

Leading Indicators

Topic 9

What is momentum?

- ▶ Momentum is simply the rate of change – the speed or slope at which a stock or commodity ascends or declines.
- ▶ Watching the speed provides a guide for what may happen in the future.
- ▶ An oscillator is an indicator that moves back and forth across a reference line or between prescribed upper and lower limits.
- ▶ When an oscillator reaches a new high, it shows that an uptrend is gaining speed and is likely to continue. When an oscillator traces a lower peak, it means that the trend has stopped accelerating and a reversal can be expected from there, much like a car slowing down to make a U-Turn.

Oscillator

- ▶ An oscillator is a technical analysis tool that is banded between two extreme values and built with the results from a trend indicator for discovering short-term overbought or oversold conditions.
- ▶ As the value of the oscillator approaches the upper extreme value, the asset is deemed to be overbought, and as it approaches the lower extreme, it is deemed to be oversold.
- ▶ Oscillators are most advantageous when a clear trend cannot be easily seen in a company's stock such as when it trades horizontally or sideways, and the most common oscillators are the stochastic oscillator, RSI and MFI.

Mechanics of an Oscillator

- ▶ The purpose of an oscillators is to measure on a percentage scale from 0 to 100, where the closing price is relative to the total price range for a specified number of Days.
- ▶ When the market is trading in a range, the oscillator will follow the price fluctuations and indicate an overbought condition when it exceed 70 to 80 percent of the specified total price range, signifying a sell opportunity. An oversold condition exists when the oscillator falls below 30 to 20 percent, signifying a 'buy' opportunity.
- ▶ A price breakout is either the resetting of the range for which the current sideways market is bound by, or the beginning of a new trend. During the price breakout, the oscillator will remain in the overbought or oversold range for an extended period of time depending on the extent of the breakout.

Stochastic Oscillator-Introduction

- ▶ The stochastic oscillator was developed in the late 1950s by George Lane.
- ▶ As designed by Lane, the stochastic oscillator presents the location of the closing price of a stock in relation to the high and low range of the price of a stock over a period of time, typically a 14-day period.
- ▶ Stochastic oscillator does not follow price or volume But follows the speed or momentum of price. As a rule, the momentum or speed of the price of a stock changes before the price changes itself.

Key Feature - Overbought vs Oversold

- ▶ Lane also expressed the important role the stochastic oscillator can play in identifying overbought and oversold levels, because it is range bound.
- ▶ This range – from 0 to 100 will remain constant, no matter how quickly or slowly a security advances or declines.
- ▶ Considering the most traditional settings for the oscillator, 20 is typically considered the oversold threshold and 80 is considered the overbought threshold.
- ▶ However, the levels are adjustable to fit security characteristics and analytical needs. Readings above 80 indicate a security is trading near the top of its high-low range; readings below 20 indicate the security is trading near the bottom of its high-low range.



Stochastic Oscillator Calculation

▶ $\%K = 100(C - L_{14}) / (H_{14} - L_{14})$

Where:

- ▶ C = the most recent closing price
- ▶ L_{14} = the low of the 14 previous trading sessions
- ▶ H_{14} = the highest price traded during the same 14-day period
- ▶ $\%K$ = the current market rate for the currency pair
- ▶ $\%D$ = 3 period moving average of $\%K$
- ▶ In a market trending upward, prices will close near the high, and in a market trending downward, prices close near the low.
- ▶ Transaction signals are created when the $\%K$ crosses through a three-period moving average, which is called the $\%D$.

Relative strength index (RSI)

Overbought and Oversold

- ▶ The RSI is a price-following oscillator that ranges between 0 and 100. Generally, technical analysts use 30% oversold and 70% overbought lines to generate the buy and sell signals.
- ▶ Go long when the indicator moves from below to above the oversold line.
- ▶ Go short when the indicator moves from above to below the overbought line.
- ▶ Note here that the direction of crossing is important; the indicator needs to first go past the overbought/oversold lines and then cross back through them.



Divergence

- ▶ If the price makes a new higher peak but the momentum does not make a corresponding higher peak this indicates there is less power driving the new price high. Since there is less power or support for the new higher price a reversal could be expected.
- ▶ Similarly if the price makes a new lower trough but the momentum indicator does not make a corresponding lower trough, then it can be surmised that the downward movement is running out of strength and a reversal upward could soon be expected.
- ▶ A bullish divergence represents upward price pressure and a bearish divergence represents downward price pressure.



Real-life Problems in use of RSI

- ▶ RSI in overbought levels does not always signify an overbought Market.
- ▶ RSI in oversold levels does not always signify an oversold Market.
- ▶ The RSI can remain in overbought / oversold zones for long periods of time.
- ▶ A bullish divergence may not always lead to a rally.
- ▶ A bearish divergence may not always lead to a decline.

