

Manufacturing & Digital recession = S&P 500 profit recession, but not for jobs



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Manufacturing starts year with further weakness; on demand, not supply strains
The US manufacturing ISM weakened to 47.4 for January and the forward-looking new orders index deteriorated to 42.5 in January vs. 48.4 in December. This week's Industrial Production report for January was flat overall, but December was revised to a larger decline and capacity utilization slipped to 78.3%. The Empire State and Philly Fed regional manufacturing surveys reported early February indications that were both still in contraction with Philly sharply diving this month after the Empire took a dive last month.

Weakness in goods production appears to be much more about demand than supply, as inventories are rising. While some supply chain challenges remain, overall availability of inputs is good; albeit more costly as January's PPI report shows. Goods demand weakness is centered at consumer durable goods on a combination of lesser affordability from higher prices and financing costs and consumers diverting their spending power to services and higher priced staple items like food. Some industries did show January production improvement, such as auto, electronics, metals and machinery. But such production problem fix bounce backs are into soft end demand suggesting more price pressure risk.

Past profit recessions from weak manufacturing, but now digital is weak too
GDP and jobs recessions are usually accompanied with sharp S&P 500 profit declines and the manufacturing ISM always falls into contraction territory during recessions. But there were several times when S&P 500 earnings declined out of economic recessions, such as 1967, 1985-86, 1998 and 2015-2016. All of these "profit recessions" were accompanied by the mfg. ISM dipping below 50 for an extended period. The mfg. ISM has now been below 50 since November 2022. Whether the economy slips into recession or not, there are now clear signs of a profit recession in progress led by manufacturing. But in addition to manufacturing and goods demand weakness, there is weakness or at least a pause in growth at the digital economy too. Manufacturing & Digital are two-thirds of S&P 500 EPS. Only Financials and Healthcare are sectors without macro headwinds right now, but even at these sectors we expect very little earnings growth in 2023. Thus, while S&P EPS can still be flat in 2023 with 2H growth, it's likely a very broad-based stall in earnings growth.

Still tracking 4Q22 results: S&P 4Q22 EPS likely \$53.50 and \$222.50 for 2022
S&P 4Q22 earnings are near 90% reported, 4Q EPS will likely finish at \$53.50 or -3% y/y, which puts 2022 full year S&P EPS at about \$222.50. Analyst consensus bottom-up 2023 S&P EPS has been cut significantly from \$234 on Nov 1st last year to \$224 now, mostly at 1Q and 2Q. Our long standing forecasts are \$225 for full 2023 and \$53 and \$56 for 1Q and 2Q, both down 3-4% on y/y basis. We still expect S&P EPS y/y growth to be positive in the 2H of 2023. But we see downside risks to our forecasts given the weak macro signals at goods and very cautious company commentaries at digital during 4Q earnings season. Our 2H estimates require better industrial activity or a weaker dollar and higher oil prices.

The fight with inflation isn't over: Taming service inflation is the big challenge
We've argued that the fight with inflation isn't over and the most difficult part lies ahead to get it consistently under 4% and back toward 2%. Time is running out for this to be achieved before lasting damage is done to long-term inflation expectations and what the bond market demands as an adequate long-term inflation risk premium. Goods disinflation was the easy part, albeit commodity inflation risk remains. Such as the recent further jump in food prices show. This should subside, yet energy cost risks remain. Nevertheless, the key issue is taming services inflation amidst an extremely tight labor market that isn't happy about pay. Price increases are outpacing wage growth and wage growth is outpacing productivity. This is misery for both workers and employers. This won't be fixed without improved productivity. But better productivity will be difficult to achieve if the Fed doesn't soon stop the economic uncertainty and dysfunction that comes from high and volatile inflation. Upon the January jobs, inflation and retail spend reports, the bond market reversed expectations for rate cuts in late 2023 and drove up the expected terminal Fed Funds rate and Treasury yields across the curve. Rising real yields usually pressure stocks, particularly when PEs are high and EPS isn't depressed from a recent recession. The YTD rally pushed the median forward PE of S&P 500 stocks to 20.2 vs. 17.8 average of medians since 1995.

We now consider the risk of a near-term S&P 500 10%+ correction to be high
Our next 5%+ S&P 500 price move signal remains Down and we adjust risk of a 10%+ correction from Moderate to High. Our favored S&P sectors remain: Health Care, Communications, Banks. Least favored: Consumer Discretionary, Materials and now Tech.

Contributor: Ju Wang, Portfolio Manager Equity

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

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%	36.5%
Equities	55-60%	54.0%
US Equities	40%	35.0%
S&P 500	35%	32.0%
Small Caps	0-10%	3.0%
Foreign DM	10-15%	11.5%
Foreign EM	0-10%	7.5%
Alternatives	10%	9.5%

Key CIO Views		
Macro signal:	Feb 2023	Dec 2023F
U.S. Fed Funds rate	4.50%-4.75%	5%-5.25%
10yr Treasury yield	3.80%	4.20%
US IG Corp Spreads	160bp	130bp
US High Yield Spreads	465bp	500bp
Crude Oil (WTI) \$/bbl	79	100
EUR / USD FX rate	1.07	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 2/21/2023 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.

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	14.5%	19.7%	Health Care	16.9	16.0	16.6	Biotechnology Health Care Equipment & Supplies Pharmaceuticals	11.9 23.8 15.1	12.5 23.9 13.0	13.6 24.0 14.1	Health Care Providers & Services Life Sciences Tools & Services	17.8 24.7	16.6 26.4	16.0 26.4					
	7.8%	11.6%	Communication Services	14.5	16.5	16.0	Diversified Telecommunication Servi Entertainment Interactive Media & Services Media	6.4 28.6 15.8 12.4	7.5 29.2 19.1 11.6	8.4 24.7 17.8 12.3	Wireless Telecommunication Servi	62.0	59.7	29.8					
	4.7%	5.8%	Energy	20.6	8.1	9.4	Energy Equipment & Services	40.5	24.1	15.6	Oil Gas & Consumable Fuels	19.8	7.6	9.1					
	2.7%	3.7%	Real Estate	19.9	18.4	18.0	Real Estate Mgmt. & Development REITs	16.7 20.4	14.9 18.6	16.6 18.1									
	11.6%	12.3%	Financials	12.3	14.7	13.8	Banks Insurance	9.1 15.3	11.2 17.9	10.6 14.2	Diversified Financial Services	26.4	21.2	21.6	Capital Markets Consumer Finance	14.6 7.7	18.4 9.6	18.3 10.5	
	2.9%	3.4%	Utilities	20.2	19.0	18.3	Electric Utilities	21.8	19.9	18.8	Gas Utilities Independent Power & Renewable E Multi-Utilities	22.3 8.0 18.9	21.8 8.4 18.5	20.3 10.0 17.7	Water Utilities	37.6	34.0	32.0	
	Under-weight	8.5%	7.6%	Industrials	27.6	21.5	20.7	Aerospace & Defense Airlines Electrical Equipment Road & Rail	34.3 -5.6 24.4 21.3	31.3 17.8 21.7 18.2	23.9 9.5 22.0 18.2	Industrial Conglomerates	22.4	21.3	22.3	Air Freight & Logistics Building Products Commercial Services & Supplies Construction & Engineering Machinery Professional Services Trading Companies & Distributors	13.7 21.6 34.8 24.6 22.4 29.7 27.8	13.8 19.8 30.9 20.9 19.5 29.9 21.3	16.3 21.5 29.6 19.8 20.5 29.9 21.3
6.7%		4.9%	Consumer Staples	22.1	21.6	21.2	Beverages	26.7	25.2	24.2	Personal Products	36.9	39.8	39.8	Food Products Food & Staples Retailing Household Products Tobacco	18.6 24.6 24.1 13.8	17.3 23.4 25.1 14.1	17.7 22.9 24.4 13.7	
27.2%		25.1%	Information Technology	24.5	24.0	23.7	Communications Equipment IT Services	17.9 26.1	16.7 22.9	15.9 21.6	Electronic Equipment	23.2	22.0	21.5	Semiconductors Software Technology Hardware Storage & Per	18.8 30.7 24.6	21.9 28.3 23.8	24.0 26.5 23.8	
2.7%		0.0%	Materials	16.0	14.8	17.3									Chemicals Construction Materials Containers & Packaging Metals & Mining	17.6 33.3 14.3 10.6	15.8 31.9 13.1 10.8	17.1 31.9 14.9 17.3	
10.7%		6.0%	Consumer Discretionary	28.2	27.3	25.8	Auto Components	26	23.5	19.4	Hotels Restaurants & Leisure Textiles Apparel & Luxury Goods	16360 27.4	78.2 29.2	29.1 28.3	Automobiles Distributors Household Durables Internet & Direct Marketing Retail Leisure Products Multiline Retail Specialty Retail	29.1 21.0 8.3 30.3 11.3 16.8 20.8	22.6 19.3 7.4 50.1 12.8 23.2 19.7	25.7 19.9 11.4 44.6 12.8 23.2 19.2	
							Overweight	16.6	16.7	16.1	Equalweight	25.3	17.6	17.8	Underweight	20.1	20.8	21.7	
		S&P 500						4079				2020, 2021 & 2022 EPS	207.99	222.50	223.00	2020, 2021 & 2022 PE	19.6	18.3	18.3
												Bottom-up Consensus EPS	208.03	222.22	225.00	Bottom-up Cons. PE	19.6	18.4	18.1
															2020, 2021 & 2022 Ex Energy PE	19.5	19.5	19.3	
															Btm-up Cons. Ex Energy PE	19.4	19.6	18.9	

Sector OW	12.20%
Sector UW	-12.20%
Industry OW	22.67%
Industry UW	-22.67%

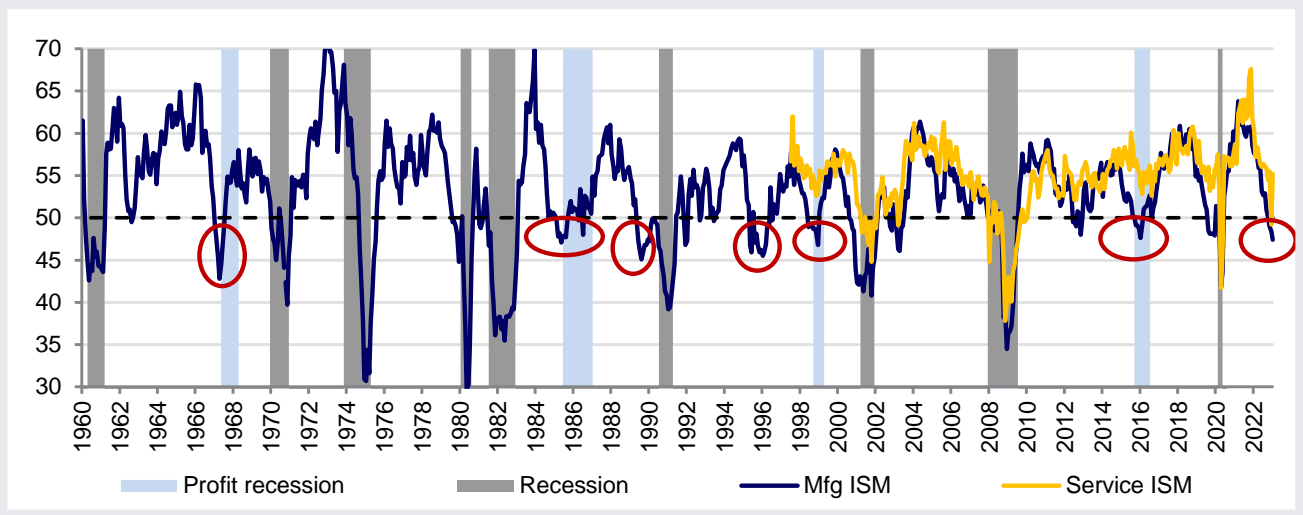
Macro tilts:	
Cyclicals	-3.01%
Defensive	3.12%
Value	-5.58%
Growth	5.58%
Consumer	-6.40%
Services/experience	0.13%
Disc. Goods	-0.50%
Retailing	-0.64%
Durables	0.16%
Staples Goods/Retail	-1.32%
Commodity	-1.46%
Energy	0.82%
Metals/Chemicals	-2.28%
Capex	3.43%
Capacity additions	0.42%
Productivity	3.01%
Health Care	4.34%
Innovation	2.46%
Marketers	1.49%
Insurers	0.26%
Financials	0.83%
Up rates/low spreads	2.35%
Capital Markets	-2.44%
Insurance	0.92%
Bond Substitutes	1.86%
Weak FX \$ plays	0.88%
High R&D plays	3.68%
Transports	-0.24%
Geopolitical risk	1.59%
Weak oil prices	-0.72%
Inflation shock	5.56%
Domestic GDP	-2.28%
Global GDP	-6.01%
Consumer TMT	0.90%
Trade sensitive	-3.11%

Note: More details on sector earnings forecast and sector intrinsic valuation can be found towards the back of this note.

