FOREIGN EXCHANGE NEWS, ANALYSIS AND EDUCATION FOR CURRENCY TRADERS

FX TRADER MAGAZINE

ICHIMOKU CLOUDS

2393
Where will S&P 500 be?

WORKING IN MULTI TIMEFRAME

Trading Systems IDENTIFY AN EDGE

OPTIONS

John Bollinger
EXCLUSIVE INTERVIEW

HIS TRADING TECHNIQUES ON THE FOREX
HOW SHOULD A SUCCESSFUL TRADER WORK

OCTOBER - DECEMBER 2009

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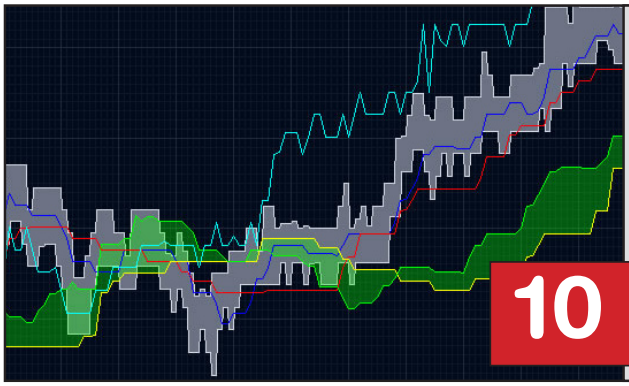

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Building Robust FX Trading Systems
Identifying an Edge

'To succeed as a trader, it is absolutely necessary to have an edge. You can't win without an edge... incidentally, if you don't know what your edge is, you don't have one.'
Jack Schwager

In the previous two articles in the series, we discussed the need to identify a robust edge and that it must be easily explained, with a sound rationale and that it needn't be a significant edge, to produce incredibly significant and consistent returns. Just as a casino's edge is very small, when exploited many, many times, the net result is incredibly profitable.

We then discussed the need to have good, clean historic data, with which to test ideas, as inaccurate data with gaps or spikes, could easily lead to misleading or wrong results.

In this article we build on those foundations and explore the development of some ideas, from conception, through to creating trading rules, testing them and determining whether they give us a robust edge.

SUBJECTIVE ANALYSIS AND HIGH SUCCESS RATE TECHNIQUES

When I first became a trader, it never ceased to amaze me how subjective the vast majority of analysis was. The number of ideas that are in common use, many of which can be proven to be flawed, or cannot be objectively tested, upon which millions is risked daily, is nothing short of astounding.

Read almost any technical analysis on the market, easily accessible via a quick search of the web and one will find countless examples such as, 'the oscillator is overbought and therefore the market is a good sell here', or 'the market has breached the 10 day or 200 day moving average', or 'the price is at an extreme level, testing the lower Bollinger Band'.

The reason that most of these views continue to be followed is summed up beautifully by the legendary William Eckhardt, of the famous Turtle Trading Experiment,

'Since most small to moderate profits tend to vanish, the market teaches you to cash them in before they get away. Since the market spends more time in consolidations than in trends, it teaches you to buy dips and sell rallies. Since the market trades through the same prices again and again and seems, if only you wait long enough to return to prices it has visited before, it teaches you to hold on to bad trades. The market likes to lull you into false security of high success rate techniques, which often lose disastrously in the long run. The general idea is that what works most of the time is nearly the opposite of what works in the long run.'

The amount of books which also teach these 'high success rate techniques, which often lose disastrously in the long run' is equally astounding. Let us take one of literally countless possible examples from one of the better known trading strategy platforms of a Bollinger Band strategy:

Bollinger Bands LE (Strategy)

Input information

Name	Type	Default	Description
BollingerPrice	Numeric	Close	A bar price or other value used to calculate the venter-line average.
TestPriceLBand	Numeric	Close	Triggers placement of stop order at LowerBand when this price crosses over LowerBand.
Lenght	Numeric	10	Number of bars used to calculate the Bollinger band.
NumDevsUp	Numeric	2	Number of Standart Deviations for the Bollinger Band Calculation (enter a positive number; the strategy will calculate the lower band).

Usage

Long entry based on the low price crossing above the Bollinger Band.

Description

Bollinger Bands are generally placed two standart deviations above and below the market. Prices within the standart deviation are said to be ’normal' prices. Whenever the price moves below the lower band, the strategy generates a buy stop order for the next bar when the low price of the current bar has crossed back above the lower band. The stop value is the level of the lower Bollinger band.

