Investment Stewardship Guidance

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How to Position Fixed Income Portfolios for the Rate Hike

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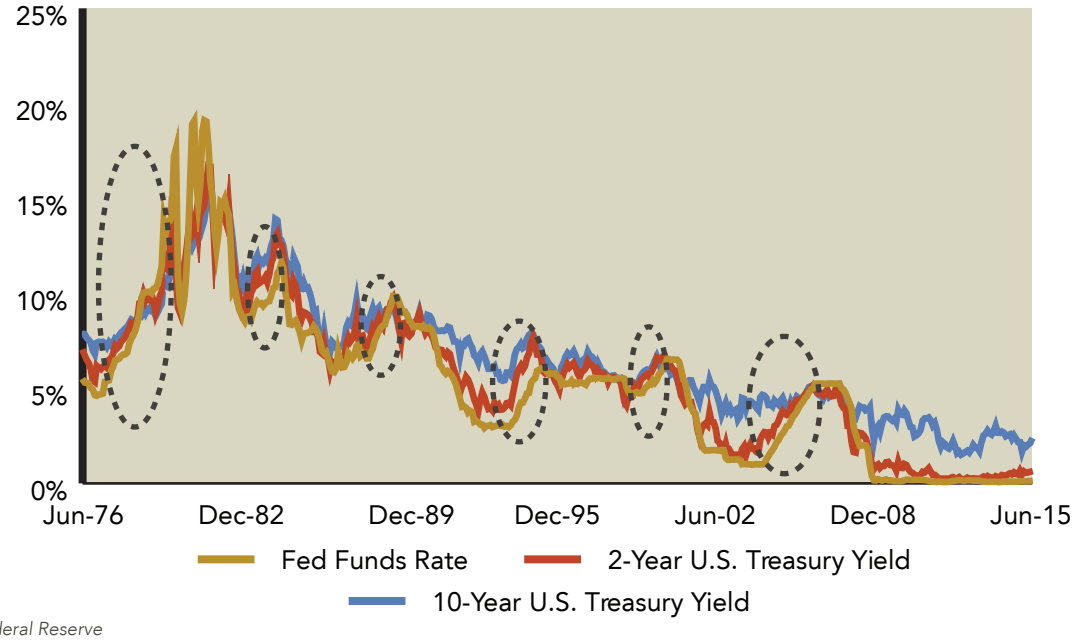
Introduction

Much has been written and discussed in the media about when the rate hike will begin and the pace at which it will occur. Ultimately, the timing and pace are difficult to predict because they depend on many moving parts, including unemployment, inflation and a host of unpredictable economic and political factors. The right question to ask is: How should an institutional investor position a fixed income portfolio for the rate hike, regardless of the associated timing and speed?

Exhibit 1 shows each of the previous six rate hike periods highlighted by the dotted-line ovals, with the fed funds rate (controlled by the Federal Reserve to loosen or tighten monetary policy) in orange, two-year U.S. Treasury yield in red and 10-year U.S. Treasury yield in blue (the latter two priced by the market). What can we observe? Each rate hike period lasts about one to three years, with an average of two, and yields obviously expand in each period. But what can each of these six periods tell us about how the various fixed income asset classes will perform during a rate hike?