Price as of 2/17/2023

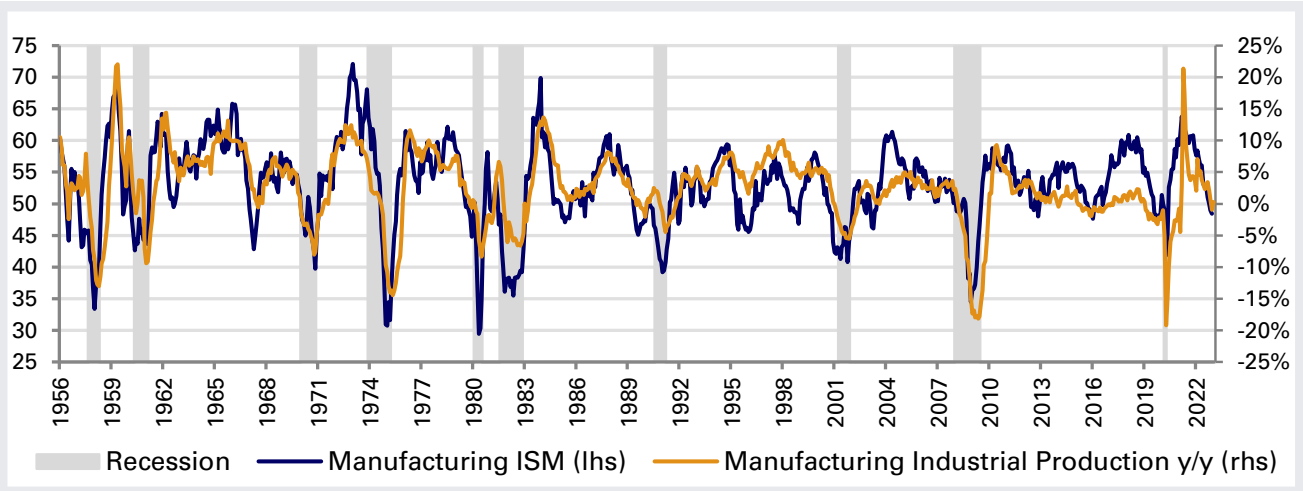
Source: DWS Investment Management GmbH

U.S. manufacturing and services ISM



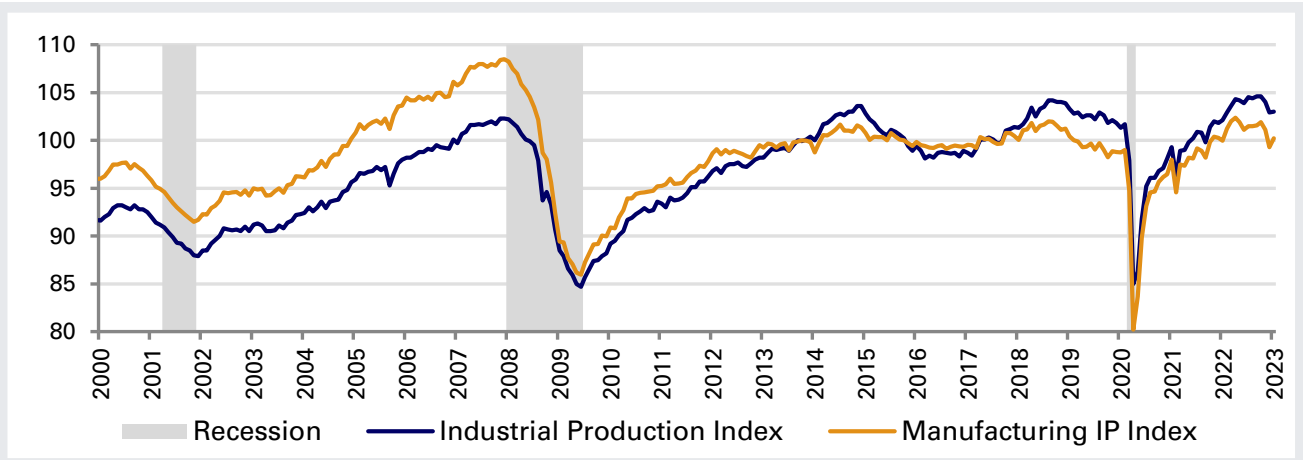
Source: ISM, Haver, DWS Investment GmbH as of 1/31/2022. Past performance may not be indicative of future results.

Manufacturing ISM vs. manufacturing industrial production y/y



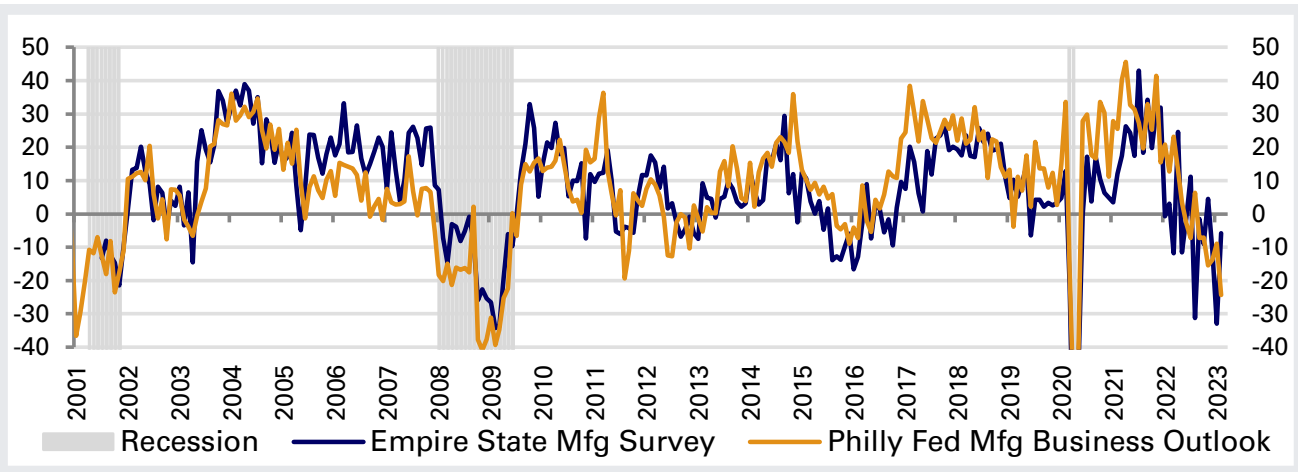
Source: ISM, FRB, Haver, DWS Investment GmbH as of 1/31/2023. Past performance may not be indicative of future results.

Industrial production: When will the US manufacturing renaissance begin?



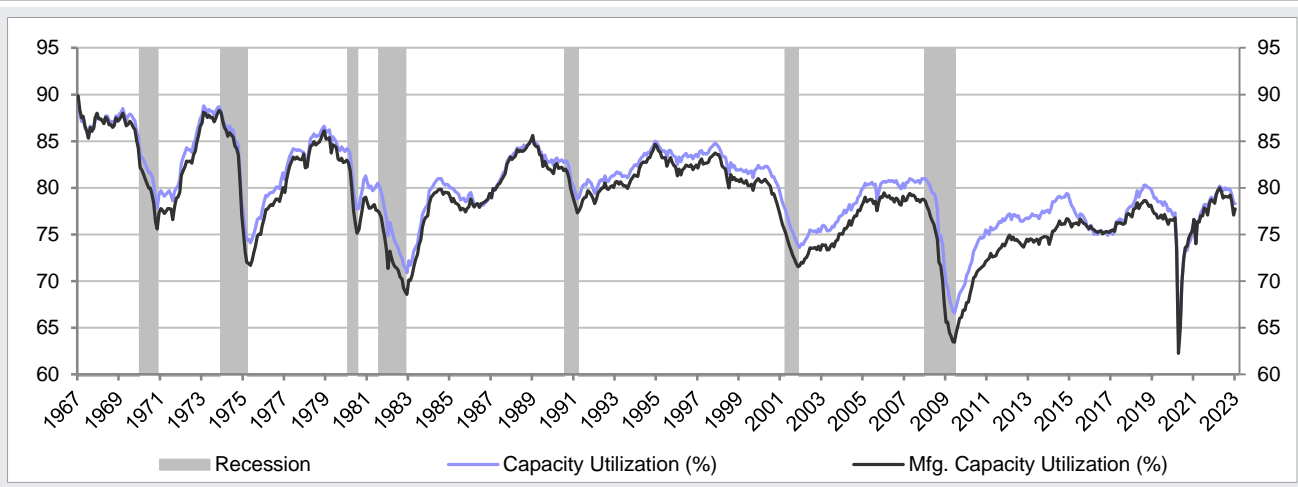
Source: FRB, Haver, DWS Investment GmbH as of 1/31/2023. Past performance may not be indicative of future results.

Empire state manufacturing survey and Philly Fed manufacturing business outlook



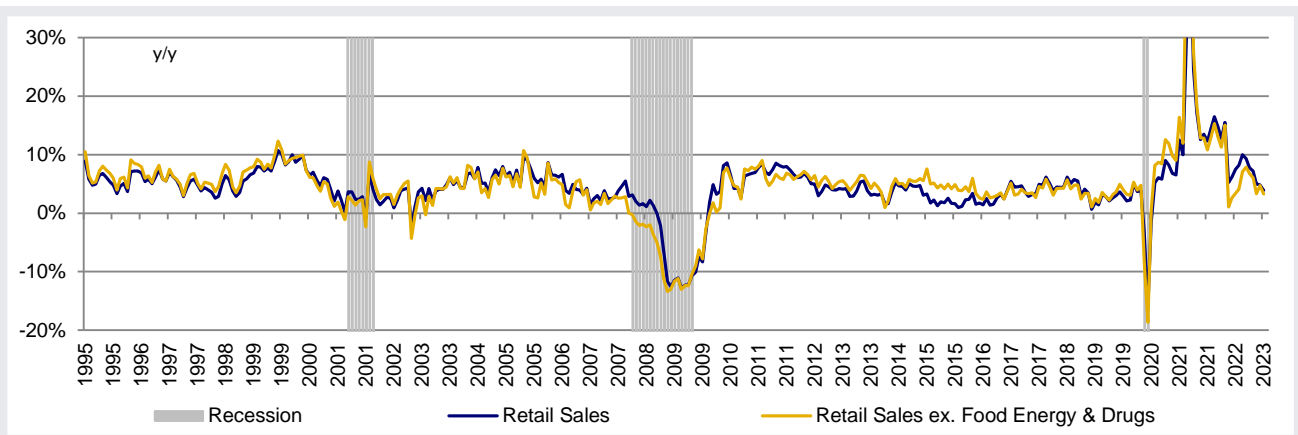
Source: Federal Reserve Bank of New York, Federal Reserve Bank of Philadelphia, Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

Capacity utilization



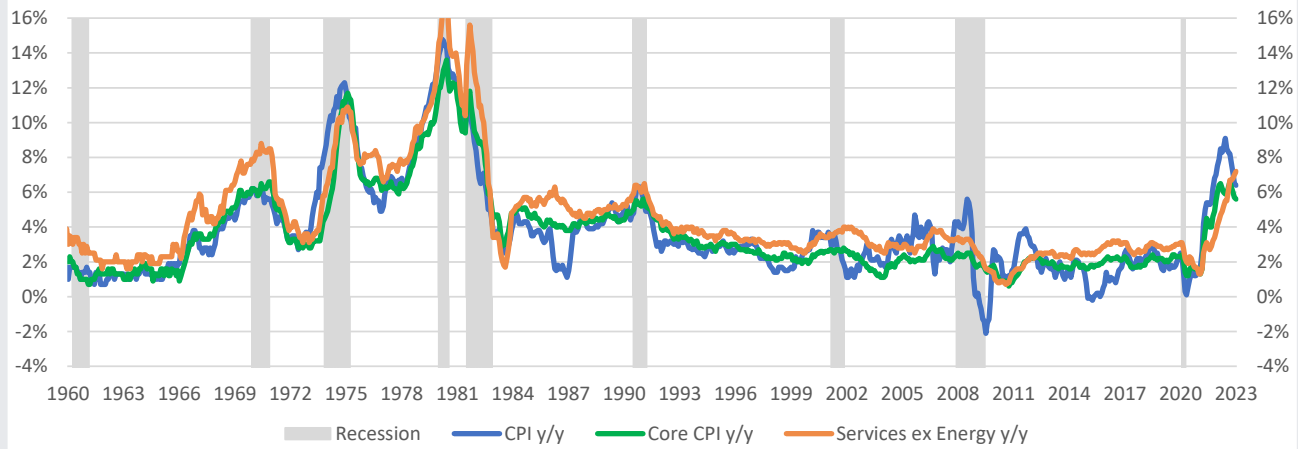
Source: FRB, Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

Retail sales y/y



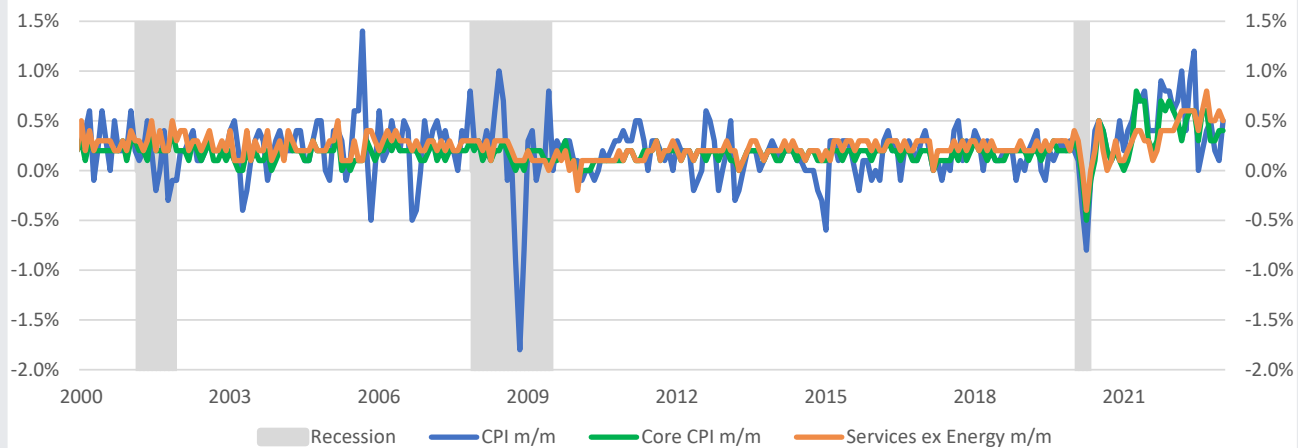
Source: Census Bureau, Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

CPI (Consumer Price Indexes) y/y



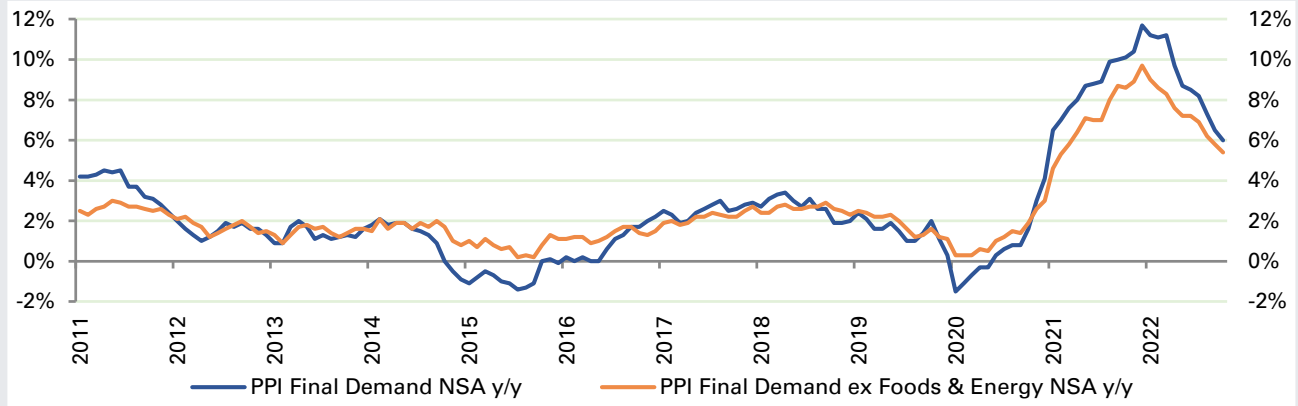
Source: Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

