BONNIE M. WONGTRAKOOL
Portfolio Manager

The Advantages of Agency Mortgage-Backed Securities

Executive Summary

- Agency MBS have outperformed Treasuries over the long term, in both rising and falling rate environments.
- Agency MBS have exhibited less return volatility and less duration than Treasuries, while offering similar credit risk and liquidity.
- Agency MBS have been less correlated with equities than have corporate bonds.
- Investors should consider including agency MBS as a core allocation in their fixed-income portfolios.

What are Agency MBS?

The agency mortgage-backed security (MBS) asset class is the largest non-Treasury investment-grade sector of the US bond universe, constituting 28% of the Barclays Aggregate Index. Agency MBS are created when residential mortgage loans that meet agency underwriting guidelines[1] are securitized into a pass-through security. Investors in the pass-through securities receive the loans' principal and interest net of servicing and guarantee fees.

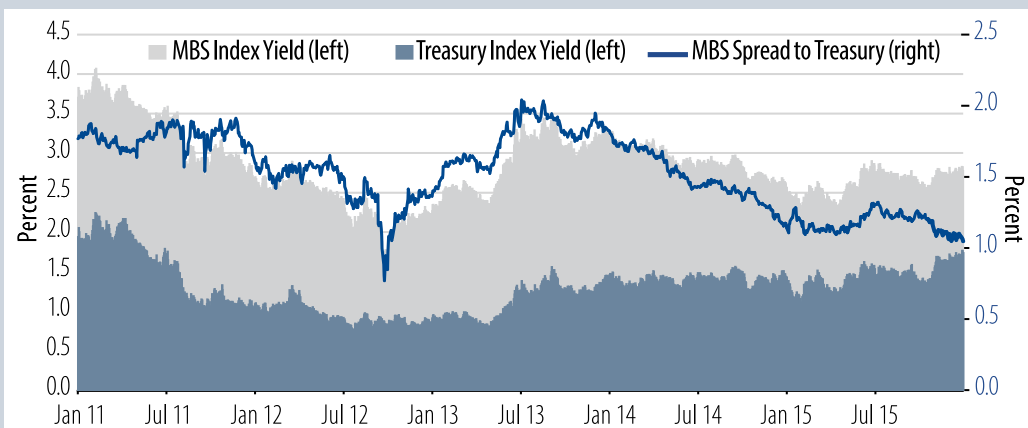
These securities are issued and guaranteed by Fannie Mae (FNMA), Freddie Mac (FHLMC) and Government National Mortgage Association or Ginnie Mae (GNMA). Fannie Mae and Freddie Mac focus on home loans originated by banks and non-bank mortgage originators that adhere to government-sponsored enterprise (GSE) guidelines, whereas Ginnie Mae focuses on home loans originated under programs of the Federal Housing Administration and Veterans Administration.

Ginnie Mae MBS are deemed to be without credit risk and backed by the US Government, a.k.a., "full faith and credit," like US Treasury bonds. While the GSEs remain under conservatorship, it is understood that there is limited credit risk in Fannie Mae and Freddie Mac MBS.

Why Invest in Agency MBS?

1. Agency MBS offer incremental yield relative to Treasuries with limited credit risk due to the explicit (in the case of Ginnie Mae) or implicit (in the case of Fannie Mae and Freddie Mac) guarantee of the principal and interest payments on the underlying loans (Exhibit 1).

Exhibit 1
MBS and Treasury Yields



Source: Barclays, Western Asset. As of 31 Dec 15

[1] Most mortgage loans that are securitized into Agency MBS have the following characteristics: fully amortizing; a maturity of 10, 15, 20 or 30 years; use of proceeds is to purchase or refinance one to four family homes; and a balance of $417,000 or less.

2. In addition, the Agency MBS sector typically has a lower duration than the Treasury universe (Exhibit 2).

Exhibit 2
Modified Adjusted Duration for Barclays MBS and Treasury Indices

Barclays US MBS Index	4.5
Barclays US Treasury Index	5.9
Difference (MBS - Treasury)	-1.4

Source: Western Asset, Barclays. As of 31 Dec 15

3. Agency MBS have generated excess return over Treasuries over the long term (3 year, 5 year and 10 year), with attractive risk-adjusted returns as measured by Sharpe[2] and Sortino[3] ratios and relatively low tracking error[4] (Exhibit 3).

