

The Convexity Maven

A Commentary by Harley Bassman

November 6, 2023

“A New Issue MBS Strategy”



Notice: All investments have risks

On November 1, 2023 I penned [“The Center Cut”](#) that introduced a new “MBS Strategy” where civilians could effectively invest directly into recently issued Mortgage-Backed Securities (MBS) via a NYSE listed ETF.

These are bonds issued by one of the Government Sponsored Enterprises (GSE):

Government National Mortgage Association (Ginnie Mae – GNMA)

Federal National Mortgage Association (Fannie Mae – FNMA)

Federal Home Loan Mortgage Corporation (Freddie Mac – FHLMC)

Ignoring a few legal technicalities, for all intents and purposes vanilla Ginnie, Fannie and Freddie **MBS are fully guaranteed by the US Government.**

This Commentary will offer a deeper dive into the construction and management of this “Strategy”, of which I am the lead investment manager.

As a reminder, a single MBS is a collection of perhaps 10,000 standard 30-year mortgage loans made to "prime" borrowers (FICO above 720) who have the right (option) to prepay their loan at any time for any reason with no penalty.

It is this prepayment uncertainty that creates the extra yield for owning a MBS. When one buys a MBS, they do not know if that bond will pay off in two years or thirty years; it is all at the discretion (option) of the borrower.

One can roughly model a MBS as a "buy-write strategy" where one:

- 1) Buys a ten-year UST at a price of 100
- 2) Sells a three-year expiry call option, struck at 105

It is the confluence of Interest Rates and Implied Volatility that creates the option's two most important "values" – its price and its duration (delta).

US Treasury bonds are riskless, as there is no embedded optionality. This is why a UST with a 3% coupon or a 6% coupon will have roughly similar Yields and Durations (their sensitivity to interest rate changes). They will only differ by the price required to make their Yields equivalent.

Borrowing the table "[The Center Cut](#)", notice the **-viola column-** Yield to Maturity is different for each MBS coupon security, with their yield increasing as the price of the bond nears Par (100).

Coupon	\$MM Issued	\$ Price	Effective Duration	Distribution Yield	Yield to Maturity	CPR
2.00%	\$1,866	73.77	9.62	2.71%	5.59%	4cpr
2.50%	\$1,576	76.98	8.37	3.25%	5.62%	4cpr
3.00%	\$951	80.21	8.07	3.74%	5.67%	4cpr
3.50%	\$674	83.45	7.63	4.19%	5.71%	4cpr
4.00%	\$504	86.58	6.96	4.62%	5.77%	4cpr
4.50%	\$374	89.48	6.31	5.03%	5.97%	5cpr
5.00%	\$356	92.23	5.87	5.42%	6.09%	5cpr
5.50%	\$309	94.89	5.32	5.80%	6.28%	6cpr
6.00%	\$205	97.28	4.65	6.17%	6.47%	8cpr
6.50%	\$95	99.41	3.96	6.54%	6.62%	10cpr

30yr MBS Coupon	\$MM Issued	Index Price	30yr MBS Efftv Dur	30yr MBS Distribution	30yr MBS YTM
3.13%	\$7,124	79.48	7.81	3.94%	5.71%

UST 10yr Coupon	UST 10yr Price	UST Dur	UST 10yr Distribution	UST 10yr YTM
3.875%	92.57	7.91	4.19%	4.83%

This is because the embedded option increases in price as it nears the strike level and thus increases the income (yield) of a buy-write package.

Similarly, the **-rosso column-** Effective Duration shortens as its bond price rises since the delta on the embedded option increases (becomes more negative).

For the sake of simplicity, the Duration of the UST 10yr on the prior table is 7.91. One might model the embedded option for a FN 6.0% MBS as worth 6 points with a "delta" of 40% (it would be 50% if it was at-the-money near 100.)

So think of a FN 6.0% as long a 10yr bond with a duration of 7.91, and short the option with a duration of -3.16. [A delta of 40% times 7.91 = 3.16]

As a "buy-write" package this creates an "Effective Duration" of 4.75 (7.91-3.16), which is close to the 4.65 duration quoted in the table.

The embedded option in a FN 3.0% MBS at a price of 80.21 is massively out-of-the-money, so it's value may be barely half a point, with a delta of perhaps 5%.

For simplicity again, I'm ignoring the 5% option delta and note the FN 3.0% has an Effective Duration of 8.07, similar to the UST 10yr at 7.91.

