

How to read a stock chart

UD Osher – OLLI

Fall 2026

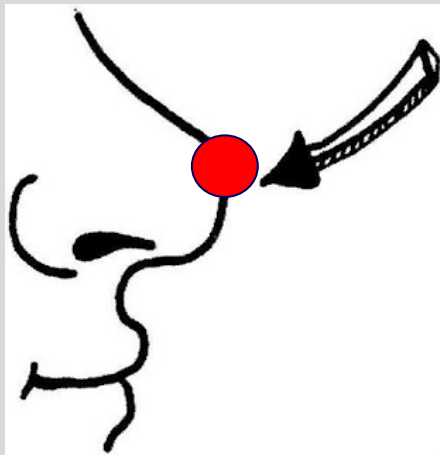
Class 3

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Disclaimer in plain language

Disclaimer – in plain language:



Opinions are like noses, everyone has one !

You are going to see Guy's and mine in this course !!

We are simply sharing our perspective.

This is not investment advice or recommendation.

Rachel and I are not a financial advisors.

This course is for educational purposes only.

Form your own opinion, make your own investment decisions.

Uses of Support and Resistance

- Significant levels in investing trading
 - Early identification of potential trend changes through support or resistance breaks.
 - Sell stops to protect long side losses below a support level
 - Entry prices for new positions just above support for “buy the dip” strategies.
 - Exit prices for taking profits just below resistance for “sell in the swell” strategies.
 - Strike process to sell covered calls with a low risk of assignment above resistance levels.
 - Strike prices to sell cash covered puts with low risk of assignment below support levels.

Today's Class

Moving Averages

- What are these?
- Types of moving averages
- Time frames for moving averages

Bollinger Bands

- Standard Deviation

What is a moving average ?

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



10-day average = 5.5

~~1~~ 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

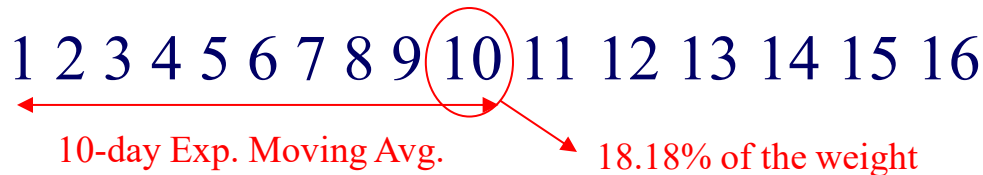


10-day average = 6.5

Simple moving average

- All data points have equal weight
- Can be calculated over any time period
- Above example SMA(10)

What is a moving average ?



Exponential moving average

- Last data point has the highest weight
- Weight diminishes as the length of the moving average goes up
- Must be calculated over a long period of time to be accurate

Lengths and time frames

The MA length that is relevant to a situation depends on

- The analysts investment / trading objective
- Trades in the direction of the longer term MA are more likely to be with the trend.
- Moving averages can be applied to all trading unit times
 - A 50 hour moving average
 - A 50 day moving average
 - A 50 week moving average
 - A 50 month moving average
- Very long moving averages on equities can be non-differentiating

A 50 period moving average on a chart can mean different things based on the unit time period for the chart.

Commonly used lengths are

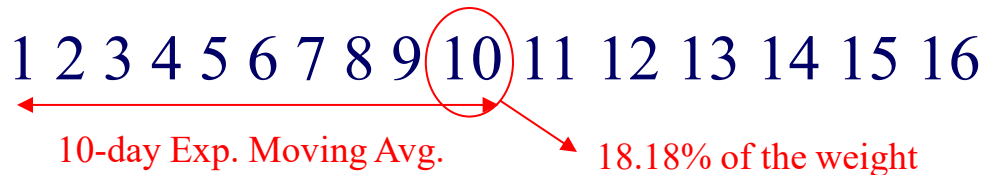
20, 50 and 200 day simple moving averages

8 & 20 or 9 & 26 day Exponential moving averages

Multiple moving averages are more useful in analysis than just one.

- Use of MAs shorter than and longer than the trading period make the analysis stronger.

Exponential moving average



Exponential moving average

- Last data point has the highest weight
- Weight diminishes as the length of the moving average goes up
- Must be calculated over a long period of time to be accurate

Support and Resistance

Moving averages can serve as support and resistance

- The length of the moving average acting as support or resistance can distinguish between a short and a long trend
- Slope and size of the preceding price move
- The longer the time period that prices trade at that level
- The amount of volume in trading at that level
- How recently the level was established.

Analysis with 2 moving averages

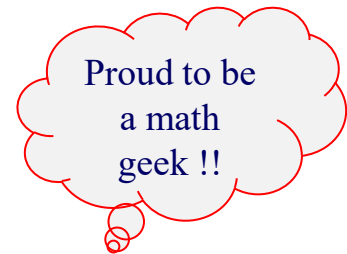
- Fast EMA (shorter time) and Slow EMA (longer time)
- In an uptrend
 - Price moves first.
 - Fast moving average will crossover long moving average.
 - Moving average cross-over always lags price move.
- Exponential moving averages move faster than simple ones.
- The two moving averages
 - Come closer – converge – trend is decelerating
 - Go apart - diverge – trend is accelerating

Standard Deviation

- A measure of variability around the average.