Exhibit 3
Return and Risk Metrics for the Barclays MBS Index

Time Period	Excess Return Over Treasuries (bps)	Sharpe Ratio	Sortino Ratio	Tracking Error (%)
10 Year	48	0.39	0.72	0.75
5 Year	25	0.31	0.46	0.59
3 Year	45	0.37	0.60	0.47

Source: Western Asset, Barclays. As of 31 Dec 15

4. The returns for Agency MBS have not only exceeded those for Treasuries over the long term (3 year, 5 year and 10 year), but have also been delivered with lower volatility (Exhibit 4).

Exhibit 4
Standard Deviation of Total Returns for Barclays MBS and Treasury Indices

Time Period	MBS	Treasuries
10 Year	0.74	1.20
5 Year	0.59	0.93
3 Year	0.68	0.86

Source: Western Asset, Barclays. As of 31 Dec 15

[2] The Sharpe ratio is calculated by dividing the average of the difference between the Barclays MBS Index total return and the Barclays Treasury Index total return by the standard deviation of the MBS index total returns.
[3] The Sortino ratio is calculated by dividing the average of the difference between the Barclays MBS Index total return and the Barclays Treasury Index total return by the standard deviation of the ***negative*** MBS index total returns. Thus, it only considers downside volatility.
[4] Tracking error is a measure of active risk. It is equal to the standard deviation of the difference between the Barclays MBS Index total return and the Barclays Treasury Index total return over time.

5. Agency MBS have historically outperformed in Federal Reserve tightening cycles, allowing investors to generate excess return even in rising rate environments (Exhibit 5).[5]

Exhibit 5
Total Return 6 Months After Fed Hike

Date of Fed Hike	MBS[6]	5-Year Treasury	10-Year Treasury
12/16/1986	0.6%	-0.4%	-2.6%
3/29/1988	4.0%	2.3%	2.7%
2/4/1994	-0.9%	-1.9%	-4.3%
6/30/1999	1.2%	0.7%	-1.0%
6/30/2004	4.1%	2.4%	4.5%
Average	1.8%	0.6%	-0.1%

Source: Morgan Stanley Research, YieldBook. As of 31 Dec 15

6. Agency MBS have generally exhibited less volatility and lower correlation with the equity markets than other fixed-income sectors. Since January 2011, there have been 59 weekly periods (Friday versus previous Friday closes) over which the S&P 500 declined 1% or more. During those time periods, both the frequency and magnitude of corporate underperformance tended to be higher than that of the MBS sector (Exhibit 6).

Exhibit 6
Changes in Fixed-Income Valuations in S&P 500 Selloffs (12/31/2010 through 12/31/2015)

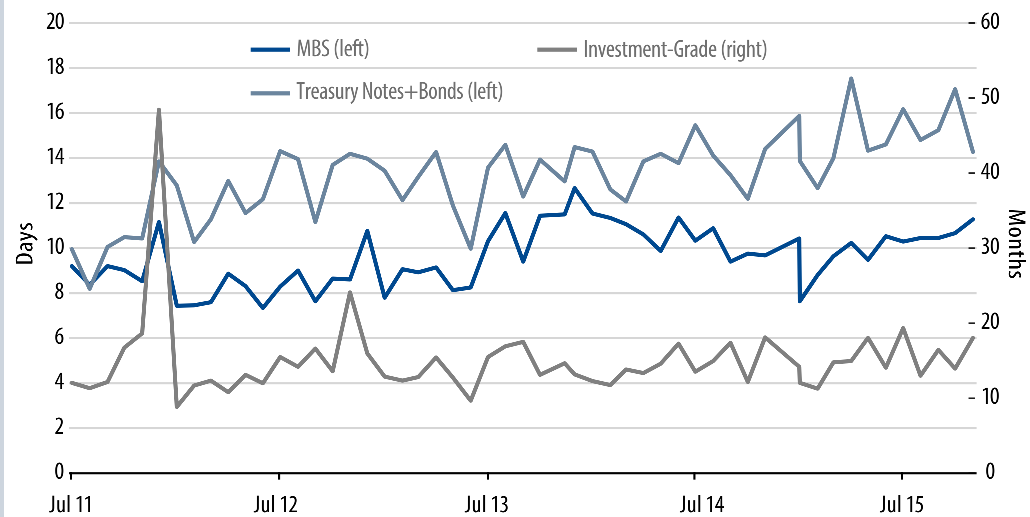
S&P Weekly Change	-4% to -5%	-3% to -4%	-2% to -3%	-1% to -2%	All (-1% to -5%)
# of Occurrences	3	8	17	30	58
Average Change in 10 Yr Treasury Yield	-11.8	-14.2	-4.3	-4.9	-6.5
Treasury Rally Frequency	100%	100%	76%	79%	83%
Average Change in MBS Treasury ZV Spread	10.9	3.0	3.3	1.9	3.0
Average Change in IG Corp Treasury ZV Spread	16.6	4.2	2.9	3.3	4.0
MBS Widening Frequency	100%	75%	71%	77%	76%
IG Corp Widening Frequency	100%	83%	88%	90%	86%
Average MBS Spread Change Measured in Standard Deviations	2.1	0.6	0.6	0.4	0.6
Average IG Spread Change Measured in Standard Deviations	3.3	0.8	0.6	0.7	0.8

