CONTINUATION PATTERNS

A prior trend that is expected to continue direction after a pause

1. Triangles

2. Rectangles

3. Pennants — Triangles on very short term periods

4. Flags — Rectangles on very short term periods

CONTINUATION PATTERNS

① TRIANGLES

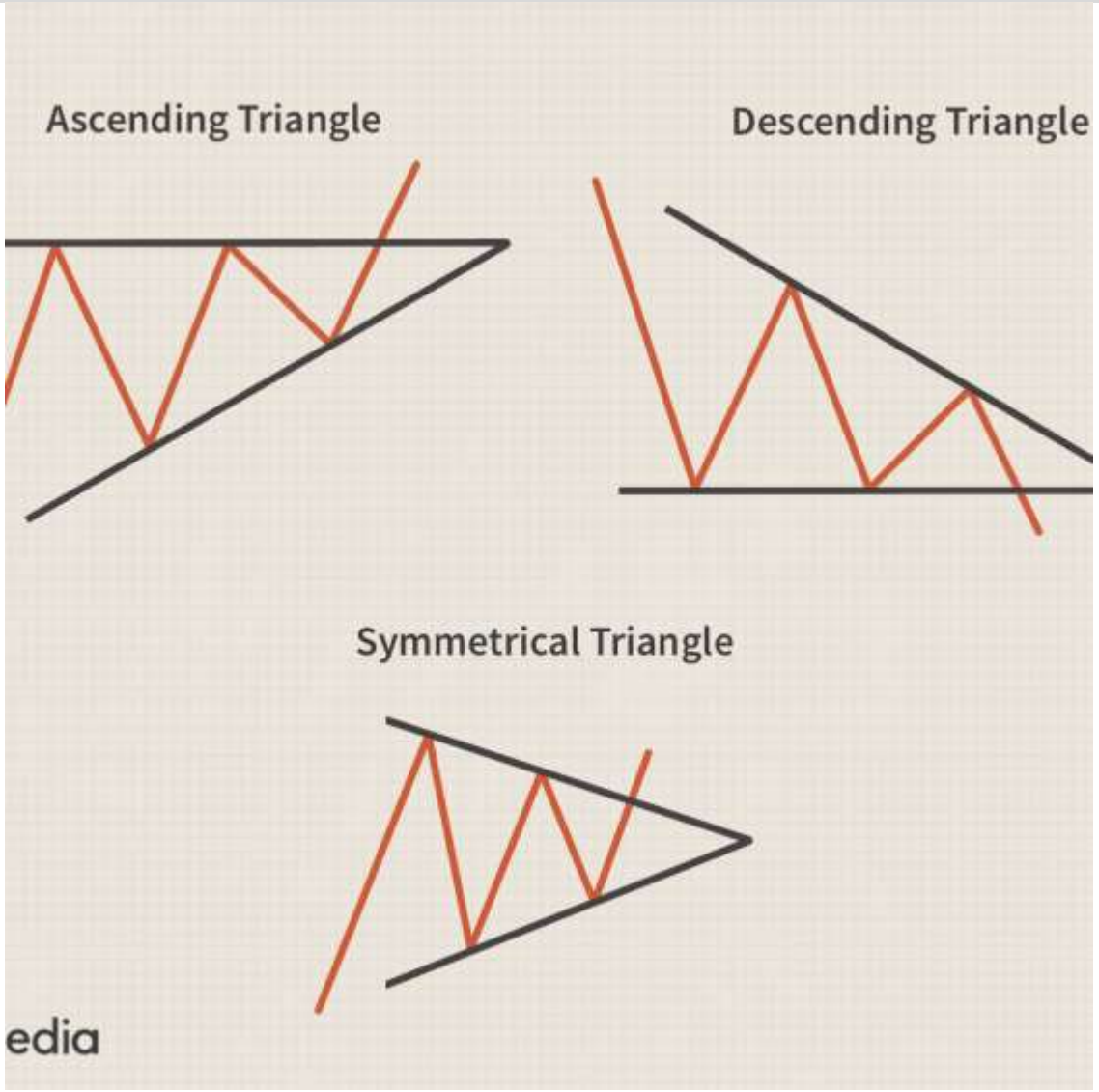
Source: Chart by MetaStock

- Formed when the prices reach decreasing highs and increasing lows over a period of time. As a consequence, the projected trendline from the highs and from the lows converge in the future. (see graph in the left)

- Triangles can be: (see graph in next slide)
  - **Symmetrical:** Frowing lows and decreasing highs,
  - **Ascending:** Growing lows but with a resistance level in the highs), or
  - **Descending:** Decreasing highs and a support level in the lows).

- Triangles imply that the pressure from buying and selling have become more or less equal during a period, and hence forecast no change in the direction of the trend.

