



**The Great Vega Short -
volatility, tail risk, and sleeping elephants**

Note: The following article is an excerpt from the Fourth Quarter 2010 Letter to Investors from Artemis Capital Management LLC published on January 4, 2011.

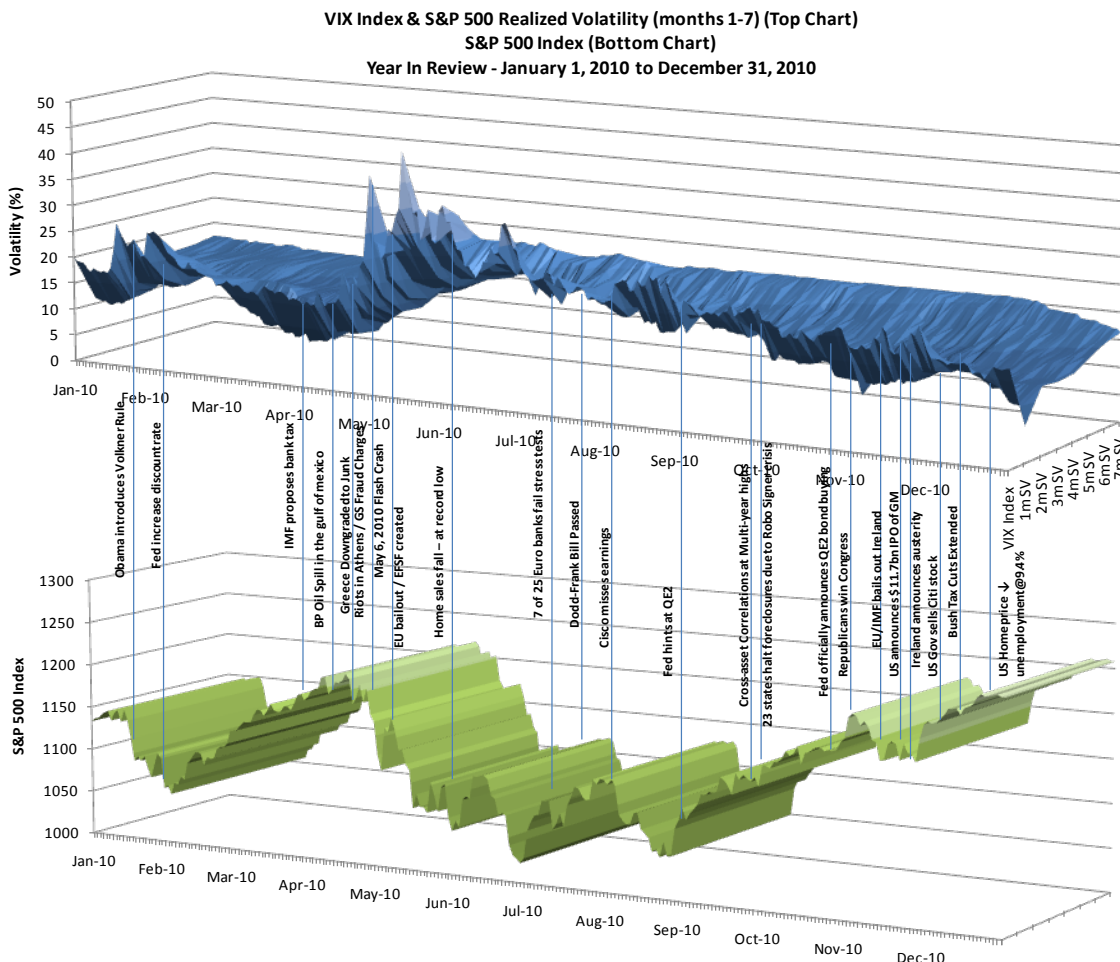


520 Broadway, Suite 350
 Santa Monica, CA 90401
 (310) 496-4526 phone
 (310) 496-4527 fax
 www.artemiscm.com
 c.cole@artemiscm.com

The Great Vega Short - volatility, tail risk, and sleeping elephants

The seeds of risk grow best in the sweet rain of euphoria. In the eyes of this volatility trader the current paradigm of monetary and fiscal stimulus may best be understood as the greatest leveraged volatility short in economic history. The current stimulus program is analogous to continuously rolling "naked" put options on the global economy, backed by margin provided by the US taxpayer, generating short-term growth at the expense of long-term systematic risk. The reinvestment of the vol premium into risk assets by the investor class ensures the Fed's naked put is not exercised. Although policy makers have been rolling the great vega short for the past 30 years it has never been more levered than today. At present bullishness is pervasive as the government has succeeded in artificially suppressing asset volatility with the new stimulus. To be fair the economy is improving with corporate profits increasing for seven consecutive quarters and credit spreads narrowing. Many economists are revising their 2011 GDP projections upward. Nobody should be afraid to attend this stimulus party or the fledging recovery but before agreeing to ride home on the risk bandwagon I'd prefer to make sure there is a designated driver. In the future we may look back at this period of unanimous euphoria as the best opportunity since mid-2007 to purchase 'tail risk' insurance in the form of long-dated volatility.

In Q4 2010 the volatility markets were fully sedated by a massive dose of fiscal and monetary methadone. In the wake of weakening economic data this summer and near 10% unemployment the US government wasted no time in applying new rounds of stimulus. Immediately prior to the start of the quarter the Federal Reserve signaled its intention to renew its Treasury bond purchase program (Quantitative Easing 2) and subsequently purchased \$168 billion of debt on route to a planned \$600 billion total by the end of June 2011. In November the Fed passed China as the #1 largest holder of US Treasury Bonds and now has \$1.2 trillion of holdings as of December



2010. Not to be outdone Congress piled on its own supply side stimulus in a bi-partisan "compromise of excess" by extending the Bush era tax cuts for all classes, providing a payroll tax cut, and extending unemployment benefits. This should increase the deficit by approximately \$900 billion over the next two years. Government liabilities have expanded over \$4 trillion in nine quarters.

