Chart patterns & technical indicators

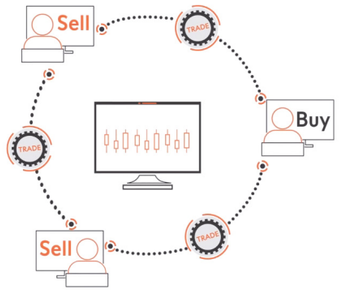
Swissquote Bank

«Fundamentalists who say they are not going to pay any attention to the charts are like a doctor who says he is not going to take a patient's temperature.»

Bruce Kovner
Investor, hedge fund manager,
and philanthropist

Table of contents

Chart patterns



Forex traders often use charts to decide when to enter and exit trades, and technical traders in particular analyse price patterns to find trading opportunities. By using charts, and weighing price, volume, volatility, and timing, it is possible to find and execute profitable trades.

Traders discern between chart patterns, which can be seen on a price chart, and indicators, which are calculated based on the prices of the chart.

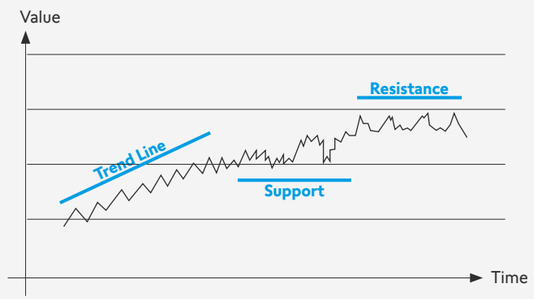
Over time, many different ways of analysing a chart have been developed, and many are readily available on our trading platforms. Some are classics, others are difficult to apply, and still others are well suited to some currencies but not to others.

In general, chart patterns can be grouped into those that indicate a continuing trend, and those that indicate an upcoming reversal of the trend. Usually, several analyses are used together to identify profitable trading opportunities.

Read more about continuation patterns on page 5, and about reversal patterns on page 7.

Trends, support and resistance

A trend is simply the prevailing direction of a price. If the price of a currency repeatedly reaches a given value but does not rise above or fall below it, the currency is said to have found a resistance or support level. Many traders keep an eye on past patterns to discern how far the price will move if it does break the support or resistance level.



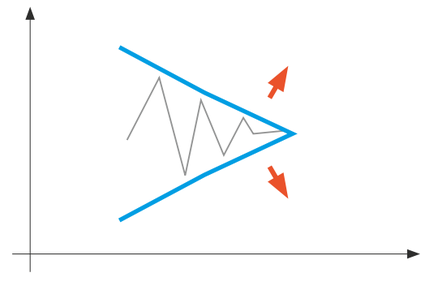
How to find support/ resistance levels:

1. Identify the highest (or lowest price) points that occur at least twice.
2. Draw horizontal lines between these points.

Continuation patterns

A continuation pattern **indicates an unchanged price trend.** A break from a continuation trend indicates a new trend or pattern. One common continuation trend is the symmetrical triangle, within which the price consolidates. Symmetrical triangles can be drawn when there are two price points on both the higher and lower level:

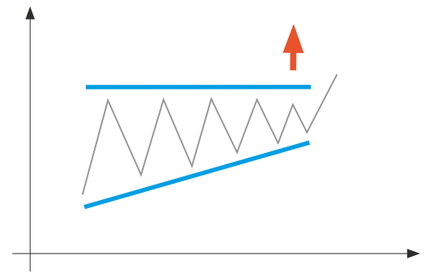
Symmetrical Triangle



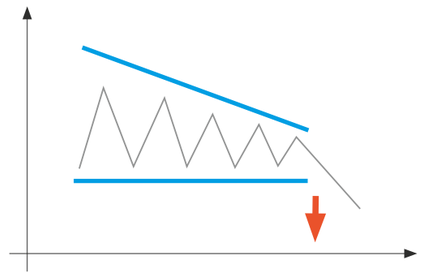
Once the tip of the triangle is reached, the price can go in either direction.

Variations on the symmetrical triangle are the ascending triangle and the descending triangle, which are similar to the symmetrical triangle except that the price has either resistance or support at a given level. Watch technical indicators to identify when the price will break the horizontal level in order to get aboard that trend; also watch for the price level to break the diagonal side of the triangle, which breaks the pattern.

