

Capex: A corporate confidence signal



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We revisit a data set and signal that proved valuable to heed over the past year S&P 500 capital expenditures (capex) data from financial reports illustrates where U.S. investment spending is strong and where it's modest today relative to pre pandemic norms given inflation since then and deferred maintenance capex during the pandemic.

Strong capex that is investment for growth, not profit maintenance, signals management's confidence in profitable growth prospects. Over the past year, investors embraced that confidence by raising valuations at these companies despite slowing GDP and higher interest rates. This note revisits our capex as a signal note from summer 2022 and includes updated capex exhibits by S&P sectors, industries and the highest spending companies.

S&P capex shifted from resource sector dominance to Tech, digital, and electric

On a trailing 4-qtr basis as of 1Q23, S&P capex grew 26% from 2019. This growth was led by Tech and other businesses involved in digitalization and electrification. Capex growth was modest at Energy, Materials and most capital and consumer goods manufacturers.

Trailing 4-qtr capex at Energy is down 11.3% from 2019, up only 5.8% at Industrials and up 15.3% at Materials. Capex is up a much stronger 55.4% at Tech, 34% at Communications and 42.9% at Consumer Discretionary, the latter being internet retailing and electric vehicle led. These industries are planning for the future with capex that is 120-150% of D&A expense. Utilities stand out with 27% growth and over 200% capex/D&A.

In the last 4-qtrs, only 22% of S&P capex is from Energy, Materials and Industrials (23% profit share) vs. 46% in 2013 (25% profits). Whereas, 45% of S&P capex is from Tech, Communications and Consumer Discretionary (33% profits) vs. 27% in 2013 (31% profits).

Energy and much of Materials and Industrials (except Industrial Gases and Aerospace & Defense), barely have capex in-line with D&A and this is despite elevated inflation greatly raising the cost of building/repairing their assets relative to book value based depreciation expense. It appears to us that the Energy sector sees no growth and likely slow decline. Capping capacity might protect Energy pricing, but production by others globally or alternatives are threats. At current oil prices and capex trends, profits and FCF at Energy are set to sharply decline from trailing 4-qtr levels.

Investment is key difference between earnings and FCF: Will returns be good?

Beware of free cash flow (FCF) per share based valuation metrics when some companies are aggressively investing for growth and others retrenching. We generally prefer earnings metrics, but we consider both and evaluate return prospects on difference from investment.

Encouraging signs at soft side of capex: R&D strong at Tech and Health Care

R&D spending remains brisk, above 3% of S&P sales overall, but over 10% of sales at Tech and within Health Care at the medicine and medical device makers. R&D is fully expensed in financial reports, but it's a mix of spending to both maintain and grow profits.

The pre pandemic rollback: Where justified, overdone or more to go

The pandemic supercharged S&P EPS growth led by its digital businesses and consumer goods producers and retailers upon work and lifestyle shifts and huge government stimulus to households. Three years later, it's clear that goods manufacturing and retailing cooled and many work and lifestyle changes stuck. We think share price rollbacks are appropriate at Retail, Office, and Basic Materials. We expect more rollback at Auto, Building Products/Materials, Machinery. We see rollbacks at Communications, Rails and Biotech as overdone. We think return to travel, restaurants, etc. will be sustained. We think the pandemic Tech earnings surge is sustainable, but see valuations as too demanding. We see underappreciated areas of growth at Health Care, Internet Services, Electric Utilities.

Optimism Gauge: Normal for S&P investors ex Tech, but exuberant at Tech

Sluggish cycles favor growth stocks, but valuations still matter and we're concerned about 30x+ PEs at mega-cap Tech; especially if a sluggish cycle comes with secularly rising long-term interest rates. Also, some growth stocks are cyclically sensitive and we expect at least a small recession. We think overvalued S&P segments are Auto, Tech, particularly Semiconductors and Hardware and Software. While we're excited about Tech's long-term growth potential, it surprises us that investors will pay these valuations at a time of slowing growth and rising interest rates. Inside, we show our investor Optimism Gauge for the S&P 500 and Tech sector. The S&P PE is slightly above its fair-steady state 18x, but Tech trades at a 50%+ premium, essentially the highest growth premium or optimism since 1999.

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

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

Taxable U.S. Investor Asset Allocations		
Asset Class	Long-term	Current
Fixed Income/Cash	30-35%	38.5%
Equities	55-60%	53.0%
US Equities	40%	34%
S&P 500	35%	32%
Small Caps	0-10%	2%
Foreign DM	10-15%	11%
Foreign EM	0-10%	8%
Alternatives	10%	8.5%

Key CIO Views		
Macro signal:	Jun 2023	Jun 2024F
U.S. Fed Funds rate	5.00%-5.25%	4.75%-5.00%
10yr Treasury yield	3.70%	4.20%
US IG Corp Spreads	175bp	110bp
US High Yield Spreads	475bp	450bp
Crude Oil (WTI) \$/bbl	68	85
EUR / USD FX rate	1.07	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 6/16/2023 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	2022 PE			Overweight	2022			Equal weight	2022			Underweight	2022			
				2022	2023	2024		2022	2023	2024		2022	2023	2024		2022	2023	2024	
Over-weight	13.5%	18.3%	Health Care	15.9	16.9	15.8	Biotechnology	11.8	14.5	13.5	Health Care Providers & Services	15.2	14.1	13.4	Life Sciences Tools & Services	23.8	24.8	22.9	
							Health Care Equipment & Supplies	26.0	24.5	21.7									
							Pharmaceuticals	13.2	15.0	14.3									
	8.6%	11.6%	Communication Services	21.5	18.7	17.6	Diversified Telecommunication Services	6.6	7.3	7.3	Wireless Telecommunication Services	62.2	19.1	17.7					
							Entertainment	56.4	28.5	23.3									
						Interactive Media & Services	28.5	23.4	21.9										
						Media	11.2	11.6	11.4										
	4.2%	5.7%	Energy	7.7	9.7	9.1	Energy Equipment & Services	21.1	14.8	12.5	Oil Gas & Consumable Fuels	7.3	9.4	8.9					
	12.5%	13.3%	Financials	15.1	14.2	13.4	Banks	9.5	9.1	8.9					Capital Markets	17.2	17.7	16.5	
							Insurance	16.3	13.2	12.0					Consumer Finance	9.8	11.5	10.1	
															Financial Services	23.9	21.3	20.5	
	2.6%	3.4%	Utilities	18.9	17.8	16.9	Electric Utilities	19.4	17.8	16.8	Gas Utilities	20.5	19.5	18.4	Water Utilities	33.0	32.0	30.6	
											Independent Power & Renewable Energy	12.4	11.9	11.0					
											Multi-Utilities	17.4	17.4	16.7					
Equal-weight	8.5%	8.5%	Industrials	22.1	20.1	18.8	Aerospace & Defense	34.0	23.1	20.0	Industrial Conglomerates	21.2	23.6	20.5	Air Freight & Logistics	13.6	16.5	15.9	
							Passenger Airlines	18.4	8.2	7.5					Building Products	20.7	19.0	17.5	
							Electrical Equipment	23.2	23.4	21.7					Commercial Services & Supplies	33.6	32.6	31.4	
							Ground Transportation	18.0	18.3	16.8					Construction & Engineering	29.2	26.5	22.1	
														Machinery	18.9	17.1	17.6		
														Professional Services	29.0	30.0	28.5		
														Trading Companies & Distributors	19.8	17.3	16.7		
	2.5%	2.5%	Materials	14.3	17.6	16.5	Metals & Mining	9.0	14.2	16.5	Chemicals	16.1	18.4	16.6	Construction Materials	37.8	36.0	30.0	
														Containers & Packaging	11.7	14.4	12.4		
Under-weight	6.7%	6.2%	Consumer Staples	21.1	20.6	19.8	Beverages	26.0	24.1	22.8	Consumer Staples Distribution & Retail	22.4	21.5	20.2	Food Products	16.5	17.6	17.2	
											Household Products	26.1	25.0	24.1					
											Personal Care Products	31.5	29.8	26.3					
											Tobacco	12.4	12.1	12.1					
		2.4%	1.6%	Real Estate	16.9	17.1	16.4	Specialized REITs	18.1	18.5	17.6	Hotel & Resort REITs	9.8	10.4	10.4	Health Care REITs	18.4	18.1	17.2
											Real Estate Mgmt. & Development	13.8	15.9	14.1	Industrial REITs	23.7	22.3	21.8	
											Residential REITs	18.5	17.8	17.3	Office REITs	11.2	11.5	11.5	
											Retail REITs	12.0	12.4	12.1					
											Hotels Restaurants & Leisure	62	26.4	23.2	Automobiles	27.5	33.3	31.9	
	10.6%	6.8%	Consumer Discretionary	35.4	28.9	26.7	Automobile Components	19	16.1	13.3				Distributors	17.2	16.8	15.8		
														Household Durables	8.5	11.6	11.7		
														Broadline Retail	-1492.7	70.1	53.8		
														Leisure Products	13.9	13.5	13.5		
														Multiline Retail					
														Specialty Retail	18.6	18.9	18.7		
														Textiles Apparel & Luxury Goods	26.1	25.4	23.9		
	27.9%	22.2%	Information Technology	29.5	29.7	27.3	Communications Equipment	17.0	15.2	14.5				Electronic Equipment	19.9	21.6	20.5		
							IT Services	20.7	19.9	18.6				Semiconductors	28.7	35.2	31.3		
														Software	36.4	32.6	30.0		
														Technology Hardware Storage & Peripherals	28.4	28.1	26.1		
Aggregate PE: DWS View							Overweight	17.0	16.3	15.3	Equalweight	14.5	15.2	14.2	Underweight	26.4	26.3	24.5	
S&P 500								4373			2022, 2023& 2024 EPS	219.79	220.00	235.00	2022, 2023 & 2024 PE	19.9	19.9	18.6	
											Bottom-up Consensus EPS	219.79	222.27	247.37	Bottom-up Cons. PE	19.9	19.7	17.7	
															2022, 2023 & 2024 Ex Energy PE	20.8	20.8	19.4	
															Btm-up Cons. Ex Energy PE	21.4	20.5	18.3	

Sector OW	10.61%
Sector UW	-10.61%
Industry OW	21.86%
Industry UW	-21.86%

Macro tilts:	
Cyclicals	-5.05%
Defensive	5.05%
Value (Financial+Energy)	2.36%
Growth	-0.63%
Growth ex Health Care	-5.36%
Consumer	-3.88%
Services/experience	-0.09%
Disc. Goods	-4.06%
Retailing	-1.56%
Durables	-2.50%
Staples Goods/Retail	0.27%
Commodity	1.66%
Energy	1.46%
Metals/Chemicals	0.20%
Capex	3.48%
Capacity additions	1.21%
Productivity	2.27%
Health Care	4.73%
Innovation	3.05%
Marketers	2.42%
Insurers	-0.04%
Financials	0.90%
Up rates/low spreads	2.40%
Capital Markets	-2.70%
Insurance	1.20%
Bond Substitutes	0.60%
Weak FX \$ plays	0.89%
High R&D plays	1.60%
Transports	0.99%
Geopolitical risk	1.95%
Weak oil prices	0.18%
Inflation shock	0.57%
Stagflation Protection	4.84%
Domestic GDP	-1.23%
Global GDP	-5.62%
Consumer TMT	0.75%
Trade sensitive	-2.65%

Note: More details on sector earnings forecast and sector intrinsic valuation can be found towards the back of this note.
Price as of 6/14/2023
Source: DWS Investment Management GmbH

