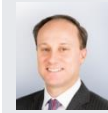


Real yields rise into pre financial crisis range; must recalculate fair PEs



David Bianco
Americas Chief Investment Officer
DWS

PEs stand on the shoulders of the bond market, which fell to its knees in 2022
At 3Q end, the S&P 500 was down 25% YTD and the US bond market down 15%. Bonds suffered more than the 1994 bond bear market and equities the worst decline outside of an evident recession except for the October 1987 crash. 10yr Treasury yields started 2022 at 1.5% and climbed to 3.8% at 3Q end with brief visits to 4.0%. 10yr TIPS yields, which indicate long-term real interest rates, climbed from -1.0% at year start to 1.7% at 3Q end. Inflation expectations, per 10yr Treasury vs. TIPS breakeven, went from 2.5% at year start to 3% in spring down to 2.25% now. Thus, the climb in Treasury yields YTD is now entirely from real yields. Owing to the Fed vowing to break high inflation by hiking rates to at least 2% above their 2% inflation target. Bond investors now believe inflation will return to about 2.5% from a Fed Funds rates over 4%, but how much over 4% and for how long is debated.

How bad might it get? Is this high inflation period just starting or nearly finished?
Investors ask, "how bad might it get?" The answer to this anxiety ridden question is that it depends on whether this period of high inflation is just starting or nearly finished. The 1982 S&P bear market was a 27% decline, similar to the current bear market so far. 1982 brought a recession that ended the high inflation period. Inflation was 15% in 1980, 3% in 1983. However, the 1974 S&P bear was a 48% fall as the harsh recession brought inflation from 12% down to only 5%. Down, but still too high. The S&P suffered 10 years of 0% real return from 1973 start to 1982 end in a decade plagued by high inflation. While S&P EPS growth kept up with inflation over the decade, producing a total return with dividends in line with inflation, no real return was earned because the PE compressed from about 19x in early 1973 to about 9x in 1982. This PE compression was driven by surging interest rates, no real EPS growth, and earnings quality deterioration from inadequate depreciation expense.

We don't expect the 1970s to repeat, but we think this bear market is justified
It would take repeated bad policies and economic conditions at home and abroad to repeat the 1970s, most of which can be avoided if leaders today understand past mistakes. The Fed's resolve to fight inflation today, even if it requires risking and tolerating a moderate recession, shows that they understand their 1970s policy mistakes. Do other policy setters? While we don't expect a 1974 bear market or lost decade of real returns, as through 1982, we think this bear market is a justified reset of S&P fair value owing to higher 2023 interest rate expectations and lower EPS estimates. The 15% decline in bonds YTD (20%+ at Treasuries) and about 10% decline in 2022 S&P EPS expectations YTD, suggests a 25% bear market is justified. We present our fair PE models and new 2023E EPS details inside.

We cut 2022 S&P EPS by \$5 and 2023E by \$15: \$227 & \$235 to \$222 & \$220
We model trough quarterly S&P EPS of \$52 in 1Q23, down 5-10% from the 1Q22 peak ex. Energy and down 10% from the 2Q22 peak of \$58 with Energy for 4 main reasons: 1) small recession expected for US and Europe over the next couple of quarters followed by slow growth, causing a 5% dip or near \$3 hit to 1Q23 EPS from \$55 in 1Q22, 2) dollar strength that hits S&P EPS from 1Q22 levels by \$1-\$1.50 quarterly through 2023, 3) minimum book profit and buyback taxes of near \$3 annually in 2023, 4) energy profits \$2-3 above 1Q22 levels quarterly in 1H23. Our new 2023 quarterly EPS estimates are: 52+55+56+57=\$220. We also cut 3Q22 and 4Q22 S&P EPS estimates from \$56 to \$55 and \$58 to \$54. Our new 2022 quarterly S&P EPS estimates are: 55+58+55+54=\$222. This puts 4qtr trough EPS at \$216 vs. \$221 4qtr peak. These estimates assume a 3.5% inflation in 2023, unemployment not over 4.5% and stability in long-term interest rates and asset values from here. Because recessions usually hit S&P EPS much more, risk remains to the downside for our estimates.

Fed aims to push real rates well above 0%, but for how long and what's normal?
FOMC guidance and market indicators put the Fed Funds rate at 4.25-4.5% at yearend. Futures price a 75bp November hike and 50bp December. This 425bp of hiking in 9 months, since March, exceeds the average hiking cycle of 300bp over 15 months. FOMC guidance suggests the Fed is likely to maintain these rates or higher through 2023 even if a small recession hits. This pushed 10yr TIPS yields upward recently to levels that suggest the Fed might maintain positive real interest rates around or over 1% for several years. We doubt that the real Fed Funds rate or 10yr TIPS yields will stay over 1.5% over the next few years, but we now believe the Fed and the bond market will sustain an at least 1% real risk-free rate for the next two years to lower inflation and help prevent it from rising again.

We raise S&P real CoE from 5.50% to 5.75%, lower fair PE from 18.5 to 17.5
Our intrinsic valuation model inside puts S&P fair value at 3750 at 2022 end. If 4Q23 EPS is \$57 with inflation near 3% and 10yr Tsy yields under 4%, we think the S&P will be over 4000 at 2023 end. We change our Next 5%+ S&P price move from Down to Balanced Risk.
Contributor: Ju Wang, Portfolio Manager Equity

Global Equity Index Forecasts: 12-months			
Index	Sep 2023F	NTM EPS Growth	Target PE
S&P 500	4,200	0.0%	18.9
EuroStoxx 50	3,750	3.6%	12.0
Stoxx 600	445	3.4%	12.7
MSCI Japan	1,250	5.5%	13.0
MSCI Asia xJ	660	3.2%	12.3
MSCI EM	1,030	1.7%	11.7

S&P 500 Outlook at Yearend			
	2021	2022F	2023F
S&P 500	4766	3800	4000
Dividend Yield	1.3%	1.75%	1.75%
S&P EPS	\$210	\$222	\$220
Trailing PE	22.7	17.1	18.2
DPS	\$61	\$68	\$70

Next 5%+ Price Move
(Up / **Balanced Risk** / Down)
Risk of near-term further 10%+ correction
(Low / **Moderate** / High)

Taxable U.S. Investor Asset Allocations		
Asset Class	Long-term	Current
Fixed Income/Cash	30-35%	38.5%
Equities	55-60%	52.5%
US Equities	40%	37.0%
S&P 500	35%	33.0%
Small Caps	0-10%	4.0%
Foreign DM	10-15%	9.5%
Foreign EM	0-10%	6.0%
Alternatives	10%	9%

Key CIO Views		
Macro signal:	Current	Sep 2023F
U.S. Fed Funds rate	3.0-3.25%	4.5%**
10yr Treasury yield	3.85%	3.25%
US IG Corp Spreads	100bp	150bp
US High Yield Spreads	340bp	550bp
Crude Oil (WTI) \$/bbl	93	100
EUR / USD FX rate	0.97	1.05

GDP Forecasts			
Region	2021	2022F	2023F
US	5.7%	1.9%	0.7%
World	6.0%	3.1%	2.8%
Euro area	5.2%	3.1%	0.7%
China	8.1%	3.3%	5.3%
Japan	1.7%	1.5%	0.9%

* Q4/Q4 GDP growth. ** This estimate under review until next CIO day.
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 10/10/2022 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.

