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A Commentary by Harley Bassman:

The Convexity Maven

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Value Concepts from the Credit Suisse Trading Desk
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"**Beware of the Replicators**"

Under the rubric of "No good deed goes unpunished" is the sub-notion of "Unintended Consequences". Thus we will soon leave the somnambulant world of QE-Infinity and enter the Twilight Zone populated by the mysterious Replicators who are presently wondering exactly how they might beat an aggregate bond Index that does not exist.

To remind you, the Replicators are a class of money managers who use various combinations of bonds, futures, options and other derivatives to create (superior) investment substitutes for the standard Index sub-components.

Most investors are familiar with such simple replication strategies as the Credit barbell where one buys a combination of AA+ and BBB bonds to replicate (and hopefully out-perform) an A+ rated Index. The more challenging replication strategy involves buying fixed-coupon bonds in conjunction with strategic option sales to create a return profile similar to a MBS portfolio. Today's Commentary focuses upon the impact the FED's QE(~) policies and how even the most vanilla of managers may soon be required to become Replicators.

QE(~) Subverts the Index

Over the course of the last few years, the FED has purchased and retained a current balance of $1.35Tn of MBS bonds which comprises about 28% of the total outstanding. Moreover, they own about one third of the most liquid class of MBS bonds, thirty-year FNMA and FHLMC. Since MBS make up a bit more than 30% of the Investment Grade aggregate bond Index, the FED's ownership is approaching 10% of the entire Index universe. While an obvious result is that the yield for the fixed-income Index will decline, the more interesting concept is that as long as the bonds the FED owns are still used to calculate the Index return, it will be impossible for everyone to directly match the Index since not all the bonds will be available for purchase.

Let's examine this a bit more carefully:

	Pre-QE %'	Yield	Post-QE %	Yield	Post-QE % *re-invested*	Yield
Cash	$0	0.05%	$15	0.05%	$0	0.05%
USTreasury + GSE	$35	2.75%	$35	2.75%	$40	2.75%
MBS Bonds	$35	3.50%	$20	3.50%	$20	3.50%
USCorporates	$20	3.40%	$20	3.40%	$25	3.40%
ABS+etc	$10	3.00%	$10	3.00%	$15	3.00%
	$100	3.17%	$100	2.65%	$100	3.10%

Source: Credit Suisse

The table above has been slightly modified from reality for demonstration. Here, an Index portfolio distributed amongst asset classes, as detailed in the first set of columns, has a static yield of 3.17%. Now let's recast this portfolio by assuming that the FED purchases 40% of the MBS universe for cash, as shown in the second set of columns. This is not too far-fetched since the FED's current pace of purchases absorbs nearly 1% per month of MBS bonds. With these bonds (temporarily) converted to cash, the static yield declines to 2.65%. Not wanting to hold cash, a manager might redistribute these funds into the other sectors, as shown in the third set of columns.

While maybe not the best "value", MBS bonds do have the highest nominal yield; so as they are replaced in the portfolio with lower yielding bonds, the static yield of the new portfolio declines by 7bp. This may not be a huge number, but it is certainly large enough to move one a few notches lower on the Morningstar rankings.

Pressured to stay competitive, many managers will be forced to employ Replication strategies to replace the lost yield.

Replication 101

One can fairly well time the rise of the Quants on Wall Street (see cover art) with the introduction of MBS bonds in the early 1980's. While not terribly complicated, a mathematical value framework was required if this asset class was to expand beyond the realm of the local Savings and Loan and be distributed to the more general investment portfolio.