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	3,203	18.7	171.0	97%	166.2	-8%	152.9	15%	5.60%	2,731	0%	2,731	1.0%	2,939	17.7	-8%	3%
Consumer Discretionary	3,892	28.9	134.5	105%	141.2	-8%	129.9	13%	5.50%	2,362	15%	2,725	1.0%	2,929	20.7	-25%	-13%
<i>Automobiles</i>	799	33.3	24.0	100%	24.0	-12%	21.1	21%	6.50%	325	30%	422	0.4%	461	19.2	-42%	-31%
<i>Broadline (Internet) Retail</i>	1,157	70.1	16.5	150%	24.8	-7%	23.0	2%	5.50%	419	50%	628	0.0%	681	27.5	-41%	-30%
<i>ex. Auto & Broadline (Internet) Retail</i>	1,936	20.6	94.0	98%	92.4	-7%	85.7	16%	5.30%	1,618	3%	1,674	1.5%	1,787	19.3	-8%	4%
Consumer Staples	2,469	20.6	120.0	100%	120.0	-7%	111.6	15%	5.00%	2,232	0%	2,232	2.8%	2,347	19.6	-5%	6%
Energy	1,547	9.7	160.0	86%	138.1	-15%	117.4	14%	6.00%	1,957	-20%	1,565	3.1%	1,658	12.0	7%	19%
Financials	4,591	14.2	324.0	99%	320.4	-9%	291.5		6.40%	4,555	-8%	4,191	2.2%	4,494	14.0	-2%	9%
<i>Banks</i>	1,113	9.1	122.0	100%	122.0	-10%	109.8		7.50%	1,464	-15%	1,244	3.7%	1,329	10.9	19%	31%
Health Care	4,892	16.9	290.0	99%	288.4	-8%	265.4	9%	5.40%	4,914	0%	4,914	1.6%	5,246	18.2	7%	19%
Industrials	3,102	20.1	154.5	101%	155.7	-8%	143.3	17%	5.60%	2,558	0%	2,558	1.9%	2,731	17.5	-12%	-1%
Information Technology	10,406	29.7	350.0	103%	362.0	-5%	343.9	2%	5.40%	6,369	10%	7,005	0.9%	7,532	20.8	-28%	-16%
Materials	916	17.6	52.0	99%	51.3	-10%	46.1	18%	5.75%	802	0%	802	1.8%	858	16.7	-6%	5%
Real Estate	855	17.1	50.0	97%	48.4	-8%	44.5	35%	5.25%	848	0%	848	3.8%	886	18.3	4%	15%
Utilities	953	17.8	53.5	103%	55.3	-8%	50.9	80%	5.25%	969	0%	969	3.5%	1,015	18.4	7%	18%
S&P 500 (\$ bn)	36,826	19.8	1859.5	99%	1847.0	-8.1%	1697.4		5.57%	30,296	0.8%	30540	1.6%	32,634	17.7	-11%	0%
S&P 500 Index (\$/sh)	4373	19.9	220.0	100%	220.0	-8.2%	202.0	11%	5.60%	3607	0.0%	3607	1.6%	3847	17.5	-12%	0%



Source: IBES, DWS Investment GmbH as of 6/14/2023. 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.

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
S&P 500 EPS (historical index)	\$118.82	\$117.46	\$118.10	\$132.00	\$161.93	\$162.93	\$139.72	\$208.12	\$218.09	4.8%										
S&P 500 EPS (current constituents)	\$116.65	\$117.27	\$117.34	\$129.30	\$155.67	\$161.41	\$144.04	\$207.87	\$219.79	4.7%	\$222	1.1%	\$247	11.3%	\$220	0.1%	\$235	6.8%	\$220	100%
Sector (\$ bn)																				
Communication Services	67.8	78.4	91.3	99.3	124.2	130.6	135.8	188.4	148.9	-21.0%	172.1	15.6%	201.5	17.1%	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%	137.8	25.2%	162.9	18.2%	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%	120.3	2.9%	131.2	9.0%	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%	149.6	-25.7%	149.4	-0.1%	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%	335.4	9.9%	366.4	9.3%	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%	279.7	-9.2%	304.5	8.9%	290.0	-5.8%	310.0	6.9%	288.4	99%
Industrials	100.5	104.0	98.4	107.3	130.6	125.2	66.7	111.8	140.4	25.6%	159.8	13.8%	181.2	13.4%	154.5	10.0%	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%	357.4	1.4%	415.4	16.2%	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%	53.1	-16.9%	56.1	5.5%	52.0	-18.7%	55.5	6.7%	51.3	99%
Real Estate	22.3	25.5	28.0	31.5	35.1	36.5	36.4	43.5	50.5	16.2%	50.4	-0.3%	53.5	6.2%	50.0	-1.0%	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%	53.4	6.0%	58.0	8.6%	53.5	6.3%	56.5	5.6%	55.3	103%
S&P 500	969.9	977.2	986.2	1104.1	1320.6	1328.6	1201.3	1765.9	1848.2	4.7%	1869.1	1.1%	2080.1	11.3%	1859.5	0.6%	1985.5	6.8%	1847.0	99%
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%	1719.5	4.4%	1930.7	12.3%	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%	1511.7	1.1%	1664.7	10.1%	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%											

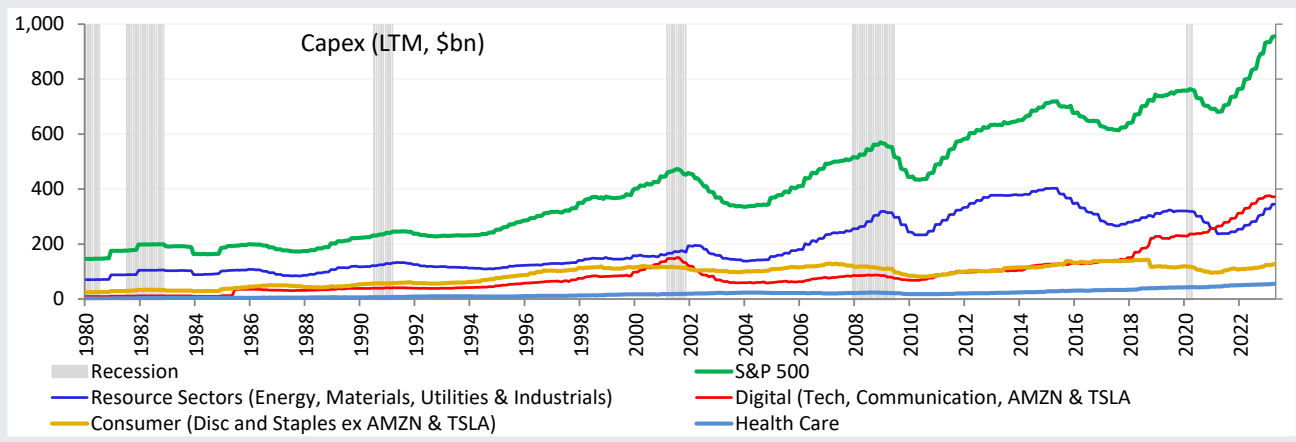
S&P 500 EPS	Year	1Q	2Q	3Q	4Q
2019A	163	39	41	41	42
2020A	140	33	28	38	42
2021A	210	49	53	54	54
2022A	222	55	58	56	53
2023E	220	53	55	55	57

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 3/31/2023.

Source: Factset, DWS Investment GmbH as of 6/14/2023. Past performance may not be indicative of future results.

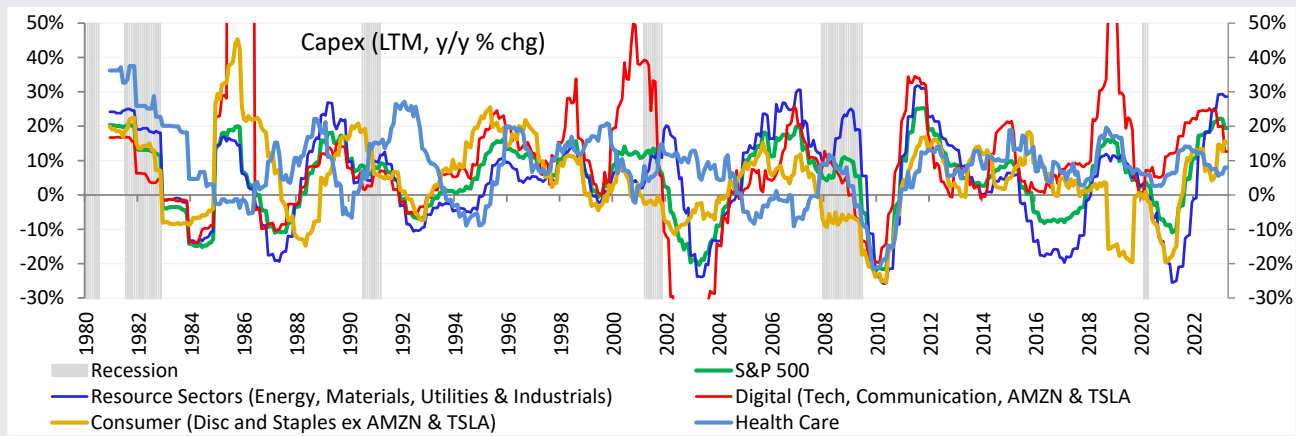
S&P 500 capex trends and key macro drivers

S&P 500 capex



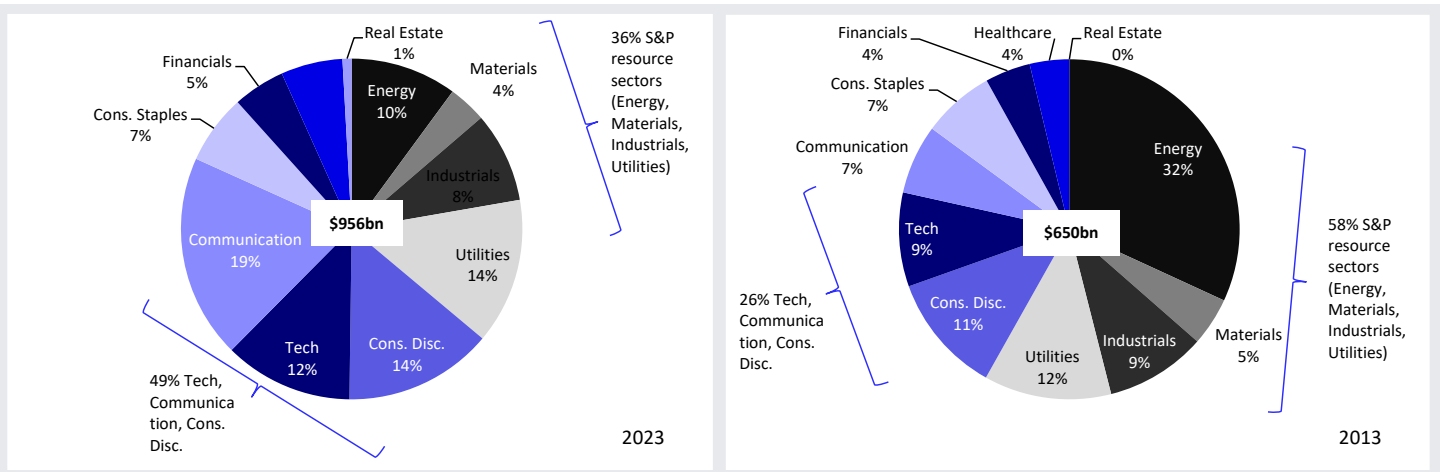
Source: Haver, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

