



# HIGHTOWER

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## Quarterly Considerations

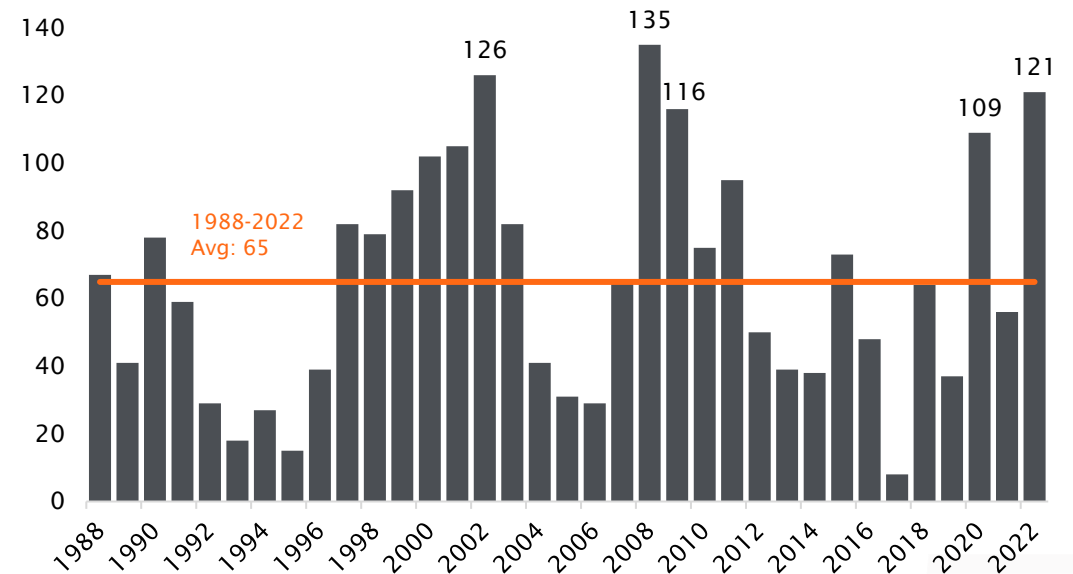
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Q4 2022

1. High inflation, which catalyzed the Fed's hike campaign, fears of recession and geopolitical risks all contributed to the elevated volatility environment in 2022. We expect volatility to persist in 2023 and the abnormally low volatility regime of the last decade may be over.
2. Returns in 2022 were driven by multiple compression, which typically precede earnings declines in the business cycle. While difficult to call the bottom, we believe we are closer to the bear market end rather than the beginning.
3. The Bloomberg Agg Bond Index had its worst year on record, but the pain from falling prices pushed yields to levels not seen in nearly 15 years making prospective fixed income returns more compelling.

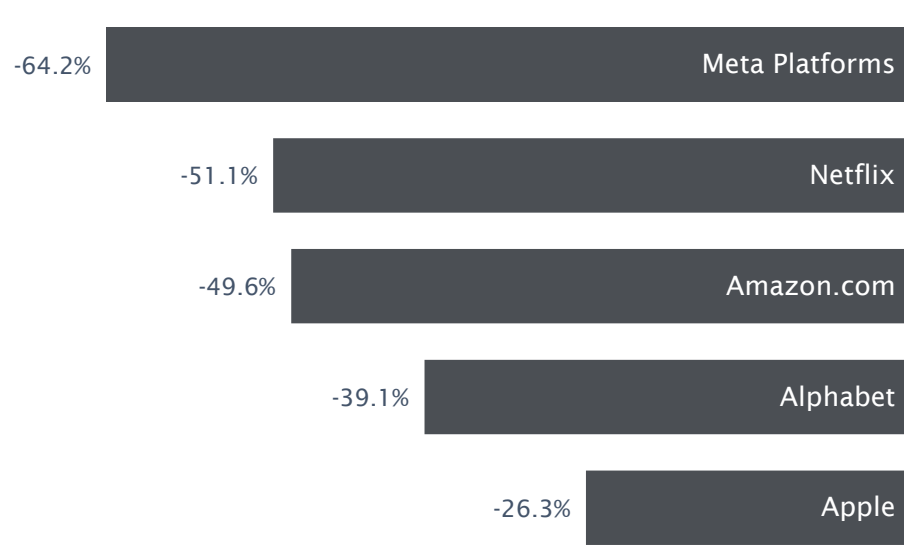
## Number Of Days With S&P 500 Return At Least +/- 1%

The S&P 500 had the most days of moving at least +/- one percent since the global financial crisis in 2008.



## FAANG Stocks Performance 2022

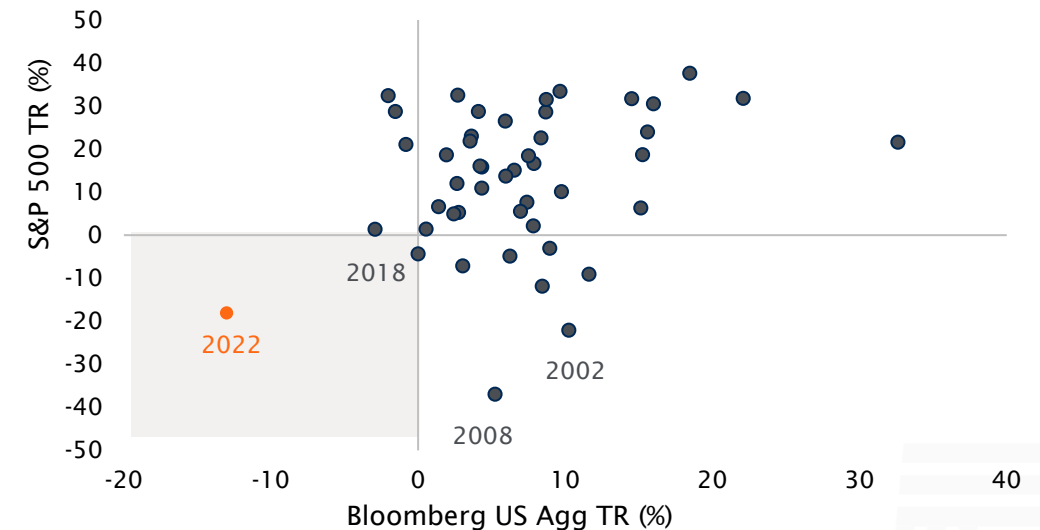
Multiple compression has been the driver of performance this year for equities and many higher P/E stocks have re-rated materially lower. The S&P 500 has seen modest earnings growth this year, however, if the energy component is removed, earnings for the S&P 500 are expected to decline by 1.8 percent in 2022.



Sources: Morningstar Direct, FactSet. As of December 31, 2022.

## Nowhere To Hide In 2022 – Equity vs. Fixed Income Returns

2022 was the first year on record where both the Bloomberg Agg and S&P 500 indices experienced negative returns. The traditional diversification benefits of fixed income were muted in 2022, but with interest rates higher we expect this paradigm to revert to historical norms.



