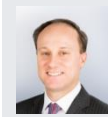


Surviving tribulations of beta management: Be patient and busy elsewhere



David Bianco
Americas Chief Investment Officer
DWS

Charts of past cycles fail to convey the real uncertainty and anxiety of living one Beta management isn't easy. It takes the right expertise, process discipline and especially patience. Beta management should be employed in the right parts of an investor's portfolio and usually only in moderation. We agree that success in equities is more about "time in the market" than "timing the market," but we also believe that equity beta management and other tactical asset allocations can add value. Short-term deviation from strategic asset allocation, or what's optimal long-term for an investor's specific risk tolerance, can enhance returns and help avoid losses when asset classes and segments are offering different returns or risk from what was estimated when establishing optimal longer-term allocations.

As explained in past notes, we advocate managing beta and other tactical allocations at the highest level of portfolio construction. These tilts should be managed by macro minded asset allocators with a process for assessing available return and risk across all key asset classes. We don't think active managers hired to select securities within core asset class segments should deviate in beta, duration or credit risk from assigned benchmarks. As tactical tilts within core categories could conflict with high level asset allocation positioning. However, at certain higher risk sub asset class categories, some deviation implemented by segment active managers from benchmark systematic risk can be helpful. Particularly if strategy managers have more expertise than the asset allocator in evaluating the overall space. In our view, these categories include small caps, high yield, emerging market equity/debt and various alternative asset allocations. But even in these categories, we think it best that managers keep systematic risk tilts moderate from benchmark and be in close contact with clients if their views are more extreme to help advise on higher level portfolio actions. Because macro factors like beta are very uncertain and it's difficult to diversify active risk taking on such factors given the limited outcomes over intermediate time frames, thus few opportunities to diversify actions, we advocate moderation in tactical allocation. For tactical equity allocation, we advocate moderate sized tilts to avoid dips and corrections, which are more frequent than bears, and to capture outsized gains from frequent periods of stronger than usual returns. Yet, we're unlikely to have a huge under-weight on difficult to time bear market views. Similarly, we aim for moderate over-weights when confident in double-digit returns for a year or less, but unlikely to take a giant over-weight if 20%+ return is expected.

Our advice for better beta management: Employ dedicated expertise and process, place tactical systematic risk tilts in their proper portfolio place by adjusting aggregate weight of all respective security selection strategies (both active and passive), tilt in moderation, and find patience by seeking alpha opportunities elsewhere. We suggest stock pickers stay focused on selection and that asset allocators seek often overlooked macro-opportunities in sub regions, styles, sectors, themes, vol, isolated risk premiums, alternatives, etc. Our S&P sector strategy strives to balance beta & style tilts with sector preferences of similar beta & style. For instance, we prefer Financials over Energy/Materials, Health Care over Tech, Utilities and REITs over Staples, Communications over Consumer Discretionary. We have industry preferences in Industrials. Despite our beyond beta & style sector strategy, our beta is 0.85 and more value tilted than growth, ex. Health Care, which is "value growth."

Debt ceiling fights will call more attention to deteriorating US fiscal health

Other than default, clearly the worst and unthinkable outcome, we'd be concerned about a small and especially a large and "clean" debt ceiling raise owing to higher interest rate risk. We think it important that the debt ceiling fight produces a compromise that improves the long-term debt/GDP outlook. Right now, long bond yields and even 1-2yr treasury note yields are low because the bond market is focused on recession. After the recession, the bond market will turn its attention to deteriorating fiscal health and residual inflation risk.

Small gets cheaper: Near-term beta danger vs. the longer and alpha opportunity

Zero small cap returns YTD lag large cap returns, but mostly due to mega cap Tech gains. The PE discount at small vs. large widens on trailing EPS ex. unprofitable companies. But more unprofitable firms are likely as estimates are falling with pressures on small banks and small Biotech. We prefer big banks and big medicine makers over small research firms. We see selective opportunities in small caps mostly at Industrials, Tech and Consumer.

Week 5 of 1Q EPS reporting: 1Q saved by big Banks and Tech, outlook tougher

Bottom-up 1Q EPS is \$53.03, -0.8% y/y. We cut our 2023E S&P EPS from \$222 to \$220. Our standing 2Q and 3Q EPS estimates are \$55 and \$55, down 5% and 2% y/y respectively. See earnings season details and our EPS outlook inside on page 10-15.

Contributor: Ju Wang, Portfolio Manager Equity

Global Equity Index Forecasts: 12-months			
Index	Mar 2024F	NTM EPS Growth	Target PE
S&P 500	4,100	1.3%	18.1
EuroStoxx 50	4,350	0.1%	13.1
Stoxx 600	480	1.7%	13.6
MSCI Japan	1,250	3.2%	13.3
MSCI Asia xJ	670	3.2%	14.1
MSCI EM	1,020	-0.5%	12.5

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%	36.5%
Equities	55-60%	54.0%
US Equities	40%	35%
S&P 500	35%	33.0%
Small Caps	0-10%	2%
Foreign DM	10-15%	11%
Foreign EM	0-10%	8%
Alternatives	10%	9.5%

Key CIO Views		
Macro signal:	May 2023	Mar 2024F
U.S. Fed Funds rate	5.00%-5.25%	5.25%-5.50%
10yr Treasury yield	3.45%	4.30%
US IG Corp Spreads	185bp	110bp
US High Yield Spreads	520bp	450bp
Crude Oil (WTI) \$/bbl	70	100
EUR / USD FX rate	1.10	1.10

GDP Forecasts			
Region	2022	2023F	2024F
US	2.0%	0.7%	1.1%
World	3.4%	2.7%	3.1%
Euro area	3.5%	0.8%	1.1%
China	3.0%	5.5%	5.3%
Japan	1.1%	1.0%	0.8%

* 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 5/15/2023 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	14.4%	20.2%	Health Care	16.2	17.2	16.1	Biotechnology Health Care Equipment & Supplies Pharmaceuticals	12.2 26.2 13.4	15.0 24.6 15.1	14.0 21.8 14.4	Health Care Providers & Services	15.8	14.7	13.9	Life Sciences Tools & Services	23.6	24.7	22.7	
	8.5%	12.3%	Communication Services	20.2	17.6	16.5	Diversified Telecommunication Services Entertainment Interactive Media & Services Media	7.0 50.5 26.2 11.0	7.8 25.4 21.5 11.3	7.8 20.8 20.2 11.1	Wireless Telecommunication Services	70.0	21.5	20.0					
	4.4%	5.9%	Energy	7.6	9.6	9.0	Energy Equipment & Services	19.5	13.6	11.6	Oil Gas & Consumable Fuels	7.2	9.3	8.8					
	12.7%	13.5%	Financials	14.5	13.6	12.9	Banks Insurance	8.8 16.6	8.4 13.5	8.2 12.2					Capital Markets Consumer Finance Financial Services	16.2 8.1 23.8	16.7 9.5 21.2	15.6 8.3 20.3	
	2.9%	3.4%	Utilities	19.8	18.6	17.6	Electric Utilities	20.4	18.6	17.6	Gas Utilities Independent Power & Renewable Energy Multi-Utilities	20.9 13.2 18.2	19.8 12.7 18.1	18.7 11.7 17.4	Water Utilities	33.8	32.8	31.4	
Equal-weight	8.5%	8.5%	Industrials	21.0	19.1	17.8	Aerospace & Defense Passenger Airlines Electrical Equipment Ground Transportation	33.1 15.3 21.0 17.5	22.5 6.8 21.3 17.8	19.5 6.2 19.7 16.3	Industrial Conglomerates	20.4	22.7	19.7	Air Freight & Logistics Building Products Commercial Services & Supplies Construction & Engineering Machinery Professional Services Trading Companies & Distributors	13.2 19.7 33.8 27.4 17.4 27.5 18.2	16.0 18.1 32.7 24.9 15.7 28.5 15.9	15.4 16.7 31.6 20.8 16.2 27.1 15.3	
	2.5%	2.3%	Real Estate	16.8	17.0	16.3	Industrial REITs Specialized REITs	24.3 18.2	22.8 18.6	22.3 17.7	Hotel & Resort REITs Real Estate Mgmt. & Development Residential REITs	9.4 12.8 17.8	10.0 14.8 17.1	10.0 13.2 16.7	Health Care REITs Office REITs Retail REITs	18.2 10.7 11.8	17.9 11.0 12.1	17.0 11.0 11.8	
	7.4%	6.2%	Consumer Staples	22.0	21.5	20.6	Beverages	27.1	25.2	23.8	Consumer Staples Distribution & Retail Household Products Personal Care Products	22.9 27.8 32.6	22.0 26.7 30.9	20.7 25.7 27.2	Food Products Tobacco	17.4 12.8	18.6 12.4	18.2 12.4	
	2.5%	1.0%	Materials	13.9	17.1	16.0									Chemicals Construction Materials Containers & Packaging Metals & Mining	15.7 35.7 11.9 8.5	17.9 34.0 14.6 13.3	16.1 28.3 12.7 15.6	
Under-weight	10.0%	5.5%	Consumer Discretionary	31.6	25.9	23.9	Automobile Components	18	14.8	12.2	Hotels Restaurants & Leisure	61	26.1	22.9	Automobiles Distributors Household Durables Broadline Retail Leisure Products Multiline Retail Specialty Retail Textiles Apparel & Luxury Goods	18.7 17.9 8.2 -1307.8 13.8 26.6	22.6 17.5 11.3 61.5 13.3 26.3	21.7 16.4 11.4 47.2 13.3 24.4	
	26.1%	21.3%	Information Technology	25.7	25.9	23.8	Communications Equipment IT Services	15.7 18.7	14.0 18.0	13.4 16.8					Electronic Equipment Semiconductors Software Technology Hardware Storage & Peripherals	18.6 21.8 32.7 26.6	20.1 26.7 29.3 26.3	19.2 23.7 26.9 24.4	
				18.7	22.6	21.7	Automobiles	18.7	22.6	21.7									
				-1307.8	61.5	47.2	Broadline Retail	-1307.8	61.5	47.2									
	23.6	20.5	19.4	CD ex Auto & Broadline Retail	23.6	20.5	19.4												
Aggregate PE: DWS View							Overweight	16.8	16.0	15.0	Equalweight	15.1	15.7	14.8	Underweight	22.7	22.8	21.4	
S&P 500								4124			2022, 2023& 2024 EPS	219.79	220.00	235.00	2022, 2023 & 2024 PE	18.8	18.7	17.5	
											Bottom-up Consensus EPS	219.79	221.94	246.47	Bottom-up Cons. PE	18.8	18.6	16.7	
															2022, 2023 & 2024 Ex Energy PE	19.5	19.5	18.3	
															Btm-up Cons. Ex Energy PE	20.2	19.4	17.3	

Sector OW	11.03%
Sector UW	-11.03%
Industry OW	20.73%
Industry UW	-20.73%

Macro tilts:	
Cyclicals	-4.41%
Defensive	4.42%
Value (Financial+Energy)	1.83%
Growth	0.04%
Growth ex Health Care	-5.06%
Consumer	-4.86%
Services/experience	-0.26%
Disc. Goods	-3.71%
Retailing	-1.72%
Durables	-1.99%
Staples Goods/Retail	-0.89%
Commodity	1.04%
Energy	1.40%
Metals/Chemicals	-0.36%
Capex	2.75%
Capacity additions	1.10%
Productivity	1.65%
Health Care	5.10%
Innovation	2.74%
Marketers	2.43%
Insurers	0.42%
Financials	0.43%
Up rates/low spreads	2.19%
Capital Markets	-2.70%
Insurance	0.94%
Bond Substitutes	0.80%
Weak FX \$ plays	0.28%
High R&D plays	1.77%
Transports	1.00%
Geopolitical risk	2.03%
Weak oil prices	-1.10%
Inflation shock	0.31%
Stagflation Protection	4.21%
Domestic GDP	-1.77%
Global GDP	-5.38%
Consumer TMT	1.65%
Trade sensitive	-2.45%

Note: More details on sector earnings forecast and sector intrinsic valuation can be found towards the back of this note.
 Price as of 5/12/2023
 Source: DWS Investment Management GmbH

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	1.0%	\$246	11.0%	\$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%	172.3	15.7%	201.3	16.9%	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%	138.8	26.1%	163.9	18.1%	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%	121.0	3.5%	132.0	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%	152.6	-24.2%	152.0	-0.4%	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%	336.6	10.4%	366.9	9.0%	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%	280.0	-9.1%	305.3	9.0%	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%	159.2	13.3%	180.9	13.7%	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%	348.9	-1.1%	403.2	15.6%	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	-17.1%	55.8	5.2%	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%	50.3	-0.3%	53.4	6.0%	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	2.8%	53.6	6.3%	57.8	8.0%	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%	1866.3	1.0%	2072.5	11.0%	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%	1713.7	4.1%	1920.6	12.1%	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%	1517.4	1.5%	1669.3	10.0%	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	\$1,743	11.3%											
S&P 500 Non-GAAP Net Margin	10.2%	10.4%	10.3%	10.7%	12.1%	11.5%	10.3%	13.3%	12.5%												

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 5/12/2023. Past performance may not be indicative of future results.

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	3,002	17.6	171.0	97%	166.2	-8%	152.9	15%	5.60%	2,731	0%	2,731	1.0%	2,938	17.7	-2%	4%
Consumer Discretionary	3,484	25.9	134.5	105%	141.2	-8%	129.9	12%	5.50%	2,362	15%	2,725	1.1%	2,925	20.7	-16%	-10%
<i>Automobiles</i>	543	22.6	24.0	100%	24.0	-12%	21.1	19%	6.50%	325	30%	422	0.5%	460	19.2	-15%	-9%
<i>Broadline (Internet) Retail</i>	1,014	61.5	16.5	150%	24.8	-7%	23.0	1%	5.50%	419	50%	628	0.1%	681	27.5	-33%	-27%
<i>ex. Auto & Broadline (Internet) Retail</i>	1,927	20.5	94.0	98%	92.4	-7%	85.7	17%	5.30%	1,618	3%	1,674	1.6%	1,787	19.3	-7%	-1%
Consumer Staples	2,576	21.5	120.0	100%	120.0	-7%	111.6	13%	5.00%	2,232	0%	2,232	2.7%	2,350	19.6	-9%	-3%
Energy	1,530	9.6	160.0	86%	138.1	-15%	117.4	16%	6.00%	1,957	-20%	1,565	3.1%	1,658	12.0	8%	14%
Financials	4,416	13.6	324.0	99%	320.4	-9%	291.5		6.40%	4,555	-8%	4,191	2.2%	4,490	14.0	2%	8%
<i>Banks</i>	1,027	8.4	122.0	100%	122.0	-10%	109.8		7.50%	1,464	-15%	1,244	4.0%	1,325	10.9	29%	35%
Health Care	4,976	17.2	290.0	99%	288.4	-8%	265.4	9%	5.40%	4,914	0%	4,914	1.6%	5,247	18.2	5%	12%
Industrials	2,944	19.1	154.5	101%	155.7	-8%	143.3	18%	5.60%	2,558	0%	2,558	2.0%	2,728	17.5	-7%	-1%
Information Technology	9,073	25.9	350.0	103%	362.0	-5%	343.9	2%	5.40%	6,369	10%	7,005	1.0%	7,523	20.8	-17%	-11%
Materials	887	17.1	52.0	99%	51.3	-10%	46.1	17%	5.75%	802	0%	802	1.9%	857	16.7	-3%	3%
Real Estate	848	17.0	50.0	97%	48.4	-8%	44.5	29%	5.25%	848	0%	848	3.9%	886	18.3	4%	11%
Utilities	996	18.6	53.5	103%	55.3	-8%	50.9	60%	5.25%	969	0%	969	3.3%	1,016	18.4	2%	8%
S&P 500 (\$ bn)	34,732	18.7	1859.5	99%	1847.0	-8.1%	1697.4		5.57%	30,296	0.8%	30540	1.7%	32,618	17.7	-6%	0%
S&P 500 Index (\$/sh)	4124	18.7	220.0	100%	220.0	-8.2%	202.0	11%	5.60%	3607	0.0%	3607	1.7%	3847	17.5	-7%	0%

