

## Trendlines

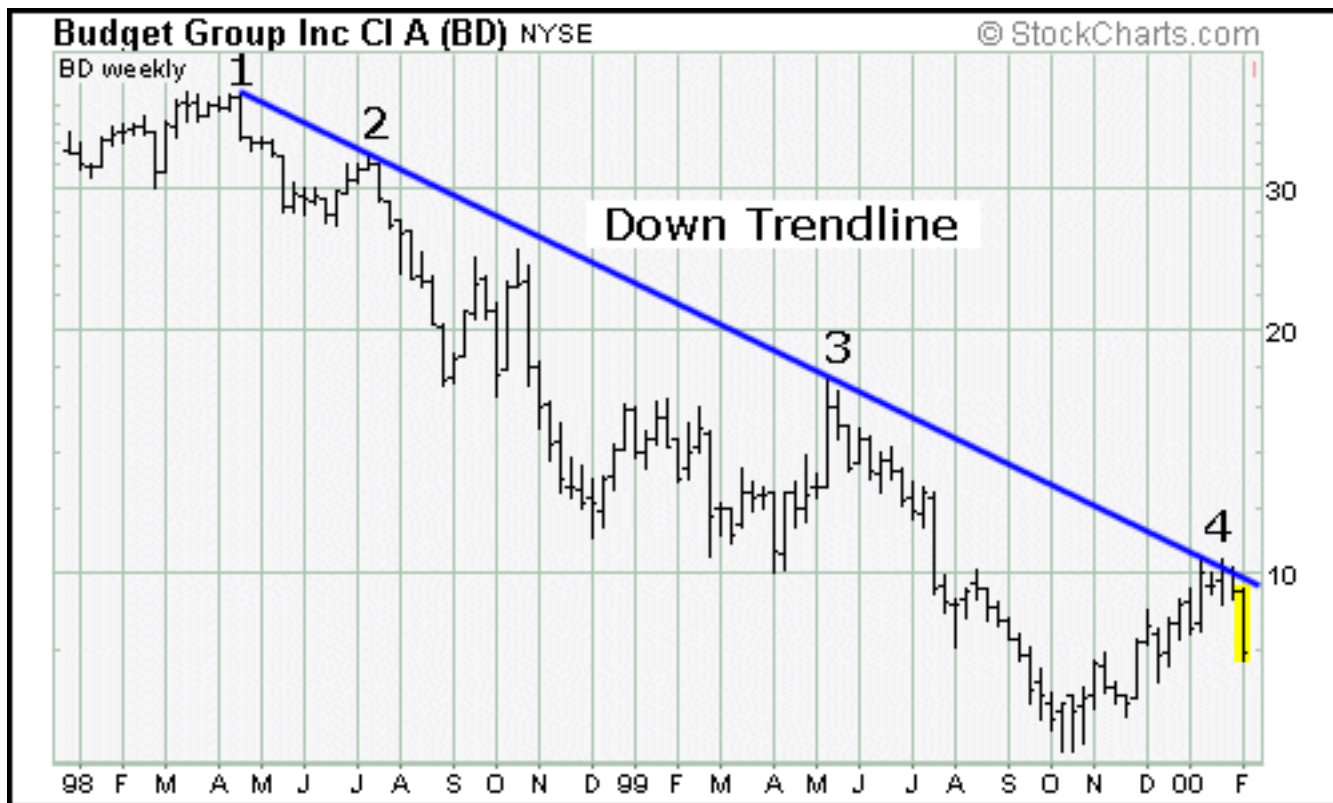
Technical analysis is built on the assumption that prices trend. Trendlines are an important tool in technical analysis for both trend identification and confirmation. A trendline is a straight line that connects two or more price points and then extends into the future to act as a line of support or resistance. Many of the principles applicable to support and resistance levels can be applied to trendlines as well.

### Definition



### Up Trendline

An up trendline has a positive slope and is formed by connecting two or more low points. The second low must be higher than the first for the line to have a positive slope. Up trendlines act as support and indicate that net-demand (demand less supply) is increasing even as the price rises. A rising price combined with increasing demand is very bullish and shows a strong determination on the part of the buyers. As long as prices remain above the trendline, the uptrend is considered solid and intact. A break below the up trendline indicates that net-demand has weakened and a change in trend could be imminent.



