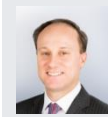


# Exploring other schools of thought: All schools out for summer?



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Americas Chief Investment Officer  
DWS

## The summer stock rally isn't easily explained by an intrinsic value framework

Despite the highest observed S&P PE in 20 years, except 2021 when real interest rates were negative, summer brought a rally without S&P EPS growth or lower interest rates. S&P EPS declined the last few quarters y/y and Treasury yields climbed 25bp this summer. Within our school of thought, an intrinsic value framework, a decline in the demanded equity risk premium (ERP) is usually required to justify a rally absent EPS growth or lower interest rates. However, the observed ERP (implied as S&P EPS yield - 10yr TIPS yield) was already lower than normal at summer start. At 375bp in May and now 325bp in August, both ERP observations are below the 500bp average since 2003. When investors fear recessions or Fed hikes or jumps in yields, the observed ERP tends to be 500-600bp or even higher during panics. Thus, we think it wrong to attribute summer's rally to avoidance of negative scenarios feared by investors, which is often dubbed "climbing a wall of worry."

## Better long-term profit growth ahead? An explanation within the intrinsic school

We expect no or very slow S&P EPS growth the next few quarters. The consensus view is similar. An imminent EPS surge is very unlikely. However, the willingness of investors to pay now for a newly expected better *long-term* future S&P EPS growth rate estimate would justify the summer rally absent an EPS surge soon to come. We believe the summer rally is attributable to long-term excitement for artificial intelligence, which is consistent with the rally being led by Tech and other leading digital industry stocks. Not an actual ERP decline. Yet this raises the question of how to measure or imply what investors now expect in terms of improved EPS growth over the next several years and then judging if that is reasonable.

## Economic growth PE premiums: Justified if long-term EPS growth exceeds CoE

In prior notes, we explained that a high PE can be justified by investors adding premiums to a fair steady-state PE for a company's economic profit growth potential. We explained fair steady-state PE estimates as:  $1 / \text{real cost of equity (CoE)}$ . The real CoE is the observed or expected 10yr TIPS yields plus estimates of a fair ERP. If trying to isolate the economic growth premium within an observed PE from other factors, use cyclically normalized EPS and long-term real yield estimates and an ERP estimate that reflects uncertainty on these norms. Our estimates for such S&P norms are: \$220 2023 EPS, 1.50-1.75% real yields, 400bp ERP. This suggests a steady-state S&P PE of about 18 and 4000 price at 2023 end. The history of the observed S&P PE doesn't significantly exceed steady-state estimates, thus normalized EPS and interest rate estimates are the main determinants of fair value. However, a higher value is fair and justifiable in an intrinsic value framework if the S&P 500 will generate long-term EPS growth, plus its dividend yield, greater than its nominal cost of equity. We estimate its nominal CoE at about 8%, assuming inflation 2.0-2.5%. Here a fair  $PE = 1 / (\text{real CoE} - (\text{long-term EPS growth rate} + \text{dividend yield} - \text{nominal cost of equity}))$ . Under this construct and estimates above, long-term S&P EPS growth should exceed 6.5% for the fair PE to exceed 18. At 20.5x normal EPS, implied long-term EPS growth is 7.25%. Under our school of thought, the S&P's summer rally was driven not by a 50bp reduction in demanded ERP, but rather a 50bp increase in the long-term S&P EPS growth rate. From about 6.75% to about 7.25%, driving the PE on normal EPS from near 19.5 in May when 10yr TIPS yield was 1.5% to a 21 PE in July and 20.5 now with 10yr TIPS yield at 1.75%. A 50bp change in real CoE or long-term real EPS growth is worth about 7.5%. When an economic growth premium is in the PE, it should raise the ERP given uncertainties of such.

## Are there other explanations for the summer rally in other schools of thought?

Other summer rally explanations beyond no recession or EPS dive, which we argue isn't sufficient, include: 1) investors weren't positioned for a rally; which segment of investors and why not, 2) rallies come when inflation trends down; true when the PE rises from depressed levels, like in early 1980s; but this time the S&P PE stayed very high, 3) rallies follow the Fed's last hike, this is only true if a soft landing occurs like in 1995, 1985 and 1967 and some significant degree of hard landing was reflected in the observed PE earlier, 4) anything is possible, true of course, but rational investors must decide what's probable and make best choice available. We stay focused on trying to assess fundamentals of whether a soft landing happens with inflation near 2% in 2024 and will S&P EPS growth be healthy then and thereafter vs. expectations as implied by intrinsic valuation frameworks.

## Tech and Healthcare are sectors most likely to deliver AI boosted profit growth

Within the S&P 500, we find Software and digital services plus Biotech and Pharma best positioned to benefit from artificial intelligence (AI) tools and deliver superior long-term EPS growth. We think medicine maker valuations underappreciate this long-term potential.

Contributor: Ju Wang, Portfolio Manager Equity

Global Equity Index Forecasts: 12-months			
Index	Jun 2024F	NTM EPS Growth	Target PE
S&P 500	4,200	1.6%	18.8
EuroStoxx 50	4,450	0.3%	12.9
Stoxx 600	480	0.3%	13.8
MSCI Japan	1,400	3.3%	14.9
MSCI Asia xJ	680	6.3%	14.2
MSCI EM	1,040	4.6%	12.6

S&P 500 Outlook at Yearend			
	2021	2022	2023F
S&P 500	4766	3840	4000
Dividend Yield	1.3%	1.75%	1.75%
S&P EPS	\$210	\$222	\$220
Trailing PE	22.7	17.3	18.2
DPS	\$61	\$67	\$70

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

Taxable U.S. Investor Asset Allocations		
Asset Class	Long-term	Current
Fixed Income/Cash	30-35%	38%
Equities	55-60%	52.5%
US Equities	40%	33.5%
S&P 500	35%	32%
Small Caps	0-10%	1.5%
Foreign DM	10-15%	11%
Foreign EM	0-10%	8%
Alternatives	10%	9.5%

Key CIO Views		
Macro signal:	Aug 2023	Jun 2024F
U.S. Fed Funds rate	5.25%-5.50%	4.75%-5.00%
10yr Treasury yield	4.15%	4.20%
US IG Corp Spreads	160bp	110bp
US High Yield Spreads	440bp	450bp
Crude Oil (WTI) \$/bbl	83	85
EUR / USD FX rate	1.10	1.12

GDP Forecasts			
Region	2022	2023F	2024F
US	2.1%	1.0%	0.8%
World	3.4%	2.8%	3.0%
Euro area	3.5%	0.8%	0.9%
China	3.0%	6.0%	5.0%
Japan	1.0%	1.0%	0.9%

\* 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 8/14/2023 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.



