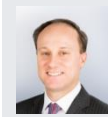


Equity wealth and inflation: What would Milton Friedman say?



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How would Milton Friedman think about the effect of equity wealth on inflation?

It's fascinating to ask chat GPT to answer questions the way a specific person might. Asking it to opine on topics with detailed reasoning based on all that is accessible about a particular expert's known views on a topic. We asked chat GPT what Milton Friedman would likely say about how today's surging equity market might affect inflation. We didn't find the answer fully satisfying, so we expand on it here.

Inflation is a monetary phenomenon, so he'd likely consider availability of money Friedman famously said, "inflation is always and everywhere a monetary phenomenon." It certainly is when the supply and use of money toward purchasing goods and services exceeds an economy's ability to produce such. While Friedman focused on how money supply affects inflation via demand, we know for certain that he also understood that supply-side factors also affect inflation. We're confident that he would acknowledge the uncertain supply-side outlook today, both downside risks from global conflict and upside potential from innovation. Yet he would likely note that supply-side forces are usually slower moving and difficult for policy makers to influence and monetary policy setters must align monetary conditions to whatever supply prevails. After such reminders, we think he'd evaluate today's inflation using his theories and examine all types of monetary aggregate measures.

Equities aren't money, they're an asset; but they are a store of wealth and liquid

Money is a medium of exchange and a store of value. Equities also store value. Cash is legal tender, liquid and should be stable in purchasing power. Whereas equities have no certain value against debts, are volatile, but quite liquid. Equity trading commissions are often lower than charge card fees. But such nuances aside, as we don't consider equities money but rather an asset expected to generate returns, we do think equities can act like a very broad monetary aggregate to influence demand. Like cash in circulation, deposits and money market funds, equities are a readily accessible store of wealth. Changes in equity sum values relative to GDP or PDI likely has influence on household spending via wealth effects, especially when the aggregate is large and significant in size relative to the economy. Treating equities as a monetary aggregate isn't correct per strict monetary definitions, but that doesn't really matter given the imperfect definitions of money supply beyond cash in circulation. As Friedman would likely argue, a monetary aggregate however measured shouldn't affect the real economy except when unusual changes occur. Big moves can affect real growth, inflation, interest rates and probably the valuation of assets. Given historically high S&P 500 market vs. GDP, we think recent outsized S&P 500 gains will add to the challenges facing the Fed in further lowering inflation to its 2.0% target.

Consider M2 and S&P market cap relative to GDP and their rates of change

A rising equity market is normal and shouldn't be thought of as an inflation accelerating force. First, it's similar to how cash in circulation normally climbs as GDP rises over time. It's more the cash/GDP ratio that matters and there can also be significant variation in cash/GDP at times without affecting inflation. Second, and more importantly, S&P/GDP can climb over the long-term without affecting inflation. A continuous rise in S&P/GDP can occur from S&P earnings growth. And S&P earnings as a share of GDP can indeed continuously rise over time owing to companies reinvesting profits and contributing to a capital deepening of the economy, which justifies a higher profit share of GDP. We know the opposing views here, but we know and know that Friedman knew why such views are wrong. It's return on capital that matters for evaluating profit share norms of GDP and labor share is driven separately. But what can make a climb in S&P/GDP contribute to inflationary pressure is when a jump in valuation causes it. Like a jump in the PE on normalized earnings or a jump in price-to-book value. Even if the jump in valuation is justified upon a lower cost of capital or expectations of strong earnings growth in the future, a rapid jump in valuation can still contribute to inflationary forces in the near-term. Worse, if a valuation jump is inappropriate and companies fail to deliver forecasted superior earnings growth, i.e. companies misallocate capital, future supply-side conditions could suffer and boost inflation or even bring deflation if bad enough to cause widespread bankruptcies. That said, we stress that it's not high or rising S&P/GDP that's an inflation force (and it's not a meaningful equity valuation metric either), but when S&P/GDP is high and jumps higher on valuation, it can materially contribute to inflation near-term, in our view, and raise economic risk in general for the intermediate term.

Can a surge in money supply spike equity valuations? Maybe, it's very uncertain

Defining and measuring liquidity is imprecise. Assessing how liquidity, defined as a proper monetary aggregate, affects inflation in the real economy and valuation of financial assets is very uncertain. Usually there are no effects when the change in any monetary aggregate isn't giant. For the real economy consider Friedman's famous: $M*V=P*Q$. If velocity is a constant then money affects price, as quantity is independent or supply-side driven over the long-term to determine GDP. But velocity is complicated and never constant, especially for incremental money often hoarded. Likewise, consider this expression for the financial economy: $M*E=A*X$. M is money supply, E is the efficiency of capital markets, A is asset book values and X represents observed valuation multiples. If we assume market efficiency holds, then liquidity or M has no effect. But giant changes in M might distort efficiency.

A Fed Funds rate cut in March would be a giant leap of supply-side faith

A cut in March is not supported by the data to date. It would be a huge leap of faith in the supply-side and robust productivity emerging to handle the remaining inflation battle. Outside of big wars and since 1960, the Fed never cut with UE < 4% and S&P at record highs. Inflation isn't below target and service inflation remains hot because the job market is tight and workers unsatisfied with real wages. A small recession is less long-term damaging than bond market losing confidence in the Fed's inflation target.

Contributor: Ju Wang, Portfolio Manager Equity

Global Equity Index Forecasts: 12-months			
Index	Dec 2024F	NTM EPS Growth	Target PE
S&P 500	4,700	8.5%	19.5
EuroStoxx 50	4,350	4.0%	11.9
Stoxx 600	465	4.0%	12.6
MSCI Japan	1,520	6.0%	15.2
MSCI Asia xJ	640	13.0%	13.9
MSCI EM	1,010	11.0%	13.0

S&P 500 Outlook at Yearend			
	2022	2023F	2024F
S&P 500	3840	4700	4700
Dividend Yield	1.75%	1.50%	1.60%
S&P EPS	\$222	\$223	\$242
Trailing PE	17.3	21.0	19.5
DPS	\$67	\$70	\$76

Next 5%+ Price Move
(Up / Balanced Risk / **Down**)
Risk of 10%+ correction within 12-months
(Low / Moderate / **High**)

