

## “Risk Analysis in the Golden Age of the Central Banker”

**When I was a little kid we had a sand box. It was a quicksand box. I was an only child ... eventually.**

– Steven Wright

A brief note today on what might be an arcane subject for some but is a great example of the most basic question in risk management – are you thinking about your risk questions in a way that fits the fundamental nature of your data? **Do you understand the fundamental nature of your data?** Our business incentivizes us to build complex and ingenious models and data analysis systems in order to generate an edge or dodge a bullet. But are we building our elaborate mental constructs on solid ground? Or on quicksand?

I’ve spent a lot of time recently talking with clients about measuring market risk across a wide range of asset classes and securities as part of an adaptive investment strategy, and I get a lot of smart questions. One of the best was deceptively simple – *what do you think about using implied volatility to measure risk?* – and that’s the question I want to use to illustrate a larger point.

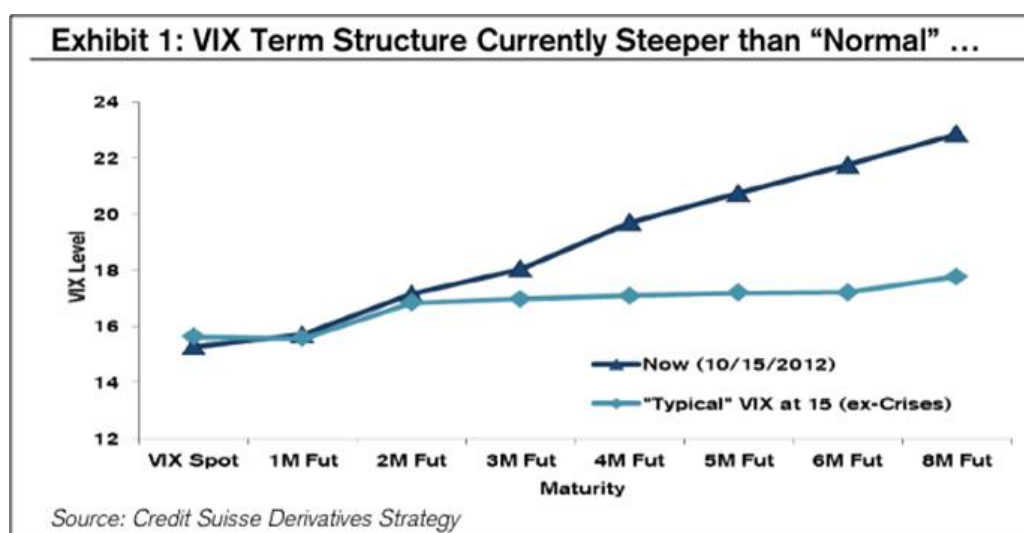
First let’s unpack the question. Volatility is a measurement of how violently the returns of a security jump around, and in professional investment circles the word “volatility” is typically used as shorthand for risk – the higher the volatility, the greater the embedded risk. There are some valid concerns and exceptions to this conflation of the two concepts, but by and large I think it’s a very useful connection.

Within the general concept of volatility there are two basic ways of measuring it. You can look backwards at historical prices over some time period to figure out how violently those prices actually jumped around – what’s called “realized volatility” – or you can look forward at option prices for that same security and figure out how violently investors *expect* that prices will jump around in the future – what’s called “implied volatility”. Both flavors of volatility have important uses, even though they mean something quite different. For example, a beta measurement (how much a security’s price moves relative to an underlying index) is based on realized volatility. On the other hand, the VIX index – the most commonly reported gauge of overall market risk or complacency – is entirely based on the implied volatility of short to medium-term options on the S&P 500.

The big drawback to using realized or historical volatility is that it is, by nature, backwards looking. It tells you exactly where you've been, but only by extrapolation provides a signal for where you are going. In a business where you always want to be looking forward, this is a problem. Using realized volatility means that you will always be reacting to changes in the broad market characteristics of your portfolio; you will never be proactive to looming changes that might well be embedded within the "wisdom of the crowd" as found in forward-looking options prices. If you're relying on realized volatility, no matter how sensitively or smartly you set the timing parameters, you will *always* be late. This was the point of the smart question I was asked: *isn't there useful information in the risk expectations of market participants, information that allows you to be proactive rather than reactive ... and shouldn't you be using that information as you seek to balance risk across your portfolio?*

My answer: yes ... and no. Yes, there is useful information in implied volatility for many purposes. But no, not for the purpose of asset allocation. Why not? **Because we are living in the Golden Age of Central Bankers, and that wreaks havoc on the fundamental nature of market expectations data.**

Here's an example [I've used before](#) to illustrate this point, courtesy of Ed Tom and the Credit Suisse derivatives strategy group. Figure 1 shows the term structure (implied price level at different future times based on prices paid for options) of the VIX index on October 15<sup>th</sup>, 2012.

