

Capex as long-term prospects signal: Boom at digital, not physical industries



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The S&P is correcting again on cyclical risk, but what about long-term prospects?
In our previous Aug 22 note, we emphasized that this summer's equity rally from June lows came too early and went too far. We signaled high risk of a 10%+ decline from S&P 4300 given deteriorating macro and earnings conditions expected to persist into next year. The market fell 8.1% from its 4305 mid-August high after Chair Powell's Jackson Hole speech left no room for misinterpreting the message that hikes will continue and rates will not be cut for some time afterward to ensure inflation subsides despite the pains of recession. The macro data continues to weaken; dollar is stronger and oil sinking. This bodes ill for profits together with wage, tax, regulation and lingering input cost pressures. We see 3700-4100 the likely 2H22 S&P 500 range with the lower half likely until after the mid-term elections. But which industries are signaling growth prospects beyond the recession with capex?

Capex spending shifts from resource sectors to Tech, Comm. and Cons. Disc.

After the pandemic's capex slump, S&P capex rebounded with 18% y/y growth on a trailing 4-qr basis as of 2Q2022. However, the big capital investment spenders shifted from commodity producers and other heavy industries to the digital/ virtual/ electrified industries.

Despite oil prices surging in 2022 to over and still near \$100/bbl, highest since 2011-2014, only 1/3rd of S&P capex is now from Energy, Materials, Industrials and Utilities, down from nearly 2/3rd in 2012 and also 2006. Now, capex at Tech, Communications and Consumer Discretionary share of total S&P 500 capex doubled from 25% to 50%. Although capex is up from very depressed levels, Energy and Industrials are still 40% and 15% lower than their pre-pandemic 2019 levels. Materials capex just got back to its pre-pandemic level.

In contrast, capex at Consumer Discretionary (led by internet retail and auto), Tech and Communications is 48%, 36% and 24% higher than their 2019 levels. These industries are planning for the future with growth capex that is 100-150% of D&A expense. Utilities are a standout growth investor with 200% capex/D&A as they prepare for an electrified future.

The Energy sector is signaling dim long-term prospects with capex/D&A at about 80%, which suggests that wells and downstream assets are not being maintained, especially considering the greatly inflated costs of building/repairing such assets vs. book value based depreciation. It appears to us that the Energy sector is planning for its demise and milking its assets. This and high oil prices make for great free cash flow, but how long will it last?

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

Research & Development is a form of investment spending, often with high return on investment, but it's expensed in profits. Tech and Health Care remain R&D standouts with high R&D at 10% and higher of sales. Much of this R&D is required to retain leadership, but it also raises barriers to competition and fuels growth as Tech titans have demonstrated for many years. Given very differing R&D and CAPEX/D&A conditions across sectors, we think it important to be very careful when using free cash flow based valuation metrics.

Capex and exports are key to US mfg. ISM and S&P Industrials and Materials

Strong capex boosts manufacturing, as most US manufacturing is capital goods and cars. Deploying new capital goods helps boost labor productivity, which supports the structural growth in consumption. The S&P is highly levered to investment activity and 25-30% of S&P sales is investment spending related. However, more of this is Tech related than ever. When capex is healthy, S&P sales growth tends to be ~1.5x U.S. nominal GDP growth as seen in past cycles. S&P sales growth is past the post-recession bounce with only high inflation keeping it strong at 11.7% in nominal terms. But if stripping inflation off, real GDP, real S&P sales and real capex growth have all slowed sharply to low single digit growth, which we see further slowing in the coming quarters as US goes through a mild recession.

Sluggish cycles favor secular growth stocks, we like R&D driven industries

What to favor if willing to "look-though" the near-term cyclical risks? We look to R&D driven sectors for secular growth, like Health Care, Tech, Communications, some Consumer Discretionary service industries, consistent with the industry capex trends observed; many industries we are overweight now. We also OW Utilities as an attractive bond substitute that benefits from high natural gas prices, electrification trends and policies, with non-cyclical inflation protected dividend yields. We also OW Banks as we don't expect a surge in credit costs despite Fed hikes. We underweight Industrials, Materials, many Consumer Staples and some Tech and Consumer Discretionary industries with either too expensive valuations or profits most at risk. We remind investors that protection against stubborn broad based inflation exists beyond Energy and other heavy industries and perhaps best.

Contributor: Ju Wang, Portfolio Manager Equity

Global Equity Index Forecasts: 12-months			
Index	Sep 2023F	NTM EPS Growth	Target PE
S&P 500	4,200	4.7%	18.0
EuroStoxx 50	3,750	3.6%	12.0
Stoxx 600	445	3.4%	12.7
MSCI Japan	1,250	5.5%	13.0
MSCI Asia xJ	660	3.2%	12.3
MSCI EM	1,030	1.7%	11.7

S&P 500 Outlook at Yearend			
	2021	2022F	2023F
S&P 500	4766	4100	4400
Dividend Yield	1.4%	1.6%	1.6%
S&P EPS	\$210	\$227	\$235
Trailing PE	22.7	18.0	18.7
DPS	\$60.50	\$68	\$72

Next 5%+ Price Move
(Up / Balanced Risk / **Down**)

Risk of near-term correction
(Low / Moderate / **High**)

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

Key CIO Views		
Macro signal:	2021	Sep 2023F
U.S. Fed Funds rate	0-0.25%	3.50-3.75%
10yr Treasury yield	1.52%	3.25%
US IG Corp Spreads	100bp	150bp
US High Yield Spreads	340bp	550bp
Crude Oil (WTI) \$/bbl	75	100
EUR / USD FX rate	1.13	1.05

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

* Q4/Q4 GDP growth
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 9/2/2022 and may not come to pass. This information is subject to change at any time, based upon economic, market and other considerations and should not be construed as a recommendation. All foreign asset exposures are not FX hedged unless otherwise noted. For illustrative purposes only.



S&P 500 Sector and Industry views

	Market	Allocated	Sector	2021	2022	2023	Overweight	2021	2022	2023	Equal weight	2021	2022	2023	Underweight	2021	2022	2023			
Over-weight	14.1%	18.6%	Health Care	16.1	15.3	14.7	Biotechnology	10.5	10.9	10.7					Health Care Providers & Services	17.8	16.8	15.8			
				Health Care Equipment & Supplies	22.8	22.1	20.8														
				Health Care Technology	28.3	25.9	23.8														
				Life Sciences Tools & Services	23.6	25.5	22.7														
				Pharmaceuticals	14.2	12.3	12.1														
	8.4%	10.1%	Communication Services	14.8	16.0	14.8	Diversified Telecommunication Servi	6.4	7.5	7.5	Wireless Telecommunication Servi	59.7	56.3	28.2							
				Entertainment	27.3	23.3	20.6														
				Interactive Media & Services	17.2	19.1	17.3														
				Media	11.4	10.9	10.7														
	10.9%	11.9%	Financials	11.2	12.7	11.8	Banks	8.3	10.1	8.9					Capital Markets	13.4	16.0	15.9			
				Diversified Financial Services	24.0	20.1	19.4										Consumer Finance	7.0	8.4	8.6	
				Insurance	13.6	13.2	12.5														
	3.1%	3.6%	Utilities	22.0	20.8	19.6	Electric Utilities	23.5	21.7	20.4	Gas Utilities	21.7	21.6	18.4	Water Utilities	37.3	33.7	30.6			
				Multi-Utilities	21.3	20.8	19.8	Independent Power & Renewable E	8.5	8.3	8.3										
	2.9%	3.4%	Real Estate	21.0	19.3	18.7	Real Estate Mgmt. & Development	14.8	13.2	12.0											
				REITs	21.7	19.5	19.0														
Equal-weight	4.7%	4.7%	Energy	19.5	9.3	11.7	Energy Equipment & Services	30.9	18.4	14.4					Oil Gas & Consumable Fuels	19.0	9.0	11.6			
Under-weight	7.9%	7.7%	Industrials	25.2	19.1	17.8	Aerospace & Defense	30.5	23.2	20.7	Airlines	-4.7	19.2	9.6	Air Freight & Logistics	14.2	14.2	14.6			
				Electrical Equipment	21.4	18.9	17.6	Road & Rail	22.1	18.6	17.9	Building Products	18.4	17.1	17.1						
				Industrial Conglomerates	21.4	19.7	18.1														
	27.3%	26.2%	Information Technology	23.8	22.0	20.5	Communications Equipment	15.8	14.7	13.9	Electronic Equipment	21.4	20.0	18.2	Semiconductors	16.4	16.9	15.6			
				IT Services	25.6	21.9	20.2									Software	30.6	27.1	25.0		
																Technology Hardware Storage & Per	25.2	23.3	22.2		
	11.4%	9.6%	Consumer Discretionary	28.7	26.7	24.7	Auto Components	20.2	16.3	14.3	Household Durables	6.9	5.8	6.7	Automobiles	36.4	33.5	31.5			
				Hotels Restaurants & Leisure	839.1	44.9	26.9									Distributors	18.6	16.9	17.5		
				Textiles Apparel & Luxury Goods	22.0	20.8	19.2										Internet & Direct Marketing Retail	51.8	49.6	44.3	
																Leisure Products	15.1	14.5	14.5		
																Multiline Retail	16.2	19.7	19.5		
6.8%	4.2%	Consumer Staples	21.8	21.3	20.8					Personal Products	37.2	33.0	31.3	Beverages	26.9	25.4	24.4				
															Food Products	18.4	18.2	18.1			
															Food & Staples Retailing	24.1	23.1	22.6			
2.5%	0.0%	Materials	14.8	13.3	15.4									Household Products	23.9	23.8	23.2				
															Tobacco	12.9	13.2	12.9			
														Chemicals	16.6	14.4	15.9				
														Construction Materials	30.5	27.3	25.7				
														Containers & Packaging	14.8	12.7	12.4				
														Metals & Mining	8.4	8.5	13.9				
Aggregate PE: DWS View							Overweight	16.8	16.4	15.2	Equalweight	23.5	15.4	14.4	Underweight	21.0	18.7	18.9			
	S&P 500							3955				2020, 2021 & 2022 EPS	208.20	227.00	235.00	2020, 2021 & 2022 PE	19.0	17.4	16.8		
												Bottom-up Consensus EPS	206.90	227.43	243.71	Bottom-up Cons. PE	19.1	17.4	16.2		
															2020, 2021 & 2022 Ex Energy PE	18.3	18.3	17.3			
															Blm-up Cons. Ex Energy PE	18.9	18.4	16.9			

