

# **Forex Trader E-Book**

*A must to have manual for all Forex traders*

**(Detailed explanation for the most currently used Technical Analysis indicators & fundamental explanation for the most effective economic data on the prevailing markets)**

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## **I. Forex Online Trading**

### **1. What is Forex ?**

The Foreign Exchange market, also referred to as the "Forex" or "FX" market, is the largest financial market in the world, with a daily average turnover of well over US\$1 trillion -- 30 times larger than the combined volume of all U.S. equity markets. Unlike other financial markets, the forex market has no physical location or central exchange. It is an over-the-counter market where buyers and sellers including banks, corporations, and private investors conduct business. A true 24-hour market, Forex trading begins each day in Sydney, and moves around the globe as the business day begins in each financial center, first to Tokyo, London, and New York. Unlike any other financial market, investors can respond to currency fluctuations caused by economic, social and political events at the time they occur - day or night. The huge number and diversity of players involved make it difficult for even governments to control the direction of the market. The unmatched liquidity and around-the-clock global activity make forex the ideal market for active traders.

Traditionally the forex market was only available to larger entities trading currencies for commercial and investment purposes through banks. Now trading platforms allow smaller financial institutions and retail investors access to a similar level of liquidity as the major foreign exchange banks, by offering a gateway to the primary (Interbank) market.

In the forex market currencies are always priced in pairs; therefore all trades result in the simultaneous buying of one currency and the selling of another. The objective of currency trading is to exchange one currency for another in the expectation that the market rate or price will change so that the currency you bought has increased its value relative to the one you sold. If you have bought a currency and the price appreciates in value, the trader must sell the currency back in order to lock in the profit. An open trade or position is one in which a trader has either bought/sold one currency pair and has not sold/bought back the equivalent amount to effectively close the position.

The first currency in the pair is referred to as the base currency, and the second currency is the counter or quote currency. This means that quotes are expressed as a unit of 1 of the first currency quoted per the other currency quoted in the pair.

As with all financial products, FX quotes include a "bid" and "ask". The bid is the price at which a market maker is willing to buy (and clients can sell) the base currency in exchange for the counter currency. The ask is the price at which a market maker will sell (and clients can buy) the base currency in exchange for the counter currency. The difference between the bid and the ask price is referred to as the spread.

## **2. Technical and Fundamental Analysis**

There are two basic approaches to analyzing the currency market, fundamental analysis and technical analysis. The fundamental analyst concentrates on the underlying causes of price movements, while the technical analyst studies the price movements themselves.

### **a. Technical analysis**

A Technical Analysis is what one uses to attempt to predict future price movements, based on past time framed analysis and the reading / understanding of graphics. Although within a Technical Analysis various thought patterns exist, generally all are based on historical graphics of a currency. As long as one realizes the various differences of Fundamental and Technical Analysis, both can be used to parallel one another, even though both may present different conclusions.

### **b. Fundamental Analysis**

The study of specific factors, such as wars, discoveries, and changes in Government policies, which influence supply and demand, and consequently prices in the market place.

Fundamental analysis comprises the examination of macroeconomic indicators, asset markets and political considerations when evaluating a nation's currency in terms of another. Macroeconomic indicators include figures such as growth rates; as measured by Gross Domestic Product, interest rates, inflation, unemployment, money supply, foreign exchange reserves and productivity. Asset markets comprise stocks, bonds and real estate. Political considerations impact the level of confidence in a nation's government, the climate of stability and level of certainty.

Sometimes governments stand in the way of market forces impacting their currencies, and hence, intervene to keep currencies from deviating markedly from undesired levels. Currency interventions are conducted by central banks and usually have a notable, albeit a temporary impact on FX markets. A central bank could undertake unilateral purchases/sales of its currency against another currency; or engage in concerted intervention in which it collaborates with other central banks for a much more pronounced effect. Alternatively, some countries can manage to move their currencies, merely by hinting, or threatening to intervene.

### Technical Analysis or Fundamental Analysis ?

One of the dominant debates in financial market analysis is the relative validity of the two major tiers of analysis: Fundamental and technical. In Forex, several studies concluded that fundamental analysis was more effective in predicting trends for the long-term (longer than one year), while technical analysis was more appropriate for shorter time horizons (0-90 days). Combining both approaches was suggested to be best suited for periods between 3 months and one year.

Nonetheless, further empirical evidence reveals that technical analysis of long-term trends helps identify longer-term technical "waves", and that fundamental factors do trigger short-term developments.

But most traders abide by technical analysis because it does not require hours of study. Technical analysts can follow many currencies at one time. Fundamental analysts, however, tend to specialize due to the overwhelming amount of data in the market. Technical analysis works well because the currency market tends to develop strong trends. Once technical analysis is mastered, it can be applied with equal ease to any time frame or currency traded.

### 3. Psychology of Trading

#### Expectation and Sentiment

Fundamental and technical factors are undeniably essential in determining foreign exchange dynamics. There are, however, two additional factors that are paramount to understanding short-term movements in the market. These are expectations and sentiment. They may sound similar, but remain distinct.

Expectations are formed ahead of the release of economic statistics and financial data. Solely paying attention to the figures released does not suffice in grasping the future course of a currency.

If, for example, US GDP came out at 7.0% from 5% in the previous quarter, then the dollar may not necessarily move as you would expect it to. If market forecasts had expected an 8% growth, then the 7.0% reading might come as a disappointment, thus causing a very different market reaction from the one you were expecting had you not been aware of the forecast.

Nonetheless, expectations could be superseded by market sentiment. This is the prevailing market attitude vis-à-vis an exchange rate; which could be a result of the overall economic assessment towards the country in question, general market emphasis, or other exogenous factors. Using the above example on US GDP; even if the resulting figure of 7.0% undershot forecasts by a full percentage point, markets may show no reaction. A possible reason is that sentiment could be dollar positive regardless of the actual and forecasted figures. This might be due to solid US asset markets, or poor fundamentals in the counter currency (euro, yen or sterling).

A term that is commonly interchanged with "sentiment" is "psychology". During the first two months of 2000, the euro underwent fierce selling pressure against the dollar despite persistently improving fundamentals in the Euro zone. That is because market psychology had decidedly favored US dollar assets due to continuous signs of non-inflationary growth, and sentiment that further increases in US interest rates will work in the advantage of US yield differentials, without derailing the economic expansion.



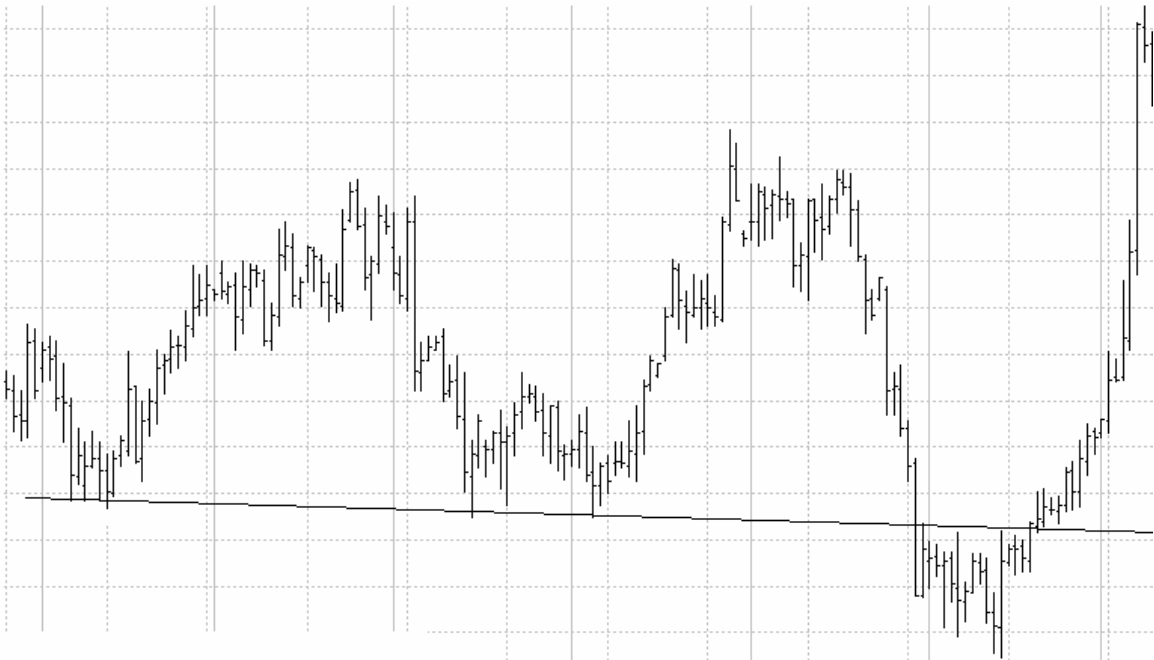
#### **4. The 8 most important trading recommendations**

1. The Trend is your friend
2. In up-trends, buy the dips; in downtrends, sell bounces
3. Let profits run, cut losses short. Always use protective stops to limit losses and move them only to reduce potential losses or protect newly achieved profits
4. Set up your plan before entering the market; don't trade impulsively
5. Employ at least a 3 to 1 reward-to-risk ratio
6. When pyramiding, follow these guidelines:
  - a) Each successive layer should be smaller than the preceding one
  - b) Add only to winning positions
  - c) Never add to a losing position
  - d) Adjust protective stops to the break-even point (or better)
- 7 Learn to be comfortable being in the minority, if you are right on the market, most people will disagree with you
8. Keep it simple; more complicated isn't always better

## II. The Basic of Technical Analysis:

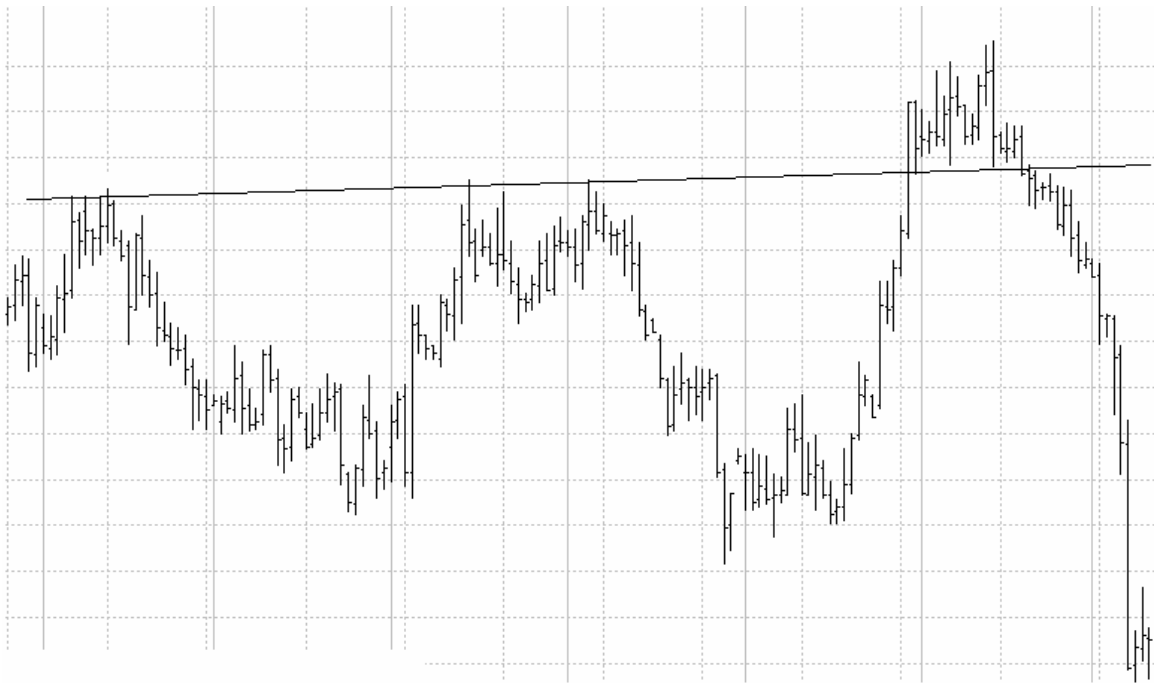
### 1. Support

A term used in technical analysis indicating a specific price level at which a currency will have the inability to cross below. Recurring failure for the price to move below that point produces a pattern that can usually be shaped by a straight line. A support level penetrated becomes resistance.



## 2. Resistance

A term used in technical analysis indicating a specific price level at which a currency will have the inability to cross above. Recurring failure for the price to move above that point produces a pattern that can usually be shaped by a straight line. A resistance level penetrated becomes support.



### 3. Trend

Trend is simply, the overall direction prices are moving, UP, DOWN, OR FLAT.

Classification:

Short term - less than 3 weeks,

Medium term - 3 weeks to 6 months

Long term (major term) - more than 6 months.

An **up-trend line** is a straight line passing through the "rising" troughs of an up-move. The importance of a trend line is increasing with every additional touching point, confirming the trend lines value. A reversal of the trend is indicated with a violation of the up-trend line.



**A down-trend line** is a straight line passing through the “falling” troughs of a down move. The importance of a trend line is increasing with every additional touching point, confirming the trend lines value. A reversal of the trend is indicated with a violation of the down-trend line.



**A Neutral Trend** (No trend, sideways trend) means there is no direction.



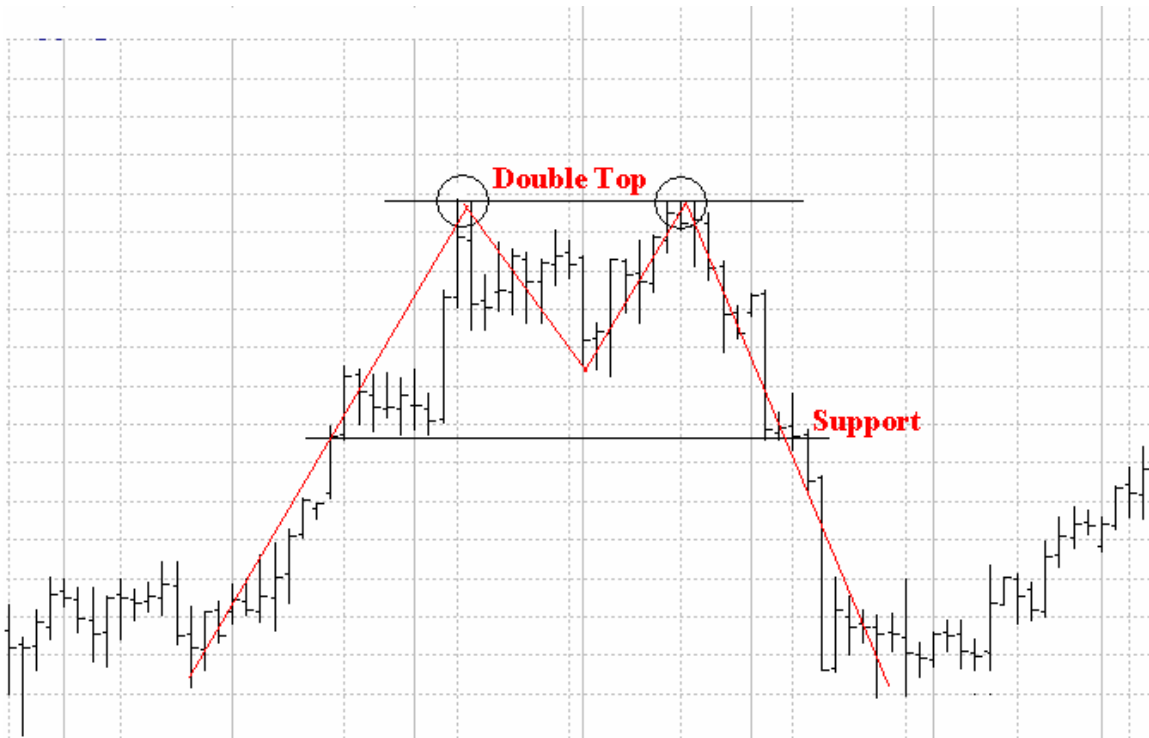
#### 4. Channel

When prices trend between two parallel trend lines they form a Channel. When prices hit the bottom trend line this may be used as a buying area and when prices hit the upper trend line this may be used as a selling.



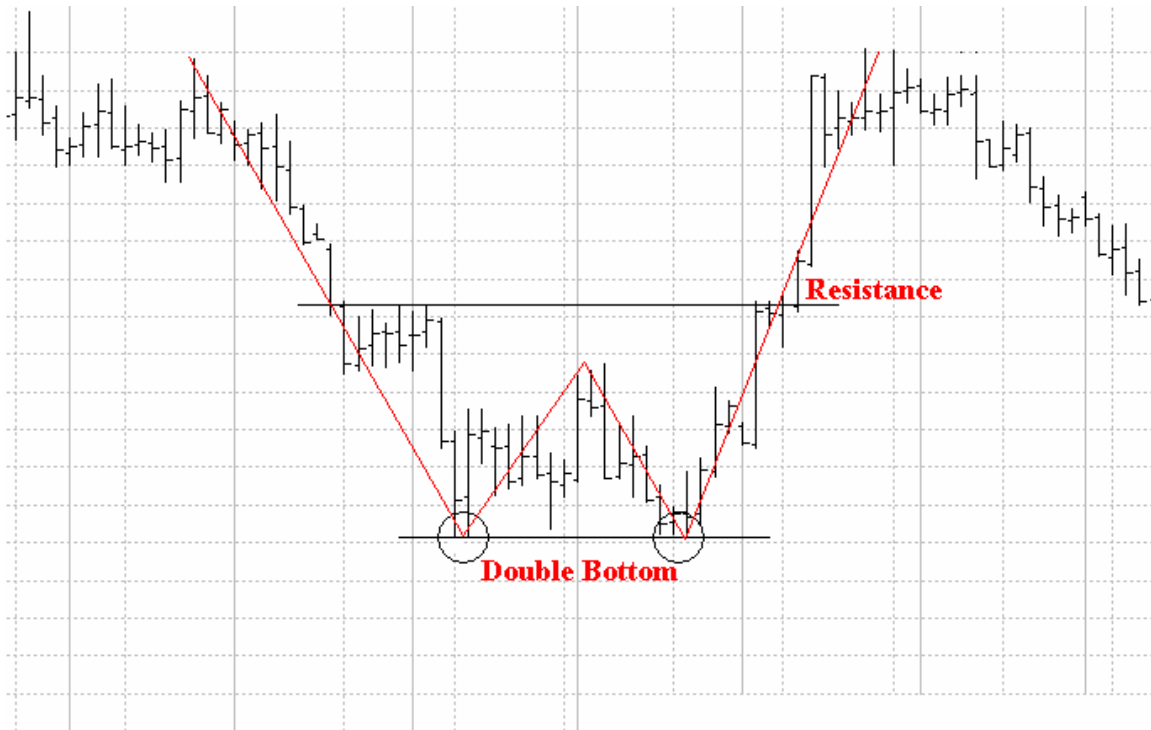
## 5. Double top (reversal formation)

For obvious reasons this is often called an "M-top". The market is failing twice at a resistance and is reversing then sharply. A break of the support would indicate further losses towards the target that can be evaluated through the following procedure. The vertical width of the "M" (price difference) is projected downwards from the breakpoint of the support.



## 6. Double bottom (reversal formation)

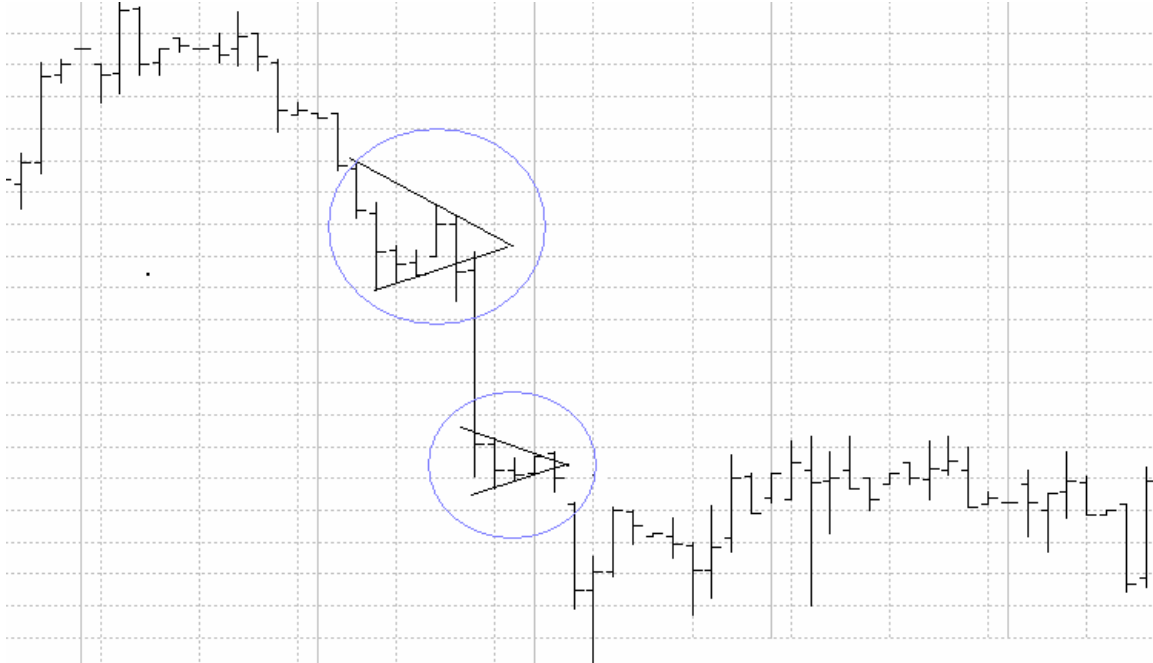
The opposite of Double top. (often called an “W-top”). When the market is failing twice at a support and is reversing then sharply. A break of the resistance would indicate further rising towards the target that can be evaluated through the following procedure. The vertical width of the “W” (price difference) is projected downwards from the breakpoint of the resistance.





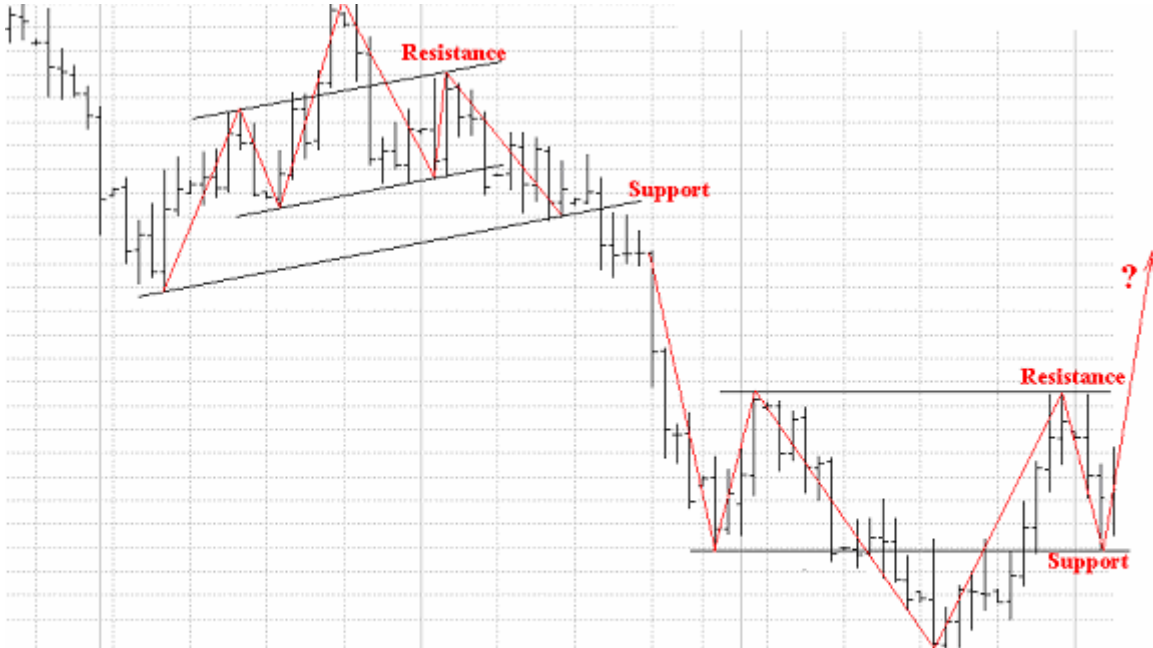
## 7. Triangle

The triangle formation can be quite difficult to analyse and the fact that a few different types of triangles exist doesn't make this task any easier. Furthermore a triangle is most commonly just a pause in a trend (continuation pattern) but can also terminate a trend (reversal formation).



## 8. Head and Shoulders

Formation of left shoulder forms a new high with a corrective dip, next rally forms higher high = head, correction from head goes below high of left shoulder and near as low of the left shoulder correction, breaching up trend line, rally of right shoulder does not breach head high, retracing half to three quarters of head correction.



## 9. Fibonacci

12th century monk Leonardo de Pisa, better known to his friends as Fibonacci, discovered a fascinating mathematics sequence that appears throughout nature. Beginning with a simple  $1 + 1$ , the sum of the last two number sets that precede it creates another Fibonacci value:

$1+1=2$   $1+2=3$   $2+3=5$   $3+5=8$   $5+8=13$   $8+13=21$   $13+21=34$   $21+34=55$  etc, etc.

These numbers possess an intriguing number of interrelationships, such as the fact that any given number is approximately 1.618 times the preceding number and any given number is approximately 0.618 times the following number.

PIVOT POINTS. For reasons that remain unknown, major ratios drawn from Fibonacci numbers describe a predictable interaction between trend and countertrend movement in markets. The most important ones to remember are 38,2%, 50% and 61,8%. Applying these percentages to trending price predicts the extent of retracement contrary to the underlying trend, as well as how far a new high or low will travel. For traders, these hidden points represent invisible support/resistance zones where prices will hesitate and/or reverse.

Most markets (and stocks) swing off Fibonacci ratios as they move from support to resistance and back.

Fibonacci retracement works as well on intraday charts as it does on weekly and monthly ones.

Fibonacci Retracements are displayed by first drawing a trend line between two extreme points, for example, a trough and opposing peak. The retracement tool then automatically inserts a series of three horizontal lines intersecting the trend line at the Fibonacci levels of 38.2%, 50%, 61.8%.

After a significant price move (either up or down), prices will often retrace a significant portion (if not all) of the original move. As prices retrace, support and resistance levels often occur at or near the Fibonacci retracement levels.



## IV. Types of Chart

### 1. Introduction

A chart is a graphical representation of price movement over a specific period of time and is composed of an x-axis (time) and a y-axis (price). The choice of the time frame employed depends on the user's need. It is obvious that an intra-day scenario will not be based on a monthly chart.

