

2023 Outlook: It hinges on how inflation comes down and peace is found



David Bianco
Americas Chief Investment Officer
DWS

Higher Fed overnight interest rates and at best flattish S&P EPS limit upside

2022 brought the highest inflation in 40 years, swelling recession, interest rate and valuation risks. How this inflation comes down, demand vs. supply-side, and how much longer until it returns to target will influence whether it scars economic potential/ productivity and financial market risk premiums. 2023 outcomes are likely to influence overnight real interest rates, longer-term inflation risk premiums and cycle longevity expectations and thus equity risk premiums for the rest of the decade. This struggle with inflation is compounded by a war entering its second year that is dangerous and the most divisive between the great powers of the east and west since the rise of the Berlin Wall. How and what kind of peace Russia and Ukraine find will affect Europe and US-China relations for the rest of this decade.

Investment themes and views for 2023:

- Shallow recession in the US & Europe, but no deflation and benign credit costs are likely:** We expect a small US & European recession in 1H23 led by declines in goods consumption and manufacturing and marked by disinflation, not deflation, and a relatively soft landing in the US jobs market owing to resilience in services and tightness in labor supply given demographics. Because we expect limited damage to employment and household assets (w/ good equity cushions), we think 2023 presents opportunities in credit investing and banks. We stick with short duration bonds and net interest income sensitive banks until more economic clarity and stable 10yr Treasury yield.
- How high will the Fed go? We think 5.0-5.25%:** Since 1982, the average hiking cycle was near 300bp over about 15 months. Last cycle, the overnight rate plateaued at 2.25% in 2019 and before that at 5.25% in 2007. We expect the Fed Funds rate to plateau in 1Q23 between 5.0-5.25%, a 500bp+ climb in a year. This should slow inflation and the economy. Unless the recession is deeper or longer than we expect, rate cuts are unlikely until 2024 to ensure inflation embers are extinguished. Thus, investors have a good risk-free alternative while watching how 2023 develops.
- Long-term interest rates rise to pre financial crisis range. What's the norm for the 2020s?:** We expect 10yr Treasury yields to rise to 4.20% at 2023 end with long-term inflation expectations and breakevens at about 2.5%. Thus, 10yr TIPS yields at 1.50-1.75%, up from about 1.25% today. This is a big difference from our nominal and real yield expectations from this time last year. This is because inflation climbed higher and for longer and broader in 2022 than we expected last year. Uncertainty remains very high for Treasury yields. The basics of reasonable inflation assumptions and inflation risk premiums remain unsure and so does risk asset hedge value of Treasury bonds given the large simultaneous losses in fixed income and equities in 2022. Moreover, the deficit remains high and the Fed will likely sell over \$1 trillion of its Treasury and MBS holdings next year.
- How to tame inflation in 2020s? Productivity is key:** Taming inflation will be a challenge; owing to global conflict, smaller trading blocs, reshoring, demographics, environmental considerations, other regulations and the challenge of raising productivity at mature service oriented economies. Such challenges should affect real growth more than inflation if there is monetary and fiscal policy discipline. But, because such policy decisions will be tough, it's important to stay on guard against elevated inflation risk. Most commodity and goods prices declined from early 2022 highs, but while oil is in a lot of things, labor is in everything. Thus, improved labor productivity is the key to healthy real growth and easing some difficult policy choices ahead. We expect employment, income and equality to become even more controversial ahead. Meanwhile in 2022, productivity is very weak at -1.3% y/y YTD with wages up 6.0%, boosting unit labor costs (ULCs) by about 7% y/y.
- S&P sector strategy:** Under a weak macro backdrop, we embrace robust secular trends resistant to cyclical disruptions, such as: Healthcare solutions for an aging world, productivity enhancers for a tight labor market (selectively in Tech Services, Industrial Capital Goods), experience providers for in-person social and business gatherings (Hotels, Airlines), Aerospace & Defense (A&D) to get to and defend people and places we cherish, clean energy and electrification plays offering fair equity returns (Utilities, Elec. Equip.). Our preferred high beta industry remains Banks on higher interest rates and higher normalized EPS and ROEs. We over-weight Communications as an overlooked value play, as the risk of profit decay appears more priced here than elsewhere.
- A better relative decade likely for small vs. large caps:** Competitive US corp tax rates, strong dollar, higher interest rates and reshoring supports better small vs. large cap secular performance this decade. Banks and Industrials are big sectors at profitable small caps. We shop in small Tech.
- Keep foreign equities in the portfolio, search for value and lower correlations:** Foreign DM is value tilted. Europe & Japan could outperform the S&P in 2022. We maintain exposure to China as it gradually reopens; including its premier digital enterprises heavily discounted for gov't risk.
- 2023E S&P EPS \$225:** Flat S&P EPS, assumes \$80-100/bbl avg. oil, stable dollar, benign credit costs at banks. Tech, Health Care and Financials are the 3 largest S&P 500 earnings contributors at 21%, 16%, and 15%, respectively. We expect EPS at these 3 to be flat to slightly up. But down at Energy, Materials, Consumer Discretionary ex. Restaurants/Hotels and Industrials ex. A&D.
- A more reasonable PE:** 18x supported by still low (albeit positive) real yields, high quality growth tilted S&P composition and low investment fees. Our S&P real cost of equity estimate is 5.5%: 1.5% 10yr TIPS yield + 4% Equity Risk Premium = 5.5%. This supports a fair PE of 1/5.5%=18.2.
- Signs to watch in 2023:** Positives: Real S&P EPS Growth despite a small recession or below 4% 10yr yield without a recession. Negative: Still high ULCs and loan growth feed wage-price spiral.

Global Equity Index Forecasts: 12-months			
Index	Dec 2023F	NTM EPS Growth	Target PE
S&P 500	4,100	1.4%	18.2
EuroStoxx 50	4,000	-2.0%	12.2
Stoxx 600	445	-1.0%	13.0
MSCI Japan	1,250	2.0%	13.3
MSCI Asia xJ	625	2.0%	13.6
MSCI EM	990	0.0%	12.5

S&P 500 Outlook at Yearend			
	2021	2022F	2023F
S&P 500	4766	3800	4100
Dividend Yield	1.3%	1.75%	1.75%
S&P EPS	\$210	\$222	\$225
Trailing PE	22.7	17.1	18.2
DPS	\$61	\$68	\$70

S&P 500 Outlook at Yearend			
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Next 5%+ Price Move
(Up / Balanced Risk / **Down**)
Risk of near-term 10%+ correction
(Low / **Moderate** / High)

Taxable U.S. Investor Asset Allocations		
Asset Class	Long-term	Current
Fixed Income/Cash	30-35%	38.0%
Equities	55-60%	52.5%
US Equities	40%	36.0%
S&P 500	35%	32.0%
Small Caps	0-10%	4.0%
Foreign DM	10-15%	10.5%
Foreign EM	0-10%	6.0%
Alternatives	10%	9.5%

Key CIO Views		
Macro signal:	Current	Dec 2023F
U.S. Fed Funds rate	3.75%-4%	5%-5.25%
10yr Treasury yield	3.60%	4.20%
US IG Corp Spreads	180bp	130bp
US High Yield Spreads	500bp	500bp
Crude Oil (WTI) \$/bbl	71	100
EUR / USD FX rate	1.06	1.05

GDP Forecasts			
Region	2021	2022F	2023F
US	5.7%	1.8%	0.4%
World	6.0%	3.2%	2.8%
Euro area	5.2%	3.2%	0.3%
China	8.1%	3.3%	5.0%
Japan	1.7%	1.6%	1.2%

* Q4/Q4 GDP growth.
EPS = Earnings Per Share
GDP = Gross Domestic Product
FX = Foreign Exchange
TIPs – Treasury Inflation Protected Securities
Source: DWS Investment Management GmbH. All opinions and claims are based upon data on 12/12/2022 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. All foreign asset exposures are not FX hedged unless otherwise noted. For illustrative purposes only.

Contributor: Ju Wang, Portfolio Manager Equity

Big Picture: Next five years will not be like the past five years – major changes expected



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Source: DWS Investment GmbH, as of November 2022

Overview of Strategic 12-Month Forecasts

Fixed Income

	Market Index	Strategic Forecast Aug-22	Current level	12m forwards	Strategic Forecast Nov-22	Forecast change	Expected 12m Total Return	Long-term 10yr Total Return p.a. ⁴
		Target Sep-23	17-Nov-22	17-Nov-22	Target Dec-23			
Forecasts - US								
UST 2yr	US 2y yield	3.10%	4.36%	3.96%	4.10%	↗	4.51%	3.99%
UST 10yr	US 10y yield	3.20%	3.72%	3.66%	4.20%	↗	0.65%	4.78%
UST 30yr	US 30y yield	3.45%	3.87%	3.79%	4.35%	↗	-3.92%	4.89%
Municipals	Muni HY Index OAS	2.50%	2.36%		2.45%	↘	5.84%	3.59%
US IG Corp	BarCap US Credit	150 bp	129 bp		130 bp	↘	1.10%	5.11%
US HY ¹	Barclays US HY	550 bp	455 bp		500 bp	↘	5.16%	7.42%
Securitized / MBS	MBS Index OAS	40 bp	45 bp		40 bp	→	1.27%	4.39%
Forecasts - Europe								
Schatz 2yr	GER 2y yield	1.65%	2.09%	1.86%	2.30%	↗	1.82%	2.12%
Bund 10yr	GER 10y yield	1.75%	1.99%	2.00%	2.40%	↗	-0.56%	1.69%
Bund 30yr	GER 30y yield	1.85%	1.93%	1.92%	2.40%	↗	-7.89%	2.27%
Gilt 10yr	UK 10y yield	2.70%	3.14%	3.25%	3.30%	↗	2.02%	4.94%
EUR IG Corp	ICE BofA Bond Index	150 bp	189 bp		150 bp	→	4.16%	4.02%
EUR HY ¹	ML EUR Non-Fin HY Constr. Index	550 bp	527 bp		550 bp	→	4.61%	7.01%
Securitized / Covered	iBoxx Covered	80 bp	84 bp		90 bp	↗	1.47%	2.99%
Italy 10yr ³	GTITL10Y Corp - GTDEM 10Y Corp	220 bp	197 bp	200 bp	240 bp	↗	-1.41%	n/a
Spain 10yr ³	GTESP10Y Corp - GTDEM 10Y Corp	110 bp	102 bp	110 bp	110 bp	→	-0.04%	n/a
Forecasts - AsiaPac								
JGB 2yr	JPN 2y yield	0.00%	-0.04%	-0.02%	0.00%	→	-0.03%	-0.21%
JGB 10yr	JPN 10y yield	0.20%	0.25%	0.42%	0.20%	→	0.83%	0.88%
Asia Credit	JACI Index	340 bp	372 bp		380 bp	↗	5.85%	-
Forecasts - Global								
EUR vs USD	EUR/USD	1.05	1.04		1.05	→	-1.07%	-
USD vs JPY	USD/JPY	130	139		140	↗	5.14%	-
EUR vs JPY	EUR/JPY	137	145		147	↗	4.08%	-
EUR vs GBP	EUR/GBP	0.88	0.87		0.90	↗	1.50%	-
GBP vs USD	GBP/USD	1.20	1.19		1.15	↘	-3.91%	-
USD vs CNY	USD/CNY	6.95	7.1		7.35	↗	5.34%	-
EM Sovereign ¹	EM BIG Div.	500 bp	485 bp		500 bp	→	2.87%	8.33%
EM Credit ¹	CEMBI Broad	390 bp	424 bp		425 bp	↗	5.42%	7.89%

Benchmark Rates

	Market Index	Strategic Forecast Aug-22	Current Level	Strategic Forecast Nov-22	Forecast change	Expected 12m Total Return	Long-term 10yr Total Return p.a. ⁴
		Target Sep-23	17-Nov-22	Target Dec-23			
Forecasts - Benchmark rates							
United States	Federal funds rate	3.50-3.75	3.75-4.00	5.00-5.25	↗		
Eurozone	Deposit rate	2.00	1.50	3.00	↗		
United Kingdom	Repo rate	2.50	3.00	4.00	↗		
Japan	Overnight call rate	0.00	0.00	0.00	→		
China	1year lending rate	3.50	3.65	3.65	↗		

Equities

Forecasts - Equity							
	Market Index	Target Sep-23	17-Nov-22	Target Dec-23	Forecast change	Expected 12m Total Return	Long-term 10yr Total Return p.a. ⁴
US	S&P 500	4,200	3,959	4,100	↘	5.16%	6.90%
Germany	DAX	14,400	14,285	15,000	↗	5.01%	7.55%
Eurozone	Eurostoxx 50	3,750	3,886	4,000	↗	6.88%	6.87%
Europe	Stoxx 600	445	430	445	→	7.14%	6.44%
Japan	MSCI Japan	1,250	1,205	1,250	→	6.34%	4.96%
SMI	SMI	11,150	10,938	11,150	→	5.15%	6.67%
UK	FTSE 100	7,350	7,318	7,600	↗	8.59%	6.72%
Emerging Markets	MSCI EM	1,030	954	990	↘	6.86%	8.67%
Asia ex Japan	MSCI AC Asia ex Japan	660	610	625	↘	5.32%	8.69%
Australia	MSCI Australia	1,350	1,408	1,450	↗	7.53%	10.15%

Alternatives

Forecasts - Commodities							
	Market Index	Target Sep-23	17-Nov-22	Target Dec-23	Forecast change	Expected 12m Total Return	Long-term 10yr Total Return p.a. ⁴
Gold	Gold Spot	1,875	1,767	1,850	↘	4.71%	160%
Oil - Spot ²	Brent Spot	100	92	100	→	-	n/a
Oil - Futures ²	Brent 12m Futures	-	83	-	-	20.64%	4.99%
Carbon	Carbon 12m Futures	85	74	85	→	14.32%	n/a
Real Estate & Infrastructure							
Listed US RE						5.00%	6.15%
Non-Listed US RE						-5.00%	4.77%
Listed Global RE						4.50%	5.52%
Non-Listed Global RE						-2.00%	n/a
Listed Infrastructure						5.00%	6.51%

¹US HY default rate: 3%, 40% recovery, CCC average price of 80 used (instead of par); EUR HY default rate: 3.5%, 40% recovery; EM Sov default rate 6%, 50% recovery; EM Credit default rate 6%, 35% recovery // ²Oil-Futures used to calculate expected TR; forecasts are made on Brent-Spot // ³Total return. Excess return for Italy 10yr and Spain 10yr is -0.84% and 0.51%, respectively // ⁴LTCMA forecasts for Gold and Oil based on futures

Source: DWS Investment GmbH; as of November 2022. Past performance may not be indicative of future results.

GDP Growth Rate

% year-on-year

	2021	2022F	2023F	Consensus 2023 (BBG)
World	6.0	3.2 (3.1)	2.8 (3.1)	2.3 (2.7)
U.S. *	5.7	1.8 (1.9)	0.4 (0.7)	0.4 (1.1)
EUZ	5.2	3.2 (3.1)	0.3 (0.6)	-0.1 (0.8)
GER	2.9	1.8 (1.5)	0.0	-0.5 (0.6)
UK	7.5	4.3 (3.5)	-0.6 (-0.2)	-0.4 (0.1)
Japan	1.7	1.6 (1.5)	1.2 (0.9)	1.4 (1.6)
China	8.1	3.3	5.0 (5.3)	5 (5.2)

Inflation (CPI)

% year-on-year average

	2021	2022F	2023F	Consensus 2023 (BBG)
World				4.8 (4.4)
U.S.**	3.3	8.2 (8.0)	4.1 (3.7)	4 (3.7)
EUZ	2.5	8.4 (8.2)	6.0 (5.0)	5.5 (4.1)
GER	3.1	8.9 (8.0)	7.0 (6.2)	6.2 (4.5)
UK	2.6	9.0 (8.9)	7.8 (6.5)	6.2 (6.5)
Japan	-0.2	2.3 (2.1)	1.6 (1.7)	1.5 (1.3)
China	0.9	2.0 (2.3)	2.3 (2.5)	2.3

Unemployment Rate (Annual average)

%

	2021	2022F	2023F	Consensus 2023 (BBG)
U.S. **	5.4	3.6 (3.8)	4.4	4.25 (4)
EUZ	7.7	7.0	6.8	7.1 (7)
GER	5.7	5.3 (5.0)	5.6 (5.0)	5.6 (5.2)
UK	4.5	3.8 (4.0)	4.2 (4.6)	4.4 (4.3)
Japan	2.8	2.6 (2.5)	2.5 (2.5)	2.5
China****	5.1	5.2 (5.5)	5.0 (5.3)	3.9

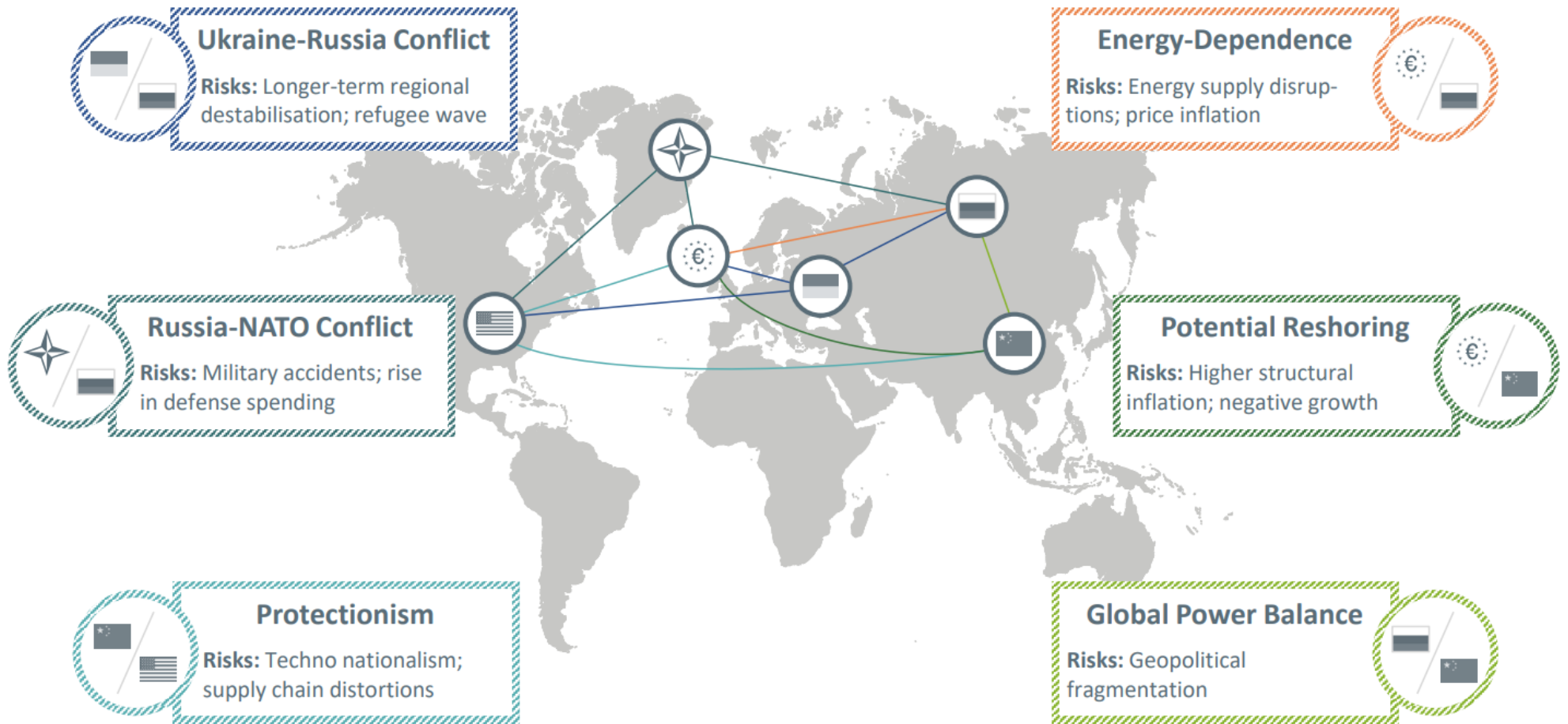
Fiscal Balance

% of GDP

	2021	2022F	2023F	Consensus 2023 (BBG)
U.S***	-10.8	-4.4	-3.9	-4.0
EUZ	-5.5	-3.7 (-4.1)	-3.4 (-3.3)	-3.6 (-3.2)
GER	-3.7	-2.2 (-3.2)	-2.4 (-2.0)	-2.6 (-2)
UK	-7.9	-6.8 (-4.0)	-5.5 (-4.0)	-6.7 (-3)
Japan	-7.6	-8.5 (-7.5)	-4.0 (-5.0)	-4.5
China*****	-6.1	-8.9 (-11.0)	-7.2 (-7.5)	-4.5 (-4.55)

Source: DWS Macro Research. (*) For the U.S., GDP growth Q4/Q4 % is 0.5% in 2022 and 1.6% in 2023, (**) Measure is CPI, other measures see US part of the presentation (***) Fiscal balance is federal deficit only. (****) Urban unemployment rate (end of period), not comparable to consensus data, (***** China fiscal deficit refers to 'augmented deficit' and is not comparable to last data and consensus estimate. as of November 2022.

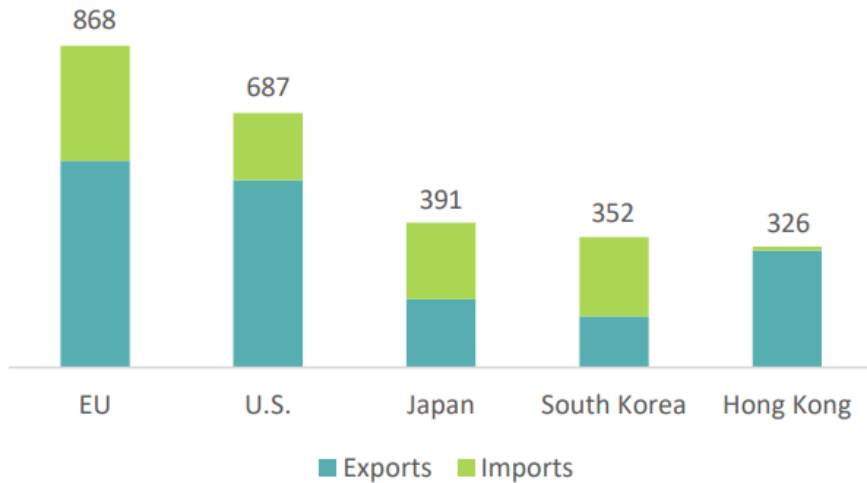
Russia-Ukraine war only one of many factors leading to retreat of true globalisation



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Source: DWS Investment GmbH, as of November 2022

Globally interconnected - China's main trading partners

Nominal trading volume in 2021 (bn USD)



Global exports of goods and services in 2021 (% of nominal GDP)



Numerous challenges to trade links with China

▶ Geopolitical ambition increasing **risks of sanctions and trade war**

▶ **Housing crisis:** uncertainty weighs on housing demand and activity

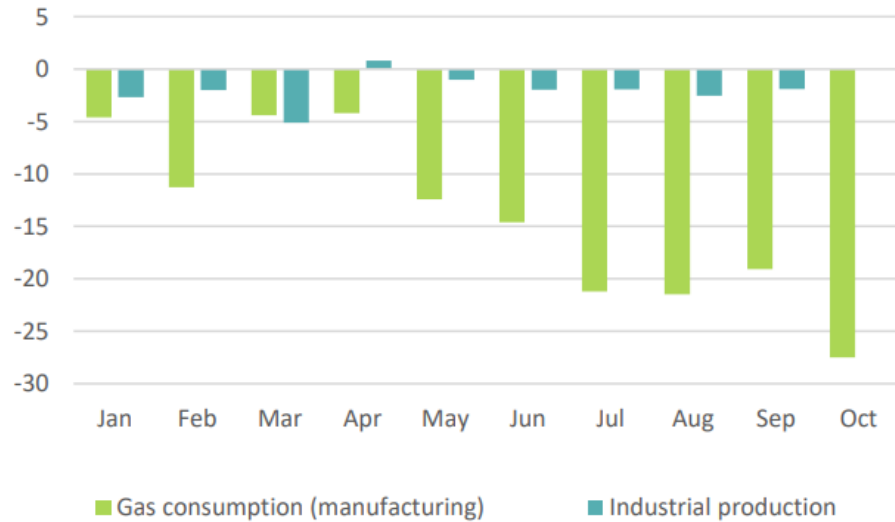
▶ **Common prosperity:** Strategy can harm entire sectors short-term despite long-term benefits

▶ **Zero Covid policy:** Remains drag for global growth

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Gas consumption fell more than production

2022 vs 2018-2021 in %



1-year change of gas consumption of German households (in GWh/day)

October 2021

1,019

October 2022

549

%-Change

↘ -46%

Flexibility higher than expected

Industry & households **consume less gas**

Substitution of Russian gas advances well (LNG)

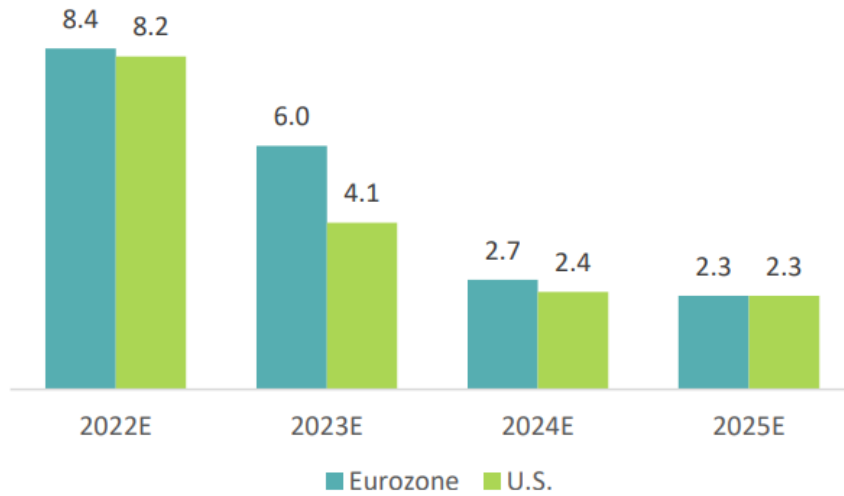
High energy prices **weigh on consumers**

Drag on corporate Germany's **competitiveness**

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Sources: Bundesnetzagentur, Bloomberg Finance L.P., DWS Investment GmbH, as of November 2022

Inflation U.S. and Eurozone

CPI, in % Y/Y



2023 Inflation Forecasts¹

Eurozone
6.0%

U.S.
4.1%

Inflation expected to come down in 2023

▶ **2022 inflation levels highest in decades**

▶ **European data influenced by government subsidies**

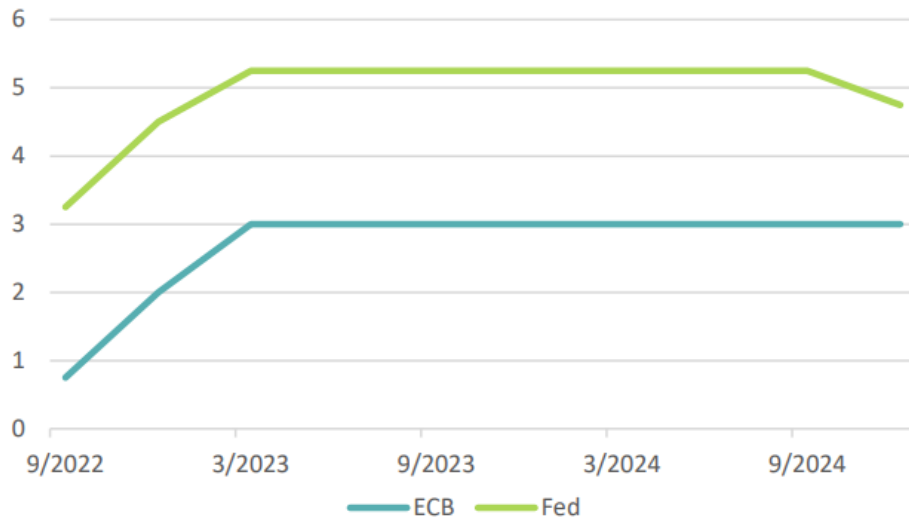
▶ **Short-term risks: Energy, wages, supply chains**

▶ **Long-term drivers: Demography, De-globalisation, climate change**

(1) CPI Y/Y in % // E = Expected // Forecasts are not a reliable indicator of future returns. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect. Sources: Bloomberg Finance L.P., DWS Investment GmbH, as of November 2022

Hiking in a supply-induced inflation environment

Forecast %



Forecasts 2023

ECB¹
3.0%

Fed²
5.0-5.25%

Fastest rise in interest rates in decades

Central banks are **hiking beyond the neutral rate**

In contrast to '70s, **later & slower rate cuts** expected

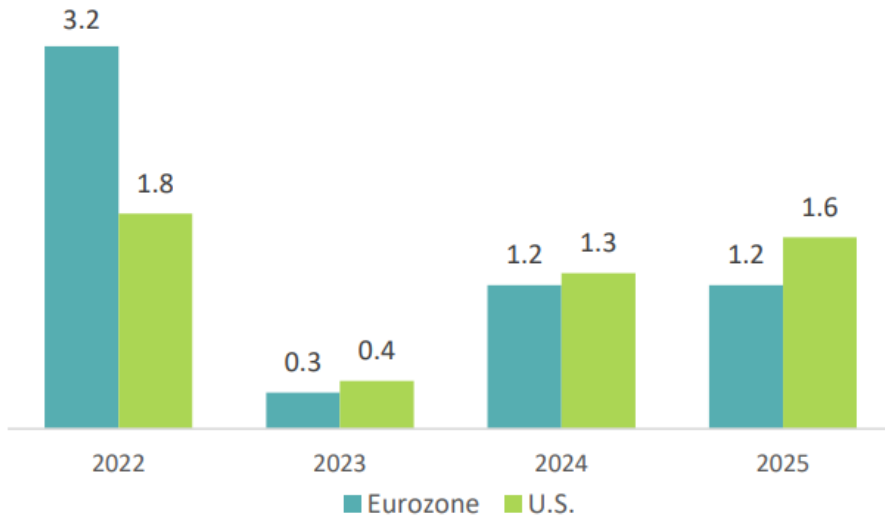
Long-term, **debt burdens limit CB's room to hike** rates

CB's influence on **supply-induced** inflation drivers is limited

(1) ECB Deposit Facility Rate. (2) Fed Funds Rate // Forecasts are not a reliable indicator of future returns. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect. Sources: Bloomberg Finance L.P., DWS Investment GmbH, as of November 2022

Growth outlook U.S. & Eurozone

In % Y/Y



2023 Growth Forecasts

Eurozone¹
0.3%

U.S.¹
0.4%

Mild recession followed by structurally lower growth

Decreasing real disposable income & real consumption **dampens real economic activities**

Labor markets expected to remain **resilient**

Tightening starting to feed through **interest sensitive sectors**

Mild recession followed by equally weak recovery

(1) GDP Growth Forecasts Y/Y. // Forecasts are not a reliable indicator of future returns. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect. Sources: Bloomberg Finance L.P., DWS Investment GmbH, as of November 2022

Prepare for a new economic era



Times of ample liquidity are over. CBs have to fight inflation. **Governments** can't increase deficits indefinitely



Mild recession ahead. Strong labour markets, solid balance sheets, only moderate pickup in defaults. But recovery will be muted.



