

# Convexity Maven

*A Commentary by Harley Bassman*

July 10, 2017

## **“Rambling near the Edge”**



1951 Nash Rambler

Last month I attended the EQD (Equity Derivatives) Conference in Las Vegas. Diverse speakers opined upon a variety of topics, but a common theme was noting the near record low of both Implied and Realized Volatility in the financial markets. But despite the VIX kissing its nadir, realized volatility has plumbed even lower depths, and thus it was reported that strategies that engaged in selling Equity Volatility had both superior returns as well as the loftiest Information (Sharpe) Ratios among the dozens of strategies offered.

What was of special interest to me was that while many strategies involved the direct selling of Volatility via listed or OTC options, there were many other investment themes that had at their core a “sell Volatility (Convexity)” profile; thus, their recent success may not be due to the cleverness of the strategy, but rather is just fully coincident to the success of any short volatility investment.

There are many vanilla investment constructions that decline to use derivatives, yet are actually negatively convex portfolios in sheep's clothing. These include:

- 1) **Low Volatility** – An equity portfolio devised by purchasing the least volatile stocks. Over the past few years these portfolios have generally out-performed the generic Index;
- 2) **Equity Volatility Targeting** – Embedded in many equity-linked insurance products, these risk targeted (often called “Managed Risk”) portfolios increase/decrease investment leverage on a formula based upon realized volatility;
- 3) **Risk Parity** – Similar to Equity Volatility targeting, but here the investment universe is widened to include fixed-income, currencies and commodities.

What all of these investment themes have in common is that not only do they profit when realized Volatility is low, but also that their implementation tends to make disadvantageous transactions (selling low and buying high) when Volatility increases; in other words, these strategies are implicitly short Convexity.

Every generation of investor builds a framework to support their portfolio construction, and I would propose that our current proclivity for “quant supported” notions has led to an over reliance upon Information Ratios (IR) in portfolio construction. So, while I do believe IR is a useful investment tool, I also believe it has quirks that can be under-appreciated. Thus, my main complaint is that IR managed portfolios tend to increase leverage; and usually at the wrong times.

In simple terms, would you prefer to buy an asset (strategy) with a 15% return and a 30% Vol (IR = 0.5), or a 5.1% return asset with a 3.4% Vol (IR = 1.5)? Seemingly the latter is better, especially if we lever it 3x to a 15.3% return (with a lower volatility). But this is somewhat similar to selling a deep OTM put; usually a winner, until it isn't.

What is most problematic about using IR for portfolio construction is that it focuses more on the destination than that path. A quoted volatility can be constructed by either a constant (10% annualized) or a variable (5% annualized usually with an occasional rogue wave of 30%) risk path. But while a lightly leveraged portfolio may survive a rough patch, a highly leveraged one may breach established portfolio strictures and force a quick risk reduction via asset sales during a short jolt of volatility.

Despite option theory being just the Physics of Money, I will not delve into Entropy and Enthalpy to prove my point. Instead I will skip to the conclusion that volatility stays low until it isn't. A low volatility environment encourages more option selling (and more leverage) in a self-reinforcing feedback loop; a pattern that should presently seem familiar. However, once a destabilizing event occurs (adding heat to the system for you propeller heads), risk and leverage must be reduced in a similar, though opposite, feedback loop where asset selling begets more selling. This was how **Portfolio**

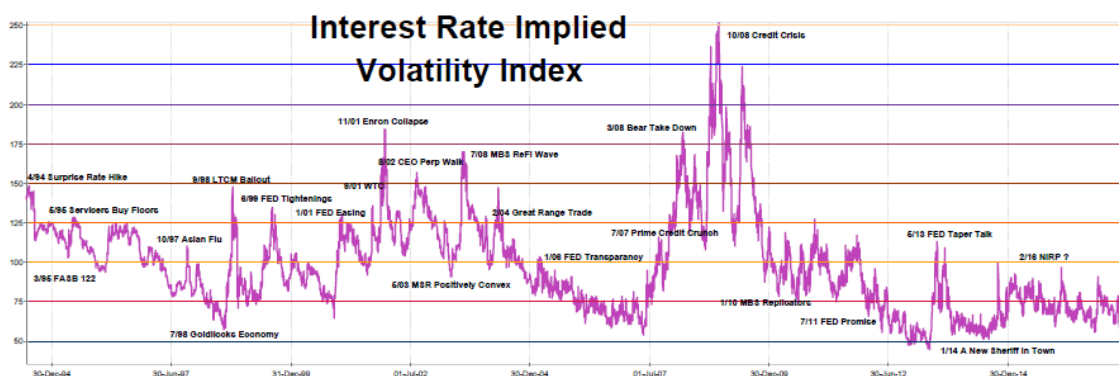
**Insurance** exacerbated (but did not start) the 1987 crash. It is also how **Index Amortizing Structured Notes (IANS)** exacerbated (but did not start) the 1994 rate jump, and how **Capital Structure Arbitrage** exacerbated (but did not start) the sub-prime mortgage bond collapse a decade ago.