S&P 500 capex growth



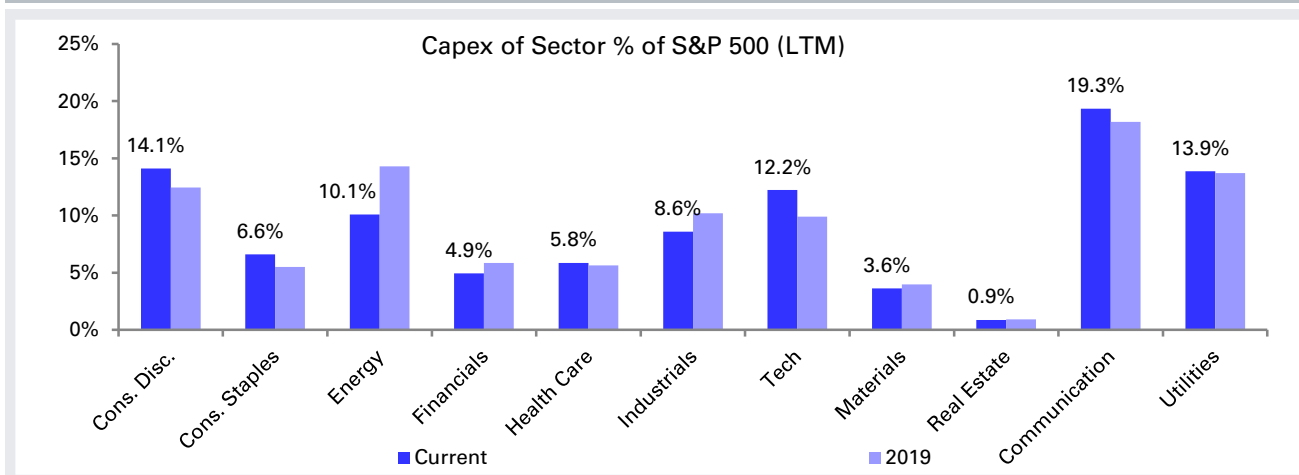
Source: Haver, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

S&P 500 Capex 2023 vs. 2013



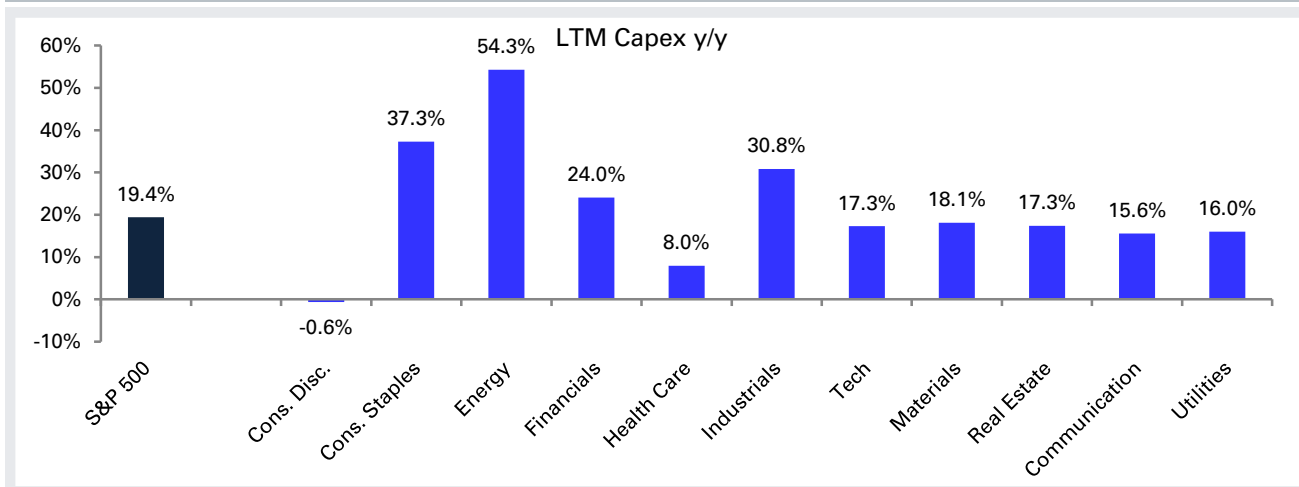
Source: Compustat, Clarifi, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

S&P 500 LTM Capex by sector: current vs. 2019



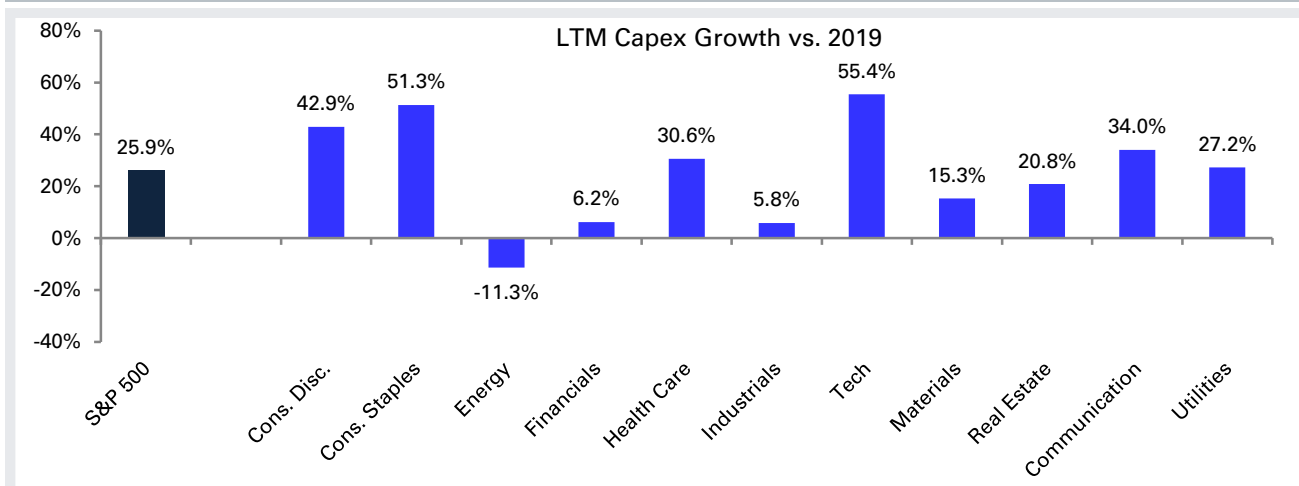
Source: Compustat, Clarifi, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

S&P 500 LTM Capex y/y growth by sector



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

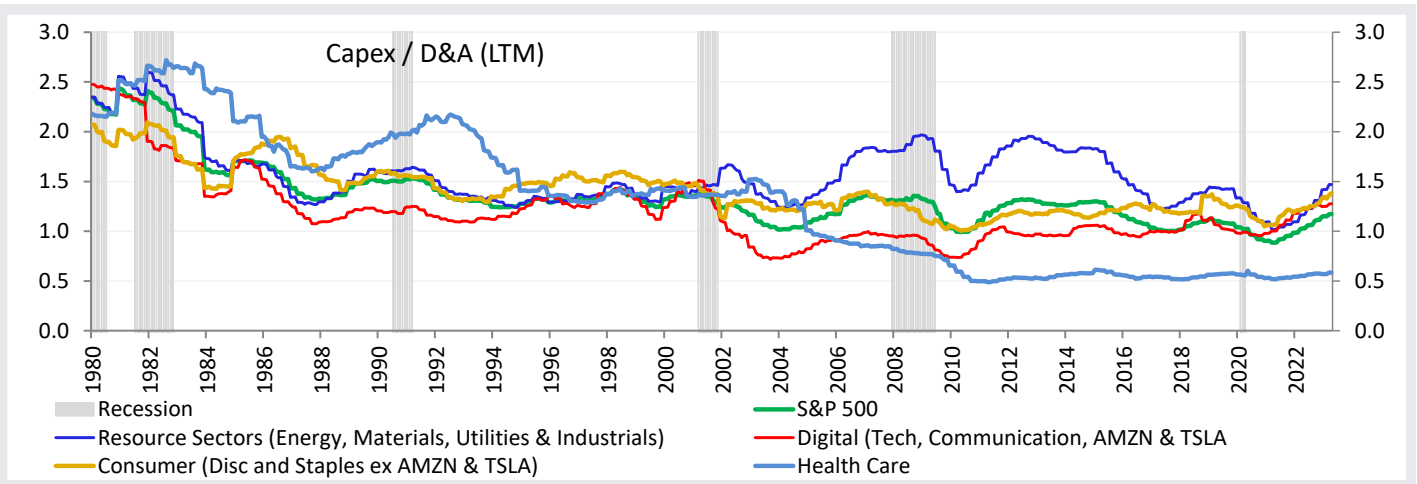
S&P 500 LTM Capex growth by sector: current vs. 2019



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

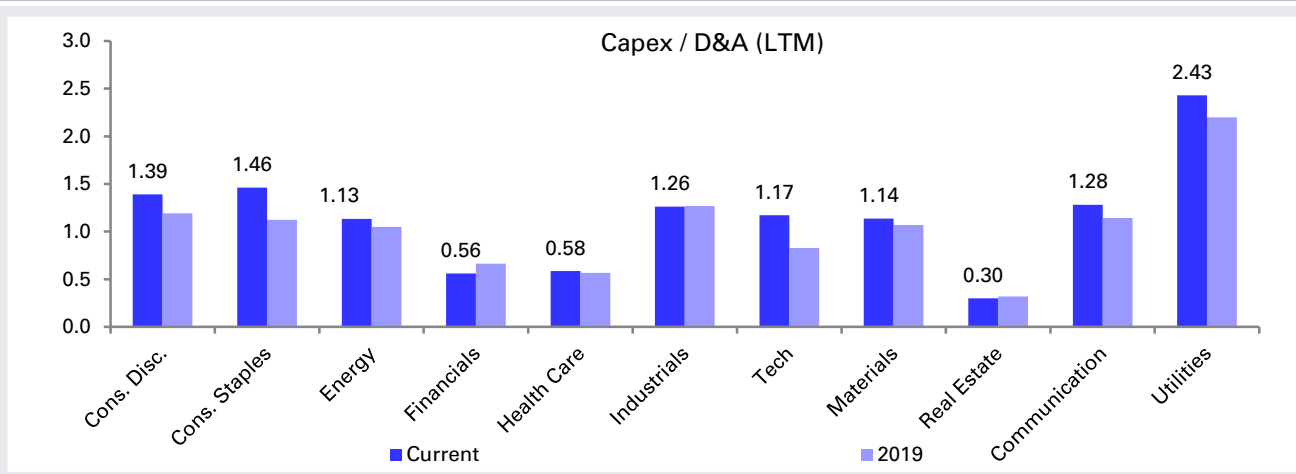
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S&P 500 Capex / Depreciation & Amortization



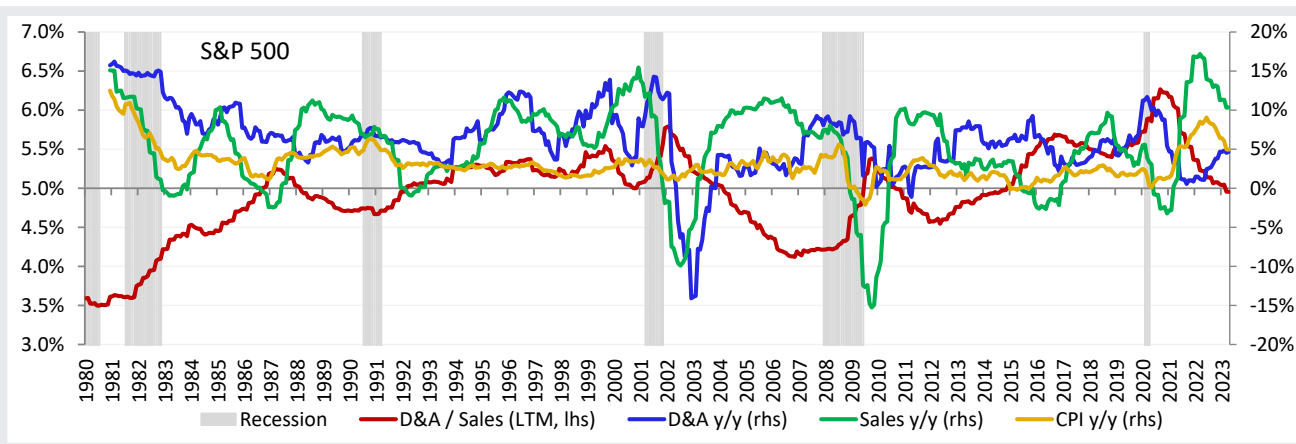
Source: Haver, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

