

POPULAR TERMS USED IN TECHICAL ANALYSIS

Accumulation/Distribution

Larry Williams developed the AD oscillator. It measures accumulation and distribution.

Buying Power is $BP = High - Open$

Selling Power is $SP = Close - Low$

Daily Raw Figure or DRF = $BP + SP$ divided 2 * (H-L)

$DRF = H-L+C-O/2 * (H-L)$

The A/D solves the problem of volatility and trading ranges.

The raw DRF and the smoothed DRF are plotted on the same graph, on a scale of 0 to 1 and two horizontal lines can be drawn to isolate the overbought and oversold situation. Two corresponding lines are drawn for the smoothed oscillator.

This oscillator can be used as a trading system: Sell when the DRF generates the overbought zone. Close all long position and go short on the open of the next day. Buy when DRF penetrates the oversold zone. Go long on the open next day.

Adjusted Charts

Adjusted Charts are applied to futures instruments and contain data for more than one contract. They follow the current lead contract through to expiration, and then follow the new lead contract. The scale of the chart is "adjusted" to the scale of the lead contract. This removes any gaps in the history of the chart that occur when one contract expires and another rolls on.

Bar Charts

Bar Charts are constructed from the high, low, open and closing price that occurred during the time Interval of the bar.

For Example, on a 30-Minute Bar Chart:

The opening price appears as a dash on the left side of a bar.

The highest price reached during the 30-minute interval appears as the top of the bar.

The lowest price reached during the 30-minute interval appears as the bottom of the bar.

The last price or closing price at the end of the 30-minute interval appears as a dash on the right side of the bar.

Bollinger Bands

These consist of 2 lines either side of a selected moving average. They can be used as envelopes or filters. The upper and lower 'bands' are set to a number of standard deviations away from the moving average, normally 2.

Candlestick Charts

Candlestick charts are the Japanese version of bar charting and have become very popular in recent years among western chartists. The Japanese candlestick records the same four pieces of information as the bar chart – high, low, open & close. A thin line (called the shadow) shows the day's price range from the high to the low. The wider portion of the candle is called the real body and measures the distance between the open and the close. The real body has a different colour depending on whether the trading interval closed higher or lower than the open. If the close is above the open the colour is pale or green, if the close is lower the colour is dark or red.

Chiku

This is part of a study called Ichimoku that comes from Japan. This is the most important line. If both the chiku line and the price are in an uptrend then this signals a buy. A signal is also generated if the chiku line crosses the price action i.e. used in a similar way to a moving average.

Close

The Close is the last price recorded at the end of the selected time interval.

Commodity Channel Index

Developed by Donald Lambert, the CCI is a trend-following system for commodities, which produce cyclical price patterns. It does not calculate length but is used as a timing tool. The assumption is that prices move in channels for prolonged periods. The market is oversold or overbought when the price moves too far away from the moving average value, which represents the centre of the market.

The CCI Index can be used as a breakout system: Go long over the +100 line or go short below the -100 line. All positions are liquidated between the two lines.

Continuation Charts

Continuation Charts are applied to futures instruments and contain data for more than one contract. They follow the current lead contract through expiration, and then follow the new lead contract. They provide a longer history for the chartist to analyse.

Contract Specific Charts

Contract Specific Charts contain data for only one contract. They follow the specified contract through expiration.

Cycles

Time Cycles - Allows the plotting of the distance between bars or candles, by either using arithmetic or Fibonacci values.

DMI

The DMI is used to identify a trending market and to provide an indication of the extent of this trend. It consists of two lines +Dlp and -Dlp. The 1st is a measure of uptrend and the second is a measure of downtrend. A 3rd line ADX (Average Directional Movement Index) indicates how much the market is trending, either up or down. The higher the ADX line, the more the market is trending and the more suitable it becomes for a trend following system. Wilder's ADXR line rates the directional movement on a scale of 0-100. The more trending the market and the more suitable the instrument is for a trending system. When the ADXR line is below 25 it indicates that a market is not suitable for a trend following system. Directional Movement lines may be used as a system on their own or as a filter on a trend-following system. The crossing of the two lines generates buy and sell signals. Long when +Dlp crosses over -Dlp and short, when -Dlp crosses over +Dlp.

Expiration

The date, and time at which any futures or option contracts must be settled.

Exponential Moving Average

$$EMA = \text{Yesterday's EMA} + (\text{Today's Price} - \text{Yesterday's EMA}) \times \left[\frac{2}{n + 1} \right]$$

All previous price action taken into account and greater weight is given to recent prices.

