

The Convexity Maven

A Commentary by Harley Bassman

August 22, 2023

“The Big ‘O’”



When making an investment decision in the bond market, there are only three risk vectors to consider:

- 1) Duration – When one receives their money back;
- 2) Credit – If one receives their money back;
- 3) Convexity – How one receives their money back.

When a bond matures is often used as a proxy for **Duration risk**, but more precisely it measures the bond's price sensitivity to interest rate changes.

Credit risk is rather straight forward; it measures the chance of a default and the loss of one's investment.

Convexity risk is a bit tricky since it is mostly found embedded in callable bonds and can be challenging to measure; but the bottom line is that such bonds (mostly Mortgage and Municipal) presently offer the best relative value.

Duration is neither “good” nor “bad”. It is simply a number that measures how much a bond’s price will move as interest rates shift. For a 1% change in rate (4% to 5%), a six-month bond will see its price change by one-half point, a two-year by ~1.85 points, a ten-year by ~8.2 points, and a thirty-year by ~17 points.

While it is often suggested that US Treasuries (USTs) are the safest asset on the planet, duration risk can be quite real. Notice the **-alani line-** price of the 30yr UST issued near 100 in September 2020 is down nearly 40%. This looks more like a hard equity bear market loss than a safe place to park funds.



Source – The Bloomberg

Investors are not risk neutral: The agony of losing a dollar hurts more than the joy of making a dollar. As such, investors typically demand a higher yield to own long-maturity bonds, and thus the Yield Curve is usually positively sloped with longer-maturity bonds yielding substantially more than shorter-maturity bonds.

The current **-meamata line-** Yield Curve is anomalous where six-month USTs yield 5.45%, two-year USTs yield 4.95% and ten-year USTs yield 4.25%.



Source – Investopedia

The 30yr UST presently yields near 4.35% at a price of 97ish; if its rate rose a mere 100bp to 5.35% (still less than the six-month UST), its price would decline by more than 15% to 82ish.

While the case can be made that a recession is near and that interest rates may fall as the Federal Reserve (FED) comes to the rescue with rate cuts, there is little compensation to take duration risk with the Yield Curve so steeply inverted.

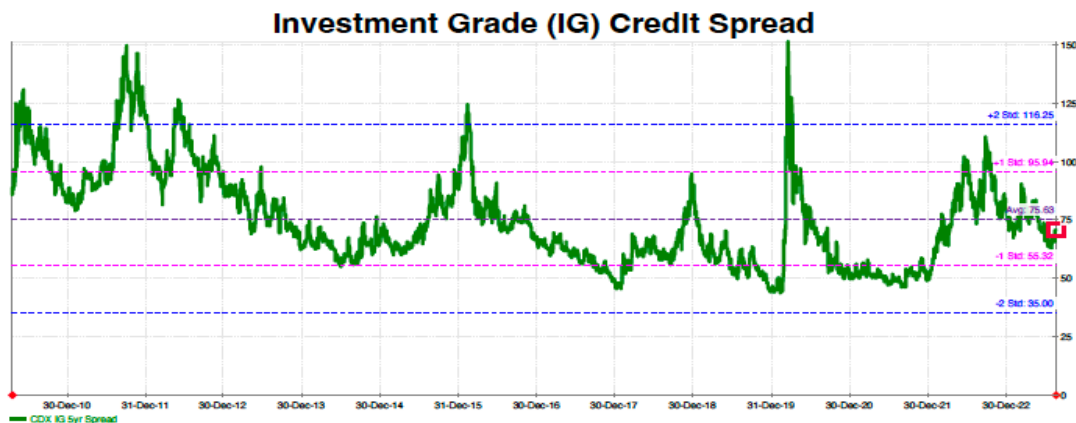
Credit risk analysis requires a bit of work; which is why most investors rely upon the big-three rating agencies of S&P, Moody's, and Fitch to do the heavy lifting of estimating the probability an entity will pay off its bonds at maturity.

