



JANUARY 2023 – MARKET REVIEW

January 9, 2023

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AssetGrade Market Summary

January 2023 Review – Tough Year for Investing in 2022 Leads to Favorable Valuations

- **Investors suffered losses across both equities and fixed income in 2022.** However, the market downturn across nearly all asset classes has created buying opportunities as many asset classes are cheaper at this point in time relative to their historical valuations.
- In 2022, among the major asset classes, **only Commodities posted a significant gain** while every other category (except for Cash) posted double digit losses.
- **The US dollar peaked in July 2022**, but then fell in value resulting in international equities outperforming US equities. **International equities still look favorable in 2023, as their valuations are cheaper relative to their historical valuations and their US counterparts.**
- The **Federal Reserve raised its benchmark Fed Funds rate to 4.25 – 4.50%, the highest level in 15 years.** If the inflation rate continues to fall, we anticipate the Fed may stop raising rates over the next year.

Are consumers overly pessimistic?

- **Consumer sentiment hit an all time low in June 2022 but is slowly improving.** The pandemic, stream of negative information from social media, and the war in Ukraine have made people gloomy.
- Inflation peaked in June at 9.0%, as measured by the Consumer Price Index. For the first time in 40 years, the rate of inflation was over 7%. **Since June, inflation has steadily declined and we anticipate it continuing to decline in 2023.** However rents/shelter remain high, due to the low inventory of homes and rising interest rates for home buyers.
- **The consumer represents over 68% of GDP and consumer spending is a big driver of economic growth.** Consumer spending was strong in 2020 & 2021 due to stimulus and unemployment checks, and strong in 2022 as a result of excess credit card spending. **We anticipate slower economic growth in 2023 due to a slow down in consumer spending.** Two potential drivers of reduced spending include less savings for the consumer to spend, as the personal savings rate fell to 2.4% in 2022 and less room to spend on credit cards.
- What to do now? Review and rebalance your portfolio. **If your goals and time horizon have not changed, do not overreact to market forces.** Many investors feel uneasy about their portfolios but if you wait until you feel better to take buying actions then the train will have already left the station as markets are always forward looking. **If your retirement plans and goals have not changed, then stay invested for your future success!**

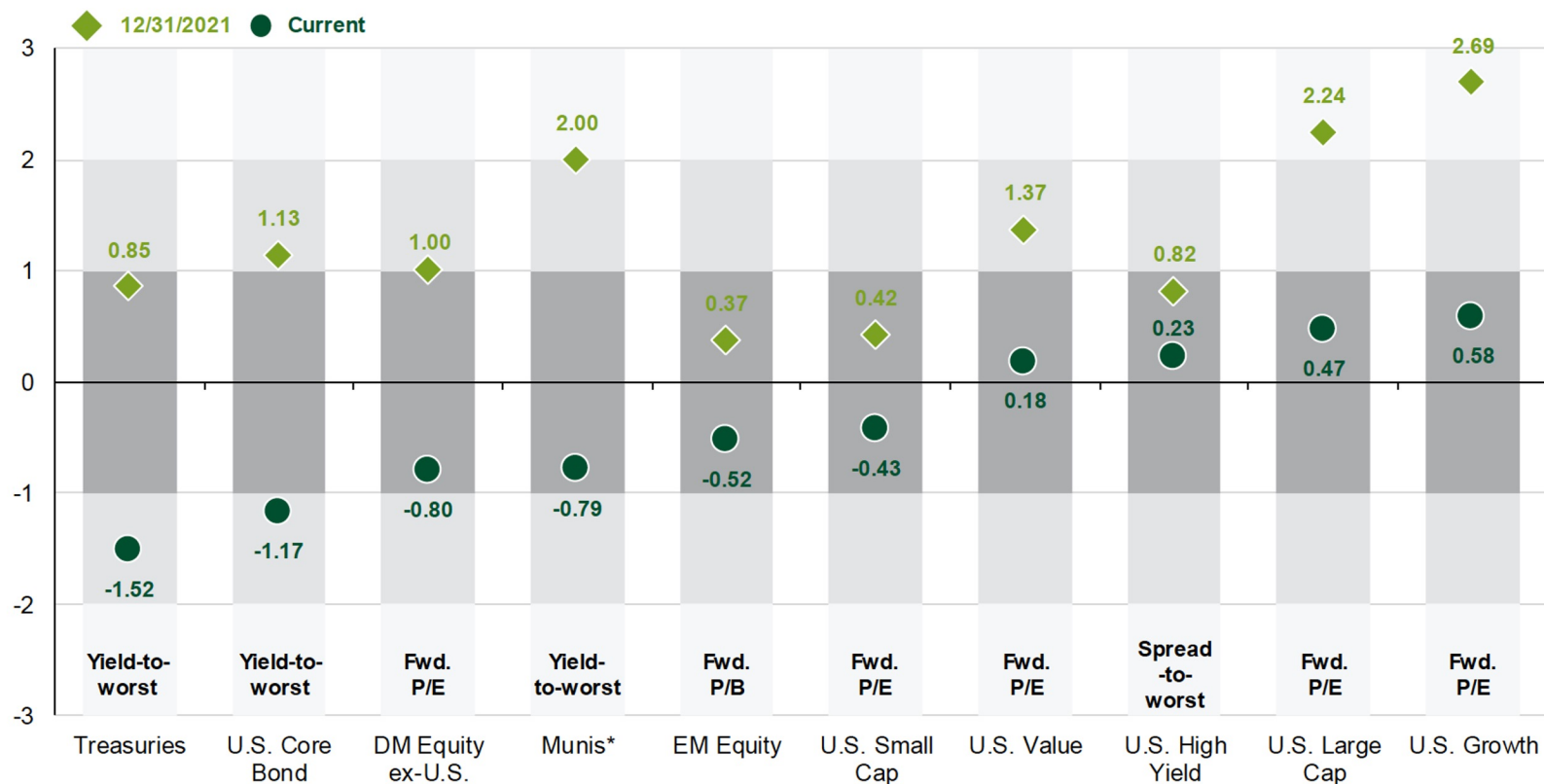
Appendix

AssetGrade Market Summary

Across the board all asset classes look cheaper

Asset class valuations

Z-scores based on 20-year average valuation measures



Source: Bloomberg, BLS, CME, FactSet, MSCI, Russell, Standard & Poor's, J.P. Morgan Asset Management.

U.S. Large Cap: S&P 500, U.S. Small Cap: Russell 2000, U.S. Mid Cap: Russell Midcap; EM Equity: MSCI EME, DM Equity: MSCI EAFE, U.S. Value: Russell 1000 Value, U.S. Growth: Russell 1000 Growth, U.S. High Yield: J.P. Morgan Domestic High Yield Index, U.S. Core Bond: Bloomberg US Aggregate, Treasuries: Bloomberg U.S. Aggregate Government – Treasury, Munis: Bloomberg Municipal Bond. *Munis yield-to-worst is based on the tax-equivalent yield-to-worst assuming a top-income tax bracket rate of 37% plus a Medicare tax rate of 3.8%.

Guide to the Markets – U.S. Data are as of December 31, 2022.

