

# Fixed Income in a Rising Rate Environment



**THE SECOND FEDERAL FUNDS RATE INCREASE IS BEHIND US**, and rate normalization is under way. However, we think the Federal Reserve (Fed) will adjust rates slowly, limiting the amount yields may increase. While rising rates adversely impact bond prices, various asset classes respond differently and an income-focused portfolio can help mitigate the effect on total returns. This paper examines the factors affecting interest rates and how fixed income investments may respond as rates rise.

## How Fast and How Much?

Most discussion around rising rates centers around when the Fed will begin raising rates. There has been little discussion about what happens afterward. Now that rate increases are underway, investors should be asking two central questions: How fast will rates rise? How much will they rise? Different rising rate environments affect fixed income assets in significantly different ways.

A sharp increase in rates over a short period of time may result in negative fixed income returns. Conversely, incremental increases over a longer timeframe may have less effect. We believe rate increases during this cycle are more likely to be slow and incremental due to fundamental and technical factors that have kept rates relatively low and may mitigate future rate increases.

## Why Do Interest Rates Rise?

Interest rates reflect the cost of borrowing over time. Many factors affect interest rates, including the real cost of funds; inflation expectations; preference for shorter-term, more liquid securities; investor risk appetite and supply/demand balance. These factors can have different effects on short-term rates than on longer-term interest rates, determining the shape of the yield curve. A yield curve is a line that plots the interest rates, at a set point in time, of bonds having equal credit quality, but differing maturity dates.

One of the most important determinants of short-term interest rates is the Fed's monetary policy position. The federal funds rate, which anchors short-term rates in the market, is a key tool in implementing these policy decisions. Typically, the federal funds rate is raised to temper inflation as the economy expands. However, in this cycle the Fed faces the challenge of unwinding its extraordinarily accommodative monetary policy without slowing the economy.

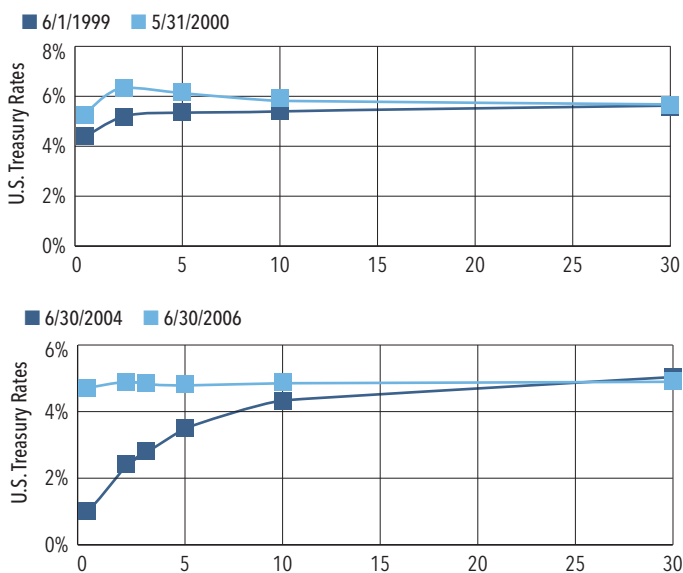


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Longer-term interest rates, on the other hand, are heavily influenced by other factors, such as supply and demand, growth and inflation. Some believe that increases in the federal funds rate automatically mean rates go up along the entire yield curve spectrum, but this is not necessarily the case. The yield curve flattened during the last two rate hike cycles, as short-term rates rose faster than longer rates.

### Exhibit 1: Short Rates Have Risen More than Long in Previous Cycles



Data source: Bloomberg L.P. Date ranges represent the time periods for the previous two rate hike cycles.

Since the current yield curve remains steep, Nuveen Asset Management believes that, similar to the last two rate hike cycles, a rise in short-term rates caused by Fed tightening will likely result in a flattening of the yield curve.

### Effect of Rising Rates on Fixed-Income Returns

Traditional financial theory portends that bond prices fall when interest rates rise. Yet, a bond's total return comprises not just price changes, but also income. This is important because, as rates rise, the income on a bond can help offset falling prices, cushioning the overall total return.

For investors, the relevant questions are:

- How much will the price fall?
- Is there enough income to offset the price decline?

### Role of Specific Market Conditions

Historical analysis is an objective way to understand how fixed-income investments typically respond to rising rates. In this analysis, a rising rate period is defined as when the Fed is tightening policy. This means that short-term rates are rising, but other factors may be impacting the intermediate and long ends of the yield curve. Since 1994, there have been three periods of increasing federal funds rates. However, each of these periods has had unique factors that impacted the way fixed income investments responded, as shown in Exhibit 2. Let's consider a few of these factors:

**STARTING RATE LEVEL.** The absolute rate level is important because the bond's income helps to cushion its total return from price erosion. Higher starting income levels provide more cushion. In November 2015, rates were much lower than during previous historical periods.