Plenty of ruptures: tensions in China/ deglobalisation/ demographics

Most politicians, central bankers and investors have never operated in this kind of environment

What does this mean for investing

2022 market correction beneficial for valuation

Yields are back: After year of record losses bonds now attractive (even in case of mild recession)

Corporate Earnings holding up well, however limited EPS growth ahead, tech under cost pressure

Staying defensive, hedging against inflation and focus on opportunities of big structural trends

60/40 makes sense again. Comeback of diversification

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DWS Americas CIO View

DWS Investment GmbH Forecasts: U.S. GDP, inflation, fed funds rate, unemployment rate, federal debt and deficit

US	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
GDP (%qq, annualized)	1.0	-0.8	-0.6	1.2	1.6	1.2	1.4	1.6	2.0
GDP (%yy)	0.3	0.5	0.5	0.2	0.3	0.9	1.4	1.5	1.6
GDP (%qq)	0.3	-0.2	-0.2	0.3	0.4	0.3	0.4	0.4	0.5
Unemployment Rate % (EOP)	3.6	3.8	4.0	4.2	4.4	4.3	4.1	4.1	4.0
PCE (EOP)	5.7	4.6	3.6	3.0	2.7	2.5	2.3	2.2	2.2
Core PCE (EOP)	4.6	4.0	3.2	2.8	2.6	2.5	2.3	2.2	2.2
Fiscal balance (% GDP)	-4.4				-3.8				-4.1
FFR (EOP)	4.25 - 4.5	5 - 5.25	5 - 5.25	5 - 5.25	5 - 5.25	4.5 - 4.75	4 - 4.25	3.75 - 4	3.5 - 3.75

Key-Forecasts		2022			2023			2024
		New	chng.	Old	New	chng.	Old	New
Growth	average	1.8%	0.0%	1.9%	0.4%	-0.3%	0.7%	1.3%
	Q4/Q4	0.3%	-0.2%	0.6%	0.3%	-0.7%	1.1%	1.6%
PCE Price Index	average	6.2%	0.2%	6.0%	3.7%	0.1%	3.6%	2.3%
	dec/dec	5.7%	0.8%	4.9%	2.7%	0.0%	2.8%	2.2%
Core PCE Price Index	average	4.9%	0.2%	4.7%	3.3%	0.0%	3.3%	2.3%
	dec/dec	4.6%	0.3%	4.3%	2.6%	0.0%	2.6%	2.2%
Headline CPI	average	8.1%	0.1%	8.0%	4.1%	0.4%	3.7%	2.4%
	dec/dec	7.2%	0.7%	6.5%	2.8%	0.1%	2.7%	2.2%
Fed Funds Rate (EOP)	lower	4.25	0.75	3.50	5.00	1.50	3.50	3.50
	upper	4.50		3.75	5.25		3.75	3.75
Terminal Rate (upper)	March				5.25			
Unemployment Rate	EOP	3.6	-0.2	3.8	4.4	0.1	4.3	4.0
Fiscal Deficit	EOP	-4.4	0.0	-4.4	-3.8	0.2	-4.0	-4.1

Source: DWS Investment GmbH as of 12/6/2022. Past performance may not be indicative of future results.

U.S. bear markets since 1929

	1929-32	1937-38	1939-42	1946-49	1956-57	1961-62	1969-70	1973-74	1980-82	1987	1990-91	2000-02	2007-09	Avg (1960-2009)
S&P price at peak	31.86	18.67	13.21	19.25	49.74	72.64	108.37	120.24	140.52	336.77	368.95	1527.46	1562.47	
S&P price at trough	4.400	8.5	7.47	13.55	38.98	52.34	69.29	62.28	102.42	223.92	295.46	776.76	676.53	
Peak to trough % decline	-86%	-54%	-43%	-30%	-22%	-28%	-36%	-48%	-27%	-34%	-20%	-49%	-57%	-37%
Quarter of S&P peak	3Q29	1Q37	4Q39	2Q46	3Q56	4Q61	4Q68	1Q73	4Q80	3Q87	3Q90	1Q00	4Q07	
Quarter of S&P trough	2Q32	1Q38	2Q42	2Q49	4Q57	2Q62	2Q70	4Q74	3Q82	4Q87	4Q90	4Q02	1Q09	
Trailing 4-qtr EPS at S&P peak (\$/sh)	1.61	1.11	0.90	0.84	3.46	3.19	5.76	6.80	14.82	18.57	23.57	51.02	84.56	
Trailing 4-qtr EPS at S&P trough (\$/sh)	0.41	0.97	0.98	2.40	3.37	3.47	5.52	8.89	13.64	20.50	22.48	47.98	55.72	
Change in EPS (%)	-75%	-13%	9%	186%	-3%	9%	-4%	31%	-8%	10%	-5%	-6%	-34%	-1%
Forward 4-qtr EPS (\$/sh)	0.44	0.71	1.10	2.54	2.89	3.84	5.32	7.96	13.30	24.12	18.48	55.51	68.90	
Trailing 4-qtr PE at S&P peak	19.8	16.8	14.7	22.9	14.4	22.8	18.8	17.7	9.5	18.1	15.7	29.9	18.5	18.9
Trailing 4-qtr PE at S&P trough	10.7	8.8	7.6	5.6	11.6	15.1	12.6	7.0	7.5	10.9	13.1	16.2	12.1	11.8
Forward 4-qtr PE at S&P trough	10.0	12.0	6.8	5.3	13.5	13.6	13.0	7.8	7.7	9.3	16.0	14.0	9.8	11.4
US short-term rates*	0.8%	0.1%	0.3%	1.2%	3.3%	2.7%	6.7%	7.4%	12.4%	5.9%	7.0%	1.3%	0.2%	5.4%
US 10yr Treasury yield **	3.4%	2.7%	2.4%	2.4%	3.3%	4.0%	7.7%	7.4%	14.4%	8.8%	8.1%	3.8%	2.7%	7.1%
US Real 10yr Treasury yield ***						2.0%	3.7%	3.4%	8.7%	4.3%	4.08%	1.33%	1.71%	3.7%
Inflation (CPI last 12mo, %)	-10.3%	0.0%	12.2%	-0.3%	3.0%	1.3%	6.0%	12.2%	6.8%	4.5%	6.2%	2.2%	0.0%	4.9%
Dividend yield	10.1%	9.2%	8.0%	7.2%	4.5%	3.8%	4.4%	5.3%	6.2%	3.6%	3.7%	1.8%	3.4%	4.0%
Dividend yield less short-term rates	9.3%	9.1%	7.7%	6.0%	1.2%	1.0%	-2.3%	-2.1%	-6.2%	-2.3%	-3.3%	0.5%	3.2%	-1.4%
EPS yield	9.3%	11.4%	13.1%	17.7%	8.6%	6.6%	8.0%	14.3%	13.3%	9.2%	7.6%	6.2%	8.2%	9.2%
EPS yield less 10yr Tsy yield	6.0%	8.7%	10.7%	15.3%	5.3%	2.6%	0.3%	6.9%	-1.1%	0.3%	-0.5%	2.3%	5.5%	2.0%
EPS yields less real 10yr Tsy yield						4.6%	4.3%	10.9%	4.6%	4.8%	3.5%	4.8%	6.5%	5.5%
Last 10yrs total return (CAGR, %)	-1.4%	-2.7%		8.7%	16.5%	12.7%	5.9%	1.2%	5.7%	15.2%	14.0%	9.3%	-3.0%	9.2%
Next 10 yrs total return (CAGR, %)	12.4%	11.9%	18.2%	21.5%	12.9%	10.5%	9.1%	14.9%	17.6%	18.1%	17.5%	7.1%	?	13.5%
Quarter of S&P trailing 4-qtr EPS trough	1932	3Q38		2Q46	3Q58	2Q61	4Q70	4Q75	1Q83		4Q91	1Q02	3Q09	
Trough EPS (\$/sh)	0.41	0.62		0.84	2.88	3.03	5.13	7.76	12.42		18.48	44.19	50.84	
Peak to trough EPS (% chg)	-75%	-49%		-29%	-22%	-12%	-13%	-15%	-19%		-28%	-23%	-45%	-22%
Quarter of GDP trough	1933	4Q38		3Q47	1Q58	4Q60	4Q70	1Q75	3Q82		1Q91	1Q01	2Q09	
Peak to trough Real GDP (% chg)	-26.3%	-3.3%		-13.8%	-3.6%	-1.3%	-1.0%	-3.1%	-2.6%		-1.3%	-0.3%	-4.2%	-2.0%

Note: More bear markets and recessions related exhibits can be found in the appendix section.

Source: S&P, DWS Investment GmbH as of December 2022

DWS Investment GmbH S&P 500 Annual EPS Outlook

	2014A	2015A	2016A	2017A	2018A	2019A	2020A	2021A	y/y	Bottom-up Consensus (IBES)				DWS View				Normalized 2023	
										2022E	y/y	2023E	y/y	2022E	y/y	2023E	y/y	(\$)	% of 2023
S&P 500 EPS (historical index)	\$118.82	\$117.46	\$118.10	\$132.00	\$161.93	\$162.93	\$139.72	\$208.12	49.0%										
S&P 500 EPS (current constituents)	\$116.42	\$117.21	\$117.46	\$129.27	\$155.86	\$161.35	\$144.07	\$207.74	46.4%	\$222.98	7.3%	\$232.25	4.2%	\$223	7.4%	\$225	0.9%	\$220	98%
Sector (\$ bn)																			
Communication Services	68.6	79.2	91.9	97.5	124.6	132.2	135.7	188.3	38.8%	167.4	-11.1%	177.9	6.2%	168.0	-10.8%	170.0	1.2%	157.0	92%
Consumer Discretionary	64.1	74.9	83.6	87.7	103.5	101.4	79.7	134.2	68.4%	137.7	2.6%	157.9	14.7%	140.0	4.3%	146.0	4.3%	149.0	102%
Consumer Staples	78.4	76.8	79.2	83.8	90.4	91.1	95.1	104.6	10.0%	107.2	2.6%	112.4	4.8%	106.0	1.4%	107.0	0.9%	107.0	100%
Energy	93.1	39.0	10.6	36.8	68.6	48.8	-4.8	77.4	1722%	201.8	160.6%	174.7	-13.5%	190.5	146.0%	172.5	-9.4%	147.4	85%
Financials	171.2	186.0	187.6	194.8	241.3	248.1	197.1	326.9	65.9%	278.8	-14.7%	314.5	12.8%	282.0	-13.7%	292.5	3.7%	295.0	101%
Health Care	137.6	152.6	157.5	171.8	188.8	206.8	226.8	293.5	29.4%	307.5	4.8%	298.9	-2.8%	310.0	5.6%	315.0	1.6%	300.6	95%
Industrials	99.4	102.9	97.0	105.7	129.2	123.5	64.7	108.9	68.2%	140.8	29.2%	159.5	13.3%	142.0	30.4%	145.0	2.1%	145.0	100%
Information Technology	176.7	184.1	193.6	228.4	266.5	264.6	296.6	379.8	28.1%	391.6	3.1%	417.6	6.7%	395.0	4.0%	410.0	3.8%	410.0	100%
Materials	24.3	23.4	22.2	28.0	34.9	33.4	31.7	57.9	82.3%	61.9	7.0%	55.9	-9.7%	63.0	8.9%	55.2	-12.4%	54.5	99%
Real Estate	23.5	26.8	29.6	32.6	36.2	37.9	37.7	44.7	18.5%	48.9	9.6%	50.4	3.1%	47.0	5.2%	49.0	4.3%	47.6	97%
Utilities	31.4	31.7	33.9	35.3	38.9	43.0	44.3	47.3	6.8%	49.1	4.0%	51.9	5.5%	50.0	5.8%	52.0	4.0%	52.6	101%
S&P 500	968.1	977.1	986.6	1102.4	1323.0	1330.7	1204.5	1763.4	46.4%	1892.8	7.3%	1971.5	4.2%	1893.5	7.4%	1914.2	1.1%	1865.6	97%
S&P ex. Energy (\$bn)	875.1	938.1	976.0	1065.6	1254.4	1281.9	1209.3	1686.0	39.4%	1691.0	0.3%	1796.9	6.3%	1703.0	1.0%	1741.7	2.3%	1718.3	99%
S&P ex. Tech (\$bn)	791.5	793.0	793.0	874.0	1056.5	1066.1	908.0	1383.7	52.4%	1501.3	8.5%	1553.9	3.5%	1498.5	8.3%	1504.2	0.4%	1455.6	97%
S&P 500 Sales/Share (historical index)	\$1,163	\$1,127	\$1,151	\$1,232	\$1,339	\$1,415	\$1,362	\$1,567	15.0%										
S&P 500 Non-GAAP Net Margin	10.2%	10.4%	10.3%	10.7%	12.1%	11.5%	10.3%	13.3%											

S&P 500 EPS	Year	1Q	2Q	3Q	4Q
2019A	163	39	41	41	42
2020A	140	33	28	38	42
2021A	210	49	53	54	54
2022E	223	55	58	56	54
2023E	225	53	56	57	59

S&P 500 EPS historical constituents represents the earnings per share (EPS) of S&P 500 index constituents at the time, while S&P 500 EPS current constituents represents the earnings per share of index constituents as of the date the data was compiled 9/30/2022.

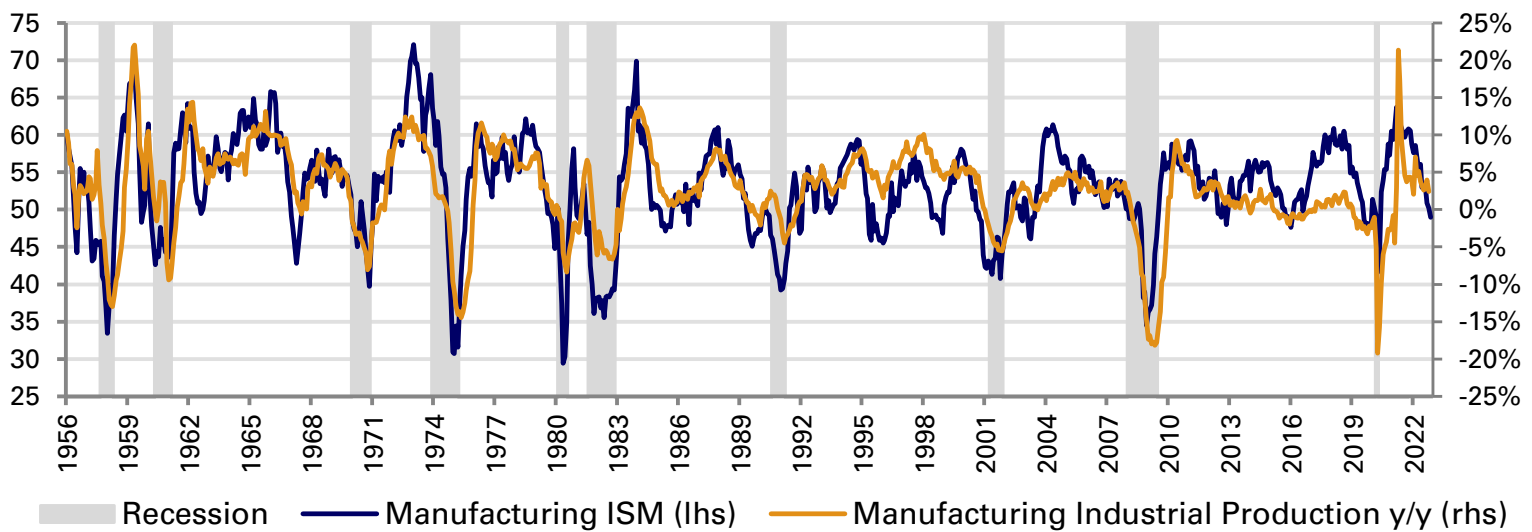
Source: Factset, DWS Investment GmbH as of 12/6/2022. Past performance may not be indicative of future results.

Global Purchasing Managers' Indices (PMI): Global sentiment trending lower



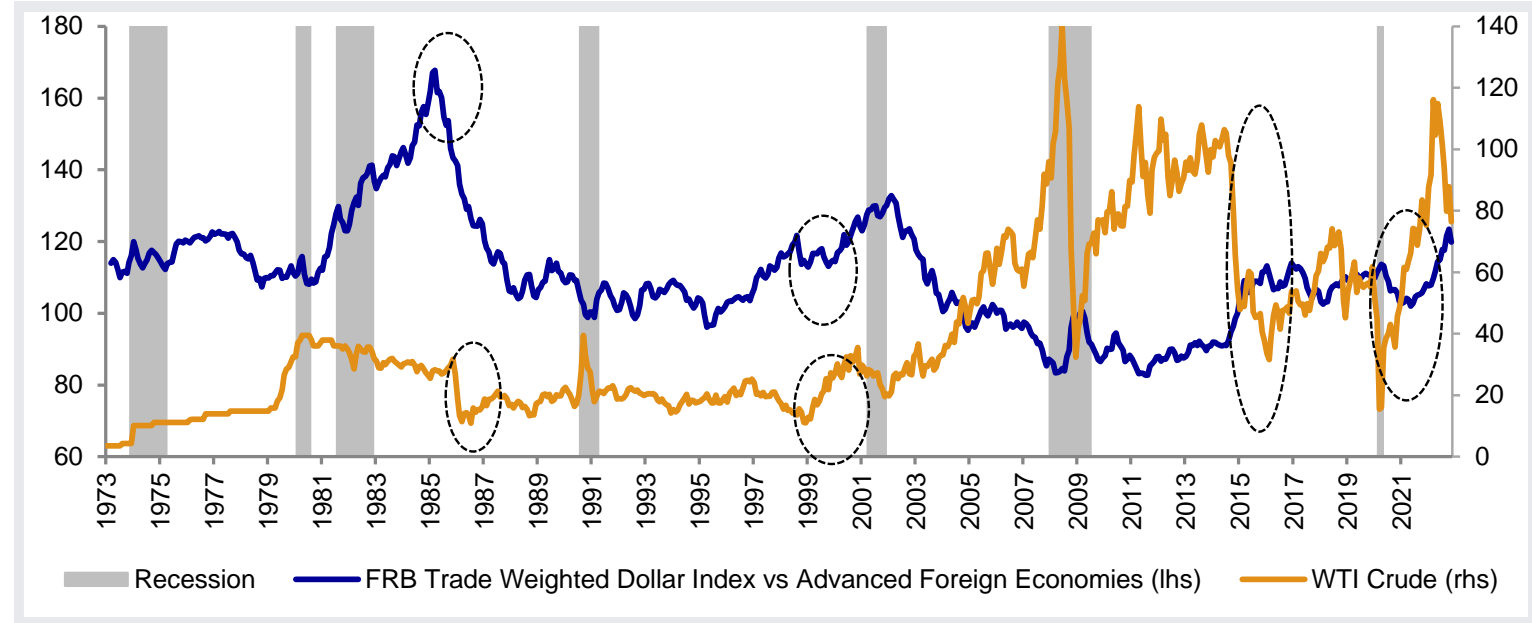
Note: Values above 50 indicate an improving business development of the industry compared to the previous month, values below 50 indicate shrinking businesses
 Sources: Bloomberg, DWS Investment GmbH; as of November 2022

Manufacturing ISM vs. Manufacturing Industrial Production y/y



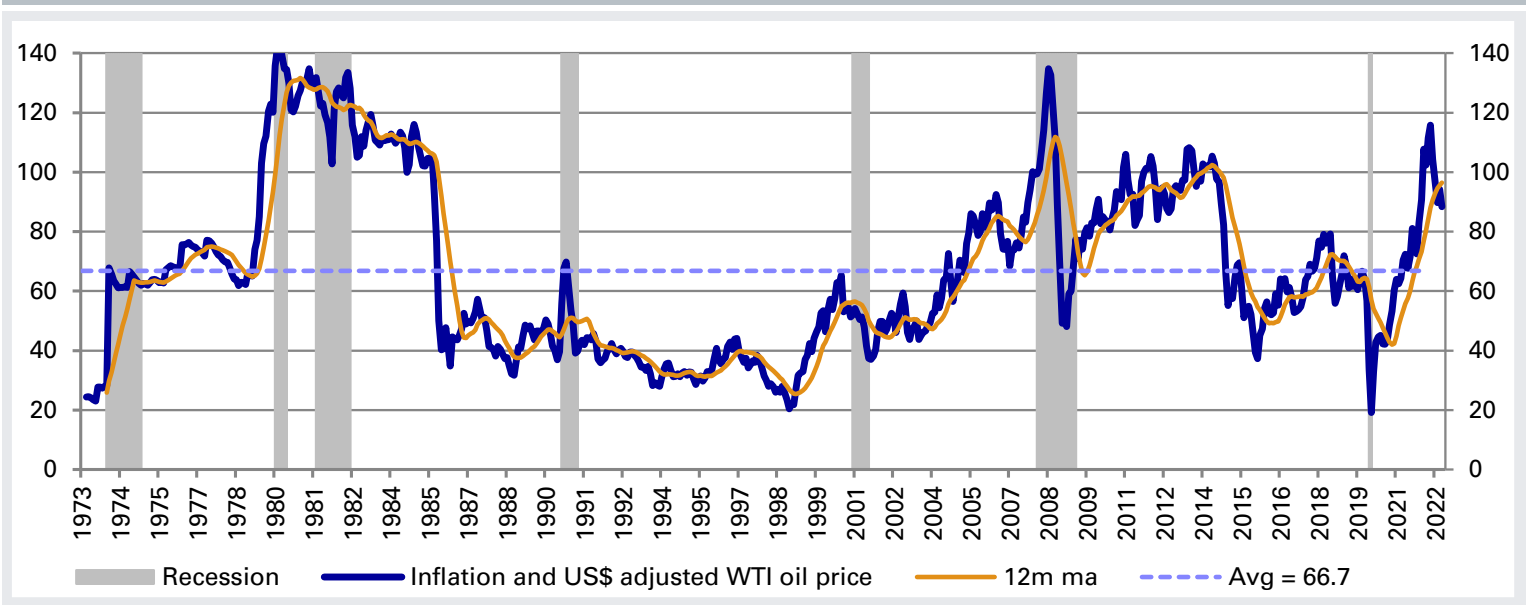
Source: ISM, FRB, Haver, DWS Investment GmbH as of 12/6/2022

WTI oil price vs. US Dollar Index



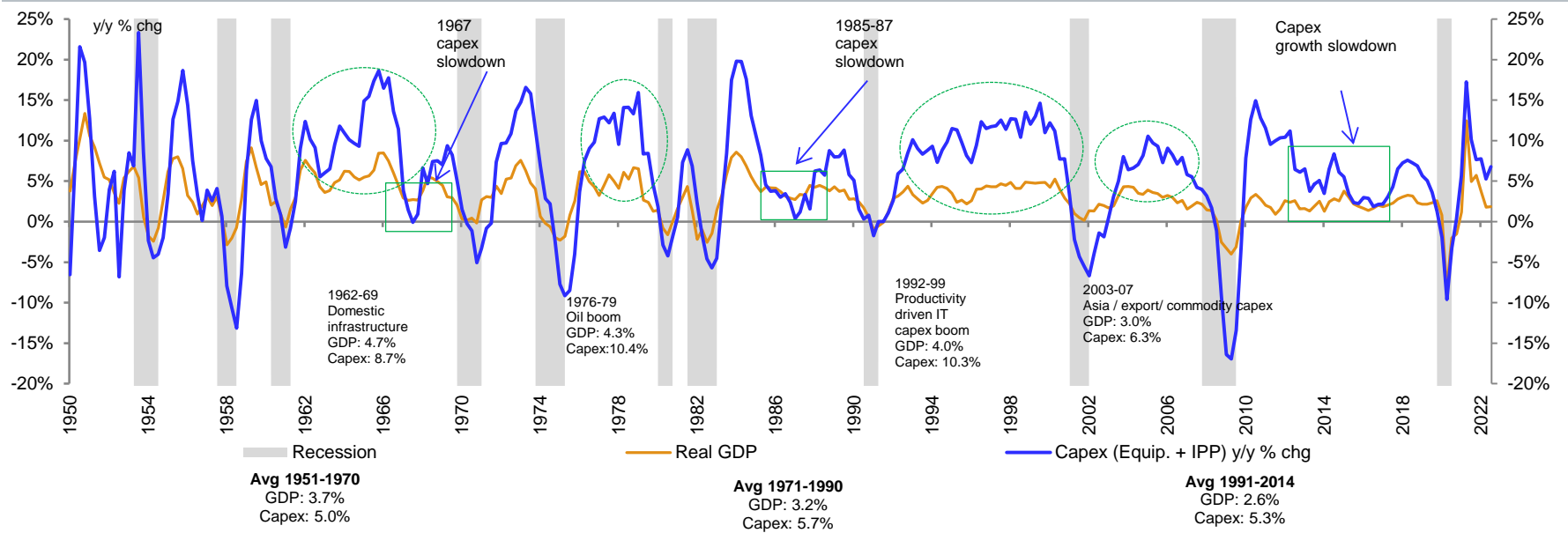
Source: Haver, DWS Investment GmbH as of 11/30/ 2022. Past performance may not be indicative of future results

WTI oil price adjusted for inflation and US Dollar



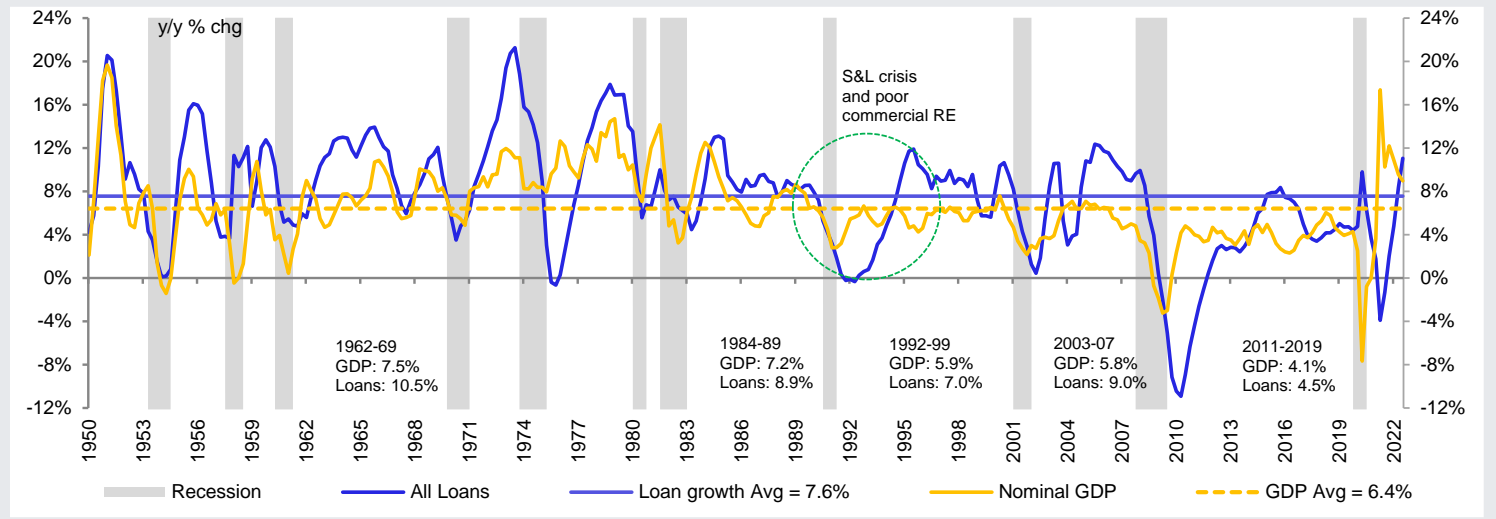
Source: Haver, DWS Investment GmbH as of 11/30/ 2022. Past performance may not be indicative of future results

U.S. GDP and capex growth



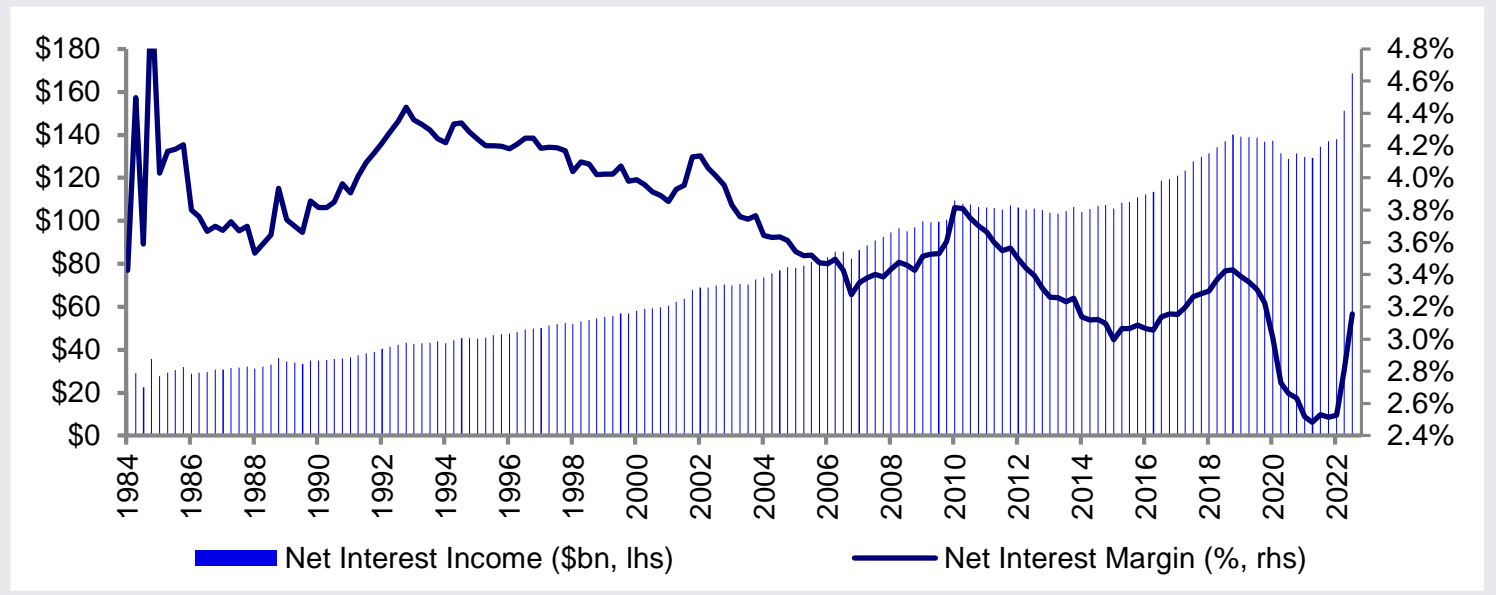
Source: Haver, DWS Investment GmbH as of 3Q2022

FDIC banks: Loan growth



Sources: Haver, DWS Investment GmbH as of 3Q 2022

FDIC banks: Net interest income and margin



Sources: Haver, DWS Investment GmbH as of 3Q 2022

Declines of S&P 500 cyclical sector earnings during recessions

S&P 500	Earnings y/y Growth			Sector EPS % of S&P
	Before	During	After	
	1970	3%	-7%	
1974	29%	11%	-8%	
1980	23%	0%	8%	
1982	8%	-15%	10%	
1990	-6%	-4%	N/A	
1991	N/A	-15%	13%	
2001	14%	-19%	7%	
2008	-5%	-29%	N/A	
2009	N/A	-1%	48%	
2020	1%	-9%	46%	
Average	9%	-10%	46%	

Consumer Discretionary	Earnings y/y Growth			Sector EPS % of S&P
	Before	During	After	
	1970	-5%	-28%	
1974	15%	-38%	16%	
1980	-8%	-75%	125%	
1982	125%	23%	102%	
1990	-1%	-45%	N/A	
1991	N/A	-72%	224%	
2001	-5%	-35%	37%	
2008	-13%	-59%	N/A	
2009	N/A	118%	46%	
2020	-2%	-21%	68%	
Average	16%	-41%	94%	

Financials	Earnings y/y Growth			Sector EPS % of S&P
	Before	During	After	
	1970	11%	-1%	
1974	39%	-16%	-6%	
1980	20%	0%	-6%	
1982	-6%	-2%	16%	
1990	-39%	30%	N/A	
1991	N/A	12%	35%	
2001	11%	-12%	19%	
2008	-37%	-159%	N/A	
2009	N/A	122%	597%	
2020	3%	-21%	66%	
Average	0%	-19%	12%	

Information Technology	Earnings y/y Growth			Sector EPS % of S&P
	Before	During	After	
	1970	14%	2%	
1974	34%	14%	7%	
1980	8%	13%	11%	
1982	11%	16%	5%	
1990	-30%	27%	N/A	
1991	N/A	-42%	1%	
2001	32%	-59%	16%	
2008	15%	0%	N/A	
2009	N/A	3%	46%	
2020	-1%	12%	28%	
Average	12%	-4%	8%	

Materials	Earnings y/y Growth			Sector EPS % of S&P
	Before	During	After	
	1970	6%	-13%	
1974	48%	42%	-29%	
1980	41%	-4%	-10%	
1982	-10%	-97%	1213%	
1990	4%	-28%	N/A	
1991	N/A	-41%	-15%	
2001	9%	-48%	6%	
2008	-4%	-9%	N/A	
2009	N/A	-44%	74%	
2020	-4%	-5%	82%	
Average	13%	-25%	192%	

Energy	Earnings y/y Growth			Sector EPS % of S&P
	Before	During	After	
	1970	6%	-1%	
1974	60%	40%	-21%	
1980	68%	19%	7%	
1982	7%	-20%	-4%	
1990	3%	11%	N/A	
1991	N/A	-17%	-26%	
2001	117%	-9%	-45%	
2008	6%	17%	N/A	
2009	N/A	-58%	54%	
2020	-29%	-110%	1722%	
Average	38%	5%	-13%	

Industrials	Earnings y/y Growth			Sector EPS % of S&P
	Before	During	After	
	1970	-5%	-20%	
1974	22%	5%	-14%	
1980	20%	2%	6%	
1982	6%	-41%	29%	
1990	-12%	-6%	N/A	
1991	N/A	-13%	2%	
2001	6%	-12%	11%	
2008	11%	-4%	N/A	
2009	N/A	-32%	28%	
2020	-4%	-48%	68%	
Average	7%	-11%	10%	

S&P EPS falls less and later in recessions with inflation still elevated, such as 1974 and 1982.

