

INTRODUCTORY BANKING



Lecture 4A – Financial Markets

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Key terms from Lecture 3B/Central banking

- Central Bank Digital Currency
- Macro- and microeconomic functions of a central bank
- Conventional instruments (open market operations, mandatory minimum reserves, interest rates, other tools)
- Nonconventional instruments (open liquidity facilities/liquidity support, credit facilities, large-scale asset purchases (quantitative easing, „QE“), forward guidance)
- classic repo (a sale of securities followed by their future purchase) vs reverse repo
- Inflation targeting: the CNB (2%±1%), the ECB (<2%)
- Monetary aggregates: low M0/M2 ratio (10-12%)
- Money multiplier and its weaknesses
- Interest rates, Fisher equation, yield curve (theories)
- Reading 2 - CBDC

Agenda

1. **Basic terms**
2. Financial markets in theory
3. Milestones in financial theory
4. Recent trends in financial markets
5. Financial intermediaries
6. The Czech financial market



I. Basic terms

Theory (academia) vs. reality (the real world)

**In academia, there is no
difference between academia
and the real world.**

In the real world, there is.

Nassim Nicholas Taleb



I. Basic terms

A bank's balance sheet and Profit&Loss (P&L) statement

Bank's balance sheet		Bank's profit & loss statement	
ASSETS	LIABILITIES	Costs	Revenues
Cash	Deposits	Costs	Revenues
Securities			
Loans	Interbank market	Profit	Profit
	Capital		
Other assets	Profit		



I. Basic terms

A non-financial firm's balance sheet

Non-financial firm's balance sheet

<i>ASSETS</i>	<i>LIABILITIES</i>
Current assets	Current liabilities
Investments	Long-term liabilities
Property, plant, equipment	Capital (Equity)
Intangible assets	
Other assets	

CREDITORS
(debt)

SHAREHOLDERS
(equity)



I. Basic terms

Financial markets – 3 main types

- i. **The bond market** where interest rates are determined,
- ii. **The stock market** which has a major effect on people's wealth and on firms' investment decisions,
- iii. **The foreign exchange market** is where currency conversion takes place -> instrumental in moving funds between countries; the foreign exchange (**FX**) rate = the price of one country's currency in terms of another's is determined.

I. What is a bond?





I. Basic terms

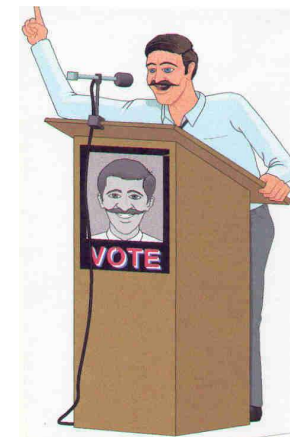
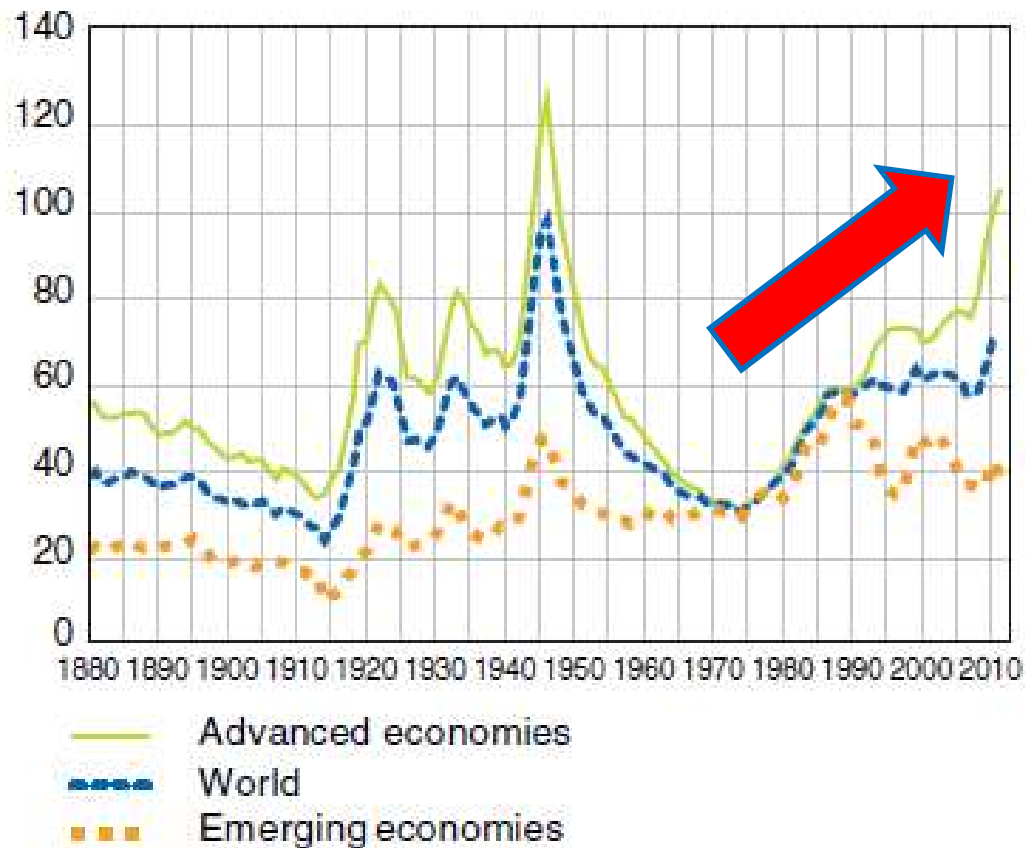
i. Bond market

- A bond is a security that promises to make payments periodically for a specified period of time.
- Bonds are financing debts of corporates and sovereigns
- Corporates bonds are issued by corporates
- Sovereign bonds are issued by a state (government)
- Long-term Treasury Bonds vs short-term Treasury Bills
- Many types of bonds, for example according to:
 - a) Coupon: Zero-coupon vs. coupon bonds
 - b) Coupon-rate variability: Floating-rate vs. fixed-rate bond
 - c) Issuer: Public sector vs. financial institutions vs. companies
 - d) Embedded options: Callable vs. putable vs. convertible bonds
 - e) Maturity: Short-term vs. medium-term vs. long-term bonds.

I. Basic terms

Mounting sovereign debts in last years financed through government bonds...

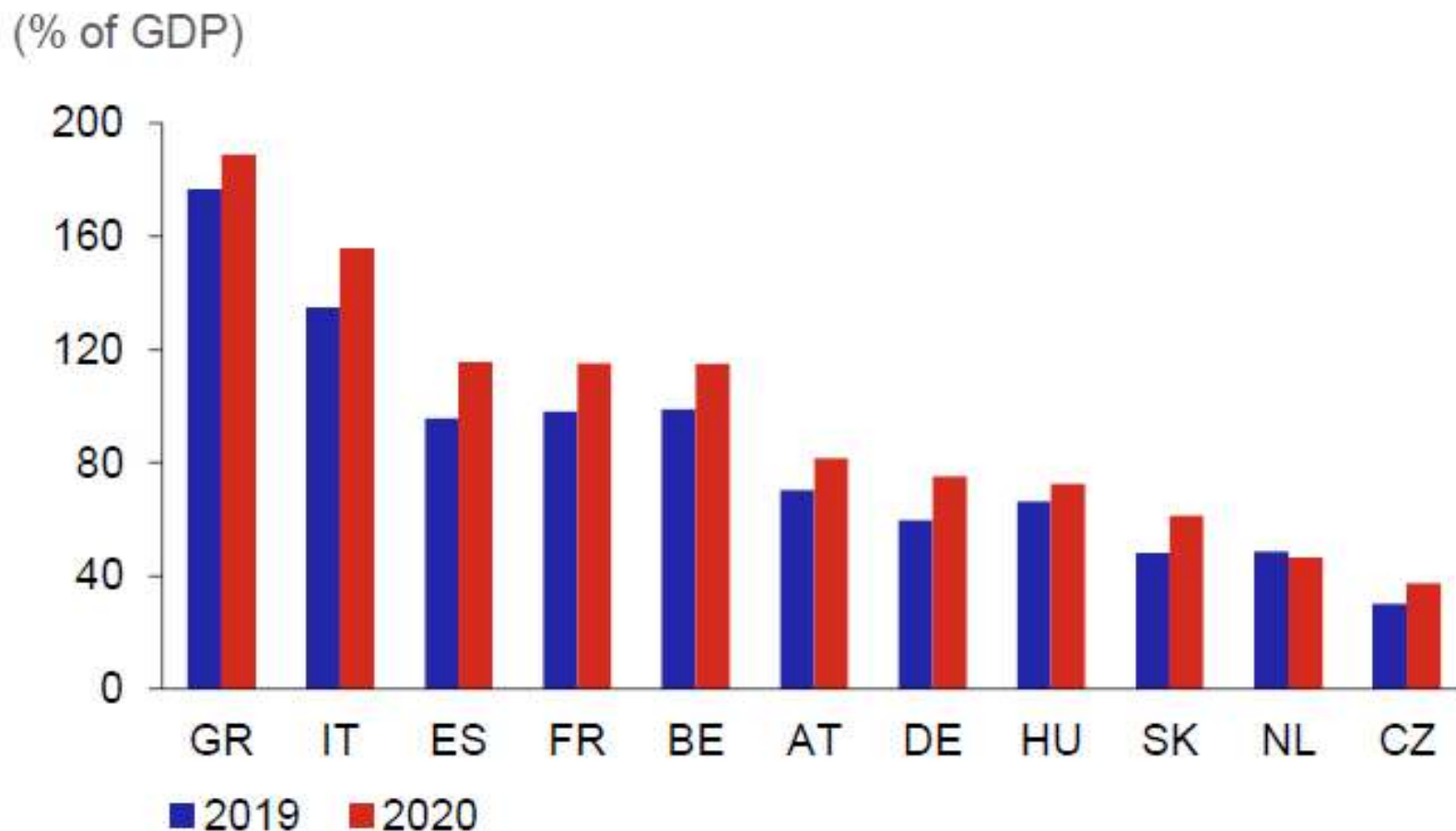
Chart 1
World public debt-to-GDP ratio
(%)



Source: Bank of France (2012). Financial Stability Review, April 2012

I. Basic terms

Comparison of government debt in selected EU countries in 2019 and 2020



Source: CNB (2020). Risks to financial stability and their indicators 2020. The Czech National Bank

