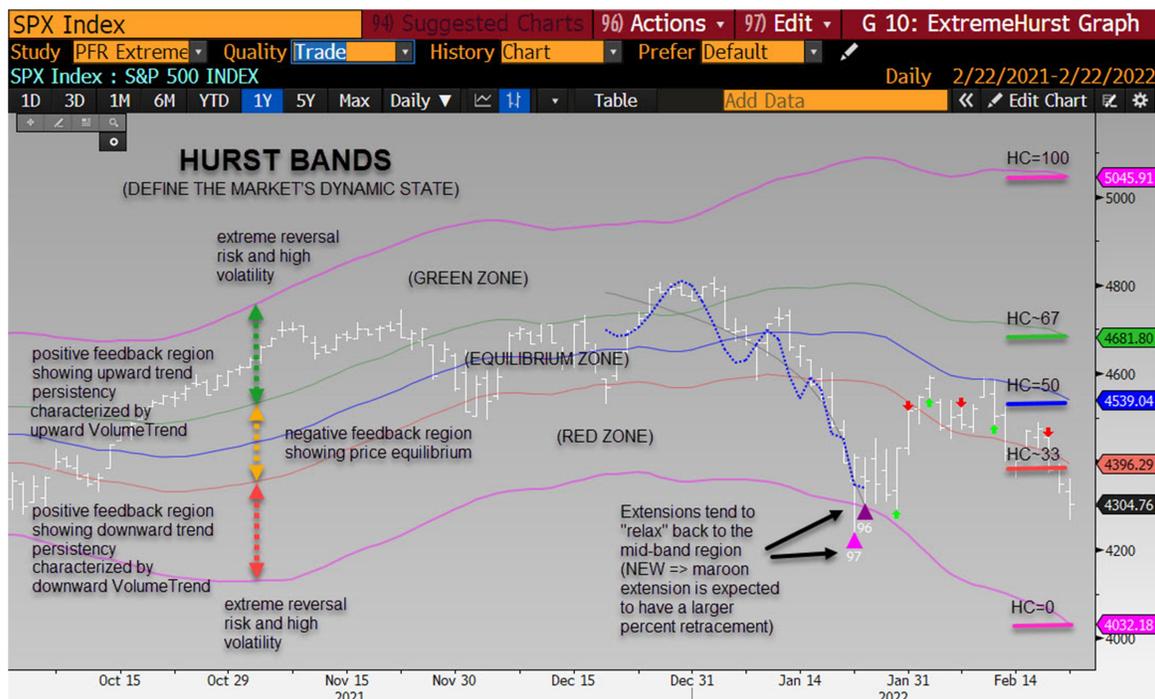


HurstBands & VolumeTrend Research Update

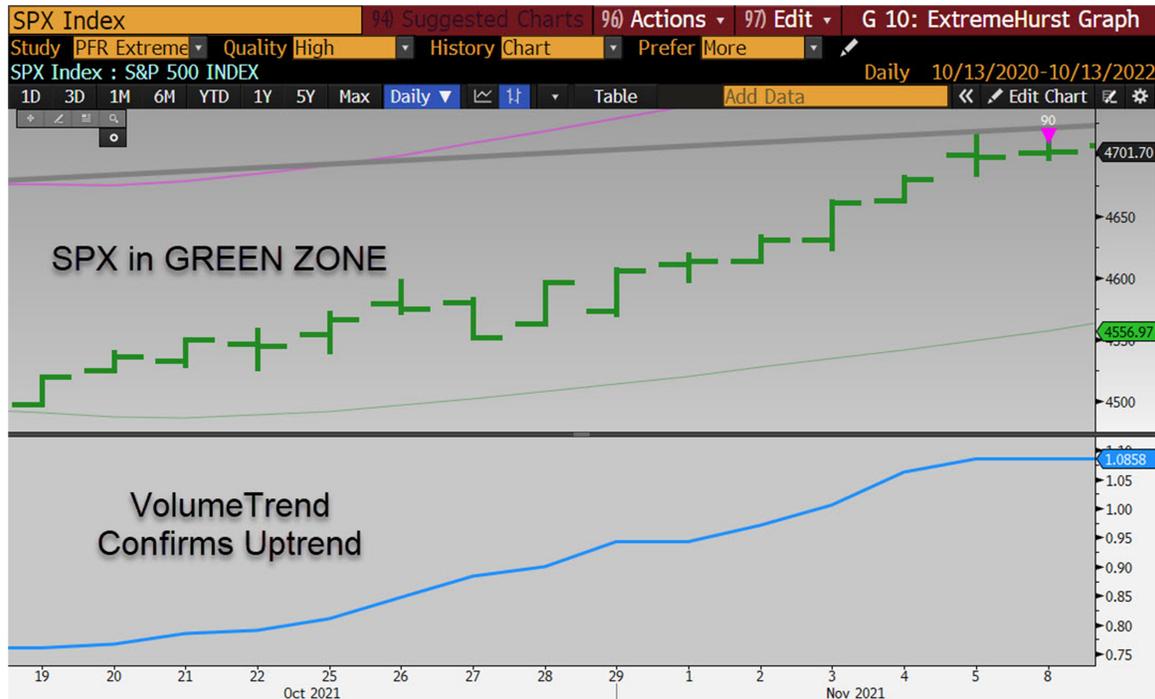
I am often asked how best to determine trend using the Hurst Bands. This update is meant to clarify how to use the bands and the VolumeTrend tool correctly.