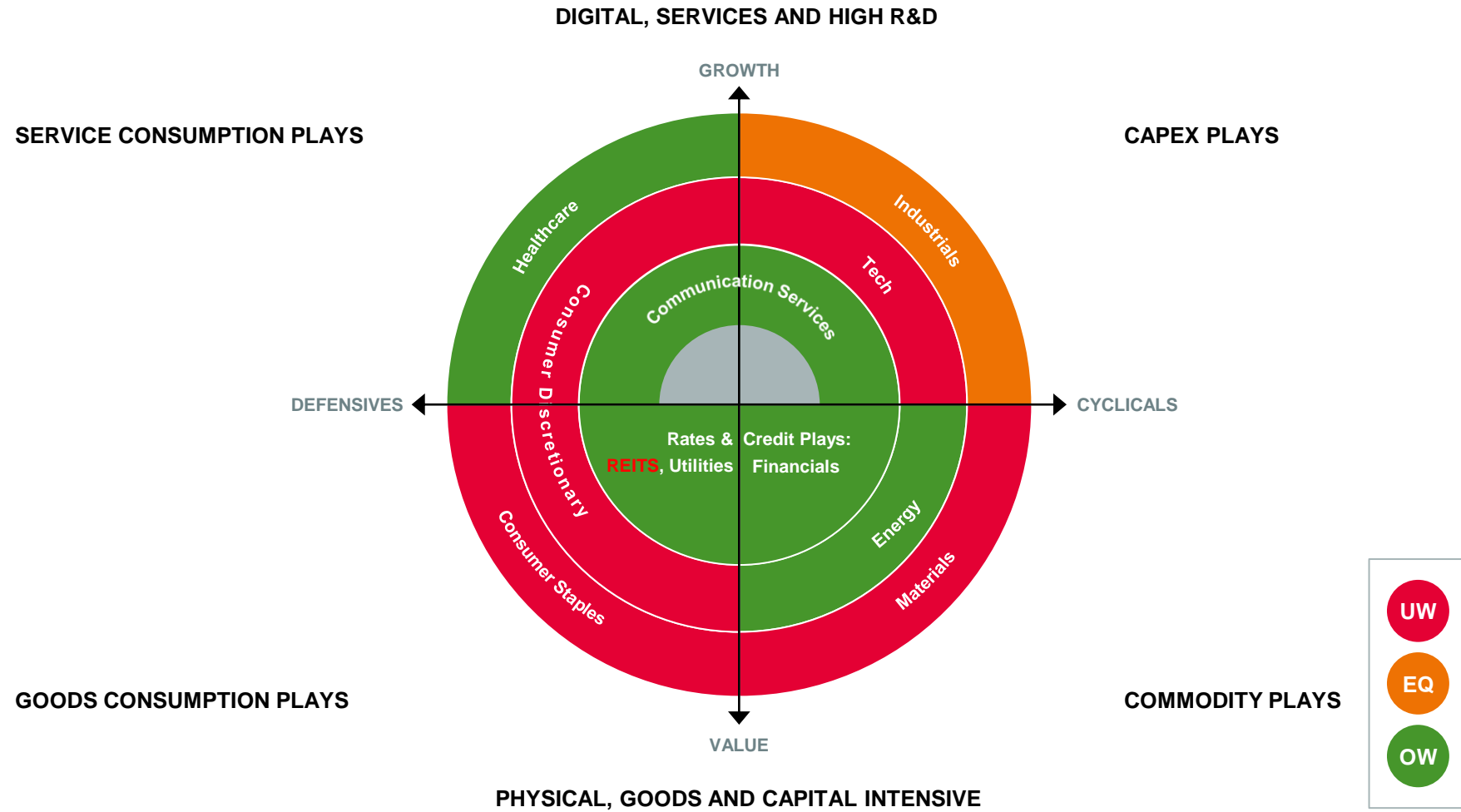
>5%	Bigger upside vs. S&P 500
between -5% and 5%	Same upside as S&P 500
<-5%	Smaller upside vs. S&P 500

Source: IBES, DWS Investment GmbH as of 5/12/2023. 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.

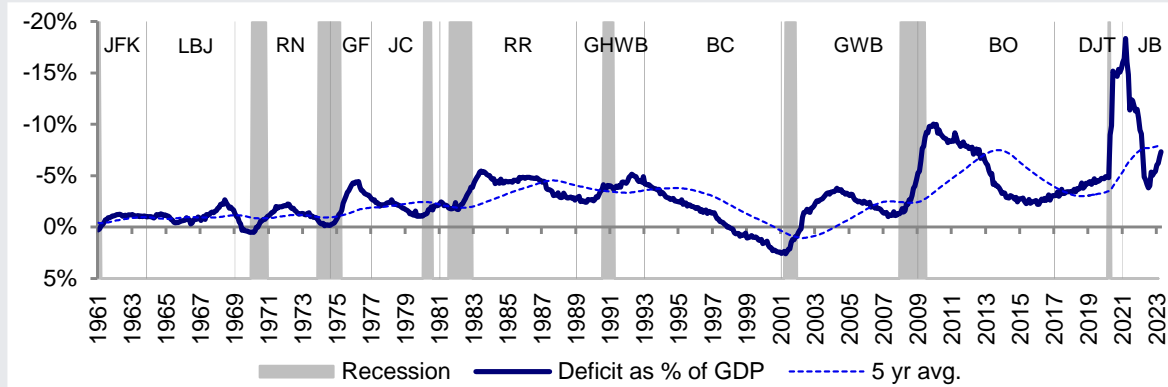
Sector Strategy: Per Key Macro Plays



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

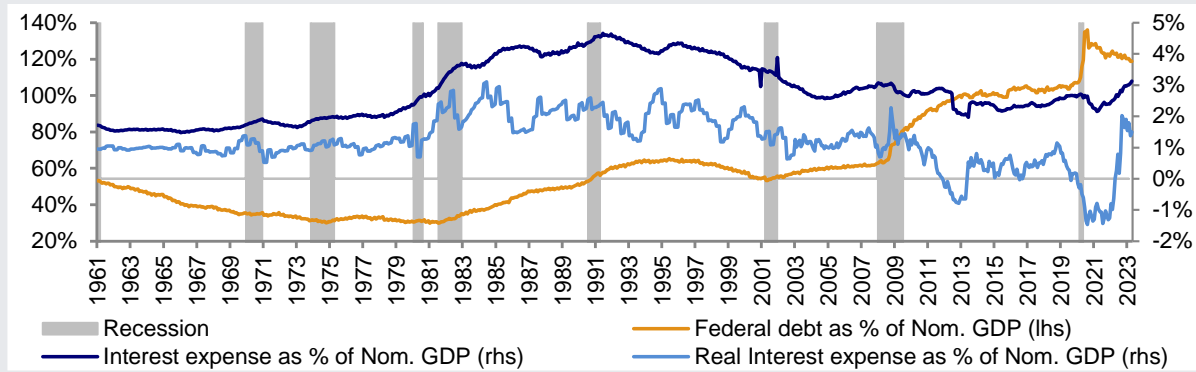
Debt ceiling

U.S. federal deficit % of GDP



Source: Haver, DWS Investment GmbH as of April 2023.

U.S. federal debt and interest expense as % of GDP



Source: Haver, DWS Investment GmbH as of April 2023.

S&P 500 dips and corrections

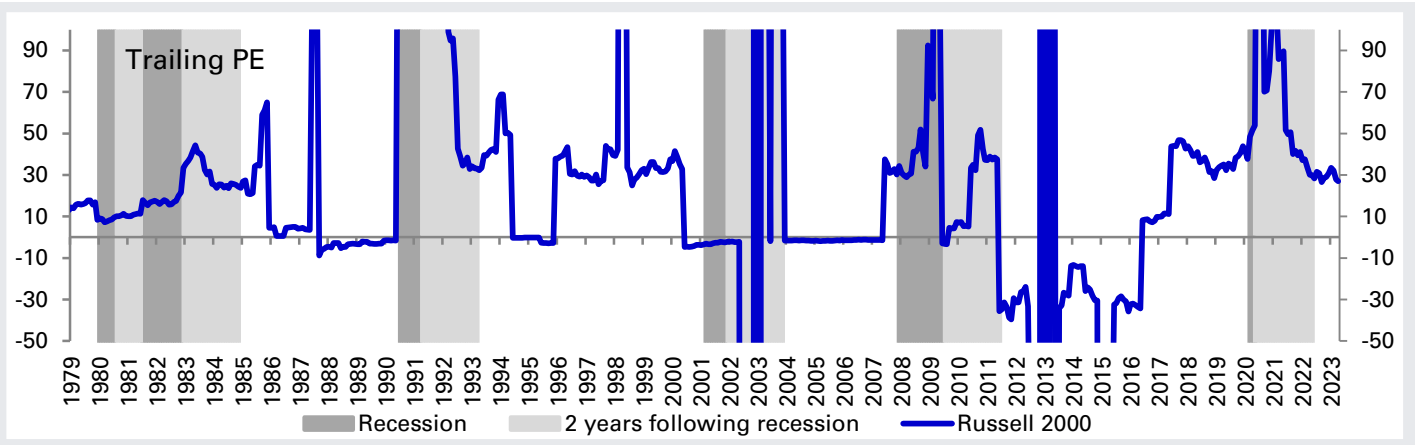
From high of:	All time	3yr high	1yr high	6mos high
5% Dips	68	84	94	89
10% Corrections	29	34	35	34
15% Swoons	21	22	22	24
20% Bears	14	11	15	13
25%+ Crash	13	8	8	8

	Count	Avg Sell-off	Avg 3m Return	Avg 6m Return	Avg 12m Return
5%+ Sell-offs	89	-12.2%	11.3%	14.5%	20.1%
5%+ Sell-offs Leading to a 10%+ Correction	32	-20.9%	15.6%	21.0%	28.1%
5%+ Sell-offs not Leading to a 10%+ Correction	57	-7.4%	8.9%	10.9%	15.5%
5% sell-offs without recession in 12m	68	-10.5%	10.8%	14.1%	20.7%
5% sell-offs leading to 10%+ & no recession in 12m	21	-18.0%	15.0%	20.1%	26.5%
5% sell-offs not leading to 10%+ & no recession in 12m	47	-7.2%	8.9%	11.5%	18.1%
10%+ Corrections with a Recession within 12m	11	-26.4%	16.6%	22.9%	31.0%
10%+ Corrections out of Recession	21	-18.0%	15.0%	20.1%	26.5%
10%+ Corrections out of Recession (ex 1987 Crash)	20	-17.2%	14.8%	20.1%	26.8%
10% Corrections Leading to a 20%+ Bear Market	10	-33.9%	19.2%	24.3%	34.4%
10% Corrections not Leading to a 20%+ Bear Market	21	-14.1%	12.7%	18.2%	22.8%

Source: Compustat, Clarifi, DWS Investment GmbH as of 5/12/2023.

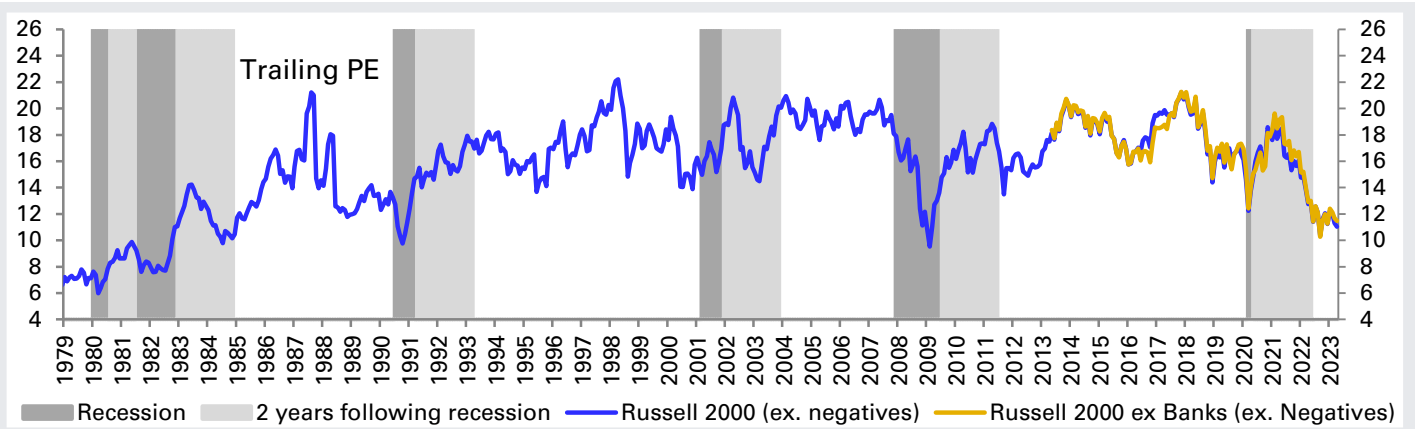
US small caps

Russell 2000 trailing PE



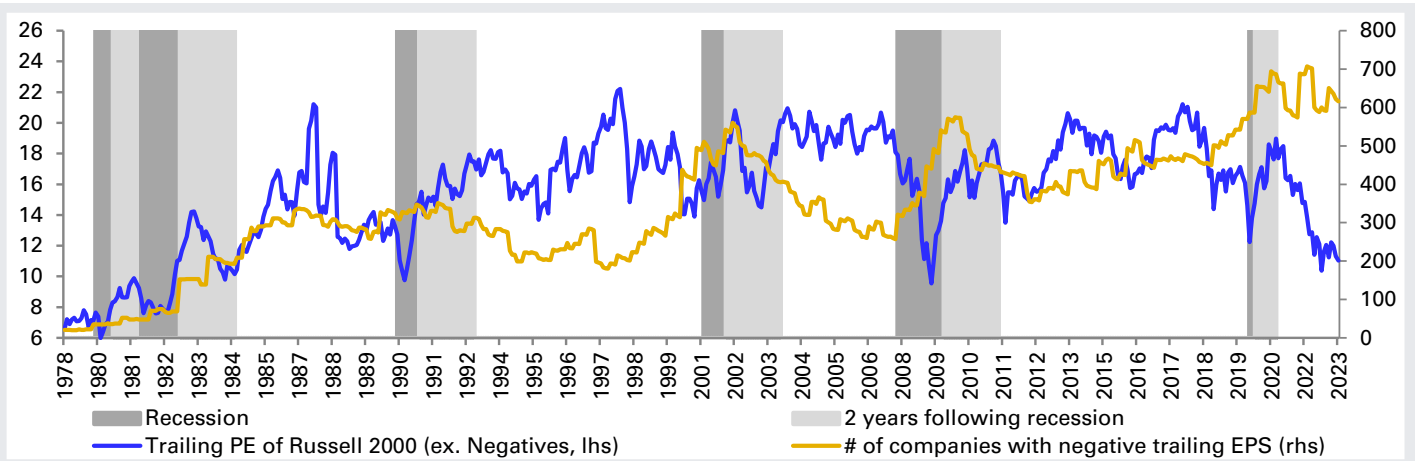
Source: Compustat, Clarifi, DWS Investment GmbH as of 4/30/2023.

Russell 2000 trailing PE ex. companies with negative EPS



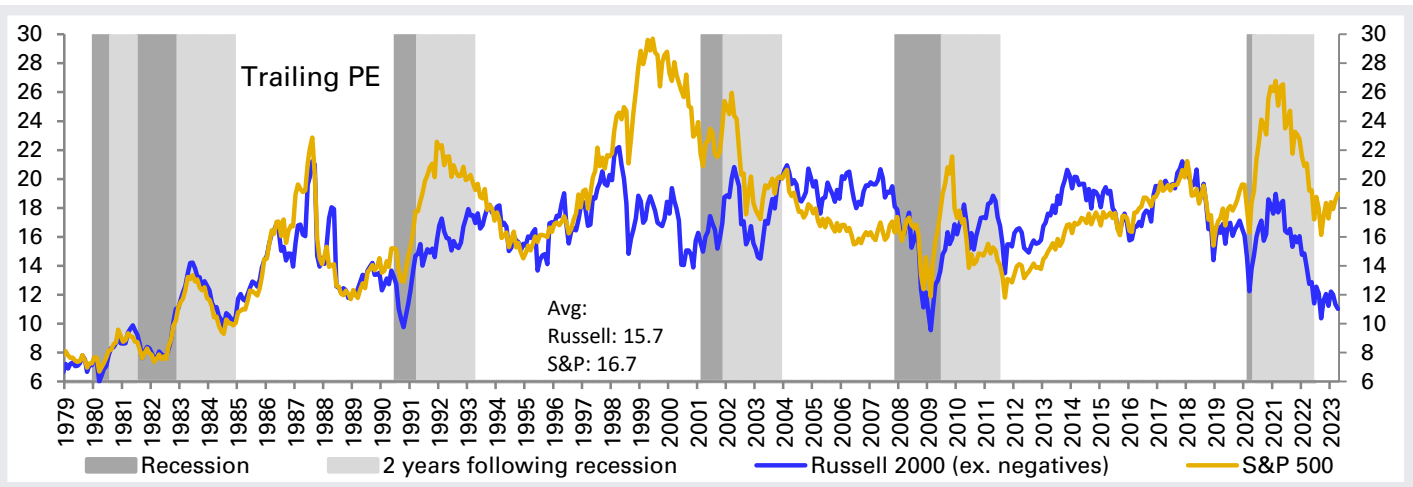
Source: Compustat, Clarifi, DWS Investment GmbH as of 4/30/2023.