S&P 500 Capex / D&A by sector: current vs. 3 years ago



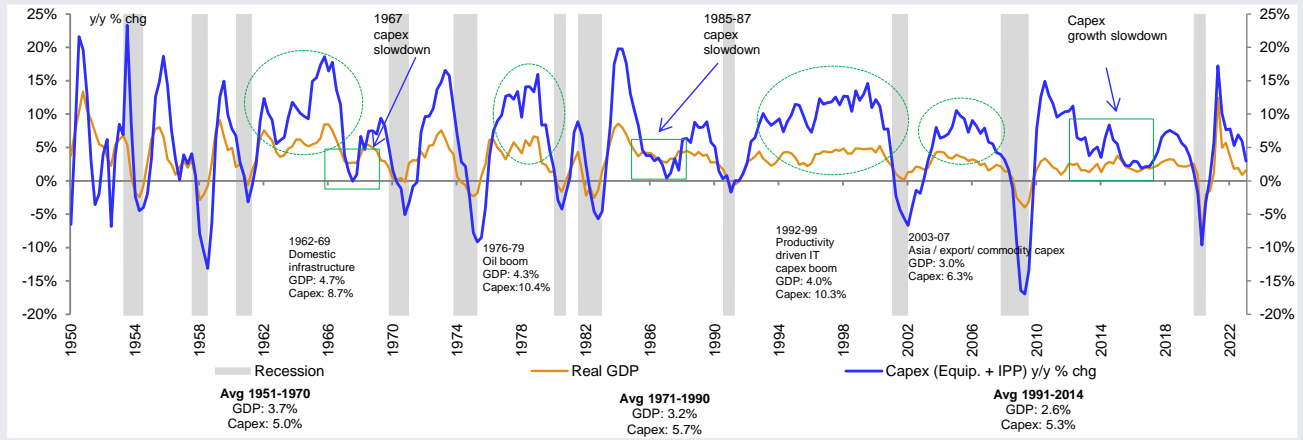
Source: Compustat, Clarifi, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

S&P 500 D&A vs. sales vs. inflation growth



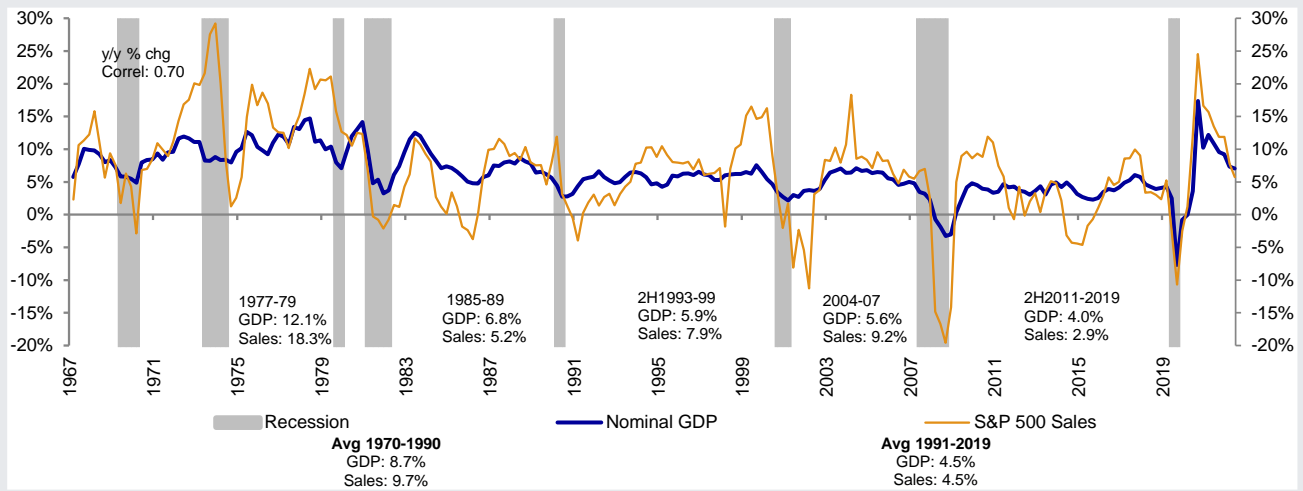
Source: Compustat, Clarifi, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

US real GDP and Capex growth



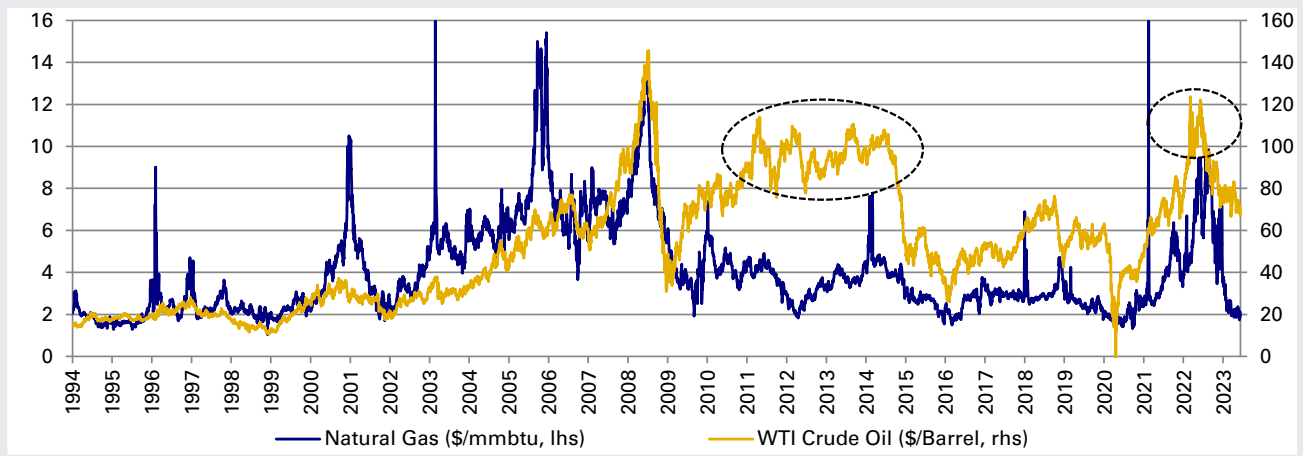
Source: Compustat, Clarifi, DWS Investment GmbH as of 1Q2023. Past performance may not be indicative of future results.

US nominal GDP growth vs. S&P 500 Sales growth



Source: Compustat, Clarifi, DWS Investment GmbH as of 1Q2023. Past performance may not be indicative of future results.

Crude oil and natural gas prices



Source: Haver, DWS Investment GmbH as of 6/12/2023. Past performance may not be indicative of future results.

