

2022 YEAR IN REVIEW & 2023 OUTLOOK

Kalamazoo
January 9th 2023

GREENLEAF TRUST INTRODUCTION



PRESENTERS



Nicholas A. Juhle, CFA®
Chief Investment Officer



Chris Burns, CFA®, CPA, CFP®
Assistant Director of Investment Research



GREENLEAF TRUST OVERVIEW

Celebrating our 25th year! Founded in 1998.

Privately-held, trust-only bank; \$17bn in assets under advisement*

Offices in Kalamazoo, Grand Rapids, Birmingham, Traverse City, Petoskey, Midland and Delaware

Mission remains: financial security from generation to generation

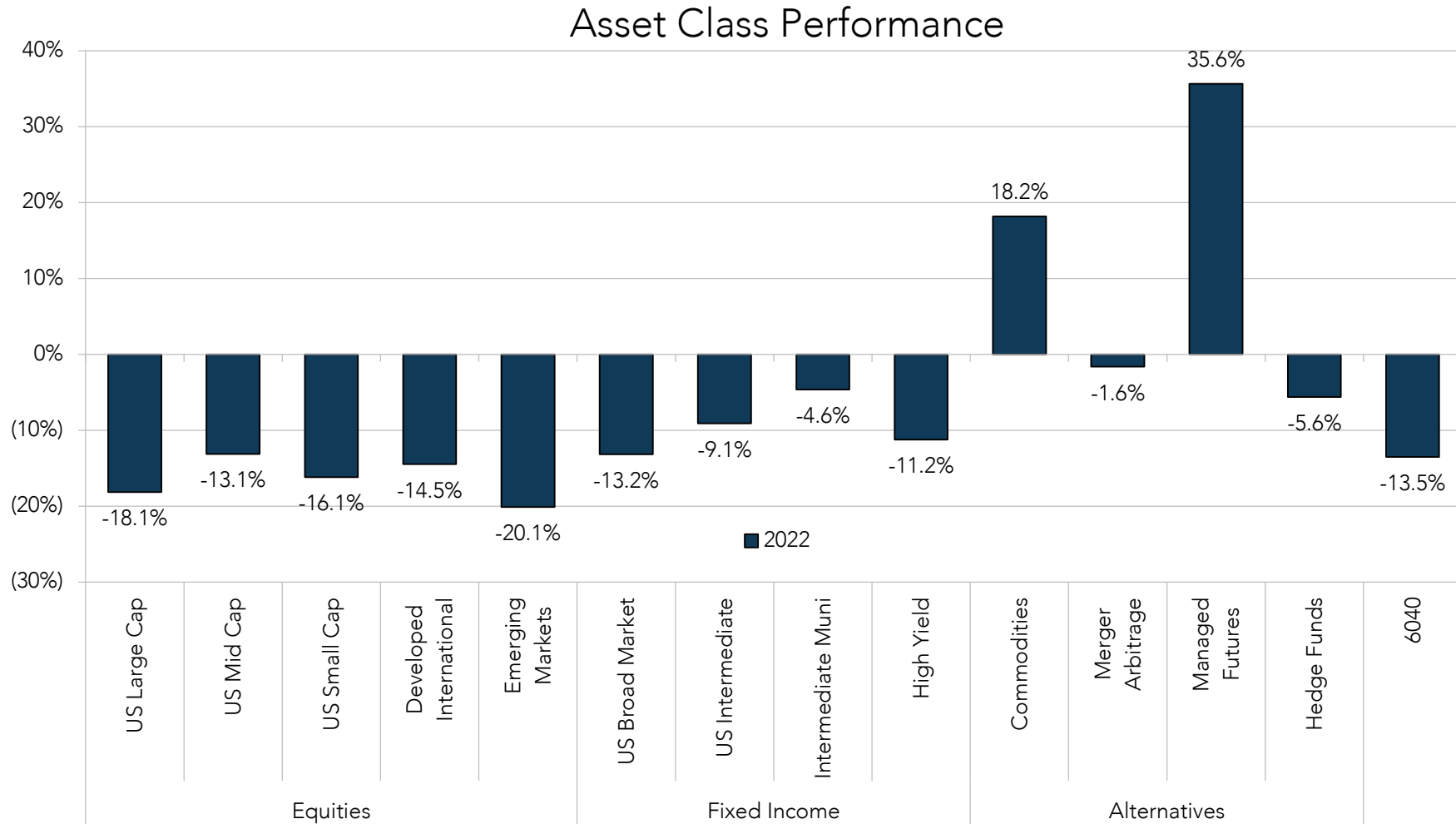
Our Team





MARKETS OVERVIEW

AS OF 12/31/22

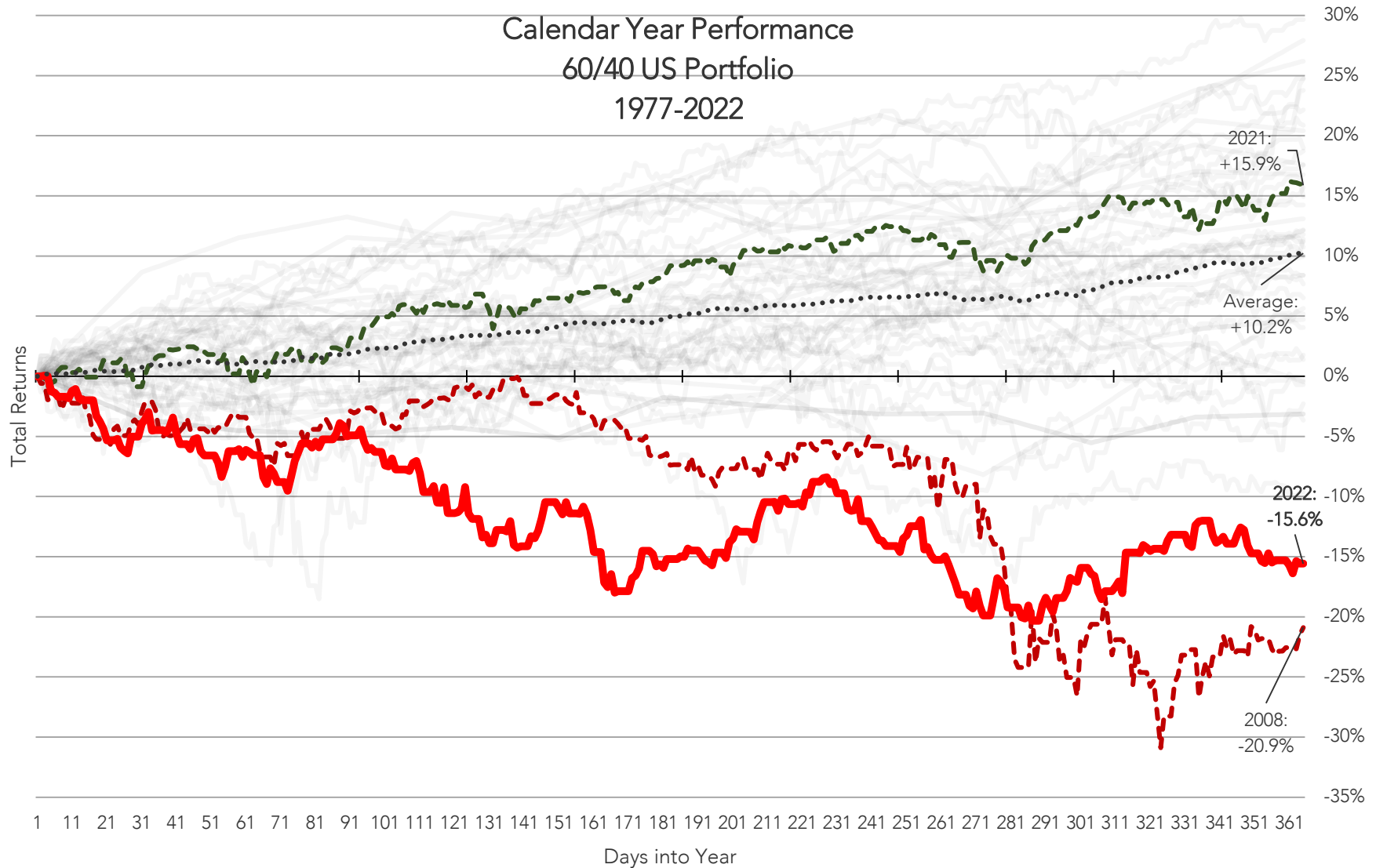


Source: Bloomberg. Asset classes are represented by - US Large Cap: S&P 500; Developed International: MSCI EAFE; Emerging Markets: MSCI EM; US Broad Market: ICE BofA US Broad Market Index; US Intermediate: ICE BofA 1-10 Year US Broad Market Index; Intermediate Muni: ICE BofA 1-10 Year US Muni Index; High Yield: ICE BofA US High Yield Index; Dow Jones UBS Commodity Total Return ETN; Merger Arbitrage: IQ Merger Arbitrage; Managed Futures: ASG Managed Futures Fund; Hedge Funds: Hedge Fund Research HFRIFO.



MARKETS OVERVIEW

AS OF 12/31/22





MARKETS OVERVIEW

AS OF 12/31/22





BOXING MATCH



DALL-E 2: Two boxers competing in a match Picasso style



2022 PUNCHES

- The Jab: Inflation
- The Uppercut: Russia / Ukraine War
- The Body Blow: Monetary Policy
- The Cross: Housing Market
- The Hook: Recession Expectations

- The Defenses:
 - Pandemic Savings
 - Corporate Earnings
 - Strong Labor Market



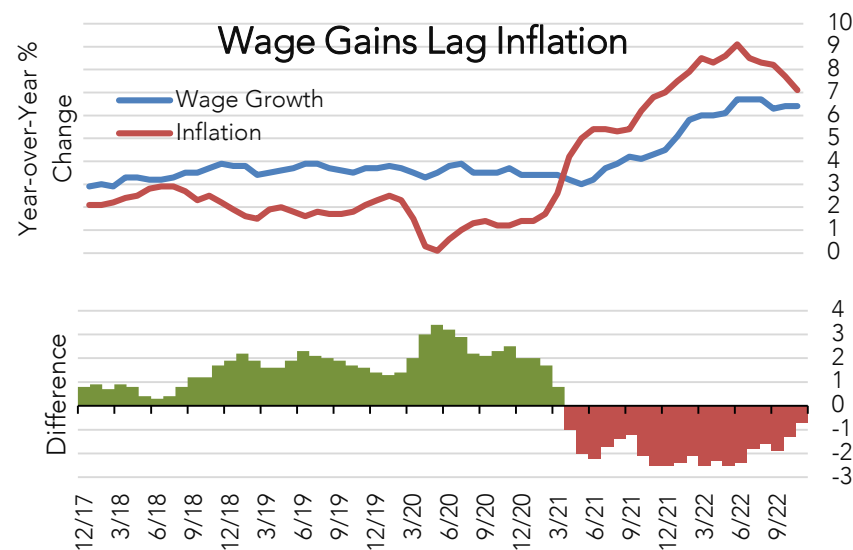
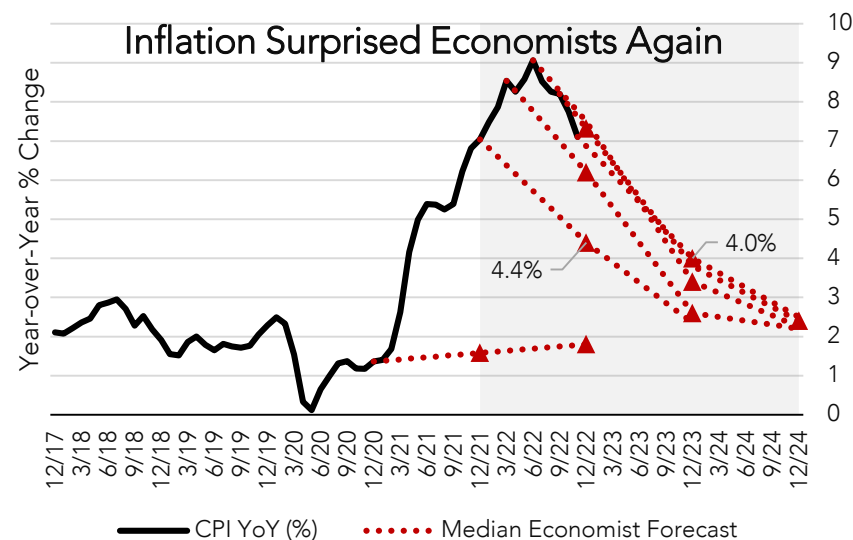
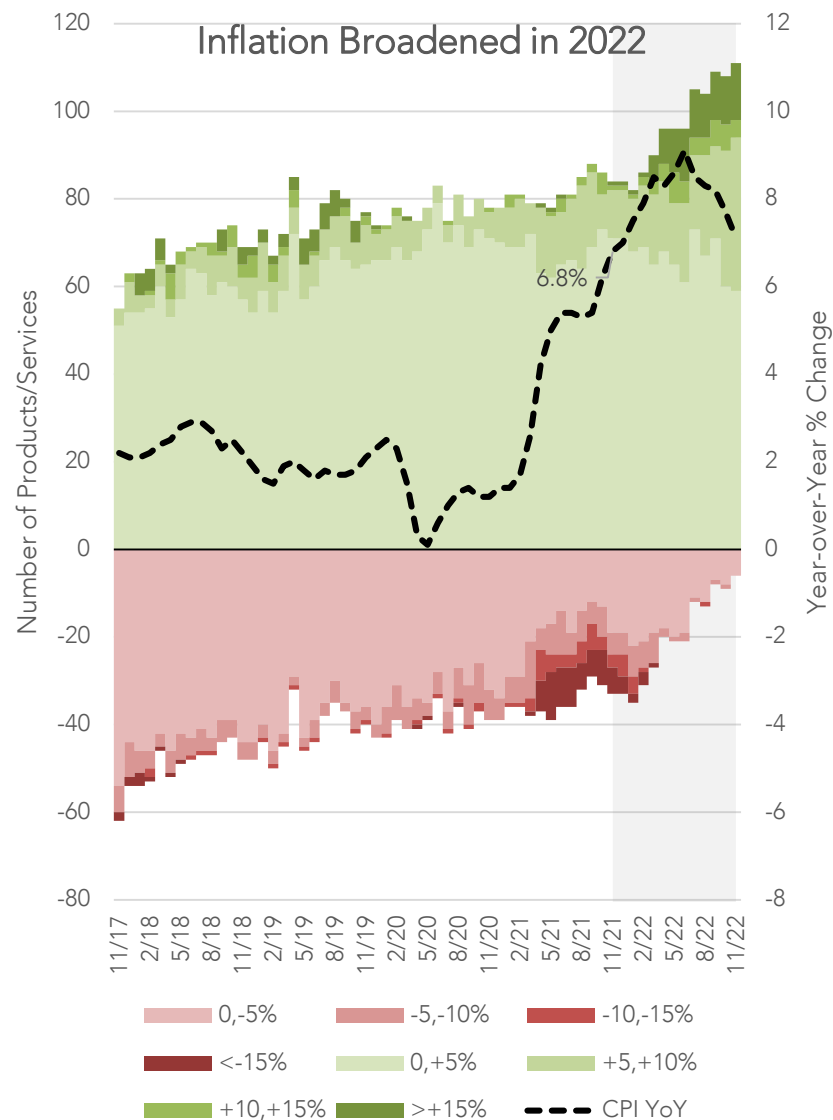
INFLATION - THE JAB