2. What is a stock?





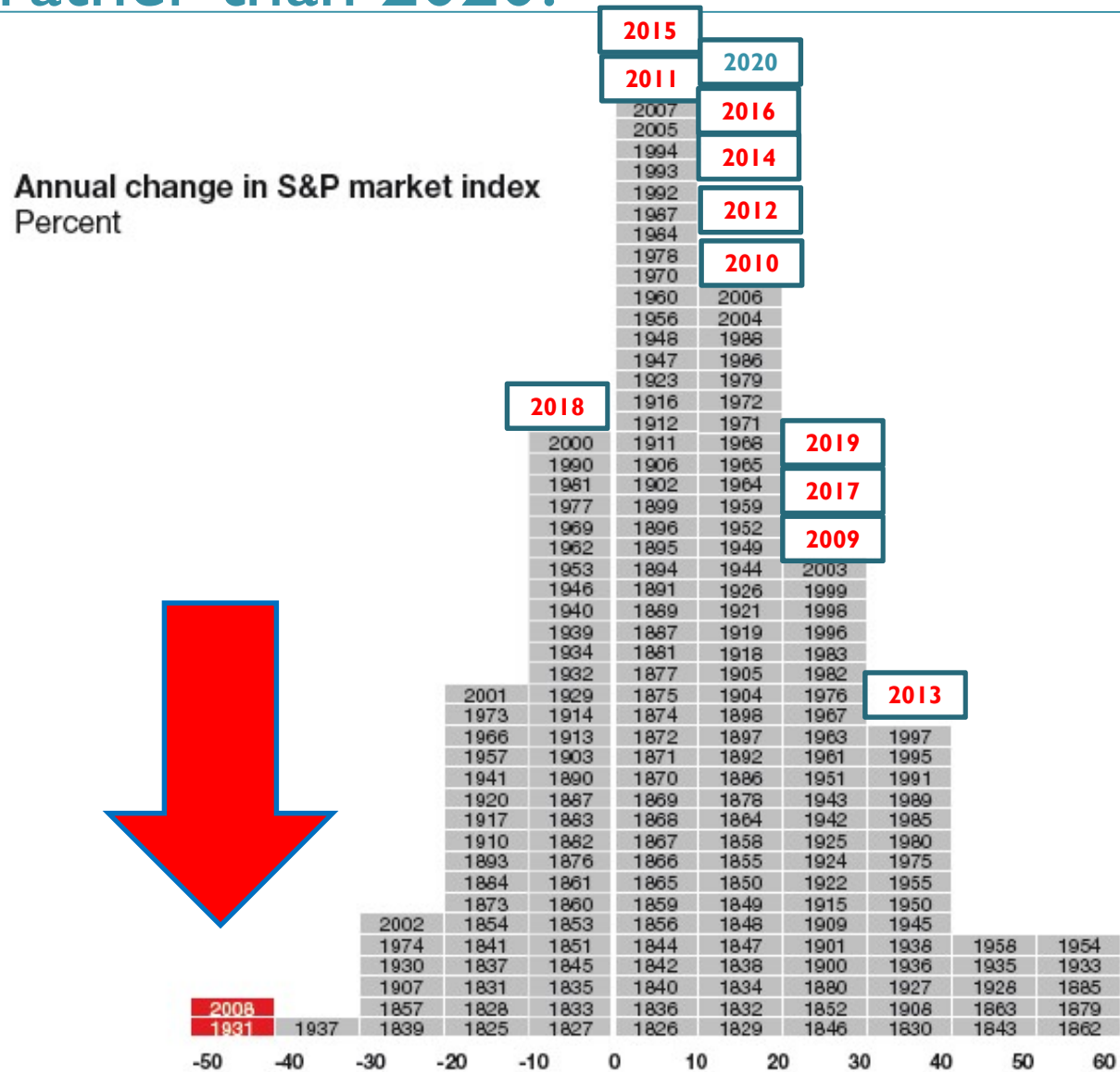
I. Basic terms

ii. Stock market

- A security/stock is a claim on the issuer's future income or assets.
- A share of stock is a security that has a claim on the earnings and assets of the corporation – a residual claim on funds not otherwise committed
- The stock market, in which claims on the earnings of corporations (shares of stock) are traded, is the most widely followed financial market in an economy
- Stock markets are very volatile
- Market capitalization (market cap) = how much a company is worth as determined by the stock market (market price of one share x number of shares).

I. Basic terms

2008 was a severe test for stock markets rather than 2020!



Source: McKinsey (2009), updated

I. Basic terms

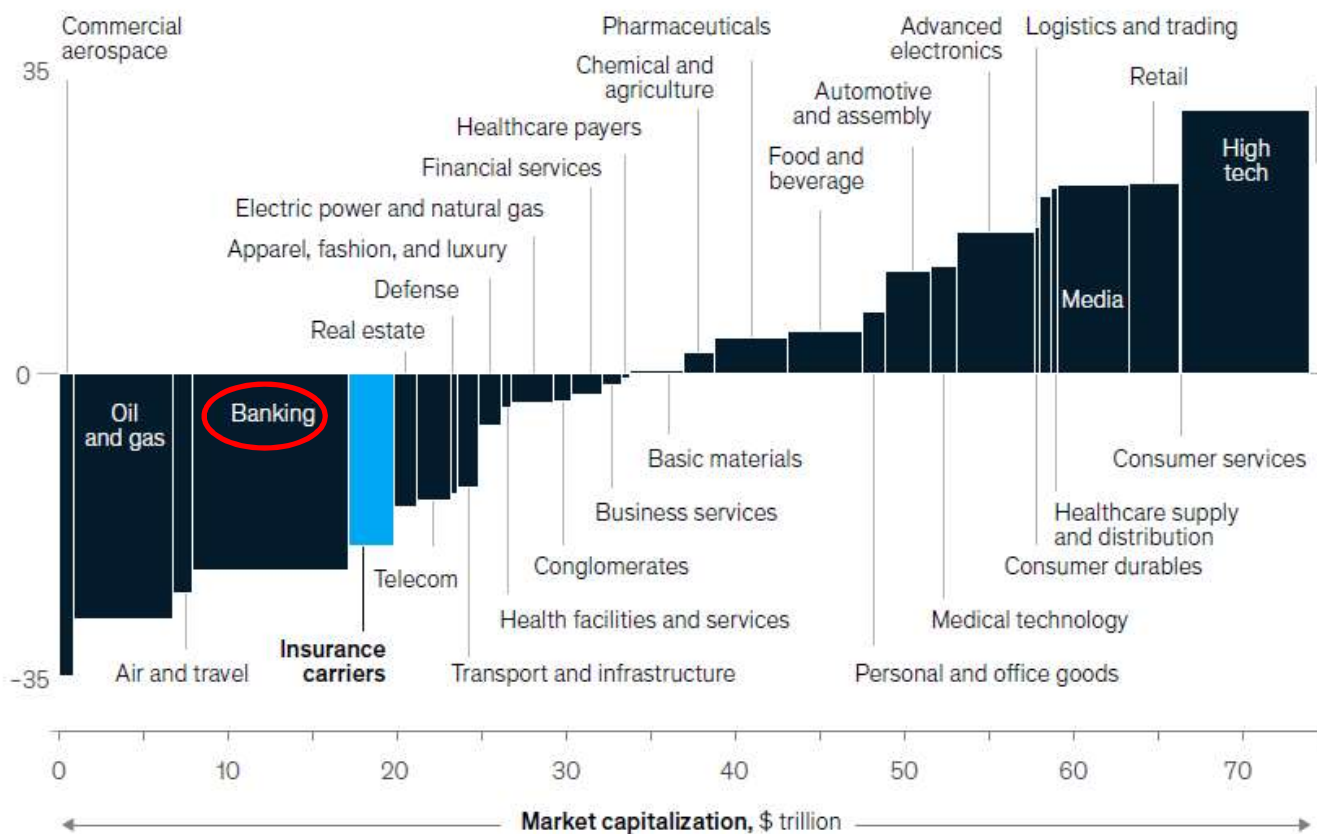
Impact of Covid-19 on stock markets and other all major asset classes

Asset Class	2020 Return	Asset Type
Silver	47.4%	Precious Metal
Gold	24.6%	Precious Metal
U.S. Small Caps	18.5%	Equities
U.S. Stocks	15.5%	Equities
Emerging Markets	14.6%	Equities
U.S. Corporate Bonds	9.7%	Bonds
Europe, Australia, Far East	5.1%	Equities
U.S. Treasuries	3.6%	Bonds
Canadian Stocks	2.8%	Equities
Commodities	-6.6%	Commodity
U.S. Dollar	-6.8%	Currency
U.S. Real Estate	-8.4%	Real Estate
Crude Oil	-21.5%	Commodity

I. Basic terms

Market cap declined across sectors in 2020, banks were hit significantly

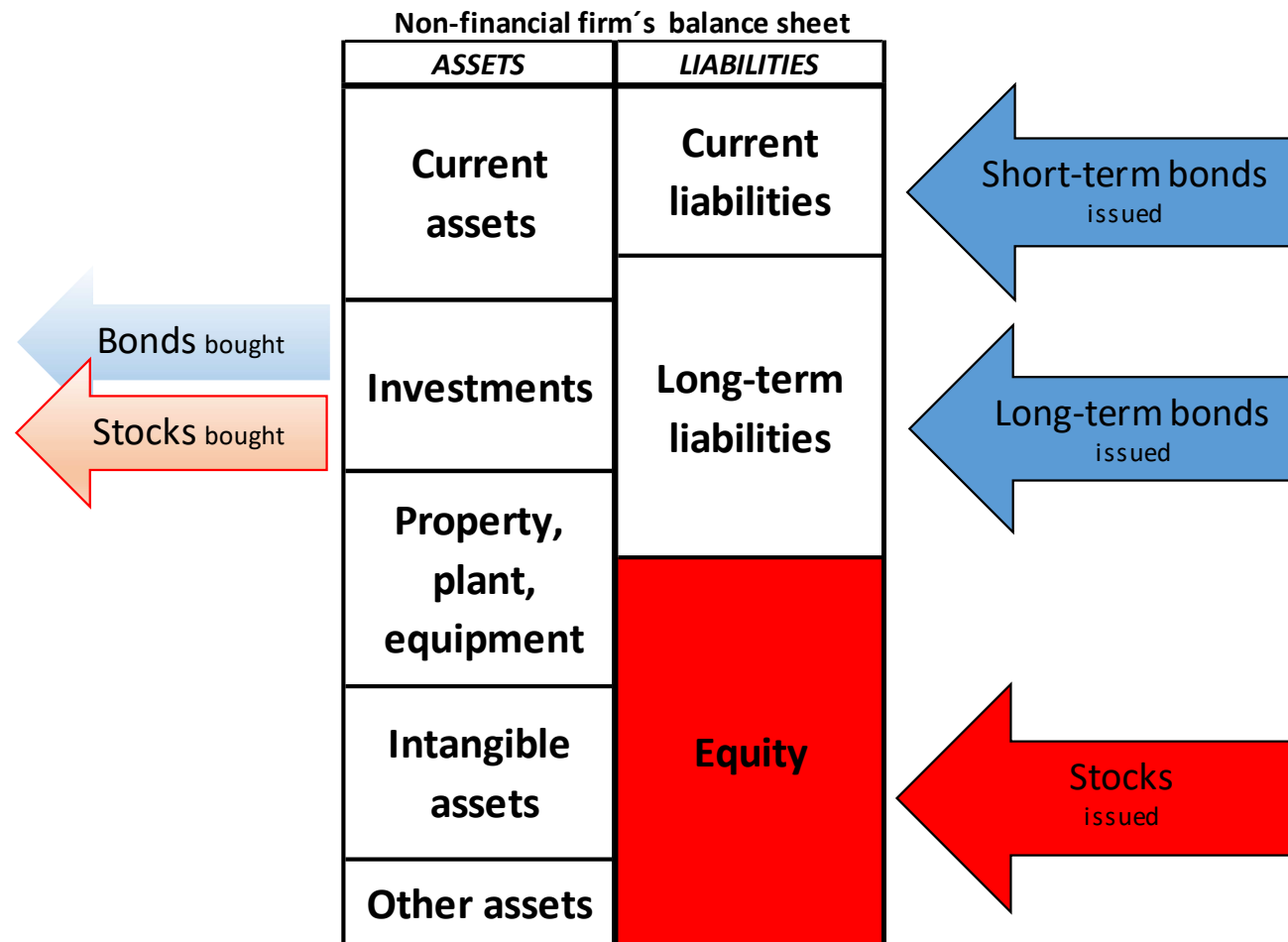
Shareholder returns in 2020 by industry,¹ % (Jan–Oct 2020)