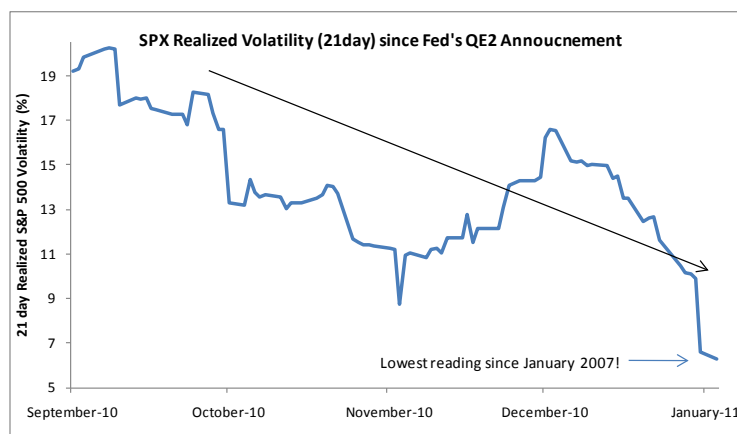
The double-dose in monetary and fiscal stimulus resulted in a "melt-up" in the equity markets contributing to the best December performance for the S&P 500 index since 1991 on the heels of the best September since 1939. The S&P 500 index has remained above its 50 day moving average for 4 straight months, the longest streak in 7 years. As the equity markets have surged higher volatility has barely registered a pulse. The statistical volatility of the S&P 500 index has dropped 112% since early September to its lowest level since early 2007. The VIX index has dropped 38% and more importantly the volatility of volatility is in the bottom quintile of observations since 1990 (ominously at the lowest level since before the May flash crash). Implied correlation is above historical averages at 65+ albeit lower than the peak of 80 reached in September. As realized volatility creeps lower the volatility market's expectation for future vol remains historically steep with the high skew predicting a long-overdue correction. More telling is the fact that while the market for equity volatility has fallen into deep slumber volatility in US Treasury yields is increasing at a rapid pace. While recent signs of economic recovery are encouraging there are many "unnatural" technical signs in equity and interest rate volatility. These volatility aberrations observed during the fourth quarter may be bad omens that asset prices are overly dependent on government stimulus. Below is a list of volatility anomalies recorded since the introduction of the second round of fiscal and monetary stimulus:

- The market registered some of the largest drawdowns in the history of S&P 500 realized vol dating back to 1950
- The spread between the VIX index and 21 day realized volatility (and respective volatility of volatility) is at the widest levels in history
- The differential between S&P 500 realized volatility and 10-year US treasury % yield volatility is at the lowest level in history
- An incredible 7 of the largest 50 drawups in 10-year UST yields (as a percentage) since 1962 occurred in Q4 2010

Tranquilizing the Economy - Lessons from the Zoo

A good friend of mine from college is now is a wildlife veterinarian at a major metropolitan zoo. One of her first assignments during her residency was to dart a sick elephant with a tranquilizer gun so she could safely provide medical treatment to the animal. This is every bit as difficult as it sounds. Each load of tranquilizer for a full size elephant costs \$20k+ so it is very expensive to miss your target. If you hit the elephant but don't use the correct dosage you could have either an overly violent or comatose giant mammal on your hands. It is important for the vet to understand when the elephant is properly sedated and how long the before the effects of the drug wears off or she puts herself at risk. My friend is a very competent wildlife veterinarian and I guarantee she would never be stupid enough to mistake a tranquilized elephant for one exhibiting normal behavior.

Oddly when it comes to the economy many talking heads are not smart enough to differentiate between a healthy financial system and one sedated by unprecedented amounts of stimulus. This is not to say that a certain amount of cautious optimism isn't warranted. As they say you don't fight the Fed. In a November 4 op-ed piece in the Washington Post Fed Chairman Ben Bernanke explicitly stated that higher equity prices were at the forefront of the quantitative easing program adding that,

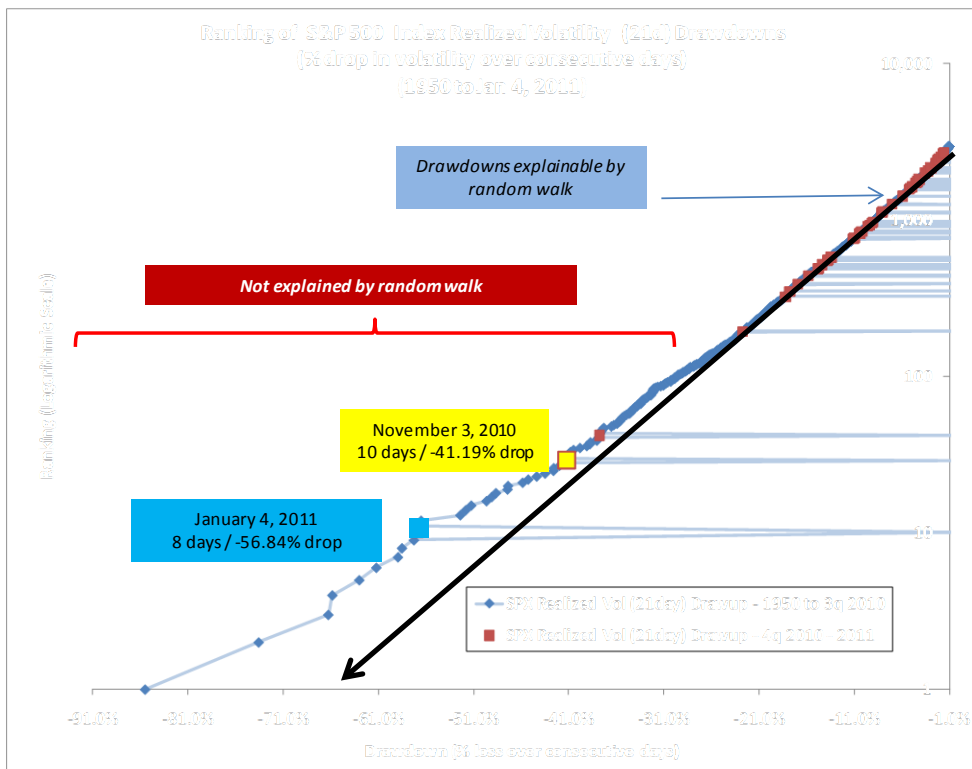


"higher stock prices will boost consumer wealth and help increase confidence, which can also spur spending." After reading the article I was shocked at how candid he was about his intentions to prop up the stock market with printed money. Mission accomplished! Notwithstanding at some point this elephant of an economy will awake from this stimulus induced slumber and those who are none the wiser may get trampled. Talk about animal spirits!

