

AION Trading - Technical Analysis

1 WHAT IS TECHNICAL ANALYSIS?

Technical analysis or “TA” for short, is a form of financial analysis that uses patterns in market data to identify trends and make predictions.¹

TA can be used on stocks, futures, commodities, fixed-income, currencies, cryptocurrency, and other securities with historical trading data. TA is used to analyze the details of price movements and trade volume. It is a given fact that big changes of price effects human emotion, *sentiment* as we call it, within a timeframe.

In this document, we will cover several indicators such as candlestick charts, trend-lines, supports and resistances, MACD (moving average convergence divergence), RSI (relative strength index), and Fibonacci Sequences.

1.1 CANDLESTICK CHARTS

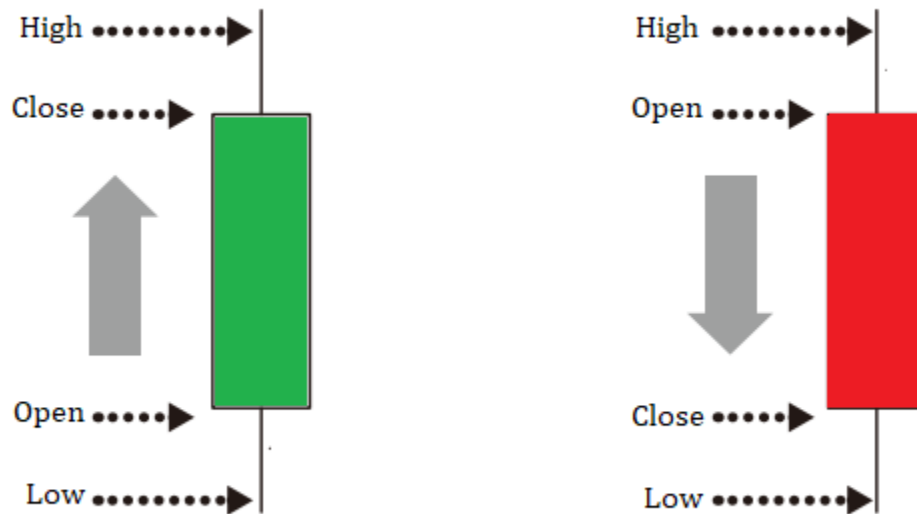
Traders use candlestick charts to track price movements of a certain stock or other securities. The “candlestick chart” originated from Japan back in the early 1900s. Its purpose is to show the prices of the **open** and **close** of a given timeframe in a rectangle shape.



If your chart is set to a 1-day timeframe, each of your candlesticks shows the open and close of a single day. A **green** candlestick indicates that your close price is higher than your open price. A **red** candlestick indicates that your close price was lower than your open price. In the traditional Japanese candlestick chart, your previous *close* marks the beginning or *open* of the next candlestick. The tails (straight lines) that we see on the top and bottom

¹ Oxford Dictionary “Technical Analysis”

of the candlestick are called *wicks*, an analogy to candlestick wicks. These mark the absolute lows and highs of that specific timeframe.



1.1.1 How can we use candlesticks?

The ***length of the body*** tells us the strength of the momentum of both seller and buyer.

