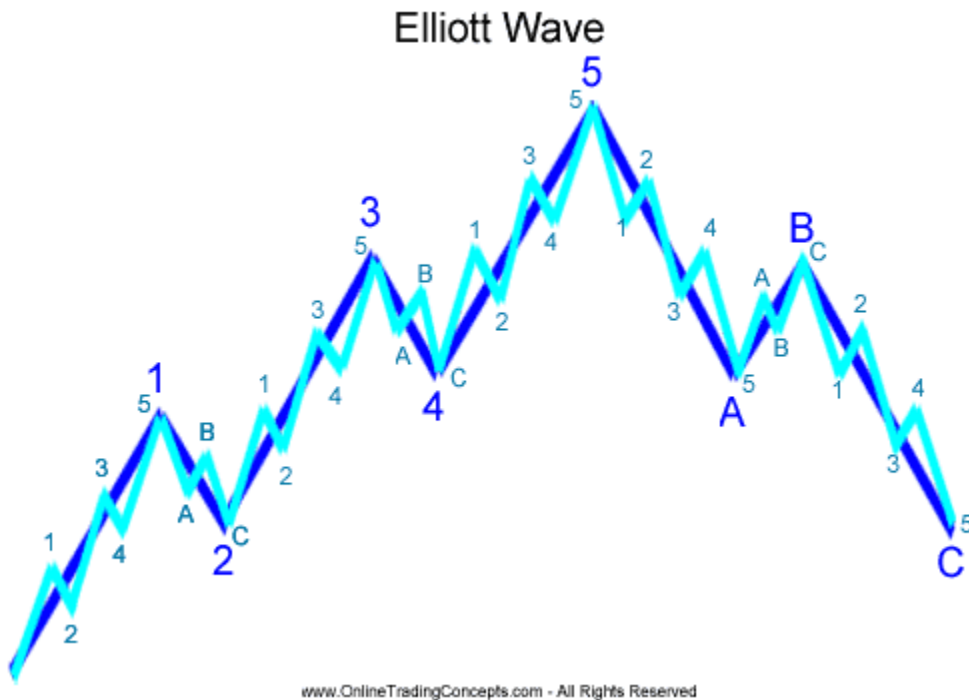


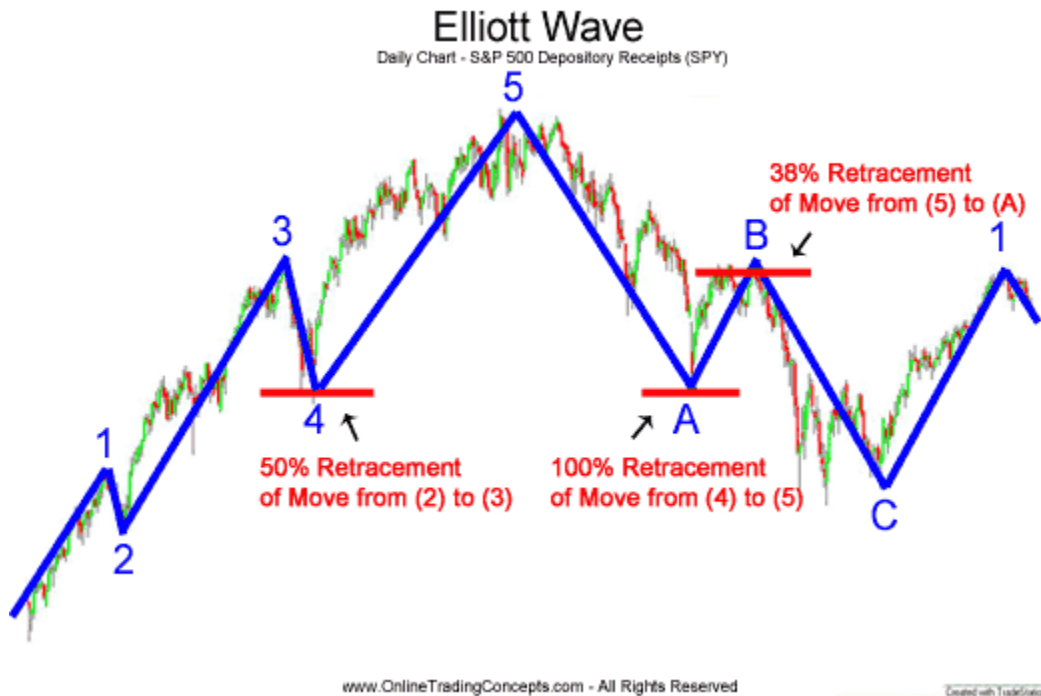
Elliott Wave

Elliott Wave theory states that prices move in waves. These waves occur in a repeating pattern of a (1) move up, (2) then a partial retracement down, (3) another move up, (4) a retracement, (5) then finally a last move up. Then, there is a (A) full retracement, followed by a (B) partial retracement upward, then (C) a full move downward. This repeats on a macro and micro time frame. A visual illustration of the basic pattern of the Elliott Wave is given below. A real life example of Elliott Wave in action is given further down:



Elliott Wave is based on crowd psychology of booms and busts, rallies and retracements. Traders often use fibonacci numbers (see: [Fibonacci](#)) to anticipate where a retracement is likely to end and thus the place where they should place their trade. The chart below illustrates the Elliott Wave pattern applied to crowd psychology (i.e. S&P 500) and Fibonacci Retracements:

In the example above of the S&P 500 ETF, if the Elliott Wave theorist recognizes that he/she just completed a the leg from (2) to (3) and the market is beginning to retrace, the trader might put a buy order at the 38% Fibonacci retracement. In the example above, that trade would have failed and the trader would have been stopped out of their long position. The trader then might consider putting an order in at the 50% retracement. In the example above, that would have been an extremely profitable trade, making up for the previous loss and more.



Next, realizing that the latest trend was the (4) to (5) upmove, the Elliot Wave theorist would next expect a downward move to (A). This retracement is larger than the previous (1) to (2) retracement and (3) to (4) retracement. A reasonable guess as to where the retracement (5) to (A) will end is the 0.618, the golden fibonacci ratio.

Selecting the 61% retracement would have proved profitable for a little while, assuming the trader didn't have extremely tight stop losses in place, but the retracement turned out to be a head fake. Subsequently, the next often used Fibonacci retracement is 100%. This trade would have been very profitable, given the S&P 500 retraced almost perfectly at 100% of the move from (4) to (5).

A likely profit target to exit at least part of the trade initiated at point (A) is the 38% Fibonacci level. This also happened to be the turning point for the next leg down from (B) to (C).

Suggested further reading is Fibonacci tools (see: [Fibonacci](#)).

Fibonacci

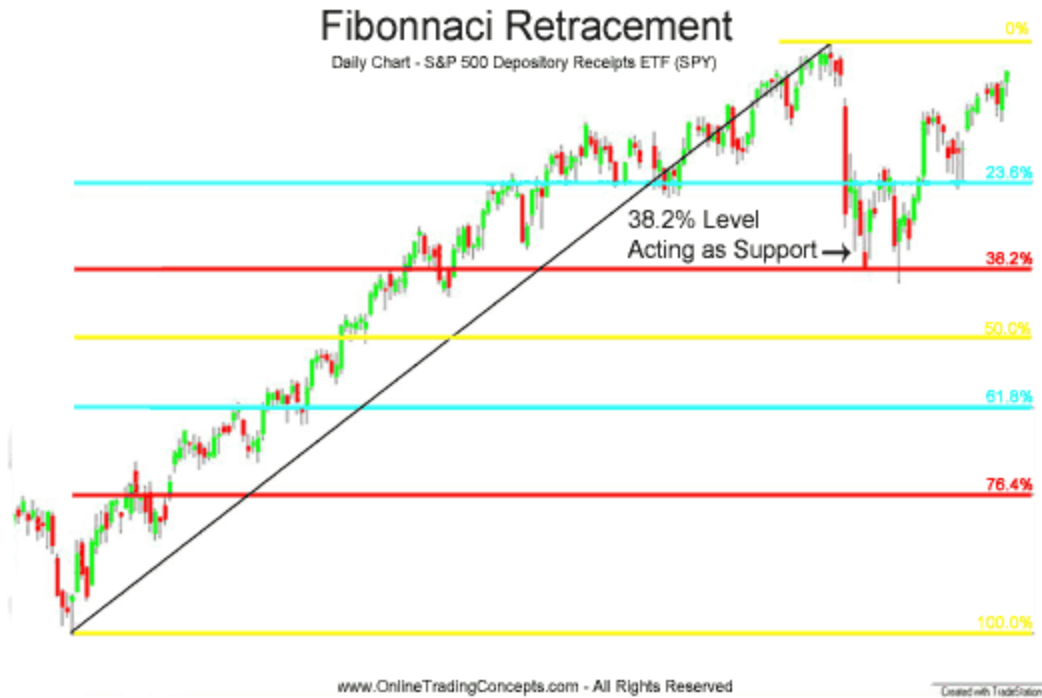
Fibonacci tools utilize special ratios that naturally occur in nature to help predict points of support or resistance. Fibonacci numbers are 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, etc. The sequence occurs by adding the previous two numbers (i.e. $1+1=2$, $2+3=5$). The main ratio used is .618, this is found by dividing one Fibonacci number into the next in sequence Fibonacci number ($55/89=0.618$). The logic most often used by Fibonacci based traders is that since Fibonacci numbers occur in nature and the stock, futures, and currency markets are creations of nature - humans. Therefore, the Fibonacci sequence should apply to the financial markets. There are many Fibonacci tools used by traders, they include:

- Fibonacci Retracements
- Fibonacci Arcs
- Fibonacci Fans
- Fibonacci Time Extensions

Fibonacci Retracements

Arguably the most heavily used Fibonacci tool is the Fibonacci Retracement. To calculate the Fibonacci Retracement levels, a significant low to a significant high should be found. From there, prices should retrace the initial difference (low to high or high to low) by a ratio of the Fibonacci sequence, generally the 23.6%, 38.2%, 50%, 61.8%, or the 76.4% retracement.