**NUMBER, MAGNITUDE AND TIMING OF FEDERAL FUNDS HIKES.** The speed with which the Fed acts is also important. If they raise rates gradually over a longer period of time, the income on the investment can offset the decline in price. More dramatic increases over shorter time frames make it more difficult for income to compensate for price declines. Nuveen believes that the fed funds rate increases will be small in magnitude. The terminal level should also be more moderate than in the past. At the December 2016 Fed meeting, the projected terminal rate was 3.0%.

**STARTING CREDIT SPREAD LEVELS.** Credit spreads are the difference between the yield of a riskless Treasury bond and a security with credit risk, such as a corporate bond. At their essence, credit spreads are a risk premium. During periods of economic expansion that cause rates to rise, market risk premiums typically decline. When times are good, investors demand less of a risk premium because they are more confident they will get their money back. Wider starting credit spread levels have more room to tighten. This may help reduce the overall yield increase if spreads tighten. The result is less of a decline in the prices of non-government bonds. However, if credit spreads are tight at the start of the rising rate period, there is little potential offset to falling bond prices. Credit spreads were wider than other historical periods in December 2015, but they have narrowed since then.

**YIELD CURVE STEEPNESS.** A steep yield curve will typically move towards a more normal, gradually upward sloping shape during a period of monetary policy tightening, with short-term rates rising more than long-term rates. This flattening yield curve has less of an effect on the price of longer-term bonds. While the yield curve has modestly flattened since December 2015, it remains reasonably steep. Thus, it remains poised for further flattening.

**OTHER VARIABLES.** Each period has its own specific factors that may help or hurt the total returns of bonds. These may be economic in nature or technically driven.

## Exhibit 2: Market Conditions during Periods of Increasing Fed Funds Rates

	Period 1 2/4/94-2/1/95	Period 2 6/30/99-5/16/00	Period 3 6/30/04-6/29/06	Current Cycle 12/16/15-???	Today 12/15/16
<b>Starting Rate Level<sup>1</sup></b>	5.87%	5.78%	4.58%	2.30%	2.60%
<b>Number of Hikes</b>	7	6	17	?	
<b>Magnitude</b>	3.00%	1.75%	4.25%	?	
<b>Duration</b>	12 months	10 months	24 months	?	
<b>Starting Credit Spread Levels<sup>2</sup></b>	67 basis points	112 basis points	99 basis points	165 basis points	105 basis points
<b>Yield Curve Steepness<sup>3</sup></b>	+200 basis points	+48 basis points	+252 basis points	+200 basis points	+187 basis points
<b>Other Economic Variables</b>	<ul style="list-style-type: none"> <li>■ Economy expanding above trend, inflation rising</li> <li>■ Pre-emptive tightening</li> </ul>	<ul style="list-style-type: none"> <li>■ Strong economy, full employment, inflationary concerns</li> <li>■ Pre-emptive tightening</li> </ul>	<ul style="list-style-type: none"> <li>■ Low inflation, trend-like growth</li> <li>■ Removal of policy accommodation at a measured pace</li> </ul>	<ul style="list-style-type: none"> <li>■ Normalizing unprecedentedly accommodative policy</li> <li>■ Divergent global growth and inflation trends</li> </ul>	

Data source: Bloomberg L.P.; www.federalreserve.gov. Data shown applies to the actual time periods noted in the table.

1 Represented by the 10-Year Treasury yield.

2 Yield difference between Bloomberg Barclays U.S. Corporate Investment Grade Bond Index and similar duration Treasuries.

3 Yield difference between 2-year and 30-year U.S. Treasury securities measured at the beginning of each period.

## Effect Varies by Fixed Income Asset Class

The bond market consists of many different types of bonds as shown in Exhibit 3. Some of these fixed-income asset classes are more or less sensitive to rising rates, depending on their characteristics.

**Exhibit 3: Asset Class Sensitivity to Rising Rates**

	Investment Type	Representative Index	Description	Effective Duration	Yield-to-Worst <sup>4</sup>	Yield Spread <sup>5</sup>	Other Factors to Consider
Taxable Debt	Broad Bond Market	Bloomberg Barclays Aggregate Bond	U.S. investment grade bonds from three asset classes: government, corporate and securitized	5.99 yrs	2.76%	45 basis points	Most commonly quoted bond index
	Treasuries	Bloomberg Barclays U.S. Treasury	Financed by the U.S. government, including bills, note and bonds	6.09 yrs	2.02%	n/a	Typically lower yielding since viewed as risk free
	Short Term Corporates	Bloomberg Barclays Credit 1-3 Year	Investment grade debt of U.S. corporations with maturities of 1-3 years	1.88 yrs	2.13%	85 basis points	Less sensitive to rising rates because short term
	Investment Grade Credit	Bloomberg Barclays U.S. Corporate Investment Grade	Investment grade debt of U.S. corporations	7.25 yrs	3.52%	125 basis points	Higher yields than U.S. government bonds Less volatility than lower rate issuers
	Securitized Debt	Bloomberg Barclays U.S. Securitized	Securities backed by pools of assets, including residential mortgage-backed securities, commercial mortgage-backed securities and asset-backed securities	4.95 yrs	3.00%	24 basis points	Duration can extend in rising rate environment as prepayments slow, making it more sensitive to rate changes
	High Yield	Bloomberg Barclays U.S. Corporate High Yield	Below investment grade rated debt of corporations	4.16 yrs	6.23%	403 basis points	Higher yields than investment grade corporates due to increased credit risk Less sensitivity to rising rates due to higher yields
	Global Bonds	Bloomberg Barclays Global Aggregate Bond Unhedged Index	Investment grade U.S. and non-U.S. securities	6.92 yrs	1.71%	44 basis points	Lower sensitivity to U.S. interest rates; unhedged currency adds return and volatility potential
Tax-Exempt Debt	Municipal Bonds	Bloomberg Barclays Municipal	Issued by states, municipalities, counties or their agencies	6.49 yrs	4.26% <sup>6</sup>	38 basis points <sup>7</sup>	Tax-exempt income Tend to be longer duration, but priced on municipal yield curve, which is less sensitive to rate changes
Hybrid	Preferred Securities	BofA ML Preferred Stock Fixed Rate	Special class of ownership in a company that often has both equity and debt characteristics	5.81 yrs	5.38%	220 basis points	Potential for additional yield due to subordinate position relative to debt holders