¹Weighted average; shareholder returns calculated in local currency; width of bars is starting market capitalization in US dollars; data set includes global top 5,000 companies by market capitalization in 2019, excluding some subsidiaries, holding companies, and companies that have since delisted.
Source: S&P Capital Insights; McKinsey analysis

I. Basic terms

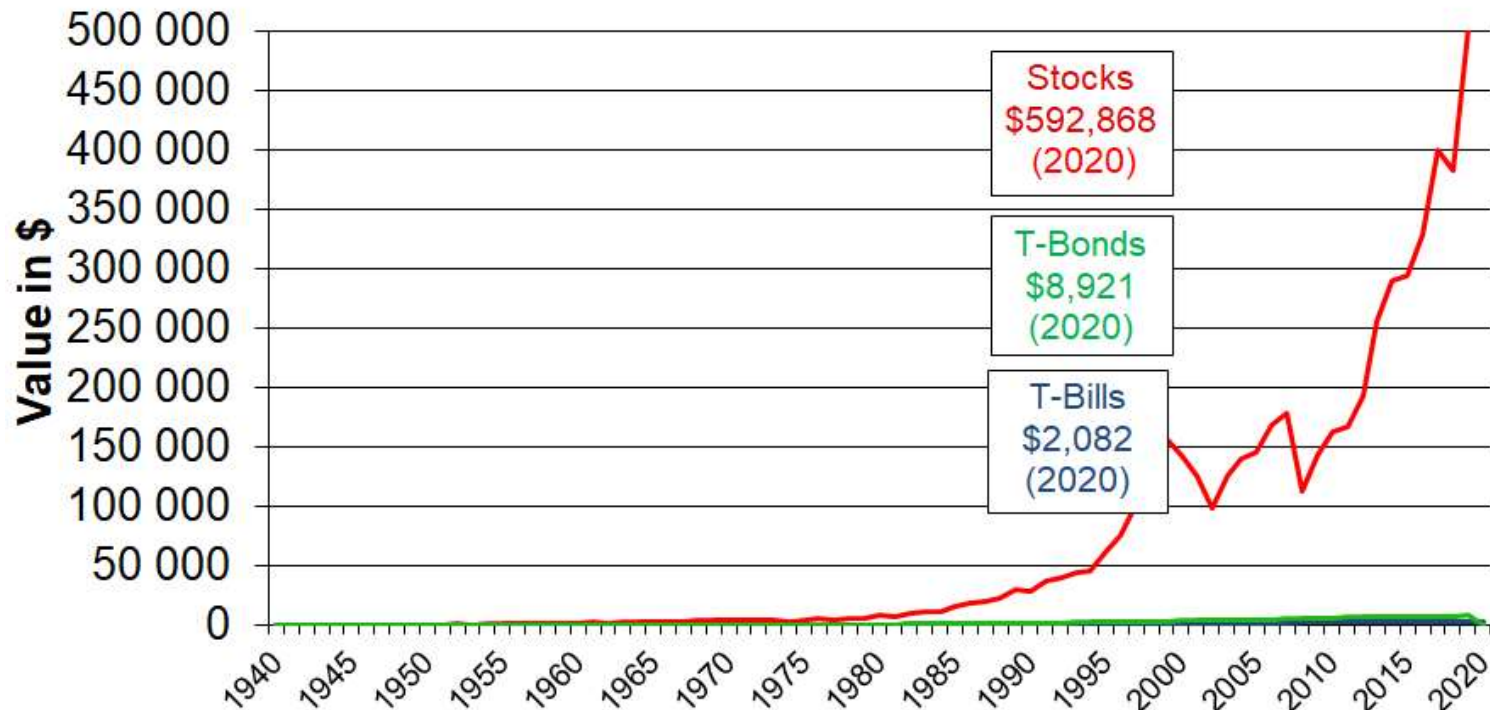
Bonds and stocks on a non-financial firm's balance sheet



I. Basic terms

Stocks, T-Bills and T-Bonds performance

**Value of Stocks, T-Bills, T-Bonds in the US
in the 1940-2020 (1929=\$100)**



Source: Author based on www.damodaran.com

Note: T-Bill = Treasury Bill, T-Bond = Treasury Bond

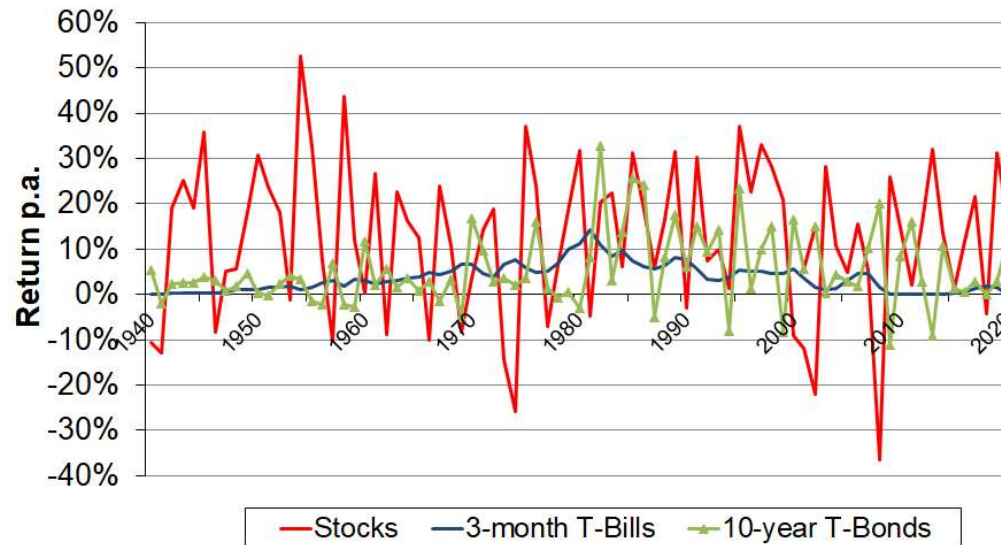
3. What is the best financial instrument to invest in?



I. Basic terms

What about the risk-return relationship?

Stocks, T-Bills and T-Bonds Performance in the US in 1940-2020



Return

	Arithmetic Average of Risk Premium	
	Stocks - T. Bills	Stocks - T. Bonds
1928-2020	8,28%	6,43%
Standard Error	2,06%	2,18%
1971-2020	7,67%	4,90%
Standard Error	2,38%	2,70%
2011-2020	13,83%	9,70%
Standard Error	3,88%	4,87%

Risk
(standard error)

I. Basic terms

Risk (crisis) in Chinese means...

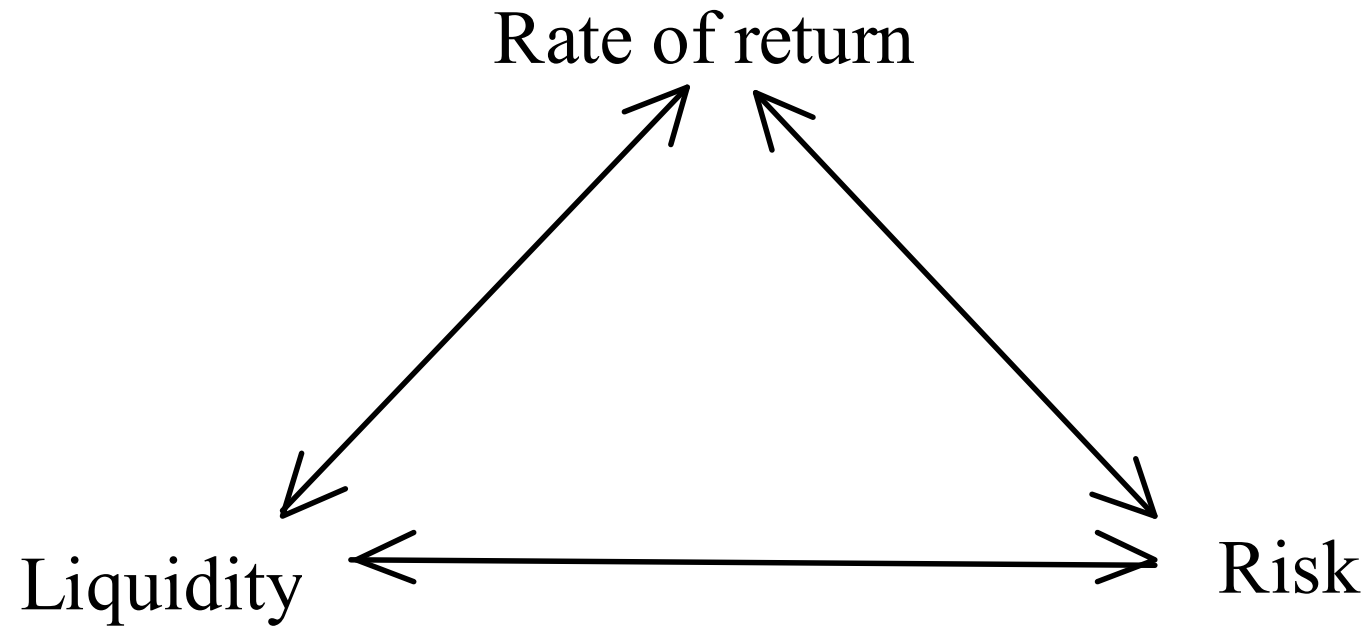


危機

‘danger’ and ‘opportunity’