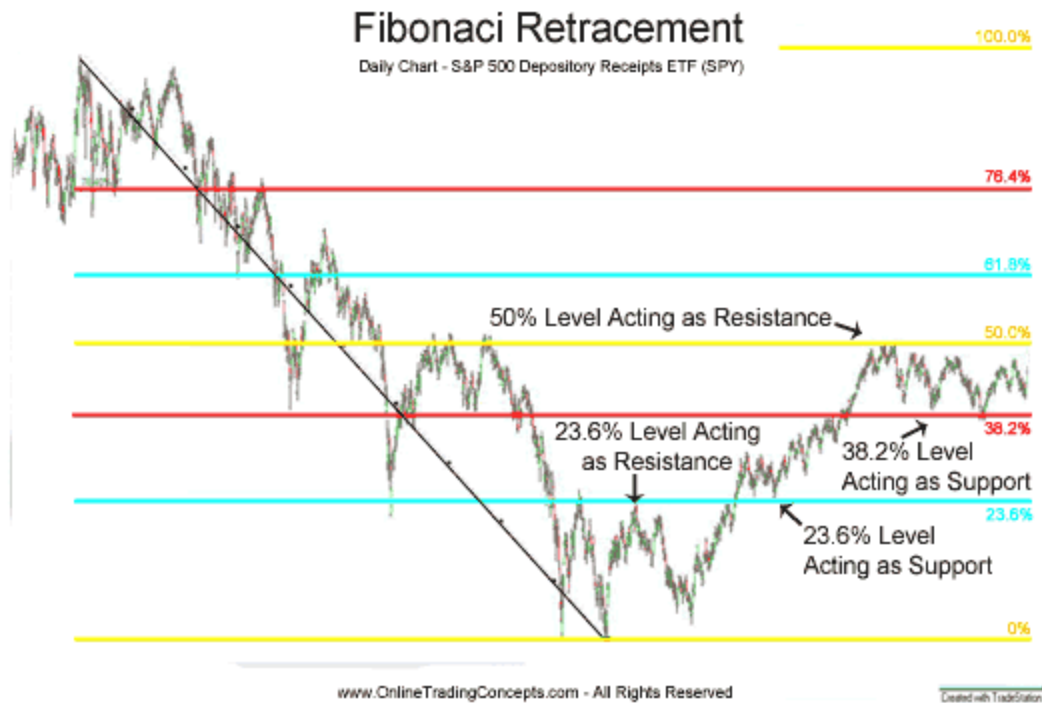
For the examples of this section, the S&P 500 Depository Receipts (SPY) will be used based on the logic that the S&P 500 is a broad measure of human nature, thus the Fibonacci sequence should apply very well. Nevertheless, the Fibonacci sequence is applied to individual stocks, commodities, and forex currency pairs quite regularly. The chart below shows the 38.2% retracement acting as support for prices:



Next Page - [Fibonacci Arcs](#)

Note that a trendline was drawn from a significant low (beginning of trend) to a significant high (end of trend); the trading software calculated the retracement levels.

The chart below of the SPY's shows that Fibonacci Retracements can be used to retrace downtrend moves as well:



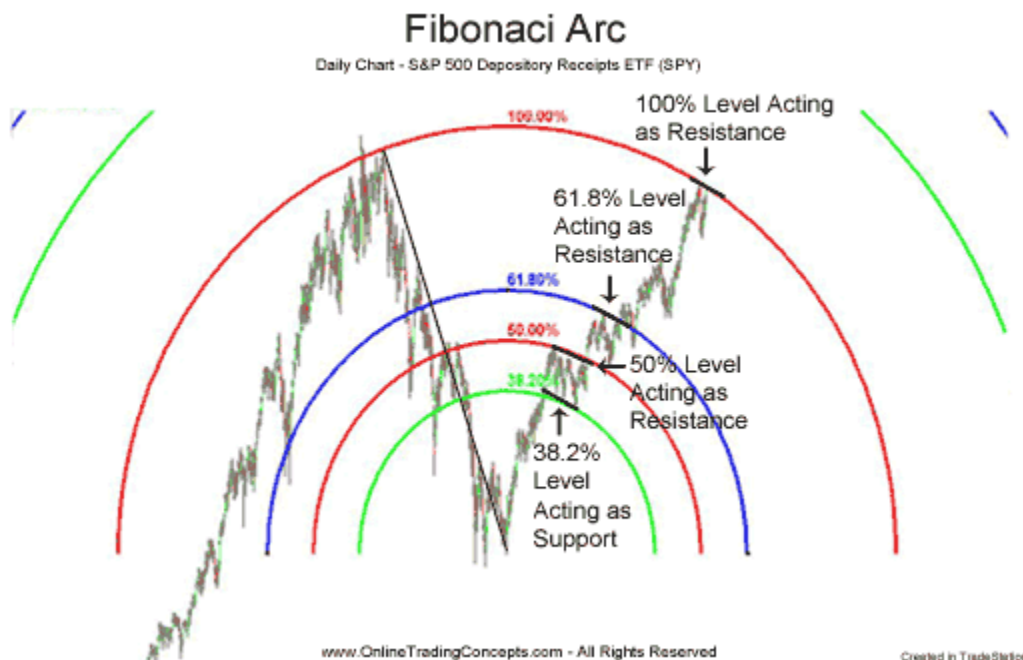
Notice after the bottom in the S&P 500, that price rallied to the 23.6% retracement level and then was promptly rejected downwards. After breaking resistance a few months later, the 23.6% retracement became support (see: [Support & Resistance](#)). Price rallied up to the 50% retracement level, where it ran up against resistance. Price continued to fluctuate between the 38.2% retracement level (acting as support) and the 50% retracement level (acting as resistance).

There are many other Fibonacci tools available to stock, forex, or futures traders. Fibonacci Arcs are discussed next.

Fibonacci Arcs

Fibonacci Arcs are percentage arcs based on the distance between major price highs and price lows. Therefore, with a major high, major low distance of 100 units, the 31.8% Fibonacci Arc would be a 31.8 unit semi-circle.

The chart below of the S&P 500 exchange traded fund (SPY) shows an example of a Fibonacci Arc:



Next Page - [Fibonacci Fans](#)

As is seen in the chart above, after the significant bear market, the rally was stopped by the 50% arc; the 50% arc retracement acted as resistance (see: [Support & Resistance](#)). The S&P 500 then used the 38.2% arc as support, bouncing between the 50% arc and the 38.2% arc for many months.

After price broke through the resistance arc at 50%, price moved up to the next significant Fibonacci ratio, 61.8%, where it found a new resistance level. The prior resistance level at 50%, after being broken, became a new support level. The next Fibonacci arc was at 100%, where price met resistance.

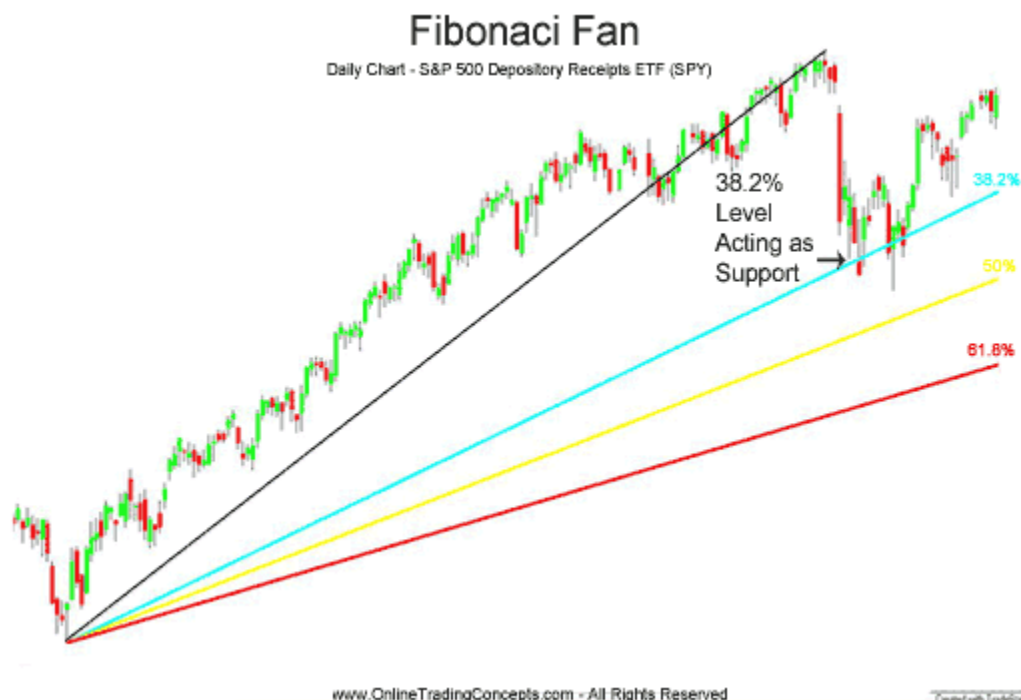
Yet another helpful Fibonacci tool is the Fibonacci Fan, discussed on the next page.