Taxable U.S. Investor Asset Allocations		
Asset Class	Long-term	Current
Fixed Income/Cash	30-35%	33.5%
Equities	55-60%	55%
US Equities	40%	36%
S&P 500	35%	34.5%
Small Caps	0-10%	1.5%
Foreign DM	10-15%	11%
Foreign EM	0-10%	8%
Alternatives	10%	11.5%

Key CIO Views		
Macro signal:	Dec 2023	Dec 2024F
U.S. Fed Funds rate	5.25%-5.50%	4.5%-4.75%
10yr Treasury yield	4.20%	4.20%
US IG Corp Spreads	140bp	130bp
US High Yield Spreads	420bp	450bp
Crude Oil (WTI) \$/bbl	69	88
EUR / USD FX rate	1.06	1.10

GDP Forecasts			
Region	2022	2023F	2024F
US	2.1%	2.0%	0.8%
World	3.4%	3.0%	2.8%
Euro area	3.4%	0.7%	0.7%
China	3.0%	5.2%	4.7%
Japan	1.0%	2.1%	1.0%

* 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 1/16/2024 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	2023	2024	Overweight	2022	2023	2024	Equal weight	2022	2023	2024	Underweight	2022	2023	2024	
Over-weight	13.0%	17.3%	Health Care	17.1	21.5	18.3	Biotechnology Health Care Equipment & Supplies Pharmaceuticals	13.8 26.3 14.4	19.0 26.5 24.7	17.5 24.6 16.9	Health Care Providers & Services	17.0	15.8	14.9	Life Sciences Tools & Services	23.5	27.4	26.1	
	8.7%	10.2%	Communication Services	25.1	20.4	18.0	Diversified Telecommunication Services Entertainment Interactive Media & Services	60.7 34.8 34.8	7.6 33.6 25.3	8.1 22.9 21.4	Wireless Telecommunication Services	78.9	22.6	17.6	Media	11.9	11.6	11.6	
	3.8%	5.3%	Energy	8.0	10.8	10.5	Energy Equipment & Services Oil Gas & Consumable Fuels	22.4 7.6	15.6 10.5	13.3 10.3									
	8.6%	9.8%	Industrials	23.6	21.1	19.5	Aerospace & Defense Passenger Airlines Electrical Equipment	35.3 15.2 25.9	27.5 6.7 24.6	22.1 6.4 22.3	Construction & Engineering Ground Transportation Industrial Conglomerates	31.9 20.1 23.4	29.2 21.8 24.3	24.4 20.6 20.5	Air Freight & Logistics Building Products Commercial Services & Supplies Professional Services Trading Companies & Distributors	13.0 23.6 38.2 29.2 24.2	17.2 21.2 34.5 27.5 20.7	15.9 20.0 31.9 26.2 19.6	
	6.3%	7.2%	Consumer Staples	21.0	20.5	19.7	Beverages Household Products Personal Care Products	24.9 26.4 19.2	22.5 24.3 26.3	21.0 23.2 24.4	Consumer Staples Distribution & Retail Tobacco	24.8 12.4	24.6 12.0	23.0 11.9	Food Products	14.9	15.6	15.6	
Equal-weight	12.9%	12.9%	Financials	17.2	15.5	15.2	Banks Insurance	11.3 18.6	9.6 15.8	10.4 13.7	Financial Services	26.8	23.3	21.7	Capital Markets Consumer Finance	19.5 10.3	20.2 11.7	19.2 11.7	
	2.3%	2.3%	Utilities	18.2	17.3	16.2	Electric Utilities	18.8	17.2	16.0	Gas Utilities Independent Power & Renewable Energy Water Utilities	20.3 11.0 29.8	19.4 10.6 26.7	18.3 9.8 25.3	Multi-Utilities	16.7	17.4	16.3	
	2.5%	2.5%	Real Estate	18.4	18.9	18.5	Retail REITs Specialized REITs	13.5 19.3	14.1 20.5	14.2 19.6	Hotel & Resort REITs Industrial REITs Office REITs	11.0 25.5 12.3	10.5 23.3 12.5	10.1 24.4 13.7	Health Care REITs Residential REITs Real Estate Mgmt. & Development	20.3 17.5 25.9	19.7 16.5 35.8	18.7 16.3 32.0	
Under-weight	2.3%	2.0%	Materials	14.9	19.3	19.1	Metals & Mining	9.3	14.0	17.1	Chemicals	16.5	20.7	19.4	Construction Materials Containers & Packaging	42.4 13.3	30.3 17.8	28.8 17.1	
	28.9%	24.5%	Information Technology	33.0	31.6	27.3	Communications Equipment IT Services	18.3 24.1	16.1 23.3	15.4 21.8	Software	41.9	36.9	31.6	Electronic Equipment Semiconductors Technology Hardware Storage & Peripherals	21.0 34.0 28.7	22.7 34.0 29.0	20.6 26.4 26.9	
	10.6%	5.7%	Consumer Discretionary	38.2	27.2	25.8	Automobile Components	15	13.9	11.3	Distributors Hotels Restaurants & Leisure Leisure Products	16.0 62 10.9	16.5 24.3 16.9	16.0 22.2 12.7	Automobiles Household Durables Broadline Retail Multiline Retail Specialty Retail Textiles Apparel & Luxury Goods	23.7 10.7 -1758 21.2 23.9	25.9 11.5 54.2 21.2 24.7	27.9 12.3 44.0 20.7 22.5	
			Automobiles	23.7	25.9	27.9													
			Broadline Retail	-1758	54.2	44.0													
CD ex Auto & Broadline Retail			26.0	20.8	19.9														
Aggregate PE: DWS View							Overweight	16.6	17.4	16.0	Equalweight	27.4	24.3	22.3	Underweight	26.2	25.7	23.5	
S&P 500								4784			2022, 2023 & 2024 EPS	219.41	223.00	242.00	2022, 2023 & 2024 PE	21.8	21.5	19.8	
											Bottom-up Consensus EPS	219.41	222.21	246.25	Bottom-up Cons. PE	21.8	21.5	19.4	
															2022, 2023 & 2024 Ex Energy PE	22.5	22.5	20.6	
															Btm-up Cons. Ex Energy PE	23.5	22.5	20.1	