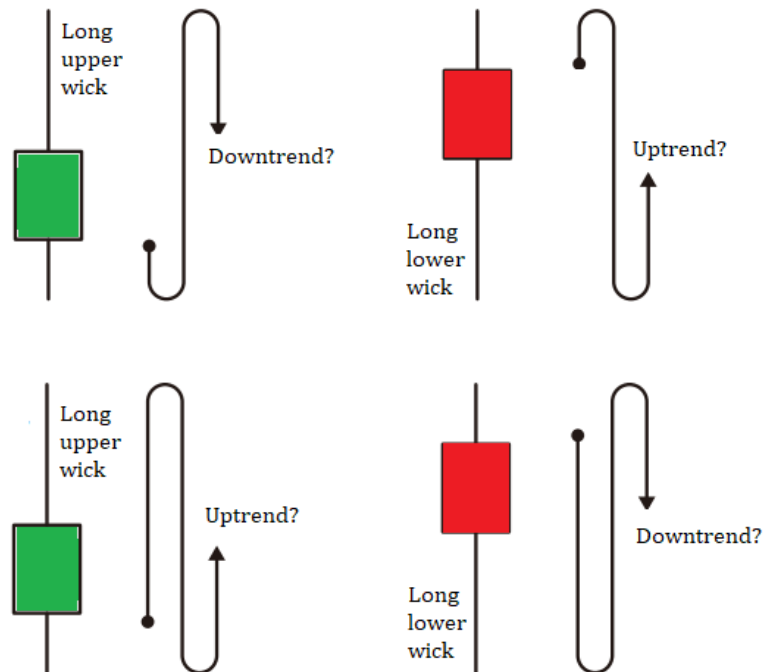
When the **buyers** are stronger, they keep buying and the **green** body becomes longer.

When the **sellers** are stronger, they keep selling and the **red** body becomes longer.

When the body is **short**, it tells us that the momentum of selling and buying is almost equal, meaning **no clear direction**, or nobody is interested in playing the security.

We can use the **wicks** of the candlestick as an indicator as well. A very long bottom wick means that the stock has been sold heavily but eventually returned to the level of the open. At the end, the bulls were stronger than the bears and kept price above the bottom wick. On the contrary, a very long upper wick means that the price was pushed to the open level and the bears were stronger than the bulls.

According to statistics, a longer upper wick (than bottom wick) appears in uptrends and a longer bottom wick (than upper wick) appears in downtrends.



Price is likely to move towards the longer wicks. Of course, this explanation is not always true, so you must be careful when using this indicator. Looking at a single candlestick can only tell us so much, so if you combine 2 or 3 candlestick charts, there is way more information to be found.

Over time, candlesticks group into recognizable patterns that investors can use to make buying or selling decisions.

The Hammer²

- a. A bullish reversal pattern. Signals that a stock is nearing bottom in a downtrend. The body of the candle is short with a longer lower shadow which is a sign of sellers driving prices lower, only to be followed by strong buying pressure to end the session on a higher close. The reversal must also be validated through the rise in the trading volume.



² Investopedia: <https://www.investopedia.com/articles/active-trading/062315/using-bullish-candlestick-patterns-buy-stocks.asp>

Adding more common patterns soon.

1.2 TRENDLINES

The word “**trend**” means the direction of the price movement when you use this word as technical term for the market. In upward phase it is called “uptrend”. In a downward phase it is called “downtrend”.

*In an **upward** phase, investors notice favorable materials (news, public information, financial information, etc.) to some stocks and begin to buy them, contributing to an uptrend.*

*In a **downwards** phase, investors notice unfavorable materials to some stocks and begin to sell them, contributing to a downtrend.*

If you catch a trend, it is easy to earn profits. You buy in uptrend and sell in downtrend. However, as markets do not generally move upwards linearly or downwards linearly, this is not as easy as it sounds. The market moves are characterized by a series of waves moving up or down according to demand and news.

1.2.1 How do I draw trend lines?

To find a broader perspective on a direction of the trend, one method is to draw trendlines to suggest a certain trend. The uptrend line is sometimes called the support line and the downtrend line is called the resistance line. Both lines drawn creates something known as a **channel**. Here is an example of a *bearish channel*.



1.2.2 Trend Continuity

The continuing uptrend means that the low becomes higher than the low price of the previous and simultaneously, the current high price becomes higher than the high price of the previous. This means that the both the low price and the high price are rising.