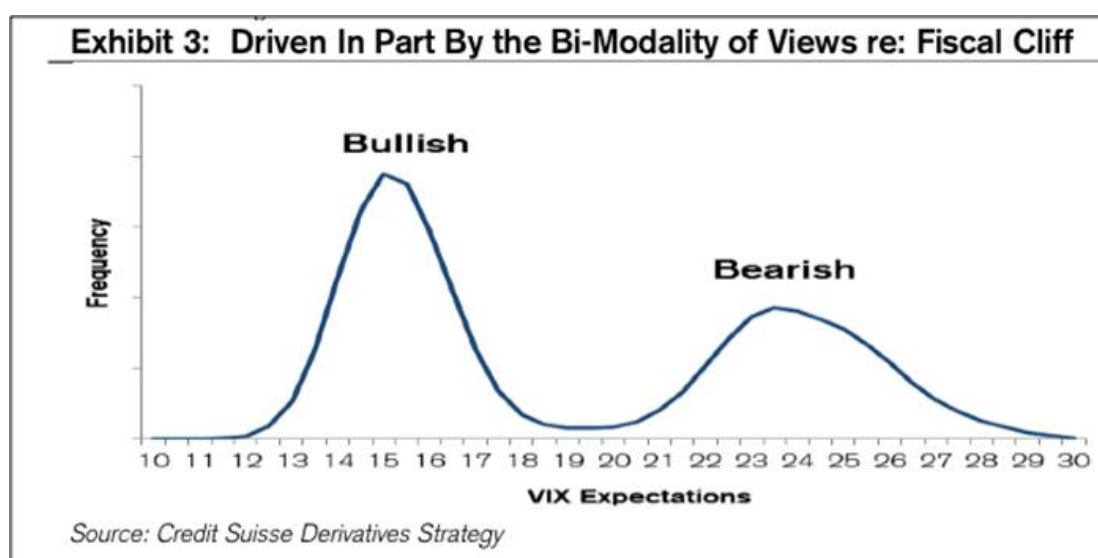


**Figure 1: 8-Month Forward VIX Term Structure**

If you recall, there was great consternation regarding the Fiscal Cliff at this time, not to mention the uncertainty surrounding the November elections. That consternation and uncertainty is reflected in

the term structure, as it is much steeper than is typical for a spot VIX level of 15, indicating that the market is anticipating S&P 500 volatility to be progressively higher to an unusual degree from January 2013 onwards. The way to read this chart is that the market expects a VIX level of 18 three months in the future (January 15), 19 three and a half months in the future (January 31), 20 four months in the future (February 15), and so on. All of these results are higher than one would typically expect for future expectations of the VIX from this starting point (essentially flat at 17).

Now take a look at Figure 2, which shows the Credit Suisse estimation of the underlying distribution of VIX expectations for January 31, 2013.



**Figure 2: January 31, 2013 Forward Estimated VIX Exposures**

The way to read this chart is that a lot of market participants have a Bullish view (low VIX) for what the world will look like on January 31, with a peak frequency (greatest number of bullish contracts) at 15 and a fairly narrow distribution of expectations around that. Another group of market participants clearly have a Bearish view (high VIX) of the world on January 31, with a peak frequency around 24 and a fairly broad distribution around that.

So what's the problem? The problem is that Figure 1, which is what you would come up with based on public options data, says that the most likely implied price for the VIX on January 31, 2013 is 19. But Figure 2, which is based on the trading data that Credit Suisse collects, says that a VIX level of 19 is the **least** likely outcome. What Figure 2 tells you is that **almost no one expects that the outcome will end up in the middle at a price of 19, even if that is the average implied price of all the exposures.**

Usually the average implied price of a security is also the most likely estimated price outcome of the security. That is, if options on a security imply an average price of 19 a few months from now, exposures will generally form some sort of bell curve centered on the price of 19. The most common estimation of the price would be 19, with fewer people estimating a higher price and fewer people estimating a lower price. But in those situations – like expectations of future VIX levels on October 15, 2012 – where there’s not a single-peaked distribution, all of our math and all of our models and all of our intuitively held assumptions go right out the window.

Unfortunately, these bi-modal market expectation structures are now the rule rather than the exception in this, the Golden Age of the Central Banker. Why? Because monetary policy since March, 2009 has explicitly established itself as an emergency bridge for financial markets, a bridge between the real world of an anemic, under-employed, under-utilized economy and the hoped-for world of a vibrantly growing, robust economy. On its own terms, this has been an entirely successful experiment, I suspect surpassing the wildest dreams of Bernanke et al. Stock markets have been “bridged”, reflecting what the world would look like if the global economy were off to the races, while bond markets reflect what the world actually looks like with the global economy sputtering in fits and starts. The problem today is that [the experiment has been too successful](#). Whether you are in Europe or the US or Japan or China or wherever, the only investment questions that matter are whether central banks will continue their emergency monetary policies and what happens if the bridges are removed. These are not small, incremental policy questions. These are existential questions, [reflecting binary expectations of the world with an enormous chasm in-between](#). With a hat tip to Milton Friedman, we are all bi-modal now.