These ratings range from "AAA" (Microsoft) which means the credit is essentially bullet proof, to "C" (Carvana) where the debtor is highly likely to default.

A bond is deemed to be "Investment Grade" (IG) if it is rated "BBB" (Verizon) or better. Exxon is rated "AA" while JPMorgan and Pfizer are examples of credits rated as "A".

The reason there is so much focus on IG is that regulated pension funds may not own bonds that are rated less than BBB (hence the moniker Investment Grade).

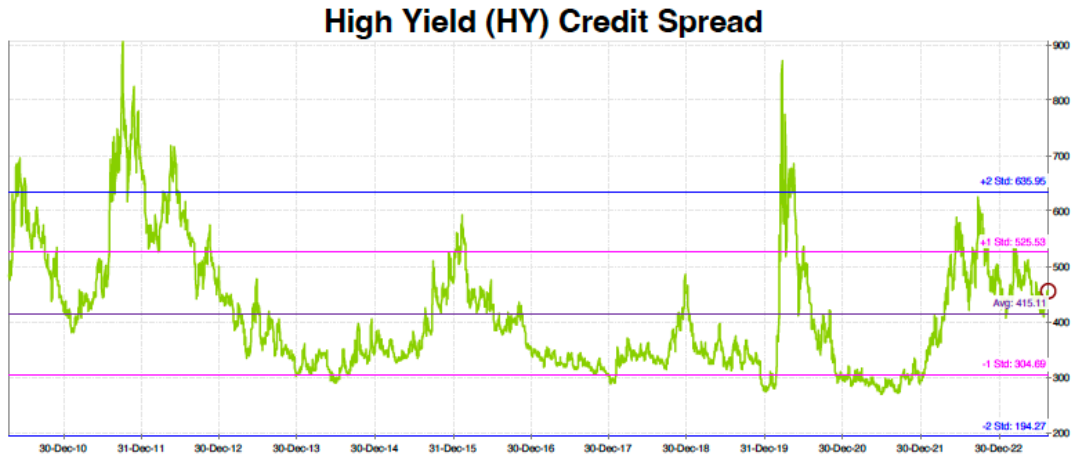
Investors track ~~lua'i line~~ IG credit via the derivatives market where hedgers and speculators can trade a basket of IG bonds at an interest rate spread over the yield of "super safe" USTs. The wider (higher) the spread, the greater the implied risk of a default.



Technically, this is a Credit Default Swap (CDS), a product you may have read about in the press. Functionally, this is the price of a put option on a bond that kicks in if it defaults; and has a high correlation to the SPX and the VIX. The current spread is about 65bps over USTs, a bit below its average. Considering negative economic projections, I would not be adding to an IG position here.

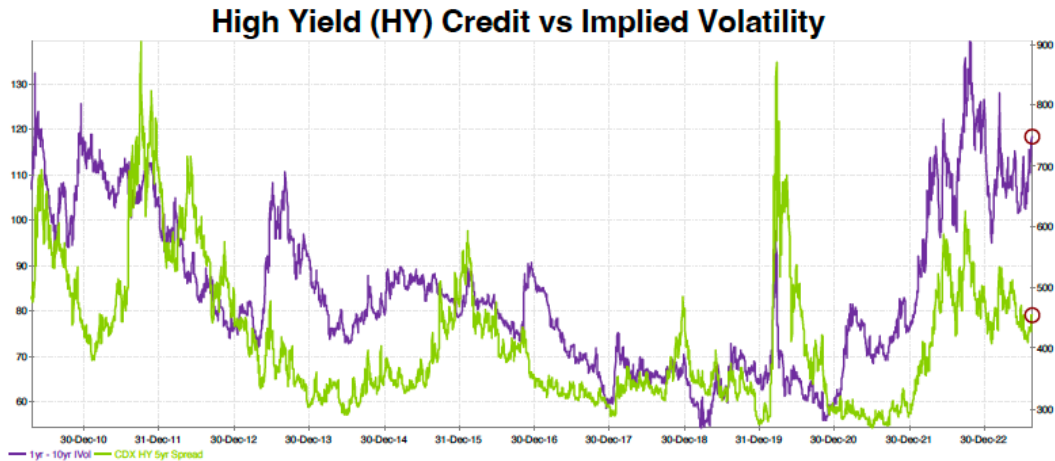
Being respectful of “safe spaces” and “trigger warnings”, bonds rated less than BBB are now referred to as High Yield (HY), but in the good old days they were simply called Junk Bonds.

