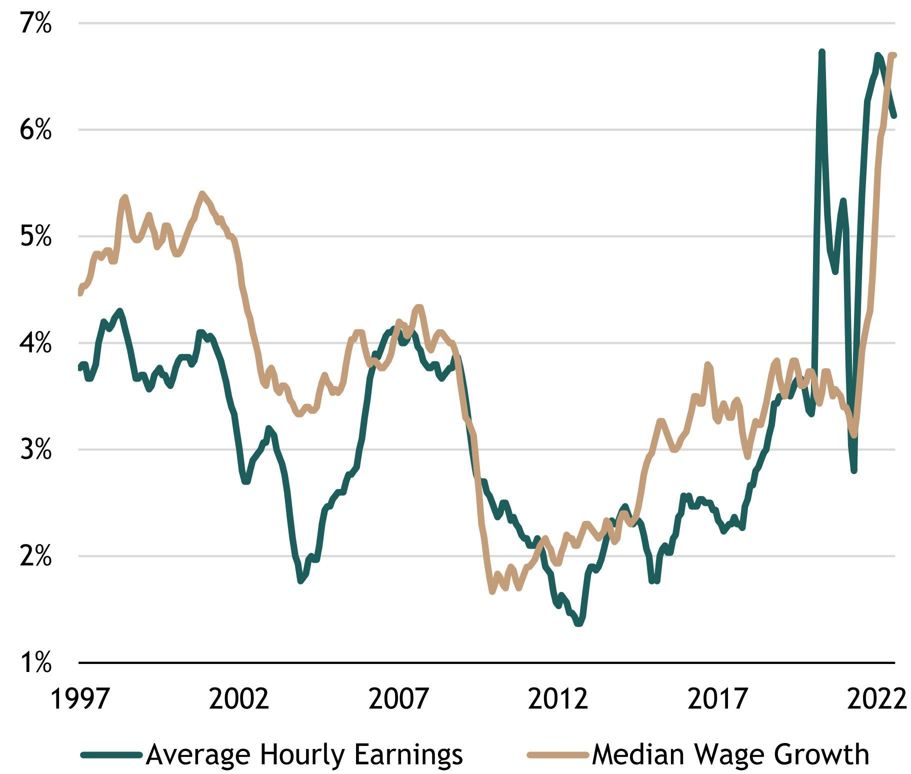


Source: Blackstone Investment Strategy, Bureau of Labor Statistics and Haver Analytics, as of 9/30/2022.

Wage growth and employment costs have not durably slowed, a continued source of sticky inflation

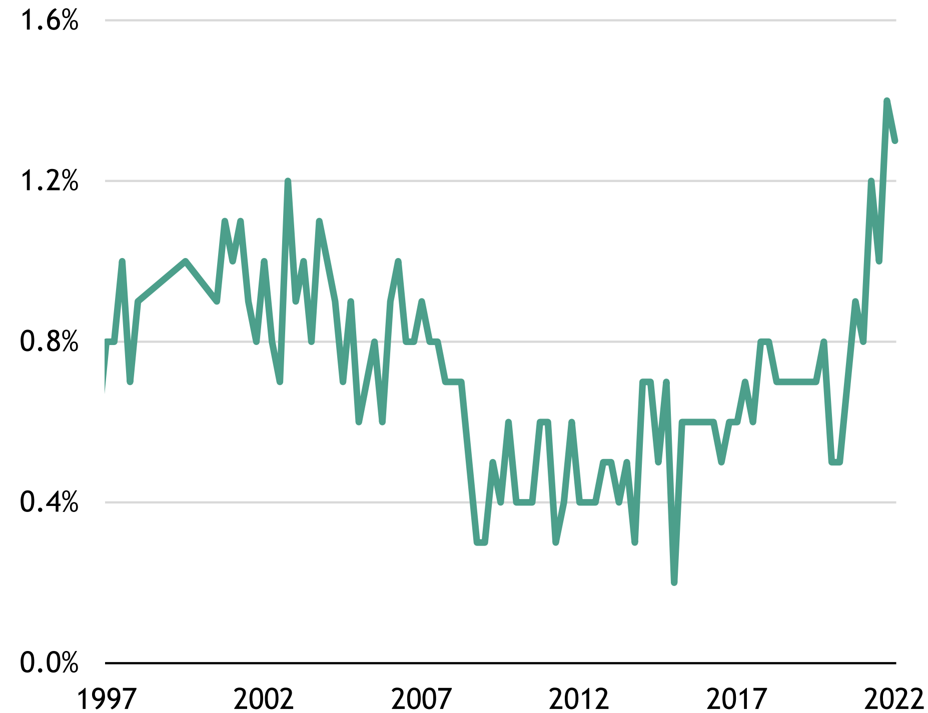
Average Hourly Earnings and Atlanta Fed Median Wage Growth

(YoY%, 3-month moving average)



Employment Cost Index

(QoQ%)



Source: Blackstone Investment Strategy, Bureau of Labor Statistics, Federal Reserve Bank of Atlanta and Bloomberg, as of 9/30/2022 (Employment Cost Index available quarterly, as of 6/30/2022). Average hourly earnings are for production and nonsupervisory employees.

Implied Change in Headline CPI (Shelter vs. All Items Less Shelter)(1)

(YoY)

		CPI: All Items Less Shelter								
		0.00%	2.25%	4.50%	6.75%	9.00%	11.25%	13.50%	15.75%	18.00%
CPI: Shelter	2.6%	0.9%	2.4%	3.8%	5.3%	6.8%	8.2%	9.7%	11.2%	12.6%
	3.6%	1.2%	2.7%	4.2%	5.7%	7.1%	8.6%	10.1%	11.5%	13.0%
	4.6%	1.6%	3.1%	4.5%	6.0%	7.5%	8.9%	10.4%	11.9%	13.3%
	5.6%	1.9%	3.4%	4.9%	6.3%	7.8%	9.3%	10.8%	12.2%	13.7%
	6.6%	2.3%	3.8%	5.2%	6.7%	8.2%	9.6%	11.1%	12.6%	14.0%
	7.6%	2.6%	4.1%	5.6%	7.0%	8.5%	10.0%	11.4%	12.9%	14.4%
	8.6%	3.0%	4.5%	5.9%	7.4%	8.9%	10.3%	11.8%	13.3%	14.7%
	9.6%	3.3%	4.8%	6.3%	7.7%	9.2%	10.7%	12.1%	13.6%	15.1%
	10.6%	3.7%	5.1%	6.6%	8.1%	9.6%	11.0%	12.5%	14.0%	15.4%

If Shelter CPI were to remain at current levels (6.6% YoY), and CPI for All Items Less Shelter were to fall to zero, headline inflation would remain above 2%...

Implied Headline CPI at Assumed YoY Increases(2)

	Assumptions (YoY Change)		Weight in CPI Basket		Contributions to Headline CPI YoY
Food	1.7%	*	14%	=	0.2%
Energy	1.6%	*	8%	=	0.1%
Shelter	3.0%	*	33%	=	1.0%
Used Cars and Trucks	1.1%	*	4%	=	0.0%
All Other Items	1.4%	*	42%	=	0.6%
Headline CPI			**100%**		**2.0%**

...But if shelter inflation were to return to 3.0% (50bps above its historical average), and all other components were to return to their respective historical averages, then headline inflation reaches 2%

Source: Blackstone Investment Strategy calculations, Bureau of Labor Statistics, and Haver Analytics, as of 9/30/2022. Note: Special aggregate indices excluding the respective component is calculated using the BLS method for constructing special CPI indexes and their percent change.

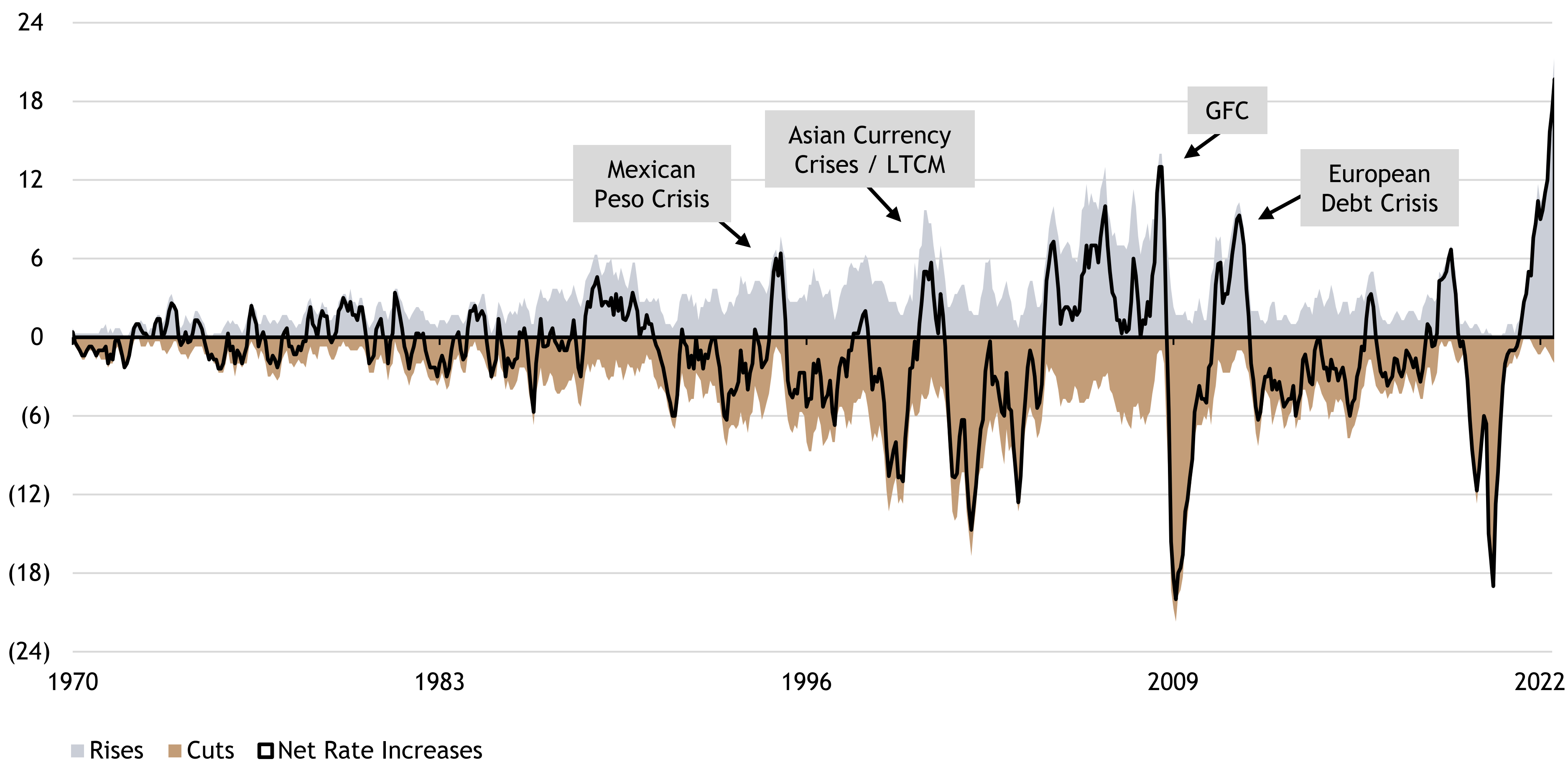
(1) Center row and column represent latest actual values.