So what’s the moral of this story for portfolio management? There are four, I believe.

### **In the Golden Age of the Central Banker ...**

1) **the VIX is not a reliable measure of market complacency.** Remember that the VIX itself is an implied volatility construct, built on the prices paid for options on the S&P 500 two to three months in the future. We assume that whatever the VIX is reported to be, that’s the consensus market expectation, with a lot of people holding that particular view and progressively fewer people on either side of that number. This is not necessarily the case, and when binary events raise their ugly heads it is almost certainly not the case. A low VIX level might indicate a complacent market, or it might indicate two sets of investors – one very complacent and one non-complacent – who see the world entirely

differently. You have no idea what the underlying market expectations look like, and this makes all the difference in determining what the VIX *means*.

2) **the wisdom of crowds is nonexistent.** I believe in the efficiency of emergent behaviors. I believe that there is a logical dynamic process to crowd behaviors. But I also believe that crowds are extremely malleable when confronted by powerful individuals or institutions that understand the strategic interaction of crowds and make a concerted effort to master the game. There's no inherent "wisdom" here, no emergent outcome where the crowd acts like an enormous set of parallel microprocessors to arrive at Truth with a capital T. [The Common Knowledge Game is controlled by the Missionary](#), and our current Missionaries – central bankers, politicians, famous investors and media mouthpieces – know it.

3) **fundamental risk/reward calculations for *directional exposure* to any security are problematic on anything other than a VERY long time horizon.** Game-playing has always been a big part of the market environment, and it [dominates successful directional bets on a very short time horizon](#). Similarly, stock-picking on a fundamental basis has always been a big part of the market environment and dominates successful directional bets on a very long time horizon. Between the very short-term and the very long-term you have this mish-mash of game-playing and stock-picking. One impact of the pervasiveness of the Common Knowledge Game today is that it pushes out the time horizon on which stock-picking on a fundamental basis can really shine. If you're in the stock-picking business the value of permanent capital has never been greater.

4) **I'd rather be reactive and right in my portfolio than proactive and wrong.** I started this note with an acknowledgment of the weakness of risk assessments based on realized or historical volatility – it's inherently backwards looking and you will *always*, no matter how finely calibrated your system, be late to respond to changing market conditions. But here's the thing. [This is what it means to be adaptive](#). You can't be adaptive without something to adapt TO. Will you miss the market turns? Will you occasionally get whipsawed in your reactive process? Without a doubt. But you won't get killed. You won't be on the wrong side of a binary bet that you really didn't need to make. You won't discover that your pretty little sand box is really filled with quicksand. **The Golden Age of the Central Banker is a time for survivors, not heroes.** And that's the real moral of this story.

### To subscribe to Epsilon Theory:

- Sign up here: <http://www.salientpartners.com/epsilontheory/email-alerts.aspx>
- **OR** send an email [bhunt@salientpartners.com](mailto:bhunt@salientpartners.com) with your name, email address, and company affiliation (optional).

There is no charge to subscribe to Epsilon Theory and your email address will not be shared with anyone.

**Follow me on Twitter:** @EpsilonTheory

### DISCLOSURES

This commentary is being provided to you by individual personnel of Salient Partners, L.P. and affiliates ("Salient") and is provided as general information only and should not be taken as investment advice. The opinions expressed in these materials represent the personal views of the author(s) and do not necessarily represent the opinions of Salient. It is not investment research or a research recommendation, as it does not constitute substantive research or analysis. Any action that you take as a result of information contained in this document is ultimately your responsibility. Salient will not accept liability for any loss or damage, including without limitation to any loss of profit, which may arise directly or indirectly from use of or reliance on such information. Consult your investment advisor before making any investment decisions. It must be noted, that no one can accurately predict the future of the market with certainty or guarantee future investment performance. Past performance is not a guarantee of future results.

#### **Statements in this communication are forward-looking statements.**

The forward-looking statements and other views expressed herein are as of the date of this publication. Actual future results or occurrences may differ significantly from those anticipated in any forward-looking statements, and there is no guarantee that any predictions will come to pass. The views expressed herein are subject to change at any time, due to numerous market and other factors. Salient disclaims any obligation to update publicly or revise any forward-looking statements or views expressed herein.

This information is neither an offer to sell nor a solicitation of any offer to buy any securities. Any offering or solicitation will be made only to eligible investors and pursuant to any applicable Private Placement Memorandum and other governing documents, all of which must be read in their entirety.

Salient commentary has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. Salient recommends that investors independently evaluate particular investments and strategies, and encourage investors to seek the advice of a financial advisor. The appropriateness of a particular investment or strategy will depend on an investor's individual circumstances and objectives.