Note: Average is on the recession years between 1970-2008

Source: S&P, Compustat, Clarifi, DWS Investment GmbH as of December 2022

December 2023 equity index targets base case



From TINA* to TAPAs* - equities face serious competition from bonds

Tactically: European discount too extreme

Index	3M relative View	Current Level 18/11/2022	Previous Target CIO Day Aug	Target Dec 23	Chg in Target	Expected Total Return Dec 23	thereof			Assumptions				
							EPS growth NTM*	LTM multiple impact	Dividend Yield	EPS NTM* (e)	DWS vs. Cons.	Target LTMP/E in Dec 23	Target PE discount to US	
S&P 500		3,947	4,200	4,100	-2%	5.5%	USD	1.4%	2%	1.7%	225	-3.8%	18.2x	
Stoxx 600		433	445	445	0%	6.3%	EUR	-1.0%	4%	3.6%	34.3	-6.7%	13.0x	-29%
EuroStoxx 50		3,930	3,750	4,000	7%	5.7%	EUR	-2.0%	4%	3.9%	328	-3.2%	12.2x	-33%
DAX40		14,409	14,400	15,000	4%	4.1%	EUR	0.0%	1%	3.5%	1200	-4.8%	12.5x	-31%
SMI		11,034	11,150	11,150	0%	4.3%	CHF	10.0%	-8%	3.2%	697	-5.8%	16.0x	-12%
FTSE 100		7,406	7,350	7,600	3%	7.3%	GBP	-6.0%	9%	4.7%		-4.5%	10.1x	-45%
MSCI EM		944	1,030	990	-4%	8.0%	USD	0.0%	5%	3.1%	79.0	-3.2%	12.5x	-31%
MSCI AC Asia xJ		603	660	625	-5%	6.5%	USD	2.0%	2%	2.7%	45.9	-4.4%	13.6x	-25%
MSCI Japan		1,205	1,250	1,250	0%	6.4%	YEN	2.0%	0%	2.6%	92.8	-2.6%	13.3x	-27%
MSCI Australia		1,415	1,350	1,450	7%	7.0%	AUD	-4.0%	5%	4.5%	98.9	-1.4%	14.4x	-21%

12 months- assumptions

- Geopolitics:** no further escalation of Russia's war; commodity prices to remain elevated but full energy crisis in Europe will be avoided
- Economy:** mild recession, soft landing of labor markets, peak FED around 5%, inflation to fall significantly in 2023, most supply chain bottlenecks to be resolved 2023
- US valuation:** Assuming US 10-year yields stay around supporting a fair trailing PE of 18x for S&P 500; DWS 2023 EPS estimate cut from \$235 to \$225
- European valuation:** discount to US market should shrink as severe recession will be avoided; DWS 2023 EPS estimate unchanged from August forecast
- Earnings growth:** Peaking margins as falling real wages will moderate volumes and pricing power; expect flat earnings and additional 5% negative EPS revision 2023.
- EM:** China: very slow loosening of zero-Covid policy, housing crisis not derailing

* TINA (There Is No Alternative to Equities) TAPAs (There Are Powerful Alternatives to Equities)

Source: DWS Investment GmbH as of November 2022

S&P 500 Intrinsic Valuation Model

S&P 500 Capitalized EPS Valuation		S&P 500 Dividend Discount Model		S&P 500 Long-term EPS & DPS Growth		S&P 500 Cost of Equity & Fair Book Multiple	
DWS 2023E S&P 500 EPS	\$225.00	DWS 2023E S&P 500 DPS	\$70.00	DWS 2023E S&P 500 aggregate ROE	22.5%	Fair long-term nominal return on S&P 500 index	8.50%
DWS "normal 2023E" S&P 500 EPS	\$220.00	2023E dividend payout ratio	31%	2022E end S&P 500 book value per share	\$1,000	Components of estimated fair S&P 500 return:	
"Normal 2023E" EPS / 2023E EPS	98%	DWS "normal 2023E" S&P 500 DPS	\$70.00	DWS "normal 2023E" S&P 500 aggregate ROE	20.2%	+ Long-term real risk free interest rate	1.50%
Accounting quality adjustment to pro forma EPS	-\$18.00	Normal dividend payout ratio	35%	S&P EPS retained for true reinvestment		+ Long-term fair S&P 500 equity risk premium*	4.00%
Normal 2023E S&P 500 EPS fair to capitalize	\$202	EPS directed to net share repurchases	\$38.00	Estimated ROE on reinvested S&P EPS	8.50%	= Long-term real S&P 500 cost of equity	
Key principle: steady-state value = normal EPS / real CoE		Normal share repurchase payout ratio	19%	Economic margin (EM) or ROE-CoE	0.00%	+ Long-term inflation forecast	3.00%
<u>S&P 500 EPS Capitalization Valuation</u>		Total payout of S&P 500 EPS	\$108.00	Sources of long-term earnings growth:		= S&P 500 nominal cost of equity	
Normal EPS / (real CoE - (EM/payout) - EM):		Total payout ratio of normal and quality adj. EPS	53%	+ Long-term inflation forecast	3.00%	* S&P 500 ERP history 300-400bps, w/ real CoE @ 5% - 6.5%	
S&P 500 intrinsic value at 2023 start	3673	<u>S&P 500 DPS Discount Model</u>		+ Fair return on true reinvestment	2.56%	<u>Fair S&P 500 Market Value and Book Value Multiple</u>	
S&P 500 intrinsic value at 2023 end	3915	Normal DPS / (nominal CoE - DPS growth):		+ Value added return on true reinvestment	0.00%	2022E end S&P 500 book value per share	\$1,000
Implied fair fwd PE in early 2023 on 2023E \$225 EPS	16.3	S&P 500 intrinsic value at 2023 start	3673	= Long-term earnings growth	5.56%	Fair PB = Fair PE * normal aggregate ROE	3.67
Implied fair trailing PE at 2023 end on 2023E \$225 EPS	17.4	S&P 500 intrinsic value at 2023 end	3915	+ Growth from net share repurchases	1.03%	Fair PE =(inc ROE-g)/(inc real ROE*(real CoE-real g))	18.2
		Implied fair forward yield on 2023E DPS of \$70.0	1.91%	= Long-term S&P 500 EPS/DPS growth	6.59%	Implied S&P 500 fair value of book at 2023 start	3673
		Implied fair trailing yield on 2023E DPS of \$70.0	1.79%	+ Fair normal dividend yield	1.91%	Steady-state PB = normal agg. ROE / real CoE	3.67
				= Total long-term return at constant PE	8.50%	Confirmed by fair steady-state PE = 1 / real CoE	18.2
Normal EPS / (real CoE-value added EPS growth)	3673	DPS discount model using true DPS (all payout)	3673	Value added growth premium in fair value est.	0%	Normal 2023E economic profit per share	\$147.00

S&P 500 EPS discount model 5 steps to value:

- 1) Estimate normalized S&P 500 EPS
- 2) Adjust normalized EPS for pro forma accounting quality
- 3) Estimate a fair long-term real return on S&P 500 ownership (CoE)
- 4) Capitalize normalized and accounting quality adj. EPS at real CoE
- 5) Consider long-term potential for value added growth opportunities

		Normal 2023E S&P 500 EPS				
		\$210	\$215	\$220	\$225	\$230
Real	5.00%	4427	4567	4709	4852	4997
cost of equity	5.25%	4041	4158	4275	4393	4511
	5.50%	3718	3816	3915	4014	4112
	5.75%	3443	3527	3611	3695	3778
	6.00%	3206	3279	3352	3424	3495

Equity Risk Premium (ERP) is the expected excess return that investing in the S&P 500 provides over the return from government Treasury bonds.

Source: DWS Investment Management GmbH as of December 2022

DWS Investment GmbH View: S&P 500 fair value by sector: Assuming a ~5.50% real cost of equity (CoE) for overall S&P 500

	Market Value (\$bn)	Current 2023 PE	2023E Earnings (\$bn)	Normal Ratio	Normal 2023E Earnings	Accounting Quality Adjustment	Fully Adjusted Earnings	Net Debt / Market Cap	Real CoE	Steady State Value	Growth Premium	2023 Start Fair Value (\$bn)	2021E Dividend Yield	2023 End Fair Value (\$bn)	PE on Normal 2023E EPS	2023 end Upside %
Communication Services	2,494	14.7	170.0	92%	157.0	-8%	144.4	15%	5.50%	2,625	0%	2,625	1.2%	2,818	18.0	13%
Consumer Discretionary	3,478	23.8	146.0	102%	149.0	-8%	137.1	12%	5.50%	2,492	29%	3,224	1.1%	3,461	23.2	0%
<i>Automobiles</i>	573	22.0	26.0	100%	26.0	-12%	22.9	19%	6.50%	352	50%	528	0.5%	576	22.1	0%
<i>Internet & Direct Marketing Retail</i>	938	35.4	26.5	100%	26.5	-8%	24.4	1%	5.50%	443	120%	975	0.1%	1,058	39.9	13%
<i>CD ex Auto & Internet Retail</i>	1,966	21.0	93.5	100%	93.5	-8%	86.0	17%	5.50%	1,564	10%	1,720	1.7%	1,838	19.7	-7%
Consumer Staples	2,370	22.1	107.0	100%	107.0	-8%	98.4	13%	4.75%	2,072	0%	2,072	2.5%	2,181	20.4	-8%
Energy	1,557	9.0	172.5	85%	147.4	-10%	132.6	16%	6.00%	2,211	-20%	1,769	3.1%	1,873	12.7	20%
Financials	3,806	13.0	292.5	101%	295.0	-10%	265.5		6.25%	4,248	-5%	4,036	2.2%	4,319	14.6	13%
Banks	1,249	9.6	130.0	105%	136.5	-10%	122.9		6.75%	1,820	-10%	1,638	3.4%	1,742	12.8	39%
Health Care	5,190	16.5	315.0	95%	300.6	-10%	270.5	9%	5.25%	5,153	0%	5,153	1.6%	5,497	18.3	6%
Industrials	2,914	20.1	145.0	100%	145.0	-8%	133.4	18%	5.50%	2,425	0%	2,425	1.7%	2,589	17.9	-11%
Information Technology	8,727	21.3	410.0	100%	410.0	-5%	389.5	2%	5.50%	7,082	10%	7,790	1.1%	8,364	20.4	-4%
Materials	919	16.7	55.2	99%	54.5	-10%	49.0	17%	5.75%	853	0%	853	1.8%	912	16.7	-1%
Real Estate	857	17.5	49.0	97%	47.6	-8%	43.8	29%	5.00%	876	0%	876	3.6%	914	19.2	7%
Utilities	986	19.0	52.0	101%	52.6	-8%	48.4	60%	5.00%	969	0%	969	3.1%	1,016	19.3	3%
S&P 500 (\$ bn)	33,298		1914.2	97%	1865.6	-8.2%	1712.7		5.50%	31006	2.5%	31791	1.7%	33944.3	18.2	2%
S&P 500 Index (\$/sh)	3934	17.5	225.0	98%	220.0	-8.2%	202.0	11%	5.50%	3673	0.0%	3673	1.7%	3915	17.8	0%

	>5%
	between -5% and 5%
	<-5%

Source: IBES, DWS Investment GmbH as of 12/9/2022. Past performance may not be indicative of future results. The estimated 2022 year end upside is on absolute valuation basis of each sector, not on relative sector valuation basis.

S&P 500 Sector and Industry views

	Market	Allocated	Sector	2021	2022	2023	Overweight	2021	2022	2023	Equal weight	2021	2022	2023	Underweight	2021	2022	2023	
Over-weight	15.2%	19.7%	Health Care	17.7	16.7	16.5	Biotechnology	12.7	13.3	13.7	Health Care Providers & Services	18.9	17.8	16.9					
							Health Care Equipment & Supplies	23.5	23.4	22.9									
							Life Sciences Tools & Services	24.5	26.2	25.1									
							Pharmaceuticals	16.2	14.1	13.9									
	8.0%	10.2%	Communication Services	13.2	14.8	14.7	Diversified Telecommunication Services	6.1	7.2	7.6	Wireless Telecommunication Services	58.7	56.8	34.1					
							Entertainment	26.2	26.2	24.8									
							Interactive Media & Services	14.3	16.8	16.1									
							Media	11.1	10.3	10.9									
	11.2%	12.5%	Financials	11.6	13.5	13.0	Banks	8.3	10.0	9.6					Capital Markets	13.9	17.4	17.0	
							Diversified Financial Services	26.2	21.8	21.4					Consumer Finance	6.9	8.3	9.2	
2.6%	3.6%	Real Estate	19.2	18.2	17.5	Real Estate Mgmt. & Development REITs	14.2	12.5	12.5										
5.3%	6.3%	Energy	20.1	8.2	9.0	Energy Equipment & Services	35.9	21.4	15.7	Oil Gas & Consumable Fuels	19.4	7.8	8.7						
3.0%	3.5%	Utilities	20.9	19.7	19.0	Electric Utilities	22.7	20.8	19.7	Gas Utilities	22.5	22.1	20.6	Water Utilities	39.2	35.5	33.4		
						Multi-Utilities	19.1	18.8	18.4	Independent Power & Renewable Energy	8.5	9.1	9.4						
Under-weight	26.1%	25.7%	Information Technology	23.0	22.1	21.3	Communications Equipment	17.2	16.4	16.0	Electronic Equipment	21.6	20.0	19.0	Semiconductors	16.9	19.2	19.2	
							IT Services	25.7	22.3	21.3	Software	28.7	25.9	24.4	Technology Hardware Storage & Peripherals	22.9	21.9	21.1	
	8.0%	7.5%	Industrials	26.7	20.5	20.1	Aerospace & Defense	33.4	26.4	24.3					Air Freight & Logistics	12.8	13.1	14.3	
							Airlines	-5.2	19.1	10.4					Building Products	20.7	19.3	20.5	
							Electrical Equipment	23.2	20.6	19.7					Commercial Services & Supplies	36.1	28.6	28.1	
							Industrial Conglomerates	23.3	22.0	20.6					Construction & Engineering	23.9	20.3	18.2	
							Road & Rail	21.6	18.3	18.8					Machinery	20.9	18.7	19.6	
															Professional Services	29.5	29.6	28.8	
															Trading Companies & Distributors	23.9	18.1	19.0	
															Chemicals	17.9	15.7	16.9	
2.5%	0.0%	Materials	15.9	14.6	16.7									Construction Materials	32.4	31.0	27.4		
														Containers & Packaging	14.2	12.7	12.7		
														Metals & Mining	9.9	10.5	17.0		
6.9%	3.8%	Consumer Staples	22.7	22.4	22.1						Personal Products	35.1	37.8	37.8	Beverages	27.7	26.7	26.2	
														Food Products	19.4	18.6	18.8		
														Food & Staples Retailing	24.3	23.0	22.5		
														Household Products	25.6	26.5	25.8		
														Tobacco	13.6	14.1	14.4		
11.3%	7.3%	Consumer Discretionary	25.9	24.8	23.8	Auto Components	20.6	18.4	15.9	Household Durables	7.5	6.6	7.8	Automobiles	25.5	22.0	22.0		
						Hotels Restaurants & Leisure	-1530	59.3	35.9					Distributors	19.9	18.0	18.0		
						Textiles Apparel & Luxury Goods	24.2	25.5	25.1					Internet & Direct Marketing Retail	27.4	39.1	35.4		
														Leisure Products	11.4	11.0	11.0		
														Multiline Retail	16.0	20.9	19.4		
														Specialty Retail	20.3	19.4	20.1		
														Automobiles	25.5	22.0	22.0		
														Distributors	19.9	18.0	18.0		
														Internet & Direct Marketing Retail	27.4	39.1	35.4		
														Leisure Products	11.4	11.0	11.0		
														Multiline Retail	16.0	20.9	19.4		
														Specialty Retail	20.3	19.4	20.1		
Aggregate PE: DWS View																			
	S&P 500						Overweight	17.5	17.1	16.4	Equalweight	21.9	15.0	15.4	Underweight	19.4	20.0	20.2	
								3934			2020, 2021 & 2022 EPS	207.74	223.00	225.00	2020, 2021 & 2022 PE	18.9	17.6	17.5	
											Bottom-up Consensus EPS	207.63	222.92	231.98	Bottom-up Cons. PE	18.9	17.6	17.0	
														2020, 2021 & 2022 Ex Energy PE	18.6	18.6	18.2		
														Btm-up Cons. Ex Energy PE	18.7	18.8	17.7		

Sector OW	10.21%
Sector UW	-10.21%
Industry OW	18.70%
Industry UW	-18.70%

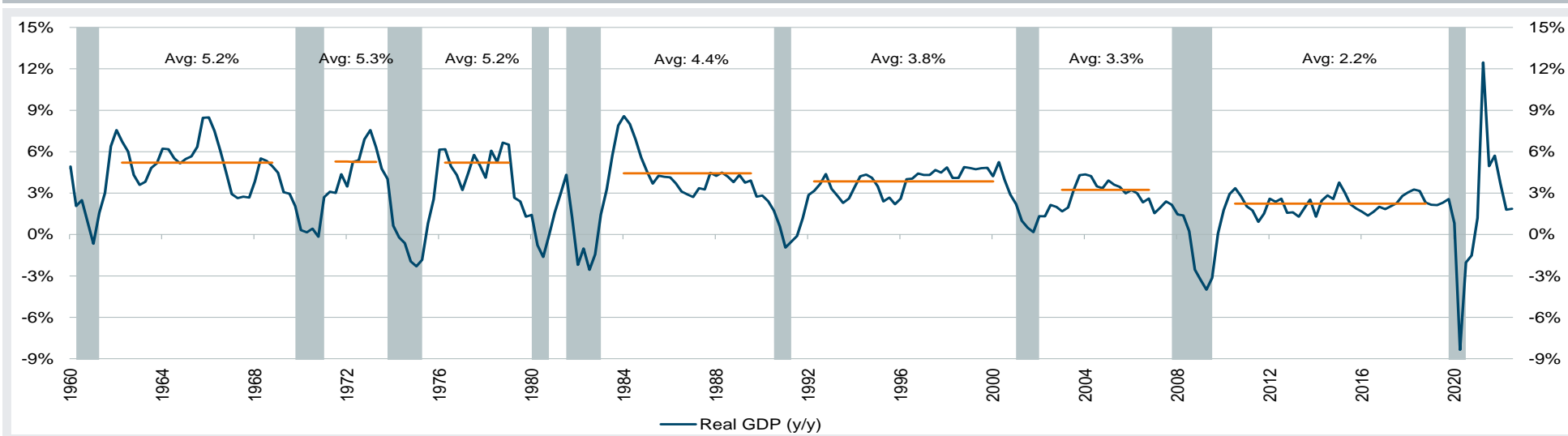
Macro tilts:	
Cyclicals	-2.97%
Defensive	2.95%
Value	-5.93%
Growth	5.93%
Consumer	-6.61%
Services/experience	0.47%
Disc. Goods	-0.25%
Retailing	-0.65%
Durables	0.43%
Staples Goods/Retail	-1.51%
Commodity	-1.30%
Energy	0.84%
Metals/Chemicals	-2.14%
Capex	3.24%
Capacity additions	1.11%
Productivity	2.13%
Health Care	4.45%
Innovation	3.06%
Marketers	1.64%
Insurers	-0.32%
Financials	1.22%
Up rates/low spreads	2.03%
Capital Markets	-1.88%
Insurance	1.07%
Bond Substitutes	1.78%
Weak FX \$ plays	0.53%
High R&D plays	4.78%
Transports	-0.30%
Geopolitical risk	1.33%
Weak oil prices	-0.53%
Inflation shock	4.81%
Domestic GDP	-2.10%
Global GDP	-4.62%
Consumer TMT	0.40%
Trade sensitive	-1.83%

Price as of 12/9/2022
Source: DWS Investment Management GmbH

1. Shallow recession in the US & Europe, but no deflation and benign credit costs are likely:

We expect a small US & European recession in 1H23 led by declines in goods consumption and manufacturing and marked by disinflation, not deflation, and a relatively soft landing in the US jobs market owing to resilience in services and tightness in labor supply given demographics. Because we expect limited damage to employment and household assets (w/ good equity cushions), we think 2023 presents opportunities in credit investing and banks. We stick with short duration bonds and net interest income sensitive banks until more economic clarity and stable 10yr Treasury yield.

US real GDP growth



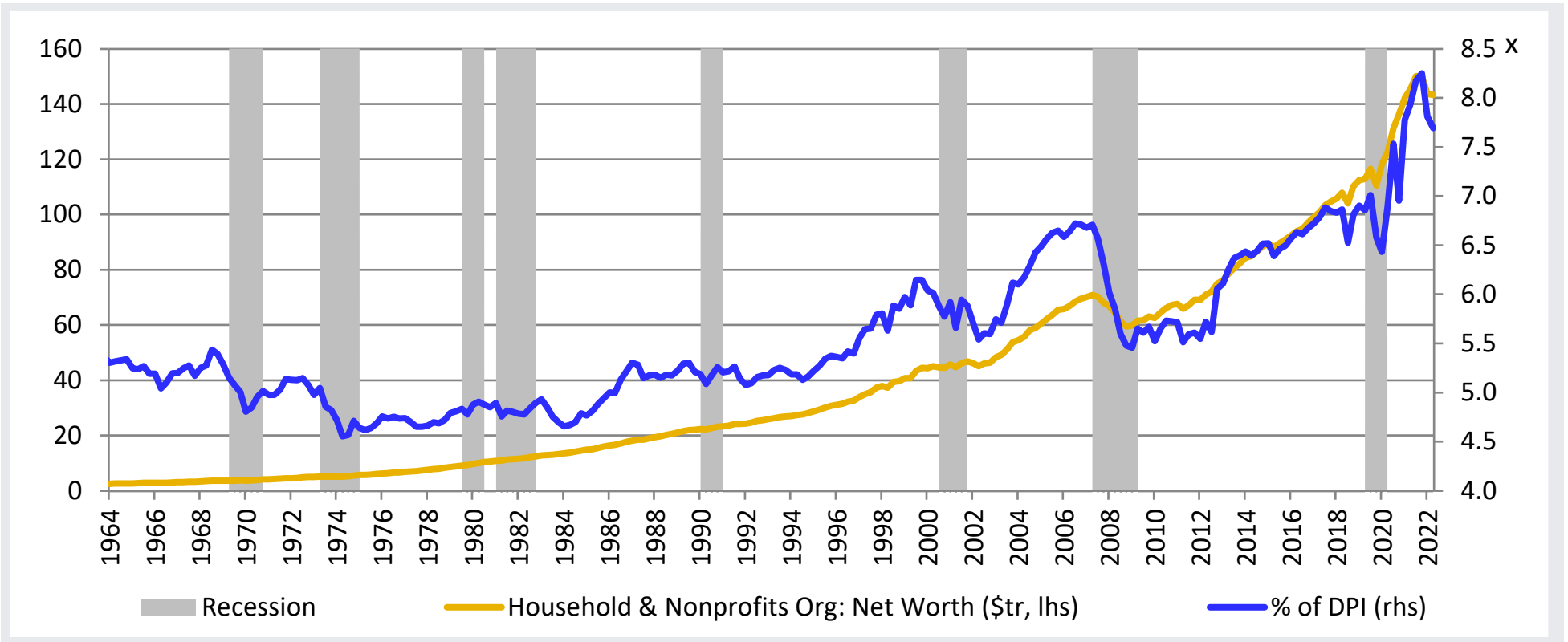
Source: BEA, Office for National Statistics, S&P, DWS Investment GmbH as of 3Q2022

DWS forecasts: U.S. GDP, inflation, fed funds rate, unemployment rate, federal debt and deficit

US	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
GDP (%qq, annualized)	1.0	-0.8	-0.6	1.2	1.6	1.2	1.4	1.6	2.0
GDP (%yy)	0.3	0.5	0.5	0.2	0.3	0.9	1.4	1.5	1.6
GDP (%qq)	0.3	-0.2	-0.2	0.3	0.4	0.3	0.4	0.4	0.5
Unemployment Rate % (EOP)	3.6	3.8	4.0	4.2	4.4	4.3	4.1	4.1	4.0
PCE (EOP)	5.7	4.6	3.6	3.0	2.7	2.5	2.3	2.2	2.2
Core PCE (EOP)	4.6	4.0	3.2	2.8	2.6	2.5	2.3	2.2	2.2
Fiscal balance (% GDP)	-4.4				-3.8				-4.1
FFR (EOP)	4.25 - 4.5	5 - 5.25	5 - 5.25	5 - 5.25	5 - 5.25	4.5 - 4.75	4 - 4.25	3.75 - 4	3.5 - 3.75

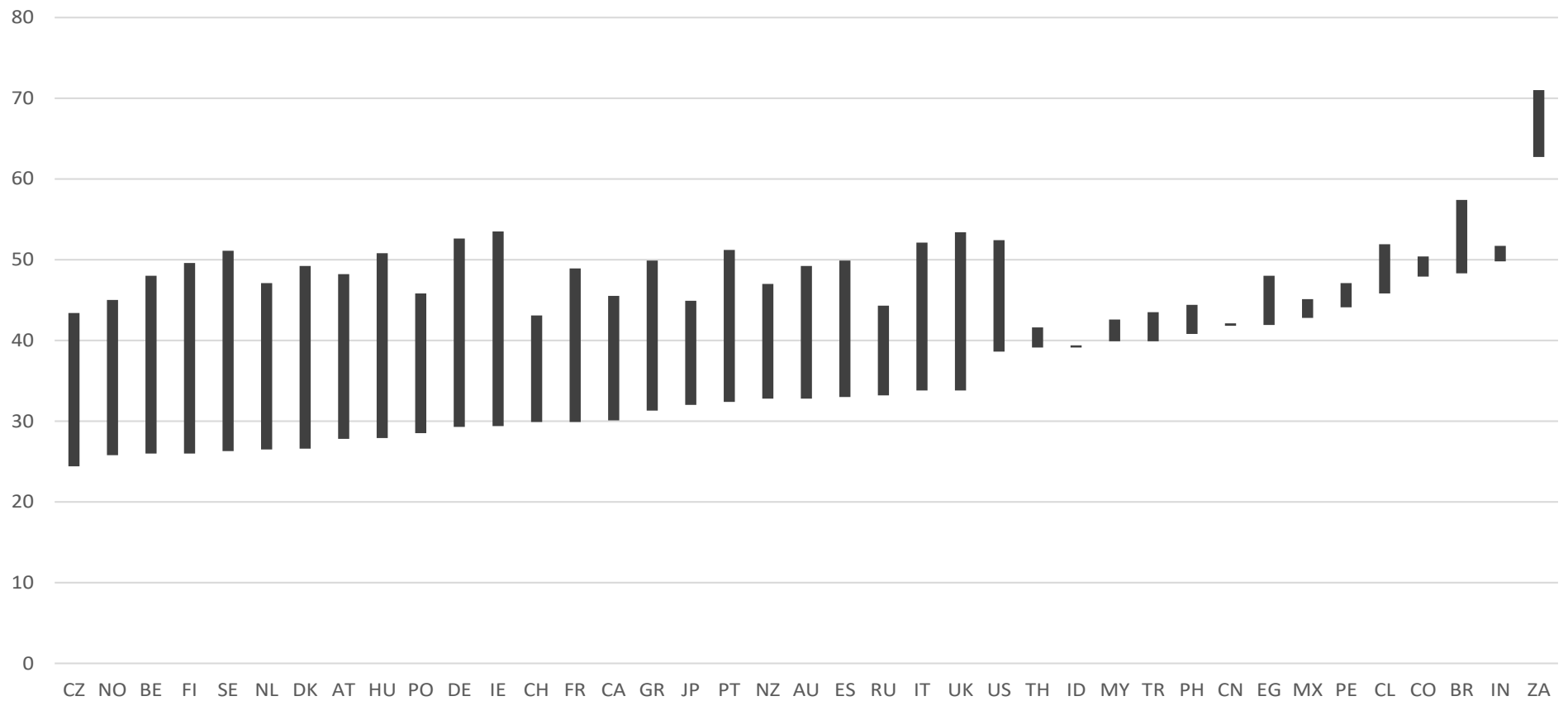
Source: DWS Investment GmbH as of 12/6/2021. Past performance may not be indicative of future results

Household net worth % of DPI



Source: FRB, Haver, DWS Investment GmbH as of 3Q2022

Gini coefficient of income inequality measures pre and post taxes and government transfers



The higher the Gini coefficient, the higher inequality.

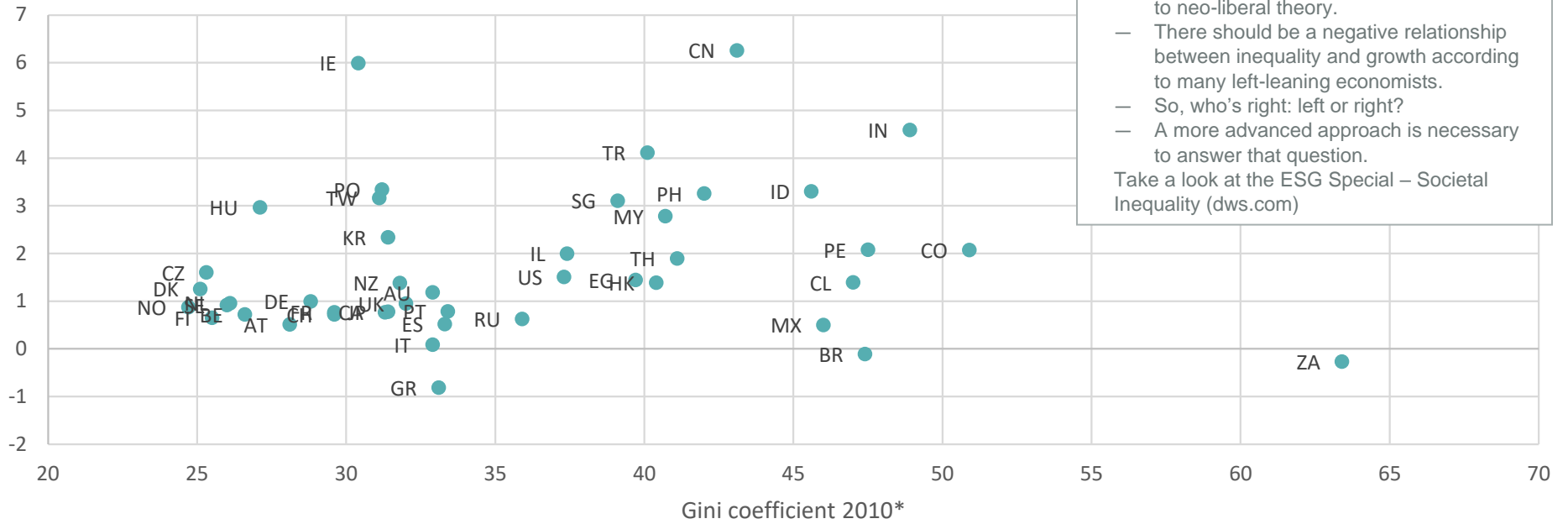
The upper value indicates the Gini coefficient of market income before taxes and government transfers; the lower value indicates the Gini coefficient of disposable income after taxes and transfers.

