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A Quantitative Look at the Markets

Revisiting the Synthetic Volatility Index

In Synthetic Volatility Index Tags Volatility Trading May 27, 2017 870 Views PJ Sutherland

The most recent winner of the Charles H. Dow Award, a Market Technicians Association's (MTA) initiative to award outstanding research in technical analysis, discussed an indicator developed by Larry Williams called the VIX Fix. The title immediately caught my attention because I had independently done something very similar in a four part blog series entitled "Engineering a Synthetic Volatility Index". After reading through the paper it became apparent that Larry and I attempted to solve the same problem independently and with different approaches. Larry is an icon of mine, so I thought it would be fun in this post to compare the two approaches to determine whose is the most effective. For the effectiveness test I compared the correlation of each approach with the VIX itself. The indicator with the strongest correlation with the VIX will be deemed the winner. Before we get to the test, let's start with a quick introduction to Larry.

Larry Williams has been on the trading stage for some time. One of the first books that I ever read related to trading was authored by Larry. Through the years he's inspired me in his books, courses and seminars. However, Larry's greatest feat that caught my and the imagination of the entire trading community was his exceptional performance during the world trading championships of 1987. The championship runs for 12 months each year and requires entrants to trade $10 000 in real money. The competitor with the largest account value by the end of the 12 month period wins the competition. During 1987, Larry traded his $10 000 account to a high of $2.7 million before losing almost half and ending the year with $1.1 million, or 10 900% return. Needless to say he was the victor by a large margin, such a large margin in fact that the regulatory body got involved to investigate possible wrongdoing. They simply could not believe that someone could generate returns of that magnitude legitimately. After some years of investigation Larry's records were returned to him and no charges filed. As a final slap in the face to the regulatory body, Larry taught his daughter, Michelle Williams, his techniques and she went on to win the 1997 world championships. Remarkable!

How can one not be imbued by Larry's success? After reading his achievements I was convinced that I'd be on an island in no time raking in the money. Sadly, trying to mimic performance like that as a mere mortal had dire consequences on my account. I learnt very quickly that shooting for returns of that magnitude results in catastrophic loss 999 times out of a 1000. Through the years and countless losses my appreciation of and respect for risk has matured; I'm now very content generating 15% to 20% per annum.

Without being able to replicate Larry's astounding performance in my own trading, how will I hold up today? Let's start by exploring Larry's approach to building his VIX Fix indicator. Here's an excerpt from his paper:

The VIX Fix applies the same general formula that is used to calculate the stochastics indicator and is fairly simple to calculate. The difference between the highest close in the past 20 days and today's low is divided by the highest close in the past 20 days. That ratio is multiplied by 100 to scale the indicator from 0 to 100. The formula for the VIX Fix is:

*(Highest (Close, 20) – Low) / (Highest (Close, 20)) * 100*

Where "Highest (Close, 20)" means the highest closing value in the past 20 periods and the low refers to the current period's low. The formula can be applied to any timeframe. In the calculation, Williams used 20 days to include approximately one month of trading history. With weekly or monthly data, 20 is used as the default parameter. This indicator extends the powerful concept behind the VIX to any stock or ETF.

And a quick recap of my Synthetic Volatility Index:

Mov(Average True Rang(1) / Close, 20, Simple)

In plain language, take the 20 period simple moving average of the one period average true range divided by the close. You can read my full blog here.

And the results are in: Larry's VIX Fix indicator has a correlation of 0.73, while my Synthetic Volatility Index has a correlation of 0.92 with the VIX index. So based on correlation alone, it appears that the normalised volatility as discussed in my Synthetic Volatility Index is the optimal solution when attempting to replicate the VIX index.

One small victory for me and….. ah working on the mankind part. I'll take it and celebrate it nonetheless. Thanks for reading. As always, I welcome your thoughts and comments. Simply pop me an email pj@quantalb.co.za. Until next week, happy trading.

Happy Trading,
PJ

PJ Sutherland

Passionate about generating and sharing quantified trading models that empower individuals to trade successfully. I founded www.sutherlandresearch.com to realise my passion.

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PJ Sutherland BSc, CMT
Passionate about generating and sharing quantified trading models that empower individuals to trade successfully. I founded www.sutherlandresearch.com to realise my passion.

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