You can change the number of bars and standart deviation used to calculate the Bollinger band.

'Whenever the price moves below the lower band, this strategy generates a buy stop order for the next bar when the low price of the current bar has crossed back above the lower band.'

This is a good example of a 'high success rate technique', which can often, 'lose disastrously in the long run'. If we applied both the long, and equivalent short, rule to AUDJPY over the last 10 years, we can see that it was indeed a 'high success rate technique', which then lost disastrously from June '08-June '09, as shown by the chart below and the equity curve in the sub graph.

However, most people trading such a technique may well believe that they were just 'unlucky', rather than appreciating the statistical certainty that it was only a matter of when, and not if, the strategy would 'lose disastrously in the long run'.

Another one of the mistakes that one sees time and time again in testing strategies is optimising the markets and parameters used. While back testing, one will find many markets where a given strategy has performed well and it's therefore a trivial exercise to construct a successful back tested simulation, of various markets and strategies that have performed well in the past.

Victor Sperandeo underlines the same point in his book, 'Trader Vic on Commodities',

'Any system or method based on optimization will fail in the long run. This is because markets change and evolve, they do not remain constant. So if you structure a system based solely on the past, it cannot survive the future.'

As highlighted in the previous articles, any trading rule will have periods and markets where it is profitable, even buying on a full moon and selling on the following full moon, will doubtless work in some markets, over some time periods. Suffice to say, that does not make it a robust strategy.

There are countless other subjective strategies which have huge followings and again are usually high success rate techniques, which therefore appear to be profitable but are possibly flawed in the long run. Many of these enjoy the benefit that they can never be disproved, lacking objective rules with which to test the theories, such as the infamous Elliot Wave or Tom DeMark studies. Though many have tried to write rules for them, I have yet to see a successful and robust translation into an objective and profitable trading strategy, though I would be delighted to do so.

ROBUST STRATEGIES

So, what do we mean by a 'robust' strategy? The foundations for a robust strategy are in having an edge and knowing what that edge is, put very well by Jack Schwager of 'Market Wizards' fame.

'To succeed as a trader, it is absolutely necessary to have an edge. You can't win without an edge, even with the world's greatest discipline and money management skills. If you don't have an edge, all that money management and discipline will do for you is to guarantee that you will gradually bleed to death. Incidentally, if you don't know what your edge is, you don't have one.'

An edge starts with a sound idea and then knowing you have an edge can only come from rigorous testing (as opposed to optimisation) of that idea, so let us start with the idea that, 'in the longer term, markets trend' and as long as markets are driven by people, fear and greed will always play a strong role and markets will therefore continue to trend.

We then need to test that idea and therefore need to develop some trading rules. This could be using a one, two or even three moving average cross over system, a channel break out, where the market makes a new 'n day' high or low, or even breaking outside of a Bollinger Band – the opposite to the strategy shown above.

The Channel Break Out system is one that has gained a great deal of press over the years, largely thanks to it being the basis for the famous Turtle Experiment by William Eckhardt and Richard Dennis. It has certainly stood the test of time and there are vast quantities of research on the system, as well as software programs, designed specifically to develop such a system, such as TradingBlox™, though it can be done in almost any software package, or even Excel.

So why has the Channel Break Out (CBO) system stood the test of time and resulted in so many successful systematic funds, when other trend following systems, such as a Moving Average crossover system, have not?

Let's analyze the results side by side. I started by taking 20 years of FX data for AUD, CAD, CHF, EUR, GBP, JPY against the US Dollar and then constructing all 21 possible crosses of those; AUDJPY, EURGBP, EURCHF etc., as described in the previous article. I also did this for intraday data, which was a considerably more demanding exercise, but am using daily data for the purposes of this analysis.

I broke the data down into two periods, 1993-2003 and 2003-2009, simply because 2003 was a convenient overlap between various data sets.

Let's start by defining the two systems:

CHANNEL BREAK OUT SYSTEM (CBO)

Buying or Selling on a new 'x' day high, or low, and closing the position out on a new 'y' day low or high. For example, if the market made a new 80 day high, we'd enter a long positions and if it then made a new 30 day low we'd exit that position, and vice versa for a short trade, as per the example below.

TWO MOVING AVERAGE CROSS-OVER SYSTEM (MAX)

We plot two moving averages on a chart, as per the example and buy when the shorter (fast) moving average crosses above the longer (slower) moving average:

Of course we could also trade the inverse of those two systems, selling, instead of buying on a new high, or selling when the shorter moving average crossed above the longer moving average, treating them as counter trending systems, so those tests were run as well.