Fibonacci

Fibonacci was a 12th Century Italian mathematician who discovered the number series 1,1,2,3,5,8,13,21,34,55, where each successive number is the sum of the two previous numbers. The difference in ratio between these numbers into infinity is always 0.618, which is known as the "Golden Ratio". This number is one of the most important numbers in Technical Analysis and is always used as the most important retracement level.

Gann

W D Gann was an extremely successful stocks and commodities trader in the 1920's. Through his study of market behaviour he concluded that the most important retracement levels were thirds and eighths, with greatest importance attached to 1/3, 3/8, a half, 2/3 and 5/8.

High

The High is the highest price recorded during a selected time interval.

Historical Volatility

Historical volatility can be defined as the standard deviation of a price over a specific time period. Three main assumptions are used in this calculation, which are also used in most option pricing models:

- 1) Price changes are random and unpredictable.
- 2) Percentage changes in price are distributed normally.
- 3) Absolute price changes are distributed lognormally.

The 3rd assumption explains why options with higher exercise prices carry more value than options with lower exercise prices (because the upside has more potential than the downside).

It can be defined as:

$$x_i = \frac{1}{n} \sum_{i=1}^n p_i$$

p_{i-1}

Where x_i is the price change at time i , and p_i is the actual price at time i .

Lognormal distribution has the following characteristics:

- 1) Continuous - represents the nature of the Forex markets, and is the assumption made in most option pricing models.
- 2) Range of prices allowed in this distribution is 0 to infinity, accurately reflecting the realities of the market.
- 3) The asymmetrical distribution accurately reflects the higher value of options with a higher exercise price.

On balance, the lognormal distribution seems to be the better choice because it more accurately represents the realities of the market, (and in particular the Forex market).

Ichimoku

This is a Japanese trading model. There are 5 lines: - Tenkan, Kijun, Chiku, Kumo 1 and Kumo 2.

Intra day Charts

The term Intra-day is used to describe charts that are constructed of bars, candles etc that represent a time period of less than one day. These would include 1-minute, 5-minute, 60-minute, etc. Each Intra-day Bar displays the Open, High, Low, and Close that occurred during a specified time period.

Kijun

Kijun means 'trend' in Japanese. If the kijun line is going down, then sell. If the kijun line is going up, then buy.

Kumo 1 and 2

The kumo lines create a 'cloud', which is an area of support or resistance. The market must break through the cloud to signal a buy or sell. They are used in a similar way to support and resistance levels.

Larry Williams's %R

This oscillator measures overbought/oversold situations. It is said to be an 'upside

down' stochastic. This oscillator is based on the same concept of measuring the last close in relation to the price range over a certain period (below it is 10 days/hours).

$$\%K = 100 \times (H10 - C) / (H10 - L10)$$

Where C = Last close; and L10 = lowest low during the chosen period and H10 is the highest high during chosen period.

The %R line is - %R = 100 - %K.

The scale in Williams's oscillator means that a reading above 20 corresponds to an overbought situation and a reading below 80 corresponds to an oversold situation.

Line Charts

Line Charts are created by connecting a specified price, either the high, low open or close, for each time interval displayed. Line charts usually plotted using the close.

Logarithmic scale

Changes graph scale from arithmetic to a logarithmic scale.

Low

The Low is the lowest price recorded during the selected time interval.

MACD

The MACD measures acceleration/deceleration, overbought/oversold situations, and gives trading signals. It can be used as a trading system or as an oscillator. The MACD consists of: the Fast line which is the difference between two exponential moving averages in which the first one has a shorter time span than the second one; (Moving Average Oscillator) and the Signal line which is an exponential moving average of the fast line. For identification purposes the Fast line will be more erratic than the Signal line.

Gerard Appel, who originally developed this formula, suggests 12 and 26 days to calculate the fast line and a 9-day period to get the signal line.

T.E Aspray has tested different combinations of inputs for the three exponential moving average values and this optimisation has led him to the conclusion that a 10-20-9 days was the most profitable combination.

Market Profile©

Market Profile© Charts use alphabetical characters to plot the price activity that occurs during each time interval (default is 30 minutes).

The Market Profile© assigns a successive letter to each 30-minute time interval.

The assigned letter is plotted on the Market Profile© chart at each price traded during the 30-minute period. The resulting price distribution, and distributions for other trading days, can be analysed to determine market strength and weakness.

Momentum

The momentum measures acceleration/deceleration and overbought/oversold situations. The momentum formula is $M = P - P_x$ where P = Latest price and P_x = closing price "x" events ago. The crossing of the 'zero' line can be used for generating trading signals, but momentum signals have to be coordinated with the existing trend, for example the crossing of the "zero (1) line" should be taken as a sell signal only in a downtrend.

