

Chapter Eight: MACDH

The [moving average convergence-divergence histogram](#) (MACDH) was the first technical indicator that I started using regularly after years of writing about the financial markets for *Traders.com Advantage*, *Working-Money.com*, and *Technical Analysis of Stocks & Commodities* magazine.

The MACDH was the perfect combination: an indicator that could be used as both a trend-following tool as well as a momentum oscillator. John Murphy (1996), writing about the moving average convergence-divergence (MACD) indicator, called it “the best of both worlds” and then referred to the moving average convergence-divergence histogram as a way of making “the MACD even better.” Alexander Elder, who also gave the moving average convergence-divergence histogram high marks in his excellent trading primer, *Trading for a Living*, said of the indicator (1993):

MACD-Histogram offers a deeper insight into the balance of power between bulls and bears than the original MACD. It shows not only whether bulls or bears are in control but also whether they are growing stronger or weaker. It is one of the best tools available to a market technician.

This is why I began a discussion of momentum indicators with Japanese candlesticks. And why the stochastic, in my opinion, is so useful. Both Japanese candlesticks and the stochastic help the trader see as graphi-

cally as possible which side—those betting on higher prices or those betting on lower prices—is winning and which side, as Elder says of the MACDH, is “growing stronger or weaker.”

This is what momentum indicators that work do: they make it easier to see who is winning and how dominant that winning is.

There are a number of ways to use the moving average convergence-divergence histogram indicator. As an oscillator, traders can use crosses of the zero line, instances when the MACDH goes from positive to negative or vice versa, to provide trading signals. Also, the oscillator-like characteristics of the MACDH make it useful in spotting divergences between the indicator and price. In this way, the MACDH can be used to confirm other oscillators like the RSI or the stochastic, set-ups like the 2B, and Japanese candlestick reversal patterns.

Market technicians can also use the histogram aspect of the indicator to look for specific patterns that signal a shift in momentum. These patterns, in the proper context, alert traders to moments when momentum temporarily wanes, and then resumes. These moments often presage significant surges in momentum that can be exploited for short-term gain.

The MACDH consists of the moving average convergence-divergence indicator and a signal line. The moving average convergence-divergence indicator was invented by Gerald Appel, and consists of two lines. The first line, the MACD line, is built by taking the difference between two exponential moving averages, typically of 12 and 26 periods. Then an exponential moving average of that MACD line is taken. That exponential moving average is called the signal line and usually consists of 9 periods.

The MACD histogram, introduced by Thomas Aspray, simply measures the difference between the MACD line and signal line and graphically represents it in the form of vertical lines or bars. The MACD histogram does not necessarily provide more information than the MACD—just as the Japanese candlestick does not necessarily provide more information than the bar chart. But the MACD histogram, or MACDH, makes that

**Figure 8.1 | British Pound/Canadian Dollar
Daily | December 2006-July 2007**



Notice how a deep MACDH trough in February anticipates the bear market that follows over the next several months. The MACDH peak in June suggests strongly that the bear market in the British Pound/Canadian Dollar pair has ended and that higher prices are likely going forward.

Chart courtesy of eSignal

If the histogram is positive, above the zero line, then the pattern looks something like this: M-m-M, with the lower case letter representing the dip in the indicator values.

If the histogram is negative, below the zero line, then the pattern numerically might resemble something like this: -1.00, -1.50, -0.75. The shorthand for this sort of pattern is P-p-P.

The last bar in the pattern, the second “M” or the second “P”, is the key session. If the market closes above the high of the second “M” or the second “P” session, then a long position can be taken as of that close.

When a market is declining, technicians should look for an instance when a falling series of MACDH bars is interrupted by a higher, less

**Figure 8.2 | Telecommunications HOLDRS Trust (TTH)
Daily | April 2007-May 2007**



Bullish P-p-P patterns provide momentum traders with excellent entries during this uptrend in telecommunications stocks.

Chart courtesy of Prophet Financial Systems, Inc.

tern is intended to replicate the high-low-high of a histogram that experiences a temporary lull in upside momentum (a lull represented by the lowercase “m”). When the market regains its momentum (represented by the second uppercase “M”), a signal is given that the market is likely to continue going higher. This signal is confirmed when the market closes above the high of the day when momentum re-asserted itself.