In each case, the values are based on equivalence-weighted household incomes in 2018 or the most recent disposable income.

Sources: ESG Special – Societal Inequality (dws.com) OECD, DWS Investment GmbH as of November 2022

Link between inequality and growth?

GDP per capita growth 2010-2021**



* Gini coefficient of household income after taxes and transfers, 2010. ** CAGR of GDP per capita 2010-2021. Sources: ESG Special – Inequality from an investors' perspective(dws.com) IMF, OECD, DWS Investment GmbH as of November 2022.

2. How high will the Fed go? We think 5.0-5.25%:

Since 1982, the average hiking cycle was near 300bp over about 15 months. Last cycle, the overnight rate plateaued at 2.25% in 2019 and before that at 5.25% in 2007. We expect the Fed Funds rate to plateau in 1Q23 between 5.0-5.25%, a 500bp+ climb in a year. This should slow inflation and the economy. Unless the recession is deeper or longer than we expect, rate cuts are unlikely until 2024 to ensure inflation embers are extinguished. Thus, investors have a good risk free alternative while watching how 2023 develops.

Fed hike cycles since 1965

Start Date of Fed Rate Hike *	Date of Reaching Late Cycle **	Late Cycle Signals **	End Date of Fed Rate Hike	Fed Funds Effective Rate (%)	Duration of Hike (Months)	Peak Fed Rate	Total Rate Hike	1yr Yield (%)	10yr Yield (%)	CPI y/y	Unit Labor Cost y/y	UE (%)	PE at Start of Hike	PE at End of Hike	PE Chg during Hike	Avg PE	10yr - 1yr Chg (%) at 1yr in	10yr - 1yr Chg (%) at 10yr in	Before Reaching Cycle (ar)	After Reaching Cycle (ar)	3m before Hike	Initial Reaction ***	1m	3m	6m	12m	Date of First Hike	
Dec-65	Dec-65	1	Nov-66	0.04	12	0.06	0.017	0.04	0.04	1.7%	-0.2%	0.0	18.4	14.6	-3.8	15.9	0.1	-0.4	-0.5	-14.1%	0.6%	0%	-3%	-8%	-13%			
Aug-67	Dec-67	1,3	Aug-69	0.04	25	0.09	0.054	0.05	0.05	2.9%	3.1%	0.0	17.8	16.4	-1.4	17.6	0.2	-0.8	-1.0	9.3%	-0.6%	0.9%	3%	0%	-5%	6%		
Apr-71	Apr-71	2	Aug-71	0.04	5	0.06	0.019	0.04	0.06	4.4%	1.0%	0.1	19.2	18.6	-0.6	18.9	2.0	0.8	-1.2	-13.5%	0.5%	-4%	-8%	-9%	4%			
Mar-72	Mar-73	1,2	Sep-73	0.03	19	0.11	0.075	0.04	0.06	3.8%	2.2%	0.1	18.7	14.1	-4.6	17.1	1.8	-1.2	-3.0	4.0%	-5.5%	1.0%	0%	0%	3%	4%		
Mar-74	Mar-74	1,2	Aug-74	0.09	6	0.12	0.030	0.07	0.07	10.0%	7.1%	0.1	11.8	8.3	-3.5	9.9	0.1	-1.3	-1.4	-47.0%	3.1%	-4%	-8%	-32%	-11%			
Feb-77	Feb-77	2	Apr-80	0.05	39	0.18	0.130	0.05	0.07	5.2%	5.5%	0.1	10.3	6.9	-3.4	8.2	1.9	-1.8	-3.8	2.0%	1.4%	-1%	-4%	-3%	-13%			
Aug-80	Aug-80	1,2	Jun-81	0.09	11	0.19	0.101	0.09	0.10	13.2%	11.4%	0.1	8.1	8.8	0.7	8.9	1.6	-1.4	-3.0	8.7%	2.1%	3%	15%	7%	0%			
Jan-82	Jan-82	1,2	Feb-82	0.12	2	0.15	0.024	0.13	0.14	8.9%	7.2%	0.1	8.1	7.4	-0.6	7.7	0.9	-0.3	-1.2	-52.7%	1.1%	-6%	-3%	-11%	21%			
Apr-83			Aug-84	0.09	17	0.11	0.029	0.09	0.11	3.6%	2.8%	0.1	12.1	10.0	-2.2	11.3	1.5	0.9	-0.6	1.0%	10.8%	-1.7%	10%	10%	10%	3%	3/31/1983	
Jan-87	Aug-87	3	Oct-87	0.06	10	0.07	0.014	0.06	0.07	1.2%	3.0%	0.1	14.8	13.6	-1.3	17.2	1.2	1.9	0.7	37.3%	-80.2%	1.4%	0.4%	11%	19%	21%	3%	1/5/1987
Apr-88	Dec-88	1,2,3	Mar-89	0.07	12	0.10	0.032	0.07	0.08	3.8%	2.9%	0.1	12.5	11.8	-0.7	12.0	1.7	-0.2	-1.9	9.6%	27.1%	8.9%	-5.6%	2%	6%	6%	15%	3/30/1988
Feb-94			Apr-97	0.03	39	0.06	0.025	0.04	0.06	2.5%	1.6%	0.1	17.7	19.0	1.3	16.5	2.2	0.9	-1.3	18.6%	5.4%	-3.9%	-4%	-1%	3%	5%	2/4/1994	
Mar-97	Apr-97	3	Apr-97	0.05	2	0.06	0.003	0.06	0.06	3.0%	1.2%	0.1	19.3	19.0	-0.3	18.5	0.9	0.9	0.0	97.6%	8.8%	-9.3%	12%	24%	32%	51%	3/25/1997	
Jul-99	Mar-00	1,3	Jun-00	0.05	12	0.07	0.017	0.05	0.06	2.0%	0.6%	0.0	29.7	26.1	-3.6	27.6	0.8	-0.1	-0.9	19.8%	-11.2%	5.1%	-0.8%	1%	-3%	5%	6%	6/30/1999
Jul-04	Jan-06	1,2	Jul-06	0.01	25	0.05	0.042	0.02	0.05	3.2%	1.0%	0.1	18.4	15.6	-2.8	17.0	2.6	-0.1	-2.7	10.5%	-0.5%	3.1%	-5.2%	2%	1%	8%	14%	6/30/2004
Dec-15	Dec-15	3	Apr-19	0.00	41	0.03	0.023	0.00	0.02	0.4%	2.5%	0.1	17.5	17.3	-0.2	18.6	1.8	0.1	-1.7	10.3%	7.9%	-10.1%	-1%	9%	13%	20%	12/16/2015	

* 1971, 1977, 1983, 1994, and 2004 are the first hike after recessions

* The hikes that started in 1965, 1971, 1974, 1977, 1980, 1982, 1997 and 2015 started under late cycle conditions, despite 1971, 1977 and 2015 being the first hikes after a recession.

* The hikes that started in 1983 and 1994 stopped before reaching late cycle conditions. All other hikes started in early-cycle conditions and continued into late-cycle conditions.

** Three signs of late cycle conditions: (1) inverted yield curve; (2) high inflation; (3) more than 5 years since recession.

*** Initial reaction is the S&P price change from 1 month high before the date of first rate hike to the 1 month low after.

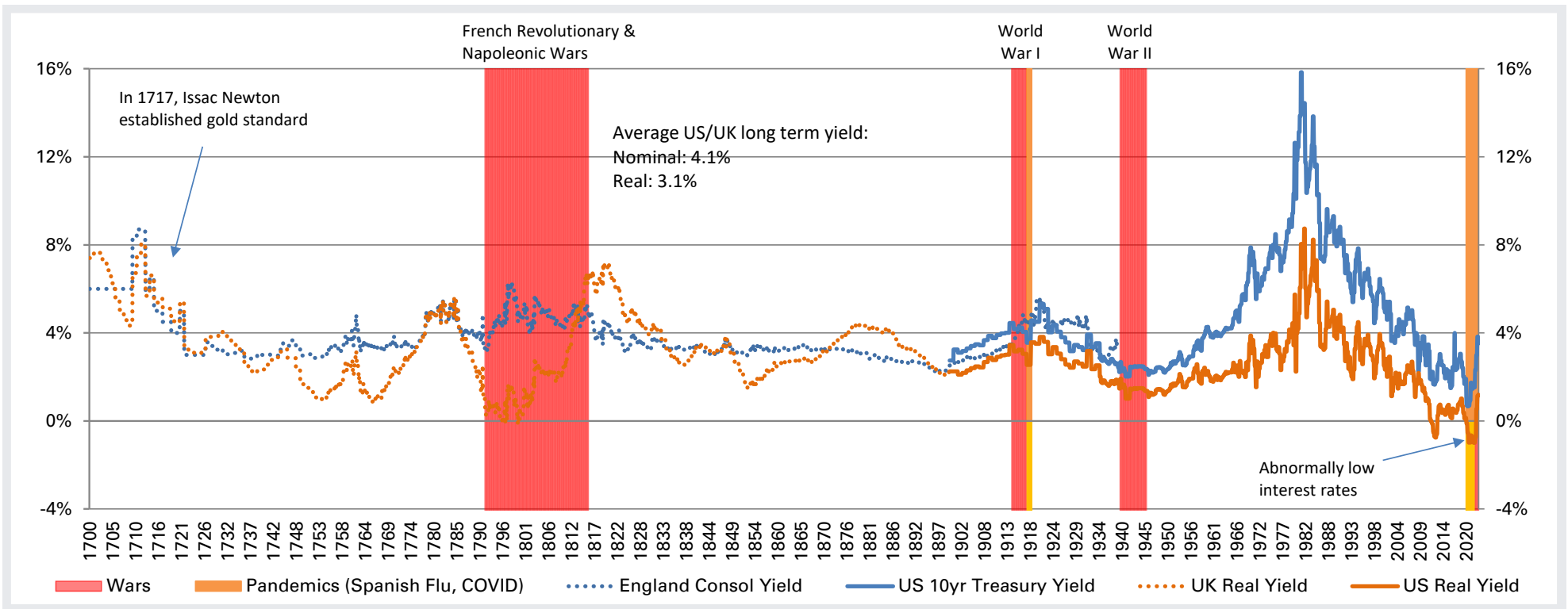
Note: For the 7 Fed hike cycles since 1983, the S&P performance are for 1m, 3m, 6m, and 12m after the initial reaction. For the other cycles, the S&P performance are based on monthly prices.

Source: Haver, DWS Investment GmbH as of 12/6/2022

3. Long-term interest rates rise to pre financial crisis range. What's the norm for the 2020s?:

We expect 10yr Treasury yields to rise to 4.20% at 2023 end with long-term inflation expectations and breakevens at about 2.5%. Thus, 10yr TIPS yields at 1.50-1.75%, up from about 1.25% today. This is a big difference from our nominal and real yield expectations from this time last year. This is because inflation climbed higher and for longer and broader in 2022 than we expected last year. Uncertainty remains very high for Treasury yields. The basics of reasonable inflation assumptions and inflation risk premiums remain unsure and so does risk asset hedge value of Treasury bonds given the large simultaneous losses in fixed income and equities in 2022. Moreover, the deficit remains high and the Fed will likely sell over \$1 trillion of its Treasury and MBS holdings next year.

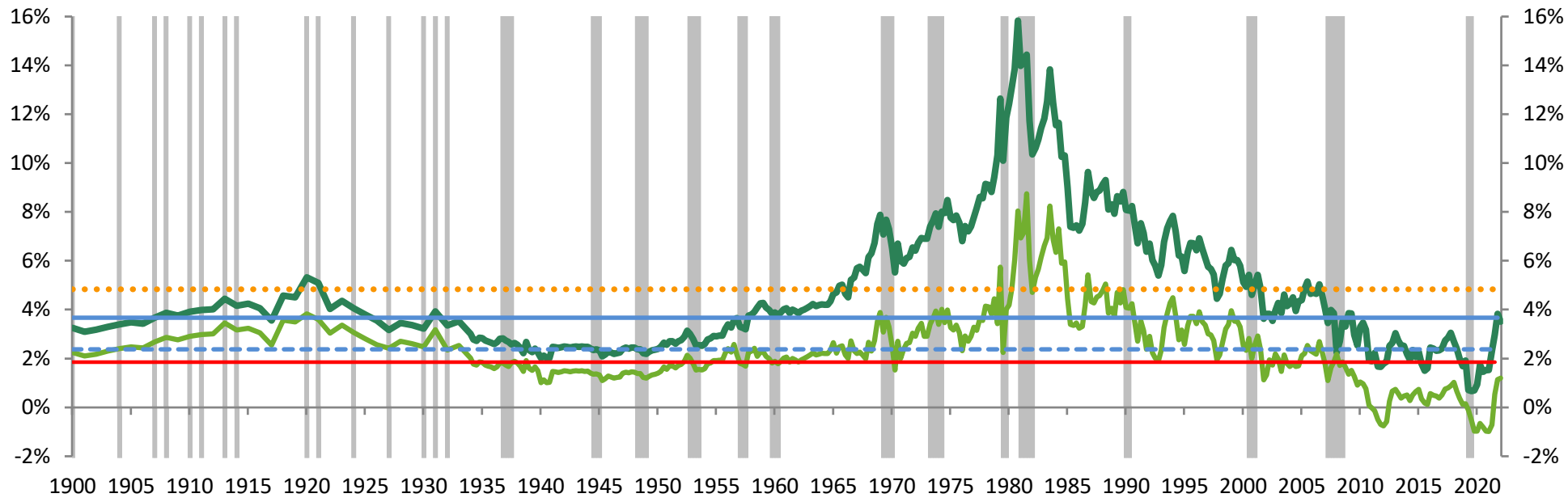
Long history of US and UK interest rates since 1700



Source: England Consol, FRB, FRBPHIL, DWS Investment GmbH as of 12/6/2022

Treasuries protect against systematic risk. TIPs protect against inflation risk. The more systematic risk protection treasuries provide helps to reduce term premium.

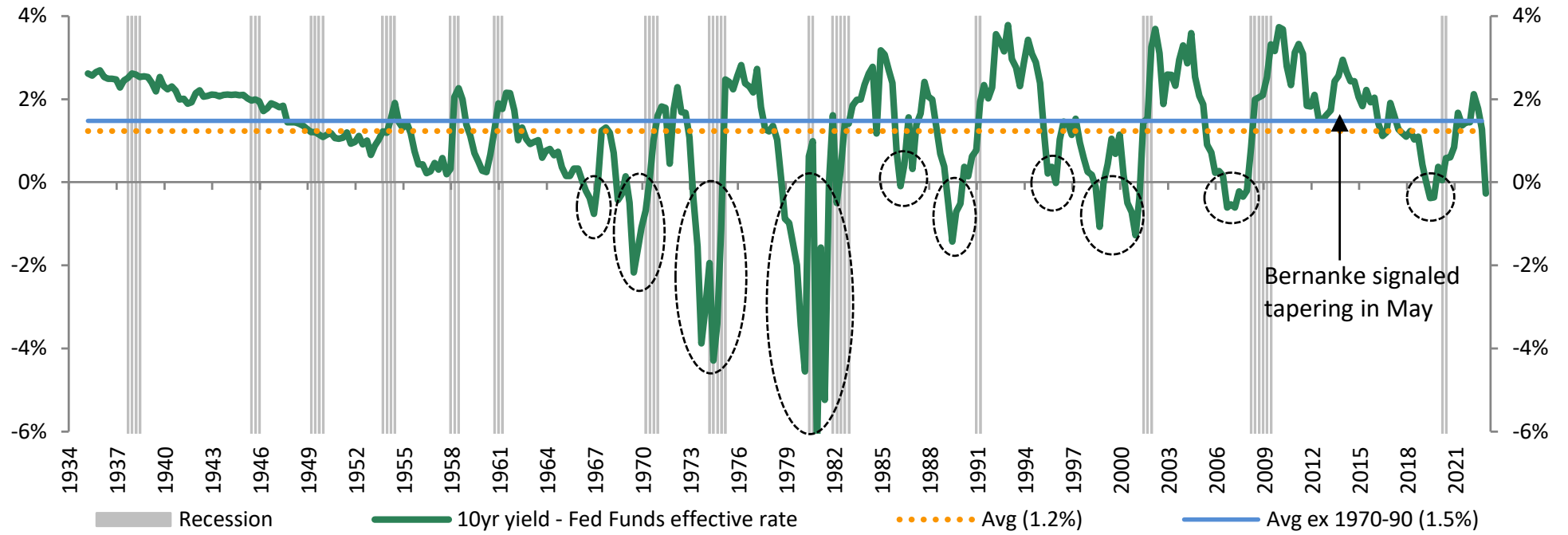
U.S. 10-year treasury yields: nominal and real



- Recession
- 10yr Yield Avg (4.8%)
- Real 10yr Yield Avg ex 1970-90 (1.9%)
- 10yr Treasury Yield
- 10yr Yield Avg ex 1970-90 (3.7%)
- Real 10yr Yield Avg (2.4%)
- Real 10yr Yield (TIPS yield from 2003)

Source: Haver, DWS Investment GmbH as of 12/6/2022

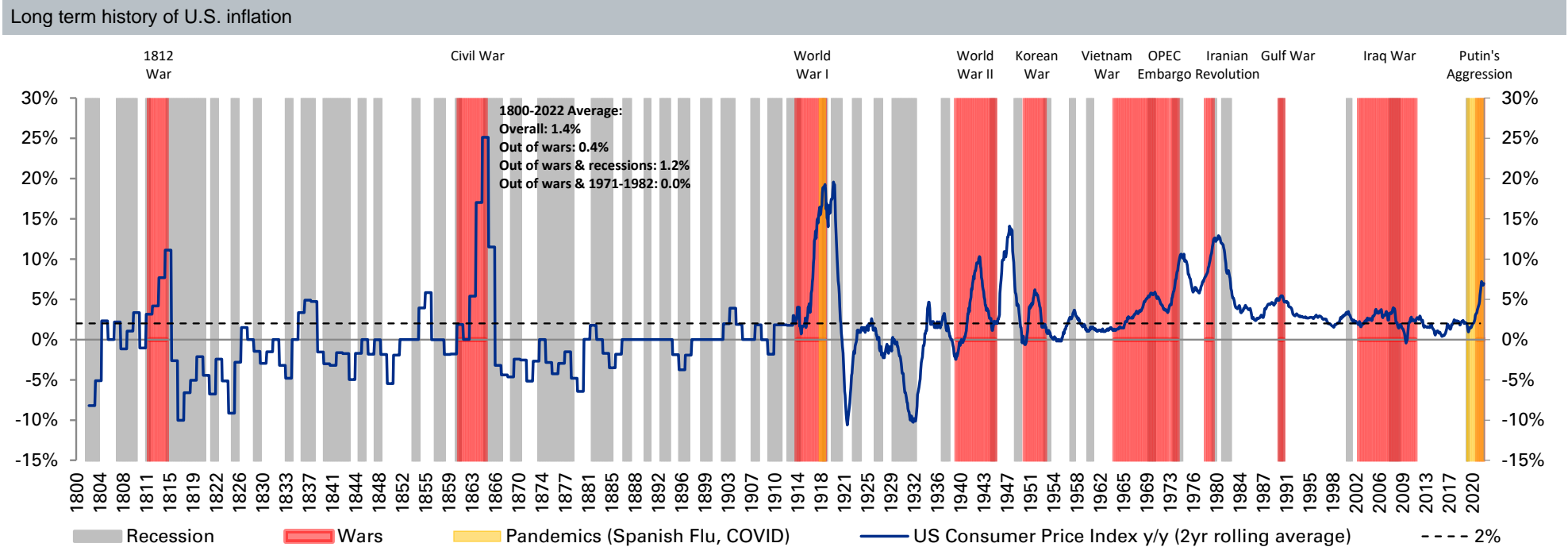
U.S. yield curve: 10yr treasury yield – Fed Funds effective rate



Source: Haver, DWS Investment GmbH as of 12/6/2022

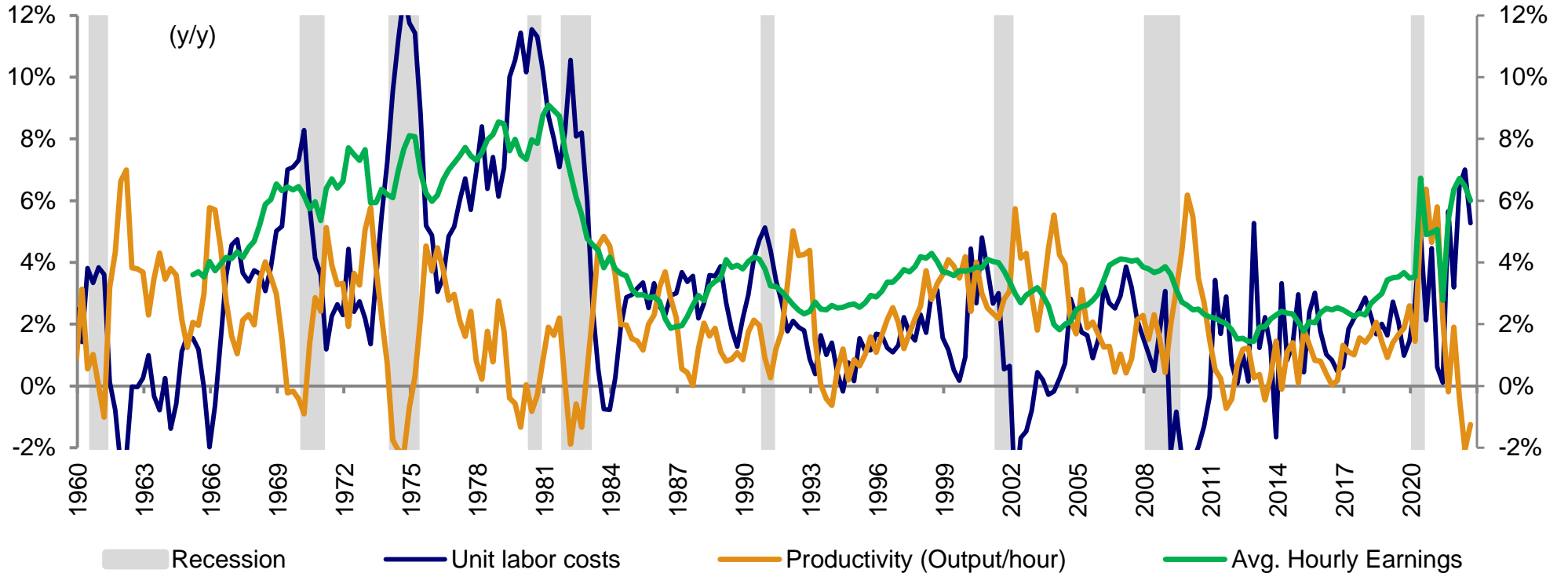
4. How to tame inflation in 2020s? Productivity is key:

Taming inflation will be a challenge; owing to global conflict, smaller trading blocs, reshoring, demographics, environmental considerations, other regulations and the challenge of raising productivity at mature service oriented economies. Such challenges should affect real growth more than inflation if there is monetary and fiscal policy discipline. But, because such policy decisions will be tough, it's important to stay on guard against elevated inflation risk. Most commodity and goods prices declined from early 2022 highs, but while oil is in a lot of things, labor is in everything. Thus, improved labor productivity is the key to healthy real growth and easing some difficult policy choices ahead. We expect employment, income and equality to become even more controversial ahead. Meanwhile in 2022, productivity is very weak at -1.3% y/y YTD with wages up 6.0%, boosting unit labor costs (ULCs) by about 7% y/y.



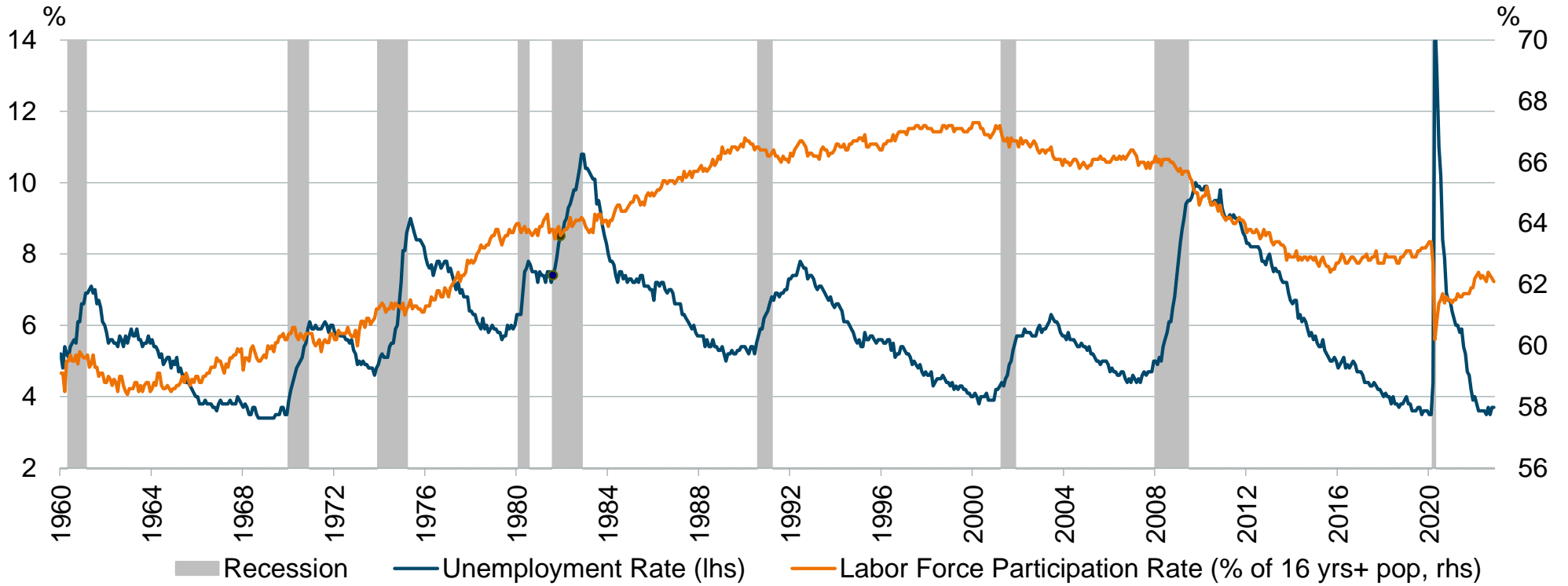
Source: BLS, NBER, Federal Reserve Bank of Minneapolis, Index of Prices Paid by Vermont Farmers for Family Living, Consumer Price Index by Ethel D. Hoover, Cost of Living Index by Albert Rees, DWS Investment GmbH as of 12/6/2022

Productivity, Wages and Unit Labor Costs



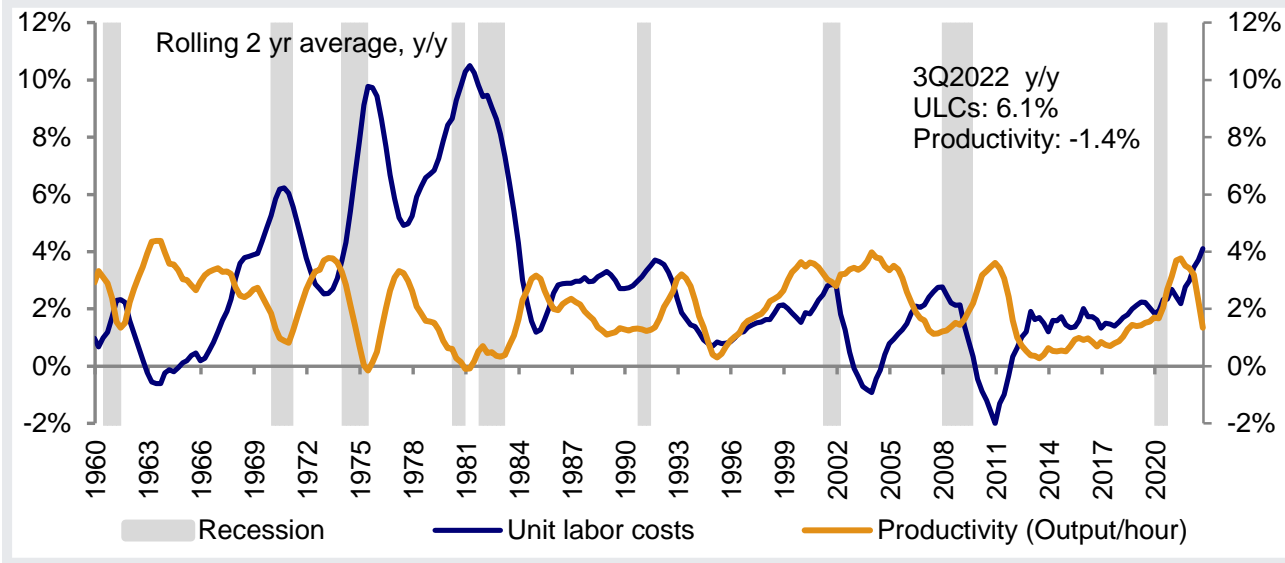
Source: BLS, NBER, Federal Reserve Bank of Minneapolis, Index of Prices Paid by Vermont Farmers for Family Living, Consumer Price Index by Ethel D. Hoover, Cost of Living Index by Albert Rees, DWS Investment GmbH as of 3Q2022

U.S. Unemployment Rate vs. Labor Force Participation Rate



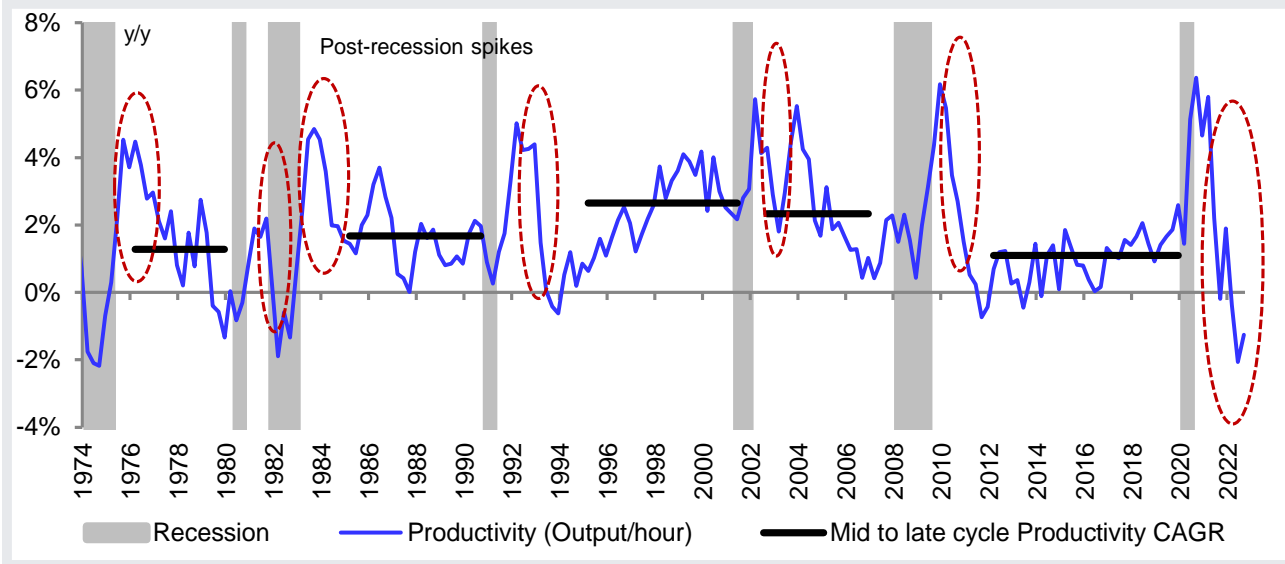
Source: BLS, Haver, DWS Investment GmbH as of 11/30/2022

