

Fixed Income Investing

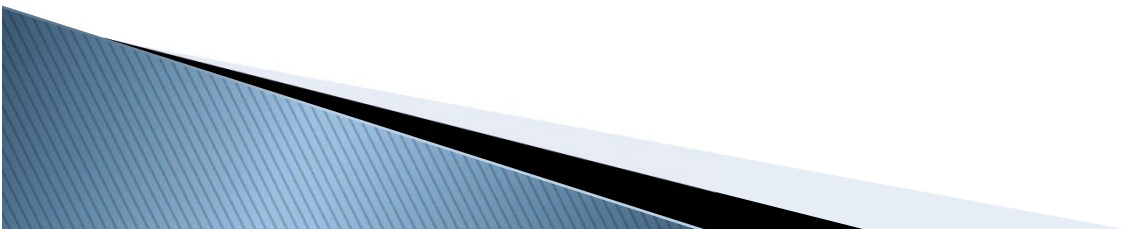
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714-738-0220

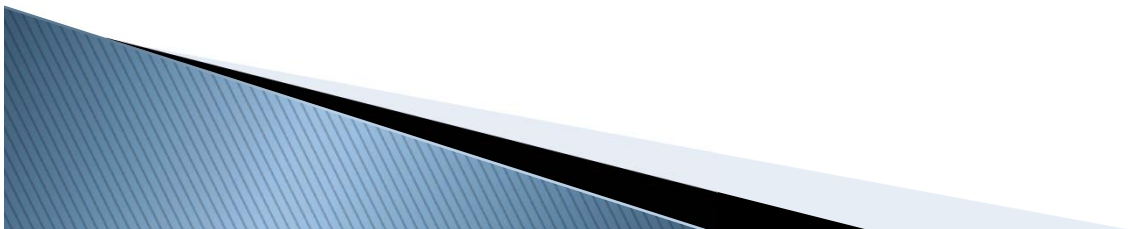
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Fixed Income Investing

- ▶ Definition – What is fixed income?
- ▶ Categories – What are the types of fixed income?
- ▶ Benefits – Why own fixed income?
- ▶ Risks – What should you watch out for?
- ▶ Investing – How to invest in fixed income?



Definition:

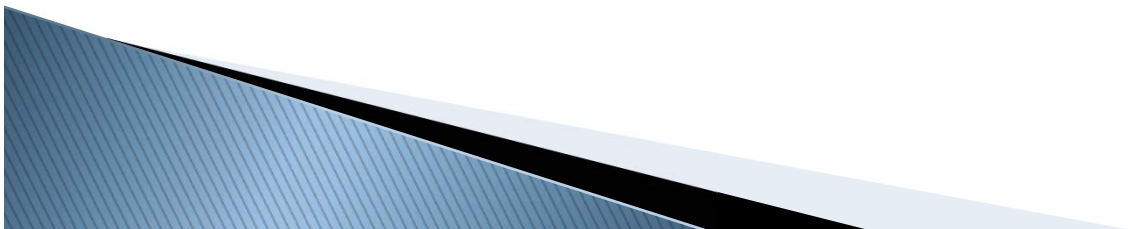
What is fixed income?



Definition:

What is fixed income?

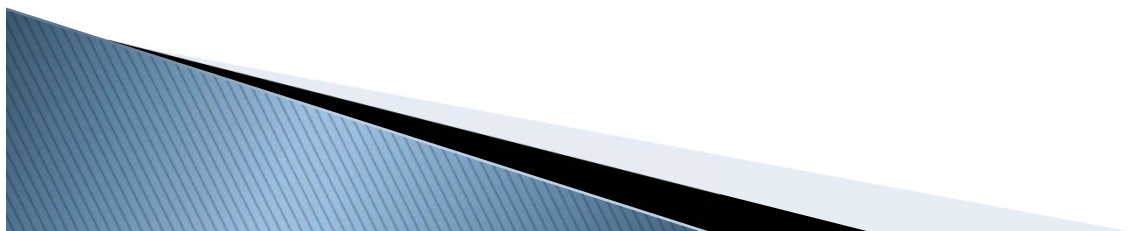
- ▶ A loan to a company or to the government
- ▶ They promise to pay you back, with interest
- ▶ Interest paid on a regular basis (monthly, quarterly, semi-annually, or annually)
- ▶ You get the full loan amount back at maturity



Definition:

Why is it called “fixed”?

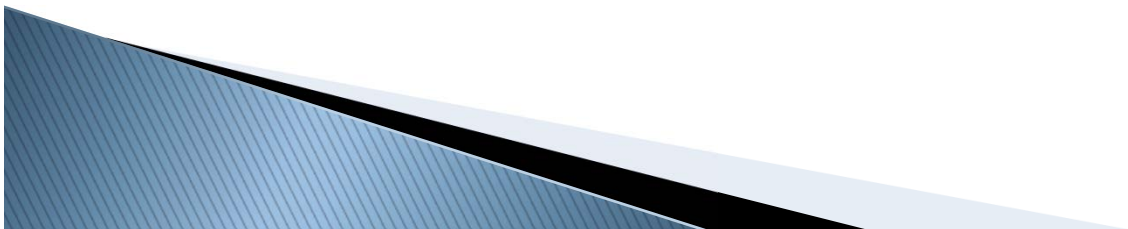
- ▶ The terms of investment return are fixed:
 - ▶ Interest rate
 - ▶ Frequency of interest payments
 - ▶ Maturity date
 - ▶ Return of principal (“par value” or “face value”)



Categories:

What are the types of fixed income?

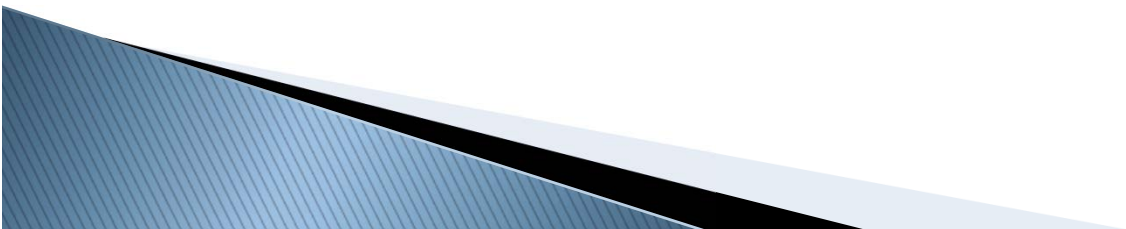
- ▶ Certificate of Deposit
- ▶ U.S. Treasury Security / TIPS
- ▶ Agency / Mortgage-backed
- ▶ Municipal
- ▶ Corporate
- ▶ Foreign
- ▶ And more.....



Categories:

Certificates of Deposit (CDs)

- ▶ Maturities range from 30 days to 5 years
- ▶ FDIC insured return of principal
 - Up to \$250,000 per person
- ▶ Convenient, can purchase small amounts, but...
- ▶ Often have early withdrawal penalty



Categories:

U.S. Treasury Securities

- ▶ Exempt from state and local taxes (but included in AMT)
- ▶ Considered risk-free

- ▶ Bills – less than 1 year (4, 13, 26, or 52 weeks)
 - Interest accrues and pays at maturity
 - Not callable

- ▶ Notes – 2 to 10 years
 - Semi-annual interest payments
 - Sometimes callable

- ▶ Bonds – 10 to 30 years
 - Semi-annual interest payments
 - Sometimes callable



Categories:

Treasury Inflation-Protected Securities (TIPS)

- ▶ **Principal**
 - Increases with inflation every six months
(or, decreases with deflation)
 - Follows the Consumer Price Index (CPI-U)
 - At maturity, receive adjusted principal or original amount
- ▶ **Interest**
 - Payments based on adjusted principal, paid semi-annually
- ▶ Helps protect against future inflation, but....
- ▶ Principal adjustments are taxable (phantom income)



Categories:

Agencies / Mortgage-Backed Securities

- ▶ Explicit government backing:

- Government National Mortgage Association (GNMA, “Ginnie Mae”)

- ▶ Implicit government backing:

- Federal National Mortgage Association (FNMA, “Fannie Mae”)
- Federal Home Loan Mortgage Corporation (FHLMC, “Freddie Mac”)

- ▶ Alphabet soup that got us into hot water:

- RMBS, SMBS, CDOs, SCDOs, etc.



Categories:

Municipal (tax exempt)

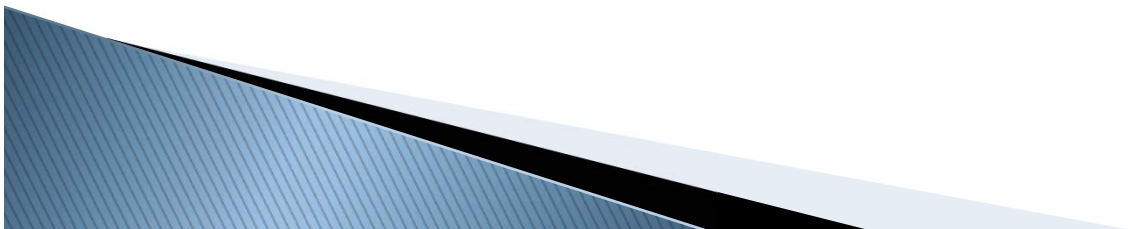
- ▶ Generally pay lower interest rates
- ▶ Exempt from federal taxes
- ▶ Can be exempt from state taxes
 - State-specific vs. national
- ▶ General obligation vs. revenue
- ▶ Some are insured, but....