DWS Investment GmbH View: S&P 500 fair value by sector: Assuming a ~5.60% 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)	2023E Dividend Yield	2023 End Fair Value (\$bn)	PE on Normal 2023E EPS	2023 End Upside %	2023 End Upside vs. S&P 500
Communication Services	3,340	19.5	171.0	97%	166.2	-8%	152.9	15%	5.60%	2,731	0%	2,731	0.9%	2,940	17.7	-12%	1%
Consumer Discretionary	4,031	30.0	134.5	105%	141.2	-8%	129.9	12%	5.50%	2,362	15%	2,725	1.0%	2,929	20.7	-27%	-14%
<i>Automobiles</i>	748	31.2	24.0	100%	24.0	-12%	21.1	22%	6.50%	325	30%	422	0.4%	461	19.2	-38%	-25%
<i>Broadline (Internet) Retail</i>	1,261	76.4	16.5	150%	24.8	-7%	23.0	1%	5.50%	419	50%	628	0.0%	681	27.5	-46%	-33%
<i>ex. Auto &amp; Broadline (Internet) Retail</i>	2,022	21.5	94.0	98%	92.4	-7%	85.7	16%	5.30%	1,618	3%	1,674	1.5%	1,788	19.3	-12%	2%
Consumer Staples	2,517	21.0	120.0	100%	120.0	-7%	111.6	14%	5.00%	2,232	0%	2,232	2.8%	2,348	19.6	-7%	7%
Energy	1,741	10.9	160.0	86%	138.1	-15%	117.4	12%	6.00%	1,957	-20%	1,565	2.7%	1,664	12.0	-4%	9%
Financials	4,835	14.9	324.0	99%	320.4	-9%	291.5		6.40%	4,555	-8%	4,191	2.1%	4,498	14.0	-7%	6%
<i>Banks</i>	1,191	9.8	122.0	100%	122.0	-10%	109.8		7.50%	1,464	-15%	1,244	3.5%	1,332	10.9	12%	25%
Health Care	5,101	17.6	290.0	99%	288.4	-8%	265.4	9%	5.40%	4,914	0%	4,914	1.6%	5,249	18.2	3%	16%
Industrials	3,220	20.8	154.5	101%	155.7	-8%	143.3	17%	5.60%	2,558	0%	2,558	1.8%	2,732	17.5	-15%	-2%
Information Technology	10,065	28.8	350.0	103%	362.0	-5%	343.9	2%	5.40%	6,369	10%	7,005	0.9%	7,530	20.8	-25%	-12%
Materials	940	18.1	52.0	99%	51.3	-10%	46.1	18%	5.75%	802	0%	802	1.8%	858	16.7	-9%	4%
Real Estate	890	17.8	50.0	97%	48.4	-8%	44.5	33%	5.25%	848	0%	848	3.7%	887	18.3	0%	13%
Utilities	934	17.4	53.5	103%	55.3	-8%	50.9	81%	5.25%	969	0%	969	3.6%	1,014	18.3	9%	22%
S&P 500 (\$ bn)	37,614	20.2	1859.5	99%	1847.0	-8.1%	1697.4		5.58%	30,296	0.8%	30540	1.6%	32,651	17.7	-13%	0%
S&P 500 Index (\$/sh)	4464	20.3	220.0	100%	220.0	-8.2%	202.0	11%	5.60%	3607	0.0%	3607	1.6%	3847	17.5	-14%	0%



Source: IBES, DWS Investment GmbH as of 8/11/2023. 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 3/31/2023.

The estimated 2023 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 2023E S&P 500 EPS	\$220.00	DWS 2023E S&P 500 DPS	\$70.00	DWS 2023E S&P 500 aggregate ROE	21.8%	Fair long-term nominal return on S&P 500 index	8.60%
DWS "normal 2023E" S&P 500 EPS	\$220.00	DWS "normal 2023E" S&P 500 DPS	\$70.00	2022E end S&P 500 book value per share	\$1,007	Components of estimated fair S&P 500 return:	
"Normal 2023E" EPS / 2023E EPS	100%	Normal dividend payout ratio	35%	DWS "normal 2023E" S&P 500 aggregate ROE	20.1%	+ Long-term real risk free interest rate	1.60%
Accounting quality adjustment to pro forma EPS	-\$18.00	EPS directed to net share repurchases	\$38.00	<b>S&amp;P EPS retained for true reinvestment</b>		+ Long-term fair S&P 500 equity risk premium*	4.00%
Normal 2023E S&P 500 EPS fair to capitalize	\$202	Normal share repurchase payout ratio	19%	<b>Estimated ROE on reinvested S&amp;P EPS</b>		= <b>Long-term real S&amp;P 500 cost of equity</b>	5.60%
Key principle: steady-state value = normal EPS / real CoE		Total payout of S&P 500 EPS	\$108.00	<b>Economic margin (EM) or ROE-CoE</b>		+ Long-term inflation forecast	3.00%
		Total payout ratio of normal and quality adj. EPS	53%	Sources of long-term earnings growth:		= <b>S&amp;P 500 nominal cost of equity</b>	8.60%
<u>S&amp;P 500 EPS Capitalization Valuation</u>		<u>S&amp;P 500 DPS Discount Model</u>		+ Long-term inflation forecast	3.00%	* S&P 500 ERP history 300-400bps, w/ real CoE @ 5% - 6.5%	
Normal EPS / (real CoE - (EM/payout) - EM):		Normal DPS / (nominal CoE - DPS growth):		+ Fair return on true reinvestment	2.61%	<u>Fair S&amp;P 500 Market Value and Book Value Multiple</u>	
S&P 500 intrinsic value at 2023 start	3607	S&P 500 intrinsic value at 2023 start	3607	+ Value added return on true reinvestment	0.00%	2022E end S&P 500 book value per share	\$1,007
<b>S&amp;P 500 intrinsic value at 2023 end</b>	<b>3847</b>	<b>S&amp;P 500 intrinsic value at 2023 end</b>	<b>3847</b>	= Long-term earnings growth	5.61%	Fair PB = Fair PE * normal aggregate ROE	3.58
Implied fair fwd PE in early 2023 on 2023E \$220 EPS	16.4	Implied fair forward yield on 2023E DPS of \$70.0	1.94%	+ Growth from net share repurchases	1.05%	Fair PE =(inc ROE-g)/(inc real ROE*(real CoE-real g))	17.9
Implied fair trailing PE at 2023 end on 2023E \$220 EPS	17.5	Implied fair trailing yield on 2023E DPS of \$70.0	1.82%	= <b>Long-term S&amp;P 500 EPS/DPS growth</b>	<b>6.66%</b>	Implied S&P 500 fair value of book at 2023 start	3607
				+ Fair normal dividend yield	1.94%	Steady-state PB = normal agg. ROE / real CoE	3.58
				= <b>Total long-term return at constant PE</b>	<b>8.60%</b>	Confirmed by fair steady-state PE = 1 / real CoE	17.9

