



# Lecture

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## International Finance

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- **Fundamental analysis**
- **Technical analysis**
- **Psychological analysis**



# Financial investments

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- Investments in securities (stocks, bonds), deposits, loans



# Approaches to invest in financial instruments

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- **Profit - Investor may invest into financial assets and make profit by:  
Buy financial asset, which is „undervalued“ and sells financial asset, which is "overvalued“**





# Objective of any investment

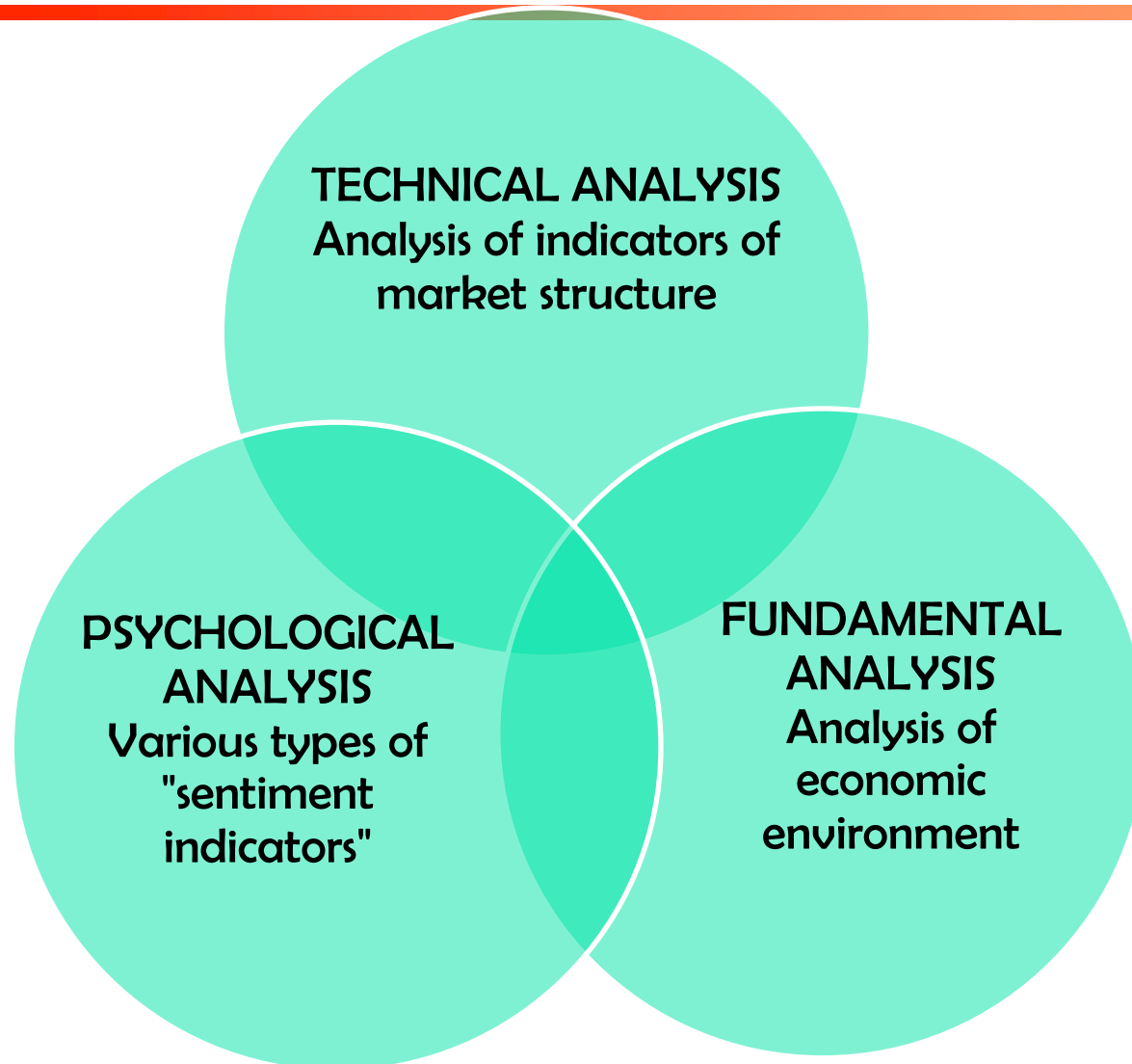
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- **Factors**
  - ? Yield
  - ? Risk
  - ? Liquidity
  
