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2022 MARKET COMMENTARY

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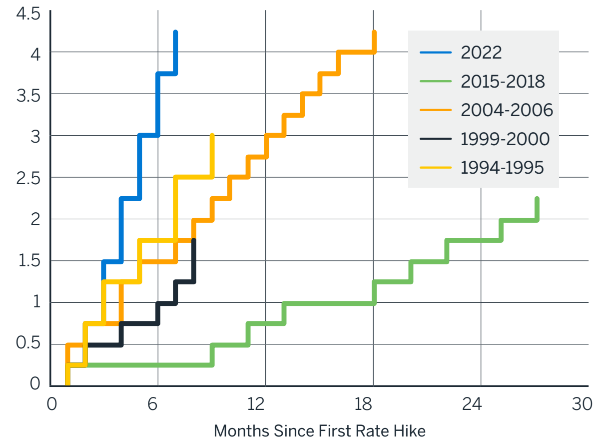
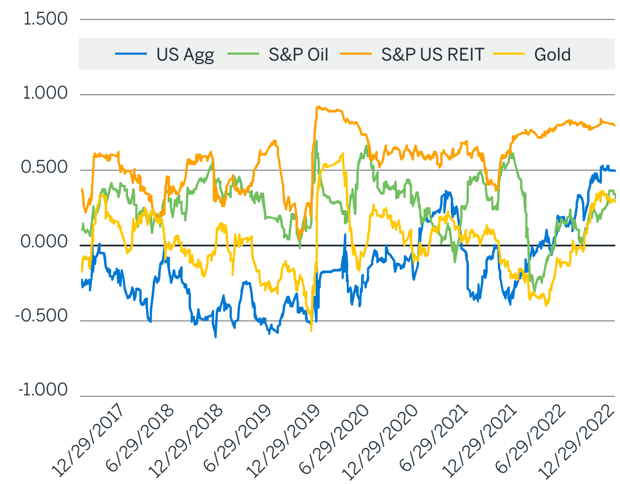
Inflation and Interest Rates

- Inflation proved to be a significant force for equity and fixed income markets in 2022. Inflation peaked at 9.1% year over year in June and finished the year at 6.5%. The surge to 40-year highs prompted the Federal Reserve to raise short term interest rates at an uncommon rate, which resulted in material declines in both bond and equity markets.
  - Monetary tightening through interest rate hikes dragged on bond prices. The Barclays US Aggregate closed out the year down over -13%, the worst year on record for the index since its inception in 1976. Prior to 2022, the index's worst year on record was in 1994, where the index closed the year down -2.9%.
  - Equity markets provided no relief to investors. The S&P 500 closed the year down -18%, with 9 of the 11 GICS sectors finishing in negative territory. The Nasdaq 100 closed the year down -33%, with 74% of the stocks in the index finishing the year in negative territory. Globally, equities did not fare any better.
  - Correlations across asset classes positively converged, leaving investors with limited options to protect their portfolios or produce returns.
- Equities and bonds were able to generate positive returns in the Q4, as investors cautiously navigated further decisions of the Fed to hike rates amid CPI prints that showed inflation was retreating.

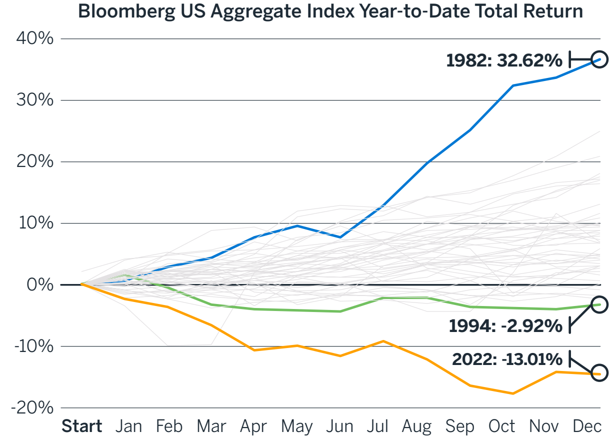
Cumulative Increases to Fed Funds Rate Target During Tightening Cycles



