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MBS UPDATE

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KEY TAKEAWAYS

MBS may offer additional value versus Treasuries in a range-bound or rising rate environment.

MBS valuations are broadly in-line with their post-recession average, and yield per unit of duration (interest rate risk) remains attractive relative to other high-quality sectors.

MORTGAGE-BACKED SECURITIES

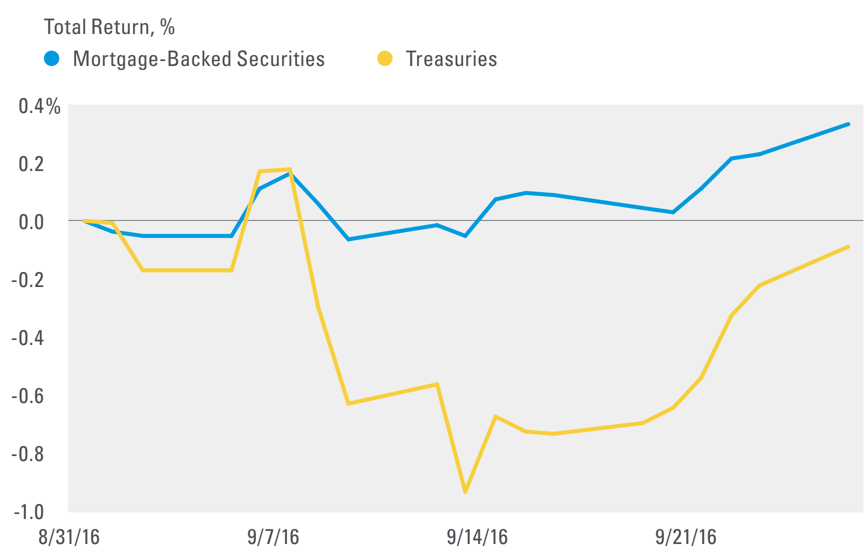
Mortgage-backed securities (MBS) are backed by a mortgage or group of mortgages. MBS can be structured in different ways, but investors receive periodic principal and interest payments derived from payments that borrowers make on their mortgages.

Though performance has been strong in recent weeks, we continue to believe mortgage-backed securities (MBS) offer additional value relative to Treasuries in the current environment. MBS have lagged the broader bond market year to date, though have managed a 3.7% return (as measured by the Barclays Fixed Rate Mortgage Backed Securities Index) even as interest rates have fallen. The trend of underperformance reversed in early September, and MBS outperformed Treasuries (Barclays U.S. Treasury Index) as intermediate- and long-term rates rose [Figure 1].

COMPENSATION FOR INTEREST RATE RISK

Interest rates have fallen year to date, but recent volatility in intermediate- to long-term interest rates has brought the risk of rising rates back into focus. The 10-year Treasury yield tested the top of its recent 1.5–1.7% range earlier this month, but failed to break through and has now fallen back to 1.59% (as of

1 MBS HAVE OUTPERFORMED TREASURIES SO FAR IN SEPTEMBER



Source: LPL Research, Barclays, FactSet 09/23/16

As measured by the Barclays Fixed Rate Mortgage-Backed Securities Index and Barclays U.S. Treasury Index.

Past performance is no guarantee of future results. Indexes are unmanaged and cannot be invested into directly.

September 26, 2016). We continue to believe that more consistent economic data (to the upside or downside) are needed in order for Treasuries to break out of their recent range. Even though we don't expect a steep rise in the near term, it is still important that investors are compensated for the amount of interest rate risk that they take on. The amount of yield per unit of duration can help to quantify this; by this measure, MBS look attractive relative to other high-quality fixed income sectors [Figure 2].