CPI (Consumer Price Indexes) m/m



Source: Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

PPI (Producer Price Indexes)



Source: Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

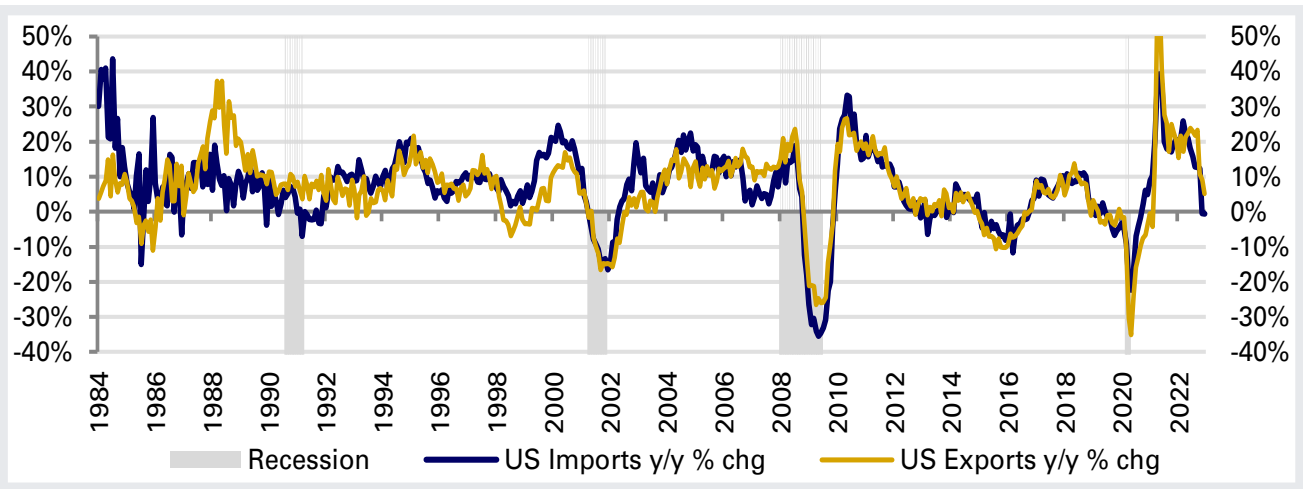
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Consumer Prices CPI m/m

	Jan-23	Dec-22	Nov-22	Oct-22	Sep-22	Aug-22	Jul-22	Jun-22	May-22	Apr-22	Mar-22	Feb-22
Expenditure Category												
All items	0.5	0.1	0.2	0.5	0.4	0.2	0.0	1.2	0.9	0.4	1.0	0.7
Food	0.5	0.4	0.6	0.7	0.8	0.8	1.1	1.0	1.1	0.8	0.9	1.0
Food at home	0.4	0.5	0.6	0.5	0.7	0.8	1.3	1.0	1.3	0.9	1.3	1.3
Food away from home	0.6	0.4	0.5	0.9	0.9	0.9	0.7	0.9	0.7	0.6	0.3	0.4
Energy	2.0	-3.1	-1.4	1.7	-1.7	-3.9	-4.7	6.9	3.4	-1.0	8.2	2.7
Energy commodities	1.9	-7.2	-2.1	3.7	-4.1	-8.0	-7.9	9.6	3.8	-2.6	13.4	4.7
Energy services	2.1	1.9	-0.6	-0.7	1.2	1.8	0.0	3.1	2.8	1.3	1.4	0.3
All items less food and energy	0.4	0.4	0.3	0.3	0.6	0.6	0.3	0.6	0.6	0.5	0.3	0.5
Commodities less food and energy commodities	0.1	-0.1	-0.2	-0.1	0.0	0.4	0.1	0.6	0.6	0.1	-0.4	0.3
Services less energy services	0.5	0.6	0.5	0.5	0.8	0.6	0.4	0.6	0.6	0.6	0.6	0.5
Shelter	0.7	0.8	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.6
Special aggregate indexes												
All items less food	0.5	0.1	0.1	0.5	0.4	0.1	-0.2	1.2	0.9	0.3	1.0	0.7
All items less shelter	0.4	-0.2	0.0	0.4	0.3	0.0	-0.3	1.5	1.1	0.3	1.2	0.8
All items less food and shelter	0.4	-0.4	-0.2	0.3	0.1	-0.2	-0.7	1.6	1.1	0.2	1.3	0.7
All items less food, shelter, and energy	0.2	0.1	0.1	0.1	0.5	0.5	0.1	0.6	0.6	0.5	0.2	0.4
All items less food, shelter, energy, and used cars and trucks	0.3	0.3	0.3	0.2	0.6	0.6	0.2	0.6	0.5	0.6	0.6	0.5
All items less medical care	0.6	0.1	0.3	0.6	0.4	0.2	-0.1	1.2	1.0	0.4	1.0	0.8
All items less energy	0.4	0.4	0.3	0.4	0.6	0.6	0.4	0.7	0.7	0.5	0.4	0.5
Commodities	0.4	-0.7	-0.2	0.6	-0.2	-0.5	-0.6	1.8	1.2	0.0	1.6	1.0
Commodities less food, energy, and used cars and trucks	0.5	0.3	0.1	0.2	0.3	0.6	0.4	0.6	0.3	0.3	0.3	0.5
Commodities less food	0.3	-1.3	-0.6	0.5	-0.7	-1.1	-1.5	2.2	1.2	-0.4	1.9	1.0
Commodities less food and beverages	0.3	-1.4	-0.6	0.5	-0.7	-1.2	-1.5	2.3	1.2	-0.4	1.9	1.0
Services	0.6	0.7	0.4	0.4	0.8	0.7	0.4	0.8	0.8	0.7	0.6	0.5
Services less rent of shelter (11)	0.6	0.6	0.1	0.0	1.0	0.7	0.1	1.1	0.7	0.9	0.8	0.4
Services less medical care services	0.8	0.7	0.5	0.6	0.8	0.7	0.4	0.8	0.7	0.8	0.7	0.5
Durables	-0.1	-0.8	-0.8	-0.6	-0.1	0.3	0.3	0.5	0.2	0.0	-0.4	0.5
Nondurables	0.8	-0.7	0.0	0.8	-0.1	-0.9	-0.8	2.3	1.5	0.2	2.8	1.4
Nondurables less food	0.9	-2.2	-0.3	1.3	-1.2	-2.7	-3.0	4.2	2.0	-0.2	3.8	2.1
Nondurables less food and beverages	1.0	-2.3	-0.4	1.3	-1.3	-2.8	-3.3	4.5	2.2	-0.2	4.1	2.2
Nondurables less food, beverages, and apparel	1.2	-3.0	-0.6	1.7	-1.5	-3.5	-4.0	5.3	2.5	-0.3	5.3	2.5
Nondurables less food and apparel	1.1	-2.8	-0.5	1.7	-1.4	-3.3	-3.7	4.9	2.3	-0.3	4.9	2.3
Housing	0.8	0.7	0.5	0.6	0.7	0.8	0.5	0.8	0.8	0.6	0.7	0.6
Education and communication (1)	0.4	0.1	0.7	0.0	0.1	0.1	-0.1	0.1	-0.1	-0.1	-0.2	0.0
Education (1)	0.3	0.3	0.3	0.2	0.3	0.5	0.2	0.3	0.3	0.2	0.3	0.2
Communication (1)	0.4	0.0	0.9	-0.2	-0.1	-0.1	-0.3	0.0	-0.3	-0.4	-0.5	-0.1
Recreation (1)	0.5	0.2	0.5	0.8	0.1	0.3	0.4	0.3	0.4	0.4	0.2	0.7
Video and audio (1)	0.6	-0.4	0.5	0.7	-0.1	-0.4	-0.4	0.2	0.8	0.4	-0.2	0.2
Pets, pet products and services (1)	0.6	-0.1	0.6	0.8	1.1	1.1	0.9	0.7	0.3	0.9	2.0	1.2
Photography (1)	1.6	1.1	-0.3	-0.3	0.4	0.9	1.0	-0.4	1.1	0.8	0.7	0.1
Food and beverages	0.5	0.5	0.6	0.7	0.7	0.8	1.0	1.0	1.1	0.8	0.9	1.0
Domestically produced farm food	0.7	0.3	0.0	0.6	0.6	0.7	1.4	1.1	1.3	1.3	1.6	1.4
Other services	0.6	0.2	0.9	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.4
Apparel less footwear	1.0	0.4	0.2	0.0	0.1	0.5	-0.1	0.5	0.4	-0.2	0.4	0.5
Fuels and utilities	1.6	0.9	-0.3	0.0	0.9	1.3	-0.2	2.3	2.7	1.3	1.7	0.5
Household energy	1.8	1.0	-0.5	0.0	0.9	1.5	-0.4	2.8	3.4	1.6	2.2	0.5
Medical care	-0.4	0.3	-0.4	-0.3	0.7	0.6	0.4	0.6	0.4	0.4	0.5	0.2
Transportation	0.4	-1.6	-0.7	0.7	-0.4	-1.6	-2.3	3.3	1.8	-0.1	2.8	1.3
Private transportation	0.5	-1.7	-0.7	0.8	-0.5	-1.6	-2.0	3.6	1.4	-0.4	2.6	1.3
Utilities and public transportation	1.3	0.6	0.3	-0.1	0.6	0.7	-0.3	1.2	2.0	1.6	1.1	0.4
Household furnishings and operations	0.3	0.3	0.1	0.2	0.4	0.8	0.6	0.5	0.5	0.5	0.9	0.7
Other goods and services	0.6	-0.1	0.7	0.5	0.3	0.7	0.4	0.5	0.5	0.4	0.5	1.1
Personal care	0.6	-0.1	0.7	0.5	0.4	0.6	0.4	0.4	0.4	0.4	0.5	1.2

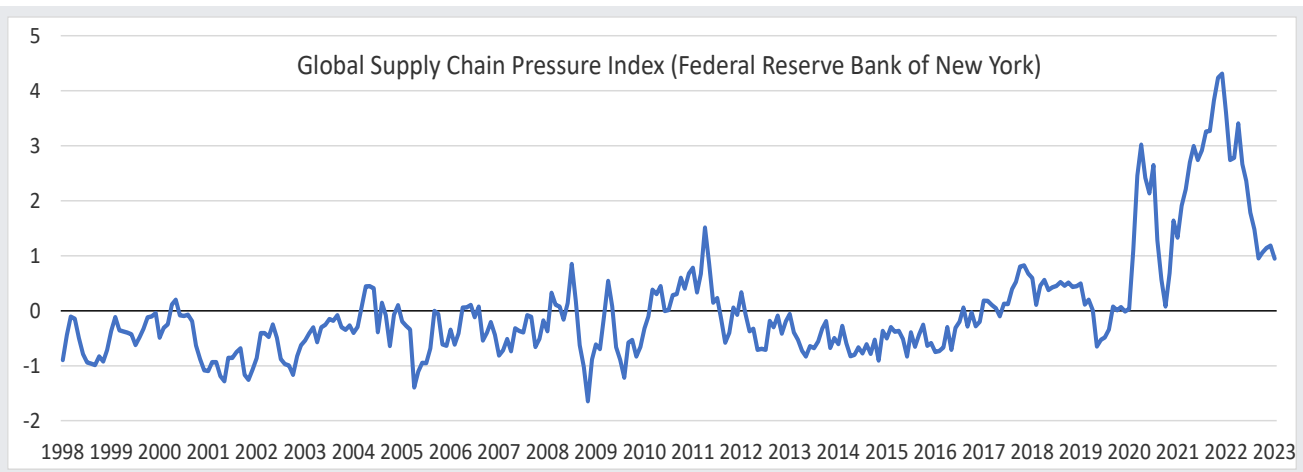
Source: Factset, IBES, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

U.S. exports and imports



Source: Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

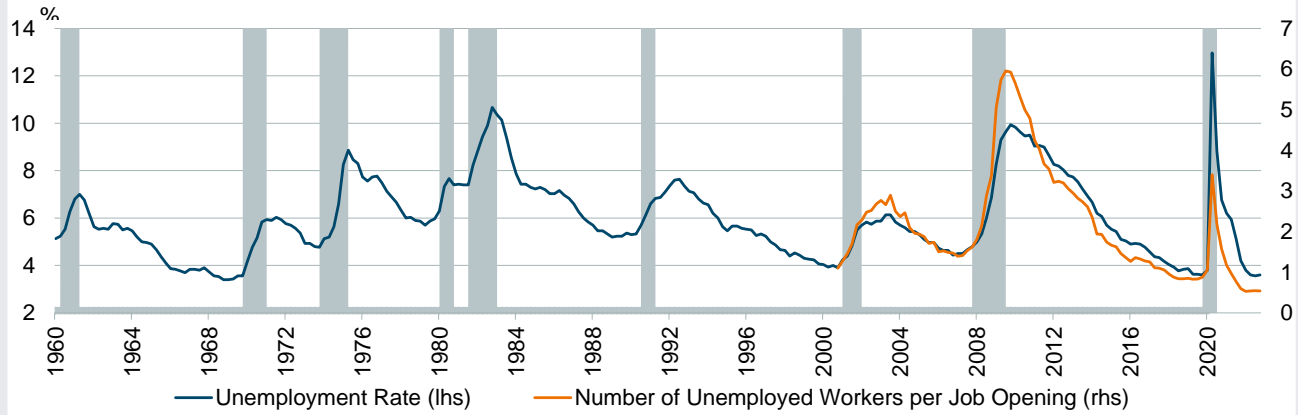
Global supply chain pressure index



Note: The GSCPI integrates a number of commonly used metrics with the aim of providing a comprehensive summary of potential supply chain disruptions. Global transportation costs are measured by employing data from the Baltic Dry Index (BDI) and the Harpex index, as well as airfreight cost indices from the U.S. Bureau of Labor Statistics. The GSCPI also uses several supply chain-related components from Purchasing Managers' Index (PMI) surveys, focusing on manufacturing firms across seven interconnected economies: China, the euro area, Japan, South Korea, Taiwan, the United Kingdom, and the United States.