Unnatural Drawdowns in Realized Volatility

In the fourth quarter equity volatility entered a deep stimulus induced slumber as both implied and realized volatility reached new multi-year lows. Much like our tranquilized elephant the volatility 'pulse' of the market experienced certain "unnatural" side-effects. One effect can be seen by ranking the distributions of consecutive daily volatility movements. Specifically we are looking to identify consecutive days of volatility drops, called drawdowns, which do not follow a power law function and may be considered to be 'unnatural'. A large number or magnitude of volatility drawdowns reflects a highly anesthetized market.

The graph to the right shows the history of S&P 500 index volatility drawdowns since 1950 with the red dots representing occurrences following the Fed's QE2 announcement this year. Interesting to note is that 2010 was the #1 ranked year for volatility drawdowns in history with an average vol drawdown of -8.84% lasting just over 2 business days. Although the majority of drawdowns follow random walk (the straight black arrow) the analysis shows clear deviations that are unexplainable by efficient market theory. Throughout the year we experienced three 'unnatural' movements in volatility including two of the top ranked volatility drawdowns in the history of S&P 500 starting in November or December alone. Consider the fact that the ten consecutive days of declining SPX realized volatility (21 day) ending on November 3rd was the third longest observation since 1950! November's -41% decline in vol was followed by a -56% decline lasting 8 days ending on January 4, 2010. On a percentage basis these negative declines ranked #29 and #10 out of 3778 total drawdowns dating back to 1950. Both drawdowns are anomalies / feedback loops of lower volatility fueled by government support of the markets.



| S&P 500 Index Top Ranked Volatility Drawdowns 1950 - 2010 (Ranked by % Vol Drop) | | | | S&P 500 Index Top Ranked Volatility Drawdowns 1950 - 2010 (Ranked by Consecutive Days) | | | |
|---|--------------------|---------|------------|---|-------------------|---------|------------|
| Rank | End Date | # Days | % Vol Drop | Rank | End Date | # Days | % Vol Drop |
| 1 | January 2, 1964 | 7 days | -85.51% | 1 | June 20, 2005 | 12 days | -40.99% |
| 2 | March 13, 1953 | 5 days | -73.56% | 2 | January 29, 2001 | 11 days | -17.81% |
| 3 | November 20, 1987 | 8 days | -66.25% | 3 | November 3, 2010 | 10 days | -41.19% |
| 4 | July 10, 1967 | 8 days | -65.82% | 4 | June 24, 1966 | 10 days | -38.76% |
| 5 | November 14, 1989 | 2 days | -63.00% | 5 | February 23, 1998 | 10 days | -37.98% |
| 6 | October 14, 1986 | 3 days | -61.20% | 6 | January 30, 1969 | 10 days | -16.70% |
| 7 | February 14, 1969 | 8 days | -58.92% | 7 | April 15, 1955 | 9 days | -51.80% |
| 8 | November 2, 1955 | 7 days | -58.51% | 8 | July 27, 1994 | 9 days | -42.56% |
| 9 | September 20, 1991 | 4 days | -57.26% | 9 | September 4, 1984 | 9 days | -38.70% |
| 10 | January 4, 2011 | 8 days | -56.84% | 10 | May 15, 1992 | 9 days | -37.54% |
| 2010 'Unnatural' Observations | | | | 2010 'Unnatural' Observations | | | |
| 10 | January 4, 2011 | 8 days | -56.84% | 3 | November 3, 2010 | 10 days | -41.19% |
| 29 | November 3, 2010 | 10 days | -41.19% | 19 | January 4, 2011 | 8 days | -56.84% |
| 42 | March 15, 2010 | 6 days | -37.77% | 63 | March 15, 2010 | 6 days | -37.77% |

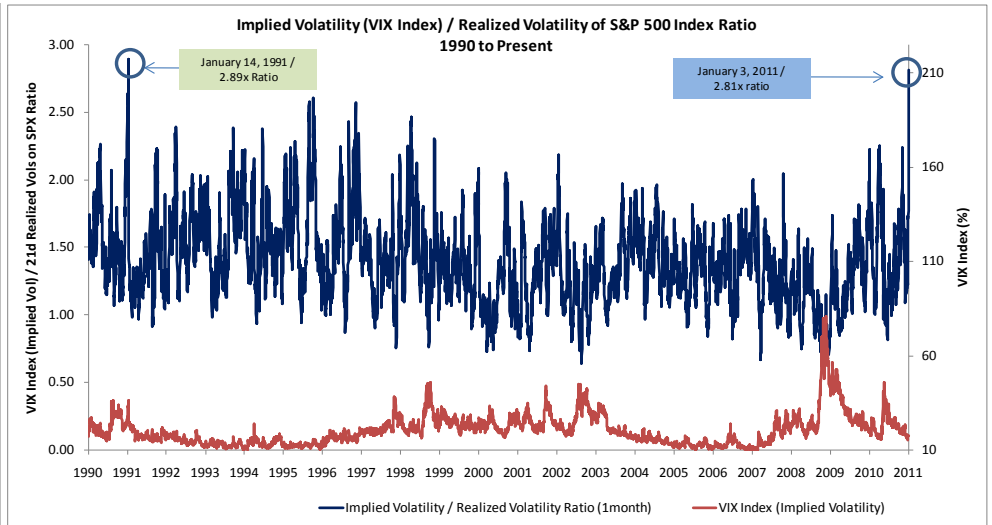
Total Observations 1950 to 2010 = 3778

Total Observations 1950 to 2010 = 3778



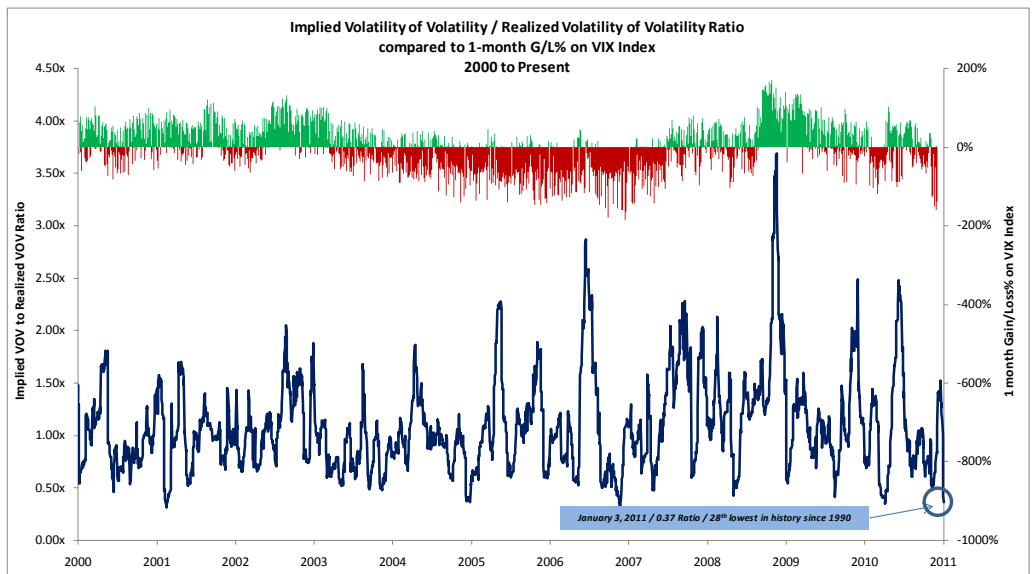
Extreme readings in the relationship between implied and realized volatility