DALL-E 2: A boxer practicing a jab Banksy style

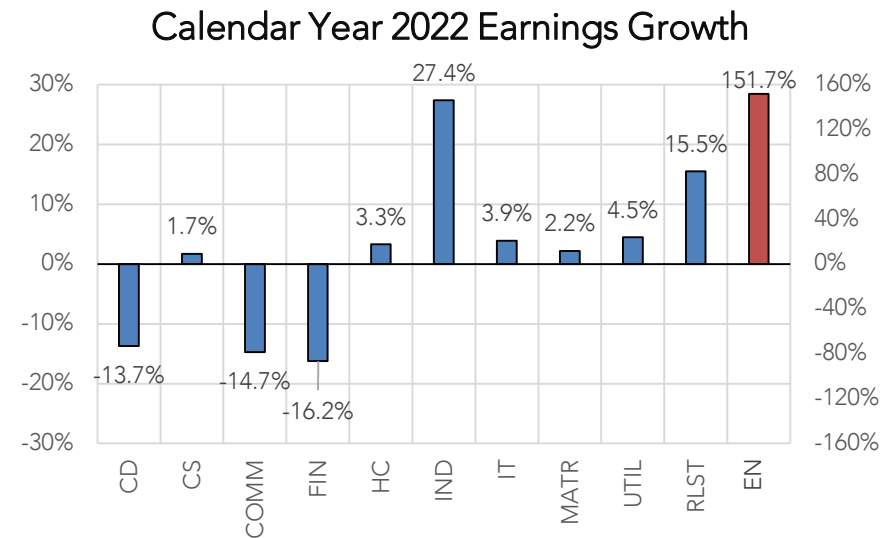
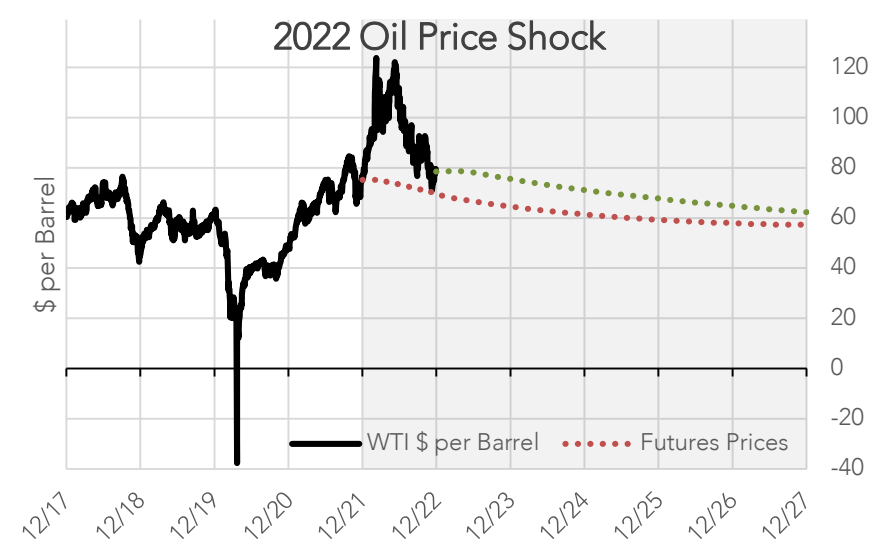
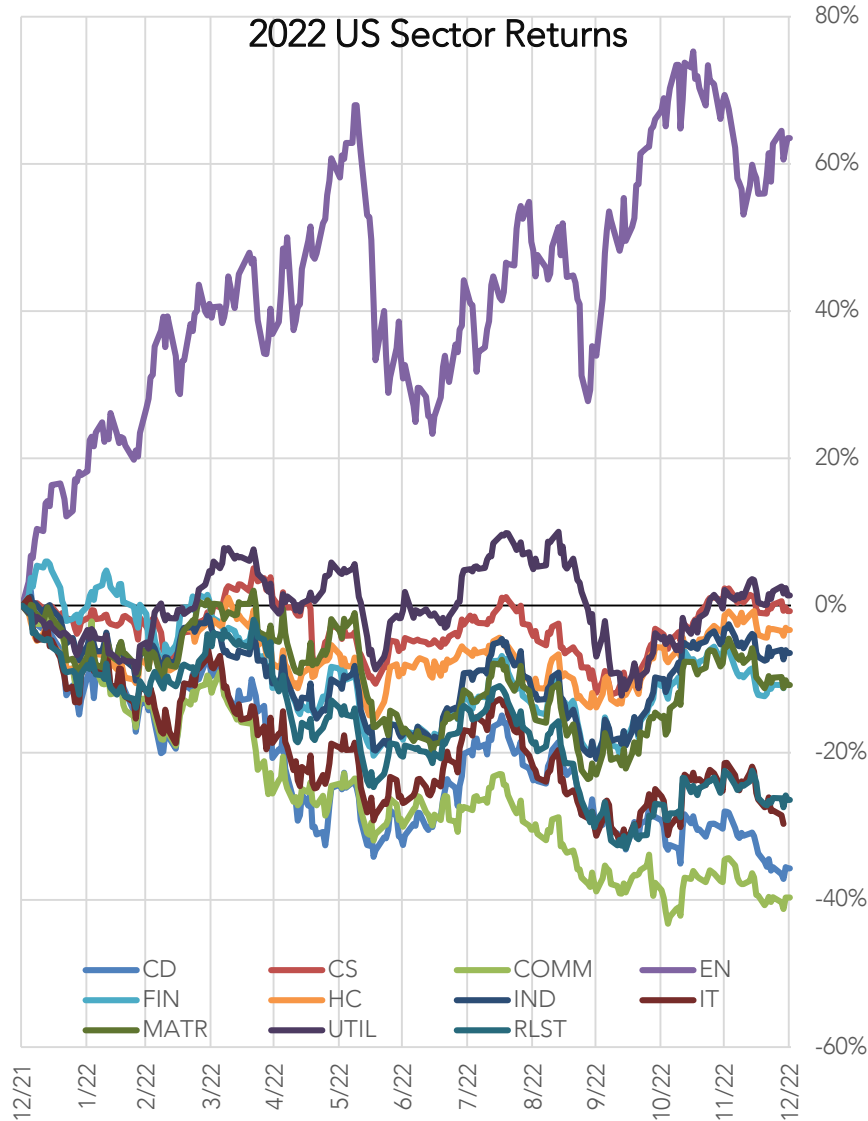


RECAP: INFLATION





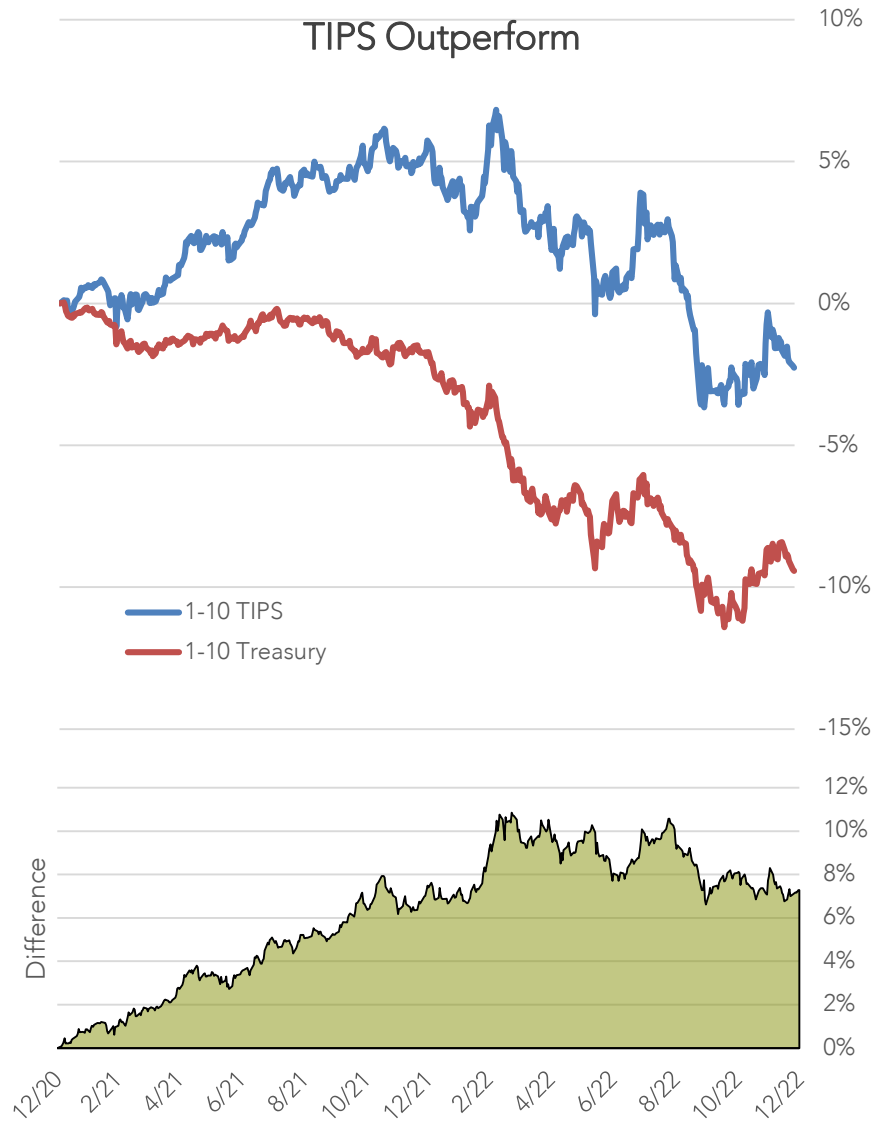
MARKET IMPACT: INFLATION



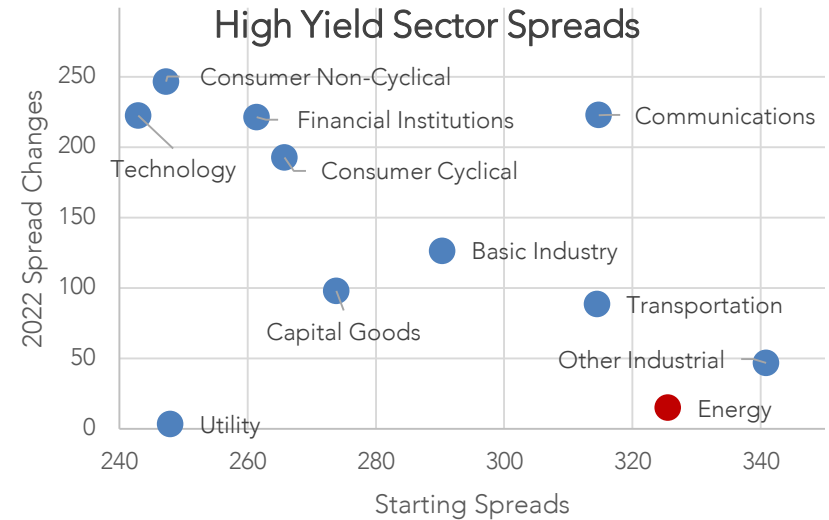


MARKET IMPACT: INFLATION

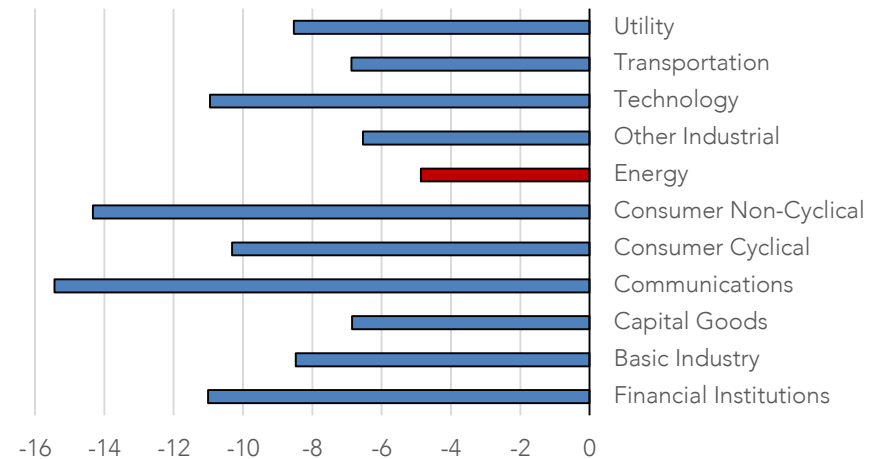
TIPS Outperform



High Yield Sector Spreads

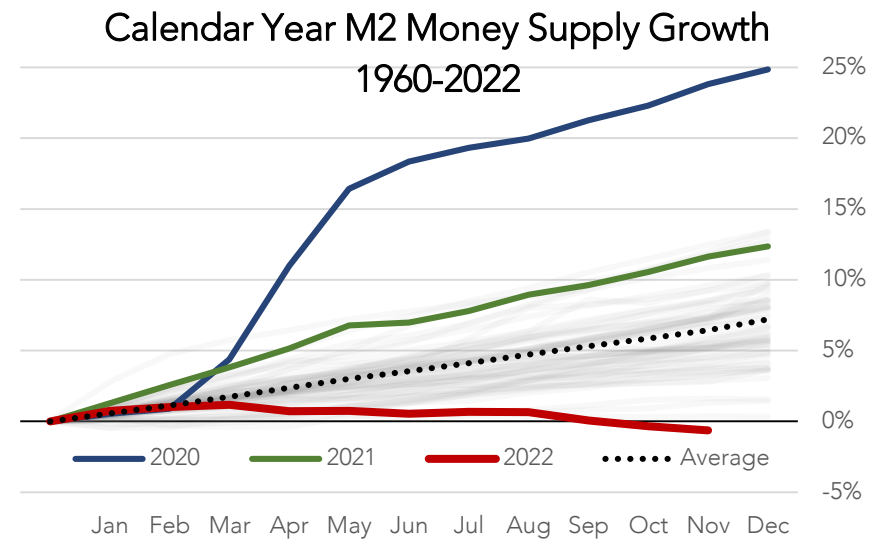
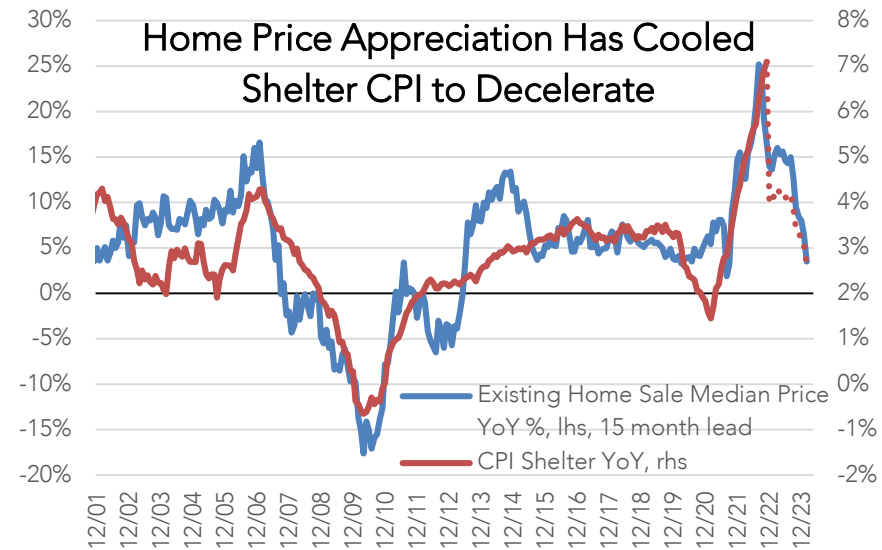
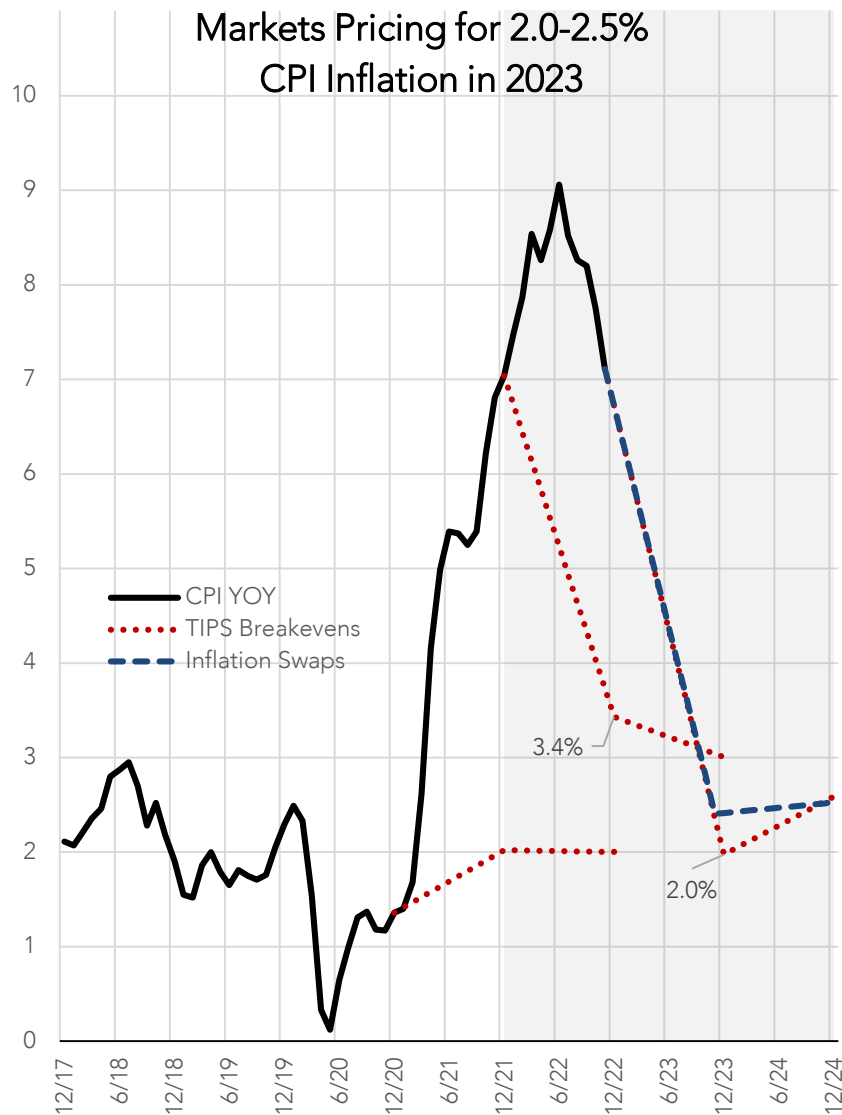