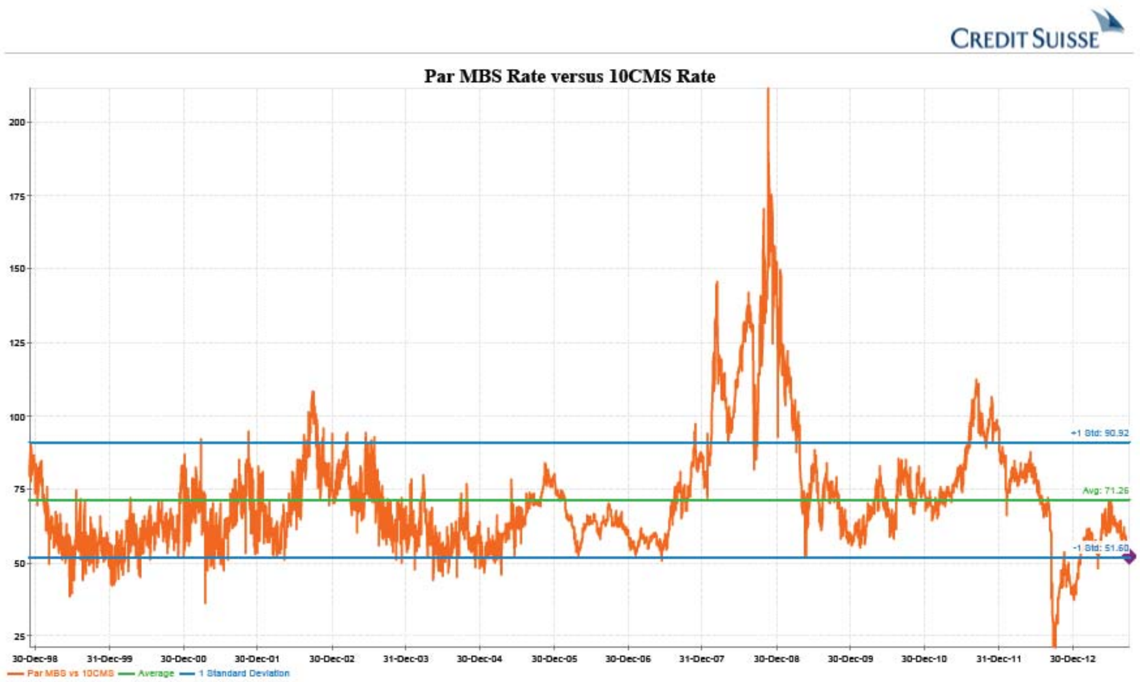
In a nutshell, a MBS is a straight up amortizing bond with an embedded clean-up call held by the homeowner. The amortization component spreads the cash-flows over time (as opposed to a bullet); as such, the shape of the Yield Curve matters. Simultaneously, the uncertainty of the option feature creates risk along the Volatility vector. Wall Street started to hire engineers, instead of accountants, onto the trading floor as the need to value the beans soon overwhelmed the importance of counting the beans.

The concepts Option Adjusted Spread (OAS) and Principal Component Analysis (PCA) were introduced to normalize the investment process. Theoretically, if one knew ex-ante exactly how and when the loans in a MBS pool would prepay, then one could fully "replicate" such a return profile with a portfolio of zero coupon bonds and linked options.

Such cash flows and options valued at their mid-market closing price is the definition of "zero OAS". Of course this is a somewhat dubious concept since the slippage between modeled prepayments and how they actually arrive is often quite wide. This is why over the past few decades current coupon MBS bonds have sported a "modeled" OAS of about 20bp, making them theoretically one to 1½ points cheap to "fair value".

The Replicators have traditionally been relatively sophisticated money managers who have great confidence in their analytical abilities and believe that they can create, via alternate means, a similar risk profile to a MBS with either a higher yield, a more certain return profile, or both. *This was the Raison d'être for the GSE's Retained Investment Portfolios (RIFs) as they were quite confident they best understood the prepayment function of MBS*.

A wide range of implications



Asset Substitution is the functional means the FED has employed via QE(~) to increase Monetary Velocity. The –salmon line- above demonstrates just how effective the FED's policies have been at making MBS rich via scarcity.