Russell 2000 trailing PE ex. companies with negative EPS vs. number of companies with negative EPS



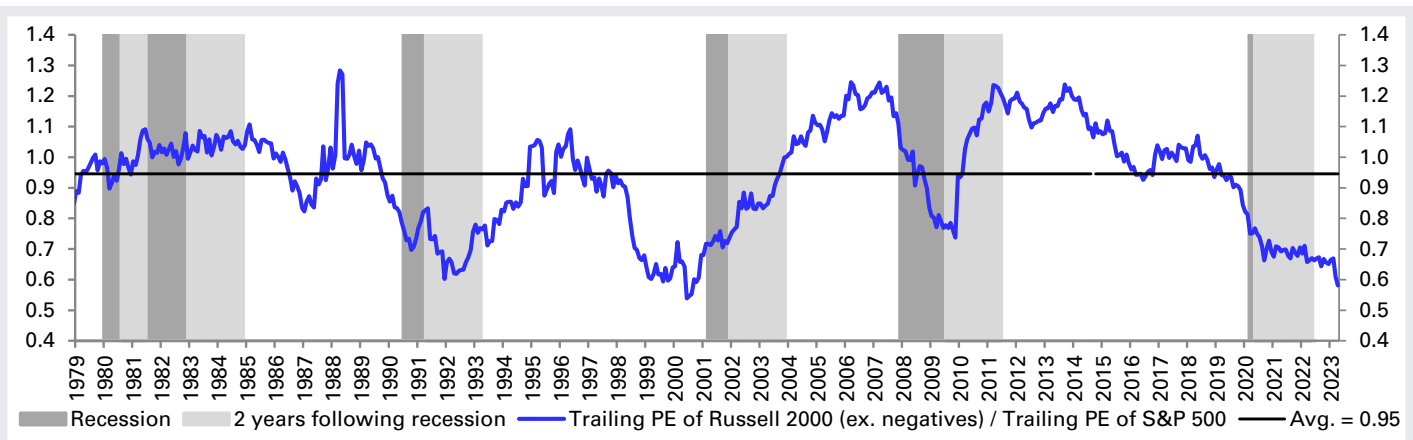
Source: Compustat, Clarifi, DWS Investment GmbH as of 4/30/2023.

Trailing PE of Russell 2000 ex. companies with negative EPS vs. S&P 500



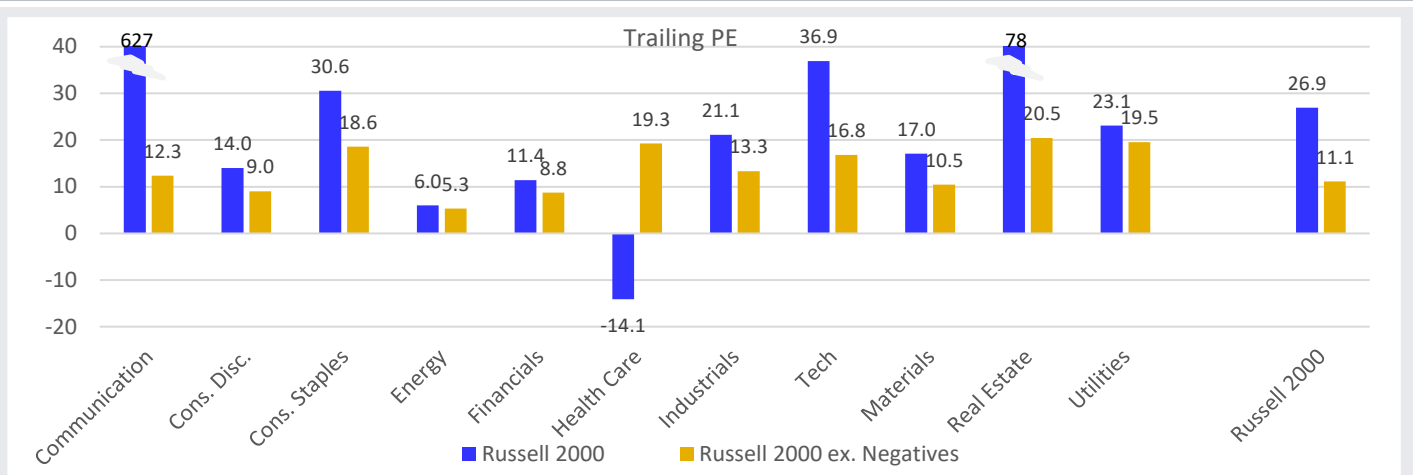
Source: Compustat, Clarifi, DWS Investment GmbH as of 4/30/2023.

Relative trailing PE of Russell 2000 ex. companies with negative EPS vs. S&P 500



Source: Compustat, Clarifi, DWS Investment GmbH as of 4/30/2023.

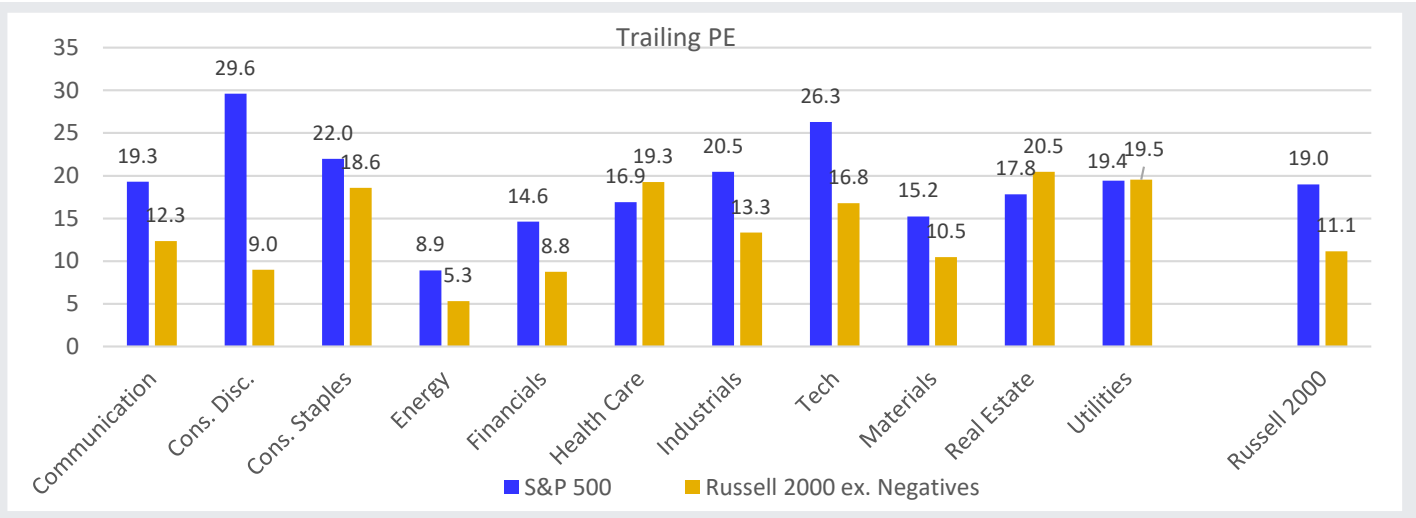
Trailing PE of Russell 2000 by sector



Source: Compustat, Clarifi, DWS Investment GmbH as of 4/30/2023.

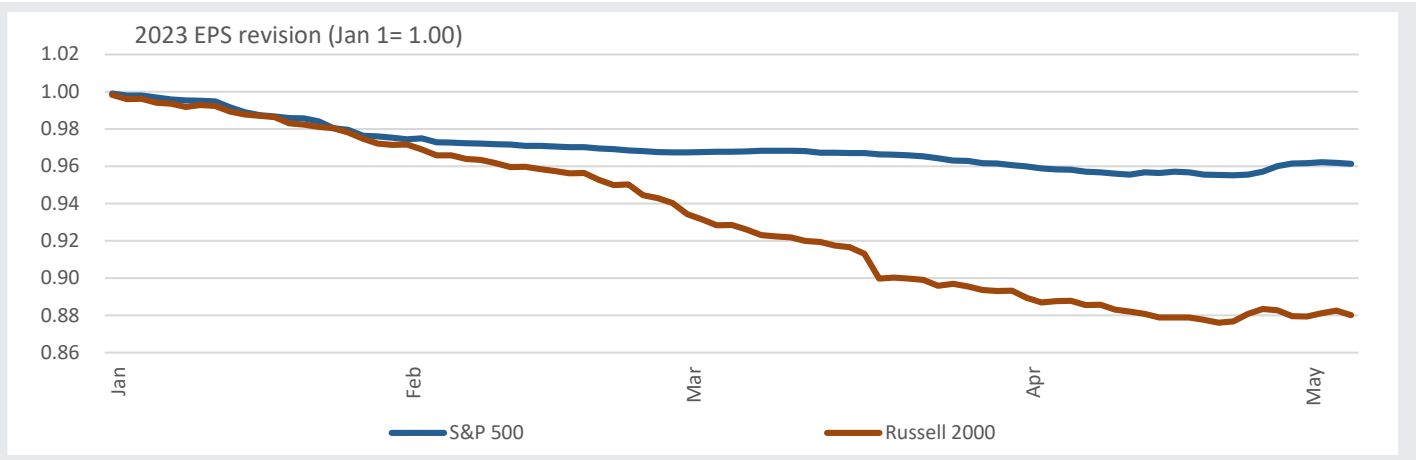
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Trailing PE by sector: Russell 2000 ex. companies with negative EPS vs. S&P 500



Source: Compustat, Clarifi, DWS Investment GmbH as of 4/30/2023.

2023 EPS revision: Russell 2000 vs. S&P 500

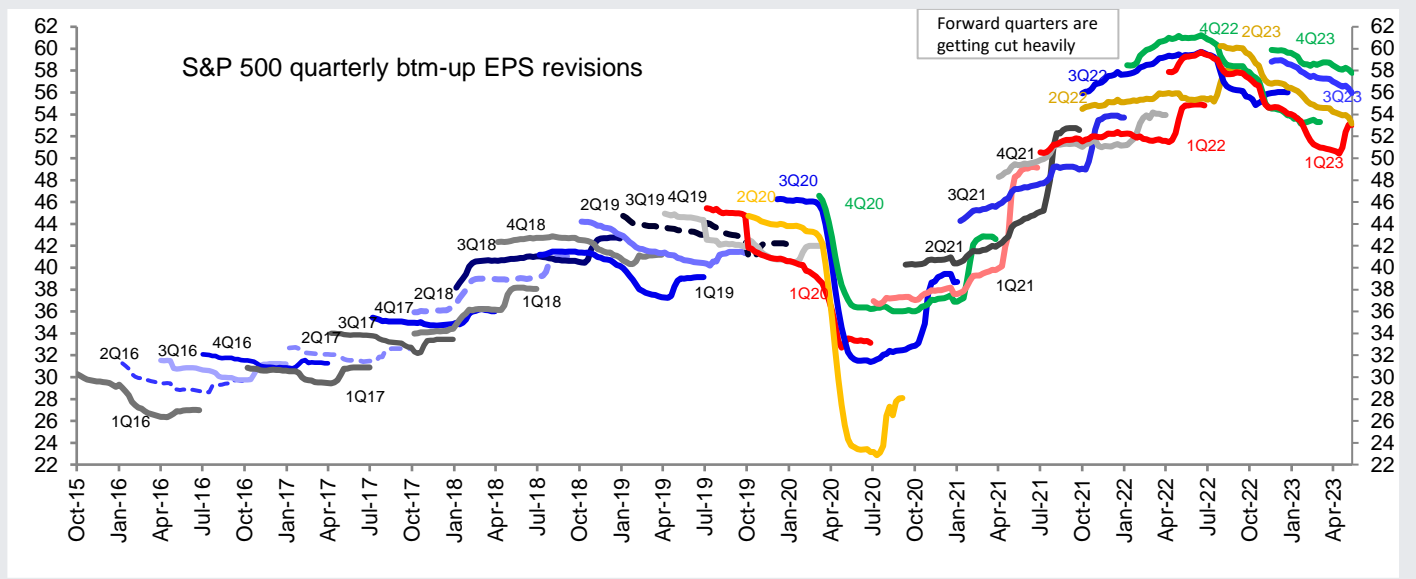


Source: Compustat, Clarifi, DWS Investment GmbH as of 4/30/2023.

S&P 500 1Q EPS tracker:

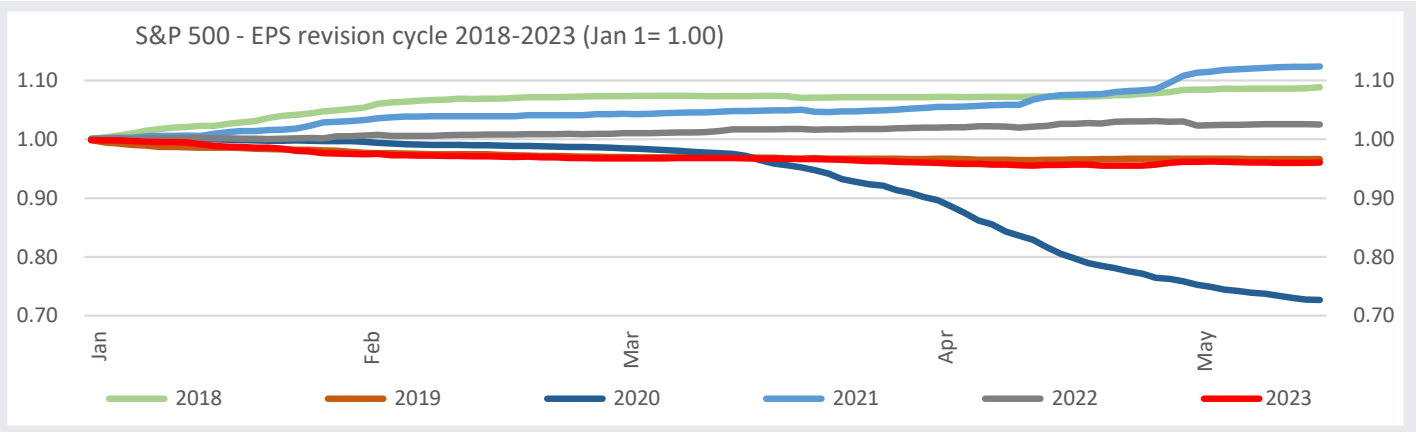
- 457 S&P 500 companies or 91% of index earnings have reported.
- 69% beat on EPS and 27% missed (the rest is in-line), with an aggregate surprise of +4.9%, +6.0% ex Financials. Historic average EPS beat is +3.3% (2011-2019 average). But this bigger than usual beat is on bigger than usual cuts, i.e. low expectations. Consensus 1Q EPS was cut by 6.2% during the calendar quarter, much more than the 3.2% average cut historically. 59% beat on sales and 21% missed, with an aggregate surprise of +2.2%, +2.3% ex Financials.
- Bottom-up blended 1Q EPS is \$53.03, -0.8% y/y. Blended sales growth is +4.0% y/y. Blended pro-forma net margin is 12.3%, vs. 11.8% in 4Q22 and 13.0% a year ago.
- Bottom-up consensus 2023 EPS is \$221.94. Our estimate is \$220 (53+55+55+57=\$220).
- Whether the economy slips into recession or not, a shallow profit recession is in progress. 1Q is likely to finish at down 1% y/y, Our standing S&P EPS estimate for 2Q and 3Q are \$55 and \$55, down 5% and 2% respectively on y/y basis.
- By sector, 1Q blended EPS y/y growth is strongest at Consumer Discretionary (+51% y/y), Industrials (24%), Energy (21%) and Financials (6.9%). EPS y/y growth is weakest at Utilities (-23% y/y), Materials (-23%), Health Care (-14%), Communication Services (-10%) and Tech (-10%).
- 1Q blended sales y/y growth is strongest at Utilities (+13% y/y), Financials (+10%), Consumer Discretionary (8.5%), Industrials (6.6%), Real Estate (4.9%), Communication Services (4.7%) and Consumer Staples (4.5%). Sales y/y growth is weakest at Materials (-7.5% y/y), Tech (-3.1%) and Energy (-2.7%).
- S&P net margins surged to record high of 13.8% in 2021, led by digital firms, banks and consumer goods producers/retailers. We see some usual recessionary set-backs in net margins. S&P 500 net margins are cyclical, but not mean reverting, they have been rising since mid-1990s for structural reasons.
- Valuations at the S&P are very demanding. The S&P is 18.5-19x this year's EPS, EPS with downside risk. And excluding the Financial & Energy sectors, the S&P is trading at about 21.5x this year's earnings which are also with downside risk.