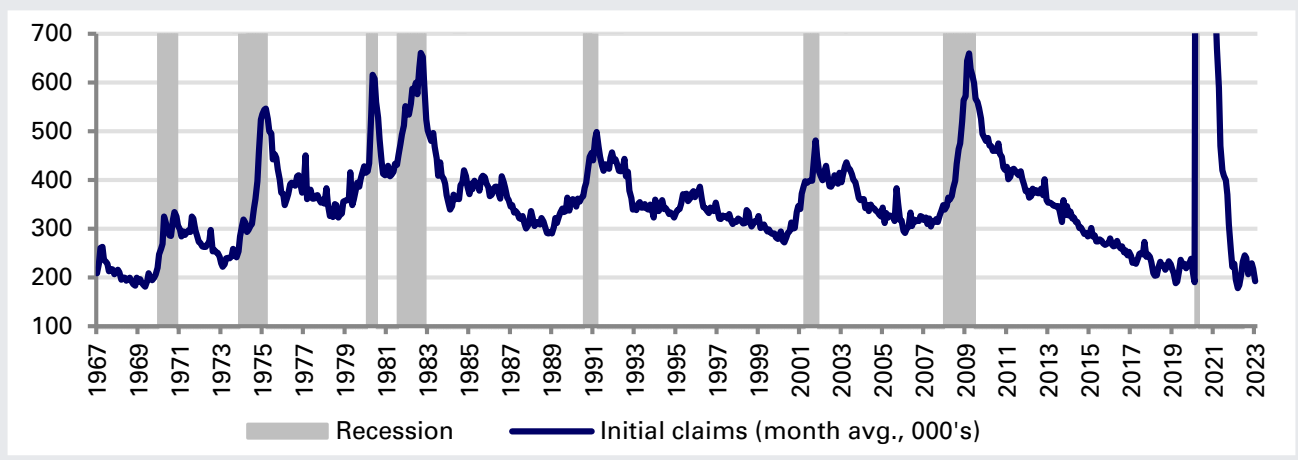
Source: Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

U.S. unemployment rate



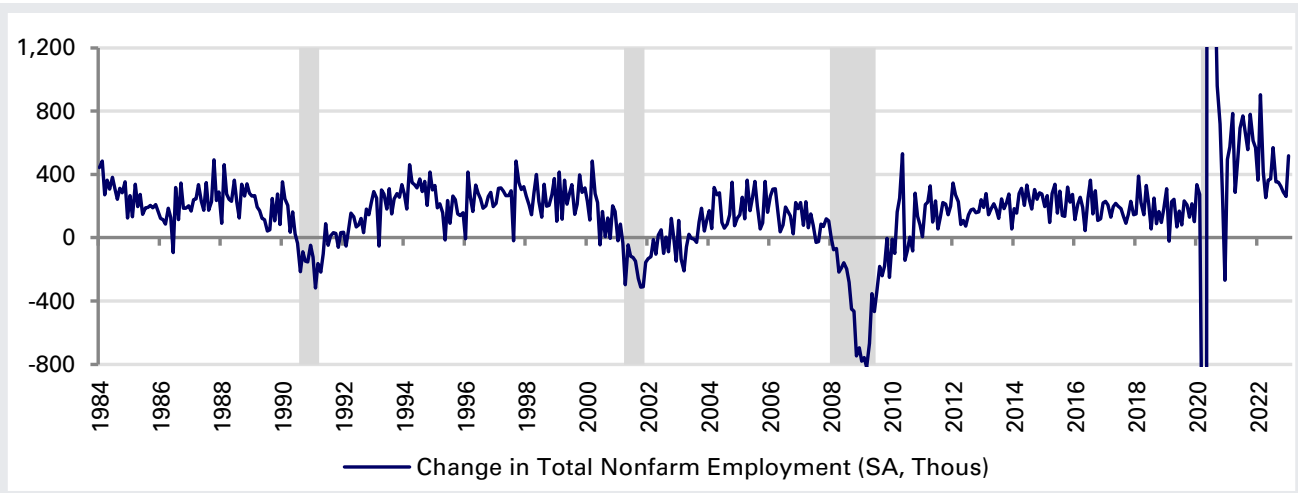
Source: Census Bureau, Haver, DWS Investment GmbH as of 4Q2022. Past performance may not be indicative of future results.

Initial jobless claims



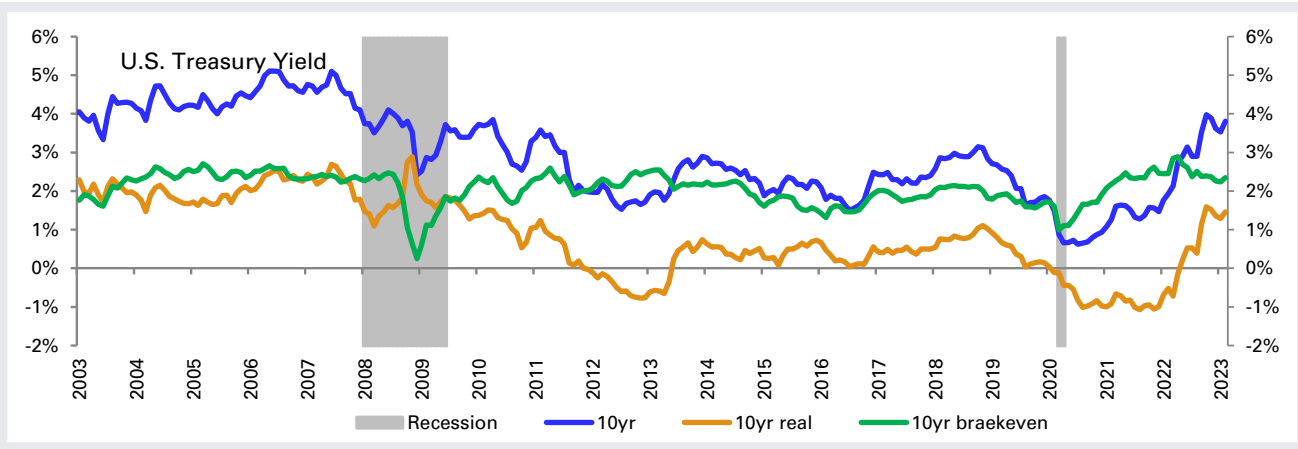
Source: Census Bureau, Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

Nonfarm payrolls



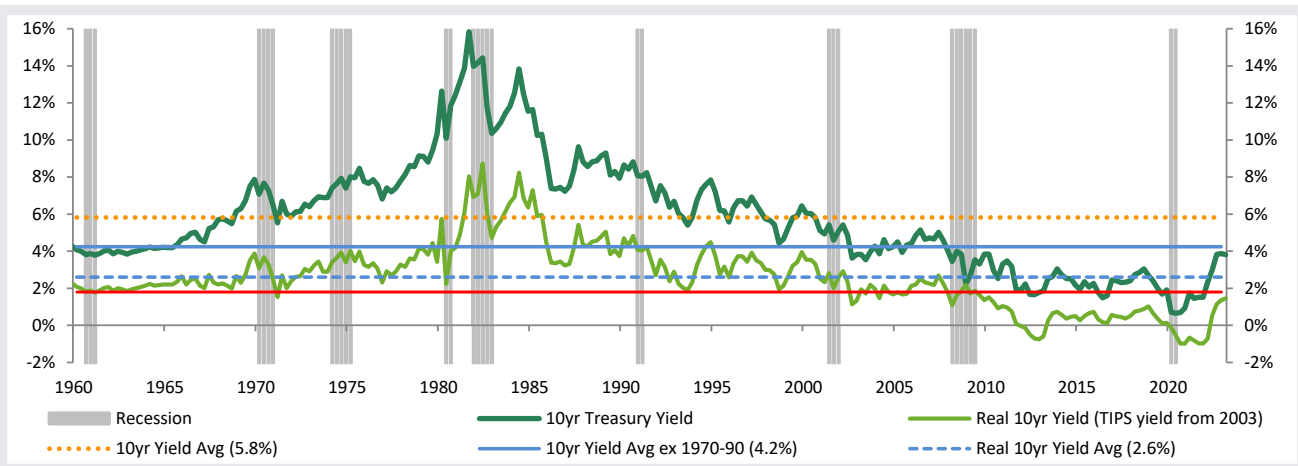
Source: Census Bureau, Haver, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results.

U.S. Treasury yields



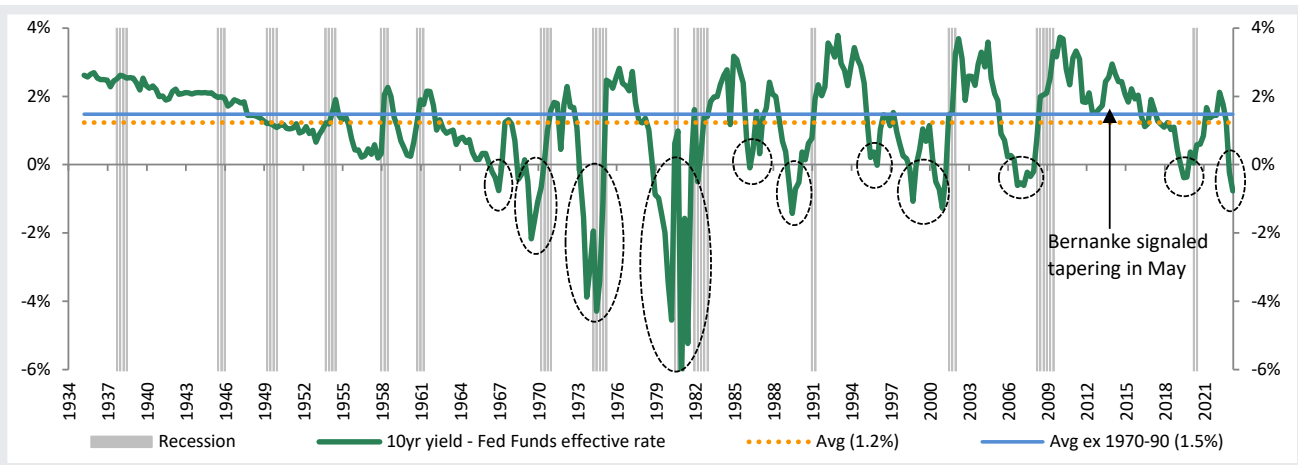
Source: FRB, Haver, DWS Investment GmbH as of 2/15/2023. Past performance may not be indicative of future results.

U.S. Treasury yields



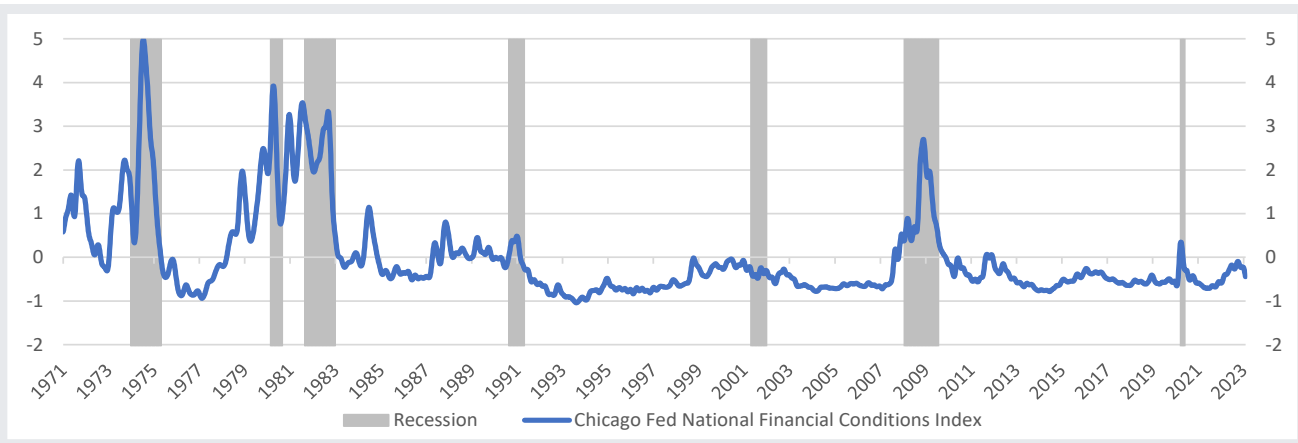
Source: FRB, Haver, DWS Investment GmbH as of 2/15/2023. Past performance may not be indicative of future results.

Yield curve: 10yr Treasury yield – Fed Funds effective rate



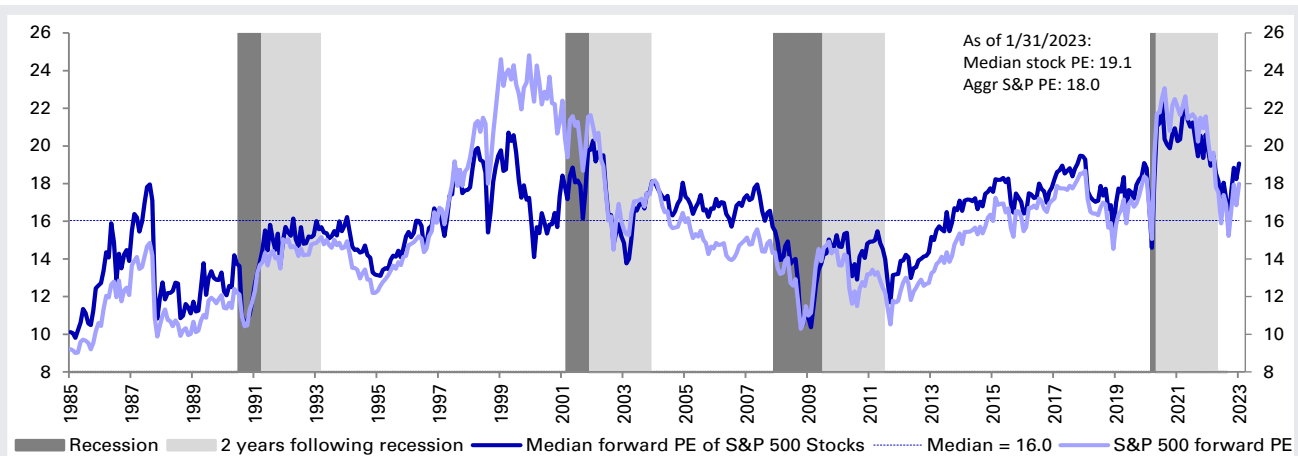
Source: FRB, Haver, DWS Investment GmbH as of 2/15/2023. Past performance may not be indicative of future results.