Thus has the FED diminished the most readily available instrument in the money manager's toolbox for increasing the nominal yield of a portfolio. With too few MBS to meet the demands of Index investors, one should expect competitive managers to "reach for Yield" via the addition of enhanced Duration, Credit or Convexity exposure. Some managers may take on more Credit risk than they have in the past while others may feel compelled to take on more Convexity exposure than they have historically controlled. Neither of these outcomes should be well received in world concerned about capital market stability.

But the key "take away" from the FED's continuation of QE(~) is the redistribution of risk in both the private and public sectors.

With respect to public sector risk, as detailed below, we expect the FED's purchases to rise from about 68% of net TBA production to 85**%. This has the practical impact of the FED selling more options to investors by removing more negative Convexity from the market.** While this per se is not bad, it is likely to introduce moral hazard into the system that could cause greater upheaval upon the FED's (eventual?) tapering.

	Non-spec Issuance						Fed settled purchases						Fed takeout					
	FH 15	FH 30	FN 15	FN 30	GN 30	Total	FH 15	FH 30	FN 15	FN 30	GN 30	Total	FH 15	FH 30	FN 15	FN 30	GN 30	Total
Apr-13	7.2	20.0	10.0	33.0	31.7	101.8	4.9	15.9	9.9	35.1	11.1	76.9	68%	80%	99%	106%	35%	75%
May-13	6.6	16.6	9.6	36.6	34.2	103.5	4.7	13.4	8.4	26.3	16.9	69.6	70%	81%	88%	72%	49%	67%
Jun-13	8.5	21.2	8.2	32.1	33.0	102.9	4.6	16.9	6.7	26.8	16.4	71.4	54%	80%	82%	84%	50%	69%
Jul-13	6.1	20.5	11.1	38.9	32.4	108.9	4.5	12.8	6.7	23.5	17.1	64.5	74%	63%	60%	60%	53%	59%
Aug-13	4.4	19.3	9.6	34.3	29.3	96.9	5.9	12.7	11.6	23.4	13.1	66.5	132%	66%	120%	68%	45%	69%
Apr-Aug average	6.6	19.5	9.7	35.0	32.1	102.8	4.9	14.3	8.6	27.0	14.9	69.8	75%	73%	89%	77%	46%	68%
Sep-13 projection	3.6	15.4	7.7	27.4	23.4	77.6	5.0	12.2	8.8	22.5	14.5	63.0	**140%**	**79%**	**114%**	**82%**	62%	**81%**
Oct-13 projection	3.0	13.1	6.5	23.3	19.9	65.9	4.5	11.1	7.9	20.4	13.1	57.0	**149%**	**84%**	**121%**	**87%**	66%	**86%**
Nov-13 projection	3.0	12.9	6.4	22.9	19.5	64.6	4.3	10.7	7.6	19.7	12.7	55.0	**147%**	**83%**	**119%**	**86%**	65%	**85%**
Dec-13 projection	2.8	12.1	6.0	21.5	18.4	60.7	4.3	10.5	7.5	19.3	12.4	54.0	**153%**	**87%**	**125%**	**90%**	68%	**89%**

Source: Credit Suisse

With respect to private sector risk, there is little doubt that Replication strategies will increase as managers strive to increase both absolute and relative returns.

Buying MBS is the manner in which most investors sell Convexity as a yield enhancement vehicle. Using QE(~) as a cudgel to force asset substitution is fine in theory, but where the rubber meets the road too many managers are not expert with direct derivative transactions to modify their Convexity profile. So while the FED may be transferring risk from the private sector to public's balance sheet, they are also implicitly asking Index managers to take on more risk than is their historical practice.

Just as the public policy good of a Government supported increase in the home-ownership rate led to excessive risk taking in housing, so may QE(~) ultimately result in too much risk residing in the hands of private investment portfolios.

If a "Taper head fake" can drive rates up by 130bps in ten weeks, what might happen to the (neophyte) Replicators when confronted with the real deal ?

Harley S. Bassman
Credit Suisse US Rates Trading
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