High Yield Credit Sector Performance



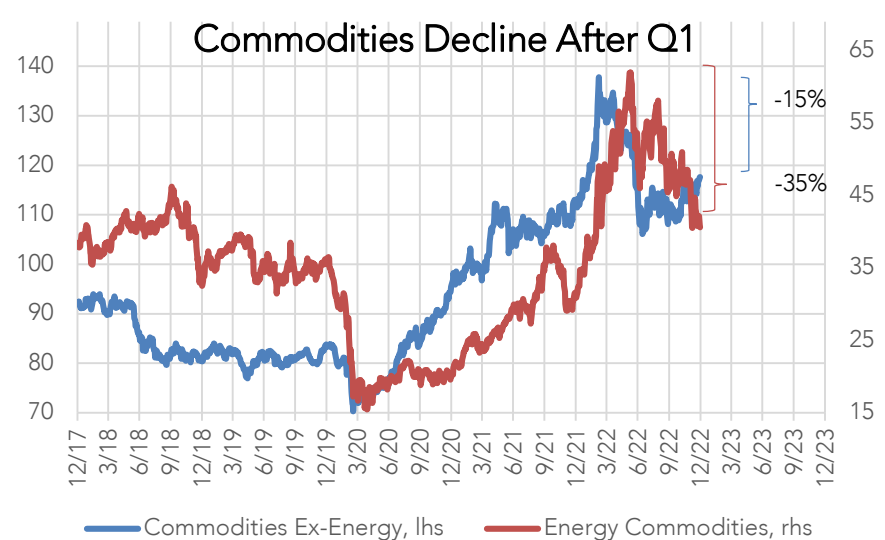
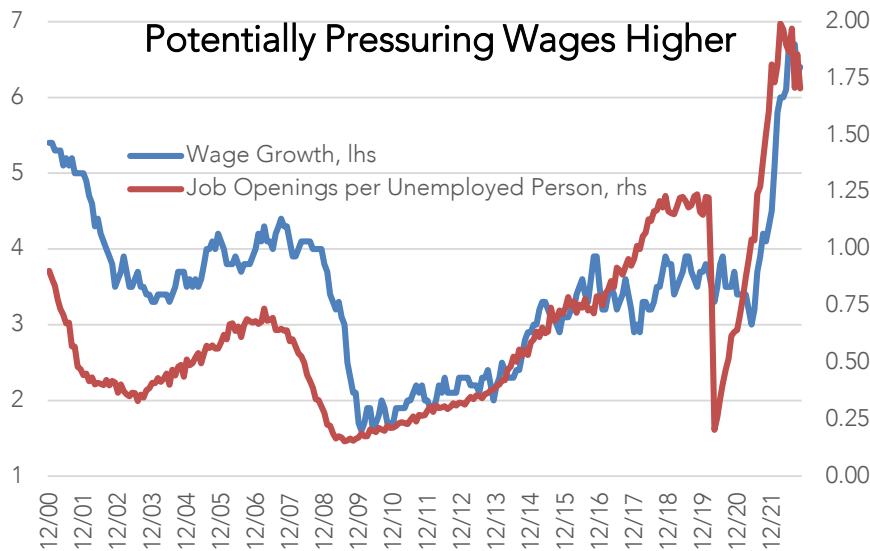
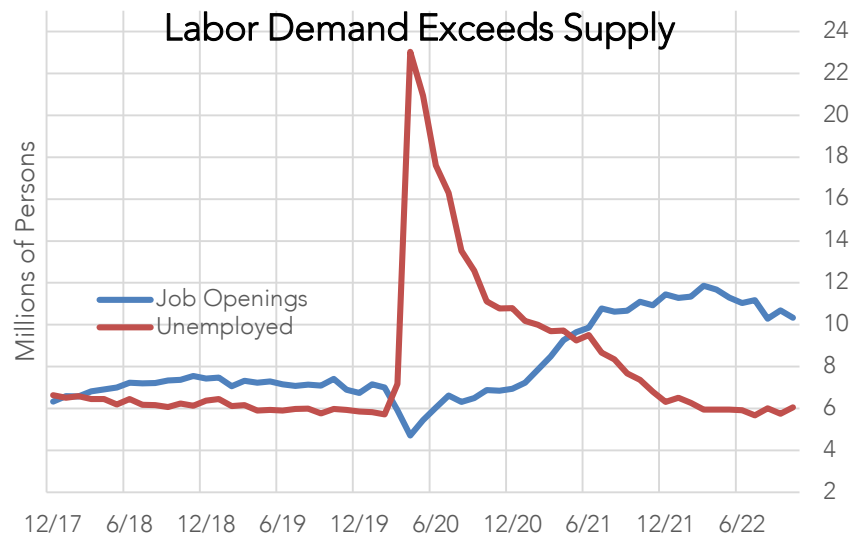


LOOKING AHEAD: INFLATION



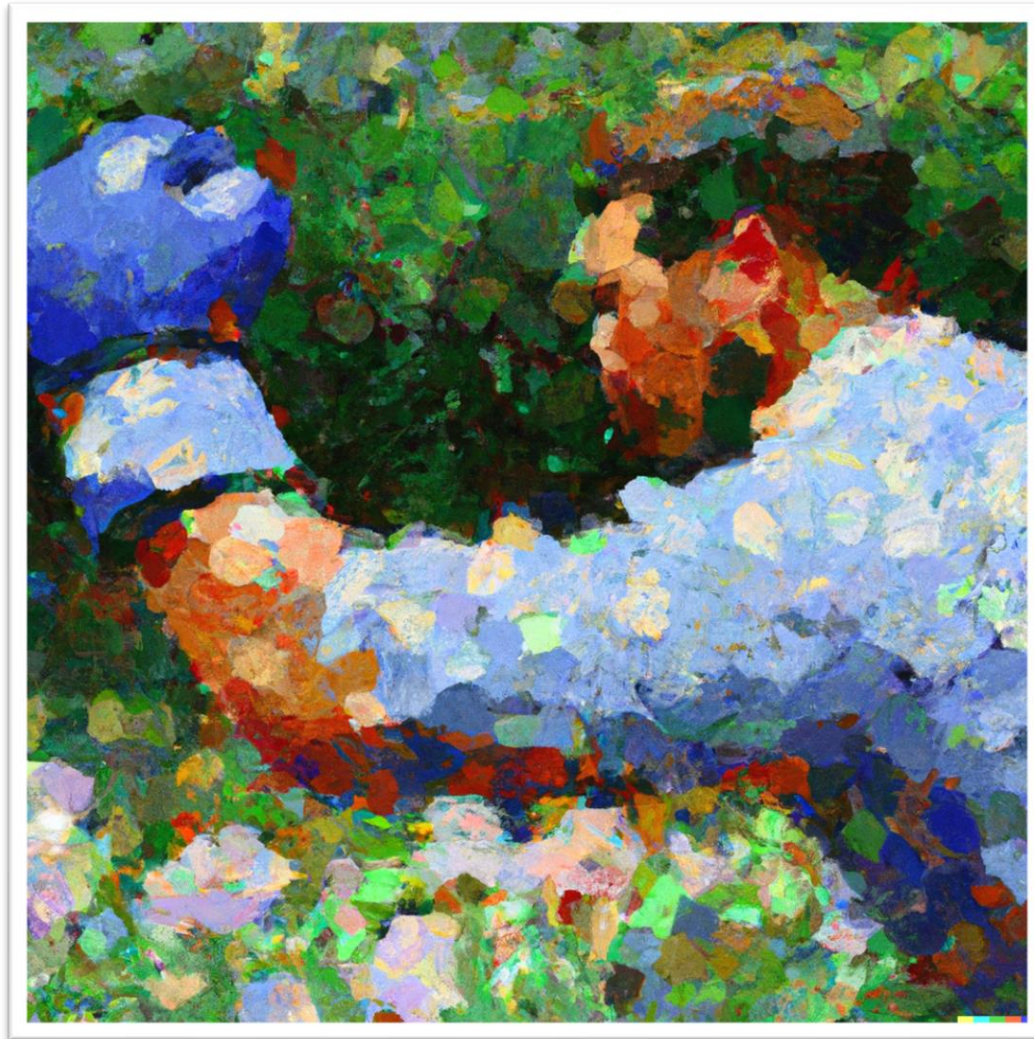


LOOKING AHEAD: INFLATION





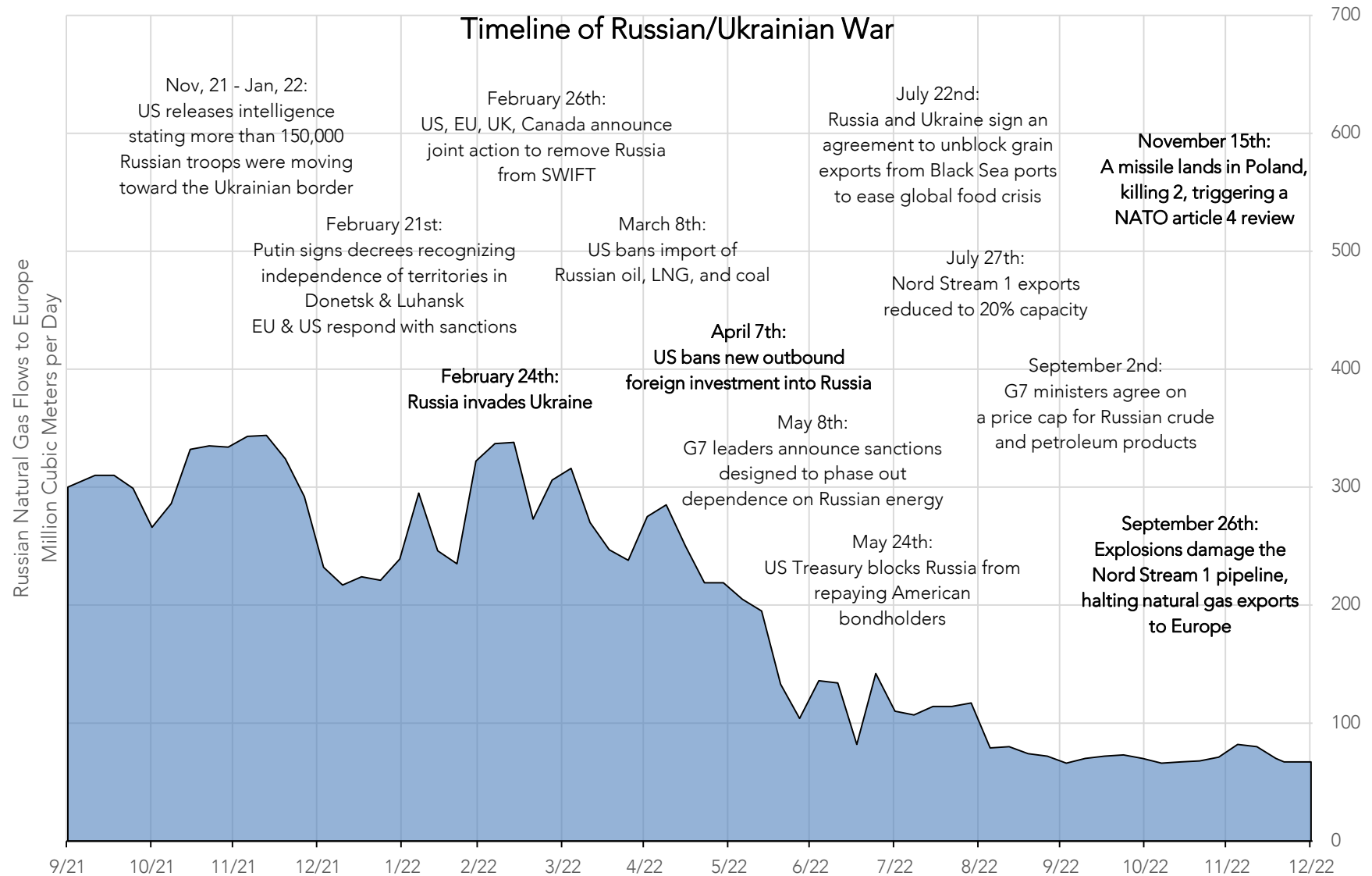
RUSSIAN INVASION - THE UPPERCUT



DALL-E 2: uppercut form punch Monet style



RECAP: RUSSIAN INVASION





MARKET IMPACT: RUSSIAN INVASION

Commodity Shock

- Russia & Ukraine global exports:
- Natural Gas: 25%; Crude Oil: 10%; Wheat: 25%; Fertilizers: 15%

Higher Inflation

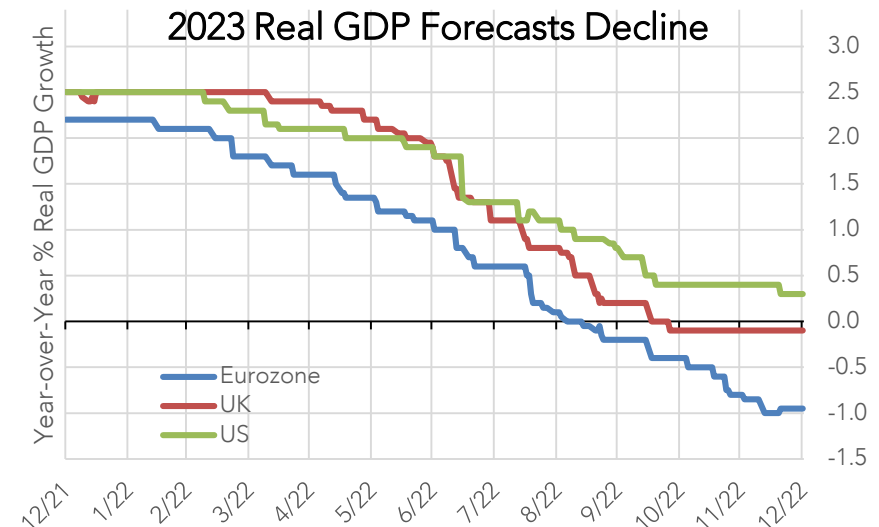
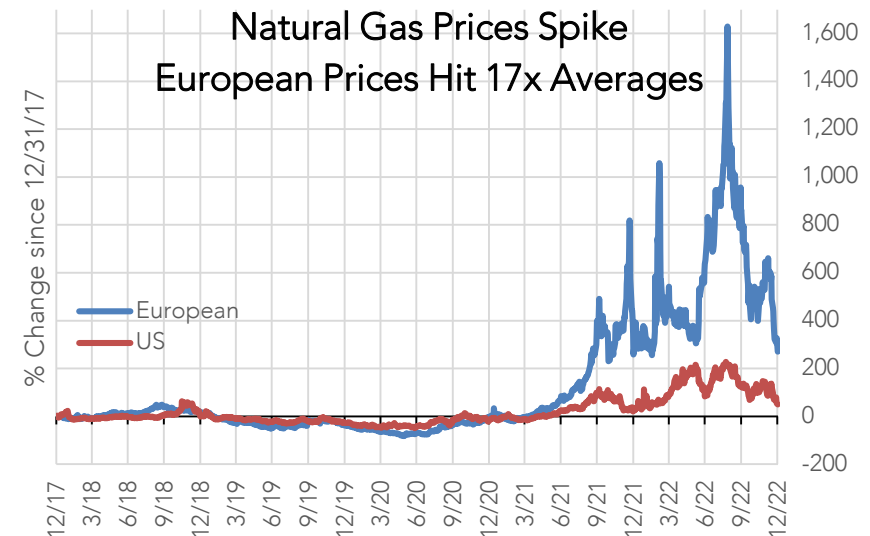
- Inflation accelerates:
- Eurozone: 10.0%; U.K.: 10.7% U.S.: 7.1%

Rate Hikes

- Central banks hike rates:
- Federal Reserve: +4.25%; ECB: +2.5%; BOE: +3.5%

Currencies Impacted

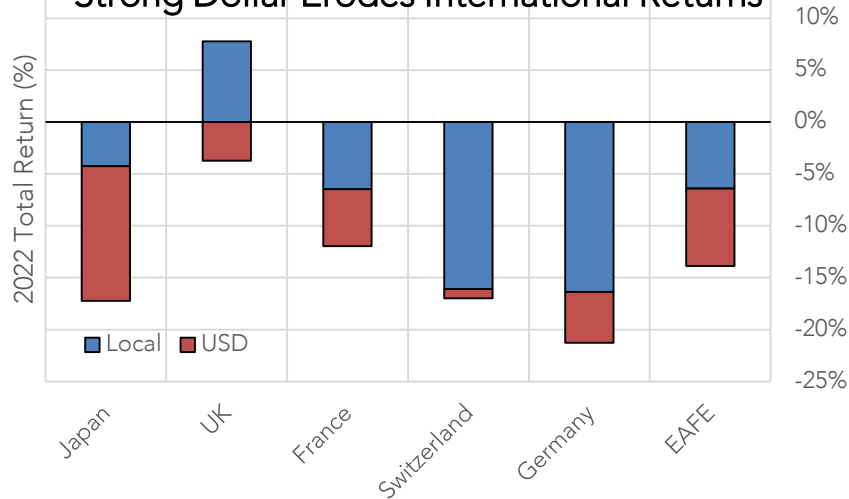
- US Dollar appreciates:
- +9.2% vs GBP; +5.8% vs EUR; +12.8% vs JPY; +12.2% vs SEK