Categories:

Corporates (taxable)

- ▶ Taxable – federal & state/local
- ▶ Higher interest paid than municipal bonds, but...
- ▶ Higher default rates also
- ▶ Secured vs. unsecured
- ▶ Senior vs. subordinate
- ▶ Investment grade vs. high yield
- ▶ Convertible = corporate bond that can be converted to shares of common stock



Categories:

When to buy corporates or municipals?

- ▶ Taxable equivalent yield = tax free interest rate divided by one minus your marginal tax rate.
- ▶ One example:

4.0% tax free interest from municipal bond

A person in the 32% federal tax bracket

4.0% divided by (1 minus .32) =
4.0% divided by .68 =
5.88% taxable equivalent yield



Categories:

When to buy corporates or municipals?

- ▶ Another example:

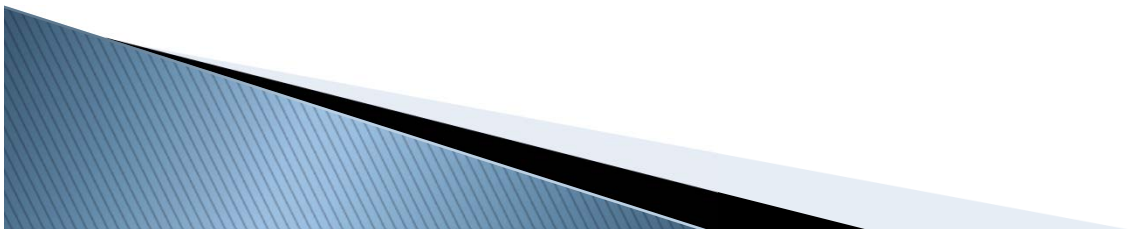
4.0% tax free interest from municipal bond

A person in the 10% federal tax bracket

4.0% divided by (1 minus .10) =

4.0% divided by .90 =

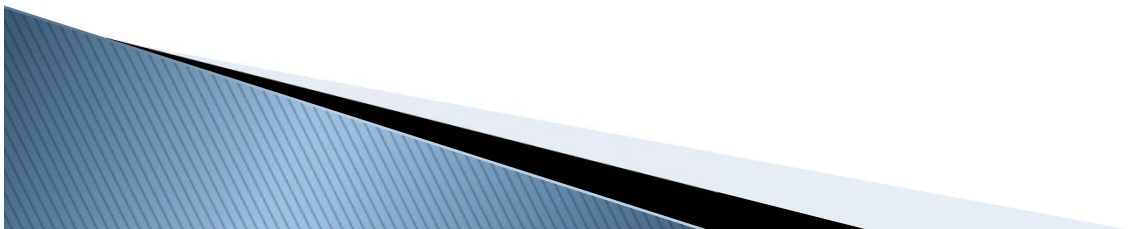
4.44% taxable equivalent yield



Categories:

Foreign (International)

- ▶ Government vs. corporate
- ▶ Developed vs. emerging markets
- ▶ Diversification, but added risks:
 - Currency risk
 - Political risk



Categories:

Rates of return (yields/dividends)

Investment	Current Yield	Historical Rate	Interest Rates Increase	Interest Rates Decrease	Notes
Cash (Savings)	0%	1%	Pay more	Pay less	
Money Market	0%	2-3%	Pay more	Pay less	*\$1 per share
Bonds					
Municipal	1-2%	2-3%	Lose value	Gain value	
Corporate	2-3%	3-5%	Lose value	Gain value	
Government	2-3%	3-4%	Lose value	Gain value	
High Yield	5%	9-10%	Lose value	Gain value	aka "junk"
Foreign	4-9%+	5-10%+	Lose value*	Gain value*	*currency +/-
Stocks (Dividend)	2%	2-4%	it depends...		

Benefits:

Why own fixed income?

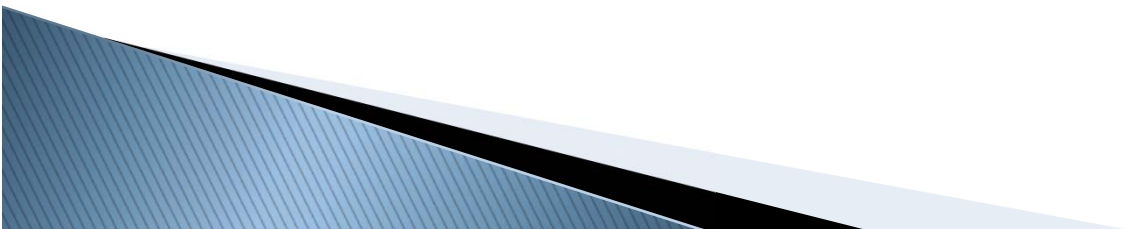
- ▶ Regular income payments
- ▶ Yields more than cash (especially right now)
- ▶ Corporate bonds have average returns of 6.1% per year since 1926
- ▶ Diversification
 - Helps smooth out returns
 - Usually zigs when stocks zag
 - Helps reduce risk



Risks:

What should you watch out for?

- ▶ Credit Risk
- ▶ Interest Rate Risk
- ▶ Inflation Risk
- ▶ Reinvestment Risk



Risks:

Credit Risk

- ▶ Default = the risk that the borrower won't be able to pay you back.
- ▶ Bond ratings are available from several companies (Standard & Poor's, Moody's)...
- ▶ ...but, they're only a start and are far from perfect.



Risks:

Credit Risk

Standard & Poor's	
<i>INVESTMENT GRADE</i>	
AAA	Best quality, smallest risk.
AA	
A	
BBB	Medium quality, currently adequate.
<i>HIGH YIELD</i>	
BB	
B	
CCC	Poor quality, clear danger of default.
CC	
C	
D	Junk bonds – in default

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	2006 - 2020	
																Ann.	Vol.
REITs	EM Equity	Fixed Income	EM Equity	REITs	REITs	REITs	Small Cap	REITs	REITs	Small Cap	EM Equity	Cash	Large Cap	Small Cap	REITs	Large Cap	EM Equity
35.1%	39.8%	5.2%	79.0%	27.9%	8.3%	19.7%	38.8%	28.0%	2.8%	21.3%	37.8%	1.8%	31.5%	20.0%	29.3%	9.9%	23.3%
EM Equity	Comdty.	Cash	High Yield	Small Cap	Fixed Income	High Yield	Large Cap	Large Cap	Large Cap	High Yield	DM Equity	Fixed Income	REITs	EM Equity	Comdty.	Small Cap	REITs
32.6%	16.2%	1.8%	59.4%	26.9%	7.8%	19.6%	32.4%	13.7%	1.4%	14.3%	25.6%	0.0%	28.7%	18.7%	23.0%	8.9%	23.1%
DM Equity	DM Equity	Asset Alloc.	DM Equity	EM Equity	High Yield	EM Equity	DM Equity	Fixed Income	Fixed Income	Large Cap	Large Cap	REITs	Small Cap	Large Cap	Large Cap	High Yield	Small Cap
26.9%	11.6%	-25.4%	32.5%	19.2%	3.1%	18.6%	23.3%	6.0%	0.5%	12.0%	21.8%	-4.0%	25.5%	18.4%	21.6%	7.5%	22.6%
Small Cap	Asset Alloc.	High Yield	REITs	Comdty.	Large Cap	DM Equity	Asset Alloc.	Asset Alloc.	Cash	Comdty.	Small Cap	High Yield	DM Equity	Asset Alloc.	Small Cap	REITs	DM Equity
18.4%	7.1%	-26.9%	28.0%	16.8%	2.1%	17.9%	14.9%	5.2%	0.0%	11.8%	14.6%	-4.1%	22.7%	10.6%	15.8%	7.1%	19.1%
Large Cap	Fixed Income	Small Cap	Small Cap	Large Cap	Cash	Small Cap	High Yield	Small Cap	DM Equity	EM Equity	Asset Alloc.	Large Cap	Asset Alloc.	DM Equity	DM Equity	EM Equity	Comdty.
15.8%	7.0%	-33.8%	27.2%	15.1%	0.1%	16.3%	7.3%	4.9%	-0.4%	11.6%	14.6%	-4.4%	19.5%	8.3%	12.0%	6.9%	18.8%
Asset Alloc.	Large Cap	Comdty.	Large Cap	High Yield	Asset Alloc.	Large Cap	REITs	Cash	Asset Alloc.	REITs	High Yield	Asset Alloc.	EM Equity	Fixed Income	Asset Alloc.	Asset Alloc.	Large Cap
15.0%	5.5%	-35.6%	27.5%	14.8%	-0.7%	16.0%	2.9%	0.0%	-2.0%	8.6%	10.4%	-5.8%	18.9%	7.5%	11.5%	6.7%	16.7%
High Yield	Cash	Large Cap	Asset Alloc.	Asset Alloc.	Small Cap	Asset Alloc.	Cash	High Yield	High Yield	Asset Alloc.	REITs	Small Cap	High Yield	High Yield	EM Equity	DM Equity	High Yield
13.7%	4.8%	-37.0%	25.0%	13.3%	-4.2%	12.2%	0.0%	0.0%	-2.7%	8.3%	8.7%	-11.0%	12.6%	7.0%	3.1%	5.0%	12.2%
Cash	High Yield	REITs	Comdty.	DM Equity	DM Equity	Fixed Income	Fixed Income	EM Equity	Small Cap	Fixed Income	Fixed Income	Comdty.	Fixed Income	Cash	High Yield	Fixed Income	Asset Alloc.
4.8%	3.2%	-37.7%	18.9%	8.2%	-11.7%	4.2%	-2.0%	-1.8%	-4.4%	2.6%	3.5%	-11.2%	8.7%	0.5%	2.8%	4.5%	11.8%
Fixed Income	Small Cap	DM Equity	Fixed Income	Fixed Income	Comdty.	Cash	EM Equity	DM Equity	EM Equity	DM Equity	Comdty.	DM Equity	Comdty.	Comdty.	Cash	Cash	Fixed Income
4.3%	-1.6%	-43.1%	5.9%	6.5%	-13.3%	0.1%	-2.3%	-4.5%	-14.6%	1.5%	1.7%	-13.4%	7.7%	-3.1%	0.0%	1.2%	3.2%
Comdty.	REITs	EM Equity	Cash	Cash	EM Equity	Comdty.	Comdty.	Comdty.	Comdty.	Cash	Cash	EM Equity	Cash	REITs	Fixed Income	Comdty.	Cash
2.1%	-15.7%	-53.2%	0.1%	0.1%	-18.2%	-1.1%	-9.5%	-17.0%	-24.7%	0.3%	0.8%	-14.2%	2.2%	-5.1%	-0.7%	-4.0%	0.8%

