Wykład 5

Rynek akcji
(część 2)

**Jakie inne czynniki,
oprócz premii za ryzyko
wpływają na ceny akcji?**

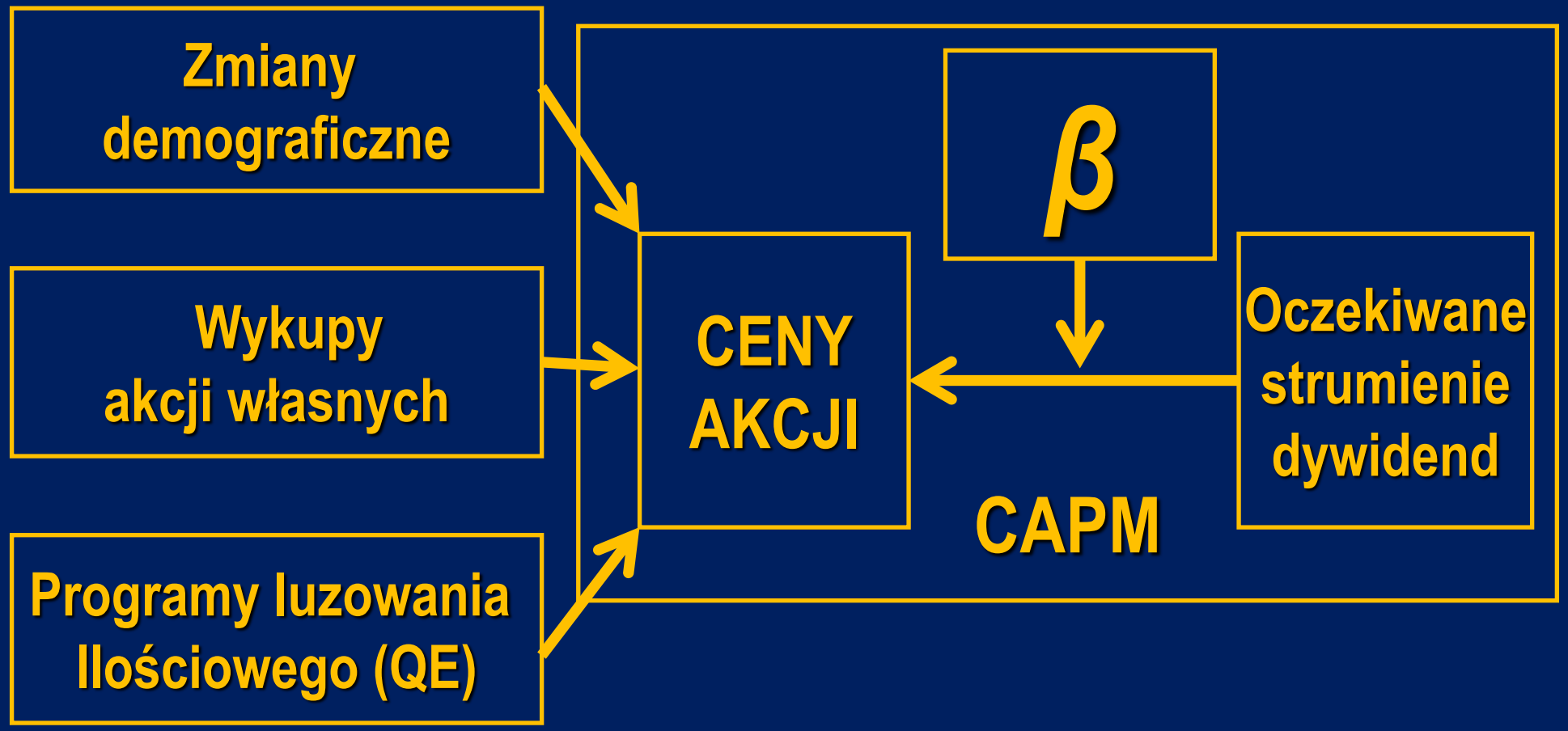
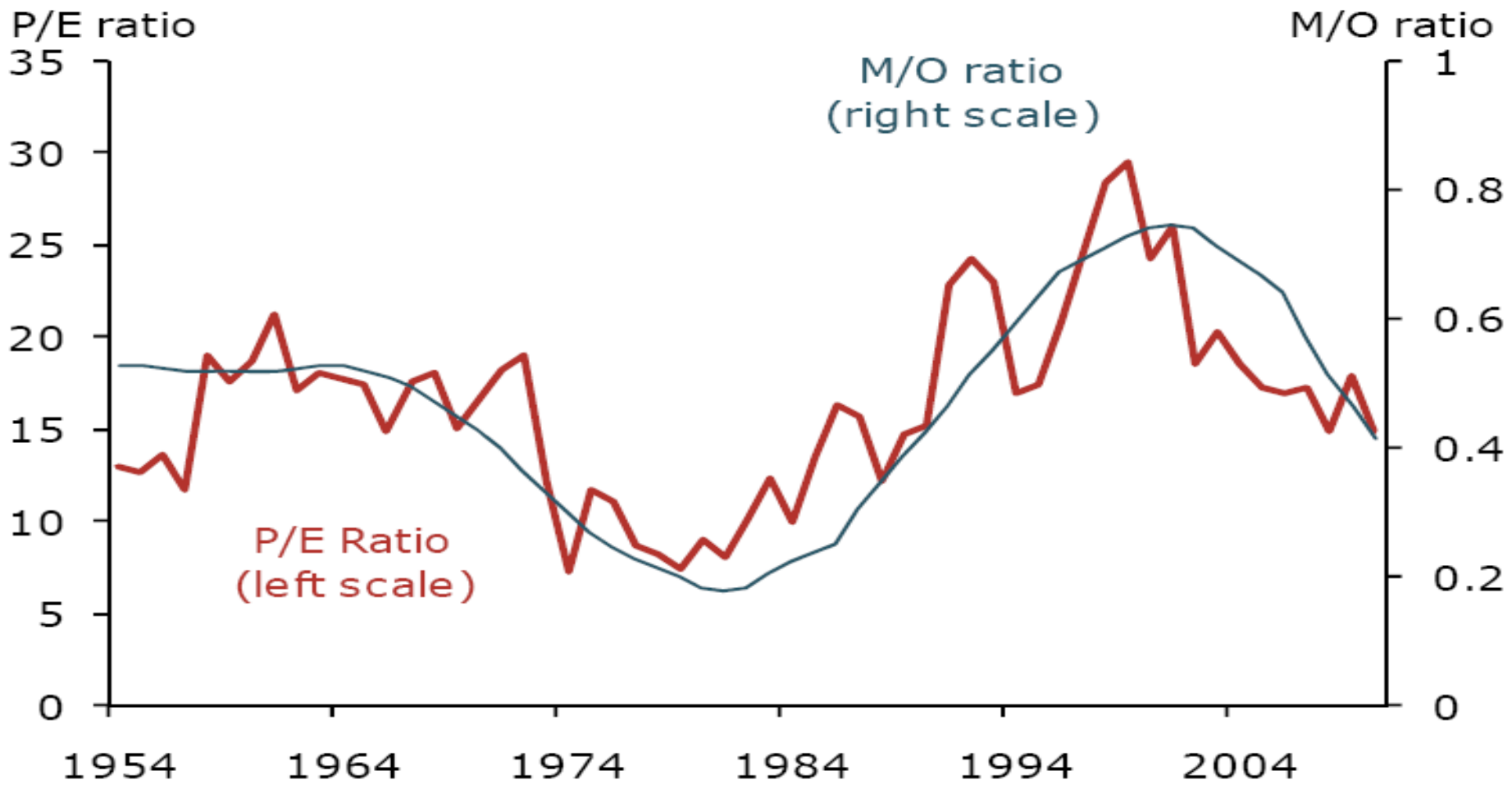

Zmiany demograficzne
Wykupy akcji własnych
Programy luzowania Ilościowego (QE)
CENY AKCJI
β
Oczekiwane strumienie dywidend
CAPM