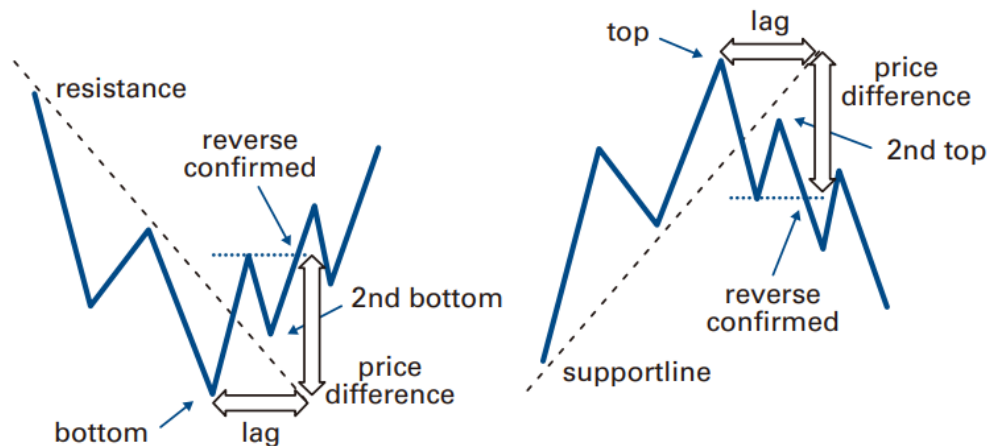
On the contrary, the continuing downtrend means the high price becomes lower than the high of the previous and simultaneously, the low price of turning point becomes lower than the low price of the previous. This means that the both the low price and the high price of each points are falling.

1.2.3 How can I determine the turning point of a trend?

When you decide that you have a trend (using your trend lines) and there is a questionable price action that breaks out of a trend, you will need to make sure that you use a *lag* to make sure your trend is confirmed to have ended.

If you are in a downtrend, and you believe that the trend has reversed, make sure you have higher lows and higher highs past the resistance line.

If you are in an uptrend, and you believe that the trend has reversed, make sure you have lower lows and lower highs past the support line.



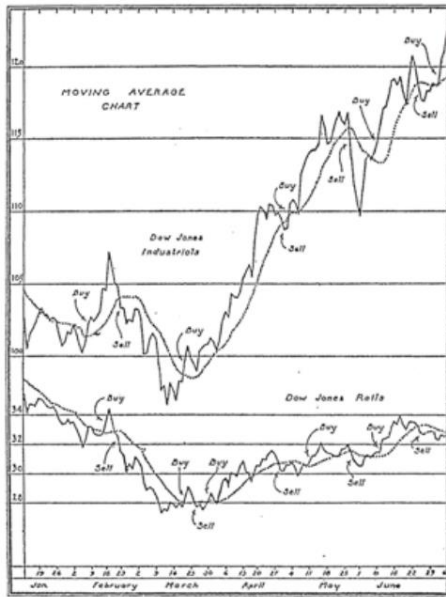
There are always lags

The trendline is one of the most useful technical analysis methods for everybody's use. Because it is drawn by the user, some say that you can draw it arbitrarily. Especially if you are drawing a trend of a past market, it is likely to be "correct" because you already know the outcome of the market. Be sure to practice this tool!

³ The Nippon Technical Analysts Association. Kakuya Kojah & Toshiki Aoki

1.3 MOVING AVERAGES

Moving averages are one of the oldest and most popular technical analysis tools. In Japan, around 100 years ago, the concept appeared in several books. In United States, around 80 years ago, the moving average of Dow Jones 30-stock Industrial Average was first introduced in the investment magazine called "Stock Market Technique" at September-October issue in 1935 published by Richard Wyckoff.



「Stock Market Technique」(1935)

Most simple method of a moving average is called "Simple Moving Average" or SMA for short.