I also want to highlight the term "effective duration" -- the duration of a bond after accounting for the modeled value of the embedded option, which is a moving target depending upon the path of prepayments.

Thus, the source of the geeky term "OAD" – Option Adjusted Duration.

Recognizing the insanity of the Federal Reserve's (FED's) post-COVID policies of ZIRP (Zero Interest Rate Policy) and QE~ (Quantitative Easing Infinity) homeowners refinanced their mortgages at historically low rates.

Thus, 72% of all -carbone column- MBS have coupons between 2.0% and 3.5%.

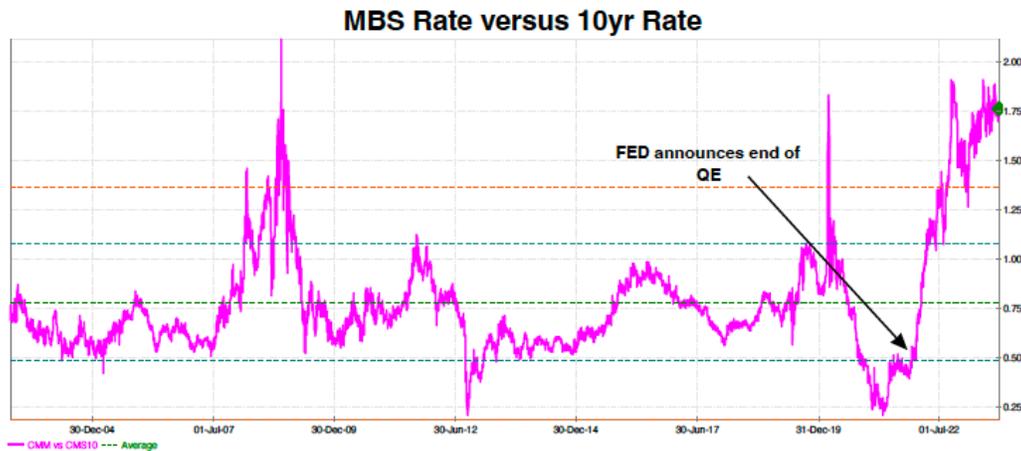
When one buys a product whose yardstick is to mimic the MBS Index, one is basically buying a portfolio of FN 3.0% MBS, which have long durations and meager yields because one is short a "penny option" of little value or delta.

This is why owning the MBS Index (FN 2.0% to FN 3.5%) is such a poor investment. One is selling off the big upside of long duration bonds for pennies. If you want duration for a FED induced "hard landing" – Buy longer-maturity USTs.

The Strategy

MBS are a particularly popular investment for Pension and Insurance (professional) portfolio managers because they offer a nice yield spread over USTs without the credit risk associated with corporate bonds. Unfortunately, except for large mutual funds or Index ETFs, it is challenging for civilians to gain access to MBS.

I often offer the **-rosa line-** spread of MBS to the 10yr rate as a measure of value. Presently, this spread, at nearly 175bps, is close to its all-time wide, and almost 100bps more than its long-term average of about 75bps.



Sources – Unless noted, all charts are Credit Suisse LOCUS

However, this spread is a function of the 10yr rate versus the near-Par (100) priced MBS, not the spread to the MBS Index, which would be much tighter.

This Strategy offers civilians access to these higher-yielding MBS bonds in a liquid and transparent NYSE listed vehicle without the baggage of MBS Index-linked lower coupon MBS bonds.

Strategy Construction

This Strategy will initially purchase FN 6.0% MBS whose recent closing price was 99.37. Over time, the average price of the Strategy's MBS portfolio should range between 95 and 103; at the full discretion of the manager.

While near par MBS are some of the most liquid bonds in the market, the Strategy will seek to minimize transaction costs, especially those incurred to maintain the average cost within the target range.

The Strategy will not purchase specific MBS bonds with an associated CUSIP number (known as a "specified pool" in Wall Street lingo); rather the Strategy will purchase TBA (to be announced) MBS, which are effectively MBS futures.

TBAs are the most liquid MBS bonds where almost all MBS trading occurs. MBS TBAs will be "rolled" once a month, similar in process of how CBOT UST futures can be rolled once a quarter. They are called TBA since if not rolled, the owner will receive specified MBS bonds To Be Announced upon month-end settlement.