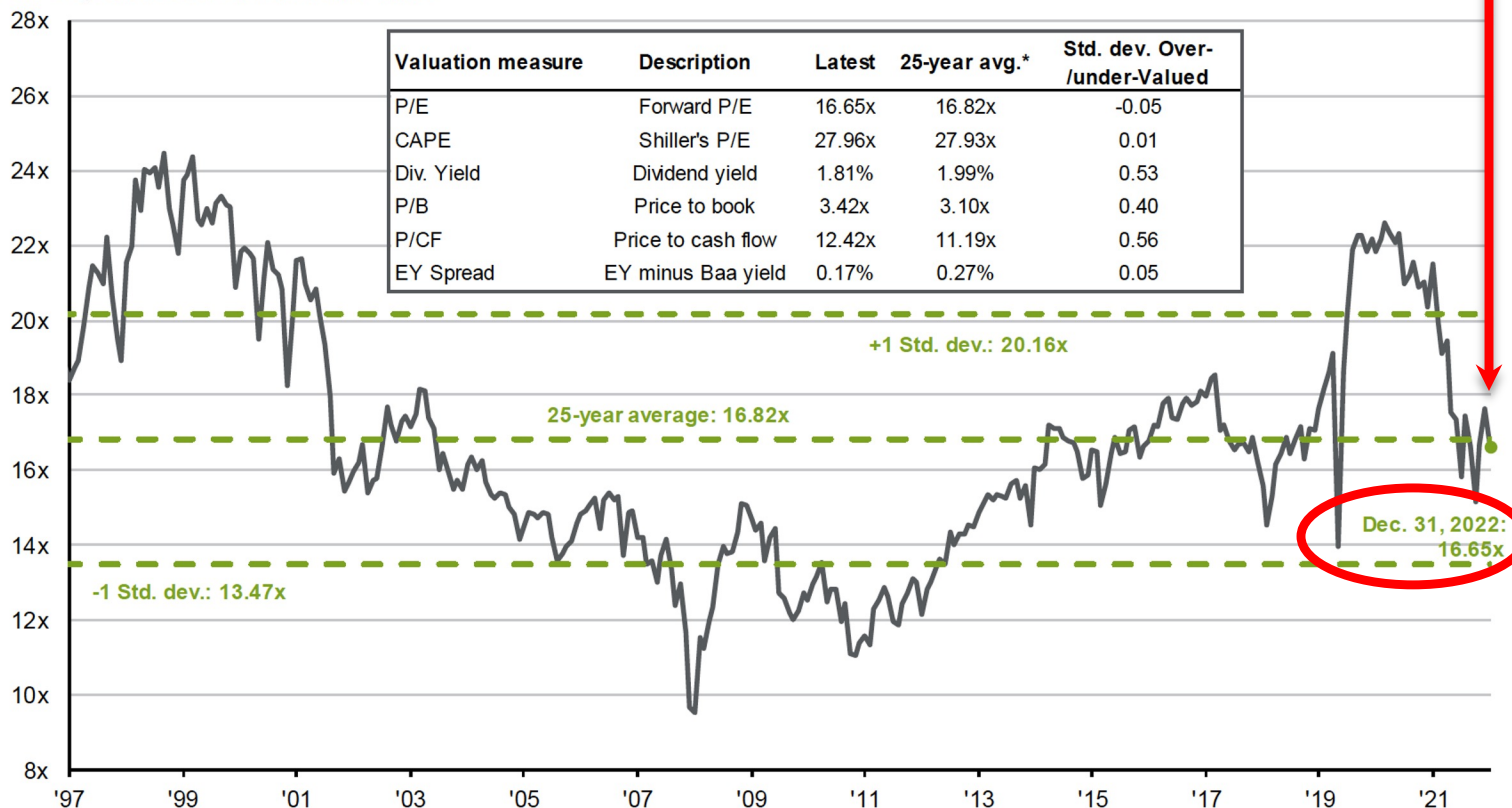
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AssetGrade Market Summary

Equity valuations were more reasonable in 2022

Forward Price Earnings Ratios are still below the 25-year average

S&P 500 Index: Forward P/E ratio



Source: FactSet, FRB, Refinitiv Datastream, Robert Shiller, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.

Price-to-earnings is price divided by consensus analyst estimates of earnings per share for the next 12 months as provided by IBES since December 1997 and by FactSet since January 2022. Current next 12-months consensus earnings estimates are \$231. Average P/E and standard deviations are calculated using 25 years of history. Shiller's P/E uses trailing 10-years of inflation-adjusted earnings as reported by companies. Dividend yield is calculated as the next 12-months consensus dividend divided by most recent price. Price-to-book ratio is the price divided by book value per share. Price-to-cash flow is price divided by NTM cash flow. EY minus Baa yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) minus the Moody's Baa seasoned corporate bond yield. Std. dev. over-/under-valued is calculated using the average and standard deviation over 25 years for each measure. *P/CF is a 20-year average due to cash flow availability. Guide to the Markets – U.S. Data are as of December 31, 2022.

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In 2022 only Commodities and Cash are positive. Diversified portfolios while negative did provide downside protection relative to the sharp declines in Equities .

Asset Class Returns

															2008 - 2022	
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Ann.	Vol.
Fixed Income 5.2%	EM Equity 79.0%	RBTs 27.9%	RBTs 8.3%	RBTs 19.7%	Small Cap 38.8%	RBTs 28.0%	RBTs 2.8%	Small Cap 21.3%	EM Equity 37.8%	Cash 1.8%	Large Cap 31.5%	Small Cap 20.0%	RBTs 41.3%	Comdty. 16.1%	Large Cap 8.8%	RBTs 23.4%
Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Fixed Income 0.0%	RBTs 28.7%	EM Equity 18.7%	Large Cap 28.7%	Cash 1.5%	Small Cap 7.2%	Small Cap 23.2%
Asset Alloc. -25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	RBTs -4.0%	Small Cap 25.5%	Large Cap 18.4%	Comdty. 27.1%	High Yield -12.7%	RBTs 6.6%	EM Equity 23.0%
High Yield -26.9%	RBTs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	High Yield -4.1%	DM Equity 22.7%	Asset Alloc. 10.6%	Small Cap 14.8%	Fixed Income -13.0%	Asset Alloc. 6.1%	Comdty. 20.2%
Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	Large Cap -4.4%	Asset Alloc. 19.5%	DM Equity 8.3%	Asset Alloc. 13.5%	Asset Alloc. -13.9%	High Yield 5.4%	DM Equity 20.0%
Comdty. -35.6%	Large Cap 26.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	RBTs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	RBTs 8.6%	High Yield 10.4%	Asset Alloc. -5.8%	EM Equity 18.9%	Fixed Income 7.5%	DM Equity 11.8%	DM Equity -14.0%	Fixed Income 2.7%	Large Cap 17.7%
Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	RBTs 8.7%	Small Cap -11.0%	High Yield 12.6%	High Yield 7.0%	High Yield 1.0%	Large Cap -18.1%	DM Equity 2.3%	High Yield 13.0%
RBTs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	Comdty. -11.2%	Fixed Income 8.7%	Cash 0.5%	Cash 0.0%	EM Equity -19.7%	EM Equity 1.0%	Asset Alloc. 12.4%
DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	DM Equity -13.4%	Comdty. 7.7%	Comdty. -3.1%	Fixed Income -1.5%	Small Cap -20.4%	Cash 0.6%	Fixed Income 4.2%
EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	EM Equity -14.2%	Cash 2.2%	RBTs -5.1%	EM Equity -2.2%	RBTs -24.9%	Comdty. -2.6%	Cash 0.4%

Source: Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management. Large cap: S&P 500, Small cap: Russell 2000, EM Equity: MSCI EME, DM Equity: MSCI EAFE, Comdty: Bloomberg Commodity Index, High Yield: Bloomberg Global HY Index, Fixed Income: Bloomberg US Aggregate, REITs: NAREIT Equity REIT Index, Cash: Bloomberg 1-3m Treasury. The "Asset Allocation" portfolio assumes the following weights: 25% in the S&P 500, 10% in the Russell 2000, 15% in the MSCI EAFE, 5% in the MSCI EME, 25% in the Bloomberg US Aggregate, 5% in the Bloomberg 1-3m Treasury, 5% in the Bloomberg Global High Yield Index, 5% in the Bloomberg Commodity Index and 5% in the NAREIT Equity REIT Index. Balanced portfolio assumes annual rebalancing. Annualized (Ann.) return and volatility (Vol.) represents period from 12/31/2008 to 12/31/2021. Please see disclosure page at end for index definitions. All data represents total return for stated period. The "Asset Allocation" portfolio is for illustrative purposes only. Past performance is not indicative of future returns.