National financial conditions index



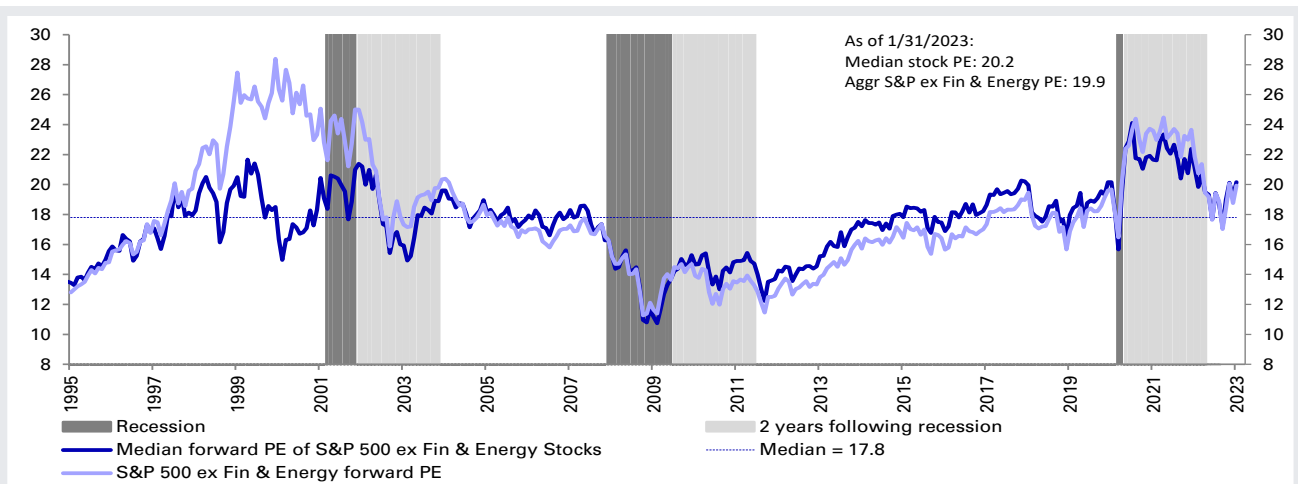
Source: Compustat, Clarifi, DWS Investment GmbH as of 1/31/2023. Past performance may not be indicative of future results.

Median forward PE of S&P 500 stocks since 1985



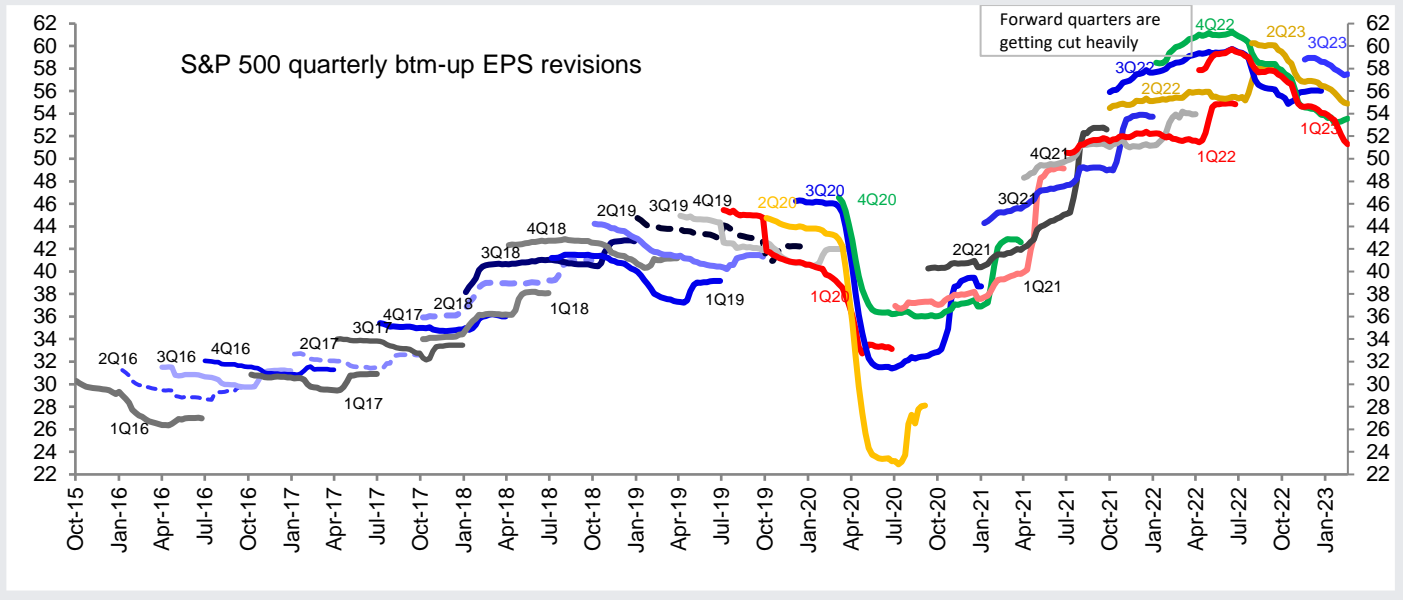
Source: Compustat, Clarifi, DWS Investment GmbH as of 1/31/2023. Past performance may not be indicative of future results.

Median forward PE of S&P 500 ex Energy & Financials stocks since 1995



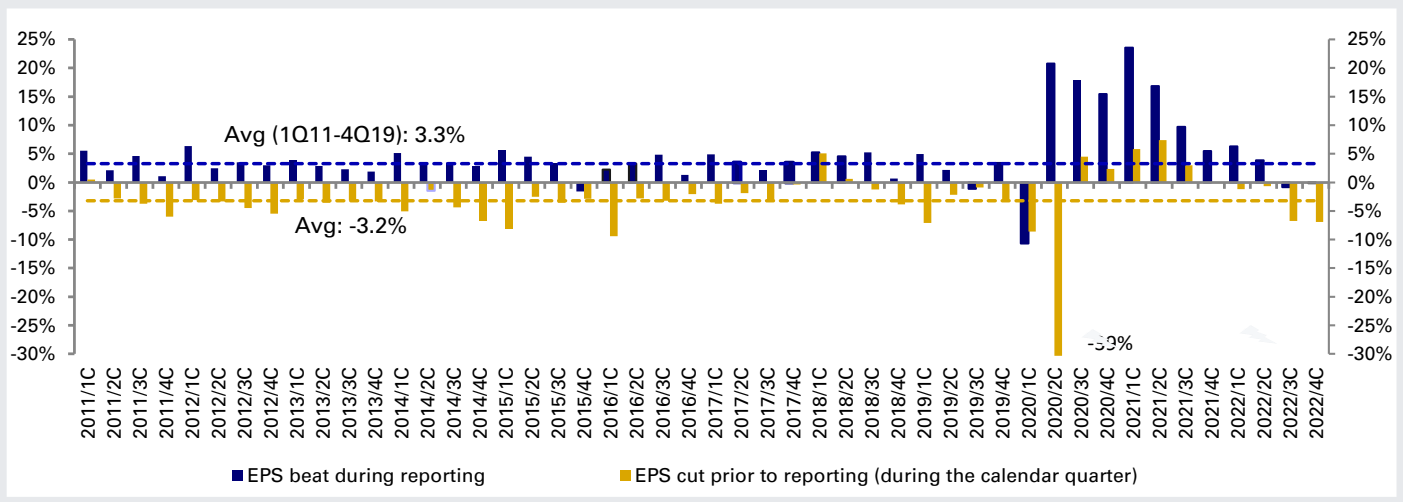
Source: Compustat, Clarifi, DWS Investment GmbH as of 1/31/2023. Past performance may not be indicative of future results.

S&P 500 quarterly EPS revision



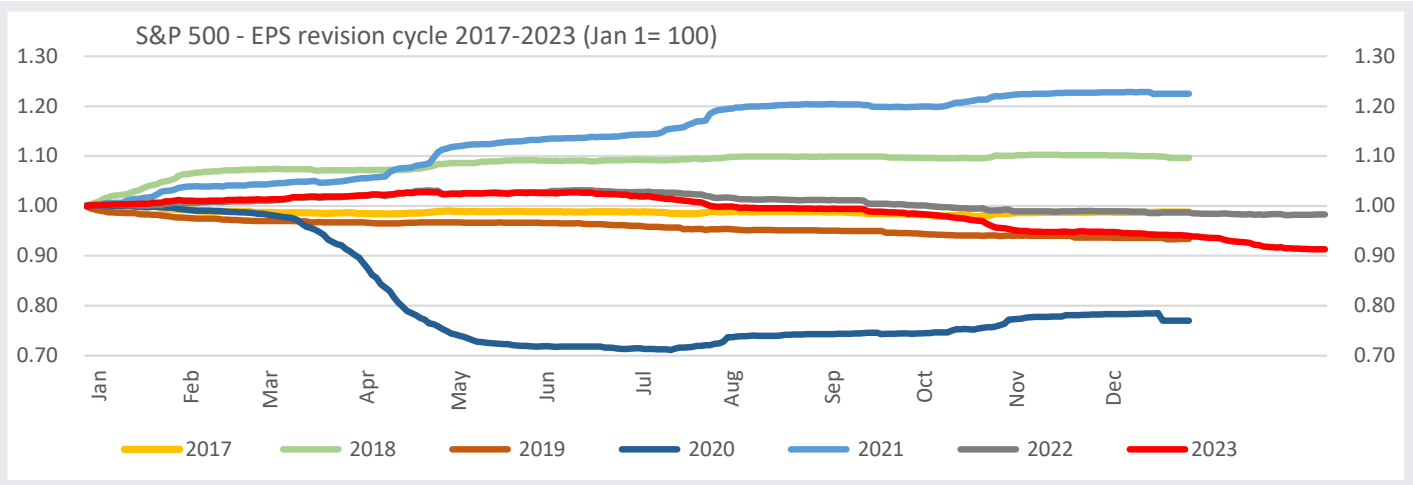
Source: Factset, IBES, DWS Investment GmbH as of 2/16/2023. Past performance may not be indicative of future results.

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



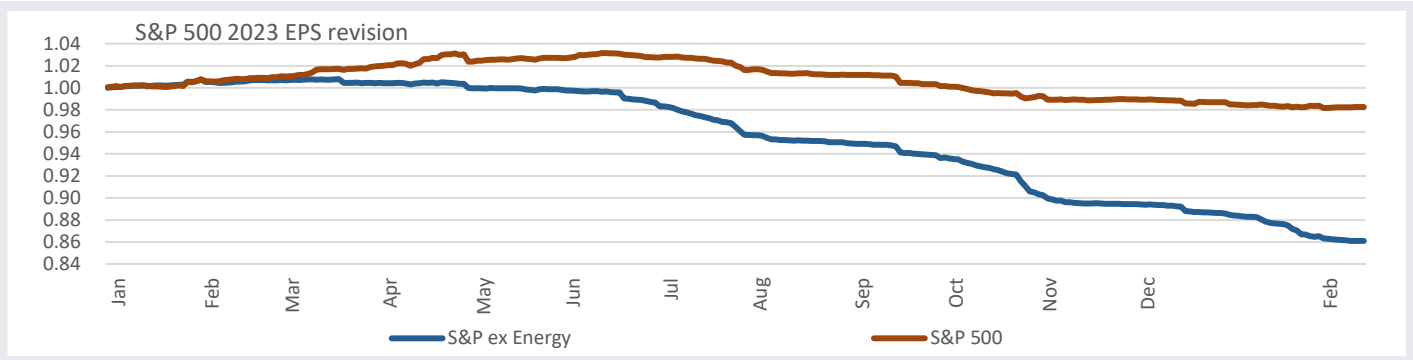
Source: Factset, DWS Investment GmbH as of 2/16/2023. Past performance may not be indicative of future results.

S&P 500 annual EPS revision



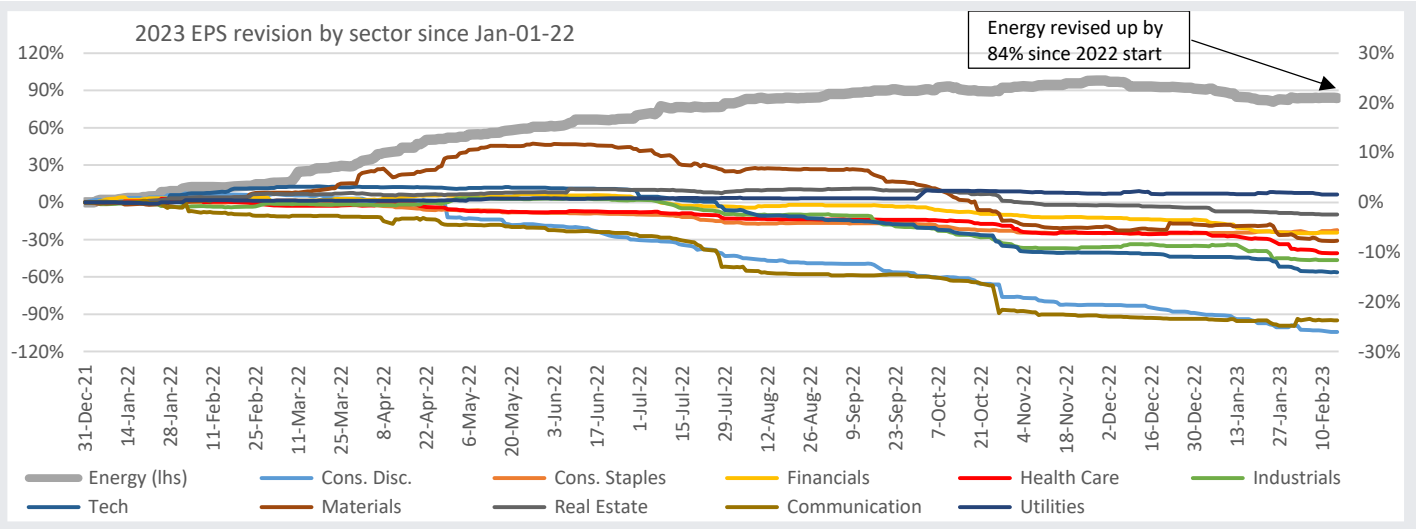
Source: Factset, IBES, DWS Investment GmbH as of 2/16/2023. Past performance may not be indicative of future results.

S&P 500 2023 EPS revision (ex. Energy)



Source: Factset, IBES, DWS Investment GmbH as of 2/16/2023. Past performance may not be indicative of future results.

