

Chapter One:

History of Momentum Indicators

In a book about technical indicators, it is worthwhile to discuss briefly the terrain in which the indicators work: the price chart.

The price chart is the hallmark of technical analysis. It is what distinguishes market technicians who focus on price, from market fundamentalists, who focus on various accounting metrics found in corporate balance sheets and income statements. A number of technical traders have articulately explained the difference between market technicians and market [fundamentalists](#). But one of my personal favorites is the explanation provided by author, trader, co-founder of Pristine.com, and current CEO of Velez Capital Management, Oliver L. Velez (2000):

"Price charts do nothing more than graphically display what we call the "footprints" of money. They show human psychology at work and the repetitive cycles of fear, greed, and uncertainty. What we have always liked about charts is that they are factual ...

... Earnings reports can paint a false picture with the help of fancy accounting, but charts don't lie. A CEO can hold a conference and boldly issue inaccurate statements about a company, but the chart, my friends, won't ever lie. Investors and traders, both large and small, bet with their money, not with their mouths ... Each bet is what actually makes up the chart. Charts don't lie. "

I quoted Velez at length because what he wrote goes to the heart of what makes a market technician. As Velez points out elsewhere in his book, *Tools and Tactics for the Master Day Trader*, relying on the bets that appear on price charts does not mean that those bets will always be correct. But market technicians can be assured that those bets do represent “true convictions...true beliefs.” By contrast, I have seen a number of very talented, very widely-followed market fundamentalists falling on their swords because they were taken in by the charisma of a certain CEO with a winning smile and a gift for gab, or were just swept up in the enthusiasm for a new product or a new market and lost track of how the actual stock price was moving.

Whatever faults may be laid at the doorstep of technical analysis, losing track of actual prices is not one of them. Market technicians might be led astray by price, but we will never be accused of not paying attention.

There are a variety of price charts that technicians use: from point and figure charts to line charts to Kagi charts. But the basis for most market technicians is the bar chart. The bar chart consists of two axis: a horizontal axis representing time and a vertical axis representing price. Prices are plotted using small vertical lines, with each line representing a unit of trading time or a trading session. This trading session can be of any length whatsoever: a minute or five minutes, half an hour or a whole trading day, a week, a month, or a year.

This allows market technicians to analyze price action over a variety of durations—from the very long to the very short. It also makes it possible to analyze the same price action in multiple ways, such as looking at a daily chart and an hourly chart of the same ten-day period. Analysis of different time periods is a key strategy for most traders, but especially for momentum traders for whom low-cost entries and favorable risk/reward scenarios are paramount.

The length of the vertical line in the bar chart represents both the highest and the lowest price at which the given asset—stock, commodity, or

currency—traded during that session. Thus, at a glance, a trader reading a bar chart can see the range at which an asset traded over a given series of sessions (i.e., hours, days, weeks, etc.). In order to represent the opening and closing prices, bar charts use a very short horizontal line to mark the level in the range where the asset began trading for the session and the asset's final price for that session.

Compared to many other charting forms, such as line charts or the inexplicably ubiquitous mountain graphs of financial news programs, bar charts deliver a solid set of data to the market technician. Knowing where a market opened, how high it rallied, how low it fell, and where it closed, is primary market intelligence for the technician. However, there is a form of bar chart, the Japanese candlestick chart, which is to the bar chart what the bar chart is to the line chart. In fact, the amount of information traders are able to glean even from a cursory glance at a candlestick chart is such that many traders, including traders like Velez, insist that they “won't even look at a chart unless it is in candlestick form.”

I will discuss Japanese candlestick charts more in the next chapters. For now, suffice to say that for the technical trader, the price chart is the field of battle. And for the momentum trader, the Japanese candlestick is both sword and shield.

What Are Technical Indicators and Oscillators?

Technical indicators are derivatives of price action. Whatever else you think of technical indicators, they are first and foremost products of the price action they measure.

This is both good and bad for technical indicators and for those who use them. What is good about technical indicators is that, insofar as they reflect price, they will be accurate more often than not. What is bad about technical indicators is that, insofar as they reflect price, they will always trail or lag price action. This means that while technical indicators tend to be right, they also tend to be late.