| Implied Volatility to Realized Volatility Rankings 1990 to Present | | | | |
|---|-------------------|--------------|------------------------|------------------------|
| Rank | Date | Ratio | 1-month G/L% on SPX | 1-month G/L% on VIX |
| 1 | January 14, 1991 | 2.89x | +15.32% | -52.19% |
| 2 | January 15, 1991 | 2.88x | +16.24% | -61.40% |
| 3 | January 3, 2011 | 2.81x | ? | ? |
| 4 | December 31, 2010 | 2.69x | ? | ? |
| 5 | January 16, 1991 | 2.64x | +15.47% | -52.86% |
| 6 | January 9, 1991 | 2.64x | +14.29% | -35.37% |
| 7 | October 5, 1995 | 2.60x | +1.35% | -24.99% |
| 8 | August 29, 1995 | 2.58x | +4.27% | 0.71% |
| 9 | November 4, 1996 | 2.57x | +5.29% | -0.61% |
| 10 | August 30, 1995 | 2.55x | +4.10% | 5.73% |
| 11 | January 11, 1991 | 2.55x | +15.64% | -36.91% |
| 12 | August 28, 1995 | 2.55x | +4.69% | -0.16% |
| 13 | January 2, 1991 | 2.53x | +4.96% | -23.52% |
| 14 | January 8, 1991 | 2.50x | +13.20% | -26.19% |
| 15 | August 23, 1995 | 2.49x | +4.32% | -5.54% |
| 16 | October 16, 1995 | 2.47x | +2.42% | -15.11% |
| 17 | April 8, 1998 | 2.46x | +0.59% | -11.90% |
| 18 | October 4, 1995 | 2.46x | +1.55% | -19.23% |
| 19 | August 24, 1995 | 2.45x | +4.26% | -3.78% |
| 20 | January 3, 1991 | 2.45x | +6.36% | -28.33% |
| 21 | August 31, 1995 | 2.44x | +3.93% | 10.07% |
| 22 | August 25, 1995 | 2.44x | +3.80% | 6.97% |
| 23 | April 6, 1998 | 2.43x | -1.48% | 1.41% |
| 24 | September 5, 1996 | 2.43x | +7.71% | -32.63% |
| 25 | January 4, 1991 | 2.43x | +8.17% | -21.82% |
| Average | | 2.56x | +6.80% | -18.59% |



The relationship between the VIX index and 21-day realized volatility is at extreme levels as the VIX refused to budge from 15-18% even though realized vol fell to under 6%. Today the VIX premium is at the third highest level in history (see chart above) as traders anticipate a long overdue pull back in equity prices. Counter intuitively when premiums are this high it is actually a bullish short-term signal for the equity markets. Since 1990 in the month following a top 25 ranked observation of the implied to realized volatility ratio the market has climbed 96% of the time with an average gain of +6.80% while the VIX has fallen -18.59% on average. At first glance this data seems to validate the extremely bullish sentiment in the market.

| Implied Vol of Vol to Realized Vol of Vol Rankings 1990 to Present | | | | |
|---|-------------------|--|------------------------|------------------------|
| Rank | Date | Implied VOV / Realized VOV Ratio | 1-month G/L% on SPX | 1-month G/L% on VIX |
| 1 | August 31, 1993 | 0.30x | -1.00% | +9.19% |
| 2 | August 30, 1993 | 0.31x | -0.68% | +10.12% |
| 3 | December 27, 1991 | 0.31x | +2.08% | -5.99% |
| 4 | November 21, 2006 | 0.31x | +1.33% | +6.17% |
| 5 | August 24, 1993 | 0.32x | -0.47% | +5.52% |
| 6 | February 14, 2001 | 0.32x | -12.03% | +31.91% |
| 7 | September 1, 1993 | 0.32x | -0.40% | +3.00% |
| 8 | November 22, 2006 | 0.32x | +0.33% | +11.36% |
| 9 | August 20, 1993 | 0.32x | -0.24% | +22.83% |
| 10 | February 13, 2001 | 0.33x | -9.64% | +25.40% |
| 11 | August 25, 1993 | 0.33x | -0.54% | +3.01% |
| 12 | August 27, 1993 | 0.33x | +0.27% | +4.75% |
| 13 | August 23, 1993 | 0.34x | +0.55% | +9.49% |
| 14 | August 26, 1993 | 0.34x | -0.74% | +2.68% |
| 15 | February 12, 2001 | 0.34x | -11.98% | +32.44% |
| 16 | August 19, 1993 | 0.34x | +0.52% | +14.09% |
| 17 | November 20, 2006 | 0.34x | +1.63% | +2.87% |
| 18 | February 15, 2001 | 0.34x | -12.26% | +34.29% |
| 19 | September 2, 1993 | 0.35x | -0.00% | -0.34% |
| 20 | April 6, 2010 | 0.35x | -5.29% | +70.36% |
| 21 | February 9, 2001 | 0.35x | -6.39% | +15.10% |
| 22 | November 17, 2006 | 0.35x | +1.83% | +0.00% |
| 23 | February 8, 2001 | 0.36x | -5.22% | +12.39% |
| 24 | December 23, 2004 | 0.36x | -3.55% | +24.59% |
| 25 | December 26, 1991 | 0.36x | +2.59% | +5.05% |
| 26 | December 22, 2004 | 0.36x | -3.51% | +22.65% |
| 27 | February 16, 2001 | 0.37x | -12.33% | +30.17% |
| 28 | January 3, 2011 | 0.37x | ? | ? |
| 29 | December 24, 1991 | 0.37x | +3.96% | +3.57% |
| 30 | December 30, 1991 | 0.37x | -0.85% | -0.80% |
| Average | | 0.34 | -2.49% | +14.41% |
| Standard Deviation | | 0.02 | +4.86% | +15.30% |