First, pick a single scale that is important to your position. We will come back to multiple scales later.

The Hurst Bands are designed specifically to delimit market feedback states on any chosen scale. Recall prices can be in positive or negative feedback states. A positive state is characterized by investors pursuing price. Up (Down) moves encourage buying (selling), which moves price up (down), encouraging more buying (selling). Clearly the main characteristic of this state is a trend. Positive feedback upwards is expected above the green Hurst band and below the magenta upper band (I've begun calling this the "Green Zone"). Likewise, positive feedback downwards is expected below the red band and above the bottom magenta Hurst band (Red Zone).



Persistent trends are expected to develop in the green and red zones, but they should be confirmed by convincing volume behavior. When the price has fully entered a positive feedback zone, it's time to look at VolumeTrend to confirm a trend is present. VolumeTrend is unique in that it only moves when volume expands. Positive feedback requires volume (the crowd) to increase in whichever direction is to become the trend, as crowd excitement levels rise. VolumeTrend “stair-stepping” up or down should clearly show the price trend by excluding declining volume excursions.

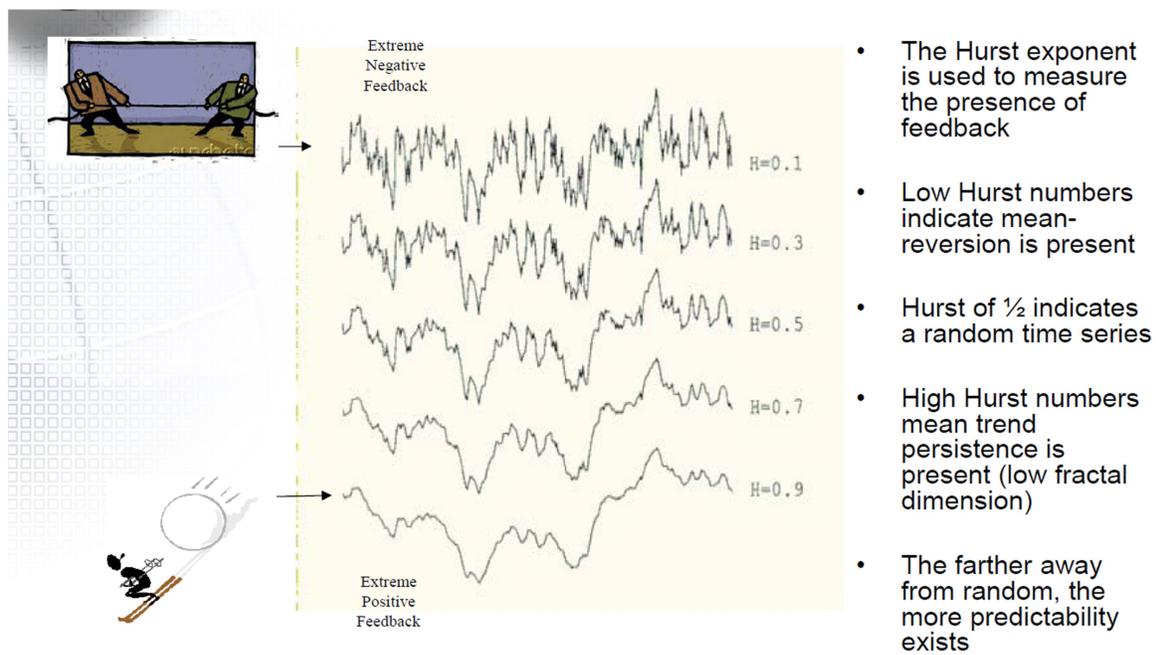


So what about the other two states, the “Extreme Zones” beyond magenta, and the Mean-Reversion state (I also refer to this now as the “Equilibrium Zone”) between the red and green Hurst bands. In the mean reversion state, there is no trend, so don’t look for one. Instead, expect deviations from the blue Hurst mid-band line to be retraced. In this case using the HC number to sell just below the green line (HC~62) and buy just above the red line (HC~38) would be expected to mean revert back to HC=50.