Sector OW	8.22%
Sector UW	-8.22%
Industry OW	16.77%
Industry UW	-16.77%

Macro tilts:	
Cyclicals	-2.91%
Defensive	3.00%
Value	-5.33%
Growth	5.33%
Consumer Services/experience	-4.33%
Disc. Goods	0.92%
Retailing	0.21%
Durables	-0.63%
Staples Goods/Retail	0.87%
Commodity	-1.36%
Energy	-2.08%
Metals/Chemicals	0.03%
Capex	-2.12%
Capacity additions	3.53%
Productivity	1.87%
Health Care	1.66%
Innovation	4.53%
Marketers	2.82%
Insurers	1.76%
Financials	-0.36%
Up rates/low spreads	1.03%
Capital Markets	1.17%
Insurance	-0.87%
Bond Substitutes	0.72%
Weak FX \$ plays	1.39%
High R&D plays	0.67%
Transports	4.60%
Geopolitical risk	-0.68%
Weak oil prices	-0.10%
Inflation shock	-1.01%
Domestic GDP	1.95%
Global GDP	-0.86%
Consumer TMT	-3.28%
Trade sensitive	0.54%
	-1.16%

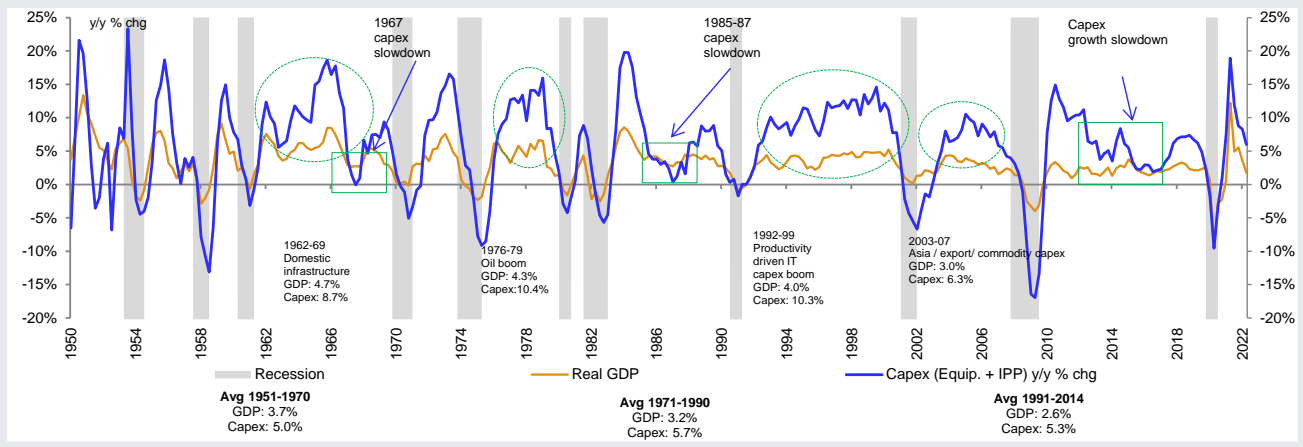
Note: Diversified Financial Services, Real Estate Management & Development and REITs moved from EW to OW; Gas Utilities, Wireless Telecommunication Services moved from UW to EW; Auto Components, Road & Rail moved from UW to OW; HC Providers & Services moved from OW to UW; Tobacco moved from EW to UW.

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

Price as of 8/31/2022

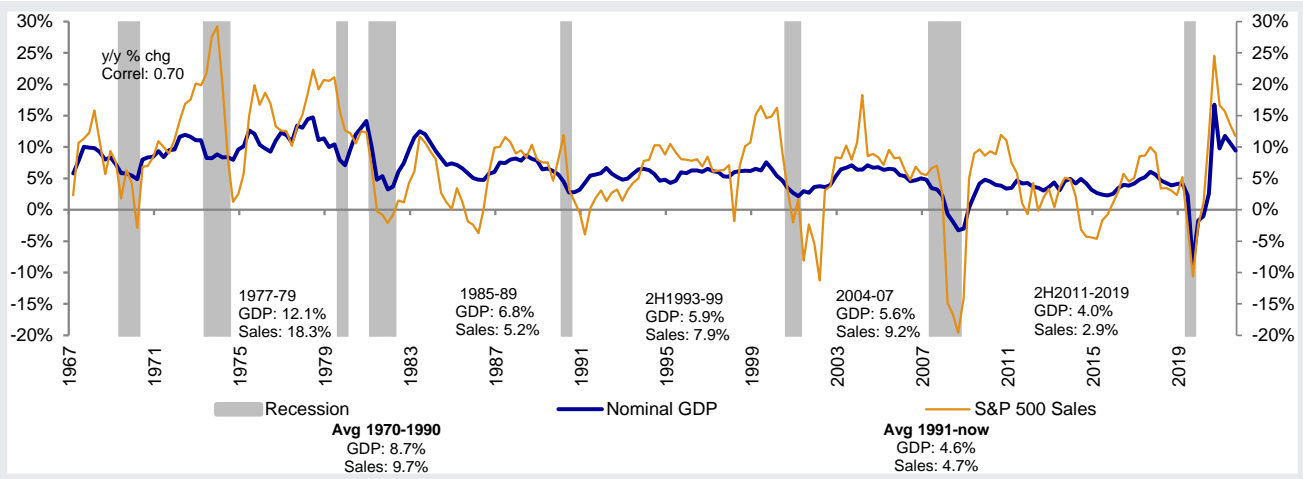
Source: DWS Investment Management GmbH

US real GDP and Capex growth



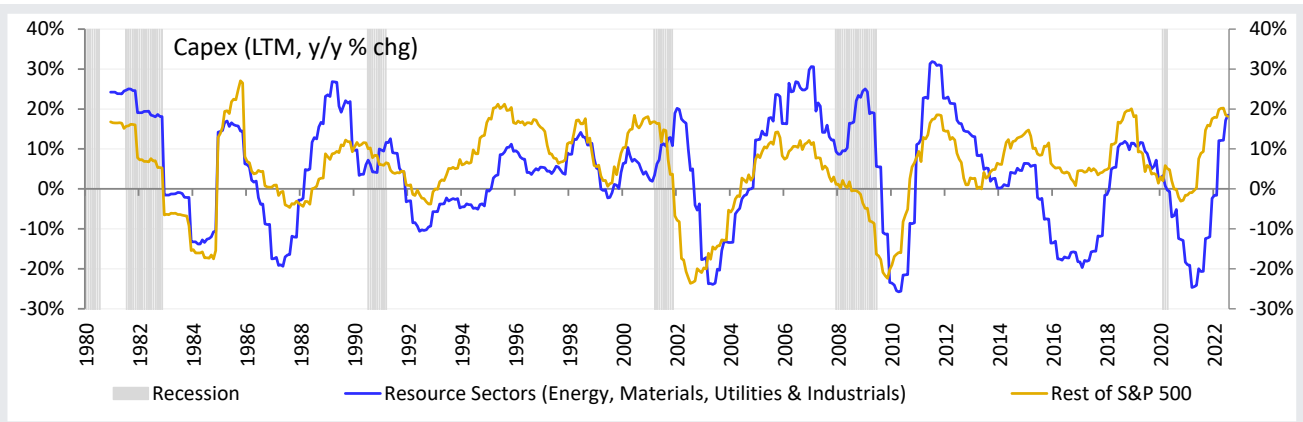
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

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



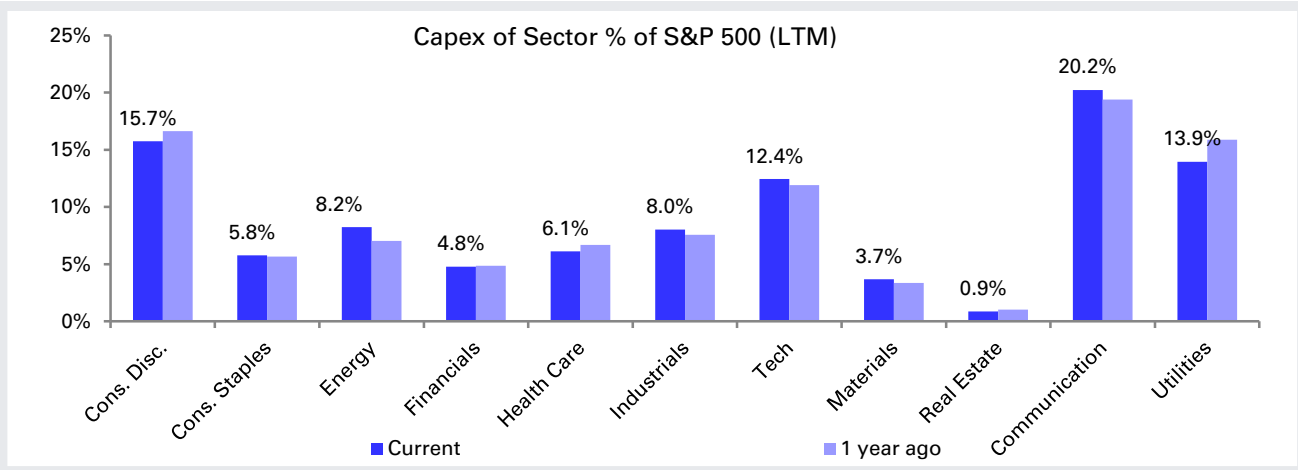
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

S&P 500 Capex growth



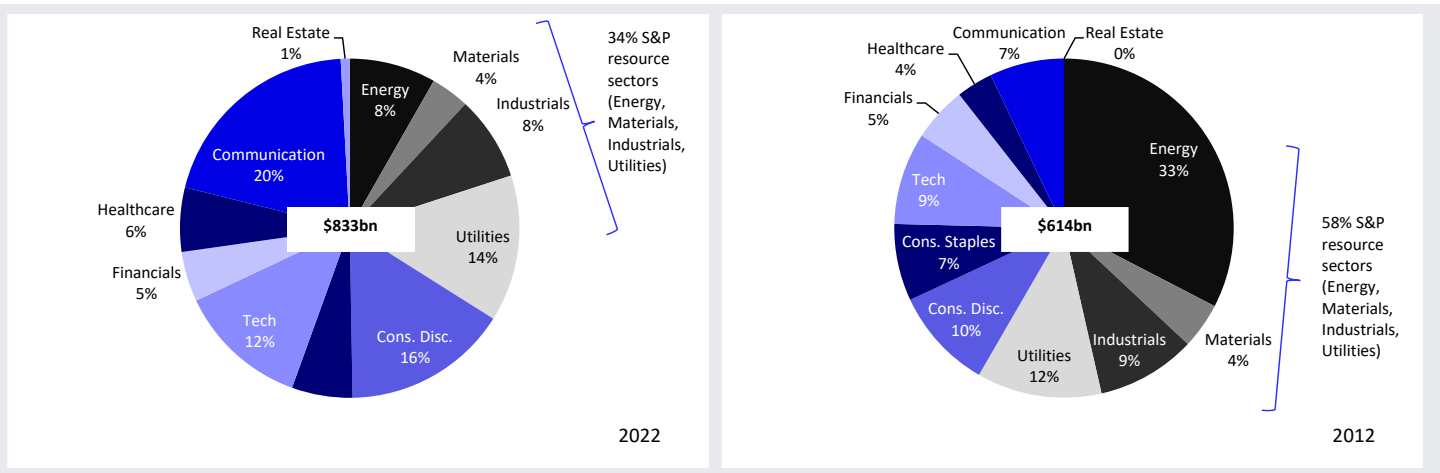
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