S&P 500 Capex by industry

	Capex - LTM (\$mm)	D&A - LTM (\$mm)	Capex y/y Growth	Capex Growth Now vs. 2019	Capex / D&A	Capex / D&A Now vs. 2019	D&A / Sales	D&A / Sales 1yr Ago	D&A / Sales in 2019
CONSUMER DISCRETIONARY	134,843	96,910	-0.6%	42.9%	1.39	1.19	5.0%	6.4%	6.1%
Automobile Components	1,690	1,511	23.2%	33.9%	1.12	1.10	4.4%	5.0%	4.7%
Automobiles	36,861	21,623	12.0%	15.9%	1.70	1.40	5.3%	6.8%	7.6%
Distributors	633	650	-1.8%	12.3%	0.97	0.99	1.6%	1.6%	1.9%
Hotels, Restaurants & Leisure	16,490	16,746	0.0%	-13.3%	0.98	1.65	7.7%	8.6%	6.8%
Household Durables	2,050	1,765	-5.5%	0.3%	1.16	0.98	1.3%	1.3%	2.0%
Broadline Retail	63,429	44,377	943.2%	768.9%	1.43	1.17	8.3%	2.4%	3.3%
Leisure Products	198	227	43.6%	48.3%	0.87	0.74	4.0%	4.2%	3.8%
Specialty Retail	12,051	8,622	23.4%	15.0%	1.40	1.26	1.8%	1.7%	2.2%
Textiles, Apparel & Luxury Goods	1,494	1,356	-12.0%	-45.5%	1.10	1.07	1.8%	2.2%	2.7%
CONSUMER STAPLES	63,290	43,193	37.7%	51.7%	1.47	1.12	2.0%	2.1%	2.4%
Beverages	9,140	5,766	15.3%	15.6%	1.59	1.55	3.3%	3.6%	3.9%
Consumer Staples Distribution & Retail	36,806	22,968	60.2%	87.5%	1.60	1.11	1.7%	1.6%	1.8%
Food Products	9,976	7,964	23.6%	43.9%	1.25	0.96	2.1%	2.5%	3.0%
Household Products	4,992	4,441	-2.1%	-2.1%	1.12	1.08	3.4%	3.5%	4.1%
Personal Care Products	1,034	705	13.8%	-2.0%	1.47	0.82	4.4%	3.8%	5.6%
Tobacco	1,342	1,349	36.1%	22.2%	0.99	0.92	2.6%	2.3%	2.4%
Energy	96,254	85,046	54.3%	-11.3%	1.13	1.05	5.6%	7.3%	10.4%
Energy Equipment & Services	4,506	4,179	22.3%	-21.2%	1.08	0.76	5.7%	6.8%	7.2%
Oil, Gas & Consumable Fuels	91,748	80,867	56.3%	-10.8%	1.13	1.07	5.6%	7.4%	10.8%
FINANCIALS	47,196	84,146	24.0%	6.2%	0.56	0.66	4.0%	4.1%	3.7%
Capital Markets	12,203	16,280	0.1%	-20.2%	0.75	1.41	4.9%	5.3%	4.4%
Banks	8,302	25,184	25.7%	21.8%	0.33	0.26	3.7%	5.5%	4.5%
Consumer Finance	2,970	5,812	9.2%	3.9%	0.51	0.54	4.3%	5.6%	4.7%
Financial Services	20,674	23,123	49.3%	29.4%	0.89	1.59	5.6%	3.0%	3.1%
Insurance	3,047	13,746	13.6%	-12.8%	0.22	0.24	2.4%	2.5%	2.8%
Health Care	55,852	95,356	8.0%	30.6%	0.59	0.57	3.2%	3.3%	3.4%
Biotechnology	3,900	15,658	0.4%	20.1%	0.25	0.47	9.8%	8.8%	6.1%
Health Care Equipment & Supplies	9,797	16,475	4.9%	10.9%	0.59	0.59	7.8%	8.0%	8.3%
Health Care Providers & Services	18,796	22,626	8.8%	19.0%	0.83	0.77	1.1%	1.1%	1.3%
Life Sciences Tools & Services	5,659	8,768	-6.7%	156.1%	0.65	0.51	7.2%	6.9%	8.0%
Pharmaceuticals	17,701	31,829	18.8%	45.1%	0.56	0.43	9.0%	9.3%	10.5%
INDUSTRIALS	82,172	65,022	31.2%	6.1%	1.26	1.27	4.1%	4.5%	4.5%
Aerospace & Defense	9,271	11,945	10.5%	-11.7%	0.78	1.00	3.6%	3.9%	3.1%
Air Freight & Logistics	11,780	7,531	17.2%	-6.4%	1.56	2.09	3.3%	3.0%	3.6%
Passenger Airlines	20,455	8,766	118.5%	32.4%	2.33	1.75	4.6%	6.8%	5.3%
Building Products	1,652	1,892	-3.4%	68.1%	0.87	0.78	2.4%	2.4%	3.0%
Commercial Services & Supplies	5,106	4,184	29.6%	35.8%	1.22	1.17	8.5%	9.0%	8.7%
Construction & Engineering	398	609	-3.5%	-0.3%	0.65	0.88	3.5%	3.7%	1.8%
Electrical Equipment	1,366	2,810	-11.0%	-0.3%	0.49	0.65	5.1%	4.6%	4.1%
Industrial Conglomerates	3,886	5,722	0.6%	-53.8%	0.68	0.97	4.0%	4.5%	5.1%
Machinery	11,684	10,144	16.3%	6.2%	1.15	1.12	3.4%	3.9%	4.1%
Professional Services	1,697	2,656	52.0%	58.6%	0.64	0.52	3.5%	4.4%	8.9%
Ground Transportation	10,385	5,992	23.6%	14.3%	1.73	1.57	8.1%	8.6%	9.5%
Trading Companies & Distributors	4,492	2,771	17.6%	59.4%	1.62	1.17	7.9%	8.0%	9.2%
INFORMATION TECHNOLOGY	116,846	99,697	17.3%	55.5%	1.17	0.83	6.4%	6.4%	7.1%
Communications Equipment	1,210	2,545	26.4%	-12.1%	0.48	0.53	3.3%	4.1%	3.8%
Technology Hardware, Storage & Peripherals	17,569	16,488	9.5%	22.9%	1.07	0.79	3.3%	3.1%	4.5%
Electronic Equipment, Instruments & Components	3,325	3,806	-5.4%	-7.5%	0.87	1.04	4.4%	4.8%	5.5%
IT Services	3,274	8,412	-62.6%	-60.6%	0.39	0.44	4.9%	7.5%	6.3%
Semiconductors & Semiconductor Equipment	54,133	40,768	34.0%	78.8%	1.33	1.04	11.8%	10.3%	13.3%
Software	37,335	27,677	24.8%	115.8%	1.35	0.91	7.6%	7.3%	8.3%
MATERIALS	34,637	30,491	18.1%	15.3%	1.14	1.07	6.0%	6.7%	7.5%
Chemicals	18,802	17,887	7.7%	-2.1%	1.05	1.06	5.8%	6.3%	7.6%
Construction Materials	1,162	1,096	20.6%	49.4%	1.06	1.04	8.0%	8.4%	7.7%
Containers & Packaging	5,579	4,615	11.8%	24.8%	1.21	0.96	4.9%	5.1%	5.8%
Metals & Mining	9,095	6,894	53.8%	62.6%	1.32	1.21	7.3%	10.0%	9.8%
REAL ESTATE	7,905	27,194	12.0%	15.3%	0.29	0.32	18.7%	18.9%	19.0%
Industrial REITs	0	1,837			0	0	26.9%	30.8%	32.6%
Hotel & Resort REITs	0	674			0	0	12.8%	21.5%	12.4%
Office REITs	0	1,754			0	0	31.0%	28.3%	24.8%
Health Care REITs	0	3,271			0	0	26.6%	27.1%	25.3%
Residential REITs	40	3,423	33.7%	44.7%	0.01	0.01	24.2%	28.1%	27.3%
Retail REITs	0	4,111			0	0	30.0%	26.1%	26.4%
Specialized REITs	7,587	11,499	11.5%	16.1%	0.66	0.78	20.3%	20.1%	21.4%
Real Estate Management & Development	278	626	25.2%	-5.2%	0.44	0.67	2.0%	1.9%	1.8%
COMMUNICATION SERVICES	179,576	132,790	12.5%	30.2%	1.35	1.14	8.7%	8.5%	10.2%
Diversified Telecommunication Services	42,437	35,371	2.0%	3.0%	1.20	0.83	13.7%	13.4%	14.9%
Entertainment	7,788	17,511	37.8%	31.9%	0.44	0.96	8.8%	5.8%	5.1%
Interactive Media & Services	88,859	39,810	14.2%	41.6%	2.23	2.13	5.8%	5.3%	7.4%
Media	26,902	26,829	22.0%	23.8%	1.00	0.75	9.1%	9.2%	10.1%
Wireless Telecommunication Services	13,590	13,269	8.5%	112.6%	1.02	0.97	16.8%	19.5%	14.7%
UTILITIES	137,000	56,107	26.6%	37.6%	2.44	2.24	12.7%	14.5%	14.3%
Electric Utilities	86,445	38,565	29.1%	34.5%	2.24	2.20	13.0%	15.0%	15.4%
Gas Utilities	2,670	569	15.4%	47.8%	4.69	4.51	12.5%	13.2%	13.8%
Independent Power & Renewable Electricity Producers	5,336	1,056	117.8%	102.7%	5.05	1.89	8.1%	9.3%	7.0%
Multi-Utilities	40,150	15,255	16.0%	37.5%	2.63	2.26	12.5%	14.0%	13.8%
Water Utilities	2,399	663	30.0%	45.0%	3.62	2.84	17.1%	16.4%	16.1%

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

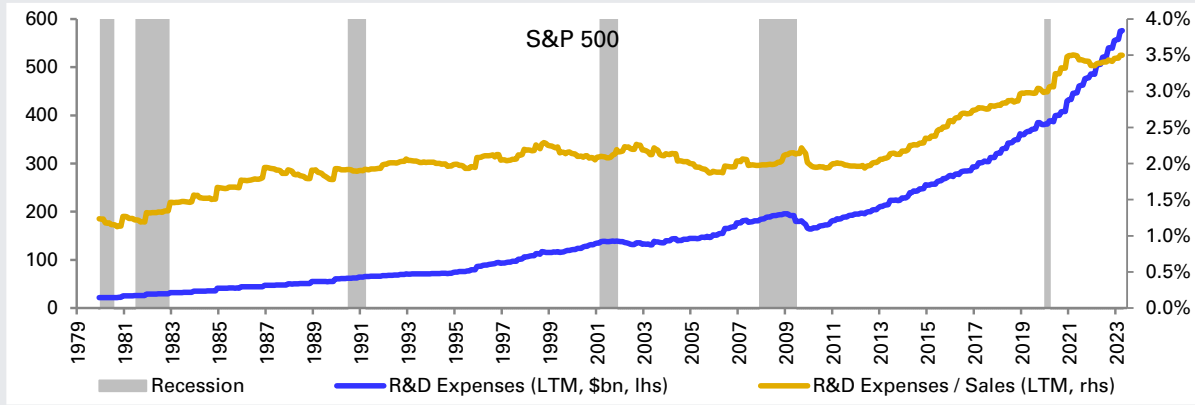
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Top 30 S&P 500 companies with highest capex spending

Ticker	Company Name	Sector	Industry	Capex Current (\$mm)	Capex 2019 (\$mm)	Capex 2013 (\$mm)	Capex Rank 2023	Capex Rank 2019	Capex Rank 2013	Capex/ D&A Current
AMZN	AMAZON.COM INC	Consumer Discretionary	Broadline Retail	62,901	16,861	3,444	1	7	46	1.4
META	META PLATFORMS INC	Communication Services	Interactive Media & Services	32,832	15,102	1,362	2	10	110	3.6
GOOG	ALPHABET INC	Communication Services	Interactive Media & Services	27,988	23,548	7,358	3	3	17	1.8
GOOGL	ALPHABET INC	Communication Services	Interactive Media & Services	27,988	23,548	7,358	3	3	17	1.8
INTC	INTEL CORP	Information Technology	Semiconductors & Semiconducto	27,653	16,213	10,711	5	8	10	2.3
MSFT	MICROSOFT CORP	Information Technology	Software	26,035	13,546	5,687	6	12	22	1.9
VZ	VERIZON COMMU	Communication Services	Diversified Telecommunication Sr	23,224	17,939	16,604	7	6	4	1.4
GM	GENERAL MOTORS CO	Consumer Discretionary	Automobiles	22,121	23,996	9,819	8	2	11	2.2
XOM	EXXON MOBIL CORP	Energy	Oil, Gas & Consumable Fuels	19,908	24,361	33,669	9	1	2	1.1
T	AT&T INC	Communication Services	Diversified Telecommunication Sr	19,213	19,635	21,228	10	5	3	1.1
WMT	WALMART INC	Consumer Staples	Consumer Staples Distribution &	17,747	10,705	13,115	11	15	7	1.6
BRK.B	BERKSHIRE HATHAWAY	Financials	Financial Services	16,087	15,979	11,087	12	9	9	1.4
TMUS	T-MOBILE US INC	Communication Services	Wireless Telecommunication Ser	13,590	6,391	4,025	13	25	34	1.0
CVX	CHEVRON CORP	Energy	Oil, Gas & Consumable Fuels	13,052	14,116	37,985	14	11	1	0.8
AAPL	APPLE INC	Information Technology	Technology Hardware, Storage &	12,094	9,247	7,833	15	16	14	1.1
DUK	DUKE ENERGY CORP	Utilities	Electric Utilities	11,962	11,122	5,526	16	14	23	2.4
CMCSA	COMCAST CORP	Communication Services	Media	11,704	11,123	8,500	17	13	13	0.8
MU	MICRON TECHNOLOGY	Information Technology	Semiconductors & Semiconducto	10,845	9,023	1,336	18	17	112	1.4
CHTR	CHARTER COMMU	Communication Services	Media	9,983	7,195	1,825	19	22	92	1.1
COP	CONOCOPHILLIPS	Energy	Oil, Gas & Consumable Fuels	9,895	6,636	15,537	20	23	5	1.2
NEE	NEXTERA ENERGY INC	Utilities	Electric Utilities	9,736	5,875	3,228	21	30	49	2.2
PCG	PG&E CORP	Utilities	Electric Utilities	9,562	6,313	5,207	22	28	27	2.4
ORCL	ORACLE CORP	Information Technology	Software	8,695	1,591	578	23	117	200	1.4
SO	SOUTHERN CO	Utilities	Electric Utilities	8,354	7,555	5,463	24	20	24	2.2
D	DOMINION ENERGY INC	Utilities	Multi-Utilities	8,189	4,980	4,104	25	36	33	2.9
TESLA	TESLA INC	Consumer Discretionary	Automobiles	7,464	1,432	264	26	123	284	1.9
F	FORD MOTOR CO	Consumer Discretionary	Automobiles	7,276	7,632	6,597	27	19	20	0.9
AEP	AMERICAN ELECTRIC POW	Utilities	Electric Utilities	7,147	6,144	3,778	28	28	36	2.2
EXC	EXELON CORP	Utilities	Electric Utilities	7,106	7,248	5,395	29	21	25	2.1
FDX	FEDEX CORP	Industrials	Air Freight & Logistics	6,804	6,122	3,177	30	29	51	1.7