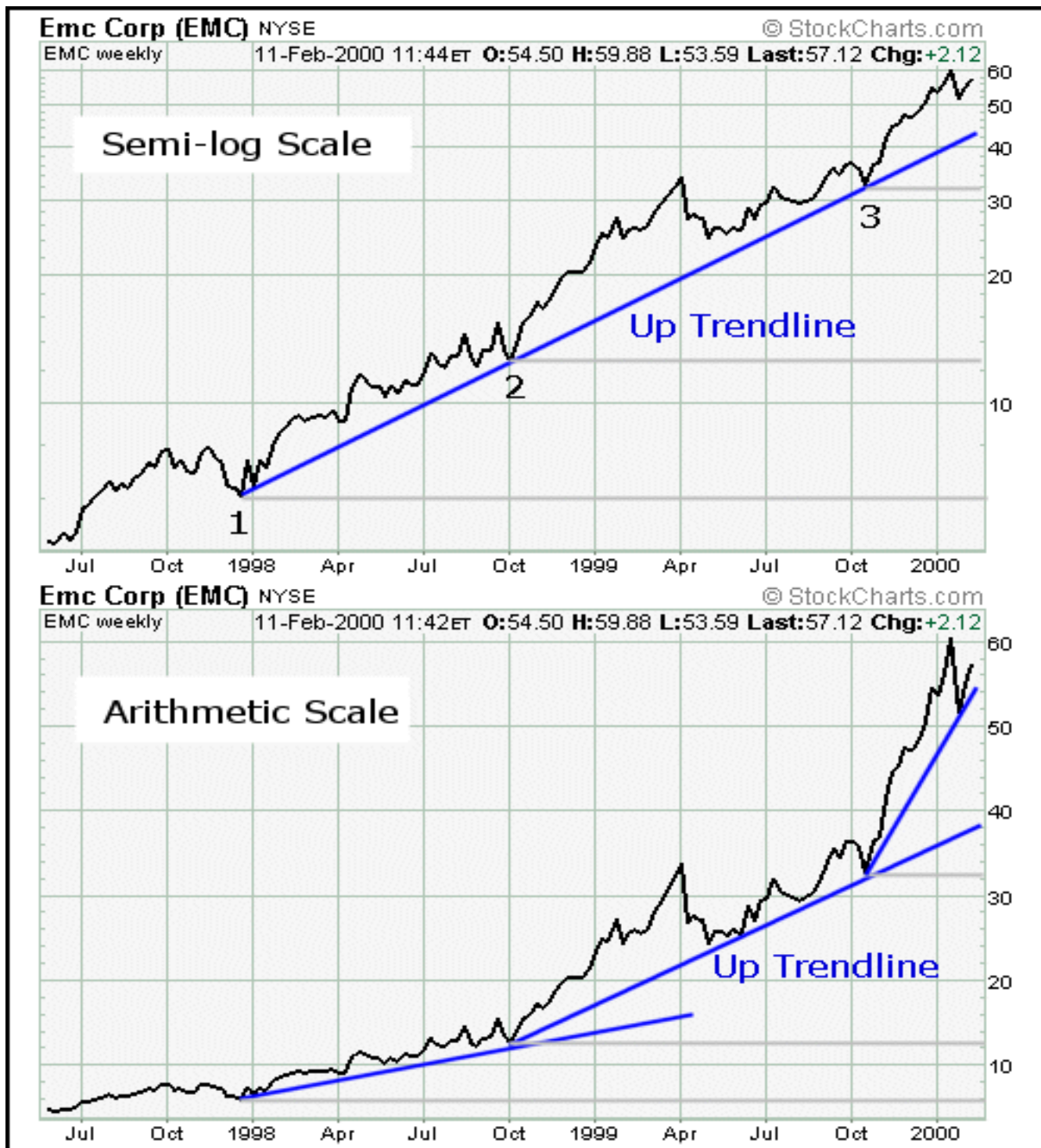
### Down Trendline

A down trendline has a negative slope and is formed by connecting two or more high points. The second high must be lower than the first for the line to have a negative slope. Down trendlines act as resistance and indicate that net-supply (supply less demand) is increasing even as the price declines. A declining price combined with increasing supply is very bearish and shows the strong resolve of the sellers. As long as prices remain below the down trendline, the downtrend is considered solid and intact. A break above the down trendline indicates that net-supply is decreasing and a change of trend could be imminent.

For a detailed explanation of trend changes, which are different than just trendline breaks, please see our series on the [Dow Theory](#).

### Scale Settings

High points and low points appear to line up better for trendlines when prices are displayed using a semi-log scale. This is especially true when long-term trendlines are being drawn or there has been a large change in price. Most charting programs allow users to set the scale as arithmetic or semi-log. An arithmetic scale displays incremental values (5,10,15,20,25,30) evenly as they move up the y-axis. A \$10 movement in price will look the same from \$10 to \$20 or from \$100 to \$110. A semi-log scale displays incremental values in percentage terms as they move up the y-axis. A move from \$10 to \$20 is a 100% gain and would appear to be a much larger than a move from \$100 to \$110, which is only a 10% gain.



