Technicals - Special Feature

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Assessing technicals-based trading systems - more than mere optimisation!

Last week, the TSF, also known as the 'Time-Series Forecast' indicator, was presented under this heading. This indicator - as indeed most other technical indicators - can be used for the quick and easy generation of trading systems that sometimes produce amazingly good results in back-testing procedures. One frequently hears about technical trading systems that in the past *would have* generated incredibly high returns.

And it is this *would have* that makes an objective assessment of trading systems so important, as, with today's powerful computers, it is not too difficult to just keep optimising trading systems until breathtaking gains are achieved on paper.

Paper gains, however, do not pay bills. To make money, one has got to actually trade with a system. Using a system in practice, however, makes sense only if the mechanism underlying the trading decisions can be trusted to a certain extent.

To build such trust it is important to test the stability of trading systems objectively. In doing so, the amount finally appearing on the screen at the end of the test period is not even that important. As was said above: optimisation will help any system, even the worst, to achieve a positive P/L performance.

Of much greater significance is the distribution of profits during the test period:

- Was the aggregate profit generated by just a few trades?
- Were there long periods without any profits?
- Were there phases not showing any trend during the test period?
- How did the system perform during such a phase?

For an objective assessment of trading systems, the following key data are of particular interest:

- Percentage share of profitable trades (varies depending on the technical approach; many good systems generate only 40% profitable trades!)
- Ratio of average gain on profitable trades to average loss on loss-making trades (should in any case be above 2; the higher, the better)
- Largest profit and largest loss (is the overall return still positive if the largest gain is ignored?)
- Average duration of profit-making and loss-making trades (does the system quickly identify loss-making trades and stop them?)
- Sharpe Ratio (by definition: (average profit - riskless profit) / standard deviation of profits; the higher, the better!)

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Another interesting tool is a histogram of returns: where is the mean value, where the median? Is the distribution skewed, what is the curtosis? How many trades are located at (and, most importantly, in which) extreme ends of the histogram?

For a quick and easy check of a system's stability it is recommended to plot the cumulative returns of the system in a simple line chart. This so-called equity line illustrates graphically how the system performed during the test period. With a stable system, the equity line runs from bottom left to top right. A system that produces too many "outliers" and abrupt changes in value is very volatile with regard to returns and therefore cannot be regarded as robust.

Another point that must never be underestimated is human weakness. Since the systems tested are not mechanisms that translate the signals generated automatically into real orders, the human factor must be added as an extra element of uncertainty. Plus a number of other influences:

The computer may crash just before the critical profit-making signal comes in or the person responsible is out for lunch at this moment. Perhaps the person does not trust the system completely and filters out individual signals based on his or her own view of the market (thus falsifying system results).

In the next Weekly, we are going to test the - very simple - TSF system presented last week, using the criteria explained above.