Sector OW	9.82%
Sector UW	-9.82%
Industry OW	21.42%
Industry UW	-21.42%

Macro tilts:	
Cyclicals	-5.91%
Defensive	5.91%
Value (Financial+Energy)	1.42%
Growth	1.13%
Growth ex Health Care	-3.29%
Consumer	-3.88%
Services/experience	-0.16%
Disc. Goods	-4.66%
Retailing	-2.33%
Durables	-2.33%
Staples Goods/Retail	0.94%
Commodity	1.51%
Energy	1.68%
Metals/Chemicals	-0.17%
Capex	6.77%
Capacity additions	3.10%
Productivity	3.67%
Health Care	4.42%
Innovation	3.45%
Marketers	2.23%
Insurers	-0.23%
Financials	-0.26%
Up rates/low spreads	1.04%
Capital Markets	-2.97%
Insurance	1.67%
Bond Substitutes	0.84%
Weak FX \$ plays	1.01%
High R&D plays	2.76%
Transports	-0.55%
Geopolitical risk	2.74%
Weak oil prices	0.67%
Inflation shock	0.98%
Stagflation Protection	4.68%
Domestic GDP	-3.48%
Global GDP	-4.53%
Consumer TMT	0.30%
Trade sensitive	-1.27%

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

Price as of 1/12/2024

Source: DWS Investment Management GmbH

DWS Investment GmbH View: S&P 500 fair value by sector: Assuming a ~5.60% real cost of equity (CoE) for overall S&P 500

	Market Value (\$bn)	Current 2024 PE	2024E Earnings (\$bn)	Normal Ratio	Normal 2024E Earnings	Accounting Quality Adjustment	Fully Adjusted Earnings	Net Debt / Market Cap	FCF / EPS	Real CoE	Steady State Value	Growth Premium	2024 Start Fair Value (\$bn)	2024E Dividend Yield	2024 End Fair Value (\$bn)	PE on Normal 2024E EPS	2024 End Upside %	2024 End Upside vs. S&P 500
Communication Services	3,693	18.0	205.0	99%	203.1	-7%	188.9	14%	0.83	5.75%	3,286	15%	3,778	0.9%	4,055	20.0	10%	13%
Consumer Discretionary	4,255	25.8	165.0	101%	166.2	-6%	156.2	12%	0.74	5.65%	2,764	23%	3,399	1.0%	3,641	21.9	-14%	-11%
<i>Automobiles</i>	699	27.9	25.0	95%	23.8	-8%	21.9	24%	0.99	6.75%	324	40%	453	0.4%	493	20.8	-29%	-26%
<i>Broadline (Internet) Retail</i>	1,408	44.0	32.0	115%	36.8	-5%	35.0	1%	0.18	5.50%	636	60%	1,017	0.0%	1,098	29.8	-22%	-18%
<i>ex. Auto & Broadline (Internet) Retail</i>	2,148	19.9	108.0	98%	105.6	-7%	99.4	14%	0.75	5.51%	1,805	7%	1,929	1.4%	2,056	19.5	-4%	-1%
Consumer Staples	2,516	19.7	128.0	98%	125.7	-6%	118.2	15%	0.84	5.25%	2,251	0%	2,251	2.8%	2,361	18.8	-6%	-3%
Energy	1,605	10.5	152.5	90%	137.8	-8%	126.8	14%	0.91	6.25%	2,029	-20%	1,623	2.7%	1,722	12.5	7%	11%
Financials	5,319	15.2	349.5	97%	339.2	-7%	315.5		1.10	6.50%	4,854	-3%	4,708	1.9%	5,042	14.9	-5%	-2%
<i>Banks</i>	1,316	10.4	126.0	95%	119.7	-10%	107.7		1.11	7.50%	1,436	-12%	1,264	3.1%	1,351	11.3	3%	6%
Health Care	5,278	18.3	288.0	99%	284.7	-8%	261.9	10%	1.14	5.60%	4,677	10%	5,145	1.4%	5,489	19.3	4%	8%
Industrials	3,333	19.5	171.0	101%	172.6	-7%	160.5	17%	0.88	5.75%	2,792	5%	2,932	1.8%	3,121	18.1	-6%	-3%
Information Technology	11,720	27.3	430.0	103%	443.3	-3%	430.0	2%	0.95	5.50%	7,817	30%	10,163	0.9%	10,886	24.6	-7%	-4%
Materials	955	19.1	49.9	97%	48.6	-8%	44.7	19%	0.89	6.25%	715	9%	779	1.6%	835	17.2	-13%	-9%
Real Estate	954	18.5	51.5	97%	49.8	-7%	46.3	36%	1.80	5.75%	806	8%	870	3.4%	913	18.3	-4%	-1%
Utilities	923	16.2	57.2	103%	59.1	-7%	54.9	88%	-0.64	5.75%	955	3%	984	3.7%	1,029	17.4	11%	15%
S&P 500 (\$ bn)	40,553	19.8	2047.6	99%	2030.1	-6.2%	1903.9			5.75%	32,946	11.2%	36632	1.5%	39,092	19.3	-4%	0%
S&P 500 Index (\$/sh)	4784	19.8	242.0	99%	240.0	-6.3%	225.0	11%	0.93	5.75%	3913	11.8%	4373	1.5%	4660	19.4	-3%	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 1/12/2024. Past performance may not be indicative of future results.

S&P 500 EPS historical constituents represents the earnings per share (EPS) of S&P 500 index constituents at the time, while S&P 500 EPS current constituents represents the earnings per share of index constituents as of the date the data was compiled 9/30/2023.

The estimated 2024 year end upside is on absolute valuation basis of each sector, not on relative sector valuation basis.