### 2. Line Chart

A line chart shows a line connecting the "closing prices". The closing is the last price recorded at the end of a specific period of time (session).



### 3. Bar Chart

Bar chart: Basically all characteristics mentioned for the line chart also hold true for the bar chart. However, the construction is a different one. The bar chart is composed of a high (highest price during a session), a low (lowest price during a session) and the close. All that is required is to draw a vertical line (bar) from the high to the low. Then, set a horizontal dot from the vertical line to the right, representing the close. Sometimes users refer also to the opening price; a dot drawn on the left side of the bar. The bar chart is probably the most popular chart in use today.



#### 4. Candlestick Chart

The building blocks for the candlestick chart are the high, the low, the opening and the closing. The difference to the bar chart is that the open and the close form the cornerstones for the, so called, real body. The body is white if the closing is higher than the opening. The contrary is true for the black body. The candlestick charting technique is an ancient Japanese invention dating from the late 18th century. The theory tries to unveil trend reversal or continuation signals. Various tools of analysis (moving average, RSI, trend-lines etc.) can be applied in combination with the candlesticks.



## V. Candlestick

### 1. Introduction

You may be asking yourself, "If I can already use bar charts to view prices, then why do I need another type of chart?"

The answer to this question may not seem obvious, but after going through the following candlestick chart explanations and examples, you will surely see value in the different perspective candlesticks bring to the table. In my opinion, they are much more visually appealing, and convey the price information in a quicker and easier manner.

The Japanese began using technical analysis to trade rice in the 17th century. While this early version of technical analysis may have been different from the US version initiated by Charles Dow around 1900, many of the guiding principles were very similar.

The "what" (price action) is more important than the "why" (news, earnings, and so on).

All known information is reflected in the price.

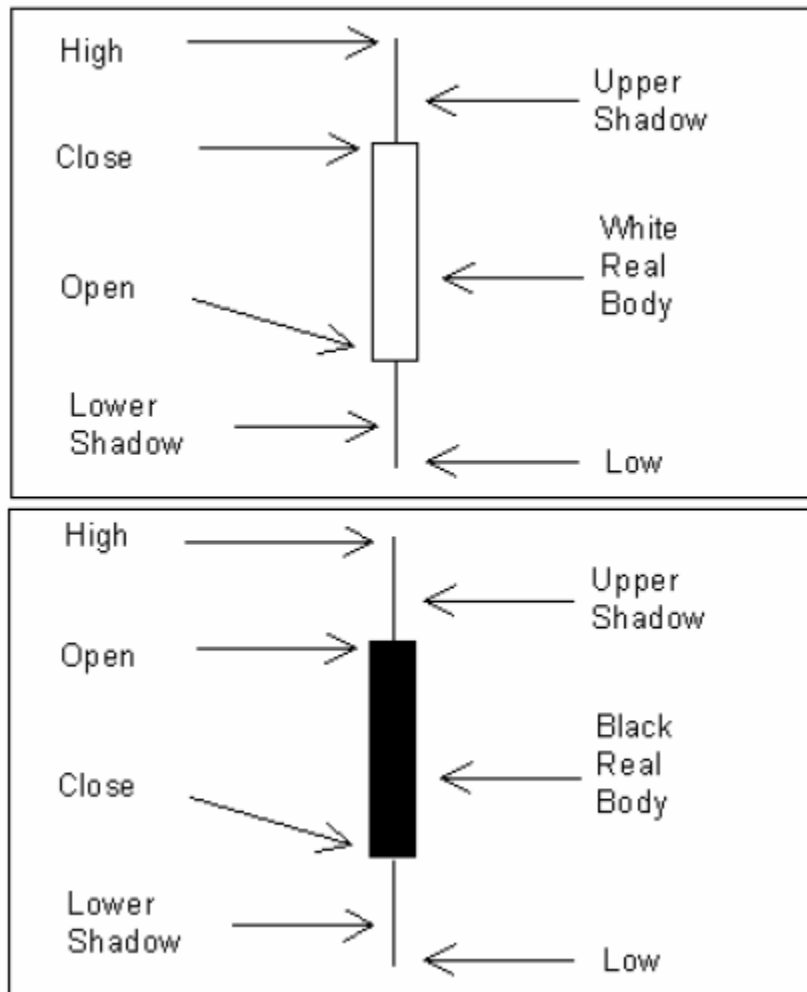
Buyers and sellers move markets based on expectations and emotions (fear and greed).

Markets fluctuate.

The actual price may not reflect the underlying value.

According to Steve Nison, candlestick charting came later and probably began sometime after 1850. Much of the credit for candlestick development and charting goes to Homma, a legendary rice trader from Sakata. Even though it is not exactly clear "who" created candlesticks, Nison notes that they likely resulted from a collective effort developed over many years of trading.





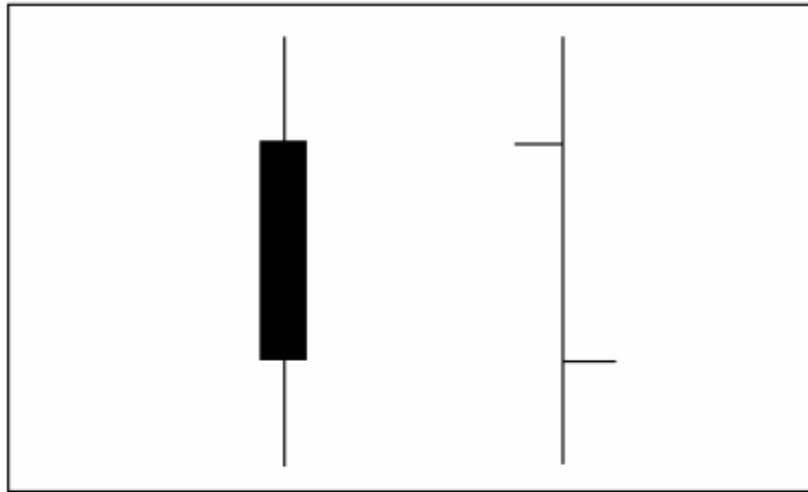
The body of the candlestick is called the *real body*, and represents the range between the open and closing prices.

A black or filled-in body represents that the close during that time period was lower than the open, (normally considered bearish) and when the body is open or white, that means the close was higher than the open (normally bullish).

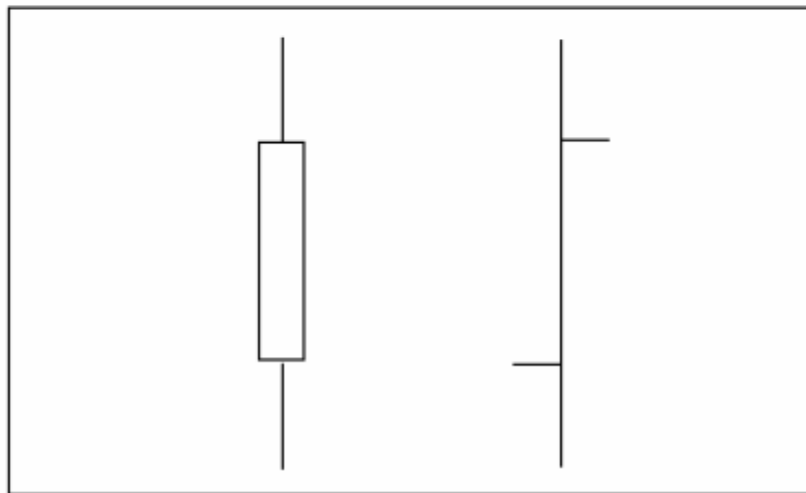
The thin vertical line above and/or below the real body is called the *upper/lower shadow*, representing the high/low price extremes for the period.

### Bar Compared to Candlestick Charts

Below is an example of the same price data conveyed in a standard bar chart and a candlestick chart. Notice how the candlestick chart appears 3-dimensional, as price data almost jumps out at you.



( 3a )



( 3b )

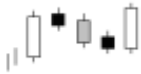
The long, dark, filled-in *real body* represents a weak (bearish) close ( 3a ), while a long open, light-colored *real body* represents a strong (bullish) close ( 3b ). It is important to note that Japanese candlestick analysts traditionally view the opening and closing prices as the most moment critical of the day. At a glance, notice how much easier it is with candlesticks to determine if the closing price was higher or lower than the opening price.

## 2. Falling Three Methods



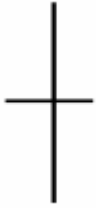
A bearish continuation pattern. A long black body is followed by three small body days, each fully contained within the range of the high and low of the first day. The fifth day closes at a new low.

## 3. Rising Three Methods



A bullish continuation pattern. A long white body is followed by three small body days, each fully contained within the range of the high and low of the first day. The fifth day closes at a new high..

## 4. Doji



Doji are important candlesticks that provide information on their own and also feature in a number of important patterns. Doji form when a security's open and close are virtually equal. The length of the upper and lower shadows can vary and the resulting candlestick looks like a cross, inverted cross or plus sign. Alone, doji are neutral patterns. Any bullish or bearish bias is based on receding price action and future confirmation. The word Doji" refers to both the singular and plural form.

### a. Dragon fly doji (Dragongly)

Dragon fly doji form when the open, high and close are equal and the low creates a long lower shadow. The resulting candlestick looks like a "T" with a long lower shadow and no upper shadow.



Dragon fly doji indicate that sellers dominated trading and drove prices lower during the session. By the end of the session, buyers resurfaced and pushed prices back to the opening level and the session high. The reversal implications of a dragon fly doji depend on previous price action and future confirmation. The long lower shadow provides evidence of buying pressure, but the low indicates that plenty of sellers still loom. After a long downtrend, long black candlestick or at support, a dragon fly doji could signal a potential bullish reversal or bottom. After a long uptrend, long white candlestick or at resistance, the long lower shadow could foreshadow a potential bearish reversal or top. Bearish or bullish confirmation is required for both situations.

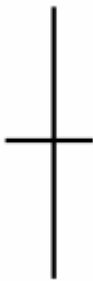
### b. Gravestone doji (Pagoda)

Gravestone doji form when the open, low and close are equal and the high creates a long upper shadow. The resulting candlestick looks like an upside down "T" with a long upper shadow and no lower shadow.



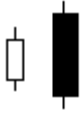
Gravestone doji indicate that buyers dominated trading and drove prices higher during the session. However, by the end of the session, sellers resurfaced and pushed prices back to the opening level and the session low. As with the dragon fly doji and other candlesticks, the reversal implications of gravestone doji depend on previous price action and future confirmation. Even though the long upper shadow indicates a failed rally, the intraday high provides evidence of some buying pressure. After a long downtrend, long black candlestick or at support, focus turns to the evidence of buying pressure and a potential bullish reversal. After a long uptrend, long white candlestick or at resistance, focus turns to the failed rally and a potential bearish reversal. Bearish or bullish confirmation is required for both situations.

### c. Long-legged doji



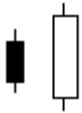
This line often signifies a turning point. It occurs when the open and close are the same, and the range between the high and low is relatively large.

## 5. Engulfing Patterns



This structure appears when a black, real body totally covers, "engulfs" the prior day's real body. The market should be in a definable trend, not chopping around sideways. The shadows of the prior candlestick do not need to be engulfed.

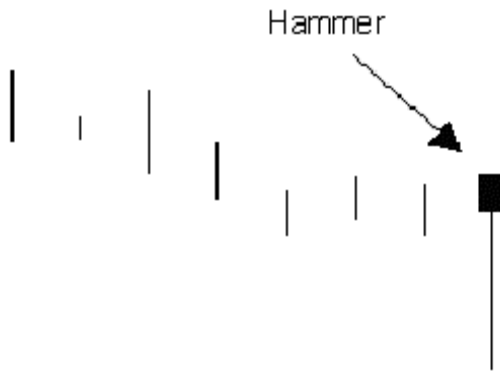
### b. Bullish engulfing lines



This structure appears when a *white, real body* totally covers, "engulfs" the prior day's *real body*. The market should be in a definable trend, not chopping around sideways. The shadows of the prior candlestick do not need to be engulfed.

## 6. Hammer

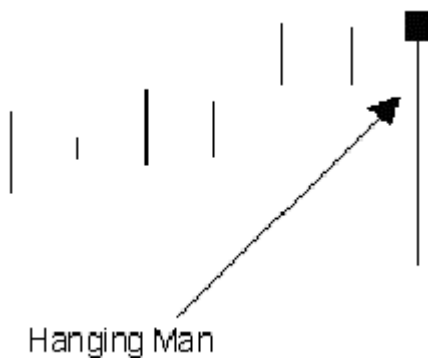
A candlestick with a long *lower shadow* and small *real body*. The *shadow* should be at least twice the length of the *real body*, and there should be no or very little *upper shadow*. The *body* may be either *black* or *white*, but the key is that this candlestick must occur within the context of a downtrend to be considered a *hammer*. The market may be "hammering" out a bottom.



The hammer is a bullish reversal pattern that forms after a decline. In addition to a potential trend reversal, hammers can mark bottoms or support levels. After a decline, hammers signal a bullish revival. The low of the long lower shadow implies that sellers drove prices lower during the session. However, the strong finish indicates that buyers regained their footing to end the session on a strong note. While this may seem enough to act on, hammers require further bullish confirmation. The low of the hammer shows that plenty of sellers remain. Further buying pressure, and preferably on expanding volume, is needed before acting. Such confirmation could come from a gap up or long white candlestick. Hammers are similar to selling climaxes and heavy volume can serve to reinforce the validity of the reversal.

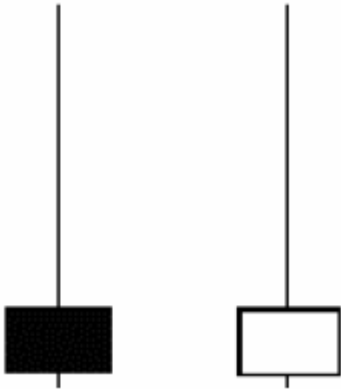
### a. Hanging man

Identical in appearance to the *hammer*, but appears within the context of an uptrend.



The hanging man is a bearish reversal pattern that can also mark a top or resistance level. Forming after an advance, a hanging man signals that selling pressure is starting to increase. The low of the long lower shadow confirms that sellers pushed prices lower during the session. Even though the bulls regained their footing and drove prices higher by the finish, the appearance of selling pressure raises the yellow flag. As with the hammer, a hanging man requires bearish confirmation before action. Such confirmation can come as a gap down or long black candlestick on heavy volume.

### b. Inverted hammer and shooting star



The inverted hammer and shooting star look exactly alike, but have different implications based on previous price action. Both candlesticks have small real bodies (black or white), long upper shadows and small or nonexistent lower shadows. These candlesticks mark potential trend reversals, but require confirmation before action.

The shooting star is a bearish reversal pattern that forms after an advance and in the star position, hence its name. A shooting star can mark a potential trend reversal or resistance level. The candlestick forms when prices gap higher on the open, advance during the session and close well off their highs. The resulting candlestick has a long upper shadow and small black or white body. After a large advance (the upper shadow), the ability of the bears to force prices down raises the yellow flag. To indicate a substantial reversal, the upper shadow should be relatively long and at least 2 times the length of the body. Bearish confirmation is required after the shooting star and can take the form of a gap down or long black candlestick on heavy volume.

The inverted hammer looks exactly like a shooting star, but forms after a decline or downtrend. Inverted hammers represent a potential trend reversal or support levels. After a decline, the long upper shadow indicates buying pressure during the session. However, the bulls were not able to sustain this buying pressure and prices closed well off of their highs to create the long upper shadow. Because of this failure, bullish confirmation is required before action. An inverted hammer followed by a gap up or long white candlestick with heavy volume could act as bullish confirmation.



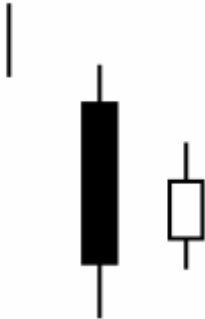
## 7. Harami

A candlestick that forms within the real body of the previous candlestick is in Harami position. Harami means pregnant in Japanese and the second candlestick is nestled inside the first. The first candlestick usually has a large real body and the second a smaller real body than the first. The shadows (high/low) of the second candlestick do not have to be contained within the first, though it's preferable if they are. Doji and spinning tops have small real bodies and can form in the harami position as well.

### a. Bearish Harami

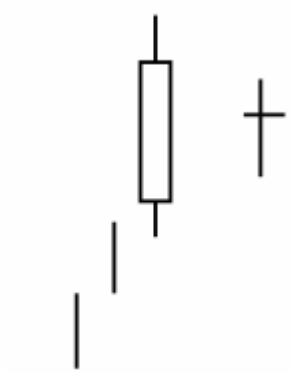


A two day pattern that has a small body day completely contained within the range of the previous body, and is the opposite color.



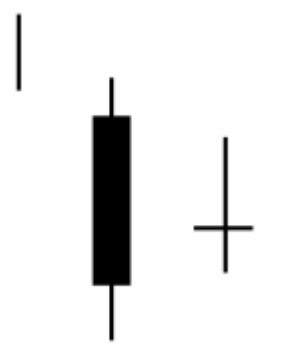
A two day pattern that has a small body day completely contained within the range of the previous body, and is the opposite color.

**b. Bearish Harami cross or Bearish Harami doji**



A two day pattern similar to the Harami. The difference is that the last day is a Doji.

**d. Bullish Harami cross or Bullish Harami doji**



A two day pattern similar to the Harami. The difference is that the last day is a Doji.

### 8. Long white (empty) line



This is a bullish line. It occurs when prices open near the low and close significantly higher near the period's high.

### 9. Long black (filled-in) line



This is a bearish line. It occurs when prices open near the high and close significantly lower near the period's low.

## 10. Doji

Doji are important candlesticks that provide information on their own and also feature in a number of important patterns. Doji form when a security's open and close are virtually equal. The length of the upper and lower shadows can vary and the resulting candlestick looks like a cross, inverted cross or plus sign. Alone, doji are neutral patterns. Any bullish or bearish bias is based on preceding price action and future confirmation. The word "Doji" refers to both the singular and plural form.

### a. Bullish doji star



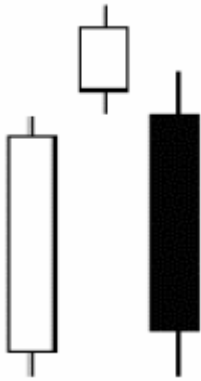
A "star" indicates a reversal and a doji indicates indecision. Thus, this pattern usually indicates a reversal following an indecisive period. You should wait for a confirmation (e.g., as in the morning star,) before trading a doji star. The first line can be empty or filled in.

### b. Bearish doji star



A star indicates a reversal and a doji indicates indecision. Thus, this pattern usually indicates a reversal following an indecisive period. You should wait for a confirmation (e.g., as in the evening star illustration) before trading a doji star. The first line can be empty or filled in.

### c. Evening star



This is a bearish top reversal pattern and counterpart to the Morning Star. Three candlesticks compose the evening star, the first being long and white. The second forms a star, followed by the third, which has a black real body that moves sharply into the first white candlestick.

### d. Evening Doji star



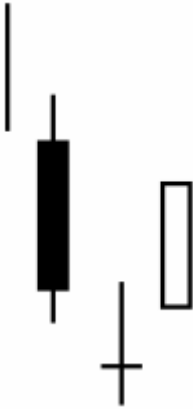
This is a doji star in an uptrend followed by a long, black real body that closed well into the prior white real body. If the candlestick after the doji star is white and gapped higher, the bearishness of the doji is invalidated.

### e. Morning Star



This is a bullish bottom reversal pattern. The formation is comprised of 3 candlesticks. The first candlestick is a tall black real body followed by the second, a small real body, which gaps (opens), lower (a star pattern). The third candlestick is a white real body that moves well into the first period's black real body. This is similar to an island pattern on standard bar charts.

#### f. Morning Doji star



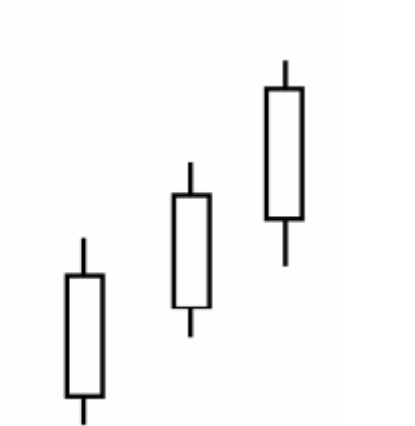
This is a doji star in a downtrend followed by a long, white real body that closes well into the prior black real body. If the candlestick after the doji star is black and gapped lower, the bullishness of the doji is invalidated.

### 11. Three Black Crows



A bearish reversal pattern consisting of three consecutive black bodies where each day closes near below the previous low, and opens within the body of the previous day.

### 12. Three White Soldiers



A bullish reversal pattern consisting of three consecutive white bodies, each with a higher close. Each should open within the previous body and the close should be near the high of the day.

## VI. Technical Indicators

### 1. Average True Range – ATR

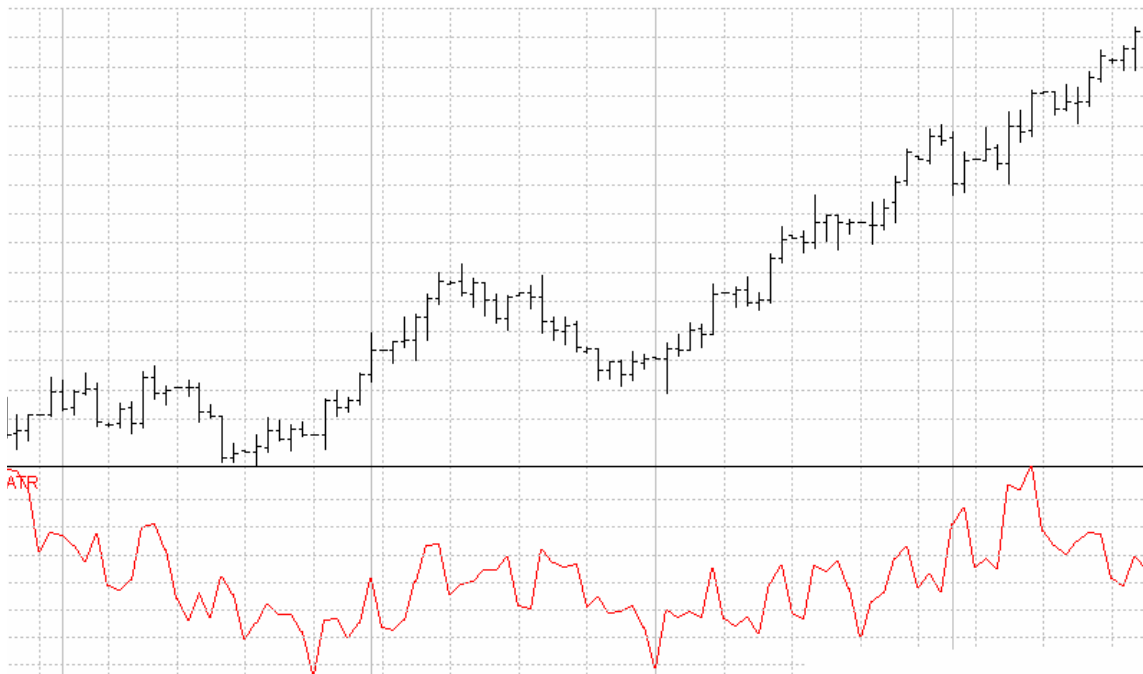
A measure of volatility introduced by Welles Wilder in his book: "New Concepts in Technical Trading Systems."

The True Range indicator is the greatest of the following:

- Current high less the current low.
- The absolute value of the current high less the previous close.
- The absolute value of the current low less the previous close.

The Average True Range is a moving average (generally 14-days) of the True Ranges.

Wilder originally developed the ATR for commodities but the indicator can also be used for Forex. Simply put, a currency experiencing a high level of volatility will have a higher.





## 2. BOLLINGER BAND

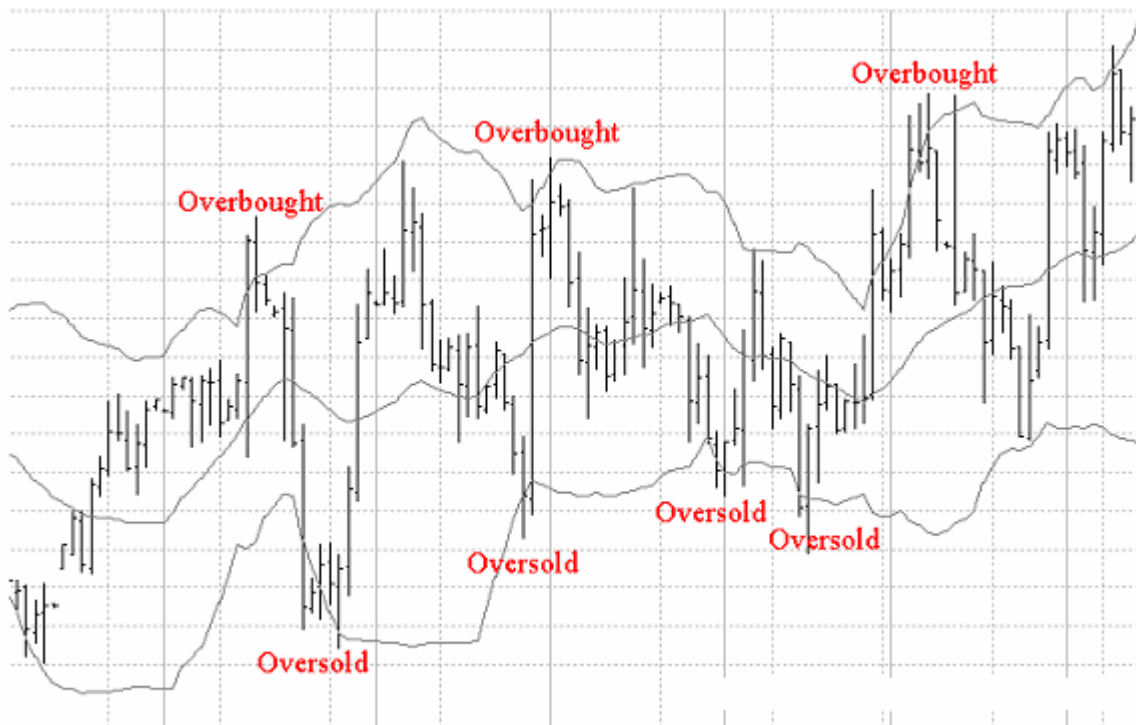
Developed by John Bollinger, Bollinger Bands are charted by calculating a simple moving average of price, then creating two bands a specified number of standard deviations above and below the moving average. You can draw the simple moving average analysis on the same chart as the Bollinger Bands analysis, using the same interval. In addition, Bollinger Bands are usually plotted with a bar analysis so that the proximity of the bands to the prices can be easily observed.