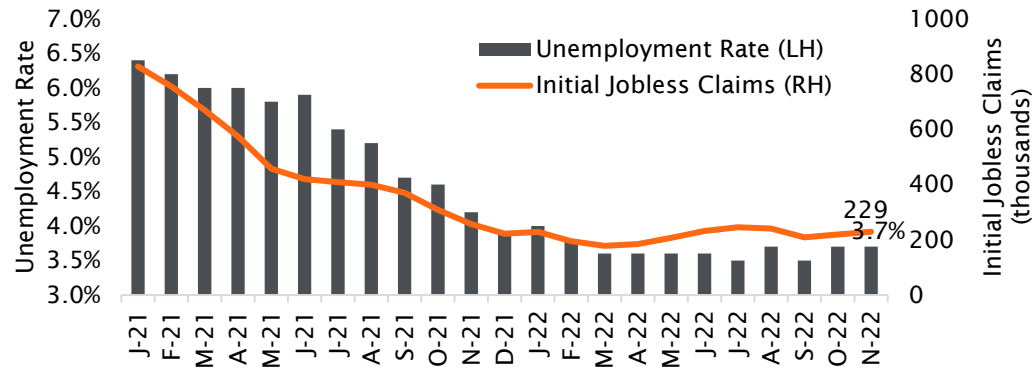
Source: Morningstar Direct. Calendar year data 1976 to 2022.

# Economic Update



## Tight Labor Market

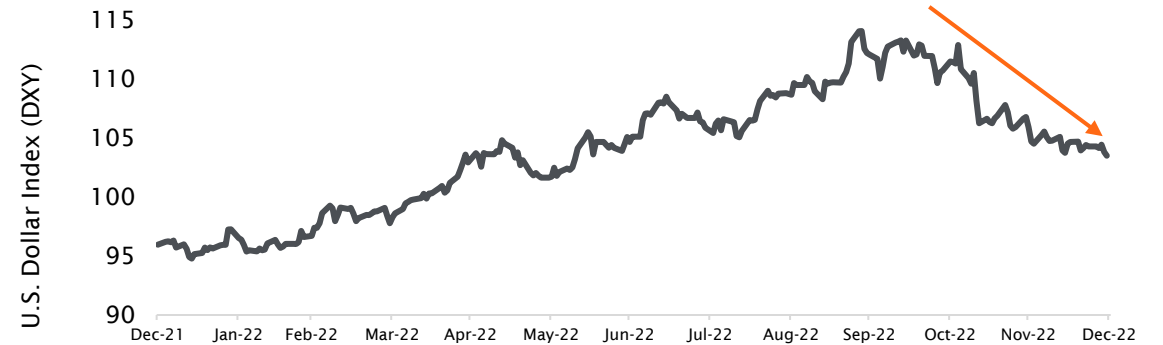
The U.S. labor market has been resilient, providing a solid foundation for the U.S. consumer, the backbone of the economy. However, strong labor data may support further Fed action in its effort to combat elevated inflation.



Sources: FactSet, DOL. As of November 30, 2022.

## U.S. Dollar Falls of Recent Highs

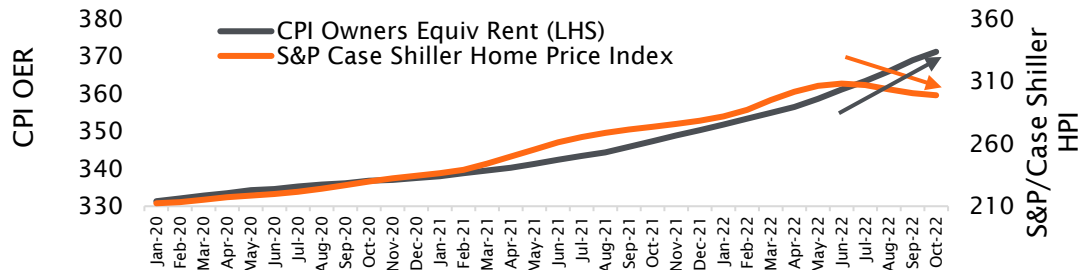
Softening inflation in the U.S., expectations for less hawkish Fed actions, and the BOJ shifting its yield curve control target higher led to a weakening U.S. dollar late in the year; DXY declined 7.7 percent in the fourth quarter.



Source: FactSet. As of December 31, 2022

## Will Rents Follow Home Prices?

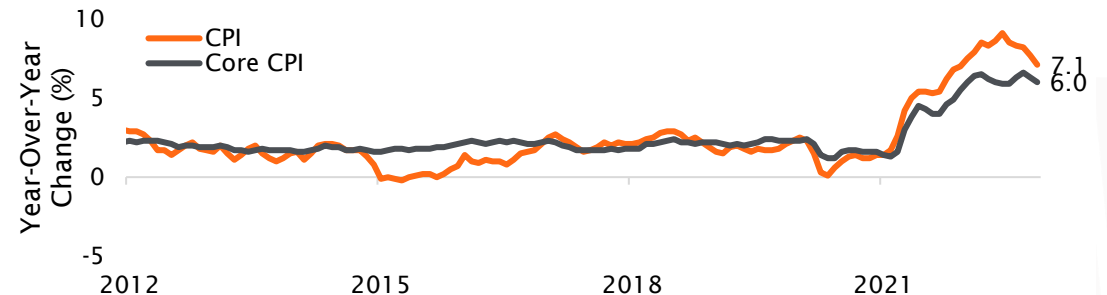
Tighter financial conditions have led to higher mortgages rates and subsequently lower home prices. However, owners equivalent rent, one of the primary components of CPI, has yet to show signs of slowing.



Sources: FactSet, BLS, S&P/Case Shiller. As of October 31, 2022

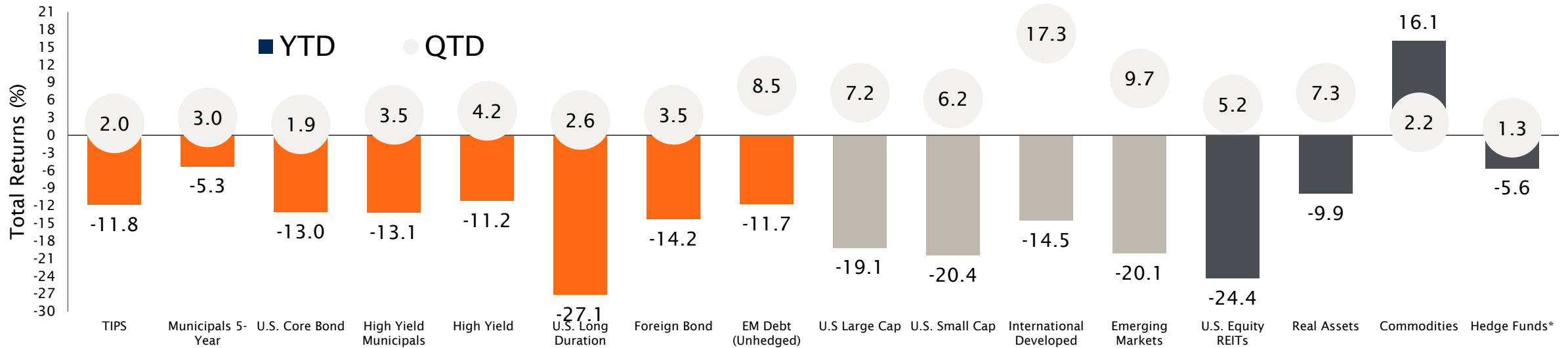
## U.S. Inflation

Inflation is trending lower. Fed policy impacts prices on a lagged basis and we may see inflation moderate further as its actions work through the system. The shelter component remains a driving factor as rents remain elevated.



Sources: FactSet, BLS. As of November 30, 2022.

# Asset Class Returns



Source: Morningstar Direct. As of December 31, 2022. \*Hedge fund returns as of November 30, 2022.