S&P 500 quarterly EPS revision



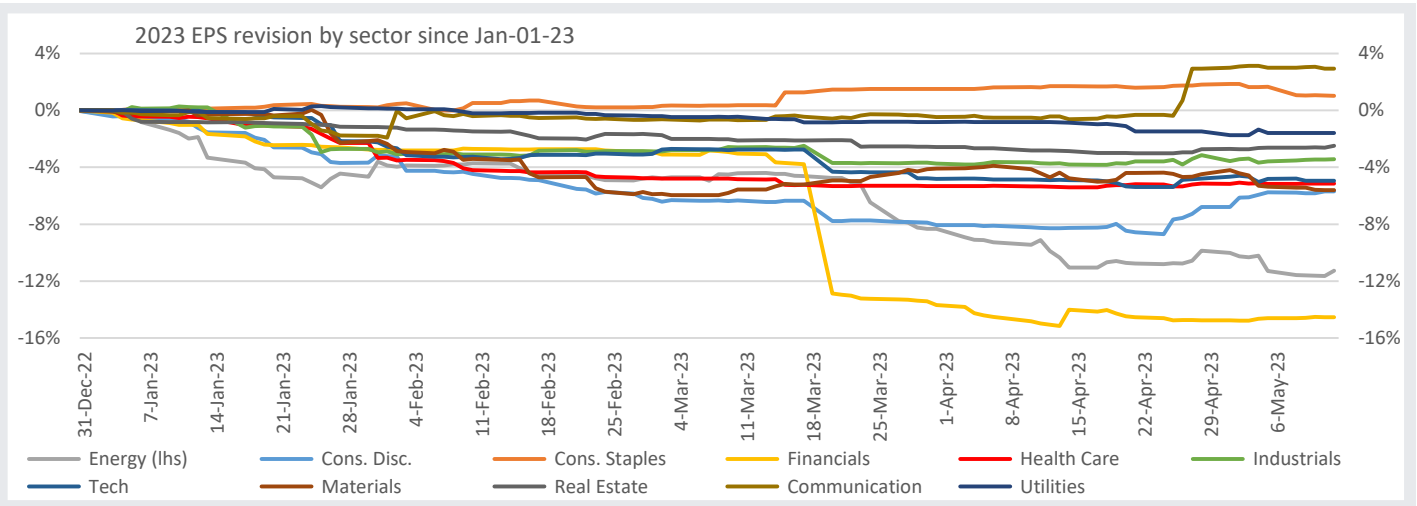
Source: Factset, IBES, DWS Investment GmbH as of 5/12/2023. Past performance may not be indicative of future results.

S&P 500 annual EPS revision



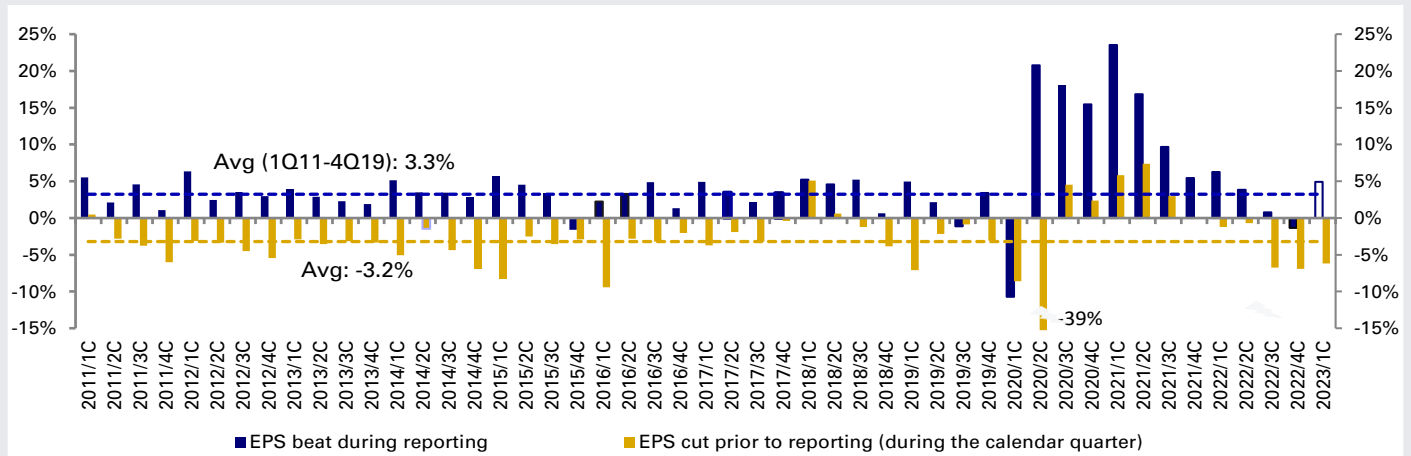
Source: Factset, IBES, DWS Investment GmbH as of 5/12/2023. Past performance may not be indicative of future results.

S&P 500 2023 EPS revision by sector



Source: Factset, IBES, DWS Investment GmbH as of 5/12/2023. Past performance may not be indicative of future results.

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



Source: Factset, DWS Investment GmbH as of 5/12/2023. Past performance may not be indicative of future results.

S&P 500: 1Q23 earnings season summary statistics

	1Q23 Summary (Based on reported companies)									
	% of EPS reported	# Cos reported	EPS (% of co's)		EPS surprise (%)	EPS y/y (%)	Sales (% of co's)		Sales surprise (%)	Sales y/y (%)
			% beat	% miss			% beat	% miss		
S&P 500	91.0%	457	69%	27%	4.9%	-0.8%	59%	21%	2.2%	4.4%
S&P 500 ex. Financials & Real Est	88.6%	355	73%	23%	6.0%	-2.7%	63%	20%	2.3%	3.5%
S&P 500 ex. Energy	90.1%	434	70%	26%	5.1%	-2.7%	59%	19%	2.5%	5.2%
S&P ex. Tech	94.6%	406	67%	29%	4.9%	1.8%	61%	22%	2.2%	5.2%
S&P ex. Energy, Financials & Real Est	87.0%	332	75%	22%	6.5%	-5.5%	64%	17%	2.7%	4.4%
Communication Services	99.8%	23	78%	22%	6.2%	-10.1%	43%	26%	0.5%	4.6%
Consumer Discretionary	72.7%	41	76%	22%	24.2%	95.8%	80%	10%	4.2%	12.4%
Consumer Staples	81.8%	28	79%	14%	5.5%	0.3%	75%	18%	1.7%	5.2%
Energy	100.0%	23	48%	43%	3.4%	21%	43%	57%	-0.6%	-2.7%
Financials	100.0%	72	51%	47%	1.5%	7.2%	50%	31%	1.2%	9.9%
Health Care	96.2%	61	74%	23%	5.3%	-14.9%	72%	15%	2.9%	4.0%
Industrials	92.0%	70	80%	17%	7.9%	24.1%	63%	20%	1.6%	6.3%
Information Technology	75.0%	51	86%	14%	5.1%	-13.2%	43%	12%	1.7%	-3.7%
Materials	100.0%	29	79%	17%	16.8%	-22.7%	52%	34%	1.1%	-7.5%
Real Estate	100.0%	30	57%	20%	2.1%	-2.2%	33%	7%	1.4%	4.9%
Utilities	95.0%	29	34%	59%	-15.7%	-24.4%	79%	10%	16.3%	13.3%

* # Beat, # miss and weighted surprise % is based on EPS and sales estimate as of 3/31/2023 (as of 3/1/2023 for pre-season reporters)
 EPS is considered beat or miss when the difference between actual and estimate as of 3/31/2023 is more than \$0.01 (3/1/2023 for pre-season reporters)
 Sales is considered beat or miss when the difference between actual and estimate as of 3/31/2023 is more than \$20 million (3/1/2023 for pre-season reporters)
 Beats statistics elsewhere often based on estimates the day before.
 Source: Factset, DWS Investment GmbH as of 5/12/2022. Past performance may not be indicative of future results.

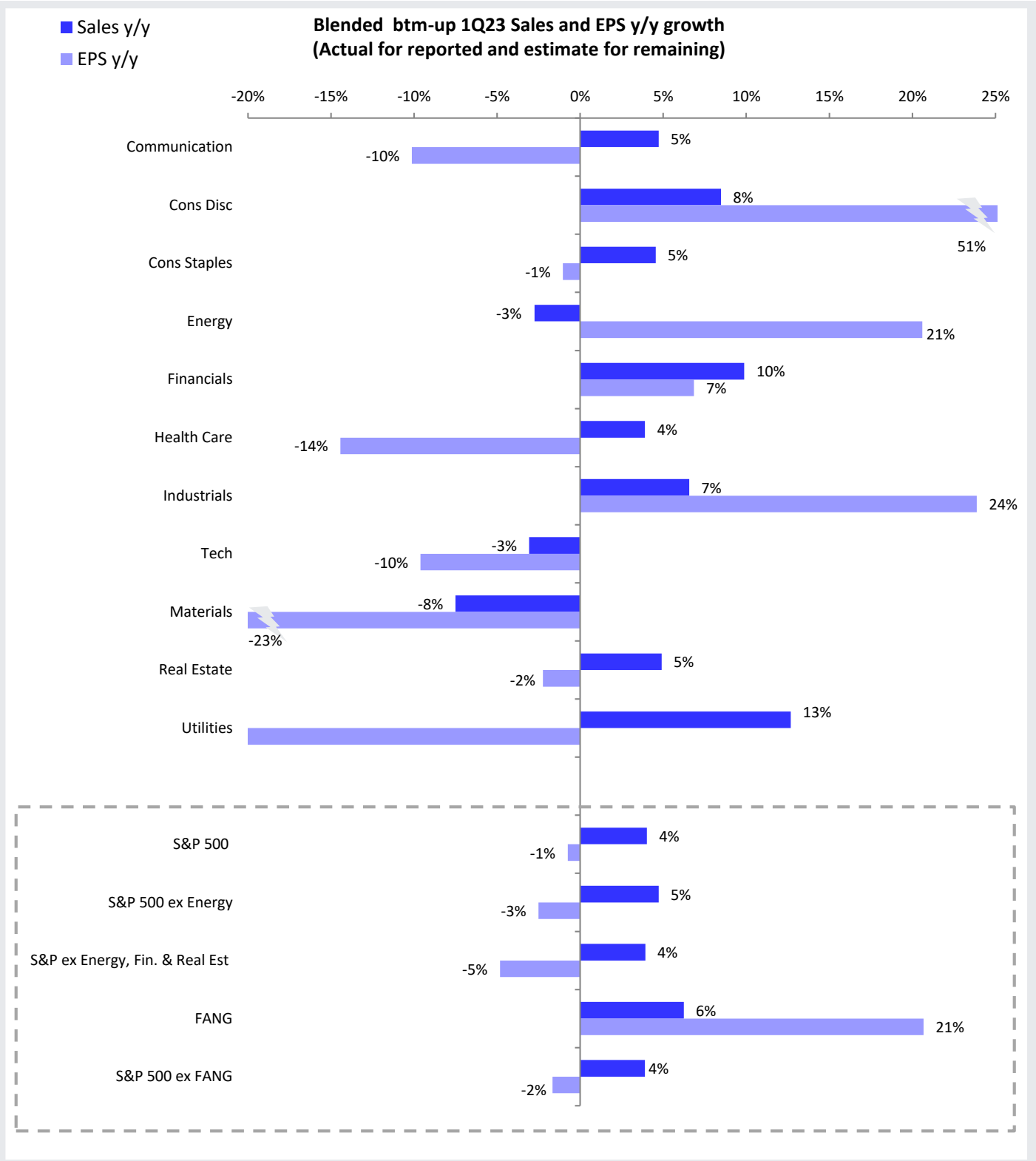
S&P 500 EPS & Sales growth and Net Margins by sector (1Q23 is blended with actual for reported and consensus for the rest)