Source: Barclays, 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 Barclays Global HY Index, Fixed Income: Bloomberg Barclays US Aggregate, REITs: NAREIT Equity REIT Index, Cash: Bloomberg Barclays 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 Barclays US Aggregate, 5% in the Bloomberg Barclays 1-3m Treasury, 5% in the Bloomberg Barclays 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 12/31/05 to 12/31/20. 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.

Guide to the Markets – U.S. Data are as of August 31, 2021.

Fixed income sector returns

GTM - U.S. | 49

Fixed income	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	2006-2020	
	EMD LCL. 15.2%	EMD LCL. 18.1%	Treas. 13.7%	High Yield 58.2%	EMD LCL. 15.7%	TIPS 13.6%	EMD USD 17.4%	High Yield 7.4%	Muni 9.1%	Muni 3.3%	High Yield 17.1%	EMD LCL. 15.2%	ABS 2.7%	EMD USD 15.0%	TIPS 11.0%	High Yield 4.5%	Ann. High Yield 7.5%	Vol. EMD LCL. 11.9%
	High Yield 11.8%	TIPS 11.6%	MBS 8.3%	EMD USD 29.8%	High Yield 15.1%	Muni 10.7%	EMD LCL. 16.8%	ABS 1.3%	Corp. 7.5%	MBS 1.5%	EMD USD 10.2%	EMD USD 10.3%	Muni 1.3%	Corp. 14.5%	Corp. 9.9%	TIPS 4.3%	EMD USD 6.9%	High Yield 11.2%
	EMD USD 9.9%	Treas. 9.0%	Barclays Agg 5.2%	ABS 24.7%	EMD USD 12.2%	Treas. 9.8%	High Yield 15.8%	MBS -1.4%	EMD USD 7.4%	EMD USD 1.2%	EMD LCL. 9.9%	High Yield 7.5%	MBS 1.0%	High Yield 14.3%	Treas. 8.0%	Muni 1.5%	Corp. 5.8%	EMD USD 8.8%
	Asset Alloc. 5.8%	Barclays Agg 7.0%	Asset Alloc. -1.9%	EMD LCL. 22.0%	Corp. 9.0%	Corp. 8.2%	Corp. 9.8%	Corp. -1.5%	MBS 6.1%	Treas. 0.8%	Corp. 6.1%	Corp. 6.4%	Treas. 0.9%	EMD LCL. 13.5%	Barclays Agg 7.5%	ABS 1.5%	EMD LCL. 5.1%	Corp. 5.9%
	MBS 5.2%	MBS 6.9%	TIPS -2.4%	Corp. 19.7%	Asset Alloc. 7.6%	Barclays Agg 7.8%	Asset Alloc. 7.6%	Asset Alloc. -1.7%	Barclays Agg 6.0%	Barclays Agg 0.6%	Asset Alloc. 4.8%	Muni 5.4%	Barclays Agg 0.0%	Asset Alloc. 9.8%	High Yield 7.1%	EMD USD 0.5%	Asset Alloc. 4.7%	Treas. 4.9%
	Muni 4.8%	Asset Alloc. 6.2%	Muni -2.5%	Asset Alloc. 16.5%	Barclays Agg 6.5%	Asset Alloc. 7.7%	TIPS 7.0%	Barclays Agg -2.0%	Asset Alloc. 5.4%	ABS 0.2%	TIPS 4.7%	Asset Alloc. 5.3%	Asset Alloc. -0.6%	Barclays Agg 8.7%	Asset Alloc. 6.6%	Asset Alloc. 0.5%	Barclays Agg 4.5%	TIPS 4.9%
	ABS 4.7%	EMD USD 6.2%	Corp. -4.9%	Muni 12.9%	TIPS 6.3%	EMD USD 7.3%	Muni 6.8%	Muni -2.6%	Treas. 5.0%	Asset Alloc. -0.4%	Barclays Agg 2.6%	Barclays Agg 3.5%	TIPS -1.3%	TIPS 8.4%	EMD USD 5.3%	Corp. -0.2%	Muni 4.5%	ABS 4.3%
	Barclays Agg 4.3%	Corp. 4.6%	EMD LCL. -5.2%	TIPS 11.4%	Treas. 5.9%	MBS 6.2%	Barclays Agg 4.2%	Treas. -2.8%	TIPS 3.6%	Corp. -0.7%	ABS 2.0%	TIPS 3.0%	High Yield -2.1%	Muni 7.5%	Muni 5.2%	MBS -0.3%	TIPS 4.3%	Muni 3.8%
	Corp. 4.3%	Muni 3.4%	EMD USD -12.0%	Barclays Agg 5.9%	ABS 5.8%	ABS 5.1%	ABS 3.7%	EMD USD -5.2%	High Yield 2.5%	TIPS -1.4%	MBS 1.7%	ABS 3.0%	Corp. -2.5%	Treas. 6.9%	MBS 3.9%	Barclays Agg -0.7%	MBS 4.1%	Asset Alloc. 3.8%
	Treas. 3.1%	ABS 2.2%	ABS -12.7%	MBS 5.9%	MBS 5.4%	High Yield 5.0%	MBS 2.6%	TIPS -8.6%	ABS 1.7%	High Yield -4.5%	Treas. 1.0%	MBS 2.5%	EMD USD -4.3%	MBS 6.4%	ABS 3.4%	Treas. -1.4%	Treas. 4.0%	Barclays Agg 3.2%
	TIPS 0.4%	High Yield 1.9%	High Yield -26.2%	Treas. -3.6%	Muni 2.4%	EMD LCL. -1.8%	Treas. 2.0%	EMD LCL. -9.0%	EMD LCL. -5.7%	EMD LCL. -14.9%	Muni 0.2%	Treas. 2.3%	EMD LCL. -6.2%	ABS 3.8%	EMD LCL. 2.7%	EMD LCL. -3.6%	ABS 3.4%	MBS 2.5%

Source: Barclays, Bloomberg, FactSet, J.P. Morgan Global Economic Research, J.P. Morgan Asset Management.

Past performance is not indicative of future returns. Fixed income sectors shown above are provided by Bloomberg unless otherwise noted and are represented by Broad Market: U.S. Aggregate Index; MBS: US Aggregate Securitized - MBS Index; ABS: J.P. Morgan ABS Index; Corporate: U.S. Aggregate Credit - Corporates - Investment Grade; Municipals: Municipal Bond Index; High Yield: U.S. Aggregate Credit - Corporate - High Yield Index; Treasuries: Global U.S. Treasury; TIPS: U.S. Treasury Inflation-Protected Notes Index; Emerging Debt USD: J.P. Morgan EMBIG Diversified Index; Emerging Debt LCL: J.P. Morgan EM Global Index. The "Asset Allocation" portfolio assumes the following weights: 20% in MBS, 5% in ABS, 20% in Corporate, 15% in Municipals, 5% in Emerging Debt USD, 5% in Emerging Debt LCL, 10% in High Yield, 15% in Treasuries, 5% in TIPS. Asset allocation portfolio assumes annual rebalancing.
Guide to the Markets - U.S. Data are as of August 31, 2021.