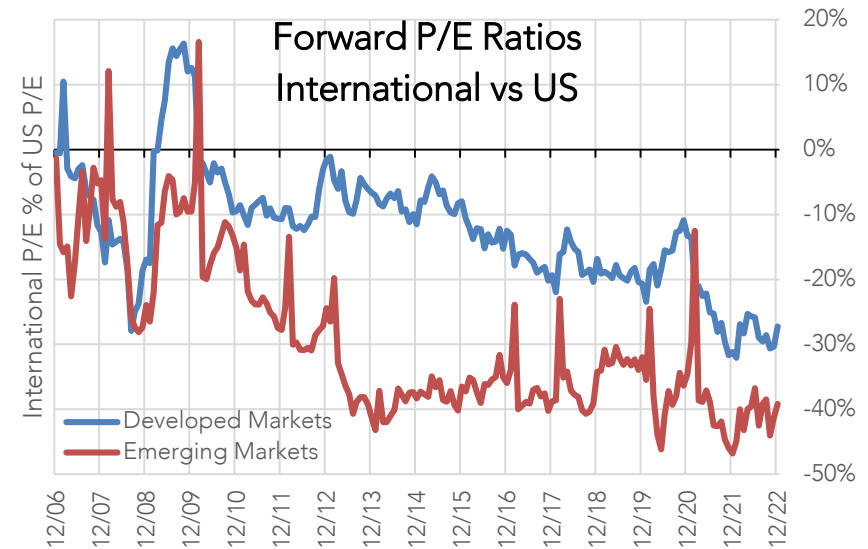


LOOKING AHEAD: RUSSIAN INVASION

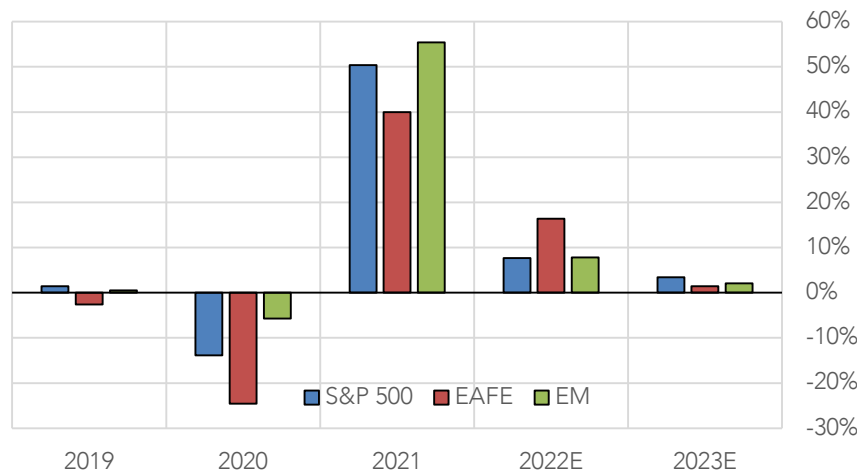
Strong Dollar Erodes International Returns



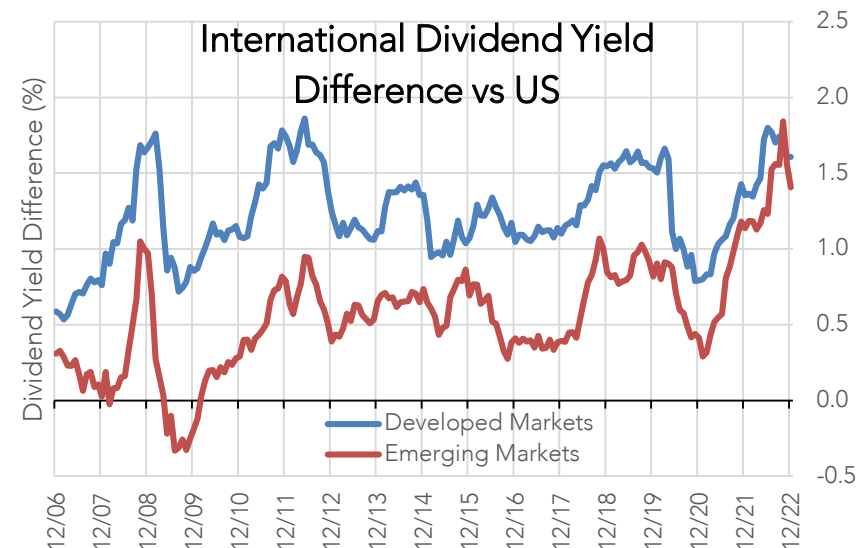
Forward P/E Ratios International vs US



Earnings Growth is Projected to Slow



International Dividend Yield Difference vs US





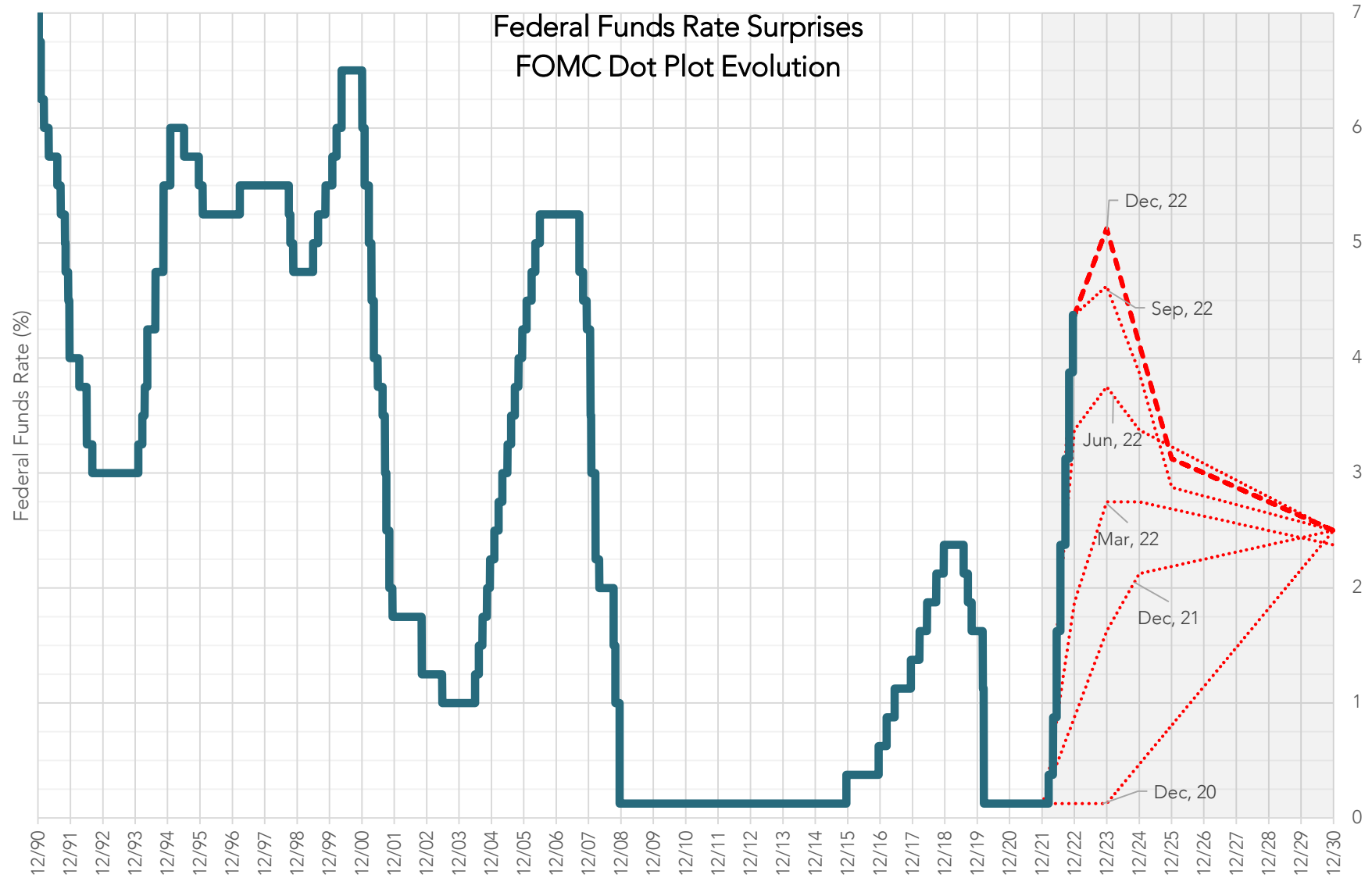
MONETARY POLICY - THE BODY BLOW



DALL-E 2: a professional boxing match with one boxer punching a body punch to the other Andy Warhol style



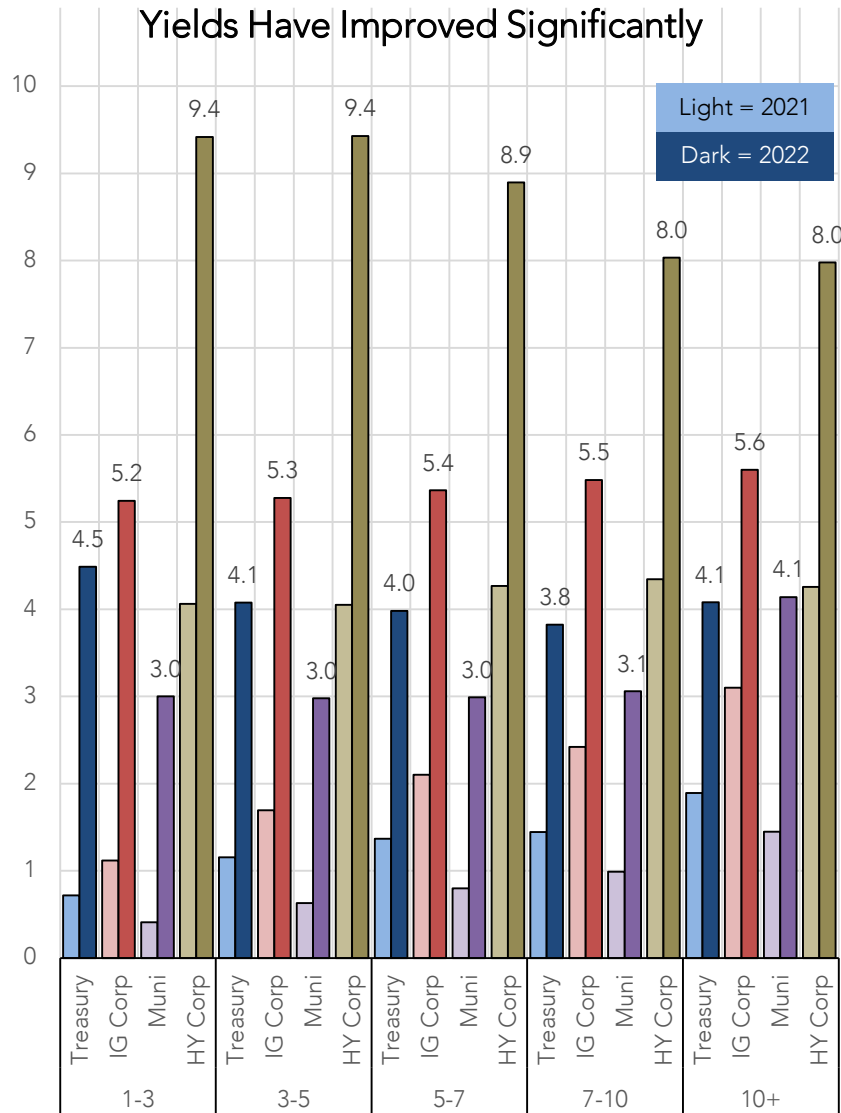
RECAP: MONETARY POLICY



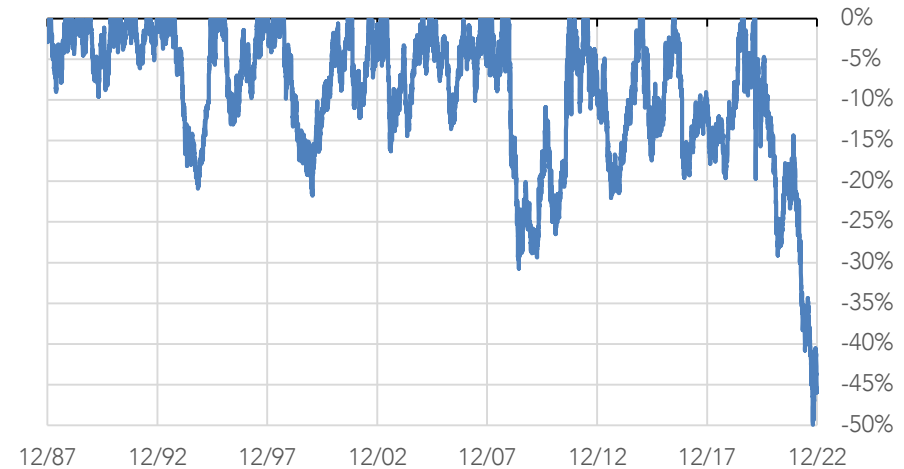


MARKET IMPACT: MONETARY POLICY

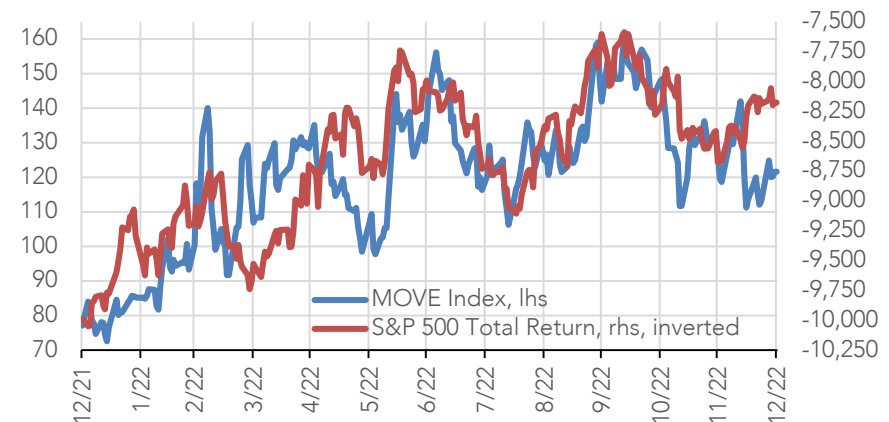
Yields Have Improved Significantly



Drawdown - 30 Year Treasuries

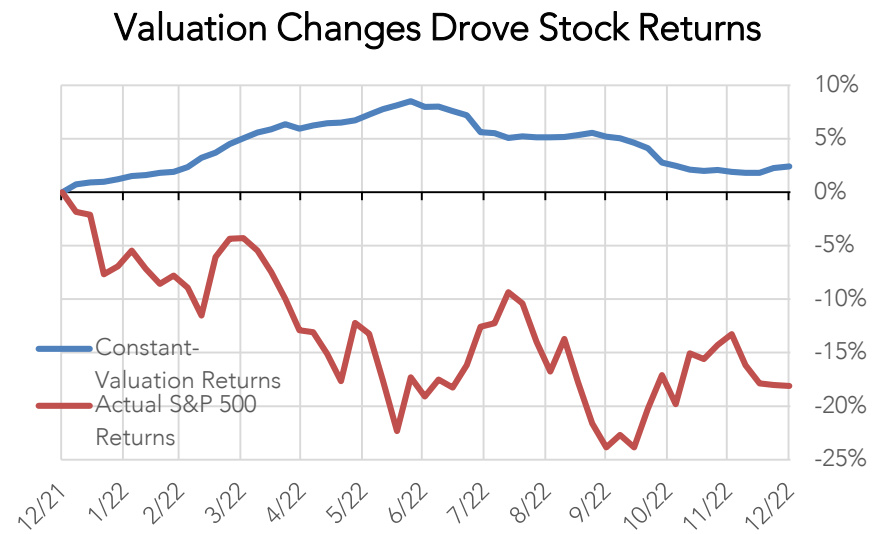
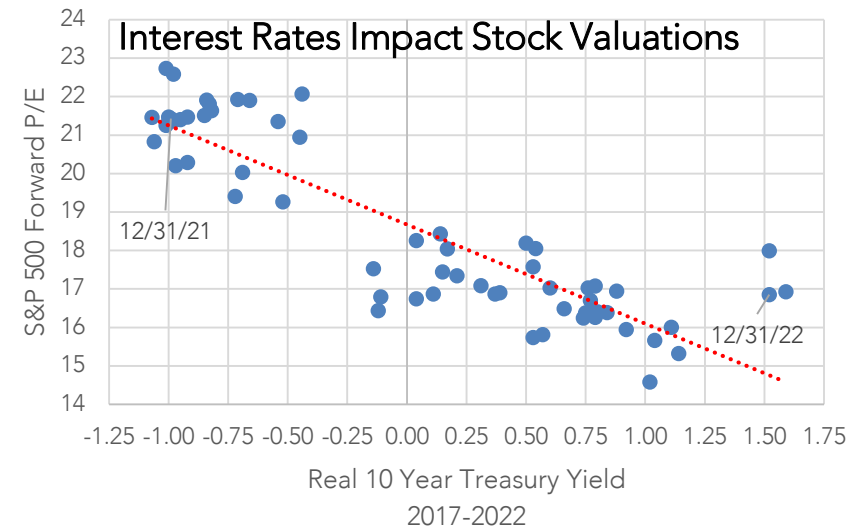
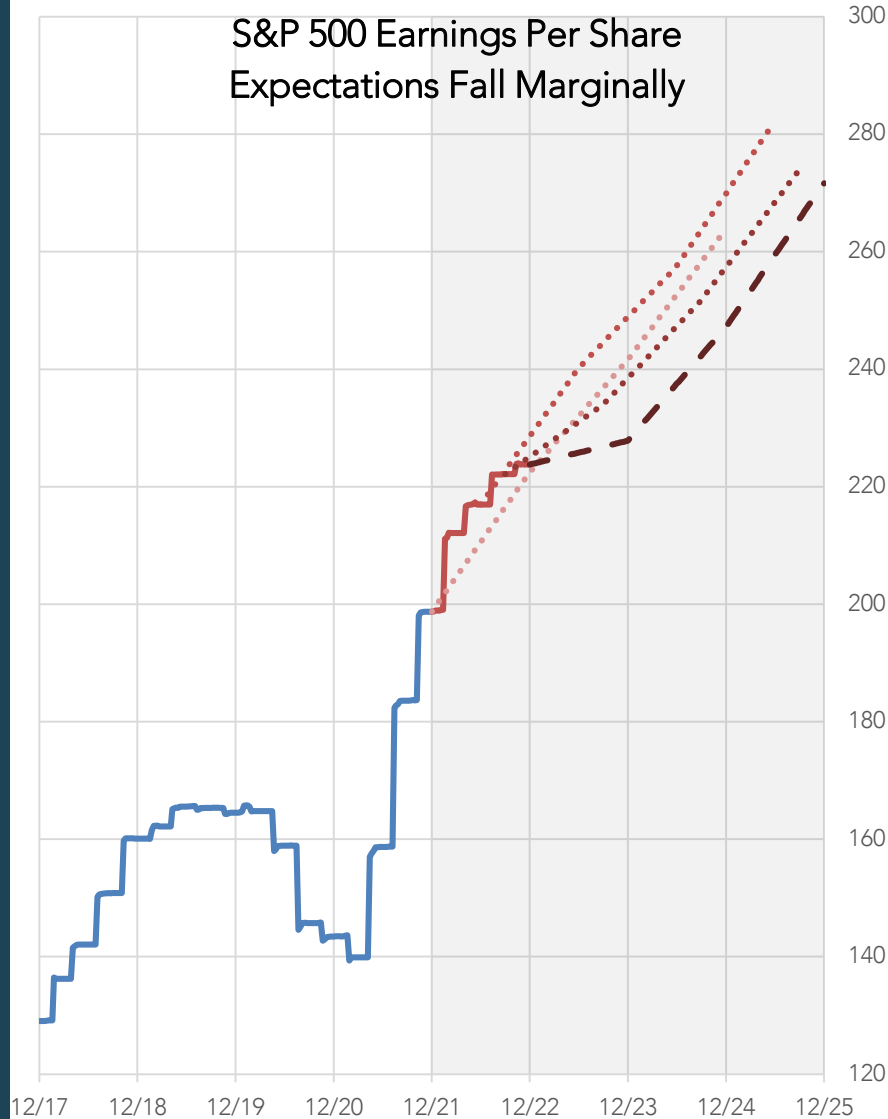