- **Analyse the past is not a problem**
  
- **How to estimate the future?**



# Types of financial instruments analysis

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# Fundamental Analysis

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- **Time factor:** a matter of months and years
- **Basic techniques:** Analysis of balance sheets of companies, analysis of the industry, economy analysis (the expected development of interest rates, price level, GNP, development of employment, etc.).
- **Basic philosophy:** causality, existing price factors determining the value of securities
- Practical application: **Decision what to buy!**



# Fundamental analysis

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- **Fundamental analysis** - refers to the ability of asset to generate profit (income)
- Fundamental – **income**
  - Stock – dividends
  - Bonds – coupon
  - Real estate – rent
  - Money – interest rate...



# Fundamental analysis

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- seeks to identify the fundamental **economic and political factors** that **determine a commodity's price** - focuses on causes and effects
- It is basically an analysis of the (current and future) demand and supply for a commodity, aimed to determine:
  - a **price will change**
  - in **which direction and by how much**.
- This approach requires
  - **gathering** a lot of economic data and political intelligence,
  - **assessing** the expectations of market participants, and
  - **analysing** these information to predict futures price movement



# Fundamental analysis

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- FA uses the Concept of **VALUATION**
  - the ability to use investment analysis to assign value of asset
  - FA maintains that markets may **misprice** a commodity in the short run but that the "correct" price will eventually be reached. **Profits** can be made by trading the mispriced commodity and then waiting for the market to recognize its "mistake" and correct it.
  - **Overvalued / Undervalued / Correct price?**



# Fundamental analysis

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- Investor may invest into financial assets and make profit by:
  - Buy the financial assets, which is undervalued
  - and sells financial asset, which is overvalued



# Fundamental analysis

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- Includes:

1. Macroeconomic analysis
2. Sectoral analysis (industry)
3. Analysis of the company

So called TOP – DOWN approach





# FA

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## 1. **Macroeconomic analysis**

- Analysis of the whole national economy, and its impact on the investments (asset-stock bond..)
- You have to understand:
  1. **Economic growth** – (models of growth, production, productivity, economic liberty)
  2. **Business cycles** – (to predict, when economy goes up or down, before its happening)
  3. **Macro investing** – (market history, development)



# FA

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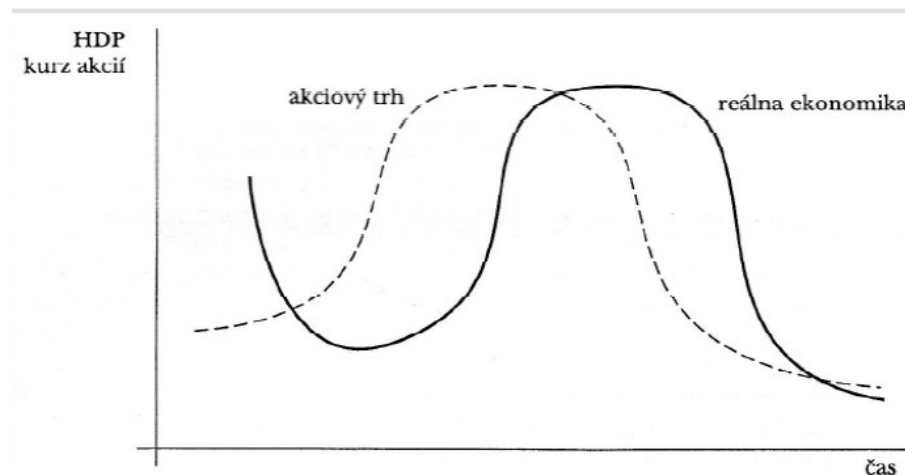
## ■ **Macroeconomic analysis**