J.P. Morgan
Asset Management

Risks:

Interest Rate Risk



INTEREST RATE RISE BITES

Risks:

Interest Rate Risk

- ▶ If interest rates rise, the prices of bonds go down.
 - Investors are not willing to pay as much for an existing bond paying 4% if new bonds are being issued at 6%. The 4% bond will have to be sold at a *discount*.
- ▶ If interest rates fall, the prices of bonds go up.
 - Investors are willing to pay more for that existing bond paying 4% if new bonds are being issued at 2%. The 4% bond will sell at a *premium*.
- ▶ The longer time until the bond matures, the greater the price fluctuation.

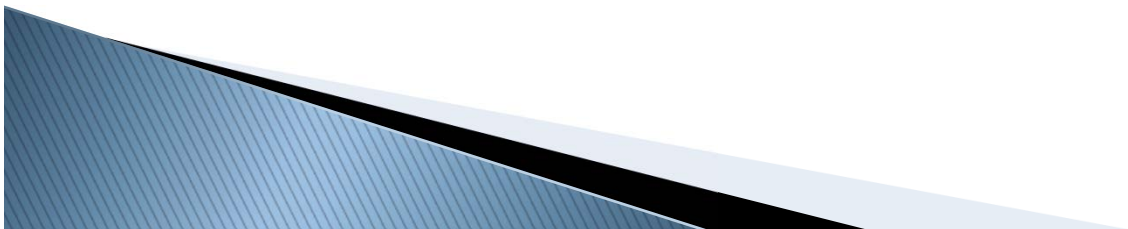


Risks:

Inflation

10 year AA corporate	2.46%
Inflation rate (2018)	1.90%
Real return	0.56%

- ▶ Inflation is the silent portfolio killer.
- ▶ Highest peacetime inflation rate = 13.3% in 1979
 - 10 Year Treasury in 1979 = 9.44%
- ▶ Inflation hurts fixed income, because the amount you receive is fixed.



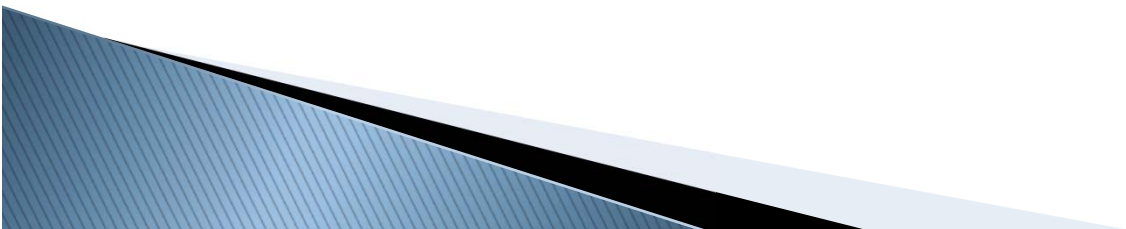
Risks:

Reinvestment

- ▶ Bond matures in a low interest rate environment and new bonds are not paying as much.

Example:

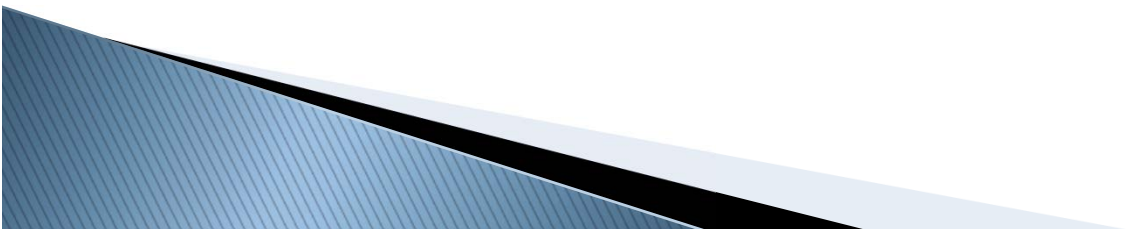
- Owned a 10 year corporate bond paying 5.5%
- Bond matures today – 10 year corporate bond paying only 3.4%



Investing:

How to invest in fixed income?

- ▶ Individual Bonds
- ▶ Mutual Funds/ETFs



Investing:

Pricing and Yield

- ▶ Bonds are sold with a \$1,000 face value, or par value.
- ▶ Prices are quoted as a percentage of this \$1,000 value.
Example:
 - A price of 103.5 means that the bond would sell for \$1,035.
 - When the bond matures, you will receive \$1,000.
- ▶ Which bond is better?

Name	Coupon	Maturity	Price	Yield to Maturity
Federal Home Loan Bank Note	3.625%	6/11/2021	110.694	2.38%
Federal Home Loan Bank Note	5.625%	6/11/2021	128.525	2.32%

Investing:

Individual Bonds vs. Mutual Funds/ETFs

▶ Individual bonds

- Better for large amounts (over \$100,000)
- Difficult to determine fair pricing and real risk
- Can be expensive to buy

▶ Bond ladder = invest similar amounts over several years

Example: \$100,000 total into bonds

- Purchase one \$20,000 maturing in 2013, one maturing in 2014, etc.
- Hold bonds until they mature

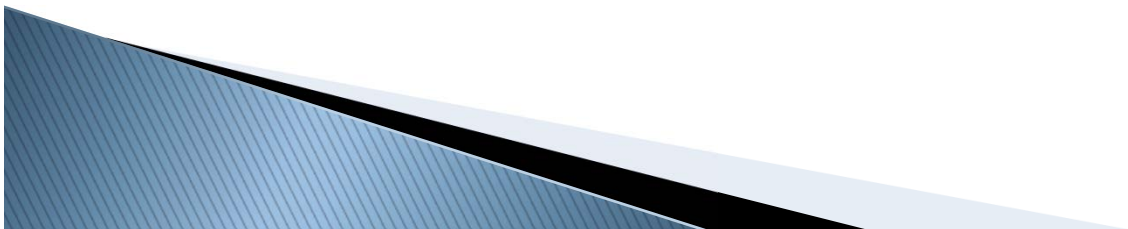
- ▶ Use ratings as a guide but can't rely on them 100%
- ▶ Hard to really diversify

Investing:

Individual Bonds vs. Mutual Funds/ETFs

▶ Mutual Funds

- Professional management and research
- Diversification
- More liquid than individual bonds, but...
- Added fees – so choose funds with low expenses
- No fixed income amount or maturity date

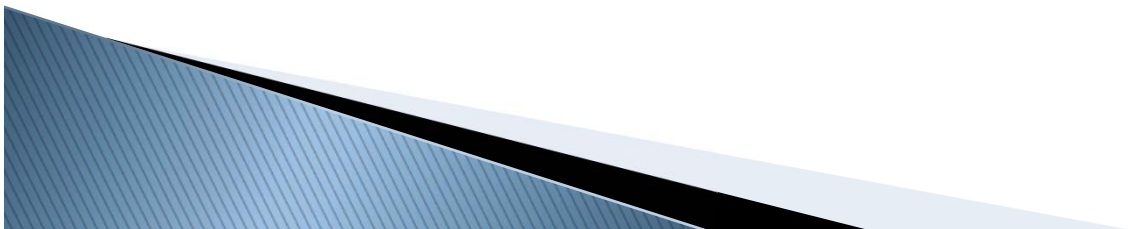


Investing:

Individual Bonds vs. Mutual Funds

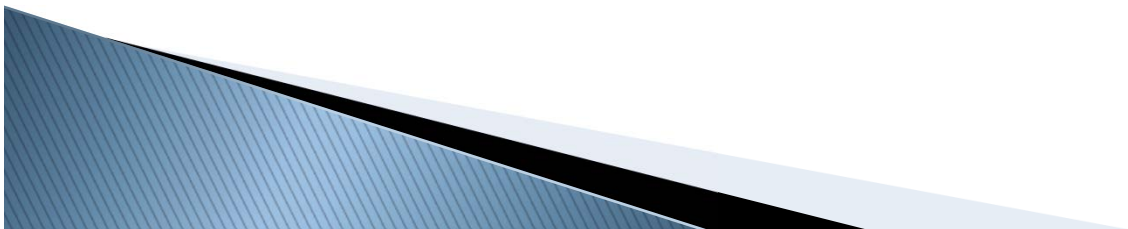
▶ Mutual Funds/ETFs

- Use short-term (less than 3 years)
 - And intermediate-term (3 to 10 years)
 - Avoid long-term (10 years+)
 - Longer maturity (“duration”) = more sensitive to interest rate changes
-
- ▶ Higher yield usually equals higher risk
 - What type of bonds does the fund invest in?
 - What are the risks involved with those types of bonds?