- Each point in the data set

 - Deviation = point value - average



- Square root of the average of the square of the deviation for each point in the data set

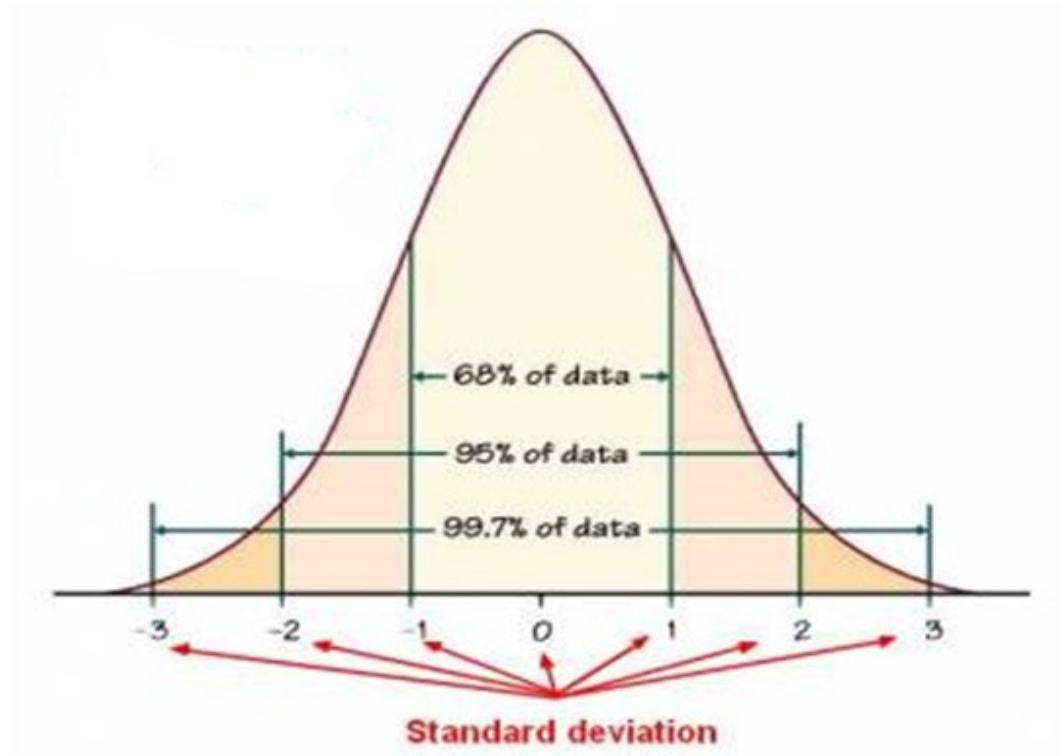
$$\text{Sigma}^2 = \sum_{i=0}^n (\text{deviation})^2 / n$$

- In Stockcharts

 - Standard deviation of a period of days is shown as the value for the last day.

 - Default is a 10 day period

Normal Distribution



Standard Deviation

- ❑ Cannot be compared directly between stocks of different average prices
 - ❑ Amazon (AMZN) price = \$ 1742
 - ❑ Ford (F) price = \$ 8.72
- ❑ Can be plotted with price in Stockcharts and the value on a given day/week/month compared to historical ranges.
 - ❑ Low relative to the historical range = period of lower volatility
 - ❑ High relative to the historical range = Period of higher volatility
- ❑ Quantitative comparison is possible by dividing the standard deviation by the price.

Bollinger Bands

- Moving average envelope
 - Center – a moving average
 - Upper and lower bands – multiples of standard deviation

- Stockcharts standard for Bollinger Bands
 - Center = 20 day simple moving average
 - Upper band = Center + 2 x 20 day standard deviation
 - Lower band = Center – 2 x 20 day standard deviation
 - Represented in Stockcharts as Bollinger band (20,2)
 - Center line is drawn as a broken (dashes) moving line, upper and lower bands as solid lines

- John Bollinger suggests
 - **BB (20,2) will contain 88-89% of all price action**
 - The multiplier should be increased for longer moving averages and visa versa
 - 2.1 for a 50 day SMA
 - 1.9 for a 10 day SMA