Note how the market was moving lower going into mid-February. A series of shorter and shorter histogram bars reflected waning momentum to the upside. Then, the histogram bars suddenly start becoming taller. The three days of February 12, 13, and 14 generated the characteristic M-m-M pattern that provides a bullish signal for the market. This signal

Figure 8.3 | June 10-Year Treasury Note
Daily | January 2007-March 2007



Two bullish M-m-M patterns in the second half of February signal an opportunity to the upside in June T-notes.

Chart courtesy of Prophet Financial Systems, Inc.

was confirmed a day later, as the market closed above the high of February 14th. Five days after the entry, the market for June Treasuries began moving up sharply, amply rewarding traders who bought the bullish M-m-M pattern in the histogram.

The other bullish pattern, the P-p-P pattern comes when the MACDH is below the zero line. This pattern tends to represent markets that are temporarily somewhat oversold. As such, they are often great patterns to spot in uptrends, as is the case with the example of the telecom HOLD-RS trust or TTH.

Figure 8.5 | British Pound/Canadian Dollar Daily | May 2007



A bearish p-P-p pattern in mid-May is confirmed, leading to a continued decline in the GBP/CAD over the balance of the month.

Chart courtesy of Esignal

It was in mid-May that the p-P-p pattern developed. The histogram bars had been growing shorter since early May, reflecting a waning momentum to the downside. The uppercase “P” in the pattern’s shorthand refers to the session when downside momentum had become particularly weak—relative to the following session when downside momentum (shown graphically as a lowercase “p” that stretches downward more than an uppercase “P”) re-asserted itself.

This was the signal that the downtrend was vulnerable to resumption; however, it was not until the market closed below the low of the session of the second lowercase p, that the bearishness of the mid-month p-P-p signal was confirmed. The result was another month of losses for the British pound against the Canadian dollar.

The upside of these patterns in the MACD histogram is also its downside. As Elder noted, daily charts create these patterns in the MACD

histogram with some frequency. As such, some who use these patterns use them mostly with weekly charts, something Elder recommends. As I said before, I have found these patterns to provide frequently actionable signals on daily charts—particularly when used in concert with other technical methods such as the BOSO or during “MUST buy/MUST sell” market periods as revealed by moving average trios.

Most important, these patterns in the MACD histogram alert technicians to changes in momentum, changes that can create opportunities in the short- and intermediate-term. Trade and risk management is a part of every methodology and the MACD histogram patterns are not any different. But when used alongside other technical tools and with the proper sense of risk and reward, the MACD histogram is as worthwhile a single technical indicator, let alone single momentum indicator, as technicians are likely to find.

Test Questions

1. The MACDH can be used:
 - a. To provide trading signals when it goes from positive to negative or vice versa
 - b. To spot divergences between the indicator and the price
 - c. To confirm other oscillators
 - d. All of the above



For answers, please visit the Traders' Library Education Corner at
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Chapter Nine: Moving Average Trios

I first came across moving average trios after reading George Kleinman's book, *Mastering Commodity Futures and Options*. Kleinman was a big fan of moving averages in this book, writing:

I've found it much easier, and ultimately much more profitable, to take a chunk out of the middle of a move, and this is what moving averages are designed to do. Moving averages are trend-following tools. This means they do not anticipate the market, they lag it. They are designed to help us determine two things: what the current trend is, and when the trend has turned. However, they can only tell us this after a trend is in place. By definition, this will be after the move is already underway.

One [moving average](#) might be a trend trading tool. And two moving averages may make for trend-based entries and exits. But the combination of three moving averages creates an analytic environment conducive to momentum trading.

Generally, moving average trios rely on three moving averages of distinctly different lengths. There is usually a very short-term moving average, between eight and ten periods in duration, an intermediate-term moving average that tends to be twice as long as the shorter-term moving average, and a long-term moving average that is at least twice as long as the intermediate-term moving average.

The point of the three moving averages is multifold. The longest moving average helps establish whether or not the market is trending and, if so, in which direction that trend is moving. The two shorter moving averages help the trader see growing momentum within the context of the trend (or lack thereof). Growing momentum is revealed when the shortest moving average catches up with and overtakes the intermediate-term moving average.

