

ARITHMETIC AND LOGARITHMIC PRICE SCALE

There are two commonly used methods of displaying the vertical price scale on a chart. They include the following:

- Arithmetic Scale
- Logarithmic (Log) Scale

Arithmetic Scale

Sometimes called a linear scale, an arithmetic scale displays price movement as equal increments (in points) between each division line. The division lines are horizontal gridlines along the price scale (Figure 1.1).

A number that represents the monetary change of the stock between each horizontal gridline may be displayed somewhere in the chart window; for example, in TeleChart (version 7) it is located below the price column and colored red.

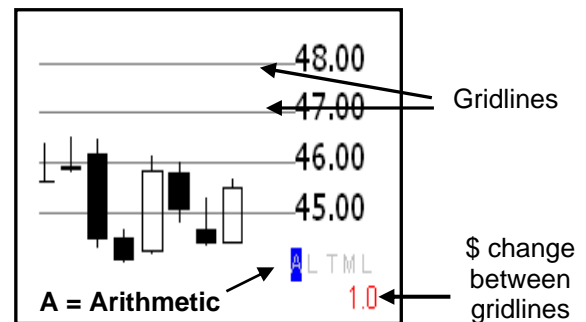


Figure 1.1
Arithmetic Scale

A challenge with the arithmetic scale is that a chartist may not get a true sense of the magnitude of a move, especially if a stock rises or falls fairly rapidly. For example, on the daily chart of Medivation Inc. (MDVN) in Figure 1.2, the stock rose from about \$16 to over \$80 in a five month period from November 2011 to April 2012. The arithmetic scale reflects the rise as \$10 between each gridline. Using the arithmetic scale, each \$10 point move looks the same on the chart. That is, it is the same distance along the vertical price scale. For example, the price advance from \$20 to \$30 looks the same as the advance from \$30 to \$40; which looks the same as the advance from \$40 to \$50, and so on. However, it is not the same distance on a percentage basis as shown below:

- The rise from \$20 to \$30 was a 50% increase.
- The rise from \$30 to \$40 was a 33% increase.
- The rise from \$40 to \$50 was a 25% increase.

Even though the price increment change between each gridline is shown as being equal, the *percentage* change between each gridline is not equal. The percentage increase was more substantial, on a percentage basis, during the earlier part of the stock's rise.



Figure 1.2

An uptrend on the chart of MDVN viewed using the arithmetic scale.

Logarithmic (Log) Scale

Sometimes called ratio or semi-log, a logarithmic scale displays the price movement between the division lines (horizontal gridlines) as an equal *percentage* change rather than an equal price, or value, change. In TeleChart (version 7), the percentage is displayed in red below the price column as shown in Figure 1.3. If price moves up or down on the chart by a distance equivalent to one gridline, it is an x percent move for that stock; with x being the percentage indicated on the logarithmic scale (e.g., 1.93%).

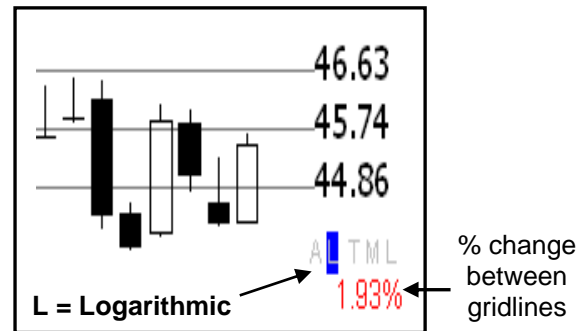


Figure 1.3
Logarithmic Scale

A price move from \$10 to \$20 is a 10-point move, and it is a 100% increase in the stock's price. A price advance from \$70 to \$80 is also a 10-point move, but it is an increase of less than 15% of the stock's price. Thus, a move from \$10 to \$20 would take up more vertical distance on the logarithmic scale than a move from \$70 to \$80; whereas the two moves would appear to be equal on the arithmetic scale.