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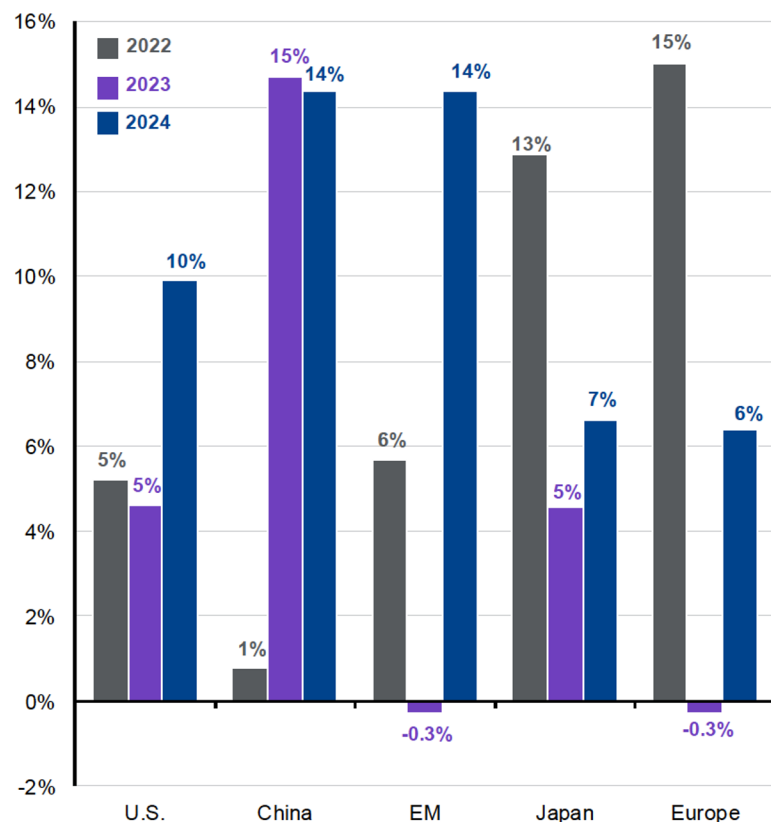
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AssetGrade Market Summary

Across the pond...international valuations more favorable than US

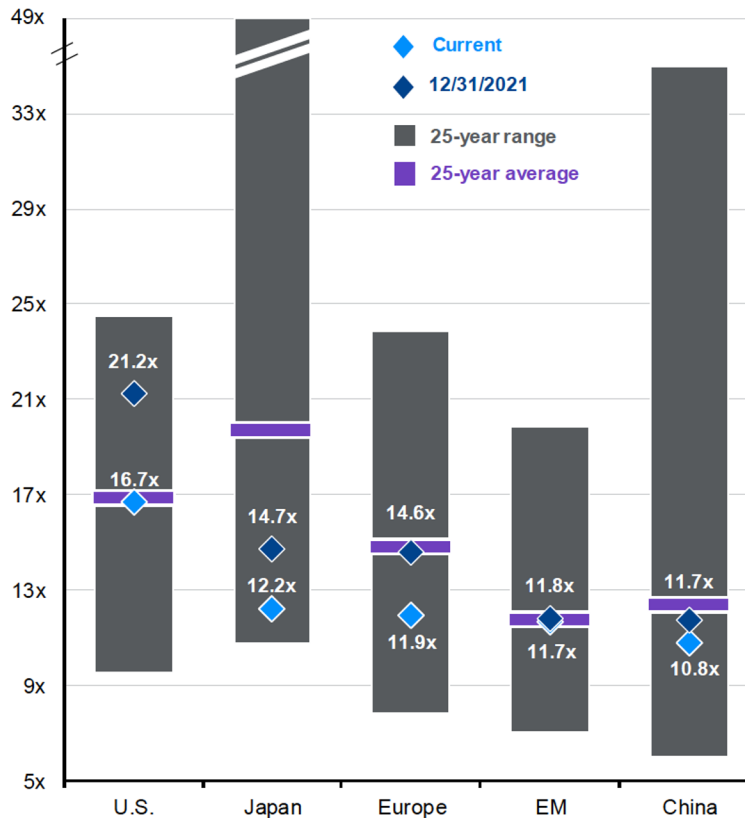
Global earnings growth

Calendar year consensus estimates



Global valuations

Current and 25-year next 12 months price-to-earnings ratio



Source: FactSet, MSCI, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.
 Calendar year consensus estimates are based on pro-forma earnings. MSCI Europe includes the eurozone as well as countries not in the currency bloc, such as Norway, Sweden, Switzerland and the UK (which collectively make up 44% of the overall index). Past performance is not a reliable indicator of current and future results.
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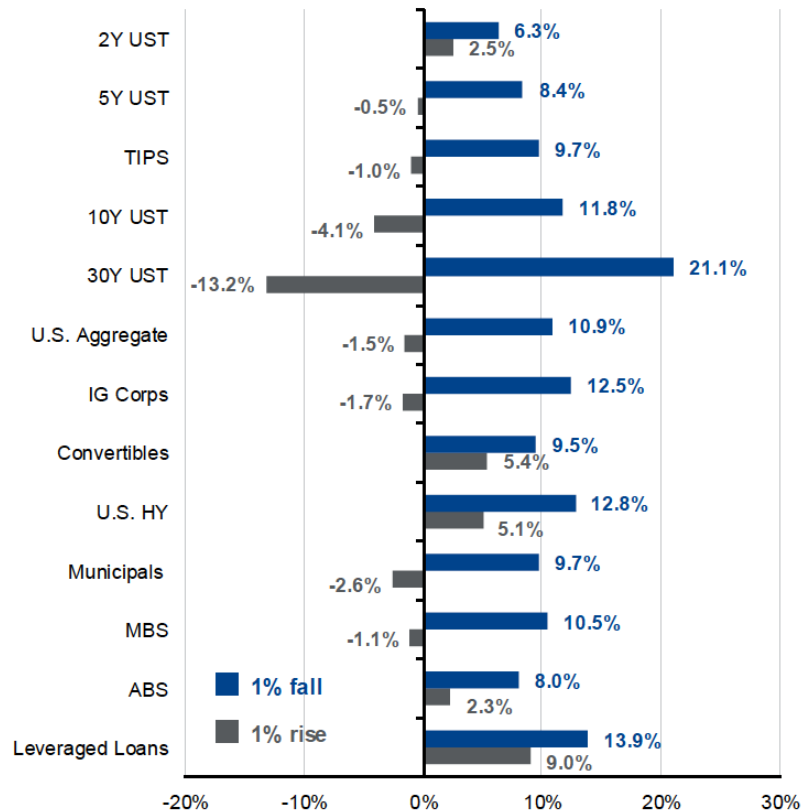
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Fixed income market dynamics

U.S. Treasuries	Yield		Return		Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
	12/31/2022	12/31/2021	2022	2022			
2-Year	4.41%	0.73%	-4.11%	2 years	0.71	-0.23	
5-Year	3.99%	1.26%	-9.74%	5	0.93	-0.19	
TIPS	1.58%	-1.04%	-11.85%	10	0.60	0.33	
10-Year	3.88%	1.52%	-16.33%	10	1.00	-0.17	
30-Year	3.97%	1.90%	-33.29%	30	0.93	-0.19	
Sector							
U.S. Aggregate	4.68%	1.75%	-13.01%	8.4	0.85	0.19	
IG Corps	5.42%	2.33%	-15.76%	10.9	0.51	0.46	
Convertibles	7.05%	3.66%	-18.92%	-	-0.17	0.87	
U.S. HY	8.96%	4.21%	-11.19%	5.5	-0.12	0.74	
Municipals	3.55%	1.11%	-8.53%	13.0	0.48	0.20	
MBS	4.71%	1.98%	-11.81%	7.8	0.78	0.11	
ABS	5.89%	1.96%	-3.23%	3.6	0.01	0.06	
Leveraged Loans	11.41%	4.60%	0.06%	2.4	-0.37	0.60	

Impact of a 1% rise or fall in interest rates

Total return, assumes a parallel shift in the yield curve



Source: Bloomberg, FactSet, Standard & Poor's, U.S. Treasury, J.P. Morgan Asset Management. Sectors shown above are provided by Bloomberg unless otherwise noted and are represented by – U.S. Aggregate; MBS: U.S. Aggregate Securitized – MBS; ABS: J.P. Morgan ABS Index; Corporates: U.S. Corporates; Municipals: Muni Bond; High Yield: Corporate High Yield; Leveraged Loans: J.P. Morgan Leveraged Loan Index; TIPS: Treasury Inflation-Protected Securities; Convertibles: U.S. Convertibles Composite. Convertibles yield is as of most recent month end and is based on U.S. portion of Bloomberg Global Convertibles Index. Yield and return information based on bellwethers for Treasury securities. Sector yields reflect yield-to-worst. Convertibles yield is based on U.S. portion of Bloomberg Global Convertibles. Correlations are based on 15-years of monthly returns for all sectors. Past performance is not indicative of future results. Guide to the Markets – U.S. Data are as of December 31, 2022.