Unit Labor Costs vs. Productivity



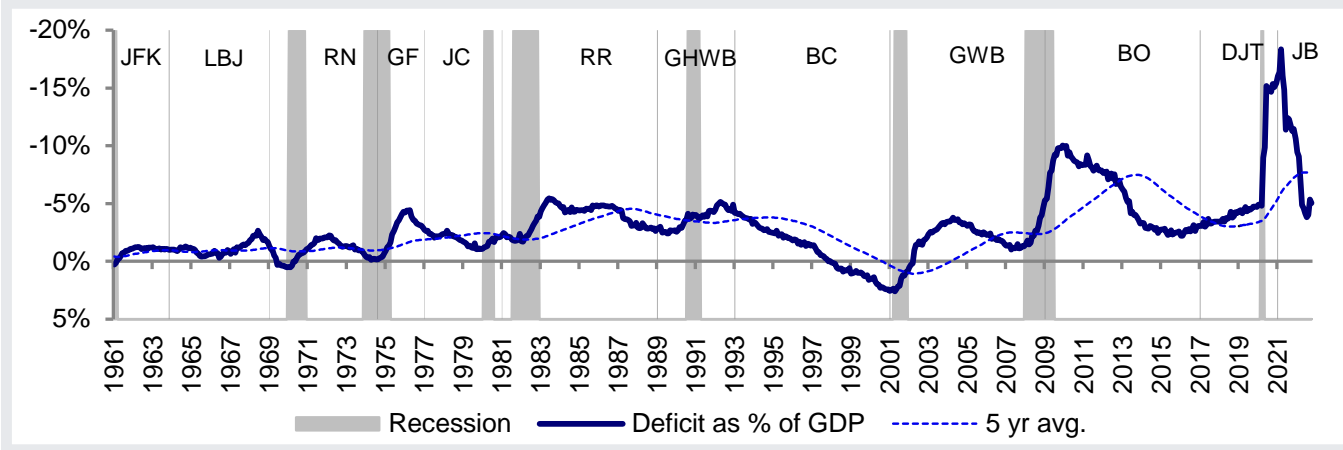
Source: BLS, FRB, DWS Investment GmbH as of 3Q2022. Past performance may not be indicative of future results

Labor productivity in different cycles



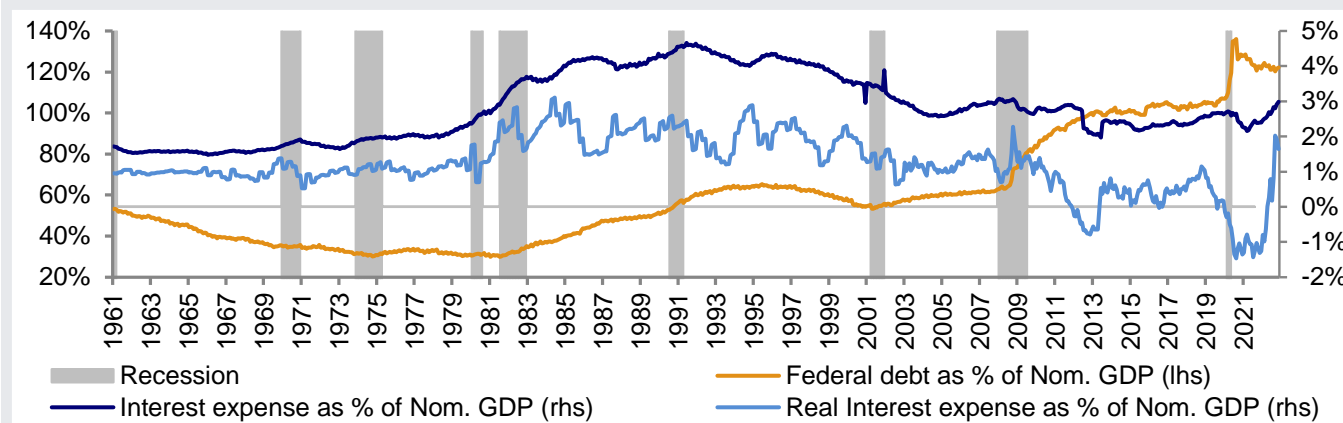
Source: BLS, DWS Investment GmbH as of 3Q2022. Past performance may not be indicative of future results

U.S. federal deficit % of GDP



Source: Haver, DWS Investment GmbH as of October 2022. Past performance may not be indicative of future results.

U.S. federal debt and interest expense as % of GDP

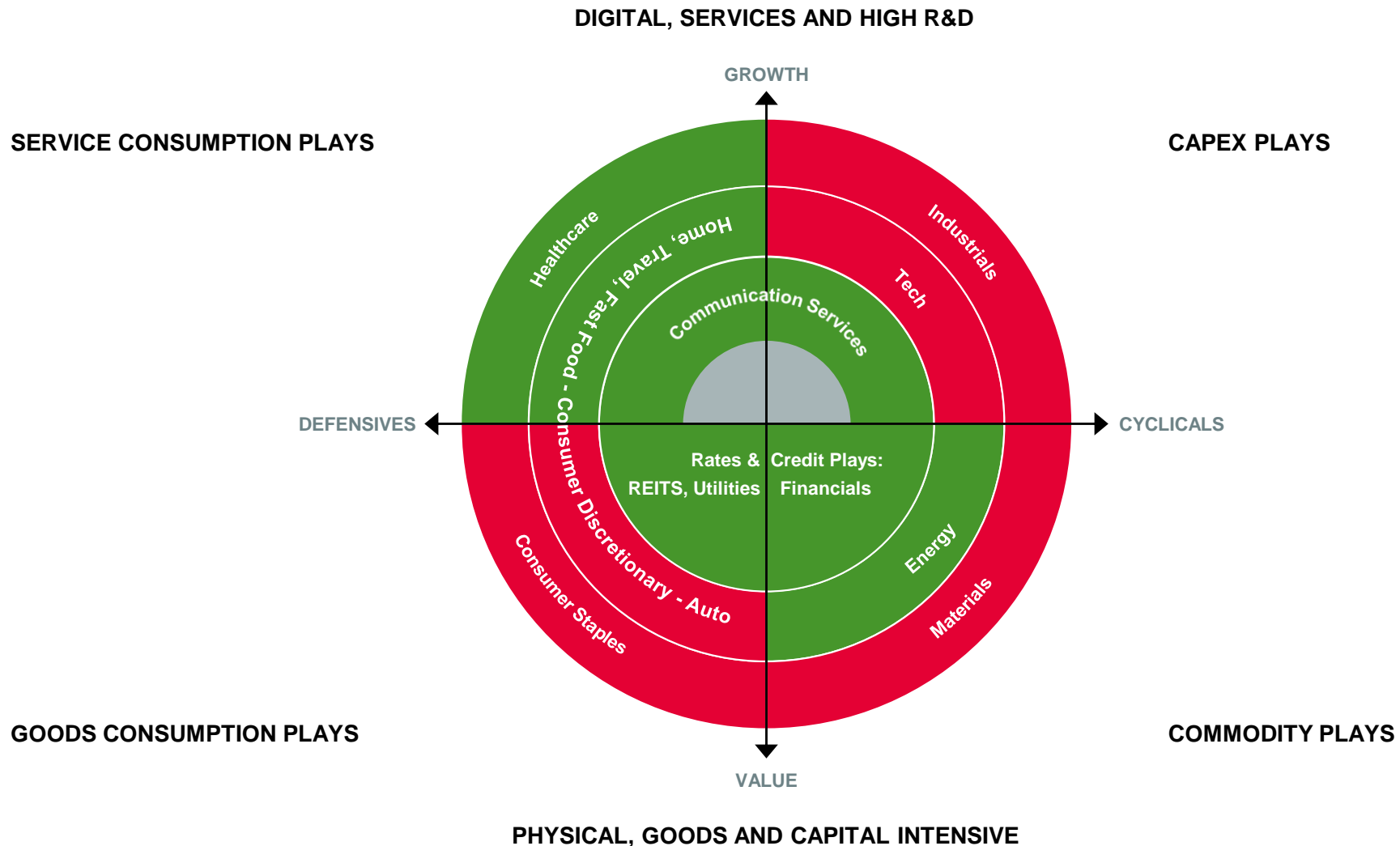


Source: Haver, DWS Investment GmbH as of November 2022. Past performance may not be indicative of future results.

5. S&P sector strategy:

Under a weak macro backdrop, we embrace robust secular trends resistant to cyclical disruptions, such as: Healthcare solutions for an aging world, productivity enhancers for a tight labor market (selectively in Tech Services, Industrial Capital Goods), experience providers for in-person social and business gatherings (Hotels, Airlines), Aerospace & Defense (A&D) to get to and defend people and places we cherish, clean energy and electrification plays offering fair equity returns (Utilities, Elec. Equip.). Our preferred high beta industry remains Banks on higher interest rates and higher normalized EPS and ROEs. We over-weight Communications as an overlooked value play, as the risk of profit decay appears more priced here than elsewhere.

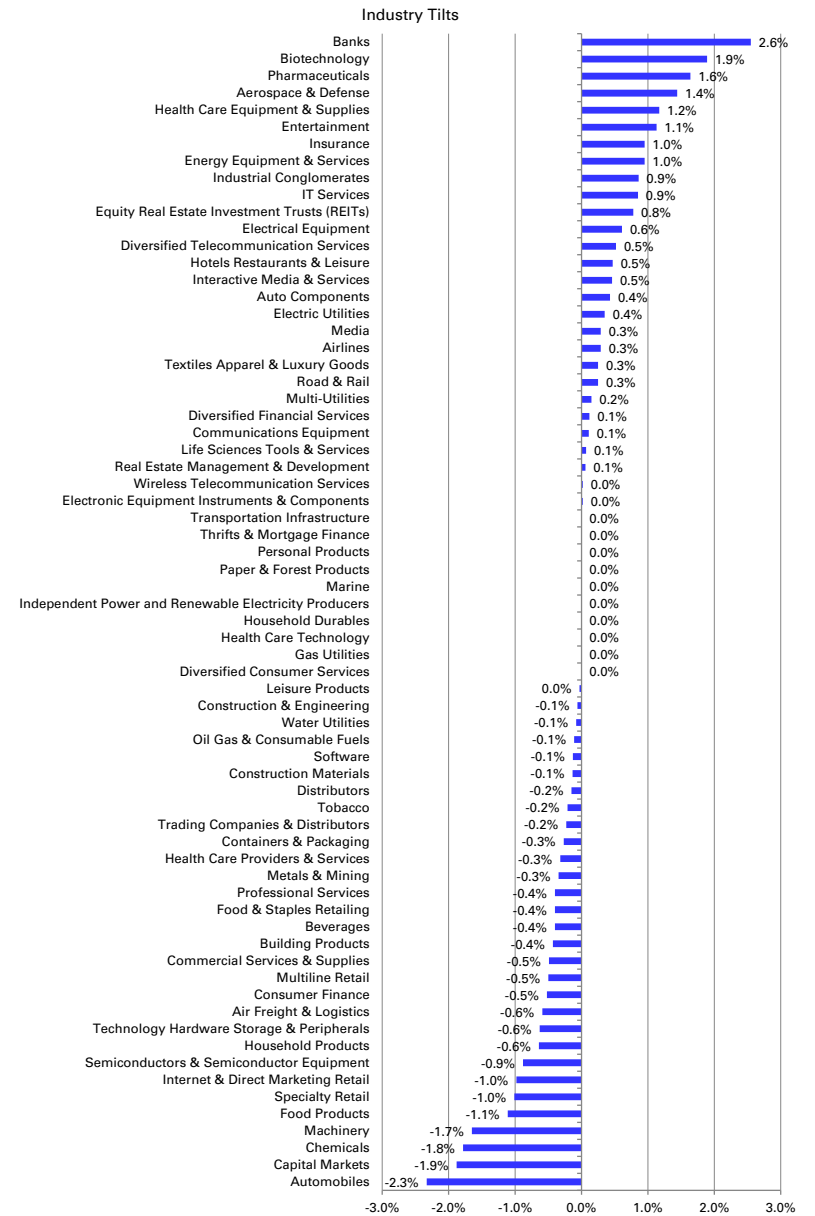
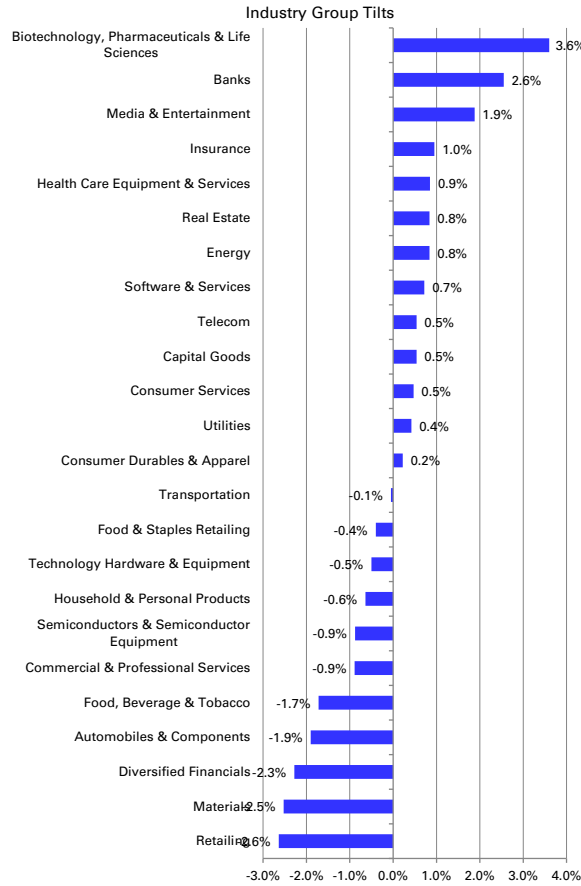
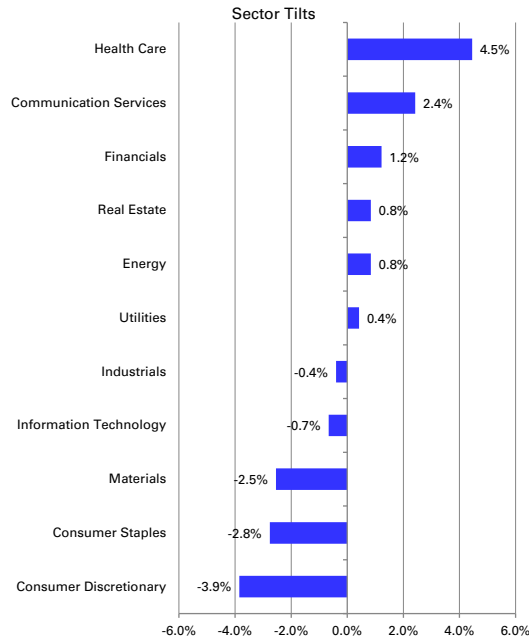
Sector Strategy: Per Key Macro Plays:



Source: DWS Investment GmbH as of December 2022

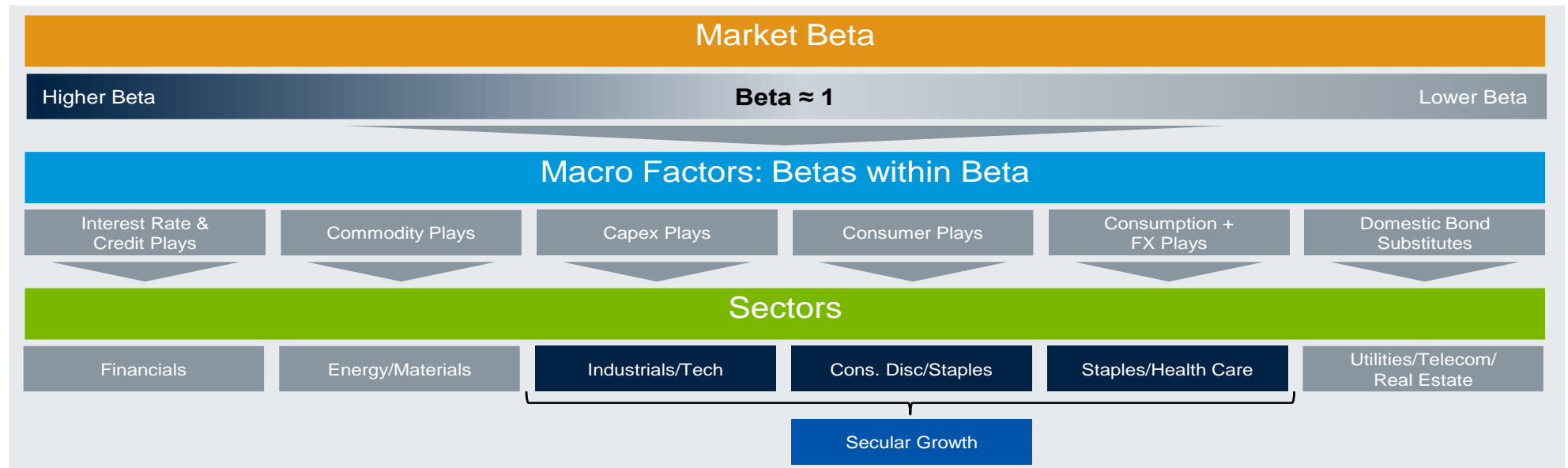
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S&P 500 sector, industry group and industry tilts



Source: DWS Investment GmbH as of 12/6/2022

Fundamental macro factors beyond beta:



Total & Undiversifiable Risk Factors

- Volatility
- Beta



Other Difficult to Diversify Risks

- Size
- Value

Alpha Factors:



Macro Factors – Sector Weighting

- Interest rates
- Commodities
- PMIs
- Currencies
- Capex / trade
- Credit Conditions



Micro Factors – Stock Picking

- Valuations
- Consensus estimates
- ROIC and Economic Profit Analysis
- Operating metrics
- ESG

What's a factor?

A factor is a quantifiable characteristic shared across securities that can help to explain performance. The three classic Fama-French risk factors are: Beta, Size and Value. And, perhaps, Momentum. Quality might lower risk per return. Then there are thousands of metrics (alpha factors) that active managers use to find securities likely to outperform which can't be explained by risk factors.

True alpha must be achieved neutral of risk factors

Historic S&P 500 sector performance

Year	S&P 500	Beta > 1		Beta ≈ 1					Beta < 1				10yr Tsy
		US Value	Global Value		Global Growth		Consumer Growth			Low Beta Defensives			
		Credit Plays	Commodity Plays		Capex Plays		Consumer Plays			Growth	Bond Substitutes		
		Financials	Energy	Materials	Industrials	Tech	Cons. Disc.	Cons. Staples	Health Care	Utilities	Comm.	Real Estate	
1995	37.6%	54.1%	31.0%	20.0%	39.1%	39.4%	20.3%	39.6%	58.0%	32.7%	42.3%		25.4%
1996	23.0%	35.2%	25.9%	15.8%	25.1%	43.9%	12.4%	25.9%	21.0%	5.7%	1.1%		0.0%
1997	33.4%	48.2%	25.3%	8.4%	27.0%	28.5%	34.4%	32.9%	43.7%	24.7%	41.2%		11.9%
1998	28.6%	11.4%	0.6%	-6.2%	10.9%	78.1%	41.1%	15.8%	43.9%	14.8%	52.4%		14.6%
1999	21.0%	4.1%	18.7%	25.3%	21.5%	78.7%	25.2%	-15.1%	-10.7%	-9.2%	19.1%		-7.9%
2000	-9.1%	25.7%	15.7%	-15.7%	5.9%	-40.9%	-20.0%	16.8%	37.1%	57.2%	-38.8%		17.2%
2001	-11.9%	-9.0%	-10.4%	3.5%	-5.7%	-25.9%	2.8%	-6.4%	-11.9%	-30.4%	-12.2%		5.4%
2002	-22.1%	-14.6%	-11.1%	-5.5%	-26.3%	-37.4%	-23.8%	-4.3%	-18.8%	-30.0%	-34.1%	-9.5%	15.4%
2003	28.7%	31.0%	25.6%	38.2%	32.2%	47.2%	37.4%	11.6%	15.1%	26.3%	7.1%	28.8%	0.2%
2004	10.9%	10.9%	31.5%	13.2%	18.0%	2.6%	13.2%	8.2%	1.7%	24.3%	19.9%	28.8%	4.5%
2005	4.9%	6.5%	31.4%	4.4%	2.3%	1.0%	-6.4%	3.6%	6.5%	16.8%	-5.6%	12.6%	3.0%
2006	15.8%	19.2%	24.2%	18.6%	13.3%	8.4%	18.6%	14.4%	7.5%	21.0%	36.8%	41.5%	2.2%
2007	5.5%	-18.6%	34.4%	22.5%	12.0%	16.3%	-13.2%	14.2%	7.2%	19.4%	11.9%	-17.9%	10.4%
2008	-37.0%	-55.3%	-34.9%	-45.7%	-39.9%	-43.1%	-33.5%	-15.4%	-22.8%	-29.0%	-30.5%	-42.3%	20.5%
2009	26.5%	17.2%	13.8%	48.6%	20.9%	61.7%	41.3%	14.9%	19.7%	11.9%	8.9%	27.1%	-10.2%
2010	15.1%	12.1%	20.5%	22.2%	26.7%	10.2%	27.7%	14.1%	2.9%	5.5%	19.0%	32.3%	7.9%
2011	2.1%	-17.1%	4.7%	-9.8%	-0.6%	2.4%	6.1%	14.0%	12.7%	19.9%	6.3%	11.4%	16.1%
2012	16.0%	28.8%	4.6%	15.0%	15.3%	14.8%	23.9%	10.8%	17.9%	1.3%	18.3%	19.7%	2.7%
2013	32.4%	35.6%	25.1%	25.6%	40.7%	28.4%	43.1%	26.1%	41.5%	13.2%	11.5%	1.6%	-8.5%
2014	13.7%	15.2%	-7.8%	6.9%	9.8%	20.1%	9.7%	16.0%	25.3%	29.0%	3.0%	30.2%	10.6%
2015	1.4%	-1.5%	-21.1%	-8.4%	-2.5%	5.9%	10.1%	6.6%	6.9%	-4.8%	3.4%	4.7%	1.1%
2016	12.0%	22.8%	27.4%	16.7%	18.9%	13.8%	6.0%	5.4%	-2.7%	16.3%	23.5%	3.4%	0.1%
2017	21.8%	22.2%	-1.0%	23.8%	21.0%	38.8%	23.0%	13.5%	22.1%	12.1%	-1.3%	10.8%	2.7%
2018	-4.4%	-13.0%	-18.1%	-14.7%	-13.3%	-0.3%	0.8%	-8.4%	6.5%	4.1%	-12.5%	-2.2%	0.3%
2019	31.5%	32.1%	11.8%	24.6%	29.4%	50.3%	27.9%	27.6%	20.8%	26.3%	32.7%	29.0%	9.3%
2020	18.4%	-1.7%	-33.7%	20.7%	11.1%	43.9%	33.3%	10.7%	13.4%	0.5%	23.6%	-2.2%	10.4%
2021	28.7%	35.0%	54.6%	27.3%	21.1%	34.5%	24.4%	18.6%	26.1%	17.7%	21.6%	46.2%	-4.1%

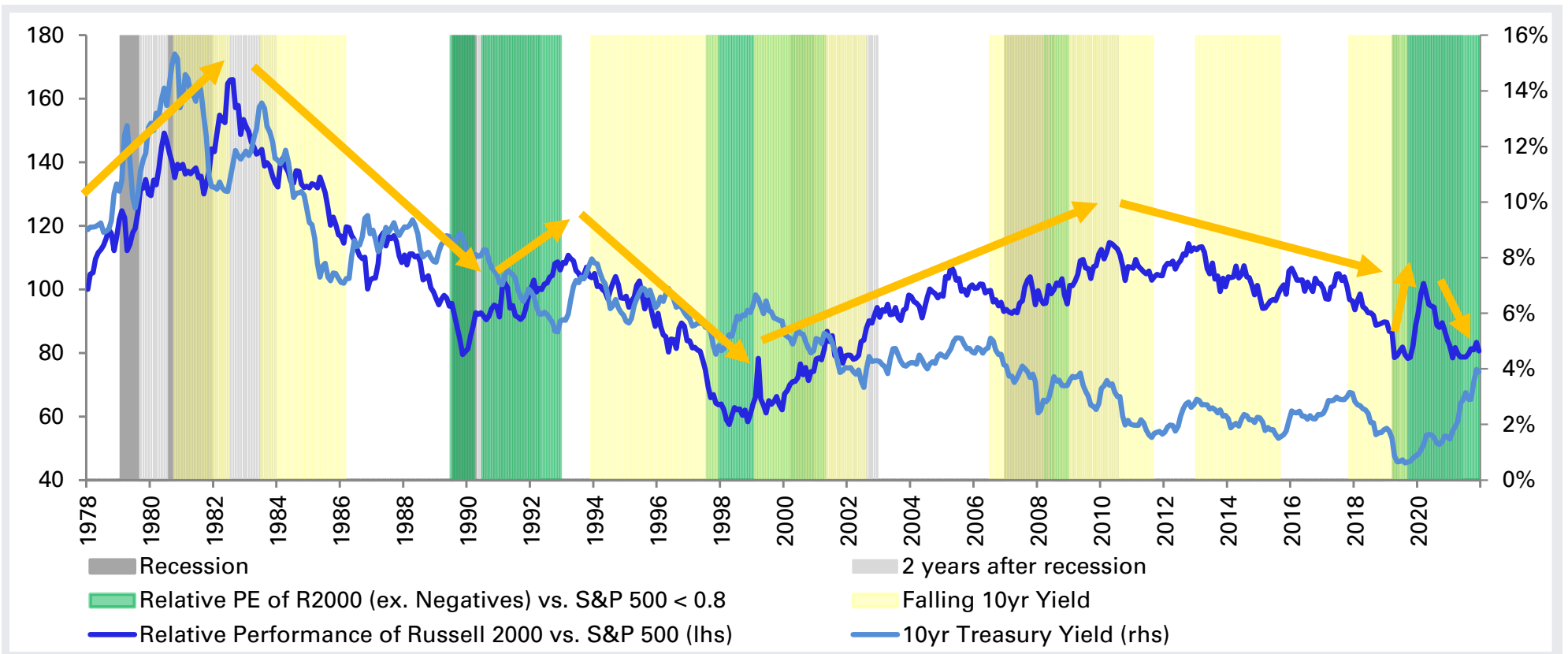
Return vs. S&P
 Outperform
 Underperform

Source: S&P, Treasury, DWS Investment GmbH as of December 2022

6. A better relative decade likely for small vs. large caps:

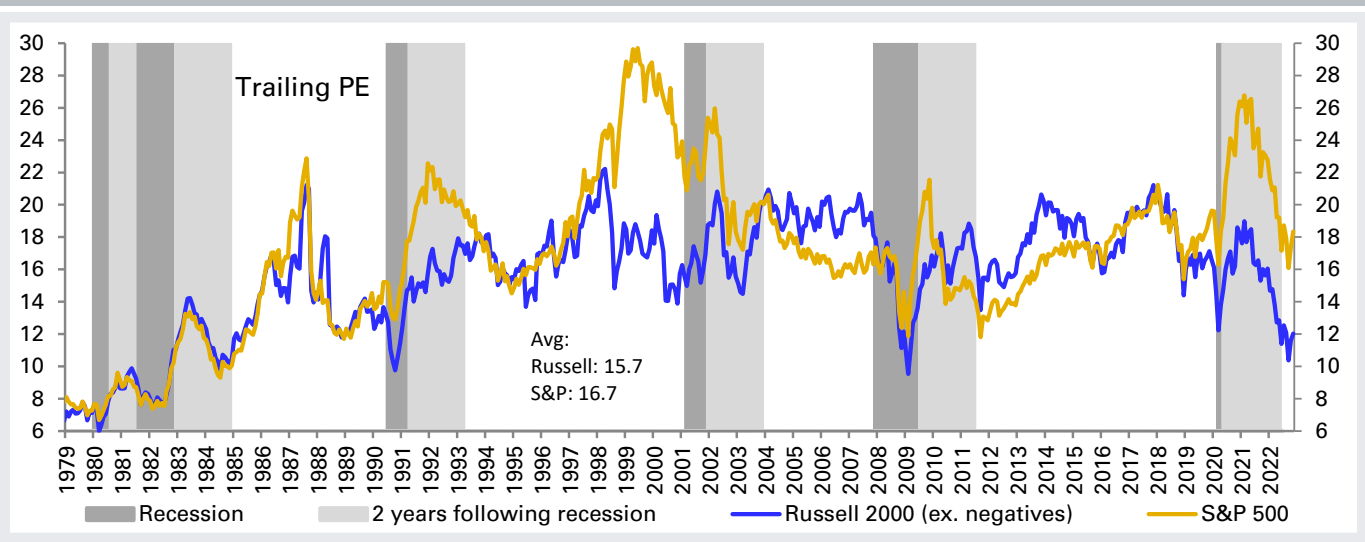
Competitive US corp tax rates, strong dollar, higher interest rates and reshoring supports better small vs. large cap secular performance this decade. Banks and Industrials are big sectors at profitable small caps. We shop in small Tech.

Trailing PE of Russell 2000 ex non-earners vs. number of non-earners



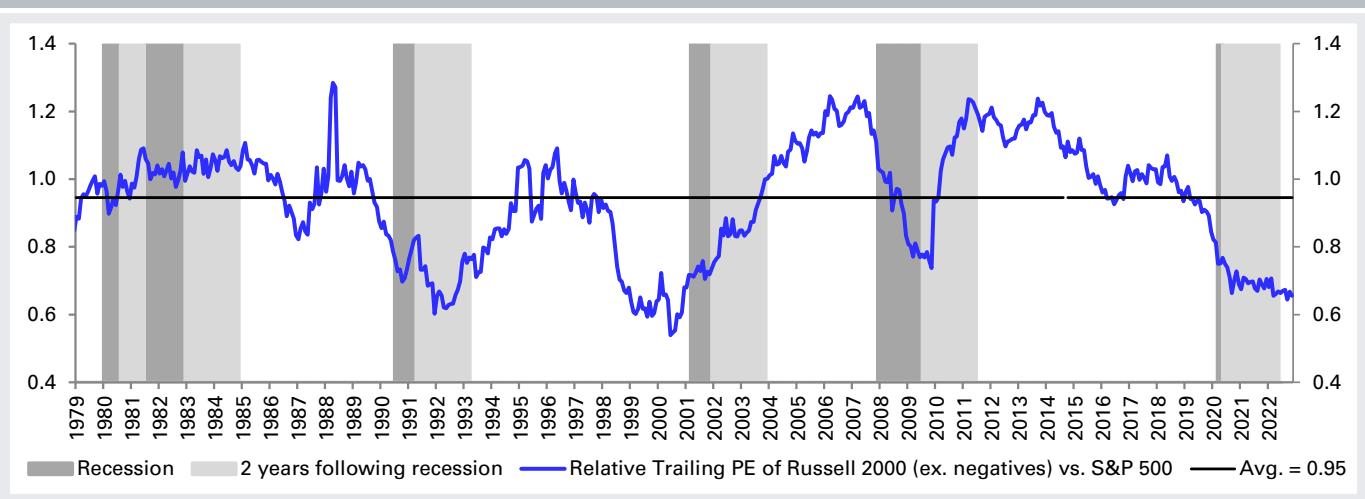
Source: Compustat, DWS Investment GmbH as of 11/30/2022. Past performance may not be indicative of future results.