Data sources: BofA Merrill Lynch, Bloomberg L.P., Nuveen Asset Management, 11/30/16.

<sup>4</sup> Yield-to-worst is the lowest potential yield that can be received on a bond without the issuer actually defaulting.

<sup>5</sup> Option-adjusted difference in yield between index and equivalent duration Treasuries.

<sup>6</sup> Tax equivalent yield at 35% tax rate.

<sup>7</sup> Difference in yield between index and AAA-rated municipal bonds.

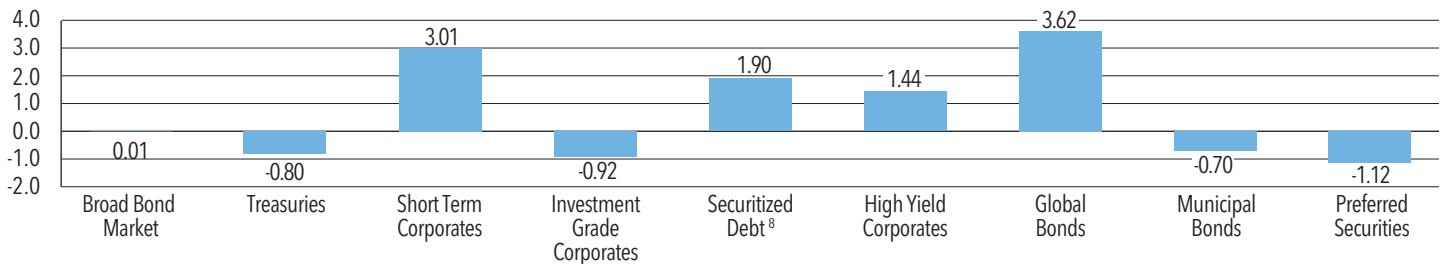
## Historical Effect on Specific Fixed Income Asset Classes

The performance of each fixed-income asset class varied substantially from the broad bond market during the rising rate periods. Exhibit 4 shows how asset classes with more yield and

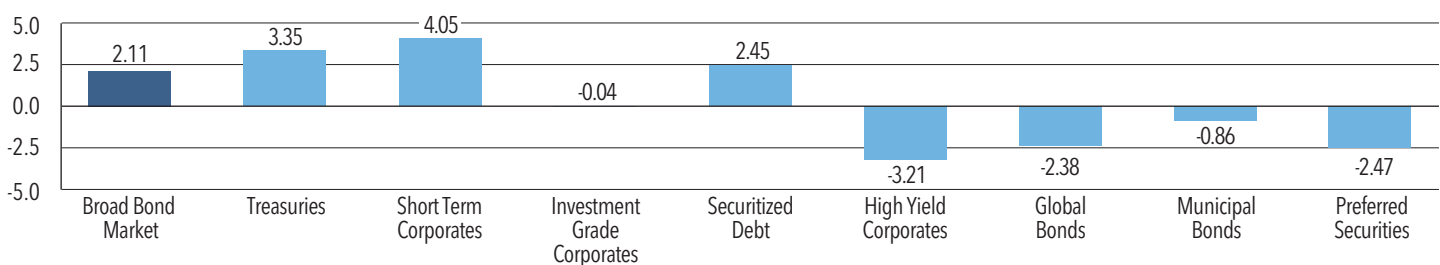
varied performance drivers generally performed better than those with less yield and fewer performance drivers. The asset classes are represented by the indexes as noted in Exhibit 3.