EA Solution to Bonds

- ▶ Vanguard ST Inv A (VFSUX)
 - Deutsche Short Duration (DBPIX)
 - ▶ MetWest Total Return (MWTIX/MWTRX)
 - ▶ PIMCO Income Fund (PIMIX/PONAX)
 - ▶ Vanguard Total Int'l Bond (BNDX)
 - ▶ BlackRock Strategic Income Bond (FSIIX/BASIX)
- ▶ Mix = 30/30/40



Fixed Income Investing

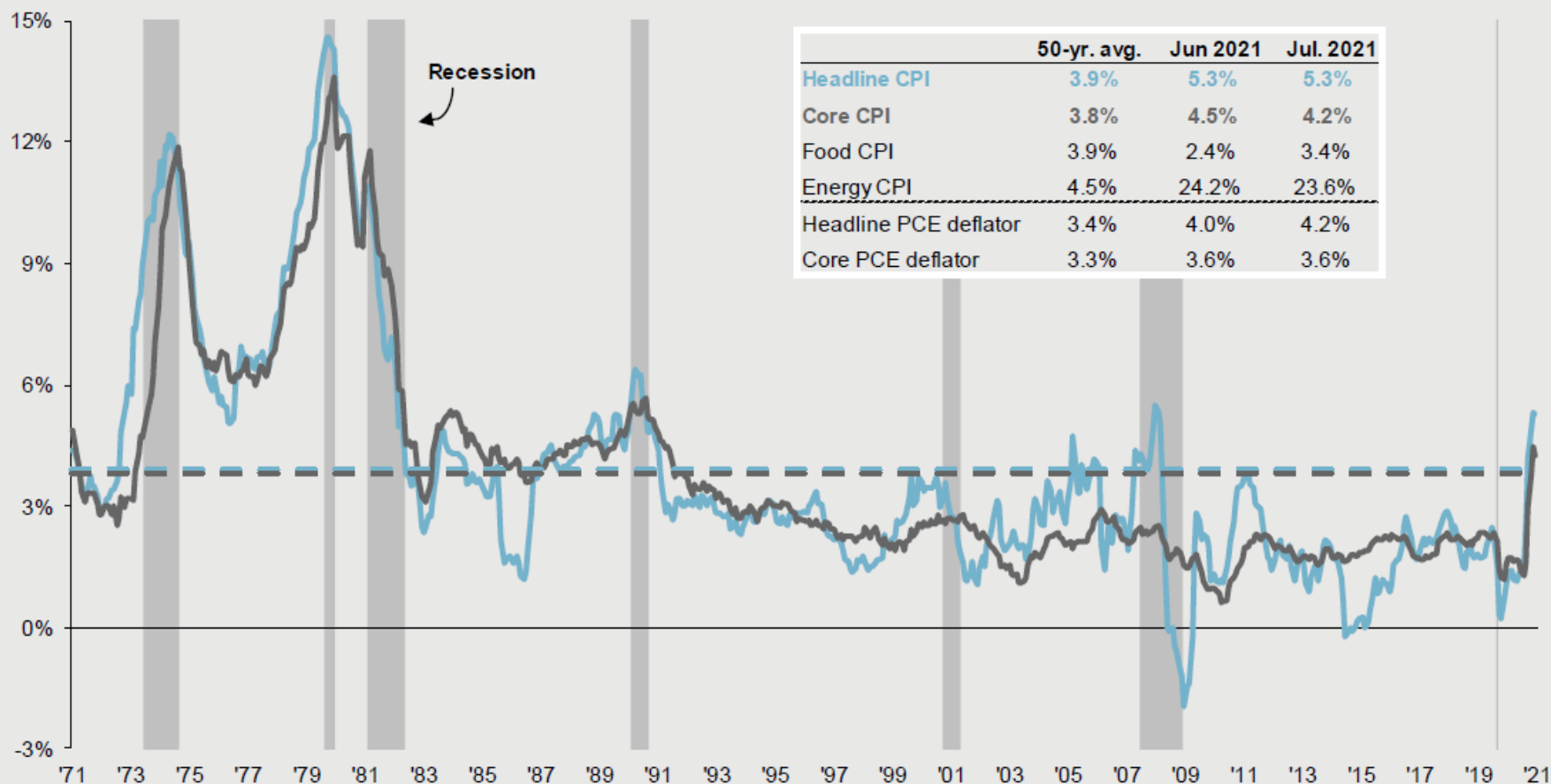
Thank you for attending!



"My fixed income broke again."

CPI and core CPI

% change vs. prior year, seasonally adjusted



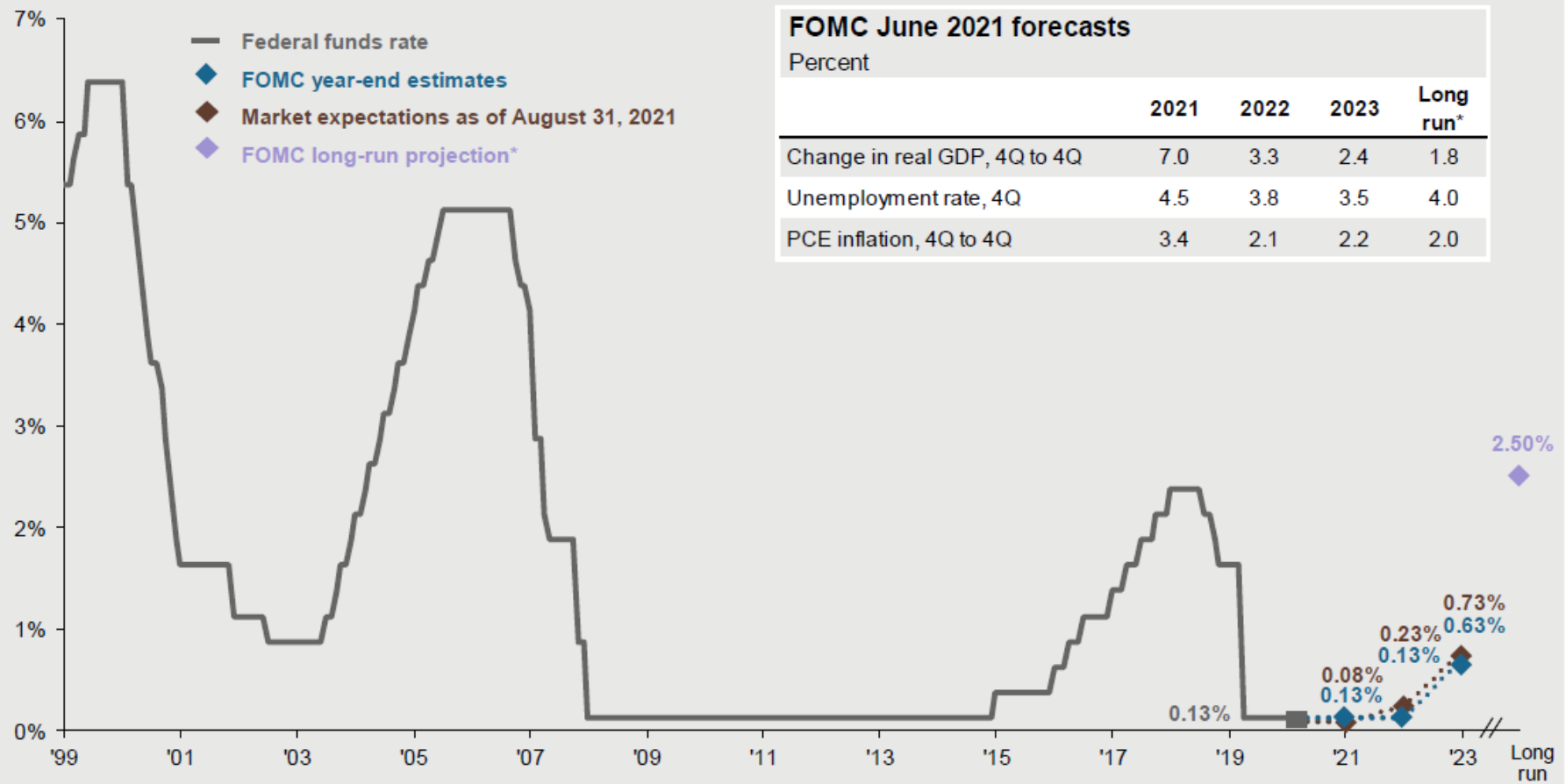
Source: BLS, FactSet, J.P. Morgan Asset Management.

CPI used is CPI-U and values shown are % change vs. one year ago. Core CPI is defined as CPI excluding food and energy prices. The Personal Consumption Expenditure (PCE) deflator employs an evolving chain-weighted basket of consumer expenditures instead of the fixed-weight basket used in CPI calculations.

Guide to the Markets – U.S. Data are as of August 31, 2021.

