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Mar/Apr/May 2020 Issue #76

The Horrors of Whipsaws

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Introduction

What the heck is "Whipsaw"? If you are a novice trader you may not know what this term means. If you are an advanced trader you already have experienced this phenomenon, whether you know its name or not.

Whipsaw is that awful time in your trading when your profits diminish from the highs of your trend trading back down to zero, or even into loss territory. You may have had a nice long run where your profits grew and grew with a series of good trending trades only to hit a period where no matter what you do the profits just disappear. This whipsaw period is known by the professionals as sideways consolidation. We little guys see it as a channel where nothing we do is right.

Consolidation, or whipsaw, looks like this on a chart; see Figure 1. (Charts courtesy of TradeStation™)

Figure 1: Whipsaw on a Chart

During whipsaw you often try to go long, then short, then long and short again, and you always seem to be on the wrong side of the trade.

If you knew in advance that whipsaw was beginning, you could adjust your trading to channel trading. But one never knows in advance what is about to begin. Thus, you keep trading as if a trend were in place, and you treat the market action as if a small retracement were happening. Whipsaw happens! It is inevitable. While the trend is our friend, markets only trend 30% of the time and that means that they are in whipsaw 70% of the time. So, what do we do?

Traditional Attempts
When one first starts trading, we typically try moving averages (MAVs). They are probably the simplest technical analysis tool. In fact, CMTs (Chartered Market Technicians) follow the Dow Theory, which incorporates a 20-week (or a 50-week) and a 200-week moving average.

A simple moving average is a rolling average of a small subset of the available data, recalculating it by moving forward with each new bar. For instance, a 10-day moving average calculates the average of the last 10 days and plots that answer on the chart. Then, when the next bar concludes, we calculate the average again using the new data, 10 days back and plot it again. The exact formula for these calculations looks like this:

$$\bar{p}_{SM} = \frac{p_M + p_{M-1} + \cdots + p_{M-(n-1)}}{n}$$

It might look complex to non-mathematicians, but it's really just adding n numbers together and dividing by n.

There are several other different types of moving averages, each with a variation on the theme. The standard variations on moving averages are these:

- Exponential
- Weighted
- Volume Weighted
- Triangular
- Adaptive

I leave it to the reader to Google these variations and explore further.

With each of these types, however, there is still the problem with whipsaw. Typically moving averages are too slow to react to changes in market direction, and the market enters whipsaw before the moving average alerts you. Even exponential moving averages, which respond faster due to the weighting of more recent data, show whipsaw periods where the averages cross back and forth over each other meaninglessly.

There is one of these averages I want to discuss briefly, and that's the adaptive moving average. Several sources have programmed their concept of adaptive, including most of the

market software vendors. TradeStation, for instance, provides one which uses Perry Kaufman's equations for the adaptive average. This average tries to account for market noise or volatility. It closely follows the market when price swings are small and adjusts when price swings widen. You can find the equations in "New Trading Systems and Methods" by Perry Kauffman.

I also have programmed an adaptive moving average which I call my Dynamic Moving Average (DMA). It does the opposite of most. My average follows the market closely when it is moving sharply and widens when the market enters whipsaw. My concept is to stay out of the way of whipsaw and follow the trends. I have found that it is best to do nothing when the market is in a consolidation phase (aka whipsaw). I stay with the previous position until my DMA tells me otherwise.

Signals from Moving Averages

Typically, market technicians either use two (or more) moving averages of different lengths and watch for their cross overs for signals to go long or short. Another popular method of using MAVs is to watch for price action to move above or below the moving average. I'll show charts of both concepts.

Figure 2: Moving Average Crossovers

Figure 3: Prices Penetrating Moving Average
Notice in these two charts that there are numerous unsuccessful trades which are tossed back and forth due to the whipsaw.

It is clear in Figure 3 that in early 1999 the moving average signals reversals again and again, with losses in every signal. If you look at the chart you can also see that in June of 1999 the market gets into whipsaw again and signals reversal five times, each time unproductive.

Avoiding Whipsaw
Early on in my trading career I found that I gave money back over and again when the market entered the consolidation phase. I read somewhere that markets trend 30% of the time and whipsaw 70% of the time. That's daunting. So, I set out to discover equations that would avoid the whipsaw phase. I wanted something that would widen during whipsaw and effectively not take trades and stay in the previous position until the market found a direction once again.

Most moving average crossover signals require two input values, one for the faster average and one for the slower average. Typically, the values default to 9 and 18. I discovered that if I did not use the input values, but let the market dictate the lengths of the two averages I could avoid most of the whipsaw action. In my Dynamic Moving Average, the inputs are dynamic, that is they calculate themselves according to the speed of the market. In sideways markets the DMA causes the two averages to spread apart so they don't cross over and create lots of unsuccessful trades.

In calculating these dynamic averages I also integerize all the calculations. What I mean by

that is if a value is 9.4 I just take the integer portion, 9. If a value is 9.6 I round up to 10. That simple trick smooths out the averages and is another method of keeping the averages from crossing unless the market actually moves into a trend.

In Figure 4 you'll see my Dynamic Moving Average, plotted in purple and gold.

Figure 4: Sunny's Dynamic Moving Average

In periods of consolidation you can see that the averages move apart, telling me not to take a trade, but to stand aside or stay with the previous direction.

One more chart explains why I created my own dynamic average versus using the TradeStation build in Adaptive Average. Figure 5 shows Kaufman's Adaptive Average in green and blue overlaid on of the chart of my DMA, in gold and purple.

Figure 5: DMA vs Kaufman's Adaptive Average

Yes, indeed, the Adaptive Average minimizes whipsaw, but at the cost of staying long for the entire 9-month span. My DMA goes long and short both with significant moves, maximizing profit from trading, not just long-term investing. It's a different philosophy.

The old adage "the trend is your friend" is true, but at what cost? Trading the significant moves is more profitable than "buy and hold." But the trick is to know when the move is significant and not just a period of consolidation. My DMA does a stellar job of isolating and ignoring sideways moves and honing in on trending moves.

Moving Average Convergence-Divergence
Developed by Gerald Appel, the MACD was the only indicator I used for the first five years of my trading. With the right choice of inputs this indicator does a stellar job of avoiding most whipsaw episodes and isolating the trends. See Figure 6.

Since this moving average is calculated as the difference between averages, it doesn't plot on top of the price chart, but usually is displayed underneath the price window.

The period of significant whipsaw we saw on the other charts was in late August 2019. Notice in Figure 6 that the MACD just shows a little hiccup of whipsaw, but otherwise does a very nice job of only announcing trends.

$INDU - Daily DJI L=29,030.22 90.55 0.31% B=28,988.17 A=29,088.07 O=28,901.80 Hi=29,127.59 Lo=28,897.35 V=1 ...

MACD (12,26,9,1,1,UpColorDefault,... 246.97 237.96 9.01 0.00

Figure 6: MACD (Moving Average Convergence-Divergence)

Conclusion

While not a comprehensive treatise on consolidation and trends, I hope I have illuminated the crux of the issue. Whipsaw is not your friend. Avoid it if you can. I could write a full dissertation on moving averages, trends and whipsaw, but space is limited so this is but an overview.
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