Source: Bloomberg, Western Asset, Barclays. As of 31 Dec 15

7. In an environment in which liquidity concerns remain front and center, agency MBS continue to hold an advantage over other fixed-income sectors in terms of scalability and transaction costs. The average daily trading volume in the agency MBS sector is about $200 billion, compared with around $15 billion for investment-grade corporates. The average trade size for agency MBS is also significantly higher than that for investment-grade corporates, at $20 million versus $4 million. Furthermore, while the average trading volume for Treasuries at $400 billion is about double that of agency MBS, it takes about 10 days for the amount of outstanding tradable agency MBS to turn over, less than the turnover time of 15 days for Treasuries (and far less than the 15 months for investment-grade corporates) (Exhibit 7). This would suggest that agency MBS have liquidity that is comparable to or potentially better than Treasuries.

[5] Total Return for Citi US Broad Investment-Grade (USBIG) Mortgage Index. Compounded monthly returns assuming cash flows are invested at 3 month LIBOR.

Exhibit 7
Turnover Time for Treasuries, MBS, Investment-Grade



Source: Barclays Research, NY Fed, SIFMA. As of 30 Nov 15

What Are the Risks?

Changes in the following will impact prices:

- **Spreads:** Similar to any non-government fixed-income security, agency MBS generic valuations are subject to changes in spreads. If spreads widen, the prices of agency MBS will decline. If spreads tighten, the prices of agency MBS will increase.
- **Prepayment:** When homeowners pay back more principal than required by the regular amortization schedule, this constitutes a prepayment. This may occur for a number of reasons; for example, the homeowner might refinance into a lower rate mortgage, experience a life-changing event (e.g., relocation for a new job, divorce, death), or move into a new home. Because the principal is being returned to the investor at par, this can detract from returns if the MBS was purchased at a premium dollar price. However, the idiosyncratic aspect of prepayment risk is reduced by the aggregation of a large number of loans across specified pools.
- **Convexity:** Although the duration of the MBS sector is typically lower than that of the Treasury sector, MBS are negatively convex due to the likelihood of the homeowner to refinance into a lower rate mortgage when yields fall, and conversely, the homeowner's tendency to remain in the mortgage when yields rise. This can cause MBS prices to decrease in rate selloffs more than they increase in rate rallies.
- **Volatility:** Due to the homeowner's embedded option, MBS are exposed to changes in volatility. An increase in volatility can result in MBS underperformance.

The above risks can be mostly mitigated by active portfolio management, which is how Western Asset approaches this market. Western Asset takes an active relative value approach to the agency MBS market, looking for long-term fundamental value using multiple diversified strategies. An active manager can express views through sector underweights/overweights and security selection, purchase collateral with attributes that result in more predictable cash flows, and utilize portfolio hedges. These strategies aim to generate returns that exceed those of a benchmark replication mandate.

Conclusion

Based on historical evidence, agency MBS could provide investors with excess return over Treasuries with less return volatility, less duration, and excellent liquidity, and should play a role in most fixed-income portfolios.