Federal funds rate expectations

FOMC and market expectations for the federal funds rate

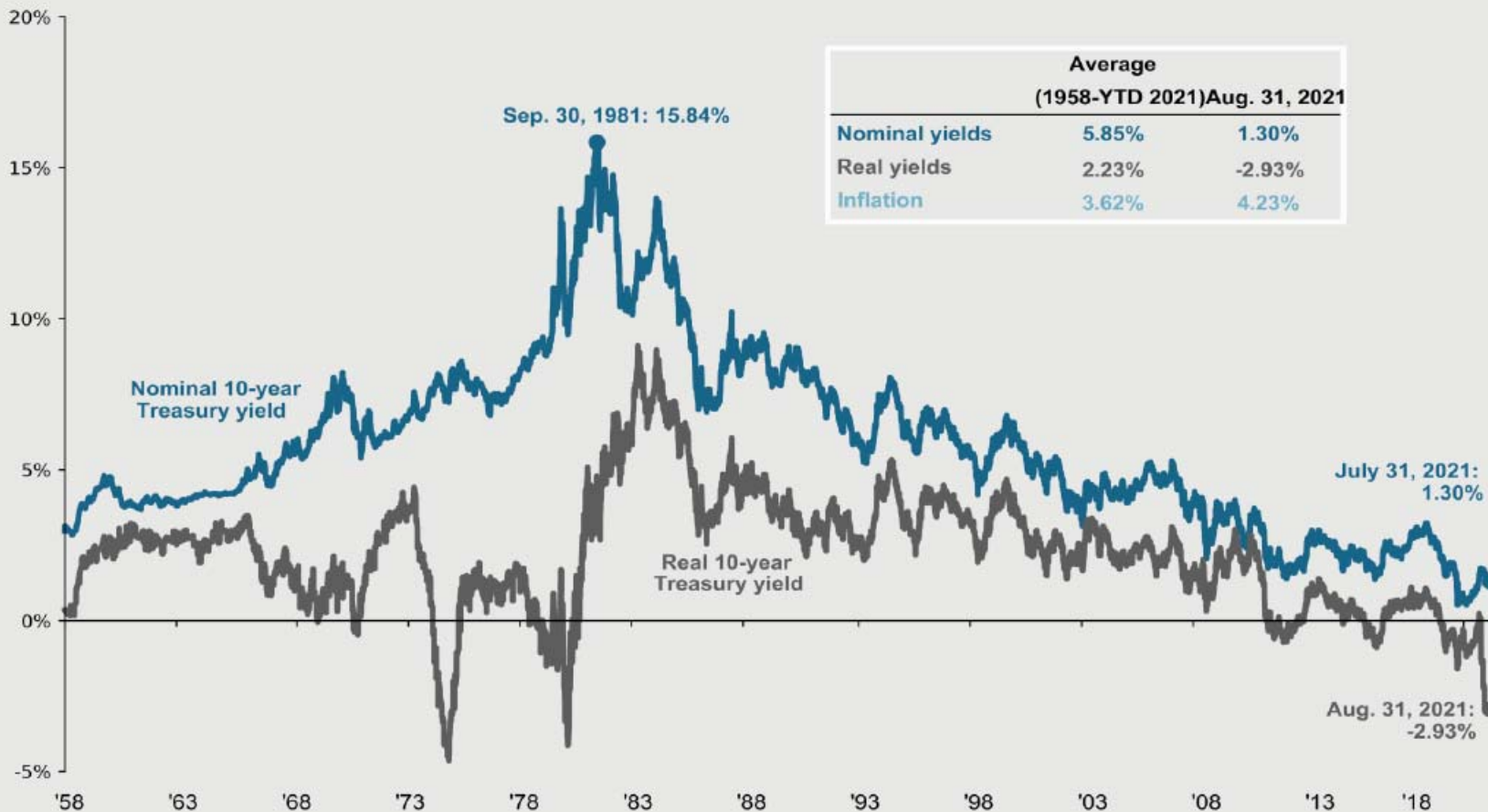


Source: Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management.

Market expectations are based off of the USD Overnight Index Forward Swap rates. *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.

Guide to the Markets – U.S. Data are as of August 31, 2021.

Nominal and real 10-year Treasury yields



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

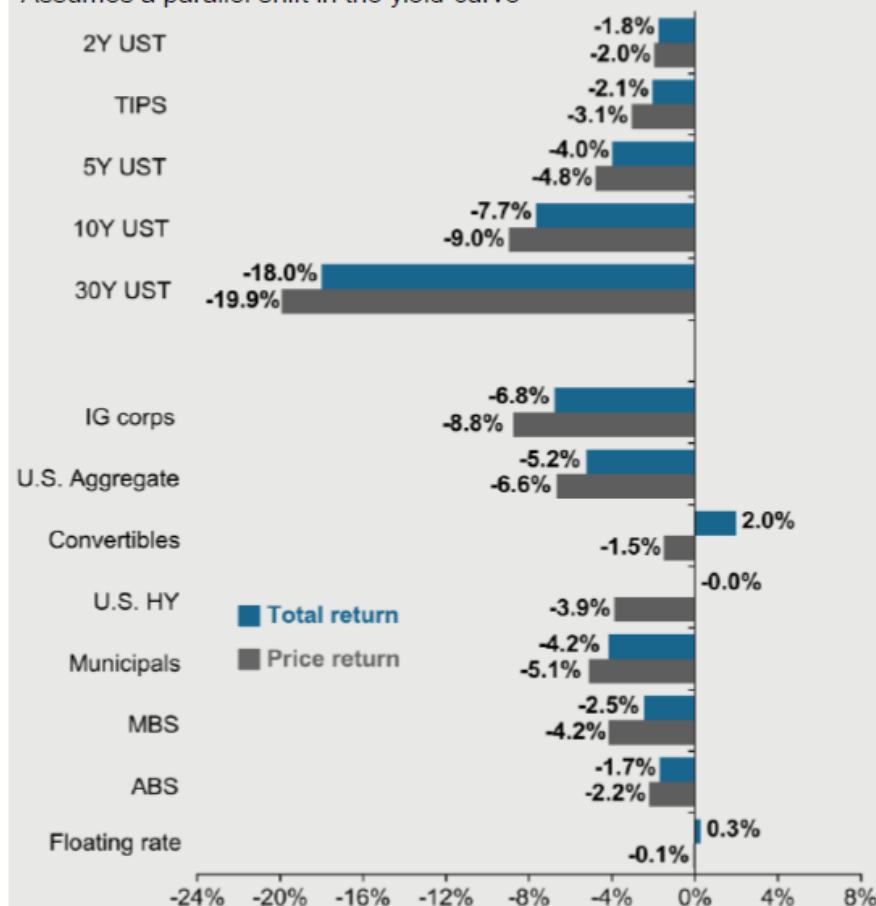
Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month except for July and June 2021 where real yields are calculated by subtracting out June 2021 year-over-year core inflation.

Guide to the Markets – U.S. Data are as of August 31, 2021.

U.S. Treasuries	Yield		Return		Avg. Maturity	Correlation to 10-year	Correlation to S&P 500
	8/31/2021	12/31/2020	2021 YTD				
2-Year	0.20%	0.13%	0.06%	2 years	0.67	-0.40	
5-Year	0.77%	0.36%	-1.06%	5	0.92	-0.36	
TIPS	-1.03%	-1.06%	4.26%	10	0.57	0.19	
10-Year	1.30%	0.93%	-2.47%	10	1.00	-0.33	
30-Year	1.92%	1.65%	-5.78%	30	0.93	-0.32	
Sector							
IG corps	1.99%	1.74%	-0.22%	12.3	0.42	0.38	
U.S. Aggregate	1.42%	1.12%	-0.69%	8.6	0.85	0.02	
Convertibles	4.44%	4.91%	7.34%	-	-0.29	0.88	
U.S. HY	3.87%	4.18%	4.55%	6.6	-0.25	0.73	
Municipals	0.95%	1.07%	1.53%	13.1	0.37	0.10	
MBS	1.71%	1.25%	-0.31%	5.6	0.81	-0.16	
ABS	1.65%	2.87%	1.47%	2.3	-0.01	-0.00	
Floating rate	0.33%	0.54%	0.53%	2.0	-0.22	0.44	