(2) Values in first column represent each component's historical average from 2010 to 2019, except for shelter, which averaged 2.5% year-over-year over that period.

IV. Coordinated Global Tightening Cycle

This is one of the most coordinated global monetary policy tightening cycles in modern history

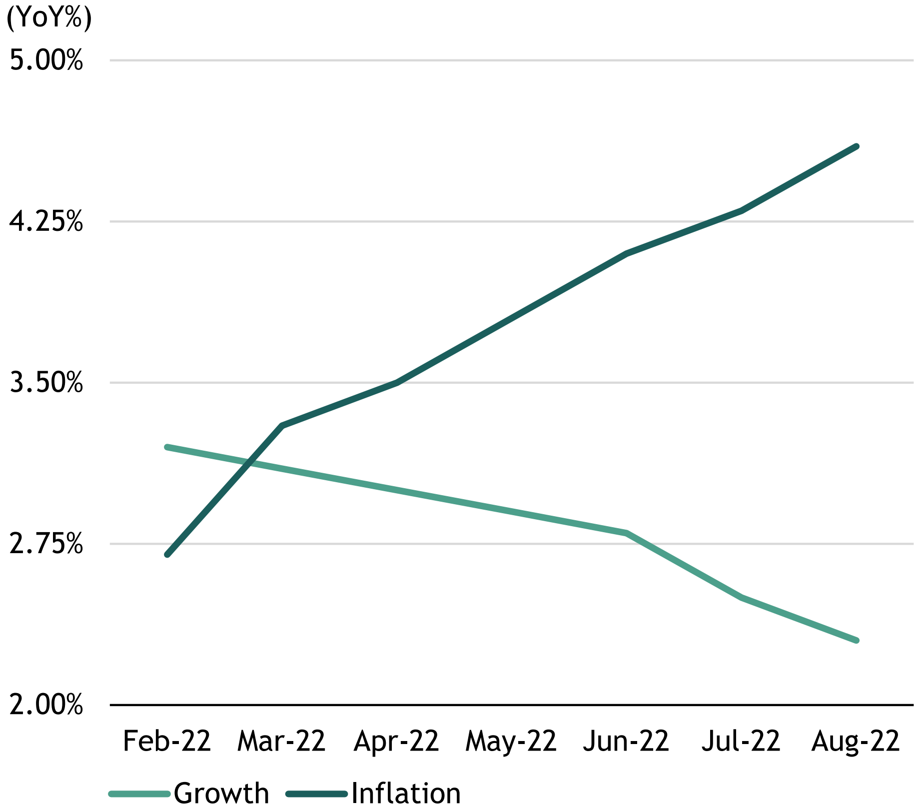
Number of Global Policy Rate Rises and Cuts



Source: BIS and World Bank. Note: Three-month average of the number of policy rate rises and cuts over the month for 38 countries including euro area. The last observation is July 2022.

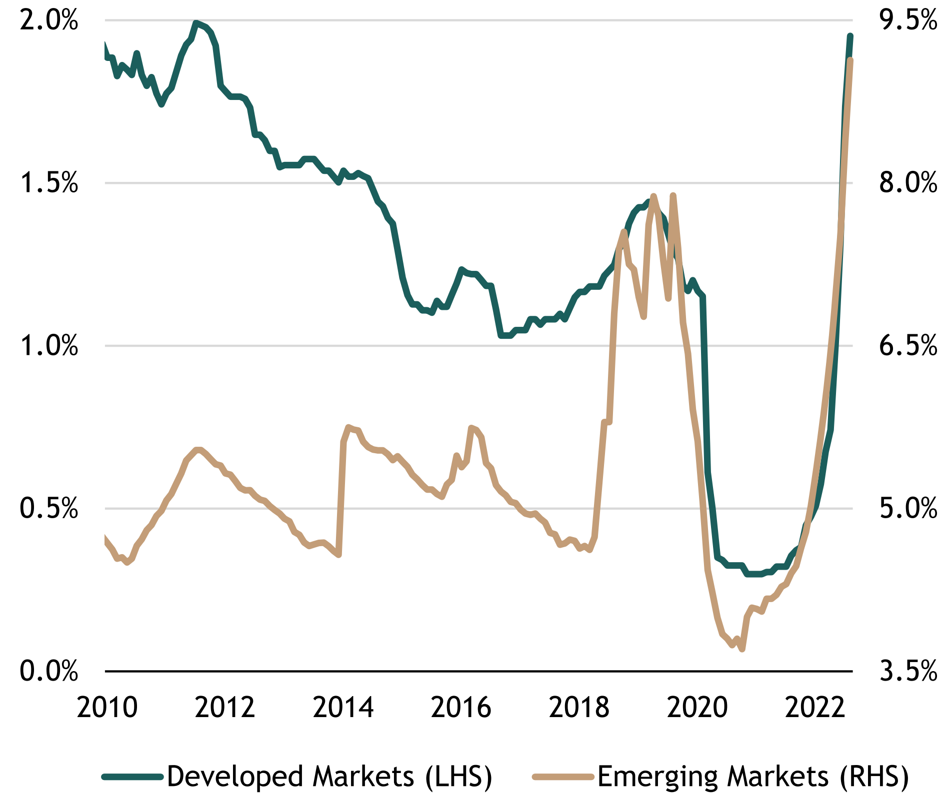
Forecasts for growth and inflation in 2023 have deteriorated even as central banks hike aggressively

Evolution of Global GDP Growth and Inflation Forecasts for 2023[1]



Central Bank Policy Rates[2]

(average)



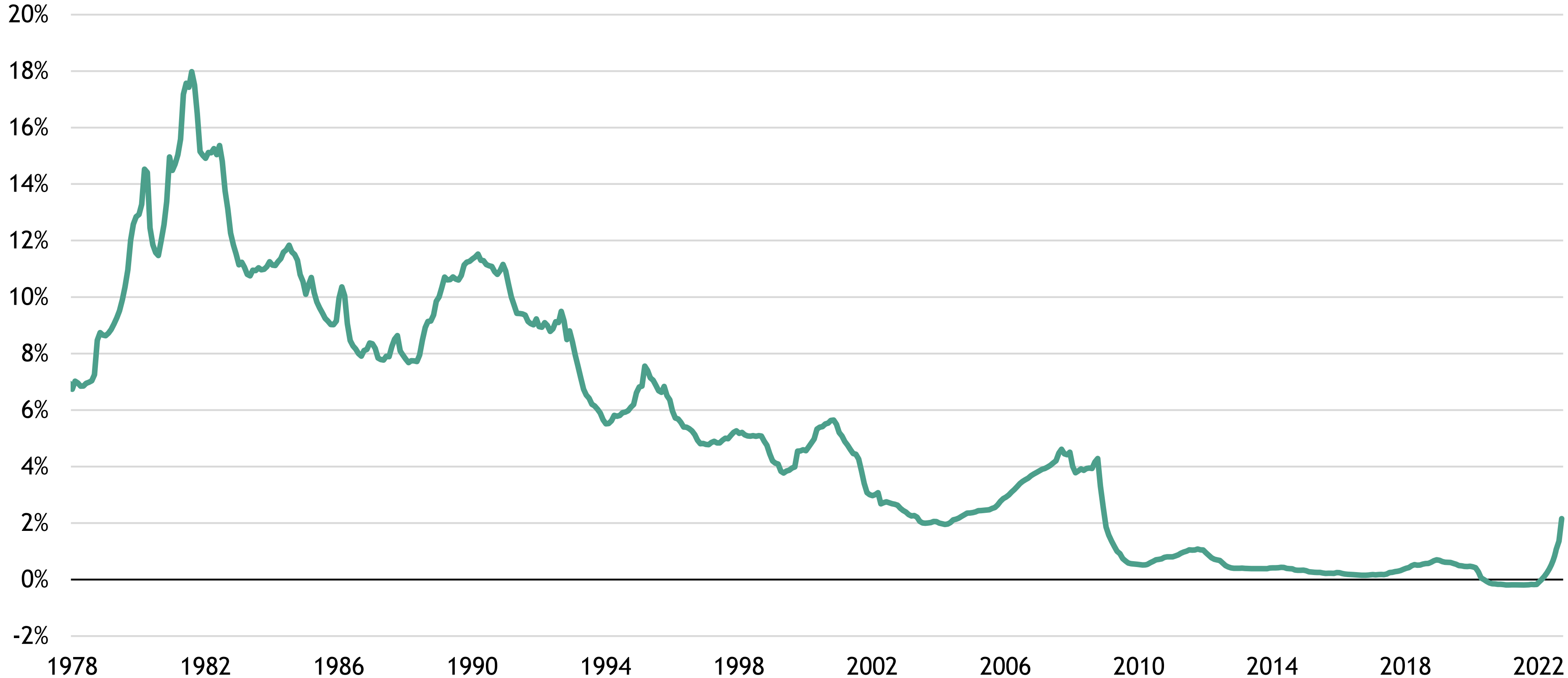
Source: Blackstone Investment Strategy, Haver Analytics, International Monetary Fund, Consensus Economics and World Bank, as of 8/31/2022.

(1) Consensus forecasts of global growth are weighted by GDP in US dollars based on 86 countries, and consensus inflation forecasts are based on median based on 83 countries.

(2) Developed Markets" and "Emerging Markets" are calculated by Haver Analytics by averaging the policy rates of 15 developed markets and 21 emerging markets, respectively.

