11.4 "Trading" Volatility[481]

Trading volatility is the price fluctuations on which trades are actually transacted. One might imagine that all of the previous volatilities in this Chapter would be sufficient representation of this. Alas, its just not so.

The manner in which specific moment to moment, day to day fluctuations occur affects trade ideas, hedging/rebalancing, and of course it is the actual value on which mark-to-markets and P&L/regulatory reporting are based on. The "summary" measures of volatility, as introduce above, are just that "summary measures".

The "reality of real world" trading is that your welfare is directly related to sum total of all of the individual steps/trades over a holding period. These steps are directly related to the actual market fluctuations that actually occurred, and not some "summary measure".

Consider the four market scenarios in Figure 11.4 – 1. Each of these scenarios has the same "measured" or "summary volatility". That is, it is entirely possible to have dramatically different "looking" time series, but each with the same (statistical) variance or volatility. This is a bit like the difference between a zero-coupon curve and IRR. The IRR is a convenient "summary measure", but it is possible to have two very different looking (zero coupon) yield curves resulting with the same IRR.

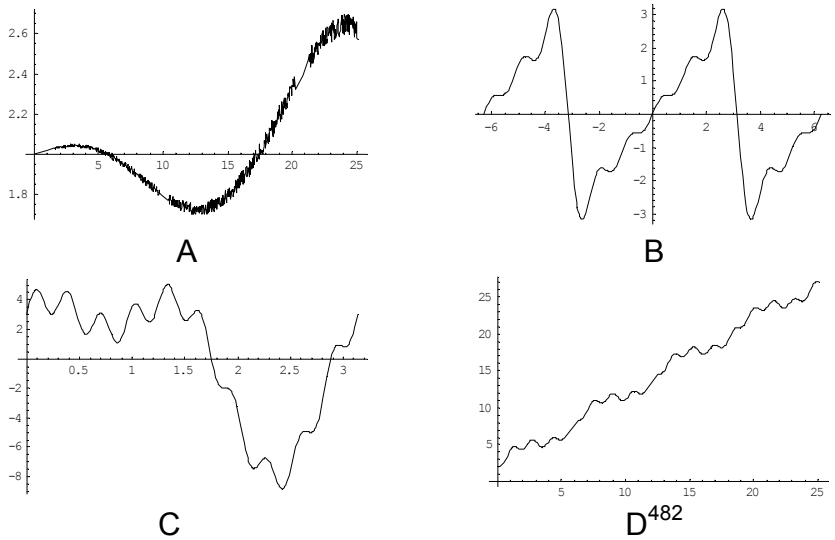

Figure 11.4 – 1. Four (fundamentally) different market conditions, each can be constructed to have the same historical volatility.

[481] Please note the terminology, a quoted implied volatility may be something you can trade on, but this is not the same as volatility of the underlying price fluctuation on which you must trade to rebalance over the course of holding period or strategy.

[482] This is a bit "slippery" example market condition, since de-trending the series would show a dramatically different statistical volatility.

Now ask yourself, if you were short volatility (i.e. you had sold options) and your mandate required you to manage your position within specific Delta limits, then would you care which of the market condition in Figure 11.4 – 1 you had to face. If the answer is yes, then it must be agreed that the summary measures are incomplete or inadequate from a "trading volatility" perspective.

It is easy to demonstrate that, in fact, you would definitely prefer different market scenarios for different types of positions. Time series A in Figure 11.4 – 1 is a much "friendlier" environment for a short volatility (i.e. short Gamma) position then time series B. Rebalancing in smooth primarily trending market is infrequent, easy, and without too much slippage, all while the short Gamma means you are taking in Theta. However, the same position under B would be "a bit of mare" since you would have to rebalance often, your rebalances would be always locking-in large losses, and slippage would tremendous.

Conversely, a options arbitrageur who is long volatility and has discovered a way to exploit the many assumptions in the market convention pricing process may prefer scenario C so that she may rebalance on large fluctuations and lock in large and frequent profits.

This "reasoning" is even more important for complex structures and exotic options, where the rebalance considerations are trickier.

So how is it possible to measure and incorporate such information into trading, position keeping, and risk management? Not surprisingly, there is no simple answer. Coming to terms with this "trading volatility" issue is the *raison d'etre* of trading. This is also why clever individuals require years to become "really good" traders. As it happens, it is also a key reason why we have produced this Series of books.

Many issues and factors will be detailed throughout this Series to address this matter specifically.

To start, though, one "cheap & cheerful" approach is to track trading ranges over various intervals. For example, you may be trading in a particular market where it can be shown that, on average, the typically weekly price range is, say, 40 ticks. Then, it is possible to make (very rough) calculations that approximate the P&L impact of a rebalance strategy. For example, a crude calculation may use the average rebalance size, and then apply the 40 ticks to that size, and calculate the P&L impact over the number of weeks in the holding period. This would be kind of (very rough) "directional trading" strategy performance estimate.

That P&L impact can also be compared to the revenues generated from buying/selling instruments in a market making operation, thus resulting in a (very rough) approximation of