Elevated Interest Rate Volatility Poor Stock Returns



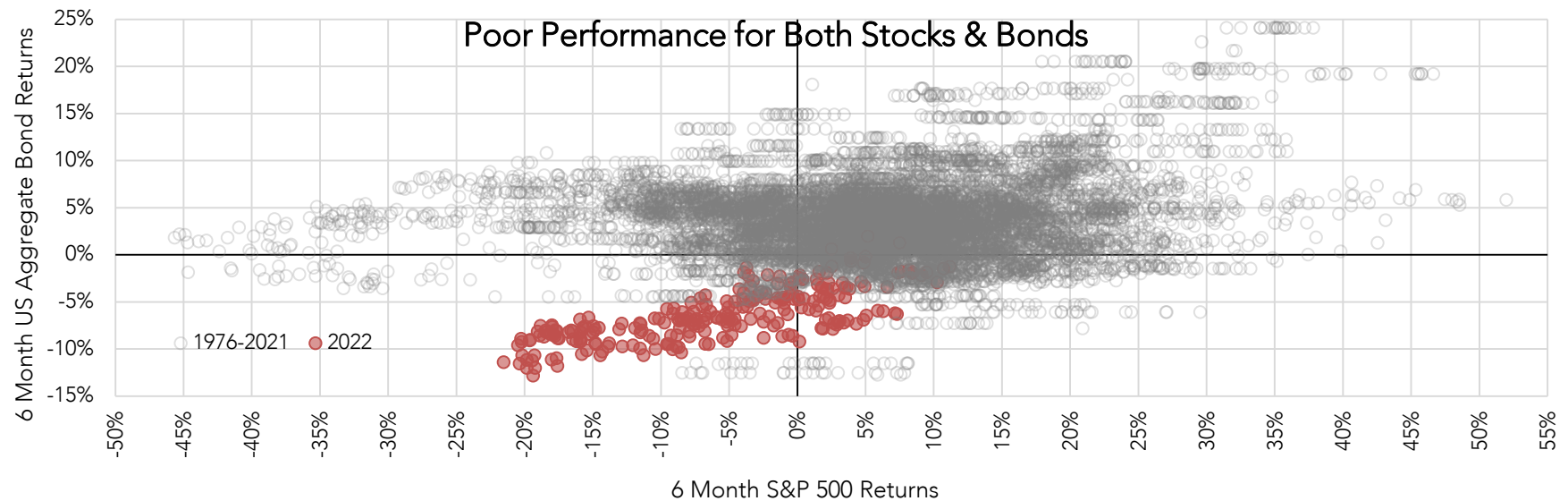
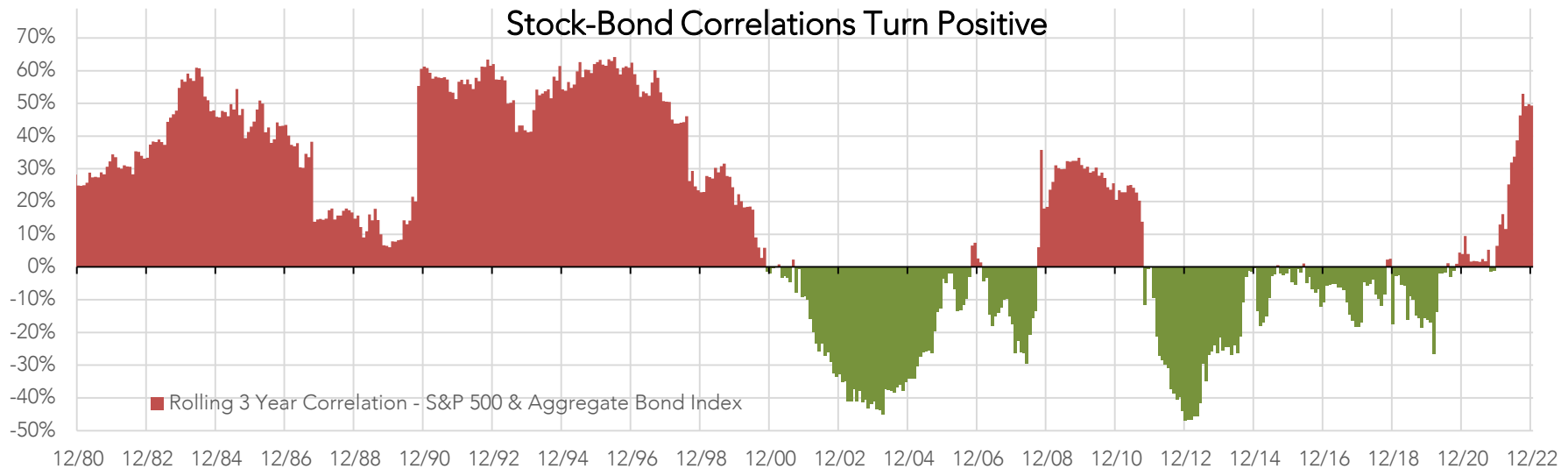


MARKET IMPACT: MONETARY POLICY





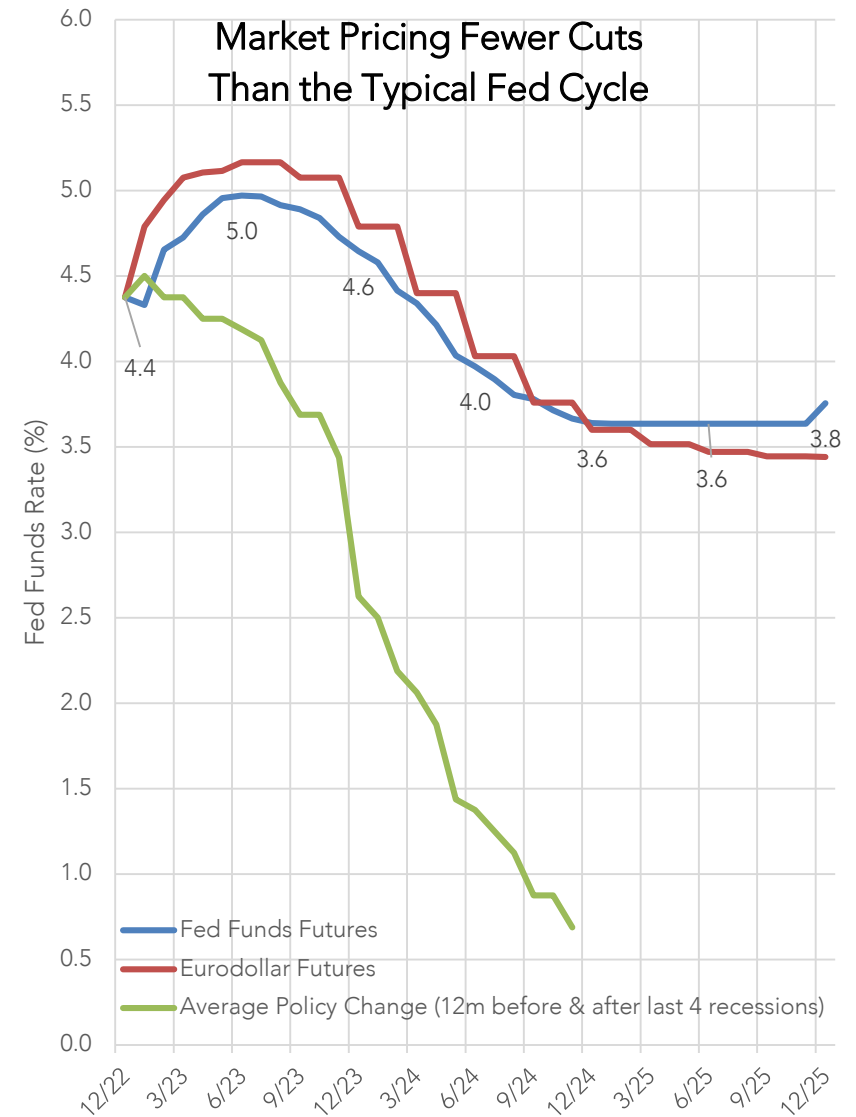
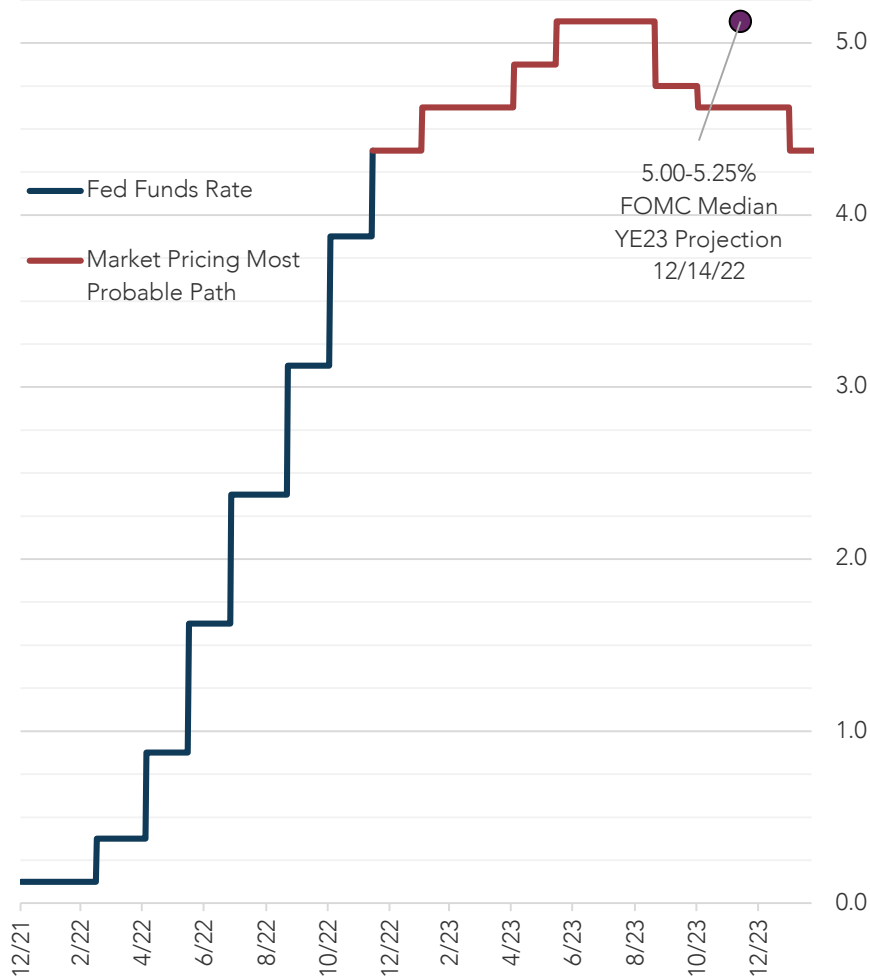
MARKET IMPACT: MONETARY POLICY





LOOKING AHEAD: MONETARY POLICY

Market Pricing 5.00-5.25% Peak Rate
Then Cuts Back to Current Rate





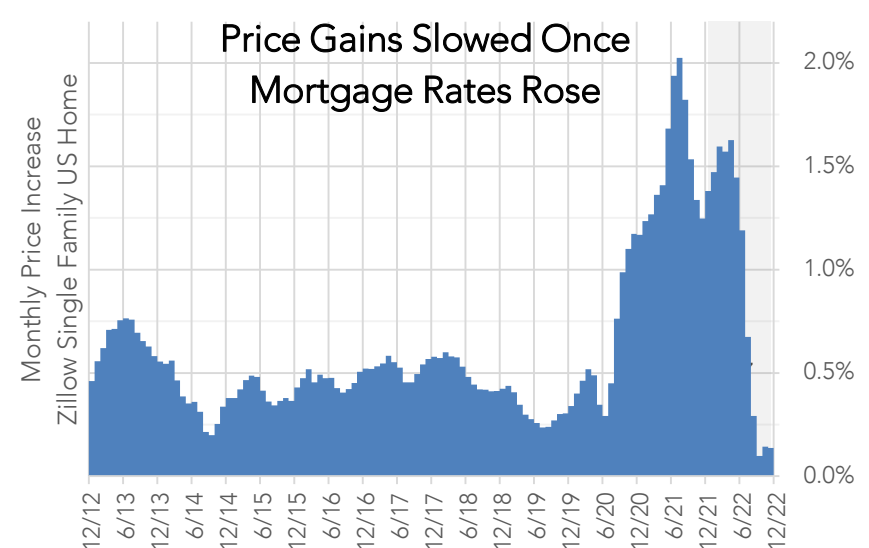
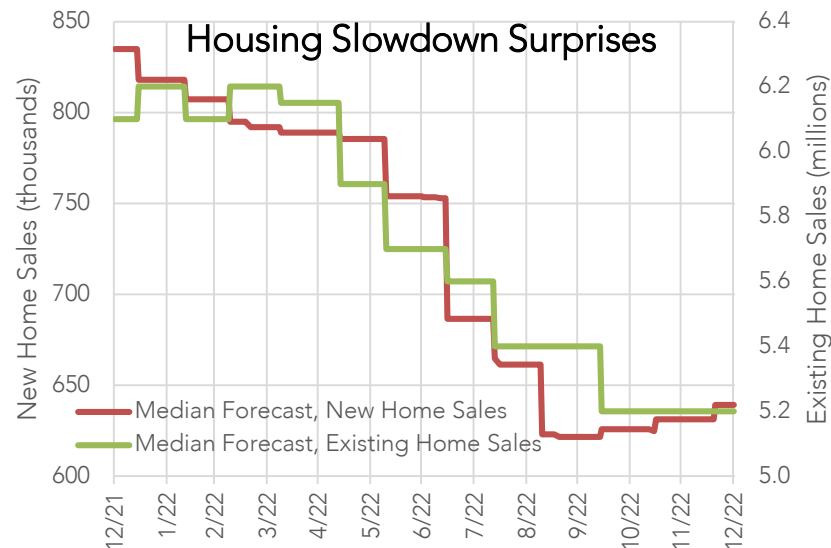
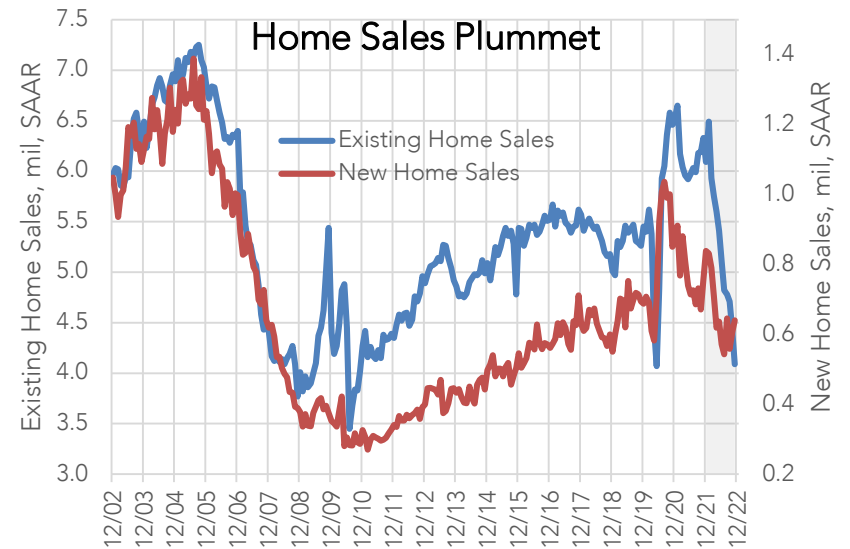
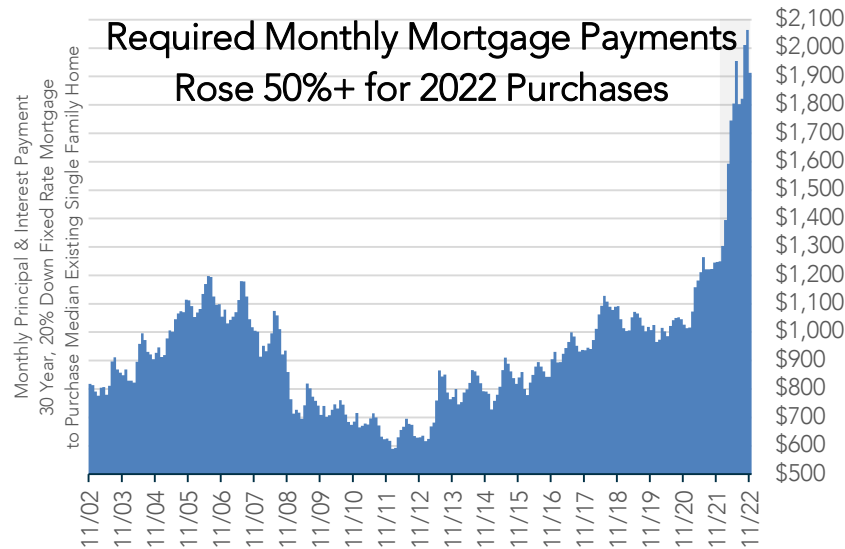
THE HOUSING MARKET - THE CROSS