Trailing PE of Russell 2000 ex non-earners vs. S&P 500



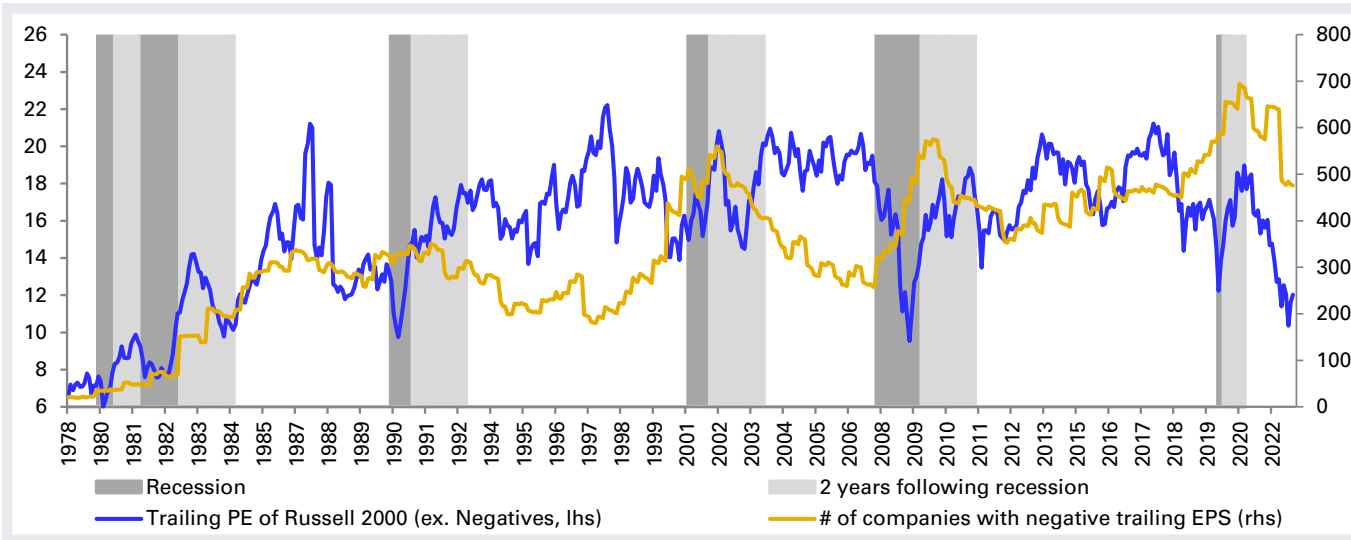
Source: Compustat, DWS Investment GmbH as of 11/30/2022. Past performance may not be indicative of future results.

Relative trailing PE of Russell 2000 ex non-earners vs. S&P 500



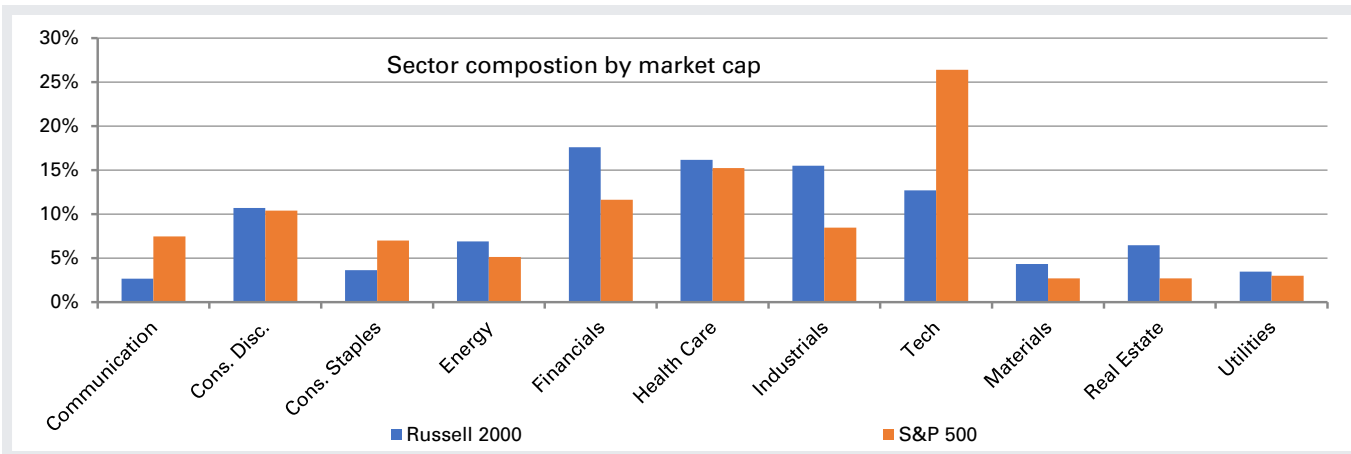
Source: Compustat, DWS Investment GmbH as of 11/30/2022. Past performance may not be indicative of future results.

Trailing PE of Russell 2000 ex non-earners vs. number of non-earners



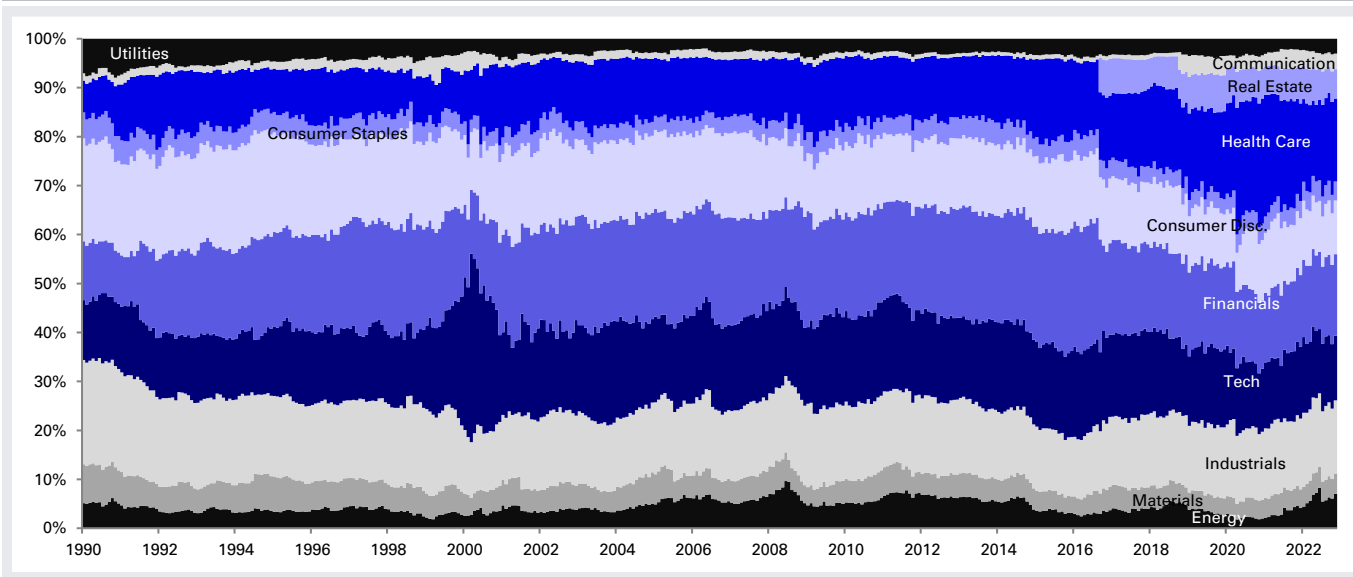
Source: Compustat, DWS Investment GmbH as of 11/30/2022. Past performance may not be indicative of future results.

Index sector composition of Russell 2000 vs. S&P 500



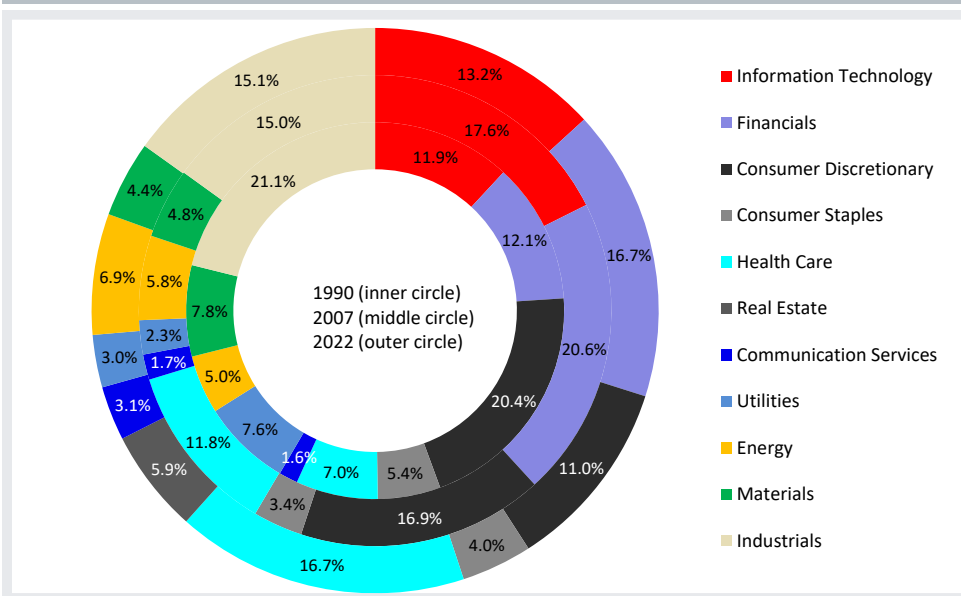
Source: Compustat, DWS Investment GmbH as of 11/30/2022. Past performance may not be indicative of future results.

Historic Russell 2000 sector composition



Source: Compustat, DWS Investment GmbH as of 10/30/2022. Past performance may not be indicative of future results.

Index sector composition of Russell 2000

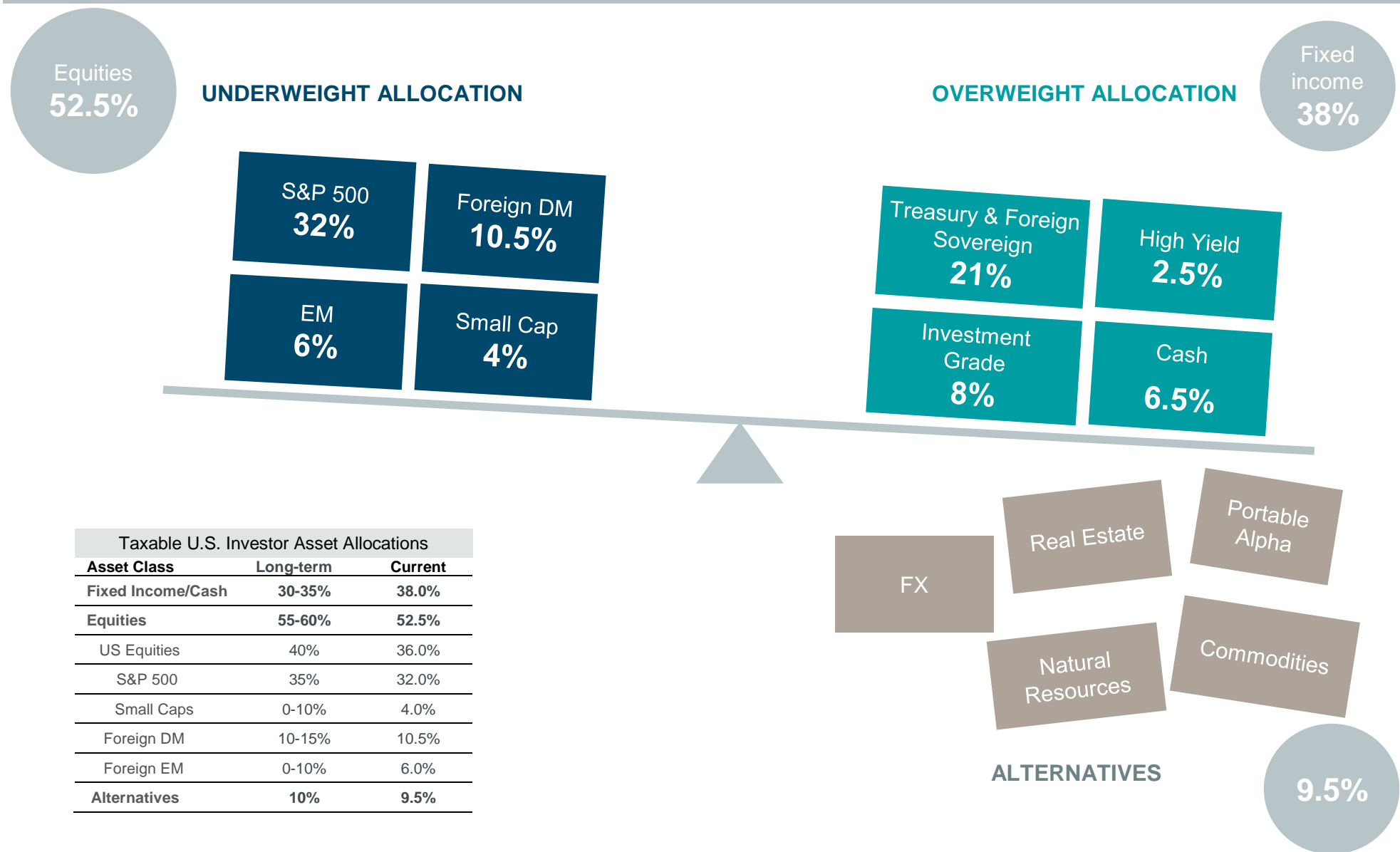


Source: Compustat, DWS Investment GmbH as of 11/30/2022. Past performance may not be indicative of future results.

7. Keep foreign equities in the portfolio, search for value and lower correlations:

Foreign DM is value tilted. Europe & Japan could outperform the S&P in 2022. We maintain exposure to China as it gradually reopens; including its premier digital enterprises heavily discounted for gov't risk.

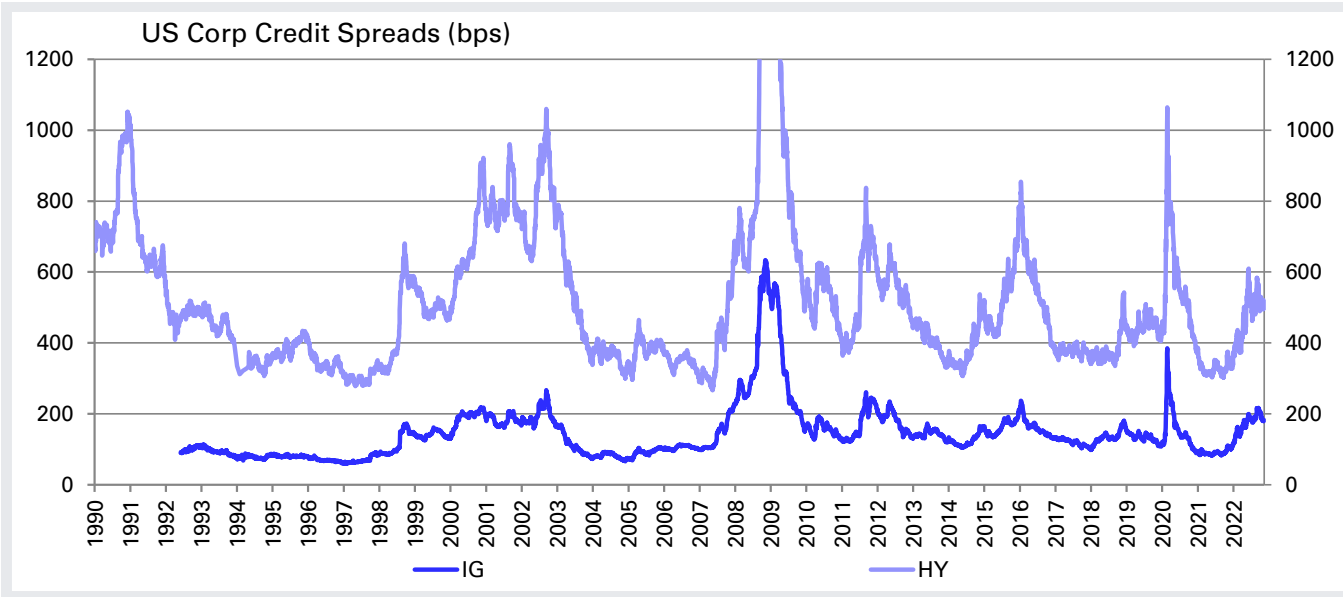
DWS view: allocations for taxable / USD capital



Source: DWS Investment GmbH as of 12/9/2022. Past performance may not be indicative of future results.

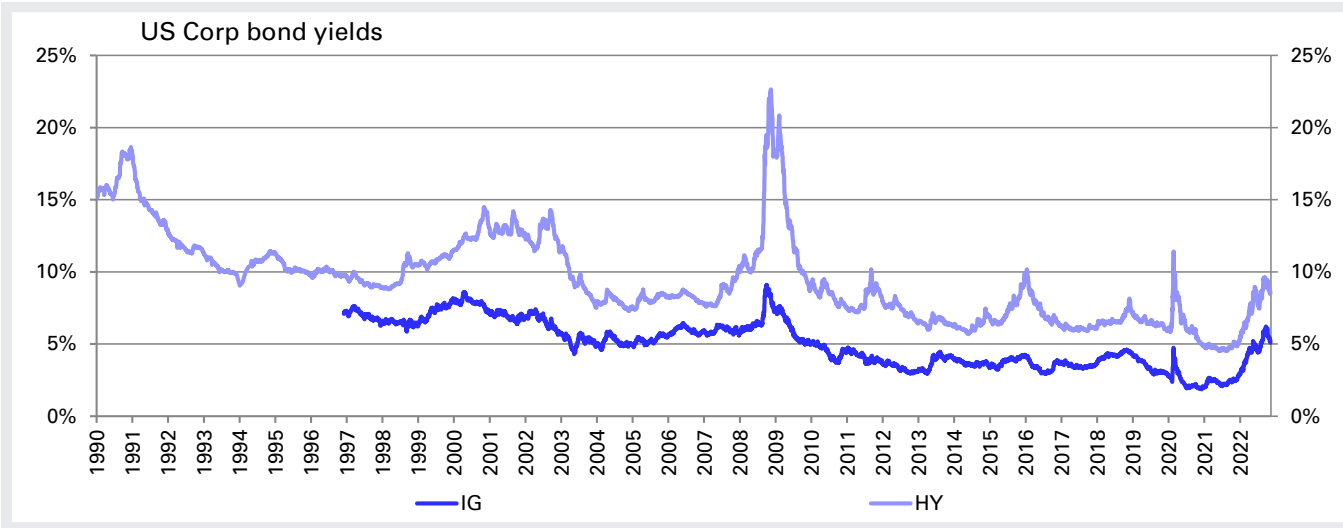
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Corporate Investment Grade and High Yield spreads



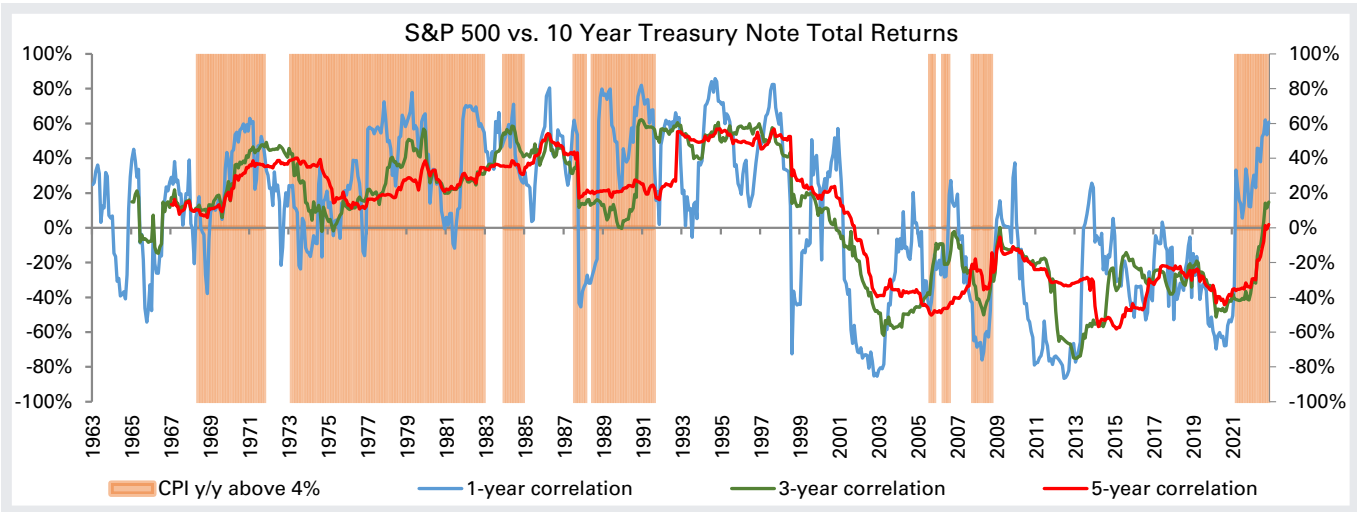
Source: BAML, FRB, Bloomberg, DWS Investment GmbH as of 12/9/2022. Past performance may not be indicative of future results.

U.S. Corporate bond yields: Investment Grade and High Yield



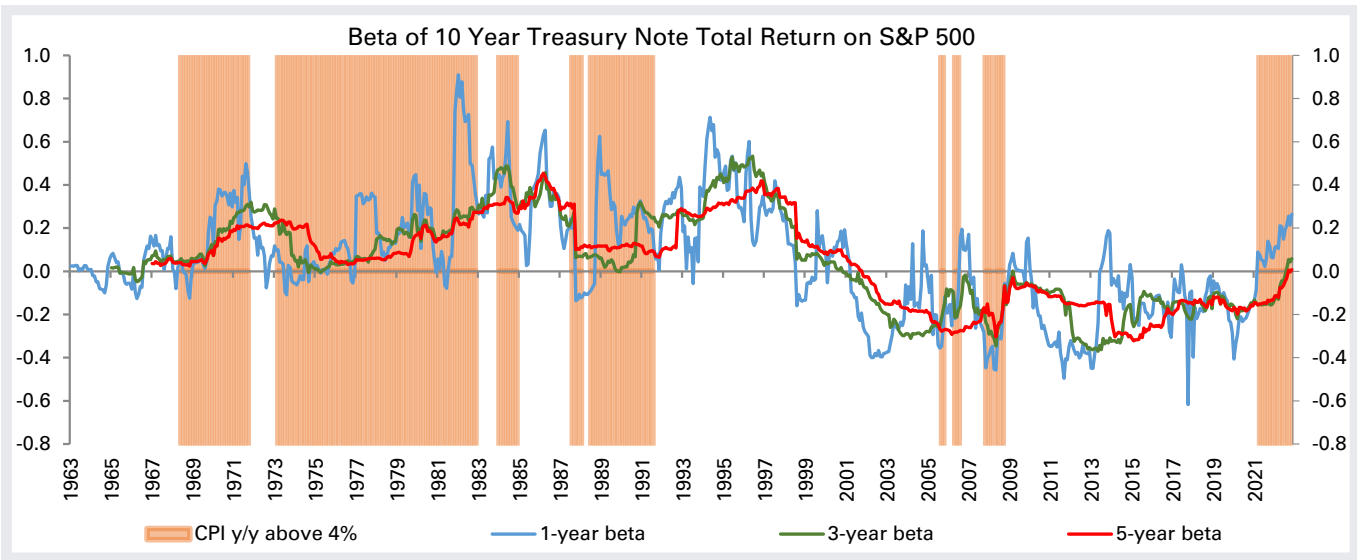
Source: BAML, FRB, Bloomberg, DWS Investment GmbH as of 12/9/2022. Past performance may not be indicative of future results.

Correlation of S&P 500 and 10-year treasury note returns



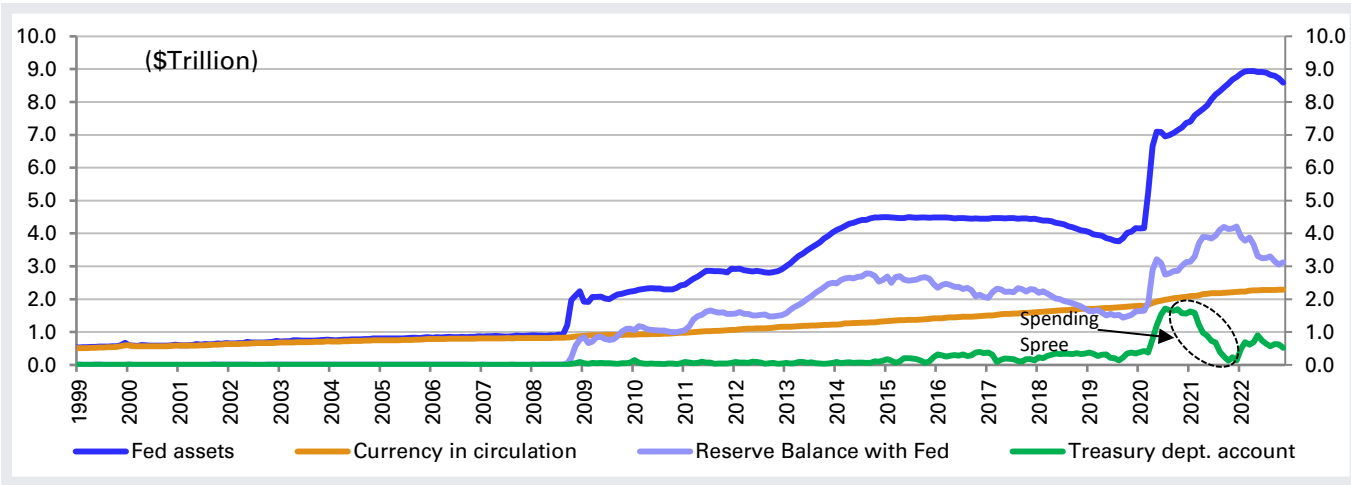
Source: Haver, DWS Investment GmbH as of 11/30/2022

Beta of 10-year treasury note on S&P 500



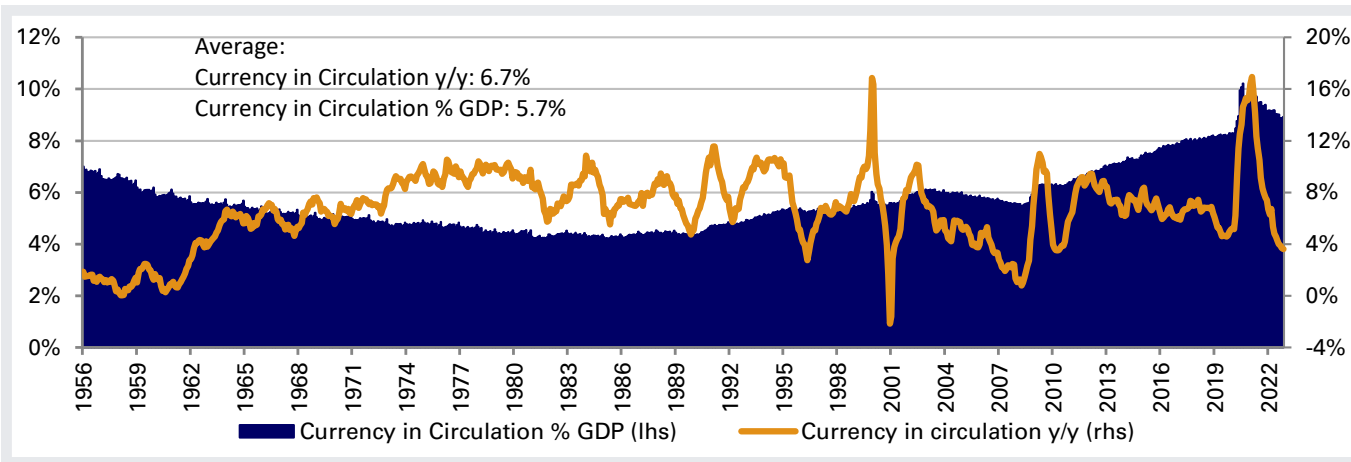
Source: Haver, DWS Investment GmbH as of 11/30/2022

Federal Reserve assets and key liabilities, currency in circulation, bank reserves at Fed and Treasury account



Source: FDIC, Haver, DWS Investment GmbH as of November 2022. Past performance may not be indicative of future results.

U.S. currency in circulation growth rate and as % of GDP



Source: Haver, DWS Investment GmbH as of November 2022. Past performance may not be indicative of future results.

8. 2023E S&P EPS \$225:

Flat S&P EPS, assumes \$80-100/bbl avg. oil, stable dollar, benign credit costs at banks. Tech, Health Care and Financials are the 3 largest S&P 500 earnings contributors at 21%, 16%, and 15%, respectively. We expect EPS at these 3 to be flat to slightly up. But down at Energy, Materials, Consumer Discretionary ex. Restaurants/Hotels and Industrials ex. A&D.

DWS Investment GmbH S&P 500 Annual EPS Outlook

	2014A	2015A	2016A	2017A	2018A	2019A	2020A	2021A	y/y	Bottom-up Consensus (IBES)				DWS View				Normalized 2023	
										2022E	y/y	2023E	y/y	2022E	y/y	2023E	y/y	(\$)	% of 2023
S&P 500 EPS (historical index)	\$118.82	\$117.46	\$118.10	\$132.00	\$161.93	\$162.93	\$139.72	\$208.12	49.0%										
S&P 500 EPS (current constituents)	\$116.42	\$117.21	\$117.46	\$129.27	\$155.86	\$161.35	\$144.07	\$207.74	46.4%	\$222.98	7.3%	\$232.25	4.2%	\$223	7.4%	\$225	0.9%	\$220	98%
Sector (\$ bn)																			
Communication Services	68.6	79.2	91.9	97.5	124.6	132.2	135.7	188.3	38.8%	167.4	-11.1%	177.9	6.2%	168.0	-10.8%	170.0	1.2%	157.0	92%
Consumer Discretionary	64.1	74.9	83.6	87.7	103.5	101.4	79.7	134.2	68.4%	137.7	2.6%	157.9	14.7%	140.0	4.3%	146.0	4.3%	149.0	102%
Consumer Staples	78.4	76.8	79.2	83.8	90.4	91.1	95.1	104.6	10.0%	107.2	2.6%	112.4	4.8%	106.0	1.4%	107.0	0.9%	107.0	100%
Energy	93.1	39.0	10.6	36.8	68.6	48.8	-4.8	77.4	1722%	201.8	160.6%	174.7	-13.5%	190.5	146.0%	172.5	-9.4%	147.4	85%
Financials	171.2	186.0	187.6	194.8	241.3	248.1	197.1	326.9	65.9%	278.8	-14.7%	314.5	12.8%	282.0	-13.7%	292.5	3.7%	295.0	101%
Health Care	137.6	152.6	157.5	171.8	188.8	206.8	226.8	293.5	29.4%	307.5	4.8%	298.9	-2.8%	310.0	5.6%	315.0	1.6%	300.6	95%
Industrials	99.4	102.9	97.0	105.7	129.2	123.5	64.7	108.9	68.2%	140.8	29.2%	159.5	13.3%	142.0	30.4%	145.0	2.1%	145.0	100%
Information Technology	176.7	184.1	193.6	228.4	266.5	264.6	296.6	379.8	28.1%	391.6	3.1%	417.6	6.7%	395.0	4.0%	410.0	3.8%	410.0	100%
Materials	24.3	23.4	22.2	28.0	34.9	33.4	31.7	57.9	82.3%	61.9	7.0%	55.9	-9.7%	63.0	8.9%	55.2	-12.4%	54.5	99%
Real Estate	23.5	26.8	29.6	32.6	36.2	37.9	37.7	44.7	18.5%	48.9	9.6%	50.4	3.1%	47.0	5.2%	49.0	4.3%	47.6	97%
Utilities	31.4	31.7	33.9	35.3	38.9	43.0	44.3	47.3	6.8%	49.1	4.0%	51.9	5.5%	50.0	5.8%	52.0	4.0%	52.6	101%
S&P 500	968.1	977.1	986.6	1102.4	1323.0	1330.7	1204.5	1763.4	46.4%	1892.8	7.3%	1971.5	4.2%	1893.5	7.4%	1914.2	1.1%	1865.6	97%
S&P ex. Energy (\$bn)	875.1	938.1	976.0	1065.6	1254.4	1281.9	1209.3	1686.0	39.4%	1691.0	0.3%	1796.9	6.3%	1703.0	1.0%	1741.7	2.3%	1718.3	99%
S&P ex. Tech (\$bn)	791.5	793.0	793.0	874.0	1056.5	1066.1	908.0	1383.7	52.4%	1501.3	8.5%	1553.9	3.5%	1498.5	8.3%	1504.2	0.4%	1455.6	97%
S&P 500 Sales/Share (historical index)	\$1,163	\$1,127	\$1,151	\$1,232	\$1,339	\$1,415	\$1,362	\$1,567	15.0%										
S&P 500 Non-GAAP Net Margin	10.2%	10.4%	10.3%	10.7%	12.1%	11.5%	10.3%	13.3%											

S&P 500 EPS	Year	1Q	2Q	3Q	4Q
2019A	163	39	41	41	42
2020A	140	33	28	38	42
2021A	210	49	53	54	54
2022E	223	55	58	56	54
2023E	225	53	56	57	59

S&P 500 EPS historical constituents represents the earnings per share (EPS) of S&P 500 index constituents at the time, while S&P 500 EPS current constituents represents the earnings per share of index constituents as of the date the data was compiled 9/30/2022.