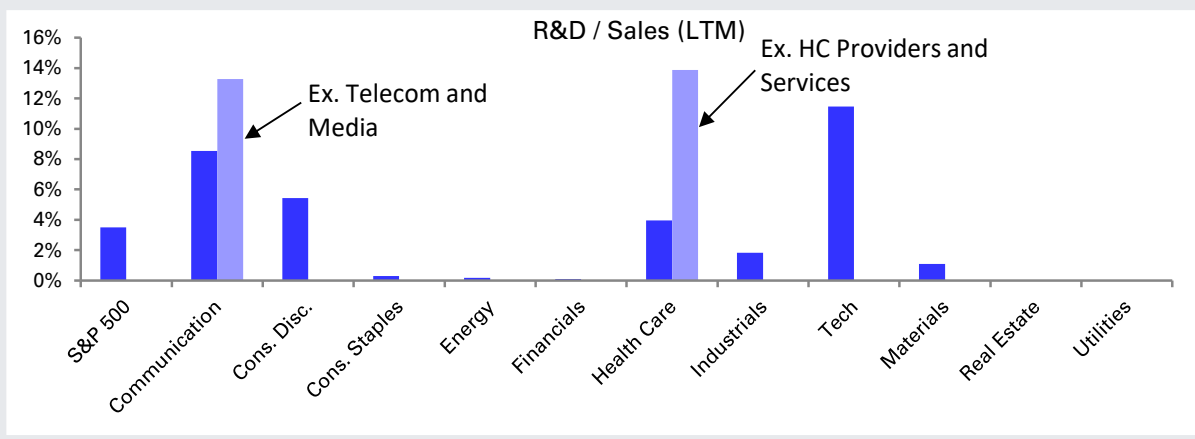
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S&P 500 R&D / Sales



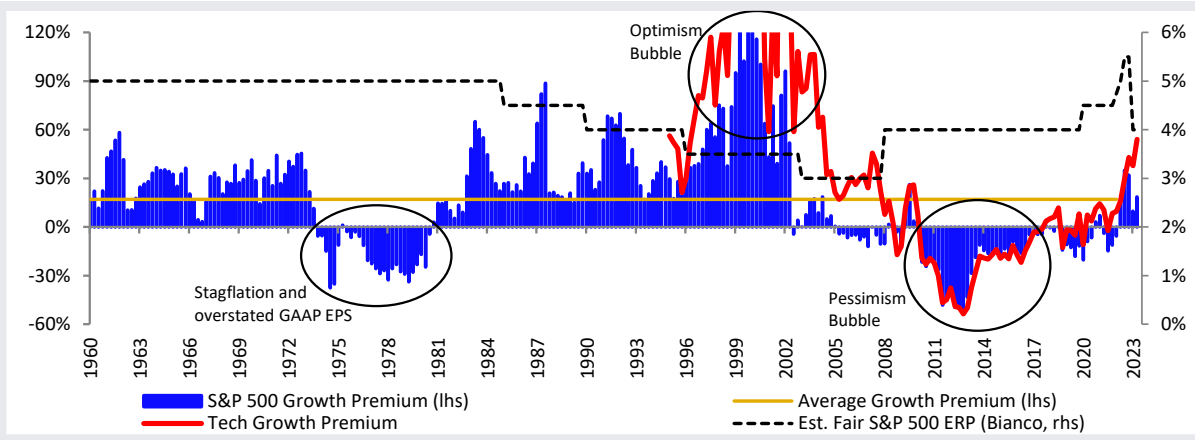
Source: Compustat, Clarifi, DWS Investment GmbH as of June 2023

S&P 500 R&D / Sales by sector



Source: Compustat, Clarifi, DWS Investment GmbH as of June 2023

S&P 500 and Tech growth premium



Source: IBES, Factset, DWS Investment GmbH as of June 2023

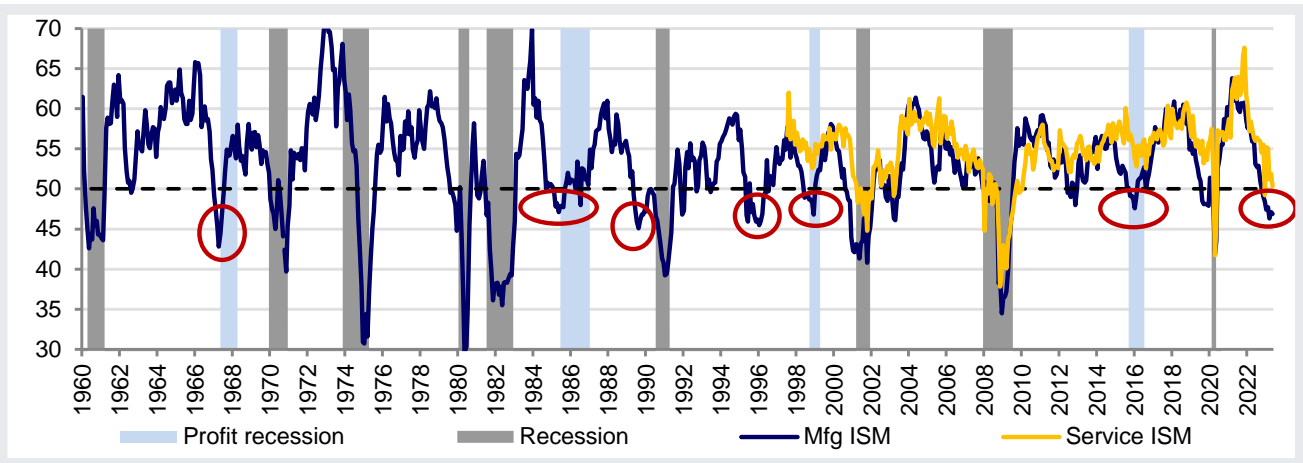
S&P 500 R&D by industry

	R&D - LTM (\$mm)	R&D y/y Growth	R&D Growth Now vs. 2019	R&D / Sales	R&D / Sales in 2019
CONSUMER DISCRETIONARY	17,701	380.5%	492.9%	5.4%	1.4%
Automobile Components	1,578	9.3%	20.9%	5.6%	6.4%
Automobiles	14,417	12.5%	42.8%	5.0%	4.8%
Distributors	-	-	-	0.0%	0.0%
Hotels, Restaurants & Leisure	22	-	-100.0%	0.0%	0.0%
Household Durables	1,320	1.1%	10.0%	1.0%	1.2%
Broadline Retail	-	-	-	15.0%	0.0%
Leisure Products	262	-0.6%	22.7%	5.6%	5.6%
Specialty Retail	50	-	-100.0%	0.0%	0.0%
Textiles, Apparel & Luxury Goods	52	0.0%	-13.2%	0.1%	0.1%
CONSUMER STAPLES	5,799	6.6%	10.1%	0.3%	0.4%
Beverages	711	11.2%	17.6%	0.5%	0.5%
Consumer Staples Distribution & Retail	-	-	-	0.0%	0.0%
Food Products	1,434	4.7%	9.9%	0.4%	0.6%
Household Products	2,656	4.9%	7.6%	2.2%	2.3%
Personal Care Products	365	26.3%	-15.8%	1.9%	1.6%
Tobacco	633	5.5%	27.0%	1.5%	1.3%
Energy	3,848	6.9%	-27.9%	0.2%	0.4%
Energy Equipment & Services	1,998	14.2%	-21.5%	2.1%	1.9%
Oil, Gas & Consumable Fuels	1,850	-1.2%	-34.9%	0.1%	0.2%
FINANCIALS	149	503.5%	1374.5%	0.1%	0.0%
Capital Markets	149	0.0%	144.5%	0.1%	0.1%
Banks	-	-	-	0.0%	0.0%
Consumer Finance	-	-	-	0.0%	0.0%
Financial Services	-	-	-	0.4%	0.0%
Insurance	-	-	-	0.0%	0.0%
Health Care	91,553	-3.1%	28.5%	4.0%	4.2%
Biotechnology	28,751	-1.9%	19.1%	21.4%	25.8%
Health Care Equipment & Supplies	13,135	9.0%	20.6%	7.5%	7.3%
Health Care Providers & Services	71	27.1%	25.4%	0.0%	0.0%
Life Sciences Tools & Services	2,530	0.3%	136.8%	4.9%	4.7%
Pharmaceuticals	46,555	-5.9%	32.1%	17.3%	17.4%
INDUSTRIALS	26,412	10.2%	9.1%	1.8%	2.0%
Aerospace & Defense	10,268	7.6%	1.3%	3.1%	3.0%
Air Freight & Logistics	-	-	-	0.0%	0.0%
Passenger Airlines	-	-	-	0.0%	0.0%
Building Products	510	1.2%	139.8%	1.5%	1.2%
Commercial Services & Supplies	-	-	-	0.0%	0.0%
Construction & Engineering	-	-	-	0.0%	0.0%
Electrical Equipment	1,601	8.1%	25.3%	3.7%	3.1%
Industrial Conglomerates	6,921	-3.5%	-14.2%	4.1%	4.1%
Machinery	7,047	12.9%	13.7%	2.7%	2.9%
Professional Services	66	676.2%	1771.9%	1.6%	0.3%
Ground Transportation	-	-	-	0.0%	0.0%
Trading Companies & Distributors	-	-	-	0.0%	0.0%
INFORMATION TECHNOLOGY	120,980	12.1%	46.9%	11.5%	9.5%
Communications Equipment	9,152	8.0%	14.4%	13.5%	13.3%
Technology Hardware, Storage & Peripherals	24,453	13.6%	49.2%	7.3%	6.2%
Electronic Equipment, Instruments & Components	3,378	1.1%	32.1%	5.2%	5.4%
IT Services	9,019	-23.3%	-9.8%	4.7%	3.0%
Semiconductors & Semiconductor Equipment	40,154	16.7%	56.9%	18.2%	18.4%
Software	34,824	15.7%	58.5%	15.1%	15.2%
MATERIALS	5,470	1.2%	1.9%	1.1%	1.5%
Chemicals	5,129	1.2%	0.4%	1.7%	2.2%
Construction Materials	-	-	-	0.0%	0.0%
Containers & Packaging	323	0.8%	26.4%	0.4%	0.4%
Metals & Mining	17	0.0%	0.0%	0.0%	0.0%
REAL ESTATE	6,563	11.6%	16.2%	5.2%	5.8%
Industrial REITs	0	-	-	0.0%	0.0%
Hotel & Resort REITs	0	-	-	0.0%	0.0%
Office REITs	0	-	-	0.0%	0.0%
Health Care REITs	0	-	-	0.0%	0.0%
Residential REITs	27	33.7%	44.7%	0.3%	0.3%
Retail REITs	0	-	-	0.0%	0.0%
Specialized REITs	6,536	11.5%	16.1%	13.4%	16.6%
Real Estate Management & Development	0	-	-	0.0%	0.0%
COMMUNICATION SERVICES	71,998	25.9%	80.3%	8.5%	6.1%
Diversified Telecommunication Services	1,276	-18.8%	-3.1%	0.5%	0.4%
Entertainment	4,382	17.5%	69.7%	3.7%	3.6%
Interactive Media & Services	66,318	27.2%	82.5%	17.6%	16.7%
Media	21	43.8%	119.0%	0.0%	0.0%
Wireless Telecommunication Services	-	-	-	0.0%	0.0%
UTILITIES	-	-	-	0.0%	0.0%
Electric Utilities	-	-	-	0.0%	0.0%
Gas Utilities	-	-	-	0.0%	0.0%
Independent Power & Renewable Electricity Producers	-	-	-	0.0%	0.0%
Multi-Utilities	-	-	-	0.0%	0.0%
Water Utilities	-	-	-	0.0%	0.0%