**The most common uses of Bollinger Bands are to:**

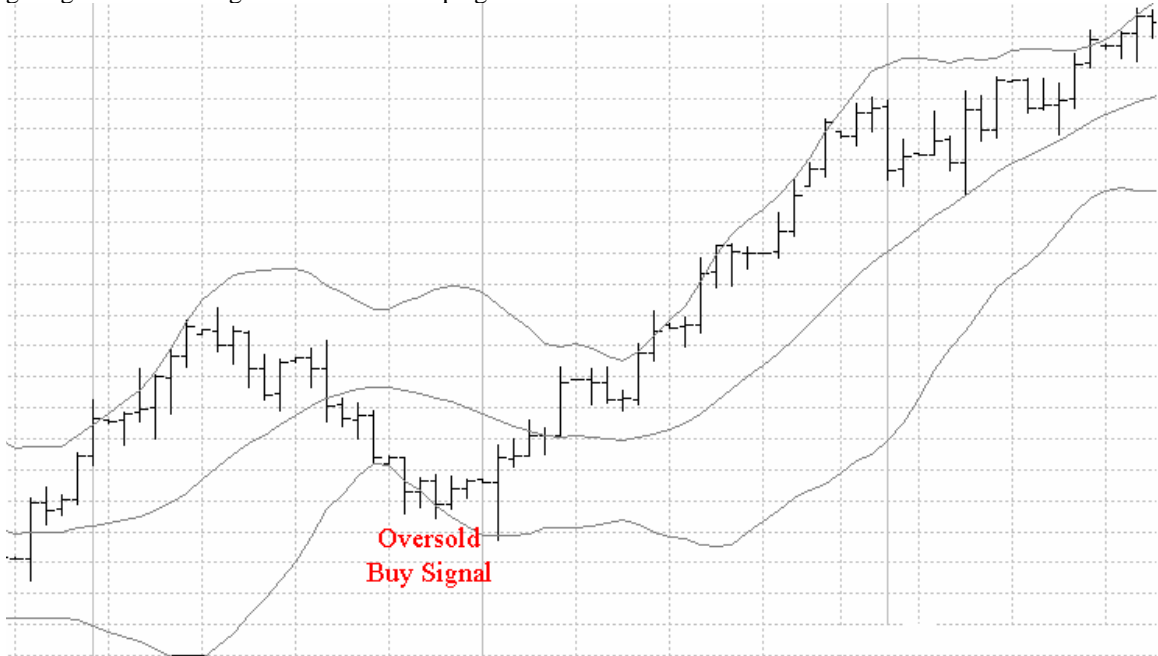
- *Identify overbought and oversold markets*

An overbought or oversold market is one where the prices have risen or fallen too far and are therefore likely to retrace. Prices near the lower band signal an oversold market and prices near the upper band signal an overbought market.

Overbought and oversold signals are most reliable in a non-trending market where prices are making a series of equal highs and lows.

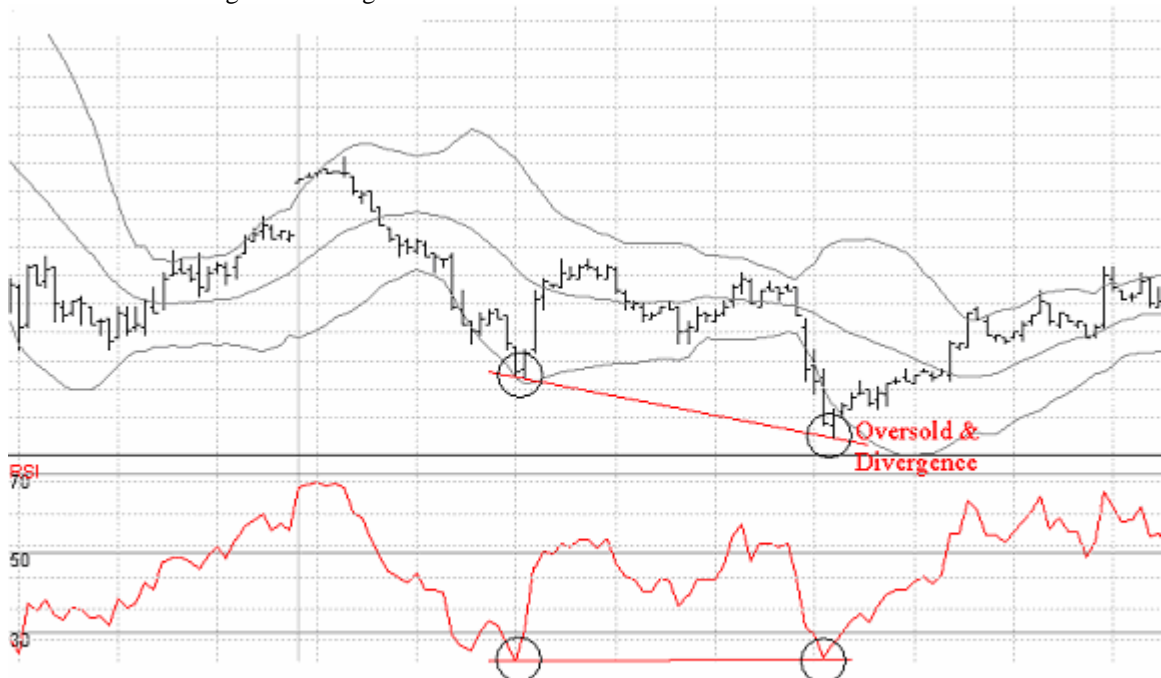


If the market is trending, then signals in the direction of the trend are likely to be more reliable. For example if prices are in an up trend, a safer trade entry may be obtained by waiting for prices to pullback giving an oversold signal and then turn up again.



- Used in combination with an oscillator, generate buy or sell signals

If you use Bollinger Bands in combination with an oscillator such as Relative Strength Index (RSI), buy and sell signals are generated when the Bollinger Bands signal an overbought/oversold market at the same time the oscillator signals a divergence.

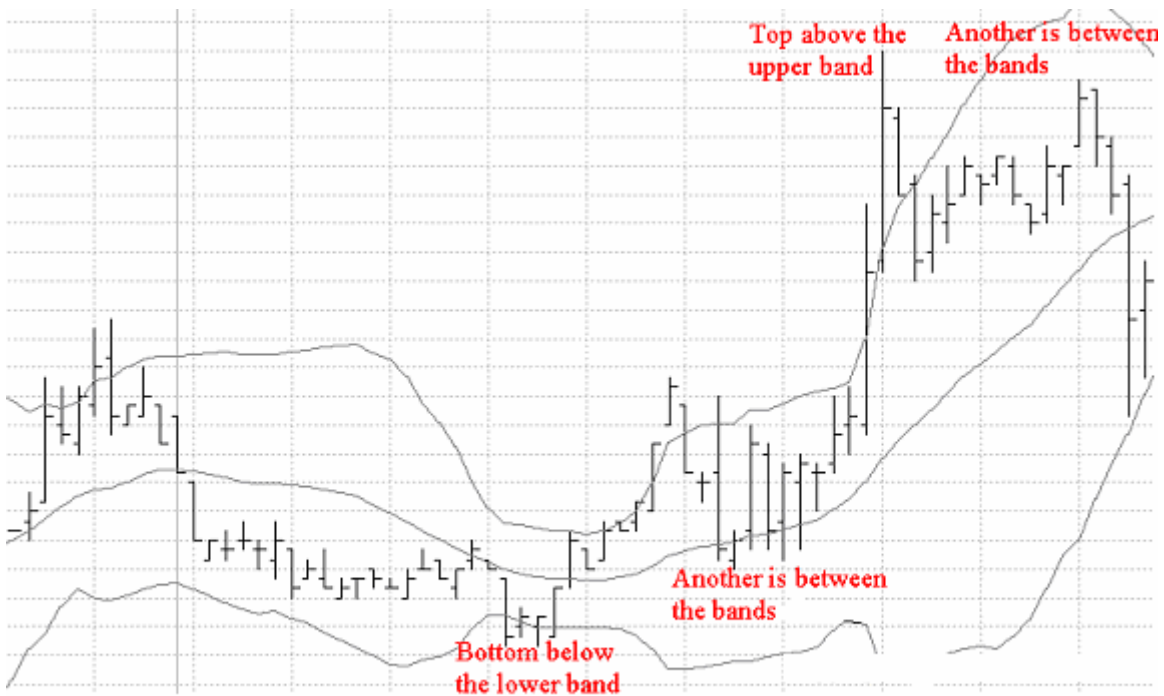


- Warn of an impending price move

The bands often narrow just before a sharp price move. A period of low volatility often precedes a sharp move in prices; low volatility will cause the bands to narrow.



A top that breaks above the upper band followed by another that is between the bands signals a potential top in the market. A bottom that breaks below the lower band followed by another that is between the bands signals a potential bottom.



## **Parameters**

The length of the moving average is usually 20 days or less. Bollinger suggested using a moving average that would catch the first retracement of an up move.

Bollinger used a figure of 2 standard deviations in his work, which was in stock trading. A value of 2 captures about 95% of the variation in price action. Different figures may be more appropriate for other types of markets.

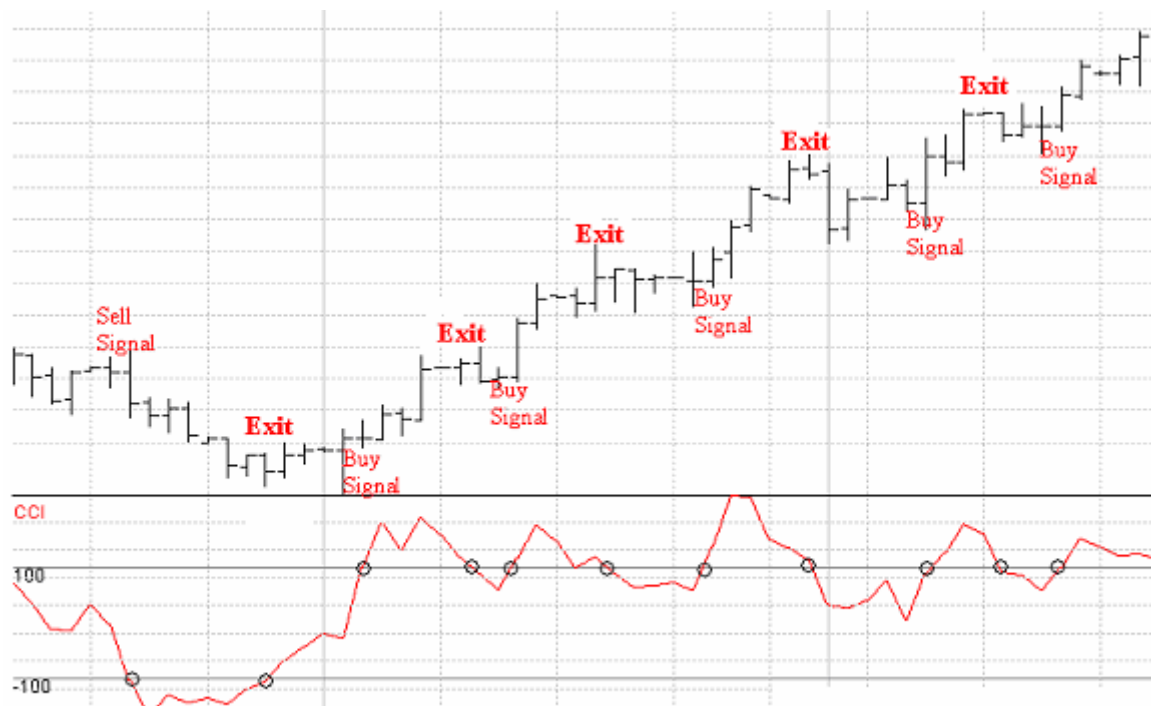
### 3. CCI – Commodity Channel Index

Commodity Channel Index (CCI) was originated by Donald Lambert in 1980. It is based on the assumption that a perfectly cyclical commodity price approximates a sine wave. Designed to be used with instruments, which have seasonal or cyclical tendencies, Commodity Channel Index is not used to calculate cycle lengths but rather to indicate that a cycle trend is beginning.

**The most common uses of Commodity Channel Index are to:**

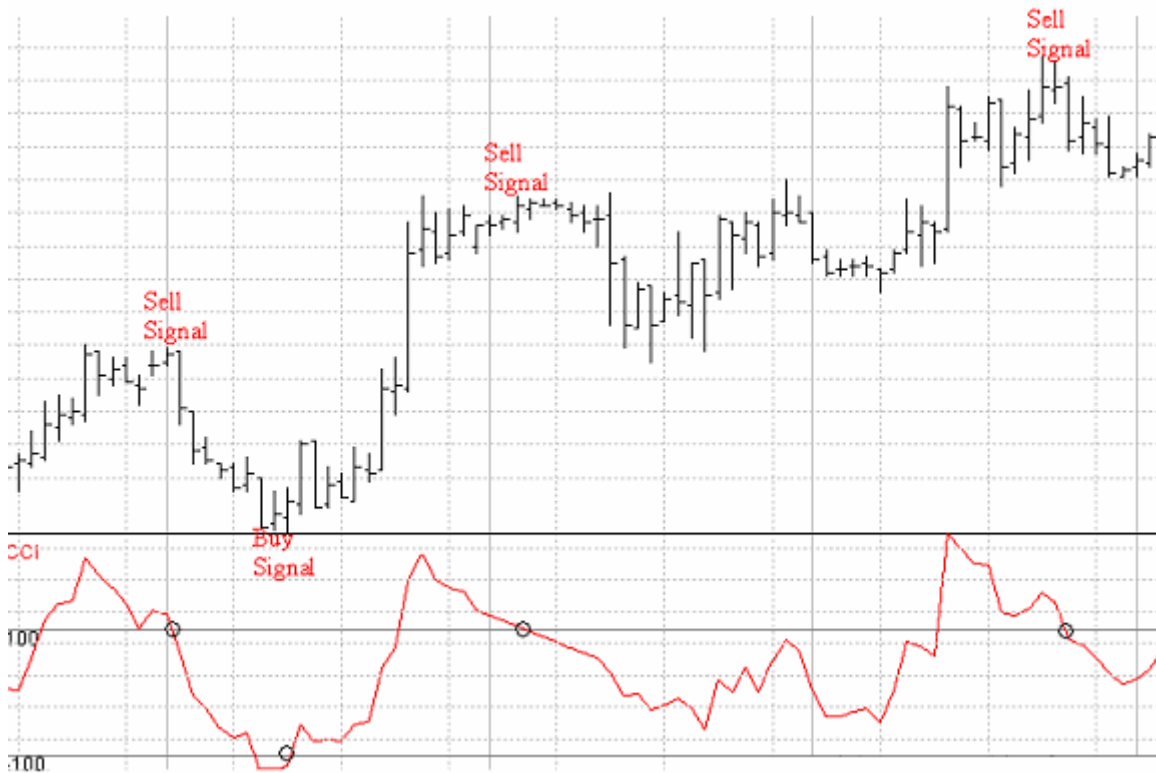
- Indicate breakouts

This is Lambert's original interpretation, buying when the Commodity Channel Index moved above +100 and selling when the Commodity Channel Index went below -100. Lambert would exit the trade once the Commodity Channel Index moved back within the -100 to +100 bands. The assumption with this use of Commodity Channel Index is that once an instrument breaks +100 or -100 it has begun to trend.



*- Generate buy and sell signals*

Sell signals are when the CCI moves from above +100 to below +100 and buy signals are when the CCI moves from below -100 to above -100. This method works best when the market is non-trending.

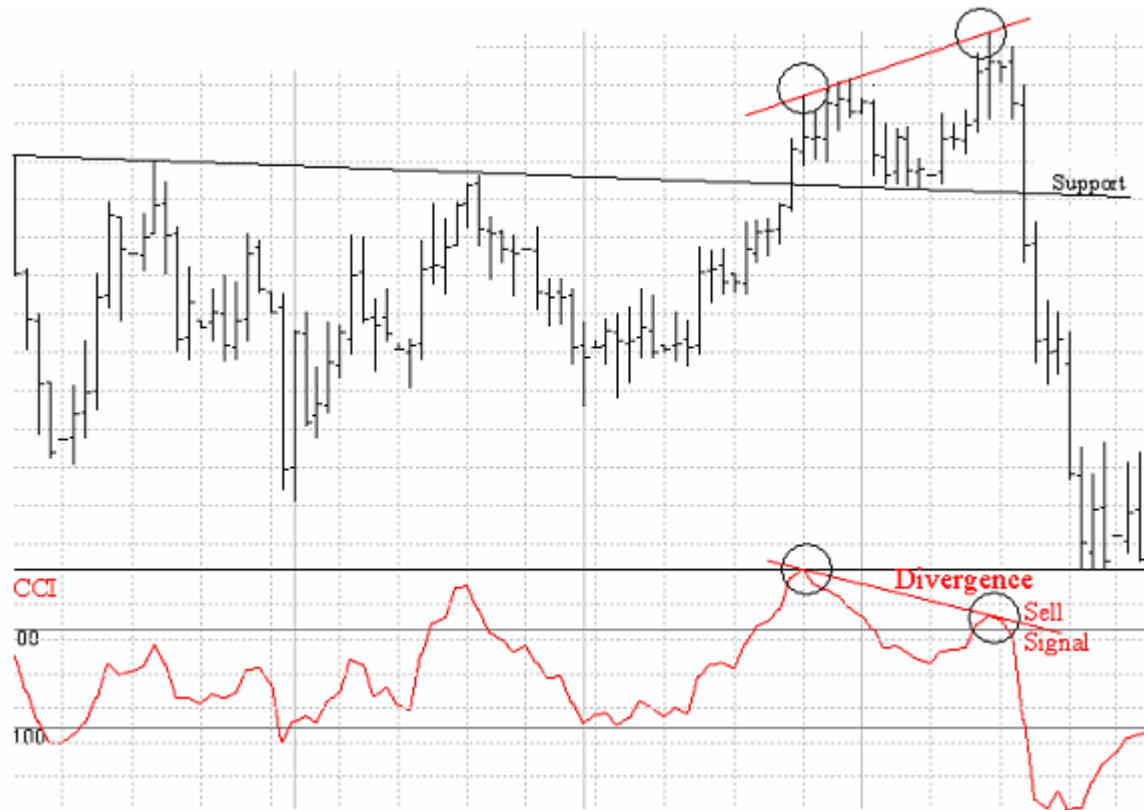


*- Indicate Bullish and Bearish Divergence*

In trending markets the Commodity Channel Index can be used to indicate that the trend is weakening by signaling divergence. Divergence between the CCI line and the price indicates that an up or down move is weakening.

Bearish Divergence occurs when prices are making higher highs but the CCI is making lower highs. This is a sign that the up move is weakening.

Bullish Divergence occurs when prices are making lower lows but the CCI is making higher lows. This is a sign that the down move is weakening.



### Parameters

Observation period: (default 5)

The choice of observation period is important. If the Commodity Channel Index is to be used as Lambert originally suggested then the Observation Period should be one third of the cycle length.

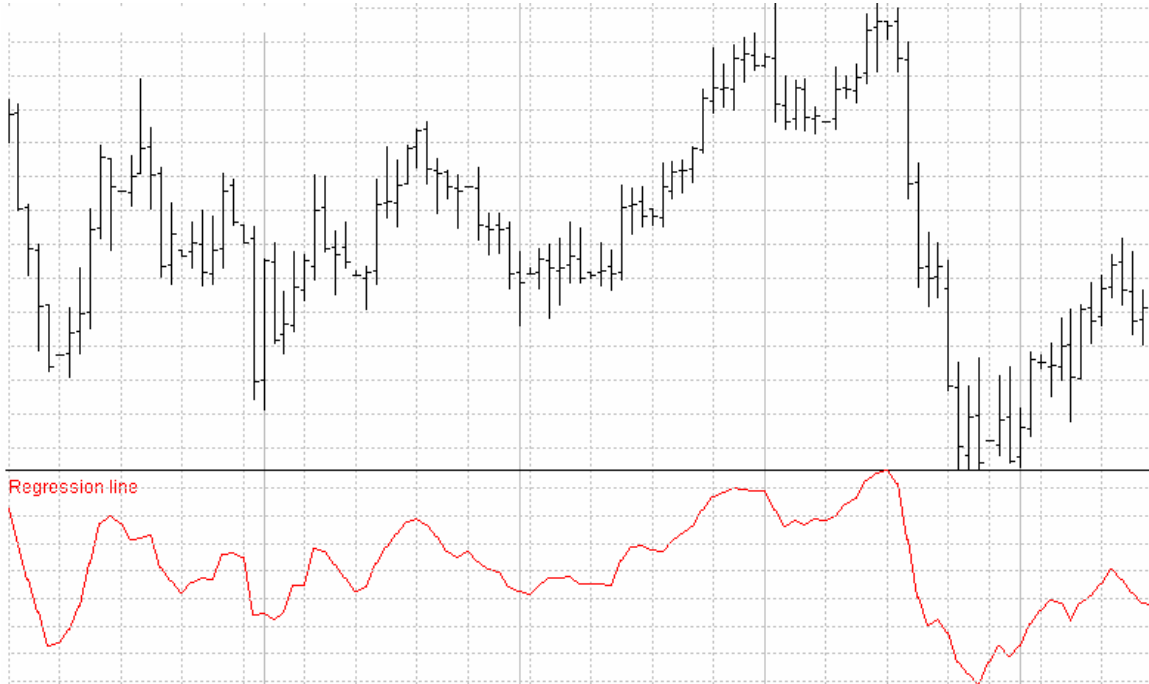
If the Commodity Channel Index is to be used for purposes other than in relation to cycles, the Observation Period can be set so that the -100 to +100 bands contain 70% to 80% of the data.

## 4. Linear Regression

Linear regression is a statistical tool used to measure trends. Linear regression uses the least squares method to plot the line. The linear regression line is a straight line extending through the prices.

**The most common use of Linear Regression is:**

- To trade in the direction of the linear regression line. Colby and Meyers found that trading in this manner provided good results using a 66-week figure. The only drawback was a large draw down in relation to the profitable trades.





## 5. MACD - Moving Average Convergence Divergence

Moving Average Convergence Divergence or MACD as it is more commonly known, was developed by Gerald Appel to trade 26 and 12-week cycles in the stock market. MACD is a type of oscillator that can measure market momentum as well as follow or indicate the trend.

MACD consists of two lines, the MACD Line and the Signal Line. The MACD Line measures the difference between a short Exponential Moving Average and a long Exponential Moving Average. The Signal Line is an Exponential Moving Average of the MACD Line. MACD oscillates above and below a zero line without upper and lower boundaries.

There is another form of MACD, which displays the difference between the MACD Line and the Signal Line as a histogram.

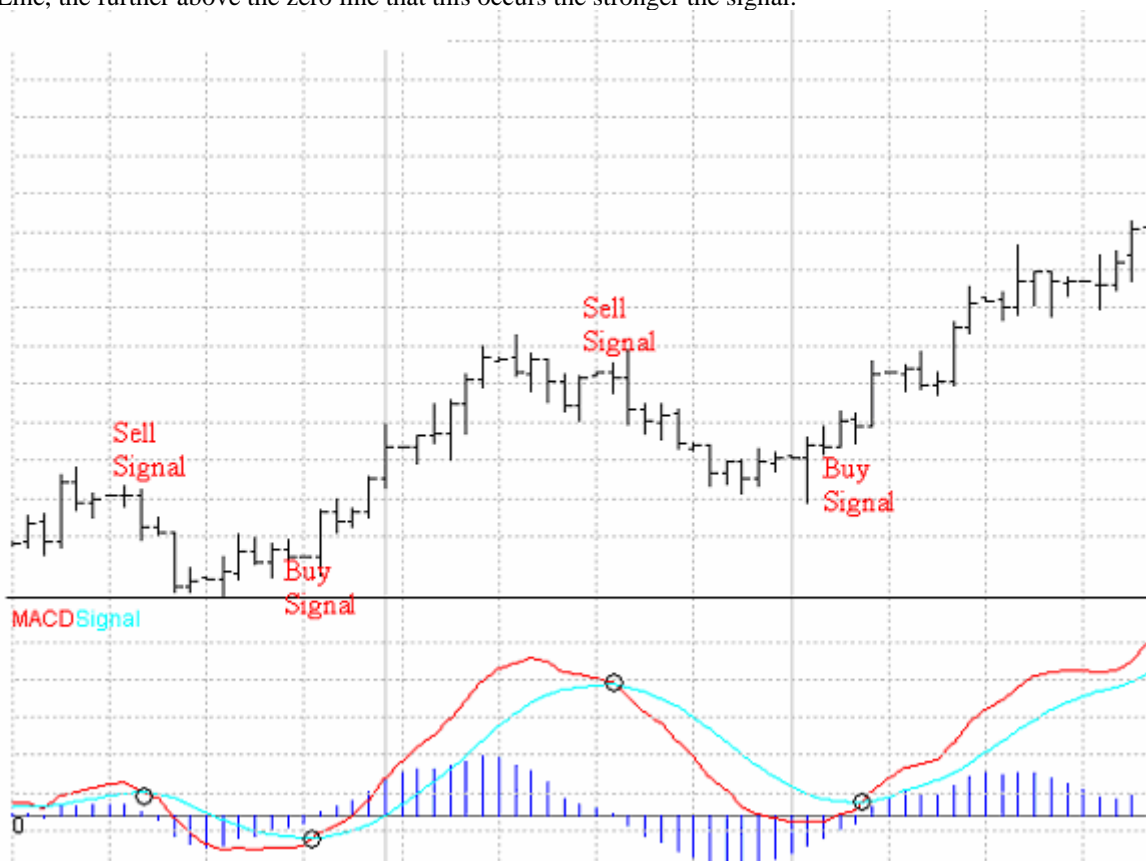
MACD Forest displays the positive and negative difference between the two lines found in an MACD graph (the MACD Line and the Signal Line) as a histogram above and below a zero line.

The default periods are the same as the periods used by Appel. Remember that Appel used 26 and 12 because he observed weekly cycles of similar length in the US stock market. You may wish to change the parameters to match another cycle period you have observed.