S&P 500 2022 EPS revision by sector



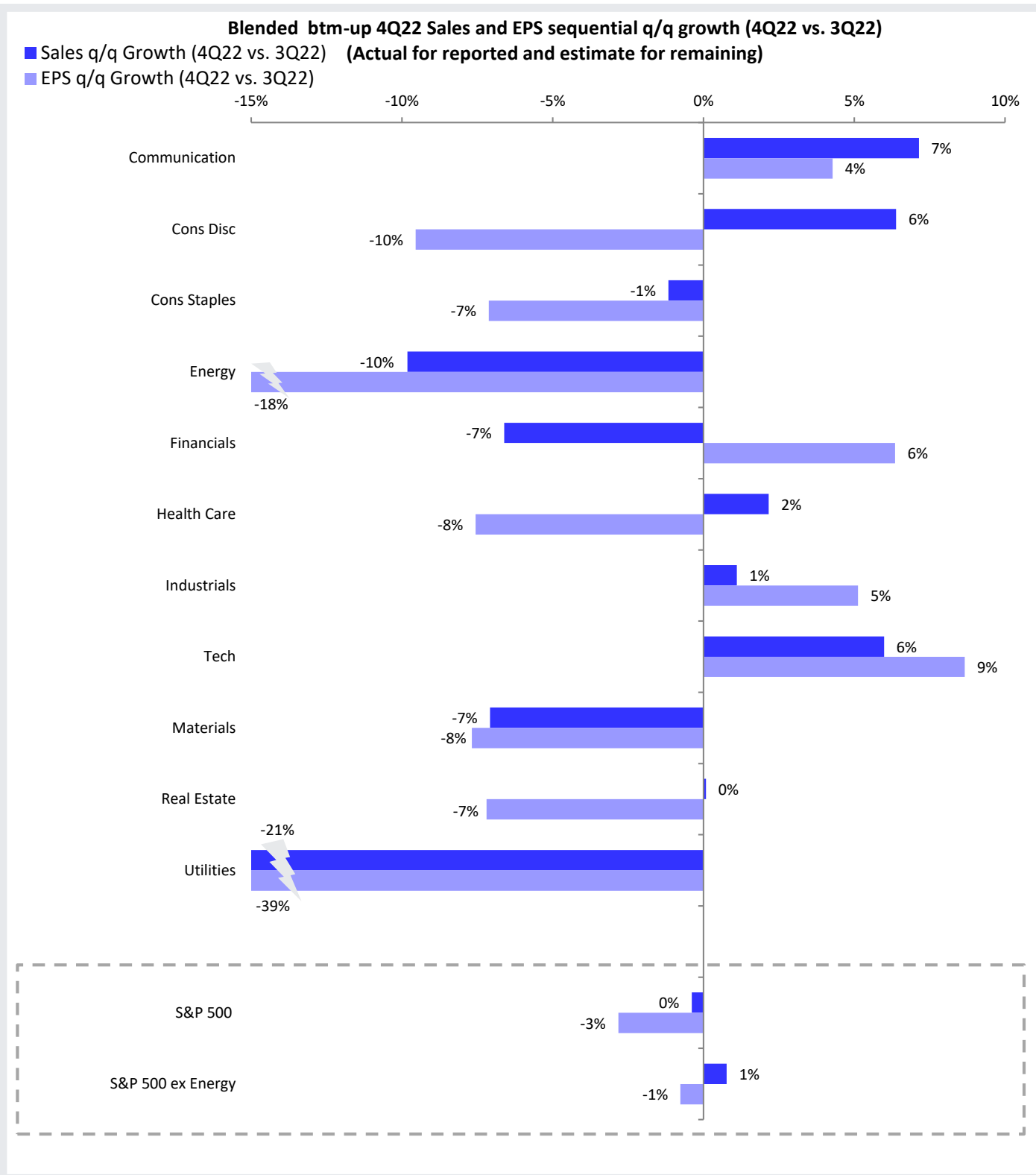
Source: Factset, IBES, DWS Investment GmbH as of 2/16/2023. Past performance may not be indicative of future results.

S&P 500: 4Q22 earnings season summary statistics

	4Q22 Summary (Based on reported companies)									
	% of EPS reported		# Cos reported		EPS (% of co's)		EPS surprise (%)		Sales (% of co's)	
	% beat	% miss	% beat	% miss	surprise (%)	y/y (%)	% beat	% miss	surprise (%)	y/y (%)
S&P 500	86.0%	381	63%	29%	-0.1%	-3.3%	52%	26%	1.1%	5.2%
S&P 500 ex. Financials & Real Est	86.0%	295	65%	28%	0.0%	-1.4%	56%	25%	1.3%	6.0%
S&P 500 ex. Energy	86.3%	368	64%	29%	0.0%	-7.9%	52%	25%	1.0%	3.7%
S&P ex. Tech	85.5%	322	60%	32%	-0.2%	-1.0%	53%	27%	1.4%	6.3%
S&P ex. Energy, Financials & Real Est	86.4%	282	66%	27%	0.2%	-7.0%	56%	25%	1.2%	4.5%
Communication Services	100.0%	21	38%	62%	-5.2%	-24.0%	38%	38%	0.1%	-2.9%
Consumer Discretionary	61.4%	32	66%	34%	-3.4%	-26.4%	72%	28%	2.3%	12.6%
Consumer Staples	83.3%	24	63%	25%	0.5%	-3.8%	79%	17%	1.8%	6.3%
Energy	90.8%	13	46%	54%	-1.4%	73%	54%	38%	2.0%	18.9%
Financials	90.1%	64	55%	39%	-1.2%	-13.0%	45%	33%	-0.2%	-1.3%
Health Care	90.9%	48	77%	17%	4.9%	0.9%	58%	21%	1.8%	4.9%
Industrials	91.4%	62	65%	23%	-1.4%	38.7%	55%	23%	0.6%	10.1%
Information Technology	87.5%	59	80%	15%	-0.1%	-9.9%	46%	17%	-1.3%	-2.2%
Materials	87.5%	24	58%	42%	5.7%	-17.9%	29%	58%	-1.4%	-5.4%
Real Estate	63.4%	22	64%	14%	3.1%	3.6%	18%	9%	1.4%	7.3%
Utilities	56.5%	12	33%	50%	0.0%	3.2%	92%	8%	24.9%	5.8%

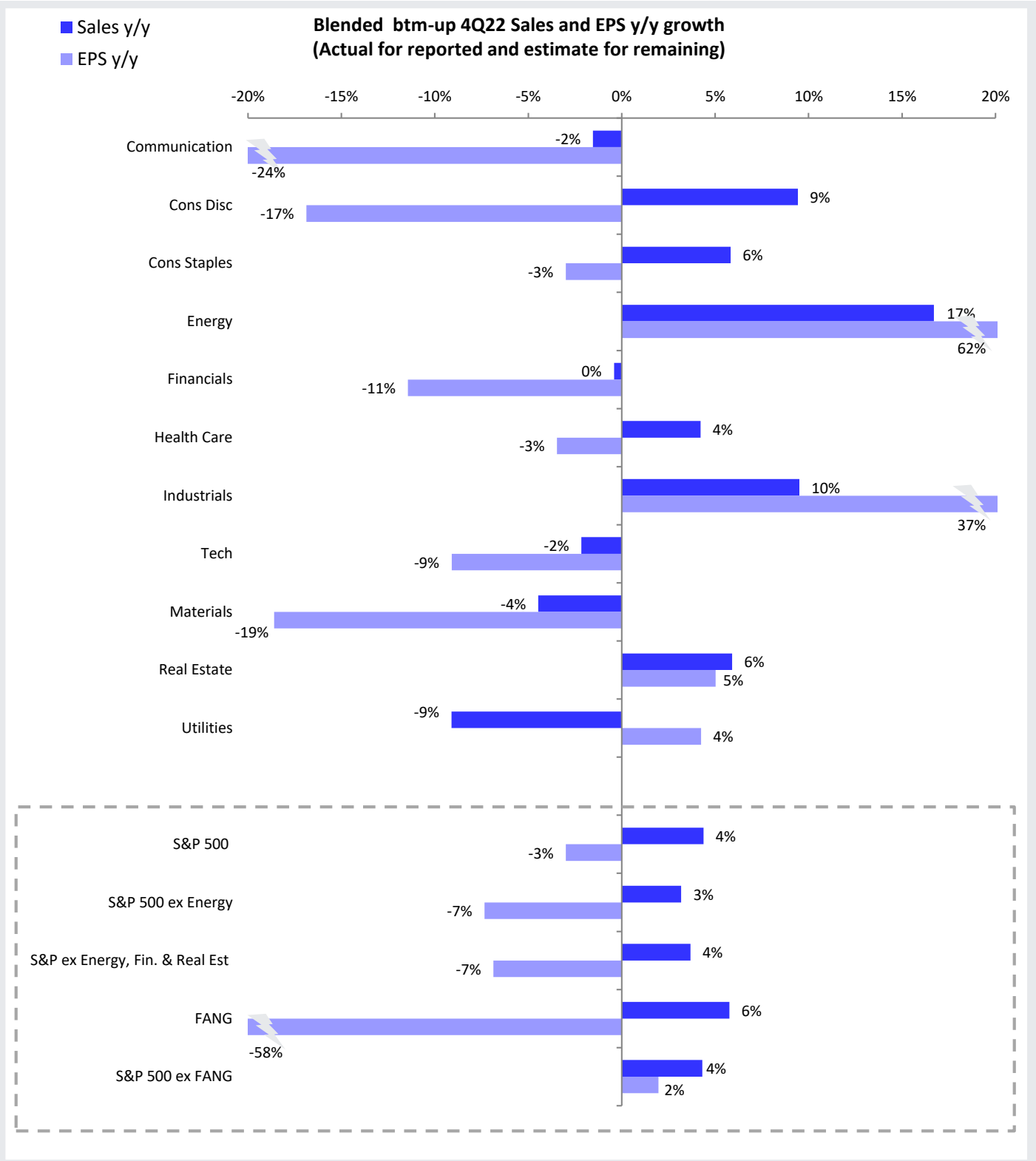
* # Beat, # miss and weighted surprise % is based on EPS and sales estimate as of 12/31/2022 (as of 12/1/2022 for pre-season reporters)
 EPS is considered beat or miss when the difference between actual and estimate as of 12/31/2022 is more than \$0.01 (12/1/2022 for pre-season reporters)
 Sales is considered beat or miss when the difference between actual and estimate as of 12/31/2022 is more than \$20 million (12/1/2022 for pre-season reporters)
 Source: Factset, DWS Investment GmbH as of 2/16/2022. Past performance may not be indicative of future results.

S&P 500: Blended bottom-up 4Q22 Sales and EPS sequential q/q growth by sector: 4Q22 vs. 3Q22



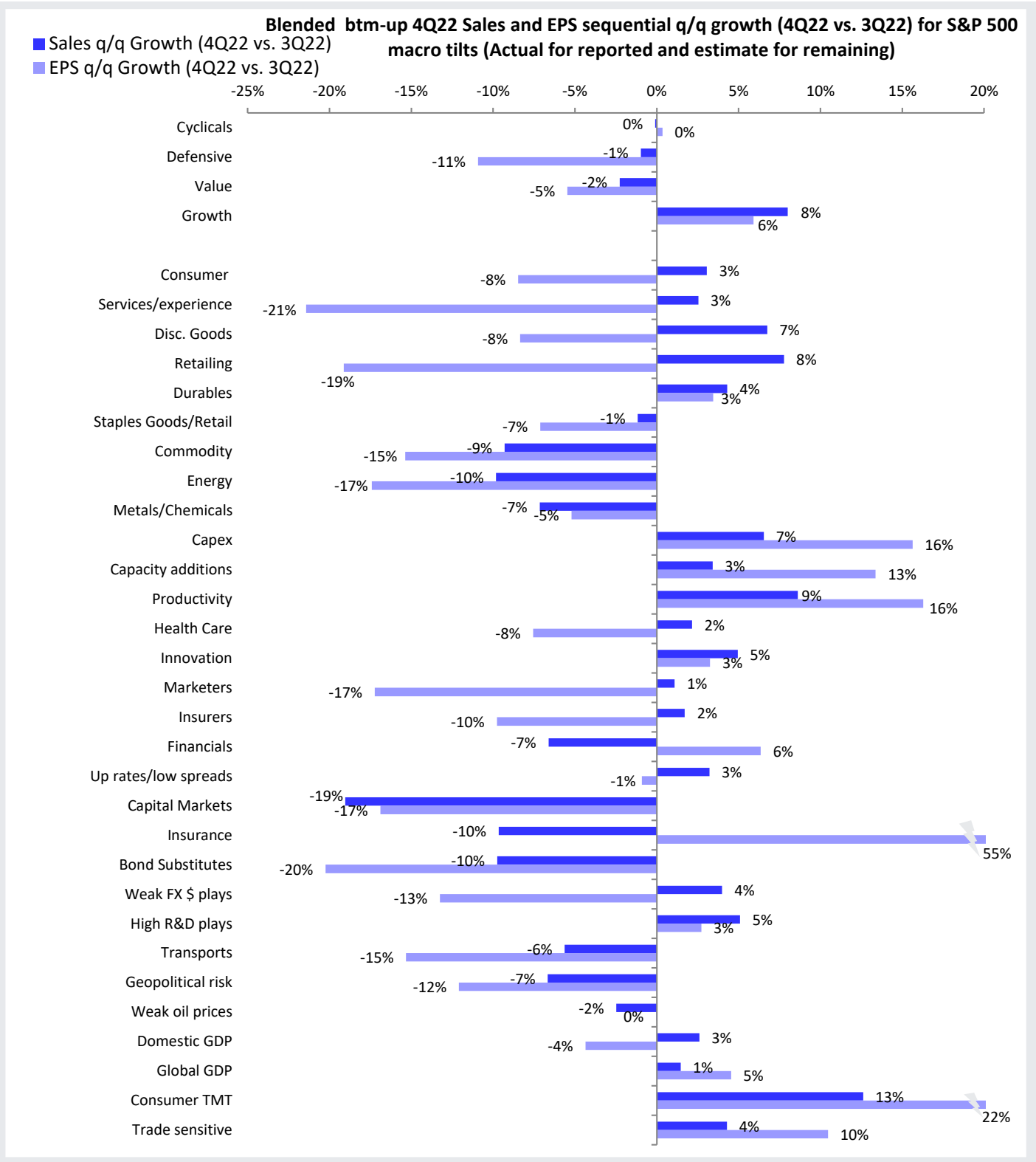
Source: Factset, DWS Investment GmbH as of 2/16/2023. Past performance may not be indicative of future results.