## Fixed Income (4Q)

- + Lower inflation readings mid-quarter pushed rates lower and helped drive fixed income returns for the quarter. The Fed raised rates by 50 basis points in December, marking its seventh increase of the year.
- + Spread sectors generally outpaced governments in the quarter in the risk-on environment. High yield generated favorable returns.
- + A weaker U.S. dollar and favorable news out of emerging countries, in particular China on “zero-Covid”, helped propel non-US bond prices higher.

## Equity (4Q)

- + Risk assets rallied in the fourth quarter, fueled by favorable inflation prints and expectations for subdued central bank action in 2023.
- + International developed markets had a standout quarter. Notable strength came from Europe as energy price concerns diminished and a weakening U.S. dollar provided further support.
- + Clarity around China’s “zero-Covid” policy provided a tailwind for the country and subsequently the broader EM space. Mexico also performed well on the back of positive economic news.

## Real Asset / Alternatives (4Q)

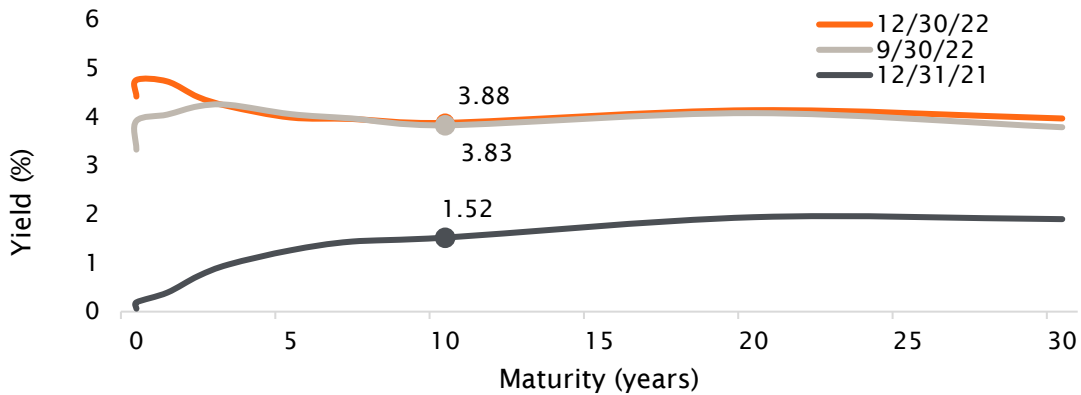
- + Commodity markets rose modestly in the quarter and remain the standout for the calendar year. Industrial and precious metals drove returns, while energy detracted as prices continued to moderate from post-Russia invasion peaks.
- + REITs had a strong quarter. Retail oriented and data centers were among the top contributors while residential REITs declined.
- + Hedge Funds were modestly positive in the quarter and continue to provide favorable results relative to traditional equities and fixed income.

# Fixed Income Market Update



## U.S. Treasury Yield Curve

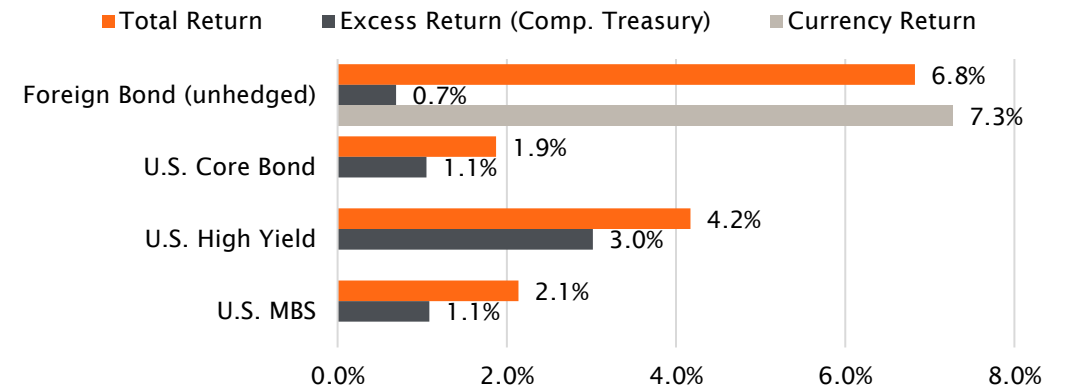
The Fed raised its target rate by 50 basis points in December, capping off the year with its seventh hike for a total of 425 basis points in 2022. Rates were volatile in the quarter as the 10-year pushed past 4.2 percent before falling below 3.7 percent and ultimately ending 5 basis points higher than it started.



Source: FactSet. As of December 30, 2022.

## Index Performance Attribution (4Q 2022)

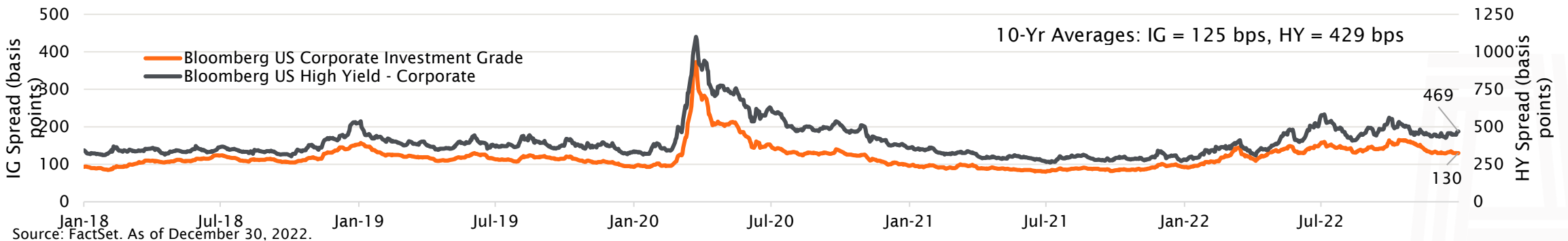
Spread sectors of the bond market outpaced Treasuries in the fourth quarter in the risk-on environment. A falling U.S. dollar against major currencies proved to be beneficial for non-U.S. bonds.



Source: FactSet. As of December 30, 2022.

## Corporate Market Spreads - Trailing 5 Years

Corporate credit spreads were tighter during the fourth quarter. Investment grade spreads compressed 34 basis points while high yield spreads were 92 basis points lower. Risk-on sentiment helped fuel the sector. Additionally, limited issuance in both quality segments provided a technical tailwind.

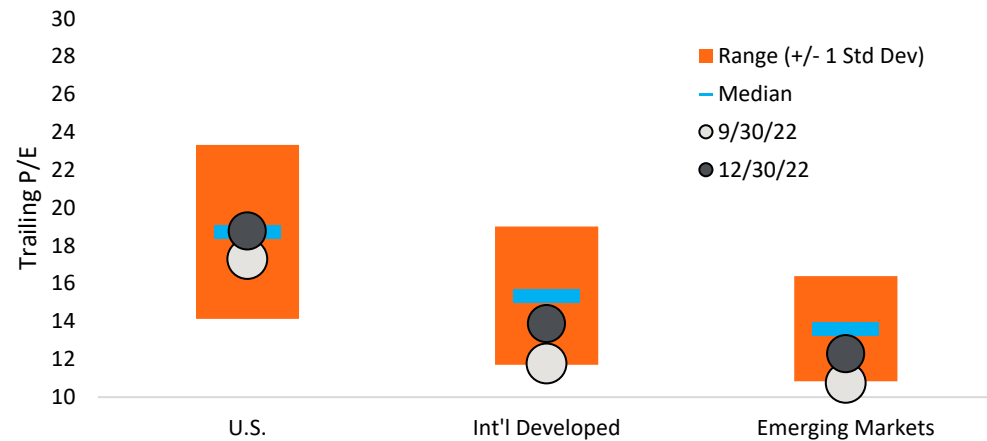


Source: FactSet. As of December 30, 2022.

