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Chart School

Moving Averages - Part 2

Moving Averages

Trend-Following Indicator

Moving averages smooth out a data series and make it easier to identify the direction of the trend. Because past price data is used to form moving averages, they are considered lagging, or trend following, indicators. Moving averages will not predict a change in trend, but rather follow behind the current trend. Therefore, they are best suited for trend identification and trend following purposes, not for prediction.

When to Use

Because moving averages follow the trend, they work best when a security is trending and are ineffective when a security moves in a trading range. With this in mind, investors and traders should first identify securities that display some trending characteristics before attempting to analyze with moving averages. This process does not have to be a scientific examination. Usually, a simple visual assessment of the price chart can determine if a security exhibits characteristics of trend.

In its simplest form, a security's price can be doing only one of three things: trending up, trending down or trading in a range. An uptrend is established when a security forms a series of higher highs and higher lows. A downtrend is established when a security forms a series of lower lows and lower highs. A trading range is established if a security cannot establish an uptrend or downtrend. If a security is in a trading range, an uptrend is started when the upper boundary of the range is broken and a downtrend begins when the lower boundary is broken.

Ford

Ford Motor Company (F) NYSE © StockCharts.com
F daily   2-Feb-2000 12:40ET O:28.57 H:28.93 L:27.42 Last:27.82 V:9.6M Chg:-0.68
MA(50) 29.27

In the Ford example, it is evident that a stock can go through both trending and trading phases. The red circles indicate trading range phases that are interspersed among trending periods. It is sometimes difficult to determine when a trend will stop and a trading range will begin or when a trading range will stop and a trend will begin. The basic rules for trends and trading ranges laid out above can be applied to Ford. Notice the trading range periods, the breakouts (both up and down) and the trending periods. The moving average worked well in times of trend, but faired poorly in times of trading. Also note how the moving average lags behind the trend: it is always under the price during an uptrend and above the price during a downtrend. A 50-day simple moving average was used for this example. However, the number of periods is optional and much will depend on the characteristics of the security as well as an individual's trading and investing style.

3M

If price movements are choppy and erratic over an extended period of time, then a moving average is probably not the best choice for analysis. The chart for MMM shows a security that moved from 70 to 90 in a few weeks in late April. Prior to this advance, the price gyrated above and below its moving average. After the advance, the stock continued its erratic behavior without developing much of a trend. Trying to analyze this security based on a moving average is likely to be a lesson in futility.

AOL

A quick look at the chart for AOL shows a different picture than for MMM. Over the same time period, AOL has shown the ability to trend. There are 3 distinct trends or price movements that extend for a number of months. Once the stock moves above or below the 70-day SMA, it usually continues in that

direction for a little while longer. MMM, on the other hand, broke above and below its 70-day SMA numerous times and would have been prone to numerous whipsaws. A longer moving average would probably work better for MMM, but it is clear that there are fewer characteristics of trend than in AOL.

Moving Average Settings

Once a security has been deemed to have enough characteristics of trend, the next task will be to select the number of moving average periods and type of moving average. The number of periods used in a moving average will vary according to the security's volatility, trendiness and personal preferences. The more volatility there is, the more smoothing that will be required and hence the longer the moving average. Stocks that do not exhibit strong characteristics of trend may also require longer moving averages. There is no one set length, but some of the more popular lengths include 21, 50, 89, 150 and 200 days as well as 10, 30 and 40 weeks. Short-term traders may look for evidence of 2-3 week trends with a 21-day moving average, while longer-term investors may look for evidence of 3-4 month trends with a 40-week moving average. Trial and error is usually the best means for finding the best length. Examine how the moving average fits with the price data. If there are too many breaks, lengthen the moving average to decrease its sensitivity. If the moving average is slow to react, shorten the moving average to increase its sensitivity. In addition, you may want to try using both simple and exponential moving averages. Exponential moving averages are usually best for short-term situations that require a responsive moving average. Simple moving averages work well for longer-term situations that do not require a lot of sensitivity.

Uses for Moving Averages

There are many uses for moving averages, but three basic uses stand out:

- Trend identification/confirmation
- Support and Resistance level identification/confirmation
- Trading Systems

Trend Identification/Confirmation

There are three ways to identify the direction of the trend with moving averages: direction, location and crossovers.