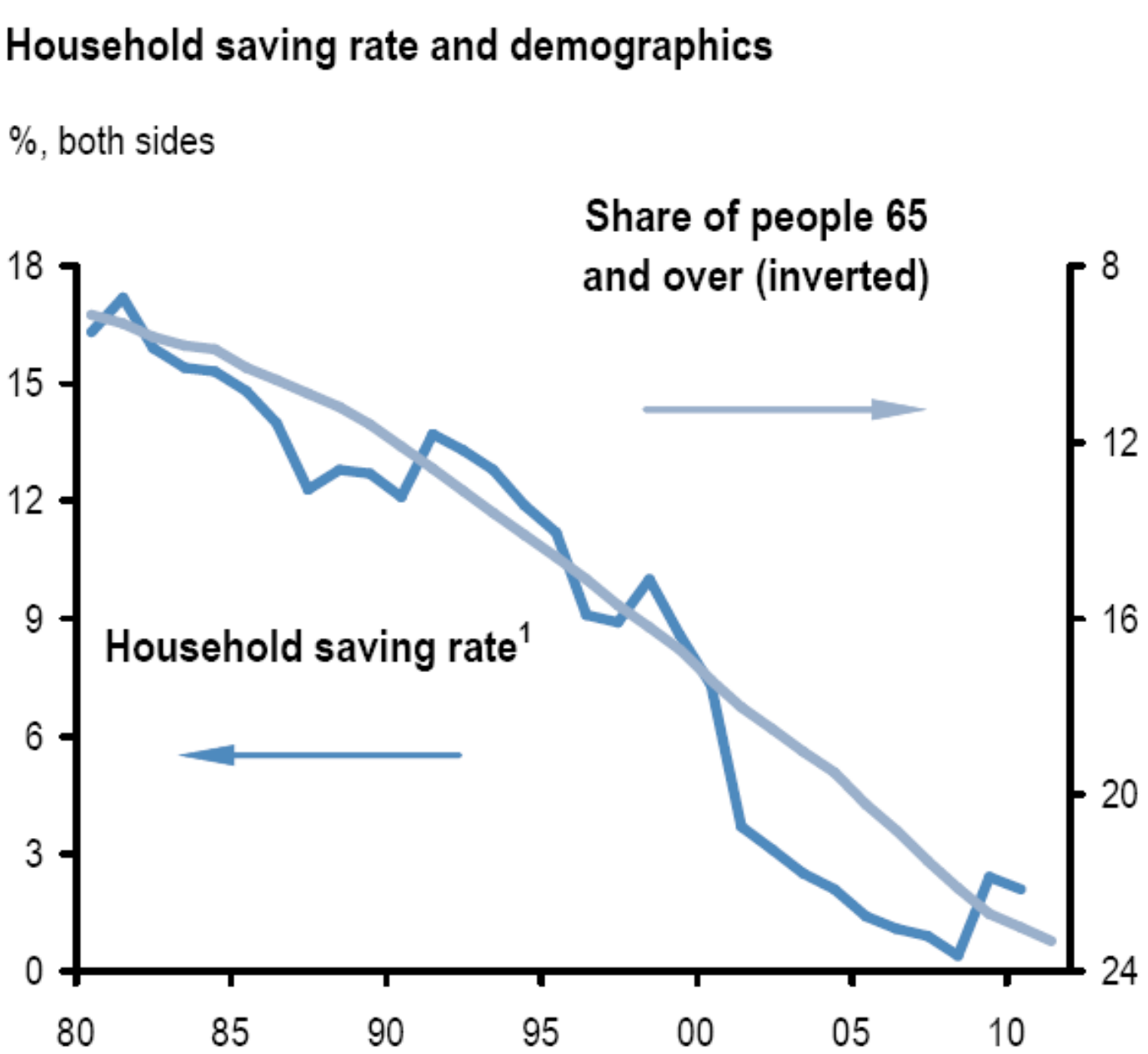
Figure 1
P/E ratio and M/O ratio



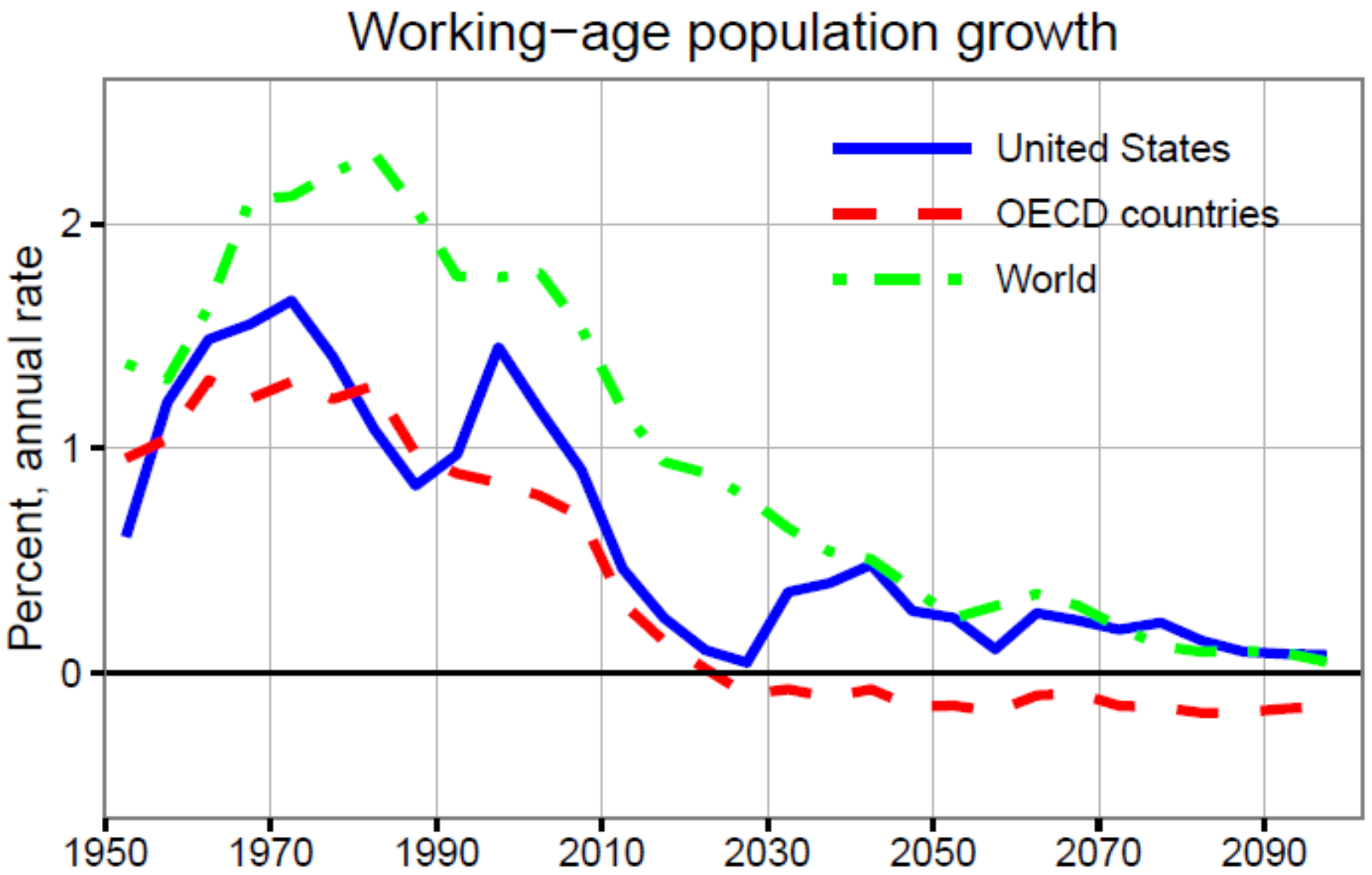
Sources: Bloomberg (PE) and Haver Analytics (MO).

Zheng Liu, Mark M. Spiegel, *Boomer Retirement: Headwinds for US Equity Markets*, "FRBSF Economic Letter", 22 August 2011

Także w krajach zamożnych emerytów nie stać na oszczędzanie



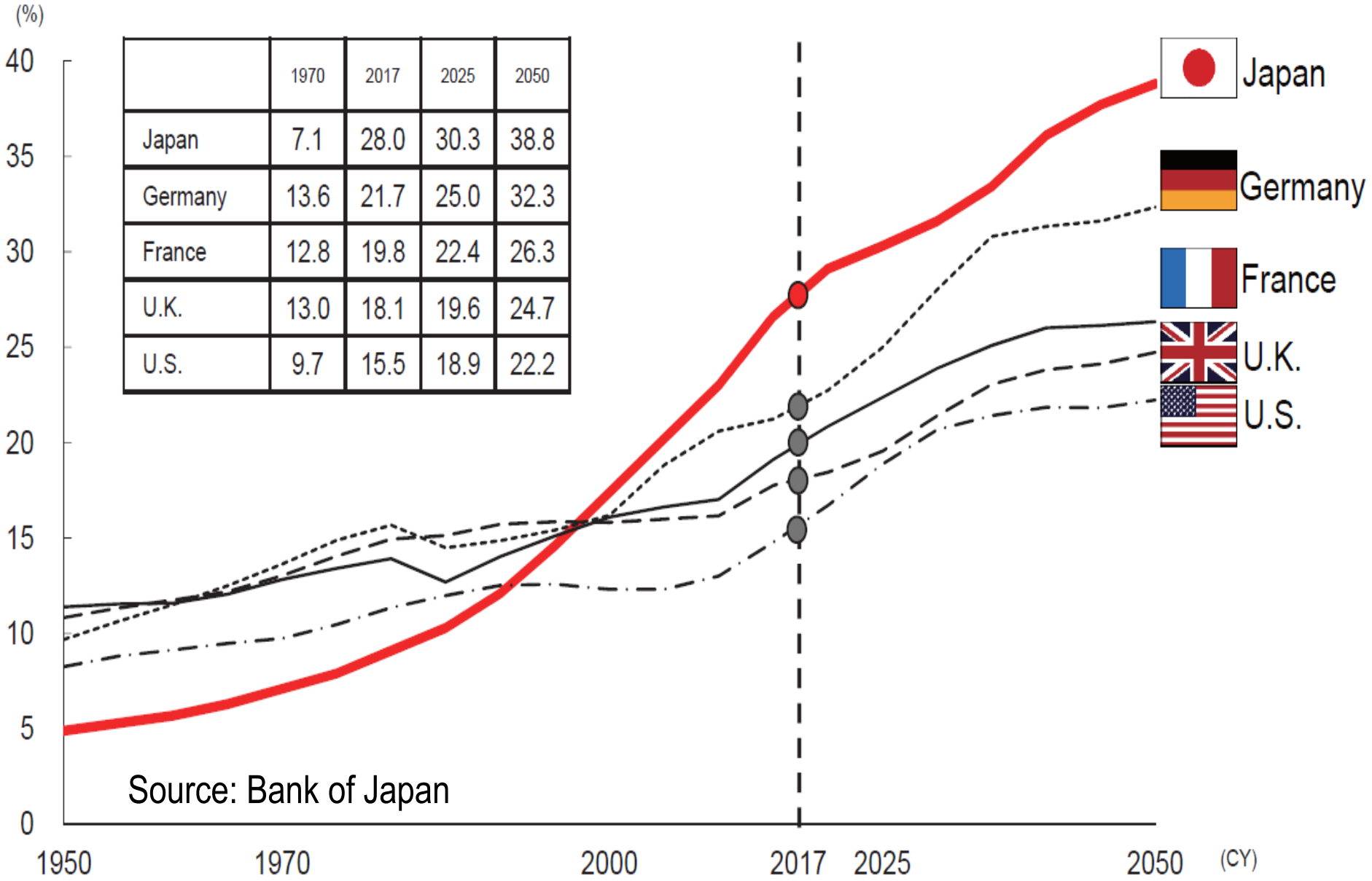
Japan well on its way to becoming a capital importer, J.P.Morgan, 4 January 2012, www.morganmarkets.com



Etienne Gagnon, Benjamin K. Johannsen, and David Lopez-Salido (2016). Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, D.C. Understanding the New Normal: The Role of Demographics 2016-2090

International Comparison of Population Aging Rate

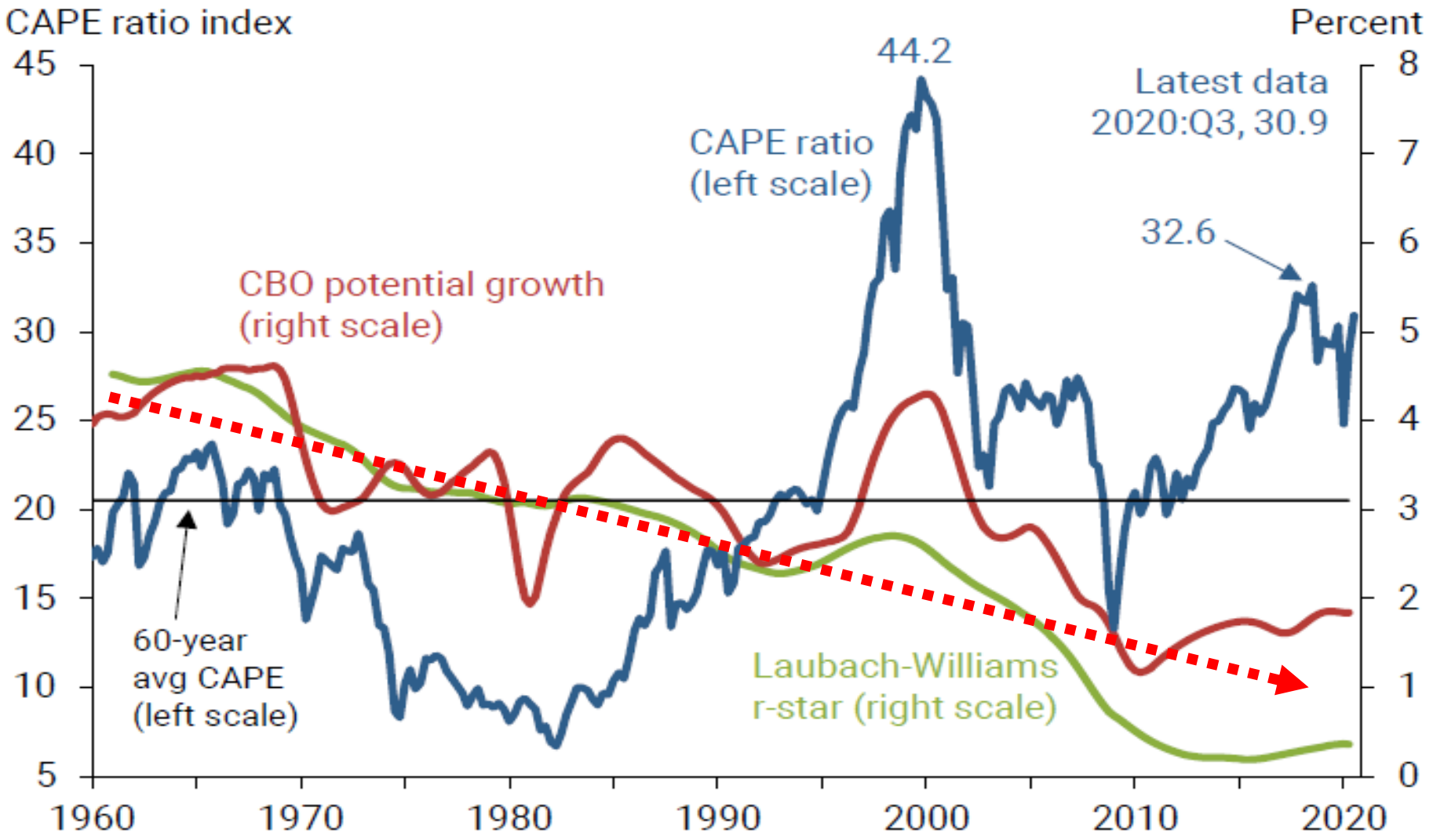
	1970	2017	2025	2050
Japan	7.1	28.0	30.3	38.8
Germany	13.6	21.7	25.0	32.3
France	12.8	19.8	22.4	26.3
U.K.	13.0	18.1	19.6	24.7
U.S.	9.7	15.5	18.9	22.2



Source: Bank of Japan

Dlaczego indeksy rosną pomimo obniżającego się potencjalnego (długoterminowego) tempa wzrostu PKB?

CAPE ratio, natural real rate of interest, and potential growth



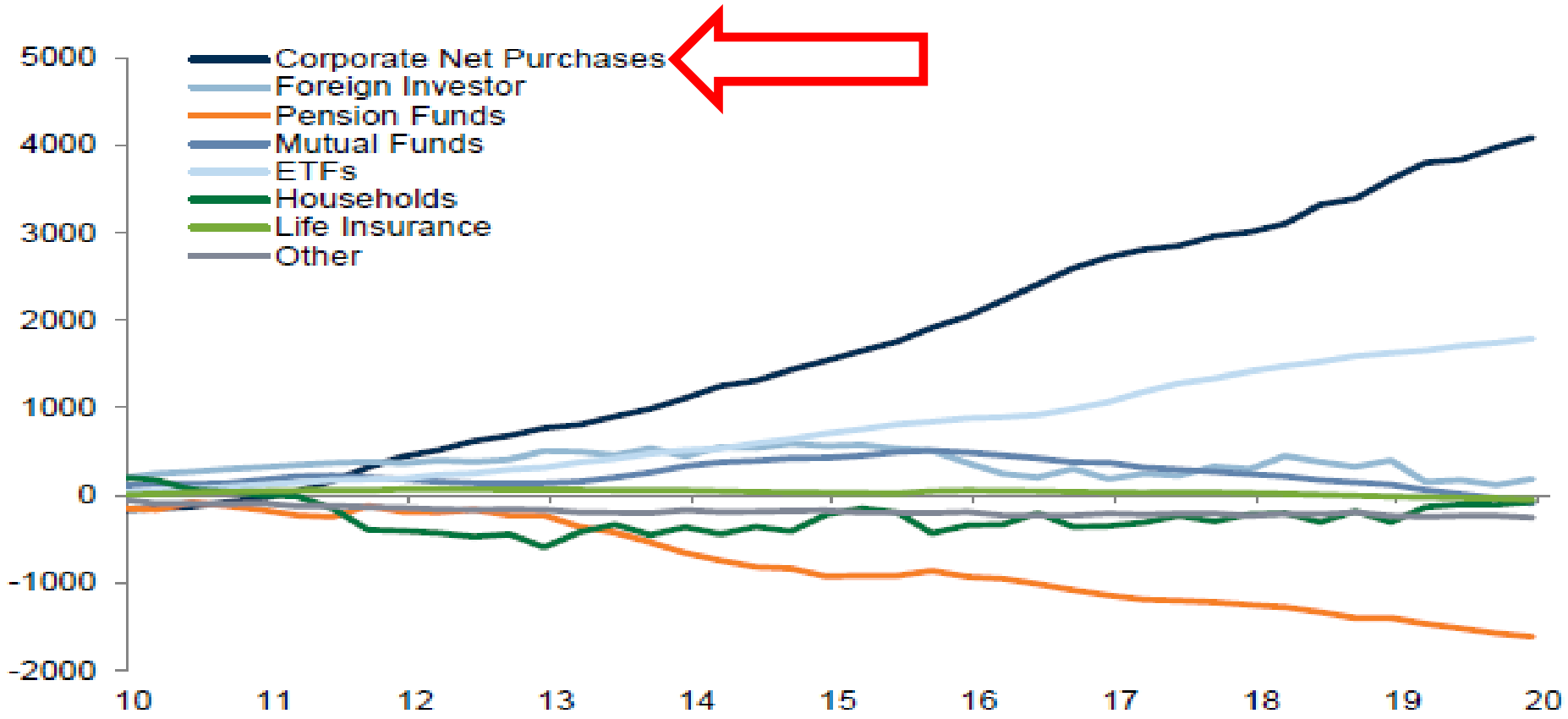
Source: Robert Shiller's website, http://www.econ.yale.edu/~shiller/

Kevin J. Lansing (2020). Assessing Recent Stock Market Valuation with Macro Data, Federal Reserve Bank of San Francisco *Economic Letter*, October 1343

Co było główną przyczyną wzrostu cen akcji w ostatniej dekadzie?