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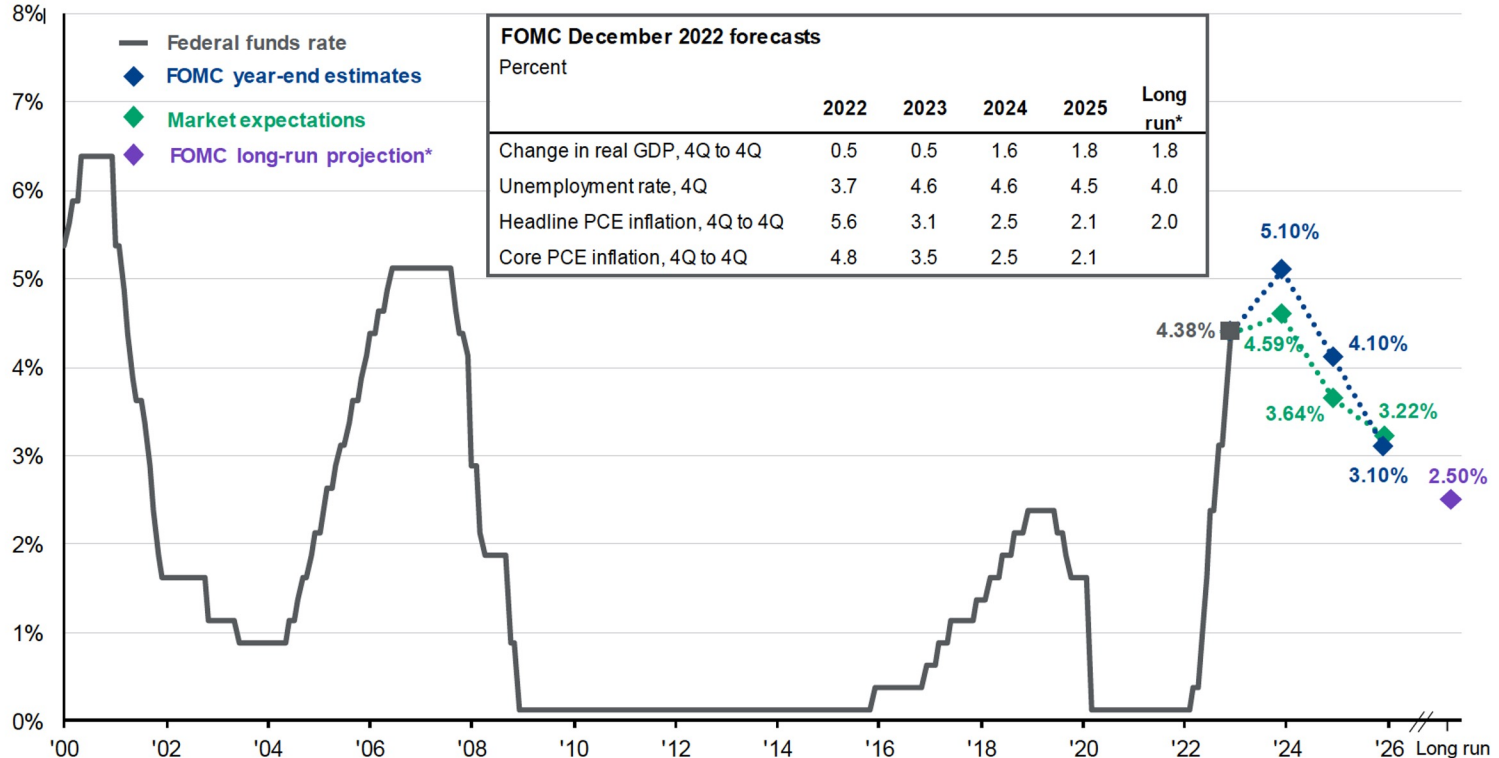
The Fed and interest rates

Expect Fed to continue raising rates in short term, then pause if inflation heads in the right direction



Federal funds rate expectations

FOMC and market expectations for the federal funds rate



Source: Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management.

Market expectations are based off of the respective Federal Funds Futures contracts for December expiry. *Long-run projections are the rates of growth, unemployment and inflation to which a policymaker expects the economy to converge over the next five to six years in absence of further shocks and under appropriate monetary policy. Forecasts are not a reliable indicator of future performance. Forecasts, projections and other forward-looking statements are based upon current beliefs and expectations. They are for illustrative purposes only and serve as an indication of what may occur. Given the inherent uncertainties and risks associated with forecasts, projections or other forward-looking statements, actual events, results or performance may differ materially from those reflected or contemplated.

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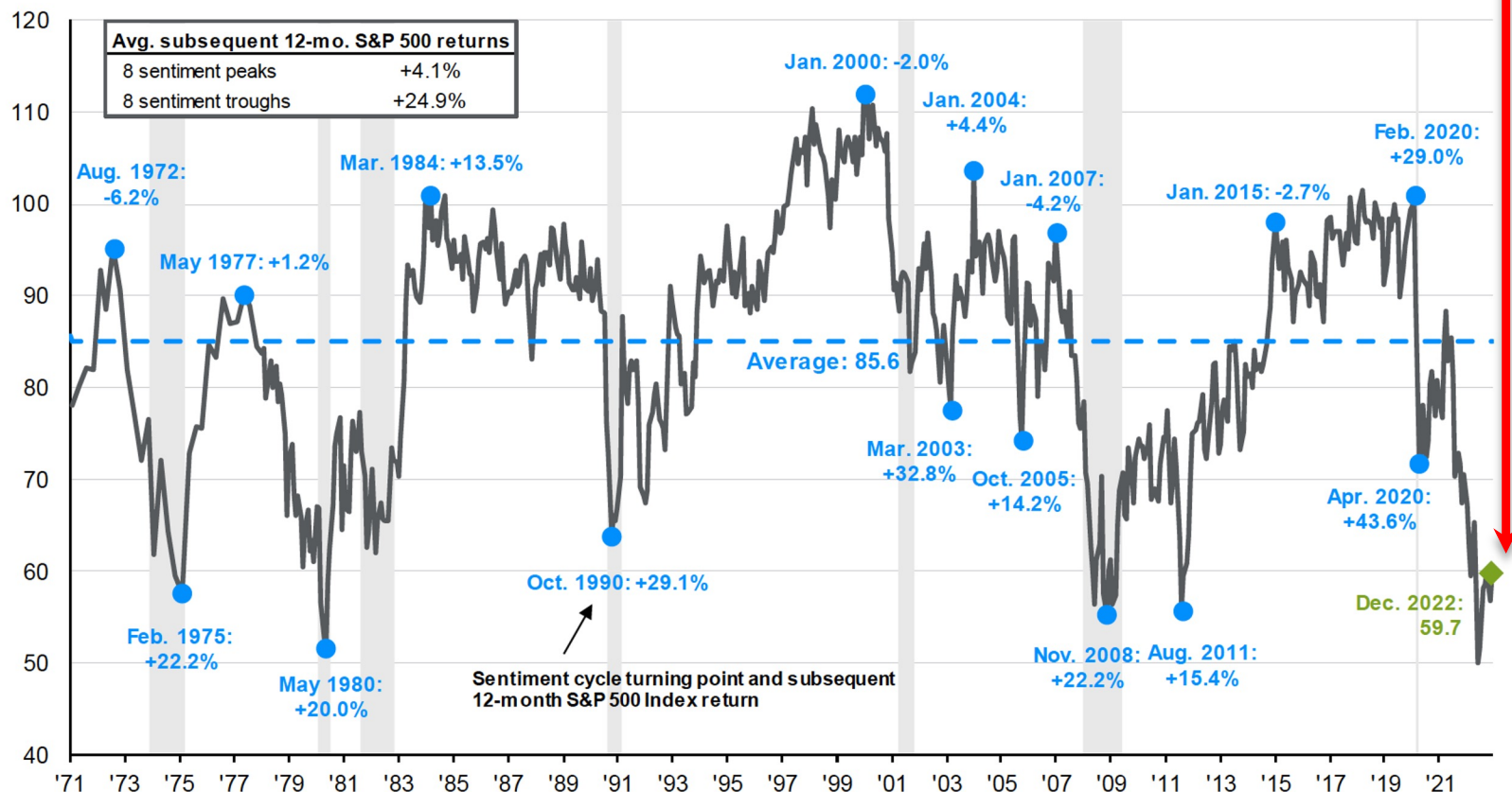
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Where might we go from here?

Consumer sentiment is improving, but still at historically low levels

Consumer Sentiment Index and subsequent 12-month S&P 500 returns



Source: FactSet, Standard & Poor's, University of Michigan, J.P. Morgan Asset Management.

Peak is defined as the highest index value before a series of lower lows, while a trough is defined as the lowest index value before a series of higher highs. Subsequent 12-month S&P 500 returns are price returns only, which excludes dividends. Past performance is not a reliable indicator of current and future results.

