Fixed Income ETF Strategies

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One outstanding course that we took last semester was Fixed Income Products and Analysis. In that we had to undertake a portfolio management project, wherein we would create a portfolio based on one of the three segments: Treasury, Mortgages or Corporate Bond ETFs and mark to market the portfolio on month end.

Playing "safe" I took Treasury ETFs unaware of what was to follow. With Fed tapering rates and inflation reaching the roof, assessing the weights of the assets in the portfolio was a challenge. As a follow-up to the project, I tried to compare the theoretical returns with standard passive and active strategies.

So, in the project, we start with four assets and a portfolio size of $10 million. We start a bit conservative, avoiding the ETF shorting the long term treasuries.

ASSET	SYMBOL	Weights	Share purchased	Actual Invested
1-3 year Treasury Note	SHY	25.00%	28985	$2,499,956.25
7-10 year Treasury Notes	IEF	30.00%	25621	$2,999,962.89
20+year Treasury Bonds	TLT	45.00%	30274	$4,499,927.36
short TLT on a leveraged basis 2:1	TBT	0.00%	0	$0.00
				$9,999,846.50

Over the next three months, I adjusted the weights based on research and what I felt was prudent as per prevailing macroeconomic conditions. With inflationary pressure, higher industrial output and declining unemployment rates, Fed rate hike felt imminent. It was expected the prices of ETFs would decline and so it made sense to take some positions in 'TBT'. We registered a loss of 1.8% in the first month.

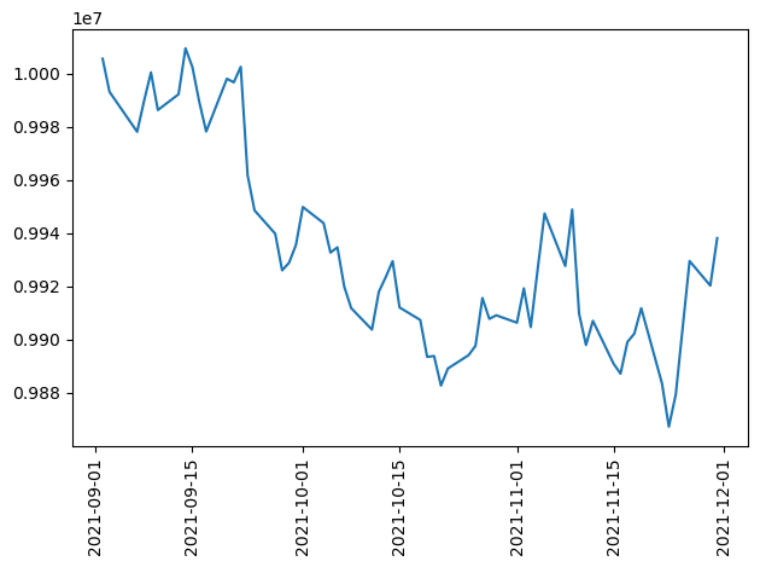
Next month as we increased exposure on the ETFs going short, the prices of long term treasury actually went up. This was a major deviation from expectations and the reason was flight to safety and position shakedown. With an increase in long term yields, investors targeted larger positions in long term bonds, which drove the prices up. Because TBT was leveraged, the holding period return for the month was -5.34%.

I did not change my portfolio in November. But November saw the onset of the Omicron variant of COVID-19, which actually led to yields declining in anticipation of a more expansionary fiscal

policy for the medium term. This led to the ultrashort treasuries taking a hit and the price of the long term treasuries increasing.

All in all, my portfolio suffered a loss of -5.5% in the three months. It was a learning curve and inspired me to check other strategies that may have performed better.

So I tried different weights using the same constituents and instead of actively changing, just used a passive investment strategy. I did not short the ETFs in the algorithm.



It seems, short TLT has declined almost 6% in three months. In portfolios with large exposure to it, took a big hit (as did mine in real time). Consequently, when we compare the performance of portfolios with exposure to it, the performance has been underwhelming. The portfolio which is plotted here has weights: 0.29 TLT, SHY,IEF and 0.13 TBT. Considering TBT is leveraged we took TBT to be half of TLT. Here we registered a loss of 0.6% in three months. Similarly, if we took all equal weights, losses were more severe at -1.36%. On the other hand, portfolios with no exposure to TBT performed reasonably well and actually registered positive returns at 5%.

In conclusion, four main pointers that stick out from this experience are:

- Considering the levered nature of Ultrashort Treasuries, it is pragmatic to use them as a hedging tool and not for creating positions, especially considering Treasuries are predominantly used in passive strategies. That being said, one might still stick to these in real world scenarios considering the outlook on bond yields.
- A more complex strategy to allocate funds could be used wherein the weights and the selection of ETFs is based on momentum (1,3 or 6 monthly returns) or variance-covariance of these ETFs. Although, again such strategies might work for equity ETFs which might have momentum as a factor, they might work for Treasury ETFs, which are predominantly driven by economics and government regulation.

- A pointer here is that the portfolio constituents were not very efficient choices since they have naturally high correlations. So, the ability to diversify the portfolio was very limited in this exercise as the ETFs were based on the same sectors (Treasury in this case). This does restrict the portfolio performance with respect to risk management measures and optimization.
- A couple of limiting factors in my analysis of portfolio management are that we can not take short positions in the portfolio and that the changes could be made in allocation on the last trading day of the month.