Normal EPS / (real CoE-value added EPS growth)	3607	DPS discount model using true DPS (all payout)	3607	Value added growth premium in fair value est.	0%	Normal 2023E economic profit per share	\$145.61
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### 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	5.10%	4336	4473	4611	4751	4892
cost of	5.35%	3965	4079	4194	4310	4426
equity	5.60%	3653	3750	3847	3944	4041
	5.85%	3388	3471	3554	3636	3719
	6.10%	3158	3230	3302	3374	3444

Source: DWS Investment Management GmbH

Optimistic 2023 end 10yr yield outlook: 2.5% inflation expectation + 1% overnight real rate + 0.75% inflation risk premium - 0.5% risk asset hedge = 3.75%

Pessimistic 2023 end 10yr yield outlook: 2.5% inflation expectation + 1% overnight real rate + 1.5% inflation risk premium - 0% risk asset hedge = 5.00%

## DWS June 2024 equity index targets

Index	3M relative View	Current Level	Previous Target CIO Day Mar	Target Jun 24	Chg in Target	Expected Total Return Jun 24	----- thereof -----		Assumptions					
							EPS growth NTM*	LTM multiple impact	Dividend Yield	EPS NTM* (e)	DWS vs. Cons.	Target LTM P/E in Jun 24	Target PE discount to US	
S&P 500		4,221	4,100	4,200	2%	1.2%	USD	1.6%	-1%	1.7%	225	-3.7%	18.8x	
Stoxx 600		461	480	480	0%	7.6%	EUR	0.3%	4%	3.4%	34.7	-7.0%	13.8x	-27%
EuroStoxx 50		4,311	4,350	4,450	2%	6.7%	EUR	0.3%	3%	3.5%	345	-6.0%	12.9x	-32%
DAX40		16,019	16,300	17,000	4%	6.1%	EUR	1.5%	1%	3.4%	1363	-7.1%	12.4x	-34%
SMI		11,415	11,100	11,500	4%	3.9%	CHF	14.0%	-11%	3.1%	692	-2.0%	16.7x	-11%
FTSE 100		7,567	8,100	7,700	-5%	5.9%	GBP	-2.6%	4%	4.1%		-7.6%	11.2x	-40%
MSCI EM		983	1,020	1,040	2%	8.9%	USD	4.6%	1%	3.1%	82.8	-0.5%	12.6x	-33%
MSCI AC Asia xJ		632	670	680	1%	10.3%	USD	6.3%	2%	2.7%	48.2	-2.3%	14.2x	-25%
MSCI Japan		1,341	1,250	1,400	12%	6.7%	YEN	3.3%	-1%	2.4%	92.3	-1.7%	14.9x	-21%
MSCI Australia		1,413	1,450	1,450	0%	7.1%	AUD	-3.3%	6%	4.4%	95.0	-4.5%	15.2x	-19%

