Cycle Indicator

An Analysis Tool Based on the Phenomenon of Cyclical Movements

A fundamental aspect of trading strategies research is the detection of specific behaviours or patterns within the data stream studied. The purpose of this process is nothing other than trying to estimate, with varying reliability, the possible future movements based on those guidelines. Because financial data follow a temporal structure, time cycle based tools provide information of considerable interest. In this article, we will discuss one of these cases.

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» The Cyclical Movement Phenomenon

The evolution of prices of an asset usually follows a temporal sequence. When we talk about timing, we are not necessarily referring to each of the cycles having a period of similar length, rather we only refer to the fact that there is a relationship between a set of data for a period of time. Once this period of time is finished, the behaviour

of the following data will probably show a different distribution.

Therefore, the key is to locate the beginning phases of each cycle, so you can take advantage of the information obtained from the study of the distributions.

One of the existing methods to locate those phases would be the study of the price ROC (Rate of Change). Next, we will describe this tool and also the way to interpret it.

F1) ROC Indicator in E-mini S&P Future, 2-Minute Chart

The indicator ROC (25) has been applied to the 2-minute chart above, corresponding to the E-mini S&P. In point A the indicator points out the beginning of a bullish cycle extended to point B. The bullish movement continues after this point but the tool cannot forecast price evolution after point B. Later on, we notice that a new cycle has started. The end of this new cycle in point C coincides with the exhaustion of the bullish swing.

Source: Visual Chart

Study of the Rate of Change in Prices

The ROC, as the name suggests, shows the difference between the current price and the price given over a period of time, oscillating around zero depending on the direction taken by the price of the asset.

The interesting thing about this relies on the fact that, when a relevant change in the price movement occurs, the value of the exchange rate soars automatically. From that time, we consider that a new time cycle has started, since most variation between prices reflects consolidated forces favourable to the direction of thrust attack.

Note the speed with which this oscillator operates, since as soon as a bull or bear attack begins, the ROC is altered. This differs from other oscillators such as MACD or TRIX, which suffer from the lagging moving averages on which its calculations are based.

The ROC follows a wave sequence, since the variation between prices stabilises sooner or later and marks the end of the open cycle.

However, the fact that the ROC remains stable does not necessarily mean that the extreme point of the movement has been reached, simply that the change in prices remains constant. This means that once the new cycle is closed, the ROC loses its prediction value.

To illustrate this we use the Visual Chart platform. Within this platform, we can find a tool that computes the function of the exchange rate, specifically the ROC Prices indicator.

In Figure 1, you can see a chart this indicator has been applied to. Here, we see an example of the above: The end of the cycle itself is not the point of exhaustion of the impulse but the location of a point of equilibrium where future events can be expected.

On the basis of a tool to calculate the method we can evaluate the results obtained with the indicator and act accordingly.

As for the calculation process, the period of time that is often used to analyse the variation between prices depends on the type of study you want to do: When working in the short term the period is usually set on twelve bars while when working in the medium term the period used is at 25 bars.

Since it is necessary to establish a specific time period, this can be a problem if the phases of accumulation last longer than expected. When this happens, it is normal that the exchange rate generates smaller cycles due to a lack of directionality. This problem is common with most analysis tools detecting trends.

In order to filter bracketing movements we are going to include the volatility calculation in the study of the ROC.