1. **Growth – GDP**
2. **Fiscal policy**
3. **Unemployment**
4. **Money supply - Inflation**
5. **Interest rates**
6. **International capital flows**
7. **Indexes**
8. **Economic and political shocks**



# Macroeconomic analysis

1. **Growth** – mainly refers **GDP**
  - If GDP grows, companies make profit, prices of financial investment grow
  - Connected closely to **business cycles**
  - Important to predict and invest before the growth





# Macroeconomic analysis

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## 2. **Fiscal policy**

- Government taxes and changes
- Government spending – there is a low risk of non-payment for government orders
- Deficit debt
- Regulatory of market – different schools of economy



# Macroeconomic analysis

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## 3. Money supply – inflation

- Growth in price level - Decrease in value of money
- Inflation - decreases interest on deposits and bonds and increases the value of shares and real investment
- Inflation – impacts difference between nominal and real return – how?

look - OECD data



# Nominal versus real interest rate

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- **Nominal interest rate** - predetermined rate of interest: an interest rate given in a contract
- **Real interest rate**
  - is an interest rate that is adjusted for inflation
  - the amount by which the nominal *interest rate* is higher than the inflation *rate*



# Formula

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$$\dot{i}_R = \frac{\dot{i}_N (1 - D) - F}{1 + F}$$

$\dot{i}_N$  – nominal interest rate

$\dot{i}_R$  = real interest rate

D – tax rate

F – inflation rate



## Exercise

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$$\dot{i}_R = \frac{\dot{i}_N (1 - D) - F}{1 + F}$$

$i_N$  – nominal interest rate – 10 % p. a.

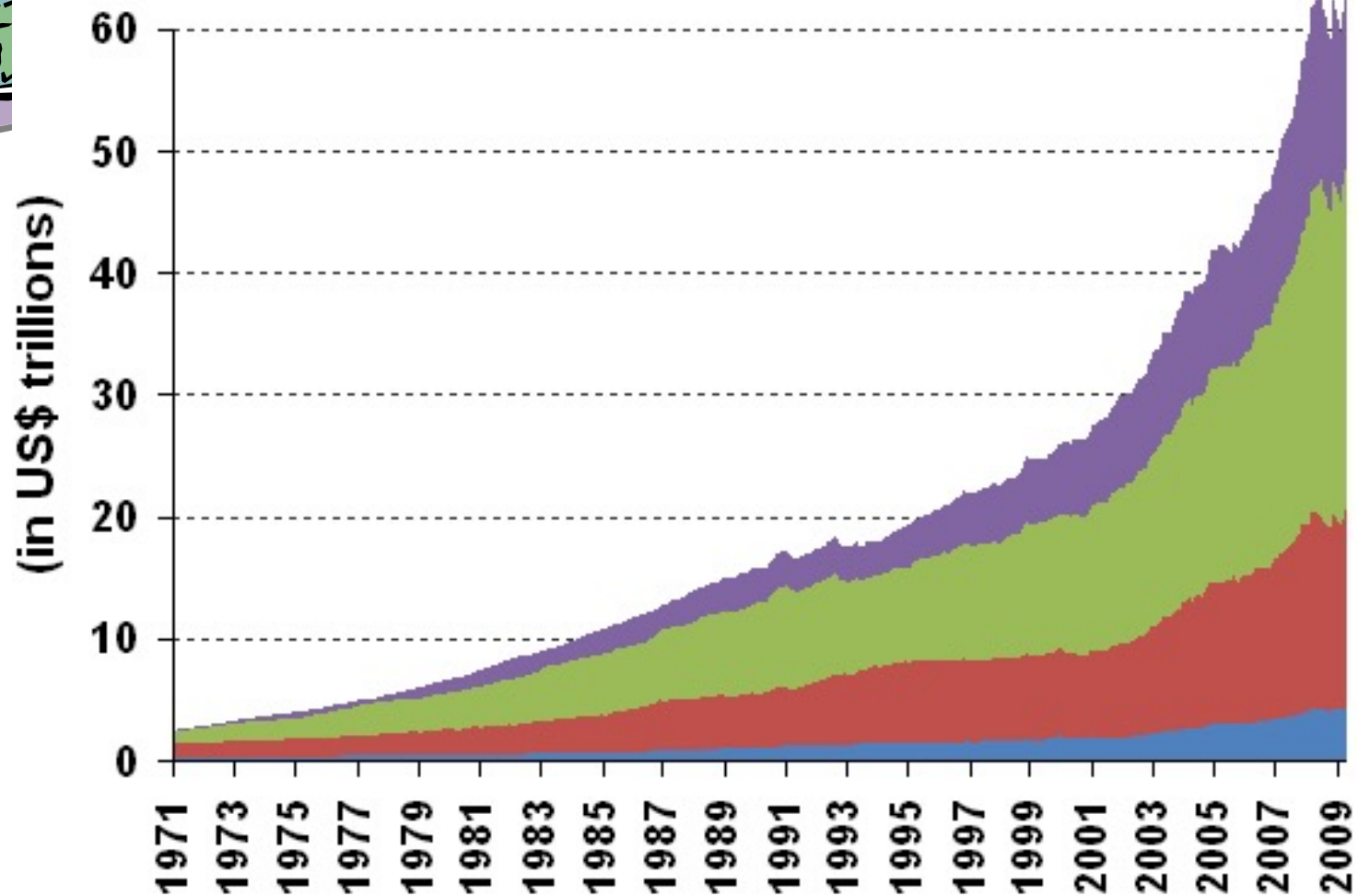
$i_R$  = real interest rate - ?