Figure 1.4 shows the daily chart of MDVN again, but this time using the logarithmic scale. The log scale shows price doubling from \$20 to \$40, which is a 100% increase. When it doubled again from \$40 to \$80, which was also a 100% increase, that rise took up the same amount of vertical distance on the chart as the rise from \$20 to \$40.

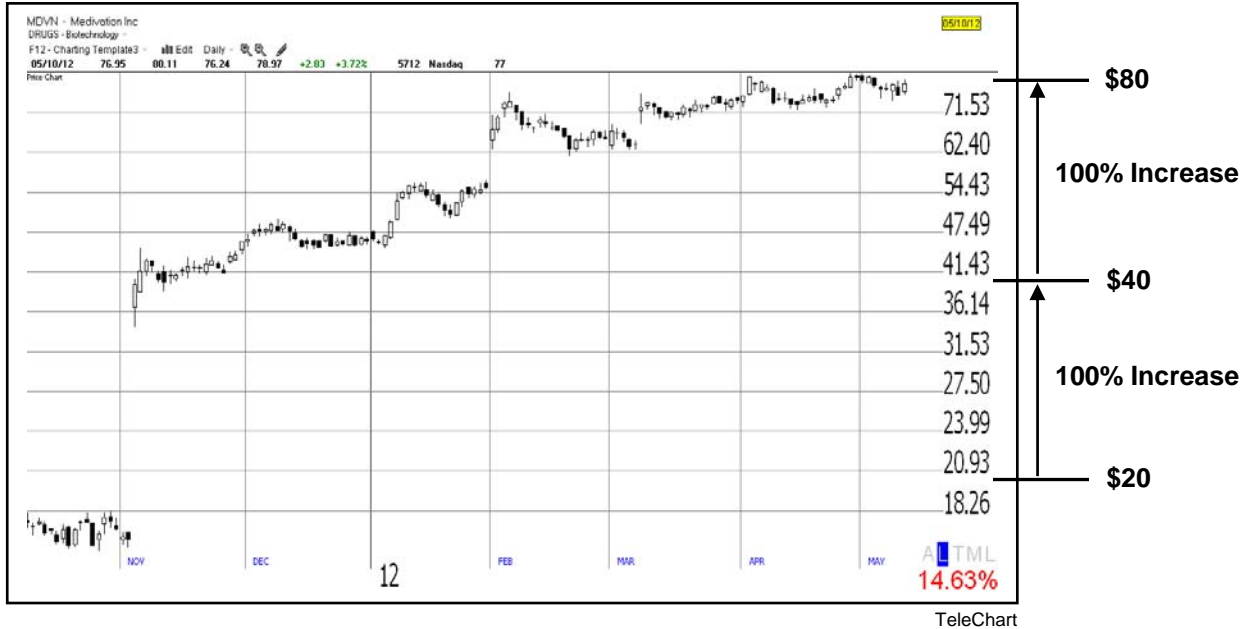


Figure 1.4

The same uptrend of MDVN viewed using the logarithmic scale.

Whether a trader utilizes arithmetic or logarithmic scaling is a personal choice; however, many experienced traders use logarithmic for charting stocks, which is my preference. I use logarithmic scaling for most of my charting activities. However, there are some instances when I'll shift temporarily to the arithmetic scale (refer to Lesson 1 on Building Your Charting Foundation for more instruction).

There may be a tool in your charting platform that allows users to toggle quickly and easily between the arithmetic and logarithmic scales. In TeleChart (version 7), the scale can be changed by clicking the letters just below the price column (shown against a black background in Figure 1.5). The letters "A" and "L" that are circled are for arithmetic and logarithmic, respectively. The letters "T," "M" and "L" to the right of logarithmic are custom settings. I do not use them at this time.

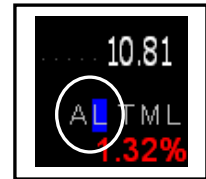


Figure 1.5

The above information is an excerpt from Tina Logan's Charting Lesson 1: Building Your Charting Foundation. [Click here](#) to purchase this lesson and/or to see a list of all the available lessons.