Despite rising policy rates, global short-term rates (at least in the G7) remain low in an historical context

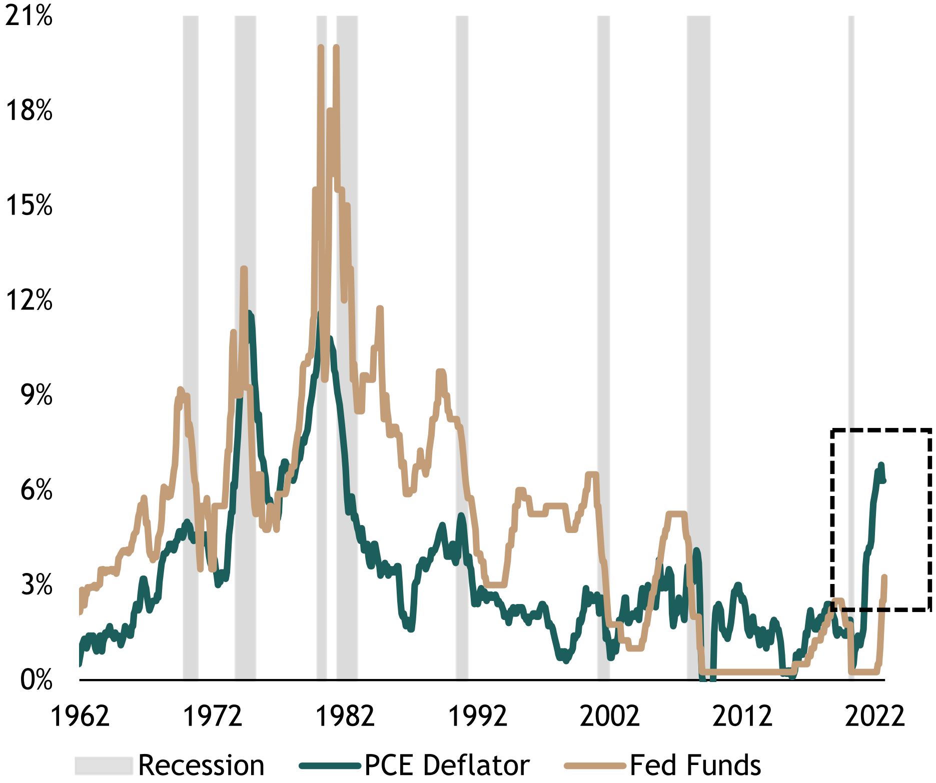
Average of G7 Countries' Short-Term Interest Rates



Blackstone Investment Strategy and OECD, as of 9/30/2022. Short-term interest rates are generally averages of daily rates, measured as a percentage. Short-term interest rates are based on three-month money market rates where available. Note: Data availability varies for each country; data become available for five countries as of 1978 (the start of the time period in the chart). Data for the UK become available in 1986 and data for Japan become available in 2002.

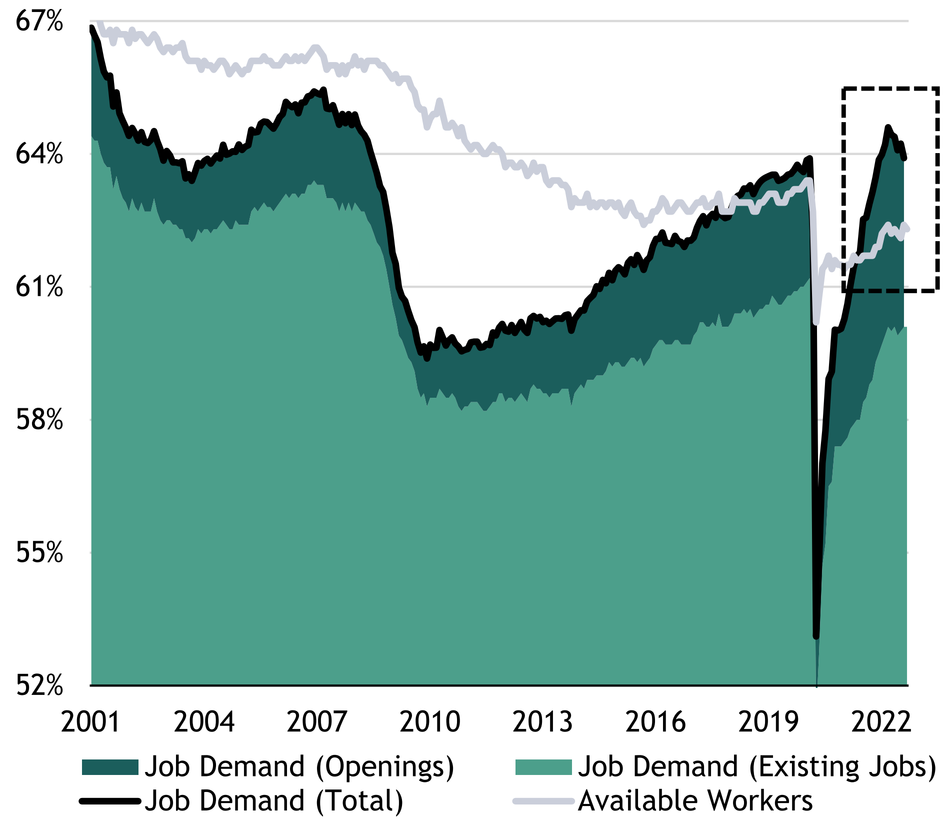
Inflation remains historically high relative to interest rates, while labor markets are still overheated

Fed Funds Rate Always Exceeds Rate of Inflation Before Tightening Cycle Ends



Labor Demand Continues to Exceed the Number of Available Workers

(percent of population)

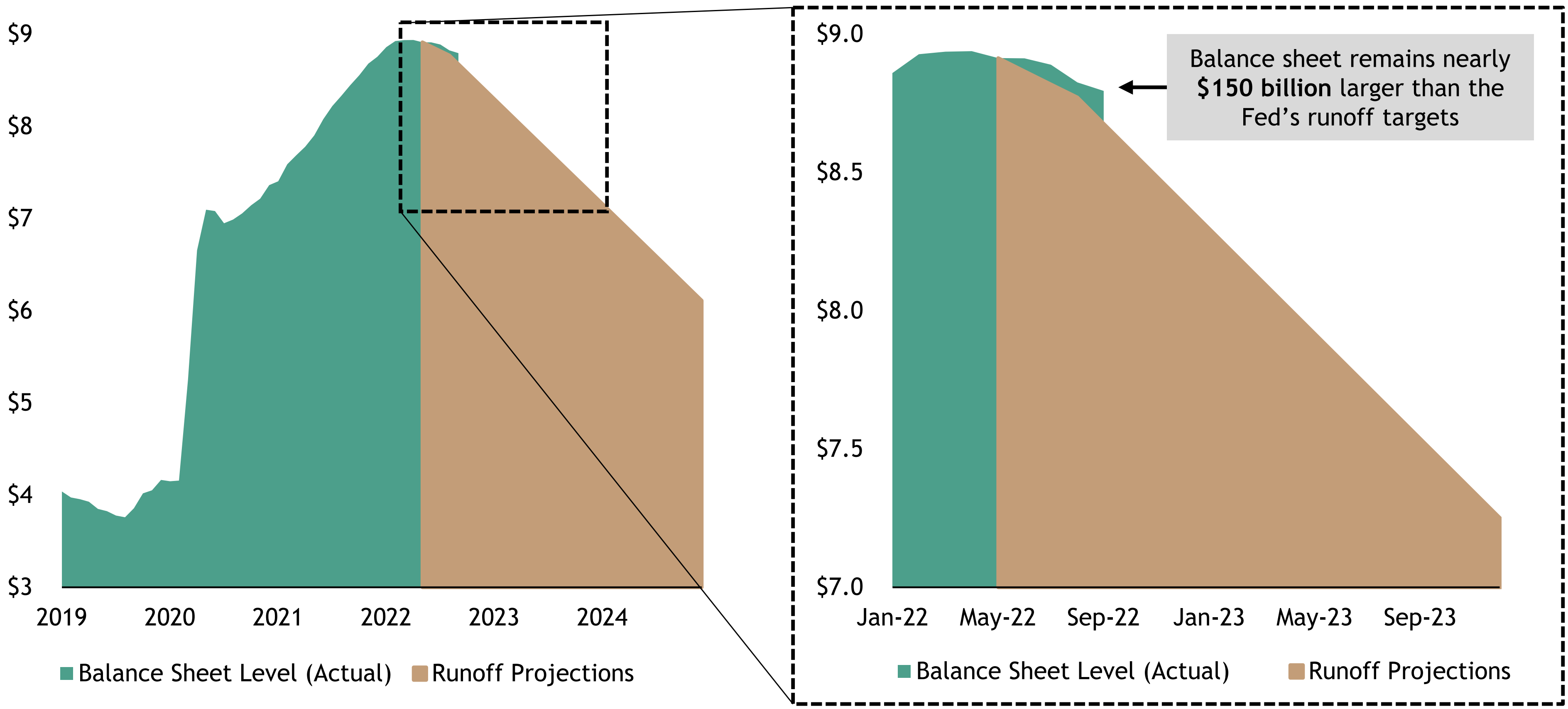


Source: Federal Reserve, Bureau of Economic Analysis, Bureau of Labor Statistics and Bloomberg, as of 8/31/2022 [Fed Funds Rate, Jobs Demand (Existing Jobs) and Available Workers, as of 9/30/2022]. "PCE deflator" represents the personal consumption expenditures price index. “Job Demand (Openings)” represents total job openings. “Job Demand (Existing Jobs)” represents the US employment to population ratio. “Available workers” represents the labor force participation rate.

Fed to shrink its balance sheet by ~$3T by 2025, but it remains larger than the Fed's targets would suggest

Federal Reserve Balance Sheet Level and Runoff Projections

(US$ in trillions)

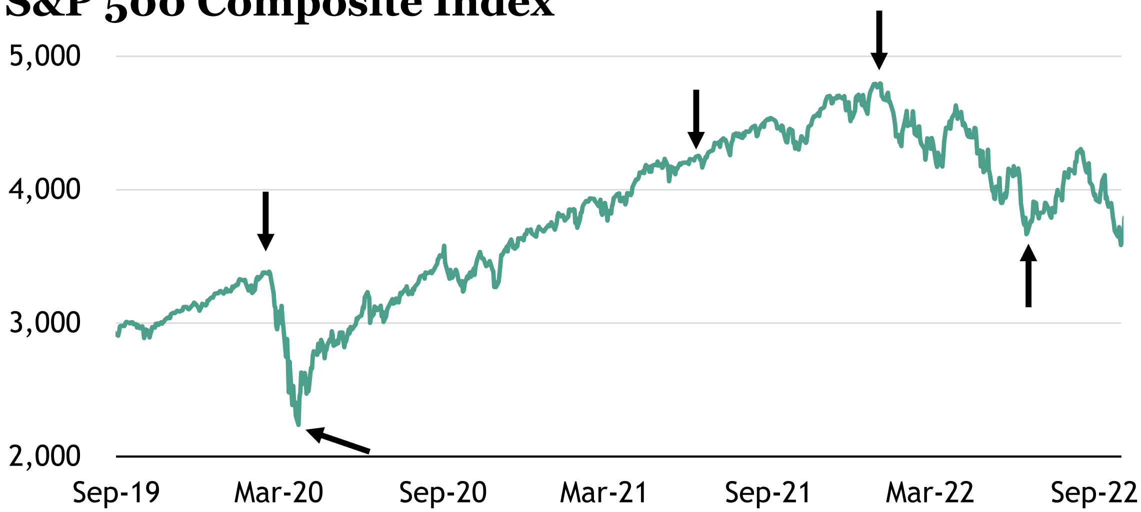


Source: Federal Reserve and Bloomberg, as of 9/30/2022. Per the Fed's latest guidance, "Runoff Projections" assumes $45 billion reduction per month in combined Treasury and agency debt / agency MBS from June 2022 through August 2022, before the reduction size increases to $95 billion per month from September 2022 onward.