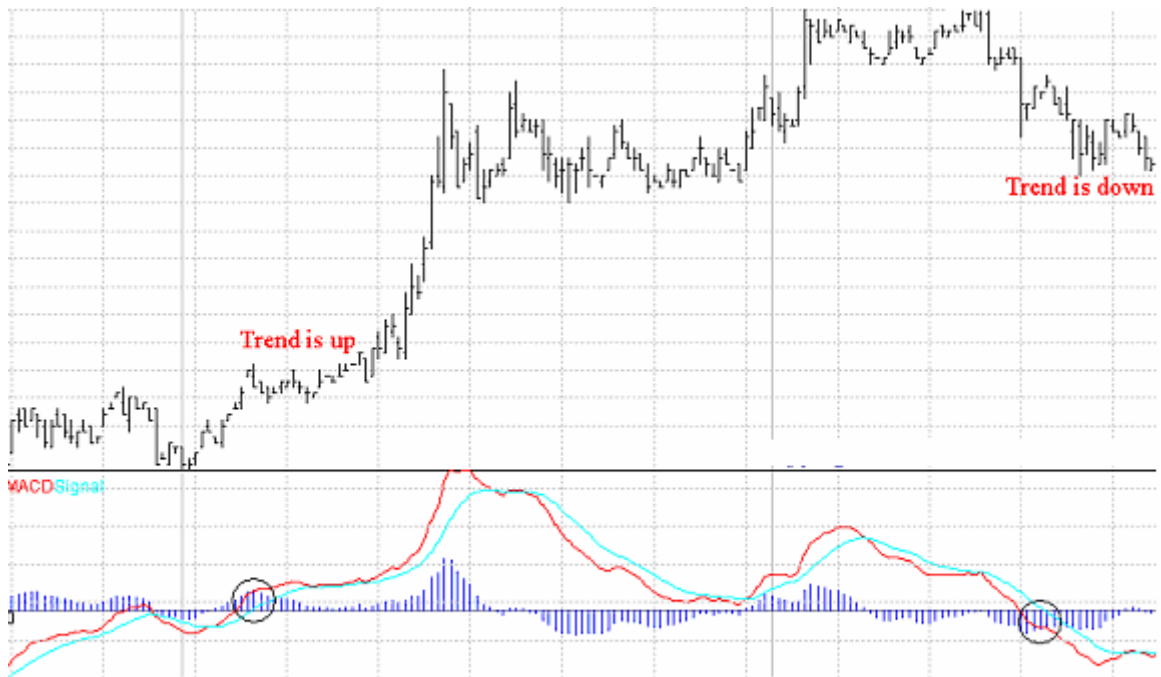
### The most common uses of MACD are to:

#### - Generate buy and sell signals

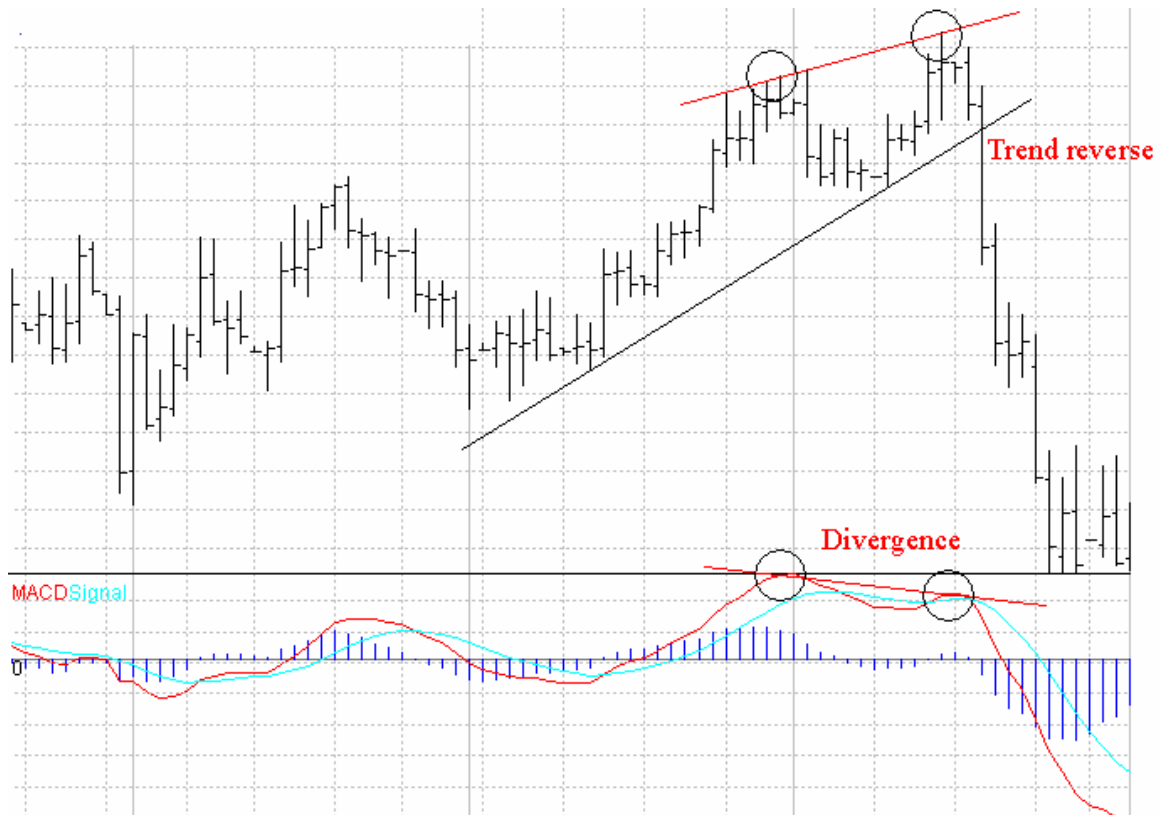
Signals are generated when the MACD Line and the Signal Line cross. A buy signal occurs when the MACD Line crosses from below to above the Signal Line, the further below the zero line that this occurs the stronger the signal. A sell signal occurs when the MACD Line crosses from above to below the Signal Line, the further above the zero line that this occurs the stronger the signal.



If a trend is gaining momentum then the difference between the short and long moving average will increase. This means that if both MACD lines are above (below) zero and the MACD Line is above (below) the Signal Line, then the trend is up (down).



Divergence between the MACD and the price indicates that an up or down move is weakening. Bearish Divergence occurs when prices are making higher highs but the MACD is making lower highs. This is a sign that the up move is weakening. Bullish Divergence occurs when prices are making lower lows but the MACD is making higher lows. This is a sign that the down move is weakening. It is important to note that although Divergences indicate a weakening trend they do not in themselves indicate that the trend has reversed. The confirmation or signal that the must come from price action, for example a trend line break.



## Parameters

Short averaging period: (default 12)

Long averaging period: (default 26)

Signal line averaging period: (default 9)

The default periods are the same as the periods used by Appel. Remember that Appel used 26 and 12 because he observed weekly cycles of similar length in the US stock market. You may wish to change the parameters to match another cycle period you have observed.

## 6. Momentum

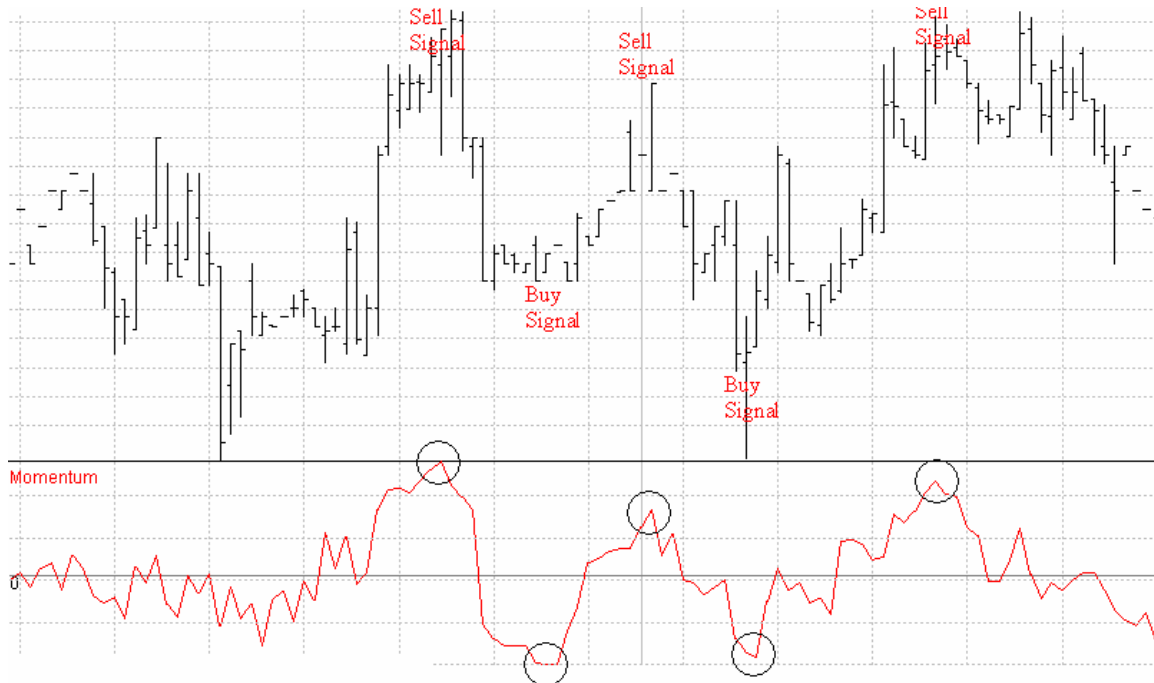
Momentum is an oscillator that measures the rate at which prices are changing over the Observation Period. It measures whether prices are rising or falling at an increasing or decreasing rate. The Momentum calculation subtracts the current price from the price a set number of periods ago. This positive or negative difference is plotted about a zero line.

**The most common uses of Momentum are to:**

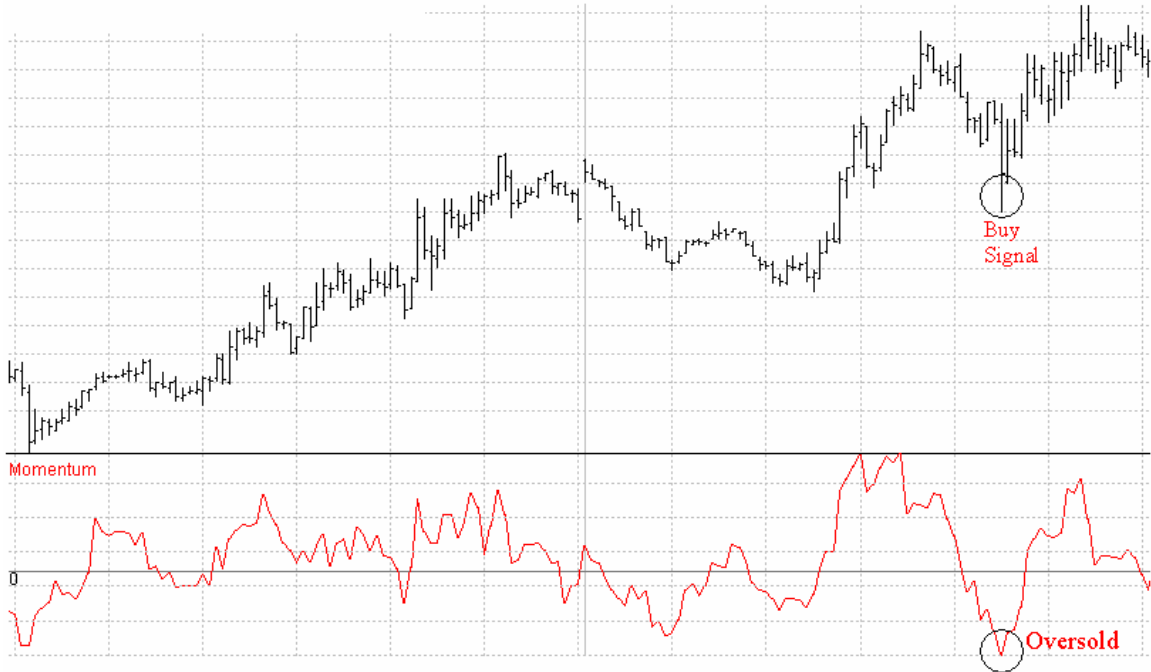
- *Indicate overbought and oversold conditions*

An overbought or oversold market is one where the prices have risen or fallen too far and are therefore likely to retrace. If the Momentum line moves to a very high value above the zero line, this is a sign of an overbought market. If the Momentum line moves to a very low value below the zero line this is a sign of an oversold market.

Overbought and oversold signals are most reliable in a non-trending market where prices are making a series of equal highs and lows.

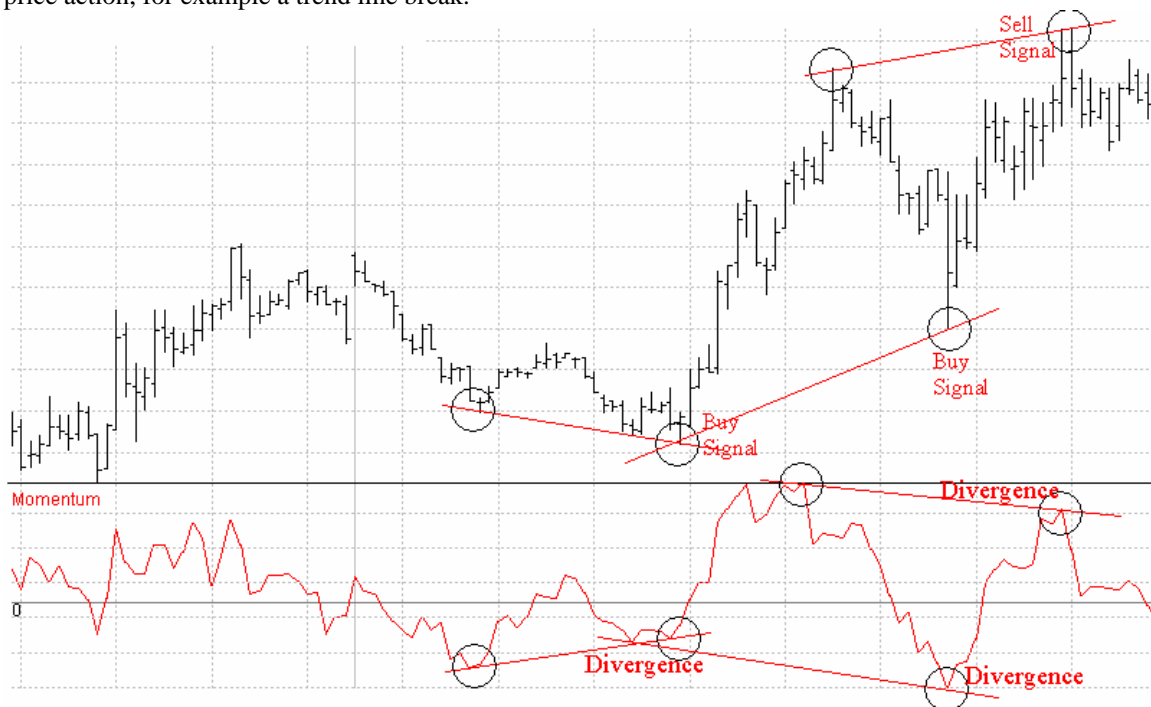


If the market is trending, then signals in the direction of the trend are likely to be more reliable. For example if prices are in an up trend, a safer trade entry may be obtained by waiting for prices to pullback giving an oversold signal and then turn up again.



*- Indicate Bullish and Bearish Divergence*

Divergence between the Momentum line and the price indicates that an up or down move is weakening. Bearish Divergence occurs when prices are making higher highs but the Momentum is making lower highs. This is a sign that the up move is weakening. Bullish Divergence occurs when prices are making lower lows but the Momentum is making higher lows. This is a sign that the down move is weakening. It is important to note that although Divergences indicate a weakening trend they do not in themselves indicate that the trend has reversed. The confirmation or signal that the trend has reversed must come from price action, for example a trend line break.



## **Parameters**

Observation period: (default 10)

Normally the Observation Period is set to half the cycle length of the underlying instrument. This means that the Momentum line will peak and bottom along with prices.

## **7. MOVING AVERAGE**

A Moving Average is a moving mean of data. In other words, Moving Averages perform a mathematical function where data within a selected period is averaged and the average 'moves' as new data is included in the calculation while older data is removed or lessened. Moving Averages essentially smooth data by removing 'noise'. This smoothing of data makes Moving Averages popular tools in identifying price trends and trend reversals.

The differences between the three types of moving averages lie in the way that they are calculated and whether they look at all the data available or only the data within a selected period. This means that each type of moving average has its own characteristics, for example how quickly each will respond to changes in the underlying price.

### **Simple Moving Average**

Simple Moving Averages are the most common and popular form of moving average. The primary reason for this is the relative ease with which Simple Moving Averages are calculated. A Simple Moving Average is calculated by adding values over a set number of periods and then dividing the sum by the total number of values.

As with other types of moving averages, Simple Moving Averages smooth the data by removing 'noise' over the selected period. The ability to smooth data makes them a useful tool in identifying price trends and trend reversals.

### **Moving average - weighted**

As with Simple Moving Averages, Weighted Moving Averages smooth the data by removing 'noise' over the selected period. However a Weighted Moving Average will be more sensitive to recent changes in data. This is because a Simple Moving Average gives all observations equal emphasis in its calculation, but a Weighted Moving Average assigns a greater weight to the most recent observations.

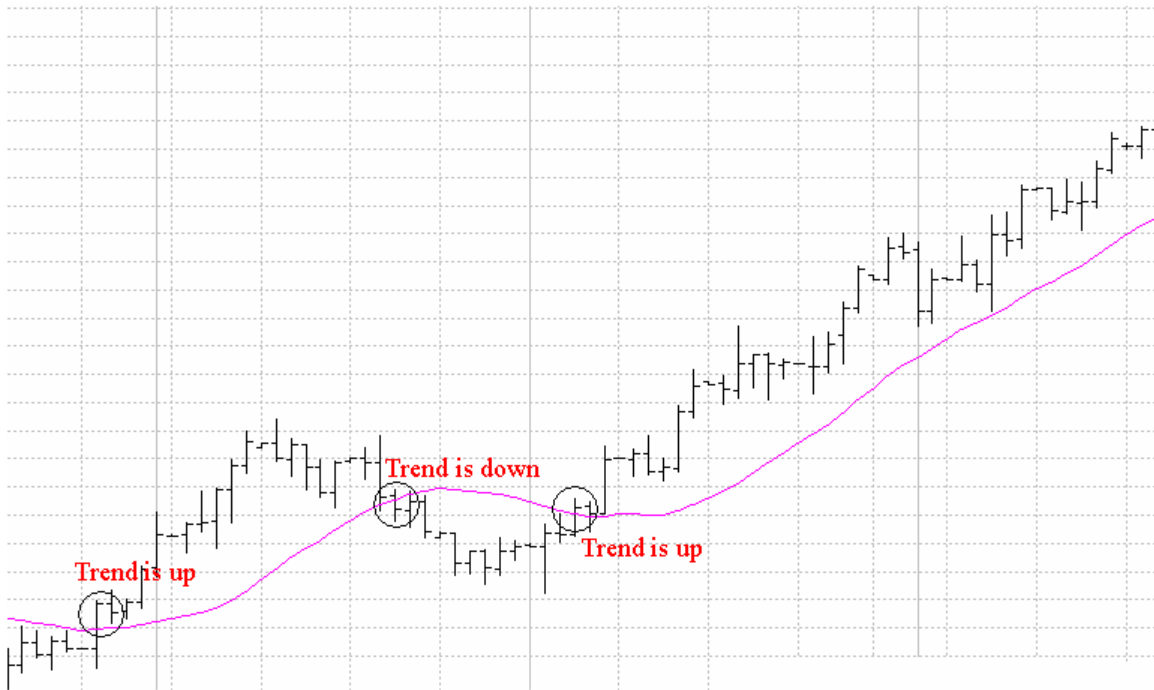
### **Moving average - exponential**

The Exponential Moving Average is similar to the Weighted Moving Average in that they both assign greater weight to the most recent data. Where they differ is that instead of dropping off the oldest data point in the selected period of the moving average, the Exponential Moving Average continues to maintain all the data. In other words, a 5 day Exponential Moving Average will contain more than 5 pieces of data information. Each observation becomes progressively less significant but still includes in its calculation all the price data in the life of the instrument. The Exponential Moving Average is another method of weighting a moving average.

**The most common uses of Moving Averages are to:**

- *Identify the trend*

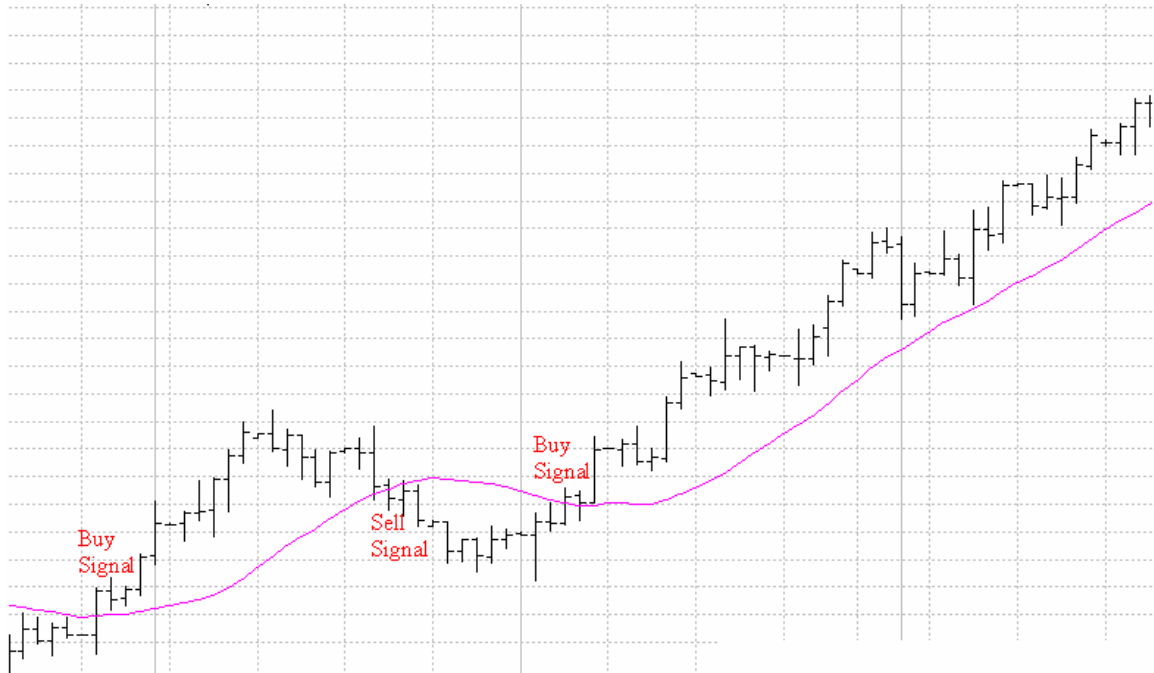
A common method involves looking at the slope of the Moving Average and the relationship of the prices to the Moving Average. For example, if the Moving Average is sloping down and prices are below the Moving Average then prices are considered to be in a downtrend. The opposite is true for an up trend. If prices are moving above and below the Moving Average and the Moving Average is flat then a nontrending market exists.



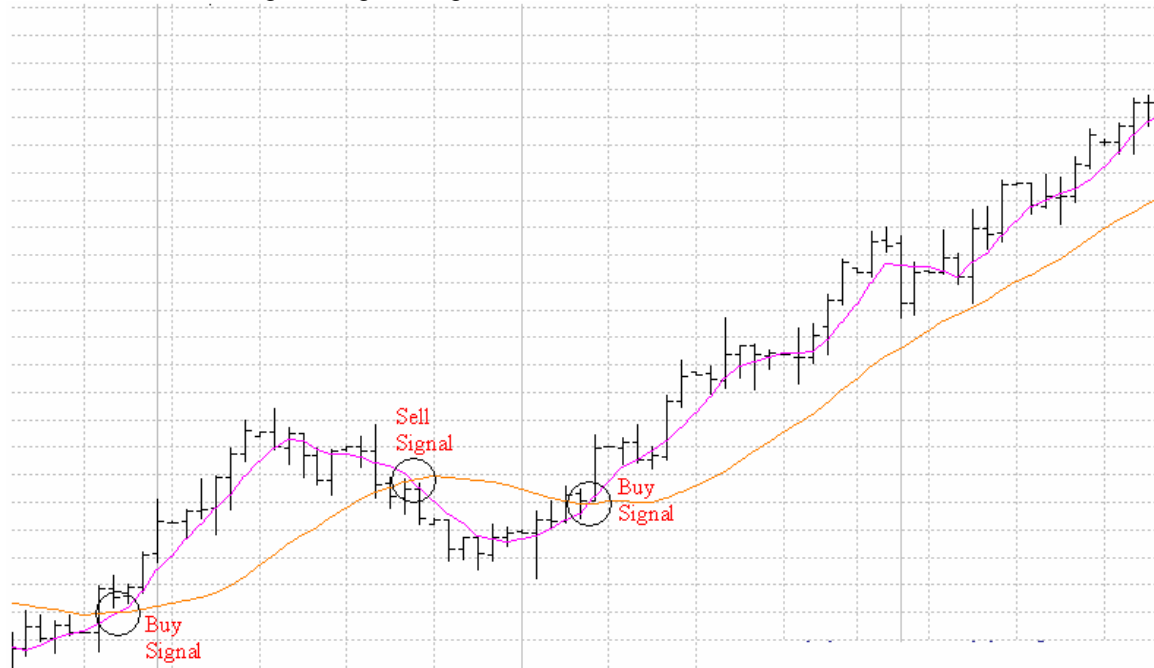


- Give buy and sell signals

This can be achieved a number of ways. The first method looks at the relationship between the close and a single Moving Average. If the market closes above the Moving Average then a buy signal is generated, if the market closes below the Moving Average then a sell signal is generated.



The second method uses two Moving Averages, one with a shorter observation period than the other. Buy and sell signals are generated when the short moving average crosses over the long moving average. For example if the short moving average crosses above the long moving average a buy signal is generated; a sell signal is generated when the short Moving Average crosses below the long Moving Average.



**Note:** Both of these buy and sell techniques are most effective when the market is trending. If the market is non-trending then these techniques are likely to give false signals. This is simply because the market needs to continue in the direction of the buy or sell signal in order for the trade to be profitable.