A more nuanced analysis examines at the ratio between the volatility of volatility ("VOV") of the VIX and the VOV on historical volatility (we call this the "Volatility of Volatility Ratio"). This second derivative technical ratio measures how fast the actual volatility is changing compared to the shifting cost of market insurance. This concept is best understood through a metaphor. Imagine that you have a teenage son who just earned his driver's license. The high cost of insuring his car is comparable to the VIX index and his driving record is comparable to S&P 500 realized volatility. Over the next 5 years if he gets three speeding tickets the cost of his insurance will rise (and vice versa). The change in the cost of his insurance (VOV of VIX index) as influenced by the points on his record (VOV of Realized Vol) and is comparable to the VOV Ratio.

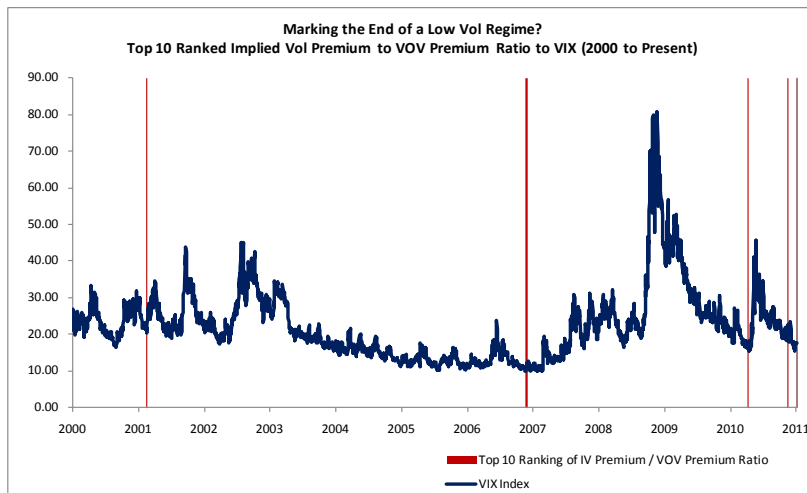


The current VOV ratio is near historic lows and readings on this level have resulted in 93% probability of an increase in the VIX with an average gain of +14% with decidedly mixed equity market performance. While statistical volatility has dropped the VIX has refused to budge from its current range. This is the equivalent of your son driving more responsibly over time and gradually erasing points from his DMV record but the insurance company refusing to lower his premiums. The insurance company doesn't trust that he will remain profitable to cover in the long-run even though his most recent driving record has improved dramatically. Similarly the current historically low VOV ratio tells us investors in volatility refuse to believe this low-volatility environment is sustainable.

The incongruity between the VIX premium and the VOV premium is a contradiction in the volatility regime that is very rare historically. Keep in mind there is an arbitrage between implied volatility and statistical volatility and when spreads remain historically wide it is a lost profit opportunity for Wall Street. Despite this fact the VIX index refuses to budge because traders think there is serious risk volatility will go higher. So which indicator is correct? I took the liberty of ranking other periods in history whereby there has been a high VIX premium to VOV ratio. Observations since the implementation of QE2 dominate the top ten ranked observations. Other key periods include early 2001, late 2006, and one month before the Flash Crash in April 2010. **We can conclude that high levels of volatility premium in conjunction with lower volatility of volatility ratios are a sign that near-term volatility is close to a bottom.**

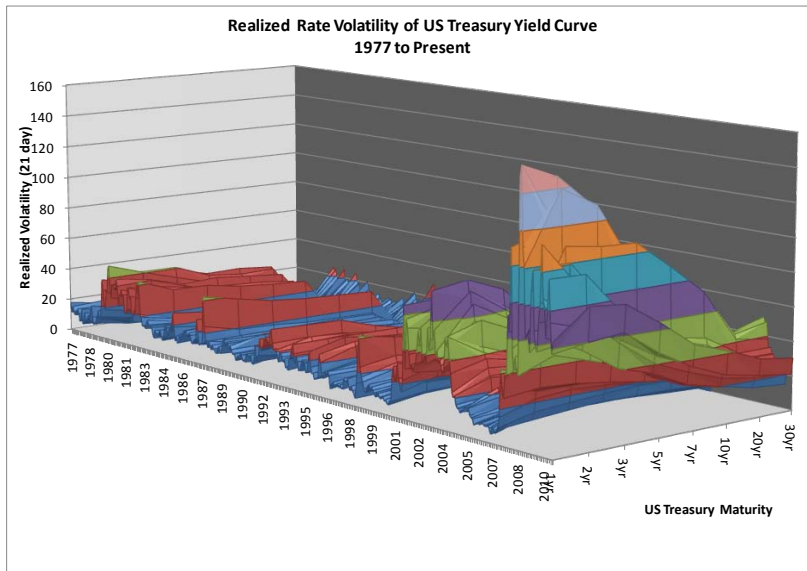
[Implied Vol to Realized Vol Ratio] ÷ [Implied VOV to Realized VOV Ratio]
Rankings from 1990 to Present

| Rank | Date | Implied VOV / Realized VOV Ratio | 3-month G/L% on SPX | 3-month G/L% on VIX |
|----------------|-------------------|-------------------------------------|------------------------|------------------------|
| 1 | January 3, 2011 | 7.66x | ? | ? |
| 2 | December 31, 2010 | 6.33x | ? | ? |
| 3 | November 21, 2006 | 6.19x | +8.36% | +29.52% |
| 4 | February 14, 2001 | 6.07x | -10.33% | -4.95% |
| 5 | November 22, 2006 | 5.98x | +8.06% | +25.00% |
| 6 | February 13, 2001 | 5.96x | -10.17% | -4.55% |
| 7 | February 12, 2001 | 5.73x | -11.13% | -6.45% |
| 8 | November 20, 2006 | 5.65x | +8.37% | +24.67% |
| 9 | February 15, 2001 | 5.63x | -11.88% | +3.11% |
| 10 | April 6, 2010 | 5.57x | -2.51% | +28.07% |
| 11 | November 9, 2010 | 5.56x | ? | ? |
| 12 | February 9, 2001 | 5.55x | -10.52% | -4.69% |
| 13 | November 17, 2006 | 5.53x | +7.66% | +29.59% |
| 14 | November 10, 2010 | 5.45x | ? | ? |
| 15 | November 11, 2010 | 5.45x | ? | ? |
| Average | | 5.89x | -2.41% | +11.93% |