Exhibit 1: The Six Previous Rate Hikes

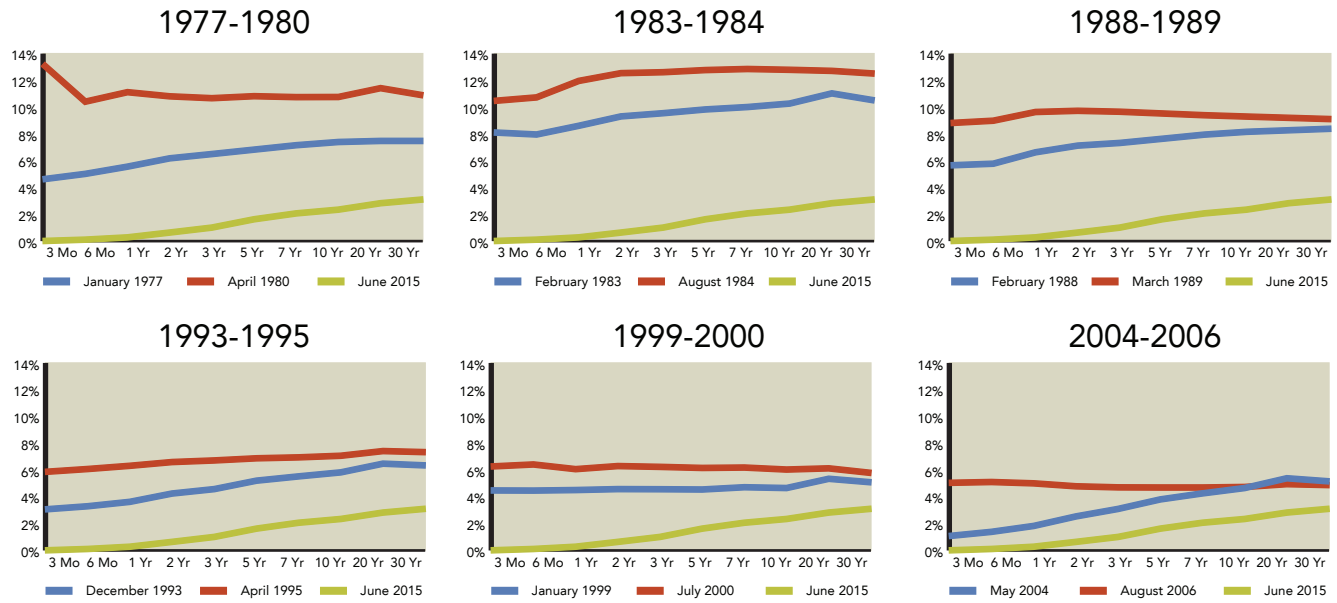


Source: Federal Reserve

We ran a regression analysis using this data to estimate how each fixed income asset class will perform. The change in both the shape and magnitude of the U.S. Treasury yield curve during each of the six previous rate hikes formed the independent variables. The price and income returns of the various fixed income indices formed the dependent variables.

While no model is perfect, our intention is to provide investors a sense of what to expect across a variety of rate hikes and accompanying changes in the shape of the yield curve. We focus on two primary rate rise scenarios: a flattening of the curve or a rise in a parallel fashion. A steepening curve scenario was not analyzed because of its low probability of occurring. Exhibit 2 below shows that previous rate hikes have led to either a flattening rise or a parallel rise in the yield curve.