The first trend identification technique uses the direction of the moving average to determine the trend. If the moving average is rising, the trend is considered up. If the moving average is declining, the trend is considered down. The direction of a moving average can be determined simply by looking at a plot of the moving average or by applying an indicator to the moving average. In either case, we would not want to act on every subtle change, but rather look at general directional movement and changes.

Disney

In the case of Disney, a 100-day exponential moving average (EMA) has been used to determine the trend. We do not want to act on every little change in the moving average, but rather significant upturns and downturns. This is not a scientific study, but a number of significant turning points can be spotted just based on visual observation (red circles). A few good signals were rendered, but also a few whipsaws and late signals. Much of the performance would depend on your entry and exit points. The length of the moving average influences the number of signals and their timeliness. Moving averages are lagging indicators. Therefore, the longer the moving average is, the further behind the price movement it will be. For quicker signals, a 50-day EMA could have been used.

The second technique for trend identification is price location. The location of the price relative to the moving average can be used to determine the basic trend. If the price is above the moving average, the trend is considered up. If the price is below the moving average, the trend is considered down.

Enron

This example is pretty straightforward. The long-term for ENE is determined by the location of the stock relative to its 100-day SMA. When ENE is above its 100-day SMA, the trend is considered bullish. When the stock is below the 100-day SMA, the trend is considered bearish. Buy and sell signals are generated by crosses above and below the moving average. There was a brief sell signal generated in Aug-98 and a false buy signal in Nov-99. Both of these signals occurred when Enron's trend began to weaken. For the most part though, this simple method would have kept an investor in throughout most of the bull move.

The third technique for trend identification is based on the location of the shorter moving average relative to the longer moving average. If the shorter moving average is above the longer moving average, the trend is considered up. If the shorter moving average is below the longer moving average, the trend is considered down.

Xircom

For Xircom, a 30/100 moving average crossover was used to determine the trend. When the 30-day moving average moves above the 100-day moving average, the trend is considered bullish. When the 30-day moving average declines below the 100-day moving average, the trend is considered bearish. A plot of the 30/100 differential is plotted below the price chart by using the Percentage Price Oscillator (PPO) set to (30,100,1). When the differential is positive the trend is considered up -- when it is negative the trend is considered down. As with all trend-following systems, the signals work well when the stock develops a strong trend, but are ineffective when the stock is in a trading range. Also notice that the signals tend to be late and after the move has begun. Again, trend following indicators are best for identification and following, not predicting.

Support and Resistance Levels
Another use of moving averages is to identify support and resistance levels. This is usually accomplished with one moving average and is based on historical precedent. As with trend identification, support and resistance level identification through moving averages works best in trending markets.