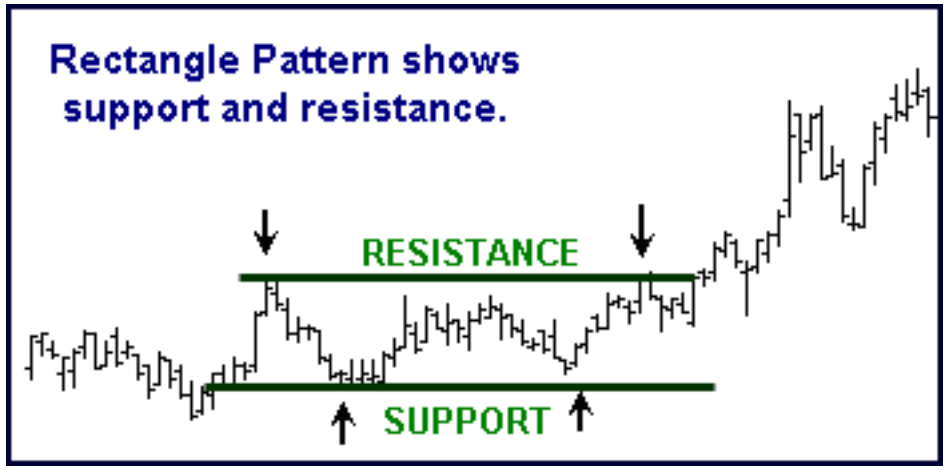
TRIANGLES



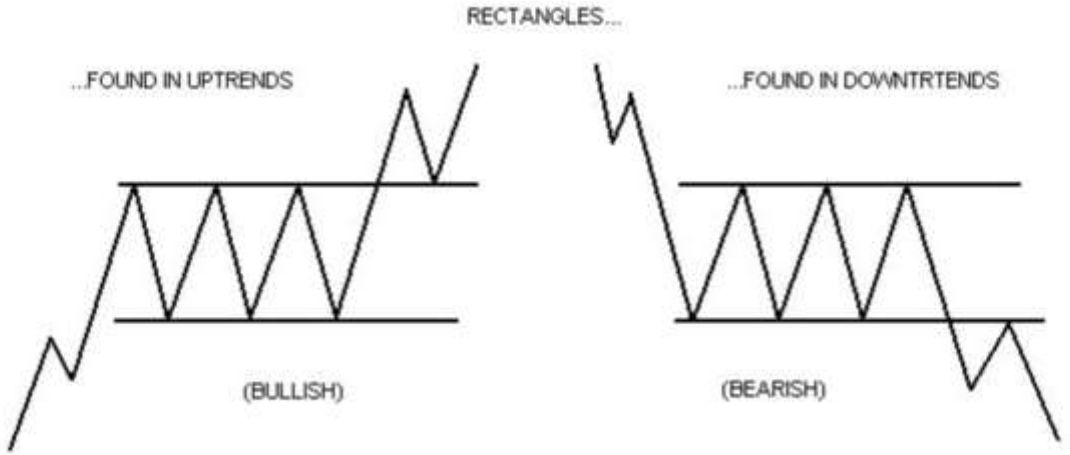
Source: Investopedia

CONTINUATION PATTERNS

② RECTANGLES



- They form as a consequence of a price ranging between a support and a resistance during a period of time.
- The same as with triangles, it suggests that the underlying trend will resume and continue with its direction..



CONTINUATION PATTERNS

③ Pennants

④ Flags

LONG - TERM (6-10 w)	SHORT - TERM (Intraday -2d)
RECTANGLE	FLAG
TRIANGLE	PENNANT

PRICE-BASED

- MOVING AVERAGES
- BOLLINGER BANDS

MOMENTUM OSCILLATORS

- ROC
- RSI
- MACD
- STOCHASTIC OSCILLATOR

SENTIMENT

- Opinion Polls
- Put/Call ratio
- Margin debt
- CBOE Volatility Index (VIX)
- Short interest ratio

FLOW-OF-FUNDS

- New equity issuances and secondary offerings
- Short-term Trading Index (TRIN)
- Mutual fund cash position
- Short interest ratio
- Margin debt

MOVING AVERAGES

We calculate the mean of the average n prices

The higher the n-→ The smoother the moving average

Analysts normally use moving average periods which make intuitive sense (20 d after the nº trading days in a month)

Moving average lines are often viewed as support or resistance levels.

- Technical analysts often use together Moving Averaged for different periods (a faster one and a slower one).
- In the examples above we use the 20-day and 200-day moving averages.
- The intersection between the two MA may give information about potential changes in price trends:
  - A GOLDEN CROSS is called when the short-term average crosses above the long-term average and is deemed to be a buy signal.
  - A DEAD CROSS is called when the short-term average crosses below the long-term average and is deemed to a sell signal.

BOLLINGER BANDS

We include these bands # standard deviations above or below the moving average

The number of standard deviations is determined by volatility

The bands move away from one another when price volatility increases and move closer together when prices are less volatile

Short term contrarian

Sell when the actual price is at the top band → Overbought security

Buy when the actual price is at the bottom band → Oversold security

Bollinger bands can be used as an indicator of extreme prices are extreme by recent standards (either too low or too high)