I. Basic terms

Magic triangle of investing



I. Basic terms

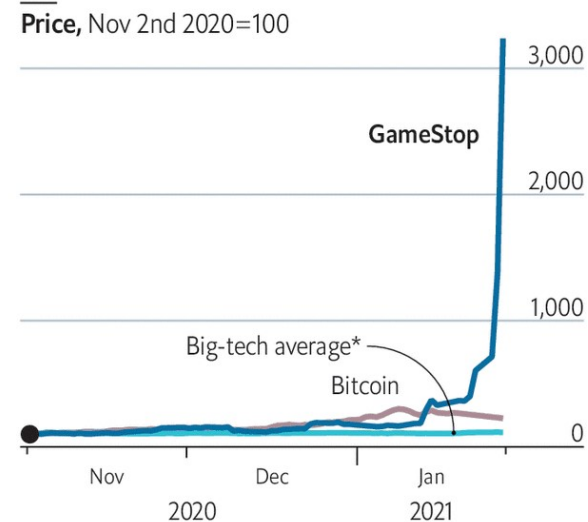
Day traders sent GameStop's share price sky-high in January 2021

UnStoppable



Source: Bloomberg

The Economist



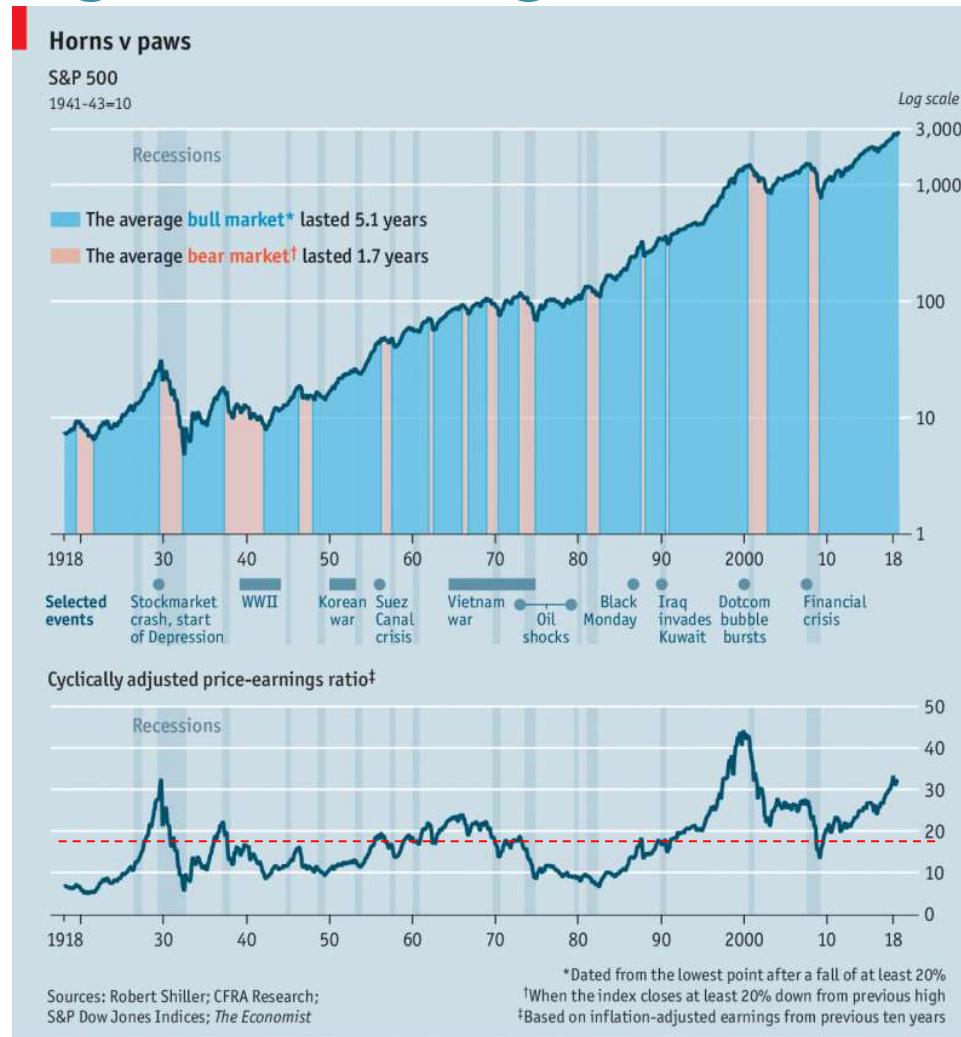
*Alphabet, Amazon, Apple, Facebook, Microsoft

- The jump came after users of r/wallstreetbets, a Reddit forum, began to take a fancy to the firm
- The regulatory framework and market manipulation...

Zdroj: <https://www.economist.com/graphic-detail/2021/01/27/day-traders-have-sent-gamestops-share-price-sky-high/>

I. Basic terms

Price-to-earnings (PE) ratio is still above the long-term average -> stocks are overvalued



Bull market = rise

Bear market = decline

P/E in 2/2021 = 33x

Historical P/E = 17x

Stocks are overvalued

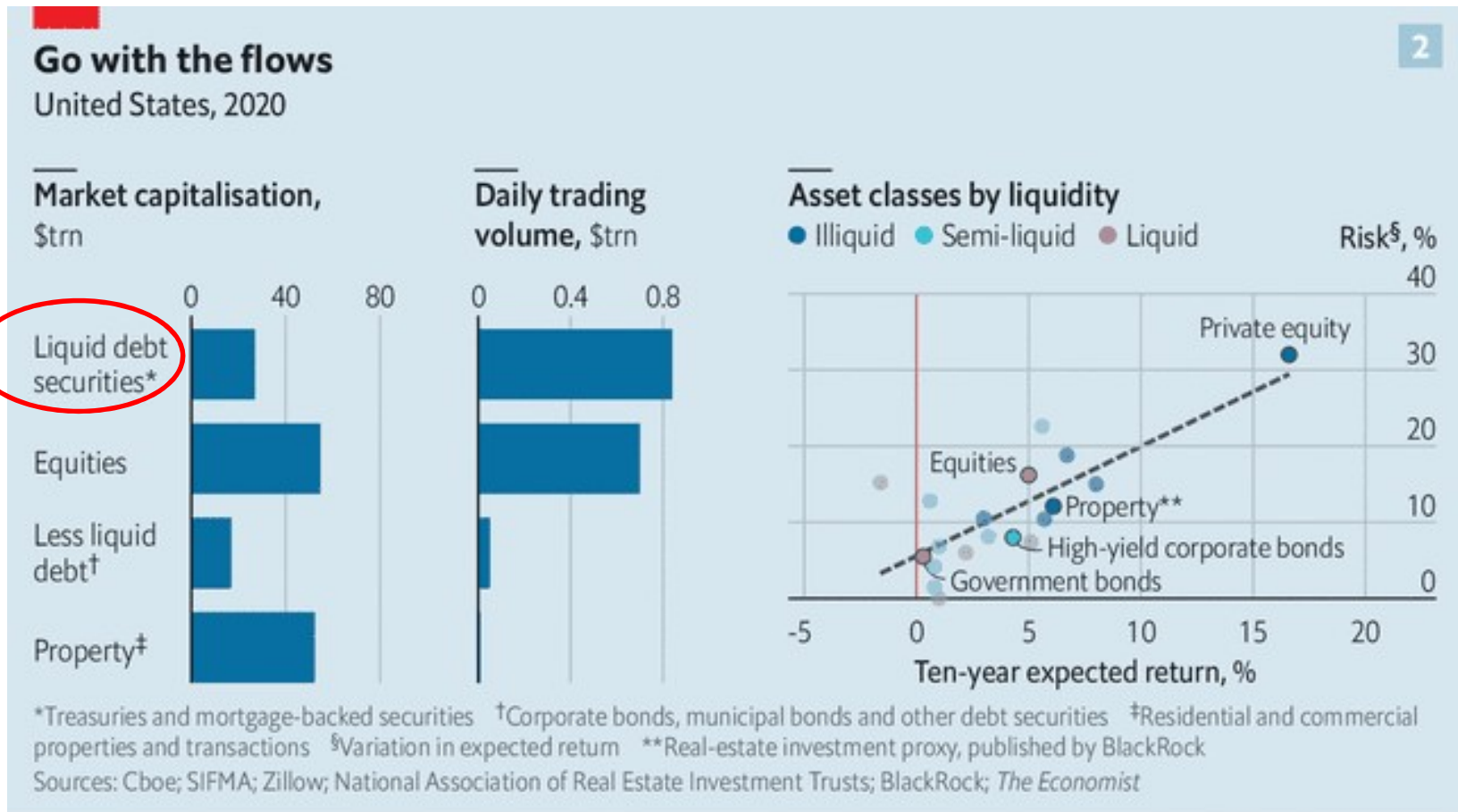
Source: <https://www.economist.com/finance-and-economics/2018/08/23/americas-stockmarket-passes-a-milestone>

4. What financial instruments were the most traded in the US in 2020?



I. Basic terms

Daily trading volumes and liquidity



The Economist

Source: <https://www.economist.com/finance-and-economics/2021/02/06/a-new-epoch-for-retail-investors-is-just-beginning>

Agenda

1. Basic terms
2. Financial markets in theory
3. Milestones in financial theory
4. Recent trends in financial markets
5. Financial intermediaries
6. The Czech financial market





2. Financial markets in theory

Key functions of financial markets

1. Allow a **fund transfer** from surplus to deficit entities
2. **Capital allocation** and the reallocation of capital according to its efficiency (e.g. project selection);
3. Securing the **liquidity of financial assets** and through the allocation efficiency of financial markets create prices continuously
4. **Enforcement of contracts**, debtors must repay their debts;
5. **Cost efficiency** – financial markets lower costs of the payment system and financial transactions in general, (so called operational efficiency),
6. Support for ownership rights performance in **the principal-agent model**, sometimes also called the financial model.
7. **Risk sharing** – FMs enable the allocation, transfer and share of risk with other investors and companies; (vs. subprime crisis/CDOs...)
8. **Risk diversification** – with respect to expected cash flows from different projects

2. Financial markets in theory

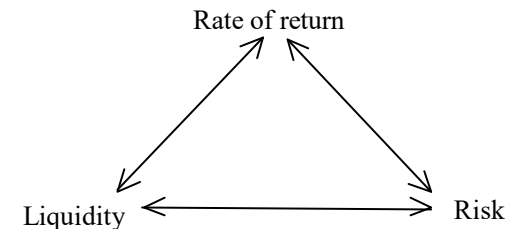
I. Classifications by financial instruments

