Visual Trading System

Development II

The first part of this series (TRADERS´, October issue, p. 38) showed how two moving averages could be used to make a simple trend-following indicator. Visual testing was then used to determine if the system worked well in various markets. Historical testing also showed positive results for the tested markets. This second article shows how to couple the trend indicator with a trading system. In practice, it does not make much sense to open a position at the beginning of every day and close it when the market trades its last price. With the help of appropriate entries and exits, it will utilise the indicated trends as much as possible. Tight initial stops placed when a position is open will help minimise the possible risk of loss.

Entry

If the trend indicator shows the market embarking on a trend then it is time to take a long position. The goal for a good entry should be a good price and the avoidance of failure signals. In reality however, these two goals are contradictory. Since this indicator's signals are generated at the end of the day, entering the market immediately presents advantages and disadvantages. The advantage is that if the market begins the next day with an explosive up move you are already positioned. The disadvantage is that you are exposed to overnight risk and the market could open with a downside gap. You should only enter immediately if you are very confident about the trend indicator.

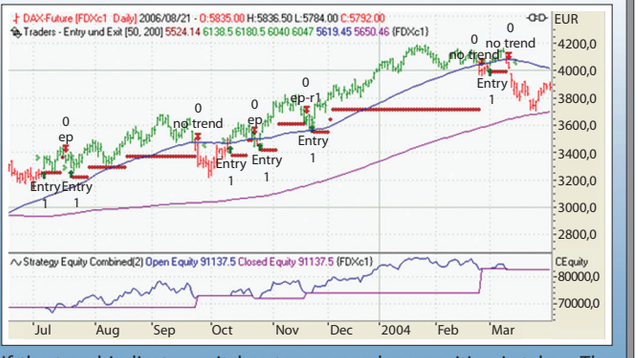
A second possible entry approach would be to wait for the market to confirm the signal before entering. This can be done by placing a buy stop for the next day once an entry signal has been received. The buy stop should be placed at today's high, i.e. the day the signal was generated. Thus, a long signal is entered the following day only when the market moves above today's high. This can be seen as a confirmation of the entry signal. The disadvantage here is that you must pay up for entering the trade, namely the difference between that of the close and the high of the signal day, which can lead to much higher losses if the market takes out the high, but fails to continue the trend entering into a sideways phase.

A third option is to use a limit order on the following day to make your entry. You could, for instance, use today's pivot price as a limit price for the entry. The pivot is calculated as follows: (High + Low + Close) / 3. This saves you the overnight risk of entering on the first day and means getting a better price then entering at the close. It also utilises down gaps advantageously, even if sometimes you miss the entry when the market moves up without hitting your limit order. This technique also prevents mounting losses if the indicator generates several failure signals in a row.

Unfortunately, no single one of these strategies performs significantly better than the others. This can be taken as a warning because when deciding on an entry method, it is easy to lean too heavily on historical prices inviting the danger of over-optimising the system. Pragmatists can solve the entry problem by using all three techniques simultaneously. This entails dividing the total position size into three parts and using them for each of the above entry techniques.

If you use simple indicators, which use closing prices only as in

F 1) Trend Recognition Indicator and Trading the DAX Future



If the trend indicator switches to green, a long position is taken. The position is secured with an initial stop. If the market increases, the stop is raised to the entry price, and then to the profit zone. If the trend indicator switches to red or the stop is hit, the position is closed.