At or beyond the magenta Hurst bands, look for sudden reversals, especially if ExtremeHurst events are triggered. It is almost always prudent to trim exposure here.

This is where a conversation about multiple scales is important. The original idea of perfect scale invariance (price movement looking the same on all time scales), as proposed by Mandelbrot, and using his real numbered fractals, was initially thought to explain the Elliott wave technique. Consider what it implies though. For the market to be a real-numbered Mandelbrot fractal, it would have to have the same choppiness on all time scales at the same time, and at all times. Instead, even the novice trader knows that price may be very smoothly trending on one scale, but at the same time choppy (mean-reverting) on a different scale.

Hurst = 2 - Fractal Dimension, so an almost linear trend that is close to 1-dimensional, would have a Hurst of nearly 1, while a zig-zag mean-reverting signal with a fractal dimension just below 2, would have a Hurst just above zero.

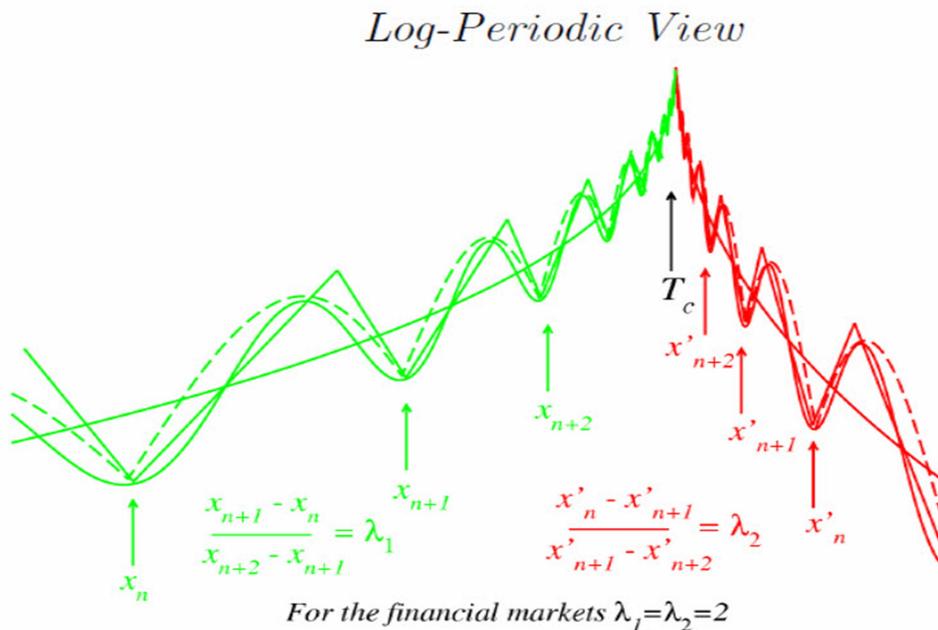


Further, let's just say it did happen that a security was in a smooth uptrend (low fractal dimension – high Hurst) on all scales. The action of every market participant watching that security would be to buy it. This would create price instability that would tend to cancel the trend. Markets cannot be real-numbered Mandelbrot fractals.

Instead markets are complex-numbered fractals, with a real AND imaginary part. This discovery was made in the 1990's by a number of authors (I stumbled on it as well), and there are even natural systems that have complex fractal dimensions, such as diffusion-limited aggregation systems (growing crystals). What the math means is that markets can be up trending on one scale while mean reverting or down trending on another at the same time. In layman terms, this means that the concept of trend comes with a big gotcha. It is dependent on scale. This is all for the good though, because stable price discovery requires buyers and sellers both be present, and they will be present if they disagree on trend.

There is another gotcha though. Humans chasing price on multiple scales, results occasionally in what we call self-organized criticality (SOC). High Hurst's on multiple scales at the same time for instance. These critical states, where all the players believe the same thing at the same time no matter what scale is called scale invariance. Since it happens only occasionally, we call it "discrete scale invariance". Recall from before that it leads to immediate instability whenever it occurs. ExtremeHurst tracks these events. They can occur at both extreme high (Extensions) or low (Compressions) Hurst exponents (on multiple scales).

Further, the imaginary part of the complex fractal dimension is responsible for what is called log-periodicity. We observe price cycles where the peaks and troughs come closer and closer together logarithmically as the critical point is approached. This countdown clock if you will is the reason ExtremeHurst events are so well timed. There is no magic here, it's just physics. Two very popular "magic" number series, Gann and Fibonacci, are log-periodic. No magic.



Don't try to use Hurst Bands to simulate ExtremeHurst events. Hurst Bands do not look for the log-periodic cycling. Just be aware that near or beyond the magenta bands, or near the blue band, ExtremeHurst Extension or Compression events may happen. As you have no doubt found, they are unusually predictive.

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