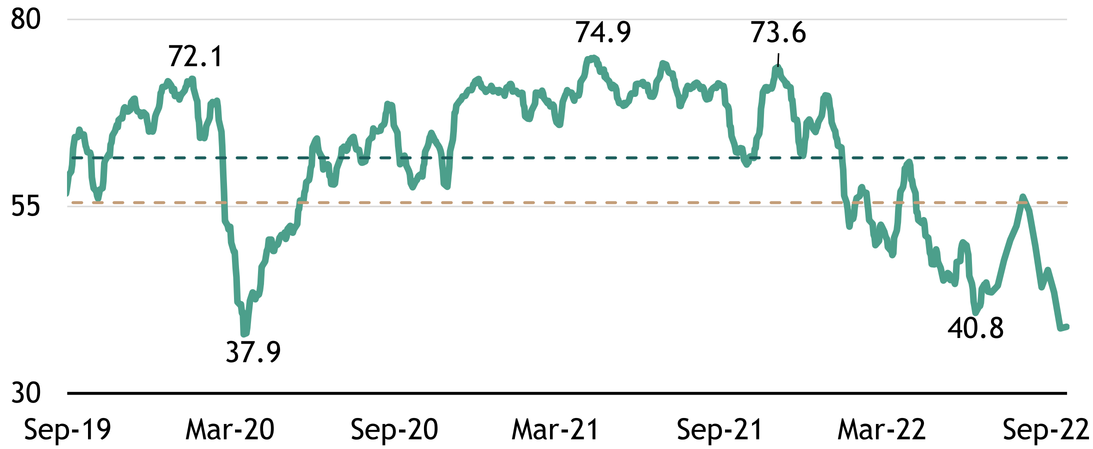
V. Assessing Today's Turbulent Markets

Market sentiment currently at pessimistic extreme

S&P 500 Composite Index



NDR Crowd Sentiment Poll



S&P 500 Index Performance[1]

Full History: 12/01/1995 – 09/30/2022

NDR Crowd Sentiment Poll is:	% Gain / p.a.	% of Time
Above 66.0	-0.4	28
57.0 – 66.0 from Above	2.0	18
57.0 – 66.0 from Below	20.1	18
Below 57.0	9.5	36
Buy / Hold = 7.1% Gain / p.a.		

Historical average value of Crowd Sentiment Poll at:[2]

- Optimistic extremes (down arrows) = 68.8
- Pessimistic extremes (up arrows) = 46.8
- Average spread between extremes = 22.1

Extremes generated when sentiment reading:[3]

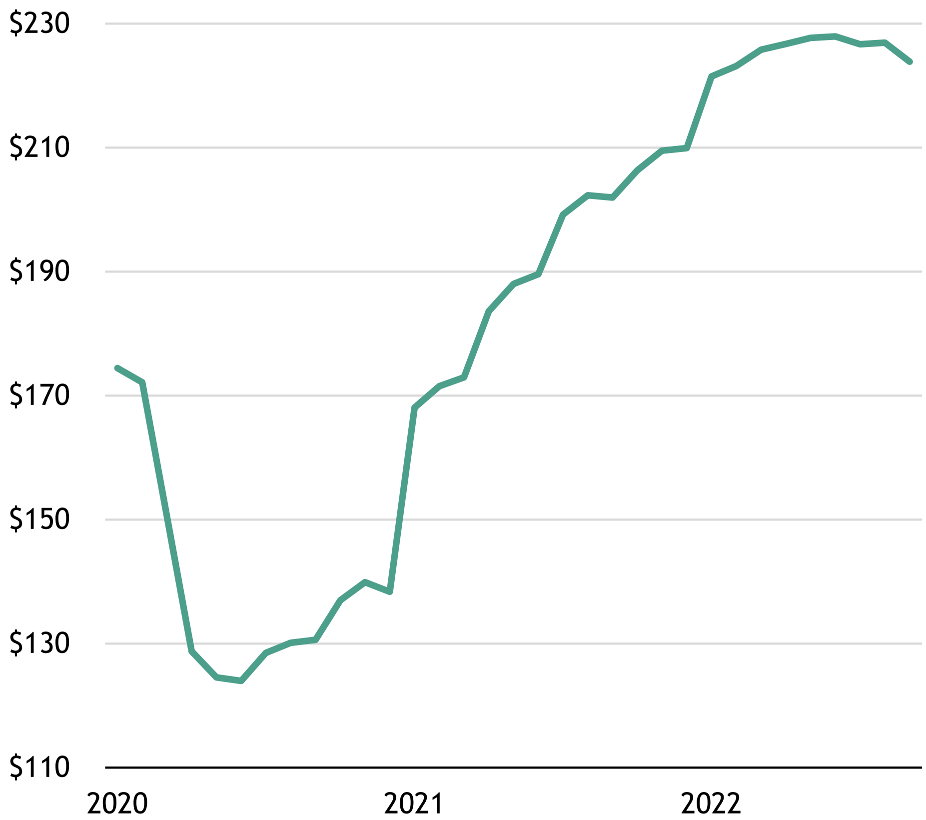
- Rises above 61.5 = Extreme Optimism
- Declines below 55.5 = Extreme Pessimism

Source: Ned Davis Research, as of 9/30/2022.
(1) Totals may sum to >100 due to rounding.
(2) Arrows represent extremes in optimism and pessimism. They do not represent buy and sell signals and can only be known for certain (and added to the chart) in hindsight.
(3) Sentiment must reverse by 10 percentage points to signal an extreme, in addition to reaching the above extreme levels.

Earnings estimates flattened but remain at record highs

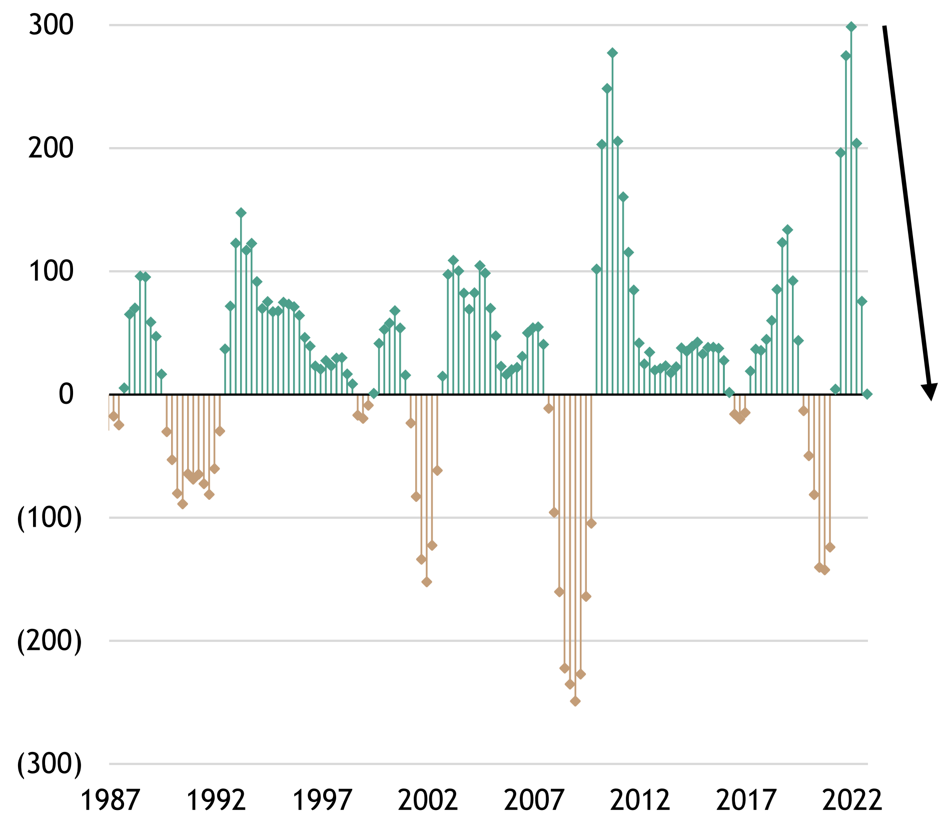
While inflation can keep nominal revenue and earnings higher, it will be important to watch margins

S&P 500 NTM EPS Estimates



S&P 500 Operating Margins

(YoY change, in basis points)



Source: Strategas Research Partners, Refinitiv and Bloomberg, as of 9/30/2022.