MOMENTUM OSCILLATORS

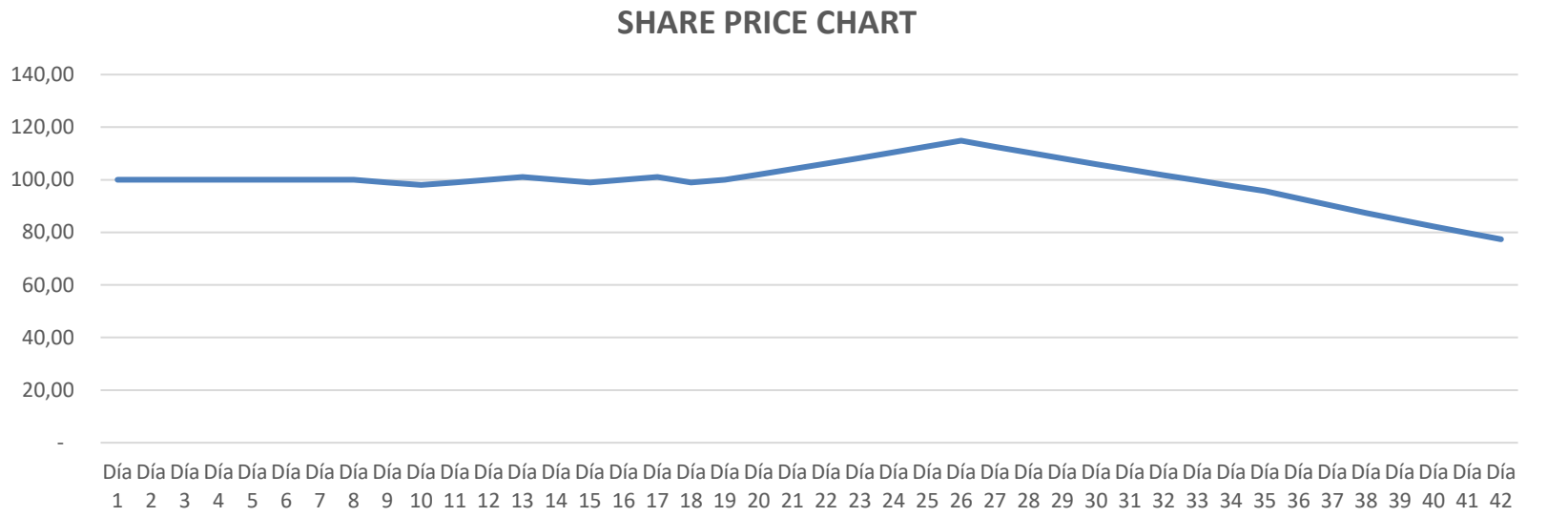
ROC

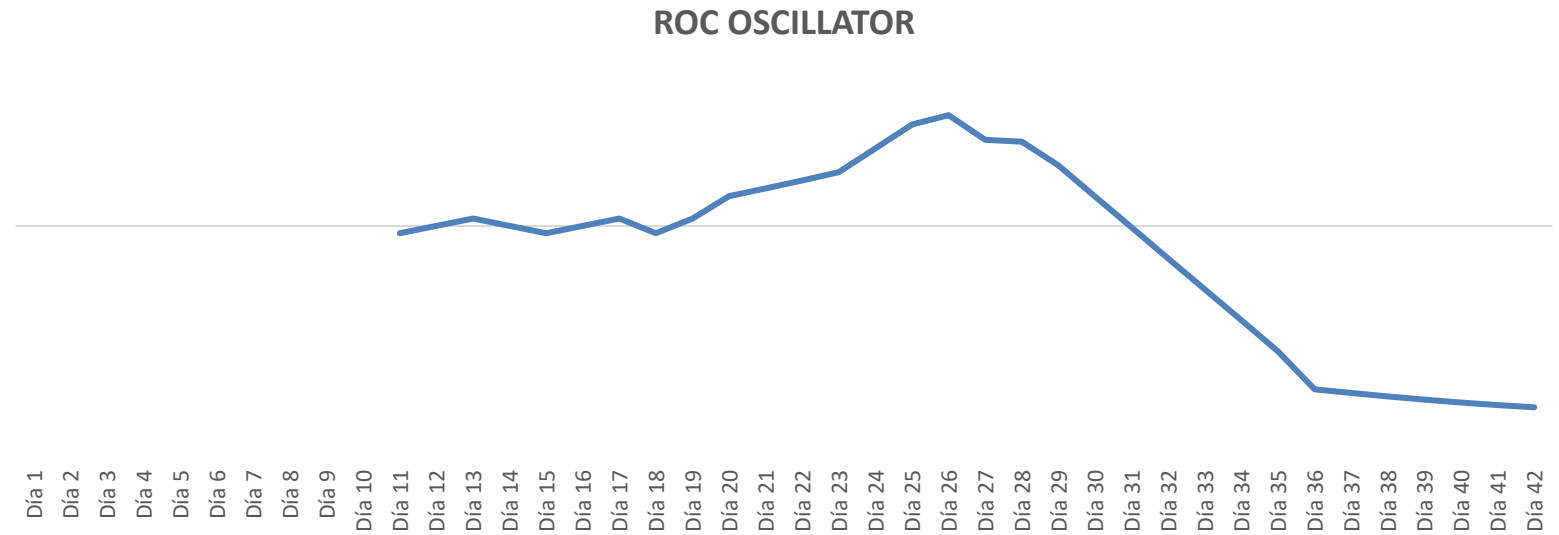
RSI

MACD

STOCHASTIC OSCILLATOR

- Momentum oscillators are too based on the prices of the underlying asset, but scaled. Therefore the indicator oscillates around a value (normally zero) or a range of values (between 0 and 100).
- Values at the extreme of the oscillator (either extremely low or extremely high) are deemed to be a potential indicator of an oversold / overbought market.
- These charts are also used (by technical analysts) to find **convergence/ divergence** patterns.
- See next slide to understand convergence/ divergence
- When convergence exists, it can be an indicator of a continuation in the trend of the price. (and viceversa)


SHARE PRICE CHART
140,00
120,00
100,00
80,00
60,00
40,00
20,00
-
Día 1 Día 2 Día 3 Día 4 Día 5 Día 6 Día 7 Día 8 Día 9 Día 10 Día 11 Día 12 Día 13 Día 14 Día 15 Día 16 Día 17 Día 18 Día 19 Día 20 Día 21 Día 22 Día 23 Día 24 Día 25 Día 26 Día 27 Día 28 Día 29 Día 30 Día 31 Día 32 Día 33 Día 34 Día 35 Día 36 Día 37 Día 38 Día 39 Día 40 Día 41 Día 42


