AEEIC GROUP

Lesson 6
by
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Trend indicators

Moving Averages

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Moving Averages

Lets Calculate a 3 day Moving Average

Day	Close	Average
1	10	
2	11	
3	12	11
4	13	12
5	14	13
6	15	14

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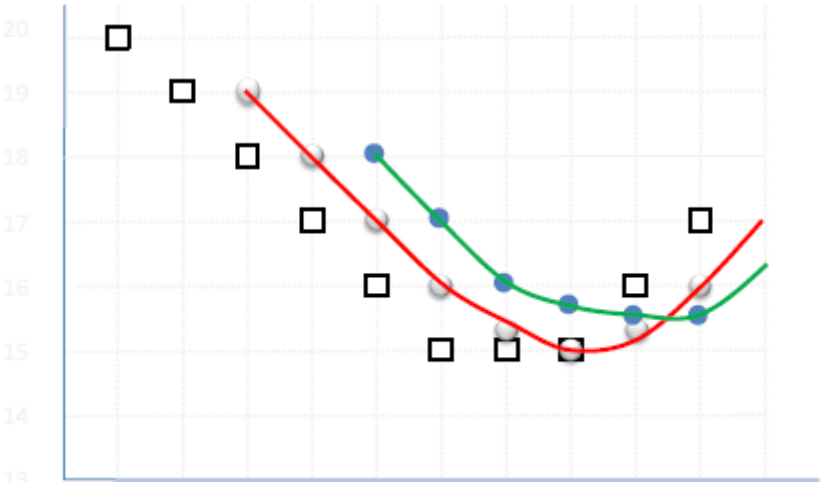
Moving Averages

Lets Calculate a 3 day Moving Average

Lets Calculate a 5 day Moving Average



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Moving Averages - What they are

M.A. IS A SMOOTHING DEVICE WITH A TIME LAG

- The moving average is essentially a trend following device.
- Its purpose is to identify or signal that a new trend has begun or that an old trend has ended or reversed.
- It might be viewed as a curving trend line.
- It does not predict market action but follows it.

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Moving Averages - Questions

- How many days should be averaged?
- Should a short term or a long term average be used?
- Is there a best moving average for all markets
- Is the closing price the best price to average?
- Would it be better to use more than one average?
- Which type of average works better?

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Moving Averages - Time periods

The critical element in a moving average is the number of time periods used in calculating the average. The key is to find a moving average that will be consistently profitable.

The length of a moving average should fit the market cycle you wish to follow:

Trend	Moving Average Length
Very Short Term	05-13 days
Short Term	14-25 days
Minor Intermediate	26-49 days
Intermediate	50-100 days
Long Term	100-200 days

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Moving Averages – Interpretation I

The most popular method of interpreting a moving average is to compare the relationship between a moving average of the security's or currency's closing price and the security's or currency's closing price itself.

- Sell signal: when prices fall below the moving average
- Buy signal: when prices rise above the moving average

So again we don't Buy at the bottom or Sell at the top

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Moving Averages – Interpretation II

The use of Two moving Averages

The technique is called the double crossover method For example, two popular combinations are the 5 and 20 day averages and the 10 and 50 day averages

Buy signal = when the shorter average crosses above the longer.

Sell signal = when the shorter average crosses below the longer.

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Moving Averages - Criticisms

The moving averages we used up to now were simple moving averages giving room to some criticisms.

- The first criticism is that only the period covered by the average (e.g. last 10 days) is taken into account.
- The second criticism is that the simple moving average gives equal weight to each day's price.

As an answer to these criticisms technicians created various types of moving averages.

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M.A. – The Use of Three Averages

The Triple Crossover Method

This brings us to the triple crossover method of using three moving averages instead of two - 4-9-18-day (or 5, 10, 20-day) moving average combination.

This was mentioned by R.C.Allen.

The 4 day will follow the trend most closely, followed by the 9 day and then the 18. A buying alert takes place in a downtrend when the 4 day crosses above both the 9 and the 18. A confirmed buy signal occurs when the 9 day then crosses above the 18.

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Simple M.A. – Some Criticisms

The moving averages we used up to now were simple moving averages giving room to some criticisms.

The first criticism is that only the period covered by the average (e.g. last 10 days) is taken into account.

The second criticism is that the simple moving average gives equal weight to each day's price.

As an answer to these criticisms technicians created more moving averages.

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Moving Averages - Types

- Simple (arithmetic)
- Exponential
- Smoothed
- Weighted
- Triangular
- Variable
- Volume adjusted

The only significant difference between the various types of moving averages is the weight assigned to the most recent data.

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Exponential Moving Average

Exponentially smoothed moving average is calculated by adding the moving average of a certain share of the current closing price to the previous value. With exponentially smoothed moving averages, the latest prices are of more value. P-percent exponential moving average will look like:

$$EMA = (CLOSE(i) * P) + (EMA(i - 1) * (100 - P))$$

Where:
CLOSE(i) — the price of the current period closure;
EMA(i-1) — Exponentially Moving Average of the previous period closure;
P — the percentage of using the price value.

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Weighted Moving Average

A weighted moving average is also designed to put more weight on recent data and less weight on past data.

A weighted moving average is calculated by multiplying each of the previous day's data by a weight.

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Triangular Moving Average

A triangular moving average is similar to exponential and weighted moving averages except a different weighting scheme is used.

Exponential and weighted moving averages assign the majority of the weight to the most recent data.