We ran them in Tradestation 2000i, as that's a product many will be familiar with and into which one can easily import ASCII data files, but we could have run it in many other software packages such as Excel, Mathcad or Mathematica etc.

An exhaustive test of every CBO system and MAX system was run on each of the 21 currency pairs, over the 20 years of data, for every combination of values between 5 and 200, in increments of 5 i.e. 40x40 = 1,600 tests.

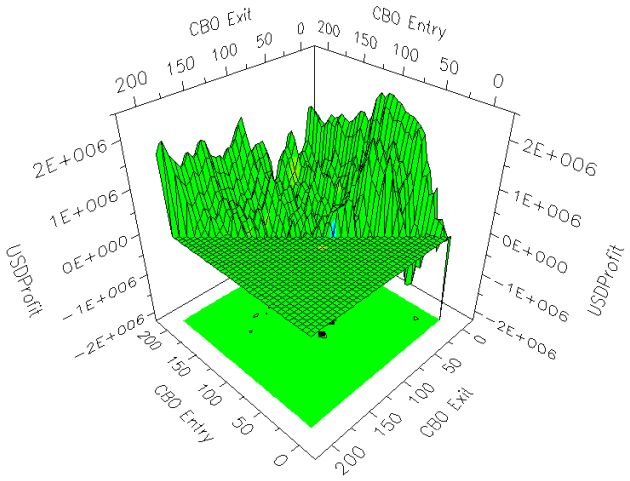
We have approximately 20yrs x 252 trading days x 21 currency pairs of daily data = 105,840 days of data. Multiply each day by the 1,600 tests, gives us more than 169 million potential trades, which is statistically a fairly significant sample.

Incidentally, this is another major mistake often made, which one see in forums all of the time; people having claimed to have found the holy grail because they found a system which performed well over the last three months on a certain instrument. This is clearly of no statistical significance and therefore such a small sample will often be extremely misleading.

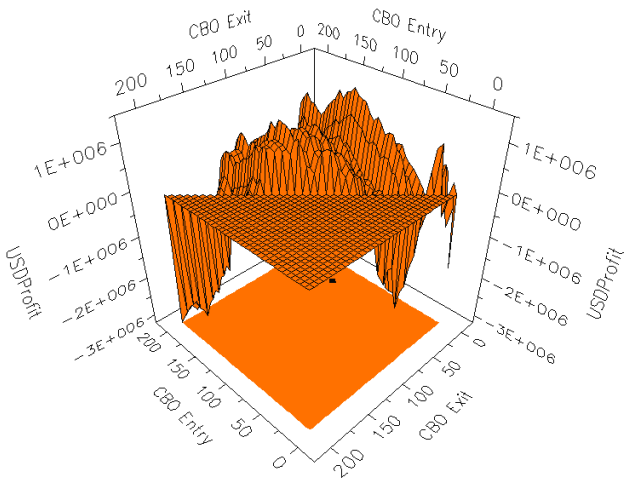
ANALYSING THE RESULTS

After taking all of the results for each currency pair and converting them into US Dollars (as USDJPY produces results in JPY, USDCHF produces results in CHF etc.) we can create a 3D chart to analyze the results (using Rina Financial's '3D Smart View').

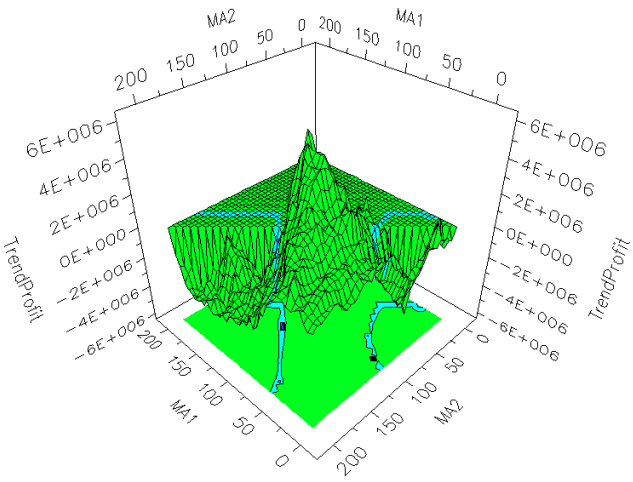
The results of the two tests are below:



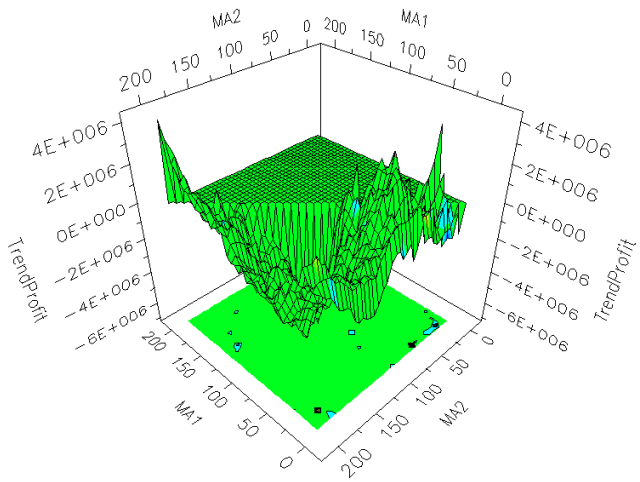
Channel Break Out 1993-2003



Channel Break Out 2003-2009



Moving Average Cross Over 1993-2003



Moving Average Crossover 2003-2009

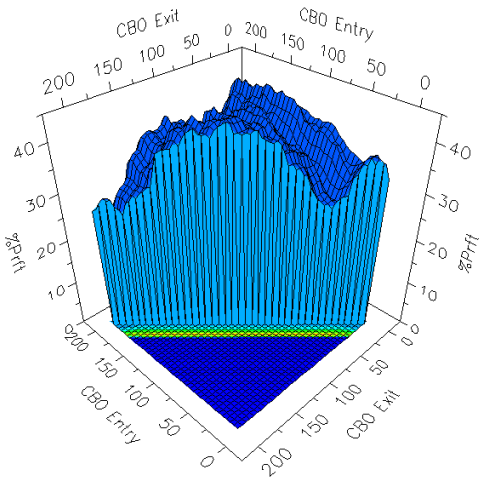
For ease of viewing only the trending half of the results are shown and what is striking is that most CBO parameters are profitable, whereas the MAX system has a distinct peak, surrounded by many losing parameters.

If the results were always stable, around that same peak, then perhaps we'd have a robust MAX system too, so now let's look at how the two systems performed from 2003-2009:

Again we see the CBO system having the majority of parameters being profitable but this time the profitable parameters for the MAX system have completely shifted to the right and the best parameters, which looked robust for the test from 1993-2003 became losing parameters in the following years.

If we look closer at the CBO system, we also see that the greater the 'CBO Entry' value, the more profitable the results. Going back to our initial premise, that for any system to be truly robust, it must be easily explained and have a sound rationale, this intuitively makes sense. The fact that a market has made a new 100 day high, is much more significant than if it's made a new 10 day high and this is born out by the result.

Also we can see that in both CBO tests that a shorter Exit signal is more robust and profitable in almost all cases, with a distinct high in the 0 to 30 day region. Again this is intuitively correct, as it allows profits to run, but cuts losses:



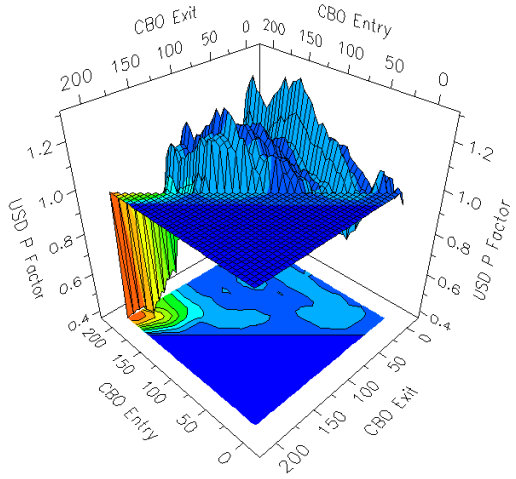
If the market made a new 100 Day high and we entered a long position, with an exit at a new 15 day low, it's going to exit the trade relatively quickly if it went against us, but it will have the ability to re-enter the long position, should the market then continue to rally and make a new high.

So let's now look at the CBO results a little closer. William Eckhardt in his interview in Jack Schwager's 'Market Wizards' told us:
'The general idea is that what works most of the time is nearly the opposite of what works in the long run.'

Above is a 3D plot of the percentage of trades that were profitable with the CBO system, using the 2003-2009 results for illustrative purposes.

