FINANCIAL MARKETS AND INSTITUTIONS
A.Y. 2024/25
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A6. STOCK MARKETS

- WHY DO STOCKS EXIST?
- WHAT KIND OF STOCKS EXIST AND WHY?
- HOW ARE STOCKS EVALUATED?

PURPOSE AND FEATURES

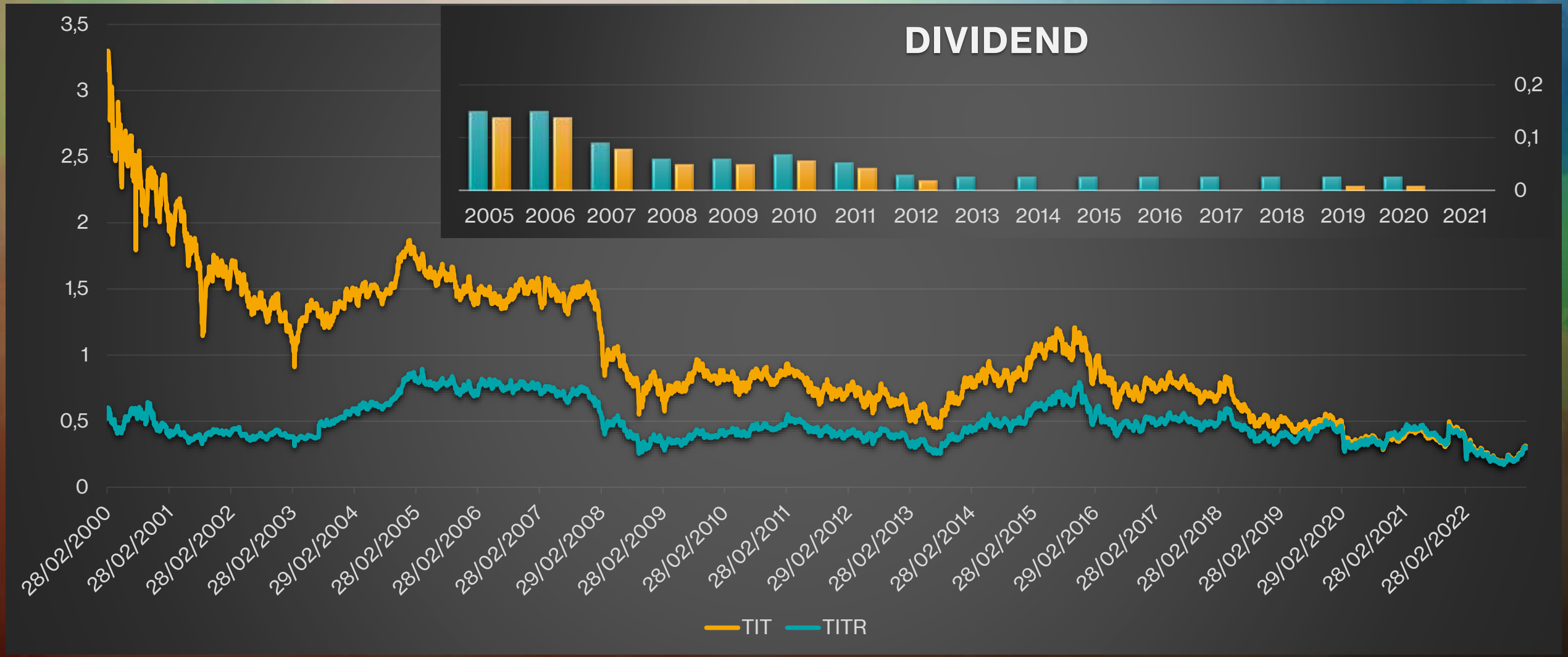
- Stocks represent **ownership: voting rights** (with exceptions)
- **No maturity date**
- **Residual claim** in case of default (compared to other creditors and within stockholders)
- Returns are based on:
  - **Dividends:** periodical uncertain payments over profit/reserves
  - Capital gains/losses: changes in **prices** (**secondary markets**)
- **Option rights** on new issues that may have a separate market

PURPOSE AND FEATURES

- Main categories:
  - **Common** stock:
    - typical form, with several variations
    - dividends, voting rights and subordination to creditors
  - **Preferred** stock:
    - fixed predetermined dividend
    - limited voting rights
    - priority over common stock
    - frequently held by founders
  - **Tracking** stock: performing as a division/project rather than a whole firm

Features/contents strongly depend on **country-specific regulation**

TELECOM – TIT vs TITR (no voting, dividend 5% of 0.55€, increased 2% of the same value compared to common stock)



EXAMPLES

PURPOSE AND FEATURES

Stock "**styles**":

- **Income stocks** (f.i. in mature and profitable sectors):
  - More frequent and steady dividend payment
  - Focus on flows, rather than on capital gains
- **Growth stocks** (f.i. in innovative sectors):
  - Rapidly increasing profits reinvested rather than distributed
  - Focus on (future potential) capital gains
- **Value stocks** (f.i. due to company-specific events and moments):
  - Healthy but "underpriced" stocks compared to peers/fundamentals
  - Focus on future opportunities, management, … rather than financials

Also, **volumes** (large, mid, small cap stocks)

Verizon Communications Inc.