## DWS Investment GmbH S&P 500 Annual EPS Outlook

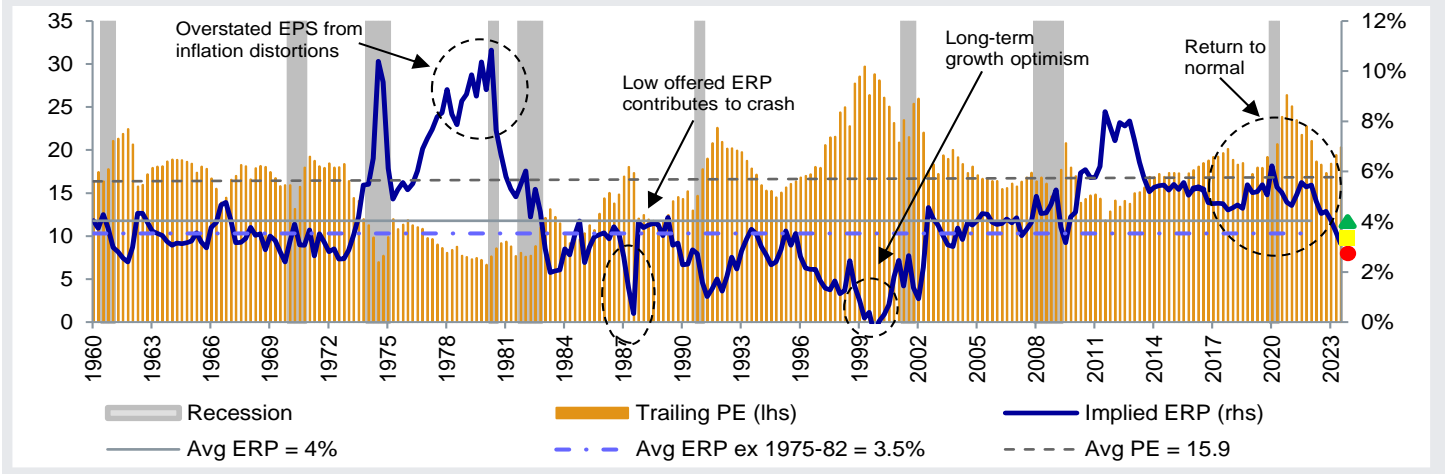
	2014A	2015A	2016A	2017A	2018A	2019A	2020A	2021A	2022A	y/y	Bottom-up Consensus (IBES)				DWS View				Normalized 2023		
											2023E	y/y	2024E	y/y	2023E	y/y	2024E	y/y	(\$)	% of 2023	
<b>S&amp;P 500 EPS (historical index)</b>	<b>\$118.82</b>	<b>\$117.46</b>	<b>\$118.10</b>	<b>\$132.00</b>	<b>\$161.93</b>	<b>\$162.93</b>	<b>\$139.72</b>	<b>\$208.12</b>	<b>\$218.09</b>	<b>4.8%</b>											
<b>S&amp;P 500 EPS (current constituents)</b>	<b>\$116.65</b>	<b>\$117.27</b>	<b>\$117.34</b>	<b>\$129.29</b>	<b>\$155.67</b>	<b>\$161.41</b>	<b>\$144.04</b>	<b>\$207.87</b>	<b>\$219.79</b>	<b>4.7%</b>	\$223	1.3%	\$248	11.6%	\$220	0.1%	\$235	6.8%	\$220	100%	
<b>Sector (\$ bn)</b>																					
Communication Services	67.8	78.4	91.3	99.3	124.2	130.6	135.8	188.4	148.9	-21.0%	179.4	20.5%	210.9	17.5%	171.0	14.8%	182.0	6.4%	166.2	97%	
Consumer Discretionary	59.7	70.0	78.4	82.5	97.6	95.2	70.7	114.6	110.1	-4.0%	149.7	36.0%	171.4	14.5%	134.5	22.2%	146.0	8.6%	141.2	105%	
Consumer Staples	83.6	82.4	85.1	89.4	96.4	97.4	104.8	117.2	117.0	-0.1%	120.8	3.2%	130.7	8.2%	120.0	2.6%	125.0	4.2%	120.0	100%	
Energy	94.6	39.6	10.4	37.1	69.8	49.2	-6.7	79.1	201.3	154.6%	143.4	-28.8%	145.7	1.6%	160.0	-20.5%	170.0	6.3%	138.1	86%	
Financials	184.4	200.6	203.1	212.5	262.6	276.5	224.7	362.3	305.0	-15.8%	334.6	9.7%	363.3	8.6%	324.0	6.2%	342.5	5.7%	320.4	99%	
Health Care	137.2	152.1	157.1	171.4	188.2	206.1	226.2	293.3	308.0	5.0%	267.2	-13.2%	301.3	12.8%	290.0	-5.8%	310.0	6.9%	288.4	99%	
Industrials	100.4	103.9	98.2	107.1	130.3	124.9	66.3	111.4	139.9	25.7%	161.3	15.3%	182.0	12.8%	154.5	10.4%	165.0	6.8%	155.7	101%	
Information Technology	162.5	168.1	176.4	207.8	239.5	233.2	264.5	345.4	352.6	2.1%	359.5	2.0%	416.7	15.9%	350.0	-0.7%	381.0	8.9%	362.0	103%	
Materials	24.8	23.7	22.8	28.7	36.1	34.1	32.4	61.3	64.0	4.4%	51.2	-20.0%	54.2	5.9%	52.0	-18.7%	55.5	6.7%	51.3	99%	
Real Estate	22.4	25.5	28.1	31.7	35.4	36.9	36.8	43.9	51.0	16.2%	50.9	-0.2%	53.8	5.6%	50.0	-2.0%	52.0	4.0%	48.4	97%	
Utilities	32.6	32.8	35.3	36.7	40.5	44.5	45.9	49.0	50.4	2.9%	53.7	6.5%	58.3	8.7%	53.5	6.3%	56.5	5.6%	55.3	103%	
<b>S&amp;P 500</b>	<b>969.9</b>	<b>977.2</b>	<b>986.2</b>	<b>1104.1</b>	<b>1320.6</b>	<b>1328.6</b>	<b>1201.3</b>	<b>1765.9</b>	<b>1848.2</b>	<b>4.7%</b>	<b>1871.7</b>	<b>1.3%</b>	<b>2088.2</b>	<b>11.6%</b>	<b>1859.5</b>	<b>0.6%</b>	<b>1985.5</b>	<b>6.8%</b>	<b>1847.0</b>	<b>99%</b>	
S&P ex. Energy (\$bn)	875.3	937.6	975.8	1067.0	1250.7	1279.4	1208.0	1686.9	1646.9	-2.4%	1728.3	4.9%	1942.5	12.4%	1699.5	3.2%	1815.5	6.8%	1708.8	101%	
S&P ex. Tech (\$bn)	807.4	809.1	809.8	896.3	1081.1	1095.4	936.8	1420.5	1495.6	5.3%	1512.1	1.1%	1671.5	10.5%	1509.5	0.9%	1604.5	6.3%	1485.0	98%	
S&P 500 Sales/Share (historical index)	\$1,163	\$1,127	\$1,151	\$1,232	\$1,339	\$1,415	\$1,362	\$1,567	\$1,753	11.9%											
S&P 500 Non-GAAP Net Margin	10.2%	10.4%	10.3%	10.7%	12.1%	11.5%	10.3%	13.3%	12.4%												

<b>S&amp;P 500 EPS</b>	<b>Year</b>	<b>1Q</b>	<b>2Q</b>	<b>3Q</b>	<b>4Q</b>
<b>2019A</b>	<b>163</b>	<b>39</b>	<b>41</b>	<b>41</b>	<b>42</b>
<b>2020A</b>	<b>140</b>	<b>33</b>	<b>28</b>	<b>38</b>	<b>42</b>
<b>2021A</b>	<b>210</b>	<b>49</b>	<b>53</b>	<b>54</b>	<b>54</b>
<b>2022A</b>	<b>222</b>	<b>55</b>	<b>58</b>	<b>56</b>	<b>53</b>
<b>2023E</b>	<b>220</b>	<b>53</b>	<b>55</b>	<b>55</b>	<b>57</b>

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 3/31/2023.