S&P 500 Sector and Industry views

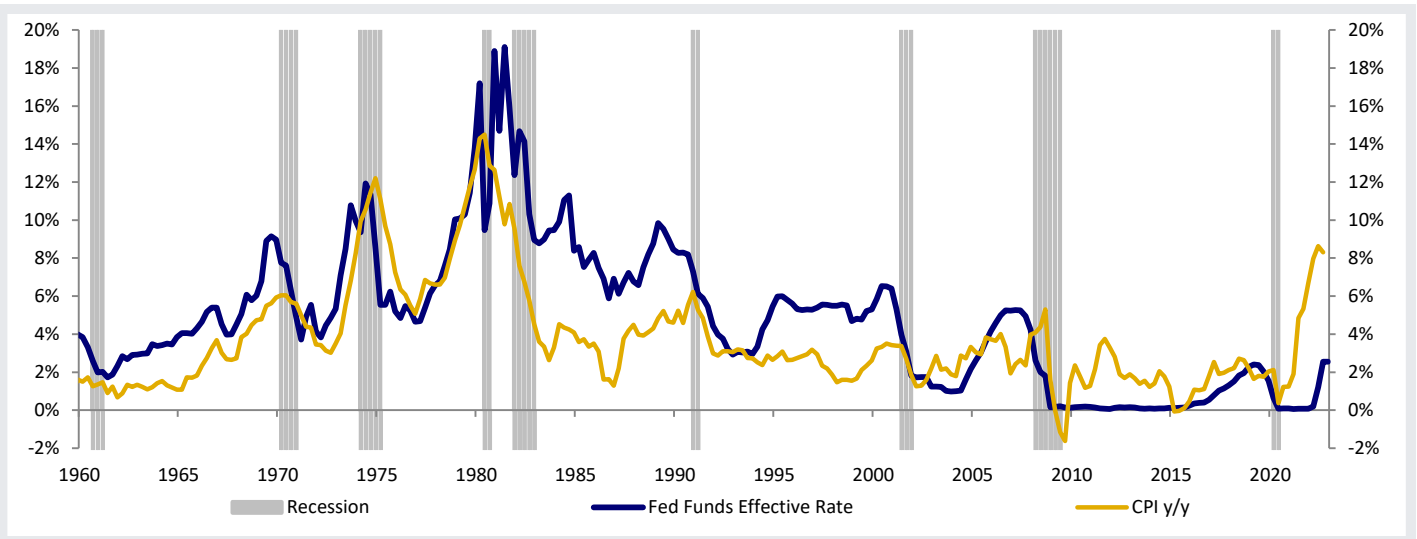
	Market	Allocated	Sector	2021			2022			2023			Overweight			Equal weight			Underweight			
				2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	2021	2022	2023	
Over-weight	15.1%	19.5%	Health Care	15.8	14.9	14.7	Biotechnology	10.7	11.1	11.5	Health Care Providers & Services	17.2	16.1	15.5								
							Health Care Equipment & Supplies	21.8	21.7	21.0												
							Life Sciences Tools & Services	22.5	24.3	23.3												
							Pharmaceuticals	14.2	12.4	12.1												
	8.1%	10.5%	Communication Services	13.3	14.7	14.3	Diversified Telecommunication Services	5.5	6.8	6.8	Wireless Telecommunication Services	57.1	55.2	41.4								
							Entertainment	24.0	22.9	20.6												
						Interactive Media & Services	15.4	17.5	16.9													
						Media	9.3	8.6	8.8													
	11.0%	12.3%	Financials	10.4	12.0	11.7	Banks	7.7	9.3	8.9					Capital Markets				12.1	15.3	14.8	
							Diversified Financial Services	23.0	19.2	18.8					Consumer Finance				6.3	7.7	8.4	
							Insurance	13.5	13.4	12.6												
	5.2%	6.0%	Energy	20.1	9.1	11.5	Energy Equipment & Services	32.3	19.3	15.1	Oil Gas & Consumable Fuels	19.5	8.8	11.3								
	2.6%	3.5%	Real Estate	17.4	16.5	15.9	Real Estate Mgmt. & Development	13.0	11.5	10.9												
							REITs	17.9	16.8	16.1												
	3.0%	3.4%	Utilities	18.9	17.8	17.1	Electric Utilities	20.3	18.6	17.7	Gas Utilities	19.0	18.6	17.4	Water Utilities				32.0	29.0	27.3	
							Multi-Utilities	17.7	17.4	17.1	Independent Power & Renewable E	8.4	9.0	9.0								
Under-weight	8.0%	7.6%	Industrials	23.2	18.0	17.5	Aerospace & Defense	28.8	22.7	20.9					Air Freight & Logistics				11.4	11.7	12.8	
							Airlines	-4.4	18.8	10.0					Building Products				17.2	16.0	17.0	
							Electrical Equipment	20.3	18.0	17.2					Commercial Services & Supplies				32.5	28.4	27.9	
							Industrial Conglomerates	19.1	18.0	17.0					Construction & Engineering				21.3	18.1	15.5	
							Road & Rail	19.4	16.4	16.8					Machinery				17.6	16.2	16.5	
															Professional Services				27.5	27.4	26.6	
															Trading Companies & Distributors				20.5	16.2	16.2	
		26.4%	25.7%	Information Technology	21.3	20.5	19.7	Communications Equipment	14.5	13.9	13.6	Electronic Equipment	19.8	18.3	17.4	Semiconductors				14.1	16.0	16.0
								IT Services	23.5	20.4	19.4					Software				27.4	24.7	23.3
															Technology Hardware Storage & Per				22.5	21.5	20.7	
	2.5%	0.0%	Materials	13.7	12.2	14.1									Chemicals				15.5	13.2	14.6	
															Construction Materials				28.5	25.6	24.1	
															Containers & Packaging				12.5	10.6	10.4	
															Metals & Mining				8.0	8.1	13.4	
	6.7%	4.0%	Consumer Staples	19.9	19.9	19.8					Personal Products	32.1	30.5	28.0	Beverages				24.5	24.7	24.2	
															Food Products				17.1	16.6	17.5	
															Food & Staples Retailing				22.2	21.5	21.0	
															Household Products				21.3	22.1	21.5	
															Tobacco				11.7	12.2	12.3	
	11.4%	7.6%	Consumer Discretionary	26.6	25.5	24.6	Auto Components	18.3	16.4	14.8	Household Durables	6.7	5.8	7.0	Automobiles				30.2	27.6	26.6	
							Hotels Restaurants & Leisure	-12.99	48.9	32.1					Distributors				17.9	16.2	16.2	
							Textiles Apparel & Luxury Goods	19.7	20.8	20.1					Internet & Direct Marketing Retail				33.5	47.8	43.3	
															Leisure Products				13.2	12.7	12.7	
															Multi-line Retail				15.9	19.3	19.3	
															Specialty Retail				18.0	17.2	17.8	
Aggregate PE: DWS View							Overweight	16.0	15.5	14.8	Equalweight	17.4	11.4	13.0	Underweight	19.2	19.6	19.5				
S&P 500								3640			2020, 2021 & 2022 EPS	207.74	222.00	220.00	2020, 2021 & 2022 PE	17.5	16.4	16.5				
											Bottom-up Consensus EPS	207.70	225.30	241.09	Bottom-up Cons. PE	17.5	16.2	15.1				
															2020, 2021 & 2022 Ex Energy PE	17.2	17.2	16.8				
															Btm-up Cons. Ex Energy PE	17.3	17.0	15.6				

Sector OW	10.20%
Sector UW	-10.20%
Industry OW	18.69%
Industry UW	-18.69%

Macro tilts:	
Cyclicals	-2.96%
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	-1.29%
Energy	0.84%
Metals/Chemicals	-2.13%
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	-0.54%
Inflation shock	4.81%
Domestic GDP	-2.10%
Global GDP	-4.61%
Consumer TMT	0.40%
Trade sensitive	-1.82%

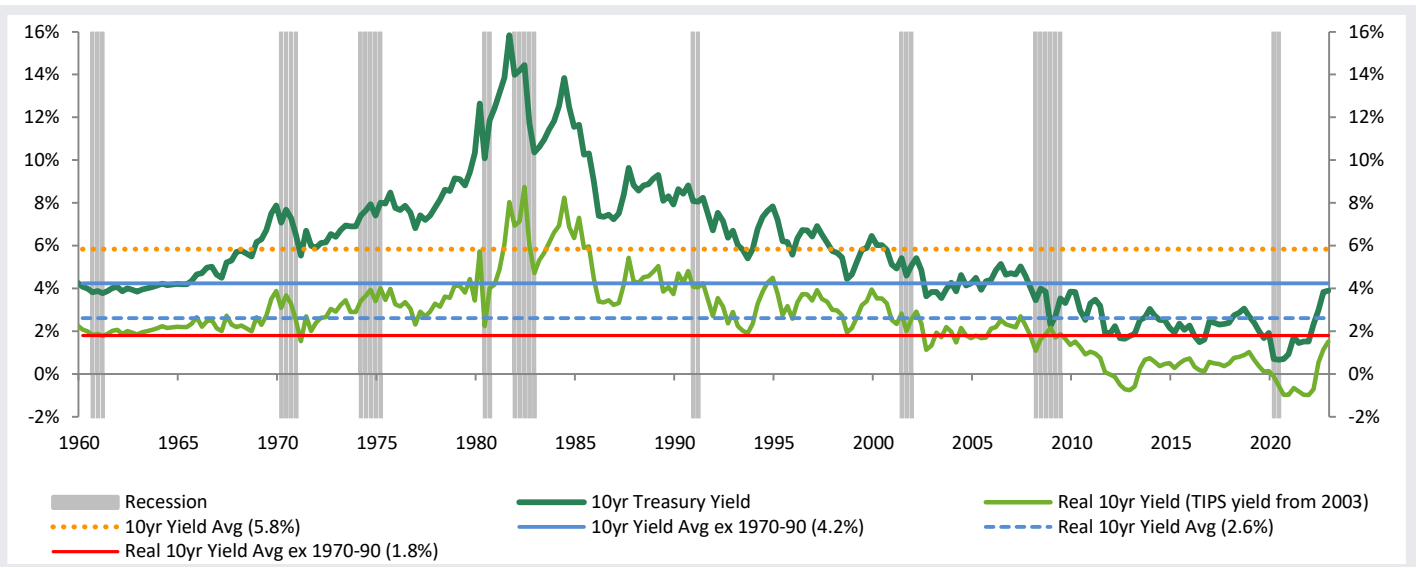
Note: More details on sector earnings forecast and sector intrinsic valuation can be found towards the back of this note.
Price as of 10/7/2022
Source: DWS Investment Management GmbH

U.S. Fed Funds rate vs. CPI



Source: Haver, DWS Investment GmbH as of 10/7/2022. Past performance may not be indicative of future results.