F2)System Code of the Trend-Following Model

```
1  Inputs: len1(50), len2(200);
2  Variables: sma1, sma2,stopvalue,trend,mp,avtr,bse,raise;
3
4  trend=0;
5  mp=marketposition;
6  avtr=avgtruerange(14);
7  bse=barssinceentry;
8
9  // Calculation of moving averages
10 sma1=average(close,len1);
11 sma2=average(close,len2);
12
13 // Trend Detection and visualization
14 if sma1>=sma2 and
15     sma1>sma1[3] and
16     sma2>sma2[3] and
17     close>sma1 then
18     begin
19         trend=1;
20         if mp=0 and mp[1]=0 then // Entry
21             //buy ("Entry") this bar on close;
22             //buy ("Entry") next bar at high stop;
23             buy ("Entry") next bar at (h+l+c)/3 limit;
24     end;
25
26 // Initial Stop
27 setstoploss(lotsize*1.5*avtr[bse]);
28 sell ("Stopp 1") next bar at
29         low[bse]-avtr[bse] stop;
30
31 // Entryprice Stopp
32 If mp=1 and mp[1]=1 and low crosses above (entryprice+2*avtr[bse]) then raise=1;
33 if mp=0 and mp[1]=1 then raise=0;
34 if raise=1 then sell ("ep-r1") next bar at entryprice+avtr[bse] stop;
35 if raise=0 and bse>5 then sell ("ep") next bar at entryprice stop;
36
37  // Profit Trailing if no trend detected
38 if trend=0 then sell ("no trend Exit")next bar at
39     maxlist(highest(high,bse)-avtr[bse],entryprice) stop;
40
41 // Visualization of active orders, trend and moving averages
42 drawsymbol(getactiveorderprice(1));
43 if trend=1 then drawbar(open,high,low,close);
44 drawline(sma1,"sma1");
45 drawline(sma2,"sma2");
```

An example of a simple trend-following system. Firstly, the indicators are calculated (lines 12-13), then lines 14-19 check if a trend is present. If there is no position yet, a position is attempted on the following day (lines 20-23). Finally, the position is secured with stops as described. The graphic display in lines 42-45 make actual trading easier.

our example, you can alter them to use the opening price instead. This hardly changes signal generation, but there is the advantage of receiving a valid entry signal right when the market opens. This allows using tight stops on an intra-day basis.

Stop Loss Placement

Of course, after entering a position you are still a long way from earning any money. The trend indicator and a "cheap" entry are good prerequisites, but the market is not always of the same opinion as the indicator. Your attention at this early stage of the trade should therefore be focused on not losing money. Thus, you should place a stop loss at the time of entry in order to avoid larger losses if your position should move against you.

Market volatility can be used to calculate the distance the stop should be placed from entry. A good measure of volatility is the Average True Range indicator found in most charting programmes. (If the ATR is not available in your programme, use the average of the high-low range of the last few days before the entry signal.)

Insert the indicator into the chart and subtract the indicator value (if going long) from the low of the entry day. Place your sell stop order at this level. (Since you do not yet know the low for the day of entry, place the initial stop at a distance of 1.5 times the current ATR from the entry price). At this point it is not advisable to place stops on important chart levels such as the last significant low. This only makes sense if your entry is also based on important chart levels. The previous article focused on the use of indicators alone. If after following the trend indicator a chart level ends up being a good point for a stop loss order, it is usually just coincidence. The ATR on the other hand shows the average market movement. Any movement below the average true range is considered market noise without any forecasting significance. Any movement beyond the average true range is considered significant. Using the ATR to calculate initial stops will ensure that your stop will be hit if the market makes a significant move against your position. If you set the stop closer than the ATR then you are more likely to be stopped out by a random market movement.

A further advantage of this approach is that your stop will automatically adapt to the chosen market and its current volatility. If the market becomes more volatile, the stop stays a reasonable distance away from price action. If, however, there is a sideways low-volatility phase the stop is placed closer to the entry price.

Similar to the trend recognition indicator, the initial stop method should deliver positive results in many different markets without adjustment. Do not optimise the stop distance. This parameter can very quickly lead to a system over-optimisation.

Exit

The stop loss secures against heavy losses after entry, however the factor of time presents another risk. If the market hardly moves up or down after the entry, and neither large gains nor losses incur, your capital is, nevertheless, exposed to market risk. For this reason, after a period of one week in which the initial stop has remained the same, a breakeven stop is placed at the entry price. This also means that the position is closed after a week if it is not above the entry price. This is done whether or not the trend indicator remains bullish. If the indicator continues to show an upward trend then a new position is opened on the following day with a new limit order and a new initial stop.