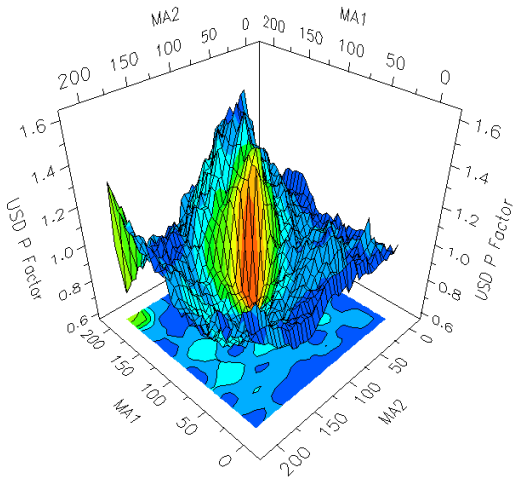
Here we can see that the majority of trades are losing trades – in fact, at best, only 30-40% of the trades are profitable and this is again similar for the previous 10 years of data.

We can also look at the 'Profit Factor', which we touched on in the first article of the series. The Profit Factor is the Gross Profits of all winning trades divided by the Gross Losses of all the losing trades. For example, if all the winning trades made $1.1mio and all of the losing trades lost $1mio, we would have a Profit Factor (PF) of 1.1/1 = 1.1
Again using the 2003-2009 results, we can see that although the

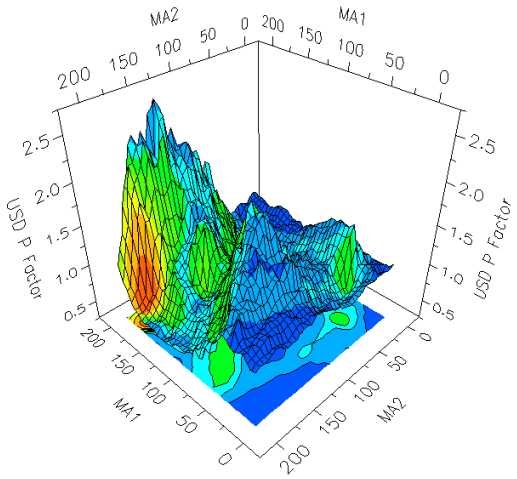


system produces robust results, the edge is 'only' in the range 1.1 to 1.2, at best. If we recall the casino comparison though, a casino's edge, when a player bets on red, for a roulette wheel with two zeros, is 20/18 = 1.1111 (where the casino wins on any black (18 slots), plus the zeros (2 slots).

By contrast, if we look at the MAX System for the two periods, we see much 'better' results in terms of both profitability and Profit Factor, with the Profit Factor exceeding 2.5 for some results in the 2003-2009 test.



MAX System 1993-2003



MAX System 2003-2009

However, remember that had we have chosen what looked to be the most robust results and started trading in 2003, those same parameters would have actually lost money in the following years. As Victor Sperandeo observed above,

'Any system or method based on optimization will fail in the long run. This is because markets change and evolve, they do not remain constant. So if you structure a system based solely on the past, it cannot survive the future.'

CONCLUSION

Intuitively, the results of this analysis are logical and rational, as there is very little importance, psychologically, or otherwise, that two arbitrary moving averages have crossed, no matter how good the results may look for a given currency pair, over a given time period. This is true of an infinite number of systems, as almost any system can be show to profitable over a given time period on certain markets.

This fuels the belief that systematic trading doesn't work consistently and that systems work for short periods and then stop working. That is absolutely true in the vast majority of cases, but there are clearly a number of ideas, as we have seen, which are robust, as Jim Simons (Renaissance Technologies), Monroe Trout and Toby Crabel would all certainly agree with and to which their returns stand as irrefutable testament.

When testing the CBO strategy, we have confirmed our initial theory that, 'in the longer term, markets trend'. For a robust application of that idea one would not try to pick the 'best' results from the simulations, but simply to apply some robust rules and sound money management principles.

That the market has made a new high or low and particularly a new long term high or low is important, and will likely always remain important, both psychologically and in terms of being the very definition of a trend, that the market is making higher highs.

Therefore, next time you hear someone talk about how important it is that a market has crossed a certain moving average, that the Elliott Wave is about to make an 'abc' correction, or a Tom DeMark reversal has been made, ask whether they've done the maths, and if they haven't, or have only done so with small samples, on specific markets, with limited time frames, or have optimised the results, then probably best to just smile politely, say many thanks and ask whether the market has also made a significant new high or low.

Caspar Marney