$D$  – tax rate – 19 %

$F$  – inflation rate - 4 %



# Estimated Global Monetary Aggregates (Jan 1971 to May 2009)



- M3 - Broad Money
- M2 - Money + Close Substitutes (Quasi-Money)
- M1 - Currency in Circulation + Demand Deposits (Money)
- M0 - Currency in Circulation



# Macroeconomic analysis

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## 4. Unemployment

- Consumers confidence – how much people consume, consumption impacts businesses - investing



# Macroeconomic analysis

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## 5. Interest rates

- Significant impact on Money and Capital Market
- Interest rates go up
  - Stock prices (go down) – dividends/interest rates
  - negative impact on profit from bonds – coupon – affects PV
- Growth of interest - higher yield required



## The price of a bond with a fixed coupon

$$P = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \frac{C}{(1+i)^3} \dots \frac{C}{(1+i)^n} + \frac{NV}{(1+i)^n}$$

$$P = C \star \left( \frac{(1+i)^n - 1}{(1+i)^n \star i} \right) + \frac{NV}{(1+i)^n}$$

P = the price of bond

C = coupon

n = time

NV = nominal value

i = interest rate on the market

Function in Excel "PV"



# Yield to maturity

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$$P = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \frac{C}{(1+i)^3} \dots + \frac{C}{(1+i)^n} + \frac{NV}{(1+i)^n}$$

If we need to calculate „i“

**Function YIELD in Excel**

# Government Bonds 241

## OVERVIEW

<b>Issuer</b>	The Slovak Republic acting through the Ministry of Finance of the Slovak Republic, Štefanovičova 5, 817 82 Bratislava, Identification No. 00151742, represented by Agentúra pre riadenie dlhu a likvidity (Debt and Liquidity Management Agency)
<b>ISIN code</b>	SK4000017380
<b>Name of bonds</b>	Government Bonds 241
<b>Form of bonds</b>	bearer
<b>Registration</b>	immateralized, registered by Centrálny depozitár cenných papierov SR, a.s.
<b>First day of the issue</b>	17 June 2020
<b>Issue period of whole amount</b>	from 17 June 2020 till 31 December 2026
<b>Maturity date</b>	17 June 2027
<b>Issue size</b>	EUR 2,000,000,000
<b>Nominal value</b>	EUR 1.00
<b>Issuing Method</b>	auction, direct sale, underwriting, syndicate, sale to own portfolio
<b>Issue price</b>	unlimited
<b>Rate of interest</b>	fixed, 0.125% p.a.
<b>Type of interest calculation</b>	actual/actual (ICMA)
<b>Interest payment</b>	annually, on June 17 <sup>th</sup> of each year
<b>Type of interest and redemption payment</b>	Clearing
<b>Interest and redemption paying agent</b>	Agentúra pre riadenie dlhu a likvidity
<b>Listing</b>	Application for listing on the main listed market will be submitted to Burza cenných papierov v Bratislave, a.s. (Bratislava Stock Exchange)
<b>Governing Law</b>	Slovak law