Application of the Volatility Levels in the Study of Cycles

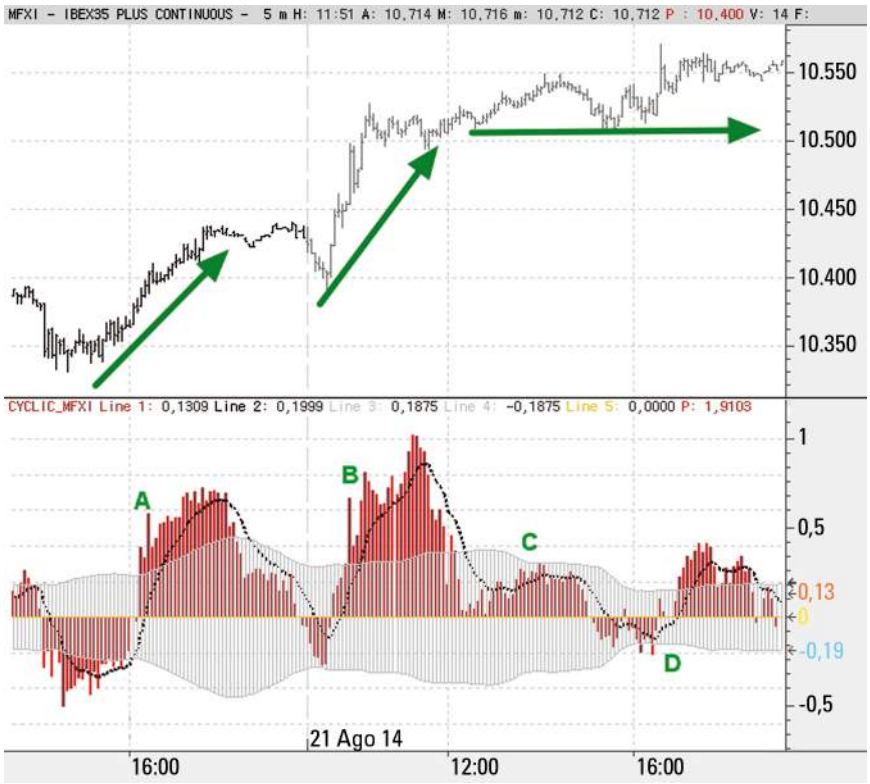
The reliability of the ROC indicator would be higher if it were possible to avoid periods of high uncertainty. How can you guess if the indicator is immersed in one of these movements? Looking at the chart, we consider the evolution of the ROC is sideways if it moves around the same value. Or put another way, if there is little deviation.

Depending on the deviation, the ROC signals can be filtered so that the greater the deviation of the data the greater the probability a new cycles starts; while if the deviation is low then the greater the likelihood of a lateral movement. The next step would be to include a security channel based on the deviation in the indicator.

The channel will oscillate around zero +/- standard deviation. An example of this is found in Figure 2. There we see how the pulse points A and B exit the area marked by the channel, which shows a clear upward cycle start (since the direction of the ROC is positive). However, the cycle defined by point C does not exceed the upper band indicating the absence of inertia. This fact allows filtering the lateral movement started around 12 pm.

The weakest point of this idea surges when the accumulation movements take too much time and therefore influence the calculation of the deviation. When this happens, the channel is reset and decreases in size. The consequence of this fact can be studied in point D, where a channel breakout occurs because it begins to decrease in size while the lateral active area continues. This type of situation seems inevitable as we cannot know how long the accumulation phase is going to last.

F2) ROC with Deviation in IBEX35 Future, 5-Minute Chart



In the 5-minute chart of the IBEX35 Future above, we can see the channel on the zero line +/- the deviation. The swings of the points A and B exit the channel influence zone confirming the movement. In point C, the ROC indicator appoints a new cycle; even though we notice a lack of strength the margin appointed by the deviation is not challenged. The channel allows filtering the lateral zone, even though if this zone is extended over time it finally accepts the deviation as we can see in point D.

Source: Visual Chart

Weight Factor Depending on the Volatility

Since during long phases of congestion error rate is increased (due to the lower volatility), we can put more pressure on the ROC indicator for these areas so that it is most difficult to overcome the bands in such cases. For example, we could apply an adjustment factor in areas of little deviation so that if the ROC exceeds the channel it has to be because there has been remarkable growth of the same.

How could we translate the expression low deviation zone into qualitative terms? We could decide to assign a constant value as a reference point for this zone, even though this decision would be too static and would not enable the indicator to be adapted to the price evolution. Consequently, we will define as low deviation zones the ones where the deviation factor is closer to zero than the average deviation factor.

There is a specific way we will define the deviation study as described in the formulas below. This modification slightly affects the value of the bands as the greater change in these bands happens due to variation in these deviations:

If
StandardDev(ROC) > Average(StandardDev(ROC))
then:
Channel Upper band = 0 + StandardDev(ROC)
Channel Lower band = 0 – StandardDev(ROC)

If
StandardDev(ROC) < Median(StandardDev(ROC))
then:
Channel Upper band = 0 + 2 x StandardDev(ROC)
Channel Lower band = 0 – 2 x StandardDev(ROC)

Figure 3 shows an example of applying the ROC indicator weight factor and also another example without applying the factor. This allows us to compare the two situations. The first thing you will note is the sideways area that starts at point C. With the weight factor, the area is covered by a bigger volatility channel, decreasing the number of failed cycles. However, we also see that, when applying the factor, we delay the correct detection of cycles, as in the case of the upward momentum generated at point B.