Kleinman uses a 2-, 9-, and 30-period trio of [exponential moving averages](#) in order to get trading signals. He uses the longest EMA, the 30-period, exclusively as a trend-tracking indicator. He will only buy markets trading above the 30-period EMA, and will only short markets that are trading below the 30-period EMA. Specific trading signals come from the crossing of the 2- and 9-period moving averages. When the 2-period EMA crosses above the 9-period EMA and both moving averages are above the 30-period EMA, then a buy signal has been generated. When the 2-period EMA crosses below the 9-period EMA and both moving averages are below the 30-period EMA, then a short signal has been generated.

The combination I have been using for the past several months involves a more pedestrian combination of the 10-, 20- and 50-period exponential moving averages. But I add a flourish that comes courtesy of David Nassar who, in his DVD, *Foundational Analysis*, emphasizes that moving average trios can reveal a sweet spot that can be especially worth noting for momentum traders.

This sweet spot, per Nassar, represents the difference between when a market can be traded and when a market “must be traded.” It comes about just as the three moving averages roll over into what I call bullish or bearish alignment from a previously “unaligned” or out of alignment position.

By alignment, I mean a condition where the shortest moving average is leading the intermediate-term moving average, and the intermediate-term moving average is leading the longer-term moving average. Graphically—and using my moving average trio as an example—this

means that bullish alignments would feature the 10-period EMA on top of the 20-period EMA, which is then on top of the 50-period EMA. The opposite would be the case in a bearish alignment. The 10-period EMA would be on the bottom, the 20-period EMA above it, and the 50-period EMA higher still.

By “realignment” I add what I think is a crucial element. As a momentum technician, I am looking for the moment when the three moving averages snap into alignment—bullish or bearish. I do not want to be in the trade any earlier, and I’d prefer not to be in the trade too much later. The momentum opportunity comes as the moving averages move from being out of alignment into alignment. This is where I want to be. And

Figure 9.1 | S&P 100 Index (\$OEX), Daily | September 2003-December 2003



This bullish realignment of the moving averages developed just as the \$OEX was emerging from the sluggish sideways trading of the fall of 2003

Chart courtesy of Prophet Financial Systems, Inc.

Chart courtesy of Prophet Financial Systems, Inc.

Test Questions

1. Which of the following momentum indicators is NOT known for combining momentum and trend characteristics?
 - a. Relative Strength Index
 - b. Moving Average Trios
 - c. TRIX
 - d. MACDH



For answers, please visit the Traders' Library Education Corner at
www.traderslibrary.com/tlecorner.

Chapter Ten: TRIX

Technical analysis is most efficient when its simplicity is embraced. The genius of the stochastic—a genius also reflected in candlestick lines—is that it reveals who is coming closer to winning the battle of the session: those betting on closing prices near the highs versus those betting on closing prices near the lows. The genius of the moving average convergence-divergence histogram is that it, as John Murphy observed, “generates action signals much sooner.”

Hutson’s TRIX

We see this same simplicity in the TRIX. Introduced in the pages of *Technical Analysis of Stocks & Commodities* magazine in the early 1980s by Jack Hutson (who was also the founder and publisher), the TRIX or triple smoothed exponential average, pushes the envelope of anticipating price action through a combination of exponential moving average and rate of change calculations.

The TRIX is calculated by taking an exponential moving average of the closing price. An [exponential moving average](#) of that initial exponential moving average is then taken. Then a third exponential moving average is taken of the second exponential moving average (which is, remember an exponential moving average of an initial exponential moving average

Figure 10.2 | October Sugar Daily | April 2006-June 2006



A zero line crossover in the TRIX to the downside in mid-May led to further declines in the sugar market.

Chart courtesy of Prophet Financial Systems, Inc.

a low in the first half of January 2005, then went on to make a lower low in the first half of February. However, at the same time, the TRIX was making a pair of higher lows. This pattern, in which a momentum indicator makes a series of higher lows while the underlying market makes a series of lower lows, is the signature of a positive divergence and an opportunity for reversal.