Exponential Moving Averages are used in the same manner as the other types of moving average, usually to identify price trends and trend reversals.

### **Parameters**

Averaging period: (default 5)

The exact averaging period to be used will depend upon the purpose of the moving average. If you are using moving averages to identify the trend, then the length of the averaging period should reflect the length of the trend you are trying to identify. The longer the trend - the longer the averaging period. For example, if you are looking at a daily chart to identify the long-term trend, you may decide to use an averaging period of 200. For short and medium term trends periods of 20 and 50 could be used respectively.

If you are using moving averages to generate buy and sell signals then shorter, more responsive averaging periods are normally used. For example a two moving average system may use averaging periods of 5 and 20.

**Note:** When selecting an averaging period there is a tradeoff between the averaging period, the number of signals generated and the risk associated with the signal. A longer averaging period will generate less signals but will require a larger price move before responding, sacrificing potential profits in order to confirm the signal. A shorter averaging period will generate more signals and require less of a price move before responding, however the risk that the signal is false increases.

## 8. PARABOLIC TIME PRICE - SAR

Parabolic Time Price is a system that always has a position in the market, either long or short. You would close out the current position and enter a reverse position when the price crosses the current Stop And Reverse (SAR) point.

The SAR points resemble a parabolic curve as they begin to tighten and close in on prices once prices begin to trend. This explains the name - Parabolic Time Price.

Parabolic Time Price is usually charted with a bar analysis so that the stop and reverse points are easily identified. If you are long, the SAR points will be below the prices and the signal to go short will be when prices cross the current SAR point from above. If you are short, the SAR points will be above the prices and the signal to go long will be when prices cross the current SAR point from below.

When a new position is entered the SAR points will be positioned far enough away from the prices to permit some contra-trend price movement. As the market begins to trend the SAR points will move with prices and progressively tighten as the trend continues. This is accomplished by the use of an acceleration factor that increases up to a given limit each time a new extreme in the direction of the trend is reached.

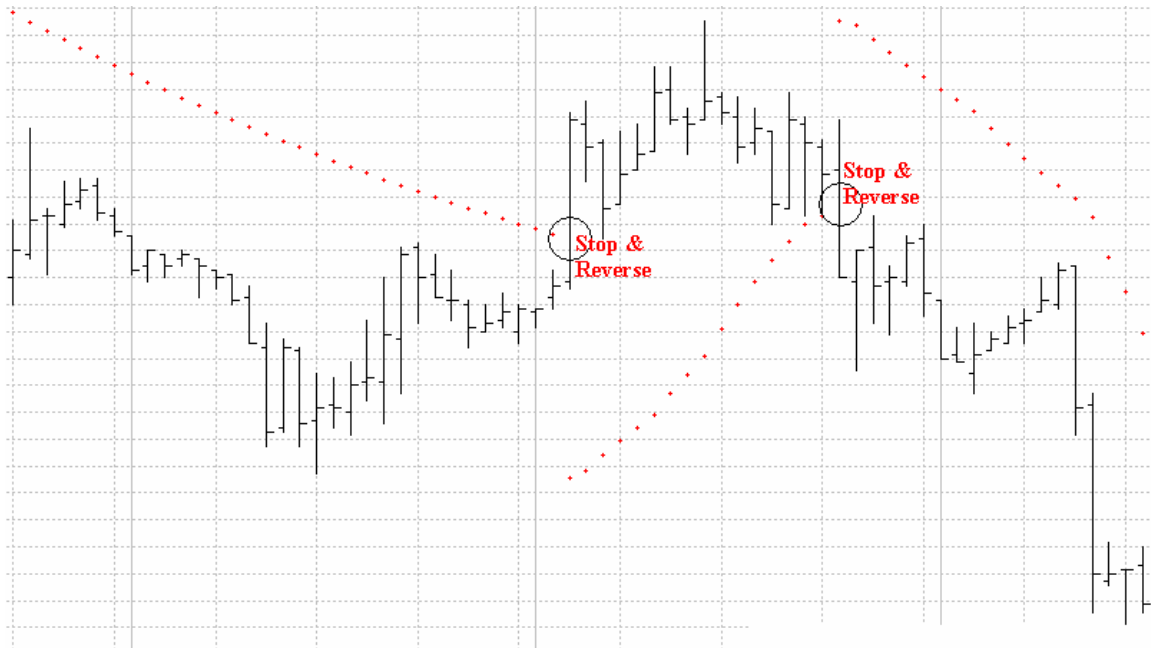
### The most common uses of Parabolic Time Price are:

- As a Stop And Reverse system

Signals to stop out of the current position and enter a reverse position are when prices cross the current SAR point. For example if the SAR points are below prices you would be long with an order to close out the current long position and enter a short position at that period's SAR point. Once you are stopped into a short position the SAR points will be above prices and the current period's SAR point will be the level at which you will be stopped out of your short position and enter a long position.

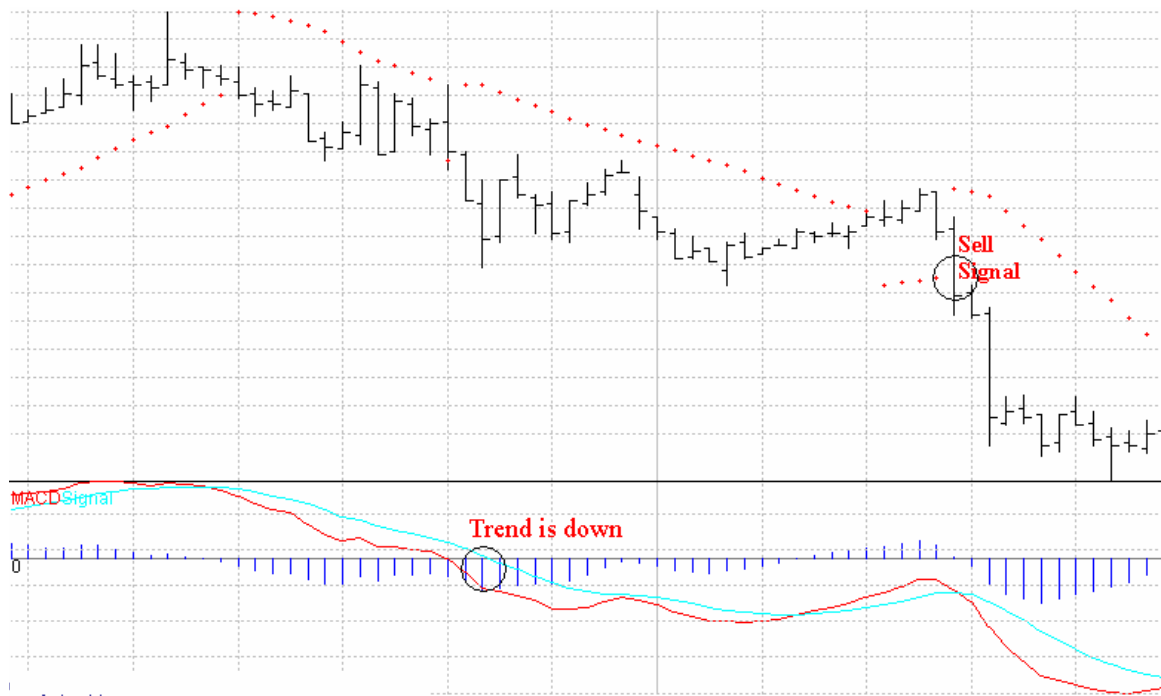
When applied in its original form Parabolic Time Price is a system that is always in the market. In order for this technique to be successful the underlying market needs to be trending strongly.

If Parabolic Time Price is applied in a non-trending market then it is likely that losses will result because the buy signals will occur at the top of the range and the sell signals at the bottom of the range.



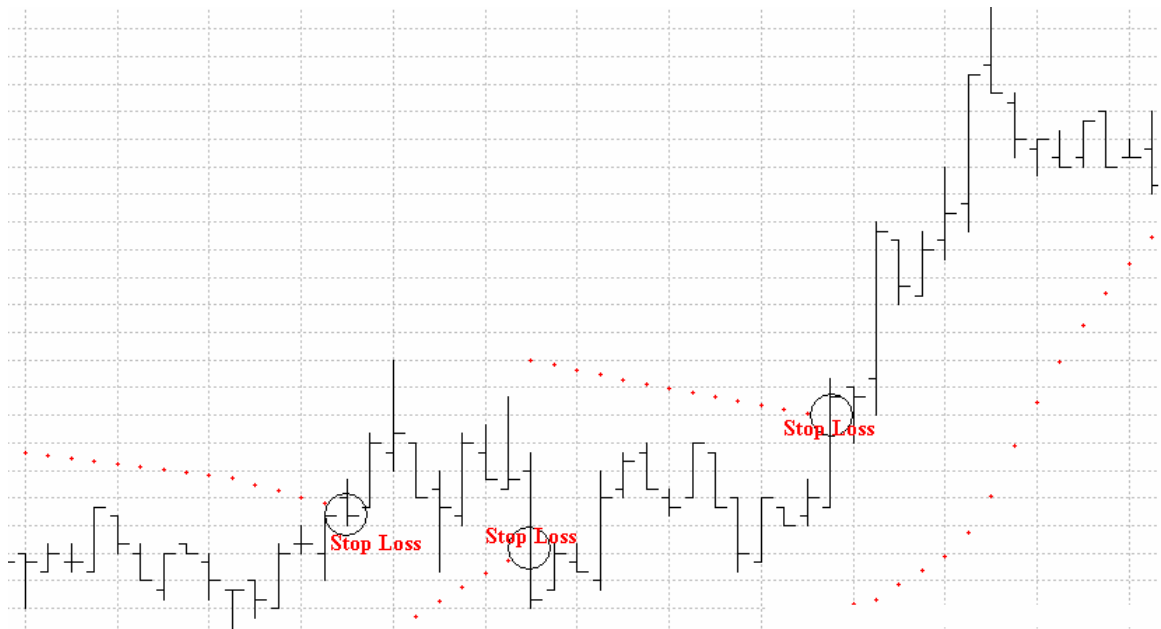
- As an entry and exit technique in a trending market

By using Parabolic Time Price in conjunction with an analysis that indicates market trend such as MACD, you would take only long trades when the trend was up and only short trades when the trend was down.



- To select a level at which to place a stop loss

After a trade has been entered using another method or technique, the SAR points of Parabolic Time Price are used to trail a stop on the position.



**Parameters**

Acceleration factor: (default 0.02)

The Acceleration increment is the rate at which the SAR points will progressively tighten upon prices each time a new extreme in the direction of the trend is reached.

A value greater (less) than 0.02 means that the SAR points will tighten more quickly (slowly) upon prices, leaving less (more) room for counter trend price movements.

Maximum constant: (default 0.2)

When a new signal is given the acceleration factor will use the Start acceleration as its initial value. Each time a new extreme is made in the direction of the trend the acceleration factor will increase by the value of the Acceleration increment until the acceleration factor equals the Maximum acceleration.

A value greater (less) than 0.2 means that the SAR points will tighten more quickly (slowly) upon prices, leaving less (more) room for counter trend price movements.

## 9. ROC – Rate of Change

Rate of Change is an oscillator that measures how fast the momentum of the market is changing over the Observation Period. Rate of Change is very similar to Momentum in that it compares the current price with the price a specified number of periods ago; however Rate of Change is calculated differently. Where Momentum subtracts the current price from the price a specified number of periods ago, Rate of Change divides the current price by the price a specified number of periods ago and then multiplies the result by 100.

**The most common uses of Rate of Change are to:**

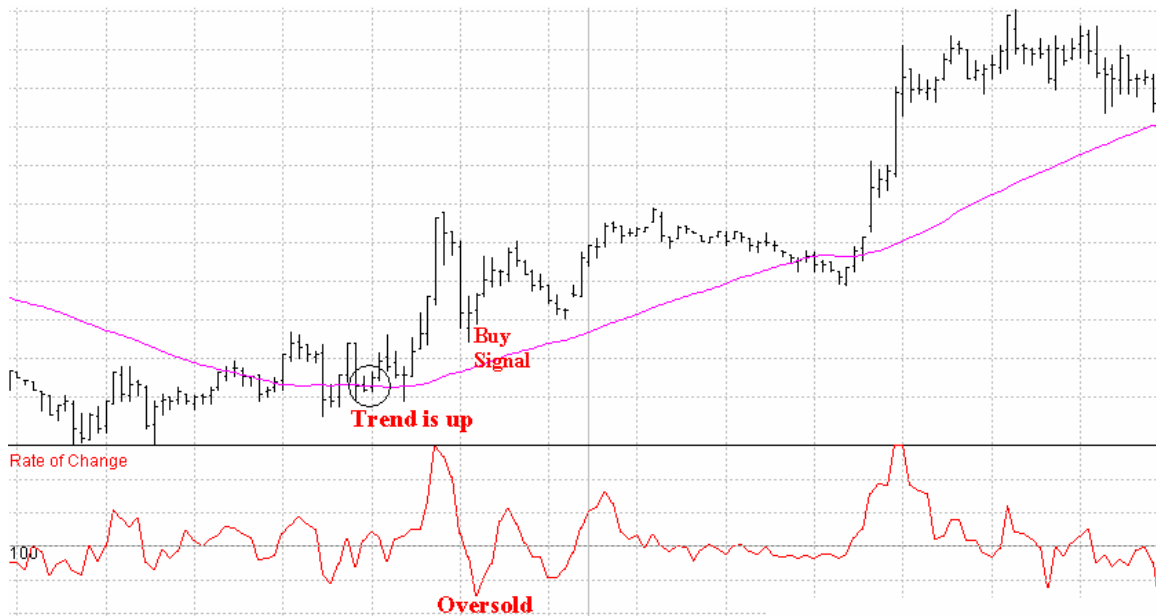
- *Indicate overbought and oversold conditions*

An overbought or oversold market is one where the prices have risen or fallen too far and are therefore likely to retrace. If the Rate of Change line moves to a very high value above the 100 line, this is a sign of an overbought market. If the Rate of Change line moves to a very low value below the 100 line, this is a sign of an oversold market.

Overbought and oversold signals are most reliable in a non-trending market where prices are making a series of equal highs and lows.



If the market is trending, then signals in the direction of the trend are likely to be more reliable. For example if prices are in an up trend, a safer trade entry may be obtained by waiting for prices to pullback giving an oversold signal and then turn up again.

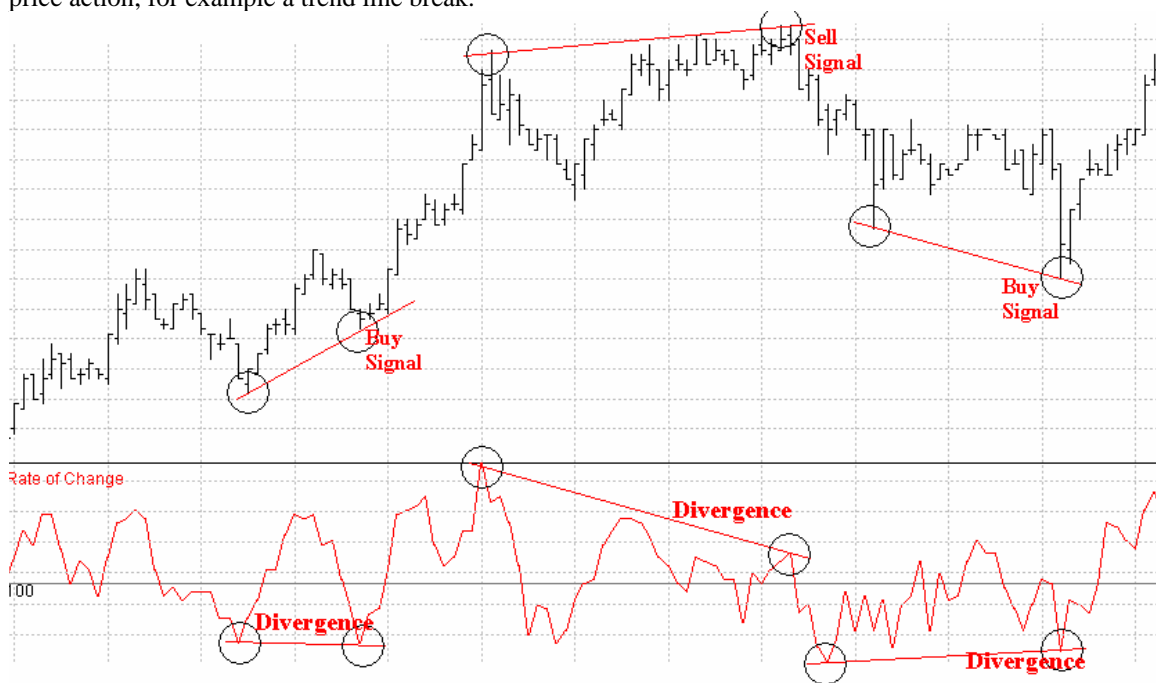


**- Indicate Bullish and Bearish Divergence**

Divergence between the Rate of Change line and the price indicates that an up or down move is weakening. Bearish Divergence occurs when prices are making higher highs but the Rate of Change is making lower highs. This is a sign that the up move is weakening.

Bullish Divergence occurs when prices are making lower lows but the Rate of Change is making higher lows. This is a sign that the down move is weakening.

It is important to note that although Divergences indicate a weakening trend they do not in themselves indicate that the trend has reversed. The confirmation or signal that the trend has reversed must come from price action, for example a trend line break.



## **Parameters**

Observation Period: (default 14)

Normally the Observation Period is set to half the cycle length of the underlying instrument. This means that the Rate of Change line will peak and bottom along with prices.

Using a shorter Observation Period increases the responsiveness of the Rate of Change oscillator while also increasing the risk of false signals. Using a longer Observation Period slows the responsiveness of the oscillator to price changes, resulting in late signals.



## 10. RSI – Relative Strength Index

Developed by J. Welles Wilder and introduced in his book *New Concepts in Technical Trading Systems*. RSI calculates the difference in values between the closes over the Observation Period. These values are averaged, with an up average being calculated for periods with higher closes and a down-average being calculated for periods with lower closes. The up average is divided by the down average to create the Relative Strength. Finally, the Relative Strength is put into the Relative Strength Index formula to produce an oscillator that fluctuates between 0 and 100.

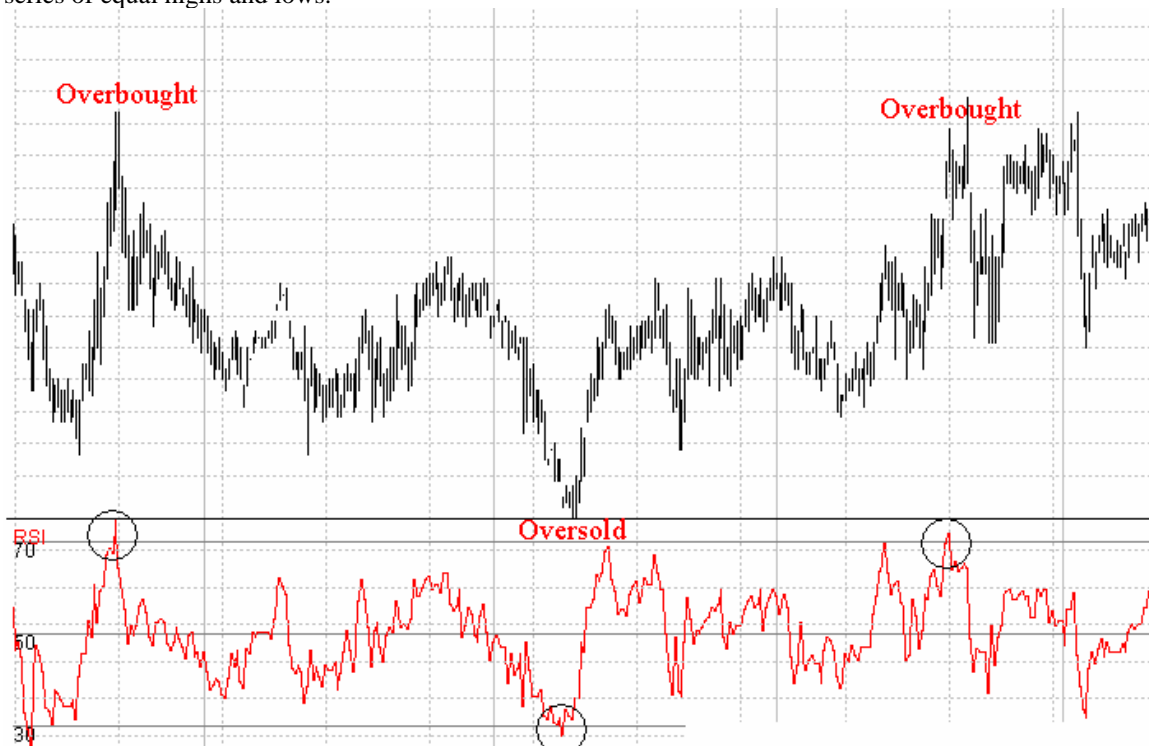
By calculating the RSI in this way Wilder was able to overcome two problems he had encountered with other momentum oscillators. Firstly, the RSI should avoid some of the erratic movements common to other momentum oscillators by smoothing the points used to calculate the oscillator. Secondly, the Y Axis scale for all instruments should be the same, 0 to 100. This would enable comparison between instruments and for objective levels to be used for overbought and oversold readings.

**The most common uses of RSI are to:**

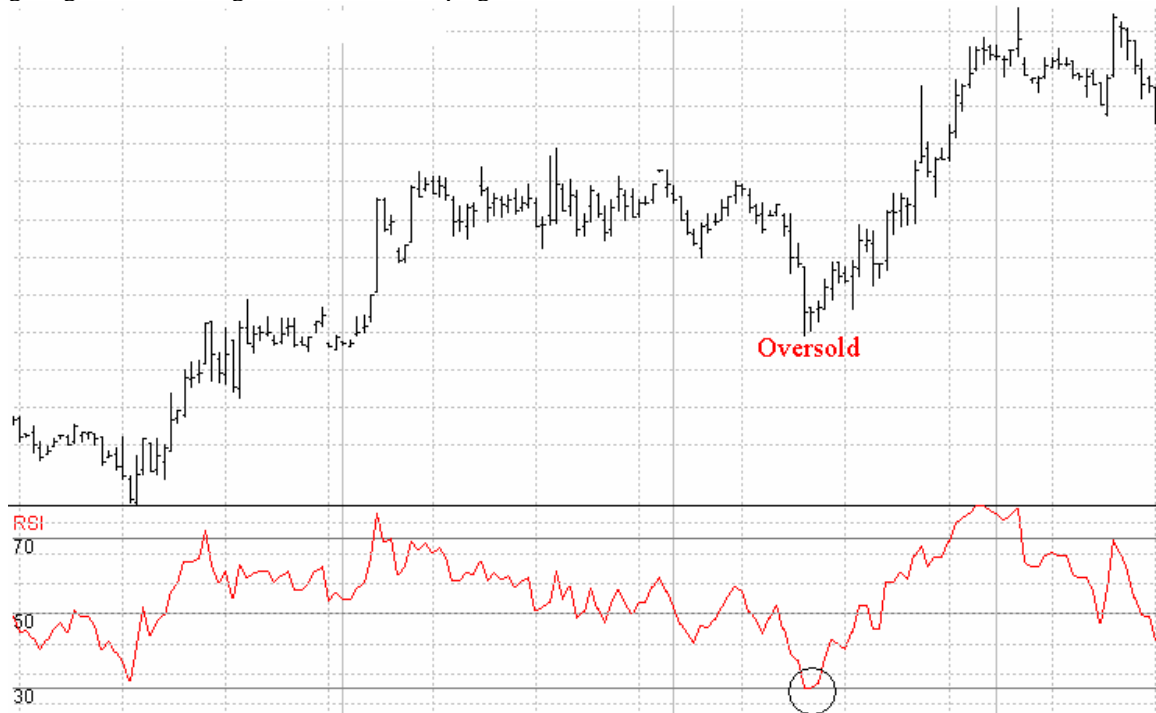
- *Indicate overbought and oversold conditions*

An overbought or oversold market is one where prices have risen or fallen too far and are therefore likely to retrace.

If the RSI is above 70 then the market is considered to be overbought, and an RSI value below 30 indicates that the market is oversold. 80 and 20 can also be used to indicate overbought and oversold levels. Overbought and oversold signals are most reliable in a non-trending market where prices are making a series of equal highs and lows.

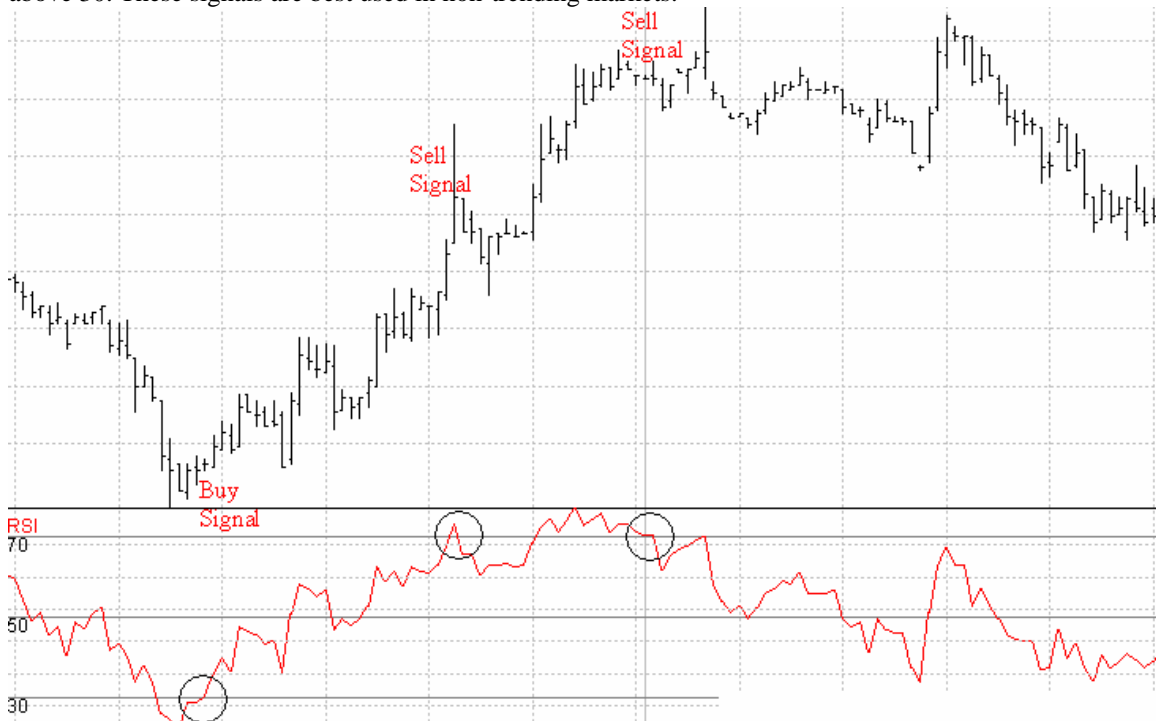


If the market is trending, then signals in the direction of the trend are likely to be more reliable. For example if prices are in an up trend, a safer trade entry may be obtained by waiting for prices to pullback giving an oversold signal and then turn up again.