Momentum indicators are usually referred to as [oscillators](#), and their values move within a fixed range (such as from zero to 100) or around a fixed point (such as a zero line with positive and negative values above and below). Signals from momentum indicators are traditionally from crossovers midway through the range, from reaching certain extremely high or extremely low levels and by diverging from price action. A fourth way that oscillators provide signals is by taking a derivative—such as an exponential moving average or rate-of-change—of the oscillator and measuring and judging the relationship between the oscillator and the derivative.

A Brief History of Momentum Indicators

For market technicians, momentum refers to change in price over time. The two most common technical indicators used to measure momentum are the [rate-of-change](#) and momentum indicators. Essentially, these indicators measure the same thing; they just express it differently. Rate-of-change presents its momentum information in the form of a percentage, while the momentum indicator uses a ratio. Expressed as equations, rate-of-change looks like this:

$$\text{ROC} = P / P_x$$

Where P represents the current session's price and P_x represents the price "x" sessions ago. The momentum indicator, by contrast, looks like this:

$$M = P - P_x$$

Where the price "x" sessions ago (P_x) is subtracted from the current session's price.

These momentum indicators will provide traders with a single line that will rise as momentum increases and fall as momentum decreases. As you can tell from the formulas, as the difference between current prices and past prices grows, then the value of the momentum or rate-of-change (ROC) indicator grows as well.

Traders have improved on the concept of momentum and rate-of-change in a number of ways. The most basic upgrade has been to add a moving average and then to use crossovers between the momentum or rate-of-change indicator and the moving average of the indicator to generate buy and sell signals.

One criticism of these momentum indicators is that they “double count” the data. As Dr. Alexander Elder put it in his book, *Trading for a Living* (1993), “they react to each new price, and then jump again when that piece of data leaves the oscillator window.” A solution to this double counting was provided by Fred Schutzman, whose “smoothed rate-of-change” indicator is constructed by calculating an exponential moving average and then applying the rate-of-change equation to the moving average, rather than to prices. Again, as was the case with the TRIX, we see the relationship between rate-of-change and exponential moving averages as key when developing and analyzing momentum indicators.

One of the most famous market technicians of all time, J. Welles Wilder, is responsible for one of the most popular momentum indicators: the Relative Strength Index (RSI). Wilder introduced this indicator in his book, *New Concepts in Technical Trading Systems*, in 1978. His goal, he wrote, was to provide “the analyst with upper and lower boundaries to determine overbought and oversold conditions.” Wilder believed that the Relative Strength Index could anticipate tops and bottoms in markets and reveal chart patterns and support/resistance levels not apparent in the price chart, as well as present both divergences and what he called “failure swings” to indicate waning momentum and potential reversal.

RSI measures the balance between sessions that close up versus sessions that close down. The indicator does this by first calculating the average

number of points gained during bullish sessions (close up) and dividing that by what Wilder called the “average UP close” by the “average DOWN close.” Dividing the average UP close by the average DOWN close produced a figure he called “relative strength.” To get from relative strength to the RSI, Wilder added 1 (i.e., $1 + RS$) and then divided that number into 100.

Take the quotient of $100 / (1 + RS)$ and subtract it from 100 to get the initial RSI figure. The basic formula for deriving the Index from RS is:

$$RSI = 100 - 100 / 1 + RS$$

Note that Wilder’s phrases “average UP close” and “average DOWN close” refer to the average gain over “X” number of days, with that “X” typically equaling 14 days. So the average UP close, for example, means the average points gained from days that closed up over the past 14 days. Average DOWN close means the average number of points gained from days that closed down over the past 14 days.

Wilder’s RSI was a handy tool indeed. In addition to giving traders a general sense of the bullishness or bearishness of a given market, the RSI, according to Wilder, was capable of indicating tops and bottoms in markets (i.e., overbought and oversold), creating actionable chart patterns such as flags and triangles, delineating support and resistance, and revealing important divergences between the indicator and price. As one of the first momentum indicators to offer so much in one place, it is little surprise that the RSI was, and continues to be, so popular with technical analysts and technical traders.