QE2 put Treasury Yield Volatility Back on Amphetamines

The bull market in US Treasury yield volatility took a breather in early 2010 before QE2 put it back on amphetamines. To put the volatility of yields in perspective the chart to the right visualizes the rate volatility of the US Treasury curve since 1977 (realized over one month). Although rate volatility is below levels reached in 2008 it is still alarmingly high compared to any other period in the last 33 years. A case can be made that rate compression is causing the higher volatility, but keep in mind that the 10 year UST dropped as low as 3.78% in 1962 (compared to 3.48% as of January 5th) with one fourth as much rate volatility as there is today.

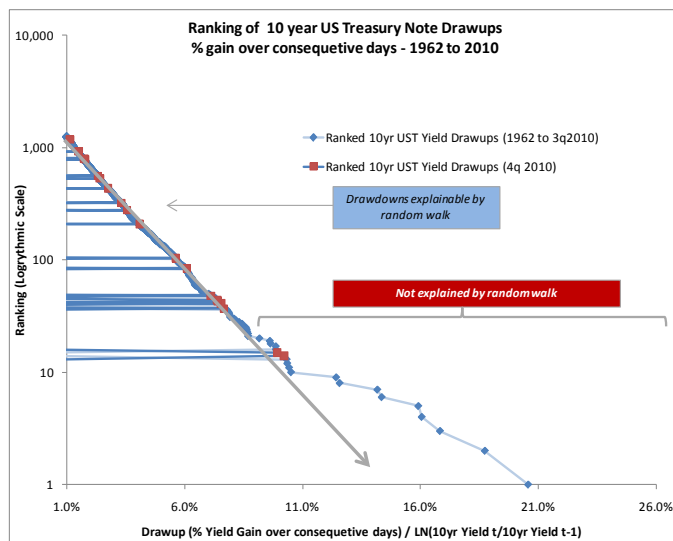


Incredibly 7 of the largest 50 percentage drawups in 10-year US Treasury yields since 1962 have occurred in the last three months! In other words 14% of the largest upward % movements in 10-year UST yields over 48 years happened immediately after the Fed starting buying bonds with the intention of pushing down yields! These outliers and their respective rankings are listed in the chart on the next page.



The 10-year US Treasury yield, the proxy for 30-year mortgage rates, is up 80bps since early September. Bernanke has given mixed messages on this first implying that QE2 was intended to lower interest rates and then saying higher yields are good because it means the economy is improving. Regardless of how he spins the record this increase in yields and rate volatility during a period of *unprecedented* debt monetization should be a source of concern. Increased interest rate volatility can be a canary in the coal mine for tail risk in the equity markets.

Last but not least the differential between realized volatility of the S&P 500 index and realized volatility on the 10-year US treasury yield is at the lowest level in history! Divergence on the low side is a bullish sign. As the economy improves equity volatility will naturally drop and yield volatility will rise as investors buy equities and sell Treasuries. This is a normal part of a healthy recovery, and previous top ranked divergences have occurred in recovery years such as 2003-2004 and early 2009. Nonetheless it is odd that this volatility differential is at the highest level ever reached in 50 years. The average volatility differential for December 2010 was nearly 62% higher than the next highest pre-credit crisis level reached in August of 2003. It's too early to tell whether this is signaling a massive reflationary recovery or the beginning of vicious bond vigilantism... or both.

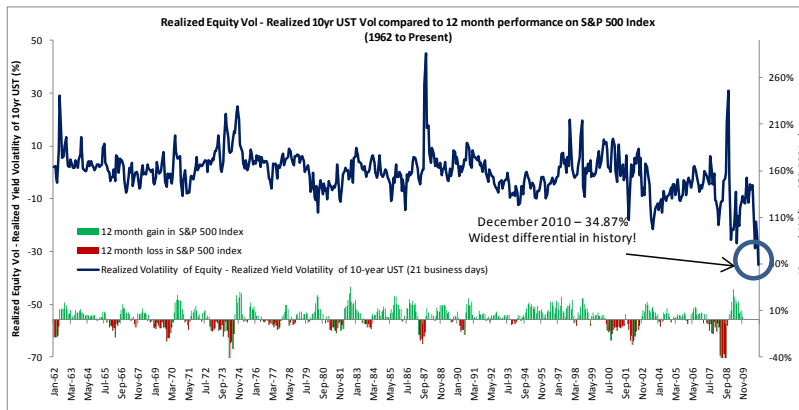
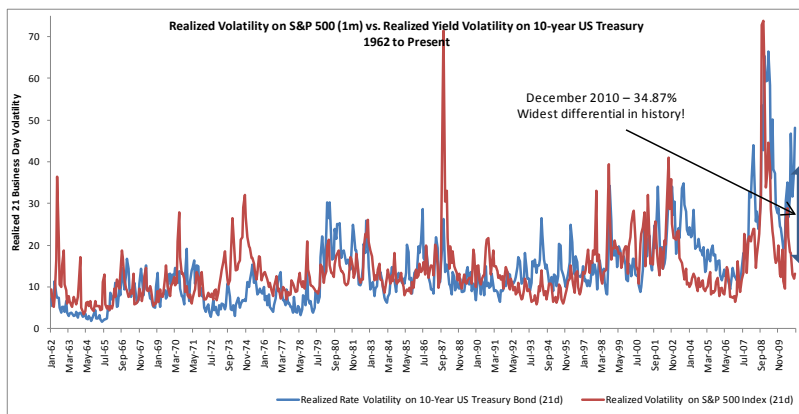


% Drawups of 10yr UST Rates in 4q 2010
Rankings in Top 50 all-time based on data from 1962 to 2010

| Rank | End Date | # Days | % Drawup | Rate ↑ |
|------|--------------------|--------|----------|--------|
| 14 | December 8, 2010 | 2 days | +10.22% | +31bps |
| 15 | September 3, 2010 | 3 days | +9.94% | +25bps |
| 37 | December 3, 2010 | 3 days | +7.66% | +22bps |
| 41 | September 10, 2010 | 3 days | +7.55% | +20bps |
| 43 | October 15, 2010 | 4 days | +7.39% | +18bps |
| 44 | November 9, 2010 | 3 days | +7.38% | +19bps |
| 48 | December 15, 2010 | 2 days | +7.11% | +24bps |