**Calculate the Price of Government bond 241**

**If  $i = -0,09980 \%$**

**Function in Excel "PV" - <https://support.microsoft.com/en-us/office/pv-function-23879d31-0e02-4321-be01-da16e8168cbd>**

**Calculate the Yield to maturity**

**If P = 1,0158**

**Function in Excel "Yield" -**

**<https://corporatefinanceinstitute.com/resources/excel/functions/yield-function/>**





### ***Auction Results of the Government Bonds ŠD 241 A***

<b>Issuer</b>	Ministry of Finance of the Slovak Republic, Štefanovičova 5, 817 82 Bratislava Identification No. 00151742
ISIN	SK4000017380
Maturity	17 June 2027
Date of competitive part of the auction	15 June 2020
Date of non-competitive part of the auction	-
Issue date	17 June 2020

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#### ***COMPETITIVE PART OF THE AUCTION***

TOTAL BIDS (EUR)	621,200,000
Minimum requested yield to maturity (% p. a.)	-0.2303
Average requested yield to maturity (% p. a.)	-0.0645
Maximum requested yield to maturity (% p. a.)	0.1537
ACCEPTED BIDS (EUR)	<b>292,000,000</b>
Minimum accepted yield to maturity (% p. a.)	-0.0998
Average accepted yield to maturity (% p. a.)	-0.0998
Maximum accepted yield to maturity (% p. a.)	-0.0998
Minimum accepted price (%)	101.5800
Average accepted price (%)	101.5800
Maximum accepted price (%)	101.5800
Cut Off Allotment (%)	100.00

#### ***NON-COMPETITIVE PART OF THE AUCTION***

Amount available (EUR)	-
Total bids (EUR)	-
Average price (%)	-

**TOTAL ISSUED AMOUNT (EUR) 292,000,000**



<b>State bond 241 A</b>		
Nominal value	1	
Rate of interest	0,1250%	
i	-0,09980%	
n	7	
m	1	
<b>Funkcion PV</b>		<b>1,0158 €</b>
<b>Yield to maturity - funkcion yield</b>		<b>-0,09980%</b>
Price	1,0158	
First day of the issue	17.6.20	
Maturity date	17.6.27	
NH	1	
Rate of interest	0,1250%	



# Macroeconomic analysis

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## 6. International capital flow

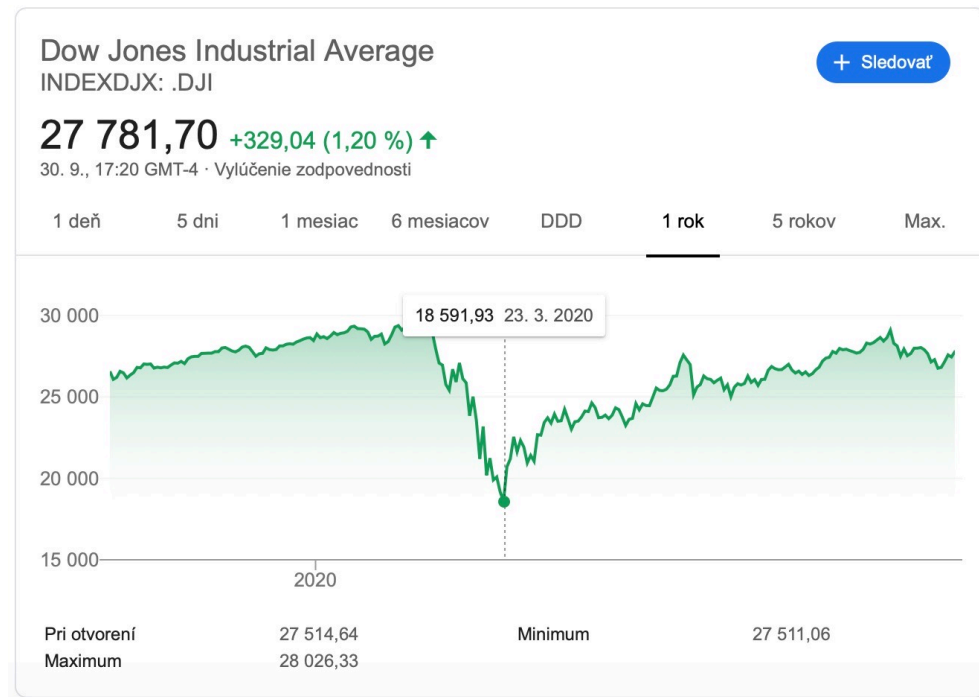
- Balance of payments – import / export
- Affects exchange rate
- Foreign direct investments - Increase of demand, higher prices, higher profit...increase in demand