Wilder’s view of overbought and oversold markets was relatively conventional—and is widely accepted by many, if not most, technical analysts today. Later, I will present a completely different way for market technicians to look at overbought and oversold markets. This method not only allows traders to exploit the surge in momentum that creates an overbought or

oversold market, but also can help traders stay in profitable trades longer than might otherwise be the case with most momentum tools.

If there is a king among momentum indicators, then there is little doubt that the Stochastic wears the crown. Popularized by George Lane, the Stochastic Oscillator (often referred to simply as “stochastics”) might be the most widely used technical indicator outside of moving averages, Japanese candlesticks, and trend lines. And much of what Wilder said of his RSI can also be said of the stochastics.

Stochastics are an excellent tool for market technicians looking for swing opportunities in trends, breakout opportunities as markets move into truly bullish or bearish modes, and reversal opportunities in markets that have overstayed their welcome to the upside or downside.

Whereas momentum and rate-of-change indicators measure the change in price over time, and the RSI compares the bullishness of bullish days to the bearishness of bearish days, the stochastic refers to the range of the trading session. The stochastic seeks to reveal how close to the high bullish sessions are and how close to the low bearish sessions are. I like to think of the stochastic as measuring winning streaks and losing streaks. If we consider it a win when bulls are able to close the market near the highs and a loss when the bears are able to close the market near the lows, then the winning streak/losing streak analogy becomes clear—and an easy way to remember just what the stochastic is saying.

Both stochastics and the RSI remain exceptionally popular with technical traders. But both indicators—as well as momentum indicators in general—have been the subject of criticism from some. Perhaps the most incisive and constructive critique came from Tushar Chande and Stanley Kroll in their book, *The New Technical Trader*.

Chande and Kroll criticized the established crop of momentum indicators in a number of ways, including a failure to “measure momentum directly,” the problem of fixed time periods, the problem of merely mimicking prices, and the problem of short-term price extremes.

I will address these criticisms later on, after the critiqued indicators get a hearing of their own. For now, suffice to say that (1) some of the “bugs” Chande and Kroll note are now considered “features” by some market technicians and (2) Chande and Kroll have provided a number of substitute indicators including one called “StochRSI” which, as the name implies, combines aspects of both the stochastic oscillator and the RSI to create what Chande and Kroll believe is a superior momentum indicator.

Test Questions

1. A market technician would be interested in:
 - a. Accounting metrics
 - b. Corporate balance sheets
 - c. Income statements
 - d. Price charts
2. Which of the following is not a momentum indicator?
 - a. Moving average (MA)
 - b. Rate-of-change (ROC)
 - c. Relative Strength Index (RSI)
 - d. Stochastics
3. According to Penn, the best way to read price action is:
 - a. Bar charts
 - b. Pie charts
 - c. Japanese candlestick charting
 - d. Line graph



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Chapter Two:

Markets and Momentum

What do we talk about when we talk about momentum?

What actually interests the momentum trader is not momentum per se, but changes in momentum. I call these changes momentum opportunities (“MO” for short) because they are key moments in time when a properly placed trade not only takes maximum advantage of momentum, but also often provides a comfortable risk/reward scenario.

Momentum traders betting on a change in momentum need to know exactly when their bet goes wrong. If it is a change in momentum that the trader is counting on, and that change in momentum does not occur, then the trader needs to get out of the way as quickly as possible—lest she be run over by the change that never happened.

At the same time, if a trader is in a trade and the momentum that he was counting on becomes seriously threatened, the momentum trader needs to book profits first and ask questions (or second-guess) later.

Conceptually, there are three different types of momentum opportunities that market technicians focus on: [breakouts](#), [swings](#), and [reversals](#).

Breakout Trading

Breakout trading is probably the most familiar form of momentum trading. Breakout trading involves waiting for a market to gain sufficient momentum to power through an established resistance or support level. Breaks beyond resistance are called breakouts and lead prices higher. Breaks beyond support are called breakdowns and lead prices lower.

Support and resistance are important concepts for all traders, but they are critical concepts for momentum trading in general and especially for breakout trading. Think of support as an area in the price chart where downside momentum is weak and, resistance as an area in the price chart where upside momentum is weak.