The total return economics and market risk for TBAs is almost identical to owning specific MBS bonds, yet there are some meaningful advantages:

- 1) TBAs are vastly more liquid with lower transaction costs;
- 2) TBAs can be traded in much larger size with little additional cost;
- 3) TBAs will continue to trade, even in a volatile ("fast") market;
- 4) TBAs can be traded competitively with many Wall Street dealers;
- 5) Rolling TBAs eliminates the transaction cost of re-investment;
- 6) TBAs are more accounting efficient; and
- 7) TBAs often offer a funding advantage.

Two points merit a bit more detail. Specific MBS distribute both a monthly interest and principal payment. This is because a standard 30-year mortgage slowly pays down the principal, so it is fully paid off after thirty years.

This means one must re-invest such principal to maintain a certain investment allocation. When one rolls a TBA, there is no re-investment since that value is included in the roll pricing.

If one owns \$1000 of a TBA, and it is rolled once a month for a year, one will still have \$1000 invested twelve months hence. If one owns a specified MBS, the principal investment could shrink to perhaps \$800 to \$970, depending upon the prepayment rate. As such, one will need to pay a transaction fee each time returned principal is re-invested.

Additionally, civilian accounts that own specified MBS will receive two year-end tax forms. The first in late February will be a standard 1099 that accounts for the interest received. A few months later one will receive a 1099-Supplemental to account for the returned principal, which is booked as a "capital gains" transaction. Rolling TBAs avoids this bothersome paperwork.

Pencil to paper:

If one invests \$1000 into the Strategy, the manager will buy \$1000 notional of MBS (**no leverage**). At the recent price of 99.37, the manager would buy \$1000 of FN 6.0% TBAs at a price of \$993.7 for November settlement. Since this is similar to a futures contract, no money would actually change hands.

Instead, the manager would buy \$1000 of a short-term US Treasury Bill, of which a portion would be posted as collateral to the dealer who sold the TBA.

Sometime before the settlement date, the manager would sell the November TBA and buy the December TBA for a price spread equal to the mathematical economics of owning a specified MBS bond.

This price spread will be a function of:

- 1) The price of the underlying MBS
- 2) The coupon of the MBS
- 3) The prepayment speed of the MBS
- 4) The one-month funding (repo) rate

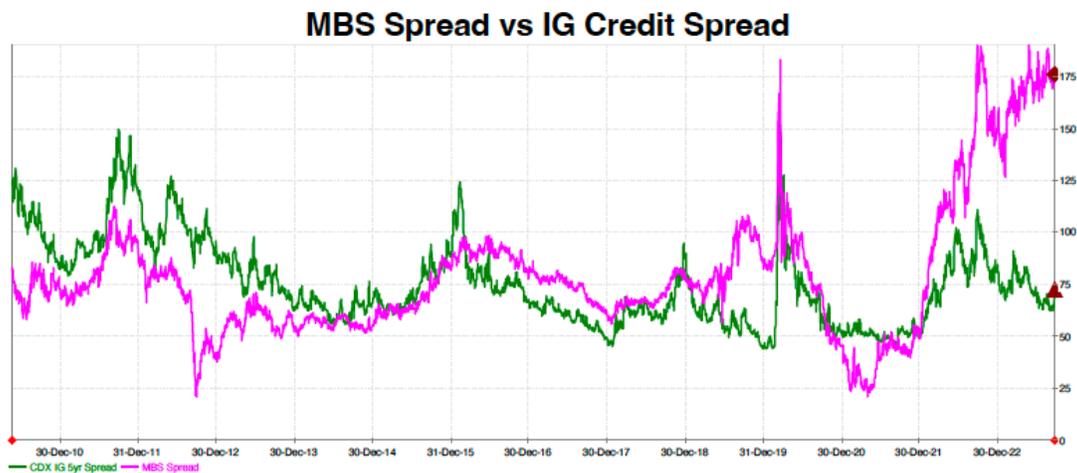
Usually, the rate received on the short-term T-Bill the manager purchased is the same as the funding rate, so it's a wash; but sometimes these rates diverge, frequently to the benefit of the TBA owner. This is the "funding advantage".

Important risks to consider:

I have made the case that older MBS are not a great investment since they offer not only a low coupon, but also will not be a great source of duration if rates drop precipitously. That said, if one sells a MBS Index product to buy into this Strategy dollar for dollar, your duration exposure will be reduced initially by 40%.