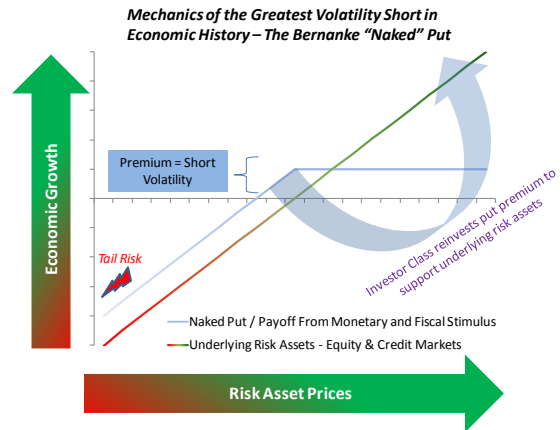
Avg. Monthly Realized Equity Vol to 10yr UST Rate Vol Differential
Top 25 Rankings From 1962

| Rank | Month | SPX Equity Vol - 10yr UST Vol (%) | SPX G/L% in 12m |
|----------------|--------------|-----------------------------------|-----------------|
| 1 | December-10 | -34.87 | ? |
| 2 | September-10 | -28.59 | ? |
| 3 | June-09 | -26.86 | +18.84% |
| 4 | November-10 | -26.37 | ? |
| 5 | January-09 | -25.46 | +29.75% |
| 6 | March-09 | -21.85 | +41.92% |
| 7 | August-03 | -21.65 | +7.22% |
| 8 | February-09 | -21.44 | +26.29% |
| 9 | August-09 | -20.26 | +7.22% |
| 10 | March-08 | -20.06 | -53.22% |
| 11 | April-09 | -19.59 | +35.21% |
| 12 | October-10 | -18.66 | ? |
| 13 | December-01 | -18.13 | -23.32% |
| 14 | September-03 | -17.93 | +9.90% |
| 15 | July-03 | -17.77 | +10.10% |
| 16 | July-09 | -16.37 | +16.18% |
| 17 | April-04 | -15.24 | +1.21% |
| 18 | May-80 | -15.15 | +21.14% |
| 19 | June-86 | -14.35 | +21.00% |
| 20 | January-04 | -14.34 | +4.53% |
| 21 | February-08 | -14.16 | -49.02% |
| 22 | October-03 | -13.73 | +5.70% |
| 23 | April-08 | -13.42 | -44.86% |
| 24 | September-09 | -13.35 | +6.66% |
| 25 | August-10 | -13.35 | ? |
| Average | | -19.32 | +6.66% |



The Bernanke Naked Put

The term "Bernanke Put" (previously "Greenspan Put") was first coined in 1998 in reference to Federal Reserve's response to the Long Term Capital Management crisis. It describes the Fed's use of monetary stimulus to back-stop the economy in a crisis effectively putting a floor beneath equity prices similar to an equity put option. A put option has limited downside risk as you can only lose the total amount of the premium invested. This term as applied to current monetary stimulus is misleading because there is not limited risk. What the Fed is doing is more akin to a "naked" put and has a much higher risk profile. With a naked put the investor receives a premium upfront and agrees to absorb the impact of further price declines at great risk. It is a form of selling volatility on margin.



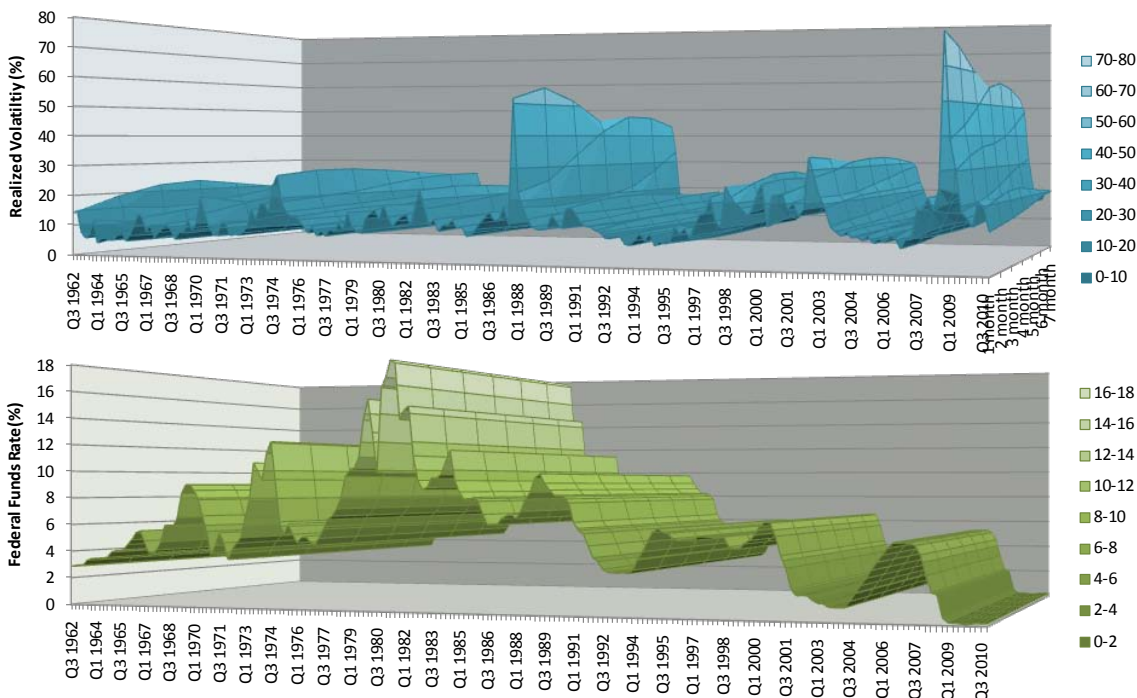
The Great Vega Short - The Most Important Volatility Trade in History

In theory the Federal Reserve is now the largest volatility trader in the world because current monetary policy is akin to shorting massive amounts of volatility and assuming tail risk. The current regime of monetary and fiscal stimulus is similar to writing a naked put on the entire financial system with margin backed by the US debt. The premium received from the sale of the naked put is financed via demand for our debt and redistributed to the investor class to re-flate underlying asset prices and depress volatility. The theory is that the reinvestment of this premium by investors into underlying risk assets ensures the Fed's naked put is never exercised. In effect, the Federal Reserve is constantly shorting vega on a systematic level. This stimulus regime socializes "tail risk" to generate short-term prosperity. If asset prices drop the Fed is forced to sell more volatility to artificially support prices. This will work as long as (1) asset prices do not collapse too far or; (2) taxpayer funded margin is unlimited. If either of these two conditions are not met the asymmetrical return distribution of the strategy will result in complete ruin. It is a martingale process, similar to constantly doubling down your bet while gambling (with better odds though). It works only if your bankroll is unlimited.