S&P 500: Blended bottom-up 4Q22 Sales and EPS y/y growth by sector: 4Q22 vs. 4Q21



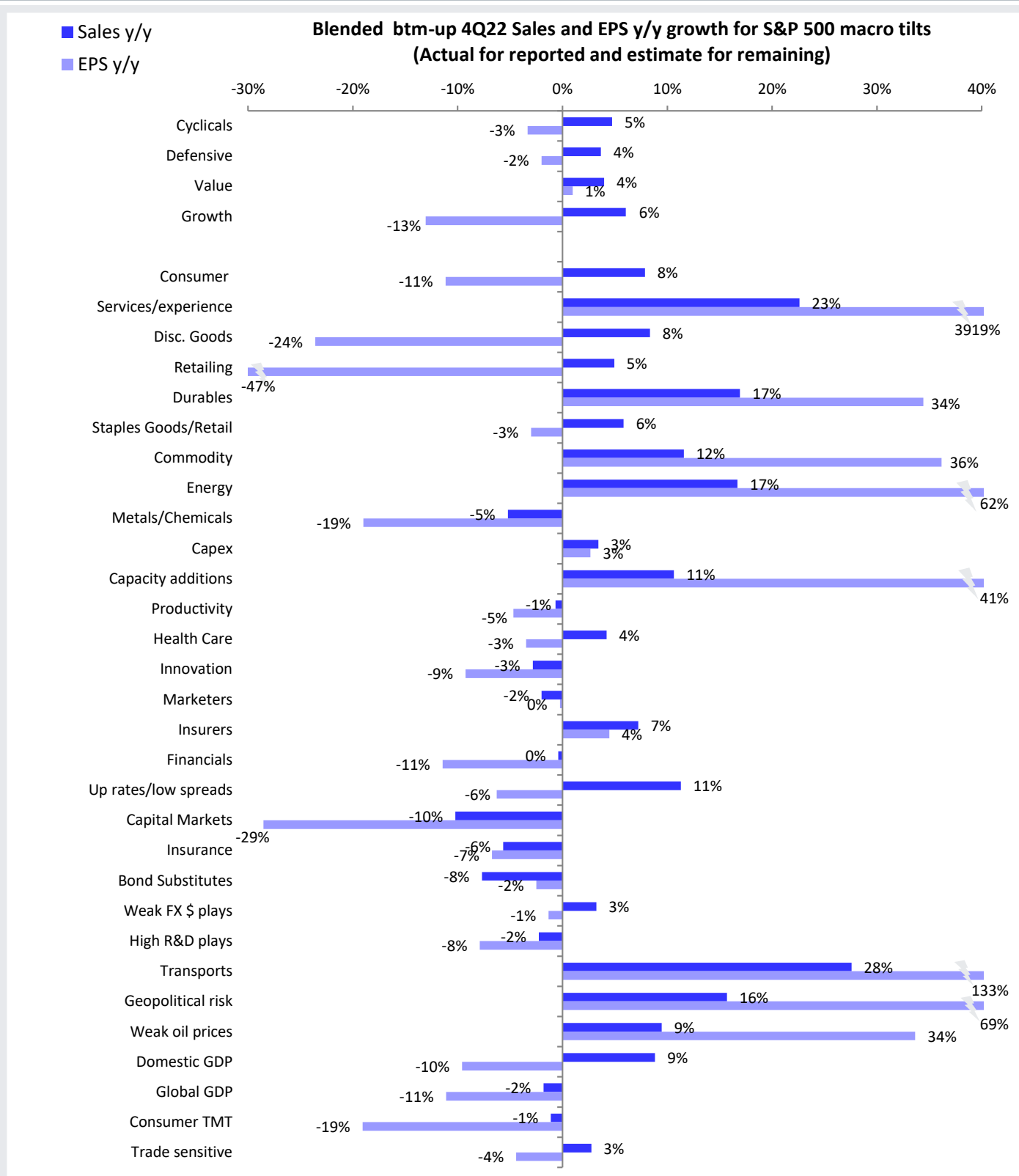
Source: Factset, DWS Investment GmbH as of 2/16/2022. Past performance may not be indicative of future results.

S&P 500: Blended bottom-up 4Q22 Sales and EPS sequential q/q growth for macro tilts: 4Q22 vs. 3Q22



Source: Factset, DWS Investment GmbH as of 2/16/2023. Past performance may not be indicative of future results.

S&P 500: Blended bottom-up 4Q22 Sales and EPS y/y growth for macro tilts: 4Q22 vs. 4Q21



Source: Factset, DWS Investment GmbH as of 2/16/2023. Past performance may not be indicative of future results.

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)	\$116.53	\$117.26	\$117.49	\$129.37	\$156.07	\$161.57	\$144.24	\$207.99	46.4%	\$222.22	6.8%	\$225.00	1.3%	\$222.5	6.8%	\$223	0.2%	\$220	99%
Sector (\$ bn)																			
Communication Services	67.9	78.3	90.9	96.7	123.4	130.8	134.1	185.4	38.3%	161.8	-12.7%	174.1	7.6%	162.5	-12.4%	167.5	3.1%	158.3	95%
Consumer Discretionary	64.5	75.3	84.1	88.2	104.0	101.9	80.4	133.9	66.6%	138.6	3.5%	149.8	8.1%	138.0	3.0%	146.0	5.8%	150.0	103%
Consumer Staples	78.7	77.0	79.4	84.1	90.8	91.5	95.4	105.2	10.2%	107.6	2.3%	112.8	4.9%	107.5	2.2%	109.5	1.9%	109.5	100%
Energy	94.3	39.6	10.8	37.3	69.6	49.6	-5.1	78.4	1632%	203.3	159.2%	170.2	-16.3%	200.5	155.6%	172.5	-14.0%	145.0	84%
Financials	172.4	187.1	188.7	195.8	242.5	249.5	198.2	328.9	65.9%	274.6	-16.5%	306.6	11.6%	275.5	-16.2%	293.0	6.4%	293.0	100%
Health Care	137.9	153.0	157.8	172.2	189.2	207.3	227.4	294.1	29.4%	311.2	5.8%	287.2	-7.7%	311.3	5.8%	300.0	-3.6%	295.2	98%
Industrials	99.9	103.4	97.4	106.2	129.8	124.1	65.1	109.0	67.4%	139.9	28.3%	154.4	10.3%	140.0	28.4%	145.0	3.6%	145.6	100%
Information Technology	177.8	185.2	194.7	229.7	268.1	266.1	298.2	382.0	28.1%	390.7	2.3%	401.7	2.8%	390.6	2.2%	395.0	1.1%	395.0	100%
Materials	24.5	23.6	22.4	28.2	35.2	33.6	32.0	58.5	82.9%	63.0	7.7%	54.0	-14.3%	63.0	7.7%	54.0	-14.3%	53.4	99%
Real Estate	23.4	26.6	29.5	32.4	36.0	37.7	37.4	44.4	18.6%	48.8	9.9%	49.4	1.3%	48.0	8.1%	49.0	2.1%	47.6	97%
Utilities	31.2	31.5	33.7	35.1	38.7	42.7	44.1	47.1	6.8%	48.4	2.9%	51.4	6.1%	50.0	6.2%	52.0	4.0%	52.0	100%
S&P 500	972.5	980.6	989.4	1106.1	1327.4	1334.7	1207.1	1767.0	46.4%	1887.9	6.8%	1911.5	1.3%	1886.9	6.8%	1883.5	-0.2%	1844.6	98%
S&P ex. Energy (\$bn)	878.2	941.0	978.6	1068.8	1257.8	1285.1	1212.3	1688.6	39.3%	1684.6	-0.2%	1741.3	3.4%	1686.4	-0.1%	1711.0	1.5%	1699.6	99%
S&P ex. Tech (\$bn)	794.8	795.4	794.7	876.3	1059.3	1068.6	908.9	1385.0	52.4%	1497.2	8.1%	1509.8	0.8%	1496.3	8.0%	1488.5	-0.5%	1449.6	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 2/17/2023. 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 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 %	2023 End Upside vs. S&P 500
Communication Services	2,680	16.0	167.5	95%	158.3	-8%	145.7	15%	5.50%	2,648	0%	2,648	1.1%	2,845	18.0	6%	11%
Consumer Discretionary	3,773	25.8	146.0	103%	150.0	-8%	138.0	12%	5.50%	2,509	13%	2,838	1.0%	3,050	20.3	-19%	-14%
<i>ex. Auto & Internet Retail</i>	2,091	21.4	97.5	100%	97.5	-8%	89.7	17%	5.50%	1,631	5%	1,712	1.6%	1,831	18.8	-12%	-8%
Consumer Staples	2,320	21.2	109.5	100%	109.5	-8%	100.7	13%	4.75%	2,121	0%	2,121	2.6%	2,229	20.4	-4%	1%
Energy	1,619	9.4	172.5	84%	145.0	-12%	127.6	16%	6.00%	2,127	-20%	1,702	3.0%	1,804	12.4	11%	16%
Financials	4,043	13.8	293.0	100%	293.0	-10%	263.7		6.25%	4,219	-10%	3,797	2.1%	4,068	13.9	1%	6%
Banks	1,372	10.6	130.0	103%	133.9	-10%	120.5		6.75%	1,785	-15%	1,518	3.1%	1,619	12.1	18%	23%
Health Care	4,975	16.6	300.0	98%	295.2	-10%	265.7	9%	5.25%	5,060	0%	5,060	1.6%	5,398	18.3	9%	13%
Industrials	3,008	20.7	145.0	100%	145.6	-8%	134.0	18%	5.50%	2,436	0%	2,436	1.7%	2,602	17.9	-14%	-9%
Information Technology	9,374	23.7	395.0	100%	395.0	-5%	375.3	2%	5.50%	6,823	10%	7,505	1.0%	8,067	20.4	-14%	-9%
Materials	933	17.3	54.0	99%	53.4	-10%	48.1	17%	5.75%	836	0%	836	1.7%	895	16.7	-4%	1%
Real Estate	883	18.0	49.0	97%	47.6	-8%	43.8	29%	5.00%	876	0%	876	3.5%	915	19.2	4%	8%
Utilities	951	18.3	52.0	100%	52.0	-8%	47.8	60%	5.00%	957	0%	957	3.2%	1,002	19.3	5%	10%
S&P 500 (\$ bn)	34,560	18.3	1883.5	98%	1844.6	-8.4%	1690.3		5.51%	30,611	0.5%	30,776	1.6%	32,876	17.8	-5%	0%
S&P 500 Index (\$/sh)	4079	18.3	223.0	99%	220.0	-8.2%	202.0	11%	5.50%	3673	0.0%	3673	1.6%	3915	17.8	-4%	0%

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

Source: IBES, DWS Investment GmbH as of 2/17/2023. 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 9/30/2022.

The estimated 2023 year end upside is on absolute valuation basis of each sector, not on relative sector valuation basis.

DWS Investment GmbH View: S&P 500 fair value by industry (1 of 2)

	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 %	2023 End Upside vs. S&P 500
CONSUMER DISCRETIONARY	3,773	25.8	146.0	103%	150.0	-8%	138	12%	5.50%	2,509	13%	2,838	1.0%	3,050	20.3	-19%	-14%
Auto Components	44,564	19.4	2,300	105%	2,415	-8%	2,222	11%	5.75%	38,640	5%	40,572	0.4%	43,973	18.2	-1%	4%
Automobiles	655,622	25.7	25,500	100%	25,500	-12%	22,440	19%	6.50%	345,231	30%	448,800	0.4%	489,458	19.2	-25%	-20%
Distributors	57,811	19.9	2,900	100%	2,900	-8%	2,668	13%	5.75%	46,400	-5%	44,080	1.7%	47,198	16.3	-18%	-13%
Hotels Restaurants & Leisure	625,592	29.1	21,500	110%	23,650	-7%	21,995	27%	5.00%	439,890	20%	527,868	1.4%	562,536	23.8	-10%	-5%
Household Durables	125,815	11.4	11,000	95%	10,450	-15%	8,883	14%	6.75%	131,593	-15%	111,854	1.6%	121,008	11.6	-4%	1%
Internet & Direct Marketing Retail	1,026,284	44.6	23,000	110%	25,300	-8%	23,276	1%	5.50%	423,200	60%	677,120	0.0%	734,360	29.0	-28%	-24%
Leisure Products	7,687	12.8	600	95%	570	-8%	524	27%	5.75%	9,120	-20%	7,296	4.8%	7,582	13.3	-1%	4%
Multiline Retail	173,871	23.2	7,500	100%	7,500	-8%	6,900	12%	5.25%	131,429	0%	131,429	1.4%	140,367	18.7	-19%	-14%
Specialty Retail	865,513	19.2	45,000	100%	45,000	-7%	41,850	13%	5.25%	797,143	0%	797,143	1.6%	850,052	18.9	-2%	3%
Textiles Apparel & Luxury Goods	189,771	28.3	6,700	100%	6,700	-7%	6,231	1%	5.25%	118,686	10%	130,554	1.3%	139,597	20.8	-26%	-22%
CONSUMER STAPLES	2,320	21.2	109.5	100%	109.5	-8%	101	13%	4.75%	2,121	0%	2,121	2.6%	2,229	20.4	-4%	1%
Beverages	605,157	24.2	25,000	100%	25,000	-7%	23,250	13%	4.75%	489,474	15%	562,895	2.5%	592,646	23.7	-2%	3%
Food & Staples Retailing	538,404	22.9	23,500	100%	23,500	-6%	22,090	8%	4.75%	465,053	0%	465,053	1.5%	494,277	21.0	-8%	-3%
Food Products	380,604	17.7	21,500	100%	21,500	-9%	19,565	24%	4.75%	411,895	-5%	391,300	2.6%	411,548	19.1	8%	13%
Household Products	488,506	24.4	20,000	100%	20,000	-8%	18,400	9%	4.75%	387,368	10%	426,105	2.6%	447,962	22.4	-8%	-3%
Personal Products	59,665	39.8	1,500	100%	1,500	-8%	1,380	2%	4.75%	29,053	20%	34,863	1.0%	37,211	24.8	-38%	-33%
Tobacco	247,354	13.7	18,000	100%	18,000	-9%	16,380	20%	4.75%	344,842	-25%	258,632	6.0%	263,254	14.6	6%	11%
Energy	1,619	9.4	172.5	84%	145.0	-12%	128	16%	6.00%	2,127	-20%	1,702	3.0%	1,804	12.4	11%	16%
Energy Equipment & Services	132,488	15.6	8,500	100%	8,500	-8%	7,820	20%	5.75%	136,000	5%	142,800	2.0%	152,497	17.9	15%	20%
Oil Gas & Consumable Fuels	1,486,473	9.1	164,000	83%	136,530	-12%	120,146	16%	6.00%	2,002,440	-20%	1,601,952	3.5%	1,690,654	12.4	14%	19%
FINANCIALS	4,043	13.8	293.0	100%	293.0	-10%	264	0%	6.25%	4,219	-10%	3,797	2.1%	4,068	13.9	1%	6%
Capital Markets	1,060,409	18.3	58,000	95%	55,100	-10%	49,590	2%	6.25%	793,440	-5%	753,768	2.1%	807,443	14.7	-24%	-19%
Banks	1,371,505	10.6	130,000	103%	133,900	-10%	120,510	N/A	6.75%	1,785,333	-10%	1,606,800	2.9%	1,716,844	12.8	25%	30%
Consumer Finance	215,915	10.5	20,500	95%	19,475	-15%	16,554	N/A	7.00%	236,482	-20%	189,186	1.5%	205,320	10.5	-5%	0%
Diversified Financial Services	572,772	21.6	26,500	100%	26,500	-7%	24,645	3%	5.50%	448,091	0%	448,091	0.0%	486,179	18.3	-15%	-10%
Insurance	821,929	14.2	58,000	100%	58,000	-8%	53,360	N/A	5.75%	928,000	-5%	881,600	1.7%	944,120	16.3	15%	20%
Health Care	4,975	16.6	300.0	98%	295.2	-10%	266	9%	5.25%	5,060	0%	5,060	1.6%	5,398	18.3	9%	13%
Biotechnology	781,005	13.6	57,500	100%	57,500	-10%	51,750	14%	5.25%	985,714	-15%	837,857	2.4%	886,976	15.4	14%	18%
Health Care Equipment & Supplies	1,104,174	24.0	46,000	98%	45,080	-9%	41,023	9%	5.25%	781,387	20%	937,664	1.0%	1,005,331	22.3	-9%	-4%
Health Care Providers & Services	1,177,765	16.0	73,800	98%	72,324	-9%	65,815	8%	5.25%	1,253,616	0%	1,253,616	1.3%	1,340,936	18.5	14%	19%
Life Sciences Tools & Services	435,344	26.4	16,500	98%	16,170	-9%	14,715	10%	5.25%	280,280	20%	336,336	0.2%	363,491	22.5	-17%	-12%
Pharmaceuticals	1,476,964	14.1	105,000	98%	102,900	-10%	92,610	8%	5.25%	1,764,000	-10%	1,587,600	2.6%	1,677,727	16.3	14%	18%

Source: IBES, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results. The estimated 2023 year end upside is on absolute valuation basis of each sector, not on relative sector valuation basis.

