Tips for Traders | 1/28/2008

The Symmetry of the Markets—Beautiful By Any Name

Whether you are a full-time trader or just trying to learn how to trade, you've probably encountered the lines I've drawn on the right side of this chart

They are one of the most popular tools in all of trading. Do the numbers 38.2, 61.8, 1.272 and 1.618 ring a bell? The trading community refers to these numbers as 'Fib numbers' or 'Fib retracements and projections'. In fact, I plead guilty to using the same terms at times when describing these numbers.

At a recent Traders Expo session an aspiring trader asked me if I use 'Fib numbers' in my trading. I paused for a moment before answering her and filed the question away for further thought and then I answered that I did use 'Fib numbers', particularly the major retracements and projections. Because of their popularity, it is wise to know where these levels are at all times and when possible, to use them to your own advantage in stop and entry order placement.

I think she was asking me if I thought they worked. And indeed, they do have an uncanny ability to help pinpoint areas where price is likely to turn-whether it is because they have innate predictive powers or because they have become self-fulfilling prophecies because of the number of traders that look at them. But I paused in answering her because they really are not 'Fib' numbers [Fib' being a shortened version of the name Fibonacci, whose name was really Leonardo of Pisa].

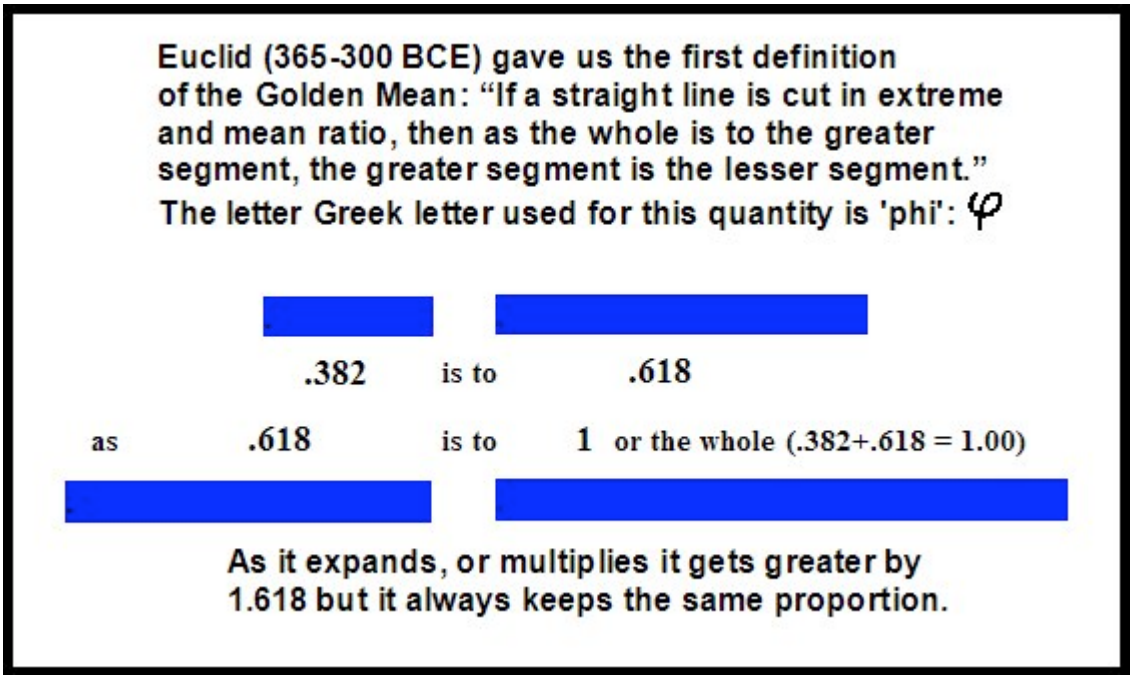
The Fibonacci number series 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144. actually first appeared, under the name matrameru (mountain of cadence), in the work of the Sanskrit grammarian Pingala (Chandah-shastra, 'The Art of Prosody', 450 or 200 BC). Prosody was important in ancient Indian ritual because of an emphasis on the purity of utterance. Later, Leonardo of Pisa used this same series of numbers in his biological treatise 'Liber Abaci'. He considers the growth of an idealized (biologically unrealistic) rabbit population, assuming that:

1. In the first month there is just one newly-born pair,
2. New-born pairs become fertile from their second month on,
3. Each month every fertile pair begets a new pair, and
4. The rabbits never die.

It was Johannes Kepler that later observed that the ratio of consecutive Fibonacci numbers converges. He wrote that "as 5 is to 8 so is 8 to 13, practically, and as 8 is to 13, so is 13 to 21 almost", and concluded that the limit approaches the golden ratio 1.618 or d [pronounced 'Fee']. But where did the Golden Ratio come from and how is it related to these other mathematical numbers traders commonly call 'Fib numbers'?

Parmanand Singh. "Acharya Hemachandra and the (so called) Fibonacci Numbers" 1986. ISSN 0047-6269], " So-called Fibonacci numbers in ancient and medieval India." Sigler, Laurence E. (trans.) (2002). Fibonacci's Liber Abaci. Springer-Verlag. ISBN 0-387-95419-8.

Pythagoras, the Greek father of Geometry said: ‘FIRST OF ALL IS NUMBER’. The Greeks had a very poor number system that used letters of the alphabet without a zero, yet they produced art and architecture that was amazingly beautiful because of their exquisite proportions. Their unique artistry came from their use of complex mental processes, coupled with very direct and simple ways of transferring ideas into wood and stone structures, because they were so well versed in the repeatable patterns found throughout nature.