PREMARKET

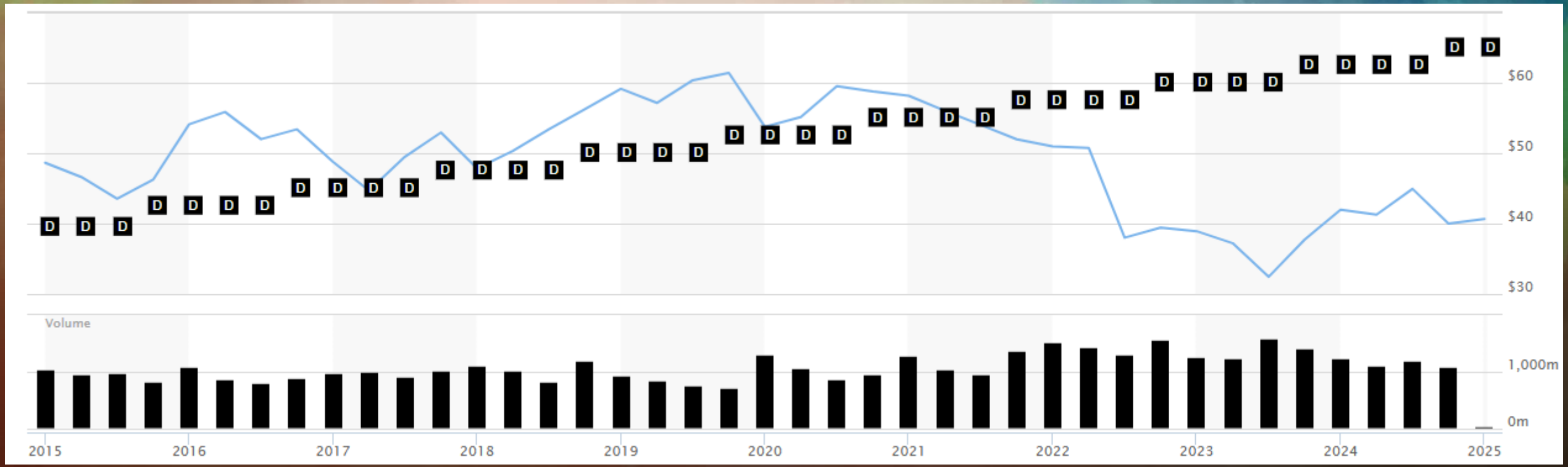
$40.56

▼ -0.08 -0.20%

Before Hours Volume: 7.84K

Last Updated: Jan 28, 2025 5:17 a.m. EST

- Delayed quote



EXAMPLES

Amazon.com Inc.

PREMARKET

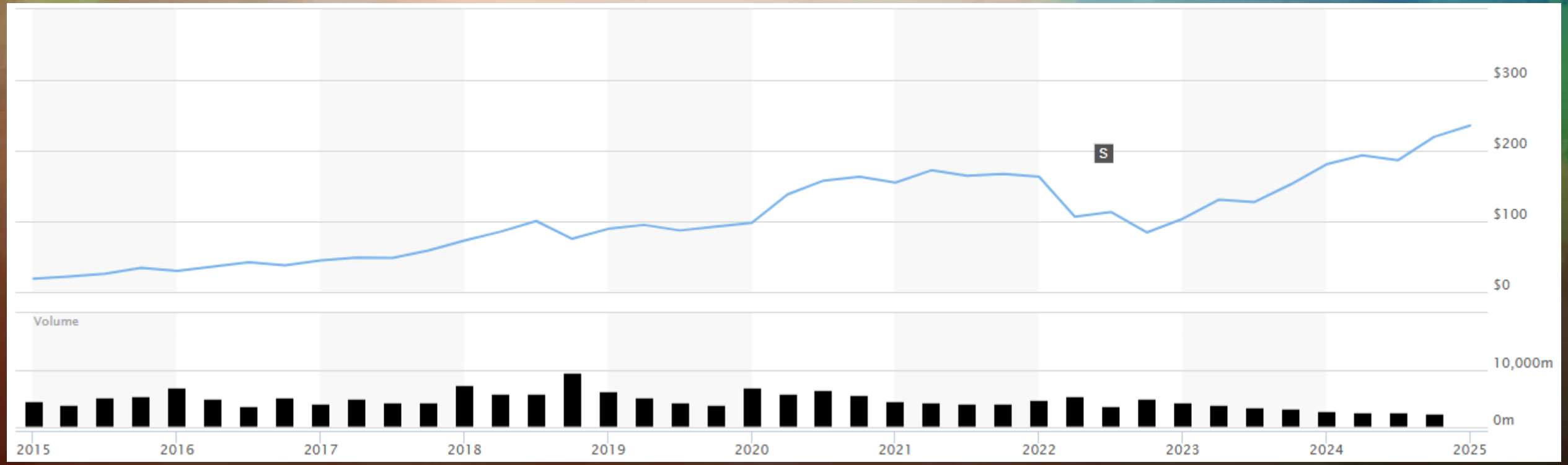
$234.53

▼ -0.89 -0.38%

Before Hours Volume: 48.1K

Last Updated: Jan 28, 2025 at 5:38 a.m. EST

- Delayed quote



EXAMPLES


Volkswagen AG (VWAGY)
OTC Markets OTCPK - Delayed Quote - USD
10,62 +0,23 (+2,21%)
Alla chiusura: 27 gennaio alle ore 15:51:18 GMT-5
☆ Segui
Confronti
Indicatori
Eventi aziendali
O 33.50 H 44.00 L 33.28 C 39.28 Vol 715k
vol undr 715,400.00
yahoo!finance
100,00
75,00
50,00
25,00
10.37
55.20K
Apr
Jul
Oct
2007
Apr
Jul
Oct
2008
Apr
Jul
Oct
2009
Apr
Jul
Oct
2010
Apr
Jul