Exhibit 2: A Closer Look at the Six Previous Rate Hikes



Source: Federal Reserve

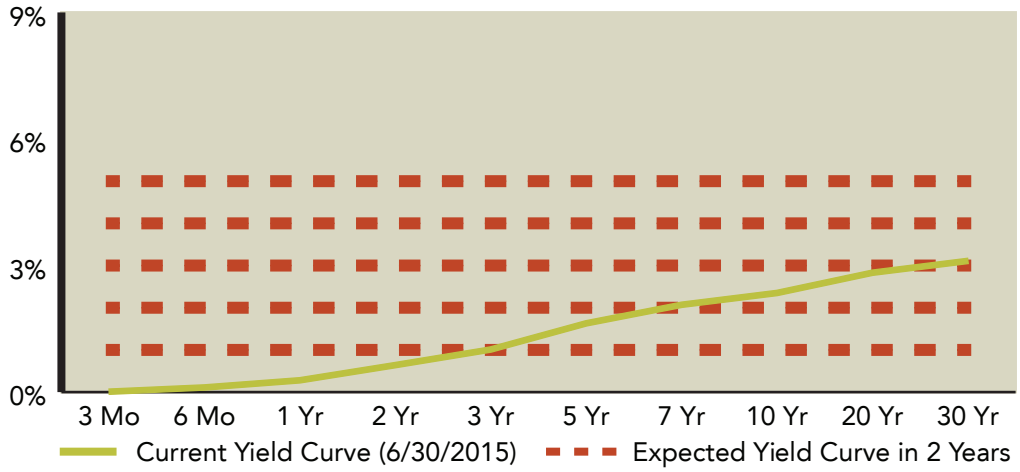
Estimating The Future

What to Expect as Rates Rise?

It is impossible to predict exactly how the shape of the yield curve will change. For purposes of this analysis, we chose the two most likely scenarios: a curve flattening and a parallel rise in yields. We also chose two years for the timeframe because it is the average length of the previous six rate hikes. Using our predictive model, we determined how each fixed income asset class will perform under these two rate hike scenarios.

Shown on the next page in Exhibit 3 are the five yield curve flattening scenarios we examined, with the yield curve where we are now in the green solid line (from June 30, 2015) moving and flattening ***to*** a flat 1% across maturities, up to a 5% across maturities, in the red dotted lines.

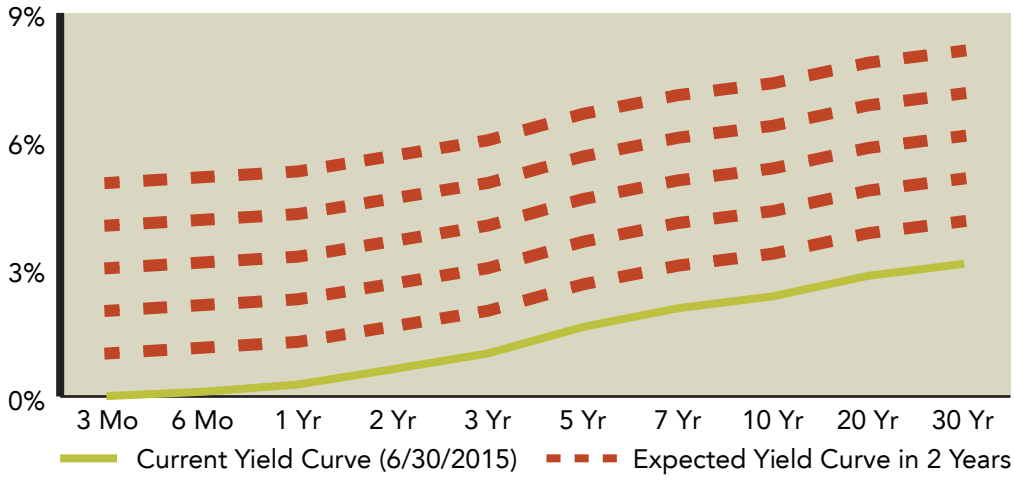
Exhibit 3: Five Yield Curve Flattening Scenarios



Source: Federal Reserve, Marquette Research

In contrast, Exhibit 4 below shows the five yield curve parallel rise scenarios that we examined. Similar to the five yield curve flattening scenarios, they start with the yield curve where we are now in the green solid line (again, from June 30, 2015). However, here they rise in a parallel manner ***by*** 1% across maturities with the maximum parallel rise of 5% from the current yield curve in the red dotted lines.

Exhibit 4: Five Yield Curve Parallel Rise Scenarios



Source: Federal Reserve, Marquette Research

Exhibit 5 on the next page shows the results of our predictive model, by fixed income asset class. The two tables show the price return for just the two-year period from the start of a rate hike to the end of a rate hike, for each of the major fixed income asset classes. The top table shows the curve flattening to 1% through 5%. The bottom shows a parallel rise by 1% through 5%. For example, in the top table, if the curve went from where it was at the end of June to a flat 3% across all maturities, a short duration 1-3 year G/C ("Government/Credit") mandate would return 0.3% for the period, the Agg would return 0.6% and a long G/C mandate would return 3.5%.