In the case of EMC, there was a large price change over a long period of time. While there were not any false breaks below the up trendline on the arithmetic scale, the rate of ascent appears smoother on the semi-log scale. EMC doubled three times in less than two years. On the semi-log scale, the trendline fits all the way up. On the arithmetic scale, three different trendlines were required to keep pace with the advance.



In the case of BD, there were two false breaks above the down trendline as the stock declined during 1999 and 2000. These false break outs could have led to premature buying as the stock continued to decline after each one. The stock lost 50% of its value three times over a two year period. The semi-log scale reflects the percentage loss evenly and the down trendline was never broken.

### Validation

It takes two or more points to draw a trendline. The more points used to draw the trendline, the more validity attached to the support or resistance level represented by the trendline. It can sometimes be difficult to find more than 2 points from which to construct a trendline. Even though trendlines are an important aspect of technical analysis, it is not always possible to draw trendlines on every price chart. Sometimes the lows or highs just don't match up and it is best not to force the issue. The general rule in technical analysis is that it takes two points to draw a trendline and the third point confirms the validity.



The chart of MSFT shows an up trendline that has been touched 4 times. After the third touch in Nov-99, the trendline was considered a valid line of support. Now that the stock has bounced off of this level a fourth time, the soundness of the support level is enhanced even more. As long as the stock remains above the trendline (support), the trend will remain in control of the bulls. A break below would signal that net-supply was increasing and a change in trend could be imminent.

### Spacing of Points

The lows used to form an up trendline and the highs used to form a down trendline should not be too far apart, or too close together. The most suitable distance apart will depend on the timeframe, the degree of price movement and personal preferences. If the lows (highs) are too close together, the validity of the reaction low (high) may be in question. If the lows are too far apart, the relationship between the two points could be suspect. An ideal trendline is made up of relatively evenly spaced lows (or highs). The trendline in the MSFT example represents well-spaced low points.





On the WMT example, the second high point appears to be too close to the first high point for a valid trendline. However, it would be feasible to draw a trendline beginning from point 2 and extending down to the February reaction high.

### Angles

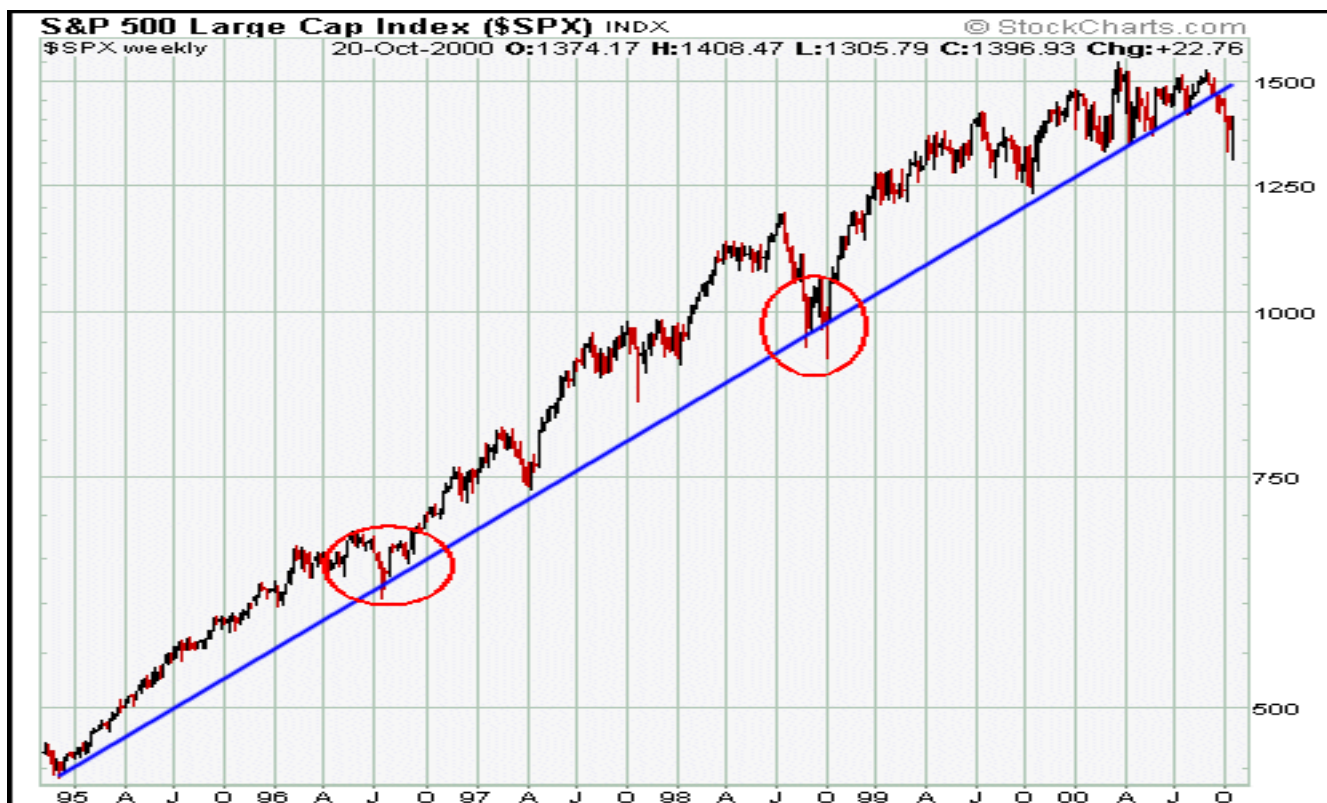
As the steepness of a trendline increases, the validity of the support or resistance level decreases. A steep trendline results from a sharp advance (or decline) over a brief period of time. The angle of a trendline created from such sharp moves is unlikely to offer a meaningful support or resistance level. Even if the trendline is formed with three seemingly valid points, attempting to play a trendline break or use the support and resistance level that has been established will often prove difficult.