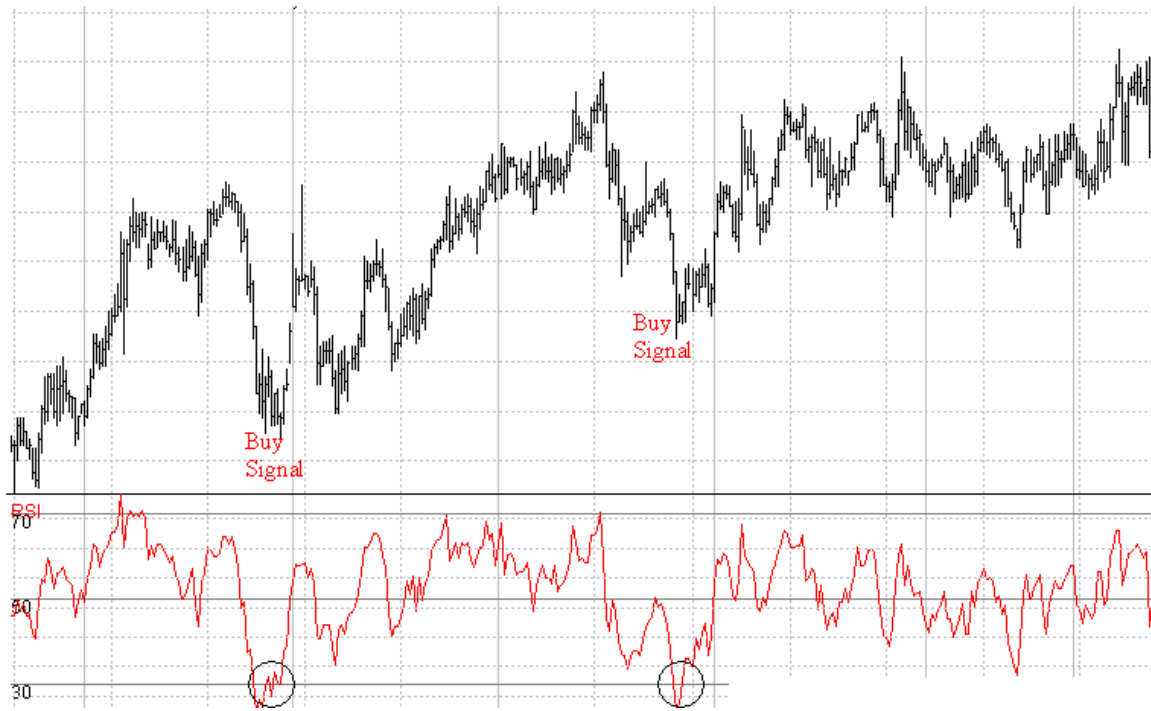


- *Generate buy and sell signals*

If the RSI is above 70 and you are looking for the market to form a top, then the RSI crossing back below 70 can be used as a sell signal. The same is true for market bottoms, buying after the RSI has moved back above 30. These signals are best used in non-trending markets.



In trending markets, the most reliable signals will be in the direction of the trend. For example if the market is trending up, taking only buy signals after the RSI has moved back above 30 after dipping below it. The reason for taking signals only in the direction of the trend, is that when the market is trending any countertrend signal is likely to indicate a small retracement against the underlying trend rather than true reversal.



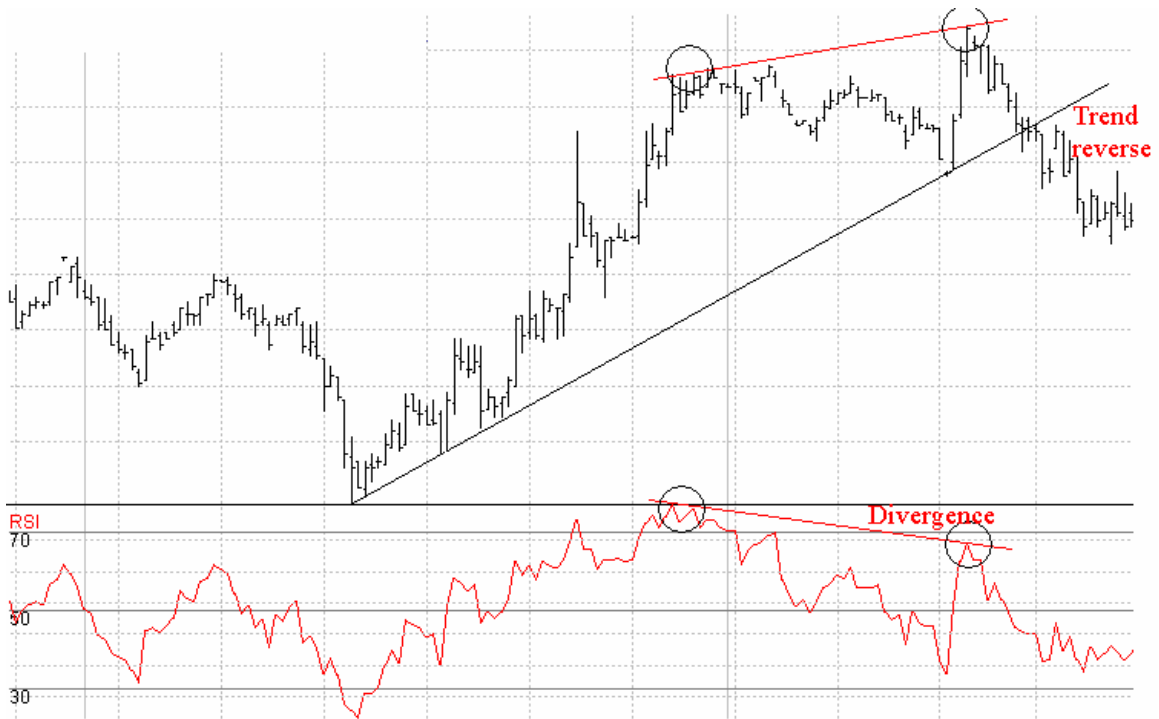
- *Indicate Bullish and Bearish Divergence*

Divergence between the RSI and the price indicates that an up or down move is weakening.

Bearish Divergence occurs when prices are making higher highs but the RSI is making lower highs. This is a sign that the up move is weakening.

Bullish Divergence occurs when prices are making lower lows but the RSI is making higher lows. This is a sign that the down move is weakening.

It is important to note that although Divergences indicate a weakening trend they do not in themselves indicate that the trend has reversed. The confirmation or signal that the trend has reversed must come from price action, for example a trend line break.



## Parameters

Observation Period: (default 14)

Lower Bound percentage (default 30); this provides the lower boundary expressed as a percentage of the instrument's value. The number must be less than the Upper Bound.

Upper Bound percentage (default 70); this provides the upper boundary expressed as a percentage of the instrument's value.

Wilder used 14 as an Observation Period although periods of 9 and 7 are also popular. Decreasing the observation period increases the sensitivity of the RSI to changes in price, resulting in a more responsive RSI. Note that a shorter observation period may also result in an increase in the number of false signals. A longer period results in a smoother RSI that will generate less signals.

## 11. Slow Stochastic

Stochastics are an oscillator developed by George Lane and are based on the following observation:

As prices increase - closing prices tend to be closer to the upper end of the price range

As prices decrease - closing prices tend to be closer to the lower end of the price range

Slow Stochastics are based on Fast Stochastics but provide a slower, smoother response to price movements.

Slow Stochastic consist of two lines, %K and %D:

The %K line in Slow Stochastic is the same as the %D line in Fast Stochastic.

The %D line in Slow Stochastic is a Simple Moving Average of %K Slow Stochastic. This line is smoother than the %K and provides the signals for an overbought / oversold market.

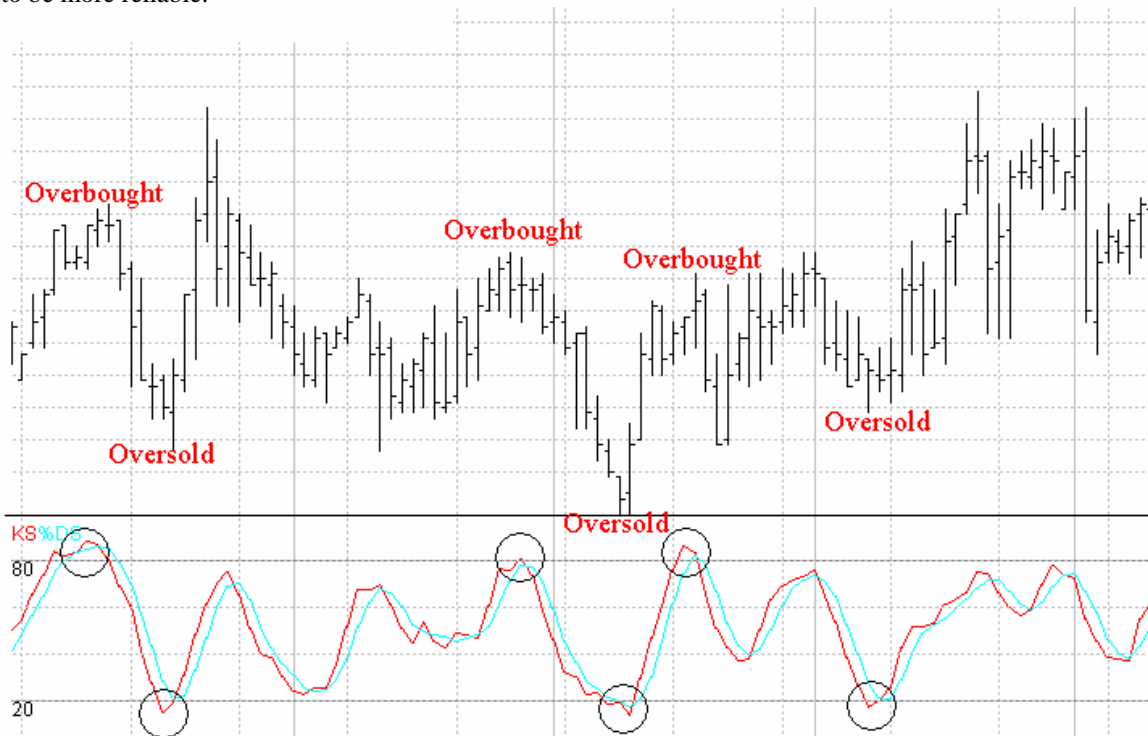
Slow Stochastics are the more commonly used of the two Stochastic types - Fast and Slow. This is because Slow Stochastics are smoother and are less likely to give false signals.

**The most common uses of Stochastics are to:**

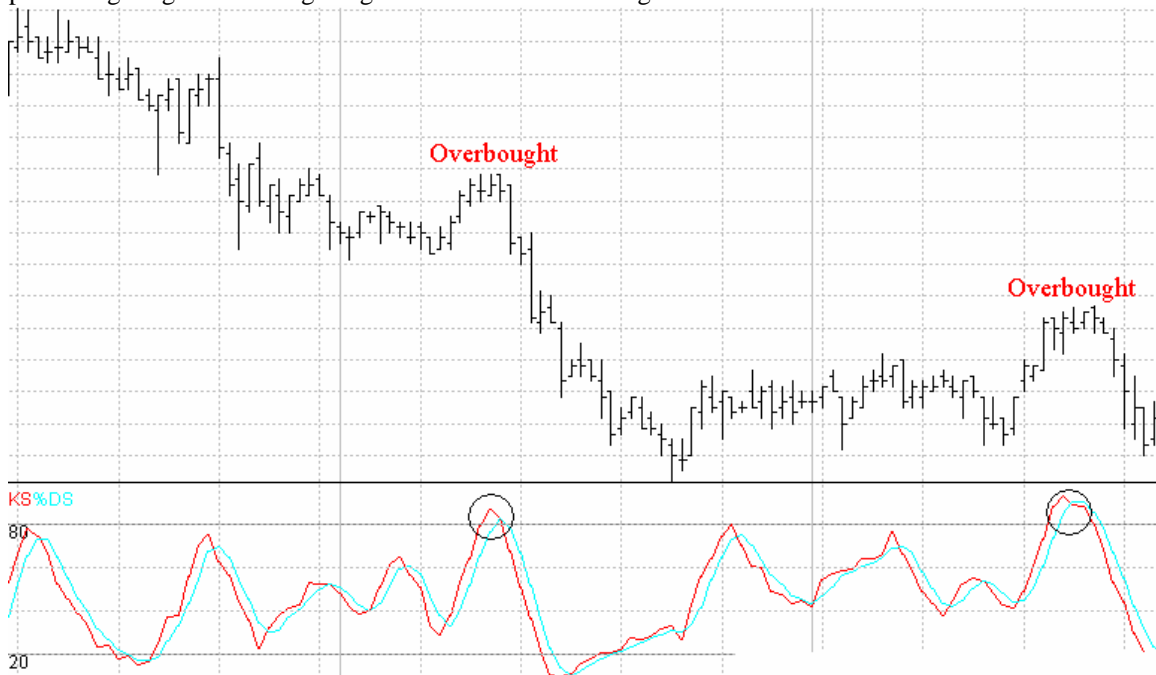
- *Indicate overbought and oversold conditions*

An overbought or oversold market is one where the prices have risen or fallen too far and are therefore likely to retrace. If the %D line is above 80% then the close is near the top end of the range of the observation period, while a reading below 20% means that the close is near the bottom end of the range of the observation period.

Generally the area above 80 is considered overbought, while the area below 20 is oversold. The specified overbought/oversold ranges vary. Other commonly used ranges include 75-25, 70-30 and 85-15. Overbought and oversold signals are most reliable in a non-trending market where prices are making a series of equal highs and lows. If the market is trending, then signals in the direction of the trend are likely to be more reliable.



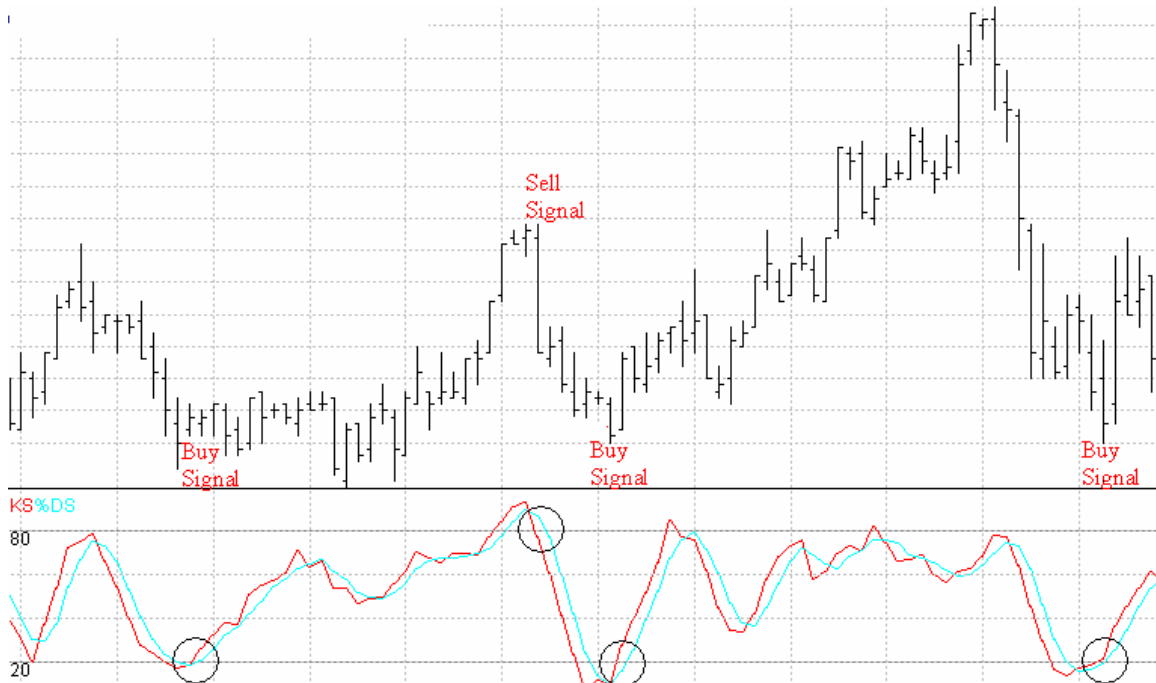
For example if prices are in a downtrend, a safer trade entry may be obtained by waiting for prices to pullback giving an overbought signal and then turn down again.



- Generate buy and sell signals

For a buy or sell signal the following conditions must be met in order.

1. The %K and %D lines move above 80 or below 20
2. The %K and %D lines cross
3. The %K and %D lines move below 80 or above 20

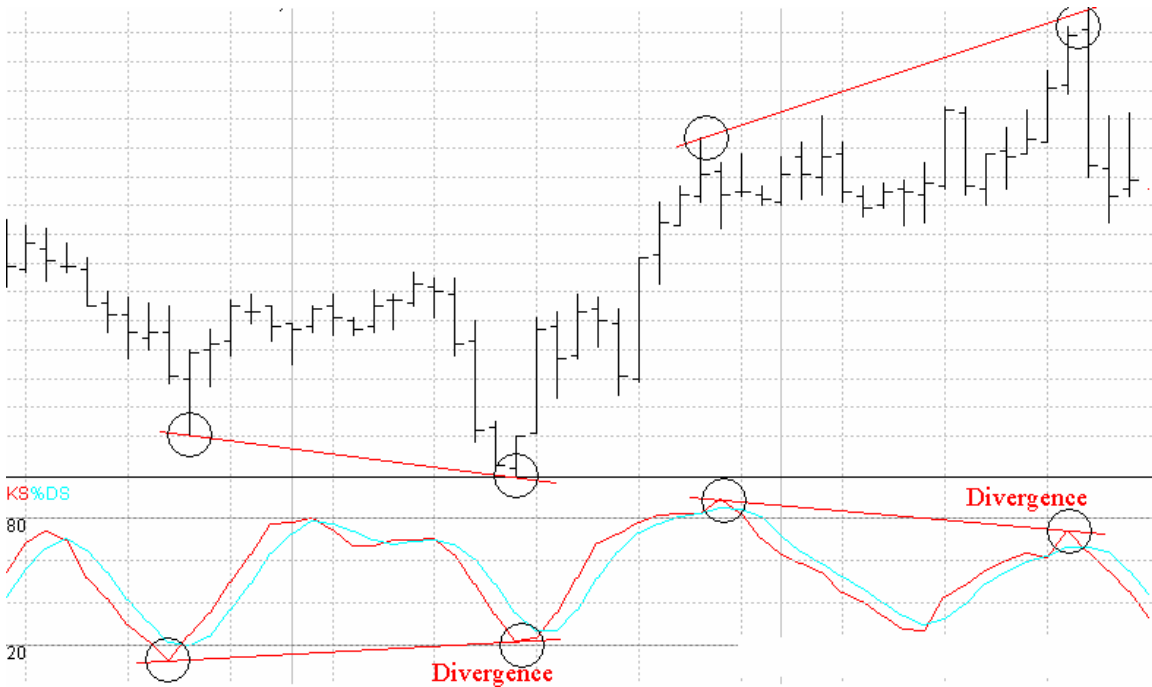


- *Indicate Bullish and Bearish Divergence*

Divergence between Stochastics and the price indicates that an up or down move is weakening.

Bearish Divergence occurs when prices are making higher highs but the Stochastics are making lower highs. This is a sign that the up move is weakening.

Bullish Divergence occurs when prices are making lower lows but the Stochastics are making higher lows. This is a sign that the down move is weakening.



**Parameters**

Observation period for %K Fast: (default 5)  
Fast %K is used to calculate Slow %K, but is not charted.

Averaging period for %K Slow: (default 5)  
This is the same as the %D Fast in Fast Stochastics. The averaging period is the number of observations of %K Fast used in the moving average.

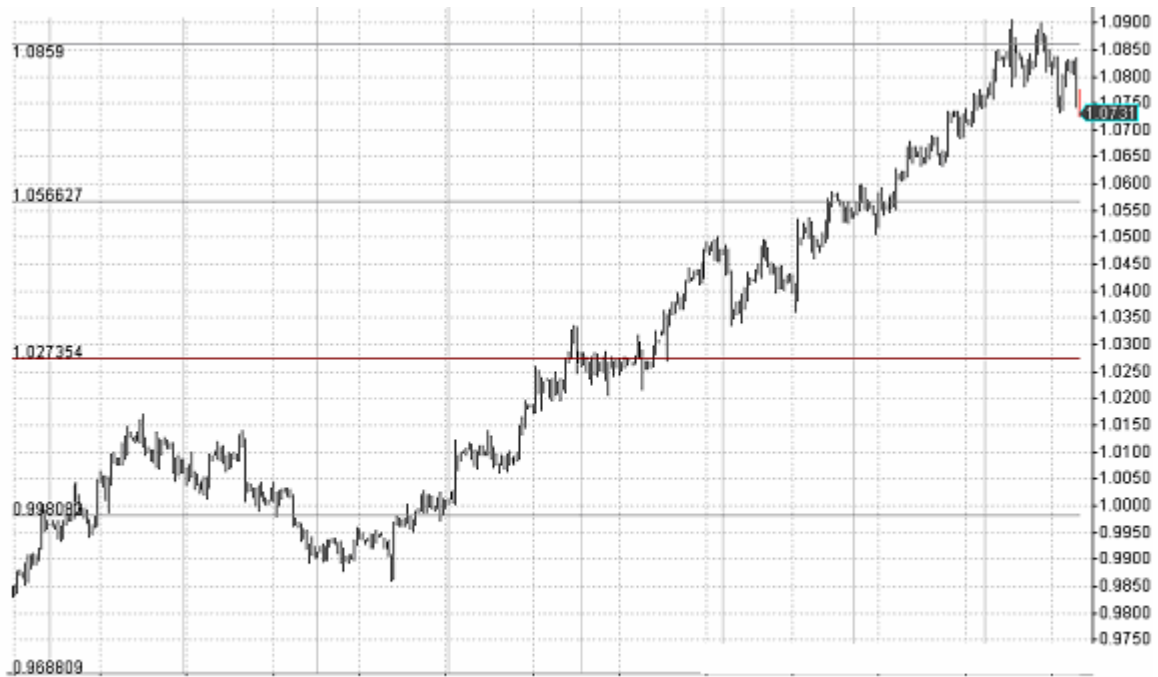
Averaging period for %D Slow: (default 3)

This is the number of observations used in the moving average of %K Slow. The smaller the value the closer the %D will be to the %K.

## 12. Standard Deviation

A measure of dispersion of a set of data from their mean. The more spread apart the data is, the higher the "deviation". In statistics it can also be calculated as the square root of the variance.

Volatile price would have a high standard deviation. In mutual funds, the standard deviation tells us how much the return on the fund is "deviating" from the expected normal returns.





### 13. STOCHASTIC

Stochastics are an oscillator developed by George Lane and are based on the following observation:

- As prices increase - closing prices tend to be closer to the upper end of the price range
- As prices decrease - closing prices tend to be closer to the lower end of the price range

Fast Stochastics consists of two lines, %K and %D:

The %K line measures, as a percentage, where the current close is, in relation to the lowest low over the observation period. This is shown on a scale of 0 to 100, where 0 is the observation period low, and 100 is the observation period high.

The %D line is a Simple Moving Average of the %K. Because it is a moving average, this line is smoother than the %K and provides the signals for an overbought / oversold market.

Fast Stochastics are more sensitive than Slow Stochastics and therefore more likely to give false signals. As a result Fast Stochastics are less commonly used than Slow Stochastics.