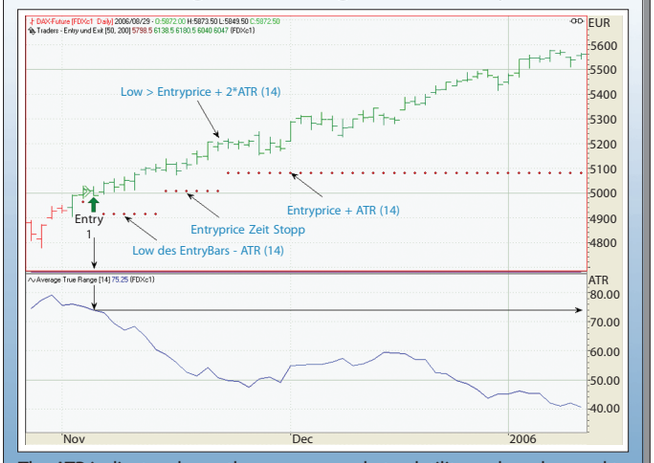
Until now, the orders we have used have not captured any profits. They simply serve to keep position risk as low as possible. The initial stop loss is placed according to the market's volatility, and is raised to break even after a period of one week. Thus, unsuccessful positions are closed and positions with potential are given more time to utilise the trend. The risk of loss is minimised by the stop being pulled up to the entry point.

A stop to secure profits is placed only after the market has increased significantly. The rule is as follows: wait until after the market's daily low is at least two ATRs above the entry price, then raise the stop to one ATR above the entry price. The stop remains at this level until the trade is finally closed. Now the position is home and dry. You can lean back and hope the trend continues.

If, however, the trend indicator turns negative, the position is closed one ATR from the highest high of the move so far. If it turns out to be only a short pause in the upward trend, then the market is given just enough room to recover and resume its assent. This also helps prevent seesaw entries and exits even if the market goes into a sideways phase and prevents giving back too many earned profits.

With a new entry, the system's initial risk is again one ATR. After one week, the position is closed or stopped out at breakeven. A profit stop is only placed after the market begins to move significantly in the desired direction.

F3) The Average True Range as Volatility Measure



The ATR indicator shows the average market volatility and can be used to calculate stop placement. Here it shows that a move of more than 85 points in the DAX Future would be considered significant. This value can fluctuate from between 50 and more than 150 points in this market. The initial stop is placed one ATR under the low of the entry day. The stop is pulled up if the trend continues, firstly to the entry price, and finally in the profit zone. In the process, the value of the ATR on the entry day is always used.

Summary

The trend indicator and the entry and exit combination represent only a small insight into the world of the mechanical trading systems development. They can help you find interesting market phases for your own trading and help secure positions with the above discussed stop technique. As shown by this system's historical tests, you will have a clear advantage in the market. Fine-tuning the entry and exit techniques can only lead to an improvement of your own performance. If you are interested in pursuing the subject further, the first step is to improve the trend indicator. A combination of the two moving averages with an oscillating indicator such as the stochastic indicator or the Relative Strength Index (RSI) can be helpful in pinpointing local weak points in the market for better entry. Allow the moving averages to recognise the trend and the oscillator to trigger the actual entry signal.

Further work could also be done on improving exits. Trend recognition combined with other indicators would also be appropriate here. The Parabolic SAR indicator is a great tool for trailing stops and thus makes a good exit indicator.

A trading system serves as a starting point for successful trading. However, position size is also very important. Does it always make sense to use the same position size? Should positions in various markets be of different size, and which markets are appropriate for building a mechanical system basket? The next part of this series will deal with the question of how much, and will also show you how to attain stable results year after year with the appropriate combination of different markets and trading systems.

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