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AssetGrade Market Summary

The whole inflation story

Inflation should continue to moderate, as economy slows



Consumer Price Index, components

m/m % change, seasonally adjusted

		2021												2022											
	Weight	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Headline CPI, y/y	100.0	1.3%	1.4%	1.7%	2.7%	4.2%	4.9%	5.3%	5.3%	5.2%	5.4%	6.2%	6.8%	7.1%	7.5%	7.9%	8.6%	8.2%	8.5%	9.0%	8.5%	8.2%	8.2%	7.8%	7.1%
Core CPI, y/y	78.3	1.6%	1.4%	1.3%	1.7%	3.0%	3.8%	4.4%	4.2%	4.0%	4.0%	4.6%	5.0%	5.5%	6.0%	6.4%	6.4%	6.1%	6.0%	5.9%	5.9%	6.3%	6.7%	6.3%	6.0%
Headline CPI, m/m	100.0	0.3%	0.2%	0.4%	0.6%	0.6%	0.7%	0.9%	0.5%	0.3%	0.4%	0.9%	0.7%	0.6%	0.6%	0.8%	1.2%	0.3%	1.0%	1.3%	0.0%	0.1%	0.4%	0.4%	0.1%
Core CPI, m/m	78.3	0.1%	0.0%	0.2%	0.3%	0.9%	0.7%	0.8%	0.3%	0.2%	0.3%	0.6%	0.5%	0.6%	0.6%	0.5%	0.3%	0.6%	0.6%	0.7%	0.3%	0.6%	0.6%	0.3%	0.2%
Energy	8.0	3.7%	2.8%	4.6%	5.6%	-1.2%	0.7%	2.1%	1.6%	1.9%	1.2%	3.7%	2.4%	0.9%	0.9%	3.5%	11.0%	-2.7%	3.9%	7.5%	-4.6%	-5.0%	-2.1%	1.8%	-1.6%
Gasoline	4.0	7.0%	5.8%	8.2%	10.3%	-3.3%	0.6%	3.3%	2.5%	2.5%	1.1%	4.6%	4.5%	1.3%	-0.8%	6.6%	18.3%	-6.1%	4.1%	11.2%	-7.7%	-10.6%	-4.9%	4.0%	-2.0%
Electricity	2.7	0.6%	0.0%	0.5%	0.2%	0.7%	0.5%	0.2%	0.2%	1.0%	0.6%	1.4%	0.2%	0.5%	4.2%	-1.1%	2.2%	0.7%	1.3%	1.7%	1.6%	1.5%	0.4%	0.1%	-0.2%
Utility Gas	1.0	0.5%	-0.4%	1.7%	2.4%	2.2%	1.8%	1.8%	2.2%	1.6%	2.9%	5.9%	0.3%	-0.3%	-0.5%	1.5%	0.6%	3.1%	8.0%	8.2%	-3.6%	3.5%	2.9%	-4.6%	-3.5%
Food	13.7	0.3%	0.2%	0.1%	0.2%	0.4%	0.5%	0.7%	0.7%	0.4%	0.9%	0.9%	0.8%	0.5%	0.9%	1.0%	1.0%	0.9%	1.2%	1.0%	1.1%	0.8%	0.8%	0.6%	0.5%
Food at home	8.5	0.3%	0.1%	0.2%	0.2%	0.4%	0.4%	0.7%	0.6%	0.4%	1.2%	0.9%	0.9%	0.4%	1.0%	1.4%	1.5%	1.0%	1.4%	1.0%	1.3%	0.7%	0.7%	0.4%	0.5%
Food away from home	5.2	0.4%	0.3%	0.1%	0.1%	0.3%	0.6%	0.7%	0.8%	0.4%	0.5%	0.8%	0.6%	0.6%	0.7%	0.4%	0.3%	0.6%	0.7%	0.9%	0.7%	0.9%	0.9%	0.9%	0.5%
Core goods	21.2	0.0%	0.1%	-0.1%	0.2%	2.0%	1.8%	2.1%	0.4%	0.4%	0.3%	1.1%	0.9%	1.2%	1.0%	0.4%	-0.4%	0.2%	0.7%	0.8%	0.2%	0.5%	0.0%	-0.4%	-0.5%
Apparel	2.5	0.5%	1.4%	-0.5%	0.4%	0.6%	1.1%	0.5%	0.1%	0.3%	-0.7%	0.6%	0.7%	1.1%	1.1%	0.7%	0.6%	-0.8%	0.7%	0.8%	-0.1%	0.2%	-0.3%	-0.7%	0.2%
New vehicles	4.1	0.6%	-0.4%	0.1%	0.0%	0.5%	1.5%	1.7%	1.5%	1.2%	1.3%	1.3%	1.2%	1.2%	0.0%	0.3%	0.2%	1.1%	1.0%	0.7%	0.6%	0.8%	0.7%	0.4%	0.0%
Used cars	3.8	-1.1%	-0.9%	-0.7%	0.3%	9.8%	7.7%	10.1%	0.0%	-1.2%	-0.5%	2.5%	2.4%	3.3%	1.5%	-0.2%	-3.8%	-0.4%	1.8%	1.6%	-0.4%	-0.1%	-1.1%	-2.4%	-2.9%
Medical care commod	1.5	-0.2%	-0.1%	-0.7%	0.1%	0.6%	0.0%	-0.4%	0.2%	-0.2%	0.3%	0.6%	0.1%	0.0%	0.9%	0.3%	0.2%	0.1%	0.3%	0.4%	0.6%	0.2%	-0.1%	0.0%	0.2%
Core services	57.1	0.1%	0.1%	0.2%	0.3%	0.5%	0.4%	0.4%	0.3%	0.1%	0.2%	0.4%	0.4%	0.3%	0.4%	0.5%	0.6%	0.7%	0.6%	0.7%	0.4%	0.6%	0.8%	0.5%	0.4%
Shelter	32.6	0.1%	0.1%	0.2%	0.3%	0.4%	0.3%	0.4%	0.4%	0.2%	0.4%	0.5%	0.5%	0.4%	0.3%	0.5%	0.5%	0.5%	0.6%	0.6%	0.5%	0.7%	0.7%	0.8%	0.6%
Rent of primary res.	7.4	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.2%	0.2%	0.3%	0.4%	0.4%	0.4%	0.4%	0.5%	0.6%	0.4%	0.6%	0.6%	0.8%	0.7%	0.7%	0.8%	0.7%	0.8%
OER	24.0	0.2%	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.5%	0.6%	0.7%	0.6%	0.7%	0.8%	0.6%	0.7%
Medical care services	6.9	-0.1%	0.5%	0.4%	0.1%	0.0%	-0.1%	0.0%	0.2%	0.2%	0.2%	0.4%	0.3%	0.3%	0.6%	0.1%	0.6%	0.5%	0.4%	0.7%	0.4%	0.8%	1.0%	-0.6%	-0.7%
Transportation services	5.9	-0.2%	-0.3%	0.4%	1.0%	2.2%	1.7%	1.1%	-0.9%	-1.2%	-1.0%	0.2%	0.7%	0.0%	1.0%	1.4%	2.0%	3.1%	1.3%	2.1%	-0.5%	0.5%	1.9%	0.8%	-0.1%

Source: BLS, FactSet, J.P. Morgan Asset Management. Heatmap shading is relative to the two-year period shown. Component weights may not add to 100. OER refers to owner's equivalent rent.