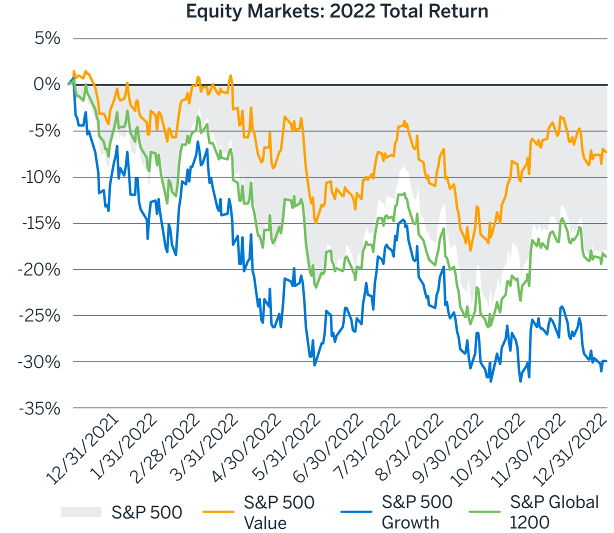
Rolling 3-Month Correlation to S&P 500



Bloomberg US Aggregate Index Year-to-Date Total Return



Equity Markets: 2022 Total Return



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STRATEGY PERFORMANCE

Managed Risk Investments

- Equity markets were turbulent as they headed lower during the year.
- Strategies which deployed downside portfolio protection based on volatility targets and synthetic option overlays softened the impact of the market downturn in 2022 by providing higher returns and lower volatility than corresponding blended non-managed risk portfolios of the S&P 500 and the Bloomberg US Aggregate index.

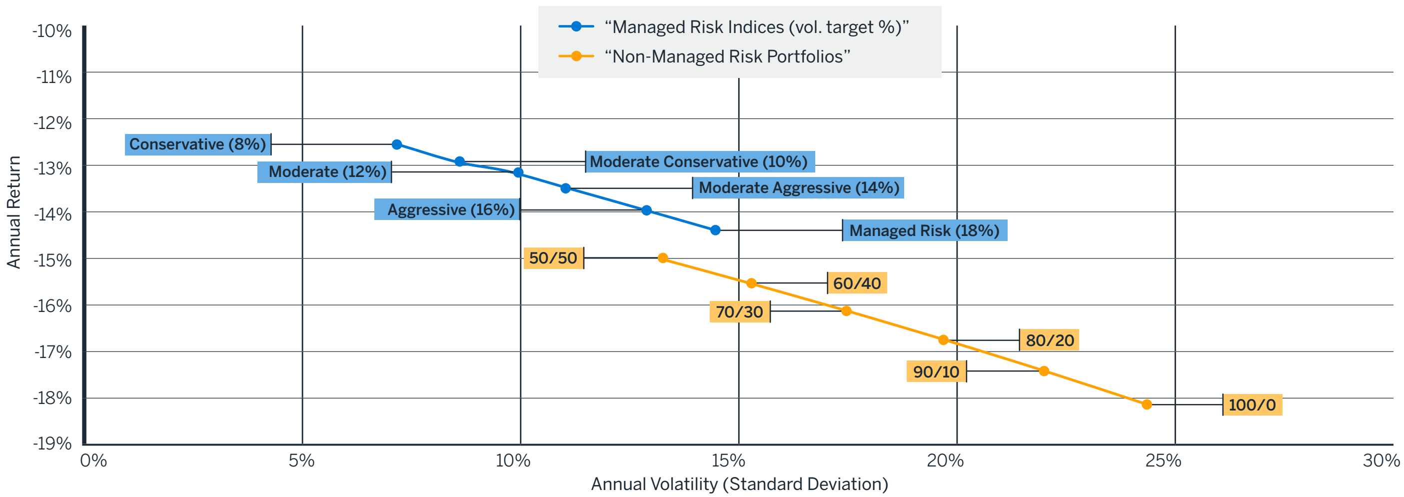
Defined Outcome

- In the defined outcome space, investors benefited from downside hedging offered by equity buffer strategies.
- Cboe's January Series S&P 500 15% Buffer, outperformed the S&P 500 by almost 1400 bps, returning -4.4% in 2022 versus -18.1% for the S&P 500.

Risk Parity

- 2022 proved to be an especially challenging year for risk parity strategies. With elevated volatility in both equity and bond markets paired with steep declines, performance has been underwhelming.

S&P 500 Managed Risk Indices vs. Non-Managed Risk Portfolios*



Total Returns as of December 31, 2022

	S&P 500	70/30 Stock/ Bond Blend*	60/40 Stock/ Bond Blend*	S&P 500 Managed Risk Index (18% Vol. Target)	CBOE S&P 500 15% Buffer Protect Index - January Series	Milliman Risk Parity Growth Index	Milliman Risk Parity Moderate Index
QTD	7.6%	6.0%	5.4%	4.2%	6.7%	4.5%	4.0%
1 Year	-18.1%	-16.1%	-15.6%	-14.3%	-4.4%	-15.7%	-12.9%
5 Year	9.4%	7.1%	6.2%	6.6%	4.7%	1.5%	1.2%
10 Year	12.6%	9.4%	8.2%	10.2%	5.4%	3.0%	2.3%
1YR Vol	24.2%	17.7%	15.6%	14.1%	13.3%	10.6%	8.4%
5YR Vol	21.9%	15.4%	13.3%	13.0%	11.4%	8.2%	6.5%
10YR Vol	17.6%	12.3%	10.6%	12.0%	8.9%	7.8%	5.8%
1YR Max Drawdown	-24.5%	-21.3%	-20.4%	-18.3%	-11.2%	-20.6%	-17.1%
5YR Max Drawdown	-33.8%	-24.7%	-21.5%	-18.3%	-20.0%	-21.5%	-18.0%
10YR Max Drawdown	-33.8%	-24.7%	-21.5%	-18.3%	-20.0%	-21.5%	-18.0%