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



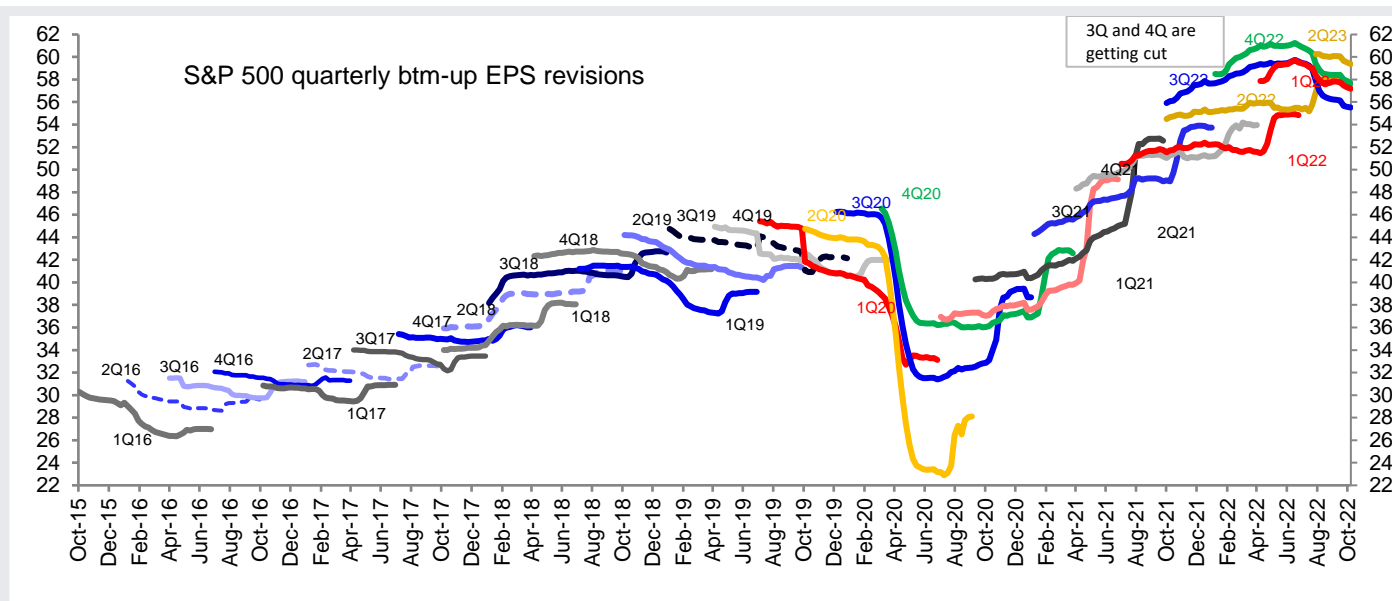
Source: Haver, DWS Investment GmbH as of 10/7/2022. Past performance may not be indicative of future results.

S&P 500 EPS cycles

	Peak 4-qr	Trough 4-qr	PE on peak 4-qr	PE on trough 4-qr	Peak to trough EPS cycle			S&P low Price	PE on S&P low & trough EPS
	EPS (\$/sh)	EPS (\$/sh)	EPS, qtr-end price	EPS, qtr-end price	EPS decline	Change in PE	S&P Price Return		
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

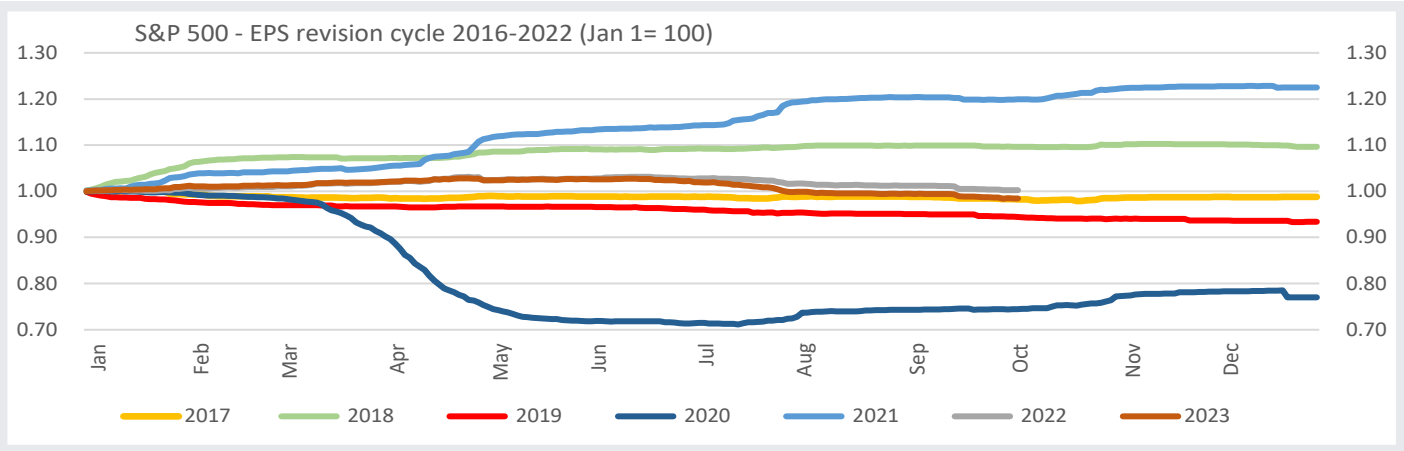
Source: Haver, DWS Investment GmbH as of 10/7/2022. Past performance may not be indicative of future results.

S&P 500 quarterly EPS revision



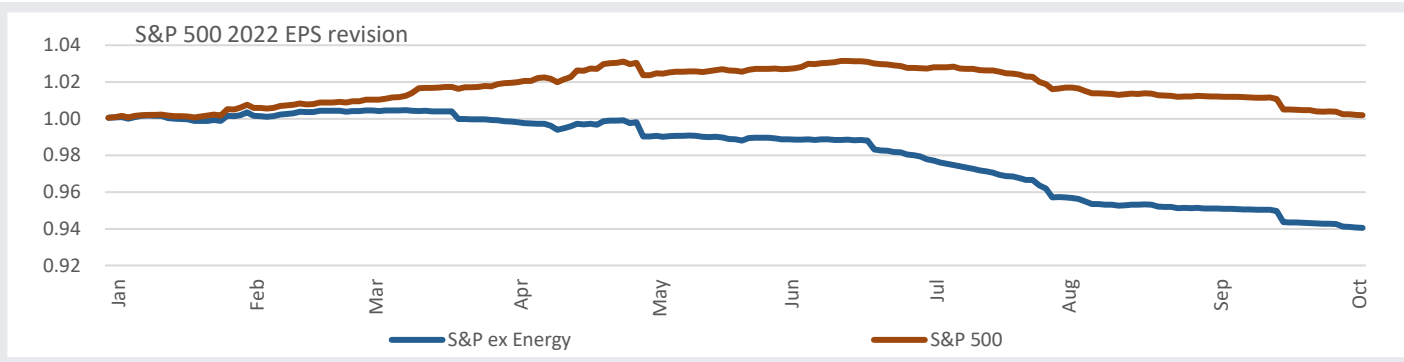
Source: Factset, IBES, DWS Investment GmbH as of 10/5/2022. Past performance may not be indicative of future results.