Exhibit 5: Two-Year Rate Hike

U.S. Treasury Yield Curve	Expected Annualized Total Returns				
Flatten To	**1-3 Yr GC**	**Int GC**	**Agg**	**MBS**	**Long GC**
5%	1.0%	-0.2%	-2.7%	-2.6%	-1.6%
4%	0.7%	0.0%	-1.0%	-0.5%	1.0%
3%	0.3%	0.3%	0.6%	1.5%	3.5%
2%	0.0%	0.5%	2.3%	2.2%	5.9%
1%	-0.3%	0.7%	3.8%	1.8%	8.3%

U.S. Treasury Yield Curve	Expected Annualized Total Returns				
Parallel Rise By	**1-3 Yr GC**	**Int GC**	**Agg**	**MBS**	**Long GC**
5%	1.1%	-0.7%	-6.2%	-5.5%	-11.1%
4%	0.8%	-0.5%	-4.4%	-3.3%	-8.1%
3%	0.5%	-0.3%	-2.7%	-1.2%	-5.2%
2%	0.1%	0.0%	-0.9%	0.8%	-2.5%
1%	-0.2%	0.2%	0.7%	2.8%	0.1%

A preliminary review of the tables suggests that the "winner" varies by scenario and magnitude of yield curve movement: If the yield curve flattens to 5%, a 1-3 yr G/C mandate offers the best return, but if the curve rises in a parallel fashion by 2%, a Mortgage Backed Security ("MBS") strategy outperforms the others. Of course, the challenge today is that no one knows with any certainty how the yield curve will change: shape, magnitude, and pace are among the unknown variables that can affect fixed income returns. Given the high degree of uncertainty around the rate hike and impact on fixed income investments, perhaps a better question to ask is: Which fixed income strategy is most consistent – or at a minimum, the least damaging – across all these scenarios? For most institutional investors, the primary fixed income allocation is in place to provide diversification, liquidity and protection from volatile equity markets. Therefore, is it possible to identify a sector of the fixed income market which is relatively more consistent across the scenarios examined in this paper?

Of the ten scenarios summarized above, the short duration strategy (1-3 yr G/C) delivers the highest return for almost half of the outcomes. Not surprisingly, the short duration strategy is superior under the largest rate increases, for either a flattening (to 5%) or parallel (by 3%, 4% or 5%) shift of the yield curve. In these cases, as rates rise further, the longer duration mandates experience worse total returns as their price depreciation outweighs their low yields relative to historicals. Note that if the yield curve flattens to 3%, 2% or 1%, the long G/C strategy outperforms, as the price appreciation augments the stronger yield (relative to shorter duration mandates) in a long duration portfolio.

At this point, it looks awfully tempting to shorten the duration of a fixed income portfolio, but given the slow global economy at this time, a very fair question to ask is: How likely is the long end to rise, and if it does rise, how much will it actually increase? Considering the slow growth of the developed world, it is difficult to imagine a significant increase on the long end of the curve. A more likely scenario is a flattening of the yield curve in which shorter term rates increase but the long end is relatively unchanged. Such a scenario is where the rate hike could result in a "New Neutral" low interest rate environment of a flat 3% across all maturities, in which case our model suggests that it is better to be in the Agg than a short duration or intermediate duration product.

It is also worth noting that a premature move to short duration will result in lower income for the duration of the investment. Given the extreme difficulty in timing interest rate moves, an ill-timed move to shorter duration (which is more likely than not) could result in a lower return over the course of the rate hike. Exhibit 6 shows the expected return for each fixed income asset class for an extended period of two years before the start of the rate hike plus the two year rate hike plus two years after the end of the rate hike. This approximates the situation if the Fed further delays the hike, or hikes in a very shallow fashion. As shown in Exhibit 6, the higher yield of longer duration sectors strengthens their returns in the flattening case, and mitigates the price declines in the parallel case.