We can see an example of a negative divergence in the very same chart as the February bounce in gold tops out in March. Notice how gold makes a high in February and then goes on to make a higher high in March? At the same time, the TRIX was making a pair of lower highs.

Figure 10.3 | April Gold Daily | December 2004-March 2005



A positive divergence in the TRIX in February took the market up, and a negative divergence in March helped guide the market back down.

Chart courtesy of Prophet Financial Systems, Inc.

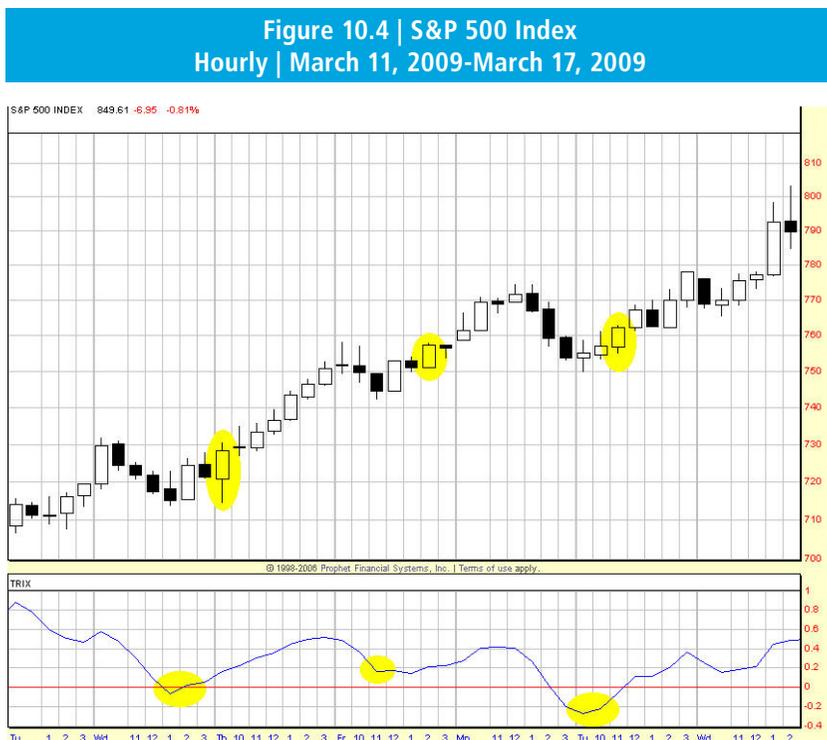
Again, while divergences do not always result in reversals, they are always warnings of waning momentum and need to be treated as such. The shorter-term your time frame, the more you need to be concerned about divergences when they appear. For short-term momentum traders, even the appearance of a divergence—let alone confirmation of one—can be enough to induce profit-taking.

Like the stochastic and the RSI, the TRIX can also be used to flag momentary stalls in momentum. This hinge or hook technique is a great compliment to the TRIX's ability to spot divergences. Often a market will bottom, rally, and then retest that bottom before moving higher.

Using the hook to re-enter a market after a slackening in momentum is one of the other sound ways to use the TRIX.

The hourly chart of the S&P 500 Index (Figure 10.4) focuses on the various confirming closes after bullish hooks in the TRIX. These were opportunities during the spring rally in 2009, an advance that many momentum traders were able to take advantage of in the midst of a great deal of trader and investor pessimism.

Hooks work to the downside as a way of determining when a bounce in a downtrend has run its course. When hooks downward are confirmed, even sideways markets can give way rapidly.



Bullish hooks in the TRIX provided intraday and hourly swing traders with numerous opportunities to climb on board as the S&P 500 moved higher from its spring lows.

Chart courtesy of Prophet Financial Systems, Inc.

Figure 10.5 is what the Dow Jones Industrials looked like in the hours before that spring correction.

Here, two bearish hooks developed during the downturn in February. Often, traders are reluctant to join markets that have already begun their moves. The TRIX in this instance helped show momentum traders where opportunities for shifts in momentum positions against the market most optimally could be taken.

One of the ways I have used the TRIX is in the intraday arena, studying 15-minute charts of the E-mini S&P 500 futures contract. Although a



Bearish hooks provided two signals early in the second half of February on the hourly charts. Those sell signals provided traders with an opportunity to exploit the last few legs of the downturn before the spring rally in 2009.