S&P 500 annual EPS revision



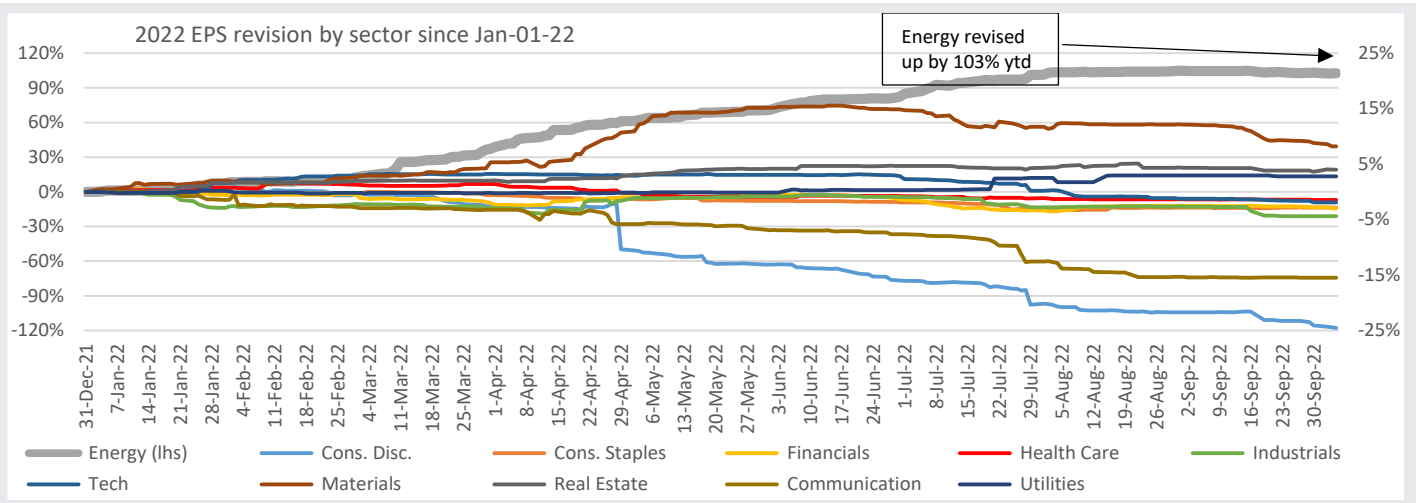
Source: Factset, IBES, DWS Investment GmbH as of 10/5/2022. Past performance may not be indicative of future results.

S&P 500 2022 EPS revision (ex. Energy)



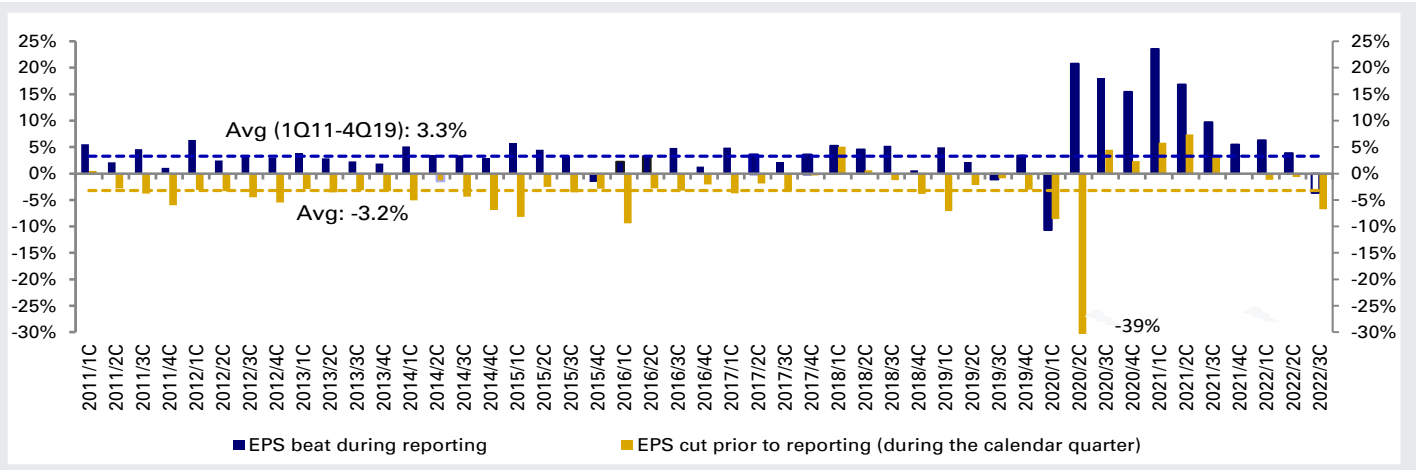
Source: Factset, IBES, DWS Investment GmbH as of 10/5/2022. Past performance may not be indicative of future results.

S&P 500 2022 EPS revision by sector



Source: Factset, IBES, DWS Investment GmbH as of 10/5/2022. Past performance may not be indicative of future results.

S&P 500: EPS cut during the calendar quarter vs. EPS beat during earnings season



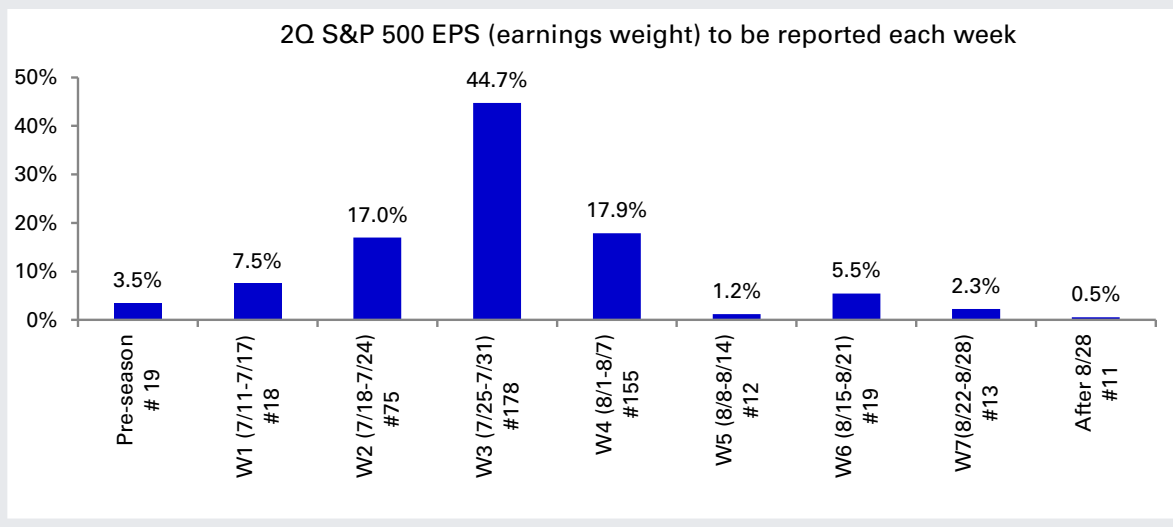
Source: Factset, DWS Investment GmbH as of 7/5/2022. Past performance may not be indicative of future results.

S&P 500: 3Q22 earnings season summary statistics

	3Q22 Summary (Based on reported companies)										
	% of EPS reported	# Cos reported	EPS (% of co's)		EPS surprise (%)	EPS y/y (%)	Sales (% of co's)		Sales surprise (%)	Sales y/y (%)	
			% beat	% miss			% beat	% miss			
S&P 500	3.0%	17	59%	29%	-3.7%	2.2%	29%	35%	-0.4%	12.1%	
S&P 500 ex. Financials & Real Est	3.6%	16	63%	25%	-3.7%	2.1%	31%	38%	-0.4%	12.1%	
S&P 500 ex. Energy	3.3%	17	59%	29%	-3.7%	2.2%	29%	35%	-0.4%	12.1%	
S&P ex. Tech	1.9%	12	50%	33%	-9.1%	15.7%	42%	42%	-0.4%	13.7%	
S&P ex. Energy, Financials & Real Est	4.1%	16	63%	25%	-3.7%	2.1%	31%	38%	-0.4%	12.1%	
Communication Services	0.0%	0									
Consumer Discretionary	8.9%	6	33%	33%	-11.9%	37.0%	33%	67%	-1.7%	17.7%	
Consumer Staples	9.8%	3	100%	0%	5.9%	12.1%	67%	0%	0.6%	14.3%	
Energy	0.0%	0									
Financials	0.2%	1	0%	100%	-2.2%	19.0%	0%	0%	2.4%	21.2%	
Health Care	0.0%	0									
Industrials	3.0%	2	50%	50%	-26.8%	-15.2%	50%	50%	-1.4%	6.3%	
Information Technology	7.3%	5	80%	20%	2.7%	-8.8%	0%	20%	-0.1%	6.1%	
Materials	0.0%	0									
Real Estate	0.0%	0									
Utilities	0.0%	0									