Sun Microsystems
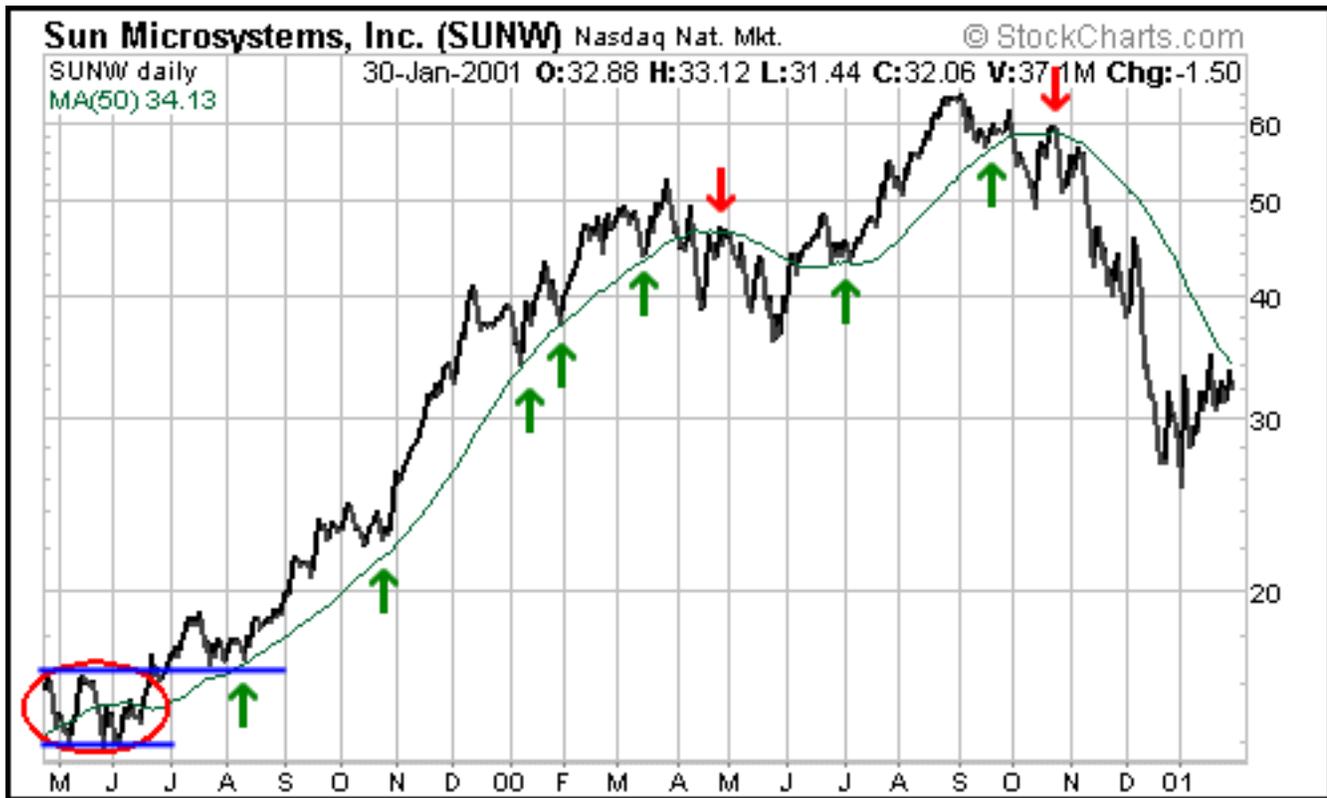
After breaking out of a trading range, Sun Microsystems successfully tested moving average support in late July and early August. Also notice that the June resistance breakout near 18 turned into support. Therefore, the moving average acted as a confirmation of resistance-turned-support. After this first test, the 50-day moving average went on to 4 more successful support tests over the next several months. A break of support from the 50-day moving average would serve as a warning that the stock may move into a trading range or may be about to change the direction of the trend. Such a break occurred in Apr-00 and the 50-day SMA turned into resistance later that month. When the stock broke above the 50-day SMA in early Jun-00, it returned to a support level until the Oct-00 break. In Oct-00, the 50-day SMA became a resistance level and that held for many months.

SharpCharts and Moving Averages

Moving averages are available as a price overlay feature on SharpCharts. From the price overlay option, you can choose either a simple moving average or an exponential moving average. The first box to the right is used to set the number of time periods. If charting on daily periods, then 50 would be for a 50-day moving average. If charting on weekly periods, then 50 would be for a 50-week moving average. The moving averages are based on closing prices and multiple moving averages can be overlaid the price plot.

Conclusions

Moving averages can be effective tools to identify and confirm trend, identify support and resistance levels, and develop trading systems. However, traders and investors should learn to identify securities that are suitable for analysis with moving averages and how this analysis should be applied. Usually, an assessment can be made with a visual examination of the price chart, but sometimes it will require a more detailed approach. The ADX, Average Directional Index, is one tool that can help identify securities that are trending and those that are not.

The advantages of using moving averages need to be weighed against the disadvantages. Moving averages are trend following, or lagging, indicators that will always be a step behind. This is not necessarily a bad thing though. After all, the trend is your friend and it is best to trade in the direction of the trend. Moving averages will help ensure that a trader is in line with the current trend. However, markets, stocks and securities spend a great deal of time in trading ranges, which render moving averages ineffective. Once in a trend, moving averages will keep you in, but also give late signals. Don't expect to get out at the top and in at the bottom using moving averages. As with most tools of technical analysis, moving averages should not be used on their own, but in conjunction with other tools that complement them. Using moving averages to confirm other indicators and analysis can greatly enhance technical analysis.

Written by Arthur Hill

Part 1 | Part 2

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