### Exhibit 4: Asset Class Performance during Rising Rate Periods

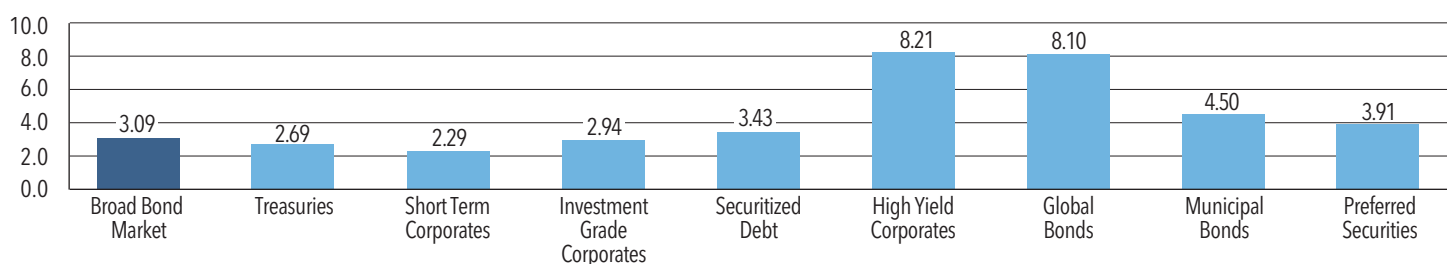
#### Rising Rate Period 1: 2/1/94 - 2/28/95



#### Rising Rate Period 2: 6/1/99 - 5/31/00



#### Rising Rate Period 3: 6/1/04 - 6/30/06



In Rising Rate Period 2, high yield corporates and preferred securities both experienced negative returns due to the volatile equity markets that were struggling with the tech bubble. In 2000, the S&P 500 Index returned -9.11%. High yield is a hybrid asset class straddling the fixed income and equity worlds and preferred securities are hybrid in nature, so the equity market volatility bled into these more aggressive fixed income asset classes, impairing their returns. In addition, as the economy was slowing in 2000, the high yield market began to anticipate an increase in defaults. In Rising Rate Period 2, global bonds

also experienced negative returns due to the impact of currency. When U.S. rates rise, the dollar tends to appreciate as higher rates are a positive factor for currency returns. As of 12/31/15, the index had a 55% allocation to non-U.S. dollar currencies.

In Rising Rate Period 3, all fixed income asset classes experienced positive returns. Rates rose gradually over a long time period, with the Fed raising rates 17 times in small increments over a 24-month period. We believe that is most similar to what we may encounter in the current rate hiking cycle, but there are many differences between that period and current market conditions.

<sup>8</sup> Sources: Morningstar Direct. **Past performance does not guarantee future results.** Represented by Barclays Capital Mortgage-Backed Securities Index due to limited track record of the Bloomberg Barclays Securitized Debt Index. The chart is for illustrative purposes only and is not reflective of any Nuveen investment. Market indices do not include fees. It is not possible to invest directly in an index.

## The Next Period of Rising Rates

Considering past periods of rising rates can be useful in framing expectations. However, we believe the next period of rising rates will differ from the past periods in several ways.

### Many Factors Have Kept Rates Low

Following the first Fed rate hike in December 2015, intermediate- to longer-term interest rates fell. Why this surprising result? The fed funds rate governs the shortest interest rates, but yields on longer maturity Treasuries are influenced by factors such as supply and demand, growth and inflation. Global forces may also suppress the increase in longer-term rates, as foreign central banks battle deflationary trends with low policy rates. Indeed, a number of fundamental and technical factors are keeping longer-term rates low. We expect these factors may continue to contain longer-term yields, even as the Fed raises short-term interest rates.

### Exhibit 5: Factors Suppressing Rates

Fundamental Factors		Technical Factors	
<b>Economic Growth</b>	<ul style="list-style-type: none"> <li>■ U.S. growing at moderate pace</li> <li>■ European growth sluggish</li> <li>■ China slowing</li> </ul>	<b>Global Capital Flows</b>	<ul style="list-style-type: none"> <li>■ U.S. rates remain higher than those of other developed countries, driving demand</li> </ul>
<b>Inflation</b>	<ul style="list-style-type: none"> <li>■ Remains contained</li> <li>■ Modest wage growth despite falling unemployment</li> <li>■ Low commodity prices</li> </ul>	<b>Investor Positioning</b>	<ul style="list-style-type: none"> <li>■ Persistent investor short duration positions cap upward rate movements</li> <li>■ Positive U.S. dollar view</li> </ul>
<b>Monetary Policy</b>	<ul style="list-style-type: none"> <li>■ Fed remains cautious</li> <li>■ Foreign central banks remain accommodative</li> </ul>	<b>Geopolitical Risks</b>	<ul style="list-style-type: none"> <li>■ European elections and U.S. transition create uncertainty</li> <li>■ Cause periodic flight to quality in U.S. Treasuries</li> </ul>

Intermediate- to longer-term rates rose substantially following the election in early November. This was surprising, as many pundits predicted a Trump win would create uncertainty and a flight to quality that would drive investors into low-risk U.S. Treasuries and suppress yields. However, the markets thought the Trump win would benefit the economy and appeared to believe his infrastructure investment plan would foster inflation. This caused intermediate- to long-term rates to rise, since longer-term rates are driven more by economic growth and inflation. From November 8 to December 14, the 10-year Treasury yield climbed from 1.88% to 2.48%, the largest increase since 2013.

