

Equity curve analysis: A fool's path?

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After covering the basics of how to conduct equity curve trading last month, we explore whether equity curve trading and analysis helps or hinders real world trading strategies.

Equity curve trading is simply a methodology where a trading strategy is turned on and off based on the gyrations of the equity curve. While there are many different approaches to employing equity curve trading, the idea is straightforward: trade strategies when they are making money, and temporarily turn them off when they are losing money. If only it were so easy.

Equity curve analysis System feedback

With many of the basics of equity curve trading covered in the first installment, this article will look at two different methods of equity curve trading, applied to three different real life trading strategies. Reviewing the results may allow some generalizations and conclusions about equity curve trading to be made.

Strategies scrutinized

Three unique, real world trading strategies will be examined with and without equity curve trading approaches. The systems are the following:

GC: Gold, swing strategy based on daily bars trading during "pit" hours

ES: E-Mini S&P 500, intraday strategy based on one-minute bars

JY: Japanese yen, swing strategy based on 360-minute bars

For each strategy, the most recent 450 trades will be studied, all of which trade only one contract per trade. This represents three to nine years of trades, depending on the strategy. All trades are either from live trading, or from out-of-sample walk-forward backtesting. No in-sample results are shown.

The closed trade equity curves for each



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of the strategies are shown in "Trading it straight" (right).

Evaluation process

Two different methods of equity curve trading will be examined in this study. The first method is to use a moving average of the equity curve as the criteria for turning on and off the strategy. When the "always on" equity is above the moving average line, the strategy will trade as normal. But, when the "always on" equity curve drops below the moving average, the strategy will be temporarily turned off, until the equity curve again crosses above the moving average.

Different length moving averages will be examined. We will use 10-, 25- and 40-period moving averages.

The second method of equity curve trading will be using a new equity curve low as the cutoff criteria. In the same manner as the moving average approach, the strategy will be turned off when a new X trade low in the equity curve is reached, and turned on when the equity curve is above this value.

To keep consistency between the two

approaches, the 10-, 25- and 40-period lows of the equity curve will be used.

These two filtering approaches are common in equity curve trading, but are by no means the only methods. Practically any indicator can be applied to an equity curve, in the same way these indicators can be applied to actual price data. This, of course, opens up a whole Pandora's Box of possible approaches, with an infinite number of possibilities when indicator parameters are taken into consideration. Such a situation inevitably leads to over optimization and curve fitting, as the trader attempts to "tune" an equity curve trading approach to his particular equity curve.

Results

Results for the gold (GC) strategy are shown in "Gold: Equity analysis" (below). As mentioned in the first installment, although net profit and maximum drawdown are important numbers, the ratio of the two (net profit/maximum drawdown) is of primary concern. A higher ratio is better because it tells us that we are receiving more profit for each dollar of drawdown.

As can be seen in the table, equity curve trading for the gold strategy is almost always worse when compared to the "always on" approach. An example of the different equity curves for the moving average technique is shown in "Feedback effect" (page 28). In this case, it is clear that the equity curve trading approach is harmful. While steep drawdowns are stopped many times by the equity curve trading, significant upside trades also are missed, with the net effect being poorer overall performance.