So, the ultimate, and frankly the only, question one cares about is identifying the tripwire that would tip our system into disequilibrium and force a self-sustaining reduction in risk (leverage/convexity).

And this is where the conference paid for itself. While most speakers declined to answer, one panel proposed that many of these passive portfolios can be synthetically constructed as long an Index plus short a +/- 4% out-of-the-money strangle. Thus, it seems possible that as little as a 4% decline in a single day could be enough to create critical mass; and this does not seem terribly inconsistent with many current risk parameters.

A decade ago institutional investors supported only 20% of Hedge Fund assets; presently, these investors (with a concomitant demand of narrower risk limits) make up 80% of the asset class. Since it is common for as little as a 6% drawdown to ignite a “stop out” procedure at many Liquid Alternative portfolios, it does not seem unfounded to think that risk reduction measures may preemptively commence near this 4% inflection (strike) point.

This commentary is not a call from Cassandra, but I will note that while every low point in Volatility does not lead to a calamity, extremely low Implied Volatility precedes every financial market dislocation. The **-bubble gum-** line below is a variant of the MOVE Index that is once again kissing its thirty-year nadir.



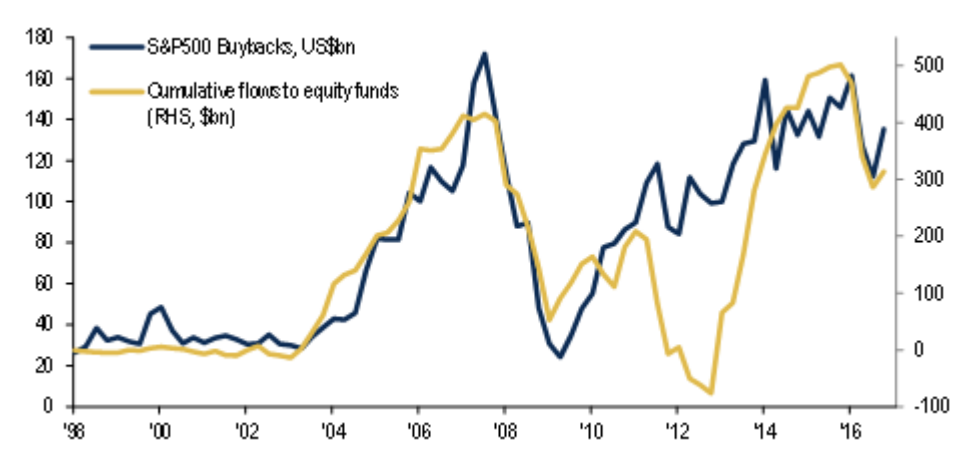
Source: Credit Suisse LOCUS

The FED has actively encouraged and supported our current low volatility environment, and certainly this made sense in 2009-2011; but current policy seems to indicate they would like to wean the patient off the opiate of ZIRP. The slight complication is that instead of Portfolio Insurance in 1987, or AAA-Sub-Prime bonds in 2007, financial

engineers have found a new way to indirectly market short optionality strategies to investors who may not fully appreciate the risk of a negatively convex profile.