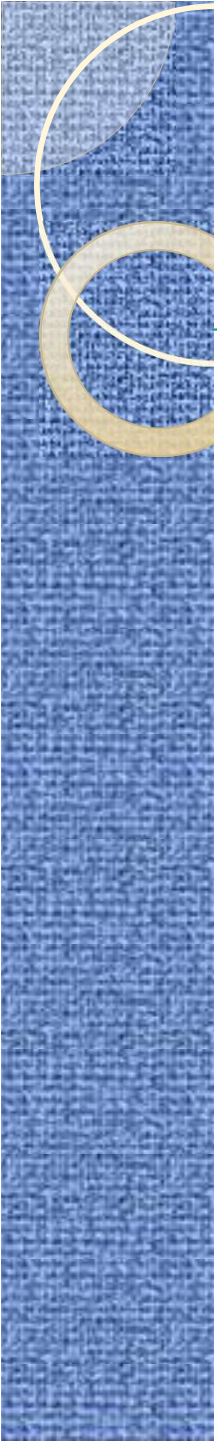
I. Debt Markets

- Short-term (maturity < 1 year)
- Mid-term (maturity 1-10 year)
- Long-term (maturity > 10 year)

2. Equity Markets

- Common stocks
- Securities are assets for holders, but liabilities for issuers.
- Risky = high profit/loss potential





2. Financial markets in theory

2. Classifications by **tradability** of the issue of an instrument

1. **Primary Market**

- Initial Public Offering (IPO): New security issues sold to initial buyers
- Initial Coin Offering (ICO) – new token issues

2. **Secondary Market**

- Securities previously issued are bought and sold
- Investment banks are important
- **Brokers** (agents of investors who match buyers with sellers of securities/other name) vs. **Dealers** (link buyers and sellers by buying and selling securities at stated prices/own name).

5. What was the biggest global IPO?



2. Financial markets in theory

Largest Global IPOs (Aramco: \$25.6bn in 2019)



Source: Bloomberg



2. Financial markets in theory

3. Classifications by maturity (in the US)

1. Money Market (< 1-year debt instruments)

- U.S. Treasury bills (short-term)
- Negotiable bank certificates of deposit (large denominations)
- Commercial papers
- Federal funds and security repurchase agreements

2. Capital Market (> 1-year debt instruments and equity)

- Corporates (stocks and bonds)
- U.S. government securities (long-term), U.S. government agency securities, State and local government bonds
- Bank loans (bank commercial loans, Consumer loans, Residential mortgages, Commercial and farm mortgages)

2. Financial markets in theory

4. Classification by organization of the **Secondary Market**

I. Exchanges

- Trades conducted in central locations (NYSE, NASDAQ, LSE) – see the next slide
- Exchange = single price (buy price = sell price)
- In the Czech Republic: Prague Stock Exchange (PSE)
www.pse.cz

2. Over-the-Counter (OTC) Markets

- Securities dealers at different locations buy and sell
- OTC = usually two prices (buy price and sell price)
- Derivatives (notional value vs gross market value).
- Regulation of OTC markets/Central Counter Party (CCP)

6. What are TOP world stock exchanges?



2. Financial markets in theory

TOP 10 world stock exchanges

Rank	Exchange	Market Value
#1	NYSE*	\$28.19T
#2	NASDAQ**	\$12.98T
#3	Japan Exchange Group	\$5.37T
#4	Shanghai Stock Exchange	\$4.92T
#5	Hong Kong Exchanges	\$4.48T
#6	Euronext	\$3.85T
#7	Shenzhen Stock Exchange	\$3.49T
#8	London Stock Exchange	\$3.13T
#9	Saudi Stock Exchange	\$2.15T
#10	TMX Group	\$1.97T

Source: <https://www.visualcapitalist.com/the-worlds-10-largest-stock-markets/>, data as of 30 April 2020
* NYSE = New York Stock Exchange, ** NASDAQ = National Association of Securities Dealers Automated Quotations

2. Financial markets in theory

Two types of financial systems

1. Bank-market oriented system (GER, JAP, CZE)

2. Capital-market oriented system (USA, UK)

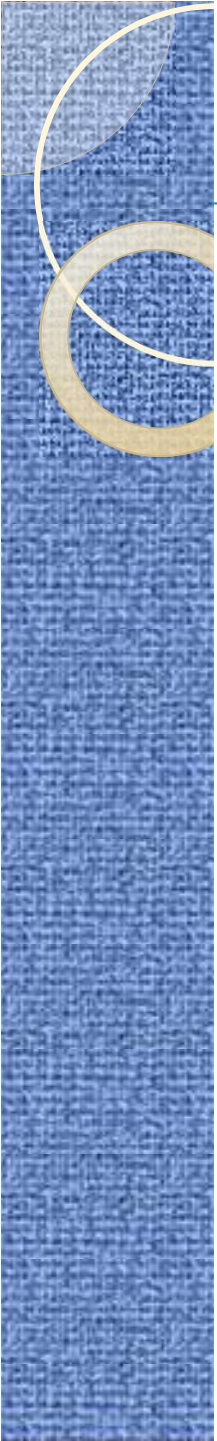
Table I-6: Main characteristics of financial systems

Liquidity transformation	Bank-oriented financial system	Capital-market-oriented financial system
	<ul style="list-style-type: none">· Via transformation of lots and terms	<ul style="list-style-type: none">· Savings flow into the economic cycle directly via various investment instruments (bonds, stocks, funds, derivatives)
Risk transformation	<ul style="list-style-type: none">· Banks offset risk· Risk-offsetting tends to be inter-temporal· Restricted to a few risk carriers	<ul style="list-style-type: none">· Investors offset risk· Risk-offsetting tends to be inter-sectoral· Investors assume risk in line with their readiness to take risks
Information transformation	<ul style="list-style-type: none">· Internalization of information by banks, leading to duplication· Restricted information transparency	<ul style="list-style-type: none">· Externalization of information via brokers and media· High information transparency
Corporate control	<ul style="list-style-type: none">· Controlling orientation (relationship lending)· Maximization of stakeholder value	<ul style="list-style-type: none">· Liquidity orientation/ maximization of returns· Maximization of shareholder value
Legislation/ supervisory authorities protection	<ul style="list-style-type: none">· Strong culture of creditor and depositor protection	<ul style="list-style-type: none">· Increased level of shareholder and investor protection

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3. **Milestones in financial theory**
4. Recent trends in financial markets
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3. Milestones in financial theory

The financial theory in last 50 years

- **1950s-2007: a very dynamic development in financial markets and banking**
 - Trend 1: liberalisation and the global integration of financial markets and banks,
 - Trend 2: increasing sophistication, complexity and inter-connectedness
- **Reasons:**
 - the intellectual underpinning of economic arguments for free markets,
 - international division of labour,
 - globalisation,
 - advances in financial theory and the related improvements in statistical estimation methods.
- **Practical implications**
 - the development of new analytical tools and techniques to price new products and their risk

Source: Balling, M., Gnan E. (2013). The development of financial markets and financial theory – 50 years of interaction. SUERF

7. Do you know any famous economists such as Black & Scholes, Fama, Markowitz, Sharpe, Modigliani & Miller?





3. Milestones in financial theory

7 milestones

- 1) **Portfolio theory** (Markovitz, 1952; 1991)
- 2) **The CAPM model** (Sharpe, 1964)
- 3) **Interest Rate Structure Theory** (Malkiel, 1966; Melino, 1988; Vasicek 1977)
- 4) **Capital Structure Theory** (Modigliani & Miller, 1958)
- 5) **Agency Theory** (Jensen & Meckling, 1976; Akerlof, 1970)
- 6) **Efficient Market Theory** (Alexander, 1964; Fama, 1970)
- 7) **Option Pricing Theory** (Black & Scholes, 1973)

Sources: Balling, M., Gnan E. (2013). The development of financial markets and financial theory – 50 years of interaction. SUERF



3. Milestones in financial theory

7 milestones – references

- AKERLOF, G., 1970, “The Market for ‘Lemons’: Quality Uncertainty and the Market Mechanism”, *Quarterly Journal of Economics*, 84, 488-500.
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- MALKIEL, B.G., 1966, *The Term Structure of Interest Rates: Expectations and Behaviour*, Princeton University Press, Princeton, NJ.
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- SHARPE, W.F., 1964, “Capital Asset Prices – A Theory of Market Equilibrium Under Conditions of Risk”, *Journal of Finance*, 19, No.3, 425-42.
- VASICEK, O.A., 1977, “An Equilibrium Characterization of the Term Structure of Interest rates”, *Journal of Financial Economics*, 5, 177-88.

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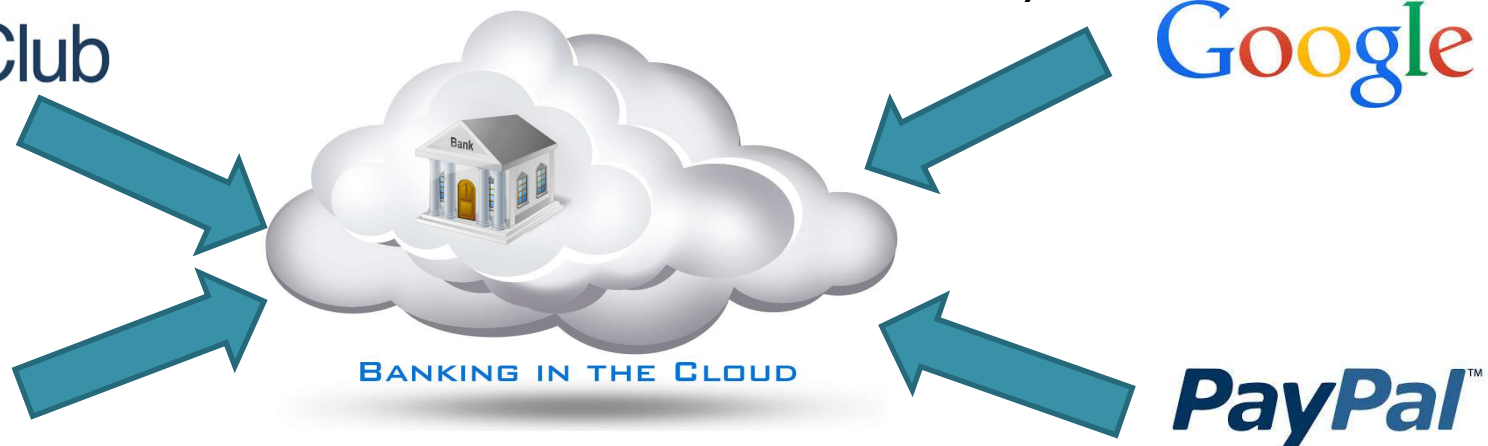
4. Recent trends in financial markets

Recent global trends (qualitative new normal in banking)

- 1) **Digitalization** (IT financial ecosystem)
- 2) **Commoditization** (products = commodities, customers rely on prices, increasing role of price comparators)
- 3) **Globalisation** (fierce competition, technology disrupters/Bigtech*)