Dividend discount model shows implied S&P 500 price levels at various levels of earnings and risk-free rates

S&P 500 Dividend Discount Model

Trailing Twelve-Month EPS	10-Year Treasury Yield										
	3.00%	3.15%	3.30%	3.45%	3.60%	3.75%	3.90%	4.05%	4.20%	4.35%	4.50%
$190	4,681	4,160	3,744	3,404	3,120	2,880	2,675	2,496	2,340	2,203	2,080
$200	4,927	4,379	3,941	3,583	3,285	3,032	2,815	2,628	2,463	2,319	2,190
$205	5,050	4,489	4,040	3,673	3,367	3,108	2,886	2,693	2,525	2,376	2,244
$210	5,173	4,598	4,139	3,762	3,449	3,184	2,956	2,759	2,587	2,434	2,299
$215	5,296	4,708	4,237	3,852	3,531	3,259	3,027	2,825	2,648	2,492	2,354
$220	5,420	4,817	4,336	3,941	3,613	3,335	3,097	2,890	2,710	2,550	2,409
$225	5,543	4,927	4,434	4,031	3,695	3,411	3,167	2,956	2,771	2,608	2,463
$230	5,666	5,036	4,533	4,121	3,777	3,487	3,238	3,022	2,833	2,666	2,518
$235	5,789	5,146	4,631	4,210	3,859	3,563	3,308	3,088	2,895	2,724	2,573
$240	5,912	5,255	4,730	4,300	3,941	3,638	3,378	3,153	2,956	2,782	2,628
$245	6,035	5,365	4,828	4,389	4,024	3,714	3,449	3,219	3,018	2,840	2,682
$250	6,159	5,474	4,927	4,479	4,106	3,790	3,519	3,285	3,079	2,898	2,737
$255	6,282	5,584	5,025	4,569	4,188	3,866	3,590	3,350	3,141	2,956	2,792
$260	6,405	5,693	5,124	4,658	4,270	3,941	3,660	3,416	3,202	3,014	2,847
$265	6,528	5,803	5,222	4,748	4,352	4,017	3,730	3,482	3,264	3,072	2,901
$270	6,651	5,912	5,321	4,837	4,434	4,093	3,801	3,547	3,326	3,130	2,956

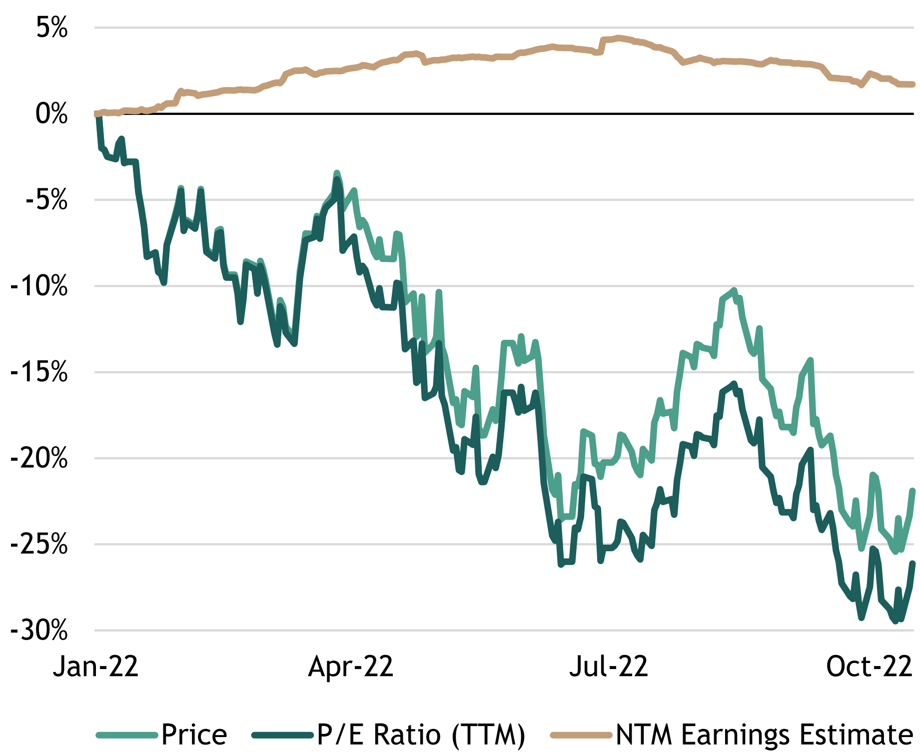
Source: Blackstone Investment Strategy, Bloomberg, BofA and FactSet. Actual earnings data are as of 6/30/2022. Equity risk premium data represent latest available data. Assumes trailing-four-quarter S&P 500 Earnings Per Share (EPS) of $216 (as of 6/30/2022), and that EPS start the period increasing / decreasing to level indicated in first column, before increasing / decreasing linearly over 2 years to a 4% nominal growth rate and remaining there in perpetuity. Further assumes dividend payout ratio remains constant at the trailing-four-quarter level, and the equity risk premium remains constant. Equity risk premium is calculated using the forward earnings yield for the S&P 500 and the 10-year Treasury yield.

S&P prices and multiples have fallen in tandem

Earnings estimates remain near record highs; earnings contract by an average of ~37% in recessions

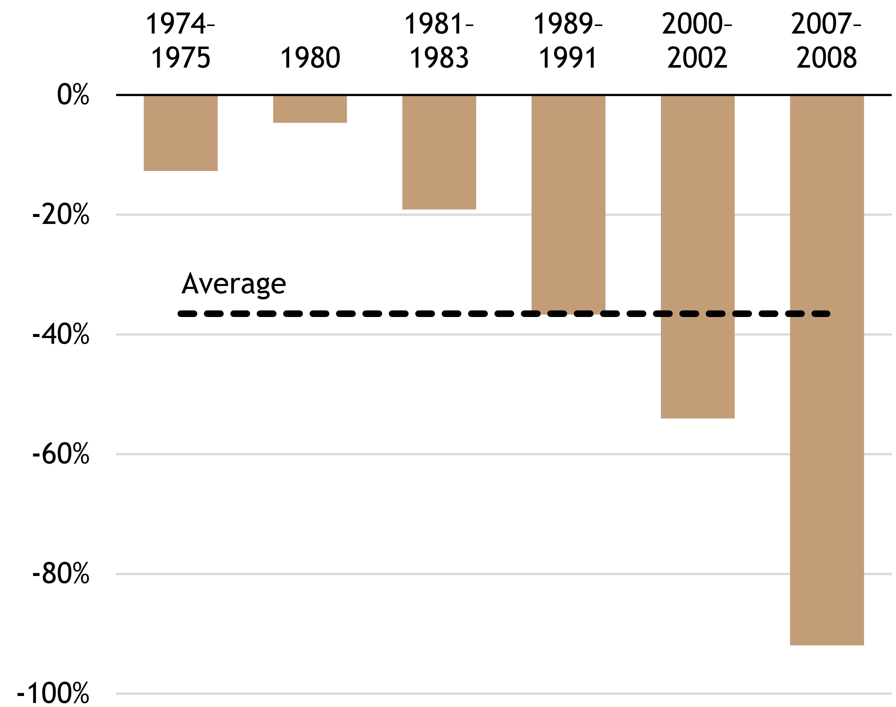
S&P 500 Earnings Estimates, Price and P/E

(2022 YTD)



S&P 500 Earnings during Recessions[1]

(peak-to-trough change)



Source: Blackstone Investment Strategy, Macrobond, S&P Global, and Bloomberg, as of 10/18/2022.

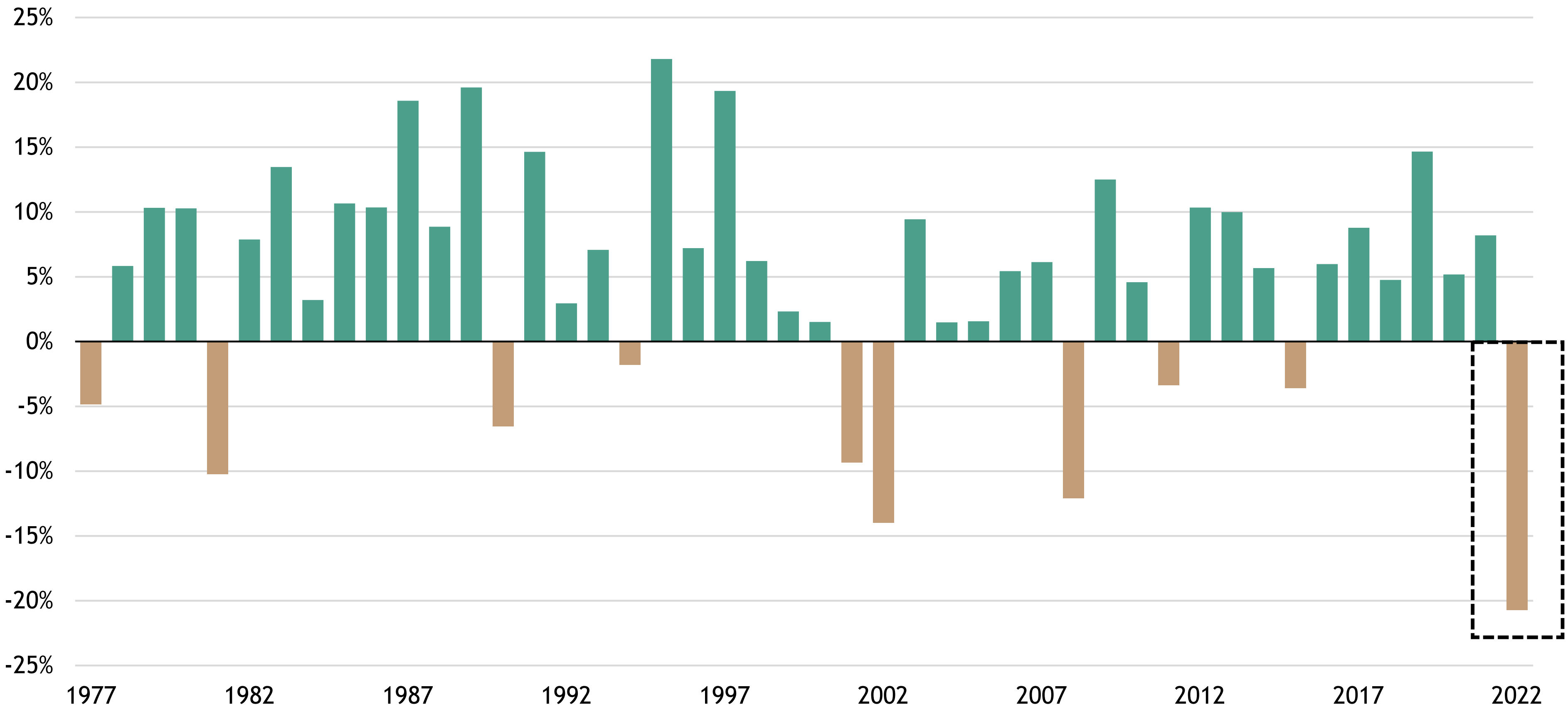
(1) Represents the peak-to-trough decline in trailing twelve-month after-tax earnings per share.