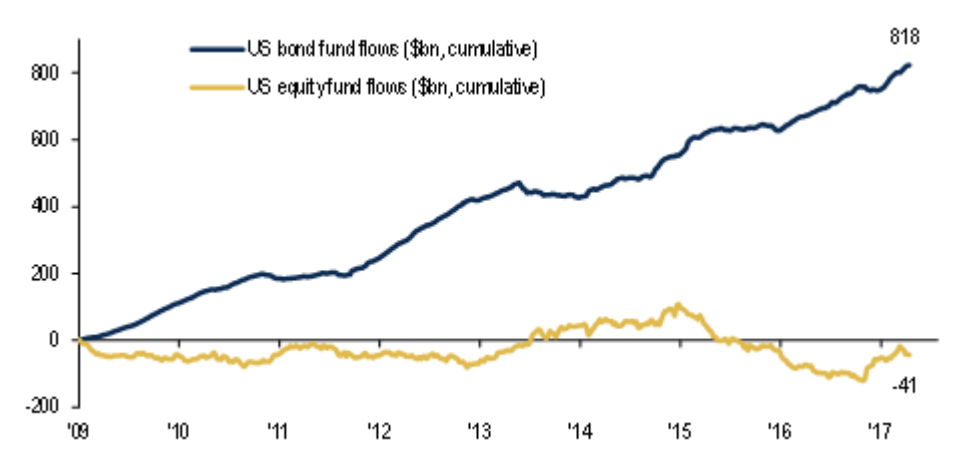
So, the follow up question on your tongues might necessarily be: “What could be the catalyst to trigger such a significant pull back?”

For the record, in a rare burst of modesty, I will say I do not know; that said, I think that Inspector Clouseau will find higher interest rates lurking near the scene of the crime. Moreover, I expect two sets of fingerprints will be found: 1) The FED, and 2) OMB/Treasury. As offered by many analysts, corporate stock buy backs have been an overwhelming support for equity prices. And as shown below, one wonders if the nearly 20% pull-back in 2011 was staunched only by the relentless –denim line- bid from Corporations.



Source: BofA Merrill Lynch Global Investment Strategy, S&P Global, EPFR Global

In fact, away from Corporations purchasing equities (buy-backs or mergers), it is unclear who else is supporting the stock market against the relentless demographic tide of Baby Boomers rebalancing their portfolios away from equities and into –marine line- bonds. [You think ObamaCare is divisive, just wait until they “means test” Social Security.]



Source: BofA Merrill Lynch Global Investment Strategy, S&P Global, EPFR Global

I can offer no proof, but common sense seems to support the notion that the cost of money (interest rates) should have some bearing on how much money one cares to buy (borrow). So clearly higher rates driven by the FED could reduce buybacks funded by debt. But an additional twist is that the real cost of debt must include tax benefits, and consequently, if tax reform were to include a provision to reduce the tax advantage of corporate borrowing, that would raise the effective cost of debt, and may be the catalyst for reducing share buy-backs.

While President Trump, with some support from Congress, has promised significant policy alternatives with respect to Healthcare, Immigration, Budgeting, and Trade, if asked to point to THE EVENT that will precede a significant bout of noxious volatility, I propose that it will be an unintended consequence of Tax Policy; and specifically, as noted above, related to the effective cost of debt.

In support of this notion, one might recall that Smoot Hawley was a well-intentioned preview of our current “Make America Great Again”; only after its passage did we fully recognize it as an accelerant to the collapse in global trade.

One cannot swing a cat without bumping into some pundit thinking they have revealed a great truth by penning a missive about “the calm before the storm”; but that is not what is noteworthy. Indeed, while it is also concerning that investors in search of yield have (once again) increased their use of leverage, the real flashing yellow light is the negatively convexity profile frequently embedded in portfolio construction.

[Note: Leverage is NOT the same as Convexity; leverage is the ratio of assets to equity while convexity measures the change in risk exposure as various inputs adjust. Buying \$100 of stock supported by \$50 in cash has a fixed 2:1 leverage while \$100 invested in an option will have undulating exposure (relative to its gamma) as prices vibrate.]

To be clear, the focus of this commentary is to highlight that **a negatively convex profile governed by a rules-based (quantitative) risk management process can be quite unstable in a volatile environment**. So, if there is an investment implication to be derived from these observations, it would be that sizing is more important than entry level to enable one to ride out (unexpected) bouts of extreme volatility.

Chairwoman Yellen’s protestations to the contrary, forget the data, it will take care of itself; watch the major policy debates in D.C. The urgency Republicans feel to fulfill Trump’s campaign promises will likely lead to parliamentary maneuvers to quickly garner 51 votes. This rush may blind them to possible second order effects: A short-term win, but a Pyrrhic Victory.

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