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

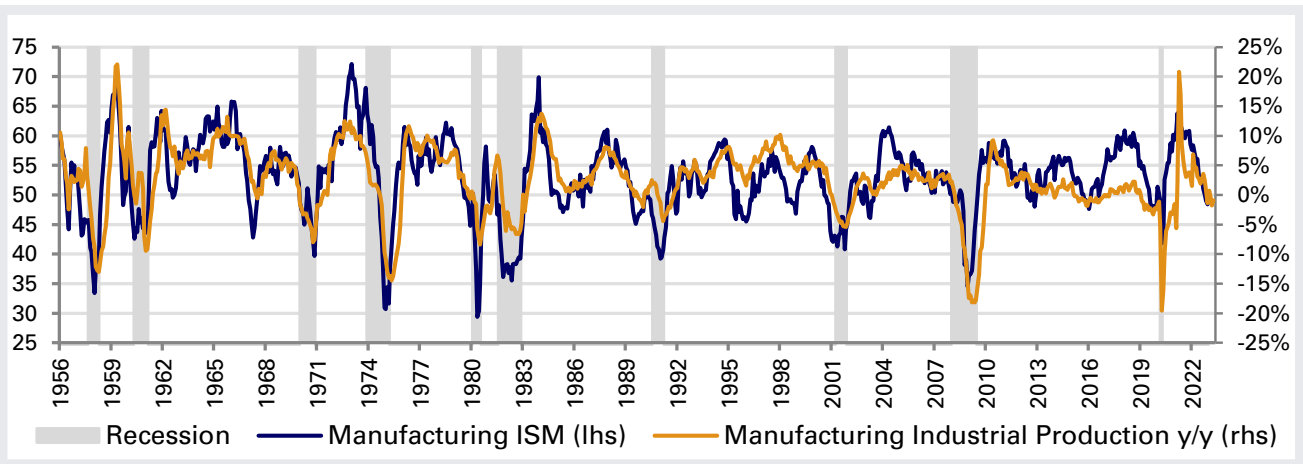
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U.S. manufacturing and services ISM



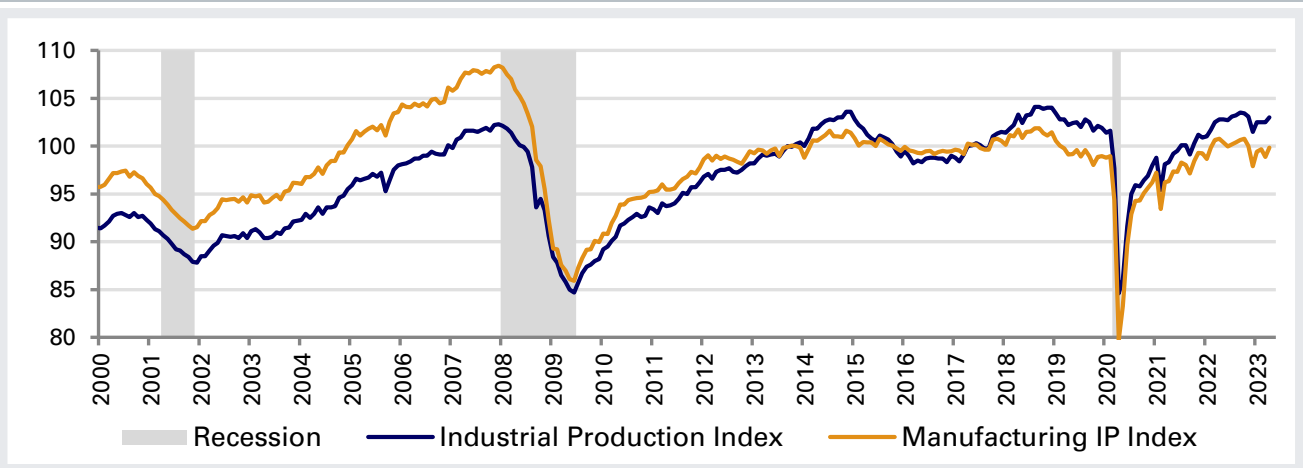
Source: ISM, Haver, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

Manufacturing ISM vs. manufacturing industrial production y/y



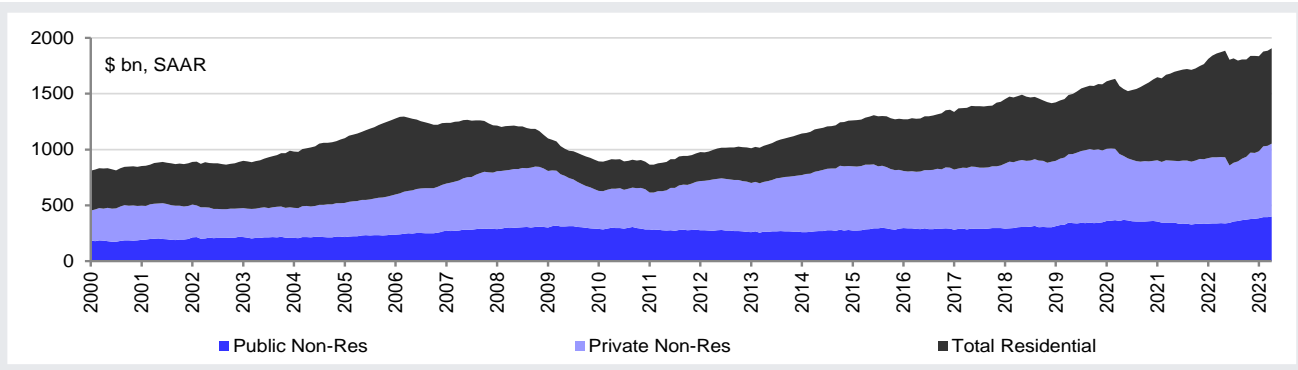
Source: ISM, FRB, Haver, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

Industrial production: Has the US manufacturing renaissance begun?



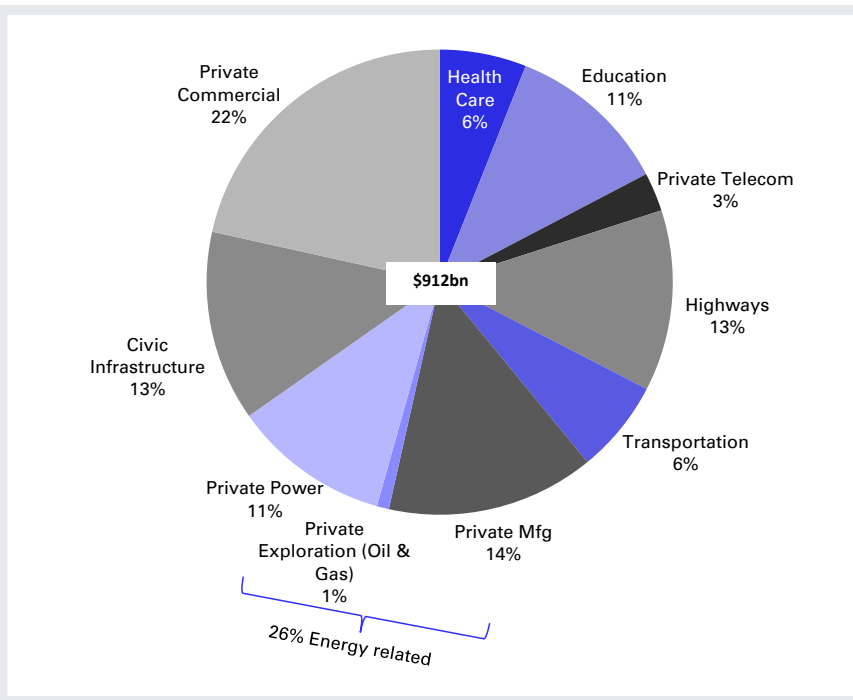
Source: FRB, Haver, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

Construction spending



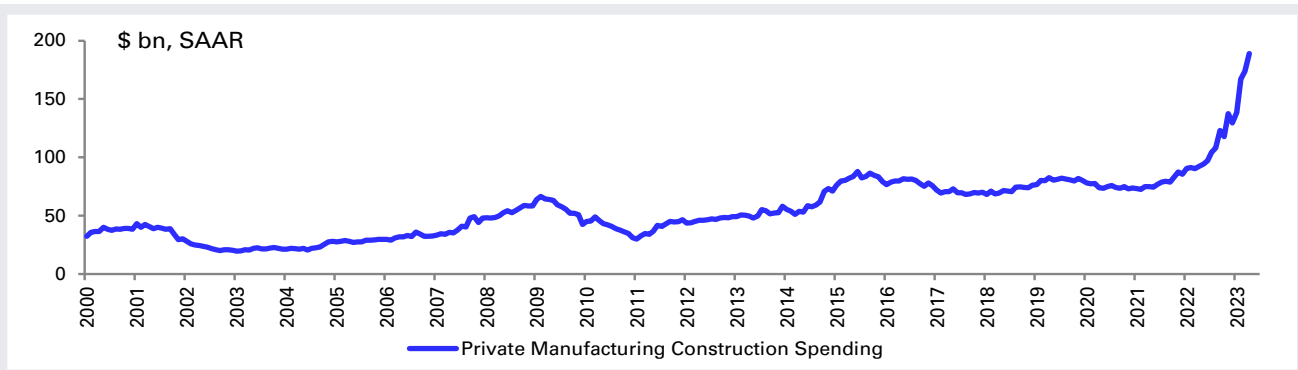
Source: Haver, DWS Investment GmbH as of June 2023. Past performance may not be indicative of future results.

U.S. non-residential construction by category (SAAR, 12-month average)



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

Private manufacturing construction spending: Select industries are leading advanced manufacturing investment



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

S&P 500 industry monitor (1 of 2)