S&P 500 Intrinsic Valuation Model

S&P 500 Capitalized EPS Valuation		S&P 500 Dividend Discount Model		S&P 500 Long-term EPS & DPS Growth		S&P 500 Cost of Equity & Fair Book Multiple	
DWS 2024E S&P 500 EPS	\$242.00	DWS 2024E S&P 500 DPS	\$74.00	DWS 2024E S&P 500 aggregate ROE	22.0%	Fair long-term nominal return on S&P 500 index	8.25%
DWS "normal 2024E" S&P 500 EPS	\$240.00	DWS "normal 2024E" S&P 500 DPS	\$74.00	2023E end S&P 500 book value per share	\$1,100	Components of estimated fair S&P 500 return:	
"Normal 2024E" EPS / 2024 EPS	99%	Normal dividend payout ratio	33%	DWS "normal 2024E" S&P 500 aggregate ROE	20.5%	+ Long-term real risk free interest rate	1.75%
Accounting quality adjustment to pro forma EPS	-\$15.00	EPS directed to net share repurchases	\$38.00	S&P EPS retained for true reinvestment		+ Long-term fair S&P 500 equity risk premium*	4.00%
Normal 2024E S&P 500 EPS fair to capitalize	\$225	Normal share repurchase payout ratio	17%	Estimated ROE on reinvested S&P EPS		= Long-term real S&P 500 cost of equity	5.75%
Key principle: steady-state value = normal EPS / real CoE		Total payout of S&P 500 EPS	\$112.00	Economic margin (EM) or ROE-CoE		+ Long-term inflation forecast	2.50%
<u>S&P 500 EPS Capitalization Valuation</u>		Total payout ratio of normal and quality adj. EPS	50%	Sources of long-term earnings growth:		* S&P 500 ERP history 300-400bps, w/ real CoE @ 5% - 6.5%	
Normal EPS / (real CoE - (EM/payout) - EM):		<u>S&P 500 DPS Discount Model</u>		+ Long-term inflation forecast	2.50%	<u>Fair S&P 500 Market Value and Book Value Multiple</u>	
S&P 500 intrinsic value at 2024 start	4373	Normal DPS / (nominal CoE - DPS growth):		+ Fair return on true reinvestment	2.89%	2023E end S&P 500 book value per share	\$1,100
S&P 500 intrinsic value at 2024 end	4660	S&P 500 intrinsic value at 2024 start	4373	+ Value added return on true reinvestment	0.30%	Fair PB = Fair PE * normal aggregate ROE	4.36
Implied fair fwd PE in early 2024 on 2024E \$242 EPS	18.1	S&P 500 intrinsic value at 2024 end	4660	= Long-term earnings growth	5.69%	Fair PE =(inc ROE-g)/(inc real ROE*(real CoE-real g))	21.3
Implied fair trailing PE at 2024 end on 2024E \$242 EPS	19.3	Implied fair forward yield on 2024E DPS of \$74.0	1.69%	+ Growth from net share repurchases	0.87%	Implied S&P 500 fair value of book at 2024 start	4800
		Implied fair trailing yield on 2024E DPS of \$74.0	1.59%	= Long-term S&P 500 EPS/DPS growth	6.56%	Steady-state PB = normal agg. ROE / real CoE	3.56
				+ Fair normal dividend yield	1.69%	Confirmed by fair steady-state PE = 1 / real CoE	17.4
				= Total long-term return at constant PE	8.25%		

Normal EPS / (real CoE-value added EPS growth)	4129	DPS discount model using true DPS (all payout)	4373	Value added growth premium in fair value est.	12%	Normal 2024E economic profit per share	\$161.75
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S&P 500 EPS discount model 5 steps to value:

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

	2024E Normal S&P 500 EPS				
	\$230	\$235	\$240	\$245	\$250
5.25%	5392	5584	5782	5984	6191
5.50%	4847	5003	5160	5321	5484
5.75%	4403	4531	4660	4791	4923
6.00%	4034	4141	4249	4358	4466
6.25%	3723	3814	3905	3997	4088

Source: DWS Investment Management GmbH

DWS September 2024 equity index targets

Index	3M relative View	Current Level	Previous Target CIO Day Sep	Target Dec 24	Chg in Target	Expected Total Return Dec 24	thereof		Assumptions					
							EPS growth NTM	LTM multiple impact	Dividend Yield	EPS NTM* (e)	DWS vs. Cons.	Target LTM P/E in Dec 24	Target PE discount to US	
S&P 500		4,503	4,500	4,700	4%	6.0%	USD	10.0%	-6%	1.7%	242	-1.5%	19.3x	
Stoxx 600		455	470	465	-1%	6.0%	EUR	4.0%	-2%	3.7%	36.9	-2.8%	12.6x	-35%
Euro Stoxx 50		4,316	4,350	4,350	0%	4.5%	EUR	4.0%	-3%	3.7%	366	-2.9%	11.9x	-38%
DAX40		15,748	16,700	16,600	-1%	5.4%	EUR	4.3%	-2%	3.7%	1440	-3.6%	11.2x	-42%
SMI		10,708	11,300	10,950	-3%	5.5%	CHF	7.0%	-5%	3.3%	685	-2.8%	16.0x	-17%
FT SE 100		7,487	7,400	7,400	0%	3.3%	GBP	4.0%	-5%	4.5%		0.7%	10.1x	-48%
MSCI EM		982	1,010	1,010	0%	5.7%	USD	11.0%	-8%	2.8%	77.7	-8.4%	13.0x	-33%
MSCI AC Asia xJ		620	655	640	-2%	5.8%	USD	13.0%	-8%	2.6%	46.3	-8.2%	13.9x	-28%
MSCI Japan		1,458	1,500	1,520	1%	6.6%	YEN	6.0%	-2%	2.3%	99.6	-2.2%	15.2x	-21%
MSCI Australia		1,413	1,350	1,400	4%	3.5%	AUD	0.0%	-2%	4.4%	93.0	-1.2%	14.8x	-23%

