



## Stochastic Oscillator

In this article we will discuss about a widespread, well-known key element of technical analysis. Why do you think technical analysis especially some elements work so well for financial markets? Why do you think Fibonacci levels are usually strictly followed? Because thousands and billions of traders and computer programs for trading use these elements. This way everybody acts the same at the same time...

This is why we decided to present in the category of technical analysis, the most used and well-known methods of predicting financial evolution. These methods are easy to understand and are very efficient.

We will discuss about the Stochastic Oscillator. We will find out what the Stochastic Oscillator is and how it is calculated. We will use it in our charts and we will see how it acts. We will discover how useful the Stochastic Oscillator is and, at the end, we will draw the conclusions. We will use the Stochastic Oscillator daily in our analyzing and trading system.

### **1. What is the “Stochastic Oscillator”?**

The stochastic oscillator is a momentum indicator used in technical analysis, introduced by George Lane in the 1950s, to compare the closing price of a commodity to its price range over a given time span.

Closing levels that are consistently near the top of the range indicate accumulation (buying pressure) and those near the bottom of the range indicate distribution (selling pressure).

The idea behind this indicator is that prices tend to close near their past highs in bull markets, and near their lows in bear markets. Transaction signals can be spotted when the stochastic oscillator crosses its moving average.

Two stochastic oscillator indicators are typically calculated to assess future variations in prices, a fast (%K) and slow (%D). Comparisons of these statistics are a good indicator of speed at which prices are changing or the Impulse of Price. %K is the same as Williams’s %R, though on a scale 0 to 100 instead of -100 to 0, but the terminology for the two are kept separate.



## 2. How is it calculated?

This is the method of calculating the stochastic oscillator, and the values for %K and %D.

%K =	100 × (	$\frac{\text{Recent Close} - \text{Lowest Low (n)}}{\text{Highest High(n)} - \text{Lowest Low(n)}}$	)
%D =	3-period moving average of %K		
(n)=	Number of periods used in calculation		

Periods	High	Low	Close
1	119.50	116.00	119.13
2	119.94	116.00	116.75
3	118.44	111.63	113.50
4	114.19	110.06	111.56
5	112.81	109.63	112.25
6	113.44	109.13	110.00
7	115.81	110.38	113.50
8	117.50	114.06	117.13
9	118.44	114.81	115.63
10	116.88	113.13	114.13
11	119.00	116.19	118.81
12	119.75	117.00	117.38
13	119.13	116.88	119.13
14	119.44	114.56	115.38

%K =	100 × (	$\frac{115.38 - 109.13}{119.94 - 109.13}$	)	= 57.81
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A 14-day %K (14-period Stochastic Oscillator) would use the most recent close, the highest high over the last 14 days and the lowest low over the last 14 days. The number of periods will vary according to the sensitivity and the type of signals desired. As with RSI, 14 is a popular number of periods for calculation

%K tells us that the close (115.38) was in the 57th percentile of the high/low range, or just above the mid-point. Because %K is a percentage or ratio, it will fluctuate between 0 and 100. A 3-day simple moving average of %K is usually plotted alongside to act as a signal or trigger line, called %D.

The %K and %D oscillators range from 0 to 100 and are often visualized using a line plot. Levels near the extremes 100 and 0, for either %K or %D, indicate strength or weakness (respectively) because prices have made or are near new N-day highs or lows.



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There are two well known methods for using the %K and %D indicators to make decisions about when to buy or sell stocks. The first involves crossing of %K and %D signals, the second involves basing buy and sell decisions on the assumption that %K and %D oscillate.

In the first case, %D acts as a trigger or signal line for %K. A buy signal is given when %K crosses up through %D, or a sell signal when it crosses down through %D. Such crossovers can occur too often, and to avoid repeated whipsaws one can wait for crossovers occurring together with an overbought/oversold pullback, or only after a peak or trough in the %D line. If price volatility is high, a simple moving average of the Stoch %D indicator may be taken. This statistic smoothes out rapid fluctuations in price.

In the second case, some analysts argue that %K or %D levels above 80 and below 20 can be interpreted as overbought or oversold. On the theory that the prices oscillate, many analysts including George Lane, recommend that buying and selling be timed to the return from these thresholds. In other words, one should buy or sell after a bit of a reversal. Practically, this means that once the price exceeds one of these thresholds, the investor should wait for prices to return through those thresholds (e.g. if the oscillator were to go above 80, the investor waits until it falls below 80 to sell).

The third way that traders will use this indicator is to watch for divergences where the Stochastic trends in the opposite direction of price. As with the RSI this is an indication that the momentum in the market is waning and a reversal may be in the making. For further confirmation many traders will wait for the cross below the 80 or above the 20 line before entering a trade on divergence. The chart below illustrates an example of where a divergence in stochastics relative price forecasted a reversal in the price's direction.

### **3. Chart examples for Dow and e-mini S&P 500.**

In the following examples we will use as parameters other values than the standard ones. We decided to do that because our research proved that these new values are used more and numerous well-known traders agree with them. This way the indicator has a higher precision. We will use the values of 5, 5 and 3 for %K, %D and the third parameter respectively.

Here are some examples where we also used other elements of the technical analysis already explained.

1. First we have a daily chart of Dow Jones for the first three months of 2006. On the chart we have marked minitrends lasting 1-2 weeks. Each trend follows the provisions given by the stochastic oscillator. During these three months there have been at least seven correct sets to be followed that could generate profit.



2. This chart presents the evolution for the period August- October 2003. We can find the same setups and models. Follow closely the logic for each possible transaction.



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3. The evolution of the market during June – August 2001, before the tragedy in New York: we can find nine correct sets to be trade and obtain profit.





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## 4. Conclusions

1. Correctly used and followed, the stochastic oscillator along other technical analysis and astrological analysis methods can offer complex and correct information for profitable transactions.
2. Trading methods based only on the stochastic oscillator can be found and can work very well. These methods can be harmoniously correlated with other methods of financial analysis resulting in a complete and complex trading system approaching financial reality.
3. We often use the stochastic oscillator amongst other various methods of analysis that we will describe later.

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