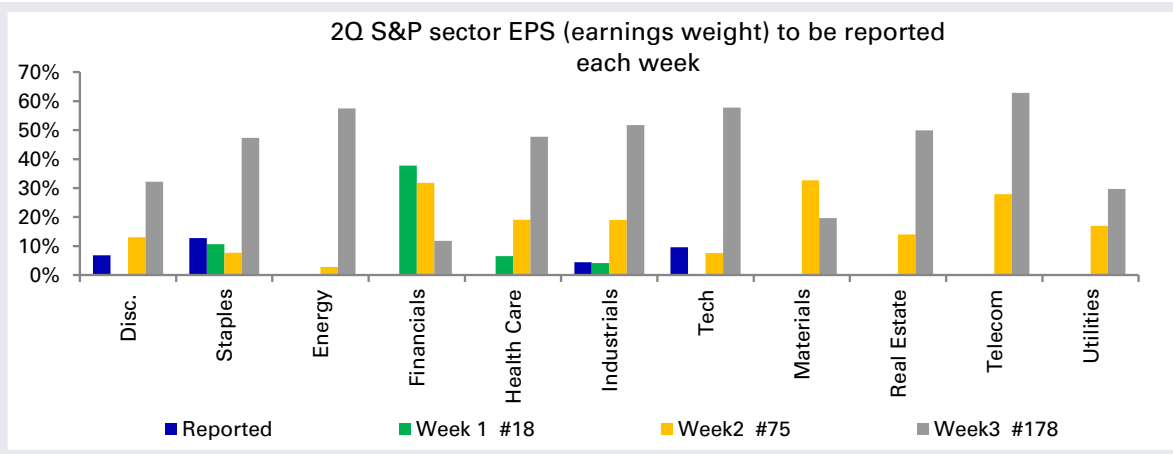
Source: Factset, DWS Investment GmbH as of 7/5/2022. Past performance may not be indicative of future results.

2Q22 S&P 500 earnings to be reported each week



Source: Factset, DWS Investment GmbH as of 7/5/2022. Past performance may not be indicative of future results.

2Q22 S&P 500 earnings to be reported each week by sector



Source: Factset, DWS Investment GmbH as of 7/5/2022. Past performance may not be indicative of future results.

S&P 500 EPS & Sales growth and Net Margins by sector (2Q22 is blended with actual for reported and consensus for the rest)

EPS growth (y/y)	2018					2019					2020					2021					2022		
	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19	3Q19	4Q19	2019	1Q20	2Q20	3Q20	4Q20	2020	1Q21	2Q21	3Q21	4Q21	2021	1Q22	2Q22	3Q22
S&P 500	27.2%	28.4%	27.2%	14.7%	21.6%	2.9%	1.9%	1.3%	3.5%	2.1%	-12.6%	-31.3%	-6.9%	4.4%	-8.9%	48.9%	90.2%	39.9%	29.9%	46.8%	9.9%	8.1%	3.7%
S&P 500 ex. Financials & Real Est	27.2%	29.4%	25.1%	14.5%	20.6%	1.8%	0.0%	1.0%	2.4%	0.8%	-6.1%	-27.8%	-7.7%	1.2%	-6.8%	36.1%	79.9%	41.5%	35.5%	43.8%	17.4%	15.0%	6.5%
S&P 500 ex. Energy	25.6%	26.1%	24.4%	12.2%	19.3%	4.1%	2.6%	3.6%	6.2%	3.8%	-12.1%	-25.4%	-3.0%	8.0%	-5.1%	49.8%	76.7%	32.6%	22.3%	40.1%	4.3%	-2.2%	-2.7%
S&P 500 ex. Tech	25.1%	27.0%	26.5%	17.1%	22.1%	4.9%	3.5%	2.2%	1.2%	1.8%	-17.9%	-38.7%	-9.6%	1.2%	-14.6%	52.5%	105.0%	40.4%	31.8%	52.3%	8.9%	10.2%	5.7%
S&P ex. Energy, Fin & Real Est	25.2%	26.5%	21.6%	11.4%	17.7%	3.3%	0.8%	3.8%	5.7%	2.9%	-5.1%	-20.0%	-2.8%	5.5%	-1.8%	36.7%	64.2%	32.3%	25.8%	35.6%	10.2%	2.0%	-1.4%
S&P ex. Energy, Fin, Real Est, Healthcare	27.6%	28.8%	22.8%	10.8%	19.1%	1.6%	-1.9%	2.7%	4.8%	1.3%	-7.8%	-26.5%	-5.6%	5.1%	-4.3%	39.4%	79.6%	33.7%	25.7%	37.9%	8.3%	0.2%	-0.1%
FANG (FB, AMZN, NFLX, Google)	36.4%	113.5%	50.0%	31.3%	55.9%	28.6%	14.7%	-6.0%	16.2%	4.4%	-14.5%	-1.5%	60.3%	56.7%	41.5%	149.8%	110.3%	26.3%	36.1%	66.0%	-40.2%	-39.8%	-21.1%
FANG & AAPL	32.9%	72.9%	45.3%	17.0%	35.5%	8.6%	5.4%	-1.3%	17.9%	3.4%	-7.0%	5.8%	29.9%	45.1%	-34.4%	136.2%	106.8%	41.2%	30.8%	57.3%	-20.4%	-27.5%	-11.9%
S&P ex FANG	26.8%	26.3%	26.3%	14.0%	20.5%	1.9%	1.4%	1.6%	2.9%	2.0%	-12.5%	-32.8%	-9.7%	1.4%	-11.2%	44.1%	88.7%	40.9%	29.3%	45.4%	14.1%	11.8%	5.3%
S&P ex FANG & AAPL	26.7%	25.9%	25.8%	14.4%	20.5%	2.4%	1.7%	1.5%	1.9%	2.0%	-13.1%	-34.3%	-10.0%	-0.8%	-12.8%	41.0%	88.1%	39.8%	29.7%	45.3%	14.4%	12.8%	5.5%
S&P ex. Energy & Fin & Real Est & FANG	24.7%	23.6%	20.2%	10.2%	16.0%	2.0%	-1.0%	4.4%	5.0%	2.9%	-4.5%	-21.2%	-6.3%	1.6%	-4.4%	29.9%	60.4%	32.9%	24.6%	32.8%	16.0%	6.5%	0.4%
Communication Services	22.7%	38.2%	27.2%	17.1%	25.6%	9.7%	9.9%	0.7%	8.4%	3.4%	-9.1%	-21.3%	2.8%	10.4%	3.1%	54.2%	73.2%	35.6%	16.7%	39.5%	-3.0%	-14.7%	-15.0%
Consumer Discretionary	17.7%	21.7%	27.2%	18.2%	21.1%	11.2%	4.3%	2.8%	1.6%	1.1%	-46.6%	-62.8%	1.6%	3.6%	-19.3%	174.1%	262.6%	14.8%	47.5%	71.2%	-27.3%	-12.4%	12.3%
Multiline & Specialty Retail	22.9%	30.4%	24.4%	18.8%	23.1%	9.7%	6.5%	10.9%	6.3%	9.2%	-40.7%	-22.5%	39.6%	17.4%	11.5%	204.5%	36.8%	16.3%	17.1%	40.5%	-0.8%	-8.7%	-3.4%
Consumer Staples	13.0%	14.0%	9.3%	4.3%	9.1%	-0.8%	-0.6%	3.4%	2.8%	1.3%	6.9%	-5.0%	5.5%	6.0%	4.8%	10.2%	19.5%	7.0%	7.3%	10.7%	7.7%	2.2%	-2.6%
Energy	75.4%	40.8%	103.5%	86.8%	87.0%	-24.3%	-12.3%	-36.6%	-41.5%	-29.9%	-28.2%	-169.1%	-109.6%	-102.0%	-109.5%	17.9%	247.1%	189.9%	1287.4%	-1626%	261.3%	299.1%	120.6%
Financials	29.9%	27.4%	41.0%	16.6%	28.3%	7.2%	10.5%	2.4%	9.6%	7.7%	-39.5%	-48.8%	-3.6%	20.4%	-18.6%	138.4%	167.5%	36.3%	10.0%	67.6%	-17.4%	-20.2%	-10.4%
Financials ex. BAC, C & JPM	26.0%	25.2%	45.3%	13.0%	26.9%	5.2%	6.6%	0.8%	4.6%	4.8%	-32.6%	-45.8%	-2.4%	23.6%	-15.1%	106.0%	152.5%	34.0%	16.0%	61.5%	-9.9%	-17.6%	-6.8%
Health Care	16.9%	17.9%	17.1%	13.9%	12.1%	10.0%	12.1%	8.6%	10.0%	9.9%	4.6%	3.5%	8.3%	7.3%	7.9%	28.3%	25.5%	27.7%	26.2%	28.0%	16.5%	8.2%	-5.6%
Industrials	29.5%	25.8%	28.2%	33.9%	24.6%	8.2%	-8.0%	2.5%	-9.9%	2.0%	-27.0%	-80.1%	-47.0%	-29.0%	-47.1%	-1.7%	387.0%	76.8%	39.0%	71.0%	36.5%	29.6%	25.6%
Industrials ex. BA	26.7%	25.5%	28.0%	30.6%	22.6%	9.6%	5.7%	6.2%	3.2%	5.0%	-19.4%	-74.5%	-43.6%	-24.6%	-42.6%	-2.0%	244.1%	71.2%	43.4%	62.6%	38.2%	31.3%	24.0%
Industrials ex. Defense	30.4%	26.2%	26.4%	25.8%	23.7%	6.8%	-11.0%	2.6%	-12.2%	-4.9%	-29.9%	-88.6%	-51.9%	-34.0%	-52.7%	-3.8%	706.7%	99.4%	46.2%	87.8%	43.7%	38.2%	24.0%
Information Technology	35.6%	34.2%	29.8%	7.3%	19.6%	-4.5%	-4.1%	-2.0%	11.8%	3.4%	9.9%	1.3%	3.8%	14.8%	14.0%	37.5%	49.8%	38.2%	24.1%	29.6%	13.4%	0.0%	-3.6%
Materials	67.1%	63.3%	-28.3%	-22.8%	11.1%	-12.7%	-19.5%	80.2%	-11.5%	-9.2%	-7.5%	-34.6%	-13.0%	12.8%	-6.1%	47.6%	133.0%	86.6%	63.8%	83.9%	47.0%	18.6%	-1.0%
Real Estate	8.3%	8.9%	6.8%	7.7%	8.0%	4.7%	0.9%	4.3%	0.0%	2.0%	-3.0%	-12.2%	-5.6%	0.4%	-4.2%	9.0%	28.9%	17.2%	10.0%	14.7%	16.8%	10.5%	7.7%
Utilities	18.9%	7.5%	11.9%	-10.4%	7.6%	-0.7%	1.4%	7.3%	18.0%	6.3%	4.3%	6.9%	0.8%	-2.8%	1.3%	-1.2%	12.7%	10.2%	-1.3%	5.1%	26.3%	-4.8%	-5.8%