# Equity Market Update

## Equity Valuations (Trailing PE - Last 15 Years)

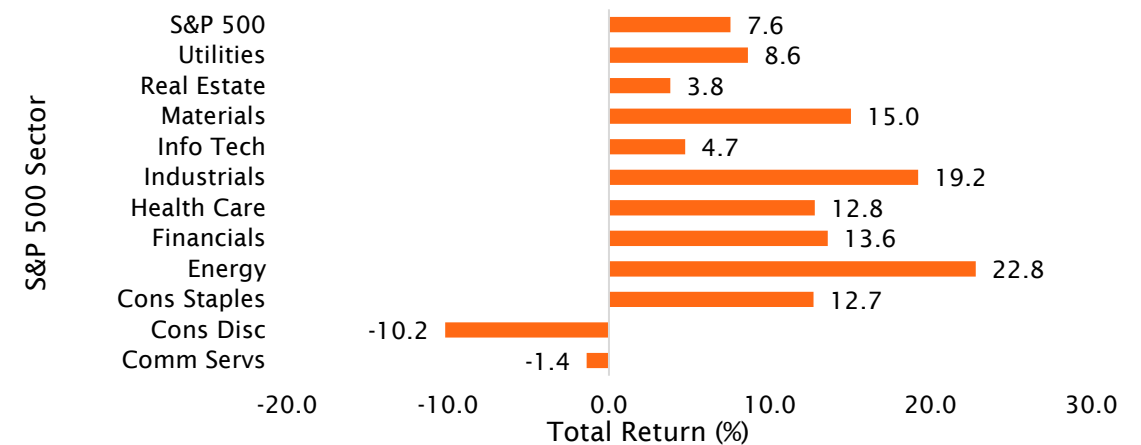
Positive equity markets in the fourth quarter shifted valuations slightly higher as earnings ticked lower. International markets look more attractive on a relative basis compared to the U.S.



Source: FactSet. As of December 30, 2022.

## U.S. Equities - Return by Sector (4Q 2022)

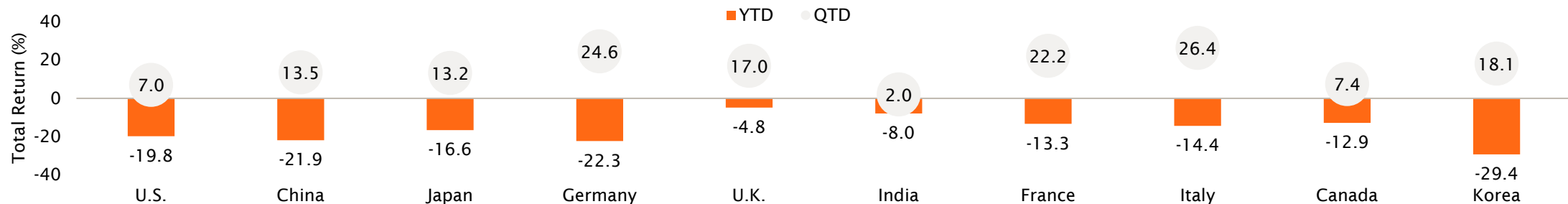
U.S. equities were broadly positive on the back of softening inflation data and the prospect of less aggressive Fed policy action in 2023. However, Amazon and Tesla, down over 20% and 50%, respectively, drove consumer discretionary lower.



Source: Morningstar Direct. As of December 31, 2022.

## Country Total Returns (%) - Top 10 Largest Economies

Equity markets around the globe benefited from the risk-on investor sentiment in the fourth quarter. A host of factors fueled strength across regions. The U.K. market jumped following the replacement of Prime Minister Truss and clarity around the country's budget. European countries broadly benefited as expectations for a warmer winter began to take hold and concerns about commodity prices abated. Chinese equities rallied on the reopening trade as "zero-Covid" restrictions were lifted.



Source: Morningstar Direct. As of December 31, 2022.

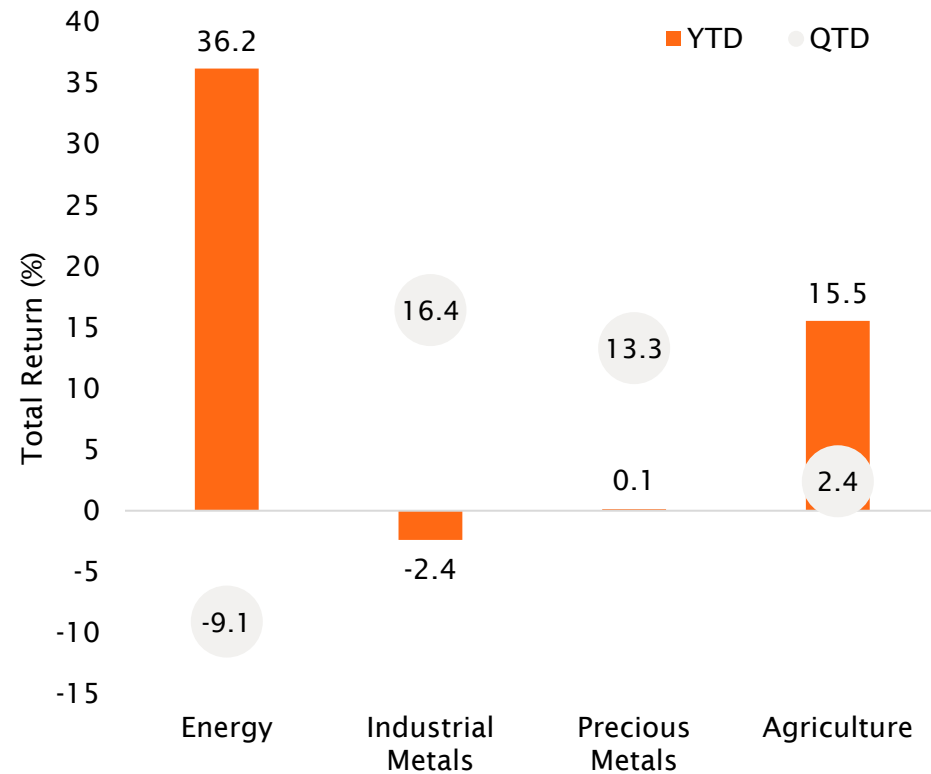
See disclosures for list of indices representing each asset class. Past performance does not indicate future performance and there is a possibility of a loss. Indices cannot be invested in directly.