Ascending triangle

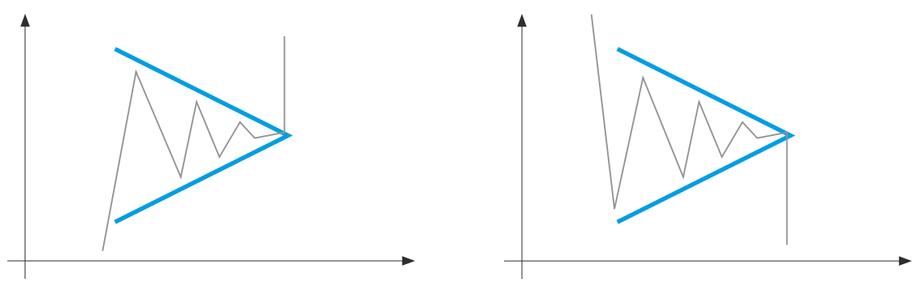


Descending triangle



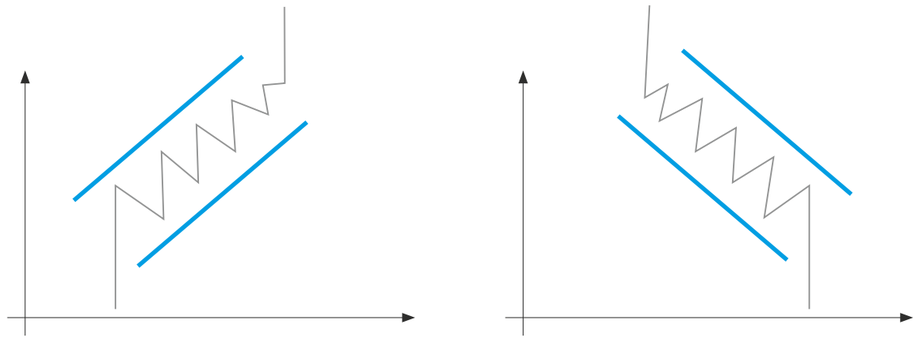
The symmetrical triangle can also form part of a pennant pattern, which is a strong movement in one direction followed by price consolidation (the symmetrical triangle), again followed by a strong movement in the same direction as the original movement. Pennants are formed as part of both bullish and bearish price movements – the first strong movement indicates which. Be particularly attentive as the tip of the pennant is formed.

Pennant



A variation of the pennant is the flag pattern, which shares the strong beginning move. Instead of consolidating around a price to create a pennant, prices forming a flag define a channel between the two parallel trend lines, often in a direction opposite to the original strong move. Watch for the trend to be broken in the direction of the original strong movement.

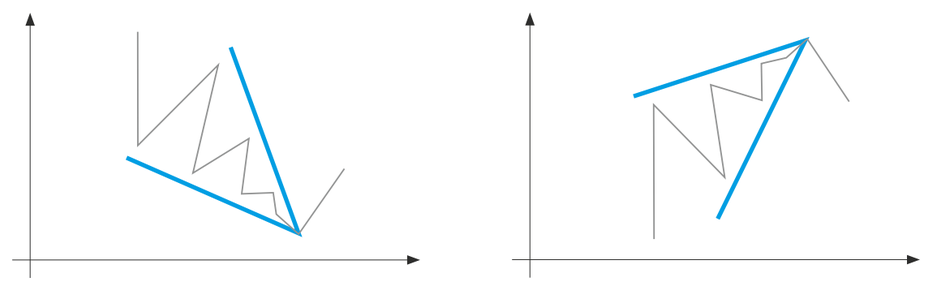
Flag



Reversal patterns

Reversal patterns indicate that **a price trend is about to change.** When looking for these patterns, ensure that there is in fact a trend ready to be reversed, and that you are looking at a trend until proven otherwise! One example of a reversal pattern is the wedge, which is like the ascending or descending triangles, but where the resistance and support level is undependable.