Corporate share re-purchases have been a key source of equity demand in this cycle

Cumulative US equity demand by source



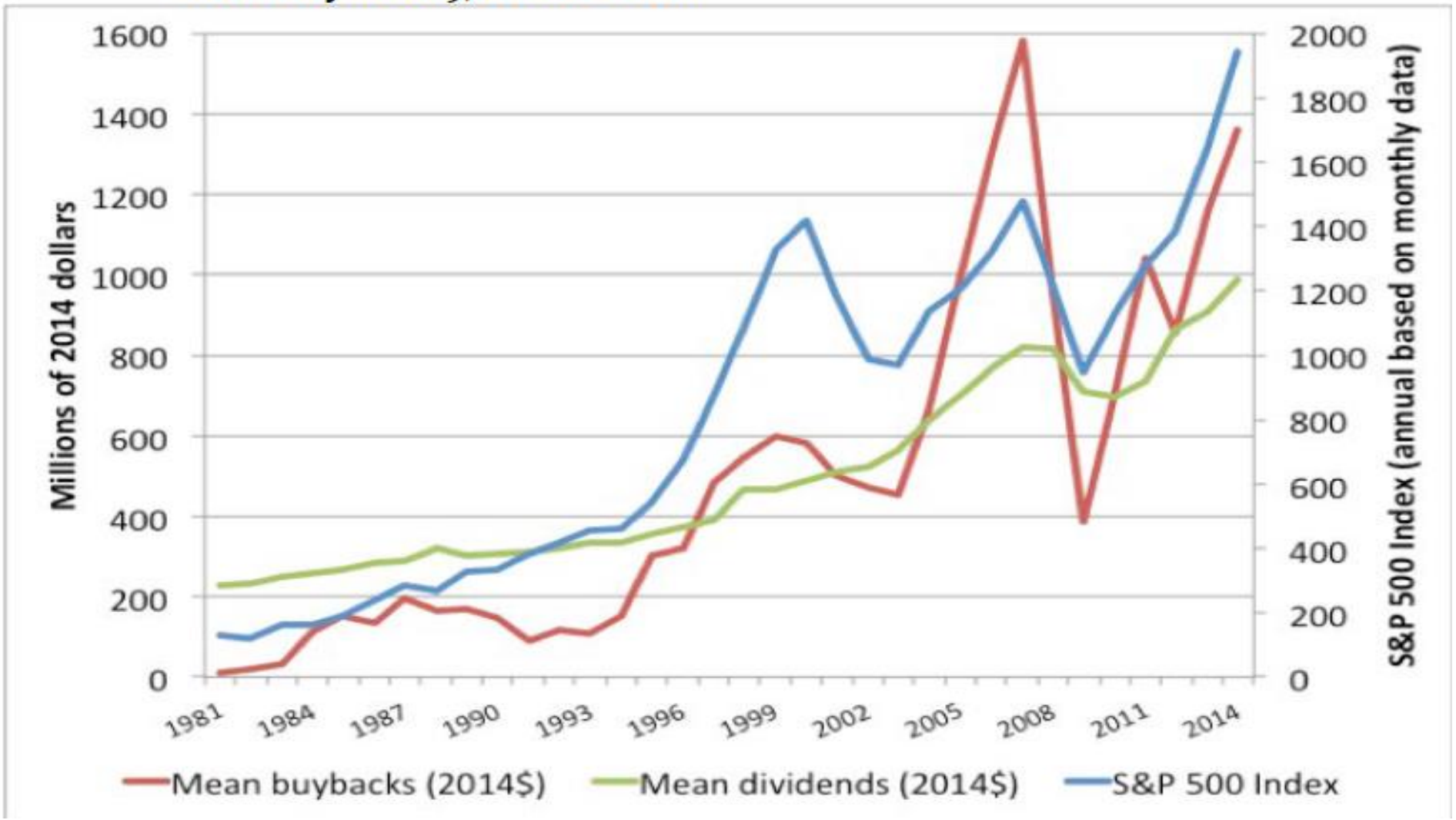
Source: Haver Analytics, Goldman Sachs Global Investment Research

Goldman Sachs (2020), Bearish positioning, but still risks for further de-risking - Q&A on cross-asset positioning, 27 March

- The support from corporate share **repurchases** has played a **crucial role** in recent years both in the US **and in Europe**.

Goldman Sachs (2020), Bearish positioning, but still risks for further de-risking - Q&A on cross-asset positioning, 27 March

Common stock repurchases and cash dividends, 243 companies in the S&P 500 Index in Feb. 2015 publicly listed from 1981 through 2014, and the S&P 500 Index (annual averages of monthly data), 1981-2014



William Lazonik (2016). „How Stock Buybacks Make Americans Vulnerable to Globalization", *AIR Working Paper*, 16-03010

Bardzo często duże firmy
przeznaczają na wykup akcji własnych
nie tylko całość zysków netto,
ale zaciągają na ten cel także pożyczki

Wykupy akcji własnych

Table 1. Top 25 stock repurchasers, 2004-2013, with percentages of net income (NI) spent on repurchases (RP) and dividends (DV)

Buyback rank	Company Name	RP/NI %	DV/NI %	(DV+RP)/ NI %
1	EXXON MOBIL	60	23	84
2	IBM	92	21	113
3	MICROSOFT	71	48	119
4	CISCO SYSTEMS	103	8	110
5	PROCTER & GAMBLE	71	47	118
6	HEWLETT-PACKARD	148	20	168
7	WAL-MART STORES	45	28	73
8	PFIZER	67	70	137
9	INTEL	70	37	107
10	GENERAL ELECTRIC	35	54	89
11	GOLDMAN SACHS GROUP	65	16	81
12	SBC COMMUNICATION	45	78	123
13	HOME DEPOT	99	35	134
14	ORACLE CORP	62	10	72
15	CHEVRON CORP	21	28	49
16	AMGEN	100	8	108
17	CONOCOPHILLIPS	48	34	83
18	TIME WARNER	230	50	280
19	DISNEY (WALT)	83	17	100
20	JPMORGAN CHASE	26	34	60
21	BANK OF AMERICA	36	63	100
22	JOHNSON & JOHNSON	29	46	75
23	PEPSICO	56	45	101
24	UNITEDHEALTH GROUP	73	7	81
25	DIRECTV GROUP	192	0	192

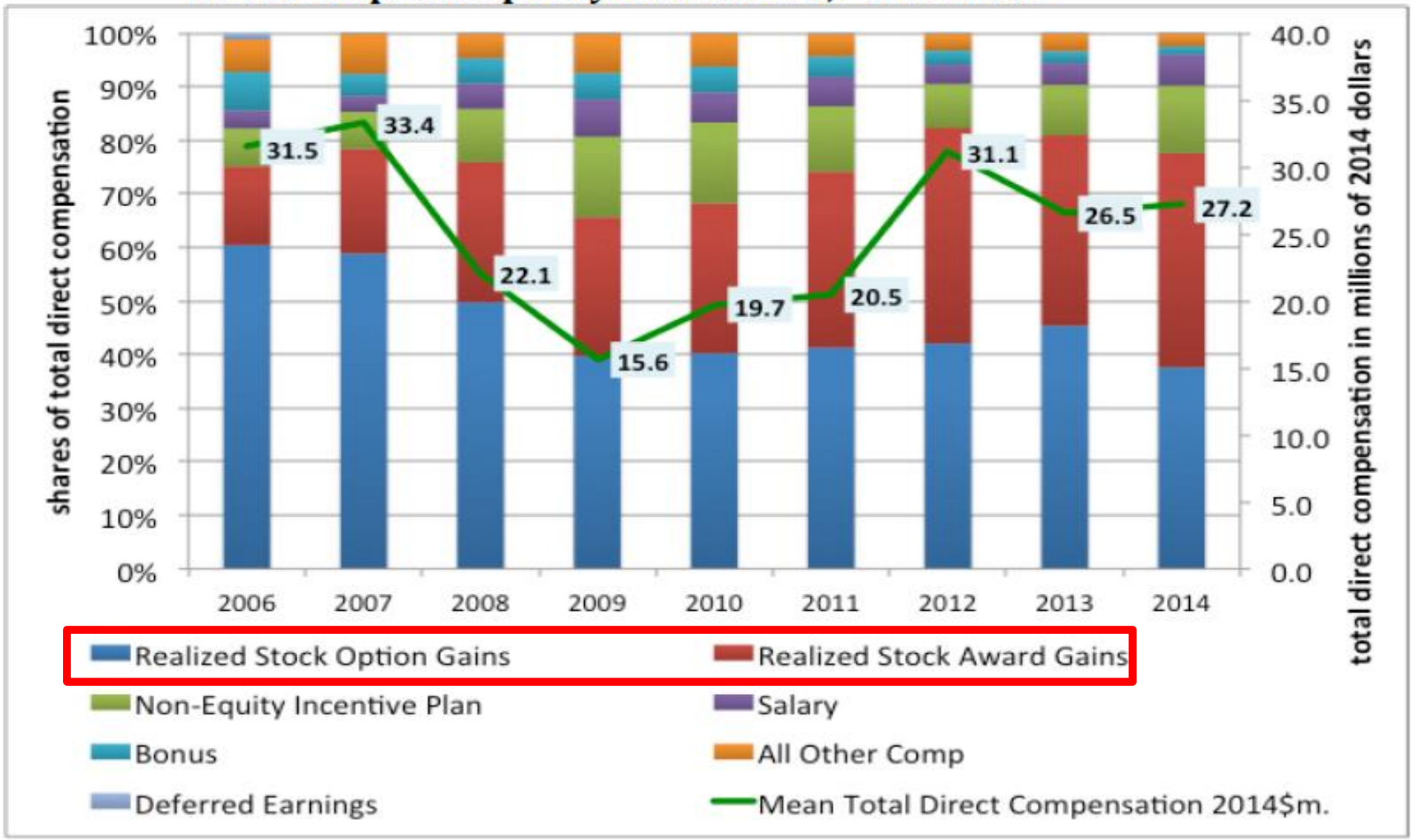
Source: Standard and Poor's Compustat database, corrected from company 10-K filings by Mustafa Erdem Sakinç, The Academic-Industry Research Network.

William Lazonick 2014

Dlaczego wykup akcji własnych dokonuje się na aż tak dużą skalę?