Worst YTD performance on record for 60/40 portfolio

First time on record that both stocks and bonds had negative QoQ returns for three consecutive quarters

Traditional 60/40 Portfolio YTD Total Returns

(in YTD period through 3Q of each respective year)



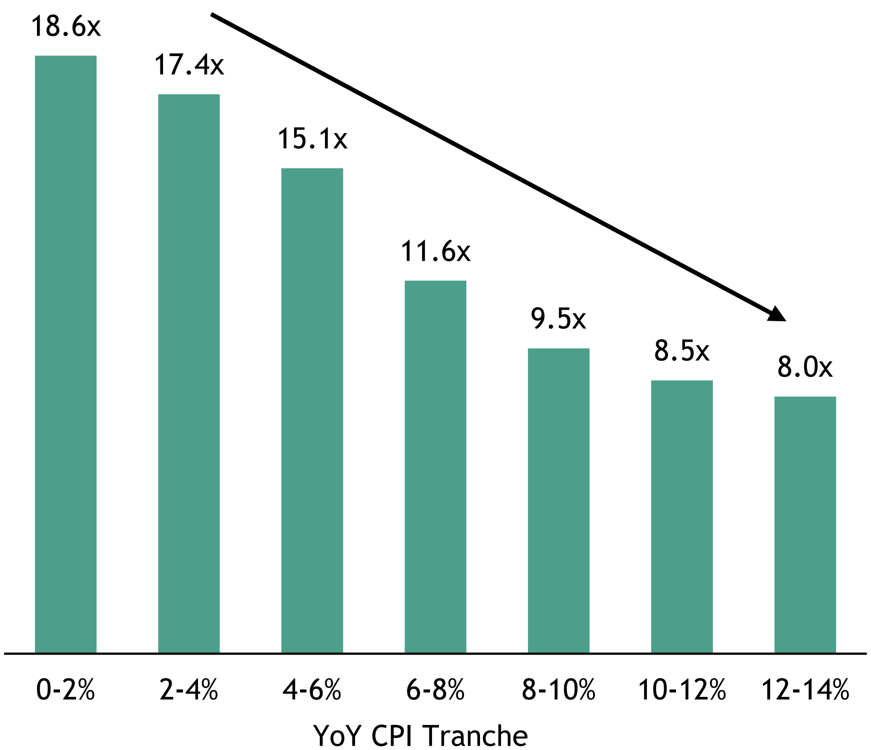
Source: Blackstone Investment Strategy and Bloomberg, as of 9/30/2022. Represents the total return of a hypothetical portfolio that is weighted 60% to the S&P 500 Index and 40% to the Bloomberg US Aggregate Bond Index Unhedged USD.

Inflation is an ongoing headwind for the 60/40 portfolio

Higher inflation is associated with both lower equity multiples and positive stock-bond correlations

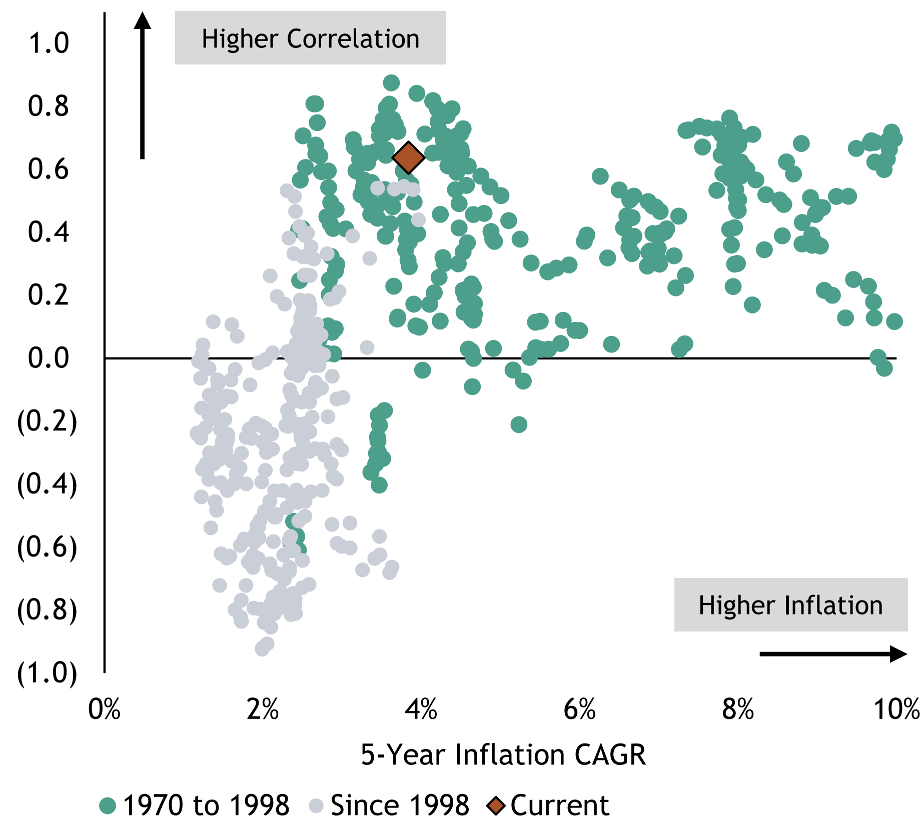
Average S&P 500 Trailing P/E Ratio, by CPI YoY Tranche[1]

(1950-2021)



Stock-Bond Correlations in Different Inflation Regimes

(correlation)

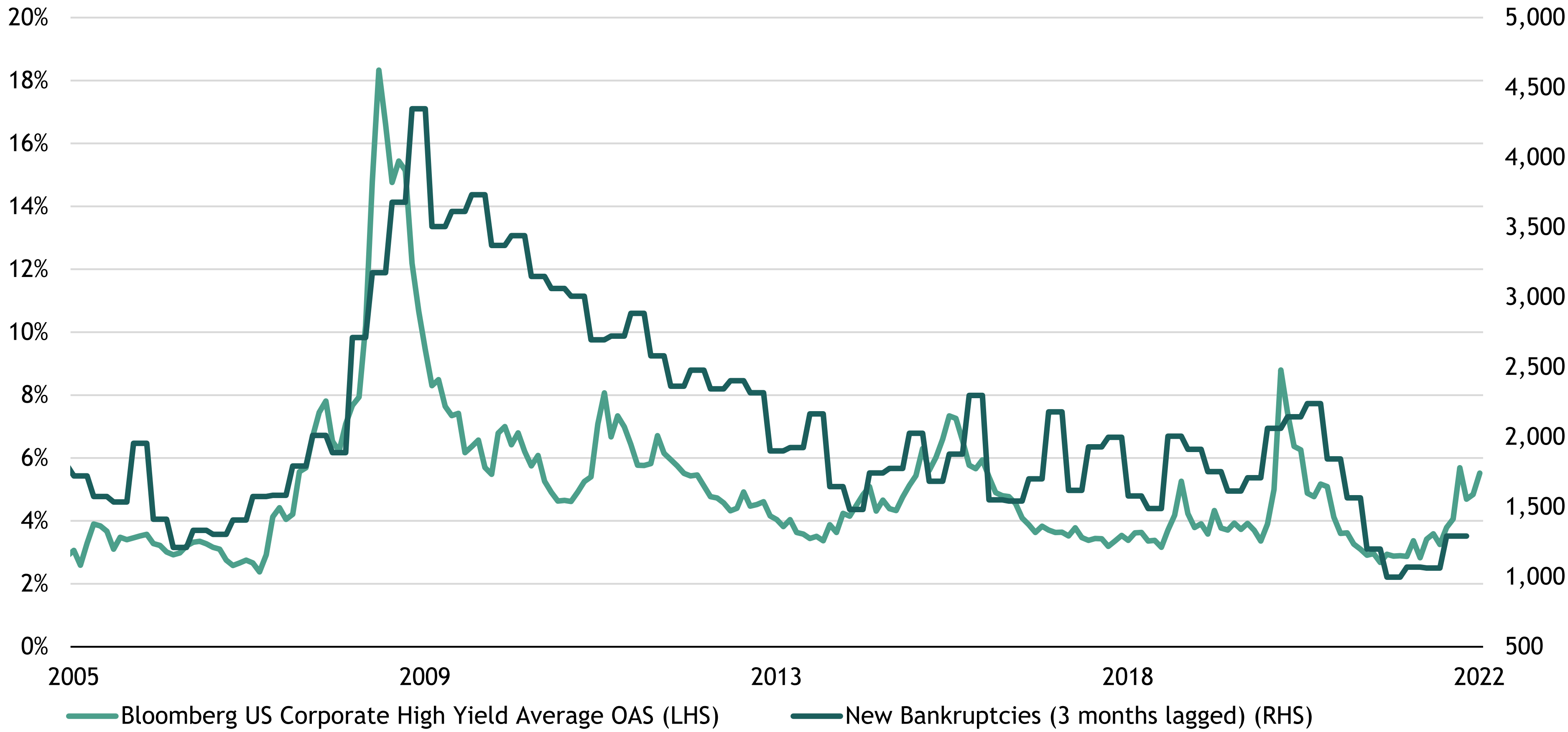


Source: Blackstone Investment Strategy, Bureau of Labor Statistics, Ibbotson Associates, Morningstar and Bloomberg, as of 9/30/2022. Stocks and bonds are represented by the S&P 500 Index and the IA SBBI US Long-Term Government Bond Index, respectively. Correlations are trailing twelve-month, based on monthly returns from 1970 to present.

(1) Note: Data calculated by Strategas Research Partners, from 1950 to 2021.

US high yield spreads have started to widen out, but bankruptcies remain at historic lows