ROC OSCILLATOR
Día 1 Día 2 Día 3 Día 4 Día 5 Día 6 Día 7 Día 8 Día 9 Día 10 Día 11 Día 12 Día 13 Día 14 Día 15 Día 16 Día 17 Día 18 Día 19 Día 20 Día 21 Día 22 Día 23 Día 24 Día 25 Día 26 Día 27 Día 28 Día 29 Día 30 Día 31 Día 32 Día 33 Día 34 Día 35 Día 36 Día 37 Día 38 Día 39 Día 40 Día 41 Día 42

MOMENTUM OSCILLATORS

Rate of Change (ROC) Oscillator

ROC= $(V_t - V_{t-n})$ x 100 → Oscillates around zero

ROC= $\frac{V_t}{V_{t-n}}$ x 100 → Oscillates around 100

If ROC changes from – to + during an uptrend → Buy signal

If ROC changes from + to - during an downtrend → Sell signal

MOMENTUM OSCILLATORS

RELATIVE STRENGHT INDEX (RSI)

$$\text{RSI} = 100 - \left(\frac{100}{(1+RS)}\right)$$

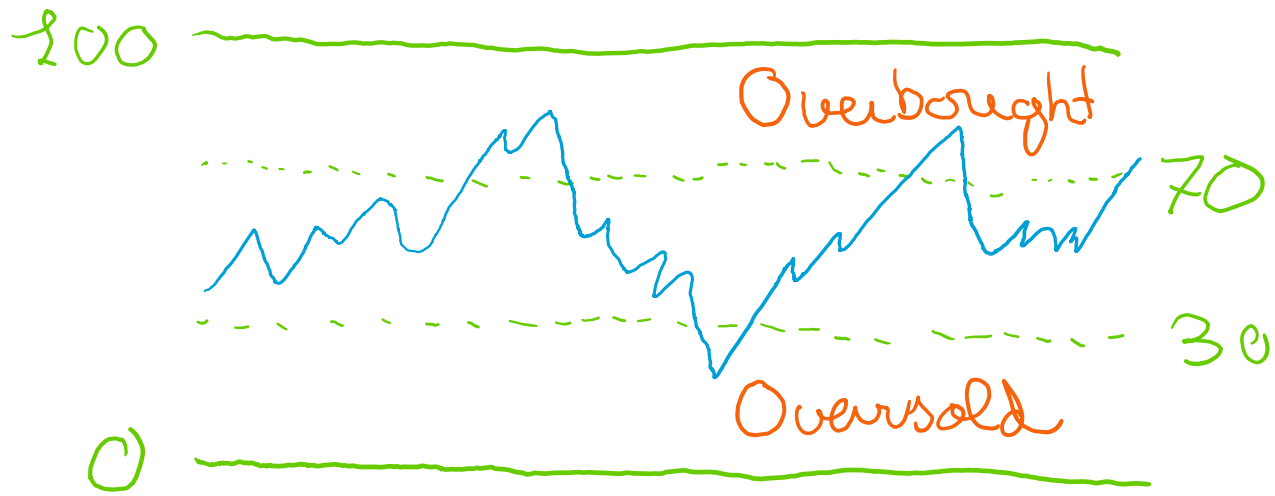
RS. Ratio of total up moves during a period over the total down moves during the same period