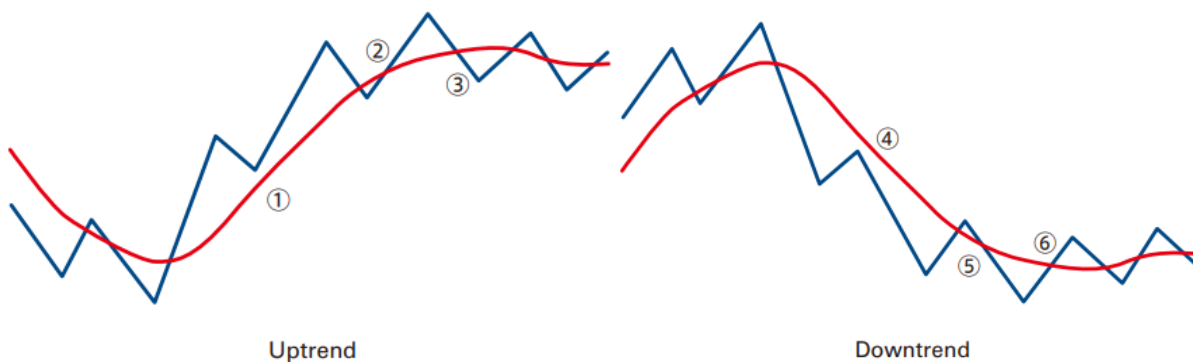
A simple moving average is calculated by adding the security's prices for most recent " n " time periods and then dividing by " n ".

In weekly chart, 13 weeks, 26 weeks, and 52 weeks are often used as SMA standards. This eliminates seasonal change of a quarter, half year, and one year.

In a monthly chart, 12 months, 24 months, and 60 months are often used.

1.3.1 How to use moving averages

See chart below this text. If the moving average line (indicated in red) is above the stock price (indicated in blue), then we are in a downtrend. If the blue line is above the red line, then we are in an uptrend or a rally. The blue line can be substituted for Japanese candlesticks as discussed earlier in this guide.



1.3.2 Rules for Buying and Selling with moving averages

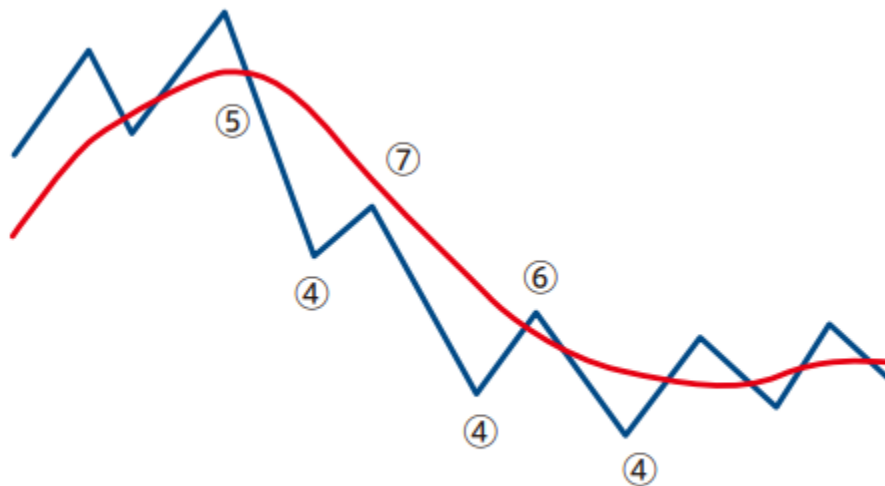
Taken from Joseph Granville's "Strategy of Daily Stock Market Timing for Maximum Profit" (1960). The eight basic ways of trading successfully by using 200-day moving average price charts are as follows:

Best times for buying

1. At the time the moving average goes sideways or upward after falling, and then the stock price goes higher than the moving average
2. The stock price goes lower than the uptrend moving average
3. The stock price being over the uptrend moving average falls toward the moving average and then again begins to rise without recording the figures below the moving average
4. The stock price becomes far below the downtrend moving average