DWS Investment GmbH View: S&P 500 fair value by industry (2 of 2)

	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 %	2023 End Upside vs. S&P 500
INDUSTRIALS	3,008	20.7	145.0	100%	145.6	-8%	134	18%	5.50%	2,436	0%	2,436	1.7%	2,602	17.9	-14%	-9%
Aerospace & Defense	656,304	23.9	27,500	102%	28,050	-8%	25,806	22%	5.25%	491,543	10%	540,697	1.4%	577,597	20.6	-12%	-7%
Air Freight & Logistics	220,357	16.3	13,500	100%	13,500	-10%	12,150	8%	6.00%	202,500	-10%	182,250	2.8%	193,486	14.3	-12%	-7%
Airlines	76,394	9.5	8,000	115%	9,200	-15%	7,820	69%	8.00%	97,750	0%	97,750	0.6%	107,958	11.7	41%	46%
Building Products	172,239	21.5	8,000	100%	8,000	-8%	7,360	15%	5.75%	128,000	0%	128,000	1.7%	137,005	17.1	-20%	-16%
Commercial Services & Supplies	141,964	29.6	4,800	100%	4,800	-8%	4,416	12%	5.00%	88,320	0%	88,320	1.4%	94,125	19.6	-34%	-29%
Construction & Engineering	37,624	19.8	1,900	100%	1,900	-8%	1,748	18%	5.50%	31,782	0%	31,782	0.5%	34,333	18.1	-9%	-4%
Electrical Equipment	197,874	22.0	9,000	102%	9,180	-8%	8,446	11%	5.25%	160,869	5%	168,912	1.7%	180,017	19.6	-9%	-4%
Industrial Conglomerates	340,559	22.3	15,300	102%	15,606	-8%	14,358	11%	5.25%	273,477	0%	273,477	2.0%	290,653	18.6	-15%	-10%
Machinery	654,710	20.5	32,000	97%	31,040	-8%	28,557	21%	5.50%	519,215	0%	519,215	1.5%	555,506	17.9	-15%	-10%
Professional Services	104,580	29.9	3,500	100%	3,500	-8%	3,220	19%	5.25%	61,333	0%	61,333	0.6%	66,047	18.9	-37%	-32%
Road & Rail	310,072	18.2	17,000	97%	16,490	-8%	15,171	18%	5.25%	288,968	0%	288,968	1.8%	307,688	18.7	-1%	4%
Trading Companies & Distributors	95,706	21.3	4,500	97%	4,365	-10%	3,929	14%	5.50%	71,427	0%	71,427	1.6%	76,342	17.5	-20%	-15%
INFORMATION TECHNOLOGY	9,374	23.7	395.0	100%	395.0	-5%	375	2%	5.50%	6,823	10%	7,505	1.0%	8,067	20.4	-14%	-9%
Communications Equipment	309,323	15.9	19,500	100%	19,500	-7%	18,135	-3%	5.75%	315,391	-10%	283,852	2.4%	301,742	15.5	-2%	2%
Technology Hardware Storage & Periphe	2,488,704	23.8	104,500	100%	104,500	-5%	99,275	3%	5.50%	1,805,000	5%	1,895,250	0.7%	2,043,879	19.6	-18%	-13%
Electronic Equipment Instruments & Com	215,336	21.5	10,000	100%	10,000	-7%	9,300	11%	5.75%	161,739	5%	169,826	1.1%	182,795	18.3	-15%	-10%
IT Services	1,552,466	21.6	72,000	100%	72,000	-5%	68,400	7%	5.50%	1,243,636	15%	1,430,182	1.3%	1,533,843	21.3	-1%	4%
Semiconductors & Semiconductor Equipr	1,923,895	24.0	80,000	100%	80,000	-8%	73,600	2%	6.00%	1,226,667	0%	1,226,667	1.5%	1,318,995	16.5	-31%	-27%
Software	2,884,557	26.5	109,000	100%	109,000	-5%	103,550	0%	5.00%	2,071,000	20%	2,485,200	0.8%	2,664,824	24.4	-8%	-3%
MATERIALS	933	17.3	54.0	99%	53.4	-10%	48	17%	5.75%	836	0%	836	1.7%	895	16.7	-4%	1%
Chemicals	641,128	17.1	37,500	100%	37,500	-10%	33,750	15%	5.75%	586,957	0%	586,957	1.9%	627,081	16.7	-2%	3%
Construction Materials	47,869	31.9	1,500	95%	1,425	-10%	1,283	19%	5.75%	22,304	0%	22,304	0.8%	24,069	16.9	-50%	-45%
Containers & Packaging	96,583	14.9	6,500	100%	6,500	-10%	5,850	36%	5.75%	101,739	-15%	86,478	2.8%	91,590	14.1	-5%	0%
Metals & Mining	147,410	17.3	8,500	94%	7,990	-10%	7,191	5%	6.00%	119,850	-10%	107,865	2.1%	115,345	14.4	-22%	-17%
REAL ESTATE	883	18.0	49.0	97%	47.6	-8%	44	29%	5.00%	876	0%	876	3.5%	915	19.2	4%	8%
Equity Real Estate Investment Trusts (RE	853,431	18.1	47,200	97%	45,784	-8%	42,121	30%	5.00%	842,426	0%	842,426	3.5%	880,078	19.2	3%	8%
Real Estate Management & Development	29,822	16.6	1,800	100%	1,800	-8%	1,656	4%	5.50%	30,109	0%	30,109	0.0%	32,668	18.1	10%	14%
COMMUNICATION SERVICES	2,680	16.0	167.5	95%	158.3	-8%	146	15%	5.50%	2,648	0%	2,648	1.1%	2,845	18.0	6%	11%
Diversified Telecommunication Services	301,056	8.4	36,000	93%	33,480	-15%	28,458	105%	5.50%	517,418	-30%	362,193	6.3%	370,168	11.1	23%	28%
Entertainment	482,382	24.7	19,500	100%	19,500	-5%	18,525	9%	5.50%	336,818	25%	421,023	0.2%	456,138	23.4	-5%	-1%
Interactive Media & Services	1,511,480	17.8	85,000	95%	80,750	-5%	76,713	-8%	5.50%	1,394,773	5%	1,464,511	0.0%	1,588,995	19.7	5%	10%
Media	296,063	12.3	24,000	90%	21,600	-12%	19,008	60%	6.25%	304,128	-25%	228,096	2.3%	243,965	11.3	-18%	-13%
Wireless Telecommunication Services	89,500	29.8	3,000	100%	3,000	-5%	2,850	42%	5.25%	54,286	10%	59,714	0.0%	64,641	21.5	-28%	-23%
UTILITIES	951	18.3	52.0	100%	52.0	-8%	48	60%	5.00%	957	0%	957	3.2%	1,002	19.3	5%	10%
Electric Utilities	602,753	18.8	32,000	100%	32,000	-8%	29,440	60%	5.00%	588,800	5%	618,240	3.3%	647,563	20.2	7%	12%
Gas Utilities	15,255	20.3	750	100%	750	-8%	690	46%	5.00%	13,800	0%	13,800	2.7%	14,525	19.4	-5%	0%
Independent Power and Renewable Elect	25,091	10.0	2,500	100%	2,500	-15%	2,125	113%	7.00%	30,357	0%	30,357	3.1%	32,439	13.0	29%	34%
Multi-Utilities	281,029	17.7	15,900	100%	15,900	-8%	14,628	59%	5.00%	292,560	0%	292,560	3.5%	305,651	19.2	9%	14%
Water Utilities	27,197	32.0	850	100%	850	-5%	808	38%	3.75%	21,533	0%	21,533	1.8%	22,609	26.6	-17%	-12%

Source: IBES, DWS Investment GmbH as of 2/17/2023. Past performance may not be indicative of future results. 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	\$223.00	DWS 2023E S&P 500 DPS	\$70.00	DWS 2023E S&P 500 aggregate ROE	22.3%	Fair long-term nominal return on S&P 500 index	8.50%
		2023E dividend payout ratio	31%	2022E end S&P 500 book value per share	\$1,000	Components of estimated fair S&P 500 return:	
DWS "normal 2023E" S&P 500 EPS	\$220.00	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%
"Normal 2023E" EPS / 2023E EPS	99%	Normal dividend payout ratio	35%			+ Long-term fair S&P 500 equity risk premium*	4.00%
Accounting quality adjustment to pro forma EPS	-\$18.00	EPS directed to net share repurchases	\$38.00	S&P EPS retained for true reinvestment	47%	= Long-term real S&P 500 cost of equity	5.50%
		Normal share repurchase payout ratio	19%	Estimated ROE on reinvested S&P EPS	8.50%	+ Long-term inflation forecast	3.00%
Normal 2023E S&P 500 EPS fair to capitalize	\$202	Total payout of S&P 500 EPS	\$108.00	Economic margin (EM) or ROE-CoE	0.00%	= S&P 500 nominal cost of equity	8.50%
Key principle: steady-state value = normal EPS / real CoE		Total payout ratio of normal and quality adj. EPS	53%	Sources of long-term earnings growth:		* S&P 500 ERP history 300-400bps, w/ real CoE @ 5% - 6.5%	
				+ Long-term inflation forecast	3.00%	Fair S&P 500 Market Value and Book Value Multiple	
<u>S&P 500 EPS Capitalization Valuation</u>		<u>S&P 500 DPS Discount Model</u>		+ Fair return on true reinvestment	2.56%	2022E end S&P 500 book value per share	\$1,000
Normal EPS / (real CoE - (EM/payout) - EM):		Normal DPS / (nominal CoE - DPS growth):		+ Value added return on true reinvestment	0.00%	Fair PB = Fair PE * normal aggregate ROE	3.67
S&P 500 intrinsic value at 2023 start	3673	S&P 500 intrinsic value at 2023 start	3673	= Long-term earnings growth	5.56%	Fair PE =(inc ROE-g)/(inc real ROE*(real CoE-real g))	18.2
S&P 500 intrinsic value at 2023 end	3915	S&P 500 intrinsic value at 2023 end	3915	= Long-term S&P 500 EPS/DPS growth	6.59%	Implied S&P 500 fair value of book at 2023 start	3673
Implied fair fwd PE in early 2023 on 2023E \$223 EPS	16.5	Implied fair forward yield on 2023E DPS of \$70.0	1.91%	+ Fair normal dividend yield	1.91%	Steady-state PB = normal agg. ROE / real CoE	3.67
Implied fair trailing PE at 2023 end on 2023E \$223 EPS	17.6	Implied fair trailing yield on 2023E DPS of \$70.0	1.79%	= 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	5.25%	4041	4158	4275	4393	4511
equity	5.50%	3718	3816	3915	4014	4112
	5.75%	3443	3527	3611	3695	3778
	6.00%	3206	3279	3352	3424	3495

Source: DWS Investment Management GmbH

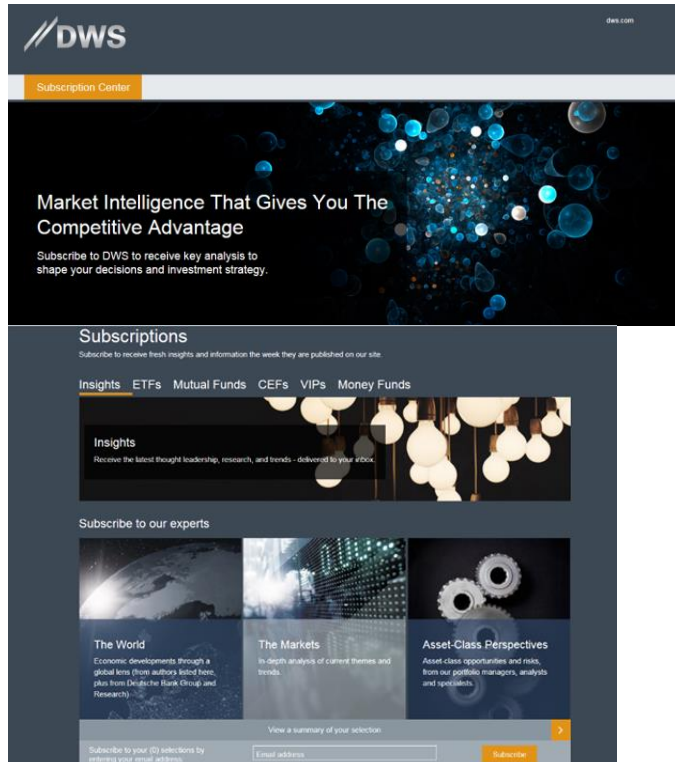
Optimistic 2023 end 10yr yield outlook: 2.5% inflation expectation + 1% overnight real rate + 0.75% inflation risk premium - 0.5% risk asset hedge = 3.75%

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%

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