$$RS = \frac{\sum(up\ moves)}{\sum(abs\ down\ moves)}$$

Scaled so that outcomes range from 0 to 100

Overbought if RSI > 70

Oversold if RSI < 30



Example with 20-day period

$\sum(12\ up\ moves)$= **20**

$\sum(7\ abs\ down\ moves)$= **15**

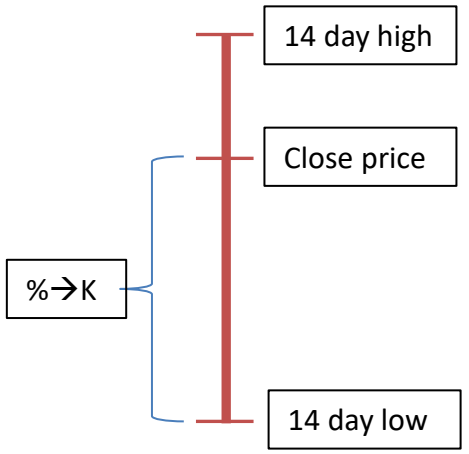
$$RS = \frac{20}{15} = 1.33$$

$$\text{RSI} = 100 - \left(\frac{100}{(1+1.33)}\right) = \textbf{57.14}$$

STOCHASTIC OSCILLATOR

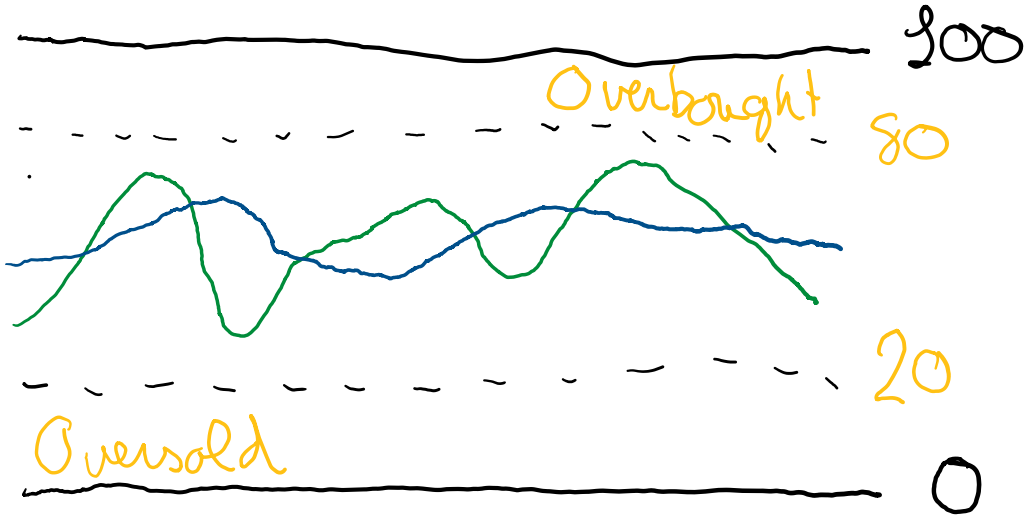
$$\%K = 100\left(\frac{Closing - Low}{High - Low}\right)$$

$$\%D = \left(\frac{\%K_{t-2} + \%K_{t-1}\%K_t}{3}\right)$$



If k is above 80% ⇒ Overbought

If k is below 20% ⇒ Oversold



Example with 14-day period

$Current\ Price$= **45**

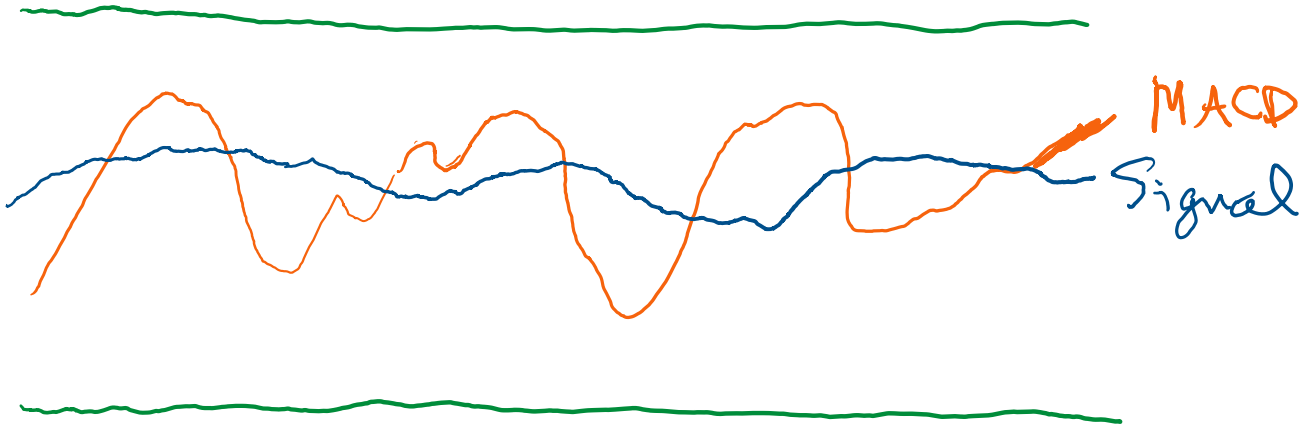
$14 - day\ high = \mathbf{50}$

$14 - day\ low = \mathbf{30}$

$$\%K = 100\left(\frac{45-30}{50-30}\right) = \mathbf{75}$$

MOMENTUM OSCILLATORS

MOVING AVERAGE CONVERGENCE/DIVERGENCE



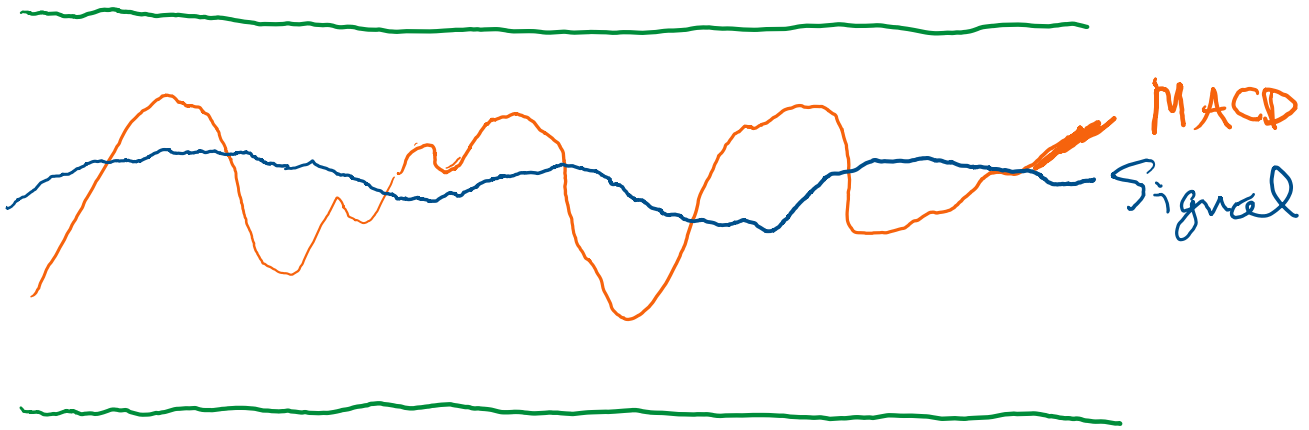
- MACD oscillators→ exponentially smoothed moving averages = place greater importance on **more recent** observations.