EXAMPLES

Search about the story of 2008's Volkswagen short squeeze, and try to understand the following:

- What happened and how did it work?
- What is short selling?
- Why did the price skyrocket?

TO DO BY NEXT LECTURE

MARKETS

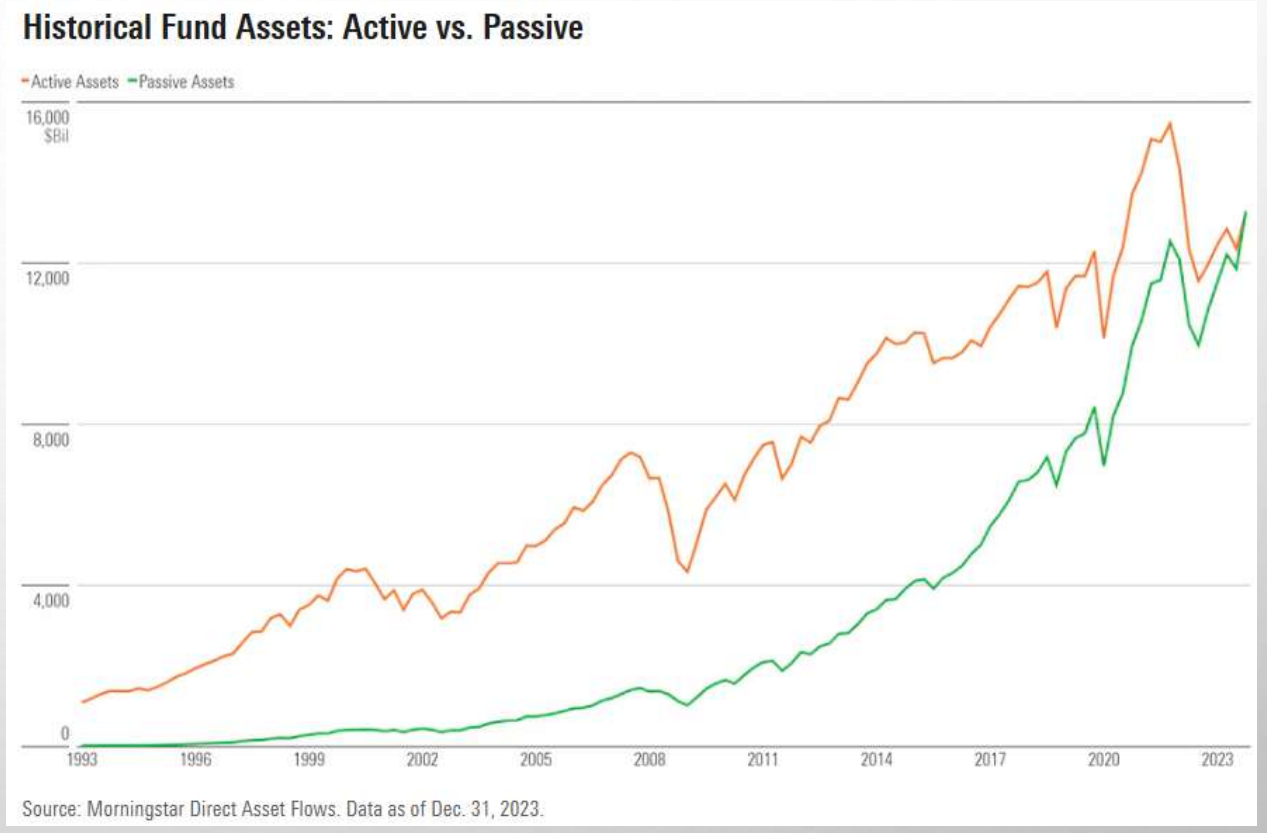
- **Exchanges:**
  - **auctions** + **continuous trading**
  - intermediated by **brokers**
  - external+internal **regulation**
  - **submarkets/segments**
  - **for profit firms** issuing stocks (f.i. LSE – QIA 10%, …)

- **OTC:**
  - mostly electronic (for liquid stocks)
  - through **dealers' own PTF**
  - IT allows increasing competition (MTF, ECN, …)
  - Increased counterparty risks