# Real Asset Market Update



## Commodity Performance

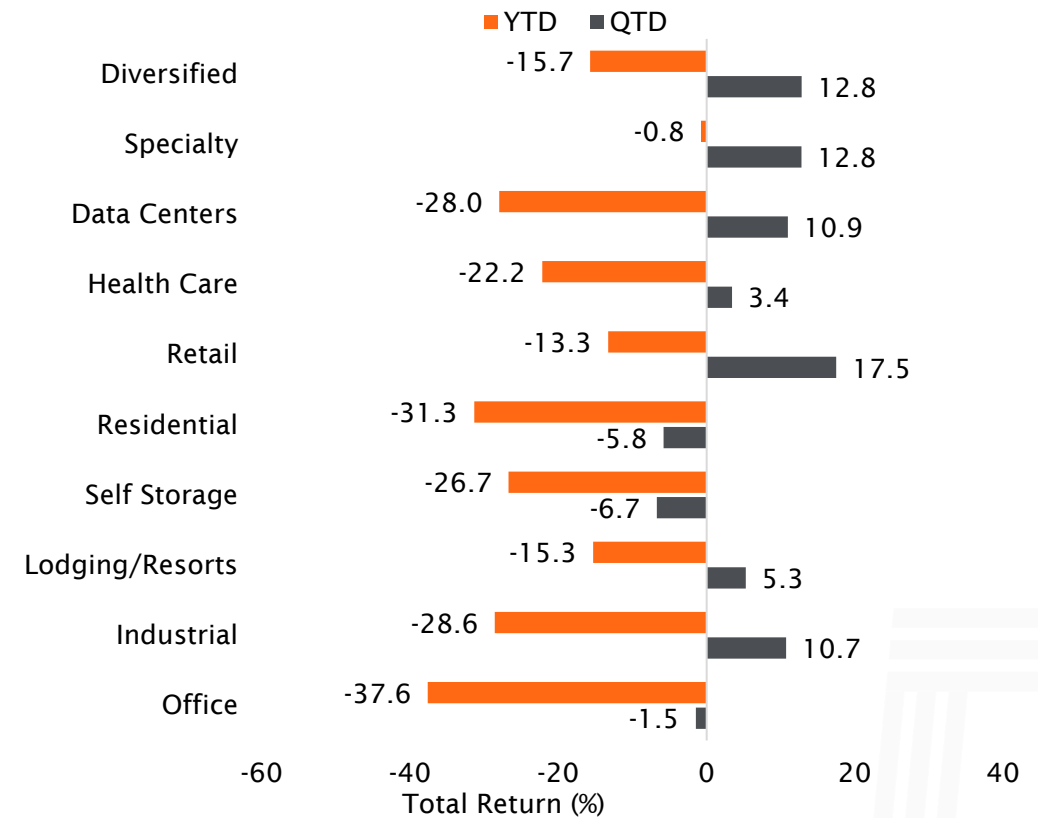
Commodities advanced during the fourth quarter, rounding out a strong year. Energy weakness was due to natural gas, whose prices retreated sharply on weaker demand from a warmer than anticipated start to the winter. Elsewhere, a weaker dollar supported industrial and precious metals.



Source: Morningstar Direct. As of December 31, 2022.

## REIT Sector Performance

REITs posted their first quarterly gain in 2022, benefiting from cooler than anticipated inflation data and expectations of a subsequent easing of Fed rate hikes. The retail segment was a notable outperformer, with particular strength from regional malls.



Source: Morningstar Direct. As of December 31, 2022.



# The Case for Diversification



2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	10 Years (Ann)
Emerging Markets 18.2	U.S. Small Cap 38.8	U.S. Equity REITs 30.1	U.S. Equity REITs 3.2	U.S. Small Cap 21.3	Emerging Markets 37.3	High Yield Munis 4.8	U.S. Large Cap 31.5	U.S. Small Cap 20.0	U.S. Equity REITs 43.2	Commodities 16.1	U.S. Large Cap 12.4
High Yield Munis 18.1	U.S. Large Cap 32.4	High Yield Munis 13.8	Municipals 5-Year 2.4	High Yield 17.1	International Dev. 25.0	Municipals 5-Year 1.7	U.S. Equity REITs 26.0	U.S. Large Cap 18.4	Commodities 27.1	Municipals 5-Year -5.3	U.S. Small Cap 9.0
U.S. Equity REITs 18.1	International Dev. 22.8	U.S. Large Cap 13.7	High Yield Munis 1.8	U.S. Large Cap 12.0	U.S. Large Cap 21.8	Foreign Bond 0.5	U.S. Small Cap 25.5	Emerging Markets 18.3	US Large Cap 26.5	Hedge Funds -5.6	U.S. Equity REITs 6.5
International Dev. 17.3	Balanced 12.2	Core Bond 6.0	U.S. Large Cap 1.4	Commodities 11.7	EM Debt (unhedged) 15.2	Core Bond 0.0	International Dev. 22.5	TIPS 11.0	US Small Cap 14.8	High Yield -11.2	International Developed 4.7
EM Debt (unhedged) 16.9	Hedge Funds 9.0	Balanced 5.1	Core Bond 0.6	Emerging Markets 11.2	U.S. Small Cap 14.6	TIPS -1.3	Emerging Markets 18.4	Balanced 8.8	International Dev. 11.3	EM Debt (unhedged) -11.7	Balanced 4.4
U.S. Small Cap 16.3	High Yield 7.4	U.S. Small Cap 4.9	Hedge Funds -0.3	EM Debt (unhedged) 9.9	Balanced 13.6	High Yield -2.1	Balanced 17.5	International Dev. 7.8	Balanced 9.8	TIPS -11.8	High Yield 4.0
U.S. Large Cap 16.0	U.S. Equity REITs 2.5	TIPS 3.6	International Dev. -0.8	U.S. Equity REITs 8.5	High Yield Munis 9.7	Hedge Funds -4.0	High Yield 14.3	Core Bond 7.5	High Yield Munis 7.8	U.S. Core Bond -13.0	Hedge Funds 3.6
High Yield 15.8	Municipals 5-Year 0.8	Hedge Funds 3.4	TIPS -1.4	Balanced 7.6	Hedge Funds 7.8	U.S. Large Cap -4.4	EM Debt (unhedged) 13.5	Hedge Funds 7.1	TIPS 6.0	High Yield Municipals -13.1	High Yield Municipals 3.5
Balanced 11.5	Foreign Bond -1.0	Municipals 5-Year 3.2	Foreign Bond -2.3	TIPS 4.7	High Yield 7.5	U.S. Equity REITs -4.6	High Yield Munis 10.7	High Yield 7.1	Hedge Funds 5.7	Foreign Bond -14.2	Municipals 5-Year 1.5
TIPS 7.0	Core Bond -2.0	Foreign Bond 2.9	Balanced -3.3	Foreign Bond 3.2	Foreign Bond 6.5	Balanced -5.8	Core Bond 8.7	Foreign Bond 7.0	High Yield 5.3	International Developed -14.5	Emerging Markets 1.4
Foreign Bond 5.3	Emerging Markets -2.6	High Yield 2.5	U.S. Small Cap -4.4	High Yield Munis 3.0	U.S. Equity REITs 5.2	EM Debt (unhedged) -6.2	TIPS 8.4	High Yield Munis 4.9	Municipals 5-Year 0.3	Balanced -14.9	TIPS 1.1
Hedge Funds 4.8	High Yield Munis -5.5	Emerging Markets -2.2	High Yield -4.5	Core Bond 2.6	Core Bond 3.5	U.S. Small Cap -11.0	Hedge Funds 7.8	Municipals 5-Year 4.3	Core Bond -1.5	U.S. Large Cap -19.1	U.S. Core Bond 1.1
Core Bond 4.2	TIPS -8.6	International Dev. -4.9	Emerging Markets -14.9	International Dev. 1.0	Municipals 5-Year 3.1	Commodities -11.2	Commodities 7.7	EM Debt (unhedged) 2.7	Emerging Markets -2.5	Emerging Markets -20.1	Foreign Bond 0.2
Municipals 5-Year 3.0	EM Debt (unhedged) -9.0	EM Debt (unhedged) -5.7	EM Debt (unhedged) -14.9	Hedge Funds 0.5	TIPS 3.0	International Dev. -13.8	Foreign Bond 6.3	Commodities -3.1	Foreign Bond -4.2	U.S. Small Cap -20.4	Commodities -1.3
Commodities -1.1	Commodities -9.5	Commodities -17.0	Commodities -24.7	Municipals 5-Year -0.4	Commodities 1.7	Emerging Markets -14.6	Municipals 5-Year 5.4	U.S. Equity REITs -8.0	EM Debt (unhedged) -8.7	U.S. Equity REITs -24.4	EM Debt (unhedged) -2.0

Sources: Morningstar, FactSet. As of December 31, 2022. \*Periods greater than one year are annualized. Total returns in U.S. dollars. Hedge Funds as of November 30, 2022.