S&P 500 LTM Capex by sector: current vs. a year ago



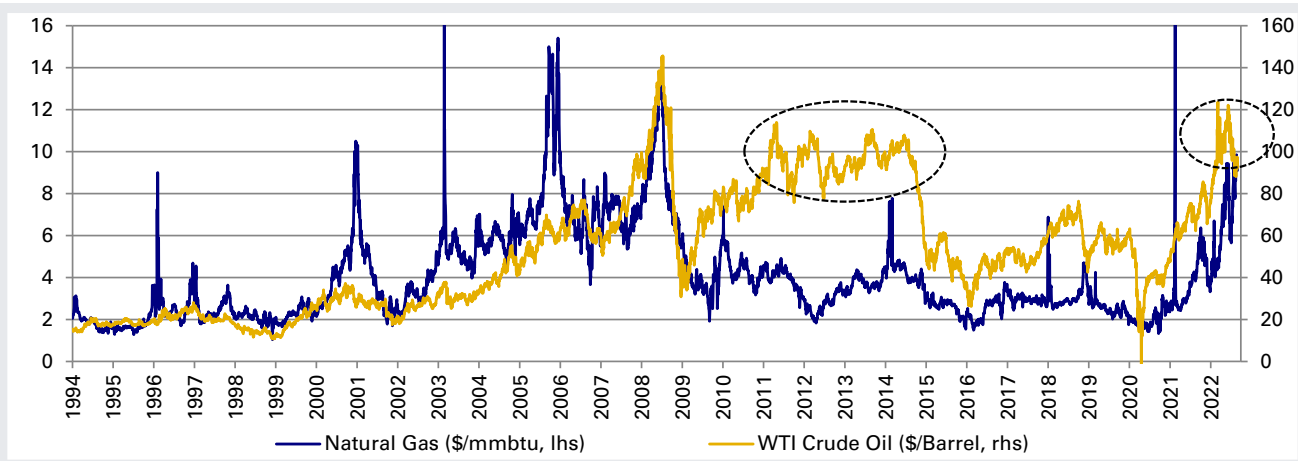
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

S&P 500 Capex 2022 vs. 2012



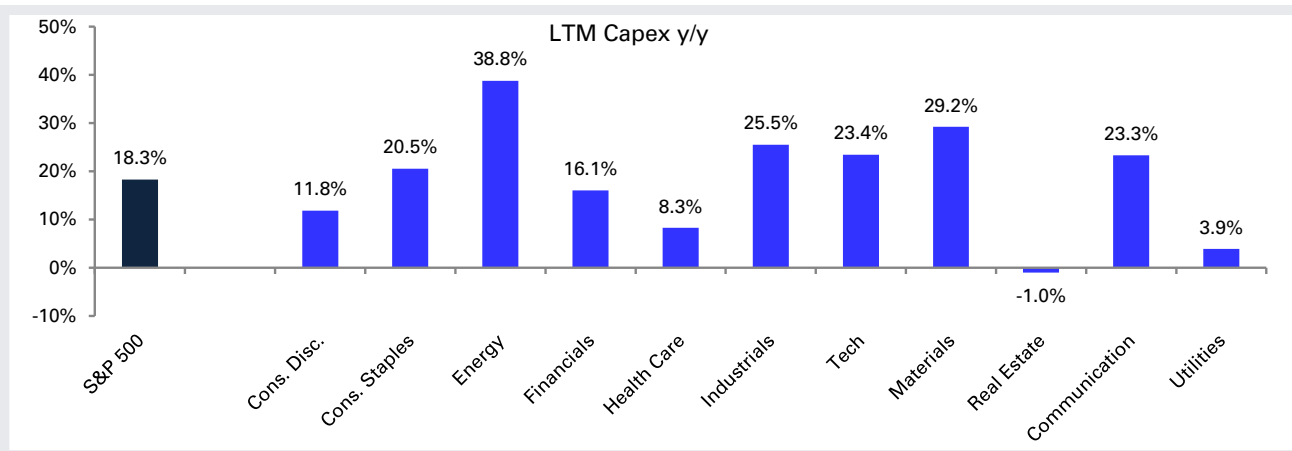
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

Crude oil and natural gas prices



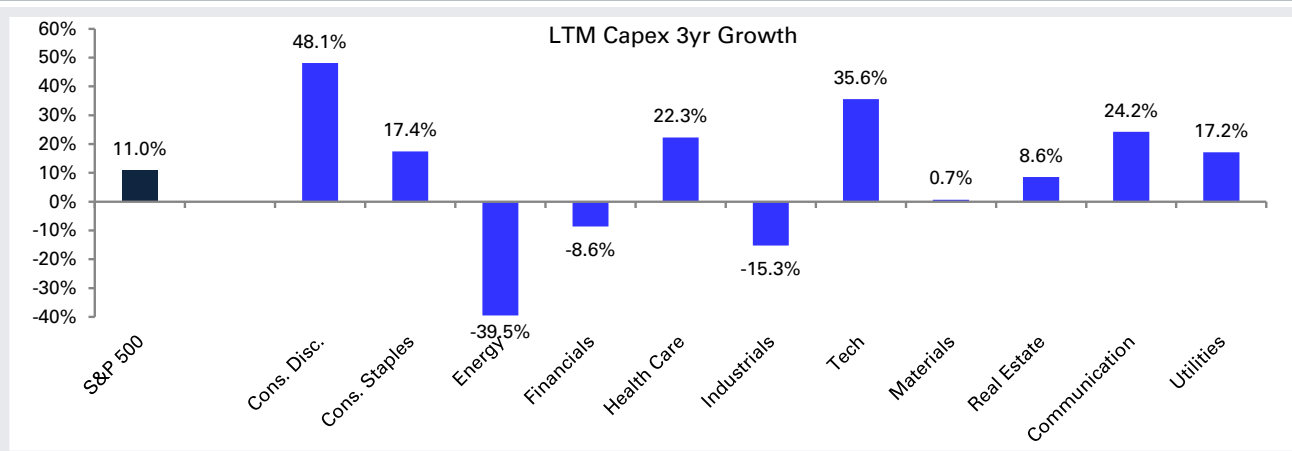
Source: Compustat, Clarifi, DWS Investment GmbH as of 8/30/2022. Past performance may not be indicative of future results.

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



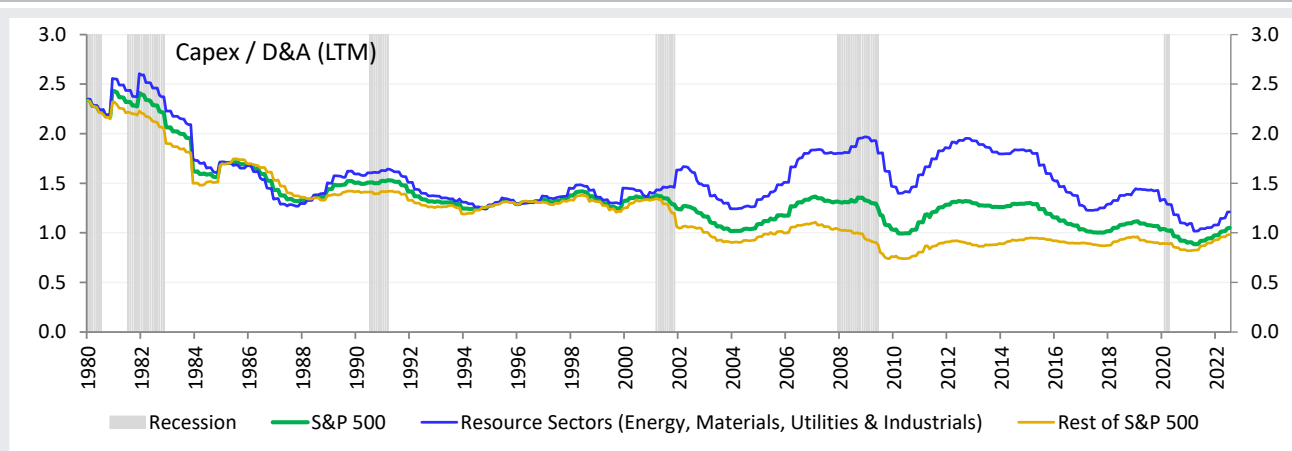
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

S&P 500 LTM Capex 3yr growth by sector: July 2022 vs. July 2019



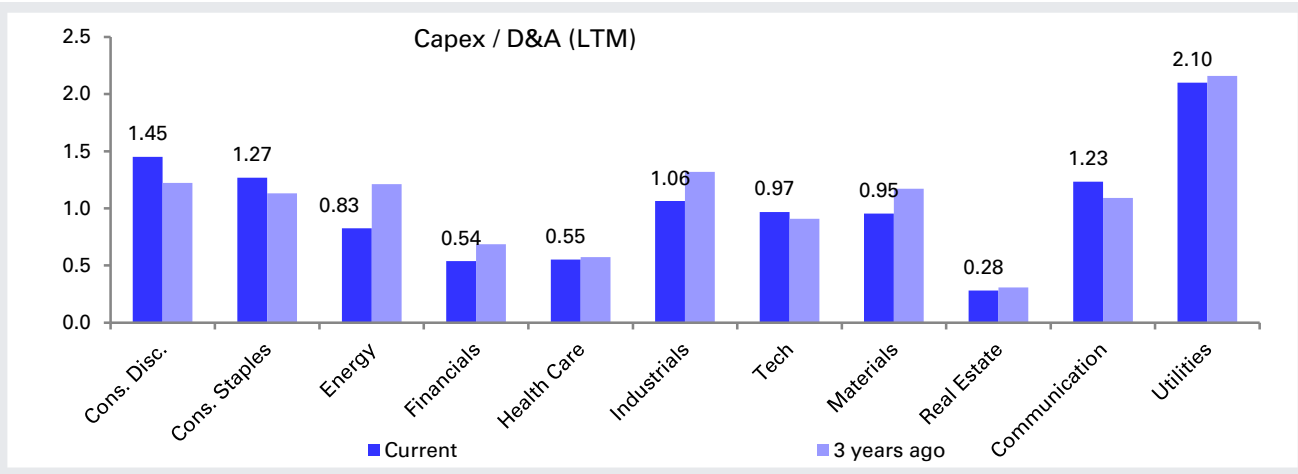
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