The trendline for YHOO was touched four times over a 5-month period. The spacing between the points appears OK, but the steepness of the trendline is unsustainable and the price is more likely than not to drop below the trendline. However, trying to time this drop or make a play after the trendline is broken is a difficult task. The amount of data displayed and chart size can also affect the angle of a trendline. Short and wide charts are less likely to have steep trendlines than long and narrow charts. Keep this in mind when assessing the validity and sustainability of a trendline.

### Internal Trendlines

Sometimes there appears to be the possibility for drawing a trendline, but the exact points do not match up quite right. The highs or lows may be out of whack, the angle may be too steep or the points may seem too close together. If one or two points could be ignored, then a fitted trendline could be formed. With the volatility present in the market, prices can over-react and produced spikes that may distort the highs and lows. One method for dealing with over-reactions is to draw internal trendlines. Even though an internal trendline ignores price spikes, the ignoring should be within reason.



The long-term trendline for the S&P 500 extends up from the end of 1994 and passes through low points in Jul-96, Sept-98 and Oct-98. These lows were formed with selling climaxes and represented extreme price movements that protrude beneath the trendline. By drawing the trendline through the lows, the line appears to be at a reasonable angle and the other lows match up extremely well.



Sometimes there is a price cluster with a high or low spike sticking out. A price cluster is an area where prices are grouped within a tight range over a period of time. The price cluster can be used to draw the trendline and the spike can be ignored. The KO chart shows an internal trendline that is formed by ignoring price spikes and using the price clusters instead. In October and November 1998, KO formed a peak with the November peak just higher than the October peak (1). If the November peak had been



used to draw a trendline, then the slope would have been more negative and there would have appeared to be a breakout in Dec-98 (gray line). However, this would have only been a two point trendline because the May-June highs are too close together (black arrows). Once the Dec-99 peak formed (green arrow), it would have been possible to draw an internal trendline based on the price clusters around the Oct/Nov-98 and the Dec-99 peaks (blue line). This trendline is based on three solid touches and accurately forecast resistance in Jan-00 (blue arrow).

## Conclusion

Trendlines can offer great insight, but if not used properly can also result in false signals. Other items such as horizontal support and resistance levels or peak and trough analysis should be employed to validate trendline breaks. While trendlines have become a very popular aspect of technical analysis, they are merely one tool for establishing, analyzing and confirming the trend. Trendlines should not be the final arbiter, but serve as a warning that a change in trend may be imminent. By using trendline breaks for warnings, investors and traders can pay closer attention to other confirming signals for a potential change in trend.



The up trendline for VRSN was touched 4 times and seemed to be a valid support level. Even though the trendline was broken in Jan-00, the previous reaction low held and did not confirm the trendline break. In addition, the stock recorded a new higher high prior to the trendline break.

Written by Arthur Hill

[Send us your Feedback!](#)

© 1999-2000 StockCharts.com  
All Rights Reserved [Terms of Use](#)