Unless you have the declared intention to reduce your duration exposure, you should consider finding some other asset as a replacement. I might suggest a levered-futures ETF (hint !) since I think the Yield Curve will dramatically steepen in a FED induced "power windows down" scenario; but I will leave that to you.

The **-gamma line-** MBS spread has expanded relative to **-verde line-** IG Credit spread because Convexity risk has widened versus Default risk.

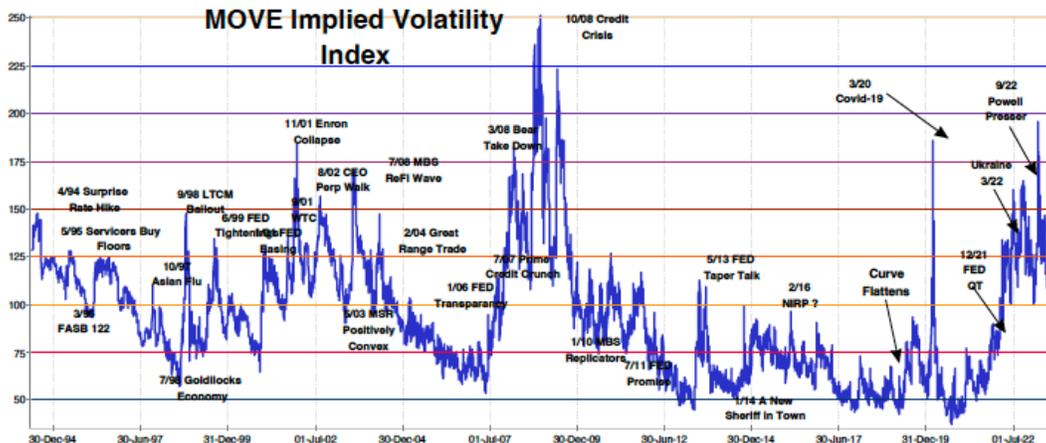


I have made a career, and the moniker of The Convexity Maven, for advocating long-convexity positions. So let's not pull any punches, this trade is a "convexity sell". However – "no bad bonds, just bad prices". At this price level, the risk versus return trade is to migrate from Credit risk to Convexity risk.

Closing Comments:

I will say it again since it bears repeating, this Strategy is functionally a buy-write on a US Treasury – the investor is short Convexity. As such, it will lag on the way up in price, and accelerate on the way down, relative to a similar duration UST.

With that out of the way, as the inventor of the [-uva line-](#) MOVE Index I believe I am qualified to offer my old rule which is to buy under 80 and sell over 120.



And while the MOVE is off its high, it is still solidly in the “sell” zone. Of course, this is incongruous to the VIX now near 16, but that is a topic for a later date.

I think the Yield Curve will power steepen later next year as the economy slows via a rotation around the 10yr, which is the dream scenario for this Strategy.

For this reason, I do not want to own UST 30yrs or IG/HY Credit Bonds.

Let me be on the record that newly issued higher-coupon MBS are the best bonds available; and this Strategy is the best way to gain exposure.

One should sell MBS Index products and re-allocate to this Strategy.

Remember: For most investments, sizing is more important than entry level.

Harley S. Bassman
November 6, 2023

Follow me on Twitter: [@ConvexityMaven](#)

Your comments are always welcome at: harley@bassman.net

If you would like to be added to my distribution, just ping me.

To become better educated on macro-economic fundamentals and policy, I urge you to connect with my partner, Michael Green, better known as [@profplum99](#).

Special Coda: *Some of the ideas I suggest can be particularly complex via the use of futures contracts and options embedded into Strategies for leverage and/or convexity that is both clever and tricky. I urge you to ping my associates who are waiting for your call to detail these strategies more fully.*

For reference literature on the financial markets - particularly about options and derivatives - I will immodestly direct you to my educational archive at:

<http://www.convexitymaven.com/themavensclassroom.html>

If you still have kids in the house, please take a vacation that is more interesting than the Four Seasons, Costa Rica – life is not a dress rehearsal. Turn off the Crackberry (did I just date myself ?) and explore with the family. You don't need to break the bank, rent an RV and see the U.S. We traveled with our four kids on five incredible RV trips.

<http://bassman.net>

Special credit to [Gerard Minack](#), the best macro analyst on the planet.

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