Month Codes

Normally the following codes are used to identify the individual futures contract months, cash, and spot contracts that are available on charting systems:

F January N July CC Continuation

G February Q August AA Adjusted

H March U September

J April V October

K May X November

M June Z December

Ex: USZ09 indicates -
US = U.S. Treasury Bond (Chicago Board of Trade), Z = December, and 09 = 2009

Monthly Charts

The term monthly is used to describe charts that are constructed from monthly intervals.

Moving Averages

Moving averages are trend following techniques. When using a single moving average the signal is taken from the crossing of the Moving average with the price action. When the moving average crosses below the price action a buy signal is generated and when it moves above a sell signal is generated. When using two moving averages the signal is taken from the crossing of the two moving averages. When the shorter moving average (the one calculated from the lowest number of intervals) moves above the longer moving average a buy signal is generated and when the short moving average moves below the longer moving average a sell signal is generated.

There are 3 main types of moving averages: Standard, Weighted & Exponential

Moving Average Oscillators

The oscillator is a measure of the trend acceleration or deceleration. As the speed of the price move increases the moving average line, though lagging behind, will also accelerate/decelerate.

The calculation for this oscillator is to plot the difference between 2 moving averages.

Presenting the data in this form has the advantage of highlighting the classic trading signals of a 2 moving average system (crossing of the "zero line").

Overbought/oversold situations are spotted when the short-term moving average moves too far above/below the long term moving average (=zero line). This short-term variation from the long-term trend usually announces a pause in the market until the short term moving average moves back to the long term moving average. If the short-term moving average bounces off the long term one, this usually represents a good buy/sell area in an uptrend/downtrend.

If the short term moving average crosses the long term one, this usually warns of a trend reversal.

On Balance Volume (OBV)

OBV is a volume indicator and is, therefore, only used on futures contracts. Joseph Granville developed it in 1963. It assigns the volume for each day a positive or negative value depending on whether the market prices close higher or lower for that day. A higher close from the previous day results in the volume figure for the current day being assigned a plus value, while a lower close from the previous day assigns a negative value. A running cumulative total is then maintained as the market continues to trade. It is the direction of the OBV line that is important and not the actual numbers.

Open

The open is the first price recorded at the beginning of a selected time interval.

Optimisation

This is the testing of different parameters in Studies or oscillators to find out the one that performs the best.

Oscillators

Oscillators are defaulted to plot in their own area directly below the price action. They share the time (y) axis but not the price (x) axis, although they can be overlaid onto the price action if required.

Parabolic

This is a trend following mechanical trading system developed by J.W Wilder. The name was derived from the pattern formed by the stops. The system is a true reversal system, every STOP being a REVERSAL POINT (SAR), when the SAR is penetrated the position is reversed.

Period

The period is the amount of time represented by each bar/candle/trend bar on the chart.

Point & Figure Charts

A point & figure chart is a study of pure price movement, i.e. it does not take time into consideration. When plotting a P&F chart you are asked for a box size, which is the number of points each X or O represents, then you are asked for the number of box reversals, which is the amount of price reversal required to register on the chart. The chart is plotted by changing the price action into the X & O columns depending on the movements in the price. A volatile market will result in a wide chart, whereas a quiet market will result in a narrow chart.

Prices

The following Prices can be used in Formulas and Technical Analyses:

Open
High
Low
Close
Bar Average (HLC/3)
True High
True Low
Range / True Range

Pull Back Line

A pull back line is a trend line that is drawn between a high and a low to identify a resistance line that is now acting as support, or vice versa.

Range / True Range

The Range is the difference between the high and the low of a specified interval.

The True Range is the greatest of:

1. Current high to current low
2. Previous close to current high or
3. Previous close to current low.

The True Range is used to calculate the DMI.

ROC Scale

Changes chart scale to a rate of change scale.

RSI (Relative Strength Index)

The formula used to calculate the RSI is as follows:

$$RSI = 100 - \left(100 / (1 + RS) \right)$$

where RS = Average of "x" days up closes divided by the average of "x" days down closes.

One of the advantages of oscillator analysis is to point out short-term market extremes.

Standard Moving Average

$SMA = (P1 + P2 + P3 + P4 + P5) / 5$ for a 5 event standard moving average.

The same weight is given to each price and only the recent price action is taken into account.

Stochastics

These oscillators measure overbought/oversold situations, divergence and trading signals.

They are based on the following observations: in an uptrend, the closing price is usually closer to the high of the price range, whereas, in a downtrend the closing price is usually near to the low of the price range.