Breakout trading can be as exciting as it can be profitable. Traders can use tools like the “Swing Rule” to determine profit points, or rely on a set percentage goal for each breakout trade they take. For example, Gary Smith, formerly of TheStreet.com, was one of the most impressive breakout traders I’ve come across. During his trading for the first few years of the 21st century, Smith relied on a 5% price target for his breakout trades.

For the momentum technician, any time prices are able to push beyond support or resistance, a breakout is taking place. Support or resistance may take the appearance of a consolidation range, a chart pattern like a triangle, or simply the evidence of failed rally attempts as reflected by the shadows of Japanese candlestick lines. Understanding breakouts in this way reveals that there are breakouts occurring all the time as markets move to new relative highs and lows. This means that there are constantly fresh opportunities for momentum technicians to ply their trade.

The downside of breakout trading, of course, is the false breakout. There is simply little that anyone can do when the side that appeared to have the upper hand is suddenly revealed to be weaker than previously thought. False breakouts are the bane of momentum and trend trader alike. Fortunately, momentum technicians are focused on evidence of

waning momentum above all else. This means a false breakout that might mean a missed opportunity, or worse, for a trend trader might simply mean an opportunity in the opposite direction for the shorter-term momentum trader.

Swing Trading

Swing trading rose to prominence in the late 1990s. In his *Swing Trading* presentation, Oliver Velez suggested that swing trading was a sweet spot between the more cumbersome, slow-moving institutional trading desks, and the frenetic, top-speed approach of day-traders (“What? Me hold a stock for longer than five seconds?” quipped Velez in light-hearted teasing of the stereotypical day trader). Combined with the dramatic increase in [margin requirements](#) for day traders in the wake of the dot.com bubble collapse, swing trading only became more popular in the early 2000s.

Swing trading can be defined as a short-term speculative strategy that involves buying dips and selling rallies in uptrends, and shorting bounces and covering lows in downtrends. For swing traders, the idea of buying low and selling high (or, in a bear market, buying high and selling low) is both a mantra and a mission. Velez instructs aspiring swing traders that it is their duty not just to buy “some” of the dips, not just to buy “most” of the dips, but to buy “every single dip.” The only question, Velez concludes, is when.

I will talk more about this question of when over the course of the book. There are some downsides to swing trading. Perhaps the worst scenario for a swing trader is a sideways market in which the swings are too small to be exploited. If you consider the pattern of signal, confirmation, and entry, those three successive closes might represent all a market will move in a given direction before reversing and doing exactly the same thing in the other direction. To combat situations like this, one option is to change the time frame—from daily to hourly in stocks and futures, and from daily to four-hour in spot currency trading or forex—and

lower the expectations. Of course, another option is standing aside and either waiting for the market to make larger swings (or breakout) or change focus to a different market to trade.

Reversal Trading

Most people who think they know something about the markets probably envision reversal trading as the sin qua non of trading mastery. Come to think of it, many people who do know something about the markets tend to have a similar habit. Ride a market from 30 to 55, and you will most certainly win friends and influence people. But tell folks you were there buying stocks at the bottom of the Crash of 1987, and they might not even bother to ask how much you made. Who cares? You bought at The Bottom, dude.

Because of that, perhaps, reversal trading gets a bad rap from time to time. Since people tend to be too-impressed by those who catch tops and bottoms, there are often any number of traders, analysts, and trading newsletter writers all too eager to anticipate bottoms. As someone who has by now spent years learning and writing about [Elliott wave theory](#), for example, it is painful to admit that some of the biggest trading blunders have come from people, including me, endlessly trying to call the top of a bull market.

To be fair, more than a few perma-bulls have ruined many a trading account by their repeated efforts to call bottoms in bear markets. But the fact of the matter is that while misery loves company, the trader who finds himself on the sidelines during a major advance in the markets has little affection for anyone.

For most market technicians, such top and bottom picking can only be made in the context of a sound and consistent trading methodology, and even more sound and consistent money management. Unique among all momentum trading, reversal trading (which looks for evidence of waning momentum in one direction with the goal of exploit-

ing a new surge in momentum in the other direction) has a very clear “WRONG!” point that, if heeded, will keep the reversal trader solvent and ready to trade again.