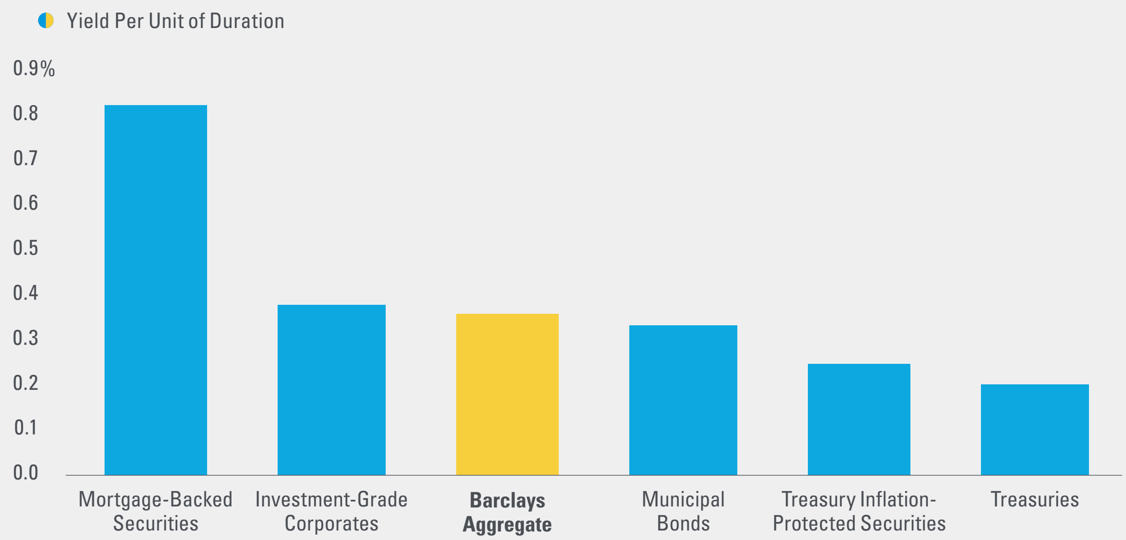
MBS valuations have settled into a relatively tight range over the past two years, especially when looked at in comparison to the aftermath of the Great Recession. The spread to Treasuries has fallen slightly in recent weeks, but at 0.76%, is now broadly in-line with the post-Great Recession average of 0.8% [Figure 3].

SCENARIO ANALYSIS

Scenario analysis can be used to estimate how different asset classes may react to changes in interest rates. As Figure 4 shows, based on scenario analysis, MBS have the potential to outperform the 10-year Treasury note over a one-year period if rates stay range bound (+/- 0.25% from current level), or if they rise; but MBS may be more likely to underperform if rates drop significantly. These findings are in-line with recent performance, as MBS underperformed Treasuries as rates have fallen year to date, but outperformed when rates rose earlier this month.

One thing that scenario analysis doesn't show is the potential impact of rate increases on prepayments. Principal and interest payments for MBS ultimately come from individual mortgages,

2 MBS OFFER MORE YIELD PER UNIT OF DURATION THAN OTHER HIGH-QUALITY FIXED INCOME SECTORS



Source: LPL Research, Bloomberg 09/23/16

Indexes referenced are Barclays Fixed Rate Mortgage-Backed Securities Index, Barclays U.S. Aggregate Credit Index, Barclays U.S. Aggregate Bond Index, Barclays Municipal Bond Index, Barclays U.S. Treasury TIPS Index, and Barclays U.S. Treasury Index.

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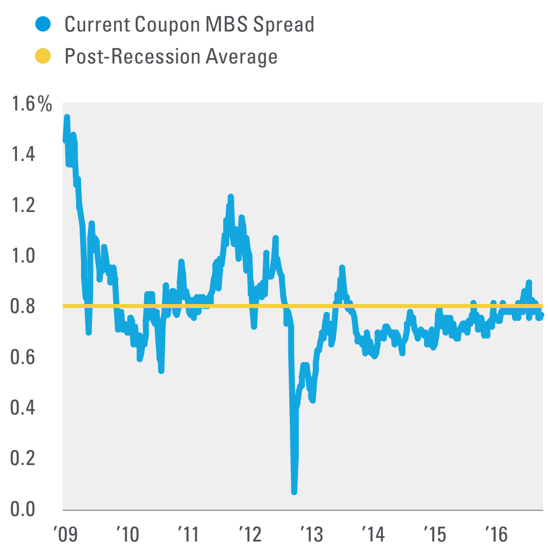
Duration is a measure of the sensitivity of the price (the value of principal) of a fixed income investment to a change in interest rates. It is expressed as a number of years. Rising interest rates mean falling bond prices, while declining interest rates mean rising bond prices. The bigger the duration number, the greater the interest rate risk or reward for bond prices.

and higher levels of prepayments by real estate owners tend to lead to shorter maturity (and lower duration) for these securities. As rates fall, prepayments tend to increase due to refinancing activity (refinancing is a form of prepayment). However, if rates were to make a sustained move higher for a period of time, prepayments could slow, leading to higher duration and more interest rate risk for the asset class. Accommodative central bank policies may reduce the risk of such a scenario in the short term, but the risk is worth mentioning.

3 **MBS VALUATIONS HAVE REMAINED IN A TIGHT RANGE IN RECENT YEARS**



Source: LPL Research, Bloomberg 09/23/16

Spread is calculated as the difference between the yields of 30-Year "Current Coupon" MBS Index, and the 7-Year Treasury.