US Corporate High-Yield OAS vs. New Bankruptcies

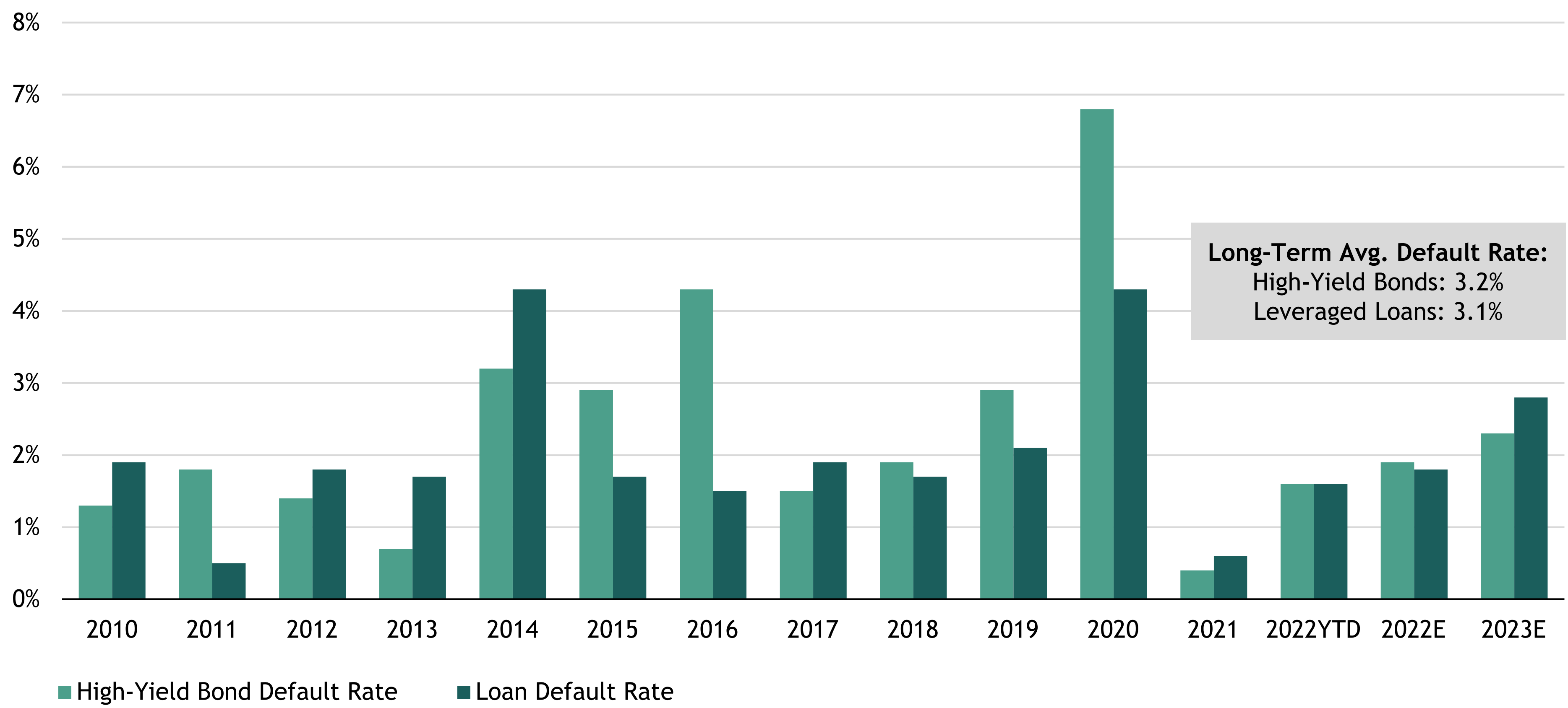


Source: Administrative office of US Courts and Bloomberg, as of 9/30/2022.

Default rates forecasted to rise slightly by year-end and into 2023, but remain below long-term averages

US High-Yield Bond and Leveraged Loan Default Rates

(par-weighted default rates)



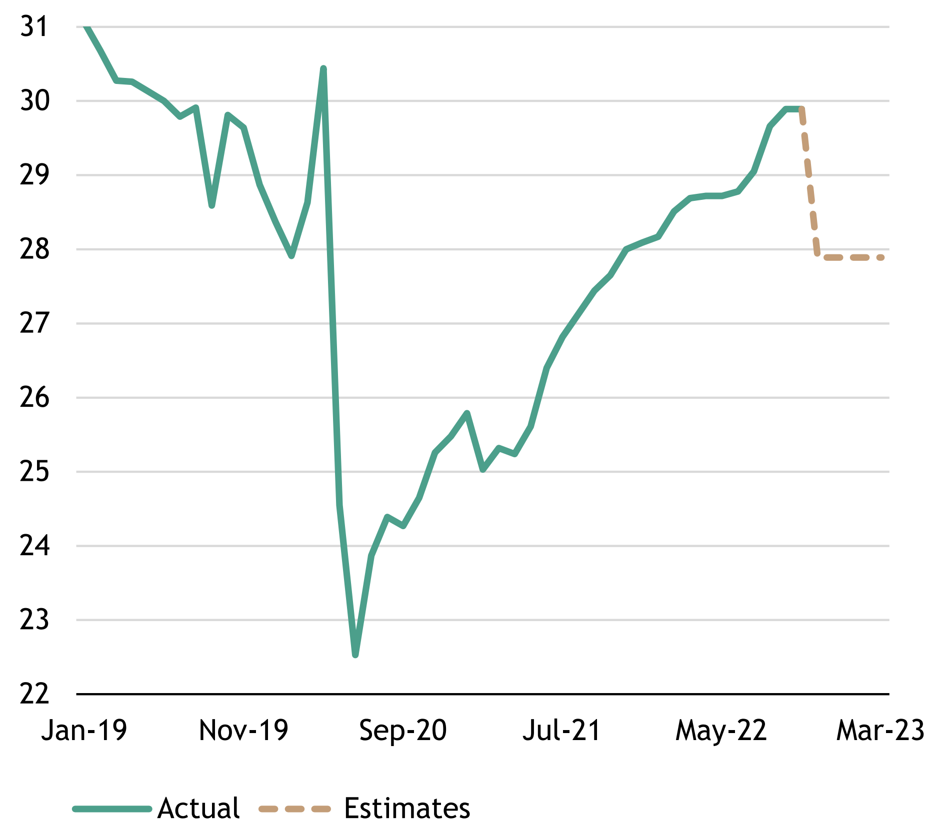
Source: JP Morgan. Actual data as of 9/30/2022; data thereafter represent JPM forecasts, as of 10/4/2022.

VI. Longer-Run Trends To Consider

OPEC's plan to reduce production has led to oil rally, reversing recent declines from fears of global recession

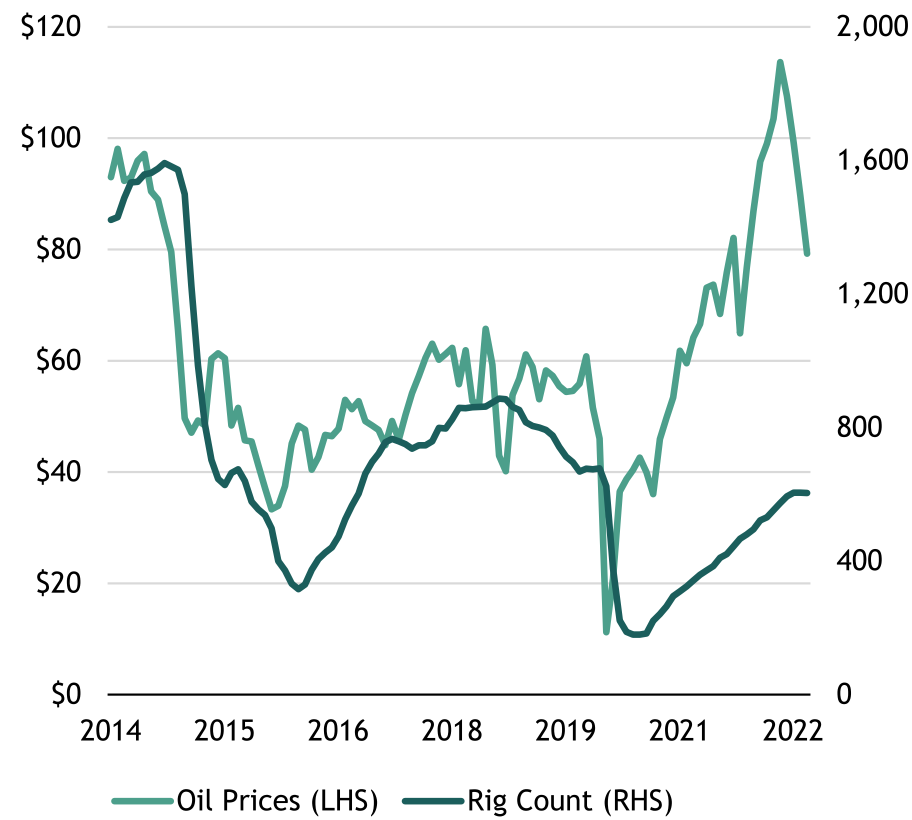
Total OPEC Crude Oil Production(1)

(millions of barrels per day)



Oil Prices (WTI) vs. US Rig Count(2)

(US$ / gallon)

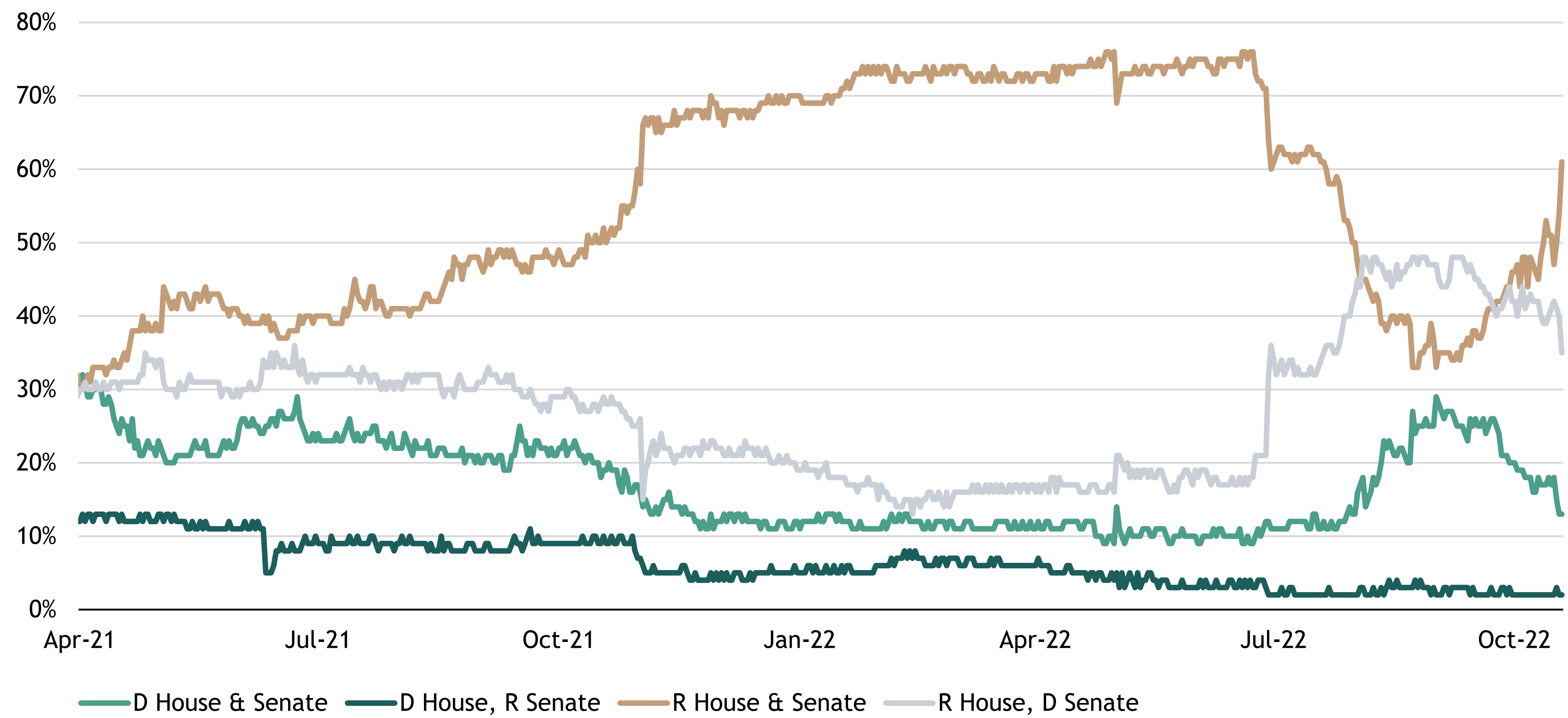


(1) Source: The Organization of the Petroleum Exporting Countries (OPEC) and Bloomberg, as of 10/31/2022. Estimates assume decline of 2 million barrels per day on average through March 2023, as announced by OPEC on 10/5/2022.
(2) Source: Baker Hughes Inc. and Bloomberg, as of 9/30/2022. Represents oil drilling and exploration total rig count.