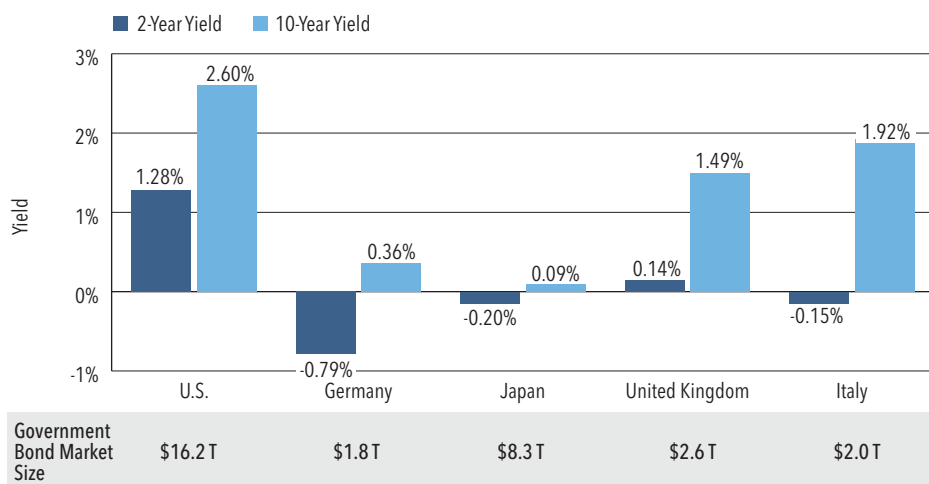
Over time, we expect global factors to continue to suppress increases in intermediate- to longer-term interest rates. We also think that the largest move in interest rates may already be behind us. Finally, these two surprising results underscore the difficulty of predicting how and when interest rates will move over shorter time periods.

## Divergent Monetary Policy May Suppress Longer-Term Rates

The divergence of U.S. and global monetary policy distinguishes this rate cycle. While the U.S. is normalizing and increasing rates, Europe and Japan continue to stimulate their economies through accommodative monetary policy. The Bank of Japan's move to negative interest rates and the European Central Bank's continued support of accommodative policy strengthen this trend. As a result, U.S. yields are substantially higher than the rest of the developed world.

While the recent U.S. Treasury yield increase outpaced other developed sovereign markets, consider that the U.S. government bond market is many times larger than other countries. The U.S. Treasury market is very large and liquid, making it ideal for those fleeing risk and seeking higher yields.

### Exhibit 6: U.S. Yields are Relatively High



Data source for government bond yields: [www.federalreserve.gov](http://www.federalreserve.gov), Bloomberg L.P., 12/15/16. **Past performance is no guarantee of future results.** Represents the yield of the 2- and 10-year on-the-run government bonds of each country. The on-the-run bond is the most frequently traded security of its maturity. Data source for market size: Bank for International Settlements, 12/31/15. In trillions of U.S. dollars.

Relatively high U.S. interest rates help suppress long-term yield increases in two ways:

**INCREASED DEMAND** for higher yielding U.S. securities drives rates lower.

**THE U.S. DOLLAR APPRECIATES** as global funds flow to U.S. markets, making exports more expensive and imports cheaper. Since the U.S. is a net importer of goods, this puts downward pressure on domestic inflation. A stronger dollar can also slow U.S. production, which dampens growth and puts downward pressure on inflation. Muted inflation and inflation expectations may suppress interest rates and moderate any increases.

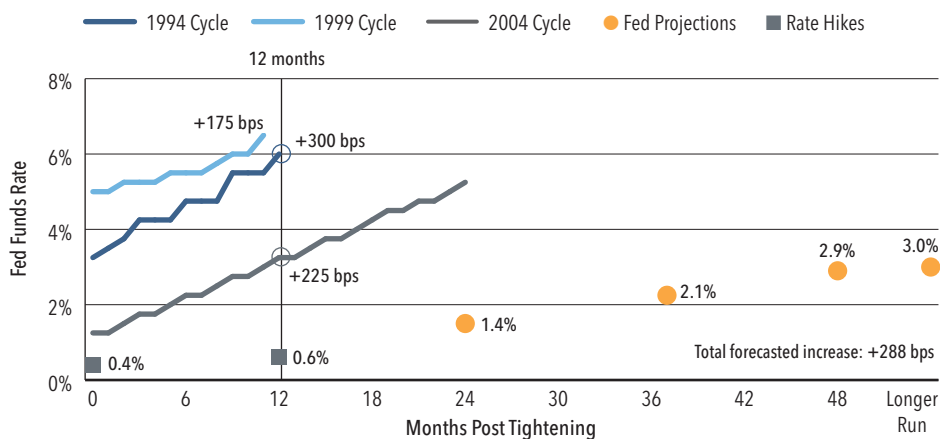
### Normalizing, Not Tightening

Typically, the Fed raises rates to cool an overheating economy. However, the economy is currently nowhere near that point. The Fed is raising rates to bring rates to more normal levels and begin reversing its extraordinarily accommodative policy. As the Fed unwinds its easy policy, it will be careful not to overtighten financial conditions or slow the economy. This likely means the rate hike process may be more gradual and moderate than in the past.