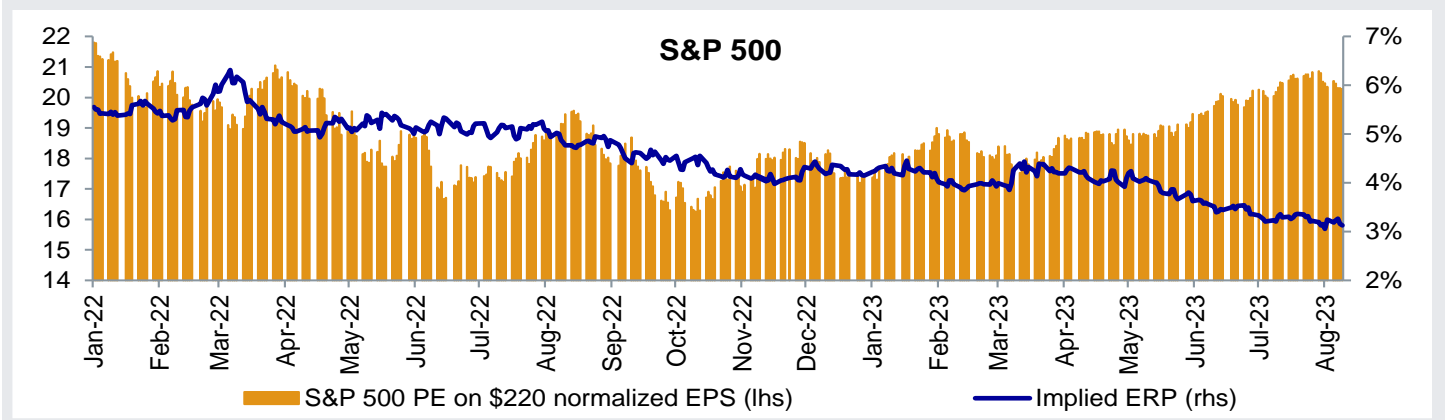
Source: Factset, DWS Investment GmbH as of 8/11/2023. Past performance may not be indicative of future results.

### S&P 500 PE and implied equity risk premium (ERP)



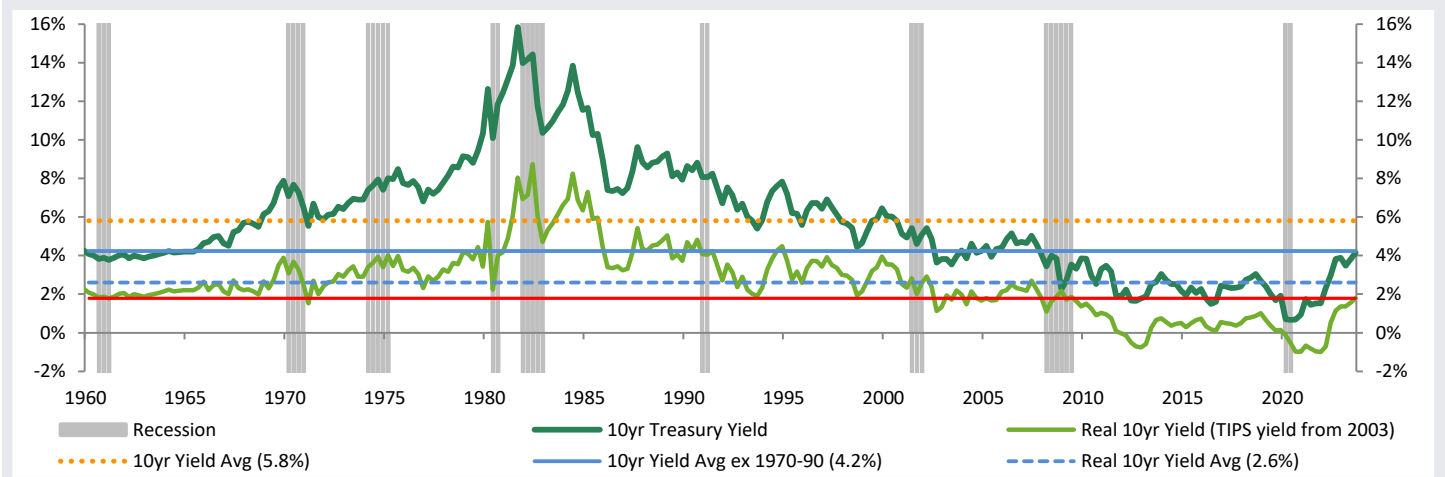
Red circle: ERP=2.9% implied by PE on our 2023 EPS estimate of \$220 and 2% assumed real 10 year interest rate  
 Yellow square: ERP=3.4% implied by PE on our 2023 EPS estimate of \$220 and 1.5% assumed real 10 year interest rate  
 Green triangle: ERP=3.9% implied by PE on our 2023 EPS estimate of \$220 and 1% assumed real 10 year interest rate  
 Source: IBES, Haver, DWS Investment GmbH as of 8/11/2023. Past performance may not be indicative of future results.

### S&P 500 PE on \$220 normalized EPS and implied equity risk premium (ERP)



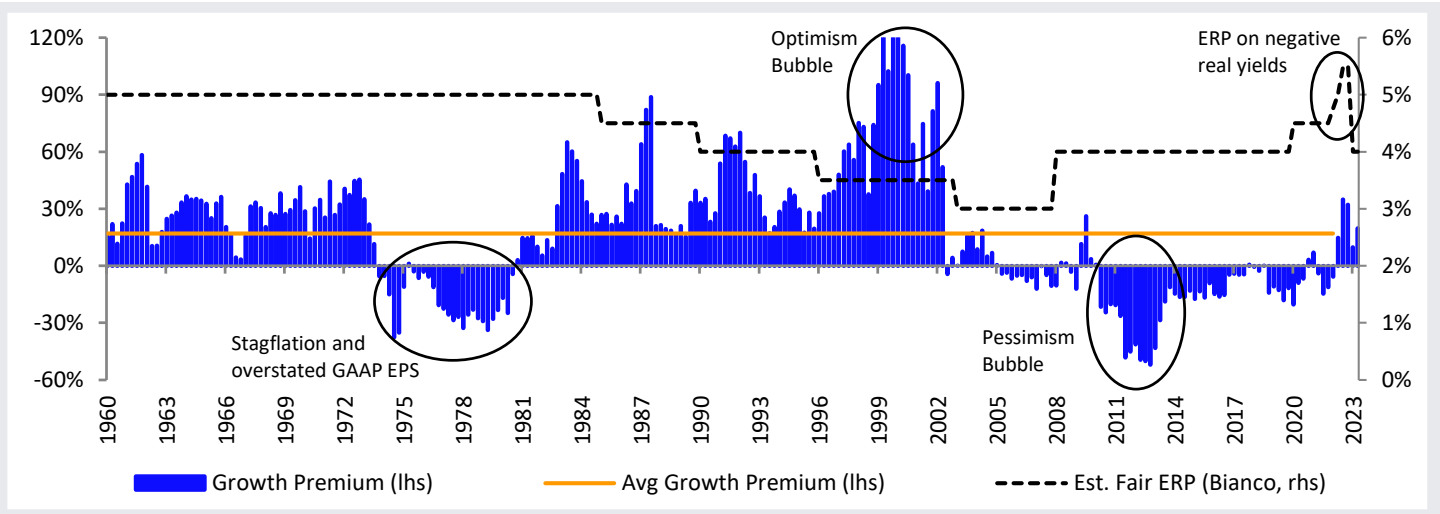
Source: Haver, DWS Investment GmbH as of 8/11/2023. Past performance may not be indicative of future results.