Translated into today's language, The Golden Mean can be defined as: 'the lesser is to the greater as the greater is to the whole'. Now let's see if we can derive the other popular numbers I cited above:

1 divided by 1.618 = .618
.382 = .618 multiplied by .618 that means it is .618 squared
The square root of 1.618 = 1.272

How do these numbers relate to the number series commonly referred to as the 'Fibonacci sequence'?

The 61.8 % ratio is found by dividing one number in the series by the number that follows it. For example: 8/13 = 0.6153, and 55/89 = 0.6179.

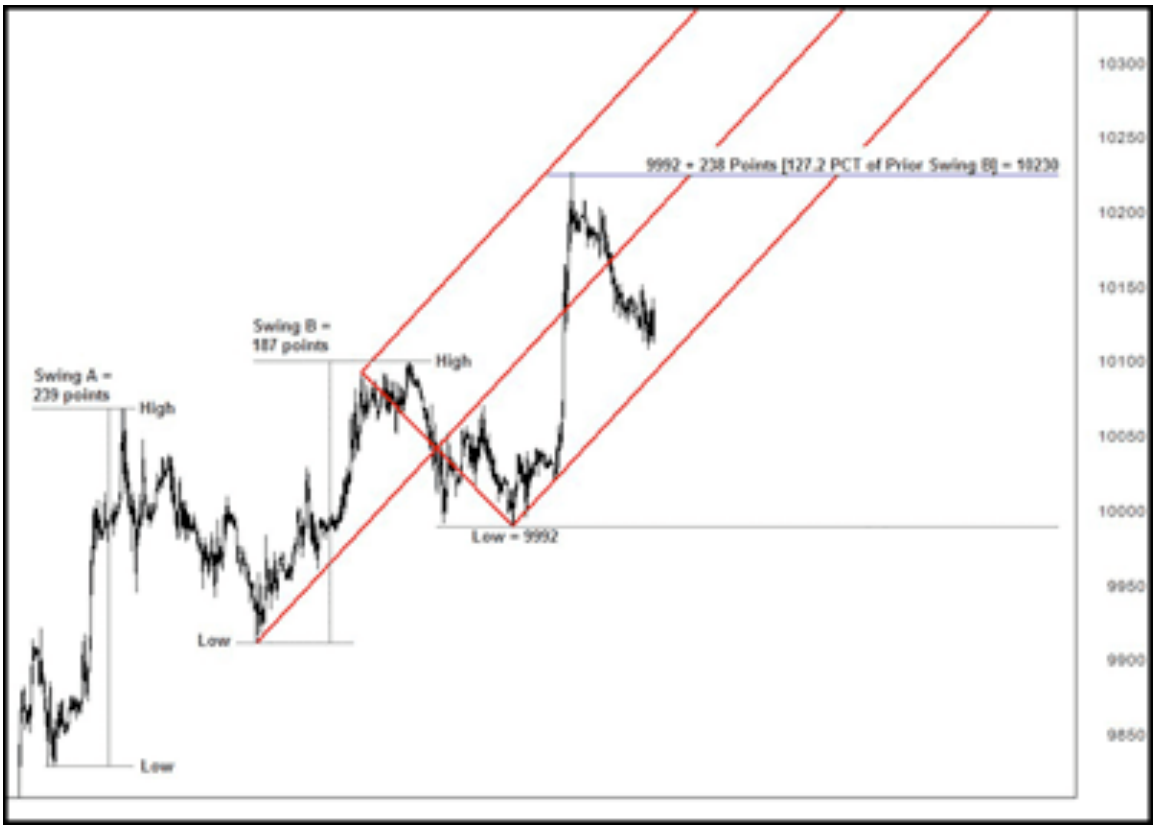
The 38.2% ratio is found by dividing one number in the series by the number that is found two places to the right. For example: 55/144 = 0.3819.

You can see that these numbers were well known and used throughout the ancient world well before the birth of Christ. Their derivation came from mathematicians and philosophers studying the recurring beauty and symmetry found throughout nature in such natural phenomenon as the spiral growth of seashells and the number and relative size of petals and leaves on plants and flowers. And it should surprise none of us that if these ratios are pervasive throughout nature, they are also very visible and useful in all the markets.

Now let's take another look at the chart I showed you at the beginning of this series in part 1, to see if any of the ratios I marked had any predictive power.

You can see price climbed to the 38.2 percent retracement area and then failed to climb any higher. Price then turned lower. In down trending markets, any failure to climb above the 38.2 percent retracement area is a major sign of weakness.

Here's an example of using these ratios as a projection of where an expansion should run out of directional energy:



Price climbed right to the 127.2 percent projection of Swing B and then turned back dramatically lower. When planning a trade, it is often quite useful to mark these ratios on the right hand side of your chart, to remind you where so called 'Fib traders' will have their resting orders. You can then use them to make decisions about stop loss orders and profit orders. For example, if you have a trend line or Median Line at a particular price and then add in these ratios and see that the same area coincides with one of the ratios, you may want to aggressively lock in your profits as price approaches this area, because of the number of 'Fib traders' that may be working sell orders at the exact ratio.

To wrap up this week's series, I'll return to the original question: Do these ratios work or have they become self-fulfilling prophecies because so many traders watch them? To me, it doesn't matter. If I can profit from knowing where these ratios are, they are important tools for me to have in my trading bag. Anything that helps me profit in the markets is important.

I believe in knowing as much as possible about any tool I am considering using in my trading. It may not improve my profitability to know that Fibonacci was not the originator of these ratios or even of the number series named after him. However, a thorough knowledge of any tool is essential, and a thorough history of the tool often gives me insight into how other professionals, often in unrelated fields, developed and used these tools, and that may help me find a new way to use a particular tool.

My motto has always been: **"Master Your Tools, Master Your Self."**

I wish you good trading!

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