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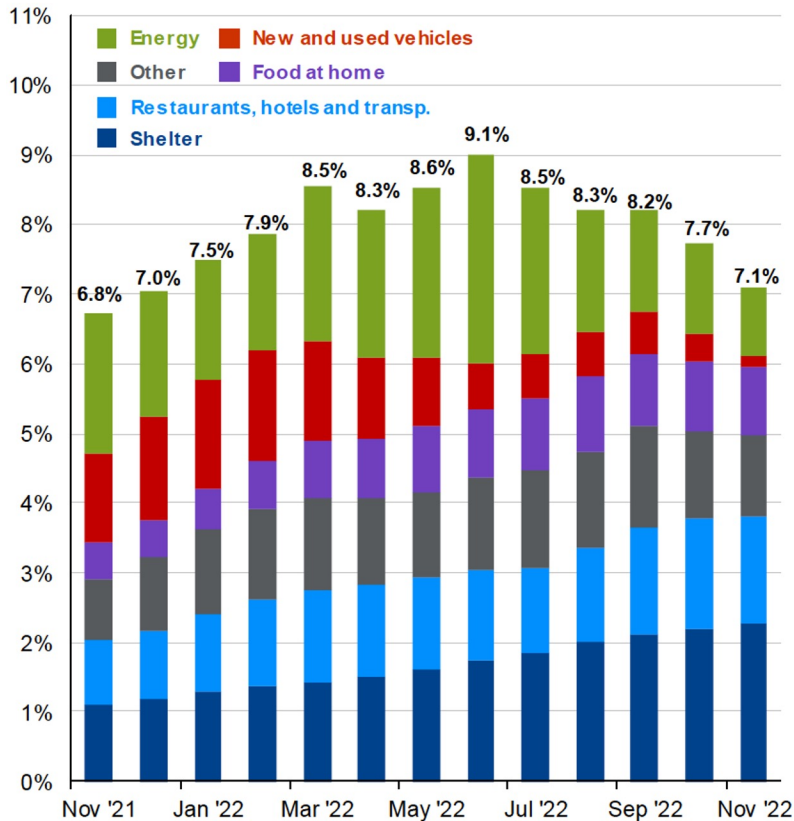
AssetGrade Market Summary

Inflation drivers and expectations

Energy prices have come down,
however rents/shelter prices
increase

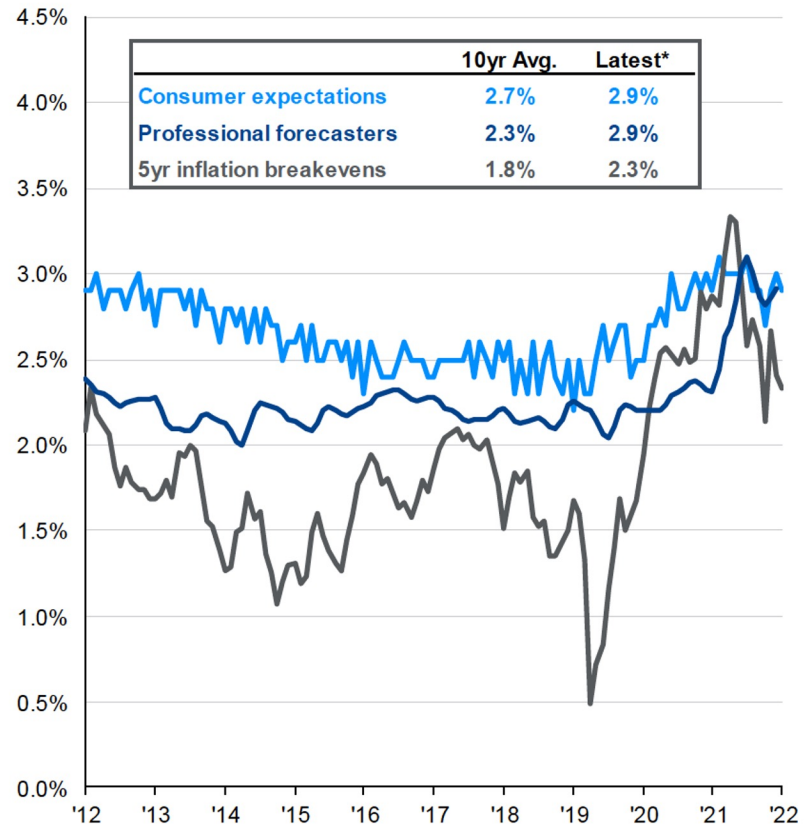
Contributors to headline inflation

Contribution to y/y % change in CPI, not seasonally adjusted



Inflation expectations, next 5 years

% change vs. prior year, non-seasonally adjusted



Source: Bureau of Labor Statistics, FactSet, Federal Reserve Bank of Philadelphia, University of Michigan, J.P. Morgan Asset Management. Contributions mirror the BLS methodology on Table 7 of the CPI report. Values may not sum to headline CPI figures due to rounding and underlying calculations. "Shelter" includes owner's equivalent rent and rent of primary residence. "Other" primarily reflects household furnishings, apparel, education and communication services, medical care services and other personal services. *Reflects the latest daily 5yr/5yr breakevens, preliminary or final Consumer Sentiment survey, and the quarterly Survey of Professional Forecasters interpolated to a monthly series. The Survey of Professional Forecasters reflects the median estimate by professional forecasters of average CPI inflation over the next 5 years. The series has been adjusted by J.P. Morgan Asset Management to exclude realized inflation readings within the forecast window.
Guide to the Markets – U.S. Data are as of December 31, 2022.

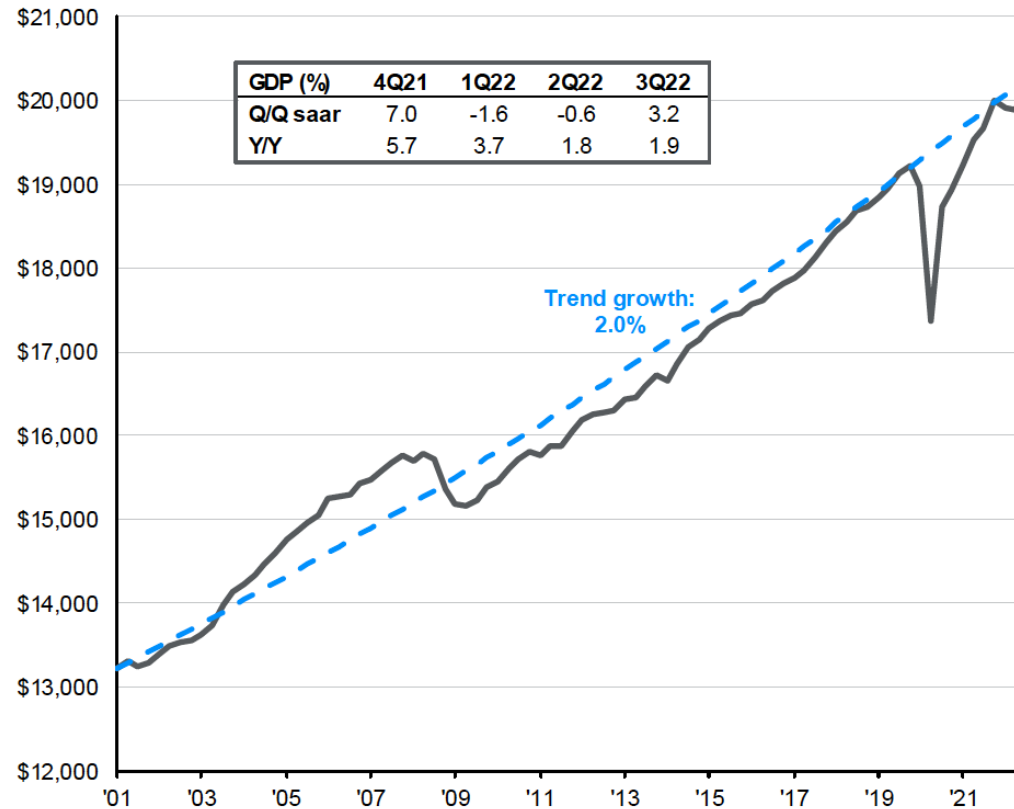
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AssetGrade Market Summary

The consumer represents over 68% of GDP, consumer spending is a large driver of economic growth

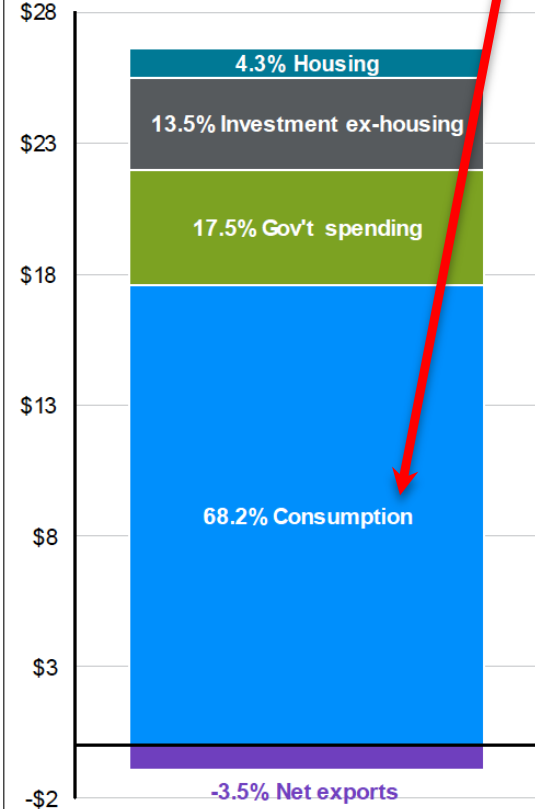
Real GDP

Billions of chained (2012) dollars, seasonally adjusted at annual rates



Components of GDP

3Q22 nominal GDP, USD trillions



Source: BEA, FactSet, J.P. Morgan Asset Management. Values may not sum to 100% due to rounding. Trend growth is measured as the average annual growth rate from business cycle peak 1Q01 to business cycle peak 4Q19.
Guide to the Markets – U.S. Data are as of December 31, 2022.