**Portfolio represented by the S&P 500 Index and the Bloomberg US Agg Index*

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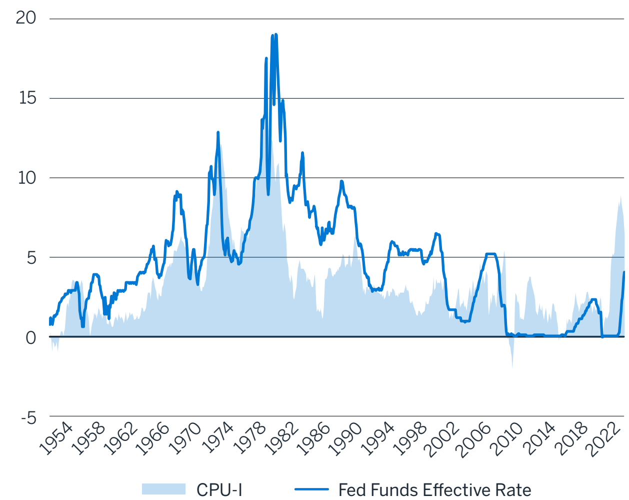
OUTLOOK

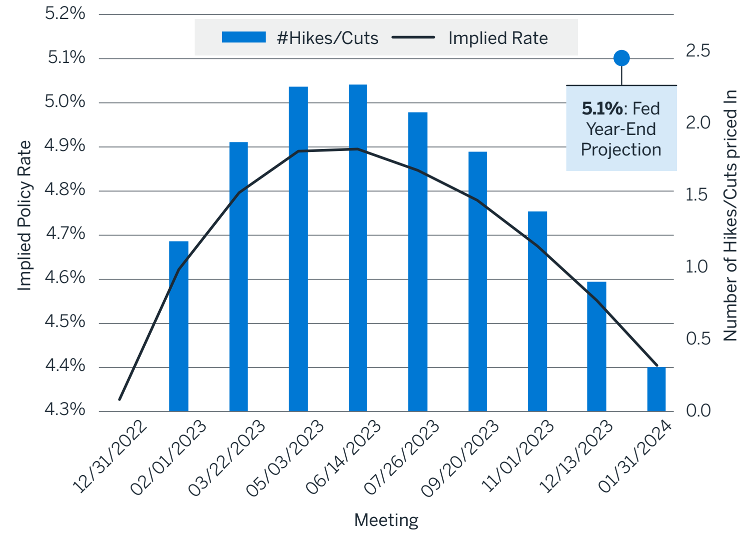
The Fed and Inflation

- Investors enter 2023 with continued focus on the Federal Reserve. By the end of the first quarter in 2023, the Fed is expected to have delivered close to 500 basis points of rate hikes since the start of the current tightening cycle.
- While this has been a successful strategy in combating inflation so far, market consensus is that higher borrowing costs and a stronger U.S. dollar could drag the U.S. economy into a recession in the second half of 2023.
  - History is not on the side of a soft landing.10 of the last 13 hiking cycles have ended in a recession. The Fed also has never lowered inflation by 4% without trigging a recession.
- Expanding on this expectation, the market is currently pricing in the Federal Reserve aggressively cutting interest rates toward the end of 2023, despite the Fed projecting a rate of 5.1% at the end of the year.
- While rate cuts are typically supportive for equity and bond markets, a pivot could undermine the Fed's mission to control inflation.
- If the Federal Reserve is unable to stamp down inflation and yet pivots, there could be a scenario, like in the 1970's, where inflation begins to advance again, and the Fed is again back at square one using policy tools to stabilize prices. Should inflation prove stubborn in decreasing towards a 2% target due to sticky services inflation and/or exported inflation from China's economic reopening, bond prices could suffer if the Fed must hike further and hold for longer than the market is currently pricing in.