The Fed's massive volatility short is highly dependent on the concept that the taxpayer monies backing the trade can be increased exponentially as needed. This is why the Federal Reserve is now the world's largest holder of US Treasury debt at over \$1 trillion (China is now #2). Unbeknownst the average US taxpayer is backstopping a massive leveraged sale of economic volatility. Every year the incremental premium received for the sale of volatility gets smaller and smaller while the taxpayer margin required to fund it grows exponentially.

Over the past 30 years every sustained drawdown in rates has been followed by increasingly more violent drawups in volatility (see chart). In 30 years of lower and lower rates the power of the Fed's naked put to support asset prices (aka suppress volatility) has become increasingly less effective as rates have declined and the deficit has expanded. In the event asset prices fall violently again or the backstop margin (US debt) hits a wall, the gamble of the naked put becomes disastrous.

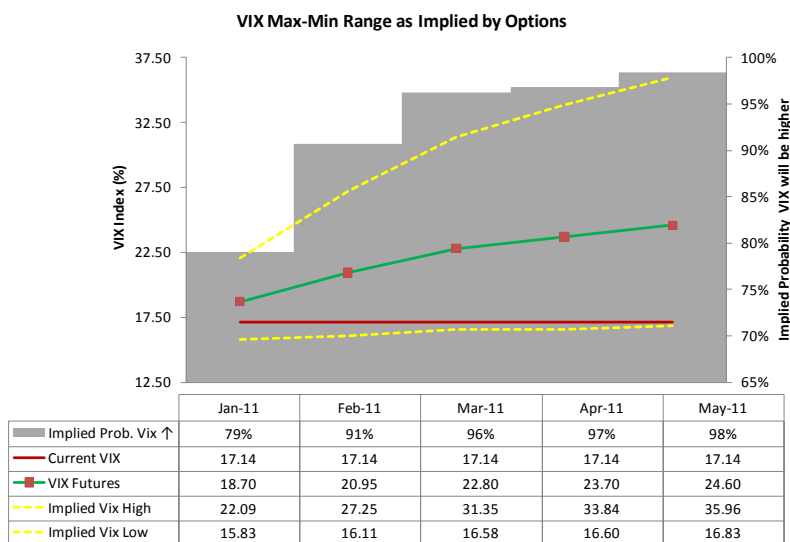
S&P 500 Average Realized Volatility Surface by Quarter - 1962 to Present (Top Chart)
Effective Federal Funds Rate - 1962 to Present (Bottom Chart)



With the US debt already approaching 100% of GDP there may be no more available leverage capacity for the Fed to continue selling volatility. It is highly ironic that the monetary strategies used to bail-out Long Term Capital Management are now dangerously similar to the martingale based models that caused famously doomed hedge fund to self-destruct. In effect the health of the global economy now hinges on one exponentially margined short volatility trade.

In the interim this trade has proved very successful in re-inflating asset prices and commodities, depressing volatility and the dollar, and increasing corporate profits despite lagging job growth. Whether this strategy can succeed in the long-run is dependent on whether or not reinvested proceeds will generate a self-sustaining recovery. The economy must be able stand on its own absent massive stimulus to be deemed healthy. This past August after the effects of the first round of stimulus wore off economic data turned dismal and a second recession seemed very possible. The Fed and Congress panicked and introduced this current round of stimulus managing to sell enough naked "puts" to ensure the status quo for another year. Although the economy is improving many systematic risks remain that could rouse volatility including the sovereign debt crisis in Europe, strained municipal finances, and a struggling housing market.

The current disparity between bullish euphoria and long-term systematic risk could represent one of the best volatility tail-risk hedging opportunities since the first half of 2007. Artemis is currently looking to increase our long-term volatility hedges within the disciplined framework of our quantitative models. With this in mind the long-end of the volatility term-structure remains historically steep. For example, the VIX options market has priced in an estimated 98% probability the VIX will rise by May 2011 with a probable range between 16.83 and 35.96 (according to model-free volatility pricing across the strike spectrum). Despite this fact value can be found in select maturities of out-of-the-money VIX calls that are attractive on a risk-to-reward basis given the current macro-risk environment. In addition, individual investors may also buy tail-risk in the form of S&P 500 LEAPS that provide protection out to 2012 at volatility levels that are only 1-3% above historic averages. Although it probable the VIX index will remain range bound between 17-25 throughout the first quarter of 2011 there are enough potential risk factors to warrant both the steeper than average volatility skew and the incremental investment in tail risk.



You've most likely heard the old adage about the danger of picking up pennies in front of a steamroller. The great volatility short is no different in principal as our government collects trillions of pennies from the treads of a debt steamroller repatriating them to the driver in exchange for a promise to slow the machine. We must to hope operator is able to find a better job before he becomes dependent on those pennies for his survival. At 9.4% unemployment it will be challenging. In a recent letter to senior members of Congress Treasury Secretary warned there will be "catastrophic economic consequences" if the government's \$14.29 trillion debt ceiling is not increased immediately. What should be apparent by now is that one day the greatest volatility short in history will face a margin call the US taxpayer will be unwilling or unable to meet. While the markets remain in a state of euphoria it may be the right time to opportunistically position yourself on other side of the Fed's volatility trade by going long tail risk.

Sincerely,

Artemis Capital Investors, L.P.

Christopher R. Cole, CFA

Managing Partner and Portfolio Manager
Artemis Capital Management, L.L.C.



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Note: Unless otherwise noted all % differences are taken on a logarithmic basis. Price changes and volatility measurements are calculated according to the following formula $\% \text{ Change} = \text{LN} (\text{Current Price} / \text{Previous Price})$