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



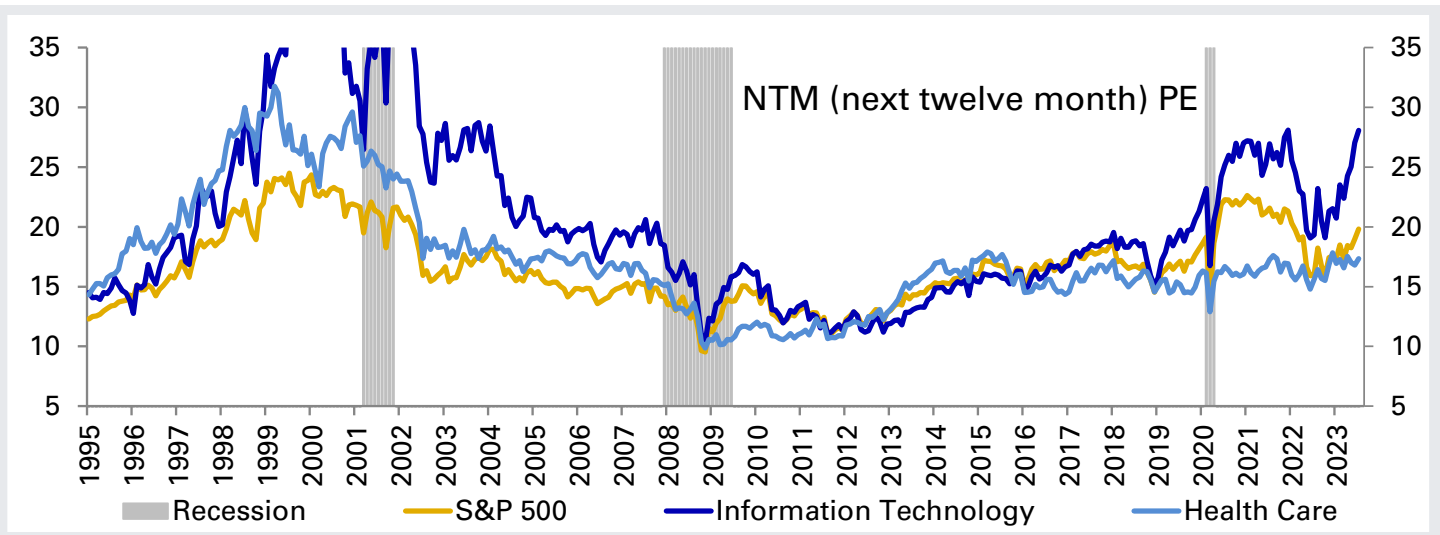
Source: Haver, DWS Investment GmbH as of 8/11/2023. Past performance may not be indicative of future results.

### S&P 500 and Tech sector implied growth premium



Source: Haver, Factset, DWS Investment GmbH as of 2Q2023. Past performance may not be indicative of future results.

### Trailing PE of S&P 500, Tech and Health Care



Source: Factset, DWS Investment GmbH as of 7/31/2023. Past performance may not be indicative of future results.

## Stock market behavior around the last Fed hike

The stock market doesn't perform well the year before or after the last Fed hike unless a soft landing occurs; which is when the hikes were enough to return inflation to target without causing a recession, such as 1967, 1985, 1995.

And the times the stock market did perform well 3-12 months after the last hike were usually off bear market lows from a recession in progress that caused the Fed to stop hiking, such as in 1974, 1980 and 1982. Other times the Fed stopped hiking without the onset of a recession and the market soon rallied was only after sharp market declines from non-recession events, such as the 20% decline in late 2018 and the 1987 crash and 1987-89 post crash market volatility.

Thus, much of the recent popular analysis on this topic, based on data after 1982, fails to capture that either the stock market was under great pressure in the period just before the last hike (typical for late cycle hiking) or gains after the last hike came from soft landings validated by the Fed cutting before any sign of a recession.

We're not sure if the Fed is truly done hiking yet and we don't think the Fed is going to validate a soft landing by cutting before a year from its last hike unless a recession with rapid damage to the labor market occurs.

General rules of thumb for investing around Fed rate cycles:

1. Don't sell the first hike, as this is confirmation of a recovery.
2. Don't buy the first cut, as this is usually the beginning of a recession.
3. Most Fed hiking cycles end badly for stocks.  
The last hike is usually the worst hike because the Fed usually only stops when something breaks. Examples are the recession bears of 1974, 1980, 1982, (Fed was hiking in 1987), 2000, 2007.
4. Soft landings have indeed occurred, even though many commentators often say they never have. 1995, 1985, 1967 are accepted by economists as soft landings. Equities performed well in these soft landings. In these years, the Fed cut modestly after a series of relatively aggressive hikes to fight inflation above target. The small cuts in these years came as inflation returned or stayed on target without a recession occurring.

### Fed hikes since 1960

Start Date of Fed Rate Hike *	Date of Rate Hike **	Late Cycle Signals ***	End 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 during Hike	10yr - 10yr -		Chg in 10yr - 10yr - (%)	Before Reaching Cycle (ar)	After Reaching Cycle (ar)	3m before Hike	Initial Reaction n ***	1m	3m	6m	12m	Date of First Hike		
																	Start (%)	End (%)												
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											
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	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		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		

Source: Haver, Factset, DWS Investment GmbH as of 8/14/2023. Past performance may not be indicative of future results.