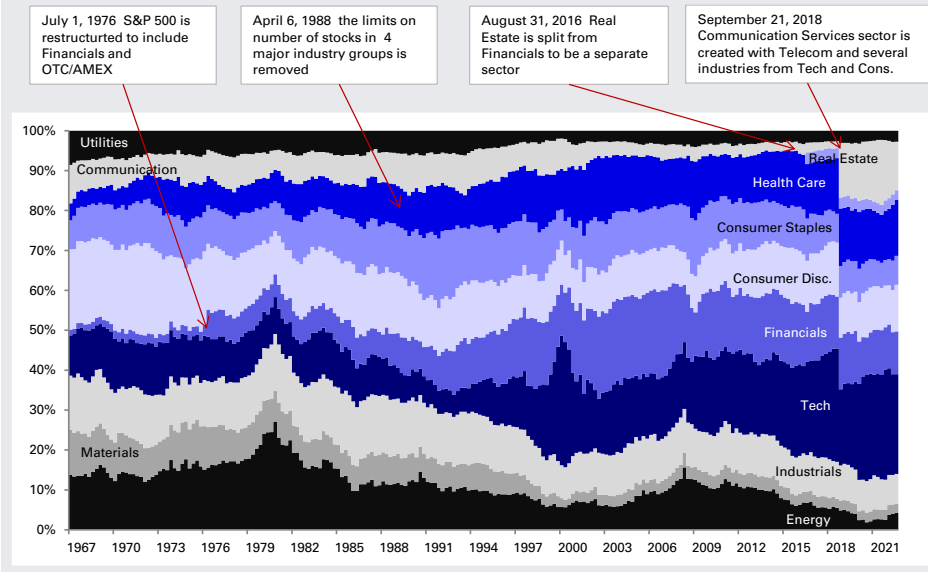
Source: Factset, DWS Investment GmbH as of 12/6/2022. Past performance may not be indicative of future results.

S&P 500 EPS peak to trough cycles

	Trough 4-		PE on	PE on trough	Peak to trough EPS cycle			S&P low	PE on S&P low &
	Peak 4-qtr	qtr	peak 4-qtr	4-qtr	EPS	Change in	S&P Price		
	EPS (\$/sh)	EPS (\$/sh)	EPS, qtr- end price	EPS, qtr-end price	decline	PE	Return	Price	trough EPS
1902-04	\$4.94	\$3.81	13.4x	14.5x	-23%	8%	-16%		
1906-08	6.11	4.68	12.7	13.5	-23%	6%	-18%		
1909-11	6.20	4.76	12.7	15.6	-23%	23%	-6%		
1912-14	5.65	4.16	13.6	15.6	-26%	15%	-15%		
1916-21	12.43	2.33	6.2	25.2	-81%	308%	-24%		
1926-27	1.24	1.11	10.9	15.9	-10%	46%	31%		
1929-32	1.61	0.41	13.3	16.8	-75%	26%	-68%	4.4	10.7x
1937-38	1.22	0.62	11.3	19.7	-49%	75%	-11%	8.5	13.7
1941-46	1.19	0.84	8.6	21.9	-29%	156%	81%	13.55	16.1
1950-52	2.84	2.34	7.2	10.7	-18%	48%	22%	16.68	7.1
1956-58	3.69	2.88	13.1	17.4	-22%	32%	3%	38.98	13.5
1959-61	3.43	3.03	16.6	21.3	-12%	29%	14%	52.34	17.3
1969-70	5.89	5.13	15.8	18.0	-13%	14%	-1%	69.29	13.5
1974-75	9.11	7.76	7.0	10.8	-15%	55%	32%	62.28	8.0
1981-83	15.36	12.42	8.0	12.3	-19%	54%	25%	102.42	8.2
1989-91	25.53	18.48	12.5	22.6	-28%	81%	31%	295.46	16.0
2000-02	57.37	44.19	25.0	26.0	-23%	4%	-21%	1527.46	34.6
2007-09	92.15	50.84	16.3	20.8	-45%	27%	-30%	676.53	13.3
2019-20	164.38	141.00	18.0	23.9	-14%	33%	14%	2237.40	14.2
Avg (1900-2009)			12.7x	18.0x	-29%	55%	2%		14.3x
Avg (1950 - 2009)			13.9x	18.4x	-21%	38%	9%		14.6x
Avg ex. 1916-21 (WWI profits) & Great Depression			13.9x	17.7x	-23%	42%	8%		14.6x

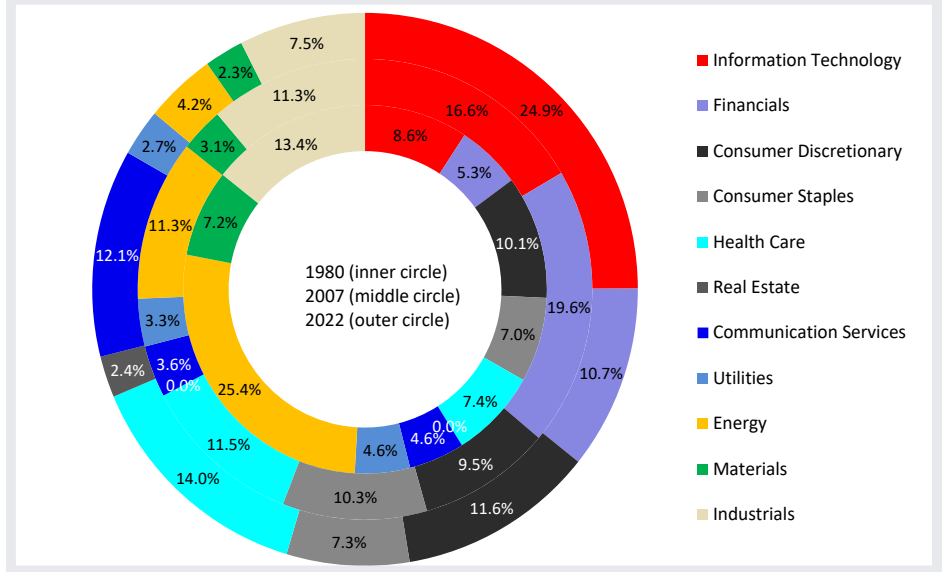
Source: S&P, IBES, Cowles Commission, DWS Investment GmbH as of December 2022

S&P 500 sector composition by market cap

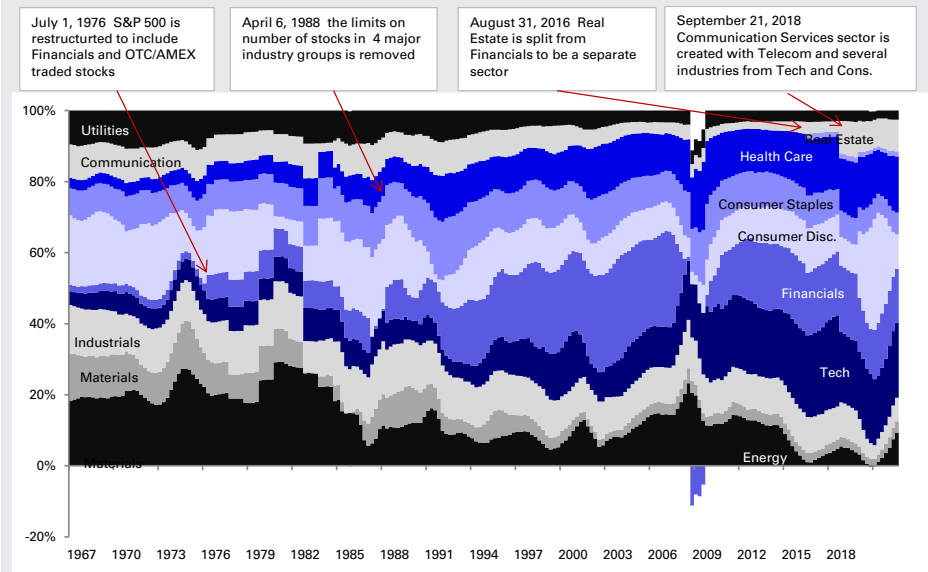


Source: S&P, Compustat, DWS Investment GmbH as of 3Q2022

S&P 500 sector composition by market cap: 1980 vs. 2007 vs. 2022

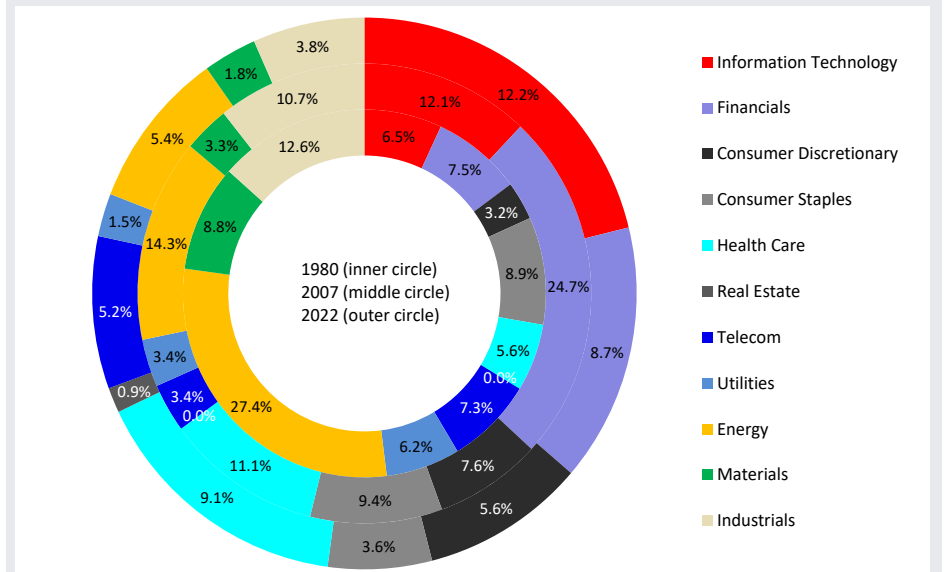


S&P 500 sector composition by earnings



Source: S&P, Compustat, DWS Investment GmbH as of 3Q2022

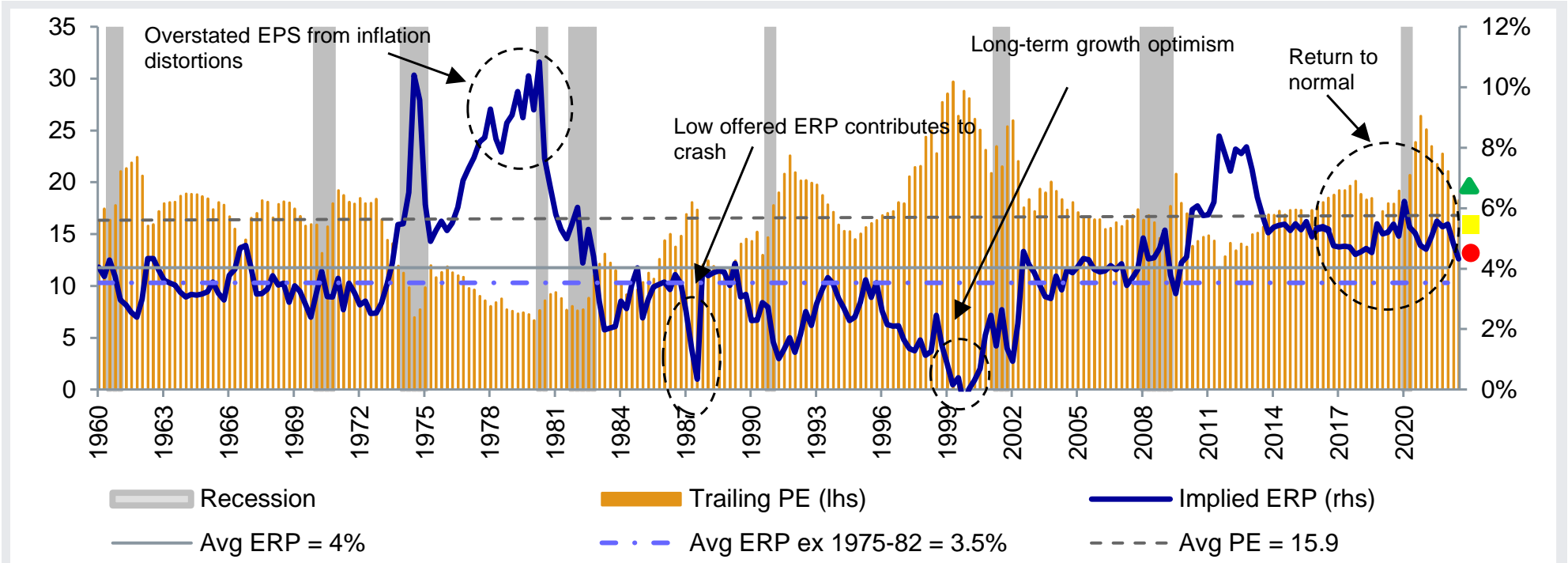
S&P 500 sector composition by earnings: 1980 vs. 2007 vs. 2022



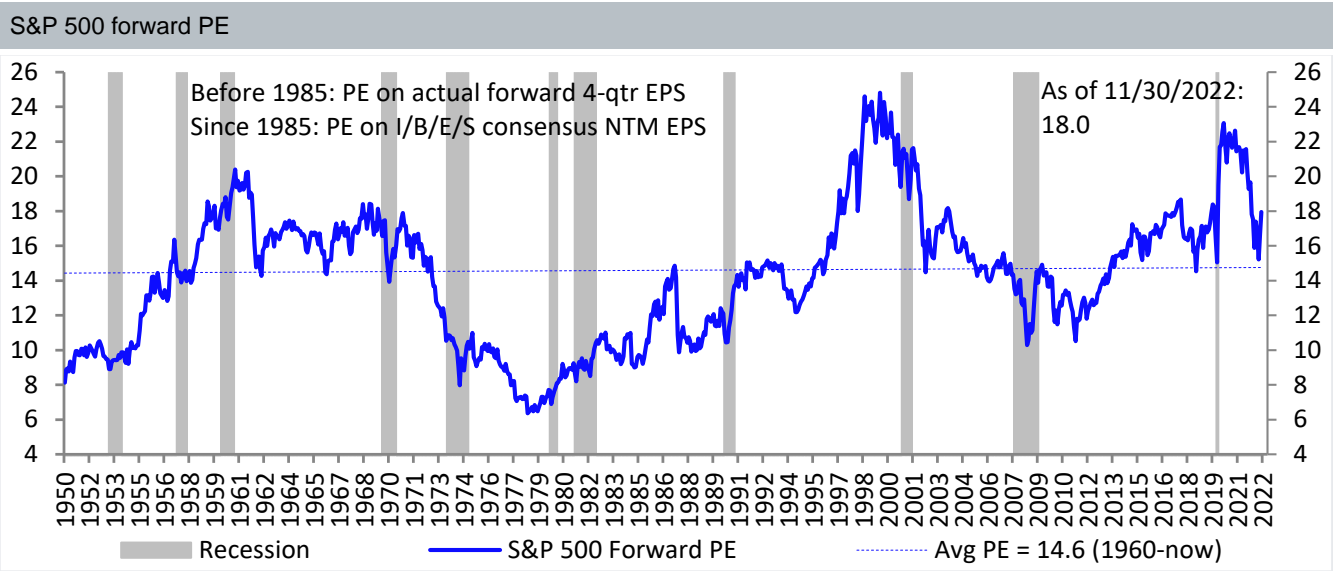
9. A more reasonable PE:

18x supported by still low (albeit positive) real yields, high quality growth tilted S&P composition and low investment fees. Our S&P real cost of equity estimate is 5.5%: 1.5% 10yr TIPS yield + 4% Equity Risk Premium = 5.5%. This supports a fair PE of $1/5.5\%=18.2$.

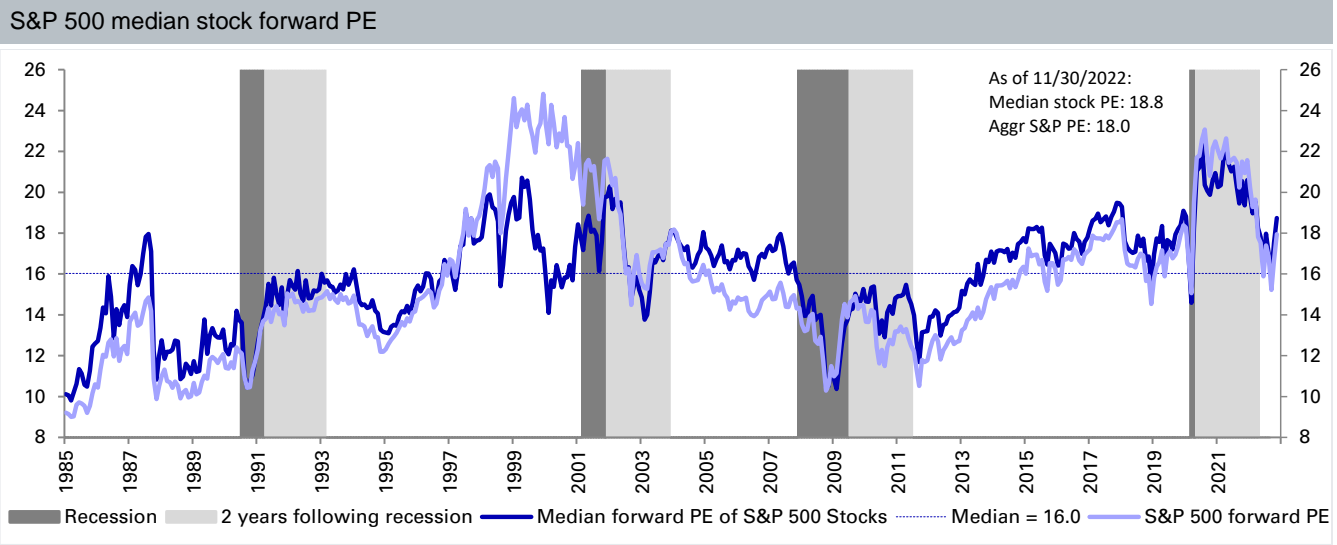
S&P 500 PE vs. implied Equity Risk Premium



Red circle: ERP=4.5% implied by PE on our 2022 EPS estimate of \$223 and 1% assumed real 10 year interest rate
 Yellow square: ERP=5.5% implied by PE on our 2022 EPS estimate of \$223 and 0% assumed real 10 year interest rate
 Green triangle: ERP=6.5% implied by PE on our 2022 EPS estimate of \$223 and -1% assumed real 10 year interest rate
 Source: S&P, Federal Reserve, DWS Investment GmbH as of 12/6/2022. Past performance may not be indicative of future results.

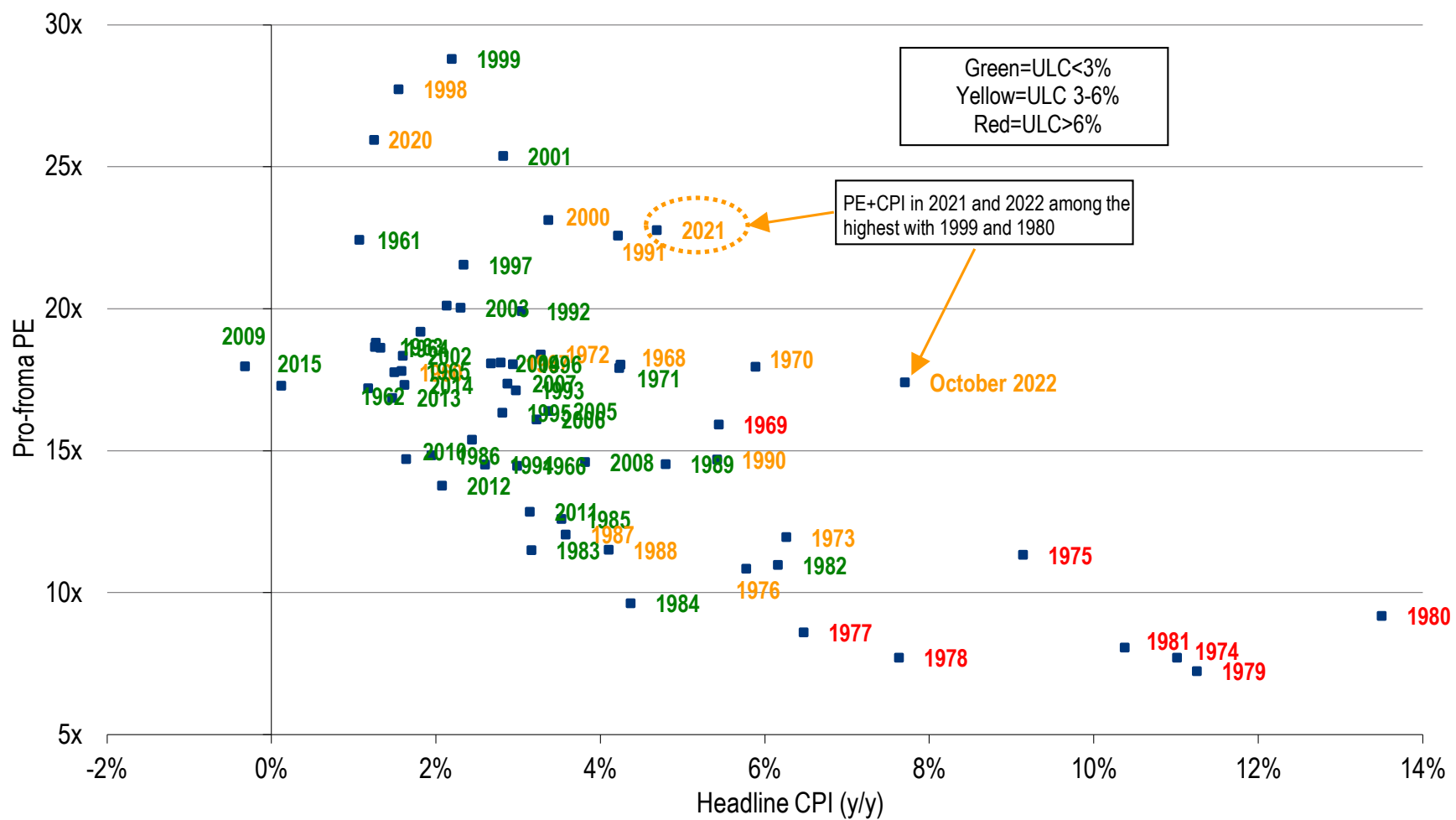


Source: Factset, DWS Investment GmbH as of 11/30/2022. Past performance may not be indicative of future results.



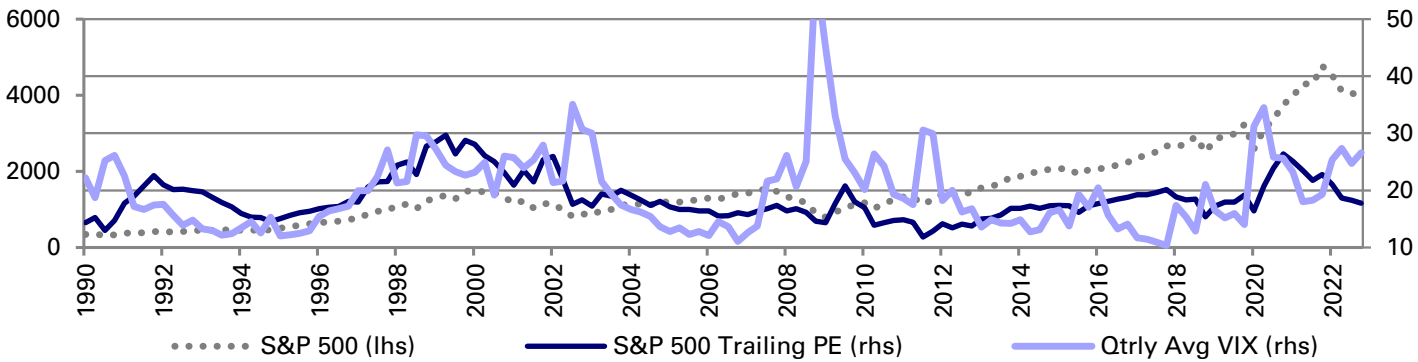
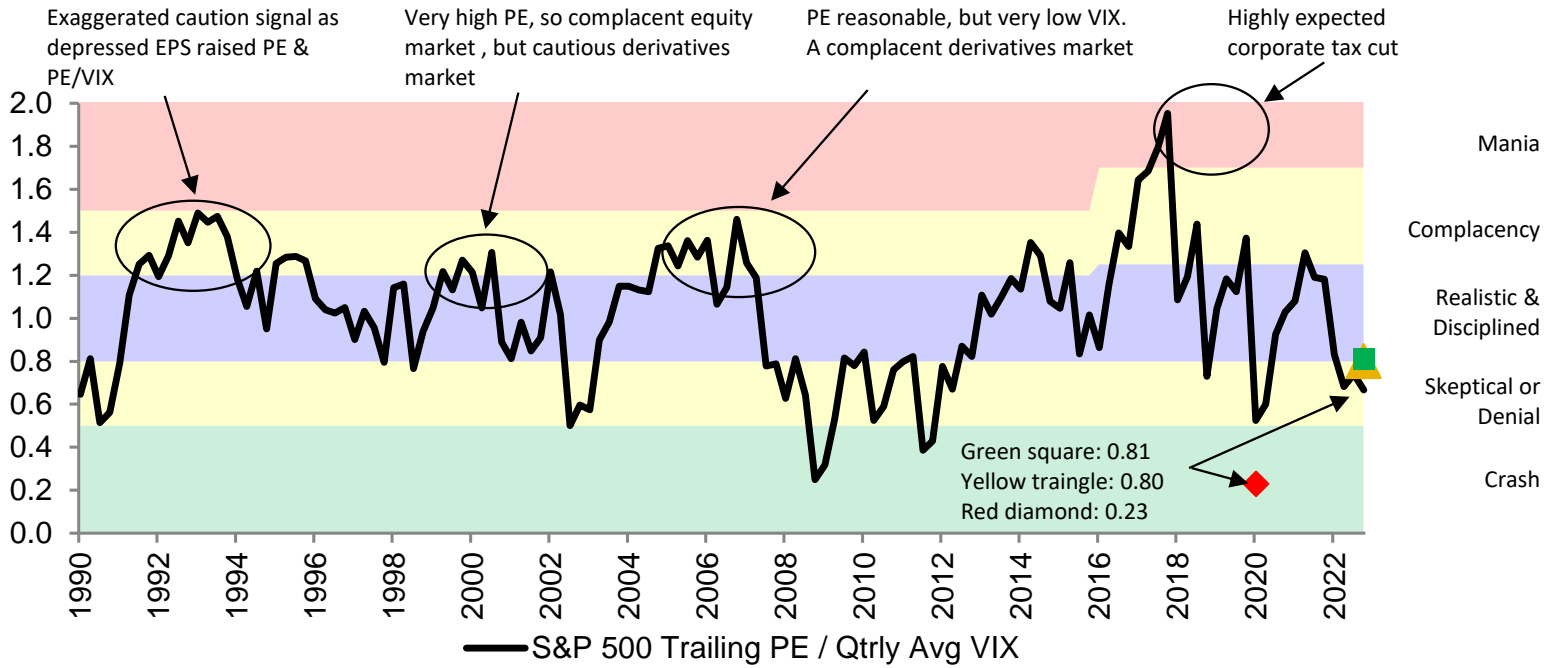
Source: Factset, DWS Investment GmbH as of 11/30/2022. Past performance may not be indicative of future results.

S&P 500 PE vs. Inflation



Source: Haver, DWS Investment GmbH as of 12/6/2022

PE / VIX: Where valuation meets market emotion



Green square: PE on our 2021E normalized EPS dividend by VIX on Dec 6.

Yellow triangle: Trailing PE as of Dec 6 divided by VIX on Dec 6.

Red diamond: Trailing PE as of Mar 23 2020 S&P 500 trough dividend by VIX on Mar 23 2020.

Source: S&P, CBOE, DWS Investment Gmb6H as of 12/6/2022. Past performance may not be indicative of future results.

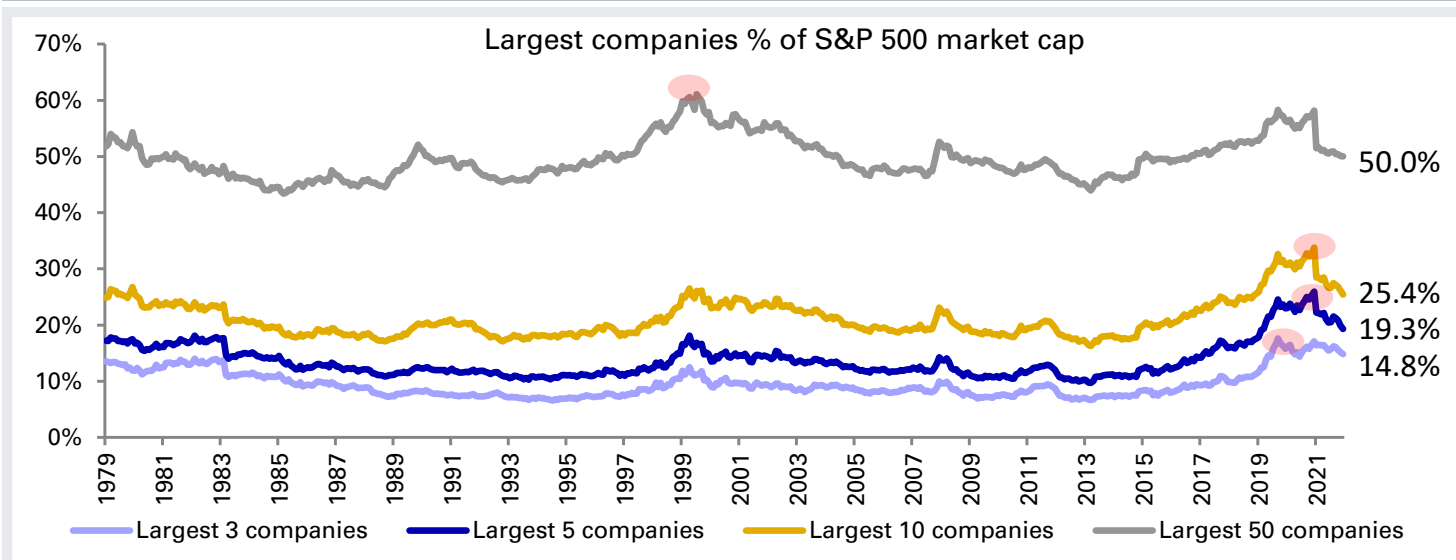
The PE is based on forward actual EPS, which was not known at the time from which the forward returns are measured. EPS could disappoint or perhaps positively surprise, getting the forward EPS outlook right matters most. This analysis shows typical returns against various valuation ranges when forward EPS estimates are relatively correct.