RSI Signals

In a bear market, look for these signs:

- ▶ The RSI falls and finds support between 20 to 30. During a decline, the RSI falls but finds support around 40. This may be a sign that the market is changing from bearish to bullish. This is also an example of Shift from Bear to Bull.

In a bull market, look for these signs:

- ▶ The RSI rallies and finds resistance around 70. During a rally, the RSI rises but finds resistance around 60. This may be a sign that the market is changing from bullish to bearish. This is also an example of Shift from bull to bear

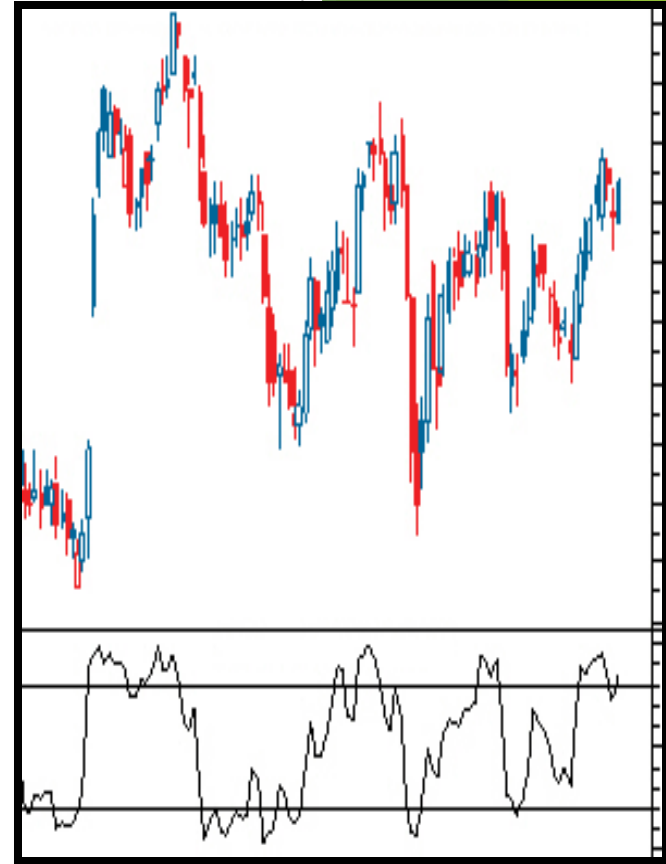
RSI Calculation

- ▶ $RSI = 100 - 100 / (1 + RS)$
- ▶ Where $RS = \text{Average gain of up periods during the specified time frame} / \text{Average loss of down periods during the specified time frame}$
- ▶ The default time frame for comparing up periods to down periods is 14, as in 14 trading days.
- ▶ Traditional interpretation and usage of the RSI is that RSI values of 70 or above indicate that a security is becoming overbought or overvalued, and therefore may be primed for a trend reversal or corrective pullback in price. On the other side of RSI values, an RSI reading of 30 or below is commonly interpreted as indicating an oversold or undervalued condition that may signal a trend change or corrective price reversal to the upside.

Williams %R

Williams %R

- ▶ The Williams %R, often shortened to simply %R, is a technical analysis oscillator.
- ▶ This indicator shows the present closing level of a commodity or stock in relation to the high and the low over a given number of days.
- ▶ This analytical tool was developed by Larry Williams.
- ▶ The Williams %R is used to establish entry and exit points in the market. It compares the close of a stock to the high-low range over a period of time, typically 14 days.



Williams %R Calculation

- ▶ $\%R = (\text{Highest High} - \text{Closing Price}) / (\text{Highest High} - \text{Lowest Low}) \times -100$
- ▶ The first task a trader, investor or analyst must complete for this equation to make sense is to determine the look-back period; the highest high and lowest low applies to the specified period of time that is chosen. From this, traders and analysts are able to determine if a stock or commodities market is trading near the high or the low, or somewhere in the middle, of its most recent trading range.
- ▶ The Williams %R is a popular indicator because of its remarkable ability to signal a market reversal at least one to two periods in the future. Traders, specifically, depend upon the Williams %R to not only anticipate market reversals, but also to determine overbought and oversold market conditions.

Money Flow Index - MFI

Money flow

- ▶ Money flow is calculated by averaging the high, low, and closing prices, and multiplying by the daily volume.
- ▶ Comparing that result with the number for the previous day tells you whether money flow was positive or negative for the current day.
- ▶ When a stock is purchased at a higher price (an uptick), this is considered positive money flow.
- ▶ When the next trade is at a lower price (a downtick), this is considered to be negative money flow.
- ▶ If more shares were bought throughout the day on the uptick than the downtick, net money flow is positive because more investors were willing to pay a premium for the stock & Vice Versa.

Money Flow Index - MFI

- ▶ The value of the MFI is always between 0 and 100, and calculating it requires several steps.
- ▶ The developers of the MFI, Gene Quong and Avrum Soudack, suggest using a 14-day period for calculations.
- ▶ Step one is to calculate the typical price. Second, the raw money flow is calculated. The third step is to calculate the money flow ratio using the positive and negative money flows for the previous 14 days. Finally, using the money flow ratio, the MFI is calculated.