S&P 500 industry monitor (1 of 2)

Sector	Industry	PE on 2022 EPS	PE on 2023 Consensus EPS	2023 Consensus EPS Growth	2024 Consensus EPS Growth	2023 EPS 3m Revision	3m Total Return Momentum	2023 End Upside (Intrinsic Valuation)	Combined Signal
<b>Consumer Discretionary</b>		35.4	23.7	30.4%	14.7%	12.3%	16.1%	-27.3%	1
	Automobile Components	20.6	13.4	23.2%	24.6%	-7.5%	6.2%	27.1%	0
	Automobiles	28.9	25.1	9.1%	5.5%	15.9%	37.9%	-38.4%	1
	Household Durables	8.6	9.5	-14.6%	6.3%	26.0%	10.3%	-12.5%	0
	Leisure Products	15.1	13.2	-3.9%	19.1%	-4.6%	8.6%	-19.1%	0
	Textiles Apparel & Luxury Goods	24.1	21.0	-0.1%	15.2%	-3.4%	-9.2%	-18.1%	-1
	Hotels Restaurants & Leisure	88.8	20.9	259.5%	17.9%	14.6%	5.9%	-12.9%	1
	Distributors	17.5	16.3	-1.8%	9.2%	-2.3%	-1.6%	0.0%	0
	Broadline Retail	120.5	41.6	109.8%	38.3%	45.3%	24.4%	-46.0%	1
	Specialty Retail	20.2	19.0	-1.3%	7.9%	-2.7%	7.8%	-11.2%	0
<b>Consumer Staples</b>		21.7	19.3	3.9%	8.2%	-0.7%	-1.7%	-6.7%	0
	Consumer Staples Distribution & Retail	23.7	20.8	3.2%	10.0%	-3.5%	1.5%	-5.4%	-1
	Food Products	16.1	16.1	-4.7%	5.0%	-0.9%	-6.3%	6.9%	0
	Beverages	26.5	22.1	10.9%	8.2%	2.8%	-2.5%	-7.2%	0
	Tobacco	12.9	11.4	5.2%	7.3%	-1.3%	0.8%	6.3%	0
	Household Products	27.5	23.1	9.6%	8.7%	2.3%	-1.0%	-22.5%	0
	Personal Care Products	25.0	28.9	-37.8%	38.9%	-32.0%	-15.5%	-5.8%	-1
<b>Energy</b>		9.5	12.0	-22.0%	2.1%	-8.8%	14.7%	-4.5%	-1
	Energy Equipment & Services	31.0	15.1	68.6%	21.5%	0.4%	36.0%	1.3%	1
	Oil Gas & Consumable Fuels	8.9	11.7	-24.7%	0.8%	-9.4%	13.0%	-5.1%	-1
<b>Financials</b>		15.6	13.3	8.0%	8.4%	-0.9%	10.0%	-7.0%	0
	Banks	10.0	9.5	9.9%	-4.3%	0.8%	17.0%	11.8%	1
	Financial Services	25.7	19.7	17.7%	11.0%	4.5%	7.0%	-13.8%	1
	Consumer Finance	9.0	10.1	-18.6%	9.2%	-5.5%	16.4%	-3.5%	-1
	Capital Markets	17.5	15.1	-1.4%	18.0%	-5.4%	10.9%	-27.1%	0
	Insurance	16.7	11.7	13.7%	25.3%	-5.3%	4.1%	5.9%	0
<b>Health Care</b>		16.6	17.0	-13.6%	12.8%	-4.5%	3.0%	2.9%	-1
	Health Care Providers & Services	16.5	14.0	7.5%	9.8%	0.0%	4.8%	10.6%	0
	Health Care Equipment & Supplies	26.3	23.7	1.6%	9.5%	0.8%	-3.4%	-0.3%	0
	Life Sciences Tools & Services	24.5	24.5	-10.7%	11.7%	-6.8%	5.3%	-16.3%	-1
	Biotechnology	12.3	15.7	-24.3%	3.4%	-0.6%	3.3%	15.0%	0
	Pharmaceuticals	14.0	15.3	-25.8%	22.6%	-11.5%	5.2%	6.6%	-1
<b>Industrials</b>		24.6	17.8	22.4%	12.9%	3.1%	11.0%	-15.1%	1
	Aerospace & Defense	45.4	19.7	80.3%	27.7%	-2.8%	4.0%	-7.3%	0
	Building Products	22.6	17.5	17.4%	10.0%	3.7%	12.1%	-18.5%	1
	Trading Companies & Distributors	22.3	16.8	24.3%	6.9%	0.6%	16.5%	-3.1%	1
	Electrical Equipment	24.8	21.2	5.4%	11.1%	6.0%	18.1%	-21.1%	1
	Construction & Engineering	32.2	23.8	14.6%	17.9%	0.9%	15.2%	-33.6%	1
	Industrial Conglomerates	22.0	18.4	-3.7%	24.1%	4.9%	6.6%	-22.3%	0

Combined signal rules: Green – at least 2 of the following 3 must be green: EPS growth, EPS revision, price momentum

Red – at least 2 of the following 3 must be red: EPS growth, EPS revision, price momentum

Source: Factset, DWS Investment GmbH as of 8/11/2023. Past performance may not be indicative of future results.

S&P 500 industry monitor (2 of 2)