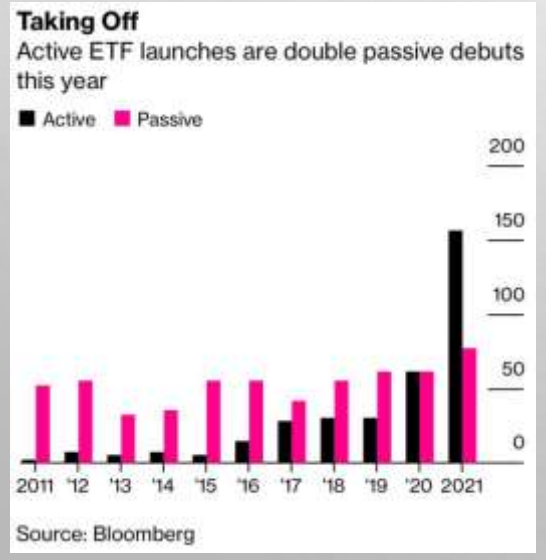
INNOVATIONS

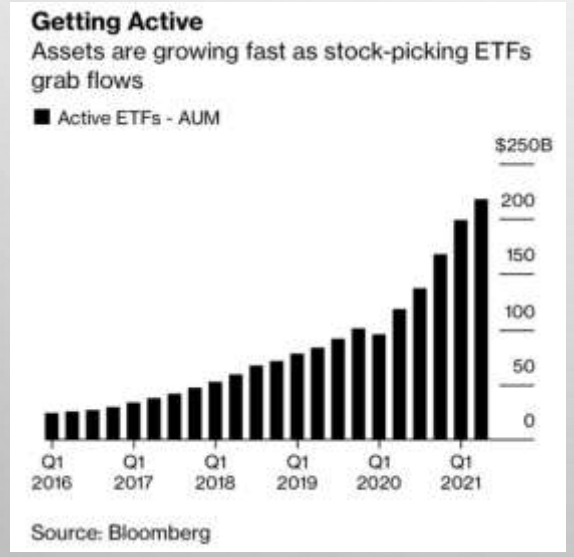
ETF/ETC/ETN – ETP:

- **PTF of financial instruments**
- **Listed and traded** like stocks
- Low **transaction costs**
- Mainly **passive investing** over a *benchmark*



Difficult times increase the need for activism?





AUCTIONS VS CONTINUOUS TRADING

Auctions:

- **Control** over participants and **transparency**
- **Price set by "best" buyers** (best advantage=highest price)
- **Information** increase values: less volatility, better expectations
- Costly, less efficient, limited time availability

Continuous trading:

- better price discovery/signaling, lower evaluation errors
- more short-term volatility: firms/environment change quickly (growth, discounting, estimates, …)
- Less costly, pricing all over the trading day, dynamic books and more sophisticated orders (f.i. limit)
- Trading advantage of some parties (informative, tech)

Currently, a hybrid:

- open/close auctions / Trading halts and volatility auctions
- Some important, global markets are auctioned (f.i. LME)

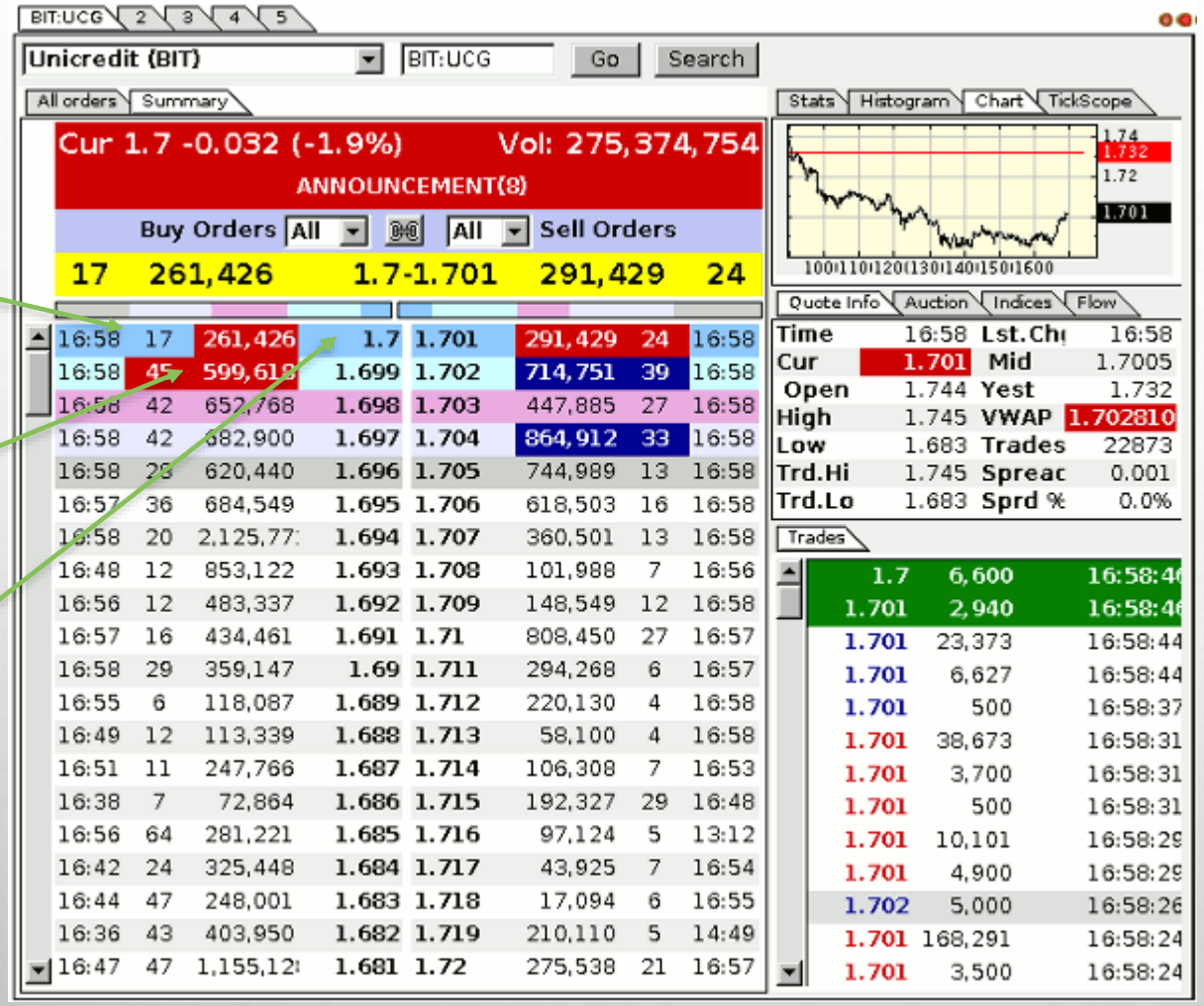
Nobel 2020: **Milgrom** e **Wilson** for their studies on auctions