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# Financial Markets Performance



Total Return as of December 31, 2022 | Periods greater than one year are annualized | All returns are in U.S. dollar terms

Global Fixed Income Markets	QTD	YTD	1YR	3YR	5YR	7YR	10YR	15YR
Bloomberg 1-3-Month T-Bill	0.9%	1.5%	1.5%	0.7%	1.2%	1.0%	0.7%	0.6%
Bloomberg U.S. TIPS	2.0%	-11.8%	-11.8%	1.2%	2.1%	2.6%	1.1%	3.1%
Bloomberg Municipal Bond (5 Year)	3.0%	-5.3%	-5.3%	-0.3%	1.2%	1.3%	1.5%	2.8%
Bloomberg High Yield Municipal Bond	3.5%	-13.1%	-13.1%	-0.6%	2.6%	3.7%	3.5%	4.4%
Bloomberg U.S. Aggregate	1.9%	-13.0%	-13.0%	-2.7%	0.0%	0.9%	1.1%	2.7%
Bloomberg U.S. Corporate High Yield	4.2%	-11.2%	-11.2%	0.0%	2.3%	5.0%	4.0%	6.1%
Bloomberg Global Aggregate ex-U.S. Hedged	0.2%	-9.8%	-9.8%	-2.6%	0.5%	1.4%	2.1%	3.0%
Bloomberg Global Aggregate ex-U.S. Unhedged	6.8%	-18.7%	-18.7%	-5.9%	-3.1%	-0.6%	-1.6%	0.5%
Bloomberg U.S. Long Gov / Credit	2.6%	-27.1%	-27.1%	-6.2%	-1.2%	1.5%	1.6%	4.4%
JPMorgan GBI-EM Global Diversified	8.5%	-11.7%	-11.7%	-6.1%	-2.5%	1.6%	-2.0%	1.5%
Global Equity Markets	QTD	YTD	1YR	3YR	5YR	7YR	10YR	15YR
S&P 500	7.6%	-18.1%	-18.1%	7.7%	9.4%	11.5%	12.6%	8.8%
Dow Jones Industrial Average	16.0%	-6.9%	-6.9%	7.3%	8.4%	12.1%	12.3%	9.0%
NASDAQ Composite	-0.8%	-32.5%	-32.5%	6.1%	9.7%	12.2%	14.4%	10.7%
Russell 3000	7.2%	-19.2%	-19.2%	7.1%	8.8%	11.0%	12.1%	8.7%
Russell 1000	7.2%	-19.1%	-19.1%	7.3%	9.1%	11.3%	12.4%	8.8%
Russell 1000 Growth	2.2%	-29.1%	-29.1%	7.8%	11.0%	12.9%	14.1%	10.3%
Russell 1000 Value	12.4%	-7.5%	-7.5%	6.0%	6.7%	9.1%	10.3%	7.0%
Russell Mid Cap	9.2%	-17.3%	-17.3%	5.9%	7.1%	9.6%	11.0%	8.4%
Russell Mid Cap Growth	6.9%	-26.7%	-26.7%	3.8%	7.6%	10.0%	11.4%	8.6%
Russell Mid Cap Value	10.5%	-12.0%	-12.0%	5.8%	5.7%	8.7%	10.1%	8.0%
Russell 2000	6.2%	-20.4%	-20.4%	3.1%	4.1%	7.9%	9.0%	7.2%
Russell 2000 Growth	4.1%	-26.4%	-26.4%	0.6%	3.5%	7.1%	9.2%	7.3%
Russell 2000 Value	8.4%	-14.5%	-14.5%	4.7%	4.1%	8.2%	8.5%	6.8%
MSCI ACWI	9.8%	-18.4%	-18.4%	4.0%	5.2%	8.1%	8.0%	4.8%
MSCI ACWI ex. U.S.	14.3%	-16.0%	-16.0%	0.1%	0.9%	4.8%	3.8%	1.5%
MSCI EAFE	17.3%	-14.5%	-14.5%	0.9%	1.5%	4.5%	4.7%	1.8%
MSCI EAFE Growth	15.0%	-22.9%	-22.9%	0.5%	2.5%	5.1%	5.6%	2.6%
MSCI EAFE Value	19.6%	-5.6%	-5.6%	0.6%	0.2%	3.7%	3.5%	0.8%
MSCI EAFE Small Cap	15.8%	-21.4%	-21.4%	-0.9%	0.0%	4.4%	6.2%	3.8%
MSCI Emerging Markets	9.7%	-20.1%	-20.1%	-2.7%	-1.4%	5.2%	1.4%	0.6%
Alternatives	QTD	YTD	1YR	3YR	5YR	7YR	10YR	15YR
Consumer Price Index*	0.5%	6.5%	7.1%	5.0%	3.8%	3.3%	2.6%	2.3%
FTSE NAREIT Equity REITs	5.2%	-24.4%	-24.4%	-0.1%	3.7%	4.6%	6.5%	6.2%
S&P Real Assets	7.3%	-9.9%	-9.9%	1.7%	3.0%	5.2%	3.5%	4.0%
FTSE EPRA NAREIT Developed	7.1%	-24.4%	-24.4%	-4.1%	0.7%	2.8%	3.9%	2.9%
FTSE EPRA NAREIT Developed ex U.S.	10.5%	-23.8%	-23.8%	-8.2%	-2.3%	1.3%	1.5%	0.6%
Bloomberg Commodity Total Return	2.2%	16.1%	16.1%	12.6%	6.4%	6.5%	-1.3%	-2.6%
HFRI Fund of Funds Composite*	1.3%	-5.6%	-5.3%	4.1%	3.1%	3.2%	3.6%	1.7%
HFRI Asset Weighted Composite*	-2.4%	0.5%	2.3%	3.8%	3.4%	3.6%	4.1%	0.0%
Alerian MLP	10.1%	30.9%	30.9%	9.4%	4.1%	4.4%	2.0%	5.4%

Sources: Morningstar, FactSet. As of December 31, 2022. \*Consumer Price Index and HFRI indexes as of November 30, 2022.

See disclosures for list of indices representing each asset class. Past performance does not indicate future performance and there is a possibility of a loss. Indices cannot be invested in directly.