We think the fed funds rate increases this cycle will be small in magnitude. The Fed currently projects it will increase short rates two to three more times in 2017 in 25 basis point (bps) moves. The next hike may be in early 2017, followed by a longer pause to assess the economic data. The end point should also be more moderate. The Fed currently estimates the long-term fed funds rate could be just 3.00%, much lower than 5.25% in 2006 or 6.00% in 1995.

**Exhibit 7: Path of Fed Funds Rate in Past Tightening Cycles**

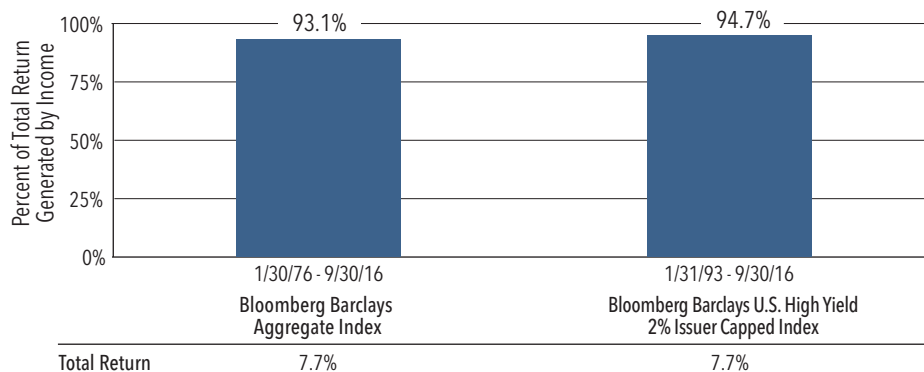


Source: Bloomberg L.P., Federal Reserve Projection Materials, December 14, 2016. Fed forecast represents the median forecast of each Federal Open Market Committee participant for the midpoint of the fed funds rate at year-ends 2016, 2017, 2018, 2019 and longer run. Month 0 shows the rate increase in December 2015.

**Positioning Portfolios for Rising Rates**

While bonds are defined by their periodic interest payments, investors may not realize that over the long term, over 90% of total return has been generated by income rather than price movements. This is true for both high grade and high yield bonds. As shown in Exhibit 8, income dominated total return even in the wake of the Credit Crisis, when high yield experienced a significant price rebound.

**Exhibit 8: Income Has Dominated Return**

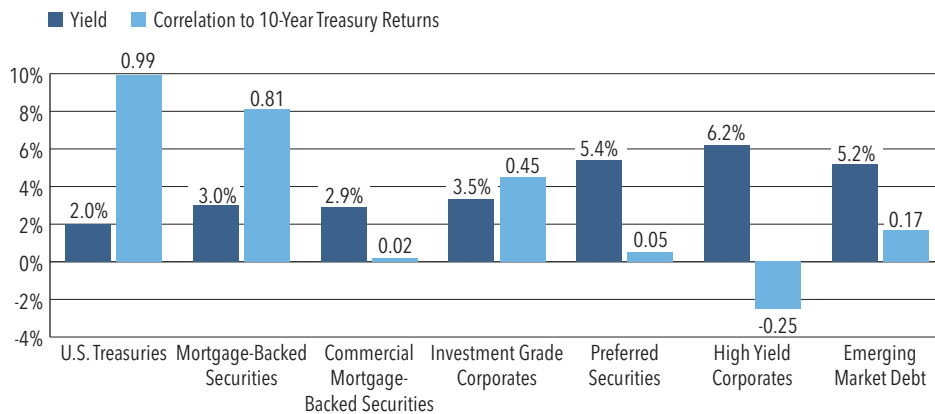


Source: Bloomberg L.P., 9/30/16. Chart shows the percent of annualized total return derived from coupon return (as opposed to price appreciation). The Bloomberg Barclays Aggregate Bond Index has an inception date of 1/1/76. The Bloomberg Barclays U.S. High Yield 2% Issuer Capped Index has an inception date of 1/1/93. The index returns presented are for illustration purposes only and do not represent or predict performance of any Nuveen Asset Management product. Indices are unmanaged and unavailable for direct investment. Past performance is no guarantee of future results.



**EMPHASIZE PORTFOLIO INCOME.** We think income is the best defense against a moderately rising rate environment. Focusing portfolios on sectors with more yield potential and less sensitivity to changes in interest rates can help offset price declines caused by rising rates. In particular, we like the credit sectors because they benefit from economic growth and may experience spread tightening, further mitigating the impact of rates.