Fibonacci Fans

Fibonacci Fans use Fibonacci ratios based on time and price to construct support and resistance trendlines; also, Fibonacci Fans are used to measure the speed of a trend's movement, higher or lower.

- If prices move below a Fibonacci Fan trendline, then price is usually expected to fall further until the next Fibonacci Fan trendline level; therefore, Fibonacci Fan trendlines are expected to serve as support for uptrending markets (see: [Support & Resistance](#)).
- Likewise, in a downtrend, if price rises to a Fibonacci Fan trendline, then that trendline is expected to act as resistance; if that price is pierced, then the next Fibonacci Fan trendline higher is expected to act as resistance.

The chart below of the S&P 500 exchange traded fund (SPY) shows an uptrend that retraced to the 38.2% Fibonacci Fan:



Next Page - [Fibonacci Time Extensions](#)

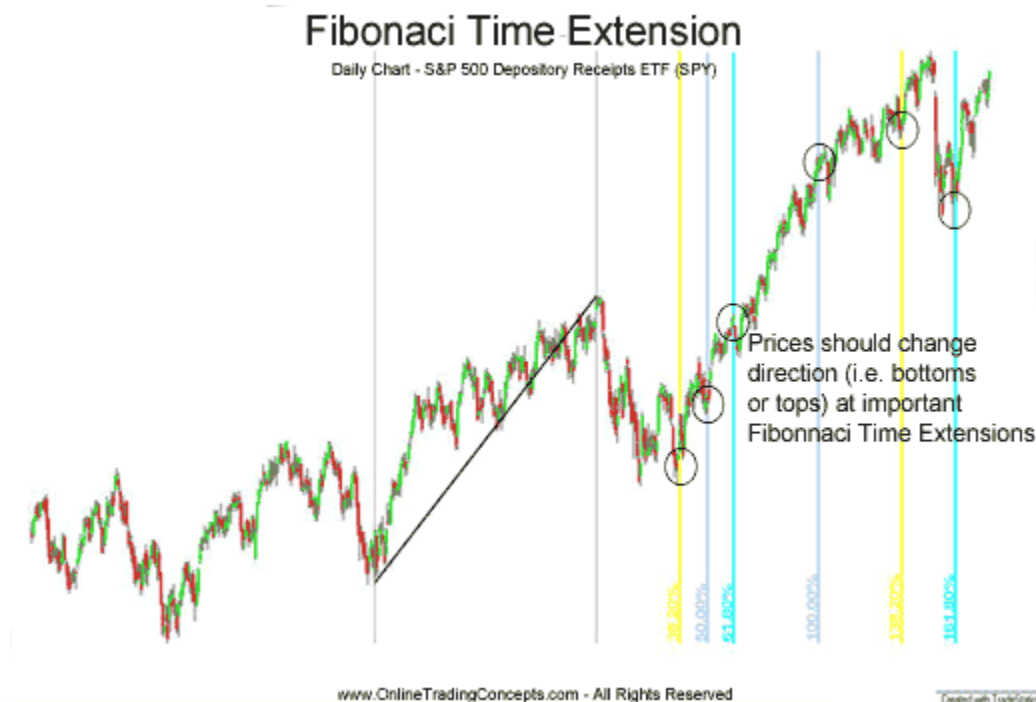
The Fibonacci ratio is also used to predict areas of time in which price should change course; Fibonacci Time Extensions are discussed next.

Fibonacci Time Extensions

Fibonacci Time Extensions are used to predict periods of price change (i.e. lows or highs). For example, after a downtrend, a reversal would be expected at a significant Fibonacci Time Extension line. Similarly, after an uptrend, a reversal warning could occur if a Fibonacci Time Extension was soon approaching.

The Fibonacci Time Extension tool is created by locating a significant high (low) and finding a significant retracement or extension low (high). The major Fibonacci ratios are then calculated and plotted by charting software.

An example of a Fibonacci Time Extension is shown below in the chart below of the S&P 500 exchange-traded fund (SPY):



Fibonacci Tools are very popular, possibly the very reason that they appear to work. Whether or not a trader believes Fibonacci ratios work beyond nature and into the financial markets, traders should be aware of Fibonacci Retracements (most often used) and the other Fibonacci Tools.