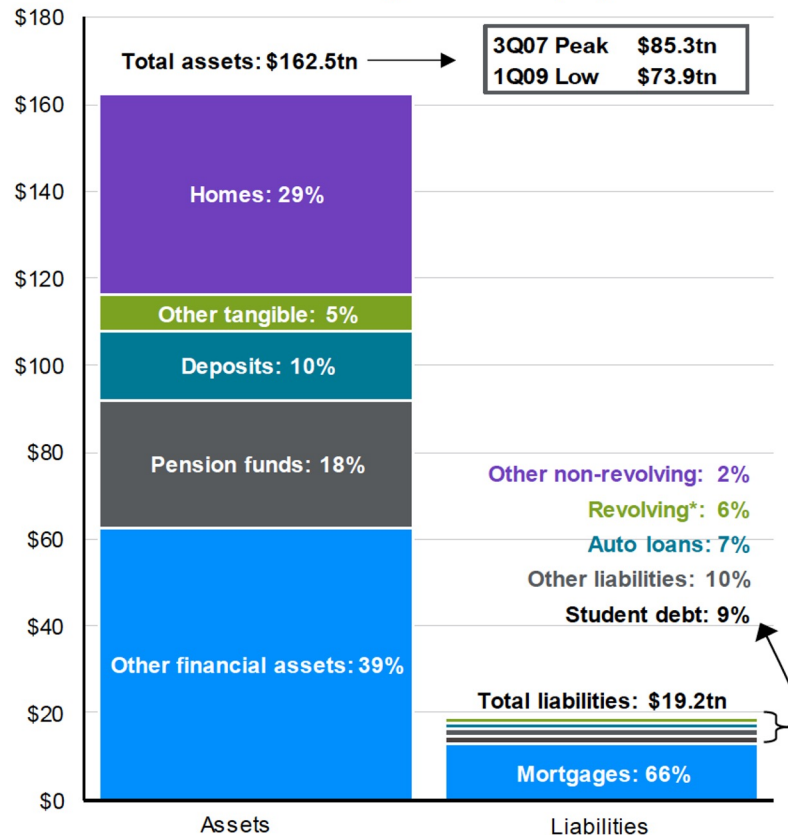
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AssetGrade Market Summary

High inflation and a continued pace of spending has led to a drop in the personal savings rate

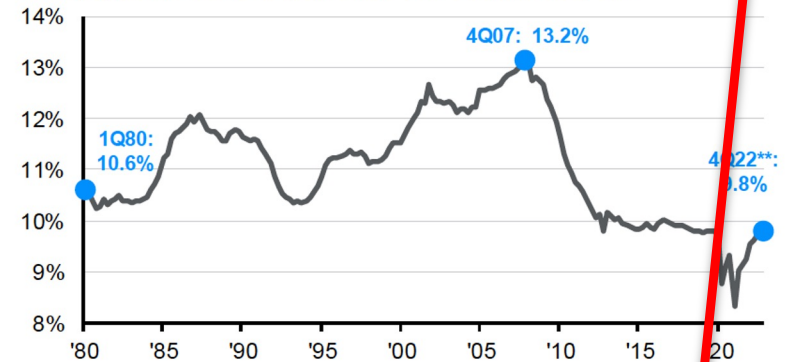
Consumer balance sheet

3Q22, trillions of dollars outstanding, not seasonally adjusted



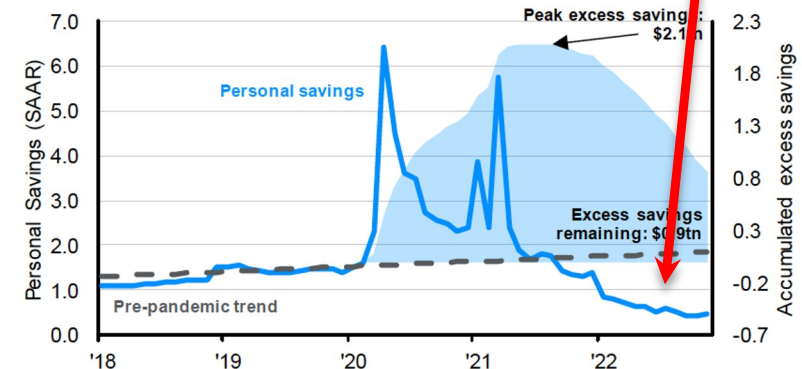
Household debt service ratio

Debt payments as % of disposable personal income, SA



Household excess savings

Trillions of USD



Source: FactSet, FRB, J.P. Morgan Asset Management; (Top and bottom right) BEA.

Data include households and nonprofit organizations. SA – seasonally adjusted. *Revolving includes credit cards. Values may not sum to 100% due to rounding. **4Q22 figures for debt service ratio are J.P. Morgan Asset Management estimates. From March 2020 to August 2021, consumers amassed a peak \$2.1 trillion in excess savings relative to the pre-pandemic trend. Since August 2021, consumers have drawn down on those excess savings, with the remaining reflected in the chart annotation.

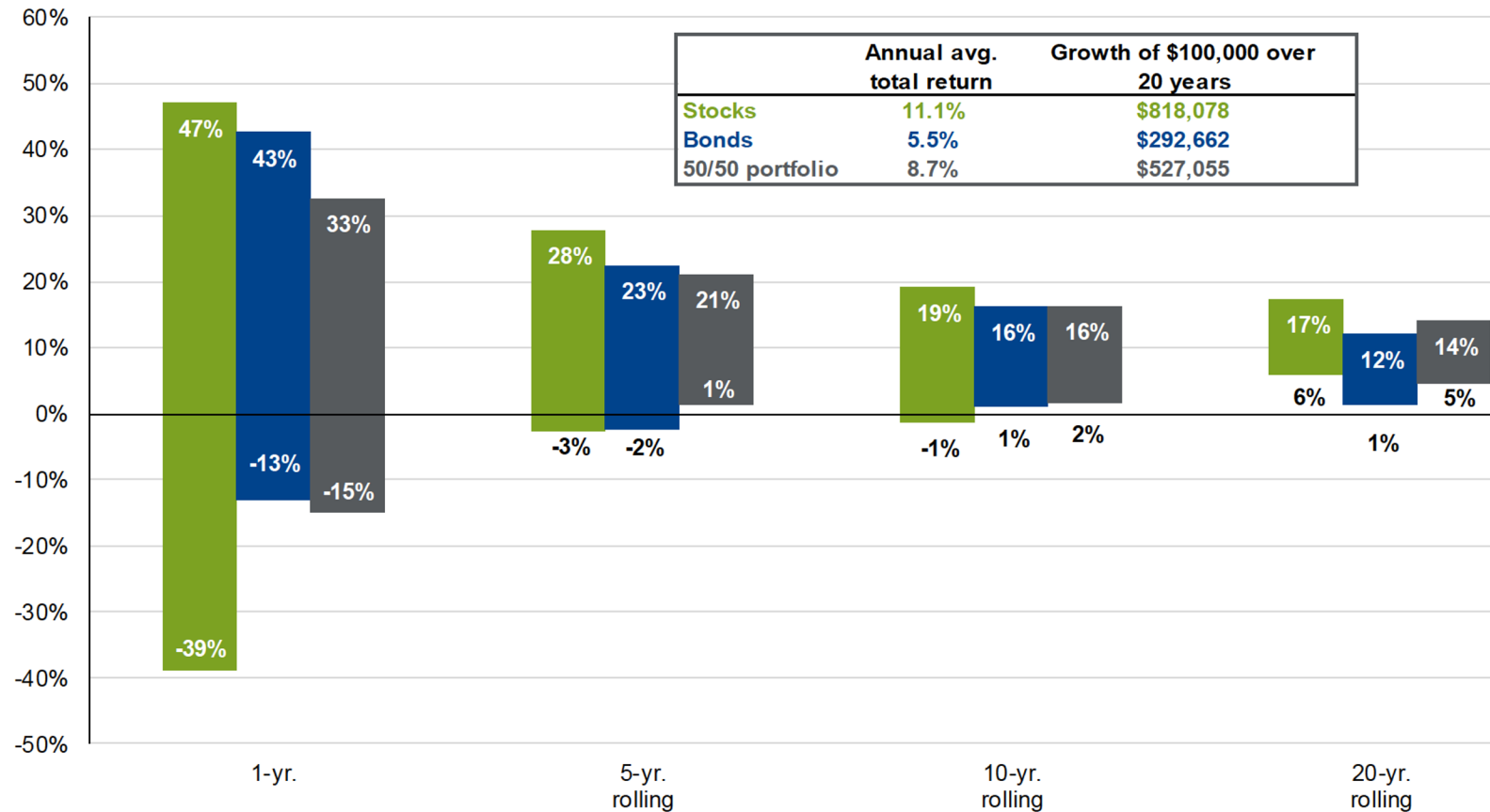
Guide to the Markets – U.S. Data are as of December 31, 2022.