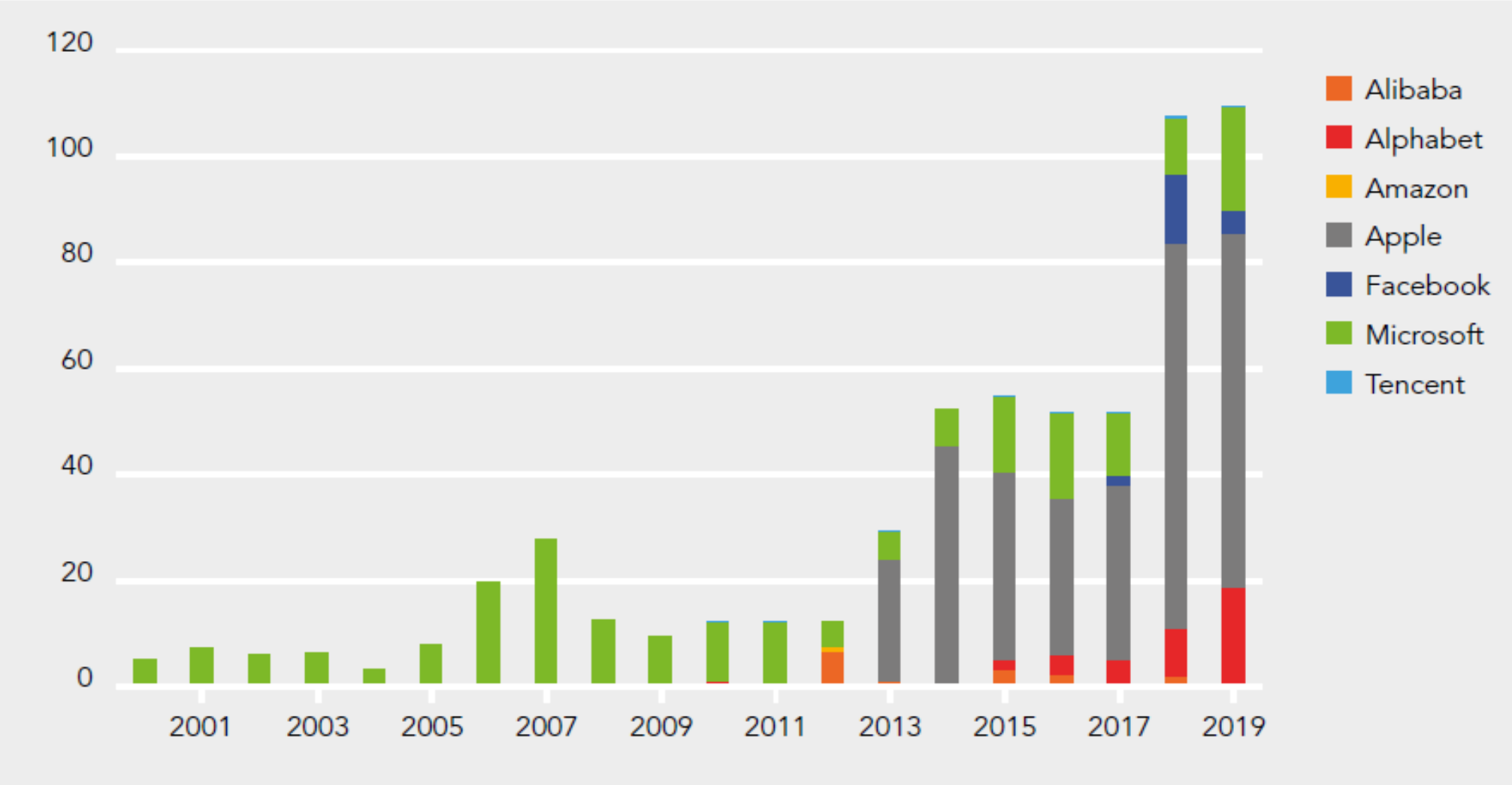
Wynagradzanie zarządów firm za maksymalizowanie wartości dla akcjonariuszy

Figure 1. Mean total direct compensation and its components in percentages for the 500 highest-paid executives named annually in U.S. corporate proxy statements, 2006-2014



William Lazonick(2016). „How Stock Buybacks Make Americans Vulnerable to Globalization”, AIR Working Paper, 16-03010

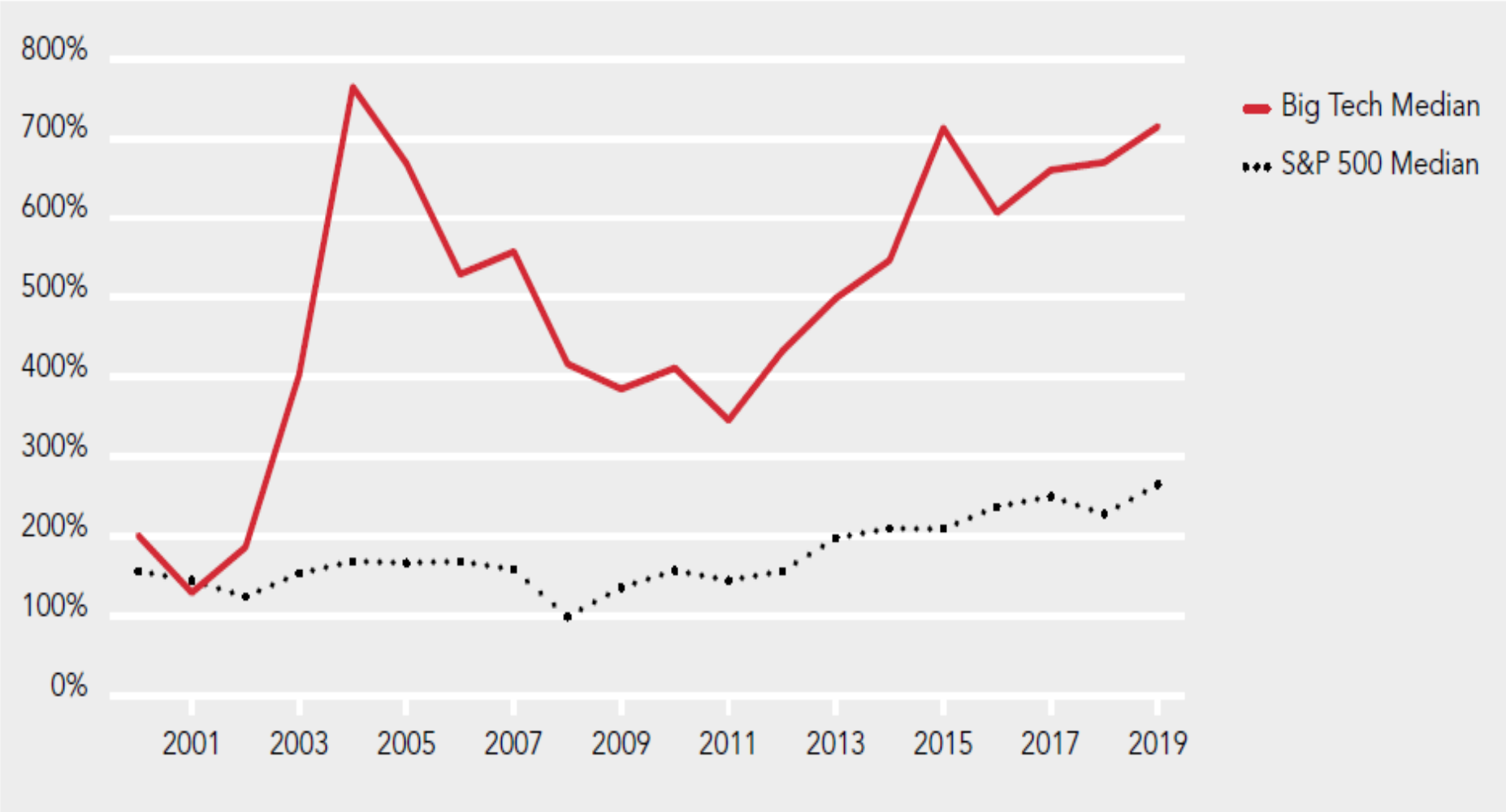
Figure 3.10 Share repurchases in US$ billion



Source: Refinitiv Datastream.

Rodrigo Fernandez, Ilke Adriaans, Tobias J. Klinge, Reijer Hendrikse (2020). *The Financialisation of BigTech, SOMO Centre for Researach on Multinantional Corporations*, Amsterdam

Figure 3.8 Market capitalisation as percentage of net sales



Source: Refinitiv Datastream.

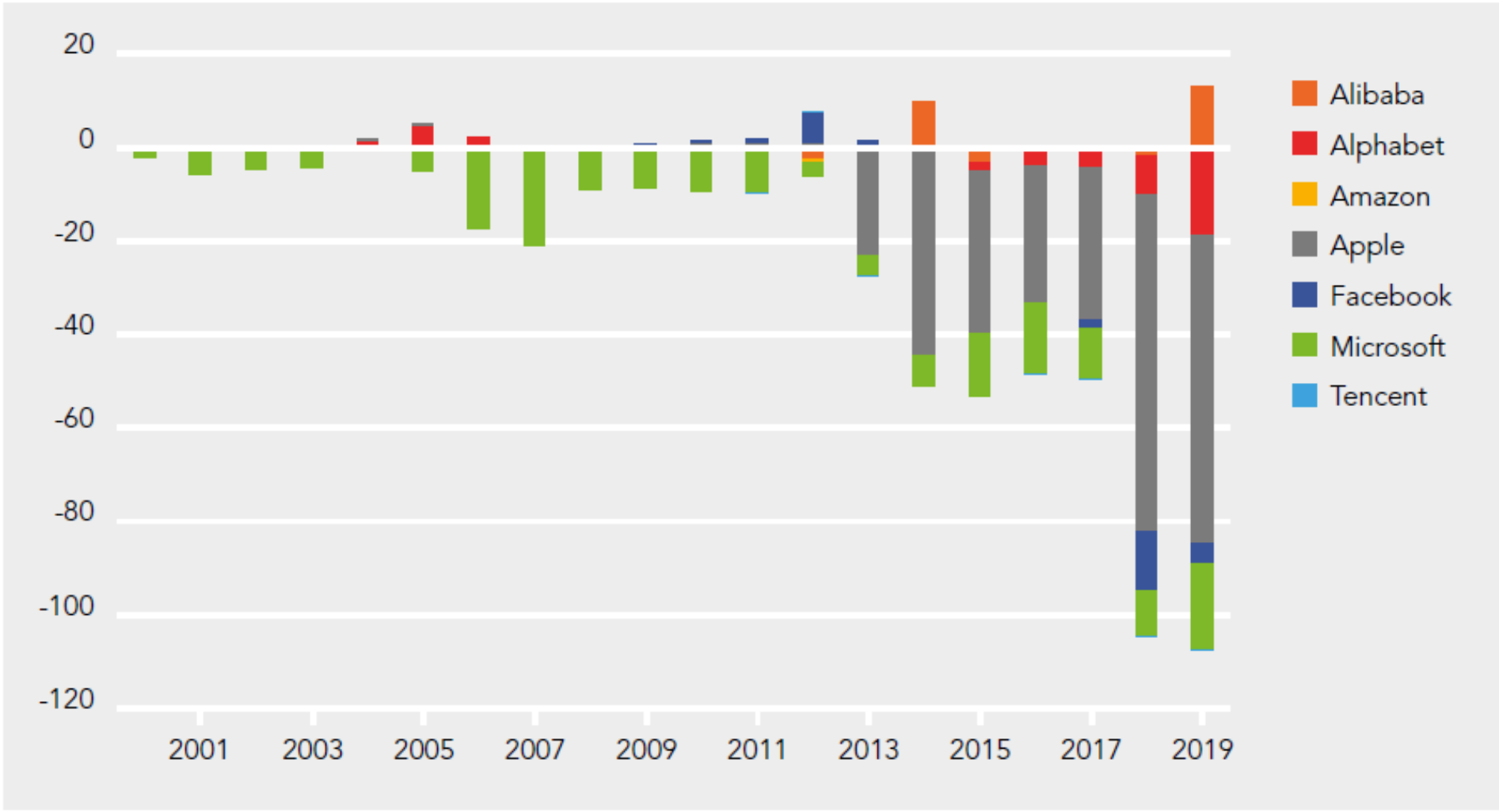
Rodrigo Fernandez, Ilke Adriaans, Tobias J. Klinge, Reijer Hendrikse (2020). *The Financialisation of BigTech, SOMO Centre for Researach on Multinantional Corporations*, Amsterdam

Jakie są skutki wykupu akcji własnych?

- **Buybacks** have been by far the **largest source of demand** for US equity **and after many years** also in Europe the **net equity supply turned negative**.

Goldman Sachs (2020), Bearish positioning, but still risks for further de-risking - Q&A on cross-asset positioning, 27 March

Figure 3.11 Net share issuance in US$ billion

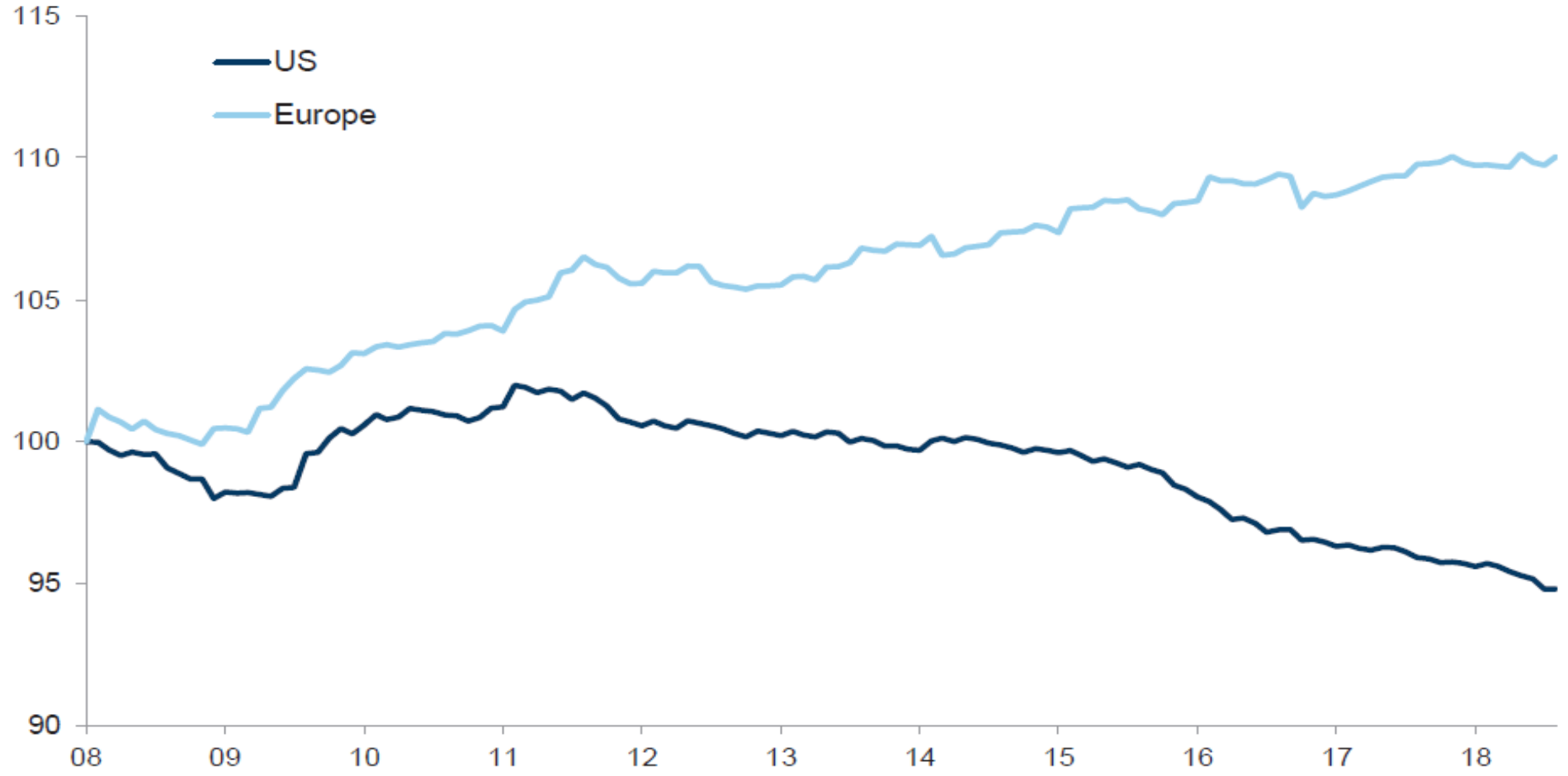


Source: Refinitiv Datastream.