Best times for selling

5. At the time the moving average goes sideways or downward after rising, and then the stock price goes lower than the moving average
6. The stock price goes higher than the uptrend moving average
7. The stock price being under the downtrend moving average line rises toward the moving average and then again begins to fall without recording the figures over the moving average
8. The stock price becomes far over the uptrend moving average



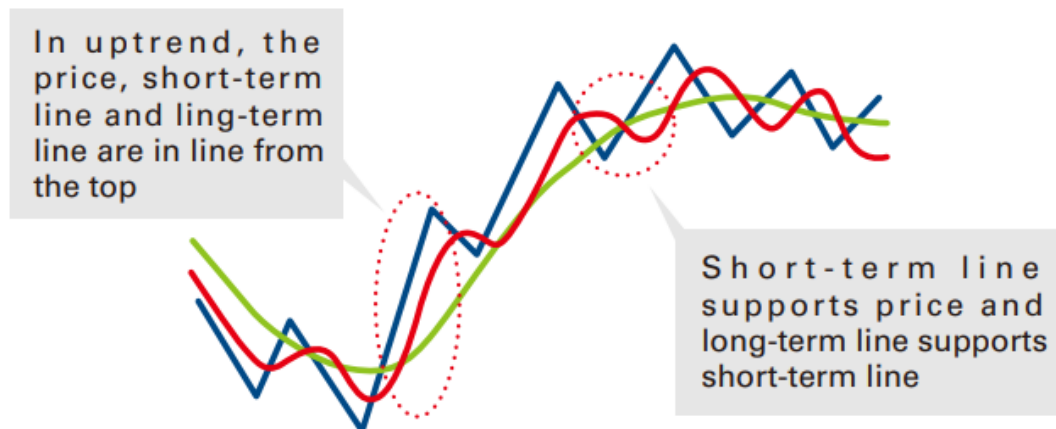
Downtrend: Sell ⑤ ⑥ ⑦, Buy ④

Moving averages are extremely helpful for those trading securities or trading derivatives such as options. By understanding the market better, we can use moving averages to our advantage. You must be careful about the “wrong signals” when you solely depend upon these signals. “Wrong signals” are mistakenly choosing the wrong times to buy or sell.

1.3.3 Different types of moving averages

Because simple moving averages has the intrinsic nature to lag half a period behind the current stock price, there has been a variety of other moving averages to make it easier for investors to trade on different time frames.

You can use short-term, mid-term, and long-term moving averages to act as supports and resistances in a given graph.



Moving average on uptrend

Other types of moving averages includes but are not limited to: Exponential Moving Averages (EMA), Smoothed Moving Average (SMMA), Linear Weighted Moving Average (LWMA), etc.

Adding more moving averages soon.

1.3.4 Golden Cross and Death Cross

The **golden cross** occurs when a short-term moving average cross over a major long-term moving average to the upside and is interpreted by analysts and traders as signaling a definitive upward turn in a market. Basically, the short-term average trends up faster than the long-term average, until they cross.

There are three stages to a golden cross:

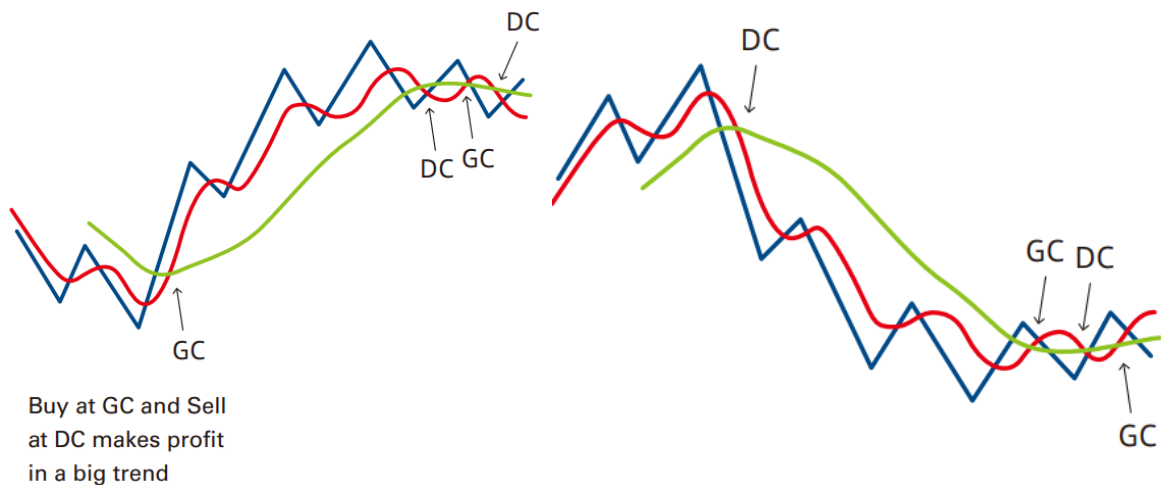
A downtrend that eventually ends as selling is depleted

A second stage where the shorter moving average crosses up through the longer moving average

Finally, the continuing uptrend, hopefully leading to higher prices

Conversely, a similar downside moving average crossover constitutes the **death cross** and is understood to signal a decisive downturn in a market.

The death cross occurs when the short-term average trends down and crosses the long-term average, basically going in the opposite direction of the golden cross.



1.4 MACD AND RSI

Investors use moving average convergence divergence (MACD) and relative strength index (RSI) in conjunction with moving averages and/or candlesticks to confirm each indicator.

1.4.1 Moving Average Convergence Divergence (MACD)

The MACD is primarily used to gauge the strength of stock price movement. The MACD is calculated by this formula. $[MACD = 12\text{-Period EMA} - 26\text{-Period EMA}]$

The MACD has a positive value whenever the 12-Period EMA (blue) is above the 26-Period EMA (red) and a negative value whenever the blue is below the red.

The more distant the MACD is above or below its baseline indicates that the distance between the two EMAs is growing. In the following diagram, you can see the EMA's crossing one another.



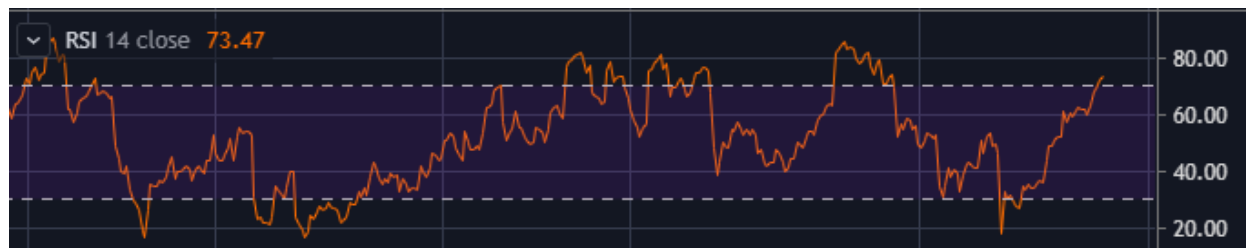
Traders use MACD's histogram to identify when bullish or bearish momentum is high.

1.4.2 Relative Strength Index (RSI)

The relative strength indicator/index (RSI) aims to signal whether a market is considered to be **overbought** or **oversold** in relation to recent price levels.

The RSI is an oscillator that calculates average price gains and losses over a given period. The default time period is 14 periods with values bounded from 0 to 100.

This indicator measures momentum in the market and gives investors a relative idea of how overbought or oversold an underlying security is.



*Any area above 70.00 is considered to be **overbought**, any area under 30.00 units is considered to be **oversold**.*

1.4.3 Limitations

These indicators both measure momentum in a market, but, because they measure different factors, they sometimes give contrary indications.

For example, the RSI may show a reading above 70 for a sustained period of time, indicating a market is overextended to the buy side in relation to recent prices, while the MACD indicates the market is still increasing in buying momentum.