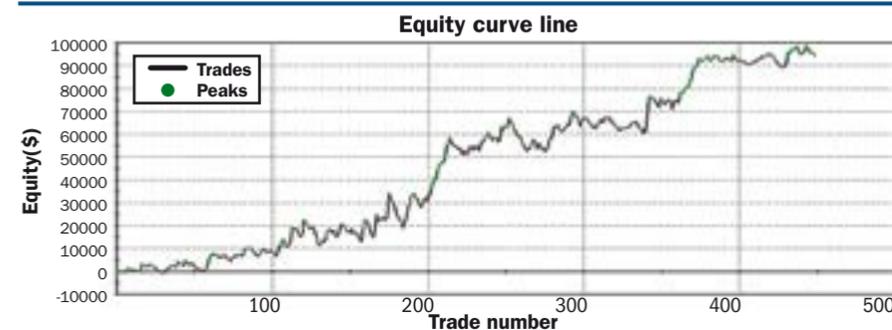
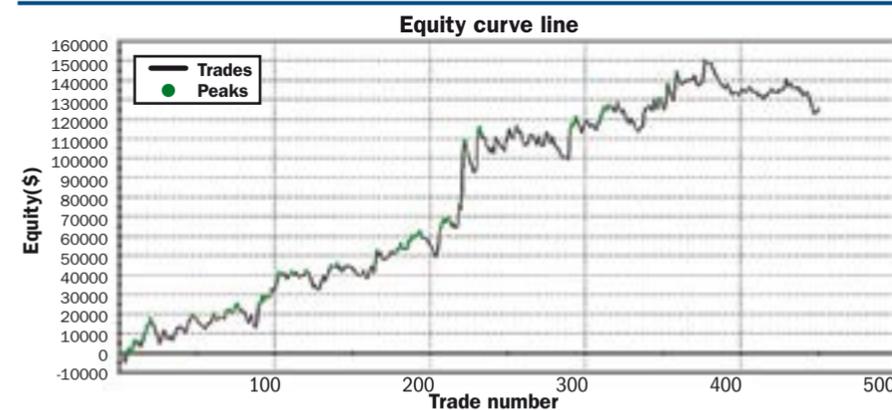
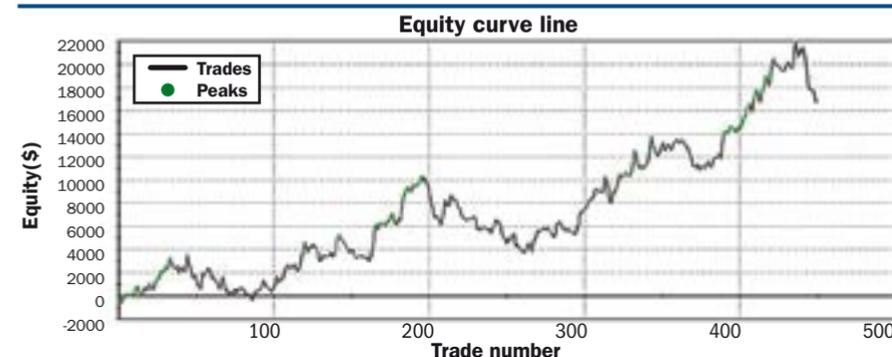
Results for the E-mini S&P 500 strategy are shown in "E-mini S&P 500: Equity analysis" (page 28).

Equity curve trading for the E-mini S&P 500 strategy is better for the moving average approach, but worse for the new low approach. Also, the degree of improvement is highly dependent on the choice for the look back period. There is no "one size fits all" approach for this particular strategy.

Results for the Japanese yen strategy are shown in "Japanese yen: Equity analysis" (page 28).

TRADING IT STRAIGHT

The equity curves below represent live or walk-forward results in three typical trading strategies. No equity curve filtering was applied to the results.



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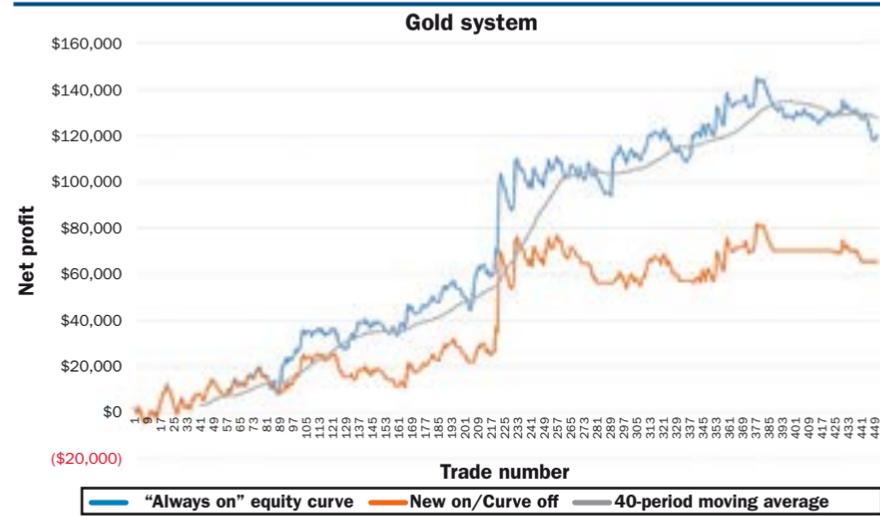
GOLD: EQUITY ANALYSIS