DWS Investment GmbH S&P 500 Annual EPS Outlook

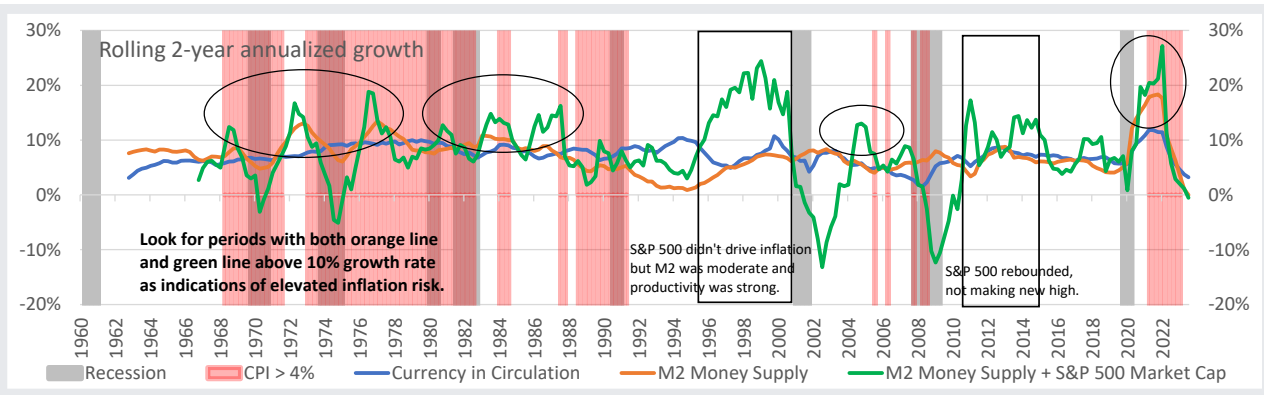
	2014A	2015A	2016A	2017A	2018A	2019A	2020A	2021A	2022A	y/y	Bottom-up Consensus (IBES)				DWS View				Normalized 2024		
											2023E	y/y	2024E	y/y	2023E	y/y	2024E	y/y	(\$)	% of 2023	
S&P 500 EPS (historical index)	\$118.82	\$117.46	\$118.10	\$132.00	\$161.93	\$162.93	\$139.72	\$208.12	\$218.09	4.8%											
S&P 500 EPS (current constituents)	\$116.70	\$117.17	\$117.41	\$129.32	\$155.41	\$161.17	\$143.29	\$208.02	\$219.41	4.4%	\$222	1.3%	\$246	10.8%	\$223	1.6%	\$242	8.5%	\$240	99%	
Sector (\$ bn)																					
Communication Services	67.4	77.8	90.6	98.8	123.4	129.8	135.0	187.4	146.9	-21.6%	181.3	23.4%	208.5	15.0%	181.0	23.2%	205.0	13.3%	203.1	99%	
Consumer Discretionary	58.4	68.7	76.6	80.6	95.6	93.6	64.6	124.2	111.5	-10.2%	155.8	39.8%	173.1	11.1%	156.2	40.1%	165.0	5.7%	166.2	101%	
Consumer Staples	83.9	82.7	85.4	89.7	96.8	97.9	105.2	117.8	119.5	1.5%	123.0	2.9%	129.8	5.5%	122.6	2.6%	128.0	4.4%	125.7	98%	
Energy	94.3	39.4	10.5	37.1	69.8	49.4	-6.1	79.2	200.5	153.3%	147.6	-26.4%	144.5	-2.1%	148.5	-25.9%	152.5	2.7%	137.8	90%	
Financials	184.1	199.6	203.7	213.2	262.7	276.6	225.5	363.2	308.5	-15.1%	339.9	10.2%	364.6	7.3%	343.0	11.2%	349.5	1.9%	339.2	97%	
Health Care	136.7	151.7	156.5	170.8	187.5	205.5	225.7	293.4	307.9	5.0%	245.3	-20.3%	288.0	17.4%	245.5	-20.3%	288.0	17.3%	284.7	99%	
Industrials	100.5	103.9	98.3	107.2	130.5	125.1	66.9	112.0	141.1	26.0%	158.6	12.5%	175.8	10.8%	158.0	12.0%	171.0	8.2%	172.6	101%	
Information Technology	162.6	168.2	176.5	208.0	239.7	233.4	264.7	345.8	354.8	2.6%	374.5	5.6%	437.6	16.8%	370.5	4.4%	430.0	16.1%	443.3	103%	
Materials	24.8	23.8	22.9	28.9	36.4	34.3	32.5	61.4	64.0	4.2%	49.5	-22.8%	51.1	3.3%	49.5	-22.7%	49.9	0.8%	48.6	97%	
Real Estate	22.6	25.8	28.5	32.1	35.8	37.3	37.3	44.5	51.8	16.4%	51.5	-0.5%	53.2	3.4%	50.5	-2.5%	51.5	2.1%	49.8	97%	
Utilities	32.9	33.0	35.6	37.0	40.8	44.8	46.8	49.3	50.8	2.9%	53.9	6.2%	58.3	8.2%	53.5	5.3%	57.2	6.9%	59.1	103%	
S&P 500	968.3	974.8	985.0	1103.4	1319.0	1327.8	1198.1	1778.1	1857.2	4.4%	1881.0	1.3%	2084.5	10.8%	1878.7	1.2%	2047.6	9.0%	2030.1	99%	
S&P ex. Energy (\$bn)	874.0	935.4	974.6	1066.3	1249.2	1278.4	1204.2	1698.9	1656.7	-2.5%	1733.4	4.6%	1940.0	11.9%	1730.2	4.4%	1895.1	9.5%	1892.3	100%	
S&P ex. Tech (\$bn)	805.7	806.6	808.5	895.4	1079.4	1094.4	933.4	1432.3	1502.5	4.9%	1506.4	0.3%	1646.8	9.3%	1508.2	0.4%	1617.6	7.3%	1586.8	98%	
S&P 500 Sales/Share (historical index)	\$1,163	\$1,127	\$1,151	\$1,232	\$1,339	\$1,415	\$1,362	\$1,567	\$1,753	11.9%											
S&P 500 Non-GAAP Net Margin	10.2%	10.4%	10.3%	10.7%	12.1%	11.5%	10.3%	13.3%	12.4%												

S&P 500 EPS	Year	1Q	2Q	3Q	4Q
2019A	163	39	41	41	42
2020A	140	33	28	38	42
2021A	210	49	53	54	54
2022A	222	55	58	56	53
2023E	223	53	54	58	58
2024E	242	57	59	62	64

S&P 500 EPS historical constituents represents the earnings per share (EPS) of S&P 500 index constituents at the time, while S&P 500 EPS current constituents represents the earnings per share of index constituents as of the date the data was compiled 9/30/2023.