Sales growth (y/y)	2018					2019					2020					2021					2022		
	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19	3Q19	4Q19	2019	1Q20	2Q20	3Q20	4Q20	2020	1Q21	2Q21	3Q21	4Q21	2021	1Q22	2Q22	3Q22
S&P 500	9.4%	11.2%	10.7%	4.0%	8.7%	5.8%	5.2%	4.0%	7.8%	5.7%	-1.8%	-10.3%	-2.3%	-0.5%	-3.7%	9.5%	21.8%	13.9%	15.2%	15.0%	13.6%	12.2%	9.6%
S&P 500 ex. Financials & Real Est	9.2%	10.2%	9.6%	1.7%	7.6%	3.3%	2.9%	2.1%	6.5%	3.7%	-2.8%	-11.7%	-2.5%	1.5%	-3.9%	12.2%	26.7%	17.5%	16.2%	18.8%	15.3%	13.1%	10.9%
S&P 500 ex. Energy	7.9%	8.5%	7.7%	1.6%	6.3%	3.7%	3.4%	3.4%	7.6%	4.5%	-1.7%	-6.5%	0.2%	4.0%	-1.1%	12.4%	20.7%	13.5%	11.8%	15.1%	10.4%	6.9%	6.1%
S&P 500 ex. Tech	8.0%	9.7%	8.7%	2.2%	7.1%	3.8%	3.4%	2.4%	6.4%	4.0%	-3.2%	-12.5%	-3.4%	-0.1%	-5.2%	10.5%	24.8%	16.3%	15.9%	17.3%	13.7%	12.5%	10.3%
S&P ex. Energy, Fin & Real Est	8.4%	8.6%	8.0%	1.0%	6.4%	3.5%	3.3%	3.3%	7.9%	4.5%	-2.0%	-7.2%	0.7%	4.7%	-1.0%	13.0%	22.3%	13.9%	12.0%	16.6%	11.8%	7.5%	6.9%
S&P ex. Energy, Fin, Real Est, Healthcare	8.7%	8.8%	8.2%	-0.6%	6.4%	0.8%	0.5%	0.2%	6.5%	1.9%	-5.3%	-10.1%	-2.1%	2.5%	-4.2%	13.8%	23.0%	13.6%	11.6%	17.9%	10.9%	6.7%	8.0%
FANG (FB, AMZN, NFLX, Google)	37.6%	35.0%	27.4%	21.7%	29.4%	18.2%	20.9%	23.5%	20.6%	12.8%	21.3%	22.6%	27.7%	35.7%	27.5%	40.6%	38.8%	24.6%	16.9%	28.6%	11.7%	7.8%	10.8%
FANG & AAPL	27.8%	28.1%	24.3%	9.5%	21.5%	8.8%	13.8%	15.2%	15.9%	20.6%	14.0%	18.9%	18.7%	20.2%	22.5%	44.6%	38.1%	25.9%	14.9%	27.5%	10.7%	6.0%	9.2%
S&P ex FANG	7.9%	9.3%	8.5%	1.5%	6.7%	3.0%	2.4%	1.7%	5.9%	3.2%	-3.2%	-11.9%	-3.7%	-0.4%	-4.8%	10.4%	23.8%	16.2%	15.6%	16.4%	13.6%	12.1%	9.6%
S&P ex FANG & AAPL	7.7%	9.2%	8.3%	1.7%	6.6%	3.2%	2.5%	1.7%	5.8%	3.3%	-3.3%	-12.4%	-3.8%	-1.1%	-5.2%	9.5%	23.5%	15.9%	15.8%	16.2%	13.8%	12.4%	9.6%
S&P ex. Energy & Fin & Real Est & FANG	7.5%	7.7%	7.3%	0.1%	5.6%	2.9%	2.6%	2.4%	7.2%	3.8%	-3.1%	-8.7%	-0.7%	2.9%	-2.5%	11.4%	21.2%	13.2%	11.6%	15.8%	11.8%	7.4%	6.7%
Communication Services	12.1%	10.8%	13.2%	12.9%	11.7%	12.3%	14.9%	11.2%	3.9%	9.2%	4.0%	-7.1%	0.8%	5.7%	2.7%	12.5%	26.1%	16.8%	11.7%	15.3%	7.5%	3.9%	-1.8%
Consumer Discretionary	10.0%	9.9%	10.3%	7.7%	9.0%	4.4%	5.3%	6.5%	2.9%	4.2%	5.0%	-11.8%	6.5%	11.9%	6.9%	19.7%	35.3%	10.6%	11.2%	13.2%	9.1%	11.0%	13.5%
Multiline & Specialty Retail	5.3%	7.6%	5.9%	3.1%	0.0%	4.6%	3.2%	4.2%	2.7%	0.0%	0.8%	11.4%	16.5%	15.5%	0.0%	28.5%	17.2%	9.2%	10.0%	0.0%	3.1%	2.4%	2.6%
Consumer Staples	5.3%	5.5%	3.0%	1.9%	4.0%	2.7%	2.5%	3.6%	3.4%	2.7%	5.8%	-0.3%	3.4%	4.7%	5.1%	3.8%	12.5%	10.1%	9.5%	6.5%	9.5%	8.5%	5.6%
Energy	18.1%	28.1%	25.7%	8.6%	20.2%	0.6%	-0.7%	-8.6%	-6.1%	-4.0%	-10.8%	-54.0%	-34.4%	-32.1%	-32.9%	3.3%	110.8%	73.0%	88.6%	51.5%	58.7%	75.7%	48.4%
Financials	4.3%	8.2%	5.3%	4.7%	5.4%	4.7%	3.4%	1.4%	6.2%	4.6%	0.1%	-4.0%	-2.7%	-0.6%	-1.6%	9.3%	11.3%	10.7%	9.5%	5.5%	5.0%	2.4%	0.2%
Financials ex. BAC, C & JPM	3.7%	9.3%	5.6%	4.6%	5.6%	5.6%	3.6%	4.3%	6.4%	5.0%	-0.3%	-6.5%	-2.1%	0.2%	-1.8%	10.6%	16.2%	12.1%	10.4%	6.6%	1.0%	1.9%	-1.1%
Health Care	7.4%	9.5%	7.2%	7.7%	6.5%	14.4%	16.4%	15.4%	13.0%	15.1%	9.2%	2.7%	10.3%	12.6%	9.9%	10.6%	20.0%	15.0%	13.4%	12.7%	14.6%	9.8%	3.8%
Industrials	10.4%	9.7%	7.9%	4.8%	4.9%	5.0%	-0.3%	0.7%	2.0%	2.3%	-7.4%	-23.7%	-15.4%	-8.7%	-11.0%	-0.8%	28.5%	16.5%	13.3%	14.2%	12.6%	13.0%	12.3%
Industrials ex. BA	6.4%	5.2%	3.8%	14.5%	7.6%	-2.1%	-12.1%	-20.8%	-27.8%	-16.4%	-26.5%	-45.1%	-29.5%	-23.4%	-31.2%	-10.2%	44.3%	7.9%	-6.8%	24.2%	-8.5%	-2.2%	12.0%
Industrials ex. Defense	11.0%	9.6%	7.0%																				