# Macroeconomic analysis

## 6. Political and economical shocks

- Especially the financial market is highly sensitive to changes and shocks



Udalosť	Dátum	DJIA % zmena	6 mesiacov neskôr
U.S. invázia na Grenadu	24. 10. - 7. 11. 1983	- 2,7	- 3,2
U.S. bomby na Lýbiu	15. 4. - 21. 4. 1986	2,6	- 1,0
Finančná panika 87	2. 10. - 19. 10. 1987	- 34,2	15,0
Invázia do Panamy	15. 12. - 20. 12. 1989	- 1,9	8,0
Vojna v Iraku	24. 12. - 16. 1. 1991	- 4,3	18,7
Svetové obchodné centrum - bomba	26. 2. - 27. 2. 1993	- 0,5	8,5
Oklahoma City - bomba	19. 4. - 20. 4. 1995	0,6	12,9
Ázijská kríza	7. 10. - 27. 10. 1997	- 12,4	25,0
Bombový útok na U. S. veľvyslanectvo v Afrike	7. 8. - 10. 8. 1998	- 0,3	6,5
Ruská LTCM kríza	18. 8. - 8. 10. 1998	- 11,3	33,7
Letecký útok na svetové obchodné centrum	11. 9. - 19. 9. 2001	- 7,2	10,3

# Dow Jones Industrial Average

INDEXDJX: .DJI

+ Sledovať

**27 781,70** +329,04 (1,20 %) ↑

30. 9., 17:20 GMT-4 · Vylúčenie zodpovednosti

1 deň

5 dni

1 mesiac

6 mesiacov

DDD

1 rok

5 rokov

**Max.**



Pri otvorení

27 514,64

Minimum

27 511,06

Maximum

28 026,33



## 2. Sectoral analysis

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- Analysis of the industry
- Industry:
  - **Defensive** – not influenced a lot by the overall situation in economy (food, electricity...)
  - **Cyclical** – industry that is significantly affected by the business cycles of economy (luxury)



## 2. Sectoral analysis

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- **Sectoral changes in the economy**
  - **Characteristics of the industry**
  - **Sensitivity for the phase of economic cycle**
  - **The structure of the industry**
  - **Labour productivity growth**
  - **Investment growth**
  - **Shorter innovation cycles**





## 3. Analysis of the company

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- Changes in the company
- Management, Control
- Balance Sheet, Profit /Loss statement, Cash-flow analysis

All focused on determining **the value of company / stocks ...**

1. **Profitable, reliable, solid = not overvalued**



## 3. Analysis of the company

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### VALUATION

- Estimates the **internal value**
- Then **compare with the market value**
- Internal value higher than the market – **buy**
- Internal value lower than the market – **sell**



- **Technical analysis**



# Technical Analysis

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- **Time factor:** it is a matter of minutes to hours.
- **Basic methods:** analysis of indicators of the market structure, i.e. forecast future price, trends based on historical trading volumes and market prices (open-close, high, low)
- **Basic philosophy:** important historical price movements of financial instruments.
- **Practical use:** **Decide when to buy!**