EPS growth (y/y)	2019				2020				2021				2022				2023				
	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23				
S&P 500	2.7%	1.5%	1.1%	3.5%	2.1%	-12.4%	-32.0%	-7.5%	4.0%	-9.1%	48.2%	92.0%	41.1%	30.6%	47.0%	10.4%	8.9%	4.2%	-2.7%	6.8%	-0.8%
S&P 500 ex. Financials & Real Est	1.2%	-0.9%	0.4%	2.0%	0.3%	-6.1%	-27.8%	-8.6%	0.8%	-7.0%	36.2%	80.9%	43.5%	36.7%	44.4%	17.8%	15.9%	8.4%	-1.6%	12.0%	-2.4%
S&P 500 ex. Energy	3.9%	2.3%	3.5%	6.4%	3.9%	-12.0%	-26.0%	-3.6%	7.6%	-5.1%	49.3%	78.2%	33.6%	22.9%	40.0%	4.7%	-1.7%	-3.6%	-7.1%	-0.3%	-2.5%
S&P 500 ex. Tech	5.0%	3.3%	2.3%	1.5%	2.1%	-17.1%	-38.7%	-10.0%	0.8%	-14.5%	50.1%	104.5%	41.3%	32.4%	51.2%	9.7%	11.2%	5.8%	-0.7%	7.6%	1.5%
S&P ex. Energy, Fin & Real Est	2.8%	-0.1%	3.4%	5.6%	2.5%	-5.3%	-19.7%	-3.6%	5.2%	-1.5%	37.2%	64.4%	33.8%	26.5%	35.6%	10.3%	2.2%	-1.4%	-7.1%	3.0%	-4.8%
S&P ex. Energy, Fin, Real Est, Healthcare	1.0%	-3.1%	2.1%	4.6%	0.7%	-8.1%	-26.1%	-6.7%	4.7%	-4.1%	40.1%	72.9%	35.7%	26.5%	37.9%	8.3%	0.5%	-1.8%	-8.0%	2.0%	-1.6%
FANG (FB, AMZN, NFLX, Google)	28.5%	14.7%	-6.0%	16.2%	4.3%	-14.5%	-1.7%	54.8%	56.6%	41.4%	149.7%	110.6%	30.9%	35.9%	54.0%	-40.0%	-39.6%	-28.5%	-57.8%	-38.1%	20.7%
FANG & AAPL	8.5%	5.4%	-1.2%	17.9%	3.4%	-6.9%	5.7%	27.0%	45.1%	34.4%	136.1%	107.0%	44.5%	30.7%	51.6%	-20.2%	-27.4%	-15.3%	-36.5%	-19.6%	9.2%
S&P ex FANG	1.7%	1.0%	1.5%	2.9%	2.0%	-12.3%	-33.5%	-10.1%	1.0%	-11.4%	43.3%	90.7%	41.8%	30.2%	46.5%	14.6%	12.7%	6.4%	2.3%	10.1%	-1.7%
S&P ex FANG & AAPL	2.2%	1.2%	1.3%	1.9%	2.0%	-12.9%	-35.0%	-10.4%	-1.2%	-13.0%	40.2%	90.2%	40.7%	30.6%	46.4%	14.9%	13.8%	6.5%	3.3%	10.4%	-1.8%
S&P ex. Energy & Fin & Real Est & FANG	1.4%	-1.0%	3.9%	4.9%	2.4%	-4.7%	-20.9%	-6.9%	1.2%	-4.2%	30.2%	60.5%	34.1%	25.3%	33.8%	16.3%	6.9%	1.1%	-0.5%	7.3%	-6.4%
Communication Services	8.9%	6.6%	0.7%	8.8%	2.4%	-8.8%	-16.2%	0.0%	9.8%	4.4%	54.3%	66.3%	40.6%	17.0%	38.9%	-4.8%	-14.2%	-21.7%	-25.2%	-17.1%	-10.1%
Consumer Discretionary	11.2%	3.9%	2.3%	1.7%	0.7%	-48.2%	-71.4%	-2.2%	0.5%	-23.1%	172.1%	365.2%	16.9%	53.0%	64.5%	-26.5%	-8.6%	14.5%	-15.3%	0.2%	20.7%
Multiline & Specialty Retail	9.6%	5.7%	10.3%	6.1%	9.0%	-46.3%	11.5%	32.1%	11.9%	5.0%	224.1%	48.0%	20.8%	19.5%	45.3%	5.7%	0.9%	4.8%	6.2%	7.7%	-4.5%
Consumer Staples	0.1%	0.4%	3.2%	3.7%	1.7%	4.4%	1.8%	9.4%	9.3%	8.0%	19.5%	16.4%	6.6%	7.1%	12.3%	4.4%	-3.7%	-0.9%	-2.6%	1.2%	-1.0%
Energy	-24.6%	-13.1%	-37.5%	-42.9%	-30.6%	-22.7%	-169.5%	-110.1%	-102.4%	-113.3%	10.3%	247.1%	184.6%	11207%	-1210%	256.5%	303.3%	144.8%	62%	158%	20.6%
Financials ex. BAC, C & JPM	7.8%	11.1%	3.9%	10.7%	9.5%	-35.7%	-49.9%	-3.4%	17.6%	-17.8%	117.2%	165.1%	34.7%	11.9%	62.8%	-14.0%	-16.4%	-14.2%	-9.4%	-13.3%	6.9%
Health Care	6.3%	7.6%	3.0%	6.7%	7.5%	-28.4%	-47.5%	-3.0%	19.2%	-14.4%	86.6%	151.1%	33.1%	17.7%	56.3%	-5.9%	-12.8%	-14.0%	-12.5%	-10.9%	-0.2%
Industrials	10.1%	12.2%	8.7%	10.0%	9.9%	4.6%	2.7%	8.1%	7.2%	7.9%	28.3%	26.5%	27.8%	26.4%	28.1%	16.6%	8.3%	0.0%	-3.6%	6.4%	-14.4%
Industrials ex. BA	8.5%	-8.9%	2.4%	-9.3%	-3.2%	-25.8%	-79.0%	-47.1%	-29.7%	-46.4%	-3.7%	356.6%	76.2%	38.7%	68.7%	36.1%	30.2%	19.4%	39.0%	28.7%	23.9%
Industrials ex. Defense	10.1%	5.6%	6.0%	3.6%	5.4%	-18.4%	-73.6%	-43.7%	-25.4%	-42.1%	-4.0%	228.8%	70.9%	43.3%	60.7%	37.8%	31.8%	28.9%	23.7%	28.2%	19.9%
Information Technology	6.9%	-10.9%	2.6%	-11.6%	-4.5%	-28.5%	-87.4%	-51.9%	-34.7%	-51.9%	-6.1%	630.0%	98.4%	45.9%	84.3%	42.9%	38.6%	17.4%	43.5%	32.3%	26.9%
Materials	-7.1%	-6.1%	-3.8%	11.4%	2.2%	10.8%	2.2%	4.0%	15.9%	16.2%	41.2%	52.6%	40.3%	24.8%	32.0%	13.2%	-0.7%	-2.2%	-10.1%	3.3%	-9.6%
Real Estate	-12.4%	-20.0%	70.3%	-12.5%	-10.0%	-7.4%	-34.9%	-13.7%	13.5%	-6.2%	50.0%	139.8%	97.6%	73.0%	91.0%	52.5%	22.1%	-7.5%	-20.4%	9.1%	-22.7%
Utilities	3.2%	1.3%	3.4%	-1.0%	1.4%	-1.9%	-12.9%	-5.9%	1.9%	-3.8%	9.0%	30.3%	18.9%	10.2%	15.5%	16.8%	10.7%	10.5%	9.1%	11.3%	-2.2%
Utilities	-0.2%	1.2%	7.1%	16.5%	6.0%	3.7%	6.3%	-1.9%	-4.9%	-1.0%	-4.0%	9.1%	10.4%	-1.1%	3.8%	26.6%	-4.9%	-8.7%	-5.1%	1.9%	-23.1%

Sales growth (y/y)	2019				2020				2021				2022				2023				
	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23				
S&P 500	5.8%	5.2%	4.0%	7.8%	5.7%	-1.8%	-10.3%	-2.3%	-0.5%	-3.7%	9.5%	21.8%	13.9%	15.2%	15.0%	13.6%	12.2%	13.0%	6.8%	11.3%	4.0%
S&P 500 ex. Financials & Real Est	3.2%	2.9%	1.9%	6.3%	3.6%	-3.0%	-11.9%	-2.5%	1.5%	-4.1%	12.3%	26.7%	17.5%	16.2%	19.0%	15.4%	13.1%	12.3%	5.4%	11.0%	3.2%
S&P 500 ex. Energy	3.7%	3.4%	3.5%	7.7%	4.5%	-1.6%	-6.7%	0.3%	4.0%	-1.0%	12.3%	20.6%	13.5%	11.5%	14.2%	10.3%	6.7%	8.7%	4.7%	7.4%	4.7%
S&P 500 ex. Tech	3.9%	3.4%	2.6%	6.6%	4.3%	-2.9%	-12.3%	-2.7%	0.2%	-5.0%	10.6%	24.9%	15.8%	15.7%	17.0%	13.5%	12.3%	12.5%	6.6%	11.2%	4.9%
S&P ex. Energy, Fin & Real Est	3.5%	3.3%	3.1%	7.7%	4.4%	-2.2%	-7.3%	0.7%	4.8%	-1.1%	13.0%	22.2%	13.8%	11.8%	15.8%	11.8%	7.2%	8.6%	4.4%	7.3%	3.9%
S&P ex. Energy, Fin, Real Est, Healthcare	0.7%	0.3%	0.0%	6.2%	1.6%	-5.6%	-10.3%	-2.0%	2.7%	-4.4%	13.9%	22.9%	13.1%	10.9%	16.0%	10.6%	6.1%	9.6%	4.7%	7.3%	3.9%
FANG (FB, AMZN, NFLX, Google)	18.2%	20.9%	23.5%	20.6%	20.8%	21.2%	22.5%	27.8%	35.6%	27.5%	40.6%	38.8%	24.7%	17.0%	28.7%	11.7%	7.8%	9.2%	4.4%	8.0%	6.2%
FANG & AAPL	8.8%	13.8%	15.1%	15.8%	12.6%	14.0%	18.8%	18.6%	30.2%	22.6%	44.6%	38.1%	25.9%	14.9%	27.9%	10.7%	6.0%	8.9%	1.0%	7.0%	3.4%
S&P ex FANG	3.0%	2.4%	1.7%	5.9%	3.2%	-3.2%	-11.9%	-3.7%	-0.4%	-4.8%	10.4%	23.8%	16.2%	15.6%	16.4%	13.6%	12.1%	12.0%	5.6%	10.7%	3.9%
S&P ex FANG & AAPL	3.2%	2.5%	1.7%	5.8%	3.3%	-3.3%	-12.4%	-3.8%	-1.1%	-5.2%	9.5%	23.5%	15.9%	15.8%	16.1%	13.8%	12.4%	12.1%	6.0%	10.9%	4.1%
S&P ex. Energy & Fin & Real Est & FANG	2.9%	2.5%	2.3%	7.0%	3.7%	-3.4%	-8.8%	-0.7%	2.9%	-2.6%	11.4%	21.1%	13.1%	11.4%	14.9%	11.8%	7.1%	8.6%	4.4%	7.3%	3.8%
Communication Services	12.9%	15.6%	11.5%	4.0%	9.6%	4.1%	-7.3%	0.7%	-6.5%	7.9%	8.9%	22.4%	13.0%	12.2%	19.7%	7.6%	7.1%	5.3%	4.4%	2.5%	4.7%
Consumer Discretionary	4.3%	5.4%	5.6%	2.9%	4.1%	-3.3%	-14.9%	4.7%	10.8%	5.9%	23.0%	38.7%	12.0%	12.2%	14.0%	9.9%	12.1%	14.9%	10.5%	11.2%	8.5%
Multiline & Specialty Retail	4.3%	2.7%	3.7%	2.6%	0.0%	-12.7%	7.9%	13.8%	13.0%	0.0%	46.6%	19.8%	12.6%	12.5%	0.0%	3.7%	2.9%	1.2%	0.4%	0.0%	-3.8%
Consumer Staples	2.6%	2.0%	3.3%	3.0%	1.8%	6.1%	1.6%	3.5%	6.4%	7.9%	5.7%	13.1%	12.0%	10.0%	11.3%	9.4%	8.5%	8.4%	6.0%	5.0%	4.5%
Energy	0.0%	-0.6%	-8.9%	-6.1%	-3.7%	-10.8%	-53.8%	-34.3%	-31.6%	-32.9%	4.1%	110.2%	72.6%	90.0%	66.0%	57.3%	77.1%	48.7%	14.2%	47.3%	-2.7%
Financials	4.9%	3.8%	5.3%	7.7%	5.3%	1.5%	-3.0%	-2.2%	-0.4%	-0.5%	9.1%	12.0%	11.1%	9.5%	4.8%	1.1%	2.8%	8.7%	6.6%	7.4%	9.9%
Financials ex. BAC, C & JPM	5.8%	4.0%	5.6%	8.3%	5.7%	1.4%	-0.0%	-1.6%	0.1%	-0.7%	10.2%	16.6%	12.4%	11.1%	5.4%	1.9%	2.4%	8.8%	5.5%	7.8%	8.0%
Health Care	14.5%	14.7%	15.5%	13.1%	15.5%	9.2%	2.7%	9.8%	12.2%	10.3%	10.4%	19.9%	16.0%	14.5%	15.1%	15.3%	10.4%	5.6%	4.4%	7.6%	3.9%
Industrials	5.1%	-0.2%	0.8%	2.1%	1.9%	-7.1%	-23.4%	-15.7%	-9.5%	-10.7%	7.7%	28.2%	17.3%	13.9%	14.5%	12.7%	13.3%	13.1%	10.9%	11.3%	6.6%
Industrials ex. BA	-2.1%	-12.1%	-20.9%	-27.8%	-16.4%	-26.5%	-45.1%	-29.5%	-23.4%	-31.2%	-10.2%	44.3%	7.9%	-6.8%	6.0%	-8.5%	-2.2%	4.2%	35.7%	6.8%	5.7%
Industrials ex. Defense	3.7%	-1.0%	0.4%	1.6%	1.1%	-6.2%	-26.1%	-17.7%	-11.2%	-12.3%	-1.4%	31.5%	19.6%	16.0%	16.1%	14.7%	15.2%	14.1%	11.0%	12.4%	6.7%
Information Technology	-0.4%	-0.7%	0.4%	5.4%	-0.2%	3.4%	5.4%	-0.2%	10.4%	10.8%	22.4%	21.3%	24.7%	15.7%	17.5%	13.3%	7.9%	6.5%	-2.7%	5.2%	-3.1%
Materials	0.2%	-15.7%	-13.4%	-14.6%	-8.8%	-15.9%	-15.0%	-6.8%	-5.1%	-6.7%	10.8%	36.8%	33.7%	39.2%	32.2%	27.1%	19.2%	7.6%	-3.8%	10.4%	-7.5%
Real Estate	5.1%	5.3%	6.2%	4.9%	5.3%	5.9%	-5.7%	-3.7%	-1.6%	-1.0%	1.9%	18.2%	16.5%	18.4%	12.5%	20.8%	17.2%	14.3%	7.9%	14.7%	4.9%
Utilities	1.0%	0.8%	0.6%	0.0%	7.1%	-5.8%	-5.3%	-2.5%	-23.7%	-9.9%	9.5%	5.5%	4.9%	51.8%	21.3%	15.6%	28.1%	27.2%	16.3%	11.0%	12.7%

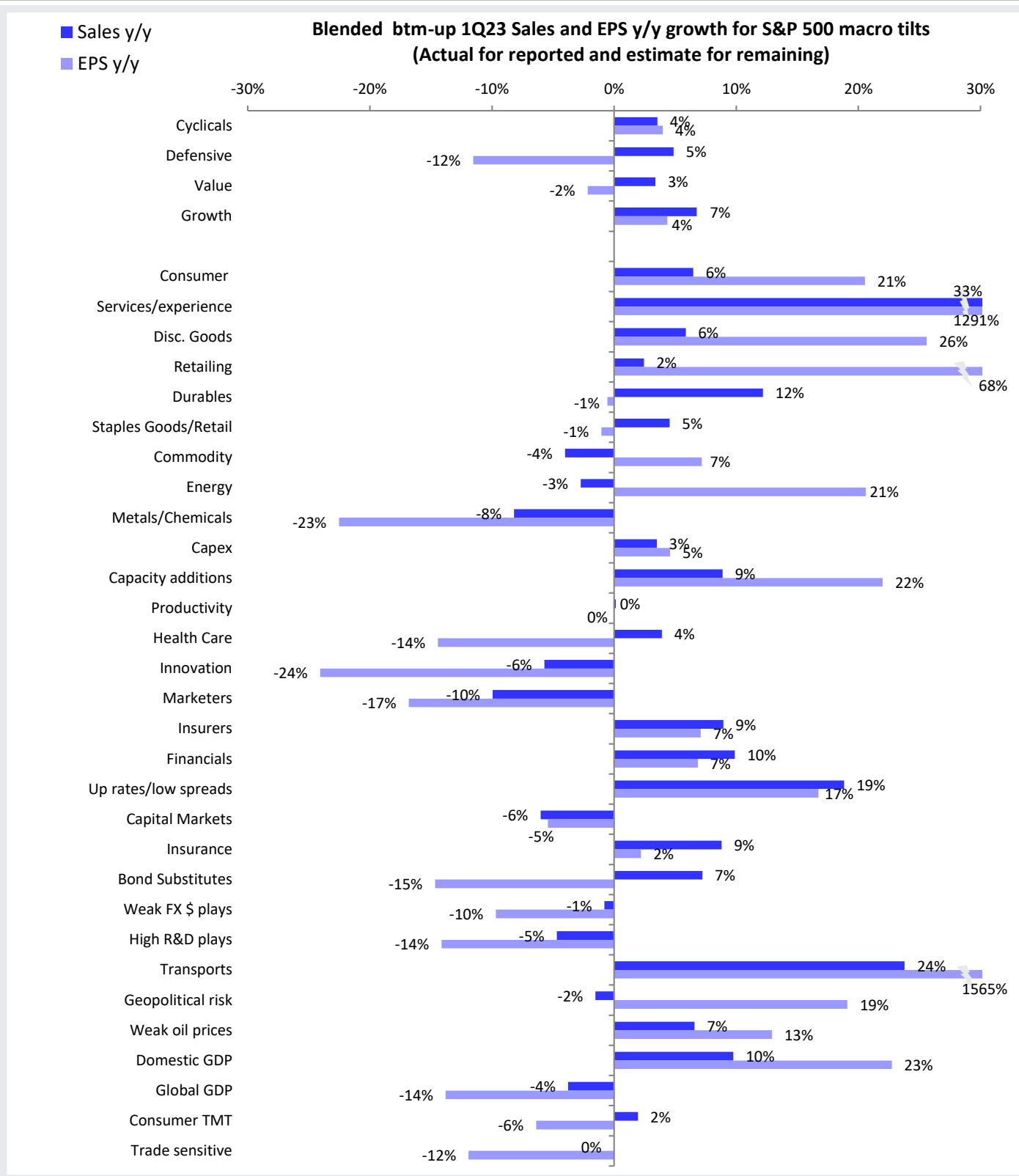
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S&P 500: Blended bottom-up 1Q23 Sales and EPS y/y growth by sector: 1Q23 vs. 1Q22



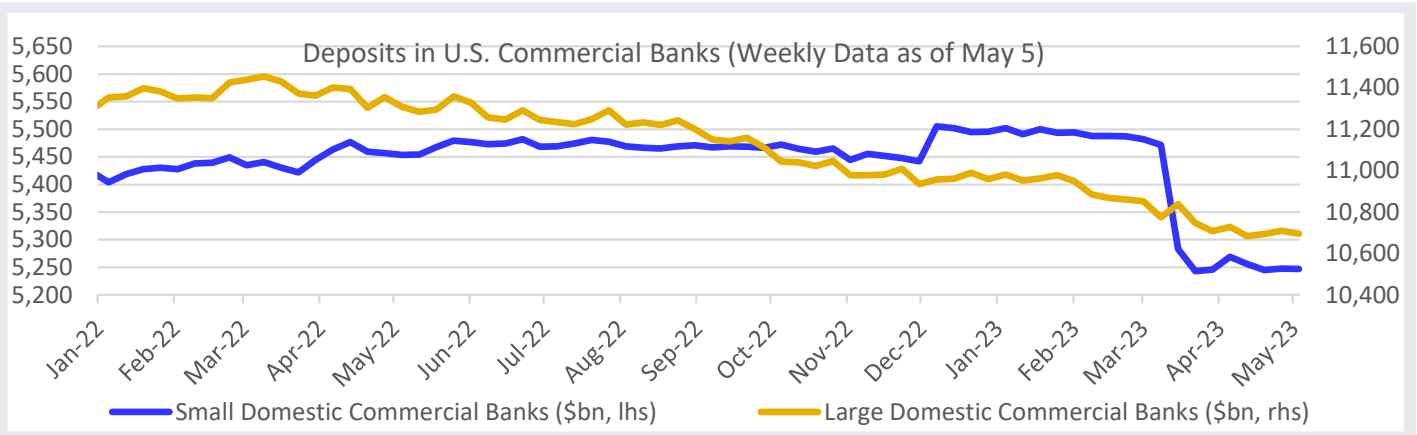
Source: Factset, DWS Investment GmbH as of 5/12/2022. Past performance may not be indicative of future results.