Unlike some trending indicators, which lose much of their value in certain market conditions, momentum indicators are effective in both sideways/consolidating markets as well as in directional/trending markets. Moreover, as essentially short-term technical tools, momentum indicators can often fit into the small spaces that other indicators, like [moving averages](#) and [trend lines](#), cannot. Even trend traders often use momentum tools as triggers to initiate positions they intend to hold for periods dramatically longer than those of the momentum trader.

Momentum may or may not be fleeting. But the changes in momentum that produce opportunities for traders are more fleeting still. As such, momentum trading has a sort of inherent short-term bias; though, as I’ve mentioned above, longer-term trend traders can use momentum techniques to get into positions that are then managed as trend trades. Also, some of the methods discussed here will enable longer momentum trades than are typical.

Using Momentum Indicators

Expectation is one of the important things to consider when using momentum indicators. Just because trend traders sometimes use momentum techniques, like breakouts, to initiate trades is no reason for a momentum trader to start turning every winning (or losing) momentum trade into a trend trade. Even some of the momentum techniques I will discuss later that can keep a trader in a position for several weeks do so only because they do not call upon the trader to exit the position until there is evidence of a significant change in momentum.

In situations where the momentum trading method does not provide its own exit, momentum traders need to be keenly focused on (1) other momentum tools that will let them know when a market may be losing

the very momentum that initiated the trade in the first place, or (2) on fairly strict price targets that allow the trader to exploit the momentum opportunity, exit (preferably with a profit), and move on to the next momentum trade.

This may be as good a place as any to point out that momentum indicators can be used to get traders out of trades just as well as they can be used to get traders into trades. There is a technique using one of my favorite momentum indicators that I will discuss later that is a perfect example of this.

There are two things that I demand for a momentum indicator, or really from any technical tool I might use. The first is a major move in a market should never happen without my technicals alerting me to it. If your technical tools cannot alert you to the sort of market bottoms we saw in the spring of 2009, then you need to get new technical tools.

The second thing I demand of an indicator is that it should neither bump me out of otherwise winning momentum trades nor try and jam me into every nondescript ripple in momentum's tide. There are few feelings in trading more frustrating than having a rising market sink just enough to trigger an exit, only to then have the market resume rising shortly thereafter. But one of those feelings might occur when dealing with a momentum indicator that seems to want you to be taking a position in every odd-numbered session and exiting a position in every even-numbered one. The momentum indicators discussed here have both the robustness to stay with momentum as long as momentum is strong and have enough of a filter to make it easier to take the quality trades while ignoring poorer quality ones.

Momentum, Methods, and Systems

Can I create my own momentum trading system with these momentum indicators? The answer, as you might expect, is a resounding “of course you can!”

First, let me make a distinction between trading systems and trading methods. Market Wizard *Linda Bradford Raschke* makes the point that most traders have a difficult time blindly following a system. By contrast, she says “many find it easier to be discretionary in a systematic way.”

For traders who like getting their hands dirty, being a “systematic discretionary trader” is an ideal option.

Whether you opt for a 100% mechanized trading system or a method that allows you to be both systematic and discretionary, there are a few key questions and ideas that anyone building a successful trading approach must consider when trying to build a profitable trading game plan.

Most obviously, the first question is what market will you trade? Will you focus on a single market such as the e-mini S&P or the EUR/USD? Or will you look for momentum opportunities from among a virtual galaxy of stocks? Part of this question involves time frame. Will you look to day-trade momentum, or trade momentum over the course of a few days or a few weeks? Some markets that provide excellent momentum opportunities when viewed through the lens of one time frame suddenly become devoid of decent momentum trading setups when analyzed over a different time frame. This was certainly my experience, for example, in moving from intraday charts of spot currencies to daily charts—though your mileage may vary.

Once you know what you are going to trade and when you are going to trade it, the next questions focus directly on the trading experience. How will you know when to take a trade? Moreover, if you are looking to trade stocks in general, how will you select from among the numerous momentum opportunities that arise in these stocks almost every day? In other words, given a choice of 20 different momentum set-ups, what rules will you use to make sure that you are consistently choosing the set-ups with the greatest potential for profitability?

And when you determine that a trade opportunity does exist, how exactly will you enter it? Will you scale in, building up a position over time? Or will you jump in with all four feet?