Either indicator may signal an upcoming trend change by showing divergence from price (price continues higher while the indicator turns lower, or vice versa).



In this diagram to the left, we can take into an example of how using MACD and RSI may lead to a “false positive”. The MACD indicator shows a crossover to a bullish signal. The RSI momentum was previously in oversold territory and seems to be crossing over the 30.00 units line. However, we can see that investors who bought calls or shares got faked out as the stock plummets right after.

1.5 FIBONACCI SEQUENCE IN FINANCIAL MARKETS

There is a special ratio that can be used to describe the proportions of everything from nature's smallest building blocks, such as atoms, to the most advanced patterns in the universe, such as unimaginably large celestial bodies. Nature relies on this innate proportion to maintain balance, but the financial markets also seem to conform to this "golden ratio."

1.5.1 The Mathematics

Mathematicians, scientists, and naturalists have known this ratio for centuries. It's derived from something known as the Fibonacci sequence, named after its Italian founder, Leonardo Fibonacci. Each term in this sequence is simply the sum of the two preceding terms (1, 1, 2, 3, 5, 8, 13, etc.).

But this sequence is not all that important; rather, it is the quotient of the adjacent terms that possess an amazing proportion, roughly 1.618, or its inverse 0.618.

Don't believe it? Take honeybees, for example. If you divide the female bees by the male bees in any given hive, you will get 1.618. Sunflowers, which have opposing spirals of seeds, have a 1.618 ratio between the diameters of each rotation.

Application of Fibonacci in Technical Analysis

When used in technical analysis, the golden ratio is typically translated into three percentages: 38.2%, 50%, and 61.8%. However, more multiples can be used when needed, such as 23.6%, 161.8%, 423%, and so on. There are four primary methods for applying the Fibonacci sequence to finance: retracements, arcs, fans, and time zones.

1.5.2 Fibonacci Retracement

Fibonacci retracements can be used to place entry orders, determine stop loss levels, or set price targets. For example, a trader may see a stock moving higher. After a move up it retraces to the 61.8%% level, and then starts to bounce again. Since the bounce occurred at a Fibonacci level, and the longer trend is up, the trader decides to buy. They could set a stop loss at the 78.6% level, or the 100% level (where the move started).

Read more about Fibonacci Retracements at:

<https://www.investopedia.com/terms/f/fibonacciretracement.asp>

1.5.3 How to Draw Fibonacci Levels

It takes skill to set Fibonacci grids correctly, and picking the wrong levels as starting and ending points undermines profitability by encouraging buying or selling at prices that make no sense. The process also requires multi-trend grid placement, with successive levels placed at longer and shorter time frames until they capture price ranges that might come into play during the life of the open position.

Start grid placement by zooming out to the weekly pattern and finding the longest continuous uptrend or downtrend. Place a Fibonacci grid from low to high in an uptrend and high to low in a downtrend. The first three ratios act as compression zones, where the price can bounce around like a pinball, while the .786 marks a line in the sand, with violations signaling a change in trend.

Now move to shorter-term trends, adding new grids for those time frames. Once completed, your chart will show a series of grids, with lines that are tightly aligned or not aligned at all. Tight alignment identifies harmonic support and resistance levels that can end corrections and signal trend advances, higher or lower, especially when supported by moving averages, trendlines, and gaps.

Example of an AION Trading admin's use of Fibonacci Retracements:



*Bottom Picture: How the market moved **AFTER**. We can see that there was a bounce on the trend-line drawn. The Fibonacci levels were relatively accurate when setting a range.*

Adding more Fibonacci content soon.

CONCLUSION AND SUMMARY

Ultimately, we hope that this beginner's guide to Technical Analysis will bring a lot more insight into trading using indicators such as candlesticks, trendlines, moving averages, MACD, RSI, and Fibonacci Levels.



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