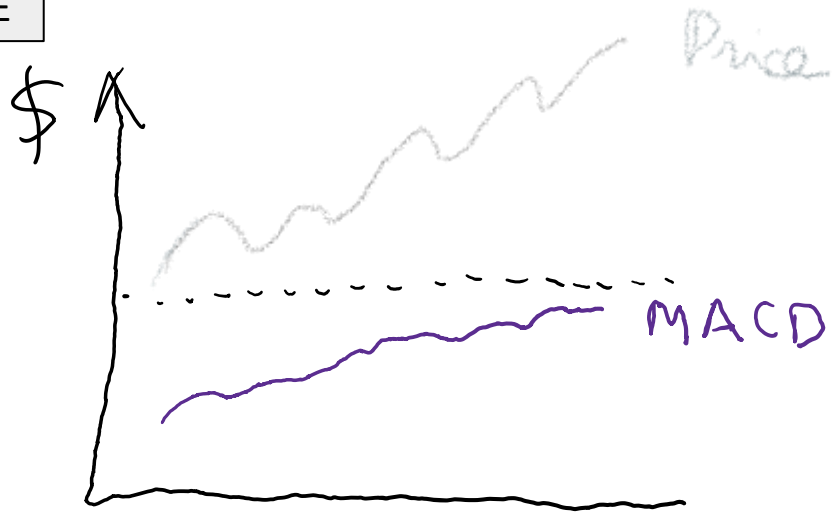
- We **need two lines:**
  - **MACD=** the difference between two moving averages of the price, exponentially smoothed (a faster one such as the 12-day MA and a slower one such as the 26-day)
  - **SIGNAL LINE:** moving average of the MACD line.

- The lines have an oscillator around zero but are not bounded with upper limits.

MOMENTUM OSCILLATORS

MOVING AVERAGE CONVERGENCE/DIVERGENCE





- This oscillator can be helpful to find both:
  - Buy / sell points
  - Convergence or divergence situations with the underlying trend of actual prices.

- Crosses between the Signal and the MACD lines can be used as potential buy/sell signals (as discussed with MAs before):
  - MACD line crosses above the Signal Line = Buy signal
  - MACD line crosses below the Signal Line = Sell signal

SENTIMENT INDICATORS

1. **OPINION POLLS**

What they say

2. **MARKET DATA MEASURES**

What they do

SENTIMENT INDICATORS

Put/Call ratio

IF put volume > call volume → Negative market sentiment

IF put volume < call volume → Positive market sentiment

Normally used in a contrarian manner

Margin debt

When margin debt goes up, contrarian

At top cycles, amount of margin debt used by aggressive bullish increases

CBOE Volatility Index (VIX)

The index is high when investors are fearful

Normally used in a contrarian manner

Short interest ratio

$$\frac{\#\ of\ shares\ sold\ short}{Average\ daily\ volume}$$

FLOW OF FUNDS INDICATORS

Short-term Trading Index (TRIN)

Activity in stocks that are going up is compared to activity in stocks that are going down

$$TRIN = \frac{\frac{\#Adv}{\#Decl}}{\frac{Volume\ of\ Adv}{Volume\ of\ Decl}}$$

- TRIN=1 → BALANCED
- TRIN > 1→ Majority of flows flowing to declining stocks
- TRIN > 1→ Majority of flows flowing to rising stocks

Margin debt

Mutual fund cash position

Usually is low in uptrends and high in downtrends

New equity issuances and secondary offerings

explain how technical analysts use cycles;

① US Presidential cycle (4 years)

Election Year	First Year after	Second Year after	Last Year
GOOD		WORST	BEST

② Decennial cycle (10 years)

DJIA- Up in the fives down in the zeros (30-40- 90-2010-2010-2020) (1925-35-45)

③ 18 year cycle

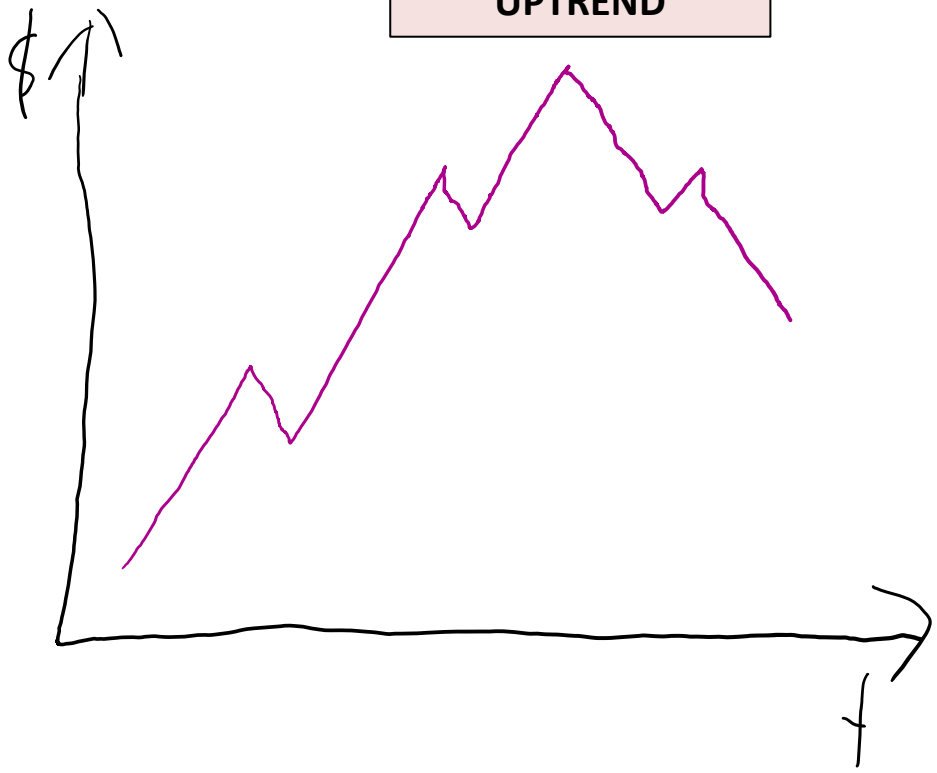
Real Estate Cycles.