ORDER BOOKS

Time and number of orders

Cumulative quantity

Price



BID

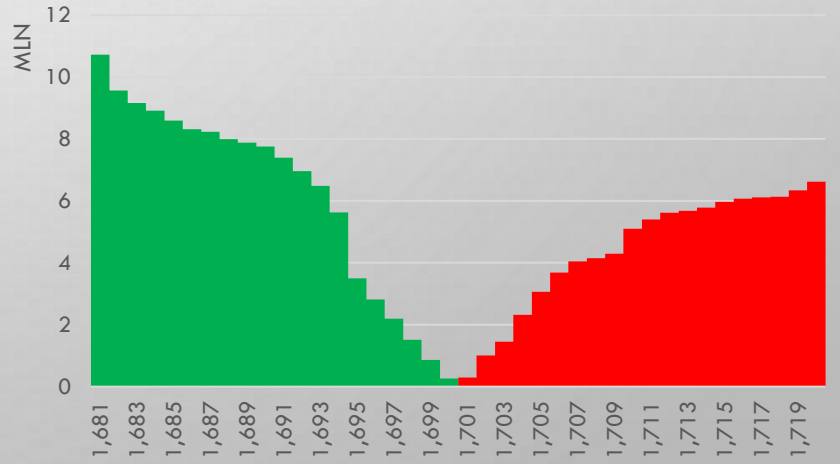
ASK

Spread

Price trends

KPIs

Last trades



INFORMATION AND TRADING

- **Prices, volumes, trends, contract data**
- Most data provided in **real-time**
- Company **financials**, analysts' **forecasts**
- Market indexes, submarkets, industry, …
- **Books** of orders
- News on markets, firms, regulation, politics, …
- Statistics and market reviews
- …

STOCK EVALUATION - 1

- **First strategy**: PV of future CF (**dividend discount model**)
- Robust, solid, consistent… but the challenge requires to semplify
- Generally: $$P_0 = \frac{D_1}{1+k_e} + \ldots + \frac{D_n}{(1+k_e)^n} + \frac{P_n}{(1+k_e)^n}$$

- If *n* is really long-term, effects on P_0 are nil; hence: $$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1+k_e)^t}$$

- Since ∞ is quite a long time, assume constant dividend growth (**Gordon** growth model – but many variations exist, with terminal values, different paths, …):

$$P_0 = \frac{D_1}{k_e - g}$$

Issues: growth companies, growth greater than cost of capital, short-term trading strategies, …

STOCK EVALUATION - 2

- **Second strategy:** similar firms should have similar long-run market/book ratios (**multiples, P/E, …**)

- **P/E** compares **price** with **earnings**: greater values mean that market expects a rise in **earnings** or a lower level of **uncertainty**
- **P/BV** compares **price** with **equity** (total or tangible), measuring the link between historic / forward-looking measures
- **P/CF** compares **price** with **operating cash flow**: earnings may be managed and affected by non-cash items
- …

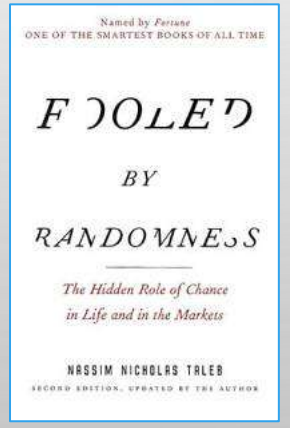
Issues: defining "peers", different accounting frameworks, contrasting results, …