How—and how soon—will your trading system or method let you know when you are wrong about a trade? And even when you are fortunate enough to have a winning position, how will you manage that position to achieve as much profit with as little risk as possible? Will you use trailing stops? Time stops? Will you look to establish a [breakeven](#) stop after the trade has moved in the anticipated direction? Will your stops be real, physical stops sitting on your broker's server, or will they be mental stops that you will have to both recognize and execute on your own? Will you add to winning positions?

Lastly, how will you know when it is time to exit a profitable trade? Will you use strict price targets? If so, what will those targets be based upon? Will you rely on nearby resistance and support as a clue to likely limitations of a given market move? And when that time comes, will you take all your chips off the table at the same time? Or will you scale out of the profitable position, piece by piece?

Apart from these very trade-specific considerations, there are also aspects of money management, such as position sizing, that can be incorporated into a trading system. While position sizing is beyond the scope of this book's discussion, know that the success of some trading methodologies has been credited as much to the method of position sizing used as to the actual trading system itself. So important is money management that it could be argued that even a mediocre or marginally profitable trading system can be improved with careful and strategic money management. At the same time, even the best trading systems and methods can leave traders broke if their money management strategy is flawed or nonexistent.

What are the measuring sticks of a successful momentum trading method? With most trading methods, traders end up choosing between two different types of trading success. Some traders will tolerate a win/loss rate that is 50/50, or even less, as long as the money made on the winners is substantially larger than the money lost on the losers. It could be argued that this is the classic trader's trade-off: You will be wrong as

often if not more often than you will be right. But when you are wrong, you will only be a little wrong. And when you are right, as the kids say, you will be right as rain.

Trend traders in particular often find themselves making this bargain. Because there are only so many trends to trade, trend traders often find themselves piling into markets only to have to scramble out soon afterward when the anticipated trend does not materialize. For those not prepared for this, it can be a bitter realization.

The fact of the matter is that human beings like to be right. And being wrong over and over again—even if those wrongs are merely paving stones on the road to being right—can be very, very difficult psychologically for many, if not most, to deal with. Combine that with the fact that being wrong means losing hard-earned money and you have yet another reason why there are far fewer profitable traders out there than there could be.

Momentum traders, on the other hand, tend to prefer a higher win/loss ratio and are willing to exchange big wins and little losses for more regular wins. It is not uncommon for momentum traders, especially in markets like spot foreign exchange to accept risk/reward ratios, for example, that are barely 1.25 to 1. Breakout trader Gary Smith looked for 5% gains and tolerated losses up to 6% on his trades during the early 2000s.

Broadly and generally speaking, the expectations of a given method of trading have to do with the time period during which the trade is expected to last. Trend traders know that they will have to endure often-painful drawdowns en route to what can be eye-popping gains. Momentum traders know that surges (and stalls) in momentum are temporary and that the opportunity to exploit them comes quickly and must be traded accordingly. While the trend trader is mostly concerned about having enough capital to withstand the worst movement against the trend, the momentum trader is mostly concerned about getting the lowest cost entry. Entries are important for both trend and momentum

traders, but given the relatively short period of time that most momentum trades are held, it is not too much to say that, for the momentum trader, the entry is everything.

All that said, my biggest mistakes in trading have tended to come not from entries, but from exits. Most of the entries I have tried in the past few years came courtesy of the momentum indicators that will be discussed in this book. My biggest problem was recognizing when to say when: the hows and whys of exiting positions.

I suspect that many traders do not consider themselves greedy people. Yet you really do not know your own greed until you find yourself taking a big loss because you were either too greedy or too ignorant to know when to take what might have been a modest gain. This is one of the reasons why I am such a big proponent of momentum analysis and Japanese candlesticks. There may be no more important step in the evolution of a successful momentum trader than understanding that the job is to enter when momentum is confirmed, and to exit when momentum is threatened. Waiting for momentum to be confirmed against you often means waiting too long.

Test Questions

1. Momentum opportunities include:
 - a. Breakouts
 - b. Swings
 - c. Reversals
 - d. All of the above
2. The most important indicator for momentum is:
 - a. Volume
 - b. Breakouts
 - c. Trendlines
 - d. Price Action



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