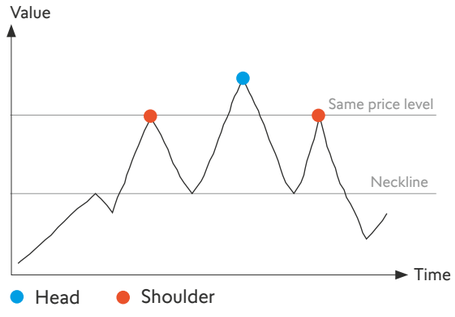
Wedge



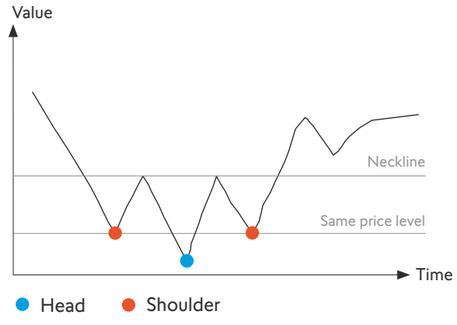
Unlike pennants and flags, wedges do not start out with a clear signal. The weak resistance (or support) is a sign that market participants are gently pushing the price in that direction, but are not joined by others to make it a strong price movement – and in the end the movement fails, letting the price move decisively against the previous general direction.

The head and shoulders chart pattern is a classic bearish reversal pattern, and has a counterpart in the inverse head and shoulders, which is the same pattern, but reversed to signal a new bullish trend. The head and shoulders pattern is formed by two tops with a higher top in between.

Reversal - Head & Shoulders



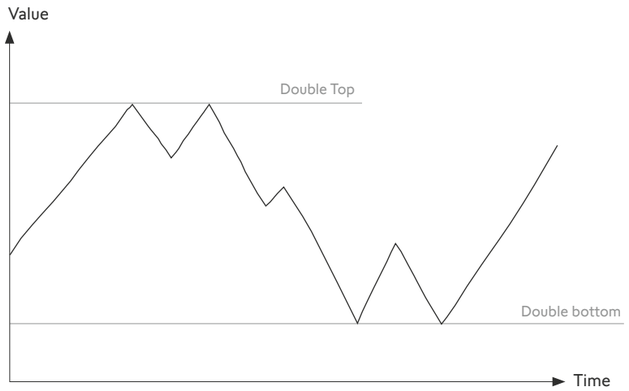
Inverse - Head & Shoulders



The final reversal pattern described here is the long-term double top pattern, which looks like a capital letter **M**, and which has a counterpart that looks like a capital **W** on a chart, the double bottom pattern.

When looking at a chart where two tops form after a bullish trend of several months, seek confirmation and be aware of technical indicators since the price, if it does not in fact break the level and confirm the reversal, may instead start trading in a channel between two levels. If you enter too quickly, you will be on the wrong side of this price movement.

Double top (M) and bottom (W)



Technical indicators

Technical indicators are calculated based on security prices. Indicators can be shown graphically on a price chart, or separately under (or over) the chart, mirroring the chart's time frame. Generally, indicators are divided into leading indicators that can alert you to potential trades when the price is showing no clear trend, and lagging indicators that are better able to confirm an existing trend.

It is useful to be familiar with several different indicators – for example, one leading and one lagging, one price change momentum, another volatility or trend, etc., and to use them to confirm each other's signals before entering positions.

Example of a moving average on a price chart

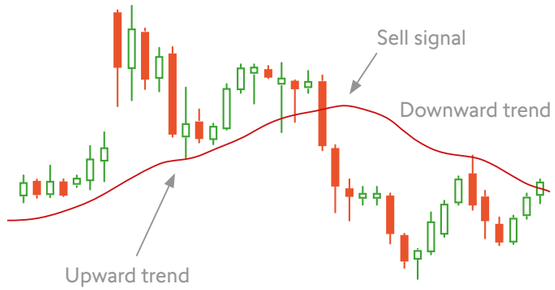


Chart patterns and technical indicators are invitations to look closer at a signalled opportunity to trade. To confirm such indications, use several signals in addition to considering the size of the price movement and the time period.

One of the most commonly used lagging indicators is the **moving average,** which averages the most recent prices (the average may be calculated on the opening, high, low or closing price). The moving average is the basis for several other indicators, and itself has several variations: the **simple moving average** adds the closing price of the most recent N days, then divides by N; and the **exponential moving average** is more responsive to price changes because recent prices weigh more heavily when it is calculated.

Because the **exponential moving average** lags less than the simple moving average, it is **better suited to confirm trade signals,** while the less responsive simple moving average is often better at indicating support and resistance levels.

Note that the greater the number of periods (N), the greater the lag – the curve is flattened. Just as with time frames, using more periods can point to long-term trends, while fewer, for example 5-25 periods, can be used to analyse short-term trends.