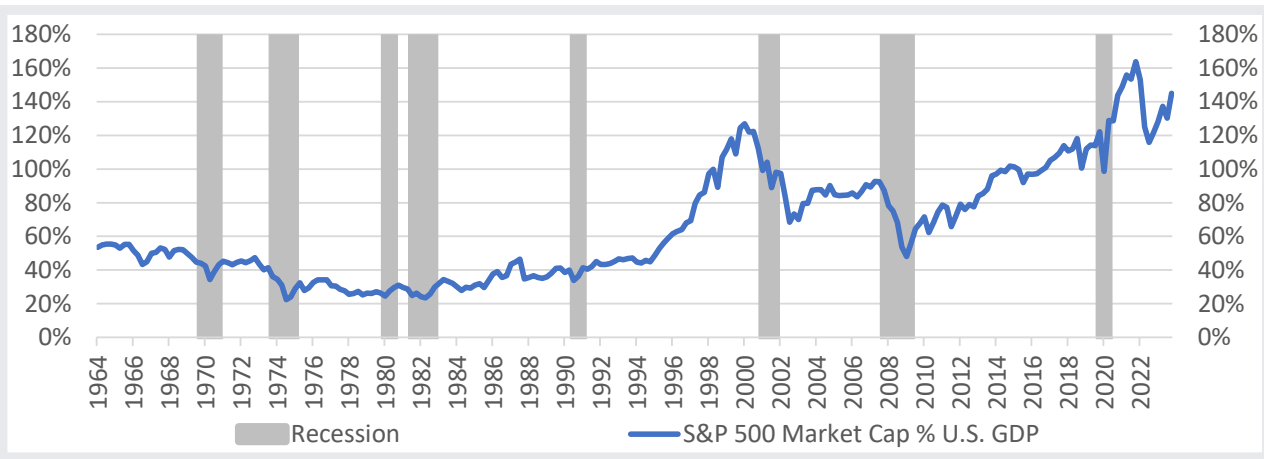
Source: Factset, DWS Investment GmbH as of 1/12/2024. Past performance may not be indicative of future results.

Money supply and S&P 500 growth rates: Does this lead inflation?



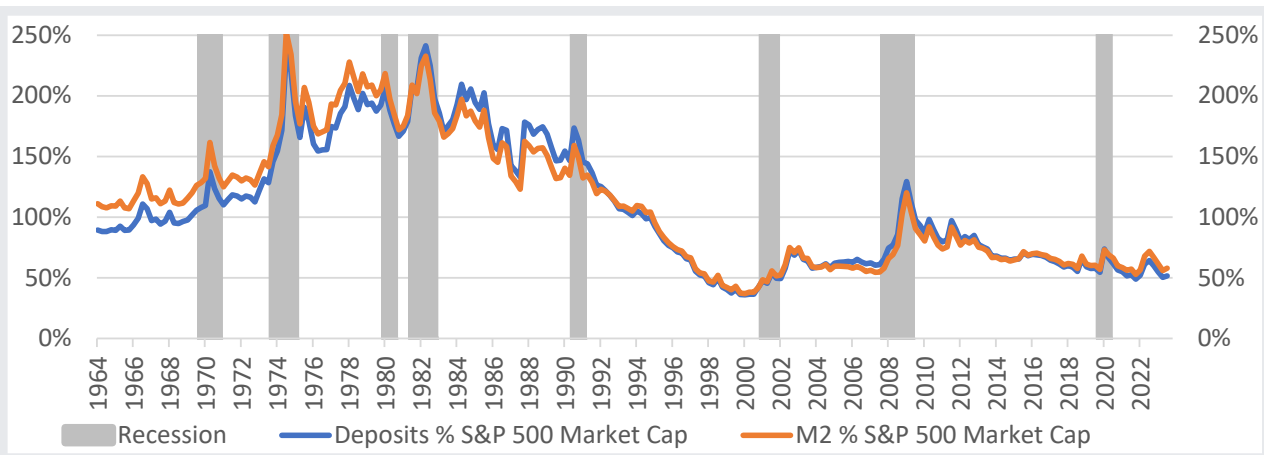
Source: Haver, DWS Investment GmbH as of 3Q 2023. Past performance may not be indicative of future results.

S&P 500 Market Cap % of U.S. GDP



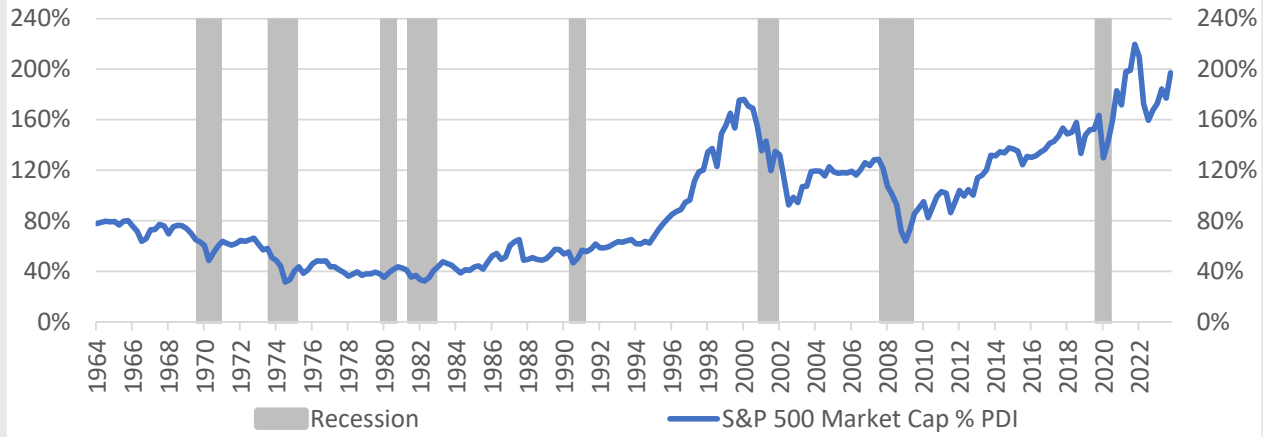
Source: Haver, DWS Investment GmbH as of 4Q 2023. Past performance may not be indicative of future results.