Simple moving averages assign the weight equally across all the data.

With a triangular moving average, the majority of the weight is assigned to the middle portion of the data.

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Volume Adjusted Moving Average

Dick Arms, well-known as the developer of the Arms Index and the equivolume charting method has developed a unique method for calculating moving averages.

The calculation for a volume adjusted moving average is somewhat complex; however, it is conceptually easy to understand. As its name implies, volume adjusted moving averages assign the majority of weight to the day's with the most volume.

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Volume Adjusted Moving Average

A volume adjusted moving average is calculated as follows:
Calculate the average volume using every time period in the chart.
Calculate the volume increment by multiplying the average volume by 0.67.

Calculate each period's volume ratio by dividing each period's actual volume by the volume increment.

Starting at the most recent time period and working backwards, multiply each period's price by the period's volume ratio and cumulatively sum these values until the user-specified number of volume increments is reached. Note that only a fraction of the last period's volume will likely be used.

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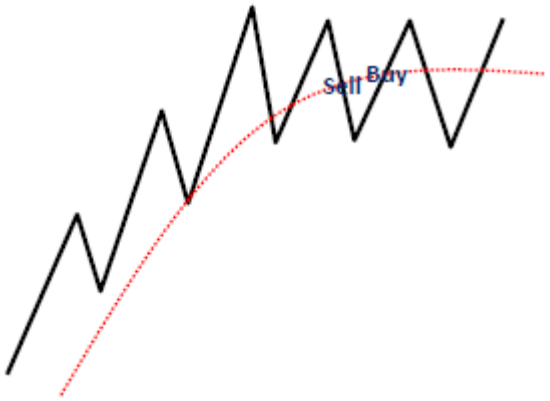
Range & Moving Average

Moving Averages work very well when the market is trending. In a range however:



In a range we DO NOT use moving averages

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MACD

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Indicators – MACD

Now we will talk about one of out best tools using mathematics.

This tool is based on the MAs.

Who can tell us what is Exponential MA?

It's the average that is giving more importance to taking into account the most recent data

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Indicators – MACD

The Moving Average Convergence/Divergence indicator is calculated by subtracting the value of a (26-period) exponential moving average from a (12-period) exponential moving average.

A 9-period dotted exponential moving average (the "signal line") is automatically displayed on top of the MACD indicator line.

If you use any other periods except the ones above then we call it the Price Oscillator

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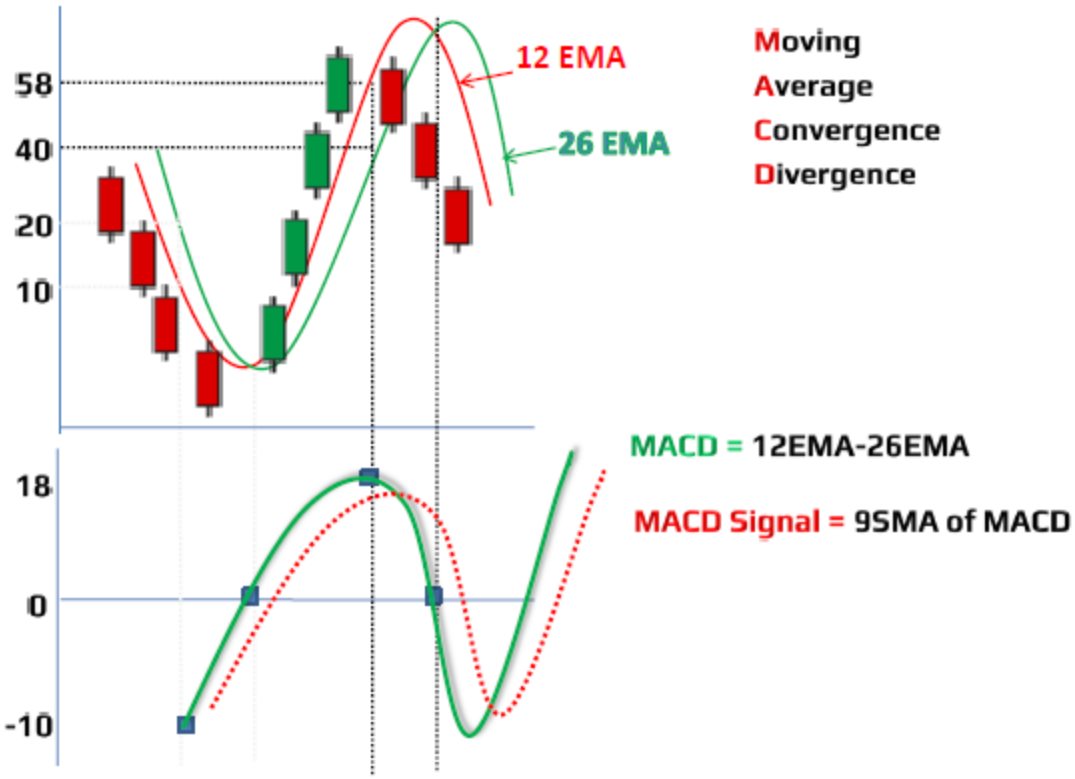

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MACD – Interpretation

Trend Direction - MACD versus ZERO

We always trade in the direction of the MACD versus Zero – We buy only if MACD above 0 and we sell only if MACD below 0.

Trend Corrections (exit) – MACD versus Signal Line

We use the Crossover of MACD with its Moving Average (signal line) to exit our positions or reinstate them.

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