Because there are many traders out there who do believe that the Fibonacci ratios apply to the financial markets, that means there are real supply and demand forces working

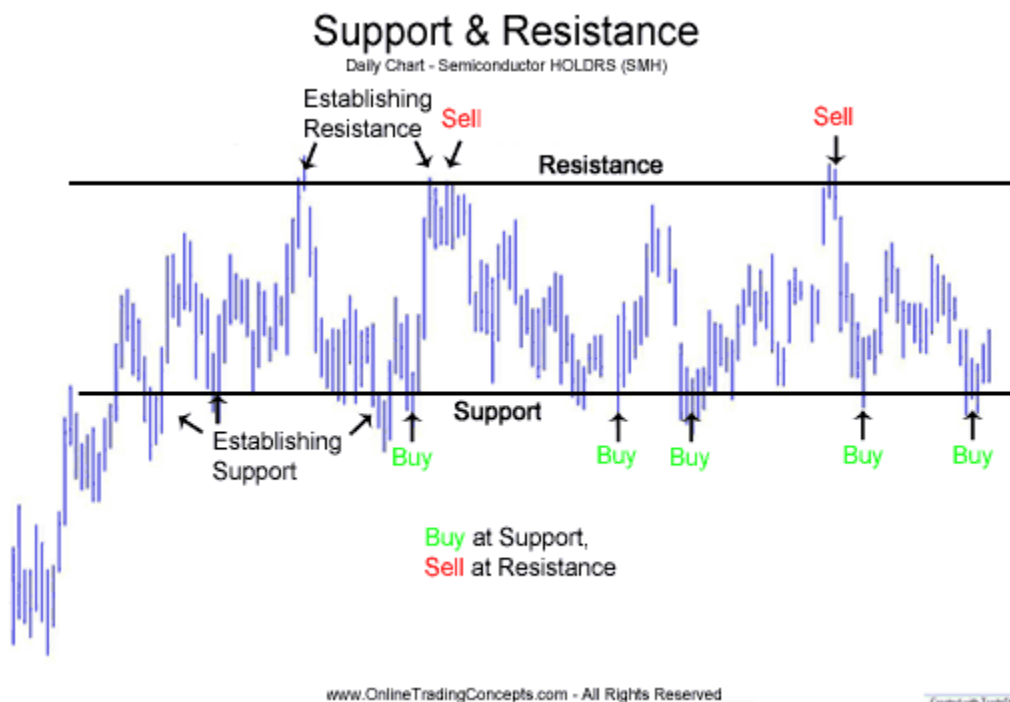
on the markets at these important Fibonacci junctures. This is important because, after all, supply and demand is *the* concept that moves the markets.

Support & Resistance

Support and Resistance is one of the most important and fundamental part of technical analysis:

- Support: Prices should rise after touching support.
- Resistance: Prices should fall after hitting resistance.

An example of price respecting support and resistance lines is given next in the chart of the Semiconductor HOLDERS (SMH):



When support and resistance has been firmly established:

Buy Signal

Buy when price touches the support line.

Sell Signal

Sell when price touches the resistance line.

Breaking Support & Resistance

Another fundamental concept of support and resistance is listed next and is shown in the chart below of Alcoa (AA) stock:

- If price breaks below support, then that support level becomes the new resistance level.
- If price breaks above support, then that resistance level becomes the new support level.



Support and Resistance are basic yet vitally important technical analysis tools. On every time frame, intra-day, daily, weekly, and monthly, Support and Resistance levels are respected by traders. Knowledge of these levels helps keep a trader on the correct side of the market, thus helping the trader profit.

Floor Trader Pivot Points

Floor Trader Pivots are used to project potential support and resistance levels. The main time periods used are daily, weekly, and monthly pivots. The formula for the daily pivot point, support, and resistance is shown below:

- Pivot Point = $[\text{Yesterday's High} + \text{Yesterday's Low} + \text{Yesterday's Close}] / 3$

Support Levels

- $S1 = [\text{Pivot Point} * 2] - \text{Yesterday's High}$
- $S2 = \text{Pivot Point} - \text{Yesterday's High} + \text{Yesterday's Low}$
- $S3 = S2 - \text{Yesterday's High} + \text{Yesterday's Low}$

Resistance Levels

- $R1 = [\text{Pivot Point} * 2] - \text{Yesterday's Low}$
- $R2 = \text{Pivot Point} + \text{Yesterday's High} - \text{Yesterday's Low}$
- $R3 = R2 + \text{Yesterday's High} - \text{Yesterday's Low}$

To calculate weekly or monthly numbers, simply replace "yesterday's" with "last week's" or "last month's" high or low.

A 15-minute chart of the mini-Dow futures contract and the corresponding floor trader pivots are shown below:

Floor Trader Pivots

5 Min Chart - mini-Dow Future (YM)



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Created with TradeStation

Mini-Dow Future Floor Trader Pivot Example

In the chart above, and going from left to right, Resistance Level 1 (R1) held and the Dow Jones Industrial Average mini-Dow futures contract reversed course and headed downward.

After that, the next potential support was at the Pivot Point. However, the mini-Dow broke through the Pivot Point. Notice that when the mini-Dow attempted to reverse course, it was rejected by the Pivot Point now acting as resistance. An important technical analysis concept is that when resistance is penetrated the prior resistance then becomes support. Similarly, when support is penetrated the prior support then becomes resistance (see: [Support & Resistance](#)).