DALL-E 2: Mona Lisa style portrait of a boxer throwing a cross

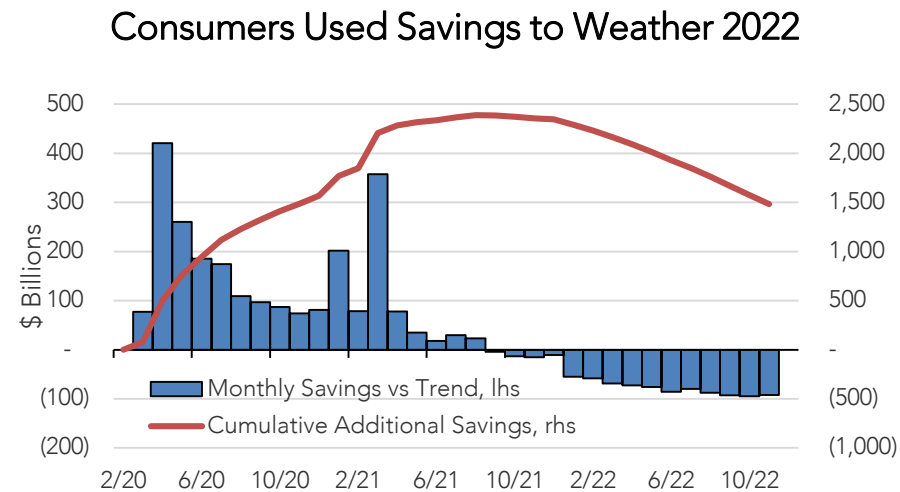
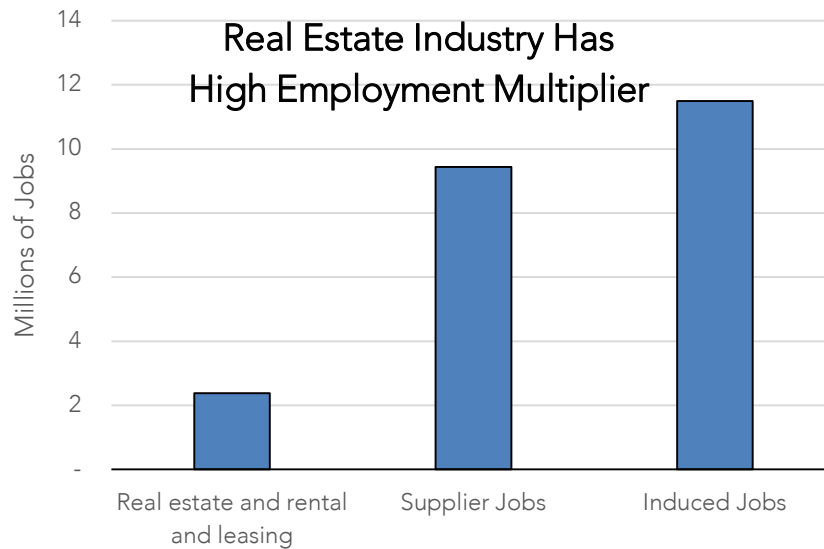
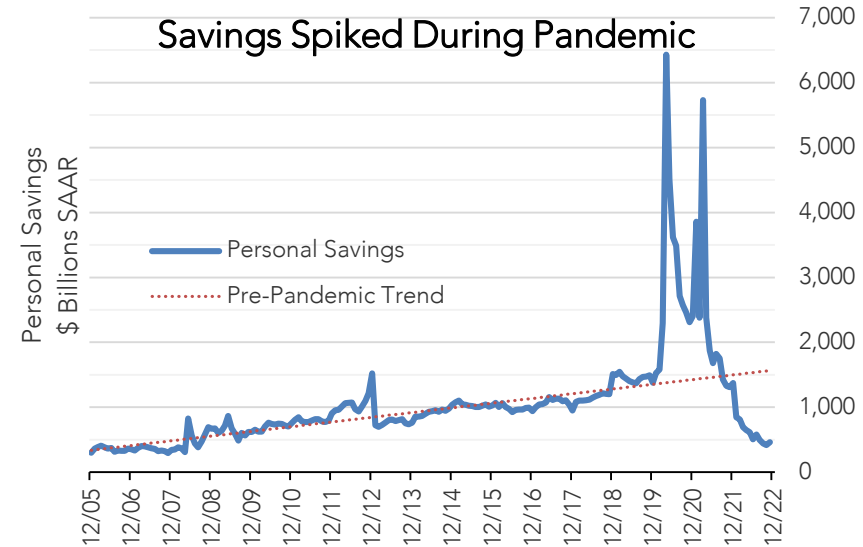
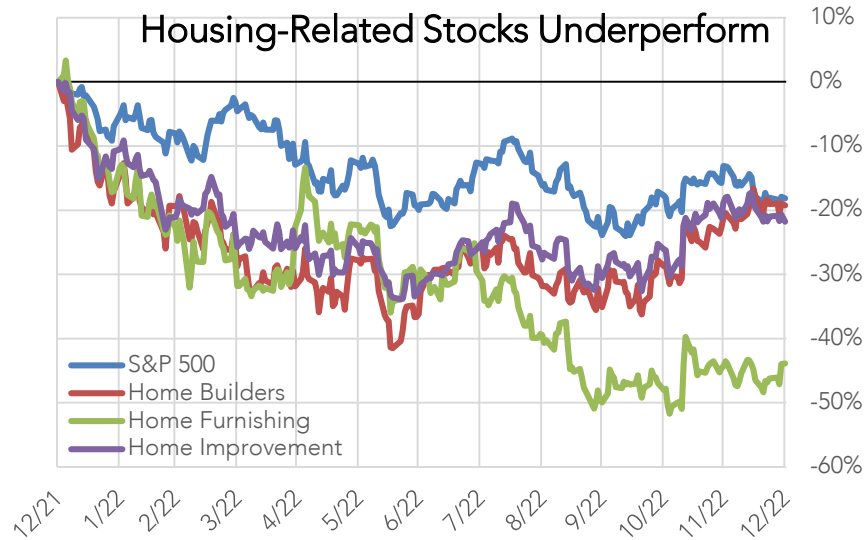


RECAP: THE HOUSING MARKET





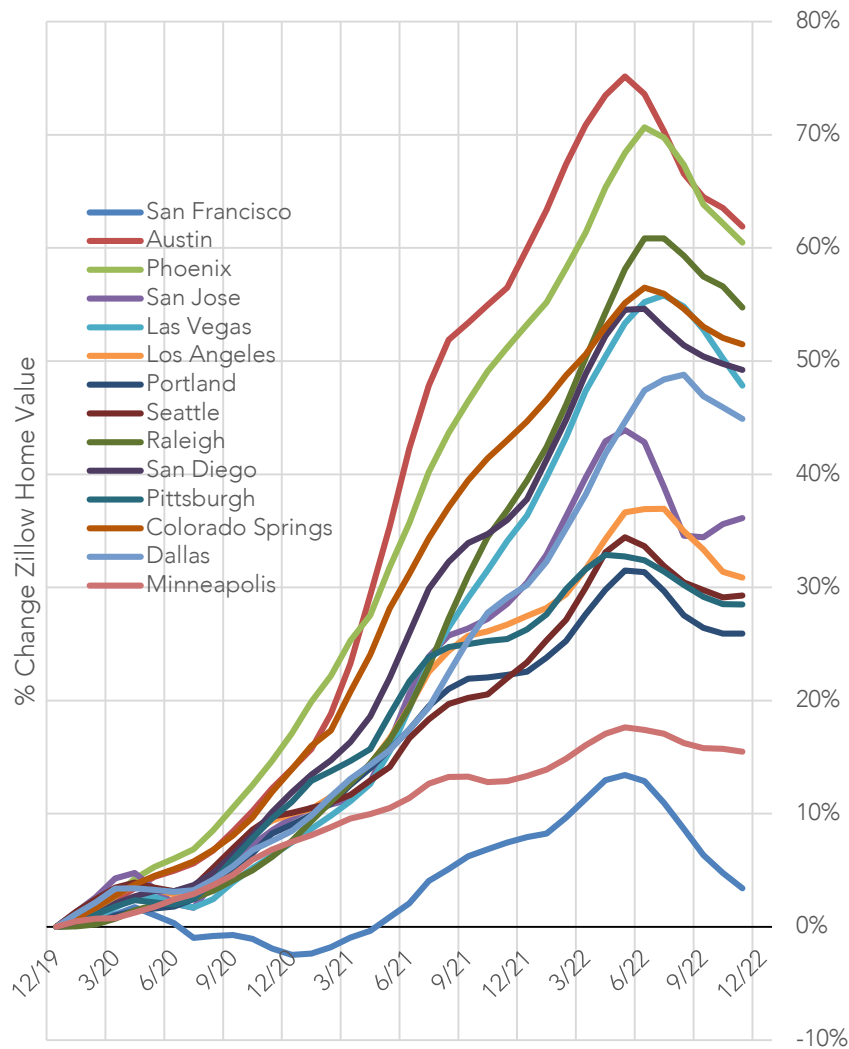
MARKET IMPACT: THE HOUSING MARKET



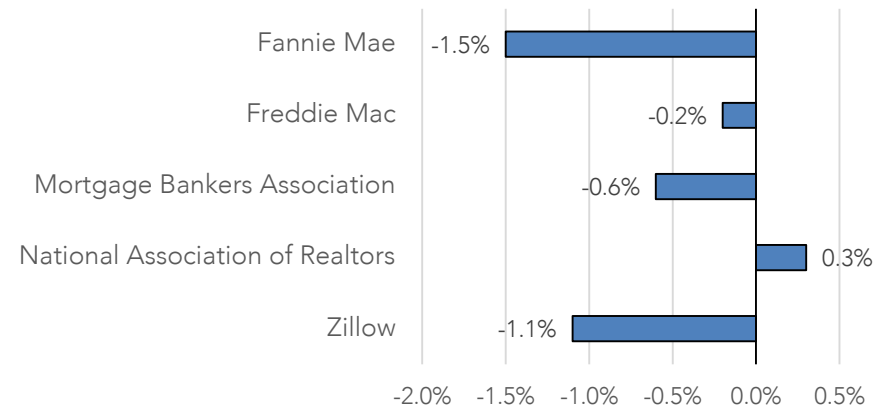


LOOKING AHEAD: THE HOUSING MARKET

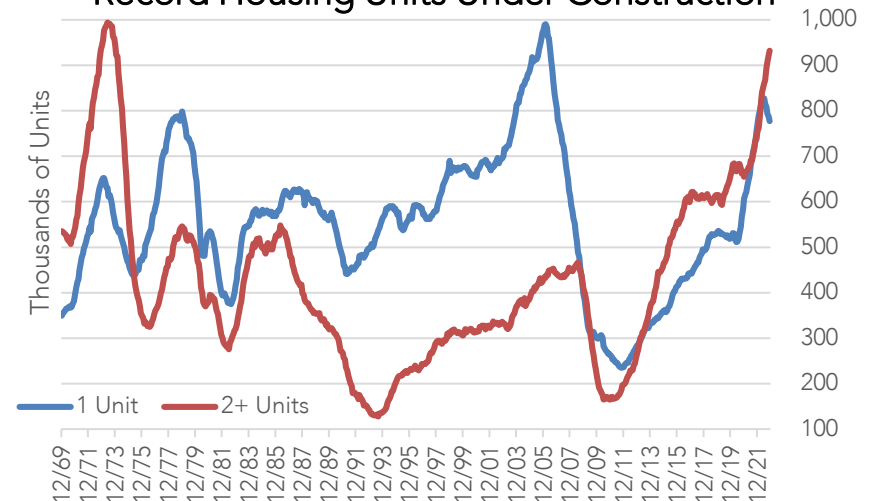
Home Prices Off Highs in Several Markets



Forecasters Predict 2023 Home Price Declines



Record Housing Units Under Construction





THE NEXT RECESSION - THE HOOK

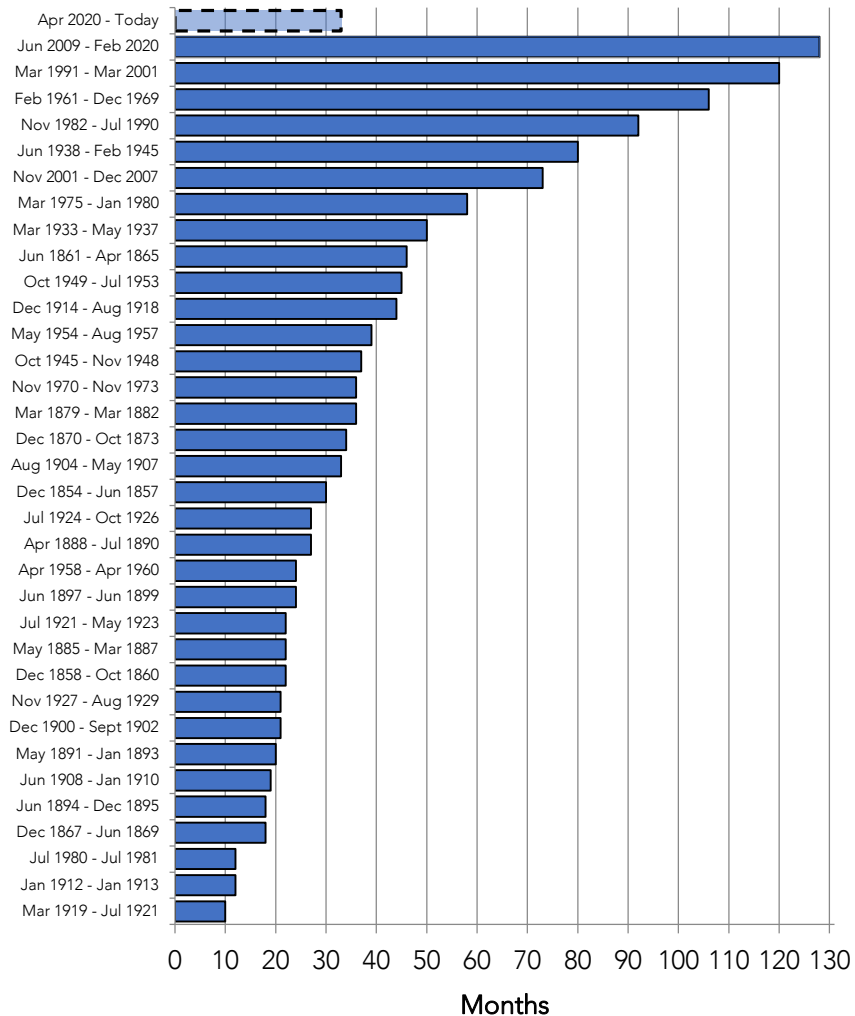


DALL-E 2: Photo of a Michelangelo style sculpture of a boxer throwing a powerful hook