# Disclosures and Definitions



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When referencing asset class returns or statistics, the following indices are used to represent those asset classes, unless otherwise noted. Each index is unmanaged, and investors can not actually invest directly into an index:

TIPS: Bloomberg US Treasury US TIPS TR USD

Municipals 5-Year: Bloomberg Municipal Bond 5 Year (4-6) TR USD

U.S. Core Bond: Bloomberg US Aggregate Bond TR USD

High Yield Municipals: Bloomberg HY Muni TR USD

High Yield: Bloomberg US Corporate High Yield TR USD

U.S. Long Duration: Bloomberg U.S. Long Government/Credit TR USD

Foreign Bond: Bloomberg Global Aggregate ex-USD TR USD (50/50 blend of hedged and unhedged)

EM Debt (unhedged): J.P. Morgan GBI-EM Global Diversified Composite Unhedged TR USD

U.S. Large Cap: Russell 1000 TR USD

U.S. Small Cap : Russell 2000 TR USD

International Developed: MSCI EAFE NR USD

Emerging Markets: MSCI Emerging Markets NR USD

U.S. Equity REITs: FTSE Nareit Equity REITs TR USD

Real Assets: S&P Real Assets TR USD

Commodities: Bloomberg Commodity TR USD

Hedge Funds: Hedge Fund Research HFRI Fund of Funds Composite USD

Foreign Bond Unhedged: Bloomberg Global Aggregate ex USD TR USD unhedged

U.S. MBS: Bloomberg US MBS (30Y) TR USD

Balanced: 18% U.S. Large Cap, 6% U.S. Small Cap, 5% U.S. Equity REITs, 16% International Developed, 4% High Yield, 8% Emerging Markets, 3% TIPS, 33% U.S. Core Bond, 2% Foreign Bond, 3% Commodities, 2% EM Debt (unhedged).

Equity valuations are based on trailing 12-month P/E ratios for S&P 500 Index (U.S.), MSCI EAFE Index (Int'l Developed), and MSCI EM Index (Emerging Markets)

S&P 500 sector performance based on the following indices: S&P 500 Sec/Commun Services TR USD, S&P 500 Sec/Financials TR USD, S&P 500 Sec/Energy TR USD, S&P 500 Sec/Industrials TR USD, S&P 500 TR USD, S&P 500 Sec/Health Care TR USD, S&P 500 Sec/Cons Disc TR USD, S&P 500 Sec/Utilities TR USD, S&P 500 Sec/Cons Staples TR USD, S&P 500 Sec/Materials TR USD, S&P 500 Sec/Information Technology TR USD, S&P 500 Sec/Real Estate TR USD

Equity country returns based on the following indices: U.S.: MSCI USA NR USD, China: MSCI CHINA NR USD, Japan: MSCI Japan NR USD, Germany: MSCI Germany NR USD, United Kingdom: MSCI NR USD, India: MSCI India NR USD, France: MSCI France NR USD, Italy: MSCI Italy NR USD, Canada: MSCI Canada NR USD, Korea: MSCI Korea NR USD, Energy:

Commodity Performance based on the following indices: Energy: Bloomberg Sub Energy TR USD, Industrial Metals: Bloomberg Sub Industrial Metals TR USD, Precious Metals: Bloomberg Sub Precious Metals TR USD, Agriculture: Bloomberg Sub Agriculture TR USD

REIT sector performance is based on the following indices: FTSE Nareit Equity Health Care TR, FTSE Nareit Equity Lodging/Resorts TR, FTSE Nareit Equity Office TR, FTSE Nareit Equity Data Centers TR, FTSE Nareit Equity Diversified TR, FTSE Nareit Equity Specialty TR, FTSE Nareit Equity Retail TR, FTSE Nareit Equity Residential TR, FTSE Nareit Equity Industrial TR, FTSE Nareit Equity Self Storage TR

Marketable Alternatives indices used include HFRI Fund of Funds Composite Index, HFRI Asset Weighted Composite Index, HFRI Equity Hedge (Total) Index – Asset Weighted, HFRI Event Driven (Total) Index – Asset Weighted, HFRI Macro (Total) Index – Asset Weighted, HFRI Relative Value (Total) Index – Asset Weighted. HFRI Fund of Funds Composite Index is not asset weighted.

# Material Risks & Limitations



**Fixed Income** securities are subject to interest rate risks, the risk of default and liquidity risk. U.S. investors exposed to non-U.S. fixed income may also be subject to currency risk and fluctuations.

**Cash** may be subject to the loss of principal and over longer period of time may lose purchasing power due to inflation.

**Domestic Equity** can be volatile. The rise or fall in prices take place for a number of reasons including, but not limited to changes to underlying company conditions, sector or industry factors, or other macro events. These may happen quickly and unpredictably.

**International Equity** can be volatile. The rise or fall in prices take place for a number of reasons including, but not limited to changes to underlying company conditions, sector or industry impacts, or other macro events. These may happen quickly and unpredictably. International equity allocations may also be impact by currency and/or country specific risks which may result in lower liquidity in some markets.

**Real Assets** can be volatile and may include asset segments that may have greater volatility than investment in traditional equity securities. Such volatility could be influenced by a myriad of factors including, but not limited to overall market volatility, changes in interest rates, political and regulatory developments, or other exogenous events like weather or natural disaster.

**Private Equity** involves higher risk and is suitable only for sophisticated investors. Along with traditional equity market risks, private equity investments are also subject to higher fees, lower liquidity and the potential for leverage that may amplify volatility and/or the potential loss of capital.

**Private Credit** involves higher risk and is suitable only for sophisticated investors. These assets are subject to interest rate risks, the risk of default and limited liquidity. U.S. investors exposed to non-U.S. private credit may also be subject to currency risk and fluctuations.

**Private Real Estate** involves higher risk and is suitable only for sophisticated investors. Real estate assets can be volatile and may include unique risks to the asset class like leverage and/or industry, sector or geographical concentration. Declines in real estate value may take place for a number of reasons including, but are not limited to economic conditions, change in condition of the underlying property or defaults by the borrow.

**Marketable Alternatives** involves higher risk and is suitable only for sophisticated investors. Along with traditional market risks, marketable alternatives are also subject to higher fees, lower liquidity and the potential for leverage that may amplify volatility or the potential for loss of capital. Additionally, short selling involved certain risks including, but not limited to additional costs, and the potential for unlimited loss on certain short sale positions.



# Disclosures – Index & Benchmark Definitions



## Index & Benchmark Definitions

### Fixed Income

- **Bloomberg 1-3 Month U.S. Treasury Bill Index** is designed to measure the performance of public obligations of the U.S. Treasury that have a remaining maturity of greater than or equal to 1 month and less than 3 months.
- **Bloomberg U.S. Aggregate Index** covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities.
- **Bloomberg Global Aggregate ex. USD Indices** represent a broad-based measure of the global investment-grade fixed income markets. The two major components of this index are the Pan-European Aggregate and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds and Canadian government, agency and corporate securities.
- **Bloomberg U.S. Corporate High Yield Index** covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (sovereign rating of Baa1/BBB+/BBB+ and below using the middle of Moody's, S&P, and Fitch) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included.
- **Bloomberg US Government/Credit 1-3 Year Index** is the 1-3 year component of the U.S. Government/Credit Index, which includes securities in the Government and Credit Indices. The Government Index includes treasuries and agencies, while the credit index includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements.
- **Bloomberg US Government/Credit Long Index** is the Long component of the U.S. Government/Credit Index, which includes securities in the Government and Credit Indices. The Government Index includes treasuries and agencies, while the credit index includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity and quality requirements.
- **Bloomberg US Treasury Inflation Protected Securities Index** consists of Inflation-Protection securities issued by the U.S. Treasury.
- **Bloomberg Muni Index** is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. Bonds must be rated investment-grade by at least two ratings agencies.
- **Bloomberg High Yield Municipal Bond Index** covers the universe of fixed rate, non-investment grade debt.
- **Bloomberg Intermediate U.S. Gov't/Credit** is the Intermediate component of the U.S. Government/Credit index, which includes securities in the Government and Credit Indices. The Government Index includes treasuries and agencies, while the credit index includes publicly issued U.S. corporate and foreign debentures and secured notes that meet specified maturity, liquidity, and quality requirements.
- **JPMorgan GBI-EM Global Diversified** tracks the performance of local currency debt issued by emerging market governments, whose debt is accessible by most of the international investor base.