Relative value in the **-latisi line-** High Yield market is measured in a similar fashion as IG, via a yield spread of a basket of Junk Bonds over USTs. With a current spread of 435bps, close to its long-term average, I would not be adding to this asset class either for the same reason.



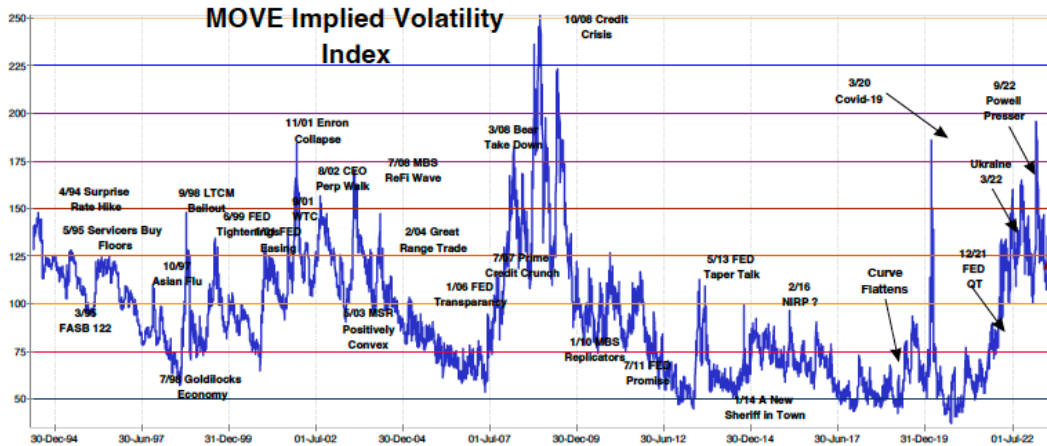
As noted above, both the IG and HY indices are created via Credit Default Swaps, which are effectively options on the odds of a default. In fact, one can model a corporate bond as a UST plus a spread; that spread being the market’s best guess of the probability of a default.

Since we know a key input into an option’s price is **-poni line-** Implied Volatility, it should not be a surprise that Volatility is usually highly correlated to both IG and HY spreads. What is noteworthy is how Credit Spreads have diverged from Implied Volatility. [Check out [@profplum99](#) for more on HY divergence.]