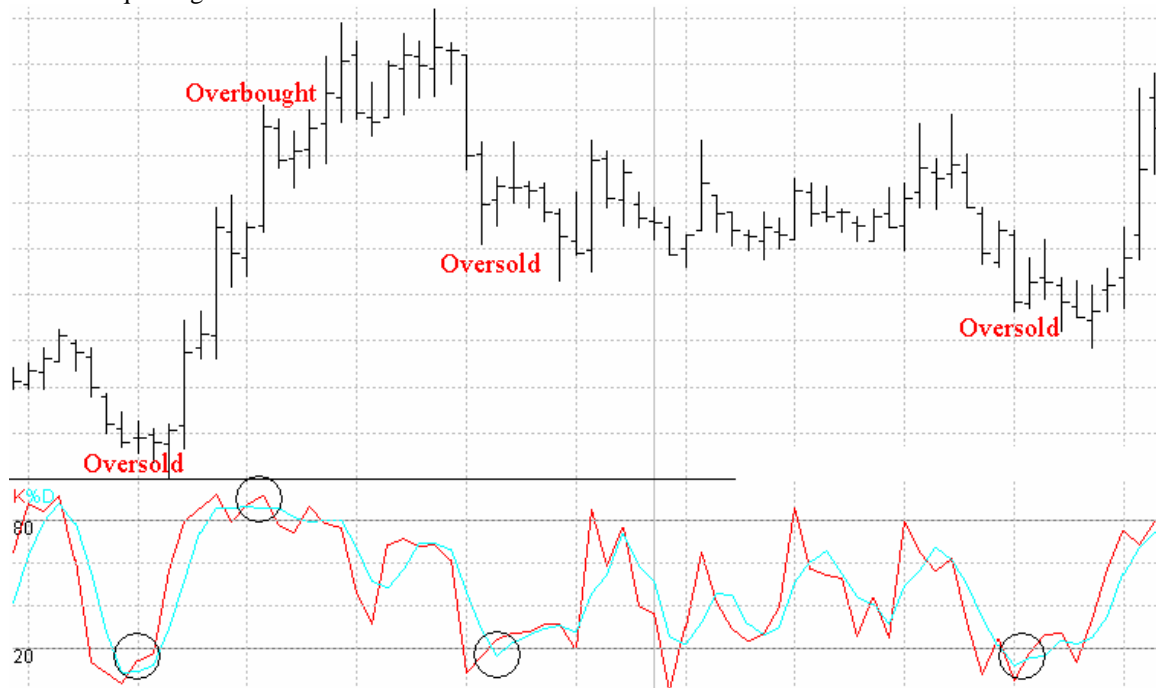
**The most common uses of Stochastics are to:**

- *Indicate overbought and oversold conditions*

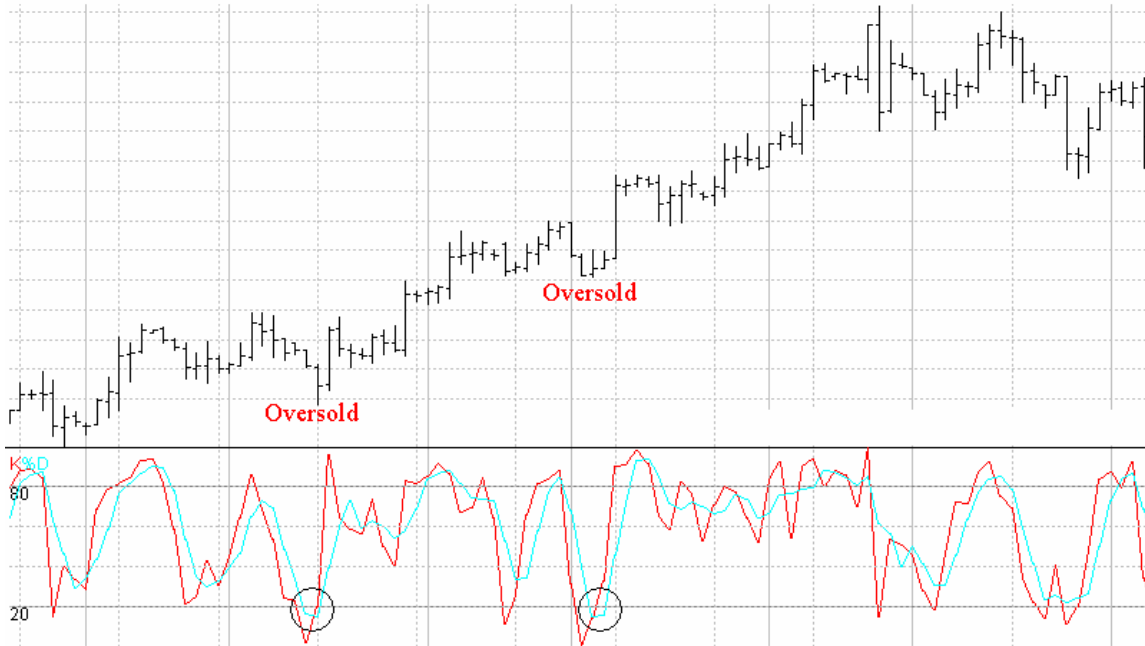
An overbought or oversold market is one where the prices have risen or fallen too far and are therefore likely to retrace. If the %D line is above 80% then the close is near the top end of the range of the observation period, while a reading below 20% means that the close is near the bottom end of the range of the observation period.

Generally the area above 80 is considered overbought, while the area below 20 is oversold. The specified overbought/oversold ranges vary. Other commonly used ranges include 75-25, 70-30 and 85-15.

Overbought and oversold signals are most reliable in a non-trending market where prices are making a series of equal highs and lows



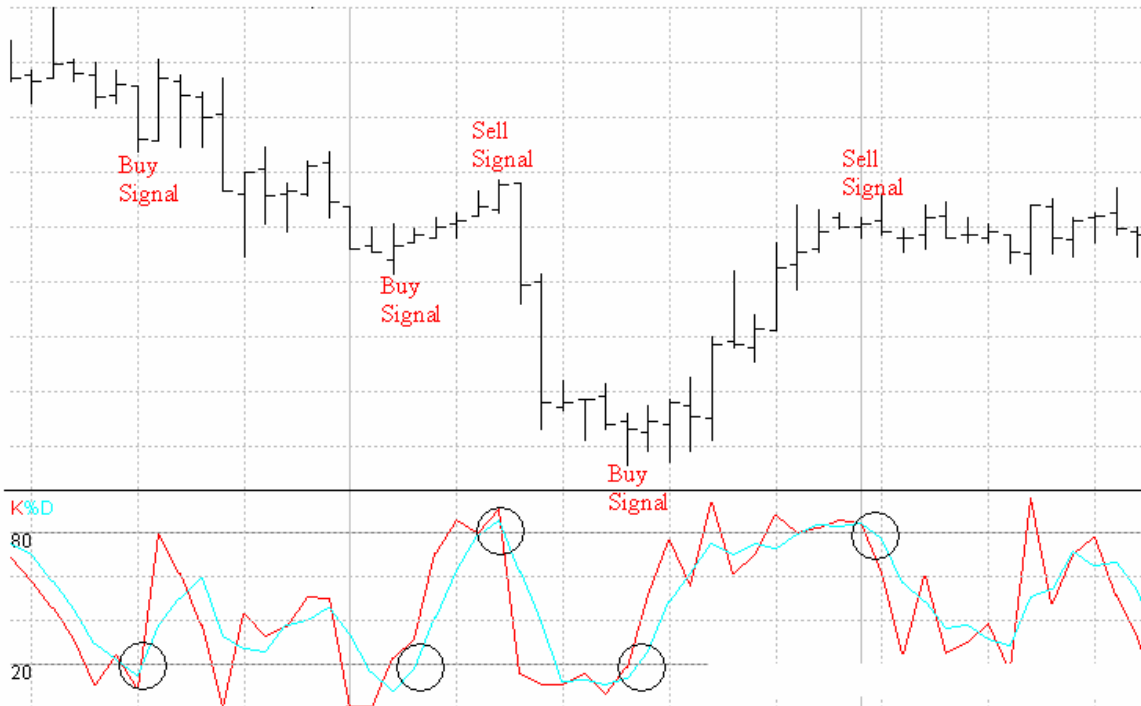
If the market is trending, then signals in the direction of the trend are likely to be more reliable. For example if prices are in an up trend, a safer trade entry may be obtained by waiting for prices to pullback giving an oversold signal and then turn up again.



- Generate buy and sell signals

For a buy or sell signal the following conditions must be met in order.

1. The %K and %D lines move above 80 or below 20
2. The %K and %D lines cross
3. The %K and %D lines move below 80 or above 20



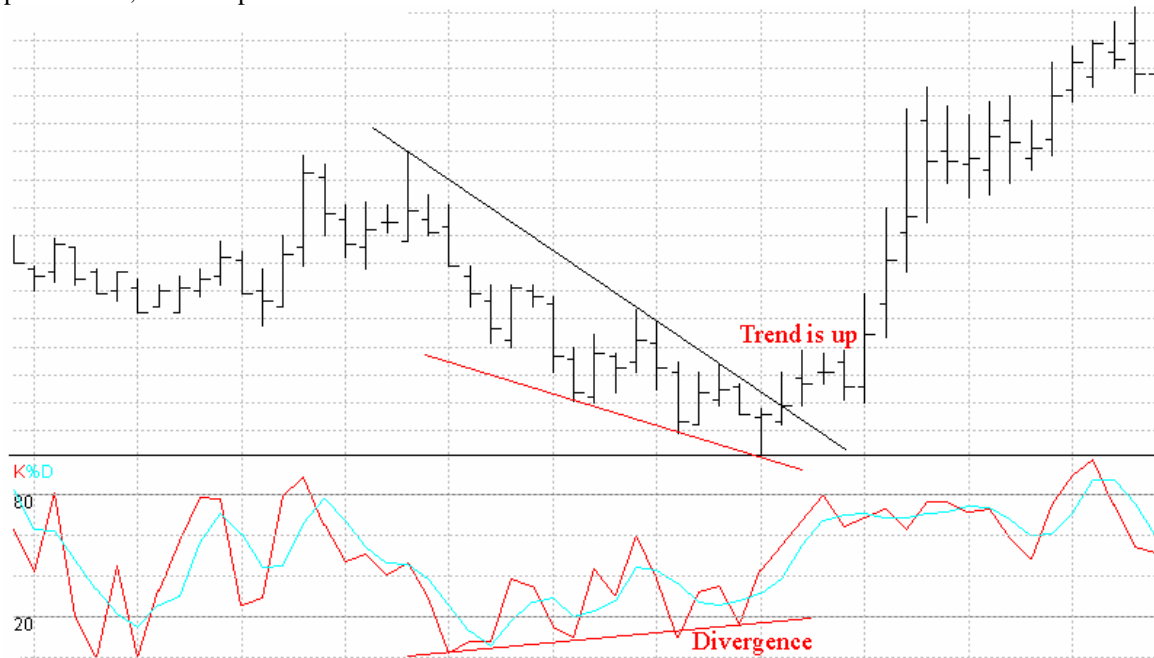
- *Indicate Bullish and Bearish Divergence*

Divergence between Stochastics and the price indicates that an up or down move is weakening.

Bearish Divergence occurs when prices are making higher highs but the Stochastics are making lower highs. This is a sign that the up move is weakening.

Bullish Divergence occurs when prices are making lower lows but the Stochastics are making higher lows. This is a sign that the down move is weakening.

It is important to note that although Divergences indicate a weakening trend they do not in themselves indicate that the trend has reversed. The confirmation or signal that the trend has reversed must come from price action, for example a trend line break.



**Parameters**

Observation Period for %K FAST: (default 5)

The number of intervals in the period used for selecting the high and low. A value greater than the default results in a smoother less sensitive %K Fast line.

Averaging period for %D FAST: (default 3)

The averaging period is the number of observations of %K FAST lines used in the moving average. The smaller the value, the closer the %D will be to the %K.

## 14. WILIAMS %R

Developed by Larry Williams, Williams %R is a momentum indicator that works much like the Stochastic Oscillator. It is especially popular for measuring overbought and oversold levels.

The scale ranges from 0 to -100 with readings from 0 to -20 considered overbought, and readings from -80 to -100 considered oversold.

William %R, sometimes referred to as %R, shows the relationship of the close relative to the high-low range over a set period of time.

The nearer the close is to the top of the range, the nearer to zero (higher) the indicator will be.

The nearer the close is to the bottom of the range, the nearer to -100 (lower) the indicator will be. If the close equals the high of the high-low range, then the indicator will show 0 (the highest reading). If the close equals the low of the high-low range, then the result will be -100 (the lowest reading).

### **The most common uses of Williams %R are :**

One method of using Williams %R might be to identify the underlying trend and then look for trading opportunities in the direction of the trend. In an up trend, traders may look to oversold readings to establish long positions. In a downtrend, traders may look to overbought readings to establish short positions.

### Indicate Bullish and Bearish Divergence

Divergence between Williams %R and the price indicates that an up or down move is weakening.

Bearish Divergence occurs when prices are making higher highs but the Williams %R is making lower highs. This is a sign that the up move is weakening.

Bullish Divergence occurs when prices are making lower lows but the Williams %R is making higher lows. This is a sign that the down-move is weakening.

## VII. Spot and Forward Trading.

### 1. Spot

*Definition : Exchange of two currencies at an agreed upon exchange rate for cash delivery. Cash delivery is considered to be two business days, except for the Canadian dollar, which is one business day.*

#### **Example :**

Today : 8<sup>th</sup> of December.

Customer X buys EUR/USD 1'000'000.— for spot delivery at 0.9950.

Delivery : 10<sup>th</sup> of December.

## 2. Bid/Offer

Bids and Offers are quoted in terms of the base currency. 1 Base unit is how many units of the other currency.

Example:

EUR/USD: 0.9950/54

**BID:** 0.9950 is where the market maker buys the base currency and the customer sells the base currency.

**OFFER:** 0.9954 is where the market maker sells the base currency and the customer buys the base currency.

Example of a Spot Transaction:

Customer: "Hi, this is X Customer Reference x, could you show me a spot price in EUR/USD 1'000'000,-- please ?".

RTFX: "EUR/USD is 0.9950/54".

Customer: "At 0.9954 I buy 1 Mio EUR".

RTFX: "OK at 0.9954 you bought EUR 1 Mio against USD value 10<sup>th</sup> of December".

### 3. Forward Outright

A Foreign Exchange Forward is an exchange of two currencies at a predetermined rate for any date other than spot delivery.

A Forward Outright is a single exchange of two currencies at a predetermined rate for future delivery. (Spot + Forward Points).

**Calculation of forward exchange rate is based upon spot and interest rate differentials:**

Today: 8<sup>th</sup> of December 2002 Spot EUR/USD 0.9954 (Value 10<sup>th</sup> of December)

Customer X buys EUR/USD 1'000'000,-- forward at 0.9942 for 1 month.

Exchange of Currencies on January 10<sup>th</sup> 2003.

**Example of a Forward Outright Quote :**

Spot EUR/USD 0.9950/54

1 Month 15 – 12 (Discount)

Forward Outright Quote 0.9935 – 0.9942

**Example of a Forward Outright Transaction :**

Customer: “Hi, this is X Customer Reference x, could you show me a forward outright price in EUR/USD 1'000'000, -- 1 month please?”

RTFX: “Forward outright EUR/USD 1 month is 0.9935/42”.

Customer: “At 0.9942 I buy 1 Mio EUR”.

RTFX: “OK at 0.9942 you bought EUR 1 Mio against USD value 10<sup>th</sup> of January 2003”.

#### 4. FX Swap

A Foreign Exchange Forward is an exchange of two currencies at a predetermined rate for any date other than spot delivery.

A FX Swap is an agreement to make an initial exchange of currencies for spot value with a reversal of that exchange at some future date. Differs from a forward outright in that two deliveries take place. Comparable to borrowing or lending.

##### **Example of a FX Swap:**

Spot Price 122.75/80

Forward Outright 48/44 (Discount)

Customer: “Hi, this is X customer reference x, Could you please show me a price for a Swap USD/JPY 3 Months please ?”.

RTFX: “Swap USD/JPY 3 months is -48/-44”.

Customer “OK at - 48, I buy and sell 1 Mio USD/JPY”.

RTFX: “OK you bought 1 Mio USD/JPY at 122.75 value Spot 10<sup>th</sup> of December 2002 and sold 1 Mio USD/JPY at 122.27 value 10<sup>th</sup> of March 2003”.

**Remark: there is no spot exposure on FX SWAP**



## 5. Premium/Discount

Premium/Discount is the interest rate differentials between two currencies.

### **Premium:**

There is a Premium when Swap rate is positive (the Forward rate exceeds a spot rate). This is when the interest rates of the base currency are lower than the second quoted currency-pair.

Example of USD/CAD

US Dollar 3 months Interest rates 1.25 pct

Canadian Dollar 3 months Interest rates 2.75 pct.

The Swap USD/CAD 3 month is 54 / 58.

### **Discount:**

There is a Discount when Swap rate is negative (the Forward rate is lower than spot rate). This is when the interest rates of the base currency are higher than the second quoted Currency-pair.

Example of EUR/USD

Euro 3 months Interest rates 2.65 pct

US Dollar 3 months Interest rates 1.30 pct

The Swap EUR/USD 3 month is – 38.5 / - 33.

## 6. Calculating Premium and Discount

Customer wants to sell EUR 3 Mio against USD 3 months forward.

Trade Date February 11<sup>th</sup>.

EUR/USD 1.0710/14

USD 3 Month rate 1.25 / 1.35 %

EUR 3 Month rate 2.60 / 2.70 %

Maturity 90 days

**How calculate the bid price for EUR/USD 3 months Forward ?**

**1<sup>st</sup> Method :**

$$\text{Forward Points} = \frac{\text{Spot} * (1 + (\text{OCR rate} * n/360))}{(1 + (\text{BCR rate} * n/360))} - \text{Spot}$$

OCR = Other Currency Rate

BCR = Base Currency Rate

$$\text{Forward points} = \frac{1.0710 * (1 + (0.0125 * 90/360))}{(1 + (0.027 \text{ rate} * 90/360))} - 1.0710$$

$$\text{SWAP} = - 0.00385$$

$$\text{Forward rate} = 1.0710 - 0.00385 = 1.06715$$

Alternative Method :

Borrow

EUR 3'000'000  
90 days at 2.70 %  
Interest = EUR 20'250

TOTAL EUR 3'020'250.--

Lend

USD 3'213'000  
90 days at 1.25 %  
Interest = USD 10'040.625

TOTAL USD 3'223'040.625

$$\text{Forward rate} = \frac{3'223'040.625}{3'020'250.--} = 1.06715$$

Customer sells EUR 3 Mio against USD at 1.06715 at 3 month (1.0710 – 0.00385).

Customer wants to Buy EUR 3 Mio against USD 3 months forward.

Trade Date : February 11th.  
 EUR/USD 1.0710/14  
 USD 3 Month rate 1.25 / 1.35 %  
 EUR 3 Month rate 2.60 / 2.70 %  
 Maturity 90 days

**How calculate the bid price for EUR/USD 3 months Forward ?**

**1st Method :**

$$\text{Forward Points} = \frac{\text{Spot} * (1 + (\text{OCR rate} * n/360))}{(1 + (\text{BCR rate} * n/360))} - \text{Spot}$$

OCR = Other Currency Rate

BCR = Base Currency Rate

$$\text{Forward points} = \frac{1.0714 * (1 + (0.0135 * 90/360))}{(1 + (0.026 \text{ rate} * 90/360))} - 1.0714$$

$$\text{SWAP} = - 0.0033$$

$$\text{Forward rate} = 1.0714 - 0.0033 = 1.0681$$

**Alternative Method :**

Lend		Borrow
EUR 3'000'000	Spot 1.0714	USD 3'214'200
90 days at 2.60 %		90 days at 1.35 %
Interest = EUR 19500		Interest = USD 10'847.925
<b>TOTAL EUR 3'019'500.--</b>		<b>TOTAL USD 3'225'047.925</b>

$$\text{Forward rate} = \frac{3'225'047.925}{3'019'500.--} = 1.0681$$

Customer buys EUR 3 Mio against USD at 1.0681 at 3 month (1.0714 – 0.0033).

## VIII. Economic Indicators

### 1. APICS SURVEY

#### *Definition*

*A composite diffusion index of national manufacturing conditions. This survey is less well known than the ISM, but can also indicate trends in production. An index level of 50 means no growth, but every 10 points signals gains of 4% in manufacturing.*

#### **Why do Investors Care?**

Investors need to monitor the economy closely because it usually dictates how various types of investments will perform. The stock market likes to see healthy economic growth because that translates to higher corporate profits. The bond market prefers less robust growth and is extremely sensitive to whether the economy is growing too quickly, which could set the stage for inflation.

The APICS survey gives a detailed look at the manufacturing sector. The diffusion index does not move in tandem with the ISM index every month, but sometimes the two do move in the same direction. Since manufacturing is a major sector of the economy, investors can get a feel for the general economic backdrop for various investments.

## **2. BANK RESERVE SETTLEMENT**

### *Definition*

*A two-week period that ends every other Wednesday during which commercial banks must meet reserve requirements stipulated by the Federal Reserve.*

### **Why do Investors Care?**

This is primarily of interest to institutional investors and securities brokers who deal with extremely short-term financing (borrowing or lending) to meet cash management needs. For example, short term rates such as the overnight lending rate might be pressured upward by heavy demand for funds in the final few days of the Bank Reserve Settlement period.

### **3. BUSINESS INVENTORIES**

#### *Definition*

*The dollar amount of inventories held by manufacturers, wholesalers, and retailers. The level of inventories in relation to sales is an important indicator of the near-term direction of production activity.*

#### **Why do Investors Care?**

Investors need to monitor the economy closely because it usually dictates how various types of investments will perform. The stock market likes to see healthy economic growth because that translates to higher corporate profits. The bond market prefers more moderate growth that won't generate inflationary pressures.

Rising inventories can be an indication of business optimism that sales will be growing in the coming months. By looking at the ratio of inventories to sales, investors can see whether production demands will expand or contract in the near future. For example, if inventory growth lags sales growth, then manufacturers will have to boost production lest commodity shortages occur. On the other hand, if unintended inventory accumulation occurs (that is, sales do not meet expectations), then production will probably have to slow while those inventories are worked down. In this manner, the business inventory data provide a valuable forward-looking tool for tracking the economy.

## 5. CONSTRUCTION SPENDING

### *Definition*

*The dollar value of new construction activity on residential, non-residential, and public projects. Data are available in nominal and real (inflation-adjusted) dollars.*

### **Why do Investors Care?**

Since the economic backdrop is the most pervasive influence on financial markets, construction spending has a direct bearing on stocks, bonds and commodities. In a more specific sense, trends in the construction data carry valuable clues for the stocks of home builders and large-scale construction contractors. Commodity prices such as lumber are also very sensitive to housing industry trends.

Businesses only put money into the construction of new factories or offices when they are confident that demand is strong enough to justify the expansion. The same goes for individuals making the investment in a home. That's why construction spending is a good indicator of the economy's momentum.

## 6. CONSUMER CONFIDENCE

### *Definition*

*A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by The Conference Board. Five thousand consumers across the country are surveyed each month. The level of consumer confidence is directly related to the strength of consumer spending.*

### **Why do Investors Care?**

Strong economic growth translates into healthy corporate profits and higher stock prices. The bond market focus is whether economic growth goes overboard and leads to inflation. Ideally, the economy walks that fine line between strong growth and excessive (inflationary) growth, which is what happened through much of the nineties. As a result, investors in the stock and bond markets have enjoyed huge gains. If and when the party comes to an end, more than likely a change in the economic trend will be the culprit, and that change might be tipped off by a change in consumer sentiment.

Consumer spending accounts for two-thirds of the economy, so the markets are always dying to know what consumers are up to and how they might behave in the near future. The more confident consumers are about the economy and their own personal finances, the more likely they are to spend. With this in mind, it's easy to see how this index of consumer attitudes gives insight to the direction of the economy. Just note that changes in consumer confidence and retail sales don't move in tandem month by month.



## 7. CONSUMER CREDIT

### *Definition*

*The dollar value of consumer installment credit outstanding. Changes in consumer credit indicate the state of consumer finances and portends future spending patterns.*

### **Why do Investors Care?**

Growth in consumer credit can hold positive or negative implications for the economy and markets. Economic activity is stimulated when consumers borrow within their means to buy cars and other major purchases. On the other hand, if consumers pile up too much debt relative to their income levels, they may have to stop spending on new goods and services just to pay off old debts. That could put a big dent in economic growth.

The demand for credit also has a direct bearing on interest rates. If the demand to borrow money exceeds the supply of willing lenders, interest rates rise. If credit demand falls and many willing lenders are fighting for customers, they may offer lower interest rates to attract business.

Financial market players focus less attention on this indicator because it is reported with a long lag relative to other consumer information. Long term investors who do pay attention to this report will have a greater understanding of consumer spending ability. This will give them a lead on investment alternatives.

## **8. CONSUMER SENTIMENT**

### *Definition*

*A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. Five hundred consumers are surveyed each month. The level of consumer sentiment is directly related to the strength of consumer spending.*

### **Why do Investors Care?**

Strong economic growth translates into healthy corporate profits and higher stock prices. The bond market focus is whether economic growth goes overboard and leads to inflation. Ideally, the economy walks that fine line between strong growth and excessive (inflationary) growth, which is what happened through much of the nineties. As a result, investors in the stock and bond markets have enjoyed huge gains. If and when the party comes to an end, more than likely a change in the economic trend will be the culprit, and that change might be tipped off by a change in consumer sentiment.

Consumer spending accounts for two-thirds of the economy, so the markets are always dying to know what consumers are up to and how they might behave in the near future. The more confident consumers are about the economy and their own personal finances, the more likely they are to spend. With this in mind, it's easy to see how this index of consumer attitudes gives insight to the direction of the economy. Just note that changes in consumer sentiment and retail sales don't move in tandem month by month.

## 9. CPI (Consumer Price Index)

### *Definition*

*The Consumer Price Index is a measure of the average price level of a fixed basket of goods and services purchased by consumers. Monthly changes in the CPI represent the rate of inflation.*

### **Why do Investors Care?**

The consumer price index is the most widely followed indicator of inflation in the United States. Just knowing what inflation is and how it influences the markets can put an individual investor head and shoulders above the crowd.

Inflation is a general increase in the price of goods and services. The relationship between INFLATION and INTEREST RATES is the key to understanding how data like the CPI influence the markets ( and your investments.)

If someone borrows \$100 dollars from you today and promises to repay it in one year with interest, how much interest should you charge? The answer depends largely on inflation, because you know that the \$100 won't be able to buy the same amount of goods and services a year from now, as it does today. If you were in Brazil where prices can double every couple of months, you might want to charge 400% interest for a total payoff of \$500 at the end of the year. In the United States, the CPI tells us that prices are rising about 2% a year, so you only have to charge 2% interest to recoup your purchasing power at the end of the year. You might want to add in a few more percentage points for default risk and the opportunity cost, but the key variable in what interest rate you charge is the rate of inflation.

That basically explains how interest rates are set on everything from your mortgage and auto loans to Treasury bonds and T-bills. As the rate of inflation changes and as expectations on inflation change, the markets adjust interest rates accordingly. The effect ripples across stocks, bonds, commodities, and your portfolio, often in a dramatic fashion.

By tracking the trends in inflation, whether high or low, rising or falling, investors can anticipate how different types of investments will perform

## 10. CURRENT ACCOUNT

### *Definition*

*A measure of the country's international trade balance in goods, services, and unilateral transfers. The level of the current account, as well as trends in exports and imports, are followed as indicators of trends in foreign trade.*

### **Why do Investors Care?**

U.S. trade with foreign countries hold important clues to economic trends here and abroad. The data can directly impact all the financial markets, but especially the foreign exchange value of the dollar.

The dollar can be particularly sensitive to changes in the chronic trade deficit run by the United States since this trade imbalance creates greater demand for foreign currencies. The bond market is sensitive to the risk of importing inflation or deflation. Ever since Asian economies collapsed at the end of 1997, financial market participants have feared that deflation in these economies would be transported to the United States. The linkage is not so direct, and deflationary pressures are not so likely at this time.

## 11. DURABLE GOODS ORDERS

### *Definition*

*Durable goods orders reflect the new orders placed with domestic manufacturers for immediate and future delivery of factory hardgoods.*

### **Why do Investors Care?**

Investors want to keep their finger on the pulse of the economy because it usually dictates how various types of investments will perform. The stock market likes to see healthy economic growth because that translates to higher corporate profits. The bond market doesn't mind growth but is extremely sensitive to whether the economy is growing too quickly and paving the road for inflation. By tracking economic data like durable goods orders, investors will know what the economic backdrop is for these markets and their portfolios.