# Technical analysis

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- Technical analysis is the study of historical prices for the purpose of predicting prices in the future
- Use **HISTORY** to predict **FUTURE** price, and buy or sell the security based on your prediction
- A basic belief of technical analysis is that market prices themselves contain **useful and timely information**
  - Prices quickly reflect all available fundamental information, as well as other information, such as traders' expectations and the psychology of the market
  - The HISTORY REPEATS

## **Role of Technical Analysis**

- Identify and predict changes in direction of price trends
- Determine the timing of action – entry and exit decisions



# Technical analysis

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- Evaluation of the future based on historical prices and volume
- Information from the exchange
- Short prognostic period
- Analyses :
  1. **Chart analysis:**
    - bar charts, line charts, candlestick charts, and point-and-figure charts
  2. **Graphical analysis**
    - Trend lines, double peak, double bottom, moving averages, heads and shoulders, support and resistant zones
  3. **Technical indicators**



# Technical Analysis: Chart Analysis – Bar Chart

Sun Microsystems, Inc. (SUNW) Nasdaq Nat. Mkt. © StockCharts.com  
14-Mar-2000 4:00pm **Open** 46.12 **High** 47.38 **Low** 43.38 **Last** 43.69 **Volume** 33.8M **Chg** -1.75 ▼





# Technical Analysis: Chart Analysis – Bar Charts

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## Bar Charts: One-Day Price

Bar charts are frequently used to identify one-day price reversals.

- A one-day price reversal occurs in a **rising market** when prices make a **new high** for the current **advance** but then **close lower** than the previous day's close
- A one-day price reversal occurs in a **falling market** when prices make a **new low** for the current **decline** but then **close higher** than the previous day's close





# Technical Analysis: Chart Analysis – Line Charts

## Line Charts:

- In a line chart, only the closing prices are plotted for each time period.
- Some investors and traders consider the closing level to be more important than the open, high or low.
- By paying attention to only the close, intraday swings can be ignored.





# Technical Analysis: Chart Analysis – Candlestick Charts

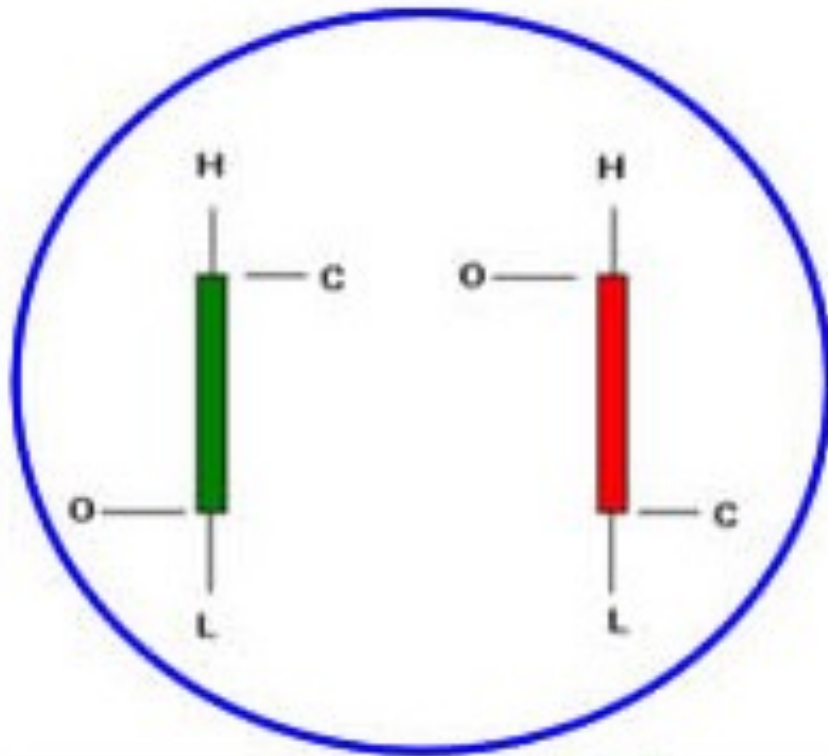
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## Candlestick Charts:

- For a candlestick chart, the open, high, low and close are all required.
- The green and red portion formed from the open and close is called **the body**. The lines above and below are called **shadows** and represent the high and low.
- A daily candlestick is based on the open price, the intraday high and low, and the close. A weekly candlestick is based on Monday's open, the weekly high-low range and Friday's close.