From there, the next support was Support Level 1 (S1). S1 held strong and the mini-Dow reversed direction yet again.

The next resistance line was at the Pivot Point, which failed.

The trading day ended by the mini-Dow testing the Pivot Point, now acting as support, which subsequently held. From there, the index rallied on into the close.

More ways to use Floor Trader Pivots is discussed on the next page.

Next Page - [Floor Trader Pivot Points Examples](#)

Floor Trader Pivot Points

In addition to giving buy and sell signals, Floor Trader Pivots give traders a good time to get out of their trade. To illustrate, during a rally some traders will set their sell orders right below the next resistance line. Thus, pivot point resistance and support lines can generate ready made profit targets.

A 5-minute chart of the Nasdaq 100 ETF (QQQQ) is shown next:



Floor Trader Pivots Example

In the 5-minute chart of the Nasdaq 100 ETF above, the QQQQ's opened the day downward, but held steady at Support 2 (S2).

From there, the Nasdaq 100 ETF rallied past S1 and the Pivot Point. Eventually, the QQQQ's found resistance at Resistance 1 (R1).

Next, the Pivot Point offered support initially, but then the QQQQ's meandered slightly above and below the pivot point, until finally, the QQQQ's accelerated past R1 and then past R2.

The rally continued until one candlestick reached R3, where the bulls were promptly rejected.

The importance of candlestick reversal or continuation patterns at pivot points, support, or resistance is emphasized in John Person's [Candlestick & Pivot Point Trading Triggers](#) book.

Zig Zag

The Zig-Zag indicator is extremely useful for determining price trends, [support and resistance](#) areas, and classic chart patterns like [head and shoulders](#), [double bottoms](#) and [double tops](#). The Zig-Zag indicators uses both swing highs and swing lows in its calculation:

- **Swing Highs:** When a price (usually close) is both higher than the price previous to it and after it.
- **Swing Lows:** When a price is both lower than the price prior to it and lower than the price following it.

The Zig-Zag indicator can use both percentages or points in its construction. To construct the Zig-Zag indicator, there must be a certain percentage or number of points between a swing high and a swing low before a line will be drawn. The chart below of the E-mini Nasdaq 100 Futures contract visually illustrates the difference between a price retracement Zig-Zag of 3% and a price retracement Zig-Zag of 5%:



Notice how in the chart above that a Zig-Zag with a retracement percentage of 3% makes more distinct lines than the Zig-Zag with a retracement percentage of 5%. The

purpose of using a Zig-Zag with a larger retracement percentage is to help eliminate price noise that is not significant for the trader's analysis.

As will be shown on the next page, the Zig-Zag indicator is extremely effective at uncovering stock cycles while screening out short-term price noise

Zig-Zag Interpretations

The Zig-Zag indicator is extremely effective in filtering short-term noise and identifying significant trends and significant changes in market prices.

Below is a chart of the E-mini S&P 500 Futures contract that illustrates how effective the Zig-Zag indicator was in finding areas of [support and resistance](#) and price breakouts:



The chart above of the e-mini uses a 5% Zig-Zag retracement value; therefore, only price changes of 5% or greater are shown, helping a long-term trader or investor determine important areas of support, resistance, and areas of price breakouts.

On the left of the chart, the S&P 500 was forming a [triangle consolidation pattern](#). When prices broke resistance, a long-term buy was generated. During the middle of the chart, the Zig-Zag indicator was effective in illustrating that the S&P 500 was in an upward price channel. Buying in areas where price touched the lower support trendline and selling when prices touched the upper resistance line would have proved extremely profitable.

Using the Zig-Zag indicator for shorter-term trades can prove profitable as well. The chart below of Intel (INTC) shows a classic chart [head and shoulder](#) pattern easily seen by the Zig-Zag indicator (\$1 retracement):



The easily identified head and shoulders pattern gave a sell signal when price on the right shoulder broke the upward slanting trendline.

The Zig-Zag indicator is an excellent technical analysis tool for identifying classic charting patterns. The Zig-Zag indicator is also effective in reducing noise and helping the technical trader see the true market direction

Linear Regression Channel

Similar to the 200-day Moving Average, large institutions often look at long term Linear Regression Channels. A Linear Regression Channel consists of three parts:

1. *Linear Regression Line*: A line that best fits all the data points of interest. For more information, see: [Linear Regression Line](#).
2. *Upper Channel Line*: A line that runs parallel to the Linear Regression Line and is usually one to two standard deviations above the Linear Regression Line.
3. *Lower Channel Line*: This line runs parallel to the Linear Regression Line and is usually one to two standard deviations below the Linear Regression Line.