Impact of a 1% rise in interest rates

Assumes a parallel shift in the yield curve

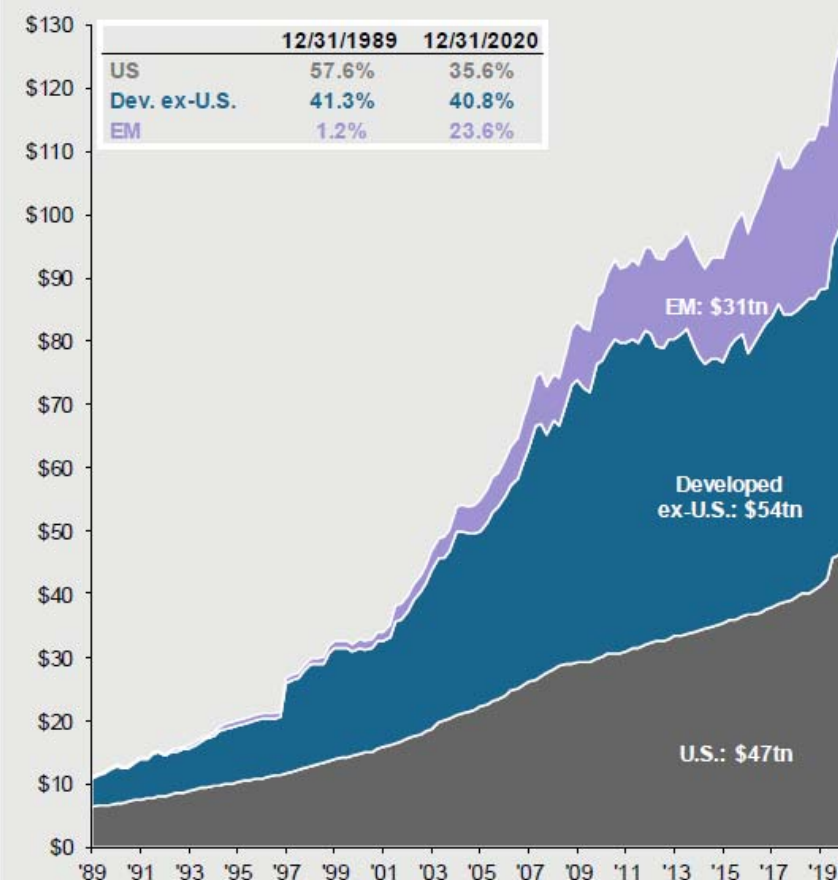


Source: Barclays, Bloomberg, FactSet, SIFMA, Standard & Poor's, U.S. Treasury, J.P. Morgan Asset Management. Sectors shown above are provided by Bloomberg unless otherwise noted and are represented by – U.S. Aggregate; MBS: U.S. Aggregate Securitized - MBS; ABS: J.P. Morgan ABS Index; Corporates: U.S. Corporates; Municipals: Muni Bond; High Yield: Corporate High Yield; TIPS: Treasury Inflation-Protected Securities (TIPS); U.S. Floating rate index; Convertibles: U.S. Convertibles Composite. Convertibles yield is as of July 2021 due to data availability. 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 Barclays Global Convertibles. Correlations are based on 15-years of monthly returns for all sectors. Issuance is based on monthly data provided by SIFMA. Past performance is not indicative of future results.
Guide to the Markets – U.S. Data are as of August 31, 2021.

Aggregates	Yield		2021 Return		Duration	Correl. to 10-year
	8/31/2021	12/31/2020	Local	USD		
U.S.	1.42%	1.12%	-0.69%	-0.69%	6.6 years	0.88
Gbl. ex-U.S.	0.82%	0.68%	-	-3.20%	8.1	0.30
Japan	0.11%	0.11%	0.46%	-5.59%	9.5	0.51
Germany	-0.18%	-0.28%	-0.61%	-4.11%	7.4	0.10
UK	0.91%	0.60%	-3.21%	-2.55%	11.1	0.19
Italy	0.41%	0.32%	-0.49%	-3.99%	7.4	-0.04
Spain	0.12%	0.00%	-1.15%	-4.63%	7.6	-0.02
Sector						
Euro Corp.	0.23%	0.24%	0.34%	-3.20%	5.3 years	0.07
Euro HY	3.09%	3.40%	4.32%	0.65%	4.0	-0.31
EMD(\$)	4.80%	4.91%	-	0.51%	7.8	0.08
EMD(LCL)	4.99%	5.22%	-0.99%	-3.61%	5.2	0.10
EM Corp.	3.57%	4.51%	-	2.14%	6.0	0.10

Global bond market

USD trillions



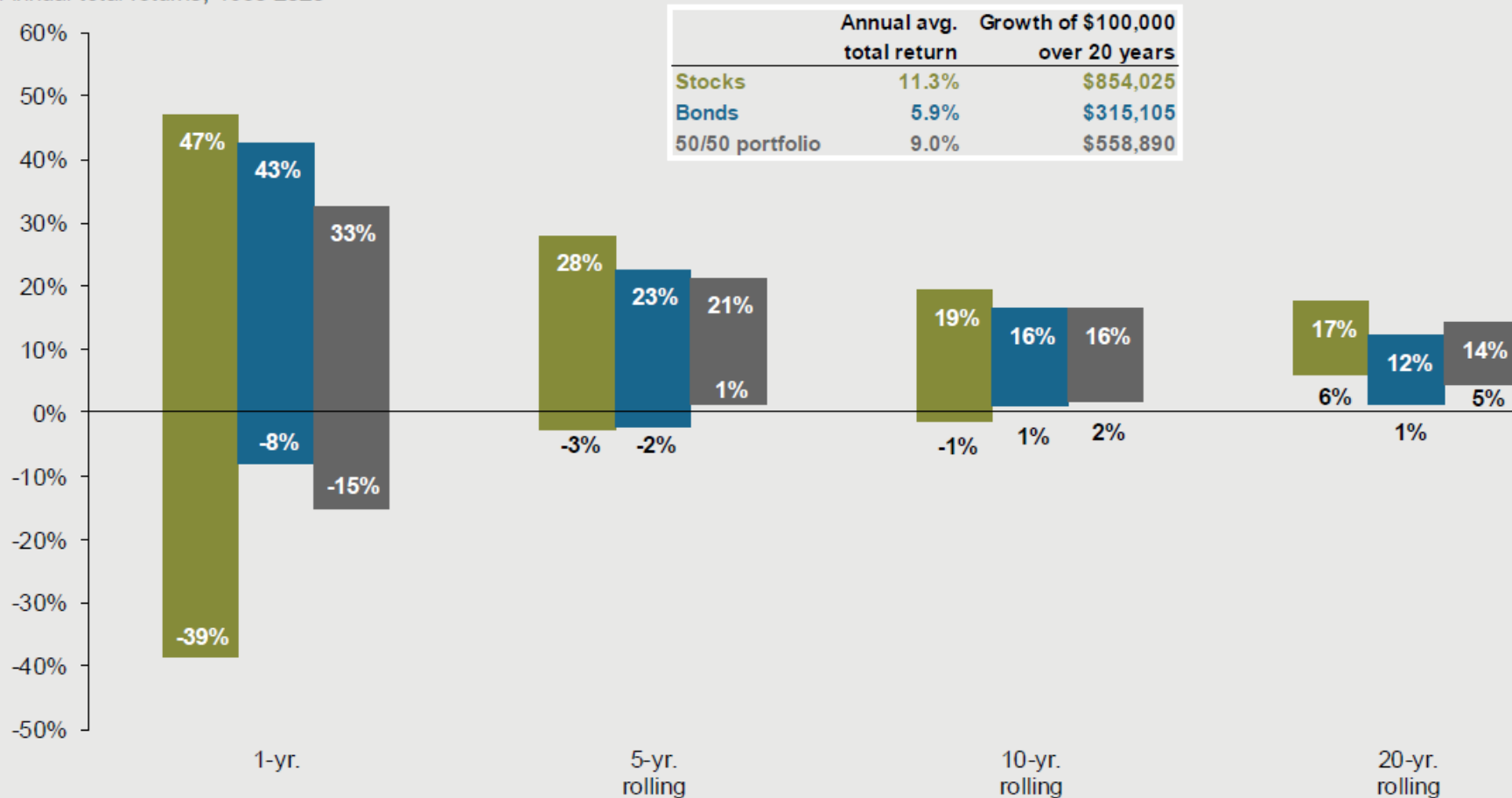
Source: J.P. Morgan Asset Management; (Left) Barclays, Bloomberg, FactSet; (Right) BIS.

Fixed income sectors shown above are provided by Bloomberg and are represented by the global aggregate for each country except where noted. EMD sectors are represented by the J.P. Morgan EMBIG Diversified Index (USD), the J.P. Morgan GBI EM Global Diversified Index (LCL) and the J.P. Morgan CEMBI Broad Diversified Index (Corp). European Corporates are represented by the Bloomberg Barclays Euro Aggregate Corporate Index and the Bloomberg Barclays Pan-European High Yield Index. Sector yields reflect yield-to-worst. Correlations are based on 10-years of monthly returns for all sectors. Past performance is not indicative of future results. Global bond market regional breakdown may not sum to 100% due to rounding.

Guide to the Markets – U.S. Data are as of August 31, 2021.