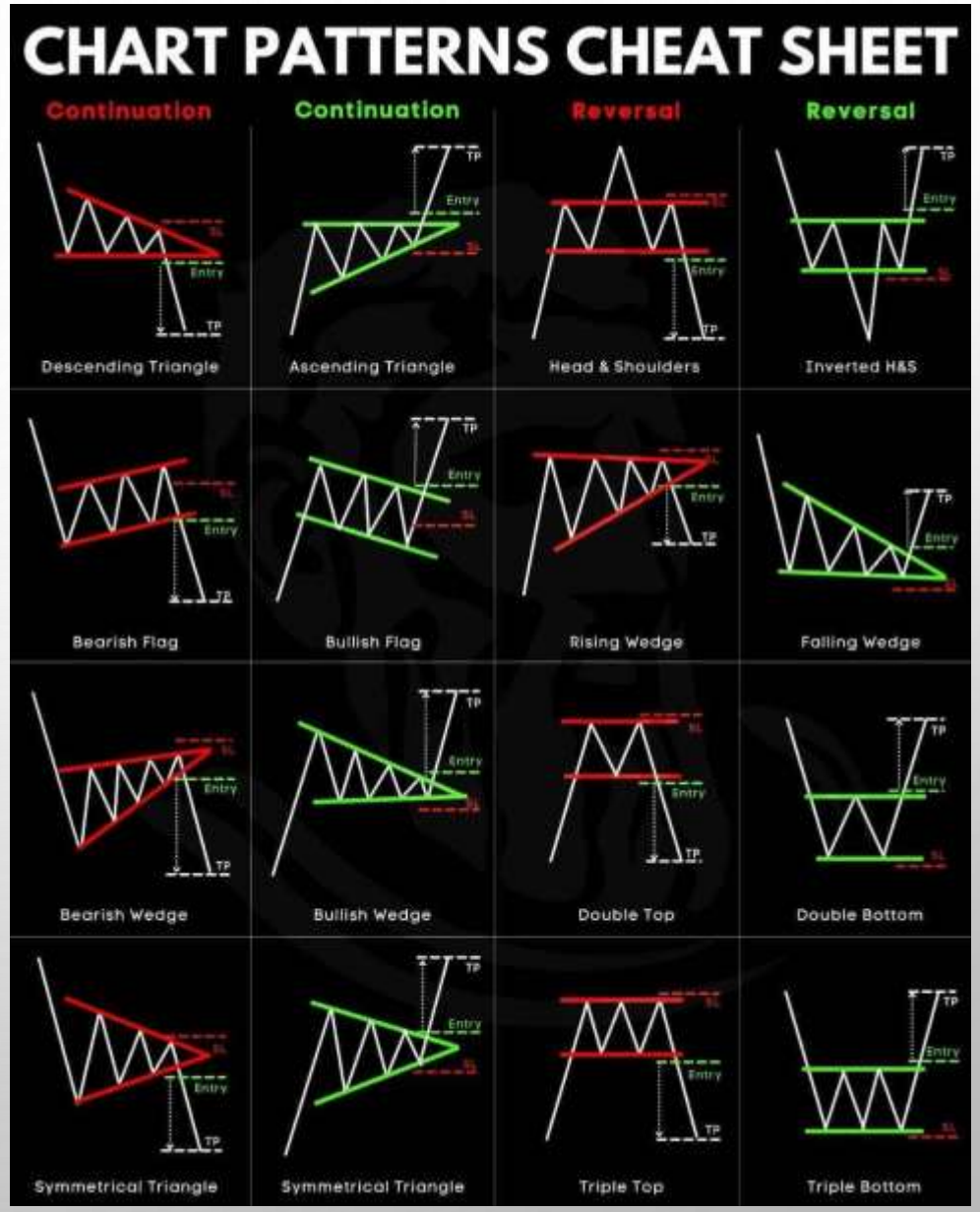
STOCK EVALUATION - 3

- **Third strategy:** extrapolating information from prices in highly efficient markets to predict market sentiment and investors' behavior (**technical analysis**)
- Sounds reasonable in a behavioural sense, but encompasses a lot of "witchery" (and also sorcerers…)
- Limited data requirements («everything» is in prices)

Issues:

- Short-termed: "fundamentals" emerge in the long run
- Outperformance seems just randomness
- Requires to align price information from several highly correlated markets (and deal with spurious correlations, feedback loop effects, tail events, …)