 **LendingClub**


Alibaba Group

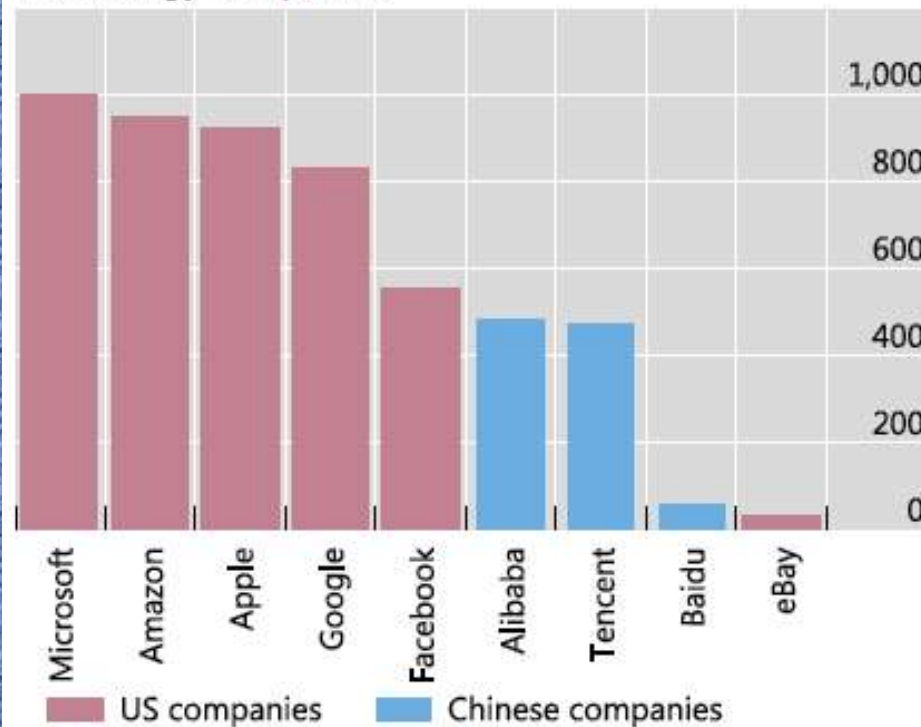


Note: *Bigtech = large companies with established technology platforms

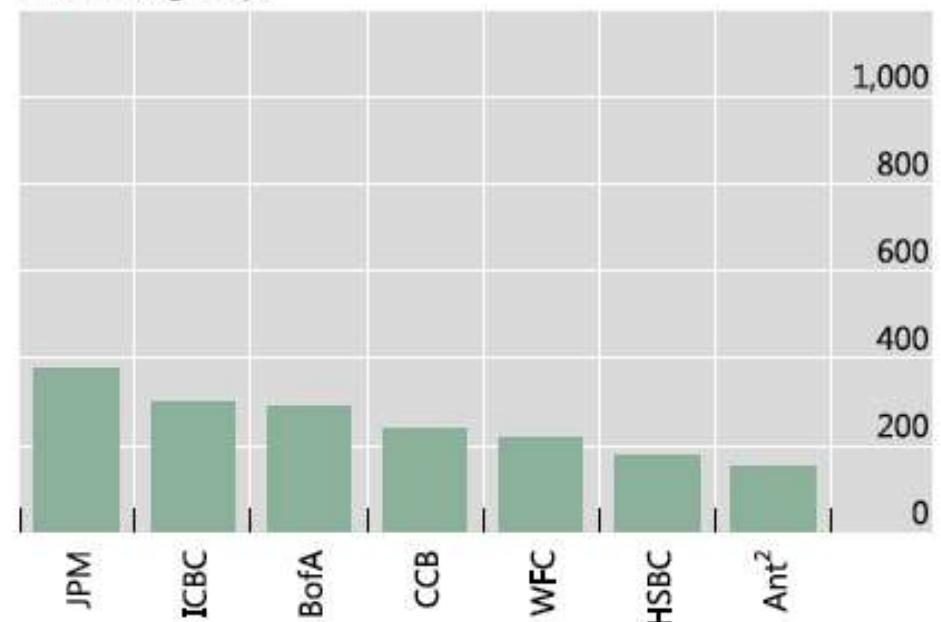
4. Recent trends in financial markets

Market capitalization of Bigtech companies is higher than of largest banks

Technology companies



Financial groups



Source: Financial Stability Board (2019). BigTech in finance

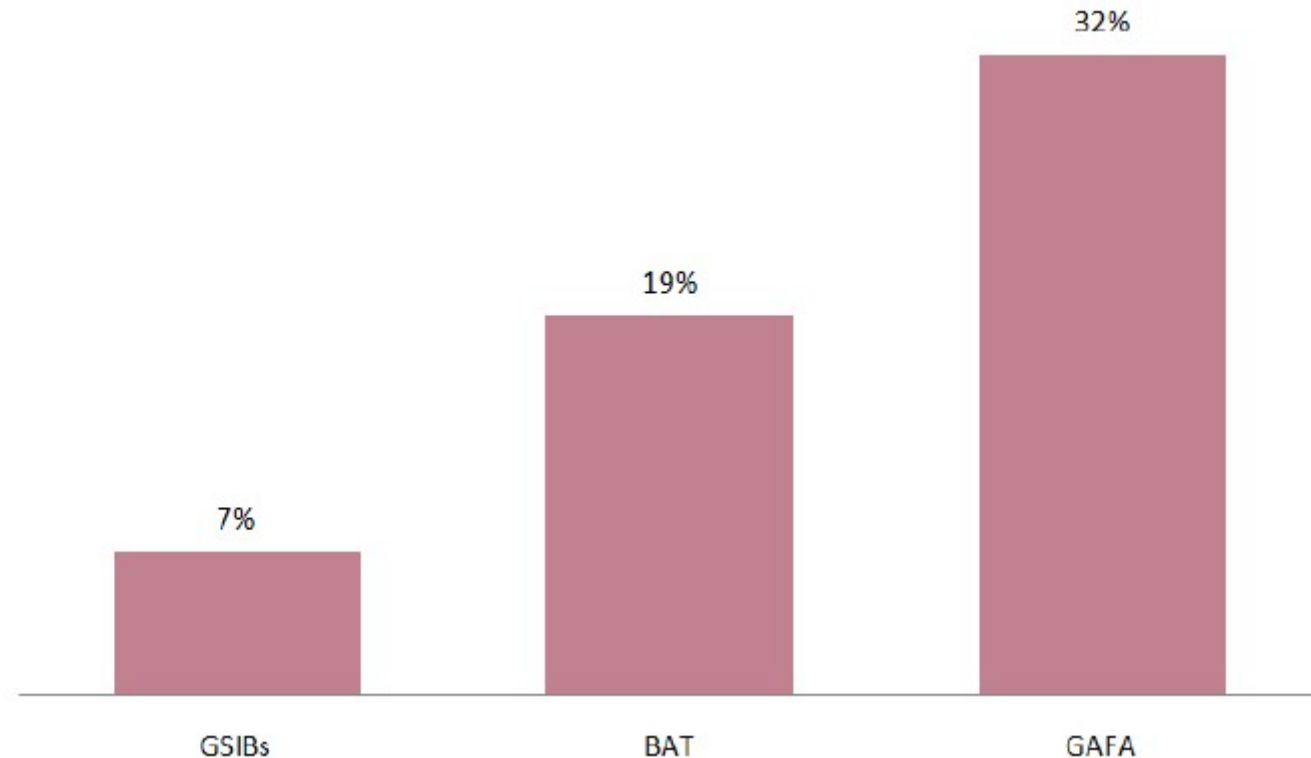
Notes: *Bigtech = large companies with established technology platforms. Data as of 30.4. 2019, Ant = Ant Financial; BofA = Bank of America; CCB = China Construction Bank; ICBC = Industrial and Commercial Bank of China; JPM = JPMorgan Chase; WF = Wells Fargo.

8. Are Bigtech more profitable than banks?



4. Recent trends in financial markets

Bigtech companies are more profitable than largest banks (measured by ROE**)



Source: Financial Stability Board (2019). BigTech in finance

Notes: *ROE = Return on Equity, data as of 31. 12. 2018, G-SIBs = Global Systemically Important Banks,

*GAFA = an average across Google, Amazon, Facebook and Apple; 'BAT' is Baidu, Alibaba and Tencent.

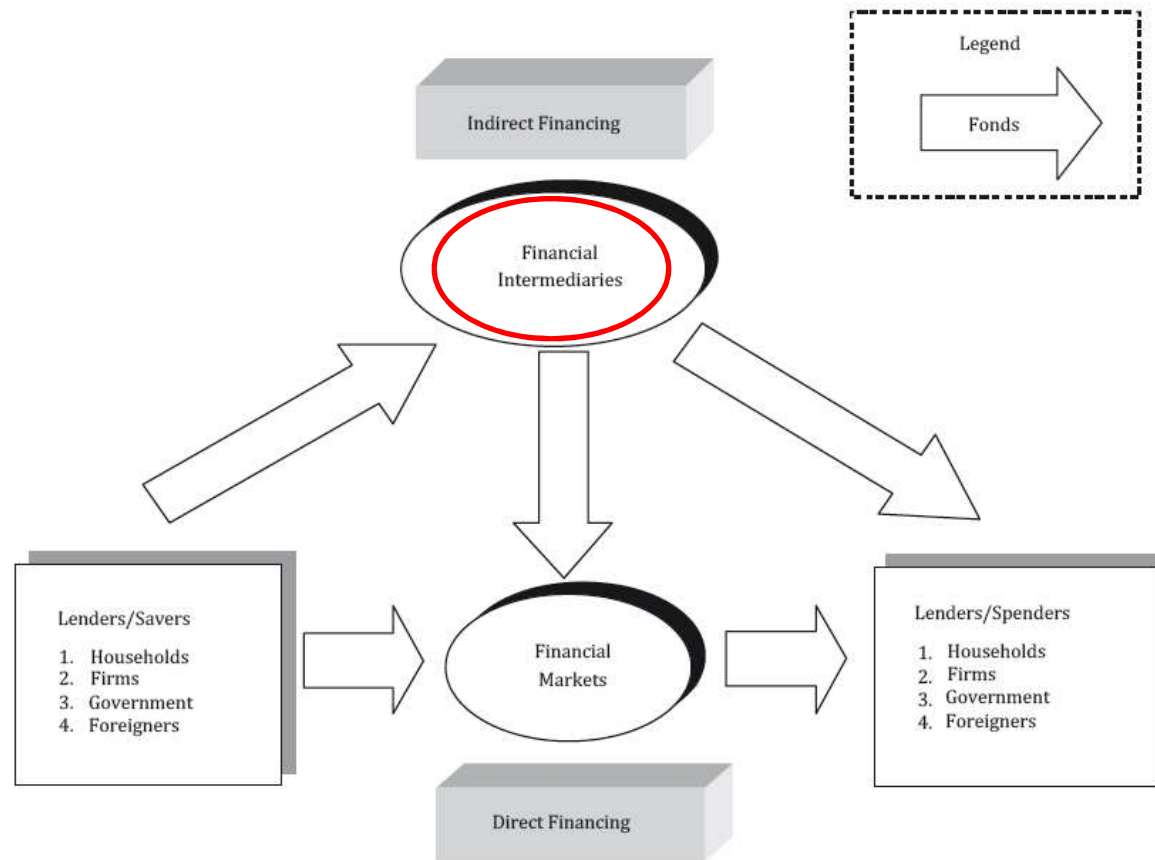
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5. Financial intermediaries