### Equity

- **The S&P 500 Index** is a capitalization-weighted index designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries.
- **Russell 3000 Value Index** measures the performance of those Russell 3000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell 3000 Index** is a market-cap-weighted index which consists of roughly 3,000 of the largest companies in the U.S. as determined by market capitalization. It represents nearly 98% of the investable U.S. equity market.
- **Russell 3000 Growth Index** measures the performance of those Russell 3000 companies with higher P/B ratios and higher forecasted growth values.
- **Russell 1000 Value Index** measures the performance of those Russell 1000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell 1000 Index** consists of the largest 1000 companies in the Russell 3000 Index.
- **Russell 1000 Growth Index** measures the performance of those Russell 1000 companies with higher P/B ratios and higher forecasted growth values.
- **Russell Mid Cap Value Index** measures the performance of those Russell Mid Cap companies with lower P/B ratios and lower forecasted growth values.
- **Russell Mid Cap Index** measures the performance of the 800 smallest companies in the Russell 1000 Index.
- **Russell Mid Cap Growth Index** measures the performance of those Russell Mid Cap companies with higher P/B ratios and higher forecasted growth values.
- **Russell 2000 Value Index** measures the performance of those Russell 2000 companies with lower P/B ratios and lower forecasted growth values.
- **Russell 2000** consists of the 2,000 smallest U.S. companies in the Russell 3000 index.
- **Russell 2000 Growth Index** measures the performance of the Russell 2000 companies with higher P/B ratios and higher forecasted growth values.
- **MSCI ACWI (All Country World Index) ex. U.S. Index** captures large and mid-cap representation across Developed Markets countries (excluding the United States) and Emerging Markets countries. The index covers approximately 85% of the global equity opportunity set outside the U.S.
- **MSCI ACWI Index** captures large and mid cap representation across Developed Markets and Emerging Markets countries. The index covers approximately 85% of the global investable opportunity set.
- **MSCI EAFE IMI Index** is an equity index which captures large, mid and small cap representation across Developed Markets countries around the world, excluding the U.S. and Canada. The index covers approximately 99% of the free float-adjusted market capitalization in each country.
- **MSCI EAFE Value Index** captures large and mid cap securities exhibiting overall value style characteristics across Developed Markets countries around the world, excluding the US and Canada. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield.
- **MSCI EAFE Index** is an equity index which captures large and mid-cap representation across Developed Markets countries around the world, excluding the U.S. and Canada. The index covers approximately 85% of the free float-adjusted market capitalization in each country.

# Disclosures – Index & Benchmark Definitions



- **MSCI EAFE Growth Index** captures large and mid cap securities exhibiting overall growth style characteristics across Developed Markets countries around the world, excluding the US and Canada. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend.
- **MSCI EAFE Large Cap Index** is an equity index which captures large cap representation across Developed Markets countries around the world, excluding the US and Canada. The index covers approximately 70% of the free-float adjusted market capitalization in each country.
- **MSCI EAFE Small Cap Index** is an equity index which captures small cap representation across Developed Markets countries around the world, excluding the US and Canada. The index covers approximately 14% of the free float adjusted market in each country.
- **MSCI ACWI (All Country World Index) ex. U.S. Index** captures large and mid-cap representation across Developed Markets countries (excluding the United States) and Emerging Markets countries. The index covers approximately 85% of the global equity opportunity set outside the U.S.
- **MSCI Emerging Markets IMI Index** captures large, mid and small cap representation across 24 Emerging Markets countries. The index covers approximately 99% of the free-float adjusted market capitalization in each country.
- **MSCI Emerging Markets Value Index** captures large and mid-cap securities exhibiting overall value style characteristics across Emerging Markets countries. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield.
- **MSCI Emerging Markets Index** captures large and mid-cap representation across Emerging Markets countries. The index covers approximately 85% of the free-float adjusted market capitalization in each country.
- **MSCI Emerging Markets Growth Index** captures large and mid-cap representation across Emerging Markets countries. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend.
- **MSCI Emerging Markets Index** captures large and mid-cap representation across Emerging Markets countries. The index covers approximately 85% of the free-float adjusted market capitalization in each country.
- **MSCI Emerging Markets (EM) Small Cap Index** includes small cap representation across Emerging Markets countries. The index covers approximately 14% of the free float-adjusted market capitalization in each country. The small cap segment tends to capture more local economic and sector characteristics relative to larger Emerging Markets capitalization segments.

## *Alternatives & Miscellaneous*

- **S&P Real Asset Index** is designed to measure global property, infrastructure, commodities, and inflation-linked bonds using liquid and investable component indices that track public equities, fixed income, and futures. In the index, equity holds 50% weight, commodities 10%, and fixed income 40%.
- **FTSE Nareit Equity REITs Index** contains all Equity REITs not designed as Timber REITs or Infrastructure REITs.
- **FTSE EPRA Nareit Developed Index** is designed to track the performance of listed real estate companies and REITS worldwide.
- **FTSE EPRA Nareit Developed ex US Index** is a subset of the FTSE EPRA Nareit Developed Index and is designed to track the performance of listed real estate companies and REITS in developed markets excluding the US.
- **Bloomberg Commodity Index** is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification.
- **HFRI Asset Weighted Composite Index** is a global, asset-weighted index comprised of single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in US Dollar and have a minimum of \$50 Million under management or \$10 Million under management and a twelve (12) month track record of active performance. The HFRI Asset Weighted Composite Index does not include Funds of Hedge Funds. The constituent funds of the HFRI Asset Weighted Composite Index are weighted according to the AUM reported by each fund for the prior month.
- **HFRI Fund of Funds Composite Index** is a global, equal-weighted index of all fund of hedge funds that report to the HFR Database. Constituent funds report monthly net of all fees performance in U.S. Dollars and have a minimum of \$50 million under management or a twelve (12) month track record of active performance.
- **The Alerian MLP Index** is a float adjusted, capitalization-weighted index, whose constituents represent approximately 85% of total float-adjusted market capitalization, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis.

## *Additional Information*

- Equity sector returns are calculated by S&P, Russell, and MSCI for domestic and international markets, respectively. S&P and MSCI sector definitions correspond to the GICS® classification (Global Industry Classification System); Russell uses its own sector and industry classifications.
- MSCI country indices are free float-adjusted market capitalization indices that are designed to measure equity market performance of approximately 85% of the market capitalization in each specific country.
- Currency returns are calculated using FactSet's historical spot rates and are calculated using the U.S. dollar as the base currency.

# Disclosure



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