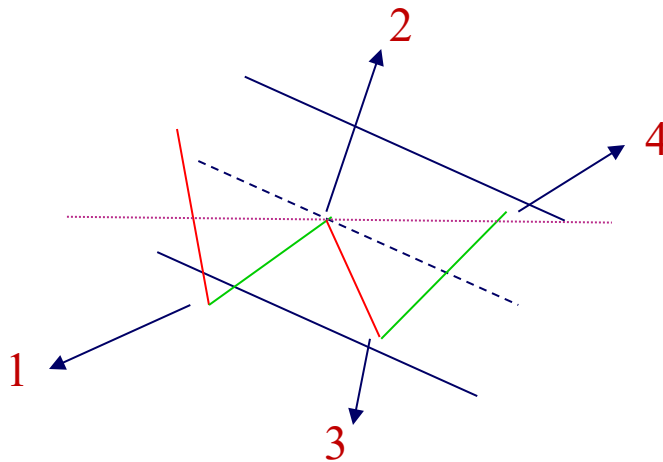
Bollinger band signals

- Price moves across middle moving average into the upper channel in an uptrend. Then stays in the upper channel as the trend continues.
 - Bollinger band bullish breakout
- Price moves across middle moving average into the lower channel in a downtrend. Then stays in the lower channel as the trend continues.
 - Bollinger band bearish breakout
- Price touches to the upper and lower bands are indications of overbought and oversold conditions. Price corrects to the middle band and then either breaks out or moves to retouch the previous band again.
 - Price touches are not reliable trading signals. They are tags.

Bollinger Band trading signals

□ W bottoms – potential start of a new uptrend

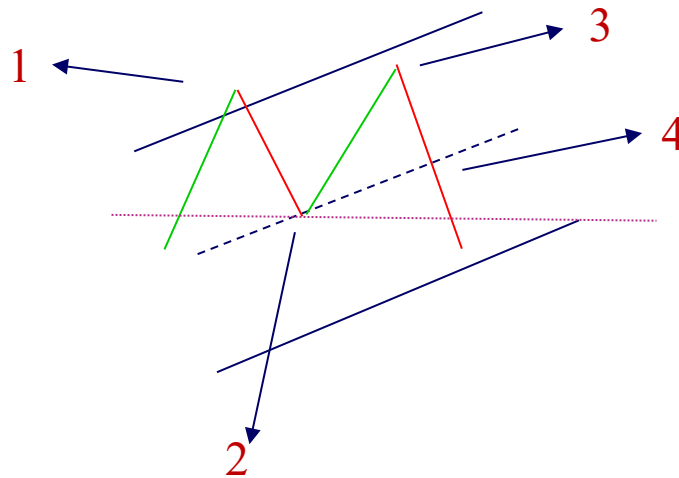
1. Price falls below the lower band.
2. Then recovers to the middle average
3. Then falls back down to a lower low that **does not** touch the lower band
4. Then rises and breaks out of the resistance of the middle bands and prior peaks in the down trend.



Bollinger Band trading signals

□ M tops – potential start of a new downtrend

1. Price rises above the upper band.
2. Then drops to the middle average
3. Then rises up again towards the upper band but **does not** touch the upper band
4. Then falls and breaks out of the support of the middle band and prior low in the uptrend.



Bollinger Band squeeze

□ Bandwidth

- Difference = (Upper band – Lower band)
- Difference divided by middle band
- Typical bandwidths are different for different stocks/ETFs
- Can be plotted in Stockcharts.

□ When volatility declines, the bands squeeze together

- Bandwidth falls to the low of its long-term range.
- It is likely that the bandwidth will revert to the mean in the following price action. A squeeze is an early signal that a large move up or down in price is likely to follow.

Let's ride the bicycle

Useful references:

- Stockcharts – Chartschool
https://school.stockcharts.com/doku.php?id=technical_indicators:moving_averages
- Investopedia
<https://www.investopedia.com/terms/m/movingaverage.asp>

Links to more details topics are in the segment the above link points to

Go live in Stockcharts.com and explore

1. Basics of Stockcharts setup
2. what we just learned

Summary of what you saw

Moving averages smooth out price action

Moving averages always lag price action

- Longer the moving average, more the lag
- Exponential moving averages move faster than Simple Moving Averages

Moving averages are trend indicators

- Direction of mid and longer moving averages can indicate established trend
- In an established trend
 - Price > short term MA > mid term MA > long term MA - in an uptrend
 - Price < short term MA < mid term MA < long term MA – in a downtrend

On a trend change

- Price moves first
- Moving averages follow in order of length.

Summary of what you saw

Crossovers can be useful signals

Price crossover

- Price crosses over a MA that is relevant support or resistance

Moving averages crossover

- Bullish – shorter term MA crosses over longer term MA
- Bearish – shorter term MA crosses below longer term MA
- Moving average crossovers are lagging (late) signals
- Crossovers in the direction of an even longer term average are more reliable

Next week's Class

Indicators

- Moving Average Convergence Divergence
- Relative Strength Index

I will be in Wilmington (Arsht Hall – Room 213)

- If you want to stay on-line .. nothing changes
- If you want to meet in person come to Room 213 - 15 minutes before class.

Thanks !!

- Happy Investing !!

- **My EMail**

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- **Class website**

 - <http://udel.edu/~diyinvst>