Direct vs. indirect financing

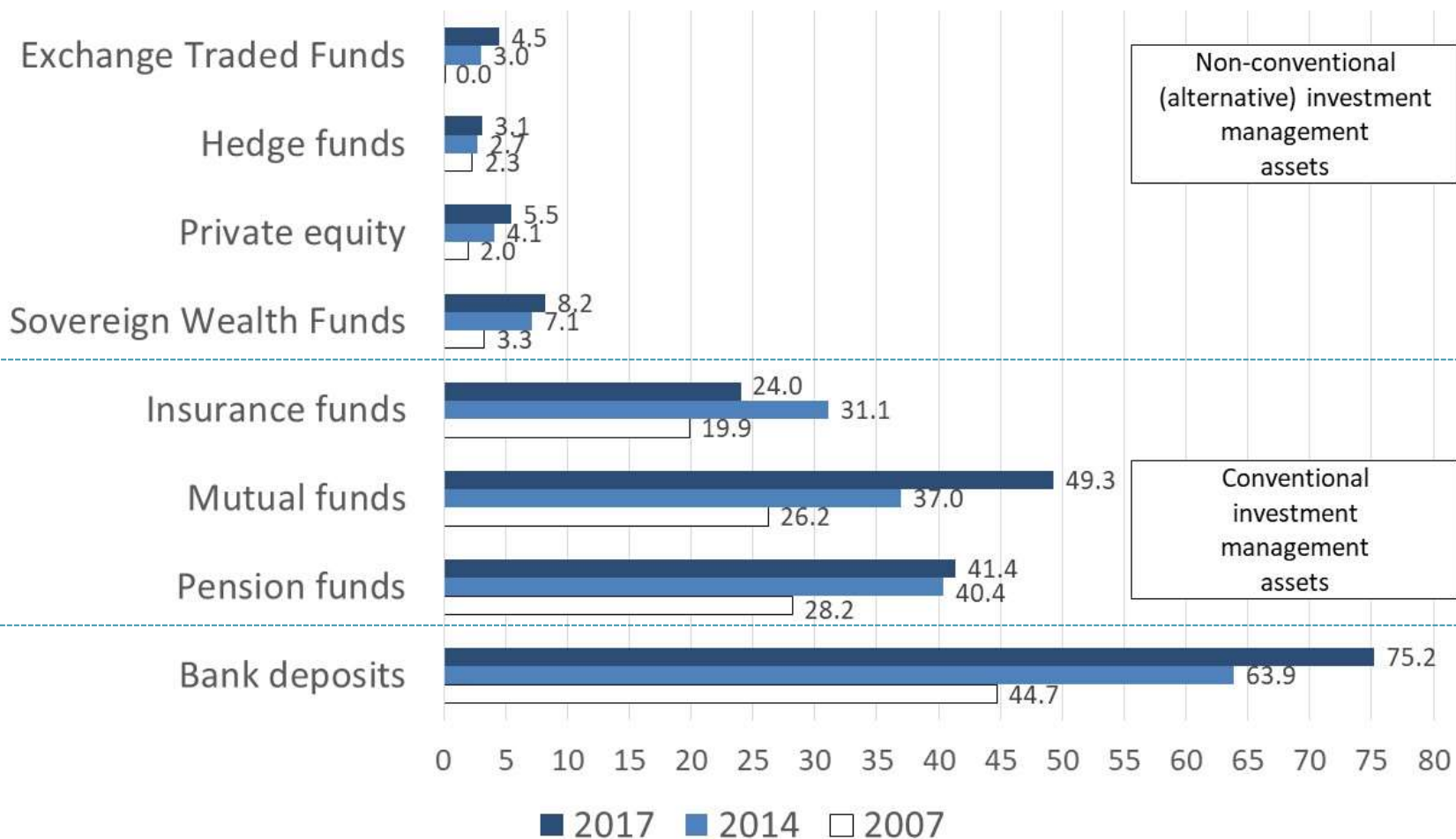


- Direct financing – without financial intermediaries (P2P lending)
- Indirect financing – with financial intermediaries that help get funds from savers to investors (banks, insurers, pension funds)

5. Financial intermediaries

TOP global financial intermediaries

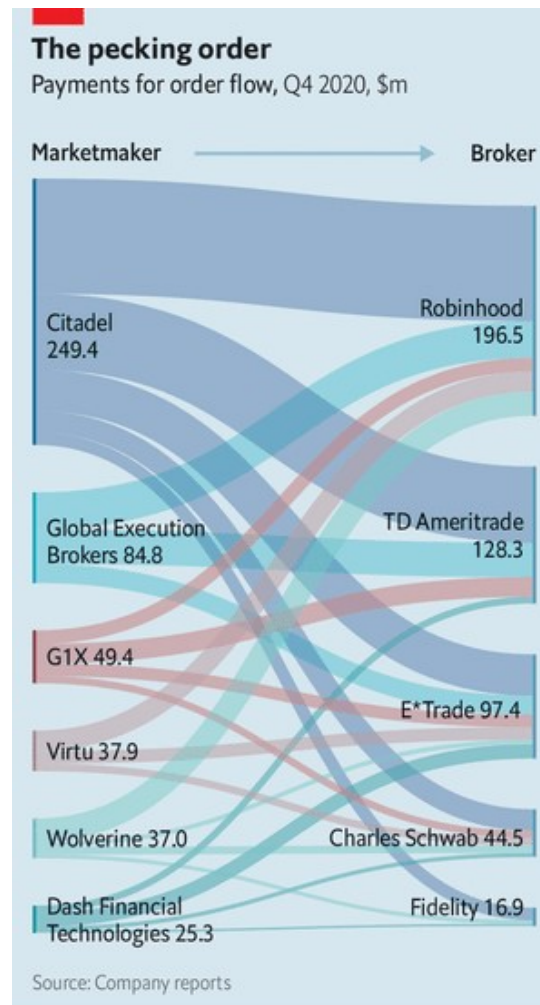
Global assets under management (USD trillions)



Source: Teplý, P. (2015). A macroeconomic view on investments and innovations = a fair tale about 3 myths, presentation on 28 January 2015, University of Economics, updated

5. Financial intermediaries

Marketmakers vs brokers vs investors



No fee



The Economist

Source: <https://www.economist.com/finance-and-economics/2021/02/06/high-frequency-traders-are-in-the-spotlight>



5. Financial intermediaries

Why are financial intermediaries here?

1. Transactions Costs

- Examples: mutual funds, Exchange Traded Funds (ETFs, with low management fees)

2. Risk sharing

- Example: portfolio diversification of a bank – retail clients, corporate clients, financial institutions

3. Asymmetric information

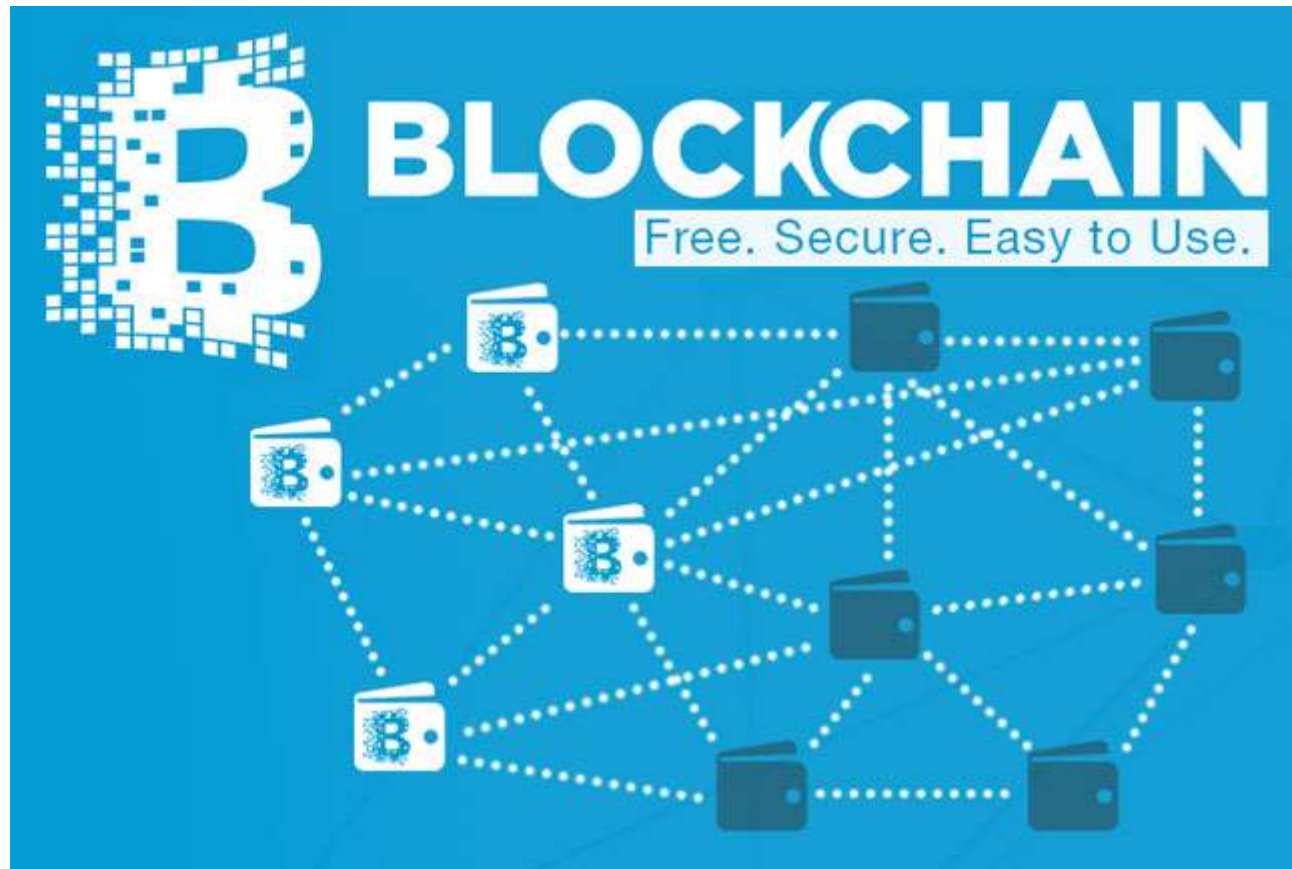
- Types: moral hazard and adverse selection.
- Problem: Someone must have incentives to produce reliable information.