Chart courtesy of Prophet Financial Systems, Inc.

lot of what seems to be working for me on a 15-minute basis likely has to do with the particular money management and trade management of the day trading system, the signals produced by the TRIX intraday have been valuable and worth following.

In particular, when looking at the [intraday](#) market, I have used the TRIX with a signal line. More than that, I have used specific patterns and specific types of crosses between the TRIX and the signal line to confirm shifts in momentum. These patterns are known as golden crosses and dead crosses and, like Japanese candlesticks, have their origin in the trading styles (and trading rhetoric) of the Far East.

Put simply, a golden cross occurs when a shorter moving average crosses above a longer moving average. This signifies an increase in momentum to the upside and is said to be “golden.” A dead cross occurs when a shorter moving average crosses below a longer moving average. This signifies an increase in momentum to the downside and is given the sobriquet of “dead.”

To use these crosses with the TRIX, a second line or signal line is required. The signal line takes the place of the shorter moving average to create the signals.

In addition to the crosses, however, are two other patterns. They occur when the longer moving average, or the TRIX in this case, hooks higher or dips lower. Hooks higher are called “bounces,” while dips lower are called “falls.” This idea of falls is identical to the hooks method discussed in the section on stochastics, the RSI, and earlier with the single line TRIX.

To best take advantage of the momentum-reading aspect of this indicator, golden crosses, which alert to the possibility of upside momentum, and falls, rather than dead crosses, are used to give warning that upside momentum is waning. In the proper context, the TRIX used this way can provide the sort of prompt signals that, upon confirmation by follow-through on a closing basis, momentum indicators are used for.

Figure 10.6 | S&P 500 Index Daily | April 2001-June 2001



The top of the spring rally in the S&P 500 in 2001 was signaled not only by an evening star pattern, but also by a “fall” in the TRIX.

Chart courtesy of Prophet Financial Systems, Inc.

The software I use, *Tim Knight's Prophet.net*, happens to draw green arrows to indicate golden crosses and red arrows to indicate falls. But the arrows only serve to highlight precisely where the signals are. By using falls to warn of waning momentum to the upside, rather than dead crosses, the TRIX with a signal line provides an earlier signal than it might otherwise.

The example of a fall shown in Figure 10.6 is the top of the spring rally in 2001 in the S&P 500. Within months, the market would be plunging lower into the lows that would eventually accompany the lows of September 11th and its immediate aftermath. In addition to forming a perfect [evening star](#), the top of the rally also saw the TRIX develop a fall,

**Figure 10.7 | Dow Jones Industrial Average
15-minute | February 23, 2009**



Opportunities to bet against the Dow Jones Industrial Average on an intraday basis were plentiful during the market sell-off in the second month of the year in 2009.

Chart courtesy of Prophet Financial Systems, Inc.

signaling a loss of momentum to the upside. The bearishness of that fall was confirmed two days later as the S&P 500 fell another 30 points over the next two days.

This correction—it was not yet a bear market—ended with a golden cross, which anticipated a short-term bounce. But that bounce was met with another fall a few days later, as the market plunged to lower lows.

Like the other momentum indicators discussed in this book, the TRIX used in this way can also be a valuable tool for spotting and timing stalls in momentum that can be opportunities to buy a temporarily inex-

Test Questions

1. Which of the following does NOT known represent one momentum indicator confirming another?
 - a. A golden cross in the TRIX and a 1-2-3 trendline breakdown
 - b. An evening star candlestick pattern and a 2B Top
 - c. A positive divergence in the RSI and a Piercing Pattern on a candlestick chart
 - d. A P-p-P pattern in the MACDH and an overbought reading of more than 80 in the stochastic

2. If the real bodies of a series of candlesticks are successively smaller, that pattern may represent:
 - a. Growing momentum
 - b. A trading range environment
 - c. Waning momentum
 - d. A potential breakout



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Conclusion

I began this discussion about momentum and technical analysis with three observations: 1) that the most accurate momentum information comes from price itself, 2) that traditional momentum indicators are often better used in non-traditional ways, 3) and that many technical indicators that are not considered to be momentum indicators can actually form the basis of a momentum technician's method of entering and exiting markets. I hope that at this point, the reason why I put so much emphasis on these observations is clear.