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AssetGrade Market Summary

Diversification over time

Range of stock, bond and blended total returns
Annual total returns, 1950-2022



Source: Bloomberg, FactSet, Federal Reserve, Robert Shiller, Strategas/Ibbotson, J.P. Morgan Asset Management.
Returns shown are based on calendar year returns from 1950 to 2021. Stocks represent the S&P 500 Shiller Composite and Bonds represent Strategas/Ibbotson for periods from 1950 to 2010 and Bloomberg Aggregate thereafter. Growth of \$100,000 is based on annual average total returns from 1950 to 2022.
Guide to the Markets – U.S. Data are as of December 31, 2022.

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All indexes are unmanaged and an individual cannot invest directly in an index. Index returns do not include fees or expenses.

Equities:

The **Dow Jones Industrial Average** is a price-weighted average of 30 actively traded blue-chip U.S. stocks.

The **MSCI ACWI (All Country World Index)** is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets.

The **MSCI EAFE Index(Europe, Australasia, Far East)** is a free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the US & Canada.

The **MSCI Emerging Markets Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets.

The **MSCI Europe Index** is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in Europe.

The **MSCI Pacific Index** is a free float-adjusted market capitalization index that is designed to measure equity market performance in the Pacific region.

The **Russell 1000 Index®** measures the performance of the 1,000 largest companies in the Russell 3000.

The **Russell 1000 Growth Index®** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

The **Russell 1000 Value Index®** measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell 2000 Index®** measures the performance of the 2,000 smallest companies in the Russell 3000 Index.

The **Russell 2000 Growth Index®** measures the performance of those Russell 2000 companies with higher price-to-book ratios and higher forecasted growth values.

The **Russell 2000 Value Index®** measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

The **Russell 3000 Index®** measures the performance of the 3,000 largest U.S. companies based on total market capitalization.

The **Russell Midcap Index®** measures the performance of the 800 smallest companies in the Russell 1000 Index.

The **Russell Midcap Growth Index®** measures the performance of those Russell Midcap companies with higher price-to-book ratios and higher forecasted growth values. The stocks are also members of the Russell 1000 Growth index.

The **Russell Midcap Value Index®** measures the performance of those Russell Midcap companies with lower price-to-book ratios and lower forecasted growth values. The stocks are also members of the Russell 1000 Value index.

The **S&P 500 Index** is widely regarded as the best single gauge of the U.S. equities market. The index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. The **S&P 500 Index** focuses on the large-cap segment of the market; however, since it includes a significant portion of the total value of the market, it also represents the market.

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Disclosures

Fixed income:

The **Bloomberg Barclays 1-3 Month U.S. Treasury Bill Index** includes all publicly issued zero-coupon US Treasury Bills that have a remaining maturity of less than 3 months and more than 1 month, are rated investment grade, and have \$250 million or more of outstanding face value. In addition, the securities must be denominated in U.S. dollars and must be fixed rate and non convertible.

The **Bloomberg Barclays Global High Yield Index** is a multi-currency flagship measure of the global high yield debt market. The index represents the union of the US High Yield, the Pan-European High Yield, and Emerging Markets (EM) Hard Currency High Yield Indices. The high yield and emerging markets sub-components are mutually exclusive. Until January 1, 2011, the index also included CMBS high yield securities.

The **Bloomberg Barclays Municipal Index** consists of a broad selection of investment-grade general obligation and revenue bonds of maturities ranging from one year to 30 years. It is an unmanaged index representative of the tax-exempt bond market.

The **Bloomberg Barclays US Dollar Floating Rate Note (FRN) Index** provides a measure of the U.S. dollar denominated floating rate note market.

The **Bloomberg Barclays US Corporate Investment Grade Index** is an unmanaged index consisting of publicly issued US Corporate and specified foreign debentures and secured notes that are rated investment grade (Baa3/BBB or higher) by at least two ratings agencies, have at least one year to final maturity and have at least \$250 million par amount outstanding. To qualify, bonds must be SEC-registered.

The **Bloomberg Barclays US 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.

The **Bloomberg Barclays US Mortgage Backed Securities Index** is an unmanaged index that measures the performance of investment grade fixed-rate mortgage backed pass-through securities of GNMA, FNMA and FHLMC.

The **Bloomberg Barclays US TIPS Index** consists of Inflation-Protection securities issued by the U.S. Treasury.

The **J.P. Morgan Emerging Market Bond Global Index(EMBI)** includes U.S. dollar denominated Brady bonds, Eurobonds, traded loans and local market debt instruments issued by sovereign and quasi-sovereign entities.

The **J.P. Morgan Domestic High Yield Index** is designed to mirror the investable universe of the U.S. dollar domestic high yield corporate debt market.

The **J.P. Morgan Corporate Emerging Markets Bond Index Broad Diversified (CEMBI Broad Diversified)** is an expansion of the **J.P. Morgan Corporate Emerging Markets Bond Index (CEMBI)**. The CEMBI is a market capitalization weighted index consisting of U.S. dollar denominated emerging market corporate bonds.

The **J.P. Morgan Emerging Markets Bond Index Global Diversified (EMBI Global Diversified)** tracks total returns for U.S. dollar-denominated debt instruments issued by emerging market sovereign and quasi-sovereign entities: Brady bonds, loans, Eurobonds. The index limits the exposure of some of the larger countries.

The **J.P. Morgan 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.

Other asset classes: The **Alerian MLP Index** is a composite of the 50 most prominent energy Master Limited Partnerships (MLPs) that provides investors with an unbiased, comprehensive benchmark for the asset class. The **Bloomberg Commodity Index** and related sub-indices are composed of futures contracts on physical commodities and represents twenty two separate commodities traded on U.S. exchanges, with the exception of aluminum, nickel, and zinc. The **Cambridge Associates U.S. Global Buyout and Growth Index®** is based on data compiled from 1,768 global (U.S. & ex – U.S.) buyout and growth equity funds, including fully liquidated partnerships, formed between 1986 and 2013. The **CS/Tremont Hedge Fund Index** is compiled by Credit Suisse Tremont Index, LLC. It is an asset-weighted hedge fund index and includes only funds, as opposed to separate accounts. The Index uses the Credit Suisse/Tremont database, which tracks over 4500 funds, and consists only of funds with a minimum of US\$50 million under management, a 12-month track record, and audited financial statements. It is calculated and rebalanced on a monthly basis, and shown net of all performance fees and expenses. It is the exclusive property of Credit Suisse Tremont Index, LLC. The **HFRI Monthly Indices (HFRI)** are equally weighted performance indexes, utilized by numerous hedge fund managers as a benchmark for their own hedge funds. The HFRI are broken down into 4 main strategies, each with multiple sub strategies. All single-manager HFRI Index constituents are included in the HFRI Fund Weighted Composite, which accounts for over 2200 funds listed on the internal HFR Database. The **NAREIT EQUITY REIT Index** is designed to provide the most comprehensive assessment of overall industry performance and includes all tax-qualified real estate investment trusts (REITs) that are listed on the NYSE, the American Stock Exchange or the NASDAQ National Market List. The **NFI-ODCE**, short for NCREIF Fund Index - Open End Diversified Core Equity, is an index of investment returns reporting on both a historical and current basis the results of 33 open-end commingled funds pursuing a core investment strategy, some of which have performance histories dating back to the 1970s. The NFI-ODCE Index is capitalization-weighted and is reported gross of fees. Measurement is time-weighted.

The **U.S. Treasury Index** is a component of the U.S. Government index.