Financial markets: asymmetric information

Economics: scarce resources

3. Financial intermediaries

Financial intermediaries vs blockchain- who will win?



3. Financial intermediaries

Result of the COVID-19 crisis: Consumers' trust in financial intermediaries in to look after their long-term financial wellbeing has dropped

Q. To what extent do you trust the following providers to look after your long-term financial wellbeing?
A. A lot



Source: Accenture (2021). Accenture Global Banking Consumer Study 2020.

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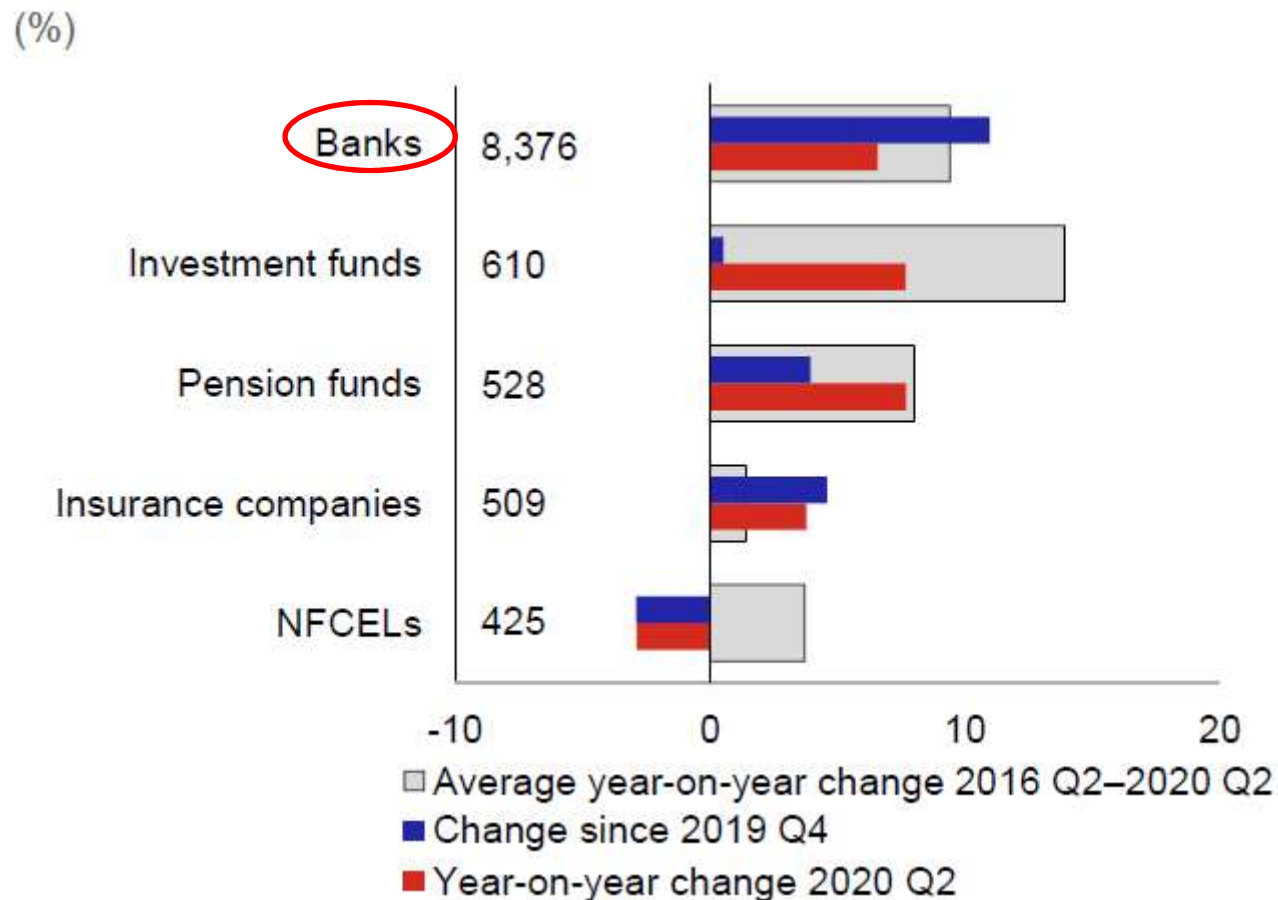


8. Are banks significant players in the Czech Republic?



6. The Czech financial market

The Czech financial market is dominated by banks (bank-market oriented system)



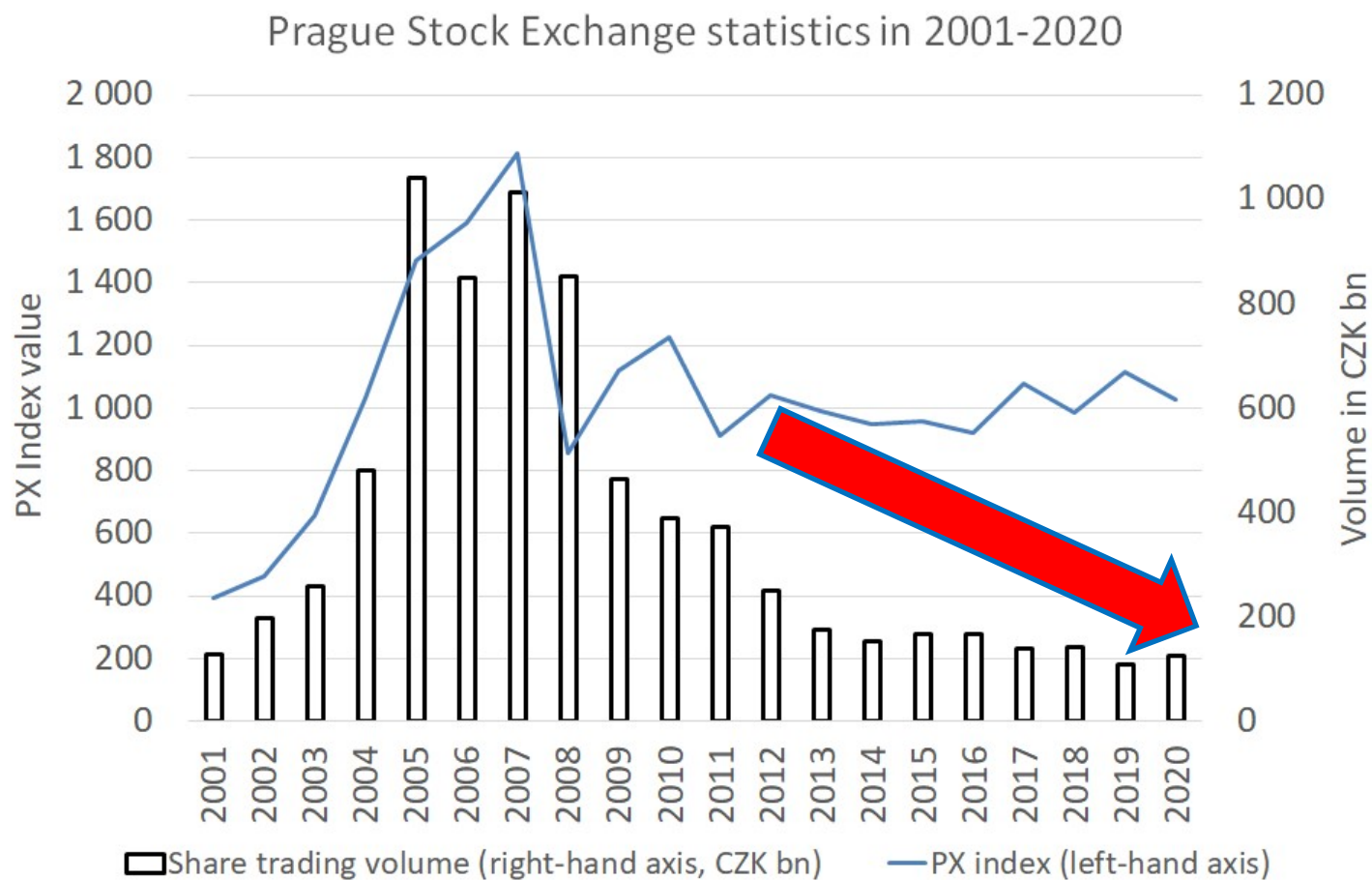
Source: CNB (2020). Risks to financial stability and their indicators 2020. The Czech National Bank

Note: NFCELS = non-bank financial corporations engaged in lending.

Figures in CZK billions as of mid-2020. The banking sector also includes credit unions.

6. The Czech financial market

The Czech stock market development: weak performance in last years



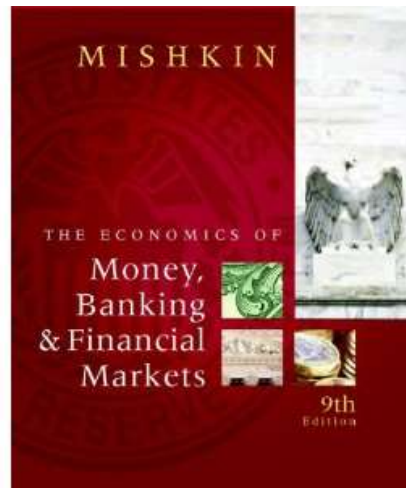
Source: www.pse.cz

Discussion

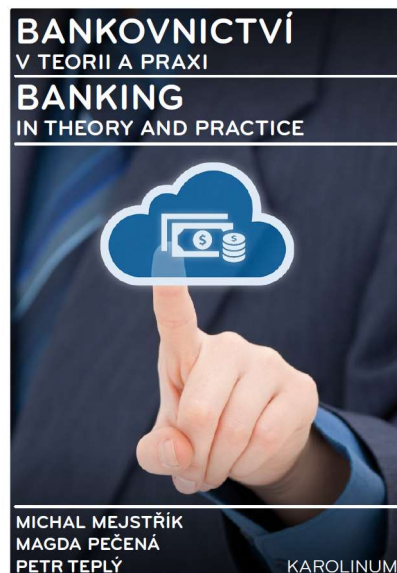
Thanks for your attention.
Let's discuss it now!



Recommended reading



- ✓ **Chapter 1/Why Study Money, Banking, and Financial Markets?**
- ✓ **Chapter 2/An Overview of the Financial System**
- ✓ **Chapter 5/The Behavior of Interest Rates**



- ✓ **Chapter 1/Basic terms of financial markets**



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