Orders for durable goods show how busy factories will be in the months to come, as manufacturers work to fill those orders. The data not only provides insight to demand for things like refrigerators and cars, but also business investment going forward. If companies commit to spending more on equipment and other capital, they are obviously experiencing sustainable growth in their business. Increased expenditures on investment goods sets the stage for greater productive capacity in the country and reduces the prospects for inflation. That tells investors what to expect from the manufacturing sector, a major component of the economy and therefore a major influence on their investments.

## **12. EXISTING HOME SALES**

### *Definition*

*The number of previously constructed homes with a closed sale during the month. Existing homes (also known as home resales) are a larger share of the market than new homes and indicate housing market trends.*

### **Why do Investors Care?**

This provides a gauge of not only the demand for housing, but the economic momentum. People have to be feeling pretty comfortable and confident in their own financial position to buy a house. Furthermore, this narrow piece of data has a powerful multiplier effect through the economy, and therefore across the markets and your investments. By tracking economic data such as home resales, investors can gain specific investment ideas as well as broad guidance for managing a portfolio.

Even though home resales don't always create new output, once the home is sold, it generates revenues for the realtor. It brings a myriad of consumption opportunities for the buyer. Refrigerators, washers, dryers and furniture are just a few items home buyers might purchase. The economic "ripple effect" can be substantial especially when you think a hundred thousand new households around the country are doing this every month. Since the economic backdrop is the most pervasive influence on financial markets, home resales have a direct bearing on stocks, bonds and commodities. In a more specific sense, trends in the existing home sales data carry valuable clues for the stocks of home builders, mortgage lenders and home furnishings companies.

## 13. FACTORY ORDERS

### *Definition*

*The dollar level of new orders for manufacturing durable and nondurable goods. It gives more complete information than durable goods orders which is reported one or two weeks earlier in the month.*

### **Why do Investors Care?**

Investors want to keep their finger on the pulse of the economy because it usually dictates how various types of investments will perform. The stock market likes to see healthy economic growth because that translates to higher corporate profits. The bond market prefers more moderate growth which is less likely to cause inflationary pressures. By tracking economic data like factory orders, investors will know what the economic backdrop is for these markets and their portfolios.

The orders data show how busy factories will be in coming months as manufacturers work to fill those orders. This report provides insight to the demand for not only hard goods such as refrigerators and cars, but nondurables such as cigarettes and apparel. In addition to new orders, analysts monitor unfilled orders, an indicator of the backlog in production. Shipments reveal current sales. Inventories give a handle on the strength of current and future production. All in all, this report tells investors what to expect from the manufacturing sector, a major component of the economy and therefore a major influence on their investments.

## **15. HICP (Harmonised Index of Consumer Prices)**

### **What is the harmonised index of consumer prices?**

The harmonised index of consumer prices (HICP) is an internationally comparable measure of inflation calculated by each Member State of the European Union. HICPs are used to compare inflation rates across the European Union. Since January 1999, they have been used by the European Central Bank as the target measure of inflation for the Member States of the Eurozone. Increasingly, HICPs are being used for indexing contracts which cover more than one EU Member State.

### **Why were they developed?**

National consumer price indices within Europe, such as the RPI, vary considerably in terms of their coverage of goods and services and in the rules underlying their construction. This can impact on the measured rates of inflation. In response to this, and as a requirement of the Maastricht Treaty, Eurostat - the statistical office of the European Union - in conjunction with the National Statistical Offices of EU Member States, developed the HICP as a comparable measure of inflation. HICP inflation rates for all Member States are available from January 1997.

### **How is the HICP different from the RPI?**

Although, the same price data are used for both HICP and RPI and the methodologies used are similar, the rules underlying the construction of the HICP are specified in a series of European Regulations and it differs from the RPI in the following ways:

- In the HICP, the geometric mean is used to aggregate the prices at the most basic level whereas the RPI uses arithmetic means.
- A number of RPI series are excluded from the HICP, most particularly, those mainly relating to owner occupiers' housing costs (eg mortgage interest payments, house depreciation, council tax and buildings insurance).
- The coverage of the HICP indices is based on the international classification system, COICOP which differs from the RPI groupings.
- The HICP includes series for air fares, university accommodation fees, foreign students' university tuition fees, unit trust and stockbrokers charges, none of which are included in the RPI.
- The index for new cars in the RPI is imputed from movements in second hand car prices, whereas the HICP uses a quality adjusted index based on published prices of new cars.
- The HICP weights are based on expenditure by all private households, foreign visitors to the UK and residents of institutional households. In the RPI, weights are based on expenditure by private households only, excluding the highest income households, institutional households and pensioner households mainly dependent on state benefits.
- In the construction of the RPI weights, expenditure on insurance is assigned to the relevant insurance heading. For the HICP weights, the amount paid out in insurance claims is distributed amongst the COICOP headings according to the nature of the claims expenditure with the residual (ie the service charge) being allocated to the relevant insurance heading amongst the



COICOP headings according to the nature of the claims expenditure with the residual (ie the service charge) being allocated to the relevant insurance heading. amongst the COICOP headings according to the nature of the claims expenditure with the residual (ie the service charge) being allocated to the relevant insurance heading.

## 16. HOUSING STARTS

### *Definition*

*Housing starts measure the number of residential units on which construction is begun each month.*

### **Why do Investors Care?**

Two words...Ripple Effect. This narrow piece of data has a powerful multiplier effect through the economy, and therefore across the markets and your investments. By tracking economic data such as housing starts, investors can gain specific investment ideas as well as broad guidance for managing a portfolio.

Home builders don't start a house unless they are fairly confident it will sell upon or before its completion. Changes in the rate of housing starts tell us a lot about demand for homes and the outlook for the construction industry. Furthermore, each time a new home is started, construction employment rises, and income will be pumped back into the economy. Once the home is sold, it generates revenues for the home builder and a myriad of consumption opportunities for the buyer. Refrigerators, washers and dryers, furniture, and landscaping are just a few things new home buyers might spend money on, so the economic "ripple effect" can be substantial especially when you think of it in terms of a hundred thousand new households around the country doing this every month.

Since the economic backdrop is the most pervasive influence on financial markets, housing starts have a direct bearing on stocks, bonds and commodities. In a more specific sense, trends in the housing starts data carry valuable clues for the stocks of home builders, mortgage lenders, and home furnishings companies. Commodity prices such as lumber are also very sensitive to housing industry trends.

## 17. IFO Business Climate in industry and trade

The Ifo Business Climate Index is a widely observed early indicator for economic development in Germany. Every month the Ifo Institute surveys more than 7,000 enterprises in west and east Germany on their appraisals of the business situation ('good' / 'satisfactory' / 'poor') and their expectations for the next six months ('better' / 'same' / 'worse'). The replies are weighted according to the importance of the industry and aggregated. The percentage shares of the positive and negative responses to both questions are balanced, and a geometric mean is formed from the balances, divided according to east and west Germany. The series of balances thus derived are linked to a base year (currently 1991) and seasonally adjusted.

In addition to the index values, the Ifo Institute also published the original balances of the Ifo Business Climate.

The Ifo Business Climate balances can fluctuate between extreme values of -100 (i.e., all responding firms appraise their situation as poor or expect business to become worse) and +100 (i.e., all responding firms assessed their situation as good or expect an improvement in their business). In actual fact, the balances fluctuate around the zero value, the fluctuations being considerably smaller (even the negative ones) than the index values, which start from a base of 100.

An example to illustrate how the balance values are calculated:

Of 100 responding firms, 40% appraise their business situation as satisfactory, 35% as good and 25% as poor. The firms that assessed their situation as satisfactory are considered to be "neutral" and do not affect the results of the business-situation appraisal. The two remaining percentage values (35 - 25) are now balanced. The resulting value of 10 is the business-situation appraisal, i.e. the first component of the business climate in the form of a balance. The six-month expectations are calculated the same way. When this value has been determined, the geometric mean is formed from the situation and expectations appraisal. This geometric mean is the Ifo Business Climate balance for the individual month.

## 18. IMPORT AND EXPORT PRICES

### *Definition*

*The prices of goods that are bought in the United States but produced abroad and the prices of goods sold abroad but produced domestically. These prices indicate inflationary trends in internationally traded products.*

### **Why do Investors Care?**

Changes in import and export prices are a valuable gauge of inflation here and abroad. Furthermore, the data can directly impact the financial markets such as bonds and the dollar. The bond market is especially sensitive to the risk of importing inflation because it erodes the value of the principal (the original investment) which is paid back when the bond matures. It also decreases the value of the steady stream of interest rate payments on this type of security.

Inflation leads to higher interest rates and that's bad news for stocks, as well. By monitoring inflation gauges such as import prices, investors can keep an eye on this menace to their portfolio.

## 19. INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

### *Definition*

*The Index of Industrial Production is a chain-weight measure of the physical output of the nation's factories, mines and utilities. The capacity utilization rate reflects the usage of available resources.*

### **Why do Investors Care?**

Investors want to keep their finger on the pulse of the economy because it usually dictates how various types of investments will perform. The stock market likes to see healthy economic growth because that translates to higher corporate profits. The bond market prefers more subdued growth that won't lead to inflationary pressures. By tracking economic data like industrial production, investors will know what the economic backdrop is for these markets and their portfolios.

Industrial production shows how much factories, mines and utilities are producing. Since the manufacturing sector accounts for one-quarter of the economy, this report has a big influence on market behavior. The capacity utilization rate provides an estimate of how much factory capacity is in use. If the utilization rate gets too high (above 85%) it can lead to inflationary bottlenecks in production. The Federal Reserve watches this report closely and sets interest rate policy on the basis of whether production constraints are threatening to cause inflationary pressures. As such, the bond market can be highly sensitive to this report.

## 20. INTERNATIONAL TRADE

### *Definition*

*International Trade measures the difference between imports and exports of both tangible goods and services. The level of the international trade balance, as well as changes in exports and imports, indicate trends in foreign trade.*

### **Why do Investors Care?**

Changes in the level of imports and exports, along with the difference between the two (the trade balance) are a valuable gauge of economic trends here and abroad. Furthermore, the data can directly impact all the financial markets, but especially the foreign exchange value of the dollar.

Imports indicate demand for foreign goods and services here in the U.S. Exports show the demand for U.S. goods in overseas countries. The dollar can be particularly sensitive to changes in the chronic trade deficit run by the United States, since this trade imbalance creates greater demand for foreign currencies. The bond market is also sensitive to the risk of importing inflation. This report gives a breakdown of U.S. trade with major countries as well, so it can be instructive for investors who are interested in diversifying globally. For example, a trend of accelerating exports to a particular country might signal economic strength and investment opportunities in that country.

## **21. ISM (Institute for Supply Management)**

### *Definition*

*Formerly known as the NAPM. Change was effective in January 2002. ISM is a composite diffusion index of national manufacturing conditions. Readings above 50% indicate an expanding factory sector.*

### **Why do Investors Care?**

Investors need to keep their fingers on the pulse of the economy because it dictates how various types of investments will perform. By tracking economic data like the ISM, investors will know what the economic backdrop is for the various markets. The stock market likes to see healthy economic growth because that translates to higher corporate profits. The bond market prefers less rapid growth and is extremely sensitive to whether the economy is growing too quickly and causing potential inflationary pressures.

The ISM gives a detailed look at the manufacturing sector, how busy it is and where things are headed. Since the manufacturing sector is a major source of cyclical variability in the economy, this report has a big influence on the markets. More than one of the ISM sub-indexes provides insight on commodity prices and clues regarding the potential for developing inflation. The Federal Reserve keeps a close watch on this report which helps it to determine the direction of interest rates when inflation signals are flashing in these data. As a result, the bond market is highly sensitive to this report.

## 22. JOBLESS CLAIMS

### *Definition*

*A weekly compilation of the number of individuals who filed for unemployment insurance for the first time. This indicator, and more importantly, its four-week moving average, portends trends in the labor market.*

### **Why do Investors Care?**

Jobless claims are an easy way to gauge the strength of the job market. The fewer people filing for unemployment benefits, the more have jobs, and that tells investors a great deal about the economy. Nearly every job comes with an income which gives a household spending power. Spending greases the wheels of the economy and keeps it growing, so the stronger the job market, the healthier the economy.

There's a downside to it, though, which is relevant these days. Unemployment claims, and therefore the number of job seekers, can fall to such a low level that businesses have a tough time finding new workers. They might have to pay overtime to current staff, use higher wages to lure people from other jobs, and in general spend more on labor costs because of a shortage of workers. This leads to wage inflation which is bad news for the stock and bond markets. Federal Reserve chairman Alan Greenspan talks about it all the time and watches for it constantly.

By tracking the number of jobless claims, investors can gain a sense of how tight the job market is. If wage inflation threatens, it's a good bet that interest rates will rise, bond and stock prices will fall, and the only investors in a good mood will be the ones who tracked jobless claims and adjusted their portfolios to anticipate these events.

Just remember, the lower the number of unemployment claims, the stronger the job market, and vice versa.



## 23. LEADING INDICATORS

### *Definition*

*A composite index of ten economic indicators that typically lead overall economic activity.*

### **Why do Investors Care?**

Investors need to keep their fingers on the pulse of the economy because it dictates how various types of investments will perform. By tracking economic data like the index of leading indicators, investors will know what the economic backdrop is for the various markets. The stock market likes to see healthy economic growth because that translates to higher corporate profits. The bond market prefers less rapid growth and is extremely sensitive to whether the economy is growing too quickly-and causing potential inflationary pressures.

The index of Leading Indicators is designed to predict turning points in the economy such as recessions and recoveries. Incidentally, stock prices are one of the leading indicators in this index.

## 24. MONEY SUPPLY

### *Definition*

*The monetary aggregates are alternative measures of the money supply by degree of liquidity. Changes in the monetary aggregates indicate the thrust of monetary policy as well as the outlook for economic activity and inflationary pressures.*

### **Why do Investors Care?**

To be honest, the various money supply measures don't matter to most investors these days. The monetary aggregates (known individually as M1, M2, and M3) used to be all the rage a few years back because the data revealed the Fed's (tight or loose) hold on credit conditions in the economy. The Fed issues target ranges for money supply growth. In the past, if actual growth moved outside those ranges it often was a prelude to an interest rate move from the Fed. Today, monetary policy is understood more clearly by the level of the federal funds rate.

Money supply fell out of vogue in the nineties, due to a variety of changes in the financial system and the way the Federal Reserve conducts monetary policy. The Fed is working on some new measures of money supply, and given the way economic indicators ebb and flow in popularity, don't be surprised if the monetary aggregates make a comeback in the future.

## 25. NEW HOME SALES

### *Definition*

*The number of newly constructed homes with a committed sale during the month. The level of new home sales indicates housing market trends.*

### **Why do Investors Care?**

This provides a gauge of not only the demand for housing, but the economic momentum. People have to be feeling pretty comfortable and confident in their own financial position to buy a house. Furthermore, this narrow piece of data has a powerful multiplier effect through the economy, and therefore across the markets and your investments. By tracking economic data such as new home sales, investors can gain specific investment ideas as well as broad guidance for managing a portfolio.

Each time the construction of a new home begins, it translates to more construction jobs, and income which will be pumped back into the economy. Once the home is sold, it generates revenues for the home builder and the realtor. It brings a myriad of consumption opportunities for the buyer. Refrigerators, washers, dryers and furniture are just a few items new home buyers might purchase. The economic "ripple effect" can be substantial especially when you think a hundred thousand new households around the country are doing this every month.

Since the economic backdrop is the most pervasive influence on financial markets, new home sales have a direct bearing on stocks, bonds and commodities. In a more specific sense, trends in the new home sales data carry valuable clues for the stocks of home builders, mortgage lenders and home furnishings companies.

## 26. NONFARM PAYROLL

### *Definition*

*The employment situation is a set of labor market indicators. The unemployment rate measures the number of unemployed as a percentage of the labor force. Nonfarm payroll employment counts the number of paid employees working part-time or full-time in the nation's business and government establishments. The average workweek reflects the number of hours worked in the nonfarm sector. Average hourly earnings reveal the basic hourly rate for major industries as indicated in nonfarm payrolls.*

### **Why do Investors Care?**

If ever there was an economic report that can move the markets, this is it! The anticipation on Wall Street each month is palpable, the reactions are dramatic, and the information for investors is invaluable. By digging just a little deeper than the headline unemployment rate, investors can take more strategic control of their portfolio and even take advantage of unique investment opportunities that often arise in the days surrounding this report.

The employment data give the most comprehensive report on how many people are looking for jobs, how many have them, what they're getting paid and how many hours they are working. These numbers are the best way to gauge the current state and future direction of the economy. They also provide insight on wage trends, and wage inflation is high on the list of enemies for the Federal Reserve. Fed chairman Alan Greenspan talks about this data frequently and watches for inflation constantly.

By tracking the jobs data, investors can sense the degree of tightness in the job market. If wage inflation threatens, it's a good bet that interest rates will rise, bond and stock prices will fall. No doubt that the only investors in a good mood will be the ones who watched the employment report and adjusted their portfolios to anticipate these events.

## 27. PERSONAL INCOME

### *Definition*

*Personal income is the dollar value of income received from all sources by individuals. Personal outlays include consumer purchases of durable and nondurable goods, and services.*

### **Why do Investors Care?**

The income and outlays data are another handy way to gauge the strength of the economy and where it is headed. Income gives households the power to spend and/or save.

Spending greases the wheels of the economy and keeps it growing. Savings are often invested in the financial markets and can drive up the prices of stocks and bonds. Even if savings simply go into a bank account, part of those funds are typically used by the bank for lending and therefore contribute to economic activity. The only way savings fail to contribute is if they are deposited in the First National Bank of Serta (under the mattress), and not too many people do that anymore.

The consumption (outlays) part of this report is even more directly tied to the economy, which we know usually dictates how the markets perform. Consumer spending accounts for two-thirds of the economy, so if you know what consumers are up to, you'll have a pretty good handle on where the economy is headed. Needless to say, that's a big advantage for investors.

## **28. PHILADELPHIA FED SURVEY**

### *Definition*

*A composite diffusion index of manufacturing conditions within the Philadelphia Federal Reserve district. This survey is widely followed as an indicator of manufacturing sector trends since it is correlated with the NAPM survey and the index of industrial production.*

### **Why do Investors Care?**

Investors need to monitor the economy closely because it usually dictates how various types of investments will perform. By tracking economic data such as the Philly Fed survey, investors will know what the economic backdrop is for the various markets. The stock market likes to see healthy economic growth because that translates to higher corporate profits. The bond market prefers more moderate growth which won't lead to inflation.

The Philly Fed survey gives a detailed look at the manufacturing sector, how busy it is and where things are headed. Since manufacturing is a major sector of the economy, this report has a big influence on market behavior. Some of the Philly Fed sub-indexes also provide insight on commodity prices and other clues on inflation. The bond market is highly sensitive to this report because it is released early in the month and is available before other important indicators.

## 29. PPI (Producer Price Index)

### *Definition*

*The Producer Price Index (PPI) is a measure of the average price level for a fixed basket of capital and consumer goods paid by producers.*

### **Why do Investors Care?**

The PPI measures price changes in the manufacturing sector. Inflation at this producer level often gets passed through to the consumer price index (CPI). By tracking price pressures in the pipeline, investors can anticipate inflationary consequences in coming months. Investors need to monitor inflation closely. Just knowing what inflation is and how it influences the markets can put an individual investor head and shoulders above the crowd.

Inflation is a general increase in the prices of goods and services. The relationship between INFLATION and INTEREST RATES is the key to understanding how data like the PPI influence the markets ( and your investments.)

If someone borrows \$100 dollars from you today and promises to repay it in one year with interest, how much interest should you charge? The answer depends largely on inflation, because you know that the \$100 won't be able to buy the same amount of goods and services a year from now, as it does today. If you were in Brazil where prices can double every couple of months, you might want to charge 400% interest for a total payoff of \$500 at the end of the year. In the United States, the CPI tells us that prices are rising about 2% a year, so you only have to charge 2% interest to recoup your purchasing power at the end of the year. You might want to add in a few more percentage points for default risk and the opportunity cost, but the key variable in what interest rate you charge is the rate of inflation.

That basically explains how interest rates are set on everything from your mortgage and auto loans to Treasury bonds and T-bills. As the rate of inflation changes and as expectations on inflation change, the markets adjust interest rates accordingly. The effect ripples across stocks, bonds, commodities, and your portfolio, often in a dramatic fashion.

By tracking the trends in inflation, whether high or low, rising or falling, investors can anticipate how different types of investments will perform.

## 30. RETAIL SALES

### *Definition*

*Retail sales measure the total receipts at stores that sell durable and nondurable goods*

### **Why do Investors Care?**

Consumer spending accounts for two-thirds of the economy, so if you know what consumers are up to, you'll have a pretty good handle on where the economy is headed. Needless to say, that's a big advantage for investors.

The pattern in consumer spending is often the foremost influence on stock and bond markets. For stocks, strong economic growth translates to healthy corporate profits and higher stock prices. For bonds, the focus is whether economic growth goes overboard and leads to inflation. Ideally, the economy walks that fine line between strong growth and excessive (inflationary) growth, and that's just what has happened through much of the nineties. For this reason alone, investors in the stock and bond markets have enjoyed huge gains this decade. If and when the party comes to an end, more than likely a change in the economic trend will tip us off.

Retail sales not only give you a sense of the big picture, but also the trends among different types of retailers. Perhaps auto sales are especially strong or apparel sales are showing exceptional weakness. These trends from the retail sales data can help you spot specific investment opportunities, without having to wait for a company's quarterly or annual report.



## **31. RPI (Retail Prices Index)**

### **What is the Retail Prices Index?**

The Retail Prices Index is the UK's principal measure of consumer price inflation. It is defined as an average measure of change in the prices of goods and services bought for the purpose of consumption by the vast majority of households in the UK. It is compiled and published monthly. Once published, it is never revised.

### **What is it used for?**

Measures of inflation are vital tools for economists, business and government. The Bank of England's Monetary Policy Committee sets UK interest rates on the basis of a target figure for inflation set by the Chancellor of the Exchequer. Wage agreements, pensions and changes in benefit levels are often linked directly to the RPI. Utility regulators impose restrictions on price movements based on the RPI. RPIX (all items RPI excluding mortgage interest payments) is the main economic measure used by HM Treasury and the Bank of England.

### **Which items are included in the Retail Prices Index?**

The RPI includes data on food and drink, tobacco, housing, household goods and services, personal goods and services, transport fares, motoring costs, clothing and leisure goods and services. A list of price indicators used in the construction of each year's RPI is available from the website.

### **Who gathers the prices?**

Prices are collected in two ways. The local price collection is carried out by a market research firm who collect over 130,000 prices per month. ONS has procedures in place to quality assure the local price collection carried out by the contractors.

ONS staff collect a further 10,000 prices centrally each month for a number of reasons including efficiency (e.g. prices in catalogues, national newspaper prices, utility prices), availability (e.g. prices that may not be available in retail areas such as sea fares, road tolls, internet prices), prices that are methodologically difficult to measure (e.g. mortgage interest payments) and items where quality adjustments may be important (e.g. personal computers).

## 32. UNEMPLOYMENT RATE

### *Definition*

*The employment situation is a set of labor market indicators. The unemployment rate measures the number of unemployed as a percentage of the labor force. Nonfarm payroll employment counts the number of paid employees working part-time or full-time in the nation's business and government establishments. The average workweek reflects the number of hours worked in the nonfarm sector. Average hourly earnings reveal the basic hourly rate for major industries as indicated in nonfarm payrolls.*

### **Why do Investors Care?**

If ever there was an economic report that can move the markets, this is it! The anticipation on Wall Street each month is palpable, the reactions are dramatic, and the information for investors is invaluable. By digging just a little deeper than the headline unemployment rate, investors can take more strategic control of their portfolio and even take advantage of unique investment opportunities that often arise in the days surrounding this report.

The employment data give the most comprehensive report on how many people are looking for jobs, how many have them, what they're getting paid and how many hours they are working. These numbers are the best way to gauge the current state and future direction of the economy. They also provide insight on wage trends, and wage inflation is high on the list of enemies for the Federal Reserve. Fed chairman Alan Greenspan talks about this data frequently and watches for inflation constantly.

By tracking the jobs data, investors can sense the degree of tightness in the job market. If wage inflation threatens, it's a good bet that interest rates will rise, bond and stock prices will fall. No doubt that the only investors in a good mood will be the ones who watched the employment report and adjusted their portfolios to anticipate these events.

### **33. ZEW**

The ZEW works in the field of user-related empirical economic research. In this context it particularly distinguished itself nationally and internationally by analyzing internationally comparative issues in the European context and by compiling scientifically important data bases.

The ZEW is a non-profit economic research institute with the legal form of a limited liability company (GmbH). It was founded in 1990 on the initiative of the government of the federal state Baden-Württemberg, trade and industry, and the Mannheim University. In April 1991 the institute took up work and has expanded rapidly since then. At present, 115 employees work at the ZEW, 78 of which are scientifically active. Professor Dr. Wolfgang Franz (President/Scientific Management) and Ernst-O. Schulze (Director/Commercial Management) are heading the institute. The high quality of the research work conducted at the institute was confirmed by the Wissenschaftsrat (the advisory body to the Federal Government) on the occasion of the evaluation of the ZEW in 1998, and documented externally by the recommendation to grant the ZEW Federal Government and Länder Funding (Blue List).

#### **Duties and Goals**

The ZEW's duty is to carry out economic research, economic counseling and knowledge transfer. The institute focuses on decision-makers in politics, economics, and administration, scientists in the national and international arena as well as the interested public. Regular interviews on the situation on the financial markets and business-related service providers as well as large-scale annual studies on technological competitiveness of and innovation activities in the economy are representative of the different types of topical information provided by the ZEW.

#### **Approach and Fields of Research**

The ZEW takes a predominantly microeconomic and micro econometric research approach to its research work and co-operates closely with other scientific disciplines, whenever the respective issue requires such. In this context, the research institute distinguished itself, inter alia, in the analysis of internationally comparative questions in the European context and in the creation of data bases which are eminently important as a basis for scientific research. In addition, the ZEW provides outside persons and bodies with excerpts of selected data stocks for the purpose of scientific research. The ZEW is subdivided into the following five research fields:

International Finance and Financial Management;  
Labour Economics, Human Resources, and Social Policy;  
Industrial Economics and International Management;

Corporate Taxation and Public Business Finance;  
Environmental and Resource Economics, Eco-management.

Evaluations in regular intervals ensure the quality of the work performed in the research fields and its orientation towards the institute's research programme. The evaluations are carried out by the Scientific Advisory Council of the ZEW, which is composed of renowned German and foreign scientists as well as of executives from the economy and public administration.