Rodrigo Fernandez, Ilke Adriaans, Tobias J. Klinge, Reijer Hendrikse (2020). *The Financialisation of BigTech, SOMO Centre for Researach on Multinantional Corporations*, Amsterdam

The net supply of equity has fallen in the US

Index of net equity supply = Market value to price in local currency



Source: Worldscope, Goldman Sachs Global Investment Research

Goldman Sachs (2018) “Making Cents: The Cycle & Low Returns”, *Global Strategy Paper* No. 30, 4 September

- The decrease of number of companies has been accompanied by a **significant decline** also in the **amount of capital raised** over the three periods;

- from USD **147** billion in the period 1994-2000,
- to USD **88** billion in the period 2001-2007
- To USD **67** billion in the period 2008-2015

Changing business models of stock exchanges and stock market fragmentation. OECD Business and Finance Outlook 2016

Factor investing

There are no shortcuts in finance
(William Sharpe)

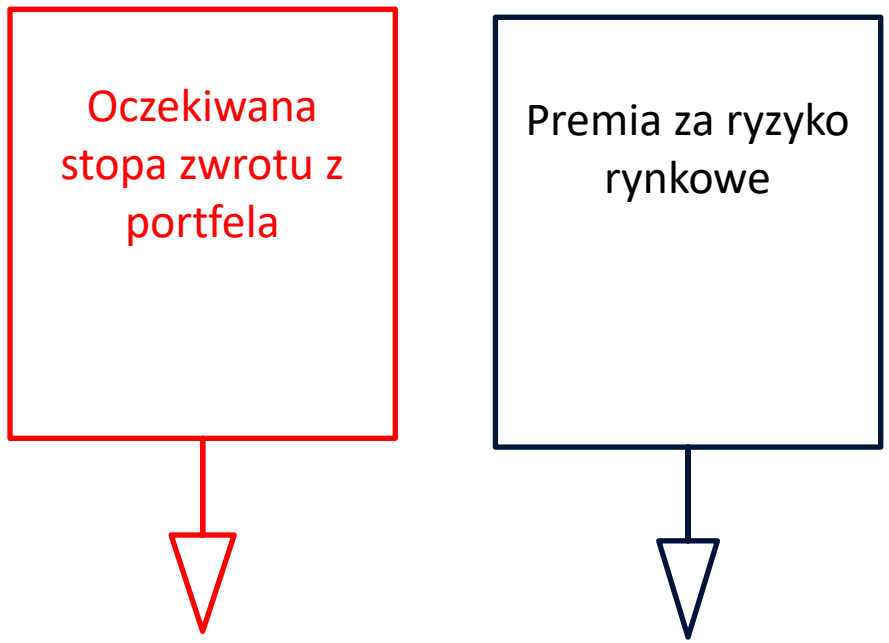
Czy CAPM
w pełni wyjaśnia
kształtowanie się
stóp zwrotu z akcji?

CAPM model

- CAPM model posits that risk and reward are related but that **only one kind of risk** (***systematic risk***) **is rewarded** with a higher return.

- Systematic risk **cannot be eliminated by diversification**. It is precisely because all stocks move more or less in tandem (a large share of their variability is systematic)

Burton G. Malkiel (2017)



$$E(R_i) = R_f + \beta_m (R_m - R_f)$$

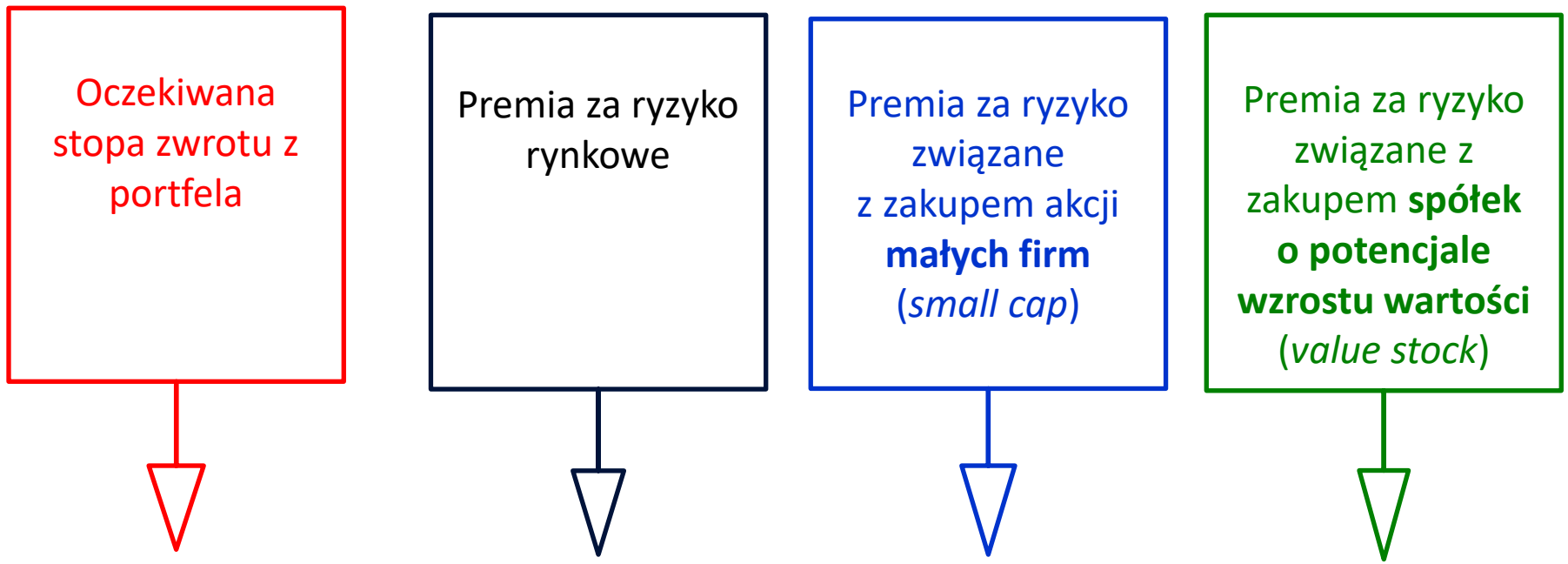
E. F. Fama, K. R. French (1992) „The Cross-Section of Expected Stock Returns, *The Journal of Finance*, vol. XLVII, No. 2

Risk factors

- It appears that the **systematic risk** elements that influence stock returns **cannot be fully captured by a single** factors such as **beta**.

- Better explanations can be obtained for the variation in returns among different securities by using, **in addition to the traditional beta** measure of risk, a number of additional systematic risk variables.

Burton G. Malkiel (2017)



$$E(R_i) = R_f + \beta_m (R_m - R_f) + \beta_{smb} (R_{sm} - R_b) + \beta_{hml} (R_{hm} - R_l)$$

Ryzyko, które podejmujemy **oprócz** ryzyka rynkowego

E. F. Fama, K. R. French (1992) „The Cross-Section of Expected Stock Returns, *The Journal of Finance*, vol. XLVII, No. 2

- Historically, certain factors have achieved returns in excess of a broad market. **80% of alfa** (excess returns) generated by active managers **can be explained by factor exposures** of their portfolios (Scott N. Pappas, Joel M. Dickinson (2015)

- Chodzi tu **nie o rzeczywistą alfę** (zmniejszenie stopy zwrotu bez zwiększania ryzyka), lecz o **premię za podjęcie dodatkowego ryzyka**.

- Akcje małych spółek (***small-cap stocks***)

- Ich (**okresowo**) **większe premie za ryzyko rekompensują potencjalne straty, jakie może przynieść dekoniunktura**

- Akcje spółek charakteryzujących się **wysoką relacją wartości księgowej do wartości rynkowej** (***value stocks***)

- Ich **(okresowo) wyższe premie za ryzyko rekompensują potencjalne straty, jakie może przynieść niepowodzenie restrukturyzacji**

Risk factors

- **Oczekiwania**, że określone aktywa **mogą przynieść okresowo wyższe (niż wynikałoby z wysokości bety) stopy zwroty** są głównie efektem **badań empirycznych**.

Dają się wprawdzie uzasadnić - głównie większym podejmowanym ryzykiem - ale **nie ma w pełni uzasadniającej to teorii**

- There is **no theory** telling us what gives rise to SMB and HML factors /De Pena et. al. 2010/

- Factor exhibit **significant cyclicality** including **periods of underperformance** /Bender et. al. 2013/

- There are **no gurus who can predict which factor** will provide premiums in the future /Swedroe 2019/

Część potencjalnych zysków z inwestowania w *risk factors* wynika z czynników behawioralnych

- Small-cap stocks
- Value stocks

Premie za podejmowanie dodatkowego ryzyka

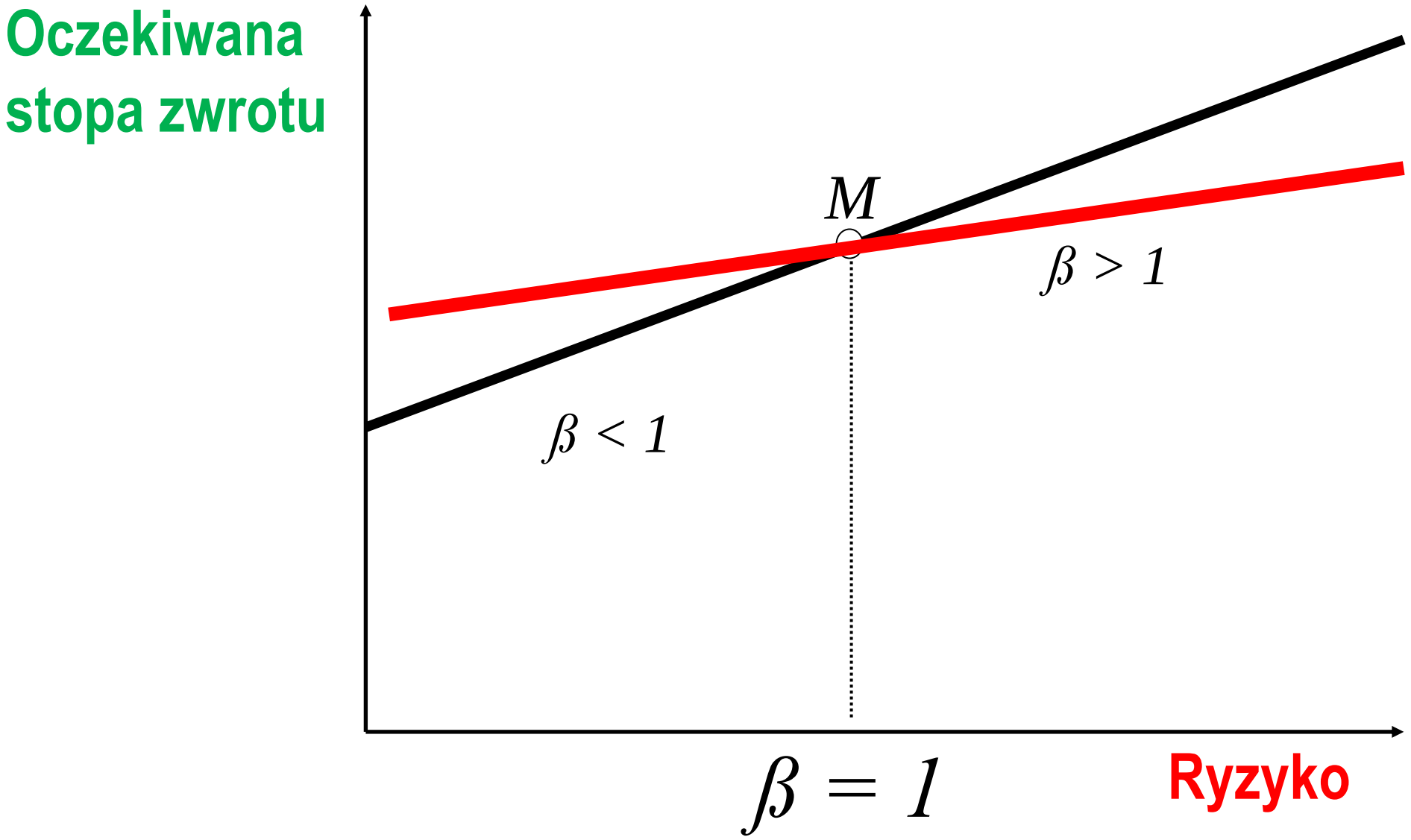
- Momentum
- Low beta stocks

Anomalie cenowe wynikające z działania czynników behawioralnych

Low beta stocks:

Rzeczywista SML (linia instrumentów rynku kapitałowego jest nachylona pod mniejszym kątem niż zakłada CAPM

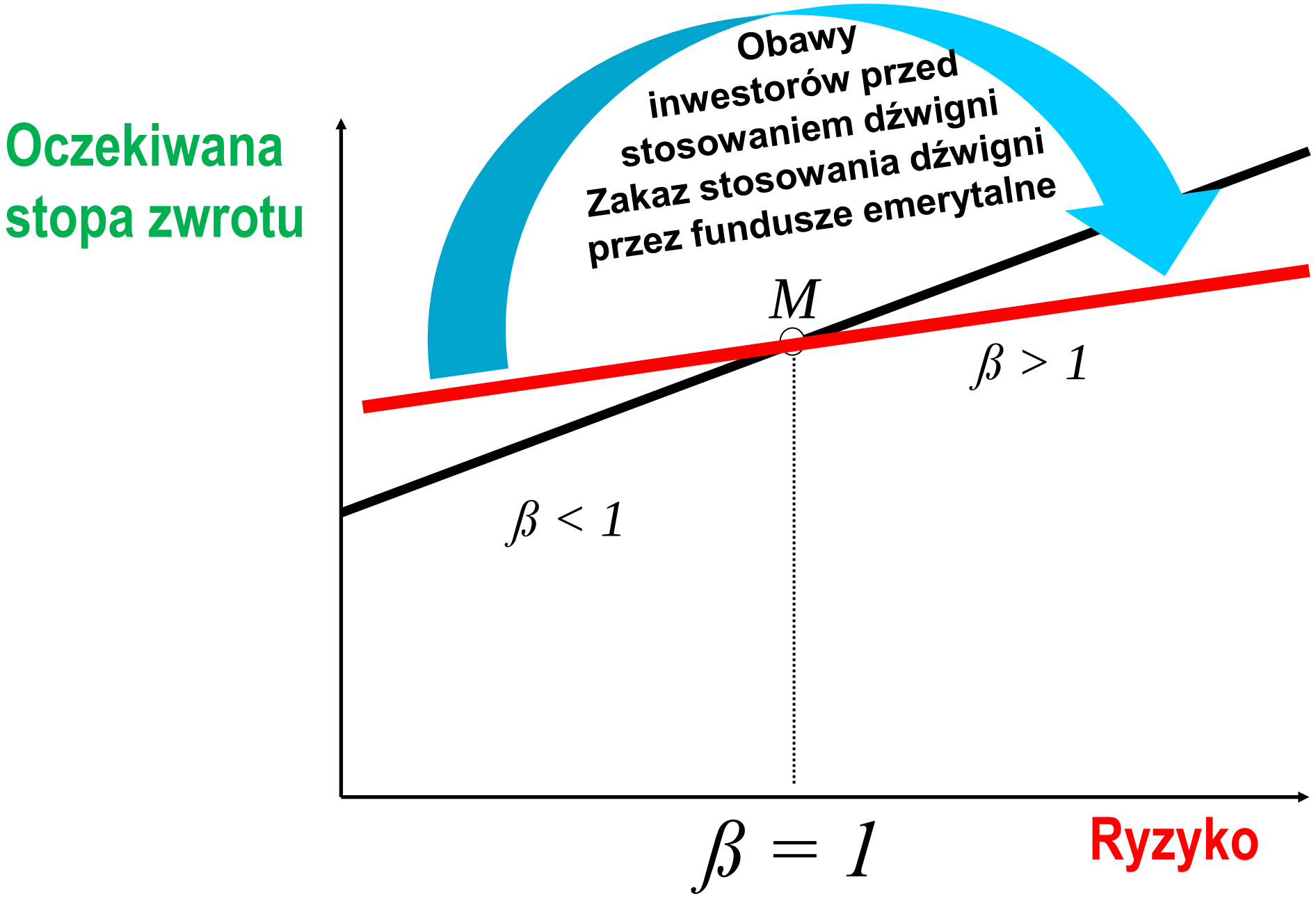
Linia papierów wartościowych (SML)



***Low beta stocks*:**

Co powoduje „spłaszczenie” SML?

Linia papierów wartościowych (SML)

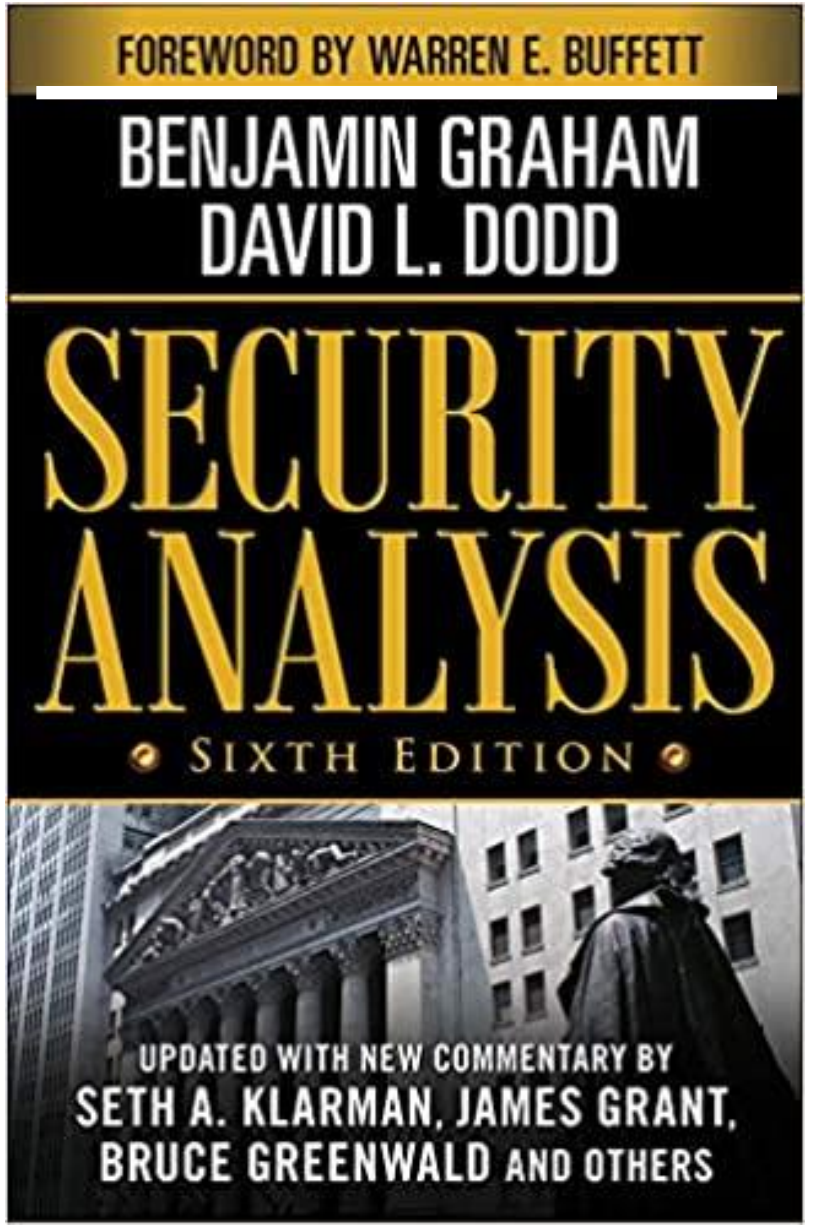


- **Capitalization-weighted indexing** has come **under fire** for **overweighting** (temporarily) **overvalued stocks** and **underweighting undervalued** ones in a portfolio.

Derek Jun, Burton Malkiel (2008) „New Paradigm in Stock Market Investing”, *European Financial Management* 14(1):118-126

Co, oprócz spłaszczenia SML, wykorzystuje Warren Buffet?

- **Benjamin Graham** and David Dodd dating back to the **late 1920s**, advocated **a form of value investing by buying profitable but undervalued assets** (Asness et. al. 2015)

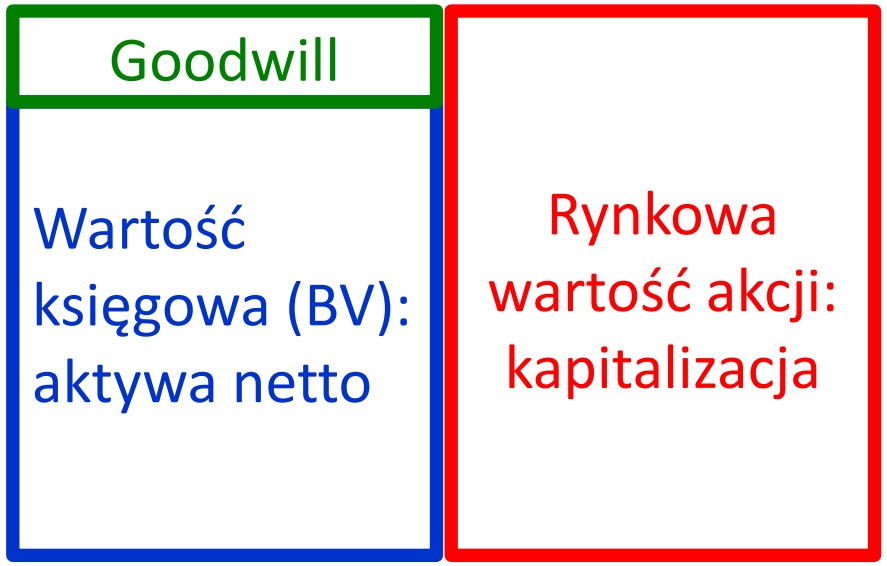


Jakie są niedogodności i ryzyka związane z *value investing*?

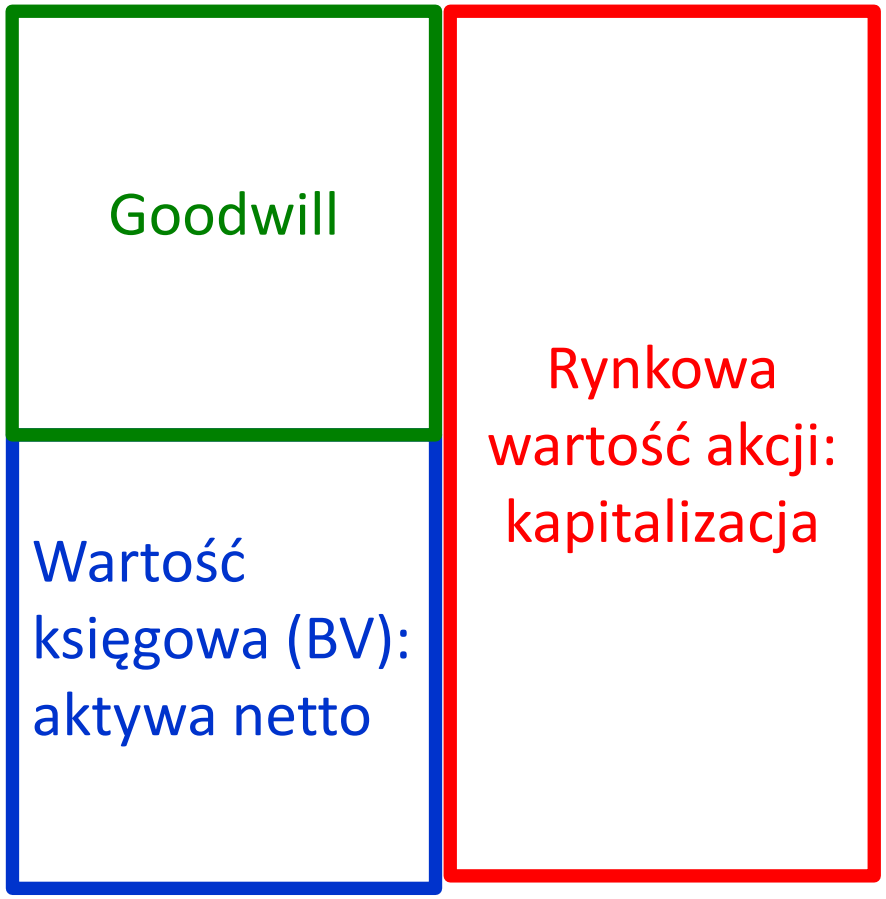
W przypadku ***value investing*** (i w ogóle ***factor investing***) *t*rzeba **długo czekać**, by dowiedzieć się, **czy** pocałowana żabka (rodzaj akcji wybranych do portfela) okaże się księciem niosącym nam w prezencie ***alfę***.