The Stochastic uses two lines. The formulae used to determine both lines are given using a popular parameter set of 5 and 3 days.

$$\%K = 100 \times (C - L5) / (H5 - L5)$$

where C = last close or latest price. L5 = lowest low during the last 5 events. H5 = highest high during the last 5 events.

$$\%D = 100 \times H3 / L3$$

%D is a three-day or event moving average of %K.

where H3 = 3 day sum of (C-L5) and L3 = 3 day sum of (H5-L5).

The same 75 and 25 values are used to identify overbought/oversold situations.

A slower stochastic is sometimes preferred to counteract whipsawing and act as a filter. In this case the %K line is not shown. %D is displayed with a new line: %Dn = 3 day moving average of %D. The parameters to be input in this case would then be 5-3-3.

Swing Charts

The swing chart is similar to the point & figure chart as it is also a study of pure price movement; in other words, time isn't taken into consideration whilst plotting the price action. So if no price change occurs then the chart does not move. The difference between the swing chart and the point & figure chart is that vertical lines are used instead of the point & figure boxes. The number of points moved in one direction to cause the data to be plotted is required, and also the swing filter is required which is equivalent to the box reversal in a point & figure chart.

When the price falls below the previous low, the colour of the line changes to red.

When the price rises above the previous high, again the colour of the line changes, in the graph below it changes to green.

Swing Lines

Swing Line - These are similar to Swing Charts, except that time is considered in the calculation of the swing line. Therefore the distance between each vertical line may vary depending on the timing of the price action.

Tenkan

This is part of the Ichimoku Study. It is most important when used with the kijun line. If it crosses up above the kijun line, buy. If it crosses down below the kijun line, sell.

Time Periods

The time period is the number of events shown on the chart. Usually, there are 3 types of time period and these are short term, medium term and long term. They are further divided into daily, weekly and monthly.

Trading Positions

The 'Trading Positions' selection gives the percentage of the top 300 trading models for each of the 4 major currencies. These 300 models are long, short or square of US Dollars.

It also gives the possibility of seeing how these positions would be affected in percentage terms if the market closed either up or down by 50, 100 or 150 points. The user also has the option to switch between a European close and the New York close. The purpose of this is to determine what the condition of the market is and whether it be overbought or oversold.

Trend lines

These are diagonal lines, drawn by the user that identifies levels of support or resistance that change for each event.

True Highs/Lows

True Highs are defined as the maximum of either the current bar's high or the previous bar's close.

True Lows are defined as the minimum of either the current bar's low or the previous bar's close.

Volatility Bands

Rate Volatility Band - These consist of up to 2 lines either side of the price at certain percentage points, as determined by the user. They can be used as envelopes or filters.

Moving Average Volatility Band - These consist of up to 2 lines either side of the selected moving average at certain percentage points, as determined by the user. They can be used as envelopes or filters.

Volume Accumulation

Volume Accumulation is a volume indicator, which was devised by Marc Chaikin. Volume accumulation counts only a percentage of the volume as a plus or minus, depending on where the close is in relation to its average price for the day. If prices close above the mid-point of the day's range a percentage of that day's volume is given a positive value. If prices close below the mid-point, a percentage of the day's value is assigned a negative value. The only time the entire day's volume is assigned a positive value is when the close is the same as the day's high. When the opposite occurs, all the day's volume is counted as negative.

Weekly Charts

The term weekly is used to describe those charts where each bar/candle represents one week.

Weekly Rules

The Four-Week Rule (or Donchian Rule) is a very simple trend following mechanical system, which is always in the market, i.e. either long or short. It is a channel breakout system in which the previous twenty days (4 full calendar weeks) are examined.

- a) Long - when the price exceeds the highs of the four preceding weeks, or
- b) Short - when the price falls below the lows of the four preceding weeks.

Practical Approach

Count back twenty days and find the highest high and the lowest low for that period. These two points define a channel parallel to the x-axis. If today's action is;

- a) Above the upper value, then short positions are liquidated and long positions are taken (or kept).
- b) Below the lower value, then long positions are liquidated and short positions are taken (or kept).
- c) Within the channel, then the current position is maintained.

Note: If both parts of the channel are penetrated in one day, then only the first signal is taken.

Weighted Moving Average

$$WMA = [P1 + (P2 \times 2) + (P3 \times 3) + (P4 \times 4) + (P5 \times 5)] / [1 + 2 + 3 + 4 + 5]$$
for a 5 event weighted moving average.

Greater weight is given to the most recent prices, but only the most recent price action is taken into account.