S&P PE (monthly) and subsequent total returns since 1960

S&P 500 PE on Fwd 4-Qtr EPS		Average Subsequent Annualized Return				
Count	1 Year	2 Year	3-Year	4-Year	5-Year	
>22	58	-6.4%	-4.2%	-2.8%	-1.1%	1.2%
20 to 22	15	0.6%	8.7%	6.4%	3.4%	3.3%
18 to 20	56	5.4%	6.7%	8.9%	10.1%	9.7%
16 to 18	158	10.1%	7.7%	7.9%	8.1%	7.3%
14 to 16	135	15.4%	12.5%	10.5%	9.0%	8.7%
12 to 14	88	15.9%	15.4%	16.0%	15.6%	15.2%
10 to 12	60	14.5%	14.7%	13.4%	13.5%	12.8%
<10	112	16.1%	15.8%	15.6%	15.5%	16.0%
All	682	11.3%	10.6%	10.4%	10.3%	10.1%

Source: S&P, Haver, DWS Investment GmbH as of December 2022

Largest companies % of S&P 500 market cap



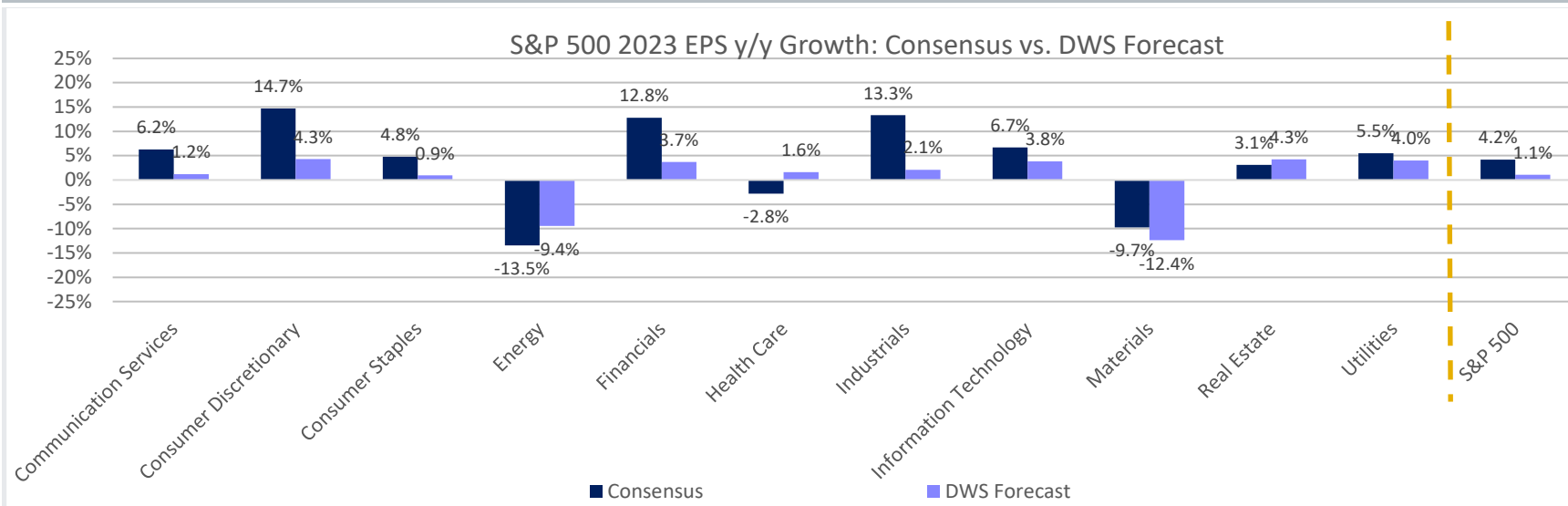
Note: The shade is the time of peak.

Sources: Compustat, DWS Investment GmbH as of 11/30/2022

10. Signs to watch in 2023:

Positives: Real S&P EPS Growth despite a small recession or below 4% 10yr yield without a recession. Negative: Still high ULCs and loan growth feed wage-price spiral.

S&P 500 2023 EPS growth: consensus vs. DWS forecast



Source: Factset, DWS Investment GmbH as of 12/6/2022. Past performance may not be indicative of future results.

DWS inflation forecasts

Inflation (CPI)
% year-on-year average

	2021	2022F	2023F	Consensus 2023 (BBG)
World				4.8 (4.4)
U.S.**	3.3	8.2 (8.0)	4.1 (3.7)	4 (3.7)
EUZ	2.5	8.4 (8.2)	6.0 (5.0)	5.5 (4.1)
GER	3.1	8.9 (8.0)	7.0 (6.2)	6.2 (4.5)
UK	2.6	9.0 (8.9)	7.8 (6.5)	6.2 (6.5)
Japan	-0.2	2.3 (2.1)	1.6 (1.7)	1.5 (1.3)
China	0.9	2.0 (2.3)	2.3 (2.5)	2.3

Source: DWS Investment GmbH as of November 2022. Past performance may not be indicative of future results.

Appendix:

S&P 500 Bear Markets & Recoveries

Bear Markets	Date of S&P trough	Peak to trough (% decline)	Recovery (trough to high price in the month of mkt anniversary)					Date of peak recovered	Years
			1 year	2 year	3 year	4 year	5 year		
1 1929-32	Jun/1932	-86%	155%	126%	142%	254%	277%	Sep/1954	22.3
2 1937-38	Apr/1938	-54%	46%	44%	17%	-4%	40%	Apr/1946	8.0
3 1939-42	May/1942	-43%	62%	70%	102%	150%	99%	Jan/1945	2.7
4 1946-49	Jun/1949	-30%	38%	62%	85%	83%	122%	Oct/1950	1.3
5 1956-57	October 22, 1957	-22%	37%	48%	44%	84%	56%	September 24, 1958	0.9
6 1961-62	June 26, 1962	-28%	34%	61%	64%	67%	80%	September 4, 1963	1.2
7 1966	October 7, 1966	-22%	32%	48%	29%	23%	35%	May 4, 1967	0.6
8 1969-70	May 26, 1970	-36%	46%	60%	56%	34%	34%	March 6, 1972	1.8
9 1973-74	October 3, 1974	-48%	46%	67%	54%	69%	79%	July 17, 1980	5.8
10 1980-82	August 12, 1982	-27%	64%	64%	85%	148%	229%	November 3, 1982	0.2
11 1987 Crash	October 19, 1987	-33%	26%	54%	43%	75%	88%	July 26, 1989	1.8
12 1990-91	October 11, 1990	-20%	33%	43%	59%	60%	100%	February 13, 1991	0.3
13 1998	August 31, 1998	-19%	42%	59%	18%	-5%	9%	November 23, 1998	0.2
14 2000-2002	October 9, 2002	-49%	36%	50%	57%	79%	101%	May 30, 2007	4.6
15 2007-09	March 9, 2009	-57%	77%	97%	110%	132%	179%	March 28, 2013	4.1
Average		-38%	52%	64%	64%	83%	96%		3.72
Average ex. great depression		-35%	44%	59%	59%	71%	82%		2.27

Source: S&P, Haver, DWS Investment GmbH as of December 2022

Historic S&P 500 5%+ pullbacks

From high of:	All time	3yr high	1yr high	6mos high
5% Dips	68	84	94	89
10% Corrections	29	34	35	34
15% Swoons	21	22	22	24
20% Bears	14	11	15	13
25%+ Crash	13	8	8	8

	Count	Avg Sell-off	Avg 3m Return	Avg 6m Return	Avg 12m Return
5%+ Sell-offs	89	-12.2%	11.4%	14.7%	20.5%
5%+ Sell-offs Leading to a 10%+ Correction	32	-20.9%	15.6%	21.0%	28.1%
5%+ Sell-offs not Leading to a 10%+ Correction	57	-7.4%	9.0%	11.1%	16.0%
5% sell-offs without recession in 12m	68	-10.5%	10.9%	14.4%	21.2%
5% sell-offs leading to 10%+ & no recession in 12m	21	-18.0%	15.0%	20.1%	26.5%
5% sell-offs not leading to 10%+ & no recession in 12m	47	-7.2%	9.0%	11.8%	18.7%
10%+ Corrections with a Recession within 12m	11	-26.4%	16.6%	22.9%	31.0%
10%+ Corrections out of Recession	21	-18.0%	15.0%	20.1%	26.5%
10%+ Corrections out of Recession (ex 1987 Crash)	20	-17.2%	14.8%	20.1%	26.8%
10% Corrections Leading to a 20%+ Bear Market	10	-33.9%	19.2%	24.3%	34.4%
10% Corrections not Leading to a 20%+ Bear Market	21	-14.1%	12.7%	18.2%	22.8%

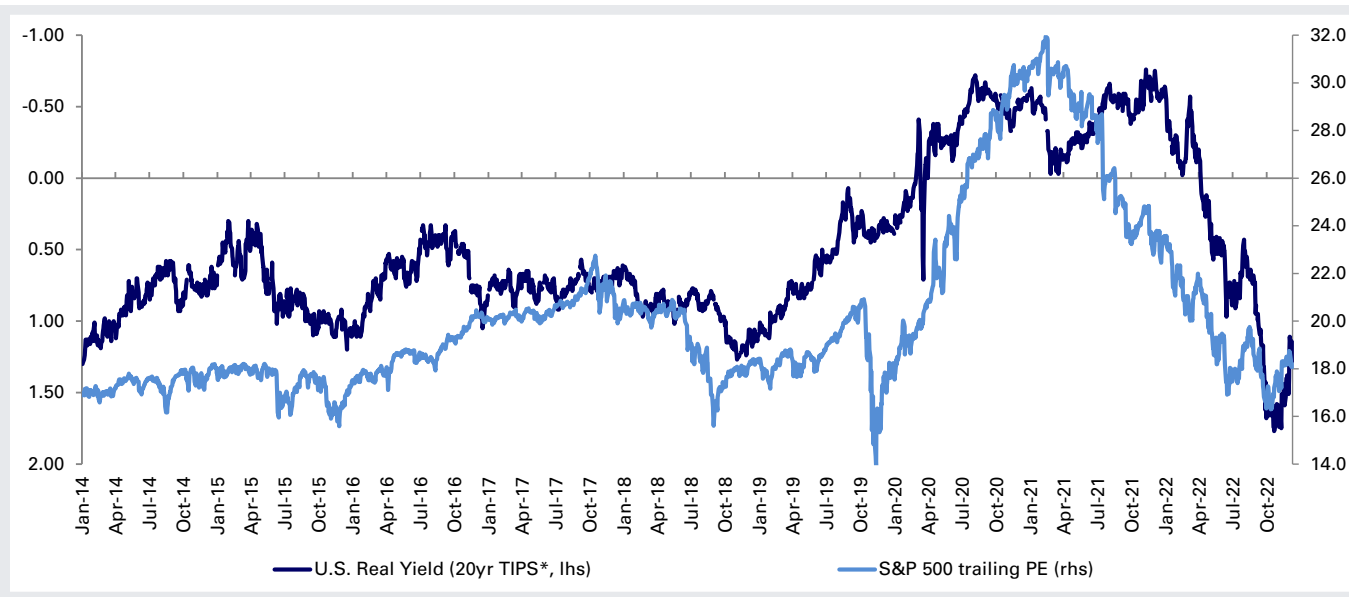
Source: Haver, DWS Investment GmbH as of 12/6/2022

Historic S&P 500 sector PE

	Financials	Energy	Materials	Industrials	Tech	Cons. Disc.	Staples	Health Care	Utilities	Services	Real Estate	S&P 500
1960	13.1	12.2	19.8	14.9	56.7	23.7	19.9	25.3	19.5	N/A	N/A	17.8
1961	19.9	14.0	25.2	18.0	70.5	33.8	24.6	30.9	23.5	N/A	N/A	22.4
1962	17.2	14.0	20.0	14.7	40.9	24.5	18.7	23.0	20.0	N/A	N/A	17.2
1963	18.3	14.5	20.0	15.4	39.5	28.0	19.6	24.6	20.8	N/A	N/A	18.7
1964	16.6	17.1	18.6	13.8	33.4	30.7	21.4	25.7	21.1	N/A	N/A	18.6
1965	14.2	15.5	18.7	14.5	38.9	27.7	20.5	28.1	19.5	N/A	N/A	17.8
1966	12.3	12.5	14.0	8.4	38.0	19.6	18.8	24.1	16.6	N/A	N/A	14.5
1967	11.3	13.2	19.3	12.9	53.3	26.5	23.5	29.0	15.1	13.3	N/A	18.1
1968	14.4	14.4	18.5	15.4	41.1	25.7	23.3	28.7	15.2	14.1	N/A	18.0
1969	12.0	10.7	14.7	11.5	43.6	24.6	23.8	31.4	12.3	12.2	N/A	15.9
1970	11.2	12.4	15.4	12.3	37.2	37.1	23.6	28.8	13.4	12.2	N/A	18.0
1971	11.5	11.5	19.2	16.2	40.9	30.5	25.3	32.0	12.5	11.2	N/A	17.9
1972	13.7	13.9	17.1	16.6	39.8	31.1	29.0	35.8	12.0	12.2	N/A	18.4
1973	11.0	8.8	11.0	14.9	23.4	19.4	19.1	29.1	8.9	10.1	N/A	12.0
1974	7.9	4.6	6.0	8.6	13.7	20.1	13.7	20.5	6.4	8.5	N/A	7.7
1975	8.9	7.4	11.4	12.5	23.9	23.1	60.1	19.2	8.0	9.9	N/A	11.3
1976	9.8	8.4	11.6	12.5	19.2	17.4	13.2	16.7	9.0	10.5	N/A	10.9
1977	6.6	7.4	12.3	9.1	13.1	12.0	11.1	13.4	8.4	8.7	N/A	8.7
1978	5.5	7.3	9.2	6.6	11.9	9.5	10.3	12.4	7.2	7.8	N/A	7.8
1979	5.5	5.7	7.0	7.3	11.7	10.3	8.6	12.2	7.2	6.5	N/A	7.3
1980	6.2	7.6	7.5	11.6	12.6	14.5	8.1	12.9	7.2	5.8	N/A	9.2
1981	6.5	5.9	10.2	9.2	12.9	15.9	9.0	13.0	6.5	6.9	N/A	8.0
1982	7.5	6.5	10.9	14.6	19.7	22.3	10.6	13.0	7.2	7.4	N/A	11.1
1983	8.6	7.6	15.2	51.2	28.4	13.8	10.4	12.2	7.1	10.3	N/A	11.8
1984	13.9	7.5	8.7	10.7	12.4	12.1	10.9	12.3	7.5	15.6	N/A	10.1
1985	15.5	9.9	39.1	15.5	16.2	16.1	14.2	17.6	9.8	15.4	N/A	14.5
1986	10.3	19.4	15.7	75.9	19.8	18.8	17.5	17.6	11.1	11.1	N/A	16.7
1987	NA	21.5	12.4	18.7	13.6	13.8	14.4	17.4	9.8	13.5	N/A	14.1
1988	8.0	11.5	5.9	11.9	12.5	16.4	13.9	15.2	11.2	10.8	N/A	11.7
1989	16.8	15.7	7.5	15.3	15.4	18.4	17.6	20.1	15.0	17.9	N/A	15.5
1990	10.7	14.0	8.2	18.7	13.3	14.7	16.3	18.9	14.9	13.6	N/A	15.2
1991	14.8	18.0	22.3	30.1	42.8	23.0	20.7	25.3	17.9	31.9	N/A	25.6
1992	14.7	18.6	42.0	106.9	164.2	36.2	20.9	19.6	15.1	16.3	N/A	23.1
1993	10.9	20.2	31.7	27.7	112.5	16.9	21.6	20.5	20.6	23.8	N/A	21.3
1994	9.4	18.4	18.8	15.6	19.2	11.0	17.2	16.7	13.1	14.9	N/A	15.0
1995	12.3	17.6	11.7	16.5	16.4	16.3	19.6	21.8	13.3	16.4	N/A	16.3
1996	13.8	17.8	18.2	18.8	23.7	17.3	22.0	22.5	12.7	15.1	N/A	18.2
1997	18.2	19.2	19.4	20.9	24.3	20.9	26.2	28.7	15.3	22.1	N/A	21.5
1998	18.9	28.9	20.3	22.7	42.1	28.9	28.7	35.9	17.4	33.5	N/A	27.5
1999	16.0	30.4	23.8	25.3	62.6	29.7	22.8	28.1	14.3	32.8	N/A	29.0
2000	18.2	16.6	15.9	24.1	30.3	22.7	23.9	35.2	19.6	21.9	N/A	23.4
2001	18.0	14.1	33.4	25.3	57.1	34.2	20.9	27.6	12.1	24.6	N/A	24.7
2002	13.2	19.2	25.5	18.5	37.7	20.0	17.6	20.6	10.0	15.7	N/A	18.3
2003	14.5	14.8	31.6	22.9	37.0	23.9	20.5	21.3	14.4	16.5	N/A	20.4
2004	13.7	12.6	18.8	21.9	25.5	21.5	19.8	19.3	16.7	18.1	N/A	18.2
2005	13.6	10.9	15.7	18.3	21.9	19.8	18.5	18.8	16.2	15.3	N/A	16.4
2006	13.2	10.7	14.1	17.6	22.6	20.6	19.5	18.5	17.1	16.3	N/A	16.2
2007	12.8	13.5	16.7	17.2	22.6	18.7	19.5	16.7	17.9	16.3	N/A	16.5
2008	46.6	7.1	9.5	10.1	11.9	23.4	13.8	11.7	11.8	11.3	N/A	12.3
2009	30.7	18.7	29.8	17.9	20.4	20.6	15.0	12.8	13.2	15.8	N/A	18.4
2010	14.5	14.7	19.0	17.5	14.8	16.9	15.4	11.8	12.4	18.1	N/A	14.9
2011	11.8	10.4	12.4	13.9	12.6	15.3	15.7	11.9	14.3	18.0	N/A	12.9
2012	13.1	11.6	15.8	14.2	12.7	17.0	16.4	13.4	14.4	20.5	N/A	13.9
2013	14.8	14.7	19.1	18.3	16.0	20.7	18.8	18.0	15.4	16.2	N/A	16.9
2014	16.7	13.2	18.3	17.8	17.5	21.5	20.3	19.0	17.8	14.1	N/A	17.7
2015	14.4	25.5	17.2	16.1	17.3	20.7	21.1	17.4	16.0	12.6	N/A	17.5
2016	15.6	146.0	20.0	18.6	18.3	19.8	20.6	15.5	17.2	14.6	18.5	19.1
2017	17.4	35.6	22.4	21.3	21.1	23.0	21.4	17.7	18.2	13.5	19.1	20.6
2018	11.4	14.6	14.5	15.0	16.1	20.0	17.6	15.9	17.0	16.6	17.1	15.7
2019	14.0	21.3	20.8	19.2	23.8	25.0	21.5	17.5	20.9	20.9	21.0	20.1
2020	18.1	-174.6	27.4	42.7	31.6	48.8	22.4	18.2	19.7	26.5	21.5	27.4
2021	15.2	20.2	18.2	30.1	29.7	42.7	21.8	18.5	20.6	24.2	25.0	24.3
9/30/2022	11.5	8.2	12.0	17.9	19.6	27.8	19.5	15.1	18.9	14.1	16.8	16.3
Avg	13.9	13.4	17.6	19.9	30.5	22.1	19.2	20.6	14.1	15.6	20.4	16.3
Avg (ex. 74-82)	15.0	14.6	19.0	21.5	33.1	23.1	19.8	21.6	15.3	17.1	20.4	17.7
Avg (ex. 74-82, 97-00)	14.8	13.8	18.9	21.4	32.6	22.9	19.3	20.7	15.2	16.1	20.4	16.9
Avg (ex. 74-82, 97-00, 08-09)	13.8	13.9	18.9	21.7	33.3	22.9	19.5	21.1	15.3	16.3	20.4	17.0

Source: I/B/E/S, Compustat, DWS Investment GmbH as of December 2022

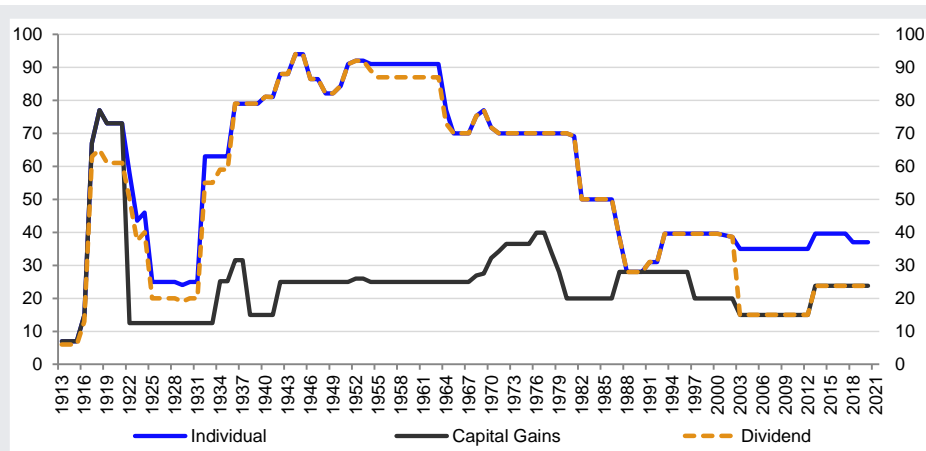
U.S. real 20 year TIPS yield vs. S&P 500 PE ratio



*Treasury inflation-protected securities

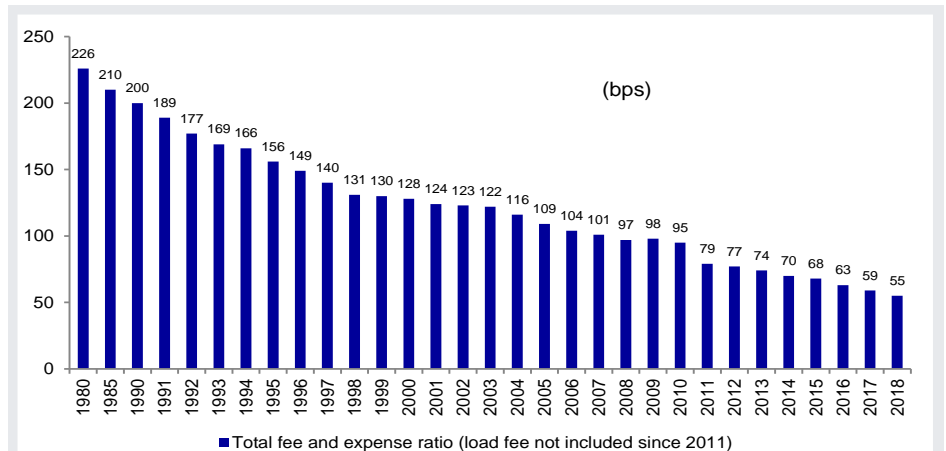
Sources: Bloomberg Finance L.P., DWS Investment GmbH as of 12/9/2022

Top marginal income tax rate, capital gain and dividend tax rate

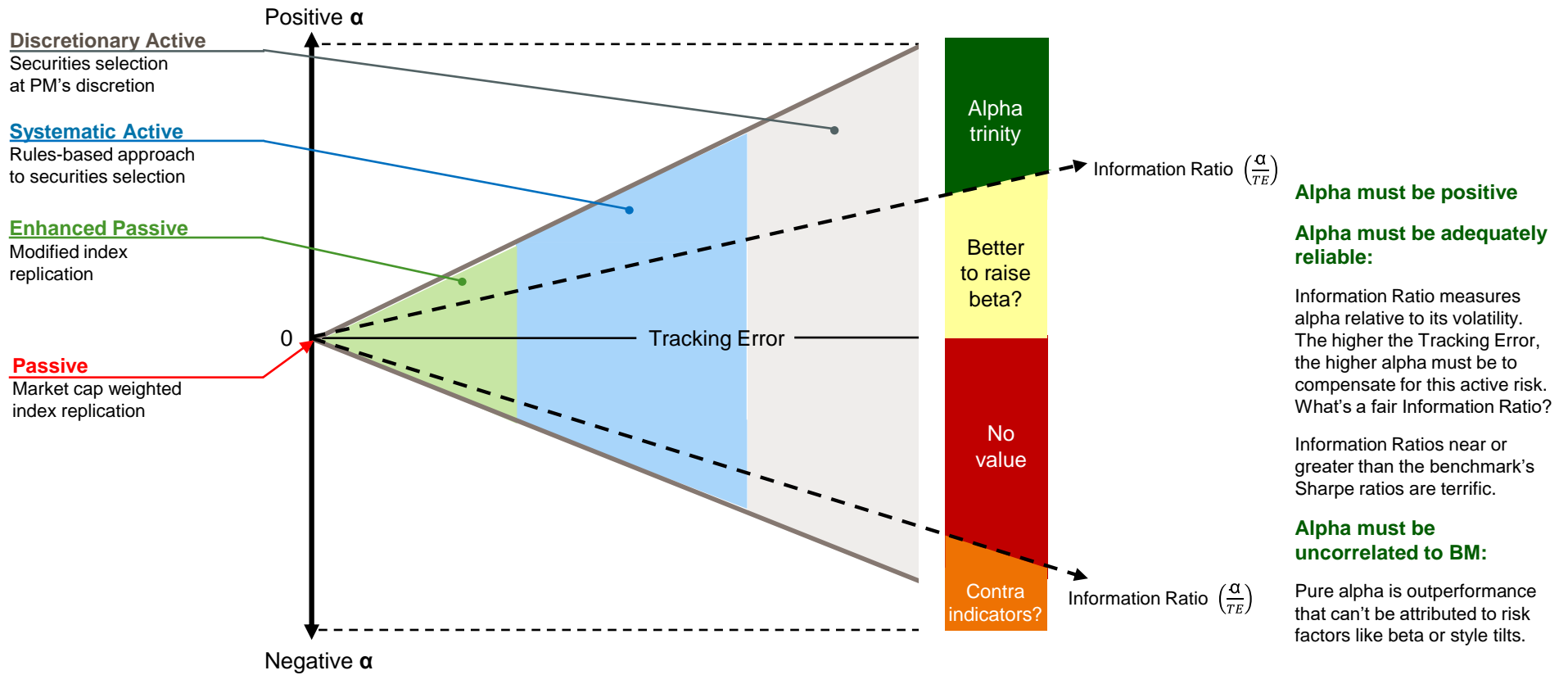


Source: ICI, IRS, Tax Policy Center, DWS investment GmbH as of December 2022

Average fee & expense ratios of equity mutual funds (bps)



Alpha Trinity



Source: DWS Investment GmbH

20 Investment Strategy Principles

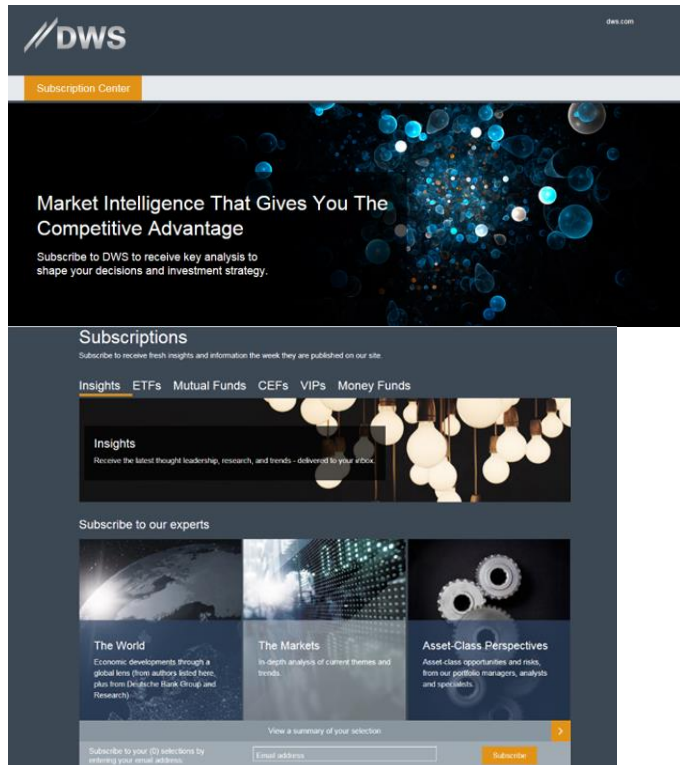
1. The value of a stock is the present value of all its future free cash flows. Do not rely on any valuation methodology that does not reconcile with this concept.
2. S&P is not U.S. GDP. Long-term S&P EPS growth \neq U.S. GDP growth. The S&P 500 is global. EPS growth is a function of retained EPS and incremental returns.
3. Perception of normalized EPS can drive short-term S&P 500 performance, but actual EPS through the cycle will drive most S&P 500 long-term performance. S&P 500 margins exhibit cyclical, but not secular mean reversion. Assess normal EPS with rigorous fundamental analysis, be leery of simple shortcuts.
4. True EPS is usually between GAAP and non-GAAP measures. True earnings will equal FCF when no investment is made for growth. At steady-state, $EPS = FCF/sh. = DPS$. Prefer EPS yield over FCF yield, unless a difference other than investment recurs.
5. Equities are real assets. Long-term growth will equal inflation when $EPS=DPS$. The fair PE on normalized steady-state $EPS = 1/$ a fair long-term real stock return. If expected long-term real EPS growth + dividend yield = fair real CoE then a steady-state exists. EPS & DPS yields are real; compare them to real interest rates.
6. A secular decline in yields is good for stocks, but a cyclical decline is bad. It can take hindsight to differentiate. Fed influence is secular like, if ahead-of-the-curve.
7. Uncertainty is a very uncertain variable. Mean reversion is a fair assumption.
8. Only economic profit growth justifies a PE greater than $1/$ real CoE. Consider long-term growth potential along with the investments required to support it.
9. GDP growth affects the fair PE only to the extent that it affects the ability of a company to earn returns above its cost of capital. Slow GDP growth often best.
10. Value investors seek stocks with normalized earnings greater than market expectations. Growth investors seek stocks with economic profit growth potential greater than market expectations. No rule against seeking both.
11. The market has predicted 9 of the last 5 recessions. Avoid panic selling. It usually takes a recession to stop a bull market (exceptions: 1966, 1987, 1998).
12. Natural disasters are less market damaging than manmade disasters. U.S. military strike preparations can pressure stocks, but typically rally on military action.
13. Investor panic subsides when policy setter panic begins. Respect the Fed's firepower, but its arsenal will be exhausted if inflation (ULCs) is a problem.
14. Flows follow returns, not vice versa, so stay return focused and don't follow.
15. Lack of patience is the market's most reliable inefficiency.
16. Seek truth with scientific method: Theory first, then observation and experience.
17. Trends will continue until they don't. Valuation doesn't matter until it does.
18. Confront market/sector PE extremes vs. historical averages, but respect industry/stock PE extremes.
19. The market is an imperfect price mechanism, but superior to all others. Those who improve its function earn gains slowly, those who don't can lose suddenly.
20. Diversification comes from the correlation of stocks, not the number of stocks. Don't substitute diversification for diligence.

Source: DWS Investment GmbH

Contact Information

David Bianco 212 454-8527, david.bianco@dws.com

Ju Wang 212 454-8572, ju.wang@dws.com



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