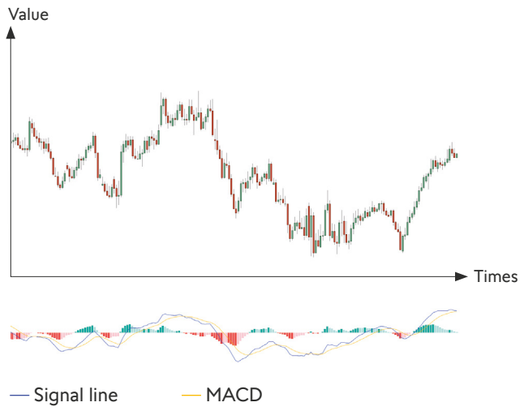
Moving Average & Exp. MA

A combination of exponential moving averages can also be used to identify trades. For example, on your price chart, add a short and a long exponential moving average (e.g. 20 and 50 periods, respectively) with a daily or four-hour time frame. Upward trends are indicated by the short exponential moving average crosses above the long. Conversely, downward trends are indicated when the short exponential moving average crosses below.

A variation of the moving average is the indicator called **moving average convergence/divergence (MACD).** In addition to indicating trends, the MACD is also a so-called **momentum indicator.** The MACD uses two exponential moving averages, and subtracts the one with more periods from the other (the MACD line). The default periods for the exponential moving averages are 12 and 26 days.

Traders observe the relative movements of these two lines. Translated to the MACD line, traders look for the MACD line to cross zero (i.e. for the two moving average lines to cross), and at how far from zero it is. When the line of the shorter period is above the other, the upside momentum is greater, and when it is below, downside momentum is greater. In other words, since the MACD line is the sum of the two lines, a positive **MACD shows upside momentum,** and when it is below zero, there is downside momentum.

MACD Moving Average Conv./Div.



In an attempt to foretell changes in market sentiment, shown by crossovers of the two moving average lines, the exponential moving average of the MACD line itself is often calculated, using even fewer periods (the signal line of the indicator). The signal line is often a 9-day exponential moving average. Traders watch for the crossover of the signal line and the MACD line, and for when the signal line crosses zero. When the MACD line crosses above the signal line, a positive price movement is expected; likewise, when the MACD line crosses below the signal line, a price downturn is expected. When using the signal line, keep in mind that **MACD shows momentum**, and might therefore produce many more signals than are actually tradeable. Therefore, always confirm signals before trading and keep an eye on the actual value of the price change.

Momentum indicators are based on the size and speed of price changes. The underlying logic is that momentum will change before the price itself changes direction. Often, momentum indicators will produce signals in non-trending markets unsuited to trend indicators, and in periods of sideways movement during larger trends.

An alternative momentum indicator is the **Relative Strength Index (RSI)**, which is shown as an oscillator. In contrast to the MACD, the Relative Strength Index **indicates when a security may be overbought or oversold.** The RSI indicates the speed and size of price changes, captured in a range of 0 – 100, where lower values indicate the degree to which the security is oversold, and may thus soon rise in price again; and higher values indicate that the security is overbought and may soon have more sellers than buyers. The RSI is useful when the price chart shows no clear trend.

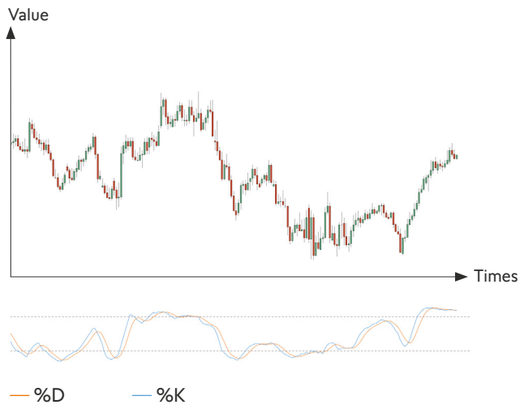
The standard number of periods used in the RSI calculation is 14 periods. To increase sensitivity and the number of signals, select fewer periods; conversely, to decrease the indicator's sensitivity, select more periods. The oscillator moves to 0 when there has been no gain in the security for the duration – in other words, when the price fell in all periods. The oscillator moves to 100 if there has been no loss – i.e. the price rose in all periods.

Relative Strength Index

While some securities, time frames and preferences call for other cut-offs, generally, a security is thought to be overbought at RSI values above 70 (bearish), and oversold at values below 30 (bullish). Some traders discern between RSI ranges in bull and bear markets. For example, in bull markets, the cut-off values for overbought and oversold may be 40 and 90 for many securities; and similarly, in a bear market, a security may not be oversold till the RSI falls to 10, but may be overbought at values as low as 60.