The problem observed at point B does not appear in the bearish momentum from point A where the new cycle is detected in similar periods, whether we apply the factor or not. The difference between one case and the other is that the momentum of point A is generated quickly while the one in point B is growing gradually. As a result, there is less deviation of prices, which turns into a larger channel. In this case the swing does not exceed the higher end of the range until it is relatively advanced.

Conclusion

The Rate of Change can be an extremely useful tool thanks to its capacity to determine the life cycle of the swings. Also, as it moves around zero, it provides us with indications on the direction of the movement.

Detecting the life cycles of the swings helps us not only to determine their starting point but also the moment when this swing loses strength or starts losing stability suggesting an interesting price level that can be used as a profit target. However, we have also noticed the problem of detected failure zones, especially in accumulation zones.

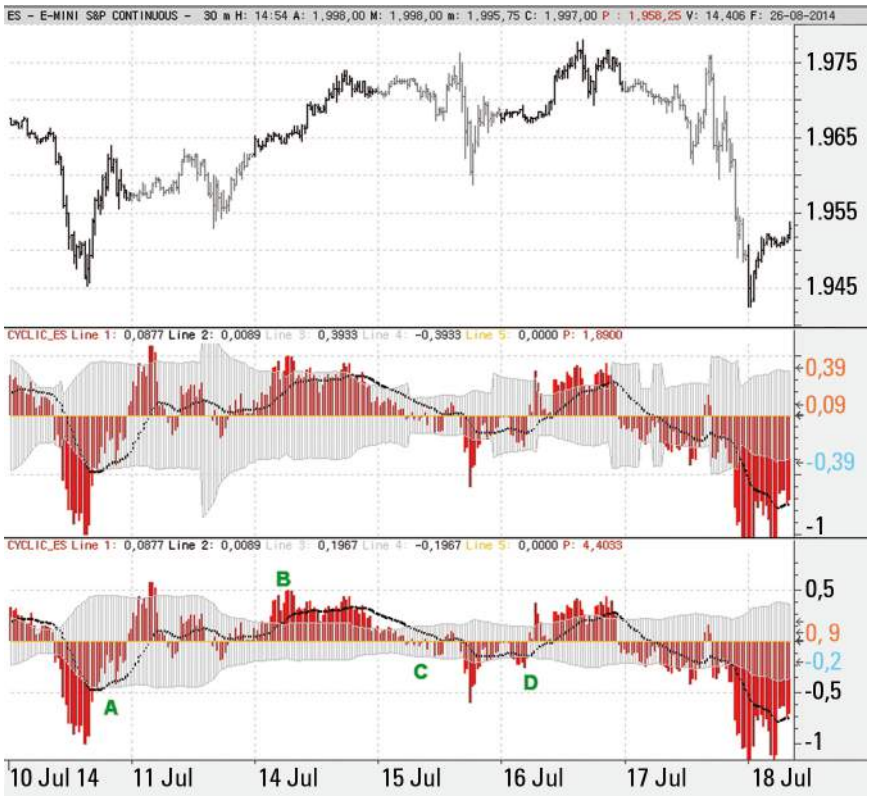
A method of avoiding these zones is the use of the deviation channel described in this article whether a weight factor is applied in the accumulation zones or not.

The programming code for Visual Chart 5 can be found in the info box above. «

Cyclic Indicator for Visual Chart 5

Link to the programming code:
http://www.tradersonline-mag.com/download/e_tra12_basics_cuevas_cyclicindicator.txt

F3) ROC with Weight Factor in E-mini S&P Future, 30-Minute Chart



The ROC indicator has been applied twice in the chart above corresponding to the E-mini S&P 30-minute chart. In the first case (upper), it incorporates a weight factor of 2.0 in the lower deviation zones. This is not the case of the second indicator. In point A, we notice how the new bearish cycle is detected in both cases while the bullish cycle in point B takes longer to be detected when the weight factor is applied. Point C and D indicate that a higher resistance to lateral zones is established when applying a weight factor.

Source: Visual Chart