Sector	Industry	PE on 2022 EPS	PE on 2023 Consensus EPS	2023 EPS Growth	2024 Consensus EPS Growth	2023 EPS 3m Revision	3m Total Return Momentum	2023 End Upside (Intrinsic Valuation)	Combined Signal
	Machinery	21.6	16.0	29.7%	3.8%	10.9%	17.7%	-11.8%	1
	Commercial Services & Supplies	34.5	27.7	11.8%	11.4%	1.4%	0.4%	-38.1%	0
	Professional Services	30.2	24.6	9.0%	12.7%	-0.2%	15.4%	-34.0%	0
	Air Freight & Logistics	13.7	15.8	-23.9%	13.6%	-10.3%	8.7%	-19.3%	-1
	Passenger Airlines	29.2	6.0	345.0%	10.2%	20.0%	20.8%	34.7%	1
	Ground Transportation	19.6	18.7	-5.7%	10.8%	-5.5%	10.8%	-5.0%	-1
<b>Information Technology</b>		<b>28.1</b>	<b>24.2</b>	<b>0.0%</b>	<b>15.9%</b>	<b>2.7%</b>	<b>11.1%</b>	<b>-25.2%</b>	<b>0</b>
	IT Services	21.0	18.6	5.5%	7.3%	0.1%	12.4%	-11.4%	0
	Software	36.1	27.3	15.9%	14.1%	3.0%	8.1%	-22.5%	0
	Communications Equipment	18.6	14.9	17.6%	6.2%	1.3%	13.5%	3.3%	1
	Technology Hardware Storage & Peripherals	27.0	25.3	-3.3%	10.6%	-0.1%	3.7%	-21.3%	0
	Electronic Equipment Instruments & Components	20.5	19.1	-5.0%	12.6%	-5.2%	10.0%	-25.0%	0
	Semiconductors & Semiconductor Equipment	25.1	23.1	-15.6%	28.8%	7.8%	24.9%	-37.0%	1
<b>Materials</b>		<b>14.1</b>	<b>17.4</b>	<b>-23.6%</b>	<b>6.2%</b>	<b>-4.2%</b>	<b>6.5%</b>	<b>-8.7%</b>	<b>-1</b>
	Chemicals	16.1	17.7	-19.6%	12.7%	-6.6%	5.2%	-8.0%	-1
	Construction Materials	39.3	24.9	36.0%	16.2%	17.9%	14.1%	-47.6%	1
	Metals & Mining	8.4	15.4	-36.2%	-14.1%	4.1%	9.5%	-1.7%	0
	Containers & Packaging	12.1	15.5	-26.5%	6.7%	-11.3%	6.2%	-3.4%	-1
<b>Real Estate</b>		<b>28.9</b>	<b>34.1</b>	<b>-19.2%</b>	<b>4.7%</b>	<b>4.3%</b>	<b>2.2%</b>	<b>-0.3%</b>	<b>-1</b>
	Industrial REITs	28.4	44.1	-32.5%	-4.6%	5.6%	-0.6%	-14.3%	-1
	Hotel & Resort REITs	14.4	17.9	-11.1%	-9.5%	22.6%	-1.8%	71.9%	-1
	Office REITs	21.5	30.0	-40.9%	21.3%	-7.8%	13.9%	9.6%	-1
	Health Care REITs	99.4	78.6	-5.3%	33.5%	47.8%	2.2%	1.3%	0
	Residential REITs	29.9	41.4	-19.8%	-10.0%	19.2%	3.1%	-0.6%	0
	Retail REITs	29.6	27.6	8.3%	-1.1%	3.9%	6.4%	12.2%	0
	Specialized REITs	27.3	31.7	-20.4%	8.3%	0.4%	0.0%	4.4%	-1
Real Estate Management & Development	24.5	26.3	-24.1%	22.7%	-4.8%	10.9%	-49.1%	-1	
<b>Communication Services</b>		<b>19.9</b>	<b>15.9</b>	<b>6.1%</b>	<b>18.1%</b>	<b>7.9%</b>	<b>11.5%</b>	<b>-12.0%</b>	<b>1</b>
	Diversified Telecommunication Services	5.7	6.5	-13.2%	1.0%	0.3%	-11.5%	15.8%	-1
	Wireless Telecommunication Services	79.5	13.9	326.0%	34.3%	6.4%	-4.0%	16.5%	1
	Media	13.0	11.3	1.5%	13.4%	1.6%	13.0%	-15.1%	0
	Entertainment	30.5	21.6	-4.9%	48.0%	-11.5%	10.1%	-10.9%	0
	Interactive Media & Services	26.6	19.0	16.1%	20.3%	17.9%	15.8%	-13.2%	1
<b>Utilities</b>		<b>18.4</b>	<b>16.0</b>	<b>5.4%</b>	<b>8.6%</b>	<b>0.1%</b>	<b>-5.7%</b>	<b>8.6%</b>	<b>0</b>
	Multi-Utilities	17.2	16.1	1.6%	5.3%	-1.1%	-6.0%	3.0%	0
	Water Utilities	32.7	27.3	11.8%	7.0%	0.8%	-5.9%	-18.9%	0
	Gas Utilities	20.8	17.9	8.8%	6.8%	0.6%	-0.8%	-5.2%	0
	Electric Utilities	18.7	15.9	7.0%	10.1%	0.7%	-5.5%	15.5%	0
	Independent Power and Renewable Electricity Producers	11.9	10.1	4.9%	12.5%	-0.6%	-11.2%	15.9%	0
<b>S&amp;P 500</b>		<b>20.5</b>	<b>18.3</b>	<b>0.2%</b>	<b>11.7%</b>	<b>0.7%</b>	<b>8.8%</b>	<b>-13.8%</b>	<b>0</b>

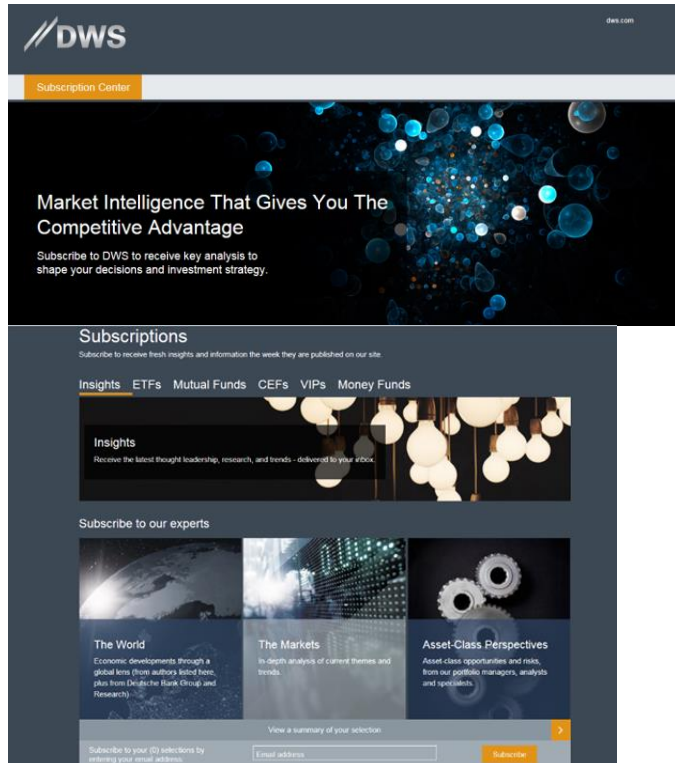
Source: Factset, DWS Investment GmbH as of 7/27/2023. Past performance may not be indicative of future results.

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