Many technical indicators are shown as oscillators, i.e. something that swings between two predefined values, for example between 0 and 100. Oscillators are usually shown above or below the price chart the indicator is based on.

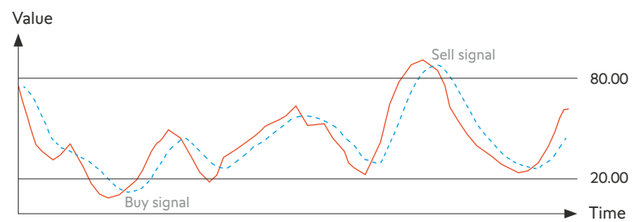
Stochastic oscillator



The **stochastic oscillator** is yet another momentum indicator. In addition to **indicating whether a given security is overbought or oversold,** it also attempts to foretell trend reversals. The stochastic oscillator, called %K, considers the most recent closing price in relation to the highest and lowest prices in the selected time frame.

This oscillator moves between 0 and 100, where low values indicate closing prices below the middle of the price range of the time frame; and high values indicate closing prices above the middle of the price range of the time frame. A simple moving average of the calculation is normally added to the display as a signal line (called %D). The most common values for this indicator is 14 periods, and three periods for the signal line. Traders observe the relative values and crossovers of the indicator and the signal line to spot trade opportunities: when the %K line crosses above the %D signal line, consider buying; and when %K crosses below %D, consider selling.

Generally, the underlying security is thought to be trending upwards when stochastic oscillator values stay above 50, and to be overbought above 80; and conversely, the security is generally trending downward when values stay below 50, and oversold at values below 20. When considering trade signals, consider the overall trend to filter out sustained supply or demand that is not about to reverse.

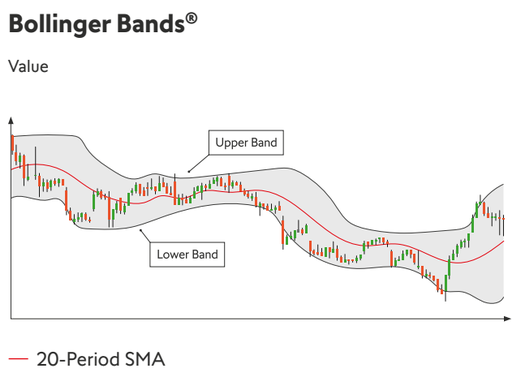


Here is how %K is calculated for 14 periods. Note the elements included - the most recent closing price in relation to the highest and lowest prices in the selected time frame.

%K= 100(C-L14)/(H14-L14)	■ «C» is the most recent closing price.
	■ «L14» is the lowest price traded in the 14 most recent trading sessions.
	■ «H14» is the highest price traded in the 14 most recent trading sessions.

Traders who like the Relative Strength Index (RSI) indicator, but who would like it to generate more trading signals, have three options: reduce the number of periods to make it more sensitive; choose different cut-off values for overbought and oversold; or combine it with the stochastic oscillator to calculate the momentum of the momentum! In other words, instead of calculating the stochastic oscillator based on prices, the calculation is based on the RSI momentum indicator. Note that this stochastic RSI a rather lively indicator, and always confirm signals with other sources of information.
In closing, we will look at Bollinger Bands®, which consider price volatility. **Bollinger Bands®** consist of a simple or exponential moving average of the price, and lines above and below this moving average based on the standard deviation of the price from this average. The standard deviation represents price volatility.

Bollinger Bands®



Usually, the simple moving average is calculated for 20 periods, and 2 times the standard deviation of the price is added or subtracted to create the lines above and below that generally include 90% of the chart's prices. When more periods are used, the deviation – and thus the bandwidth – also increases; similarly, when fewer periods are used, the standard deviation – and the band width – decreases. Because most price movements are within the bands, price moves beyond the bands are often worth analysing further. Because the bands are based on prices, increased bandwidth is a sign of increased volatility, and thus possibly trade opportunities, while narrow bands indicate decreased volatility.

All of the indicators described here may indicate trade opportunities, and can be used to confirm each other's signals. It can be well worth exploring a few of them further to see how they suit your trading interests. All of them are included in our trading platform and ready for you to apply to a chart or two.

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