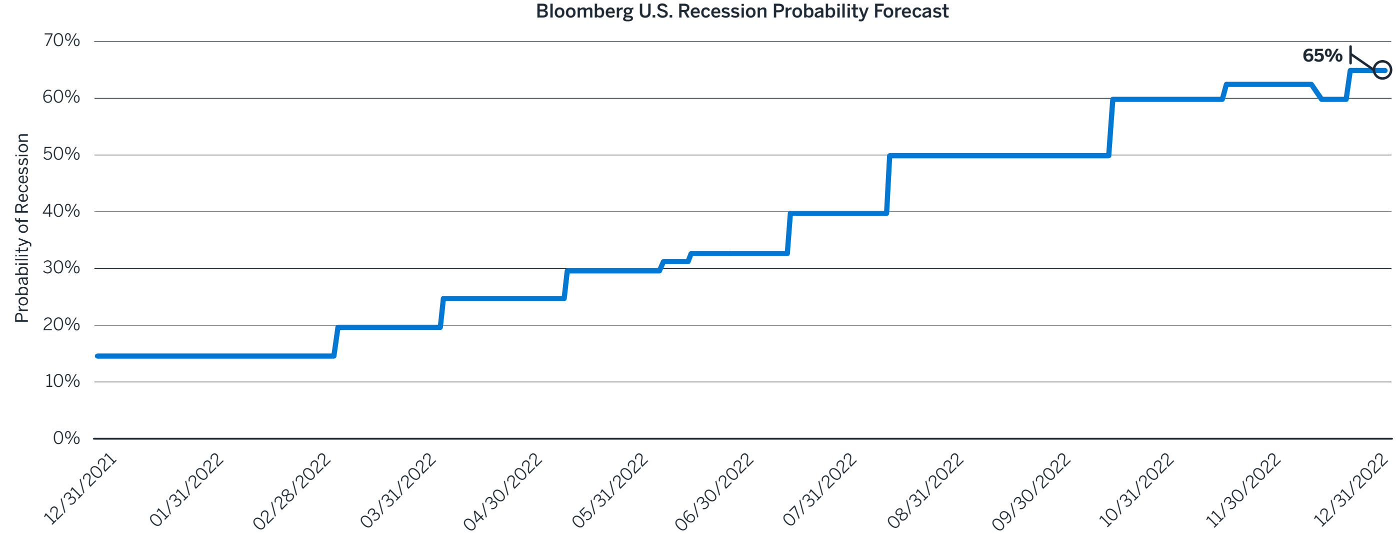
CPI for All Urban Consumers & Fed Funds Rate



Implied Fed Funds Rate & Number of Hikes/Cuts



Bloomberg U.S. Recession Probability Forecast



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CHICAGO

71 South Wacker Drive
Chicago, IL 60606
+1 855 645 5462

LONDON

11 Old Jewry
London
EC2R 8DU
UK
+44 0 20 7847 1557

AMSTERDAM

Haaksbergweg 75
Amsterdam
1101 BR
Netherlands
+31 6 211 70 583

SYDNEY

32 Walker Street
North Sydney, NSW 2060
Australia
+610 2 8090 9100

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Definitions:

Standard Deviation: measures volatility in the market or the average amount by which individual data points differ from the mean. **Bloomberg US Aggregate Index:** a broad-based flagship benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market. **NASDAQ 100 Index:** a modified capitalization-weighed index of the 100 largest and most active non-financial domestic and international issues listed on the NASDAQ. **S&P 500:** widely regarded as the best single gauge of large-cap U.S. equities and serves as the foundation for a wide range of investment products. The index includes 500 leading companies and captures approximately 80% coverage of available market capitalization. **S&P Oil:** S&P GSCI Crude Oil Total Return CME Index. The index is weighted based on world production and it uses spot prices to calculate price. **S&P US REIT:** defines and measures the investable universe of publicly traded real estate investment trusts domiciled in the United States. **S&P 500 Value:** measures the performance of the large-capitalization value segment in the U.S. equity market. The Index consists of those stocks in the S&P 500 Index exhibiting the strongest value characteristics based on: (i) book value to price ratio; (ii) earnings to price ratio; and (iii) sales to price ratio. **S&P 500 Growth:** measures the performance of the large-capitalization growth segment in the U.S. equity market. The Index consists of those stocks in the S&P 500 Index exhibiting the strongest growth characteristics based on: (i) momentum; (ii) earnings to price ratio; and (iii) sales to price ratio. **S&P Global 1200:** global equity index, captures approximately 70% of the world's market capitalization. It is a composite of seven headline regional indices: S&P 500®, S&P Europe 350®, S&P TOPIX 150, S&P/TSX 60, S&P/ASX All Australian 50, S&P Asia 50, and S&P Latin America 40. **CPI:** a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. **Correlation:** describes the relationship that exists between two indices or securities and their respective price movements. **Basis Points (bps):** Standard measure of percentages in finance. One basis point is one hundredth of one percent. **Drawdown:** How much the price of an index or security is down from the peak before it recovers back to the peak.

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