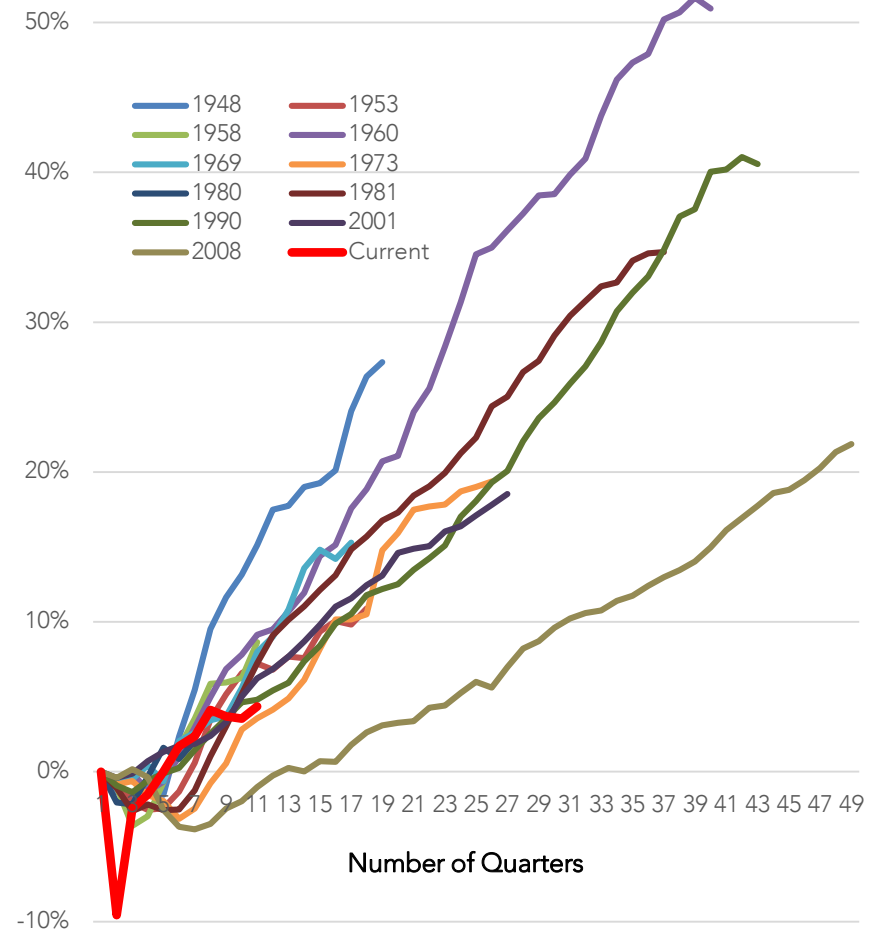


RECAP: THE NEXT RECESSION

Around 2.5 Years into Current Expansion

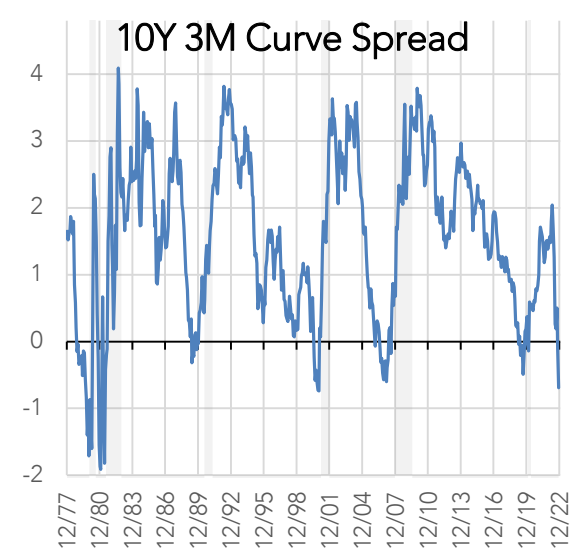
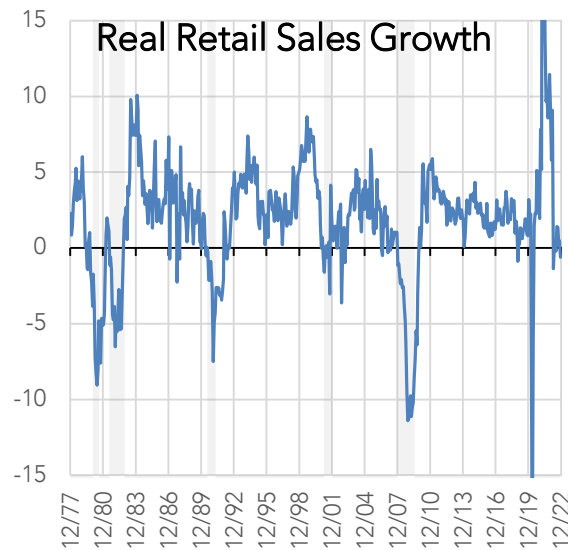
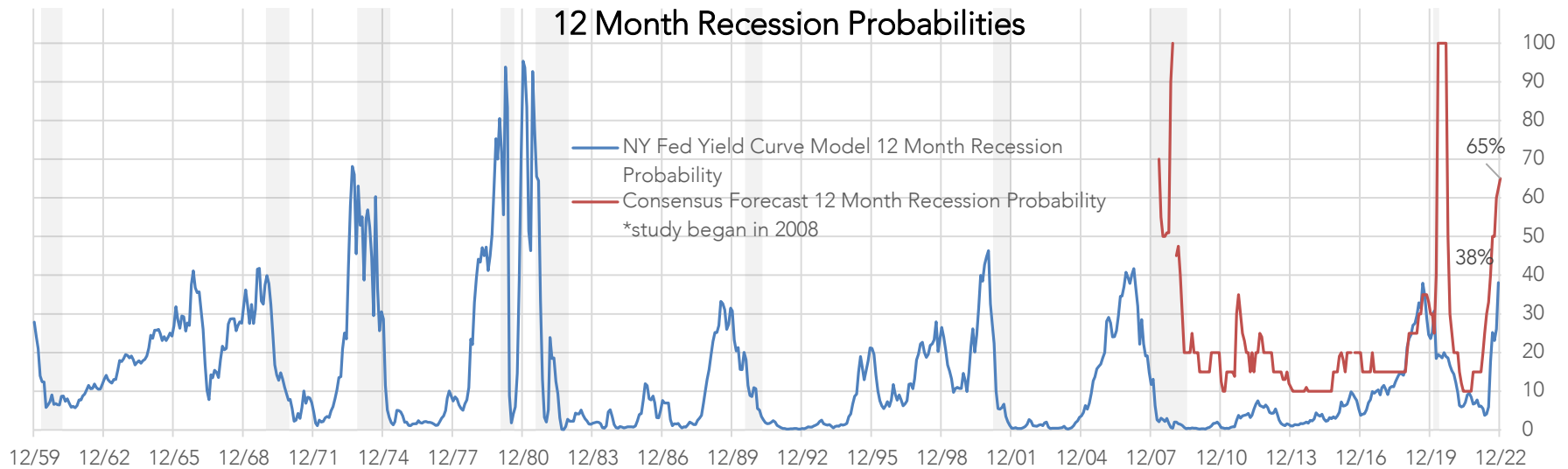


Cumulative Real GDP Growth Historical Expansions





LOOKING AHEAD: THE NEXT RECESSION





LOOKING AHEAD: THE NEXT RECESSION

Recession			S&P 500 Total Return		
Start Date	End Date	Duration	1 Year Prior	During	1 Year After
August 1929	March 1933	3.7 Years	49.7%	-79.9%	81.5%
May 1937	June 1938	1.2 Years	24.0%	-23.6%	-1.7%
February 1945	October 1945	0.7 Years	19.9%	27.2%	-7.2%
November 1948	October 1949	1.0 Year	14.3%	5.1%	35.1%
July 1953	May 1954	0.9 Years	2.1%	25.5%	36.1%
August 1957	April 1958	0.7 Years	0.4%	-6.3%	37.2%
April 1960	February 1961	0.9 Years	2.9%	17.5%	13.6%
December 1969	November 1970	1.0 Year	-11.2%	-2.3%	11.2%
November 1973	March 1975	1.4 Years	-1.5%	-17.6%	28.3%
January 1980	July 1980	0.6 Years	18.6%	16.4%	13.0%
July 1981	November 1982	1.4 Years	18.6%	15.7%	25.6%
July 1990	March 1991	0.7 Years	16.4%	7.6%	11.0%
March 2001	November 2001	0.8 Years	-9.0%	-7.3%	-16.5%
December 2007	June 2009	1.6 Years	8.1%	-35.5%	14.4%
March 2020	May 2020	0.2 Years	8.2%	-1.1%	46.0%
Average		1.1 Years	10.8%	-3.9%	21.8%
Median		1.0 Years	11.2%	-1.7%	18.1%

- On average, investors would have captured **8.5% annualized returns** in the typical 3-year period beginning 12 months prior to recession and ended 12 months after recession.



The chart displays two data series over time from 1927 to 2022:

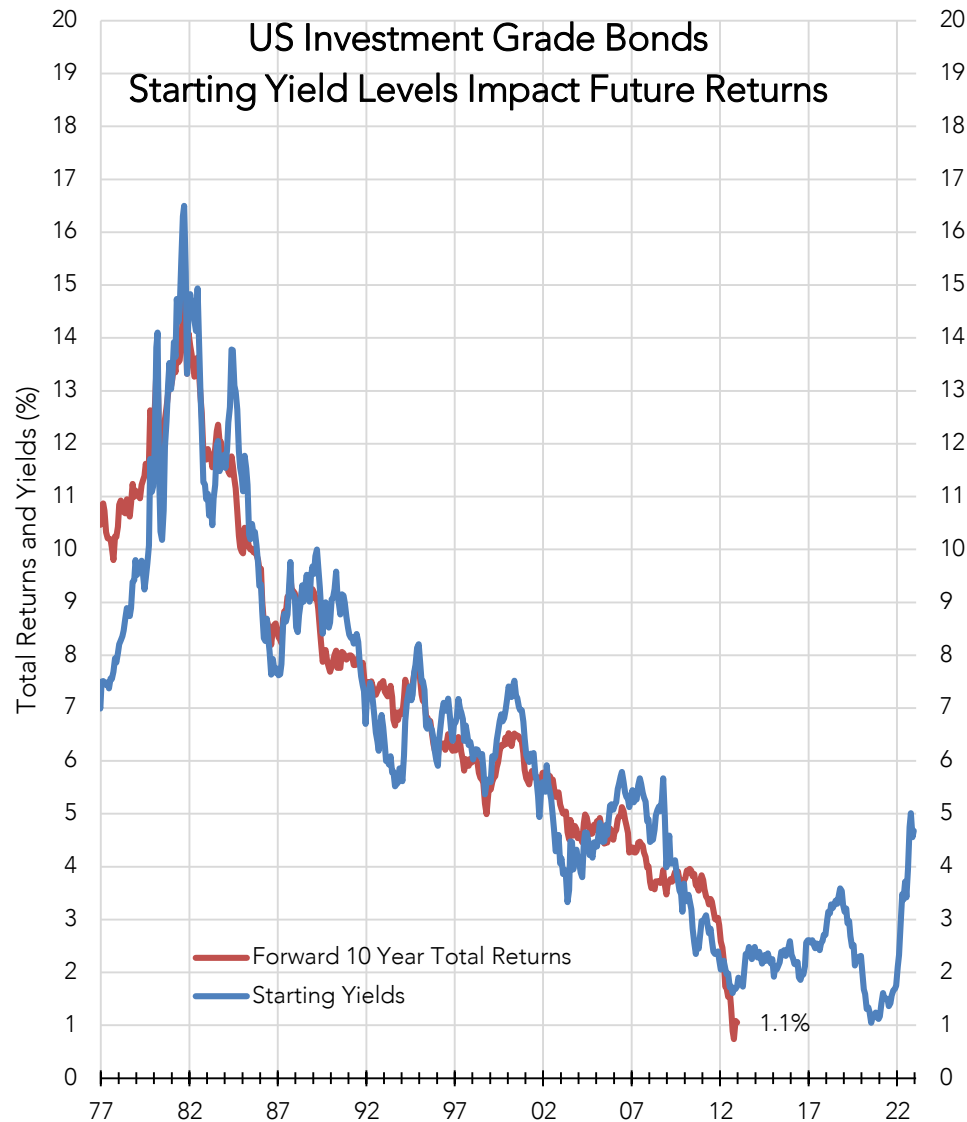
- S&P 500 Forward 10 Year Annualized Total Return, lhs** (Red line): Plotted against the left y-axis (Total Returns (%)) ranging from -10 to 20. It shows significant volatility, with peaks around 1929, 1954, 1980, and 1989, and troughs around 1932, 1981, and 2009.
- Shiller CAPE Ratio, rhs, inverted** (Blue line): Plotted against the right y-axis (Cyclically-Adjusted Price-to-Earnings Ratio (Inverted)) ranging from 0 to 50. The ratio is high (indicating a cheap market) when the return is low, and vice versa.

A horizontal line at 12.5% on the left axis indicates the long-term average return. The right axis for the CAPE ratio is inverted, with 0 at the top and 50 at the bottom.

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LONGER-TERM OUTLOOK: BONDS

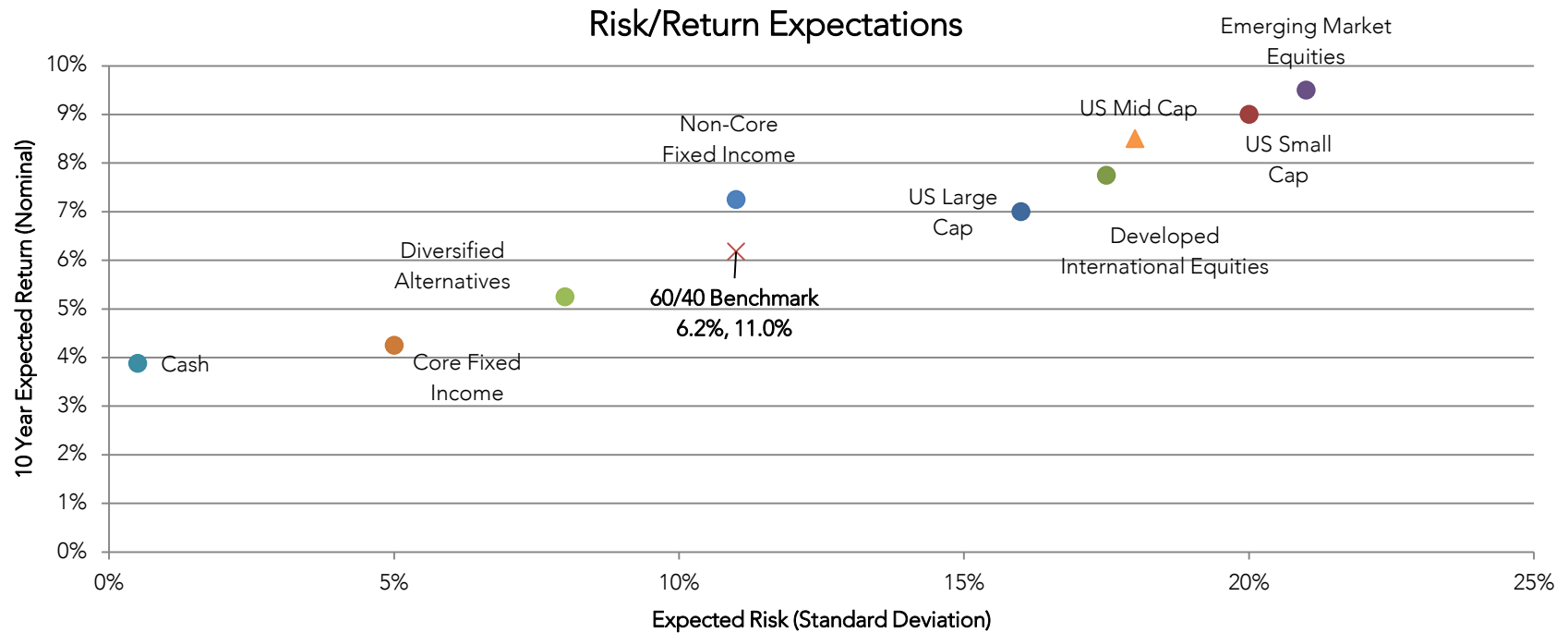


- The starting yield of the index has shown a high correlation to forward 10 year returns.
- As of December 2022, the yield on the index was 4.6%, a more attractive yield than most of the past 15 years.