Consensus view is for control of the House to switch parties, while the Senate is more of a toss-up

Market Odds for Balance of Power in Congress after 2022 Midterm Election

(based on PredictIt contracts)

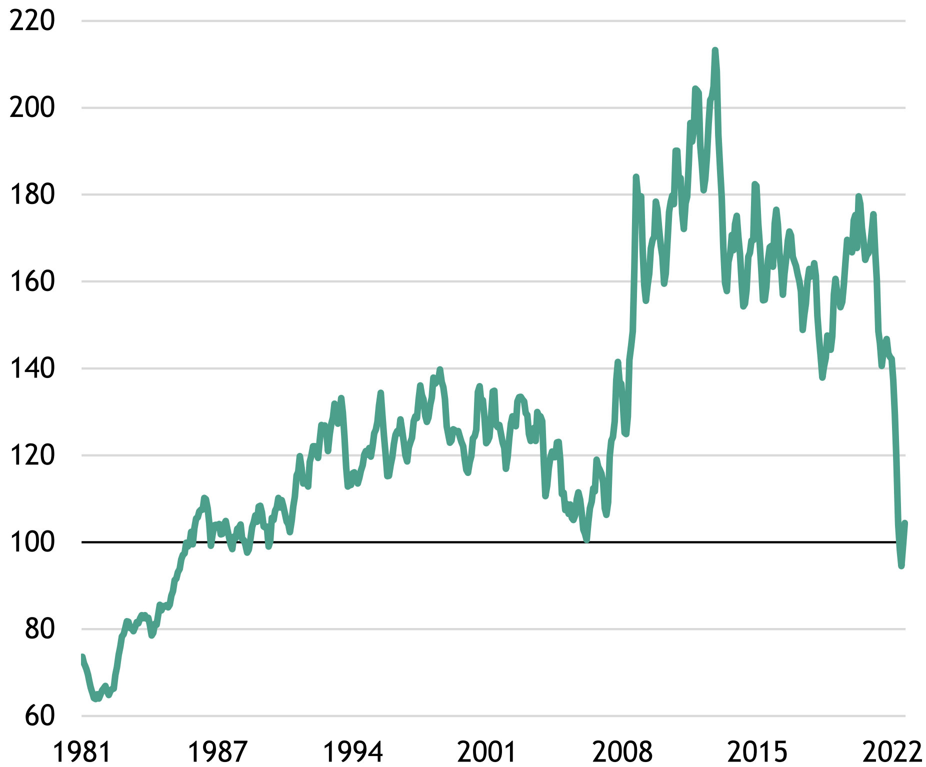


Source: PredictIt and Macrobond, as of 10/19/2022.

As US home affordability continues to worsen, owning a home is increasingly expensive relative to renting

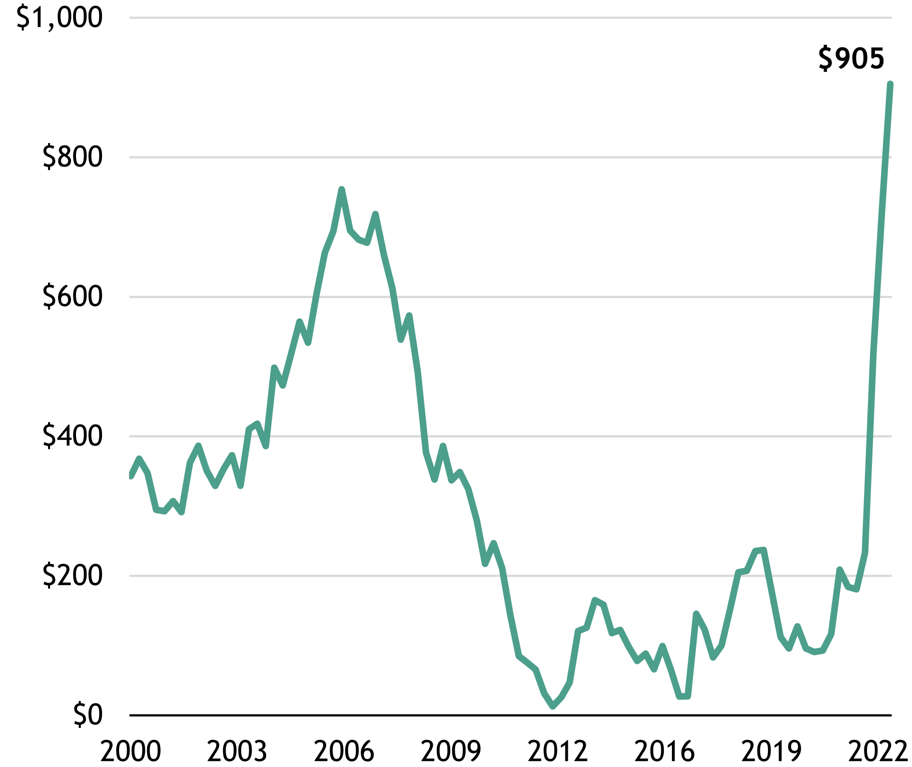
NAR Housing Affordability Index(1)

(>100 = more affordable)



Average Spread Between the Monthly Cost To Own a Home vs. Monthly Cost to Rent(2)

(higher = owning is relatively more expensive)



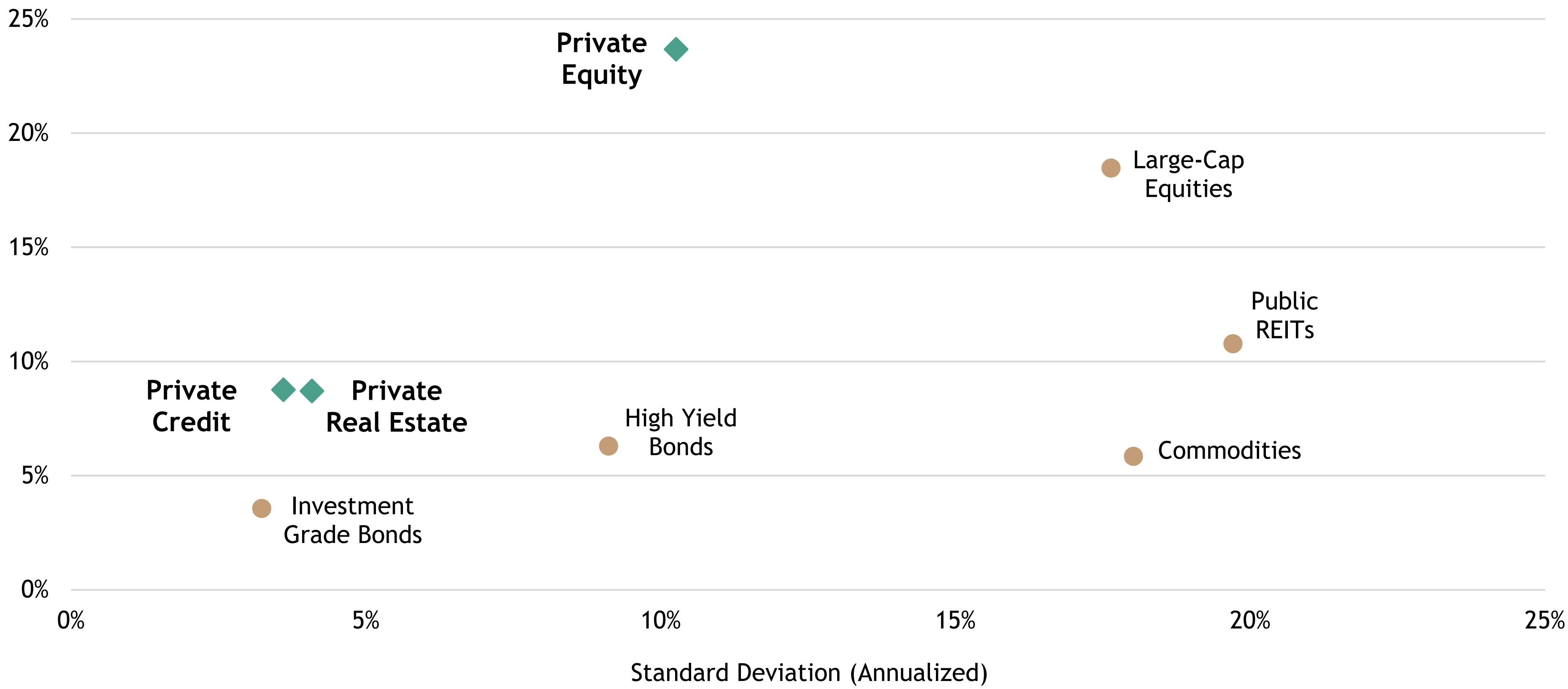
(1) Source: NAR and Macrobond, as of 8/31/2022.
(2) Source: Zillow and Axiometrics, as of 9/30/2022. In-place net effective rents and the 30-year fixed rate mortgage data as of 10/13/2022. Data reflect US national averages. Monthly mortgage payments assume median home prices are financed at 80% loan-to-value and include closing costs, insurance, taxes and monthly capital expenditure.

Private market strategies and the "illiquidity premium"

Alternative assets have historically provided attractive risk-adjusted returns vs. public market equivalents

Historical Risk and Return of Select Asset Classes (2017–2021)

(annualized return)



Morningstar as of 12/31/2021. The returns and volatility of the asset classes presented are based on the following indices: Private Equity: Cambridge Assoc. US Private Equity Index, Hedge Funds: HFRI Fund Weighted Composite Index, Commodities: DJ Commodity Index, Investment Grade Bonds: Bloomberg US Aggregate Bond Index, Private Real Estate: NCREIF ODCE Index, High Yield: Bloomberg US Corporate High Yield Bond Index, Large Cap Equities: S&P 500 Index, Public REITs: MSCI US REIT Index.

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