Derivatives Note #13.

VIX futures

VIX = an index which tracks the implied volatilities of first and second month expiration of SPX options.

Old VIX = ATM implied volatilities.

new VIX = Variance Swap formula.

VIX formula.

$$\sigma_T^2 = \frac{2e^{rT}}{T} \int_0^{\infty} OTM(K,T,S) \frac{dK}{K^2}$$

$OTM(K,T,S) =$ value of OTM (forward) option with strike K, or ATM if $S=F$.

VIX Futures. VX.

Contract # = 1000.

Tick size. 0.05 ($50).

Settlement price = VIX x 1000.

Risk on vs Risk off when there are big events. eg. French election

Lehman bankrupcy

ETFs based on futures. the "equitization" of VIX.

ETFs / ETNs have a target average maturity.

VXX options.

Options on VIX futures settle and are priced based on VIX futures.

Contango plays a role in the evolution of VXX prices.

VIX trading.

VIX is an index representing an average short term volatilities of SPX.

It is widely accepted fear gauge.

There are also VIX options.

There are also VIX linked ETFs. (VXX).

most of those ETFs have options too.

The arbitrage between SPX volatility and VIX is complicated due to liquidity and due to the large number of options involved in getting an exact relation.