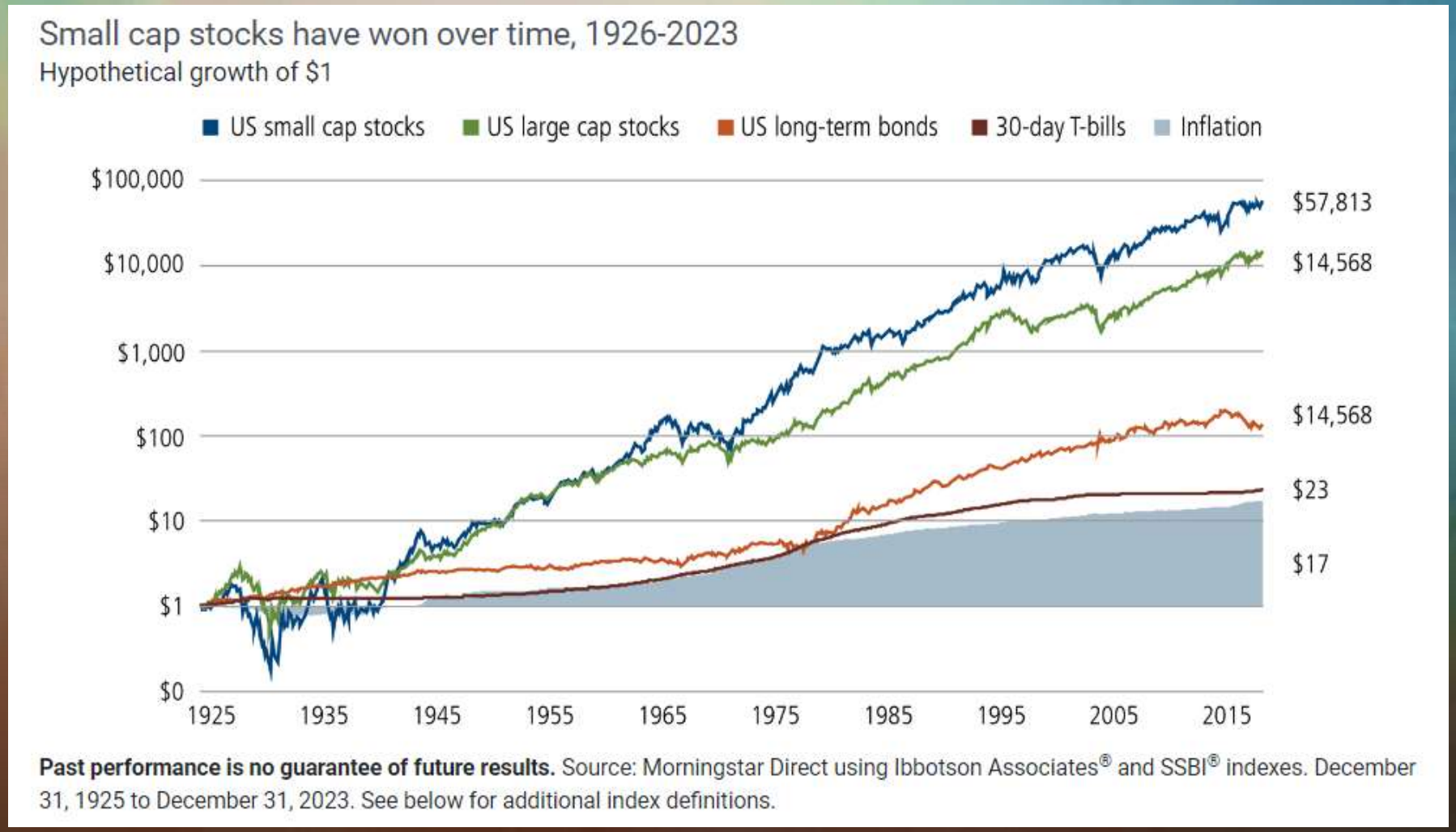


«The Callan Periodic Table of Investment Returns»