The upper and lower channel lines contain between themselves either 68% of all prices (if 1 standard deviation is used) or 95% of all prices (if 2 standard deviations are used). When prices break outside of the channels, either:

1. Buy or sell opportunities are present.
2. Or the prior trend could be ending.

The multi-year chart of the S&P 500 exchange traded fund (SPY) shows prices in a steady uptrend and maintaining in a tight one standard deviation Linear Regression Channel:



Buy Signal

When price falls below the lower channel line, a buy signal is usually triggered.

Sell Signal

An opportunity for selling occurs when prices break above the upper channel line.

Other confirmation signs like prices closing back inside the linear regression channel could be used to initiate buy or sell orders.

Trend Reversals

When price closes outside of the Linear Regression Channel for long periods of time, this is often interpreted as an early signal that the past price trend may be breaking and a significant reversal might be near.

Linear Regression Channels are quite useful technical analysis charting tools. In addition to identifying trends and trend direction, the use of standard deviation gives traders ideas as to when prices are becoming overbought or oversold relative to the long term trend

Linear Regression Line

A Linear Regression Line is a straight line that best fits the prices between a starting price point and an ending price point. Without getting into the statistics of the least squares method of calculating a linear regression, a basic definition will be given: A "best fit" means that a line is constructed where there is the least amount of space between the price points and the actual Linear Regression Line.

The Linear Regression Line is mainly used to determine trend direction. A chart of AT&T (T) stock is given below:

Linear Regression Line

Daily Chart - AT&T (T)



Traders usually view the Linear Regression Line as the fair value price for the future, stock, or forex currency pair. When prices deviate above or below, traders expect prices to go back towards the Linear Regression Line.

As a consequence, when prices are below the Linear Regression Line, this could be viewed as a good time to buy, and when prices are above the Linear Regression Line, a trader might sell. Of course other technical indicators would be used to confirm these buy and sell signals.

A useful technical analysis charting indicator that uses a Linear Regression Line is the Linear Regression Channel (see: [Linear Regression Channel](#)), which gives more objective buy and sell signals based on price volatility

Gaps or Windows

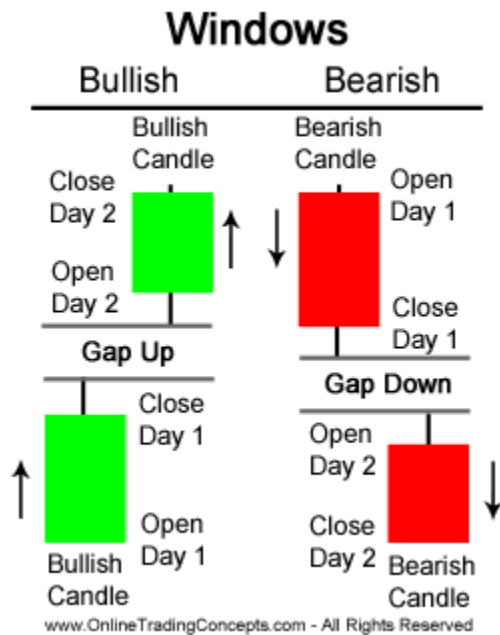
Gaps, as they are called in the west, or Windows as they are called in Japanese Candlestick Charting, are an important concept in technical analysis. Whenever, there is a gap (current open is not the same as prior closing price), that means that no price and no volume transacted hands between the gap.

A Gap Up occurs when the open of Day 2 is greater than the close of Day 1. Contrastly, a Gap Down occurs when the open of Day 2 is less than the close of Day 1.

There is much psychology behind gaps. Gaps can act as:

- [Resistance](#): Once price gaps downward, the gap can act as long-term or even permanent resistance.
- [Support](#): When prices gap upwards, the gap can act as support to prices in the future, either long-term or permanently.

The chart below of eBay (EBAY) stock shows the gap up acting as support for prices.



Gaps are important areas on a chart that can help a technical analysis trader better find areas of support or resistance. For more information on how support and resistance work and how they can be used for trading, see: [Support & Resistance](#). Also, Gaps are an important part of most Candlestick Charting patterns; see: [Candlestick Basics](#) for a list of candlestick pattern charts and descriptions.



Often after a gap, prices will do what is referred to as "fill the gap". This occurs quite often. Think of a gap as a hole in the price chart that needs to be filled back in. Another common occurrence with gaps is that once gaps are filled, the gap tends to reverse direction and continue its way in the direction of the gap (for example, in the chart above of eBay, back upwards).

The example of eBay (EBAY) above shows the gap acting as support. Traders and investors see anything below the gap as an area of no return, after all, there was probably some positive news that sparked the gap up and is still in play for the company.

The chart below of Wal-Mart (WMT) stock shows many instances of gaps up and gaps down. Notice how gaps down act as areas of resistance and gaps up as areas of support:

Gaps

Daily Chart - Wal-Mart (WMT)