S&P 500: Blended bottom-up 1Q23 Sales and EPS y/y growth for macro tilts: 1Q23 vs. 1Q22



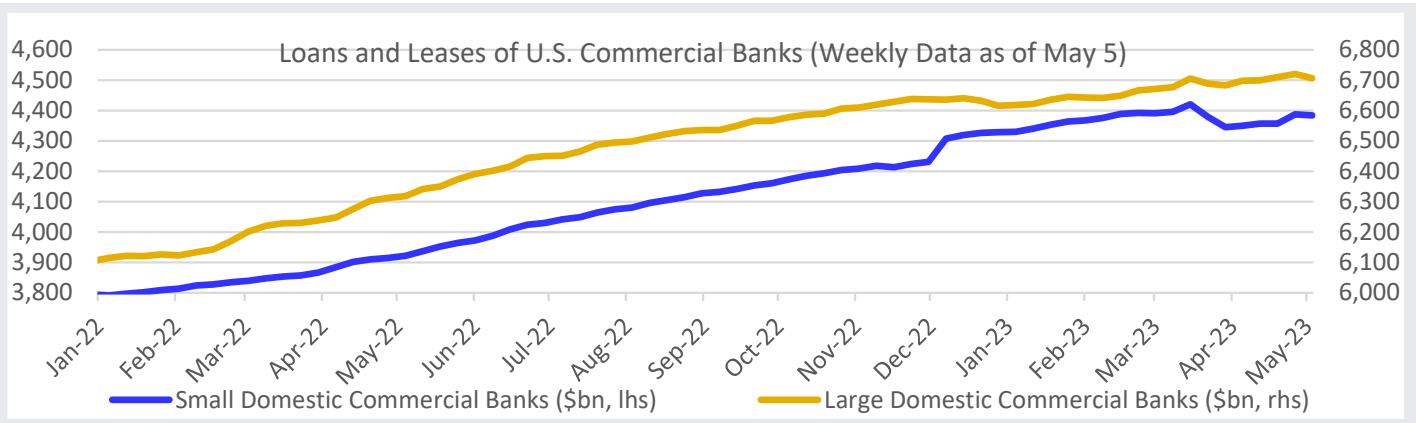
Source: Factset, DWS Investment GmbH as of 5/12/2023. Past performance may not be indicative of future results.

Deposits in U.S. commercial banks (Weekly data as of May 5)



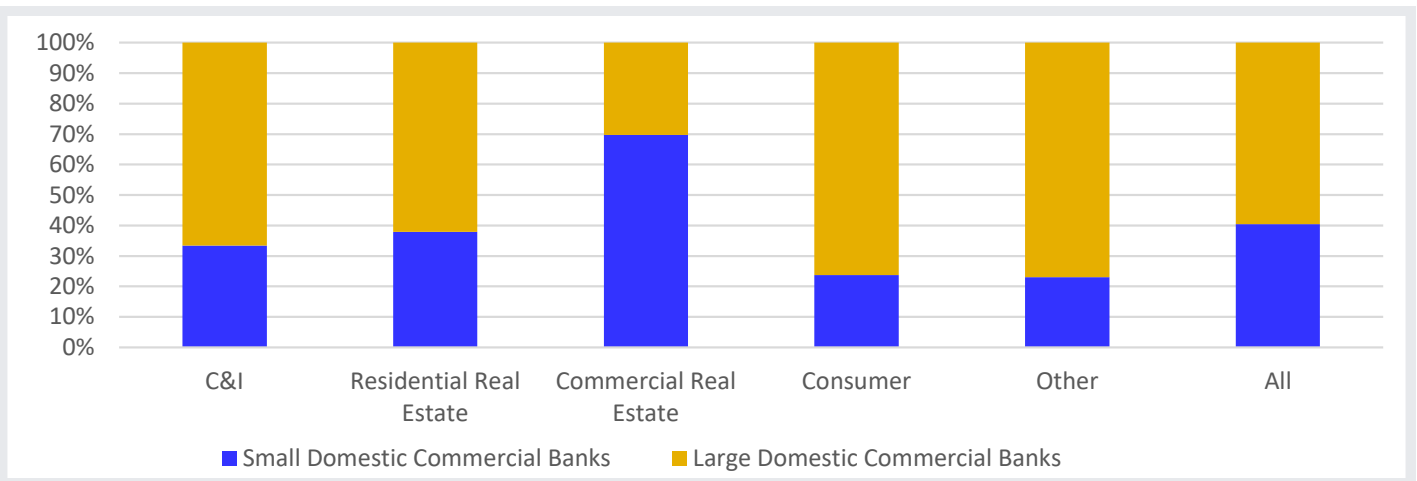
Source: FRB, Haver, DWS Investment GmbH as of 5/5/2023.

Loans of U.S. commercial banks (Weekly data as of May 5)



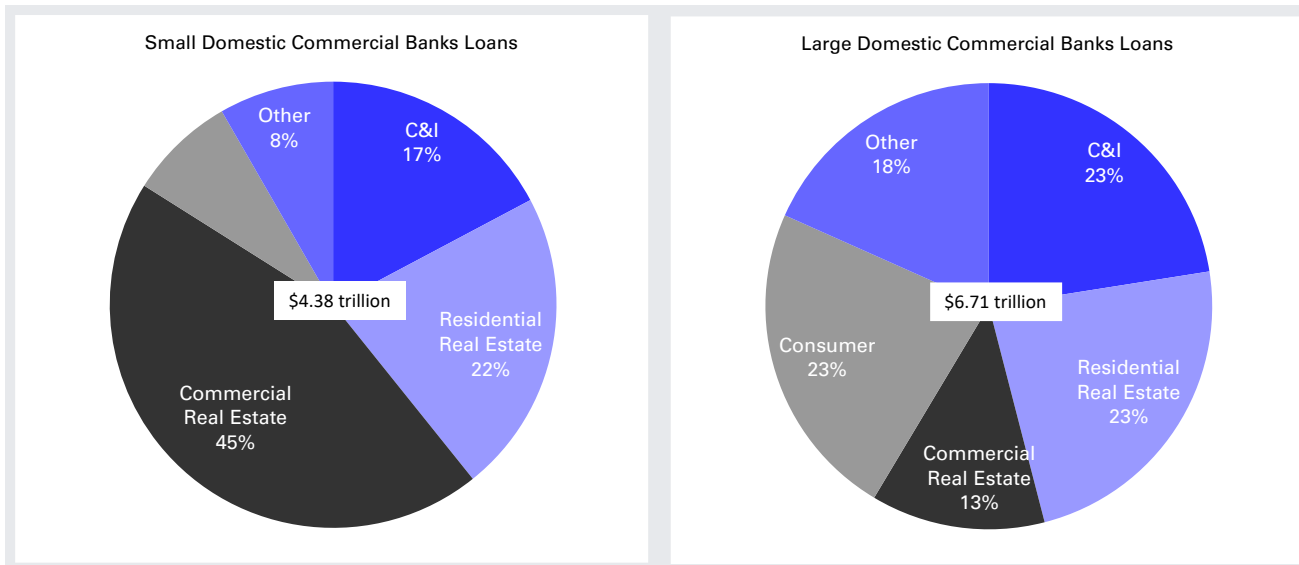
Source: FRB, Haver, DWS Investment GmbH as of 5/5/2023.

Loans by category of U.S. commercial banks



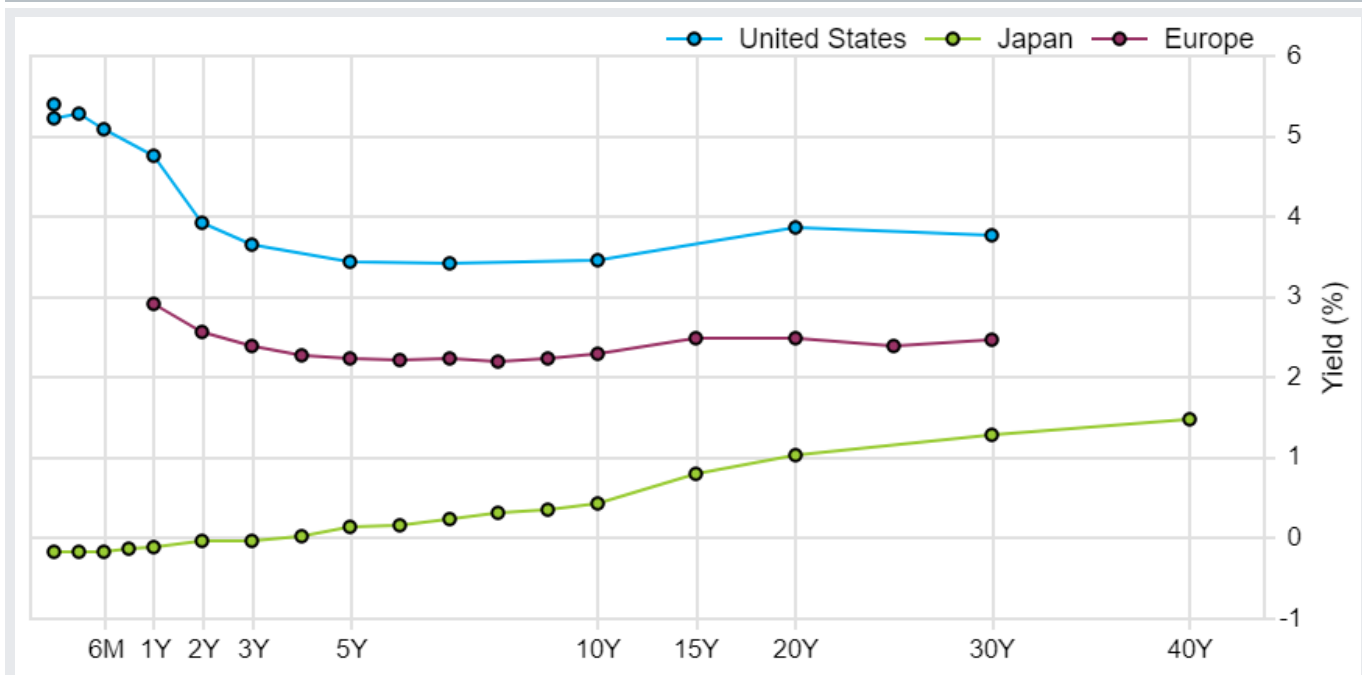
Source: FRB, Haver, DWS Investment GmbH as of 5/5/2023.

Loans by category of U.S. commercial banks



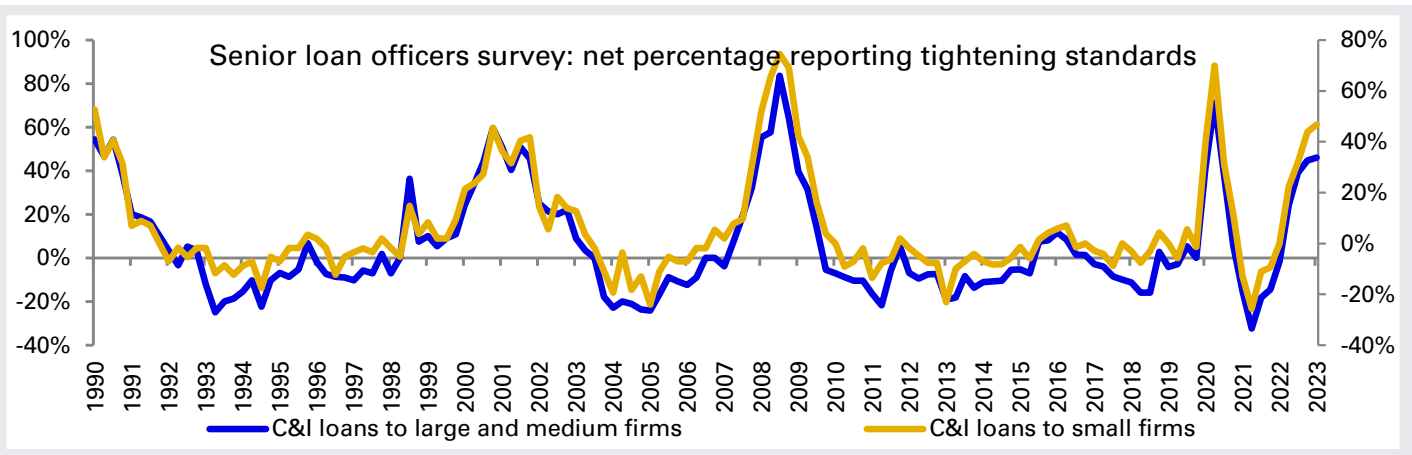
Source: FRB, Haver, DWS Investment GmbH as of 5/5/2023.

Yield curve: US, Europe and Japan



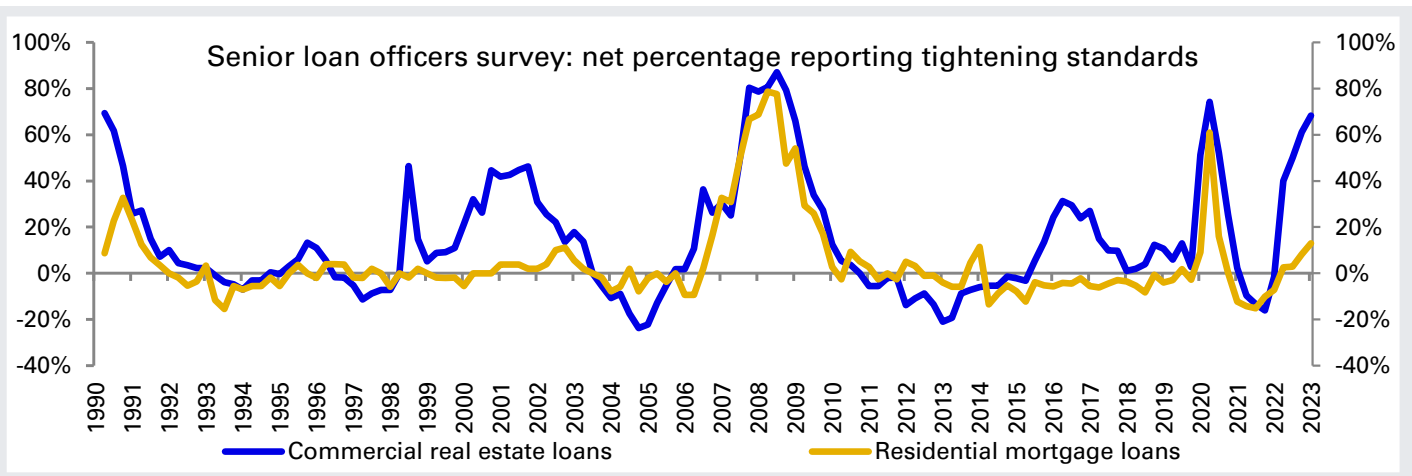
Source: Factset, DWS Investment GmbH as of 5/5/2023.

