Fractals in stock market

Lokeshwarri S.K.

April 2011

Fractals is a fragmented geometric shape that can be broken into parts which are similar in shape to the whole.

On one of those lazy days when you were lying on your back on a green meadow, tracing figures in clouds, have you ever been stuck by how each tiny part of a cloud was similar to the larger shape?

The humble cauliflower or broccoli in the kitchen also displays similar characteristics. Each tiny floret is a smaller copy of the whole. The same is true of mountain ranges, coast-lines, lightning, tree and so on.

Understanding fractal

This concept is called fractals. Fractals is a fragmented geometric shape that can be broken into parts which are similar in shape to the whole. Though the study of fractals dates back to 17th or 18th century, the term ‘fractal' was used by Benoit Mandelbrot who is also known as “father of fractal geometry” in 1975.

And what does this concept have to do with stock market and traders? Any keen observer of the market would be aware that the patterns seen on the intra-day charts of 1-minute, 5-minute, 10-minute interval and so on are very similar to the patterns seen on the daily, weekly, monthly or even quarterly charts.

In other words, stock price movements also are fractal. It is due to this characteristic that one of the tenets of technical analysis, ‘history repeats itself' was born. Since the patterns tend to repeat themselves along all time-frames, it can be surmised, with a reasonable degree of accuracy, how stock prices will react to a given set of conditions.

Why do stock price moves unfold in fractals? This is because stock market movement is a manifestation of the actions of a number of individual traders/men. Since human thought process also follows fractal, stock market and individual stock price movement also unfolds in similar manner.

R.N. Elliott made fractals the basis of his Elliott Wave Theory in which he said market is unfolding in similar patterns along all time-frames — five waves up and three waves down. Of the five waves that go up, each wave is again broken in to either five or three alternatively and each of these wave are again broken in to – you guessed it, 5s or 3s.

To get a good grip on the Elliott Wave Theory, an analyst needs to start with a 1-minute chart, label the wave counts in that, then work his way up to 30-minute, 60-minute, daily and weekly chart. It is important to fit each little wiggle in to a pattern to make sense of the larger move in E-wave patterns.

Using fractals

Many a novice trader has also queried about which oscillators need to be used for intra-day trading and which are more suitable for swing traders. If it is understood and accepted that market move mimics a fractal, it will be easy to understand that the tools that are used on the daily chart such as trend-lines, moving averages, oscillators and so on can be applied to intra-day charts as well.

The way in which trading system is made with various technical tools, establishing draw-down limits, following a disciplined approach to trading and so on is the same whether a trader trades with five minute or five day intervals. Chart patterns such as head and shoulder, flags, pennants, triangles and so on would occur just as frequently on intra-day charts as on charts of other time-frames.