The need to improve our ability to analyze price data using Japanese candlesticks is the product of the first observation. With regard to the second, both the BOSO and the hook methods of using momentum indicators point to non-traditional (or new traditional in the case of the hook) ways of entering and exiting markets that market technicians should consider. And, lastly, technical indicators like the moving average convergence divergence histogram (MACDH) can be used to serve both trend-following and momentum analysis requirements to great effect.

Market technicians need to be wary of using these indicators in sub-optimal combinations. For example, both the hook and the MACDH patterns tend to serve the same purpose of catching momentary lulls in momentum just as momentum is returning to the market. As such,

there is no reason for a trader to use both the hook and the MACDH patterns at the same time. I have also found that the TRIX method involving the signal line, golden crosses, and falls tends to provide signals that are very similar to those produced by the hooks and the MACDH. Using the TRIX with a signal line and the crosses and falls in addition to the MACDH or the hooks of other momentum indicators is likely redundant.

I put a BOSO stochastic on every chart I create that uses indicators. The BOSO stochastic is an excellent compliment to the methods using the MACDH, the hooks, or the TRIX with a signal line described in the previous paragraph. I have found very little signal overlap between the entries suggested by the BOSO stochastic and those suggested by the MACDH, hooks, or the TRIX with a signal line.

Moving average trios work similarly to the BOSO stochastic by hinting at moments when markets “must be traded.” I keep both on my indicator charts because visually, neither indicator gets in the way of the other, unlike trying to use multiple momentum indicators at the same time (to say nothing of the issue of indicator/signal redundancy).

Typically, I like to keep two charts of the same price action open at the same time. One chart is clean: nothing but the Japanese candlestick lines. The other chart is the indicator chart. My current preferences with daily charts of most markets, for example, include the moving average trios, the BOSO stochastic, and the MACDH on the indicator chart. For intraday analysis of securities like the e-mini S&P 500 Index, the TRIX with a signal line, golden crosses, and falls—along with a 50-period exponential moving average—have been my technical tools of choice.

But whatever tools you eventually determine to use, there are a few concepts worth keeping in mind as a momentum technician. And these concepts are perhaps best said here by way of closing. First, with momentum, timing is everything. Rickson Gracie, the legendary Brazil-

ian jiu jitsu fighter of the Gracie family, once told an interviewer: “there comes a moment without fail when an opponent makes a mistake. That moment cannot be missed.”

Momentum technicians need to have the same attitude. In the same way that Brazilian jiu jitsu is based on waiting for the opponent to make a mistake, momentum technicians need to have the patience to wait for the market to make a mistake: to reveal weakness, to show that momentum is waning, to show that momentum is much stronger than before ... and then pounce.

If your timing is right, then you do not need to be fast or powerful (i.e., overcapitalized). Move with haste. But do not hurry.

Second, and part of the first idea, is the notion that you should be wary of engaging a market, and wary of remaining in a market. Another way of thinking about this is to require confirmation before taking positions (the idea of the “confirming close”), but be ready to exit as soon as the momentum that supports your position is threatened.

Yes, this will mean leaving some money on the table. But in trading there are really just two options when you have a successful trade: either you are leaving some money on the table or you are giving some back. The latter is the curse of the trend trader, and the former is the “curse” of the momentum trader. It is just the cost of doing business. Never, ever be distracted by what you could have made.

And this dovetails into the third and last point. While it is important for momentum technicians to be vigilant for every opportunity the market gives, for every “mistake” the market makes, it is just as important to remember that if the “moment” is missed, another moment will come along. Unlike trend traders, who may have to wait for months for a decent trend to develop, momentum opportunities abound every day, every hour. Rather than chasing a missed opportunity, momentum technicians are often much better off waiting for the next one. It is an

advantage that momentum technicians have that they must exploit to avoid the psychological briar patch of chasing markets. There will always be another trade.

I hope that some of the ideas and tools discussed in these pages will go some distance toward making that next trade a winning one for you.