Deposits and M2 % of S&P 500 Market Cap



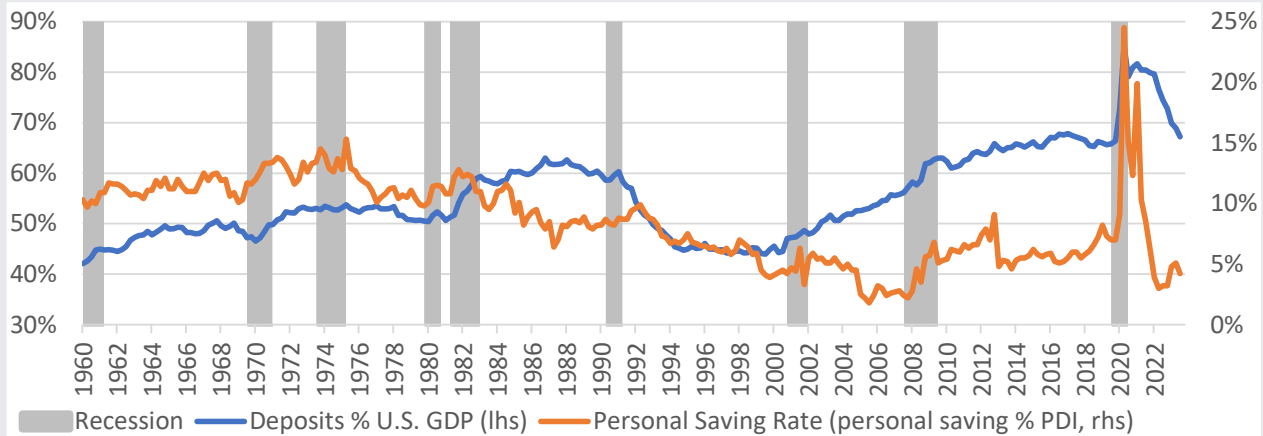
Source: Haver, DWS Investment GmbH as of 3Q 2023. Past performance may not be indicative of future results.

S&P 500 Market Cap % Personal Disposable Income



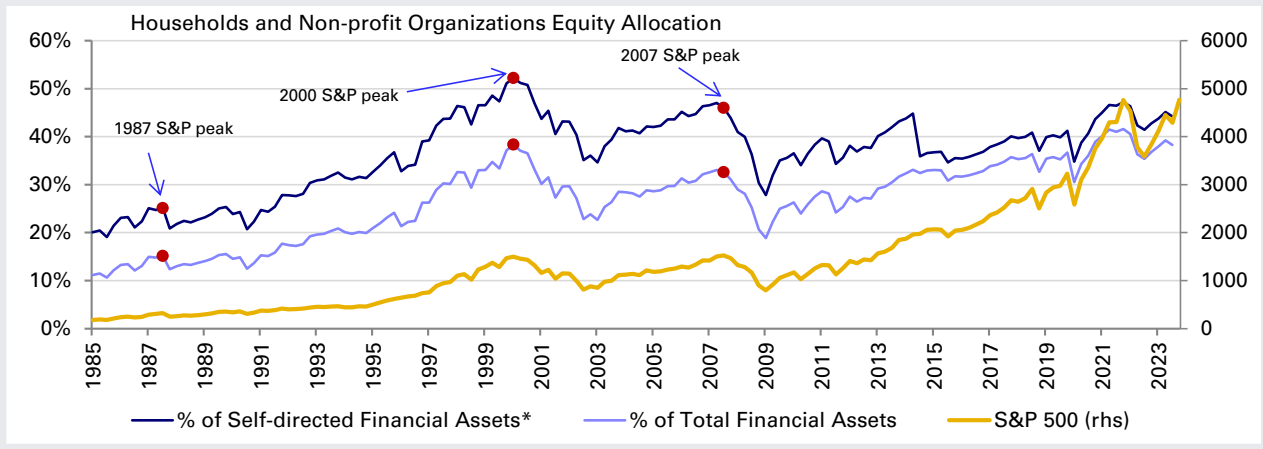
Source: Haver, DWS Investment GmbH as of 4Q 2023. Past performance may not be indicative of future results.

Deposits % U.S. GDP, Personal Saving Rate



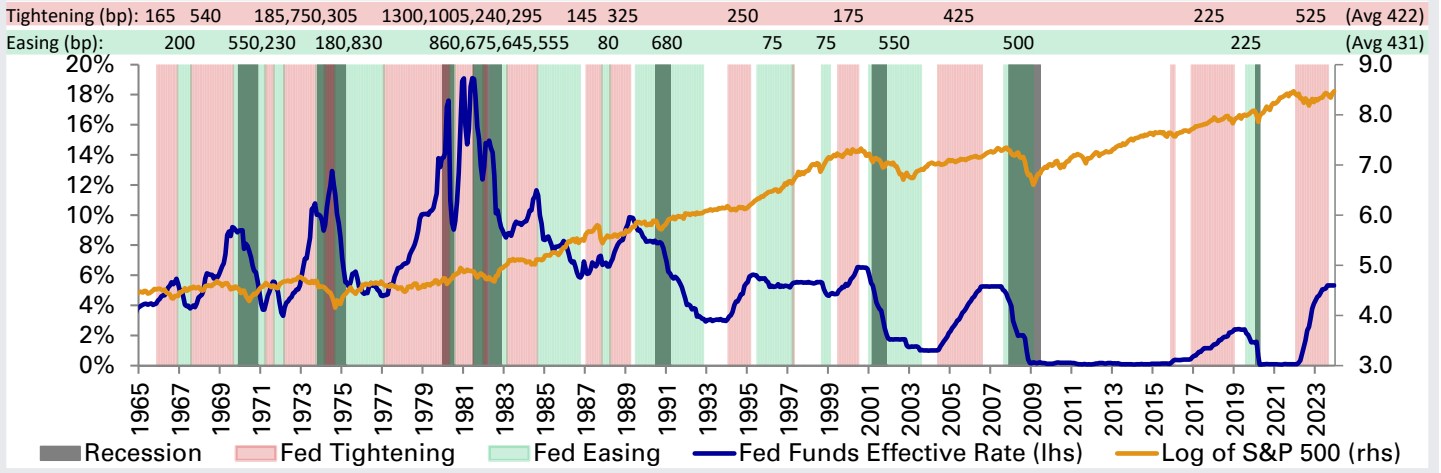
Source: Haver, DWS Investment GmbH as of 4Q 2023. Past performance may not be indicative of future results.