S&P 500 Capex / D&A: Resource sectors vs. the rest



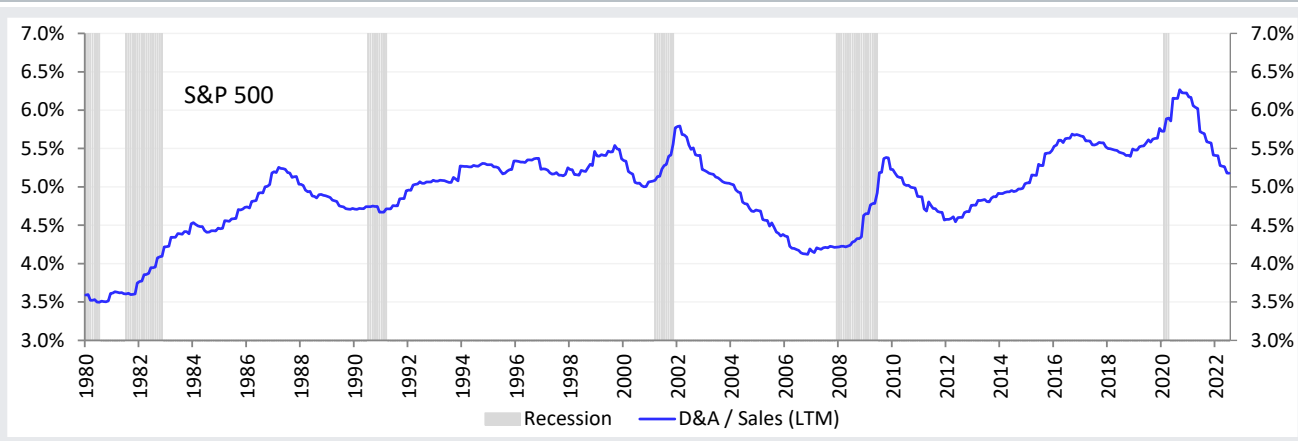
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

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



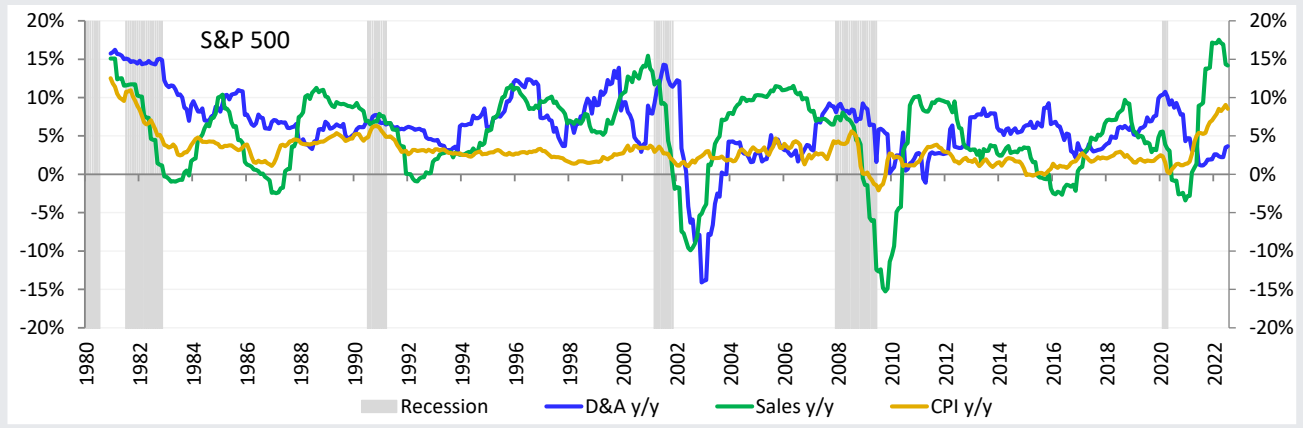
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

S&P 500 D&A / Sales



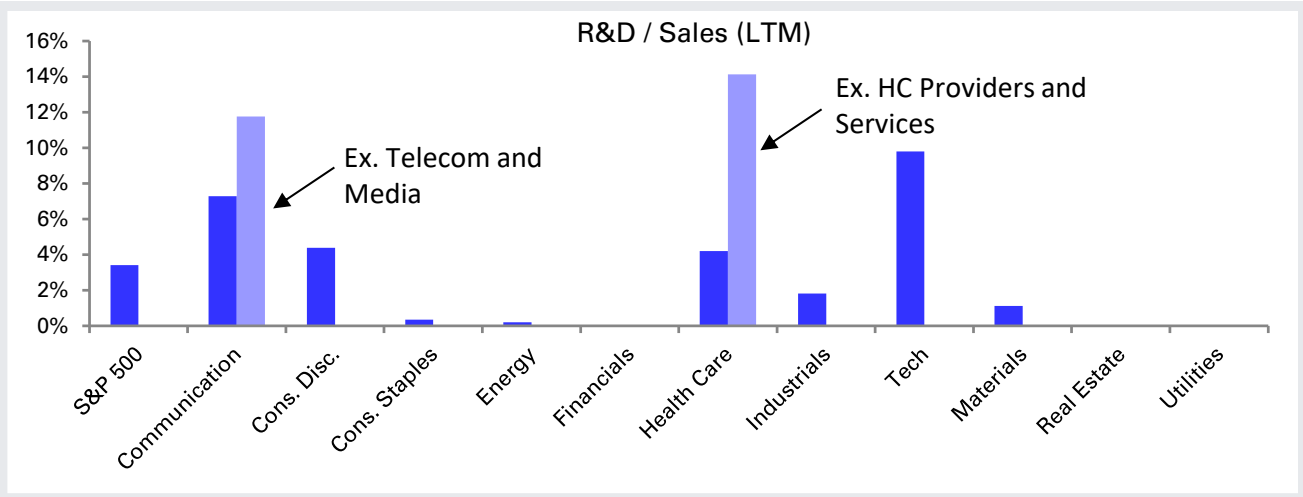
Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

S&P 500 D&A vs. Sales vs. Inflation growth



Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

S&P 500 R&D / Sales by sector



Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. 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 3yr Growth	Capex / D&A	Capex / D&A 3yr Ago	D&A / Sales	D&A / Sales 3yr Ago
CONSUMER DISCRETIONARY	131,425	90,544	11.8%	48.1%	1.45	1.22	4.6%	4.6%
Auto Components	1,459	1,514	31.8%	6.5%	0.96	1.22	4.9%	4.6%
Automobiles	30,809	22,617	-18.4%	-2.4%	1.36	1.47	6.5%	6.9%
Distributors	674	627	78.1%	32.2%	1.08	0.91	1.6%	1.6%
Hotels, Restaurants & Leisure	17,676	14,877	30.3%	5.5%	1.19	1.69	8.1%	6.5%
Household Durables	2,229	1,712	16.9%	5.9%	1.30	1.09	1.3%	2.0%
Internet & Direct Marketing Retail	65,850	37,892	24.8%	311.3%	1.74	0.79	7.6%	7.0%
Leisure Products	145	266	16.5%	14.6%	0.55	0.70	4.1%	3.9%
Multiline Retail	7,037	4,099	53.6%	1.0%	1.72	1.13	2.4%	3.3%
Specialty Retail	10,346	8,346	16.0%	-0.8%	1.24	1.24	1.8%	2.2%
Textiles, Apparel & Luxury Goods	1,506	1,718	-3.0%	-46.1%	0.88	1.09	2.1%	2.7%
CONSUMER STAPLES	48,203	37,988	20.5%	17.4%	1.27	1.13	0.1%	0.1%
Beverages	8,703	5,789	27.5%	30.7%	1.50	1.38	3.5%	3.8%
Food & Staples Retailing	24,096	18,296	21.8%	24.4%	1.32	1.11	1.6%	1.8%
Food Products	8,359	7,389	19.5%	13.4%	1.13	1.05	2.5%	2.9%
Household Products	5,129	4,543	6.9%	0.9%	1.13	1.11	3.5%	4.1%
Personal Products	1,040	703	63.3%	-11.2%	1.48	0.91	4.0%	5.5%
Tobacco	1,118	1,279	43.9%	-20.7%	0.87	1.17	2.4%	2.4%
Energy	68,770	83,195	38.8%	-39.5%	0.83	1.21	0.5%	0.7%
Energy Equipment & Services	3,347	3,815	30.6%	-48.0%	0.88	0.82	6.1%	7.5%
Oil, Gas & Consumable Fuels	64,261	78,135	38.9%	-40.1%	0.82	1.25	6.2%	9.1%
FINANCIALS	39,750	73,913	16.1%	-8.6%	0.54	0.69	0.8%	0.8%
Capital Markets	12,589	15,120	10.8%	-17.1%	0.83	1.54	5.3%	4.0%
Banks	7,090	27,372	23.3%	-1.6%	0.26	0.28	5.3%	4.3%
Consumer Finance	2,864	6,110	21.7%	3.1%	0.47	0.64	5.4%	3.9%
Diversified Financial Services	14,446	10,786	15.7%	-4.6%	1.34	1.51	4.1%	3.8%
Insurance	2,796	14,541	21.8%	-13.0%	0.19	0.23	2.7%	2.8%
Health Care	50,965	92,165	8.3%	22.3%	0.55	0.57	1.9%	1.8%
Biotechnology	3,895	15,036	4.1%	1.4%	0.26	0.53	8.8%	5.8%
Health Care Equipment & Supplies	9,417	15,605	-4.5%	15.1%	0.60	0.56	8.1%	8.5%
Health Care Providers & Services	17,626	22,020	14.4%	16.9%	0.80	0.86	1.1%	1.2%
Health Care Technology	256	719	-19.2%	-52.2%	0.36	0.80	12.4%	12.1%
Life Sciences Tools & Services	6,163	8,396	65.8%	184.2%	0.73	0.52	6.9%	8.1%
Pharmaceuticals	15,463	32,245	1.1%	30.2%	0.48	0.42	8.8%	10.7%
INDUSTRIALS	67,022	63,012	25.5%	-15.3%	1.06	1.32	4.7%	4.7%
Aerospace & Defense	8,610	11,983	4.7%	-13.2%	0.72	1.00	3.8%	2.8%
Air Freight & Logistics	10,807	7,132	-1.4%	-9.0%	1.52	2.08	3.0%	3.4%
Airlines	11,107	8,556	175.6%	-33.7%	1.30	1.96	5.8%	5.2%
Building Products	1,818	1,958	36.3%	63.2%	0.93	0.91	2.3%	3.0%
Commercial Services & Supplies	4,165	3,958	30.9%	12.5%	1.05	1.18	8.8%	8.6%
Construction & Engineering	459	622	51.9%	8.1%	0.74	1.01	4.0%	1.7%
Electrical Equipment	1,491	2,605	15.2%	-2.7%	0.57	0.74	4.6%	4.0%
Industrial Conglomerates	3,848	5,991	-18.3%	-63.2%	0.64	1.08	4.2%	5.6%
Machinery	10,431	9,656	19.6%	-2.3%	1.08	1.13	3.7%	4.0%
Professional Services	1,179	2,095	-12.7%	14.1%	0.56	0.53	4.4%	8.7%
Road & Rail	8,895	5,734	27.7%	-0.2%	1.55	1.62	8.3%	9.4%
Trading Companies & Distributors	3,857	2,496	63.4%	43.2%	1.55	1.18	7.9%	9.0%
INFORMATION TECHNOLOGY	103,868	107,194	23.4%	35.6%	0.97	0.91	1.1%	1.1%
Communications Equipment	939	2,796	-12.6%	-32.8%	0.34	0.54	3.9%	3.7%
Technology Hardware, Storage & Peripherals	15,970	16,126	11.6%	-0.8%	0.99	0.87	3.1%	4.7%
Electronic Equipment, Instruments & Components	3,447	3,969	37.7%	-4.6%	0.87	1.26	4.6%	7.0%
IT Services	8,604	22,652	1.7%	6.4%	0.38	0.53	7.2%	5.5%
Semiconductors & Semiconductor Equipment	45,903	38,273	36.9%	52.7%	1.20	1.10	10.7%	12.2%
Software	31,217	25,257	24.9%	79.8%	1.24	0.98	7.4%	8.3%
MATERIALS	30,637	32,110	29.2%	0.7%	0.95	1.17	0.4%	0.4%
Chemicals	17,884	18,592	23.1%	-12.3%	0.96	1.22	6.0%	6.9%
Construction Materials	980	1,045	34.6%	16.3%	0.94	1.16	8.3%	8.0%
Containers & Packaging	5,192	4,702	34.8%	17.3%	1.10	1.00	5.0%	5.4%
Metals & Mining	6,581	7,770	43.0%	38.4%	0.85	1.15	9.8%	8.5%
REAL ESTATE	7,112	25,161	-1.0%	8.6%	0.28	0.31	0.6%	0.6%
Equity Real Estate Investment Trusts (REITs)	6,883	24,675	-1.4%	8.7%	0.28	0.30	23.0%	23.4%
Real Estate Management & Development	231	596	10.7%	4.4%	0.39	0.50	2.0%	2.0%
COMMUNICATION SERVICES	168,914	136,856	23.3%	24.2%	1.23	1.09	6.1%	7.1%
Diversified Telecommunication Services	42,948	42,911	24.8%	5.3%	1.00	0.78	14.6%	15.6%
Entertainment	6,601	10,741	59.7%	20.4%	0.61	1.08	6.6%	4.6%
Interactive Media & Services	83,272	37,700	32.4%	34.6%	2.21	2.33	5.5%	7.3%
Media	22,829	26,835	3.3%	5.7%	0.85	0.75	9.1%	10.5%
Wireless Telecommunication Services	12,826	15,093	-4.8%	104.7%	0.85	0.97	18.8%	14.6%
UTILITIES	116,480	55,444	3.9%	17.2%	2.10	2.16	15.4%	14.7%
Electric Utilities	68,318	35,406	1.8%	10.6%	1.93	2.16	15.4%	15.0%
Gas Utilities	2,338	520	23.8%	48.1%	4.49	4.12	12.9%	13.2%
Independent Power & Renewable Electricity Producers	2,776	1,052	43.3%	38.7%	2.64	1.47	9.0%	6.8%
Multi-Utilities	34,771	14,767	3.9%	23.8%	2.35	2.28	13.5%	12.9%
Water Utilities	2,007	642	17.8%	28.7%	3.13	2.74	16.8%	16.1%