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CONCLUSION

We expect the 10-year Treasury yield to remain in its current range of 1.5–1.7%, absent any surprises from global central banks or a consistent uptick (or downtick) in economic data. This type of environment may put more emphasis on yield as a driver of returns (as opposed to capital gains, as has been the case this year as bonds have rallied). MBS have underperformed as bond yields have fallen (and prices have risen) year to date, but interest rate volatility over the past month has led MBS to outperform Treasuries so far in September. The sector's low duration is the main driver of the recent outperformance (and year-to-date underperformance), but scenario analysis shows that the yield advantage of MBS relative to comparable duration Treasuries may help the asset class to outperform Treasuries in an environment where rates remain range bound as well. ■

4 **SCENARIO ANALYSIS SHOWS MBS MAY OUTPERFORM TREASURIES WHEN RATES INCREASE OR REMAIN RANGE BOUND**

	Change in 10-Year Treasury Yield					
	-0.5%	-0.25%	0%	0.25%	0.5%	0.75%
30-Year MBS Total Return	4.93%	3.75%	2.29%	0.62%	-1.19%	-3.06%
10-Year Treasury Total Return	5.70%	3.62%	1.57%	-0.46%	-2.46%	-4.44%
Difference (MBS Minus Treasury)	**-0.77%**	**0.13%**	**0.72%**	**1.08%**	**1.27%**	**1.38%**

Source: LPL Research, Bloomberg 09/27/16

Scenario analysis assumes one-year time horizon, parallel shift of yield curve, no change to yield spreads, and no reinvestment of interest income.

This is a hypothetical example and is not representative of any specific situation. Your results will vary. The hypothetical rates of return used do not reflect the deduction of fees and charges inherent to investing.

The 30-year MBS total return is measured by the 30-Year "Current Coupon" MBS Index. Indexes are unmanaged and cannot be invested into directly.

IMPORTANT DISCLOSURES

The opinions voiced in this material are for general information only and are not intended to provide specific advice or recommendations for any individual. To determine which investment(s) may be appropriate for you, consult your financial advisor prior to investing. All performance reference is historical and is no guarantee of future results. All indexes are unmanaged and cannot be invested into directly.

The economic forecasts set forth in the presentation may not develop as predicted and there can be no guarantee that strategies promoted will be successful.

Government bonds and Treasury bills are guaranteed by the U.S. government as to the timely payment of principal and interest and, if held to maturity, offer a fixed rate of return and fixed principal value. However, the value of fund shares is not guaranteed and will fluctuate.

Municipal bonds are subject to availability, price, and to market and interest rate risk if sold prior to maturity. Bond values will decline as interest rate rise. Interest income may be subject to the alternative minimum tax. Federally tax-free but other state and local taxes may apply.

Mortgage-backed securities are subject to credit, default risk, prepayment risk (that acts much like call risk when you get your principal back sooner than the stated maturity), extension risk, the opposite of prepayment risk, and interest rate risk.

Duration is a measure of the sensitivity of the price (the value of principal) of a fixed income investment to a change in interest rates. It is expressed as a number of years. Rising interest rates mean falling bond prices, while declining interest rates mean rising bond prices. The bigger the duration number, the greater the interest rate risk or reward for bond prices.

INDEX DESCRIPTIONS

The Barclays U.S. Mortgage Backed Securities (MBS) Index tracks agency mortgage backed pass-through securities (both fixed rate and hybrid ARM) guaranteed by Ginnie Mae (GNMA), Fannie Mae (FNMA), and Freddie Mac (FHLMC).

The Barclays U.S. Treasury Index is an unmanaged index of public debt obligations of the U.S. Treasury with a remaining maturity of one year or more. The index does not include T-bills (due to the maturity constraint), zero coupon bonds (strips), or Treasury Inflation-Protected Securities (TIPS).

The Barclays U.S. Aggregate Bond Index is a broad-based flagship benchmark that measures the investment-grade, U.S. dollar-denominated, fixed-rate taxable bond market. The index includes Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS, and CMBS (agency and non-agency).

The Barclays U.S. Aggregate Credit Index is a broad-based benchmark that measures the investment-grade, U.S. dollar-denominated, fixed-rate, taxable corporate bond market.

The Barclays U.S. Treasury TIPS Index is a rules-based, market value-weighted index that tracks inflation-protected securities issued by the U.S. Treasury.

The Barclays U.S. 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.

The 30-year "Current Coupon" MBS Index is comprised of recently issued agency mortgage-backed securities priced closest to par in the secondary market. The current coupon index reflects a weighted average price and yield to maturity.

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