Only one of our moving average-based equity filters performed better than the basis, non-filtered system.

Gold strategy	Net Profit / Maximum drawdown	Equity curve trading better/Worse than baseline?
Baseline - "Always on"	4.5	--
10 period moving average	0.5	Worse
25 period moving average	2.6	Worse
40 period moving average	2.9	Worse
10 period new low	5.0	Better
25 period new low	4.4	Worse
40 period new low	4.2	Worse

FEEDBACK EFFECT

With the system turned off at various times based on equity curve analysis, our gold strategy misses out on some profitable trades.



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E-MINI S&P 500: EQUITY ANALYSIS

Equity curve analysis fared better with the E-Mini S&P 500 strategy.

Gold strategy	Net Profit / Maximum drawdown	Equity curve trading better/Worse than baseline?
Baseline - "Always on"	1.9	--
10 period moving average	2.3	Better
25 period moving average	3.1	Better
40 period moving average	2.0	Better
10 period new low	1.9	Same
25 period new low	1.1	Worse
40 period new low	1.4	Worse

JAPANESE YEN: EQUITY ANALYSIS

Equity curve analysis proved fruitless in the Japanese yen strategy, with no tested method improving on the base approach.

Gold strategy	Net Profit / Maximum drawdown	Equity curve trading better/Worse than baseline?
Baseline - "Always On"	6.4	--
10 period moving average	3.3	Worse
25 period moving average	5.4	Worse
40 period moving average	3.4	Worse
10 period new low	6.1	Worse
25 period new low	5.7	Worse
40 period new low	6.2	Worse

As shown above, equity curve trading for the yen strategy is always worse than just letting the strategy trade con-

tinuously, sometimes significantly worse. Also, the new low technique is better than the moving average technique. Both

methods underperform the "always on" case, sometimes by quite a large margin.

Base is better

For these three real life strategies, the equity curve trading approaches do not improve performance, except in a limited number of cases. This highlights three important issues with equity curve trading.

First, the results depend on the strategy being traded. Not every strategy will act the same for each method of equity curve trading. This can be seen in the contrast between the E-Mini S&P 500 strategy, where equity curve trading can improve performance, and the Japanese yen strategy, where equity curve trading never improves performance.

Second, the choice of equity curve technique is also critical. It may be that one particular approach improves the performance, but a different approach harms performance. This is evident in the E-Mini S&P 500 strategy, where only the moving average approach improves the strategy.

Finally, even within one approach, the choice of parameter (look back period in this case) for the equity curve trading has a large, but not consistent, impact. This is clearly evident in the gold strategy, where a wide range of profit to drawdown ratios are possible, simply by changing the look back period.

Equity curve trading definitely has its proponents in the industry, some of them quite vocal. But, the overall efficacy of the approach is certainly not crystal clear. In fact, what is clear is that it is relatively easy to take a good strategy, and significantly degrade its performance by employing equity curve trading. While the overall objective of equity curve trading is unquestionable — cease trading poor performing strategies — it is probable that there are better ways of accomplishing that goal. From this study, the conclusion is equity curve trading with simple indicators has more downside than upside. ■

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