Source: Compustat, Clarifi, DWS Investment GmbH as of 7/31/2022. Past performance may not be indicative of future results.

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DWS Investment GmbH S&P 500 Annual EPS Outlook

	2014A	2015A	2016A	2017A	2018A	2019A	2020A	2021A	y/y	Bottom-up Consensus (IBES)				DWS View				Normalized 2022		
										2022E	y/y	2023E	y/y	2022E	y/y	2023E	y/y	(\$)	% of 2022	
S&P 500 EPS (historical index)	\$118.82	\$117.46	\$118.10	\$132.00	\$161.93	\$162.93	\$139.72	\$208.12	49.0%											
S&P 500 EPS (current constituents)	\$116.42	\$117.06	\$117.26	\$129.34	\$156.10	\$161.45	\$143.40	\$208.20	46.8%	\$227.43	9.2%	\$243.71	7.2%	\$227	8.0%	\$235	3.4%	\$225	99%	
Sector (\$ bn)																				
Communication Services	69.3	79.9	92.7	100.3	125.7	133.3	136.4	189.2	38.7%	173.8	-8.2%	193.6	11.4%	176.0	-7.0%	190.0	8.0%	174.0	99%	
Consumer Discretionary	64.5	75.3	83.9	88.1	103.8	102.0	79.6	134.9	69.4%	144.2	6.9%	171.9	19.2%	145.0	7.5%	156.5	7.9%	151.3	104%	
<i>Automobiles</i>	9.6	15.4	16.0	15.5	14.1	11.5	10.3	22.1	114%	28.2	27.6%	29.0	2.7%	24.0	8.5%	25.5	6.3%			
<i>Internet & Direct Marketing Retail</i>	5.6	6.2	8.1	8.6	16.2	17.7	20.0	23.9	19.9%	21.2	-11.6%	30.1	42.2%	25.0	4.4%	28.0	12.0%			
<i>CD ex Auto & Internet Retail</i>	49.3	53.7	59.8	63.9	73.5	72.8	49.3	88.8	80.0%	94.8	6.7%	112.8	19.0%	96.0	8.1%	103.0	7.3%			
Consumer Staples	77.5	75.9	78.2	82.4	89.2	89.6	93.4	102.7	9.9%	105.3	2.5%	112.0	6.4%	105.0	2.3%	107.5	2.4%	105.0	100%	
Energy	95.9	40.0	10.8	37.7	71.1	50.3	-5.7	79.2	1490%	198.6	150.8%	174.7	-12.1%	165.5	108.9%	132.0	-20.2%	117.5	71%	
Financials	171.4	186.3	188.0	195.4	242.2	249.2	198.7	328.5	65.4%	286.5	-12.8%	322.8	12.7%	290.0	-11.7%	311.0	7.2%	292.1	101%	
Health Care	137.9	153.1	158.1	172.3	189.4	207.5	227.4	294.3	29.4%	309.0	5.0%	307.7	-0.4%	310.0	5.3%	322.5	4.0%	301.2	97%	
Industrials	99.9	103.8	97.5	106.1	129.5	123.7	63.4	108.1	70.5%	145.0	34.1%	169.7	17.0%	142.5	31.8%	153.0	7.4%	146.9	103%	
<i>Airlines</i>	10.9	17.6	13.3	10.9	11.5	13.2	-28.8	-14.2	50.5%	3.3	123.2%	9.5	187.6%	3.5	124.6%	7.0	100.0%			
Information Technology	177.1	184.3	193.9	228.7	266.8	265.0	297.5	380.7	28.0%	401.6	5.5%	449.4	11.9%	411.5	8.1%	442.5	7.5%	414.5	101%	
Materials	24.6	23.7	22.5	28.3	35.2	33.6	31.9	58.2	82.3%	68.1	16.9%	62.8	-7.7%	65.0	11.6%	56.0	-13.8%	55.0	85%	
Real Estate	23.1	26.3	29.2	31.6	34.6	36.2	35.6	42.2	18.4%	46.6	10.5%	49.2	5.6%	46.0	9.0%	47.5	3.3%	44.0	96%	
Utilities	31.3	31.6	33.8	35.3	38.9	42.9	44.2	47.2	6.8%	49.7	5.2%	52.5	5.6%	50.0	5.9%	53.0	6.0%	50.0	100%	
S&P 500 (\$ bn)	972.6	980.1	988.5	1106.3	1326.4	1333.3	1202.5	1765.3	46.8%	1928.3	9.2%	2066.3	7.2%	1906.5	8.0%	1971.5	3.4%	1851.4	97%	
S&P ex. Energy (\$bn)	876.7	940.1	977.7	1068.6	1255.3	1283.0	1208.2	1686.0	39.6%	1729.7	2.6%	1891.7	9.4%	1741.0	3.3%	1839.5	5.7%	1733.9	100%	
S&P ex. Tech (\$bn)	795.5	795.8	794.6	877.6	1059.6	1068.3	905.0	1384.6	53.0%	1526.7	10.3%	1616.9	5.9%	1495.0	8.0%	1529.0	2.3%	1436.9	96%	
S&P 500 Sales/Share (historical index)	\$1,163	\$1,127	\$1,151	\$1,232	\$1,339	\$1,415	\$1,362	\$1,567	15.0%											
S&P 500 Non-GAAP Net Margin	10.2%	10.4%	10.3%	10.7%	12.1%	11.5%	10.3%	13.3%												

S&P 500 EPS	Year	1Q	2Q	3Q	4Q
2019A	163	39	41	41	42
2020A	140	33	28	38	42
2021A	210	49	53	54	54
2022E	227	55	58	56	58
2023E	235	56	58	58	61

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 3/31/2022.

Source: Factset, DWS Investment GmbH as of 8/31/2022. Past performance may not be indicative of future results.

S&P 500 2022 and 2023 EPS outlook scenarios

	<u>Previous S&P EPS outlook</u>				<u>Current S&P EPS outlook</u>				<u>Material possibility</u>			
	Stalled growth or slight recession 4Q22/1Q23				Small recession 4Q22/1Q23				Average US & EU recessions 2023			
	4% CPI 2023, oil \$110/bbl, euro \$1.10				3-4% CPI 2023, oil \$100/bbl, euro \$1.05				3% CPI, oil \$80/bbl, euro \$1.00			
	EPS year	qtrly	annualized	x18.0	EPS year	qtrly	annualized	x18.0	EPS year	qtrly	annualized	x18.5
2022E	225	55	220	3960	227	55	220	3960	222	55	220	4070
		55	220	3960		58	232	4176		58	232	4292
		56	224	4032		56	224	4032		55	220	4070
		59	236	4248		58	232	4176		54	216	3996
2023E	235	57	228	4104	233	56	224	4032	214	50	200	3700
		58	232	4176		58	232	4176		52	208	3848
	3Q23	59	236	4248	3Q23	58	232	4176	3Q23	55	220	4070
		61	244	4392		61	244	4392		57	228	4218

Source: DWS Investment GmbH as of 8/19/2022. Past performance may not be indicative of future results.