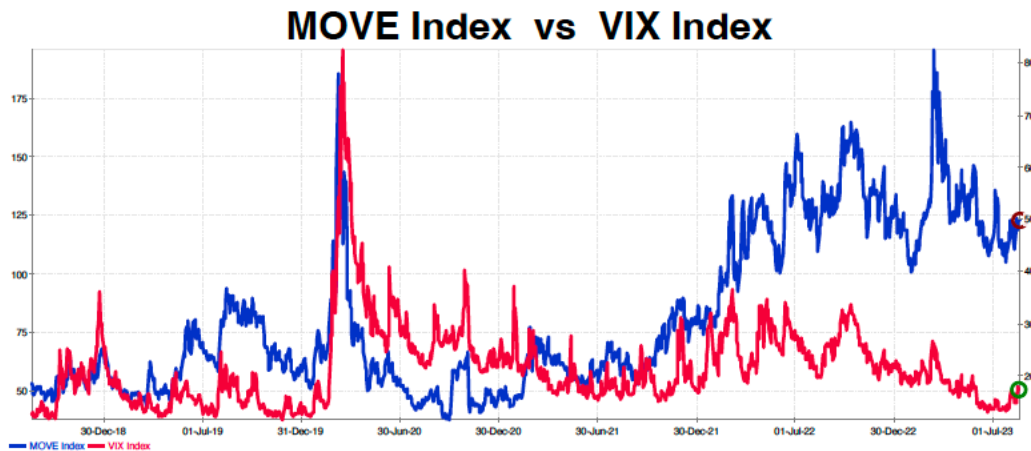


Convexity risk is the most challenging to value for a variety of reasons, but market professionals have agreed to use the Implied Volatility of an option, on or embedded in the asset, as a fulcrum of value.

The **-polu line-** MOVE Index is the VIX Index for the bond market as it measures Implied Volatility for one-month options on USTs. While the MOVE has declined significantly, at nearly 125 it is still well above its long-term average and indicates an expectation of rate movements of more than 7bps a day.



Considering the uncertainty of FED policy, this is not odd, but what is strange is that the similarly structured **-koko line-** VIX Index is near its pre-Covid lows.



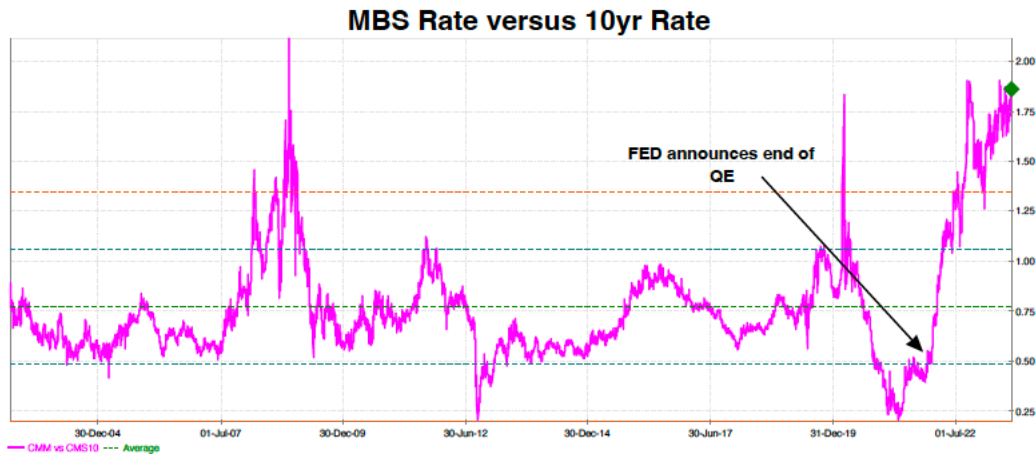
Let's pause for a moment and consider the past few pages. I am loathe to take **Duration** risk since I am not compensated to take a maturity extension. I am not fond of **Credit** risk since the leading economic indicators (LEI) are sharply negative, yet credit risk spreads are only near average. **Convexity** risk, as measured by Implied Volatility, is well above its average; so this is where I want to seek investment opportunities.

Mortgage-backed Securities (MBS) are the second largest bond asset class after USTs. There are roughly \$7 trillion in 30-year Fannie Mae, Ginnie Mae and Freddie Mac mortgage bonds outstanding. And while they have no credit risk, they yield more than fixed-dated USTs because their maturity is unknown.

To better understand MBS, think of them as a covered call strategy for bonds, more specifically as a being long a ten-year UST priced at 100 and short a three-year expiry call option struck at 103. I am going to spare you the detailed math, so you just need to trust me.

When rates decline, the bond can be “called” early. The problem here is if you have a 5% bond and rates decline to 4%, your MBS is called (prepays), you lose your 5% coupon and you can only reinvest at a 4% rate. Conversely, if rates rise to 6%, you are stuck with a 5% coupon for the full ten years. This is why MBS are considered negatively convex; you lose both ways.