# Technical Analysis: Chart Analysis – Candlestick Charts





# Graphical analysis double peak - <https://etrading.sk>





# Graphical analysis

## Double bottom





# Trend lines

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- Technical analysis is built on the assumption that **prices trend**.
- A common trading strategy is to identify a price trend and then go with the trend.

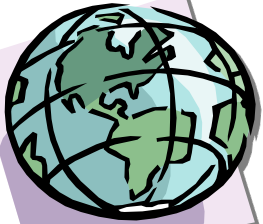




# Downtrend line

Amazon.com, Inc. (AMZN) Nasdaq Nat. Mkt. © StockCharts.com  
20-Dec-2002 Op 22.23 Hi 22.56 Lo 21.53 Cl 21.93 Vol 23.3M Chg -0.25 (-1.13%) ▼





# Trend lines

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# The Basics of resistance and support

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- A trend line is a straight line that connects periodic highs or lows on a price chart and then extends into the future to act as a line of resistance or support.
- For example, assume that Jim was holding a position in stock between March and November and that he was expecting the value of the shares to increase.

Note: <https://www.investopedia.com/trading/support-and-resistance-basics/>



## Resistance

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Let's imagine that Jim notices that the price fails to get above \$39 several times over several months, even though it has gotten very close to moving above that level. In this case, traders would call the price level near \$39 a level of resistance. As you can see from the chart below, resistance levels are also regarded as a ceiling because these price levels represent areas where a rally runs out of gas.



Notice how \$39 acts as resistance on Amazon.com's chart between March and November 2006.



# Support level

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**Support levels are on the other side of the coin.**

**Support refers to prices on a chart that tend to act as a floor by preventing the price of an asset from being pushed downward.**

**As you can see from the chart below, the ability to identify a level of support can also coincide with a buying opportunity because this is generally the area where market participants see value and start to push prices higher again.**

**line, this is a signal to buy or go long.**



Notice how the price has a difficult time falling below the support of \$51.25.



# Moving averages

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- Moving averages are used to determine price trends and trend changes
- ***n***-day moving average is the average of the most recent ***n*** daily closing prices
  - A 5-day moving average is the average of the last 5 daily closing prices.
  - A 25-day moving average is the average of the last 25 daily closing prices

The simplest way is to just plot a single moving average on the chart. When price action tends to stay above the moving average, it signals that price is in a general UPTREND. If price action tends to stay below the moving average, then it indicates that it is in a DOWNTREND.





# Moving averages

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# Bollinger Bands

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- are envelopes plotted at a standard deviation level above and below a simple moving average of the price. ... Bollinger bands help determine whether prices are high or low on a relative basis. They are used in pairs, both upper and lower bands and in conjunction with a moving average.







# Psychological analysis

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- trying to predict the behavior of small investors and mass psychosis.

**Time aspect:** Mostly short.

**Basic Methods:** Comparison of basic information and assessment of changes in investor behavior.

- **Basic philosophy:** Predictability of small investor behavior
- Practical use: The forecasts: **What will do the others?**



# Psychological analysis

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- investigates what leads the investors to decisions to buy or sell
- the object is man - investor and all factors that affect his behavior
- Try to predict, what will the other do
- Only strong personalities, which are governed by their own reason and completely dominated his psyche may be successful in the long run.



# Kostolany strategy

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- Two groups of investors
  - Players – (90%)
  - Investors – (10%)
- **4G – Gedanken, Geduld, Geld, Glueck**
- Are able to resist to the majority



**Thank you for attention!**

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