Senior loan officers survey: C&I loans



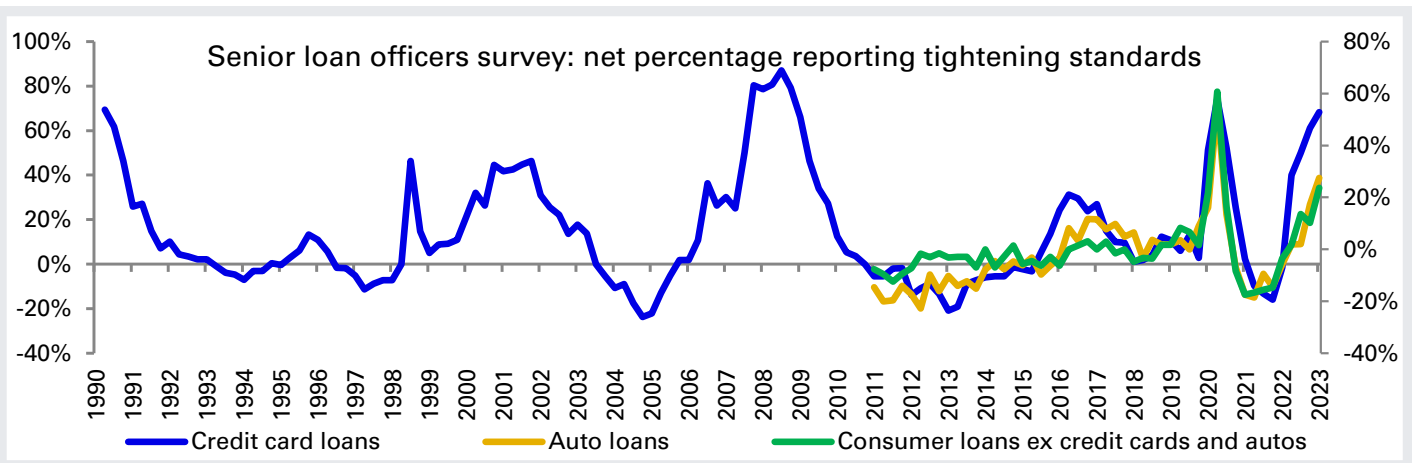
Source: FRB, Haver, DWS Investment GmbH as of 2Q2023. Past performance may not be indicative of future results.

Senior loan officers survey: real estate loans



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

Senior loan officers survey: consumer loans



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

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

	Market Value (\$bn)	Current 2023 PE	2023E Earnings (\$bn)	Normal Ratio	Normal 2023E Earnings	Accounting Quality Adjustment	Fully Adjusted Earnings	Net Debt / Market Cap	Real CoE	Steady State Value	Growth Premium	2023 Start Fair Value (\$bn)	2023E Dividend Yield	2023 End Fair Value (\$bn)	PE on Normal 2023E EPS	2023 End Upside %	2023 End Upside vs. S&P 500
CONSUMER DISCRETIONARY	3,484	25.9	134.5	105%	141.2	-8%	130	12%	5.50%	2,362	15%	2,725	1.1%	2,925	20.7	-16%	-10%
	3,484	25.9	134.5	105%	141.2	-8%	129.2	12%	5.51%	2,347	16%	2,725	1.0%	2,928	20.7	-16%	-10%
Automobile Components	35,519	14.8	2,400	110%	2,640	-8%	2,429	11%	6.00%	40,480	5%	42,504	0.4%	46,139	17.5	30%	36%
Automobiles	543,067	22.6	24,000	100%	24,000	-12%	21,120	19%	6.50%	324,923	30%	422,400	0.5%	460,310	19.2	-15%	-9%
Distributors	52,411	17.5	3,000	100%	3,000	-8%	2,760	13%	5.75%	48,000	0%	48,000	1.9%	51,296	17.1	-2%	4%
Hotels Restaurants & Leisure	756,074	26.1	29,000	105%	30,450	-7%	28,319	27%	5.00%	566,370	15%	651,326	1.2%	695,749	22.8	-8%	-2%
Household Durables	129,409	11.3	11,500	90%	10,350	-15%	8,798	14%	6.50%	135,346	-15%	115,044	1.6%	124,184	12.0	-4%	2%
Broadline Retail	1,013,965	61.5	16,500	150%	24,750	-7%	23,018	1%	5.50%	418,500	50%	627,750	0.1%	680,773	27.5	-33%	-27%
Leisure Products	7,979	13.3	600	90%	540	-8%	497	27%	6.00%	8,280	-20%	6,624	4.6%	6,918	12.8	-13%	-7%
Specialty Retail	771,291	18.8	41,000	95%	38,950	-7%	36,224	13%	5.25%	689,971	0%	689,971	1.9%	733,676	18.8	-5%	1%
Textiles Apparel & Luxury Goods	174,138	26.8	6,500	100%	6,500	-7%	6,045	1%	5.25%	115,143	5%	120,900	1.4%	129,141	19.9	-26%	-20%
CONSUMER STAPLES	2,576	21.5	120.0	100%	120.0	-7%	112	13%	5.00%	2,232	0%	2,232	2.7%	2,350	19.6	-9%	-3%
	2,576	21.5	120.0	100%	120.0	-7%	111.3	13%	4.99%	2,232	0%	2,235	2.5%	2,356	19.6	-9%	-2%
Beverages	655,673	25.2	26,000	100%	26,000	-7%	24,180	13%	4.75%	509,053	10%	559,958	2.4%	589,821	22.7	-10%	-4%
Consumer Staples Distribution & Retail	691,893	22.0	31,500	100%	31,500	-6%	29,610	8%	5.00%	592,200	5%	621,810	1.5%	662,037	21.0	-4%	2%
Food Products	417,976	18.6	22,500	100%	22,500	-8%	20,700	24%	5.25%	394,286	0%	394,286	2.4%	417,360	18.5	0%	6%
Household Products	534,481	26.7	20,000	100%	20,000	-8%	18,400	9%	5.00%	368,000	5%	386,400	2.4%	407,970	20.4	-24%	-18%
Personal Care Products	46,312	30.9	1,500	100%	1,500	-8%	1,380	2%	5.00%	27,600	25%	34,500	1.3%	36,804	24.5	-21%	-14%
Tobacco	229,641	12.4	18,500	100%	18,500	-8%	17,020	20%	5.00%	340,400	-30%	238,280	6.4%	242,205	13.1	5%	12%
Energy	1,530	9.6	160.0	86%	138.1	-15%	117	16%	6.00%	1,957	-20%	1,555	3.1%	1,658	12.0	8%	14%
	1,530	9.6	160.0	86%	138.1	-15%	118.1	16%	6.00%	1,968	-20%	1,571	3.7%	1,654	12.0	8%	14%
Energy Equipment & Services	115,555	13.6	8,500	110%	9,350	-8%	8,602	20%	6.00%	143,367	3%	147,668	2.4%	157,426	16.8	36%	42%
Oil Gas & Consumable Fuels	1,414,330	9.3	151,500	85%	128,775	-15%	109,459	16%	6.00%	1,824,313	-22%	1,422,964	3.8%	1,496,573	11.6	6%	12%
FINANCIALS	4,416	13.6	324.0	99%	320.4	-9%	292	0%	6.40%	4,555	-8%	4,191	2.2%	4,490	14.0	2%	8%
	4,416	13.6	324.0	99%	320.4	-9%	292.2	1%	6.39%	4,574	-8%	4,200	2.0%	4,504	14.1	2%	8%
Capital Markets	933,840	16.7	56,000	95%	53,200	-10%	47,880	2%	6.50%	736,615	-5%	699,785	2.4%	749,293	14.1	-20%	-14%
Banks	1,026,725	8.4	122,000	100%	122,000	-10%	109,800	N/A	7.50%	1,464,000	-15%	1,244,400	3.9%	1,326,735	10.9	29%	35%
Consumer Finance	161,124	9.5	17,000	95%	16,150	-15%	13,728	N/A	7.00%	196,107	-15%	166,691	2.2%	179,746	11.1	12%	18%
Financial Services	1,525,580	21.2	72,000	100%	72,000	-5%	68,400	3%	5.25%	1,302,857	0%	1,302,857	0.4%	1,404,794	19.5	-8%	-2%
Insurance	768,266	13.5	57,000	100%	57,000	-8%	52,440	N/A	6.00%	874,000	-10%	786,600	1.8%	843,279	14.8	10%	16%
Health Care	4,976	17.2	290.0	99%	288.4	-8%	265	9%	5.40%	4,914	0%	4,914	1.6%	5,247	18.2	5%	12%
	4,976	17.2	290.0	99%	288.4	-8%	265.4	9%	5.40%	4,916	2%	5,006	1.7%	5,337	18.5	7%	13%
Biotechnology	751,529	15.0	50,000	100%	50,000	-8%	46,000	14%	5.50%	836,364	0%	836,364	2.5%	886,577	17.7	18%	24%
Health Care Equipment & Supplies	1,046,742	24.6	42,500	105%	44,625	-8%	41,055	9%	5.25%	782,000	0%	938,400	1.0%	1,006,241	22.5	-4%	2%
Health Care Providers & Services	1,085,557	14.7	74,000	95%	70,300	-8%	64,676	8%	5.25%	1,231,924	-5%	1,170,328	1.4%	1,250,869	17.8	15%	21%
Life Sciences Tools & Services	579,651	24.7	23,500	100%	23,500	-8%	21,620	10%	5.50%	393,091	20%	471,709	0.3%	510,449	21.7	-12%	-6%
Pharmaceuticals	1,512,827	15.1	100,000	100%	100,000	-8%	92,000	8%	5.50%	1,672,727	-5%	1,589,091	2.6%	1,683,163	16.8	11%	17%
INDUSTRIALS	2,944	19.1	154.5	101%	155.7	-8%	143	18%	5.60%	2,558	0%	2,558	2.0%	2,728	17.5	-7%	-1%
	2,944	19.1	154.5	101%	155.7	-8%	142.5	18%	5.60%	2,544	1%	2,558	1.8%	2,733	17.5	-7%	-1%
Aerospace & Defense	584,783	22.5	26,000	110%	28,600	-8%	26,312	22%	5.25%	501,181	5%	526,240	1.6%	561,098	19.6	-4%	2%
Air Freight & Logistics	207,876	16.0	13,000	95%	12,350	-8%	11,362	8%	6.00%	189,367	-10%	170,430	3.1%	180,516	14.6	-13%	-7%
Passenger Airlines	67,889	6.8	10,000	100%	10,000	-20%	8,000	69%	8.00%	100,000	0%	100,000	0.6%	110,370	11.0	63%	69%
Building Products	149,989	18.1	8,300	100%	8,300	-8%	7,636	15%	6.00%	127,267	0%	127,267	1.9%	136,293	16.4	-9%	-3%
Commercial Services & Supplies	179,985	32.7	5,500	100%	5,500	-5%	5,225	12%	5.00%	104,500	0%	104,500	1.1%	111,719	20.3	-38%	-32%
Construction & Engineering	24,900	24.9	1,000	105%	1,050	-8%	966	18%	5.50%	17,564	0%	17,564	0.2%	19,024	18.1	-24%	-18%

Source: IBES, DWS Investment GmbH as of 5/12/2023. Past performance may not be indicative of future results. The estimated 2023 year end upside is on absolute valuation basis of each sector, not on relative sector valuation basis.