So, while there is no credit risk for MBS, investors require “extra yield” as compensation for this prepayment (negative convexity) risk. We measure the extra yield as the **-akala line-** spread between MBS and UST, which has historically averaged about 75bps.

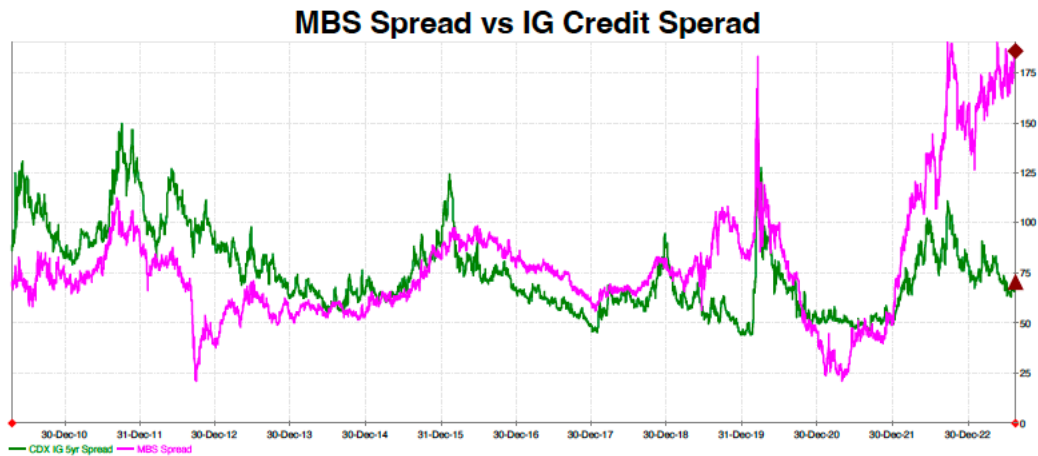


The confluence of elevated Implied Volatility and a steeply inverted Yield Curve (and other reasons I will not detail here) has more than doubled the value of this embedded option to ~175bps, a level only touched briefly during financial crisis.

This is the risk vector I want to focus upon now to earn portfolio “alpha” (extra asset returns).

NOTE: *If you are a masochist and desire a deep dive into the math underlying this concept, please refer to ["Transitory Dreams"](#) – May 2, 2023, pages 4 to 7.*

To more fully appreciate this relative value proposition, consider the **-piniki line-** MBS spread (convexity) relative to the **-ha'ahu'a line-** IG (credit) spread.