An **accounting principle** connects earnings and book value risk: under uncertainty, accounting **defers the recognition of earnings until** the uncertainty i largely resolved; until realization of **cash is relatively certain** (Penman, Reaggiani (2010)

Investors in value stocks are subject to the **risk** that **earnings** realization may be **different from expected** (Penman, Reaggiani (2010)

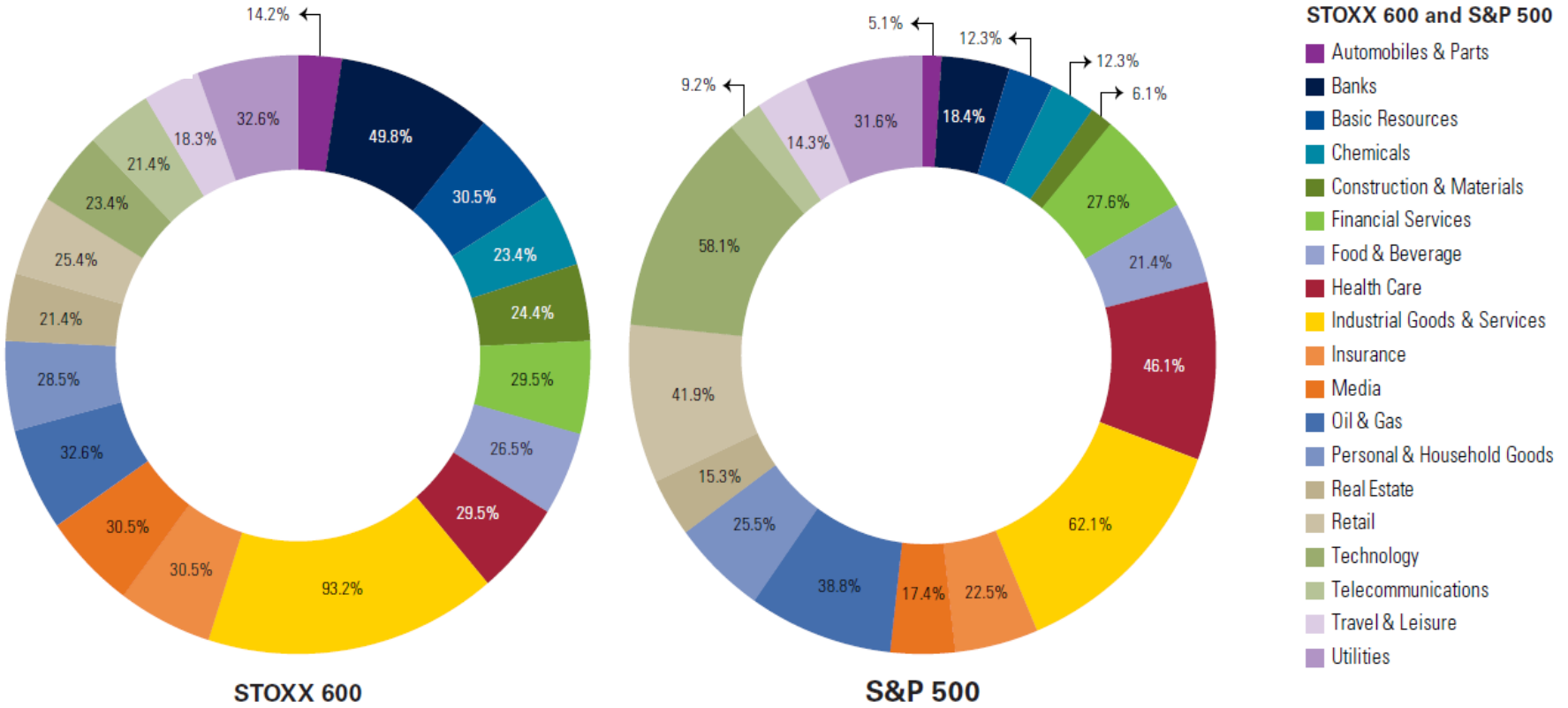


Value stock



Growth stock

Figure 8: Sample distribution across industries within STOXX 600 and S&P 500



Source: FactSet

Tables 1 and 2 show that, between 2005 and 2010, the percentage of constituents of the STOXX 600 index with market value below book value was always greater than that of the constituents of the S&P 500. The median gap, calculated as book value minus market value as a percentage of book value, was wider in Europe every year except 2005 and 2009 (Tables 1 and 2).

KPMG (2013)

- Factor return can be **highly cyclical**
- Individual factors **can underperform**

Scott N. Pappas, Joel M. Dickinson (2015)

Mimo tych niedogodności inwestowanie w *risk factors* stało się popularne


Co radzi Andrew Ang?

- Należy **dywersyfikować** portfel zawierający ***risk factors***.

- **Zmieniać stopniowo udział** różnorodnych czynników ryzyka ***risk factors*** wraz ze zmianami fazy **cyklu koniunkturalnego**

- Ang określa takie stopniowe zmienianie struktury portfela jako ***tilting*** *w odróżnieniu do określenia* ***timing*** odnoszącego się do zmian częstych i krótkoterminowych).

Andrew Ang, Ked Hogan, Justin Peterson (2018). *Exploring Fundamental Question in Factor Investing*, Investment & Wealth Institute

Za dywersyfikacją przemawiają niskie korelacje, ale…

With an average pairwise correlation of *zero* to macro factors, the addition of style factors is highly diversifying

	Carry	Momentum	Value	Quality	Min Vol	Economic	Real Rates	Emerging Markets	Credit	Inflation	Commodities
Carry	1	-0.2	0.2	-0.1	0.1	0.3	0.3	0.3	0.2	-0.2	0.4
Momentum		1	-0.4	0.1	0.0	-0.3	0.1	-0.6	-0.5	0.4	-0.5
Value			1	0.2	0.2	0.2	-0.1	0.2	0.2	-0.1	0.0
Quality				1	0.2	0.0	-0.1	-0.2	-0.1	0.1	-0.3
Min Vol					1	0.2	0.0	0.0	0.1	-0.1	0.0
Economic						1	0.3	0.3	0.7	-0.6	0.3
Real Rates							1	0.5	0.2	-0.2	0.1
Emerging Markets								1	0.5	-0.4	0.5
Credit									1	-0.7	0.6
Inflation										1	-0.6
Commodities											1

Source: BlackRock. Correlations are over a five-year period ending June 2017, using monthly returns. Macro factor returns are annualized returns that mimic each factor, adjusted to ex-ante annualized risk level of 10%. Style factor returns are adjusted to ex-ante annualized risk level of 5%. Factor returns are gross of all fees and transaction costs.

Figure 3. Market segments display seemingly random patterns of performance and return variability

Annual returns for various investment categories ranked by performance, best to worst: 2004–2013

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
16.88%	55.03%	20.19%	26.07%	6.22%	73.45%	35.36%	6.03%	18.08%	27.18%
15.76%	33.83%	18.60%	3.89%	6.04%	40.25%	29.40%	3.24%	16.80%	22.93%
15.46%	33.76%	12.66%	3.83%	-36.56%	34.17%	27.48%	-1.34%	16.32%	22.01%
12.65%	27.10%	8.71%	3.18%	-36.74%	32.56%	22.87%	-1.75%	15.13%	21.71%
10.67%	26.67%	7.78%	1.45%	-37.85%	29.68%	18.32%	-1.97%	14.83%	21.64%
7.37%	26.45%	5.16%	-0.39%	-38.58%	25.41%	17.39%	-4.29%	14.66%	20.51%
5.54%	25.35%	3.30%	-5.04%	-40.80%	23.73%	11.75%	-5.65%	14.63%	2.17%
5.02%	4.81%	1.48%	-6.12%	-43.29%	6.95%	4.70%	-7.51%	11.19%	-0.33%
3.20%	3.13%	-0.03%	-8.79%	-50.76%	5.14%	2.18%	-15.44%	5.53%	-6.49%

Top-performing asset class

Bottom-performing asset class

Small-cap equity | Emerging market equity | Mid-cap equity

European equity | Value equity | Large-cap equity

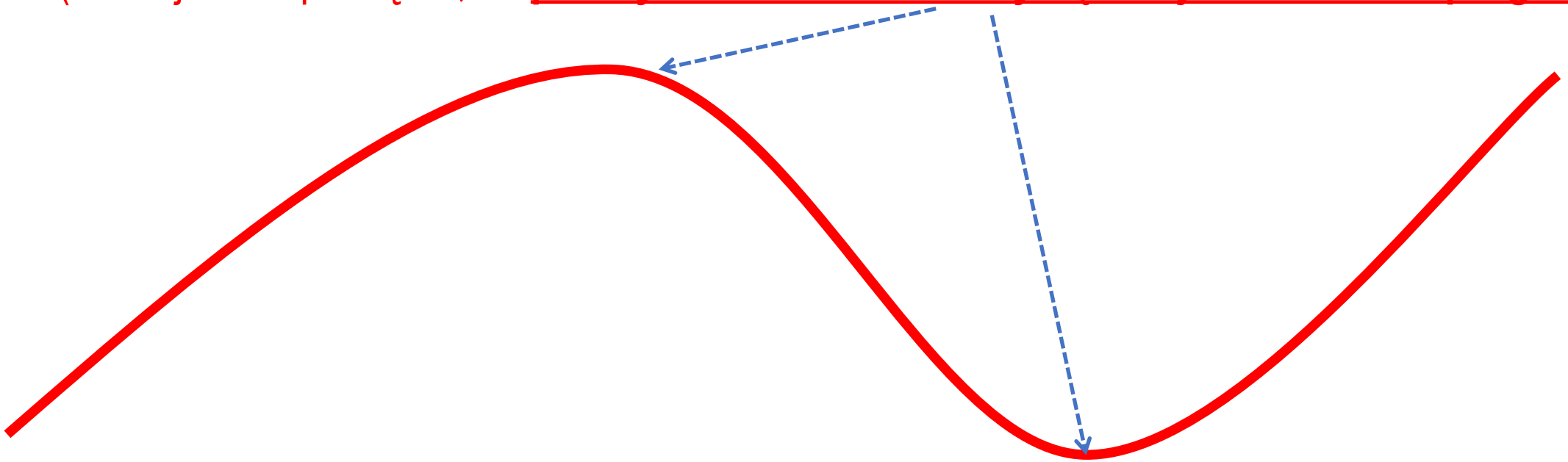
Growth equity | European Bonds | Global Bonds (hedged)

...dokonywanie zmian w strukturze portfela oznacza konieczność ponoszenia kosztów transakcyjnych.

Vanguard (2014). Vanguard's Principles for Investing Success

Andrew Ang zaleca dostosowywanie struktury portfela co zmian koniunktury

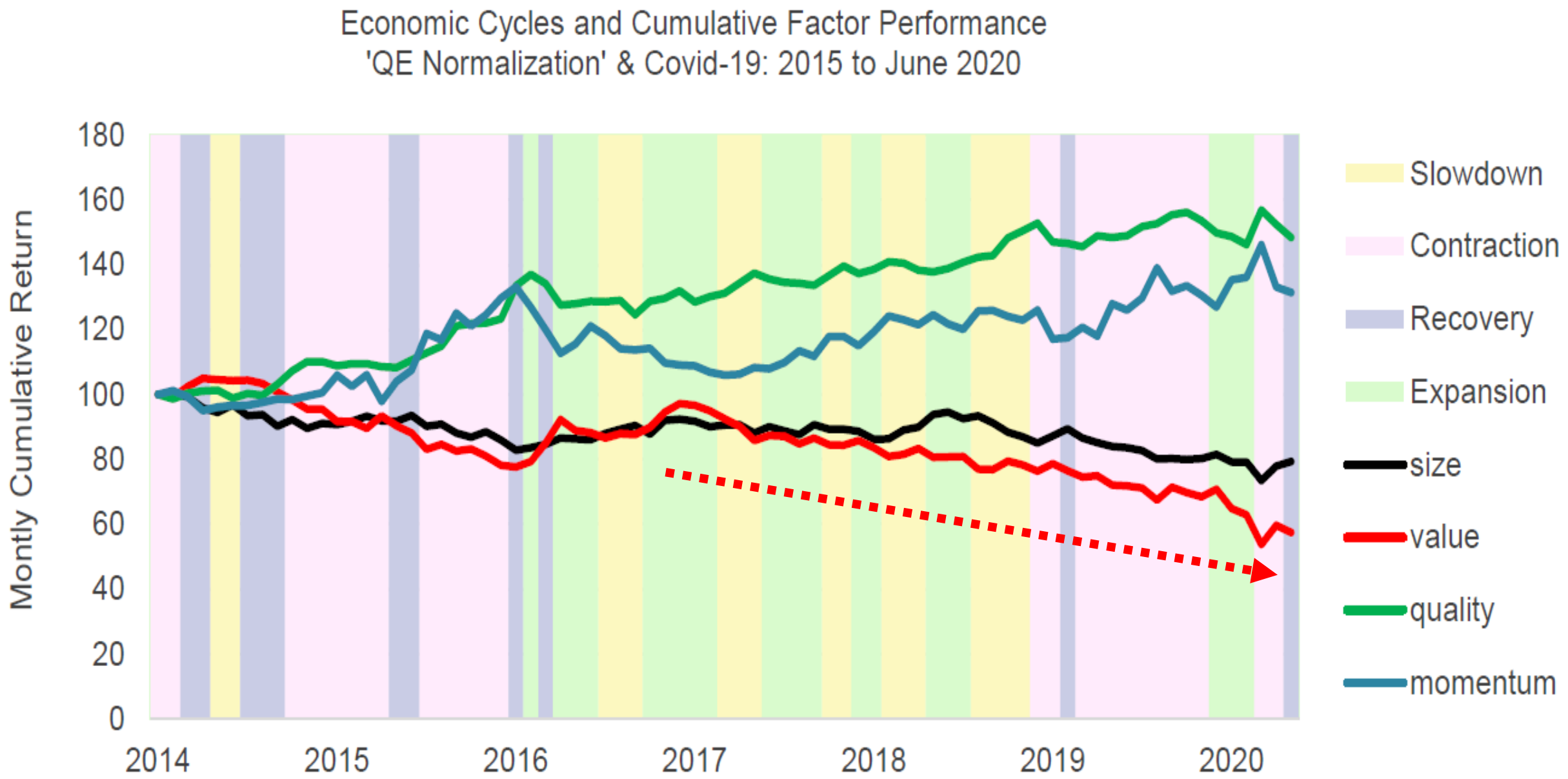
(warto jednak pamiętać, że **punkty zwrotne konunktury są skrajnie trudne do prognozowania**)



Ożywienie | **Spowolnienie i recesja** | **Ożywienie**

Momentum | ***Low beta, Quality*** | ***Small-cap, Value stocks***

Andrew Ang, Ked Hogan, Justin Peterson (2018). *Exploring Fundamental Question in Factor Investing*, Investment & Wealth Institute



Marlies van Boven (2021). *Do factors carry information about the economic cycle?* ftserussell.com

Portfele zawierające czynniki ryzyka w różnych proporcjach określana się (marketingowo) **jako *smart beta***

Risk factors – **Fundamental indexing**

- **Smart Beta** is an exposure to **market-capitalization-weighted** indices (traditional beta) **plus attempt to outperform these indices**.