### Exhibit 9: Non-Treasury Sectors Offered Yield Potential with Less Rate Sensitivity



Sources: Bloomberg L.P., BofA Merrill Lynch, Morningstar Direct. Yields as of 12/15/2016. Correlation to 10-Year Treasury Returns from 12/1/06 –11/30/16. **Past performance is no guarantee of future results. Representative Indices: 10-Year Treasury:** Bloomberg Barclays U.S. Treasury Bellwether 10-Year Index; **U.S. Treasury:** Bloomberg Barclays U.S. Treasury Index; **Mortgage-Backed Securities:** Bloomberg Barclays U.S. Mortgage-Backed Securities (MBS) Index; **Commercial Mortgage-Backed Securities:** Bloomberg Barclays CMBS Index; **Investment Grade Corporates:** Bloomberg Barclays U.S. Corporate Investment Grade Index; **Preferred Securities:** BofA Merrill Lynch U.S. Preferred Stock Fixed Rate Index for correlation and by the BofA Merrill Lynch U.S. All Capital Securities Index for yield; **High Yield:** Bloomberg Barclays U.S. Corporate High Yield 2% Issuer Capped Index; **Emerging Markets:** Bloomberg Barclays Emerging Market USD Aggregate Index. Indices are unmanaged and unavailable for direct investment. Correlation is a statistical measure of how two securities move in relation to each other.

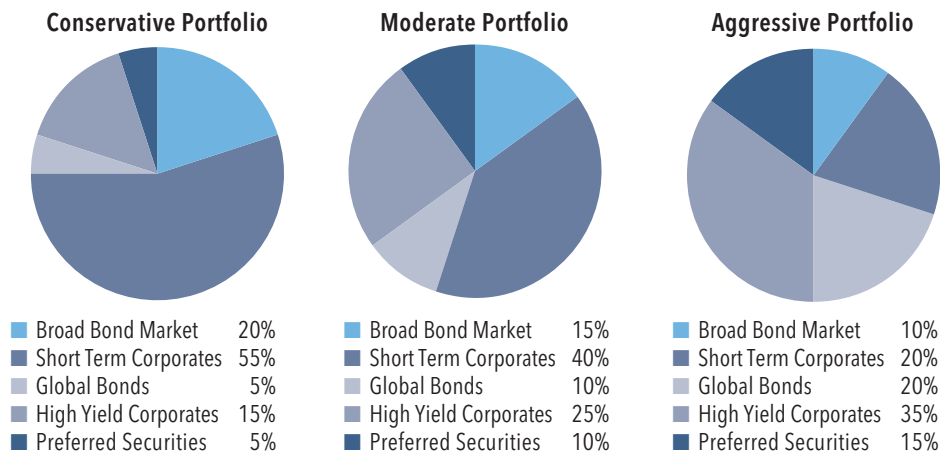
We also like broadly flexible, multi-sector bond portfolios in this environment.

These portfolios may add significant amounts of higher yielding sectors, such as high yield bonds, investment grade corporate bonds and select non-U.S. securities. More importantly, they may benefit from active allocation which varies their composition to seek the best opportunities in the current environment. For more conservative investors, short-term bond strategies that invest across many types of securities may offer the same opportunities with muted duration. These strategies often invest in short-term corporate bonds, asset-backed securities, residential mortgage-backed bonds and commercial mortgage-backed bonds, all of which tend to offer higher yields than Treasuries.

### Fixed Income Portfolios for a Rising Rate Environment

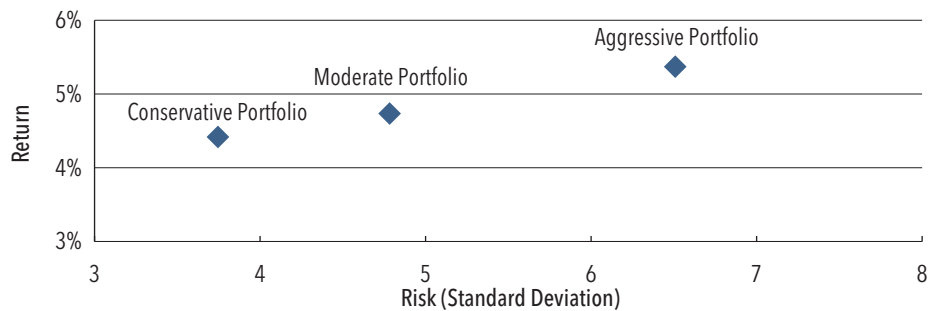
Exhibit 10 shows sample fixed-income portfolios that offer a potential starting point for investors concerned about rising rates. The asset classes are represented by the indexes as noted in Exhibit 3. Investors should consider individual circumstances, risk tolerance and investment goals when making an investment decision. Tax-sensitive investors may also want to incorporate municipal bonds into their portfolios. ■

Exhibit 10: Sample Rising Rate Fixed Income Portfolios



Market indices do not include fees. You cannot invest directly in an index.

Risk/Return



Portfolio Characteristics (as of 11/30/16)

	Conservative	Moderate	Aggressive
Yield	2.89%	3.49%	4.10%
Return	4.18%	4.60%	5.00%
Risk	3.59%	4.90%	6.37%

Return measured by 10-year total return. Risk measured by 10-year standard deviation of returns.