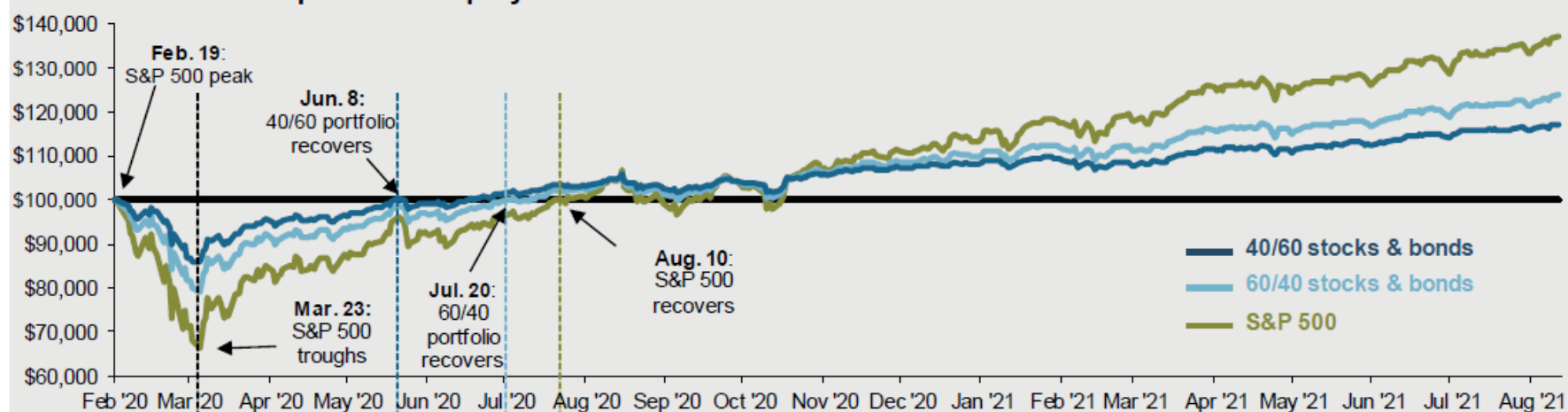
Range of stock, bond and blended total returns

Annual total returns, 1950-2020

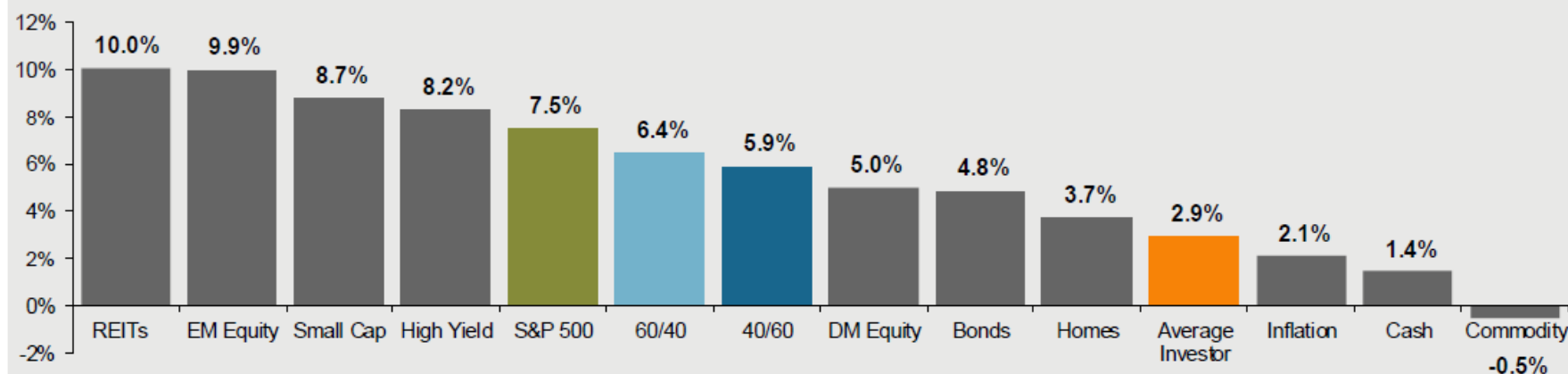


Source: Barclays, Bloomberg, FactSet, Federal Reserve, Robert Shiller, Strategas/Ibbotson, J.P. Morgan Asset Management. Returns shown are based on calendar year returns from 1950 to 2020. Stocks represent the S&P 500 Shiller Composite and Bonds represent Strategas/Ibbotson for periods from 1950 to 2010 and Bloomberg Barclays Aggregate thereafter. Growth of \$100,000 is based on annual average total returns from 1950 to 2020. Guide to the Markets – U.S. Data are as of August 31, 2021.

Portfolio returns: Equities vs. equity and fixed income blend

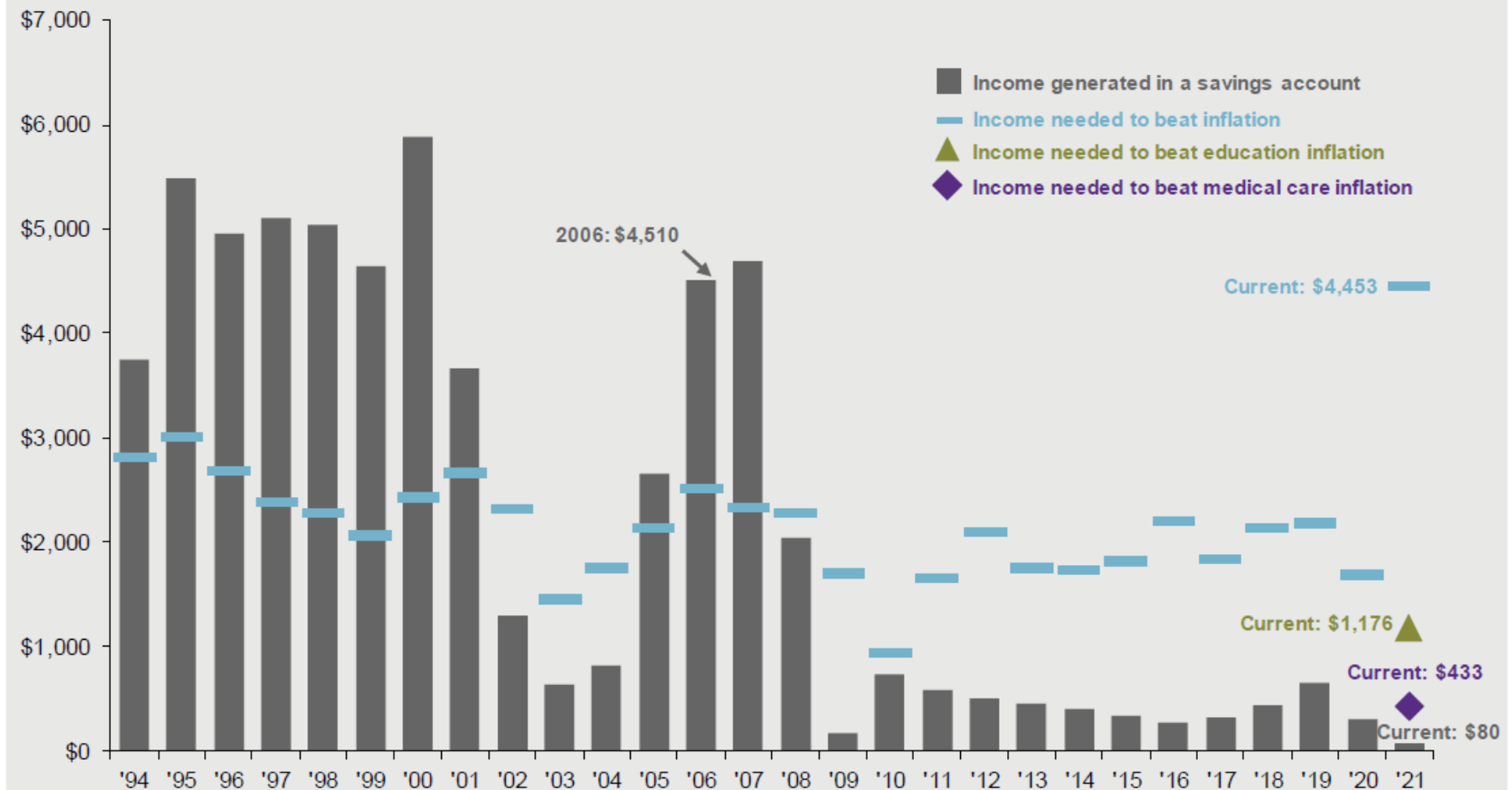


20-year annualized returns by asset class (2001 – 2020)



Source: Barclays, Bloomberg, FactSet, Standard & Poor's, J.P. Morgan Asset Management; (Bottom) Dalbar Inc, MSCI, NAREIT, Russell. Indices used are as follows: REITs: NAREIT Equity REIT Index, Small Cap: Russell 2000, EM Equity: MSCI EM, DM Equity: MSCI EAFE, Commodity: Bloomberg Commodity Index, High Yield: Bloomberg Barclays Global HY Index, Bonds: Bloomberg Barclays U.S. Aggregate Index, Homes: median sale price of existing single-family homes, Cash: Bloomberg Barclays 1-3m Treasury, Inflation: CPI. 60/40: A balanced portfolio with 60% invested in S&P 500 Index and 40% invested in high-quality U.S. fixed income, represented by the Bloomberg Barclays U.S. Aggregate Index. The portfolio is rebalanced annually. Average asset allocation investor return is based on an analysis by Dalbar Inc., which utilizes the net of aggregate mutual fund sales, redemptions and exchanges each month as a measure of investor behavior. Guide to the Markets – U.S. Data are as of August 31, 2021.

Income earned on \$100,000 in a savings account*



Source: Bankrate.com, BLS, FactSet, Federal Reserve System, J.P. Morgan Asset Management.

*Savings account is based on the national average annual percentage rate (APR) on money market accounts from Bankrate.com from 2010 onward. Prior to 2010, money market yield is based on taxable money market funds return data from the Federal Reserve. Annual income is for illustrative purposes and is calculated based on the average money market yield during each year and \$100,000 invested. Current inflation is based on May 2021 Core CPI, education inflation and medical care inflation. Current savings account is based on the June 2021 national average annual percentage rate (APR) on money market accounts. Past performance is not indicative of comparable future results.

Guide to the Markets – U.S. Data are as of August 31, 2021.