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 2022	
										2022E	y/y	2023E	y/y	2022E	y/y	2023E	y/y	(\$)	% of 2022
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%	\$225.30	8.5%	\$241.09	7.0%	\$222	6.4%	\$220	-0.9%	\$220	99%
Sector (\$ bn)																			
Communication Services	68.6	79.2	91.9	97.5	124.6	132.2	135.7	188.3	38.8%	172.5	-8.4%	192.5	11.6%	170.0	-9.7%	175.0	2.9%	162.0	95%
Consumer Discretionary	64.1	74.9	83.6	87.7	103.5	101.4	79.7	134.2	68.4%	141.6	5.5%	170.5	20.5%	140.0	4.3%	145.0	3.6%	149.1	106%
<i>Automobiles</i>	9.7	15.6	16.3	16.3	14.3	11.6	9.6	22.5	135%	28.6	27.3%	31.9	11.5%	24.5	9.1%	25.5	4.1%		
<i>Internet & Direct Marketing Retail</i>	5.4	6.1	8.0	8.5	16.3	17.8	20.3	34.2	68.4%	21.6	-36.9%	30.1	39.5%	24.0	-29.8%	26.5	10.4%		
<i>CD ex Auto & Internet Retail</i>	49.0	53.1	59.2	62.8	72.9	72.0	49.8	77.6	55.7%	91.4	17.8%	108.6	18.8%	91.5	18.0%	93.0	1.6%		
Consumer Staples	78.4	76.8	79.2	83.8	90.4	91.1	95.1	104.6	10.0%	107.3	2.6%	113.8	6.1%	104.5	-0.1%	105.0	0.4%	104.5	100%
Energy	93.1	39.0	10.6	36.8	68.6	48.8	-4.8	77.4	1722%	194.8	151.5%	170.8	-12.3%	170.0	119.5%	135.0	-20.6%	129.3	76%
Financials	171.2	186.0	187.6	194.8	241.3	248.1	197.1	326.9	65.9%	283.2	-13.4%	320.9	13.3%	283.5	-13.3%	292.5	3.2%	287.5	101%
Health Care	137.6	152.6	157.5	171.8	188.8	206.8	226.8	293.5	29.4%	308.5	5.1%	306.8	-0.5%	310.0	5.6%	315.0	1.6%	301.4	97%
Industrials	99.4	102.9	97.0	105.7	129.2	123.5	64.7	108.9	68.2%	143.1	31.4%	166.2	16.1%	140.5	29.0%	144.2	2.6%	142.5	101%
<i>Airlines</i>	10.4	16.8	12.8	10.6	11.2	12.8	-27.6	-13.6	50.8%	2.8	120.8%	8.2	189.1%	3.2	123.6%	6.0	87.5%		
Information Technology	176.7	184.1	193.6	228.4	266.5	264.6	296.6	379.8	28.1%	398.0	4.8%	440.6	10.7%	395.0	4.0%	410.0	3.8%	400.0	101%
Materials	24.3	23.4	22.2	28.0	34.9	33.4	31.7	57.9	82.3%	65.7	13.6%	60.3	-8.3%	65.0	12.3%	56.0	-13.8%	55.4	85%
Real Estate	23.5	26.8	29.6	32.6	36.2	37.9	37.7	44.7	18.5%	49.2	10.2%	51.9	5.5%	47.0	5.2%	49.0	4.3%	46.1	98%
Utilities	31.4	31.7	33.9	35.3	38.9	43.0	44.3	47.3	6.8%	48.8	3.3%	52.2	7.0%	50.0	5.8%	52.0	4.0%	50.6	101%
S&P 500 (\$ bn)	968.1	977.1	986.6	1102.4	1323.0	1330.7	1204.5	1763.4	46.4%	1912.5	8.5%	2046.5	7.0%	1875.5	6.4%	1878.7	0.2%	1828.4	97%
S&P ex. Energy (\$bn)	875.1	938.1	976.0	1065.6	1254.4	1281.9	1209.3	1686.0	39.4%	1717.8	1.9%	1875.8	9.2%	1705.5	1.2%	1743.7	2.2%	1699.1	100%
S&P ex. Tech (\$bn)	791.5	793.0	793.0	874.0	1056.5	1066.1	908.0	1383.7	52.4%	1514.5	9.5%	1605.9	6.0%	1480.5	7.0%	1468.7	-0.8%	1428.3	96%
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	222	55	58	55	54
2023E	220	52	55	56	57

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 10/7/2022. Past performance may not be indicative of future results.

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 2022 PE	2022E Earnings (\$bn)	Normal Ratio	Normal 2022E Earnings	Accounting Quality Adjustment	Fully Adjusted Earnings	Net Debt / Market Cap	Real CoE	Steady State Value	Growth Premium	2022 Start Fair Value (\$bn)	2021E Dividend Yield	2022 End Fair Value (\$bn)	PE on Normal 2022E EPS	2022 end Upside %
Communication Services	2,498	14.7	170.0	95%	162.0	-8%	149.0	15%	5.75%	2,592	0%	2,592	1.7%	2,774	17.1	11%
Consumer Discretionary	3,564	25.5	140.0	106%	149.1	-8%	137.2	12%	5.75%	2,385	32%	3,142	1.0%	3,385	22.7	-5%
<i>Automobiles</i>	677	27.6	24.5	110%	27.0	-10%	24.3	19%	6.50%	373	50%	560	0.4%	611	22.7	-10%
<i>Internet & Direct Marketing Retail</i>	1,147	47.8	24.0	110%	26.4	-8%	24.3	1%	5.75%	422	130%	972	0.0%	1,056	40.0	-8%
<i>CD ex Auto & Internet Retail</i>	1,740	19.0	91.5	100%	91.5	-8%	84.2	17%	5.75%	1,464	10%	1,610	1.9%	1,721	18.8	-1%
Consumer Staples	2,081	19.9	104.5	100%	104.5	-8%	96.1	13%	5.00%	1,923	0%	1,923	2.8%	2,023	19.4	-3%
Energy	1,553	9.1	170.0	76%	129.3	-10%	116.3	16%	6.25%	1,861	-20%	1,489	3.5%	1,575	12.2	1%
Financials	3,415	12.0	283.5	101%	287.5	-10%	258.7		6.50%	3,981	-5%	3,782	2.2%	4,058	14.1	19%
Banks	1,159	9.3	125.0	105%	131.3	-10%	118.1		7.00%	1,688	-10%	1,519	3.6%	1,615	12.3	39%
Health Care	4,630	14.9	310.0	97%	301.4	-10%	271.2	9%	5.50%	4,931	0%	4,931	1.6%	5,269	17.5	14%
Industrials	2,526	18.0	140.5	101%	142.5	-8%	131.1	18%	5.75%	2,281	0%	2,281	1.5%	2,446	17.2	-3%
Information Technology	8,092	20.5	395.0	101%	400.0	-5%	380.0	2%	5.75%	6,609	10%	7,270	1.1%	7,825	19.6	-3%
Materials	791	12.2	65.0	85%	55.4	-10%	49.9	17%	6.25%	798	0%	798	2.2%	854	15.4	8%
Real Estate	777	16.5	47.0	98%	46.1	-8%	42.4	29%	5.00%	848	0%	848	3.6%	885	19.2	14%
Utilities	891	17.8	50.0	101%	50.6	-8%	46.6	60%	5.00%	931	0%	931	3.4%	974	19.2	9%
S&P 500 (\$ bn)	30,818		1875.5	97%	1828.4	-8.2%	1678.6		5.74%	29141	2.9%	29987	1.8%	32067.4	17.5	4%
S&P 500 Index (\$/sh)	3640	16.4	222.0	99%	220.0	-8.2%	202.0	11%	5.75%	3513	0.0%	3513	1.8%	3752	17.1	3%

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

Source: IBES, DWS Investment GmbH as of 10/7/2022. Past performance may not be indicative of future results.