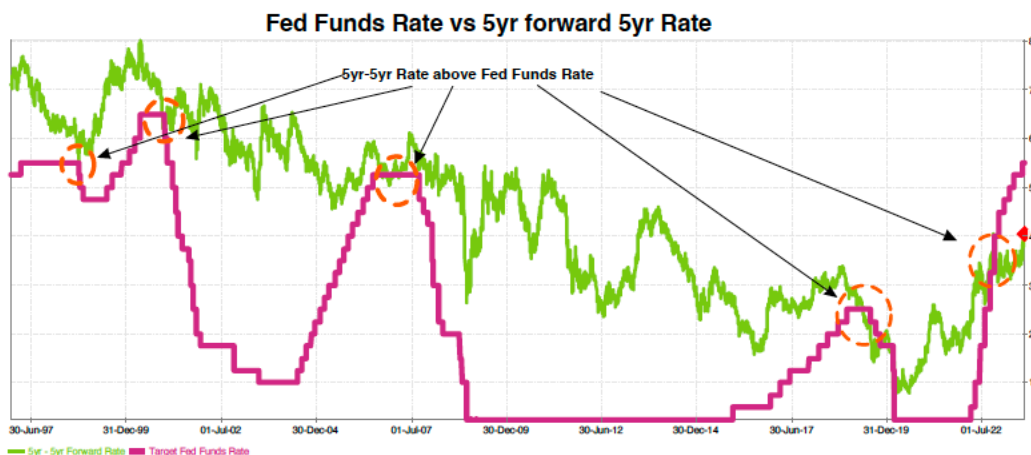


I once suggested that investment managers buy the MOVE at 80ish and sell the MOVE at 120ish. The problem was the MOVE only breached 80 when the markets were so calm it seemed crazy to buy rate insurance. And when the MOVE exceeded 120, the markets were so volatile that traders were mostly hiding under their desks crying for mommy.

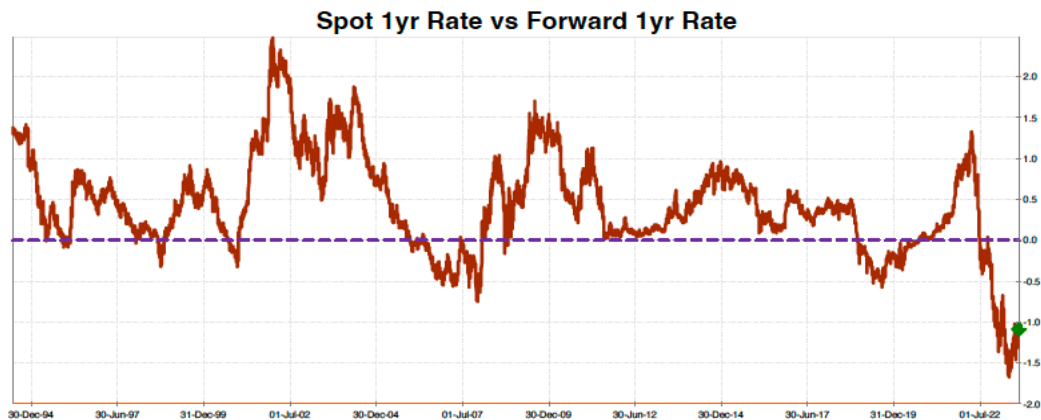
MBS, with dollar prices just below 100 (par), are the cheapest asset in the bond market because the embedded option in these bonds is so richly valued – I want to sell this **Big Option**. Not only is one well compensated for market volatility, but also when the Yield Curve steepens, such MBS will do exceedingly well.

Closing Comments

The **-deragona line-** FED Funds Rate is 155bps above the **-upena line-** five-year rate, five years forward. The FED is standing on the brakes, yet the economy keeps chugging along with inflation still above the FEDs target rate of 2.0%.



Turning the telescope around, the current shape of the Yield Curve suggests the market expects the FED to cut their ~~-palanunu line-~~ rate by 115bps over the next twelve months, starting sometime in early 2024.



But this is a narrow interpretation. A better take is that the market has assigned a 90% chance the FED will leave rates unchanged at 5.35%, and a lottery ticket 10% chance they will drop their rate to 1.50%.

Team Transitory has insisted for eighteen months that deflation is only a few calendar pages away, resting their case on used car prices and other economic indicators, and perhaps they will soon be proven right.

On the contrary, I say that the FEDs "money printing" plumped the 401k's of the boomers, prompting them to retire at a rate much faster than expected. Combined with restrictive immigration policies we now have a Labor shortage that will keep upward pressure on wages that underpin our service economy.

As such, I believe core PCE inflation will not touch a 2%-handle for quite a while, and the FED will not cut rates until well into 2024.

This is the perfect time for a bond covered call strategy: **Buy near par MBS**

Note: Do not buy ETFs linked to the MBS Index, the MBS Index is mostly populated by bonds with an average price of ~85.00. This is not a covered call proxy; I like MBS priced near \$97.

Note: I hope to offer such a (listed) strategy soon, keep your eyes peeled.

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

Harley S. Bassman
August 22, 2023

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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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