S&P 500 Intrinsic Valuation Model

S&P 500 Capitalized EPS Valuation		S&P 500 Dividend Discount Model		S&P 500 Long-term EPS & DPS Growth		S&P 500 Cost of Equity & Fair Book Multiple	
DWS 2022E S&P 500 EPS	\$227.00	DWS 2022E S&P 500 DPS	\$68.00	DWS 2022E S&P 500 aggregate ROE	21.6%	Fair long-term nominal return on S&P 500 index	8.50%
		2022E dividend payout ratio	30%	2021E end S&P 500 book value per share	\$1,050	Components of estimated fair S&P 500 return:	
DWS "normal 2022E" S&P 500 EPS	\$225.00	DWS "normal 2022E" S&P 500 DPS	\$68.00	DWS "normal 2022E" S&P 500 aggregate ROE	19.7%	+ Long-term real risk free interest rate	0.50%
"Normal 2022E" EPS / 2022E EPS	99%	Normal dividend payout ratio	33%			+ Long-term fair S&P 500 equity risk premium*	5.00%
				S&P EPS retained for true reinvestment	48%	= Long-term real S&P 500 cost of equity	5.50%
Accounting quality adjustment to pro forma EPS	-\$18.00	EPS directed to net share repurchases	\$39.00	Estimated ROE on reinvested S&P EPS	8.50%	+ 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	8.50%
Normal 2022E S&P 500 EPS fair to capitalize	\$207	Total payout of S&P 500 EPS	\$107.00	Sources of long-term earnings growth:		* S&P 500 ERP usually 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	52%	+ Long-term inflation forecast	3.00%	Fair S&P 500 Market Value and Book Value Multiple	
				+ Fair return on true reinvestment	2.66%	2021E end S&P 500 book value per share	\$1,050
<u>S&P 500 EPS Capitalization Valuation</u>		<u>S&P 500 DPS Discount Model</u>		+ Value added return on true reinvestment	0.00%	Fair PB = Fair PE * normal aggregate ROE	3.58
Normal EPS / (real CoE - (EM/payout) - EM):		Normal DPS / (nominal CoE - DPS growth):		= Long-term earnings growth	5.66%	Fair PE =(inc ROE-g)/(inc real ROE*(real CoE-real g))	18.2
S&P 500 intrinsic value at 2022 start	3764	S&P 500 intrinsic value at 2022 start	3764	+ Growth from net share repurchases	1.04%	Implied S&P 500 fair value of book at 2022 start	3764
S&P 500 intrinsic value at 2022 end	4016	S&P 500 intrinsic value at 2022 end	4016	= Long-term S&P 500 EPS/DPS growth	6.69%	Steady-state PB = normal agg. ROE / real CoE	3.58
Implied fair fwd PE in early 2022 on 2022E \$227 EPS	16.6	Implied fair forward yield on 2022E DPS of \$68.0	1.81%	+ Fair normal dividend yield	1.81%	Confirmed by fair steady-state PE = 1 / real CoE	18.2
Implied fair trailing PE at 2022 end on 2022E \$227 EPS	17.7	Implied fair trailing yield on 2022E DPS of \$68.0	1.69%	= Total long-term return at constant PE	8.50%		
Normal EPS / (real CoE-value added EPS growth)	3764	DPS discount model using true DPS (all payout)	3764	Value added growth premium in fair value est.	0%	Normal 2022E economic profit per share	\$149.25

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

		Normal 2022E S&P 500 EPS				
		\$215	\$220	\$225	\$230	\$235
Real	5.00%	4578	4720	4864	5009	5156
cost of	5.25%	4163	4281	4399	4518	4637
equity	5.50%	3818	3917	4016	4114	4213
	5.75%	3526	3610	3694	3777	3861
	6.00%	3276	3349	3421	3492	3563

Source: DWS Investment Management GmbH

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

	Market Value (\$bn)	Current 2022 PE	2022E Earnings (\$bn)	Normal Ratio	Normal 2022E Earnings	Accounting Quality Adjustment	Fully Adjusted Earnings	Net Debt / Market Cap	Real CoE	Steady State Value	Growth Premium	2022 Start Fair Value (\$bn)	2021E Dividend Yield	2022 End Fair Value (\$bn)	PE on Normal 2022E EPS	2022 end Upside %
Communication Services	2,809	16.0	176.0	99%	174.0	-8%	160.1	15%	5.50%	2,911	-5%	2,765	1.5%	2,957	17.0	5%
Consumer Discretionary	3,865	26.7	145.0	104%	151.3	-8%	139.2	12%	5.50%	2,530	31%	3,323	0.9%	3,575	23.6	-8%
<i>Automobiles</i>	804	33.5	24.0	110%	26.4	-10%	23.8	19%	6.00%	396	60%	634	0.4%	688	26.1	-14%
<i>Internet & Direct Marketing Retail</i>	1,241	49.6	25.0	100%	25.0	-8%	23.0	1%	5.50%	418	140%	1,004	0.0%	1,089	43.5	-12%
<i>CD ex Auto & Internet Retail</i>	1,820	19.0	96.0	100%	96.0	-8%	88.3	17%	5.50%	1,606	5%	1,686	1.8%	1,800	18.7	-1%
Consumer Staples	2,237	21.3	105.0	100%	105.0	-6%	98.7	13%	4.75%	2,078	0%	2,078	2.5%	2,186	20.8	-2%
Energy	1,545	9.3	165.5	71%	117.5	-10%	105.8	16%	6.00%	1,763	-15%	1,498	3.6%	1,579	13.4	2%
Financials	3,681	12.7	290.0	101%	292.1	-8%	268.7		6.50%	4,134	-5%	3,927	2.1%	4,219	14.4	15%
Banks	1,259	10.1	125.0	105%	131.3	-8%	120.8		7.00%	1,725	-5%	1,639	3.4%	1,747	13.3	39%
Health Care	4,728	15.3	310.0	97%	301.2	-10%	271.1	9%	5.25%	5,164	0%	5,164	1.6%	5,506	18.3	16%
Industrials	2,720	19.1	142.5	103%	146.9	-8%	135.1	18%	5.50%	2,457	0%	2,457	1.4%	2,631	17.9	-3%
Information Technology	9,073	22.0	411.5	101%	414.5	-6%	389.6	2%	5.50%	7,083	10%	7,792	1.0%	8,376	20.2	-8%
Materials	862	13.3	65.0	85%	55.0	-10%	49.5	17%	5.75%	861	-5%	818	2.0%	873	15.9	1%
Real Estate	886	19.3	46.0	96%	44.0	-7%	40.9	29%	4.50%	910	0%	910	3.0%	951	21.6	7%
Utilities	1,038	20.8	50.0	100%	50.0	-10%	45.0	60%	4.50%	1,000	0%	1,000	2.9%	1,046	20.9	1%
S&P 500 (\$ bn)	33,445		1906.5	97%	1851.4	-8.0%	1703.6		5.50%	30889	2.7%	31731	1.6%	33899.5	18.3	1%
S&P 500 Index (\$/sh)	3955	17.4	227.0	99%	225.0	-8.0%	207.0	11%	5.50%	3764	0.0%	3764	1.6%	4016	17.8	2%

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

Source: IBES, DWS Investment GmbH as of 8/31/2022. Past performance may not be indicative of future results.

S&P 500 EPS historical constituents represents the earnings per share (EPS) of S&P 500 index constituents at the time, while S&P 500 EPS current constituents represents the earnings per share of index constituents as of the date the data was compiled 3/31/2022.

The estimated 2022 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 (table 1 of 2)

	Market Value (\$bn)	Current 2022 PE	2022E Earnings (\$bn)	Normal Ratio	Normal 2022E Earnings	Accounting Quality Adjustment	Fully Adjusted Earnings	Net Debt / Market Cap	Real CoE	Steady State Value	Growth Premium	2022 Start Fair Value (\$bn)	2021E Dividend Yield	2022 End Fair Value (\$bn)	PE on Normal 2022E EPS	2022 end Upside %
CONSUMER DISCRETIONARY	3,865	26.7	145.0	104%	151.3	-8%	138.2	12%	5.50%	2,513	31%	3,301	0.9%	3,551	23.5	-8%
Auto Components	34,276	16.3	2,100	105%	2,205	-9%	2,007	11%	6.00%	33,443	0%	33,443	0.5%	36,293	16.5	6%
Automobiles	804,248	33.5	24,000	110%	26,400	-10%	23,760	19%	6.00%	396,000	60%	633,600	0.4%	688,353	26.1	-14%
Distributors	50,693	16.9	3,000	95%	2,850	-8%	2,622	13%	5.75%	45,600	-5%	43,320	1.9%	46,309	16.2	-9%
Hotels Restaurants & Leisure	538,908	44.9	12,000	155%	18,600	-7%	17,298	27%	5.25%	329,486	20%	395,383	1.5%	421,932	22.7	-22%
Household Durables	104,501	5.8	18,000	85%	15,300	-15%	13,005	14%	7.50%	173,400	-10%	156,060	1.9%	169,405	11.1	62%
Internet & Direct Marketing Retail	1,241,011	49.6	25,000	100%	25,000	-8%	23,000	1%	5.50%	418,182	140%	1,003,636	0.0%	1,088,500	43.5	-12%
Leisure Products	10,182	14.5	700	100%	700	-8%	644	27%	5.75%	11,200	-5%	10,640	3.6%	11,192	16.0	10%
Multiline Retail	167,542	19.7	8,500	100%	8,500	-8%	7,820	12%	5.50%	142,182	0%	142,182	1.5%	152,078	17.9	-9%
Specialty Retail	743,274	17.1	43,500	100%	43,500	-7%	40,455	13%	5.50%	735,545	0%	735,545	1.9%	783,843	18.0	5%
Textiles Apparel & Luxury Goods	170,622	20.8	8,200	100%	8,200	-7%	7,626	1%	5.50%	138,655	10%	152,520	1.6%	163,099	19.9	-4%
CONSUMER STAPLES	2,237	21.3	105.0	100%	105.0	-6%	99	13%	4.75%	2,075	0%	2,075	2.5%	2,183	20.8	-2%
Beverages	573,672	25.4	22,600	100%	22,600	-5%	21,470	13%	4.75%	452,000	10%	497,200	2.5%	523,464	23.2	-9%
Food & Staples Retailing	520,611	23.1	22,500	100%	22,500	-5%	21,375	8%	4.75%	450,000	0%	450,000	1.5%	478,106	21.2	-8%
Food Products	370,949	18.2	20,400	100%	20,400	-7%	18,972	24%	4.75%	399,411	-5%	379,440	2.5%	399,235	19.6	8%
Household Products	480,900	23.8	20,200	100%	20,200	-7%	18,786	9%	4.75%	395,495	5%	415,269	2.6%	436,452	21.6	-9%
Personal Products	59,423	33.0	1,800	100%	1,800	-7%	1,674	2%	4.75%	35,242	10%	38,766	0.9%	41,407	23.0	-30%
Tobacco	231,052	13.2	17,500	100%	17,500	-7%	16,275	20%	4.75%	342,632	-25%	256,974	6.3%	260,646	14.9	13%
Energy	1,545	9.3	165.5	71%	117.5	-10%	106	16%	6.00%	1,764	-15%	1,500	3.6%	1,581	13.5	2%
Energy Equipment & Services	101,145	18.4	5,500	100%	5,500	-8%	5,060	20%	5.75%	88,000	0%	88,000	2.0%	93,903	17.1	-7%
Oil Gas & Consumable Fuels	1,444,192	9.0	160,000	70%	112,000	-10%	100,800	16%	6.00%	1,680,000	-15%	1,428,000	3.7%	1,503,586	13.4	4%
FINANCIALS	3,681	12.7	290.0	101%	292.1	-8%	267	0%	6.50%	4,105	-5%	3,900	2.1%	4,190	14.3	14%
Capital Markets	984,060	16.0	61,500	95%	58,425	-10%	52,583	2%	6.50%	808,962	-5%	768,513	2.2%	824,451	14.1	-16%
Banks	1,258,794	10.1	125,000	105%	131,250	-8%	120,750	N/A	7.00%	1,725,000	-5%	1,638,750	3.2%	1,750,511	13.3	39%
Consumer Finance	189,061	8.4	22,500	95%	21,375	-15%	18,169	N/A	7.00%	259,554	-15%	220,621	1.8%	238,664	11.2	26%
Diversified Financial Services	522,959	20.1	26,000	100%	26,000	-7%	24,180	3%	5.50%	439,636	0%	439,636	0.0%	477,005	18.3	-9%
Insurance	725,694	13.2	55,000	100%	55,000	-7%	51,150	N/A	6.25%	818,400	-5%	777,480	1.9%	834,596	15.2	15%
Health Care	4,728	15.3	310.0	97%	301.2	-10%	275	9%	5.25%	5,241	0%	5,241	1.6%	5,588	18.6	18%
Biotechnology	677,390	10.9	62,400	95%	59,280	-10%	53,352	14%	5.25%	1,016,229	-20%	812,983	2.7%	858,445	14.5	27%
Health Care Equipment & Supplies	1,040,420	22.1	47,000	100%	47,000	-7%	43,710	9%	5.25%	832,571	25%	1,040,714	1.1%	1,115,572	23.7	7%
Health Care Providers & Services	1,172,787	16.8	70,000	100%	70,000	-7%	65,100	8%	5.25%	1,240,000	-5%	1,178,000	1.2%	1,260,595	18.0	7%
Health Care Technology	28,502	25.9	1,100	100%	1,100	-7%	1,023	N/A	5.25%	19,486	25%	24,357	0.0%	26,367	24.0	-7%
Life Sciences Tools & Services	420,406	25.5	16,500	100%	16,500	-7%	15,345	10%	5.25%	292,286	25%	365,357	0.2%	394,794	23.9	-6%
Pharmaceuticals	1,388,780	12.3	113,000	95%	107,350	-10%	96,615	8%	5.25%	1,840,286	-10%	1,656,257	2.7%	1,748,591	16.3	26%