MFI Convergence Divergence

- ▶ Many traders watch for opportunities that arise when the MFI moves in the opposite direction as the price.
- ▶ This divergence can often be a leading indicator of a change in the current trend. An MFI of over 80 suggests the security is overbought, while a value lower than 20 suggest the security is oversold.



MFI Calculation

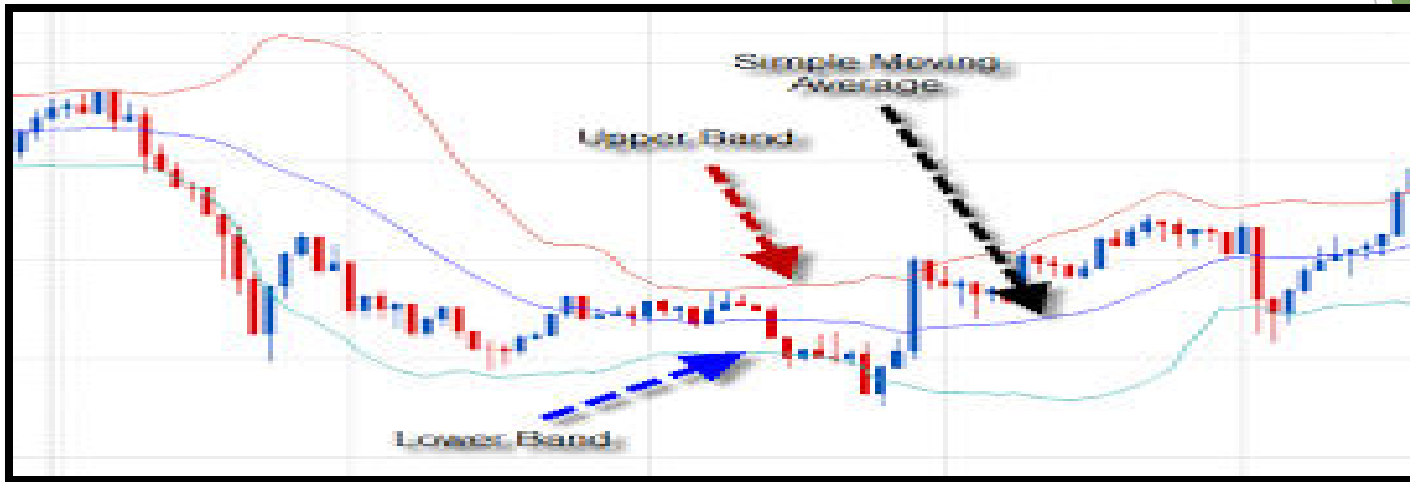
- ▶ **Typical price** = (high price + low price + closing price) / 3
- ▶ **Raw money flow** = typical price x volume
- ▶ **Money flow ratio** = (14 day Positive Money Flow) / (14 day Negative Money Flow).....(Positive money flow is calculated by summing up all of the money flow on the days in the period where the typical price is higher than the previous period typical price. This same logic applies for the negative money flow.)
- ▶ **MFI** = $100 - 100 / (1 + \text{money flow ratio})$

Bollinger band

Introduction

- ▶ A Bollinger Band, developed by famous technical trader John Bollinger, is plotted two standard deviations away from a simple moving average.
- ▶ In this example of Bollinger Bands, the price of the stock is bracketed by an upper and lower band along with a 21-day simple moving average.
- ▶ Because standard deviation is a measure of volatility, when the markets become more volatile, the bands widen; during less volatile periods, the bands contract.
- ▶ Many traders believe the closer the prices move to the upper band, the more overbought the market, and the closer the prices move to the lower band, the more oversold the market.
- ▶ Bollinger Bands are not a standalone trading system. They are simply one indicator designed to provide traders with information regarding price volatility. John Bollinger suggests using them with two or three other non-correlated indicators that provide more direct market signals.

Bollinger band Example



Features- Bollinger Bands

- ▶ **Narrow Bollinger Band:** When the bands come close together, constricting the moving average, it is called a squeeze. A squeeze signals a period of low volatility and is considered by traders to be a potential sign of future increased volatility and possible trading opportunities.
- ▶ **Wide Bollinger Band:** Conversely, the wider apart the bands move, the more likely the chance of a decrease in volatility and the greater the possibility of exiting a trade. However, these conditions are not trading signals. The bands give no indication when the change may take place or which direction price could move.



- **Breakouts:** Approximately 90% of price action occurs between the two bands. Any breakout above or below the bands is a major event. The breakout is not a trading signal. The mistake most people make is believing that that price hitting or exceeding one of the bands is a signal to buy or sell. Breakouts provide no clue as to the direction and extent of future price movement.



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