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.

The estimated 2022 year end upside is on absolute valuation basis of each sector, not on relative sector valuation basis.

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 2022E S&P 500 EPS	\$222.00	DWS 2022E S&P 500 DPS	\$68.00	DWS 2022E S&P 500 aggregate ROE	21.1%	Fair long-term nominal return on S&P 500 index	8.75%
		2022E dividend payout ratio	31%	2021E end S&P 500 book value per share	\$1,050	Components of estimated fair S&P 500 return:	
DWS "normal 2022E" S&P 500 EPS	\$220.00	DWS "normal 2022E" S&P 500 DPS	\$68.00	DWS "normal 2022E" S&P 500 aggregate ROE	19.2%	+ Long-term real risk free interest rate	1.25%
"Normal 2022E" EPS / 2022E EPS	99%	Normal dividend payout ratio	34%			+ Long-term fair S&P 500 equity risk premium*	4.50%
				S&P EPS retained for true reinvestment	47%	= Long-term real S&P 500 cost of equity	5.75%
Accounting quality adjustment to pro forma EPS	-\$18.00	EPS directed to net share repurchases	\$39.00	Estimated ROE on reinvested S&P EPS	8.75%	+ Long-term inflation forecast	3.00%
		Normal share repurchase payout ratio	19%	Economic margin (EM) or ROE-CoE	0.00%	= S&P 500 nominal cost of equity	8.75%
Normal 2022E S&P 500 EPS fair to capitalize	\$202	Total payout of S&P 500 EPS	\$107.00	Sources of long-term earnings growth:		* S&P 500 ERP history 300-400bps, w/ real CoE @ 5% - 6.5%	
Key principle: steady-state value = normal EPS / real CoE		Total payout ratio of normal and quality adj. EPS	53%	+ Long-term inflation forecast	3.00%	Fair S&P 500 Market Value and Book Value Multiple	
				+ Fair return on true reinvestment	2.70%	2021E end S&P 500 book value per share	\$1,050
<u>S&P 500 EPS Capitalization Valuation</u>		<u>S&P 500 DPS Discount Model</u>		+ Value added return on true reinvestment	0.00%	Fair PB = Fair PE * normal aggregate ROE	3.35
Normal EPS / (real CoE - (EM/payout) - EM):		Normal DPS / (nominal CoE - DPS growth):		= Long-term earnings growth	5.70%	Fair PE =(inc ROE-g)/(inc real ROE*(real CoE-real g))	17.4
S&P 500 intrinsic value at 2022 start	3513	S&P 500 intrinsic value at 2022 start	3513	+ Growth from net share repurchases	1.11%	Implied S&P 500 fair value of book at 2022 start	3513
S&P 500 intrinsic value at 2022 end	3752	S&P 500 intrinsic value at 2022 end	3752	= Long-term S&P 500 EPS/DPS growth	6.81%	Steady-state PB = normal agg. ROE / real CoE	3.35
Implied fair fwd PE in early 2022 on 2022E \$222 EPS	15.8	Implied fair forward yield on 2022E DPS of \$68.0	1.94%	+ Fair normal dividend yield	1.94%	Confirmed by fair steady-state PE = 1 / real CoE	17.4
Implied fair trailing PE at 2022 end on 2022E \$222 EPS	16.9	Implied fair trailing yield on 2022E DPS of \$68.0	1.81%	= Total long-term return at constant PE	8.75%		
Normal EPS / (real CoE-value added EPS growth)	3513	DPS discount model using true DPS (all payout)	3513	Value added growth premium in fair value est.	0%	Normal 2022E economic profit per share	\$141.63

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 2022E S&P 500 EPS				
		\$210	\$215	\$220	\$225	\$230
Real	5.25%	4215	4348	4482	4617	4754
cost of	5.50%	3862	3973	4084	4197	4309
equity	5.75%	3563	3658	3752	3847	3942
	6.00%	3308	3390	3471	3552	3632
	6.25%	3088	3158	3229	3299	3368

Source: DWS Investment Management GmbH

Fed rate hike cycles

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	Chg PE during Hike	Avg PE during Hike	10yr - 1yr Chg (%) at 1yr	10yr - 1yr Chg (%) at 10yr	Before Reaching Cycle (ar)	After Reaching Cycle (ar)	3m before	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.

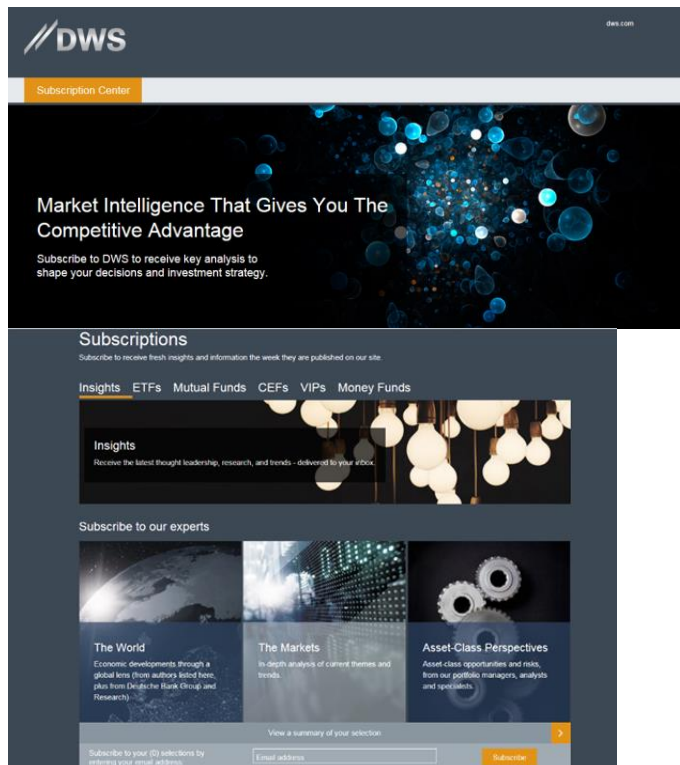
Note: For the 7 Fed hike cycles since 1983, the S&P performance are for 1m, 3m, 6m, and 12m after the initial reaction. For the other cycles, the S&P performance are based on monthly prices.

Source: Haver, DWS Investment Management GmbH

Contact Information

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

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



Want to start to receive Americas CIO View and other materials from our thought leaders directly in your inbox?

Retail registered representatives:
Go to the **Subscription Center on dws.com:**

<https://spotlight.dws.com/subscription-center>

And sign up and request the types of thought leadership materials you would like to receive by topic (The World, The Markets, and Asset Class Perspectives) or exclusively by one or more of our experts.

Institutional clients:
View current and past editions of Americas CIO View by going to:

<https://institutional.dws.com>

DWS does not render legal or tax advice, and the information contained in this communication should not be regarded as such. The comments, opinions and estimates contained herein are based on or derived from publicly available information from sources that we believe to be reliable. We do not guarantee their accuracy. This material is for informational purposes only and sets forth our views as of this date. The underlying assumptions and these views are subject to change without notice.

Past performance is not indicative of future returns.

Forecasts are based on assumptions, estimates, opinions and hypothetical models that may prove to be incorrect. Investments come with risk. The value of an investment can fall as well as rise and your capital may be at risk. You might not get back the amount originally invested at any point in time.

The brand DWS represents DWS Group GmbH & Co. KGaA and any of its subsidiaries, such as DWS Distributors, Inc., which offers investment products, or DWS Investment Management Americas, Inc. and RREEF America L.L.C., which offer advisory services.

© 2022 DWS Group GmbH & Co. KGaA. All rights reserved. I- 092465_1 (10/22)

For institutional client and registered representative use only. Not for public viewing or distribution.