Support and Resistance

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Support and *resistance* are both forms of impedance to price movement. They are both generally areas (like $49.25 to $50.75) rather than specific levels (such as $50). They both arise in the same way and the only difference is the direction in which price approaches them. In other words, *resistance* near $100 refers to impedance when price is rising toward $100, and *support* near $100 refers to impedance when price is declining toward $100. So *support* may slow or stop a price decline, and *resistance* may slow or stop a price advance.

There are four main sources of support or resistance:

- "psychological" => occurs near round-number prices
- "historical" => caused by notable turns (price peaks and valleys), or stalls (consolidations) in price activity
- "trendline" => occurs near trendlines
- "miscellaneous" => seen near 50-bar average and 200-bar average, or the half way point between a local high and a local low

Once again: A s*upport level* impedes downward price movements. A r*esistance level* impedes upward price movement. So *support* is a level or an area that will generally slow or stop descending prices from going further down, and *resistance* is a level or an area that will generally slow or stop rising prices from going further up. Of course, there are times when price will fall right through an area of *support*, or it will drive right up through an area of *resistance*, but those are exceptions, not the rule.

The critical notion is that an area of resistance (when approached from below) will also be an area of support when approached from above. So s*upport* and *resistance* are two sides of the same coin.

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Here are details about the are four basic kinds of support and resistance:

Psychological — This kind of support and resistance occurs as price approaches round numbers (e.g., $10, $20, $25, $50, $100...). Round numbers become psychologically significant because people tend to think in round numbers, for example, "If NVDA goes up to $1000 then I'll sell it." or "If AAPL goes down to $150, I'll buy it."

Buy and sell orders that accumulate at round numbers cause sudden shifts in the supply-and-demand at those levels. If price is descending toward $250 and there are a lot of buy orders waiting, then as price reaches that level, those buy orders will all get executed at once. If the waiting buy orders consume all the sell orders that were driving price down, then the downward price move will stall. In other words, the buy orders create *support* at that level.

Historical — This support and resistance occurs at previous price peaks and price valleys. It also occurs at levels/areas of heavy trading in the past.

Peaks — When price advances and then declines, it creates a peak. Sometimes there are a significant number of people who bought the stock at or near the peak. Many of those people think, "If price ever gets back up to that level again, I'm going to sell it." As a result, there is an area of increased supply near the level of the peak. So when price advances to that level again, people who are trying to "get their money back" unload their shares. This excess supply can overpower the rally, and sometimes even reverse it.

Valleys — When price declines and then advances, it creates a valley – a low point. There are often people who wanted to buy at that low, but they didn't have the courage to jump in. They often think, "If price ever gets back down to that low, I'll buy it!" This creates an area of increased demand, so when price declines to that level again, people who "missed out" pile into the stock. This area of strong demand can slow or even stop the decline.

Heavy Trading — When price reaches an area at which there has been a lot of trading back and forth, there are often a lot of people are unhappy with the result of their purchase or sale. They decide if price ever gets back to where they bought or sold, they are going to correct their mistake. This creates more activity in the same area as before. Increased activity increases volatility, which tends to drive price sideways more than anything else.

Trendline — As trendlines are extended into the future, they provide areas of support and resistance just like Historical support and resistance does. The difference is that Historical support and resistance is always horizontal and trendlines are seldom horizontal.

Trendlines were the first tool used by technical analysts. They have been in use since the mid-1930s. (Moving averages were invented to mimic trendlines. Moving averages provided an easy way to estimate the trend without requiring an analyst to mark up a paper chart by hand.)

Details on Trendlines are given in Appendix A

Miscellaneous

Major Averages

Major averages include the 200-day average of price and the 50-day average of price. There isn't anything particularly special about these two averages, except for the fact that a lot of people <u>think</u> they are special. Markets are driven by sentiments and expectations. If enough people believe something is important then it is, de facto, important.

The 200-day average has been around for a century or more. Everybody is aware of it, and many people make decisions based on it. The 50-day average has been around almost as long, and based on familiarity, it influences people's perspective of what's going on in the market. In addition, people make decisions based in the relationship between the 50-day average and the 200-day average.

As such, these averages have some amount of support and resistance surrounding them. To a lesser degree, the 100-day and 21-day averages do, also.

Retracements

A retracement level is a percentage of movement between a recent high point in price and a recent low point in price. Without delving too deeply into Fibonacci theory, the strongest retracement levels are 100%, 50%, 61.8%, and 38.2%. If we look at the numbers in the Fibonacci set [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, …] and calculate the ratio between each pair:

0 / 1	**=**	**0**	
1 / 1	**=**	**1**	**(100.0%)**
1 / 2	**=**	**0.5**	**(50.0%)**
2 / 3	**=**	**0.667**	**(66.6%)**
3 / 5	**=**	**0.600**	**(60.0%)**
5 / 8	**=**	**0.625**	**(62.5%)**
8 / 13	**=**	**0.615**	**(61.5%)**
13 / 21	**=**	**0.619**	**(61.9%)**
21 / 34	**=**	**0.617**	**(61.7%)**
34 / 55	**=**	**0.618**	**(61.8%)**

we see that 1 / 1 gives us the100%, 1 / 2 gives us the 50% and, as the series progresses, the ratios converge on 61.8% (an approximation of the irrational number that starts 0.6180339887498948482...). And the 38.2% comes from 100% – 61.8%.

There are more deeply derived levels, but the support/resistance falls off rapidly when you go beyond the basic four: 100%, 50%, 61.8%, and 38.2%. And it is worth noting that 100% is the strongest, 50% is second, and 61.8% and 38.2% are weaker than 50%.

Summary

Support and *resistance* are directional variations of *impedance*, which is a level or area which tends to slow down or even halt directional price movement.

The overall consensus is that the strongest and most clearly defined forms of support and resistance are historical peaks & valleys (high turning points and low turning points). After that come 50% retracements, psychological levels (round numbers), and trendlines. Notice that all of those are horizontal (stable price points) except trendlines, which can be horizontal but it is very unusual.

Appendix A

Details About Trendlines

Markets trend, and they do so a lot more than most people realize. An unfortunate piece of market jargon, the term "non-trending", came into being because people were only interested in the market when it was going up or going down. But the fact is that the market trends up, down, or sideways, and for any given time frame, it spends more time moving horizontally than it does advancing or declining.

The mathematics of market price movements is consistent. It does not change just because the slope of the trend has changed, and the trend is often sideways. In addition, there are times when the trend can be difficult to identify. These often occur when the slope of the trend is changing. When this happens, the easiest way to figure out what's going on is to switch to a higher time frame. (As JC Parets says, "When in doubt, zoom out.)

A trendline is the product of auto-correlation among critical points (peaks or valleys) in a 2-dimensional rendering of the output of a CAS (Complex Adaptive System). The stock market is a Complex Adaptive System. Trendlines are the result of the self-organizing characteristic displayed by complex systems.

How to Draw Trendlines

There are two articles on the TLD website that talk about this in some detail:

1. Drawing Useful Trendlines

2. Advanced Trendlines

How to Gauge the Strength of a Trendline

1. Strength increases with the number of anchors (touchpoints).
2. Strength increases when there is more even spacing of the touchpoints. (Clustering is bad.)
3. Strength increases with the length.
4. Strength decreases with slope. The steeper the slope, the weaker the trendline.

Are trendlines for real?

Trendlines create an observable influence on market price movements when projected into the future. That is to say, trendlines define support and resistance areas in the future.

People who liken technical analysis to reading tea leaves deride trendline impedance as "spooky action at a distance". However, trendline support and resistance is an observable fact.