Source: IBES, DWS Investment GmbH as of 8/31/2022. Past performance may not be indicative of future results.

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

	Market Value (\$bn)	Current 2022 PE	2022E Earnings (\$bn)	Normal Ratio	Normal 2022E Earnings	Accounting Quality Adjustment	Fully Adjusted Earnings	Net Debt / Market Cap	Real CoE	Steady State Value	Growth Premium	2022 Start Fair Value (\$bn)	2021E Dividend Yield	2022 End Fair Value (\$bn)	PE on Normal 2022E EPS	2022 end Upside %
INDUSTRIALS	2,720	19.1	142.5	103%	146.9	-8%	134	18%	5.50%	2,429	0%	2,429	1.4%	2,601	17.7	-4%
Aerospace & Defense	579,484	23.2	25,000	107%	26,750	-8%	24,610	22%	5.25%	468,762	0%	468,762	1.6%	499,919	18.7	-14%
Air Freight & Logistics	226,605	14.2	16,000	95%	15,200	-10%	13,680	8%	6.00%	228,000	0%	228,000	2.7%	242,415	15.9	7%
Airlines	67,327	19.2	3,500	220%	7,700	-15%	6,545	69%	8.00%	81,813	0%	81,813	0.0%	90,812	11.8	35%
Building Products	145,192	17.1	8,500	95%	8,075	-8%	7,429	15%	5.75%	129,200	0%	129,200	2.0%	137,980	17.1	-5%
Commercial Services & Supplies	164,695	30.5	5,400	100%	5,400	-8%	4,968	12%	5.00%	99,360	0%	99,360	1.2%	106,156	19.7	-36%
Construction & Engineering	35,955	20.0	1,800	100%	1,800	-8%	1,656	18%	5.75%	28,800	0%	28,800	0.4%	31,193	17.3	-13%
Electrical Equipment	172,277	18.9	9,100	100%	9,100	-8%	8,372	11%	5.50%	152,218	0%	152,218	1.9%	162,295	17.8	-6%
Industrial Conglomerates	325,407	19.7	16,500	105%	17,325	-8%	15,939	11%	5.50%	289,800	0%	289,800	2.1%	308,461	17.8	-5%
Machinery	540,721	16.8	32,200	97%	31,234	-10%	28,111	21%	5.75%	488,880	0%	488,880	1.8%	522,666	16.7	-3%
Professional Services	71,657	22.4	3,200	100%	3,200	-8%	2,944	19%	5.50%	53,527	0%	53,527	0.9%	57,581	18.0	-20%
Road & Rail	316,867	18.6	17,000	100%	17,000	-8%	15,640	18%	5.50%	284,364	0%	284,364	1.8%	303,510	17.9	-4%
Trading Companies & Distributors	74,304	17.3	4,300	95%	4,085	-10%	3,677	14%	5.75%	63,939	0%	63,939	1.4%	68,663	16.8	-8%
INFORMATION TECHNOLOGY	9,073	22.0	411.5	101%	414.5	-6%	390	2%	5.50%	7,088	10%	7,797	1.0%	8,381	20.2	-8%
Communications Equipment	271,604	14.7	18,500	100%	18,500	-8%	17,020	-3%	5.75%	296,000	-5%	281,200	2.7%	298,332	16.1	10%
Technology Hardware Storage & Periph	2,561,939	23.3	110,000	100%	110,000	-5%	104,500	3%	5.50%	1,900,000	10%	2,090,000	0.7%	2,253,802	20.5	-12%
Electronic Equipment Instruments & Cor	200,186	20.0	10,000	100%	10,000	-8%	9,200	11%	5.75%	160,000	5%	168,000	1.1%	180,781	18.1	-10%
IT Services	1,502,053	21.9	68,500	100%	68,500	-5%	65,075	7%	5.50%	1,183,182	15%	1,360,659	1.2%	1,460,016	21.3	-3%
Semiconductors & Semiconductor Equip	1,666,091	16.9	98,500	103%	101,455	-8%	93,339	2%	6.00%	1,555,643	0%	1,555,643	1.7%	1,669,831	16.5	0%
Software	2,871,271	27.1	106,000	100%	106,000	-5%	100,700	0%	5.25%	1,918,095	25%	2,397,619	0.8%	2,577,079	24.3	-10%
MATERIALS	862	13.3	65.0	85%	55.0	-10%	49	17%	5.75%	861	-5%	818	2.0%	873	15.9	1%
Chemicals	603,720	14.4	42,000	90%	37,800	-10%	34,020	15%	5.75%	591,652	-5%	562,070	2.1%	599,645	15.9	-1%
Construction Materials	43,728	27.3	1,600	100%	1,600	-10%	1,440	19%	5.75%	25,043	0%	25,043	0.9%	27,019	16.9	-38%
Containers & Packaging	100,067	12.7	7,900	100%	7,900	-10%	7,110	36%	5.75%	123,652	-10%	111,287	2.8%	117,903	14.9	18%
Metals & Mining	114,335	8.5	13,500	57%	7,695	-10%	6,926	5%	6.25%	110,808	-10%	99,727	2.7%	106,275	13.8	-7%
REAL ESTATE	886	19.3	46.0	96%	44.0	-7%	41	29%	4.50%	910	0%	910	3.0%	951	21.6	7%
Equity Real Estate Investment Trusts (R	859,977	19.5	44,000	96%	42,020	-7%	39,079	30%	4.50%	868,413	0%	868,413	3.1%	906,453	21.6	5%
Real Estate Management & Developmer	26,445	13.2	2,000	100%	2,000	-7%	1,860	4%	5.75%	32,348	0%	32,348	0.0%	35,178	17.6	33%
COMMUNICATION SERVICES	2,809	16.0	176.0	99%	174.0	-8%	161	15%	5.50%	2,924	-5%	2,778	1.5%	2,971	17.1	6%
Diversified Telecommunication Services	309,502	7.5	41,500	95%	39,425	-10%	35,483	105%	6.00%	591,375	-25%	443,531	6.3%	455,369	11.6	47%
Entertainment	442,334	23.3	19,000	100%	19,000	-8%	17,480	9%	5.50%	317,818	20%	381,382	0.2%	413,100	21.7	-7%
Interactive Media & Services	1,694,036	19.1	88,500	100%	88,500	-6%	83,190	-8%	5.50%	1,512,545	10%	1,663,800	0.0%	1,805,223	20.4	7%
Media	279,053	10.9	25,500	95%	24,225	-9%	22,045	60%	6.00%	367,413	-20%	293,930	2.4%	313,419	12.9	12%
Wireless Telecommunication Services	84,478	56.3	1,500	190%	2,850	-8%	2,622	42%	5.50%	47,673	0%	47,673	0.0%	51,725	18.1	-39%
UTILITIES	1,038	20.8	50.0	100%	50.0	-10%	45	60%	4.50%	999	0%	999	2.9%	1,045	20.9	1%
Electric Utilities	652,125	21.7	30,000	100%	30,000	-10%	27,000	60%	4.50%	600,000	5%	630,000	2.9%	658,805	22.0	1%
Gas Utilities	15,104	21.6	700	100%	700	-10%	630	46%	4.50%	14,000	0%	14,000	2.4%	14,709	21.0	-3%
Independent Power and Renewable Elec	27,400	8.3	3,300	100%	3,300	-12%	2,904	113%	6.75%	43,022	0%	43,022	2.8%	46,017	13.9	68%
Multi-Utilities	316,133	20.8	15,200	100%	15,200	-10%	13,680	59%	4.50%	304,000	0%	304,000	3.0%	317,759	20.9	1%
Water Utilities	26,949	33.7	800	100%	800	-5%	760	38%	4.00%	19,000	0%	19,000	1.8%	19,995	25.0	-26%

Source: IBES, DWS Investment GmbH as of 8/31/2022. Past performance may not be indicative of future results.