Average Annual Returns During Rising Rate Periods

	Conservative	Moderate	Aggressive
Period 1: 2/1/94-2/28/95	2.01%	1.82%	1.65%
Period 2: 6/1/99-5/31/00	1.90%	0.64%	-0.93%
Period 3: 6/1/04-6/30/06	3.45%	4.13%	4.89%

Sample Portfolios, Risk/Return, Portfolio Characteristics and Performance charts show hypothetical strategies for illustrative purposes only and do not reflect actual products currently or previously managed. They should not be relied upon for investment advice. Hypothetical performance does not reflect the deduction of fees and expenses, which would reduce performance in any actual client account. The proposed strategy holdings and weights are subject to change without notice. There is no guarantee the strategies will meet their investment objective. The chart is for illustrative purposes only and is not reflective of any Nuveen investment. Market indices do not include fees. You cannot invest directly in an index.

For more information, please consult with your financial advisor and visit [nuveen.com](http://nuveen.com).

## INDEX DEFINITIONS

**Bloomberg Barclays 1-3 Year Treasury Index** is an unmanaged index of public obligations of the U.S. Treasury with a remaining maturity of one to three years.

**Bloomberg Barclays 1-3 Year CMBS Index** is the corporate mortgage backed securities component of the Bloomberg Barclays U.S. Aggregate Index with maturities from one to three years.

**Bloomberg Barclays 1-3 Year Credit Index** is an unmanaged index considered representative of performance of short-term U.S. corporate bonds with maturities from one to three years.

**Bloomberg Barclays ABS Index** is the corporate asset backed securities component of the Bloomberg Barclays U.S. Aggregate Index with maturities from one to three years.

**Bloomberg Barclays Credit 1-3 Yr Index** is a broad-based benchmark that measures the return of bonds with 1-3 year maturities.

**Bloomberg Barclays Global Aggregate Unhedged Index** measures the performance of global bonds. It includes government, securitized and corporate sectors and does not hedge currency.

**Bloomberg Barclays U.S. Mortgage-Backed Securities Index** includes 15- and 30-year fixed-rate securities backed by mortgage pools of the Government National Mortgage Association (GNMA), Federal Home Loan Mortgage Corporation (FHLMC) and Federal National Mortgage Association (FNMA)

**Bloomberg Barclays Municipal Index** covers the USD-denominated long-term tax-exempt bond market. The index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and pre-refunded bonds.

**Bloomberg Barclays U.S. Aggregate Index** represents securities that are SEC-registered, taxable and dollar denominated. The 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.

## RISKS AND OTHER IMPORTANT CONSIDERATIONS

This information represents the opinion of Nuveen Asset Management, LLC and is not intended to be a forecast of future events and this is no guarantee of any future result. It is not intended to provide specific advice and should not be considered investment advice of any kind. Information was obtained from third party sources which we believe to be reliable but are not guaranteed as to their accuracy or completeness. This report contains no recommendations to buy or sell specific securities or investment products. All investments carry a certain degree of risk, including possible loss principal and there is no assurance that an investment will

**Bloomberg Barclays U.S. CMBS Index** measures the performance of U.S. investment grade commercial mortgage backed securities (CMBS).

**Bloomberg Barclays U.S. Corporate Investment Grade Index** is a broad-based benchmark that measures the investment grade, fixed-rate, taxable corporate bond market.

**Bloomberg Barclays U.S. Corporate High Yield Index** measures the market of USD-denominated, non-investment grade, fixed-rate, taxable corporate bonds. Securities are classified as high yield if they fall within the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below. The index excludes emerging market debt.

**Bloomberg Barclays U.S. High Yield 2% Issuer Capped Index** tracks the performance of U.S. noninvestment-grade bonds and limits each issue to 2% of the index.

**Bloomberg Barclays U.S. Securitized Index** is a composite of asset-backed securities, collateralized mortgage-backed securities (ERISA-eligible) and fixed rate mortgage-backed securities. For Rising Rate Period 1 in Exhibit 3, Securitized Debt is represented by Bloomberg Barclays Mortgage-Backed Securities Index, which is an unmanaged index of collateralized mortgage backed securities (ERISA-eligible) securities.

**Bloomberg Barclays U.S. Treasury Index** includes public obligations of the U.S. Treasury. Treasury bills are excluded by the maturity constraint but are part of a separate Short Treasury Index. In addition, certain special issues, such as state and local government series bonds (SLGs), as well as U.S. Treasury TIPS, are excluded. STRIPS are excluded from the index because their inclusion would result in double-counting.

**Bloomberg Barclays U.S. Treasury Bellwether 10-Year Index** is a universe of Treasury bonds, and used as a benchmark against the market for long-term maturity fixed-income securities. The index assumes reinvestment of all distributions and interest payments.

**BofA Merrill Lynch Preferred Stock Fixed Rate Index** is designed to replicate the total return of a diversified group of investment-grade preferred securities.

provide positive performance over any period of time. It is important to review your investment objectives, risk tolerance and liquidity needs before choosing an investment style or manager.

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