Sector	Industry	PE on 2022	PE on 2023	2023	2024	2023 EPS	3m Total	2023 End	Combined
		EPS	Consensus EPS	Consensus EPS Growth	Consensus EPS Growth	3m Revision	Return Momentum	Upside (Intrinsic Valuation)	
Consumer Discretionary									
	<i>Automobile Components</i>	34.1	24.0	19.8%	18.4%	2.7%	16.5%	-16.0%	1
	<i>Automobiles</i>	21.9	12.8	33.3%	28.3%	0.6%	-6.7%	29.9%	0
	<i>Household Durables</i>	30.8	27.9	-0.5%	11.1%	2.0%	35.4%	-15.2%	1
	<i>Leisure Products</i>	8.1	10.4	-26.5%	5.8%	11.2%	12.1%	-4.0%	1
	<i>Textiles Apparel & Luxury Goods</i>	14.2	12.4	2.1%	12.6%	1.0%	30.4%	-13.3%	0
	<i>Hotels Restaurants & Leisure</i>	25.3	20.9	3.0%	17.9%	0.2%	-5.1%	-25.8%	0
	<i>Distributors</i>	83.0	20.7	225.9%	23.4%	6.0%	9.5%	-8.0%	1
	<i>Broadline Retail</i>	17.2	15.8	-0.1%	9.0%	-1.4%	-1.6%	-2.1%	-1
	<i>Specialty Retail</i>	110.4	45.0	58.0%	55.4%	9.3%	25.5%	-32.9%	1
		18.9	17.8	-1.5%	7.9%	-3.2%	4.8%	-4.9%	0
Consumer Staples									
	<i>Consumer Staples Distribution & Retail</i>	21.3	18.8	3.6%	9.0%	-0.9%	2.6%	-8.8%	0
	<i>Food Products</i>	22.9	19.7	5.1%	10.7%	-1.9%	2.9%	-4.3%	0
	<i>Beverages</i>	16.4	16.3	-6.0%	6.6%	-1.6%	3.4%	-0.1%	0
	<i>Tobacco</i>	26.2	22.2	8.8%	8.7%	1.0%	4.0%	-10.0%	0
	<i>Household Products</i>	12.6	11.2	5.3%	7.2%	-1.3%	-1.0%	5.5%	-1
	<i>Personal Care Products</i>	26.2	22.0	8.3%	9.7%	1.3%	3.9%	-23.7%	0
		28.7	31.2	-35.0%	41.5%	-29.2%	-18.7%	-20.5%	-1
Energy									
	<i>Energy Equipment & Services</i>	8.5	10.4	-18.5%	0.1%	-9.7%	3.8%	8.3%	-1
	<i>Oil Gas & Consumable Fuels</i>	24.9	11.9	69.4%	23.2%	-0.4%	4.8%	36.2%	0
		8.0	10.2	-21.1%	-1.4%	-10.2%	3.7%	5.8%	-1
Financials									
	<i>Banks</i>	14.8	12.5	8.3%	9.1%	-1.4%	5.1%	1.7%	0
	<i>Financial Services</i>	9.4	8.7	8.6%	-1.2%	1.4%	3.8%	29.2%	0
	<i>Consumer Finance</i>	24.2	18.7	13.6%	14.1%	0.8%	6.7%	-7.9%	0
	<i>Capital Markets</i>	9.4	10.2	-17.7%	11.5%	-6.0%	14.1%	11.6%	-1
	<i>Insurance</i>	16.9	14.3	3.1%	14.3%	-5.7%	4.3%	-19.8%	0
		15.8	11.1	18.2%	20.4%	-3.9%	2.9%	9.8%	0
Health Care									
	<i>Health Care Providers & Services</i>	15.9	16.1	-9.5%	8.9%	0.0%	2.5%	5.4%	-1
	<i>Health Care Equipment & Supplies</i>	15.2	12.8	7.8%	10.4%	0.2%	-1.0%	15.2%	0
	<i>Life Sciences Tools & Services</i>	27.1	24.4	1.0%	9.7%	0.5%	9.3%	-3.9%	0
	<i>Biotechnology</i>	23.4	22.1	-6.1%	13.1%	-2.1%	-5.5%	-11.9%	-1
	<i>Pharmaceuticals</i>	11.5	14.7	-23.9%	3.0%	-0.3%	-4.1%	18.0%	-1
		13.2	14.4	-16.0%	9.4%	0.2%	7.7%	11.3%	0
Industrials									
	<i>Aerospace & Defense</i>	23.6	17.2	20.7%	13.4%	2.0%	6.3%	-7.3%	1
	<i>Building Products</i>	44.5	19.3	82.3%	26.6%	-2.5%	0.8%	-4.1%	-1
	<i>Trading Companies & Distributors</i>	21.3	16.8	14.7%	10.2%	1.5%	5.3%	-9.1%	0
	<i>Electrical Equipment</i>	20.8	15.6	23.8%	7.6%	0.4%	5.5%	12.3%	0
	<i>Construction & Engineering</i>	23.2	20.5	2.2%	10.5%	2.8%	12.2%	-7.4%	1
	<i>Industrial Conglomerates</i>	29.8	22.4	13.8%	16.6%	0.0%	17.8%	-23.6%	1
		21.6	18.6	-7.0%	24.9%	1.3%	7.7%	-17.7%	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 6/14/2023. Past performance may not be indicative of future results.

S&P 500 industry monitor (2 of 2)

Sector	Industry	PE on 2022	PE on 2023	2023	2024	2023 EPS	3m Total	2023 End	Combined
		EPS	Consensus EPS	Consensus EPS Growth	Consensus EPS Growth	3m Revision	Return Momentum	Upside (Intrinsic Valuation)	
	Machinery	20.0	15.6	24.5%	3.5%	6.8%	8.5%	3.3%	1
	Commercial Services & Supplies	34.3	27.2	12.2%	12.4%	1.9%	10.8%	-37.9%	1
	Professional Services	29.5	24.1	8.2%	13.3%	0.3%	7.1%	-32.2%	0
	Air Freight & Logistics	13.1	14.2	-18.5%	12.8%	-2.2%	-0.2%	-13.2%	-1
	Passenger Airlines	29.3	6.2	291.7%	21.3%	10.4%	19.5%	62.6%	1
	Ground Transportation	18.2	16.8	-0.6%	9.1%	-1.7%	6.3%	4.5%	0
Information Technology		28.9	25.0	-0.7%	16.2%	1.4%	22.0%	-17.1%	0
	IT Services	20.8	18.3	4.7%	8.5%	-0.7%	16.5%	-1.2%	0
	Software	36.9	28.1	14.8%	14.5%	2.1%	22.0%	-16.4%	1
	Communications Equipment	17.8	14.2	17.5%	6.6%	1.2%	2.9%	16.3%	0
	Technology Hardware Storage & Peripherals	27.9	26.2	-3.9%	11.0%	-1.0%	18.0%	-18.6%	0
	Electronic Equipment Instruments & Components	20.0	18.1	-2.1%	12.7%	-3.4%	1.4%	-17.8%	-1
	Semiconductors & Semiconductor Equipment	26.5	24.6	-16.4%	28.9%	4.2%	32.5%	-21.6%	1
Materials		13.7	16.4	-20.7%	5.6%	-0.7%	5.9%	-3.4%	0
	Chemicals	15.8	16.9	-15.4%	10.9%	-3.8%	6.1%	-3.8%	-1
	Construction Materials	36.6	24.8	25.8%	17.2%	8.5%	26.8%	-40.4%	1
	Metals & Mining	8.2	14.5	-35.1%	-13.0%	12.4%	3.2%	7.0%	0
	Containers & Packaging	11.3	13.5	-23.2%	9.1%	-8.0%	-1.4%	1.7%	-1
Real Estate		28.2	33.0	-21.4%	8.7%	1.5%	2.0%	4.5%	-1
	Industrial REITs	28.1	42.0	-34.3%	1.9%	2.4%	1.8%	-15.4%	-1
	Hotel & Resort REITs	15.5	18.6	-7.7%	-9.9%	27.2%	10.8%	68.4%	1
	Office REITs	20.0	29.2	-35.2%	5.7%	1.9%	0.4%	23.0%	-1
	Health Care REITs	98.1	72.4	-9.1%	49.1%	34.5%	8.6%	2.4%	0
	Residential REITs	30.3	42.7	-30.8%	2.5%	1.6%	10.7%	1.6%	1
	Retail REITs	28.4	25.7	7.0%	3.4%	3.8%	2.0%	17.8%	0
	Specialized REITs	27.8	32.0	-22.1%	11.4%	-1.4%	-1.7%	3.4%	-1
	Real Estate Management & Development	12.7	13.6	-21.6%	19.7%	-3.6%	3.7%	28.0%	-1
Communication Services		19.1	16.0	1.7%	17.5%	3.3%	17.9%	-2.2%	1
	Diversified Telecommunication Services	6.2	7.0	-13.6%	1.1%	-0.5%	-6.0%	1.6%	-1
	Wireless Telecommunication Services	73.6	13.3	309.9%	34.9%	2.3%	-9.5%	11.8%	1
	Media	11.6	10.5	-2.3%	12.7%	-1.1%	9.0%	-4.5%	0
	Entertainment	31.0	21.7	-0.7%	43.8%	-8.9%	14.2%	-2.0%	0
	Interactive Media & Services	25.0	19.4	7.5%	19.8%	9.2%	26.1%	0.5%	1
Utilities		18.7	16.4	5.0%	8.6%	-0.6%	-1.3%	2.0%	0
	Multi-Utilities	17.7	16.5	2.3%	5.1%	-0.9%	-1.1%	-3.8%	0
	Water Utilities	34.1	28.5	11.3%	7.3%	0.3%	2.9%	-24.0%	0
	Gas Utilities	20.7	17.9	8.4%	6.6%	0.3%	3.0%	-6.5%	0
	Electric Utilities	19.0	16.3	6.0%	10.1%	-0.6%	-1.4%	8.9%	0
	Independent Power and Renewable Electricity Producers	12.7	10.8	5.5%	11.8%	-0.1%	-10.1%	2.4%	0
S&P 500		20.0	18.0	0.0%	11.4%	-0.3%	10.9%	-6.7%	0

Source: Factset, DWS Investment GmbH as of 6/14/2023. Past performance may not be indicative of future results.
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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%
		2023E dividend payout ratio	32%	2022E end S&P 500 book value per share	\$1,007	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	20.1%	+ Long-term real risk free interest rate	1.60%
"Normal 2023E" EPS / 2023E EPS	100%	Normal dividend payout ratio	35%			+ Long-term fair S&P 500 equity risk premium*	4.00%
				S&P EPS retained for true reinvestment	47%	= Long-term real S&P 500 cost of equity	5.60%
Accounting quality adjustment to pro forma EPS	-\$18.00	EPS directed to net share repurchases	\$38.00	Estimated ROE on reinvested S&P EPS	8.60%	+ 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	8.60%
Normal 2023E S&P 500 EPS fair to capitalize	\$202	Total payout of S&P 500 EPS	\$108.00	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	2.61%	2022E end S&P 500 book value per share	\$1,007
<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	3.58
Normal EPS / (real CoE - (EM/payout) - EM):		Normal DPS / (nominal CoE - DPS growth):		= Long-term earnings growth	5.61%	Fair PE = (inc ROE-g)/(inc real ROE*(real CoE-real g))	17.9
S&P 500 intrinsic value at 2023 start	3607	S&P 500 intrinsic value at 2023 start	3607	+ Growth from net share repurchases	1.05%	Implied S&P 500 fair value of book at 2023 start	3607
S&P 500 intrinsic value at 2023 end	3847	S&P 500 intrinsic value at 2023 end	3847	= Long-term S&P 500 EPS/DPS growth	6.66%	Steady-state PB = normal agg. ROE / real CoE	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%	+ Fair normal dividend yield	1.94%	Confirmed by fair steady-state PE = 1 / real CoE	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%	= Total long-term return at constant PE	8.60%		

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

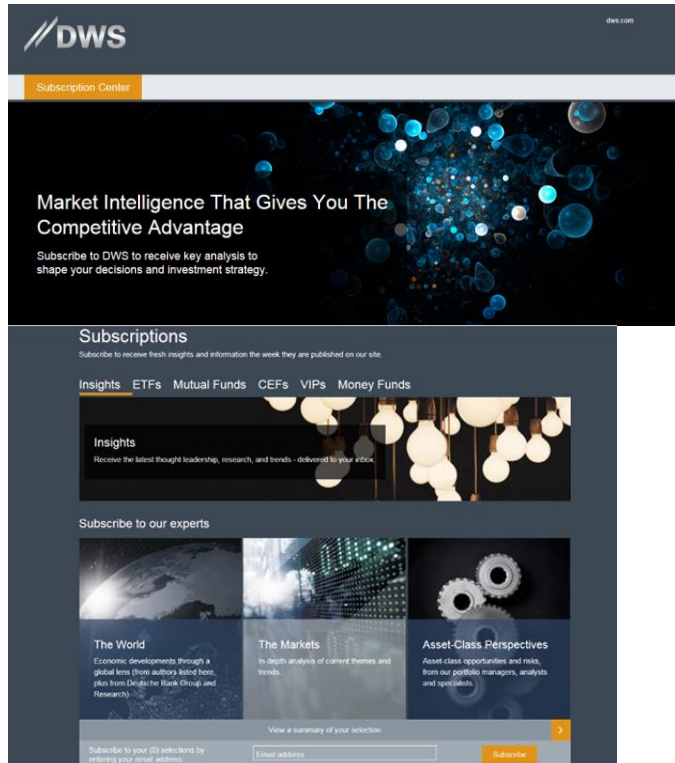
Index	3M relative View	Current Level	Previous Target CIO Day Mar	Target Jun 24	Chg in Target	Expected Total Return Jun 24	Assumptions							
							EPS growth NTM*	LTM multiple impact	Dividend Yield	EPS NTM* (e)	DWS vs. Cons.	Target LTM P/E in Jun 24	Target PE discount to US	
S&P 500		4,221	4,100	4,200	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%

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