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Emerging Market Equity 34.00%	Real Estate 42.12%	Emerging Market Equity 39.38%	U.S. Fixed Income 5.24%	Emerging Market Equity 78.51%	Small Cap Equity 26.85%	U.S. Fixed Income 7.84%	Real Estate 27.73%	Small Cap Equity 38.82%	Real Estate 15.02%	Large Cap Equity 1.38%	Small Cap Equity 21.31%	Emerging Market Equity 37.28%	Cash Equivalent 1.87%	Large Cap Equity 31.49%	Small Cap Equity 19.96%	Large Cap Equity 28.71%	Cash Equivalent 1.46%	Large Cap Equity 26.29%	Large Cap Equity 25.02%
Real Estate 15.35%	Emerging Market Equity 32.17%	Developed ex-U.S. Equity 12.44%	Global ex-U.S. Fixed 4.39%	High Yield 58.21%	Real Estate 19.63%	High Yield 4.98%	Emerging Market Equity 18.23%	Large Cap Equity 32.39%	Large Cap Equity 13.69%	U.S. Fixed Income 0.55%	High Yield 17.13%	Developed ex-U.S. Equity 24.21%	U.S. Fixed Income 0.01%	Small Cap Equity 25.52%	Large Cap Equity 18.40%	Real Estate 26.09%	High Yield -11.19%	Developed ex-U.S. Equity 17.94%	Small Cap Equity 11.54%
Developed ex-U.S. Equity 14.47%	Developed ex-U.S. Equity 25.71%	Global ex-U.S. Fixed 11.03%	Cash Equivalent 2.06%	Real Estate 37.13%	Emerging Market Equity 18.88%	Global ex-U.S. Fixed 4.36%	Developed ex-U.S. Equity 16.41%	Developed ex-U.S. Equity 21.02%	U.S. Fixed Income 5.97%	Cash Equivalent 0.05%	Large Cap Equity 11.96%	Large Cap Equity 21.83%	High Yield -2.08%	Developed ex-U.S. Equity 22.49%	Emerging Market Equity 18.31%	Small Cap Equity 14.82%	U.S. Fixed Income -13.01%	Small Cap Equity 16.93%	High Yield 8.19%
Large Cap Equity 4.91%	Small Cap Equity 18.37%	U.S. Fixed Income 6.97%	High Yield -26.16%	Developed ex-U.S. Equity 33.67%	High Yield 15.12%	Large Cap Equity 2.11%	Small Cap Equity 16.35%	High Yield 7.44%	Small Cap Equity 4.89%	Real Estate -0.79%	Emerging Market Equity 11.19%	Small Cap Equity 14.65%	Global ex-U.S. Fixed -2.15%	Real Estate 21.91%	Global ex-U.S. Fixed 10.11%	Developed ex-U.S. Equity 12.62%	Developed ex-U.S. Equity -14.29%	High Yield 13.44%	Emerging Market Equity 7.50%
Small Cap Equity 4.55%	Large Cap Equity 15.79%	Large Cap Equity 5.49%	Small Cap Equity -33.79%	Small Cap Equity 27.17%	Large Cap Equity 15.06%	Cash Equivalent 0.10%	Large Cap Equity 16.00%	Real Estate 3.67%	High Yield 2.45%	Developed ex-U.S. Equity -3.04%	Real Estate 4.06%	Global ex-U.S. Fixed 10.51%	Large Cap Equity -4.38%	Emerging Market Equity 18.44%	Developed ex-U.S. Equity 7.59%	High Yield 5.28%	Large Cap Equity -18.11%	Emerging Market Equity 9.83%	Cash Equivalent 5.25%
Cash Equivalent 3.07%	High Yield 11.85%	Cash Equivalent 5.00%	Large Cap Equity -37.00%	Large Cap Equity 26.47%	Developed ex-U.S. Equity 8.95%	Small Cap Equity -4.18%	High Yield 15.81%	Cash Equivalent 0.07%	Cash Equivalent 0.03%	Small Cap Equity -4.41%	Developed ex-U.S. Equity 2.75%	Real Estate 10.36%	Real Estate -5.63%	High Yield 14.32%	U.S. Fixed Income 7.51%	Cash Equivalent 0.05%	Global ex-U.S. Fixed -18.70%	Real Estate 9.67%	Developed ex-U.S. Equity 4.70%
High Yield 2.74%	Global ex-U.S. Fixed 8.16%	High Yield 1.87%	Developed ex-U.S. Equity -43.56%	Global ex-U.S. Fixed 7.53%	U.S. Fixed Income 6.54%	Real Estate -6.46%	U.S. Fixed Income 4.21%	U.S. Fixed Income -2.02%	Emerging Market Equity -2.19%	High Yield -4.47%	U.S. Fixed Income 2.65%	High Yield 7.50%	Small Cap Equity -11.01%	U.S. Fixed Income 8.72%	High Yield 7.11%	U.S. Fixed Income -1.54%	Emerging Market Equity -20.09%	Global ex-U.S. Fixed 5.72%	U.S. Fixed Income 1.25%
U.S. Fixed Income 2.43%	Cash Equivalent 4.85%	Small Cap Equity -1.57%	Real Estate -48.21%	U.S. Fixed Income 5.93%	Global ex-U.S. Fixed 4.95%	Developed ex-U.S. Equity -12.21%	Global ex-U.S. Fixed 4.09%	Emerging Market Equity -2.60%	Global ex-U.S. Fixed -3.09%	Global ex-U.S. Fixed -6.02%	Global ex-U.S. Fixed 1.49%	U.S. Fixed Income 3.54%	Developed ex-U.S. Equity -14.09%	Global ex-U.S. Fixed 5.09%	Cash Equivalent 0.67%	Emerging Market Equity -2.54%	Small Cap Equity -20.44%	U.S. Fixed Income 5.53%	Real Estate 0.94%
Global ex-U.S. Fixed -8.65%	U.S. Fixed Income 4.33%	Real Estate -7.39%	Emerging Market Equity -53.33%	Cash Equivalent 0.21%	Cash Equivalent 0.13%	Emerging Market Equity -18.42%	Cash Equivalent 0.11%	Global ex-U.S. Fixed -3.08%	Developed ex-U.S. Equity -4.32%	Emerging Market Equity -14.92%	Cash Equivalent 0.33%	Cash Equivalent 0.86%	Emerging Market Equity -14.57%	Cash Equivalent 2.28%	Real Estate -9.04%	Global ex-U.S. Fixed -7.05%	Real Estate -25.10%	Cash Equivalent 5.01%	Global ex-U.S. Fixed -4.22%

EXAMPLES

«The Ibbotson SBBI»



EXAMPLES

Which of the following Italian stocks is riskier (11.2013)?

Stock	Price	Div	1y price expected
ENI	17.66	0.55	21.00
Finmeccanica	5.67	0.41	6.50
Generali	16.88	0.20	18.00
Luxottica	38.43	0.58	46.00
Unicredit	5.635	0.00	6.50

Which of these Italian stocks is expected to grow faster (11.2013)?

Stock	Price	Div	k_e
MPS	0.2428	0.0245	5%
Campari	6.445	0.07	7%
ENEL	3.232	0.15	25%
Fondiaria-SAI	1.916	0.40	15%
Sal. Ferragamo	25.19	0.33	10%

Required return: $P_0 = \frac{D_1}{1+k_e} + \frac{P_1}{1+k_e} \rightarrow k_e = \frac{D_1 + P_1}{P_0} - 1$

Stock	k_e
ENI	0.2203
Finmeccanica	0.2187
Luxottica	0.2121
Unicredit	0.1535
Generali	0.0782

g : $P_0 = \frac{D_1}{k_e - g} \rightarrow g = k_e - \frac{D_1}{P_0}$

Stock	g
ENEL	20.36%
Sal. Ferragamo	8.69%
Campari	5.91%
MPS	-5.09%
Fondiaria-SAI	-5.88%

EXAMPLES