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S&P 500 industry monitor (table 1 of 2)

Sector	Industry	PE on 2022 Consensus EPS	PE on 2023 Consensus EPS	2022 Consensus EPS Growth	2023 Consensus EPS Growth	2022 EPS 3m Revision	3m Total Return Momentum	2022 End Upside (Intrinsic Valuation)
Consumer Discretionary		30.2	22.5	6.0%	34.4%	-9.3%	-1.0%	-7.5%
	<i>Auto Components</i>	18.2	13.1	0.1%	39.6%	-7.9%	-13.3%	5.9%
	<i>Automobiles</i>	28.4	25.7	25.2%	10.4%	1.3%	6.4%	-14.4%
	<i>Household Durables</i>	5.9	6.4	35.9%	-8.4%	-4.0%	-10.0%	62.1%
	<i>Leisure Products</i>	15.4	13.8	-3.2%	12.0%	-2.3%	-11.5%	9.9%
	<i>Textiles Apparel & Luxury Goods</i>	21.7	19.5	4.6%	11.2%	-10.1%	-13.5%	-4.4%
	<i>Hotels Restaurants & Leisure</i>	42.2	21.1	772.1%	100.2%	-15.3%	-5.2%	-21.7%
	<i>Distributors</i>	17.0	16.2	15.9%	5.0%	0.6%	0.6%	-8.6%
	<i>Internet & Direct Marketing Retail</i>	352.2	49.1	-86.9%	617.8%	-65.9%	1.0%	-12.3%
	<i>Multiline Retail</i>	19.4	15.7	-15.5%	23.7%	-16.1%	-1.2%	-9.2%
	<i>Specialty Retail</i>	17.1	15.9	6.0%	7.6%	-2.5%	-2.4%	5.5%
Consumer Staples		21.2	19.9	4.0%	6.3%	-1.1%	-1.1%	-2.2%
	<i>Food & Staples Retailing</i>	23.2	21.4	3.8%	8.4%	-3.7%	2.8%	-8.2%
	<i>Food Products</i>	17.4	17.1	8.9%	1.7%	1.2%	2.8%	7.6%
	<i>Beverages</i>	25.3	23.4	6.4%	8.2%	-0.5%	0.7%	-8.8%
	<i>Tobacco</i>	13.1	12.4	0.7%	5.1%	1.1%	-11.2%	12.8%
	<i>Household Products</i>	24.2	22.6	-0.6%	7.1%	-3.0%	-4.4%	-9.2%
	<i>Personal Products</i>	34.4	31.4	7.1%	9.5%	-3.2%	-3.6%	-30.3%
Energy		7.8	8.9	303.0%	-12.7%	22.3%	-7.5%	2.2%
	<i>Energy Equipment & Services</i>	18.8	13.0	88.9%	44.5%	2.9%	-23.4%	-7.2%
	<i>Oil Gas & Consumable Fuels</i>	7.4	8.7	316.4%	-14.3%	23.0%	-6.1%	4.1%
Financials		12.9	11.4	-10.7%	13.0%	-1.9%	-6.2%	14.6%
	<i>Banks</i>	10.0	8.8	-16.8%	14.4%	-0.4%	-8.7%	39.1%
	<i>Diversified Financial Services</i>	19.9	18.5	28.5%	7.4%	6.8%	-10.8%	-8.8%
	<i>Consumer Finance</i>	8.4	8.6	-14.9%	-1.5%	0.6%	-11.3%	26.2%
	<i>Capital Markets</i>	16.1	14.1	-14.0%	14.1%	-7.9%	-0.6%	-16.2%
	<i>Insurance</i>	14.2	12.1	-1.7%	17.1%	-2.9%	-4.2%	15.0%
Health Care		15.3	15.4	10.4%	-0.5%	-1.2%	-4.6%	16.5%
	<i>Health Care Providers & Services</i>	16.7	15.3	11.2%	9.8%	1.2%	4.1%	7.5%
	<i>Health Care Technology</i>	N/A	N/A	N/A	N/A	N/A	N/A	-7.5%
	<i>Health Care Equipment & Supplies</i>	22.7	21.8	-3.2%	4.2%	-1.8%	-9.5%	7.2%
	<i>Life Sciences Tools & Services</i>	25.6	24.1	-3.0%	6.2%	0.0%	-5.2%	-6.1%
	<i>Biotechnology</i>	10.7	12.4	3.3%	-13.8%	-1.2%	-4.0%	26.7%
	<i>Pharmaceuticals</i>	12.3	12.6	24.4%	-2.3%	-2.6%	-7.9%	25.9%

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S&P 500 industry monitor (table 2 of 2)

Sector	Industry	PE on 2022 Consensus EPS	PE on 2023 Consensus EPS	2022 Consensus EPS Growth	2023 Consensus EPS Growth	2022 EPS 3m Revision	3m Total Return Momentum	2022 End Upside (Intrinsic Valuation)
Industrials		18.8	16.0	41.3%	17.5%	-1.7%	-2.7%	-3.3%
	<i>Aerospace & Defense</i>	24.1	17.9	34.6%	35.1%	-8.0%	-0.5%	-13.7%
	<i>Building Products</i>	16.6	15.1	14.3%	10.2%	-0.5%	-1.9%	-5.0%
	<i>Trading Companies & Distributors</i>	16.2	15.3	45.7%	6.2%	5.6%	-0.8%	-7.6%
	<i>Electrical Equipment</i>	18.5	16.9	21.7%	9.8%	0.9%	-4.2%	-5.8%
	<i>Construction & Engineering</i>	22.5	20.2	36.6%	11.6%	-0.1%	13.5%	-13.2%
	<i>Industrial Conglomerates</i>	18.9	15.7	11.5%	20.0%	-2.6%	-7.3%	-5.2%
	<i>Machinery</i>	16.3	14.9	15.4%	9.4%	-1.1%	-5.3%	-3.3%
	<i>Commercial Services & Supplies</i>	30.3	27.5	16.8%	10.5%	1.5%	4.2%	-35.5%
	<i>Professional Services</i>	19.9	18.4	7.5%	8.4%	-1.7%	-3.8%	-19.6%
	<i>Air Freight & Logistics</i>	13.1	13.2	19.7%	-0.2%	1.5%	2.8%	7.0%
	<i>Airlines</i>	24.5	7.5	117.7%	226.5%	-10.7%	-20.5%	34.9%
	<i>Road & Rail</i>	18.5	17.3	20.8%	7.0%	0.5%	-0.7%	-4.2%
Information Technology		22.7	20.9	9.7%	8.8%	-4.7%	-5.3%	-7.7%
	<i>IT Services</i>	27.1	23.9	15.5%	13.2%	-0.4%	-5.1%	-2.8%
	<i>Software</i>	27.6	24.2	13.1%	14.3%	-2.7%	-5.7%	-10.2%
	<i>Communications Equipment</i>	15.1	14.0	6.4%	7.7%	0.1%	0.7%	9.8%
	<i>Technology Hardware Storage & Peripherals</i>	23.6	22.4	9.5%	5.1%	-2.5%	3.0%	-12.0%
	<i>Electronic Equipment Instruments & Components</i>	19.4	17.8	14.3%	8.6%	-0.2%	-2.8%	-9.7%
	<i>Semiconductors & Semiconductor Equipment</i>	16.3	15.6	4.3%	4.9%	-11.6%	-16.1%	0.2%
Materials		12.7	13.8	31.2%	-7.9%	-2.8%	-13.2%	1.3%
	<i>Chemicals</i>	13.7	13.8	35.3%	-0.7%	-0.2%	-11.3%	-0.7%
	<i>Construction Materials</i>	28.3	22.4	10.7%	26.7%	-7.3%	-0.3%	-38.2%
	<i>Metals & Mining</i>	8.0	13.5	29.7%	-40.8%	-9.0%	-25.6%	-7.0%
	<i>Containers & Packaging</i>	12.7	12.1	18.2%	4.4%	-4.3%	-13.0%	17.8%
Real Estate		18.7	17.9	94.2%	4.6%	0.6%	-4.9%	7.3%
	<i>Equity Real Estate Investment Trusts (REITs)</i>	19.0	18.1	99.3%	4.7%	0.7%	-4.9%	5.4%
	<i>Real Estate Management & Development</i>	13.1	12.8	19.1%	2.1%	-2.7%	-4.3%	33.0%
Communication Services		16.6	14.8	-8.2%	12.4%	-8.1%	-10.0%	5.3%
	<i>Diversified Telecommunication Services</i>	7.5	7.6	-13.5%	-1.8%	-2.7%	-16.6%	47.1%
	<i>Wireless Telecommunication Services</i>	64.8	22.4	-16.9%	189.0%	-19.3%	6.0%	-38.8%
	<i>Media</i>	10.8	10.3	10.5%	4.3%	-0.1%	-15.7%	12.3%
	<i>Entertainment</i>	26.6	19.1	-2.2%	39.0%	-13.3%	-1.3%	-6.6%
	<i>Interactive Media & Services</i>	20.2	17.8	-11.2%	13.8%	-11.5%	-10.4%	6.6%
Utilities		21.1	19.9	1.0%	6.1%	2.0%	0.3%	0.8%
	<i>Multi-Utilities</i>	20.8	19.7	2.1%	5.7%	0.5%	-1.5%	0.5%
	<i>Water Utilities</i>	33.4	30.8	5.8%	8.4%	-0.4%	-3.8%	-25.8%
	<i>Gas Utilities</i>	20.1	18.7	9.6%	7.2%	0.2%	-2.2%	-2.6%
	<i>Electric Utilities</i>	21.2	20.0	0.2%	6.1%	2.9%	1.0%	1.0%
	<i>Producers</i>	15.8	14.4	2.9%	9.3%	0.9%	15.7%	67.9%
S&P 500		17.6	16.4	15.9%	7.4%	-1.3%	-4.9%	1.5%

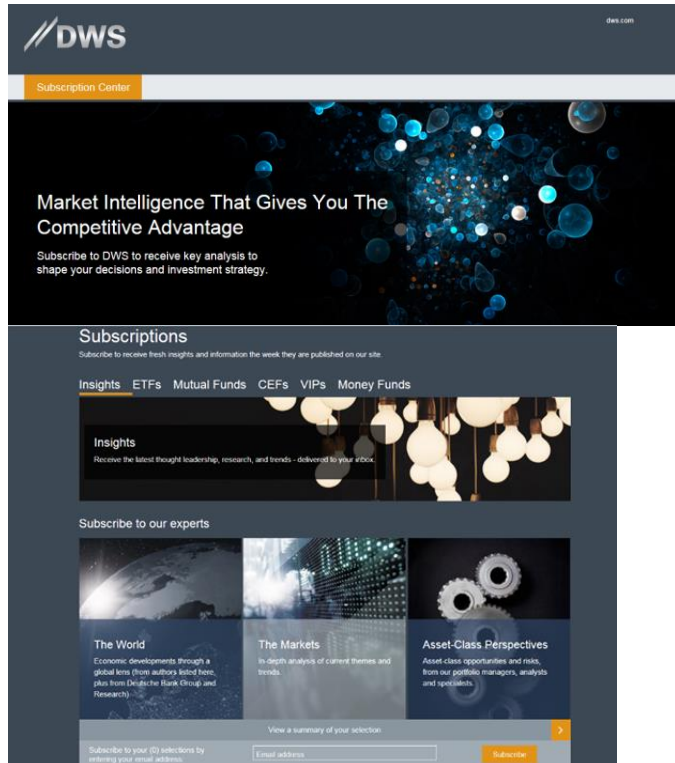
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