④ Kondratieff Wave

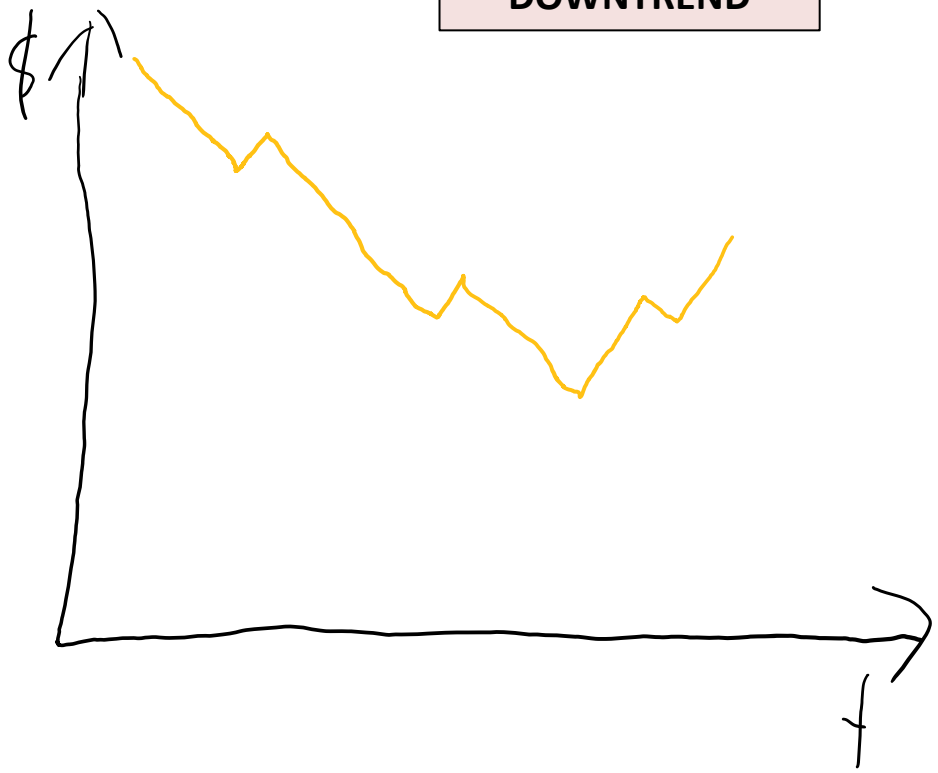
54 year cycle

describe the key tenets of Elliott Wave Theory and the importance of Fibonacci numbers;

UPTREND



DOWNTREND



The size of these waves correspond to FIBONACCI NUMBERS

FIBONACCI NUMBERS: 0,1,1,2,3,5,8,13,21,etc…

FIBONACCI RATIOS: 1.618, 0.618, 13/8

The prices in financial markets can be described as an interconnected set of cycles

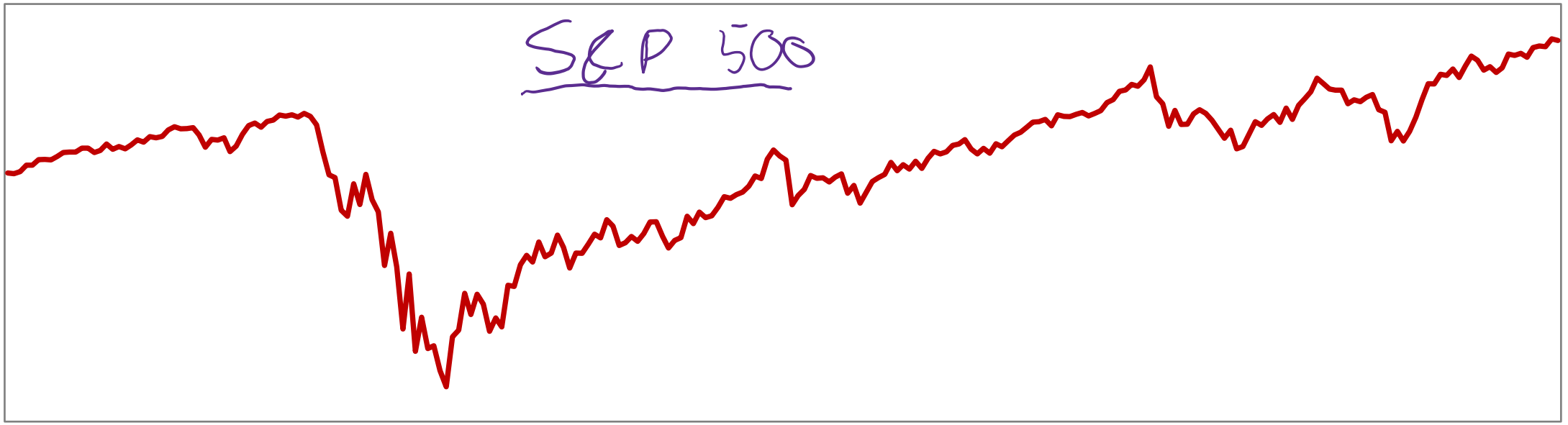
Theses set of cycles range from very short term to very long term