Exhibit 6: Extend to Six Years: Two Years Before + Two Year Rate Hike + Two Years After

U.S. Treasury Yield Curve	Expected Annualized Total Returns				
Flatten To	**1-3 Yr GC**	**Int GC**	**Agg**	**MBS**	**Long GC**
5%	2.3%	2.2%	1.7%	1.7%	3.2%
4%	1.9%	2.0%	2.0%	2.2%	3.7%
3%	1.5%	1.8%	2.2%	2.6%	4.3%
2%	1.1%	1.6%	2.4%	2.6%	4.7%
1%	0.6%	1.4%	2.6%	2.2%	5.2%

U.S. Treasury Yield Curve	Expected Annualized Total Returns				
Parallel Rise By	**1-3 Yr GC**	**Int GC**	**Agg**	**MBS**	**Long GC**
5%	2.6%	2.4%	1.0%	1.2%	0.2%
4%	2.2%	2.2%	1.3%	1.7%	1.0%
3%	1.7%	2.0%	1.6%	2.2%	1.7%
2%	1.3%	1.8%	1.9%	2.7%	2.4%
1%	0.9%	1.6%	2.2%	3.1%	2.9%

Of the ten scenarios summarized in Exhibit 6, there is not one particular category that consistently "wins". For example, if the yield curve flattens to 4%, a Long G/C mandate would deliver the best returns, where as if the curve rises in a parallel fashion by 3%, an MBS strategy offers the highest return. What can we conclude from these mixed results?

First and foremost, it is imperative to recognize the utter impossibility of predicting the timing, pace, and magnitude of yield curve changes, and instead focus on how each fixed income category can contribute or detract from overall portfolio performance. Next, it should be clear that shortening duration in anticipation of a rate hike is likely to detract from portfolio returns, and given the likely nature of the upcoming rate hike, short duration strategies are likely to suffer losses as much of the rate hike is anticipated to happen on the shorter end of the curve.

Furthermore, an MBS mandate behaves like the Agg, albeit, performs progressively worse the lower rates drop, due to the intrinsic negative convexity of MBS, which is based on homeowners refinancing their homes when rates fall thereby forcing the MBS investor to reinvest at lower rates. Given the slow growth in all four corners of the world economy, it is conceivable that rates actually drop further before the Fed begins its gradual rate increase. Such a scenario - rates falling before beginning to rise - would be detrimental to a pure MBS allocation. However, because MBS offer higher yields than a comparable-rated Treasury or even corporate bond in certain cases, we recommend taking advantage of a moderate amount of MBS within an Aggregate mandate.

We also attempted to run the same regression on bank loans, high yield, global fixed income and emerging market debt. However, the results were inconclusive for two primary reasons. First, there is not enough data going back beyond the late 1980s. Second, for the periods when data was available, our analysis revealed that price movement for these sectors was driven more by fundamentals, which is not surprising, as these spread sectors should be less rate-sensitive than the investment grade sectors. Ultimately, we found that bank loans and high yield are far less dependent on the rate hike and will depend on spread compression, while global fixed income mandates and emerging market debt are likewise less dependent on the rate hike and instead driven by global growth.

Conclusion

Ultimately, there is no "secret sauce" fixed income strategy that will outperform for every rate hike scenario. Given the utter difficulty of predicting the upcoming rate hike, we feel it is best for each of our clients to assess their program goals and fixed income allocations across these scenarios and work with their consultant as necessary to make the appropriate adjustments. In many cases, this may simply mean maintaining significant allocations to an Agg or Intermediate mandate. For others, an allocation to Long G/C may make some sense to add additional yield to the portfolio. While no single solution exists for all clients, the analysis covered in this paper should at the very least help guide expectations for potential portfolio impacts of a rate hike depending on each investor's fixed income portfolio as well as the change in yield curve.

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