Greenleaf Trust Investment Committee Core Bond
10 year total return expectations: **4.25% annualized**



LONGER-TERM OUTLOOK

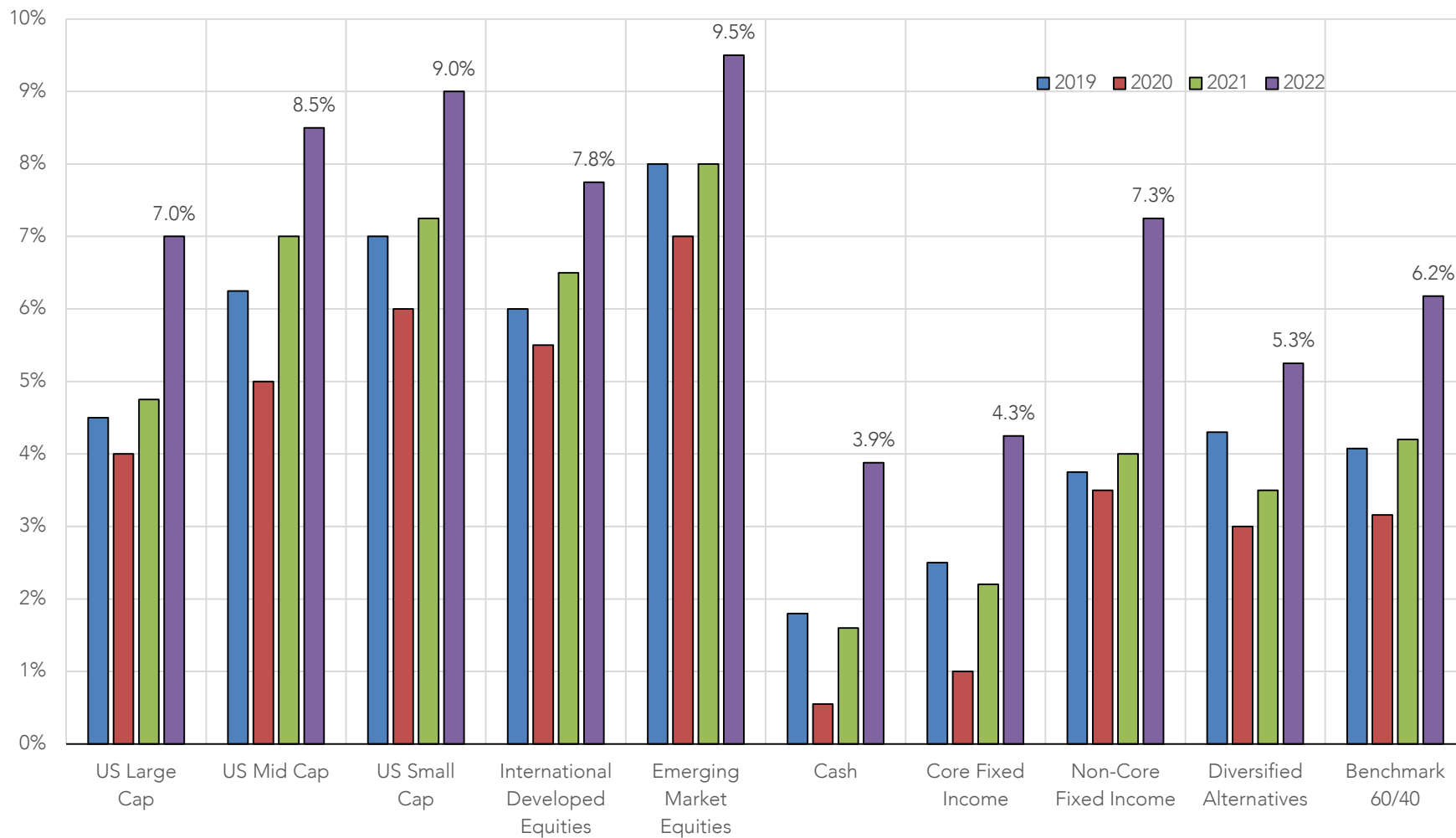


Asset Class	Historical Return (1994-2022)	10 Year Expected Return (Dec 2022)	10 Year Expected Risk (Standard Deviation)
US Large Cap	10.2%	7.0%	16.0%
US Mid Cap	11.5%	8.5%	18.0%
US Small Cap	10.6%	9.0%	20.0%
Developed International Equities	5.8%	7.8%	17.5%
Emerging Market Equities	4.5%	9.5%	22.0%
Core Fixed Income	4.8%	4.3%	5.0%
Non-Core Fixed Income	8.0%	7.3%	11.0%
Diversified Alternatives	5.0%	5.3%	8.0%
Cash	1.9%	3.9%	0.5%



LONGER-TERM OUTLOOK

Forward Return Outlook
is the Best in Years





RISKS

Investment Risks in 2023

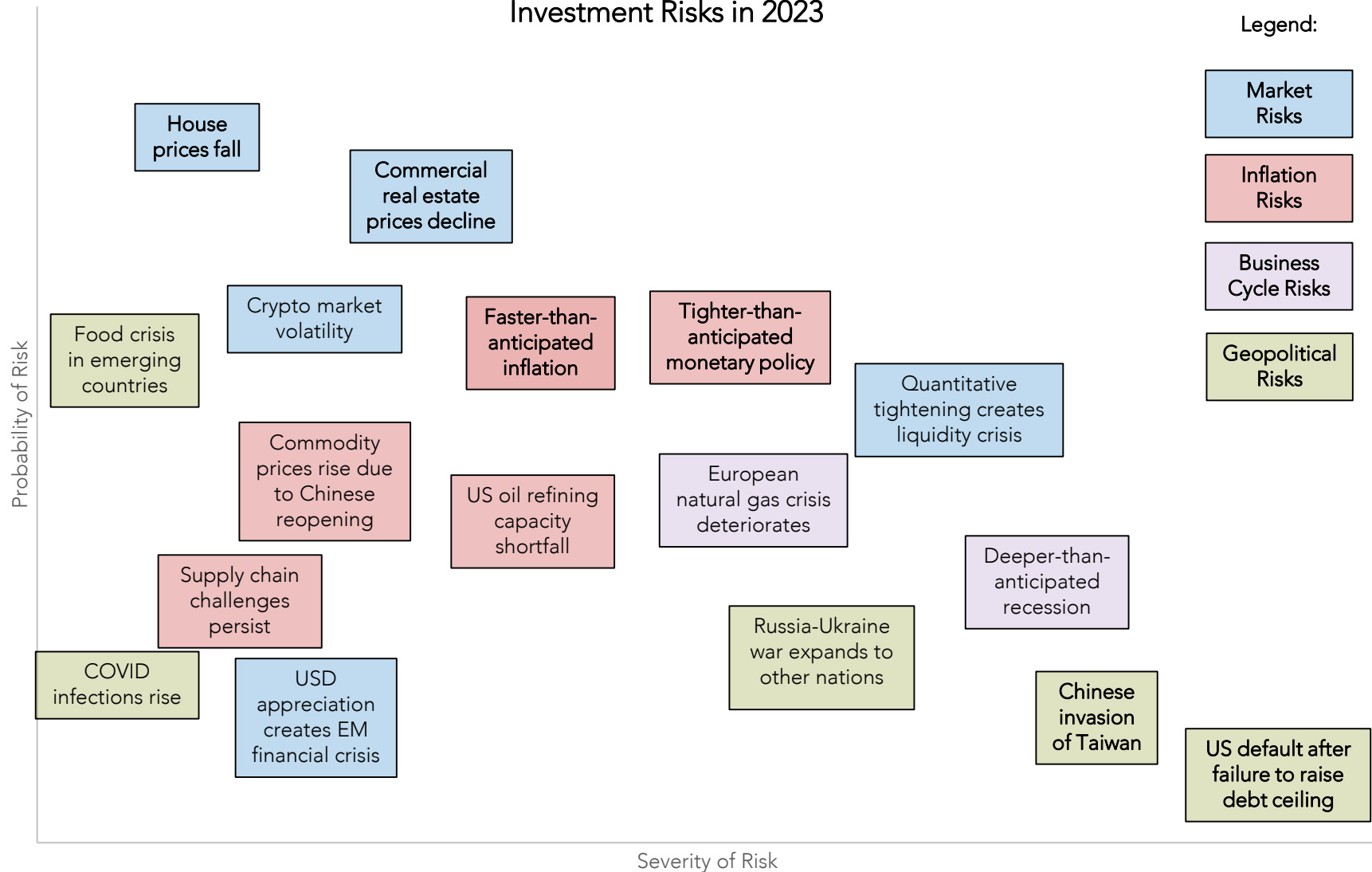
Legend:

Market Risks

Inflation Risks

Business Cycle Risks

Geopolitical Risks





CONCLUSION

We enter 2023 cautiously pessimistic

- There are many unresolved issues impacting markets and the economy
- Risks of a recession in the coming year are elevated, but
- History, and our capital market assumptions, support an improved forward return outlook

We build portfolios for the long term

- The investment solutions we build for clients are constructed with business cycles, recessions, geopolitical conflict and even black swan events in mind
- We manage so-called anomalistic events with diversification, discipline and the benefit of a long time horizon

Discipline is key

- Maintaining discipline during periods of uncertainty is the most reliable course for growing and preserving wealth



DATA SOURCES

Recession date source: National Bureau of Economic Research, Inc.

Slide 11 – “Inflation Broadened in 2022”; Chart 1.

Retrieved from Bloomberg; Source: Bureau of Labor Statistics, author’s calculations, dated November, 2022

Slide 11 – “Inflation Surprised Economists Again”; Chart 2.

Source: Bloomberg, dated December 2022

Slide 11 – “Wage Gains Lag Inflation”; Chart 3.

Retrieved from Bloomberg; Source: Bureau of Labor Statistics,, Wage Growth = Atlanta Fed Wage Growth Tracker, Inflation = CPI YOY, dated December 2022

Slide 12 – “2022 US Sector Returns”; Chart 1.

Source: Bloomberg; CD = S&P1500 Consumer Discretionary Index, CS = S&P 1500 Consumer Staples Index, COMM = S&P 1500 Communication Services Index, EN = S&P1500 Energy Index, FIN = S&P1500 Financials Index, HC = S&P 1500 Healthcare Index, IND = S&P 1500 Industrials Index, IT = S&P 1500 Information Technology Index, MATR = S&P 1500 Materials Index, UTIL = S&P 1500 Utilities Index, RLST = S&P1500 Real Estate Index, dated December 2022

Slide 12 – “2022 Oil Price Shock”; Chart 2.

Source: Bloomberg; WTI = West Texas Intermediate Crude Oil Spot Price, dated December 2022

Slide 12 – “Calendar Year 2022 Earnings Growth”; Chart 3.

Source: Factset Earnings Insight, dated December 2022

Slide 13 – “TIPS Outperform”; Chart 1.

Source: Bloomberg; 1-10 TIPS = Bloomberg US Treasury Inflation Notes 1-10Y TR Index, 1-10 Treasury = Bloomberg US Intermediate Treasury Index, dated December 2022

Slide 13 – “High Yield Sector Spreads”; Chart 2.

Source: Bloomberg; HY Sector Spreads = Bloomberg US Corporate High Yield Index, dated December 2022

Slide 13 – “High Yield Credit Sector Performance”; Chart 3.

Source: Bloomberg; HY Sector Spreads = Bloomberg US Corporate High Yield Index, dated December 2022

Slide 14 – “Markets Pricing for 2.0-2.5% CPI Inflation in 2023”; Chart 1.

Retrieved from Bloomberg, Sources: Bloomberg & Bureau of Labor Statistics; dated December 2022

Slide 14 – “Home Price Appreciation Has Cooled Shelter CPI to Decelerate”; Chart 2.

Retrieved from Bloomberg, Sources: National Association of Realtors & Bureau of Labor Statistics, dated December 2022

Slide 14 – “Calendar Year M2 Money Supply Growth 1960-2022”; Chart 3.

Retrieved from Bloomberg, Source: Federal Reserve, dated December 2022

Slide 15 – “Labor Demand Exceeds Supply”; Chart 1.

Retrieved from Bloomberg, Job Openings = US Job Openings by Industry Total SA, Unemployed = US Unemployed Workers Total in Labor Force SA, Source: Bureau of Labor Statistics; dated October 2022 & November 2022

Slide 15 – “Potentially Pressuring Wages Higher”; Chart 2.

Retrieved from Bloomberg, Job Openings = US Job Openings by Industry Total SA, Unemployed = US Unemployed Workers Total in Labor Force SA, Wage Growth = Atlanta Fed Wage Growth Tracker, Sources: Bureau of Labor Statistics & Atlanta Federal Reserve; dated October 2022 & November 2022

Slide 15 – “Chinese Commodity Demand Dampened by Lockdown Policy in 2022”; Chart 3.

Source: Bloomberg, dated November 2022

Slide 15 – “Commodities Decline After Q1”; Chart 4.

Source: Bloomberg, Commodities Ex-energy = Bloomberg Commodity Ex Energy Subindex, Energy = Bloomberg Commodity Energy Subindex, dated December 2022

Slide 17 – “Timeline of Russian/Ukrainian War”; Chart 1.

Source: Bloomberg, dated December 2022

Source: Peterson Institute for International Economics (PIIE), dated December 2022



DATA SOURCES

Recession date source: National Bureau of Economic Research, Inc.

Slide 18 – “Natural Gas Prices Spike”; Chart 1.

Source: Bloomberg; European = Netherlands TTF Natural Gas 1st Month Future; US = Henry Hub 1st Month Future, dated December, 2022

Slide 18 – “2023 Real GDP Forecasts Decline”; Chart 2.

Source: Bloomberg, dated December, 2022

Slide 18 – Lefthand graphic; Chart 3.

Commodity export source: Worldbank, dated May 2022

Inflation Sources: Bureau of Labor Statistics, Eurostat, UK Office of National Statistics, dated November 2022

Rate & Currency Source: Bloomberg, dated December 2022

Slide 19 – “Strong Dollar Erodes International Returns”; Chart 1.

Source: Bloomberg; Japan = MSCI Japan Net Total Return Local Index & MSCI Japan Net Total Return USD Index, UK = MSCI UK Net Total Return Local Index & MSCI UK Net Total Return USD Index, France = MSCI France Net Total Return Local Index & MSCI France Net Total Return USD Index, Switzerland = MSCI Switzerland Net Total Return Local Index & MSCI Switzerland Net Total Return USD Index, Germany = MSCI Germany Net Total Return Local Index & MSCI Germany Net Total Return USD Index, EAFE = MSCI EAFE Net Total Return Local Index & MSCI EAFE Net Total Return USD Index, dated December, 2022

Slide 19 – “Forward P/E Ratios International vs US”; Chart 2.

Source: Bloomberg; Developed Markets = MSCI EAFE Index, Emerging Markets = MSCI Emerging Markets Index, dated December, 2022

Slide 19 – “Earnings Growth is Projected to Slow”; Chart 3.

Source: Yardeni.com; S&P 500 = S&P 500 Index, EAFE = MSCI EAFE Index, EM = MSCI Emerging Markets Index, dated December, 2022

Slide 19 – “International Dividend Yield Difference vs US”; Chart 3.

Source: Bloomberg; Developed Markets = MSCI EAFE Index, Emerging Markets = MSCI Emerging Markets Index, dated December, 2022

Slide 21 – “Federal Funds Rate Surprises FOMC Dot Plot Evolution”; Chart 1.

Retrieved from Bloomberg, Source: Federal Reserve, dated December, 2022

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Source: Bloomberg; Treasury = Bloomberg US Treasury Index, IG Corp = Bloomberg US Corporate Total Return Index, Muni = Bloomberg Municipal Bond Index, HY Corp = Bloomberg US Corporate High Yield Total Return Index, dated December, 2022

Slide 22 – “Drawdown - 30 Year Treasuries”; Chart 2.

Retrieved from Bloomberg, Source: ICE BofA Current 30-Year US Treasury Index, dated December, 2022

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Source: Bloomberg, MOVE Index = Ice BofA MOVE Index, dated December, 2022

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Source: Bloomberg, dated December, 2022

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Source: Bloomberg, dated December, 2022

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Source: Bloomberg, dated December, 2022

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Source: Bloomberg, dated December, 2022

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Source: Bloomberg, dated December, 2022



DATA SOURCES

Recession date source: National Bureau of Economic Research, Inc.

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Source: Bloomberg, dated December, 2022

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Source: Bloomberg, dated December, 2022

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Retrieved from Bloomberg Source: National Association of Realtors & Freddie Mac Us Mortgage Market Survey, dated November, 2022

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Retrieved from Bloomberg Source: National Association of Realtors, dated November, 2022

Slide 27 – “Home Sales Plummet”; Chart 3.

Source: Bloomberg, dated December 2022

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Source: Zillow, dated December, 2022

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Source: Bloomberg, S&P 500 = S&P 500 Index, Home Builders = S&P 500 Homebuilding Sub Industry GICS Level 4 Index, Home Furnishing = S&P 500 Home Furnishings Index Sub Industry GICS Level 4 Index, Home Improvement = S&P 500 Home Improvement Retail Sub Industry GICS Level 4 Index, dated December, 2022

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Retrieved from Bloomberg, Source: Bureau of Economic Analysis, dated November, 2022

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Source: Zillow, dated November, 2022

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Sources: Fannie Mae, Freddie Mac, Mortgage Bankers Association, National Association of Realtors, & Zillow, dated December, 2022

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Retrieved from Bloomberg, Source: US Census Bureau, dated November, 2022

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Source: National Bureau of Economic Research, dated December, 2022

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Retrieved from Bloomberg, Source: Bureau of Economic Analysis, dated Q3, 2022

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Retrieved from Bloomberg, Sources: US Census Bureau & Bureau of Labor Statistics, dated November, 2022

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Source: Bloomberg, dated December, 2022



DATA SOURCES

Recession date source: National Bureau of Economic Research, Inc.

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Source: Bloomberg, Bloomberg Intermediate US Government/Credit Bond Index, dated December, 2022

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Source: Greenleaf Trust Investment Research, dated December, 2022

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