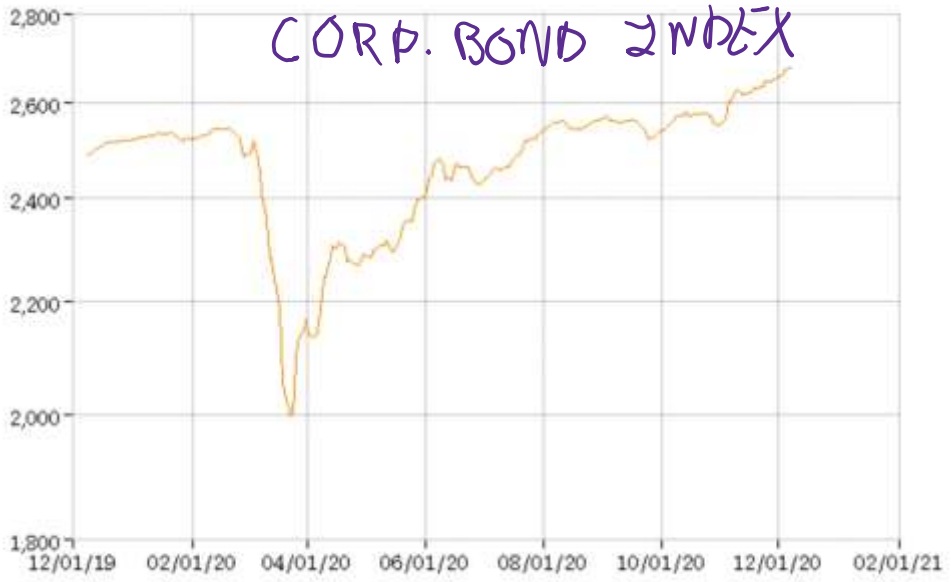
Equities

Bonds

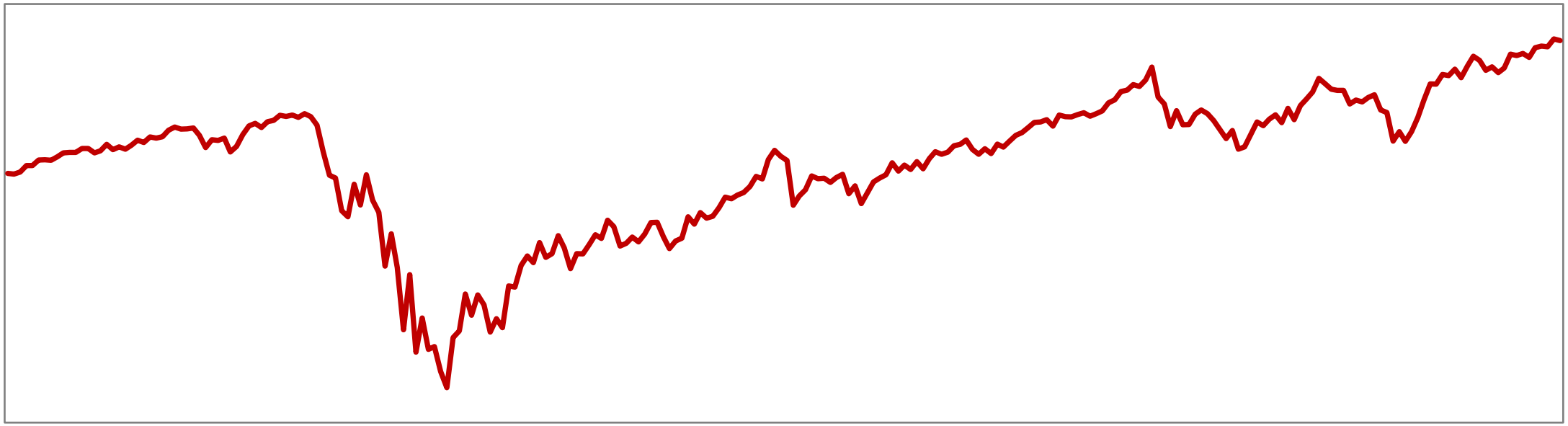
Commodities

Currencies


S&P 500


CORP. BOND INDEX
2,800
2,600
2,400
2,200
2,000
1,800
12/01/19
02/01/20
04/01/20
06/01/20
08/01/20
10/01/20
12/01/20
02/01/21

COMMODITY INDEX
yahoo!finance
77,50
75,00
73,70
72,50
70,00
67,20
65,00
62,50
60,00
57,50



Indicadores
Comparación
Intervalo de fechas
1 d
5 d
1 mes
3 m
6 m
ACUM
1 a
2A
5 a
Máx.
Intervalo 1D
Línea
Dibujar
Configuración
EURUSD=X 1.1048
USD /EUR
yahoo/finance
1.2111
1,2000
1,1750
1,1500
1,1250
1,1000
1,0750
2020

RELATIVE STRENGTH RATIOS

$$\text{RS} = \frac{US\ 10\ yr\ Treasury\ Bond}{S\&P\ 500}$$