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

	Market Value (\$bn)	Current 2023 PE	2023E Earnings (\$bn)	Normal Ratio	Normal 2023E Earnings	Accounting Quality Adjustment	Fully Adjusted Earnings	Net Debt / Market Cap	Real CoE	Steady State Value	Growth Premium	2023 Start Fair Value (\$bn)	2023E Dividend Yield	2023 End Fair Value (\$bn)	PE on Normal 2023E EPS	2023 End Upside %	2023 End Upside vs. S&P 500
Electrical Equipment	187,017	21.3	8,800	105%	9,240	-8%	8,501	11%	5.50%	154,560	5%	162,288	1.8%	173,195	18.7	-7%	-1%
Industrial Conglomerates	294,994	22.7	13,000	105%	13,650	-8%	12,558	11%	5.50%	228,327	0%	228,327	2.2%	242,778	17.8	-18%	-12%
Machinery	590,438	15.7	37,500	95%	35,625	-8%	32,775	21%	5.75%	570,000	0%	570,000	1.7%	610,129	17.1	3%	9%
Professional Services	284,778	28.5	10,000	100%	10,000	-5%	9,500	19%	5.25%	180,952	0%	180,952	1.6%	193,025	19.3	-32%	-26%
Ground Transportation	285,076	17.8	16,000	100%	16,000	-8%	14,720	18%	5.25%	280,381	0%	280,381	2.0%	298,033	18.6	5%	11%
Trading Companies & Distributors	85,841	15.9	5,400	100%	5,400	-8%	4,968	14%	5.50%	90,327	0%	90,327	1.8%	96,380	17.8	12%	18%
INFORMATION TECHNOLOGY	9,073	25.9	350.0	103%	362.0	-5%	344	2%	5.40%	6,369	10%	7,005	1.0%	7,523	20.8	-17%	-11%
	9,073	25.9	350.0	103%	362.0	-6%	339.6	2%	5.40%	6,285	12%	7,047	0.9%	7,570	20.9	-17%	-10%
Communications Equipment	294,934	14.0	21,000	100%	21,000	-8%	19,320	-3%	6.00%	322,000	0%	322,000	2.5%	343,029	16.3	16%	22%
Technology Hardware Storage & Peripherals	2,683,483	26.3	102,000	100%	102,000	-5%	96,900	3%	5.25%	1,845,714	10%	2,030,286	0.6%	2,185,097	21.4	-19%	-12%
Electronic Equipment Instruments & Components	201,104	20.1	10,000	100%	10,000	-8%	9,200	11%	6.00%	153,333	0%	153,333	1.2%	165,289	16.5	-18%	-12%
IT Services	395,408	18.0	22,000	100%	22,000	-8%	20,240	7%	5.50%	368,000	0%	368,000	2.4%	390,518	17.8	-1%	5%
Semiconductors & Semiconductor Equipment	2,134,392	26.7	80,000	115%	92,000	-8%	84,640	2%	6.00%	1,410,667	10%	1,551,733	1.2%	1,672,689	18.2	-22%	-16%
Software	3,364,031	29.3	115,000	100%	115,000	-5%	109,250	0%	5.00%	2,185,000	20%	2,622,000	0.7%	2,812,932	24.5	-16%	-10%
MATERIALS	887	17.1	52.0	99%	51.3	-10%	46	17%	5.75%	802	0%	802	1.9%	857	16.7	-3%	3%
	887	17.1	52.0	99%	51.3	-10%	46.1	17%	5.75%	802	0%	802	2.1%	855	16.7	-4%	2%
Chemicals	611,661	17.9	34,200	100%	34,200	-10%	30,780	15%	5.75%	535,304	3%	551,363	2.1%	588,284	17.2	-4%	2%
Construction Materials	51,014	34.0	1,500	120%	1,800	-10%	1,620	19%	5.75%	28,174	0%	28,174	0.8%	30,422	16.9	-40%	-34%
Containers & Packaging	84,777	14.6	5,800	100%	5,800	-10%	5,220	36%	5.75%	90,783	-10%	81,704	3.3%	86,195	14.9	2%	8%
Metals & Mining	140,017	13.3	10,500	90%	9,450	-10%	8,505	5%	5.75%	147,913	-5%	140,517	2.1%	149,875	15.9	7%	13%
REAL ESTATE	848	17.0	50.0	97%	48.4	-8%	45	29%	5.25%	848	0%	848	3.9%	886	18.3	4%	11%
	848	17.0	50.0	97%	48.4	-8%	44.5	35%	5.24%	850	0%	850	3.8%	888	18.3	5%	11%
Health Care REITs	66,129	17.9	3,700	100%	3,700	-8%	3,404	50%	5.25%	64,838	0%	64,838	3.8%	67,708	18.3	2%	8%
Hotel & Resort REITs	11,960	10.0	1,200	95%	1,140	-8%	1,049	31%	5.50%	19,069	0%	19,069	2.9%	20,143	17.7	68%	75%
Industrial REITs	100,281	22.8	4,400	100%	4,400	-8%	4,048	21%	5.00%	80,960	0%	80,960	3.2%	84,843	19.3	-15%	-9%
Office REITs	25,296	11.0	2,300	85%	1,955	-8%	1,799	76%	6.00%	29,977	0%	29,977	5.2%	31,109	15.9	23%	29%
Residential REITs	123,303	17.1	7,200	95%	6,840	-8%	6,293	34%	5.25%	119,863	0%	119,863	3.8%	125,247	18.3	2%	8%
Retail REITs	99,300	12.1	8,200	90%	7,380	-8%	6,790	52%	6.00%	113,160	0%	113,160	5.7%	116,935	15.8	18%	24%
Specialized REITs	397,712	18.6	21,400	100%	21,400	-8%	19,688	31%	5.00%	393,760	0%	393,760	3.6%	411,249	19.2	3%	9%
Real Estate Management & Development	23,712	14.8	1,600	100%	1,600	-8%	1,472	4%	5.25%	28,038	0%	28,038	-	30,351	19.0	28%	34%
COMMUNICATION SERVICES	3,002	17.6	171.0	97%	166.2	-8%	153	15%	5.60%	2,731	0%	2,731	1.0%	2,938	17.7	-2%	4%
	3,002	17.6	171.0	97%	166.2	-8%	153.3	15%	5.59%	2,743	2%	2,790	0.8%	3,004	18.1	0%	6%
Diversified Telecommunication Services	284,836	7.8	36,500	75%	27,375	-15%	23,269	105%	5.75%	404,674	-30%	283,272	6.6%	289,288	10.6	2%	8%
Entertainment	458,055	25.4	18,000	110%	19,800	-8%	18,216	9%	5.50%	331,200	25%	414,000	0.0%	449,011	22.7	-2%	4%
Interactive Media & Services	1,896,141	21.5	88,000	105%	92,400	-5%	87,780	-8%	5.50%	1,596,000	10%	1,755,600	0.0%	1,904,826	20.6	0%	7%
Media	277,237	11.3	24,500	90%	22,050	-10%	19,845	60%	6.00%	330,750	-25%	248,063	2.3%	264,709	12.0	-5%	2%
Wireless Telecommunication Services	85,839	21.5	4,000	115%	4,600	-8%	4,232	42%	5.25%	80,610	10%	88,670	0.0%	95,986	20.9	12%	18%
UTILITIES	996	18.6	53.5	103%	55.3	-8%	51	60%	5.25%	969	0%	969	3.3%	1,016	18.4	2%	8%
	996	18.6	53.5	103%	55.3	-8%	50.8	60%	5.25%	988	2%	986	3.2%	1,036	18.7	4%	10%
Electric Utilities	652,414	18.6	35,000	105%	36,750	-8%	33,810	60%	5.25%	644,000	5%	676,200	3.2%	710,478	19.3	9%	15%
Gas Utilities	16,844	19.8	850	100%	850	-8%	782	46%	5.25%	14,895	0%	14,895	2.5%	15,749	18.5	-6%	0%
Independent Power and Renewable Electricity	15,244	12.7	1,200	100%	1,200	-15%	1,020	113%	7.00%	14,571	0%	14,571	2.9%	15,605	13.0	2%	8%
Multi-Utilities	282,960	18.1	15,600	100%	15,600	-8%	14,352	59%	5.25%	273,371	-5%	259,703	3.5%	272,102	17.4	-4%	2%
Water Utilities	28,901	32.8	880	100%	880	-5%	836	38%	4.00%	20,900	0%	20,900	1.9%	21,968	25.0	-24%	-18%

Source: IBES, DWS Investment GmbH as of 5/12/2023. Past performance may not be indicative of future results. The estimated 2023 year end upside is on absolute valuation basis of each sector, not on relative sector valuation basis.

S&P 500 industry monitor (1 of 2)

Sector	Industry	PE on 2022 EPS	PE on 2023 Consensus EPS	2023 Consensus EPS Growth	2024 Consensus EPS Growth	2023 EPS 3m Revision	3m Total Return Momentum	2023 End Upside (Intrinsic Valuation)	Combined Signal
Consumer Discretionary		30.5	21.4	20.6%	18.3%	0.3%	0.8%	-16.0%	0
	Automobile Components	20.1	11.6	33.2%	30.2%	-3.2%	-15.3%	29.9%	0
	Automobiles	21.0	19.0	-1.0%	11.2%	-2.3%	-14.7%	-15.2%	0
	Household Durables	7.8	10.1	-26.6%	5.5%	11.2%	7.6%	-4.0%	1
	Leisure Products	14.1	12.3	2.3%	12.1%	-13.4%	7.9%	-13.3%	0
	Textiles Apparel & Luxury Goods	26.7	21.7	3.7%	18.9%	1.4%	-2.6%	-25.8%	0
	Hotels Restaurants & Leisure	82.0	20.4	225.4%	23.7%	7.5%	6.1%	-8.0%	1
	Distributors	17.9	16.4	0.0%	8.8%	-0.8%	-2.2%	-2.1%	0
	Broadline Retail	96.7	40.0	56.9%	54.3%	-3.2%	11.7%	-32.9%	1
	Specialty Retail	18.8	17.2	1.4%	8.0%	-3.9%	-3.3%	-4.9%	0
Consumer Staples		22.2	19.5	4.2%	9.0%	-1.1%	5.7%	-8.8%	0
	Consumer Staples Distribution & Retail	23.4	19.8	6.6%	10.8%	-4.2%	1.5%	-4.3%	0
	Food Products	17.3	17.2	-5.4%	6.5%	-2.8%	8.5%	-0.1%	0
	Beverages	27.4	23.2	8.8%	8.7%	1.2%	9.1%	-10.0%	1
	Tobacco	13.0	11.4	5.8%	7.1%	4.6%	-4.3%	5.5%	0
	Household Products	27.9	23.5	8.3%	9.6%	0.1%	13.4%	-23.7%	0
	Personal Care Products	29.7	31.9	-34.5%	42.5%	-30.2%	-20.2%	-20.5%	-1
Energy		8.4	10.1	-16.9%	-0.2%	-11.6%	-11.9%	8.3%	-1
	Energy Equipment & Services	22.9	10.9	69.8%	23.7%	0.3%	-21.6%	36.2%	0
	Oil Gas & Consumable Fuels	7.9	10.0	-19.4%	-1.7%	-12.3%	-11.0%	5.8%	-1
Financials		14.2	12.0	8.7%	8.9%	-1.1%	-9.6%	1.7%	0
	Banks	8.6	8.0	9.2%	-1.5%	1.5%	-19.6%	29.2%	1
	Financial Services	24.0	18.5	13.6%	14.1%	1.8%	0.6%	-7.9%	1
	Consumer Finance	7.7	8.4	-17.7%	11.8%	-4.8%	-19.4%	11.6%	-1
	Capital Markets	15.9	13.4	3.6%	13.9%	-6.5%	-13.3%	-19.8%	-1
	Insurance	16.1	11.3	18.7%	19.7%	-3.3%	-5.2%	9.8%	0
Health Care		16.1	16.3	-9.4%	9.1%	-3.9%	0.2%	5.4%	0
	Health Care Providers & Services	15.8	13.3	7.9%	10.4%	0.0%	-3.7%	15.2%	0
	Health Care Equipment & Supplies	27.2	24.4	1.5%	10.0%	3.7%	7.8%	-3.9%	1
	Life Sciences Tools & Services	23.2	21.9	-6.0%	13.2%	-3.5%	-9.0%	-11.9%	0
	Biotechnology	12.0	15.3	-24.0%	3.0%	-7.8%	-2.7%	18.0%	-1
	Pharmaceuticals	13.3	14.5	-16.0%	9.7%	-7.6%	3.6%	11.3%	-1
Industrials		22.3	16.3	20.2%	13.7%	0.2%	-3.2%	-7.3%	0
	Aerospace & Defense	43.4	18.8	82.0%	26.6%	-8.0%	-4.8%	-4.1%	0
	Building Products	20.3	16.0	14.7%	10.2%	2.8%	-3.7%	-9.1%	1
	Trading Companies & Distributors	19.2	14.4	23.8%	7.4%	7.4%	-5.5%	12.3%	1
	Electrical Equipment	21.1	18.7	2.1%	10.2%	3.0%	-1.5%	-7.4%	0
	Construction & Engineering	28.0	21.2	13.2%	16.3%	0.9%	14.9%	-23.6%	1
	Industrial Conglomerates	20.7	17.8	-7.1%	25.2%	-8.5%	3.2%	-17.7%	-1

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

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Source: Factset, DWS Investment GmbH as of 5/12/2023. Past performance may not be indicative of future results.

S&P 500 industry monitor (2 of 2)

Sector	Industry	PE on 2022 EPS	PE on 2023 Consensus EPS	2023 Consensus EPS Growth	2024 Consensus EPS Growth	2023 EPS 3m Revision	3m Total Return Momentum	2023 End Upside (Intrinsic Valuation)	Combined Signal
	Machinery	18.3	14.2	23.6%	4.2%	9.1%	-7.1%	3.3%	1
	Commercial Services & Supplies	34.5	27.5	11.2%	12.6%	1.4%	13.0%	-37.9%	1
	Professional Services	28.0	22.9	8.2%	13.3%	-1.8%	-3.8%	-32.2%	0
	Air Freight & Logistics	12.7	13.8	-18.5%	12.6%	-6.3%	-3.0%	-13.2%	-1
	Passenger Airlines	24.2	5.2	282.2%	22.9%	11.8%	-13.1%	62.6%	1
	Ground Transportation	17.7	16.3	-0.3%	8.9%	-3.3%	-4.8%	4.5%	0
Information Technology		25.2	22.5	-3.0%	15.5%	-4.0%	10.1%	-17.1%	0
	IT Services	18.8	16.4	5.2%	8.7%	-2.3%	-6.3%	-1.2%	0
	Software	33.1	25.3	14.3%	14.5%	1.1%	13.5%	-16.4%	1
	Communications Equipment	16.5	13.2	16.6%	7.3%	5.0%	1.2%	16.3%	1
	Technology Hardware Storage & Peripherals	26.1	24.6	-4.1%	10.6%	-4.4%	13.5%	-18.6%	0
	Electronic Equipment Instruments & Components	18.7	17.0	-2.3%	12.7%	-6.8%	-11.3%	-17.8%	-1
	Semiconductors & Semiconductor Equipment	20.1	20.7	-23.6%	27.5%	-11.9%	8.5%	-21.6%	-1
Materials		13.3	15.9	-20.8%	5.4%	-5.7%	-4.4%	-3.4%	-1
	Chemicals	15.4	16.4	-15.4%	10.9%	-11.4%	-2.7%	-3.8%	-1
	Construction Materials	34.5	23.6	25.2%	17.1%	2.3%	10.3%	-40.4%	1
	Metals & Mining	7.7	14.0	-35.7%	-14.3%	21.8%	-13.7%	7.0%	-1
	Containers & Packaging	11.5	13.7	-22.9%	9.2%	-14.3%	-7.2%	1.7%	-1
Real Estate		28.0	32.3	-21.0%	9.8%	-2.3%	-6.9%	4.5%	-1
	Industrial REITs	28.8	43.0	-34.3%	1.9%	-1.1%	-1.6%	-15.4%	0
	Hotel & Resort REITs	14.8	14.8	-7.7%	8.7%	12.2%	-7.3%	68.4%	-1
	Office REITs	19.1	28.7	-33.0%	-0.6%	11.3%	-28.6%	23.0%	-1
	Health Care REITs	96.9	74.4	-18.9%	60.4%	-22.4%	-3.3%	2.4%	-1
	Residential REITs	29.2	40.3	-32.6%	7.8%	-4.5%	-3.2%	1.6%	-1
	Retail REITs	27.8	23.8	12.3%	4.3%	6.8%	-10.6%	17.8%	1
	Specialized REITs	27.9	32.1	-21.8%	11.0%	-4.7%	-6.8%	3.4%	-1
	Real Estate Management & Development	11.9	12.6	-21.9%	20.6%	-8.7%	-16.3%	28.0%	-1
Communication Services		17.9	15.0	1.8%	17.2%	3.6%	12.8%	-2.2%	1
	Diversified Telecommunication Services	6.5	7.5	-13.4%	1.2%	-5.6%	-6.6%	1.6%	-1
	Wireless Telecommunication Services	82.8	15.0	309.6%	35.0%	6.9%	0.3%	11.8%	1
	Media	11.3	10.2	-2.5%	12.9%	-3.3%	-1.4%	-4.5%	0
	Entertainment	27.7	19.1	2.1%	41.9%	-7.2%	-5.8%	-2.0%	0
	Interactive Media & Services	23.0	17.9	7.2%	19.5%	13.0%	26.5%	0.5%	1
Utilities		19.6	17.3	5.3%	7.9%	-1.4%	2.7%	2.0%	0
	Multi-Utilities	18.5	17.1	2.6%	5.0%	-1.3%	1.4%	-3.8%	0
	Water Utilities	34.9	29.3	11.3%	7.0%	-0.1%	0.0%	-24.0%	0
	Gas Utilities	21.1	18.2	8.1%	6.7%	0.2%	3.1%	-6.5%	0
	Electric Utilities	19.9	17.2	6.3%	9.2%	-1.6%	3.8%	8.9%	0
		Independent Power and Renewable Electricity Producers	13.6	11.5	5.7%	11.8%	-1.5%	-14.7%	2.4%
S&P 500		18.9	17.0	-0.2%	11.2%	-2.6%	1.3%	-6.7%	0

Source: Factset, DWS Investment GmbH as of 5/12/2023. 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

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

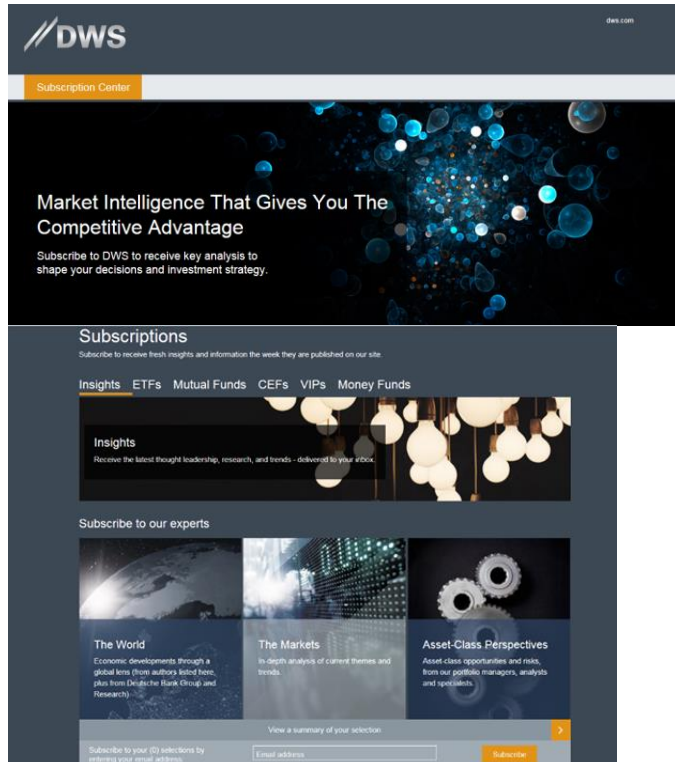
Optimistic 2023 end 10yr yield outlook: 2.5% inflation expectation + 1% overnight real rate + 0.75% inflation risk premium - 0.5% risk asset hedge = 3.75%

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%

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