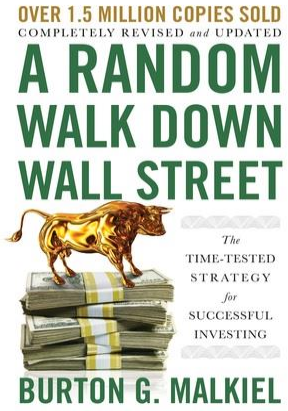
- **For instance**, take the case of an index where you weight stock not by their market capitalization, but instead by their **sales**.

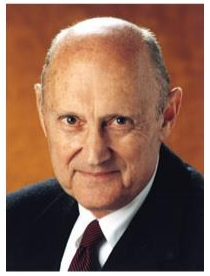
- Weight of stock will be its weight in the capitalization of the market multiplied by the variety of fundamental-to-price ratios: **S/P** (sales growth-to-price) **E/P** (earnings-to-price), **CF/P** (cashflow-to-price), **D/P** (dividend yield-to-price),

Clifford Asness, John Liew, 2014

Traditional capitalization-weighted indexing

John Bogle (założyciel Vanguard)





Princeton University

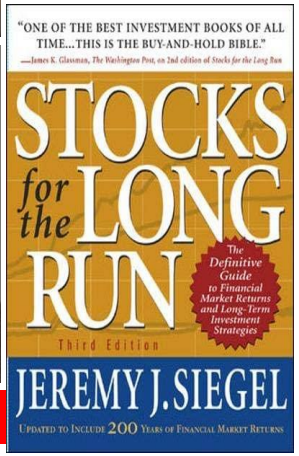
Clifford Asness

AQR Applied Quantitative Research

Fundamental indexing (*smart beta*)

Robert Arnott Research Affiliates)

Wharton School

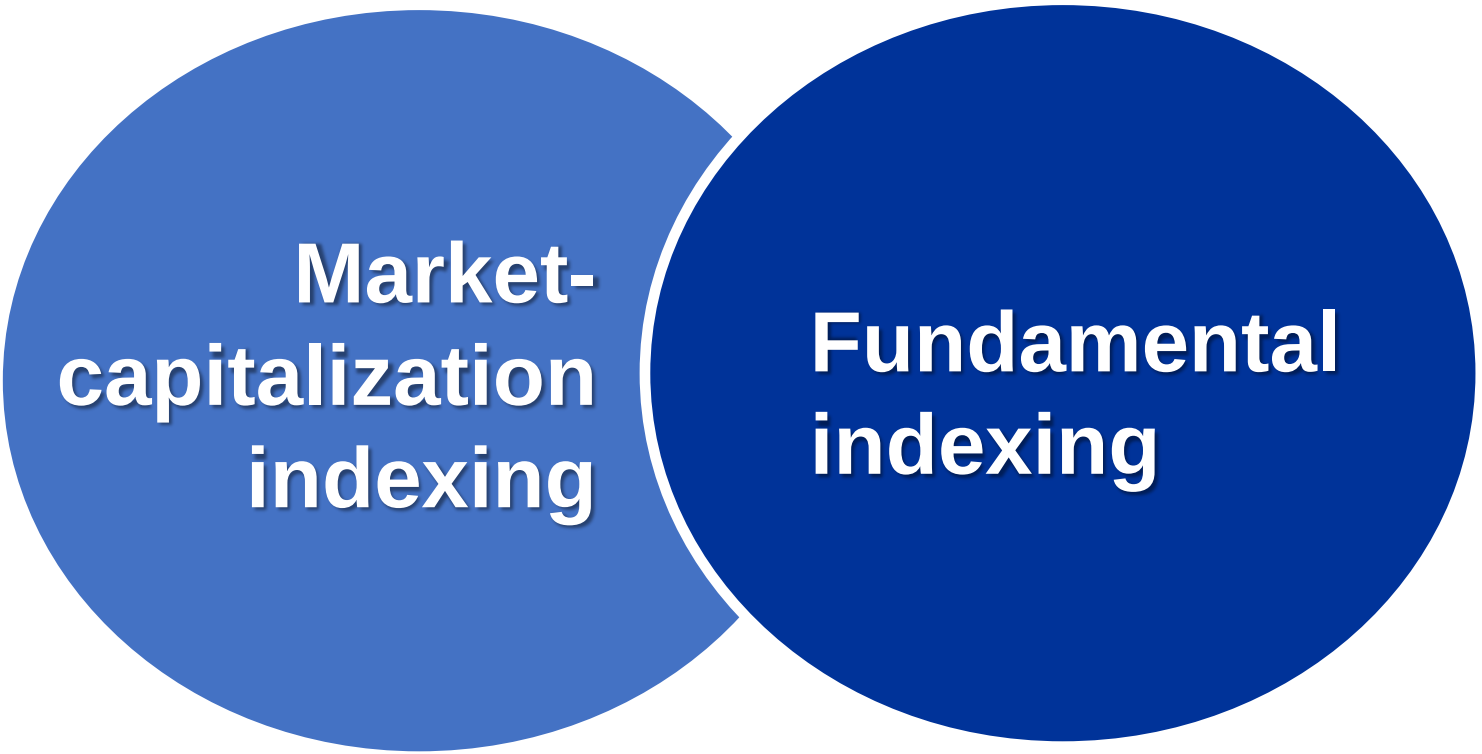


- **Fundamental indexing does not produce** a positive **alpha** when it excess returns are **explained by** the **Fama-French three-factor** model of CAPM beta and, the value premium, and the size premium (Jun, Malkiel, 2008)

- In the 2000s, **Fundamental indexing** has **outperformed** both the S&P500 and Russell capitalization weighted indices by substantial margin (Jun, Malkiel, 2008).

- **„Smart beta”** (…) strategies achieve is from the **greater risk** they take on by tilting toward **small-cap** and **other non-capitalization weighting**.

- **„Factor betas**” are a compensation for taking an **additional types of risks** (Malkiel 2014)



- By and large, **active investing has not produced better** performance for most investors.
- At Wisdom Tree we have devised dividends- and earning weighted indices that **we believe** will outperform the broad based capital-weighted indices. **I believe passive investing** based on **intelligently conceived indices is sound way to invest** (Siegel 2030)

Co przemawia za portfelami smart beta?

- The argument for **using several factors** simultaneously is **strongly supported by** decades of **academic research**.

- Return differentials from **positive momentum** have close to a **zero correlation with** the **value** factor and

- A **negative correlation with** the low **volatility** factor

Burton G. Malkiel (2017)

Krytyka portfeli smart beta

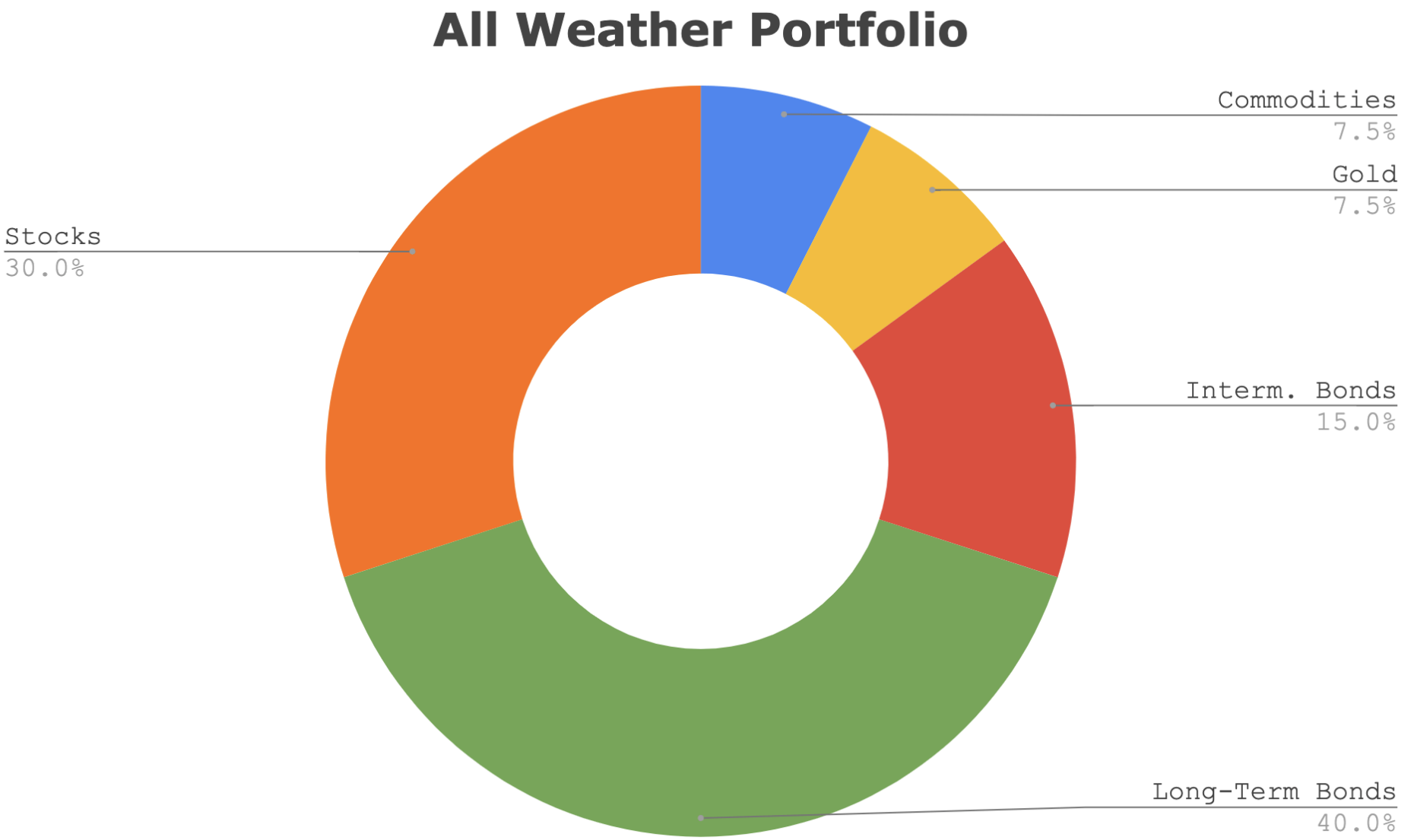
- **Smart beta** is much more about **smart marketing** than is smart investing **any excess return** these strategies achieve is from the **greater risk** they take on by tilting toward small-cap and other non-capitalization weighting (Malkiel 2014)
- „Factor betas" are a **compensation for taking an additional types of risks** (…) **Likewise**, if a **fixed income portfolio** outperforms the broad bond market index by loading more heavily on bonds with **higher credit risk**, this is not alpha but capture of additional returns compensating additional return compensation additional credit exposure or higher „credit beta" (Amenc et. al. 2016)
- **Superior timing and selection skills are extremely rare** and show little persistence (Amenc et. al. 2016)

Risk parity: lewarowanie mało ryzykownych aktywów

- Risk parity portfolios **appear to offer** the attractive combination of lower risk and higher return when comparing to a traditional 60/40 stock /bond benchmark
- It is probably due to the fact that **equities have been such a disappointing asset over the last decade** that alternatives to the 60/40 portfolio like **risk parity portfolios have come to the fore**.
- The risk portfolio would have resulted in a **30/70** equity bond allocation
- Leverage is a dangerous tool for investors. **An unlevered investor can** generally afford to **wait** for prices to converge toward economic reality, but a **levered investor may not have that luxury**

J. Bender, R. Briand, D. Melas, R. A. Subramanian (2010). „Foundations of factor investing”, MSCI Research Insight, December

Co charakteryzuje portfele All-Weather Portfolios Raya Dalio ?



Bridgewater: How Bridgewater Associates created the All Weather investment strategy, The foundation of *risk parity* movement (2012)