Households equity allocation



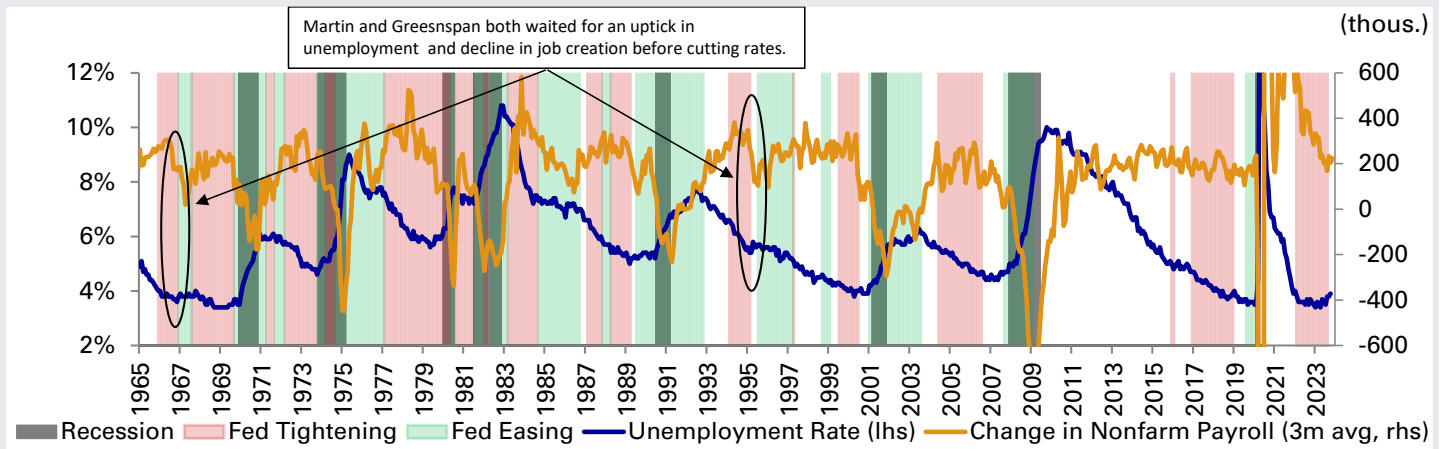
Source: Haver, DWS Investment GmbH as of 4Q 2023. Past performance may not be indicative of future results.

Fed cycles and S&P 500



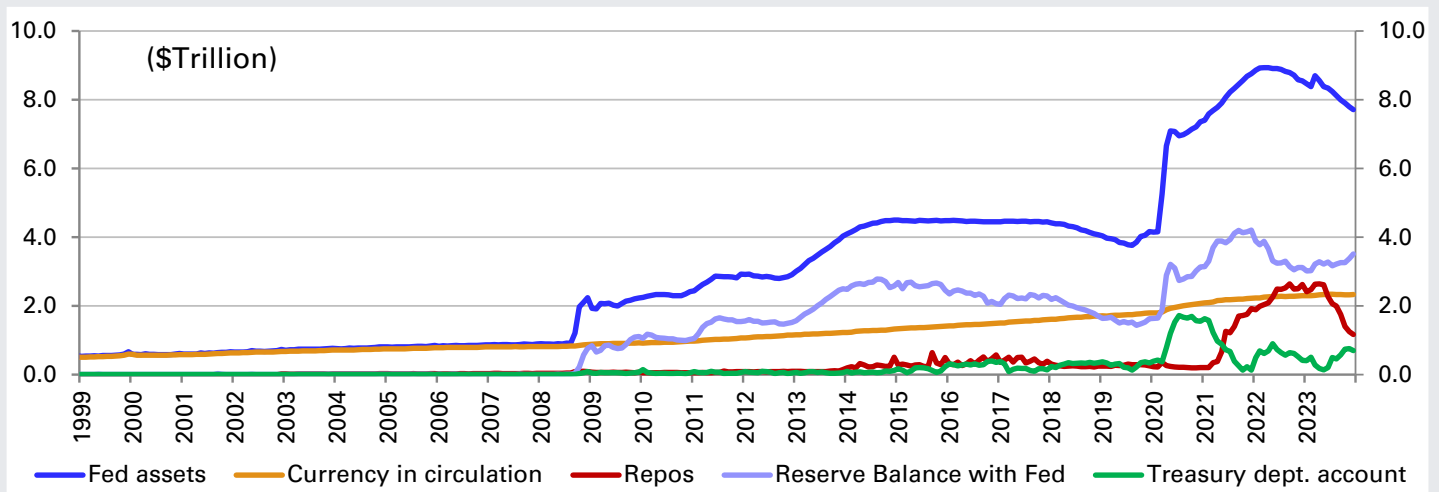
Source: Haver, DWS Investment GmbH as of 12/31/2023. Past performance may not be indicative of future results.

Fed cycles and employment situation



Source: Haver, DWS Investment GmbH as of 12/31/2023. Past performance may not be indicative of future results.

Fed assets, currency in circulation, repos, reserve balance and Treasury department account



Source: Haver, DWS Investment GmbH as of 12/31/2023. Past performance may not be indicative of future results.

S&P 500 industry monitor (1 of 2)

Sector	Industry	PE on 2022	PE on 2023	2023	2024	2023 EPS	3m Total	2024 End	Combined
		EPS	Consensus EPS	Consensus EPS Growth	Consensus EPS Growth	3m Revision	Return Momentum	Upside (Intrinsic Valuation)	
Consumer Discretionary		38.1	25.0	36.8%	11.5%	3.0%	11.3%	-12.8%	1
	Automobile Components	17.0	11.5	24.6%	19.3%	-0.5%	-14.9%	37.6%	0
	Automobiles	26.8	25.2	1.2%	5.2%	-7.0%	-10.5%	-34.4%	-1
	Household Durables	10.5	11.4	-10.1%	2.5%	3.0%	33.4%	-0.7%	1
	Leisure Products	11.2	12.6	-35.6%	38.2%	-30.5%	-11.9%	-1.4%	-1
	Textiles Apparel & Luxury Goods	27.7	23.9	1.6%	13.9%	-2.4%	12.2%	-8.6%	0
	Hotels Restaurants & Leisure	92.8	22.0	279.8%	10.9%	7.2%	16.9%	-0.2%	1
	Distributors	16.0	15.3	-4.0%	8.5%	-2.3%	-0.5%	4.0%	-1
	Broadline Retail	134.8	40.6	151.8%	31.8%	18.9%	18.7%	-16.8%	1
	Specialty Retail	21.6	20.6	0.5%	4.3%	-0.6%	15.3%	-5.5%	0
Consumer Staples		21.6	19.4	5.5%	5.5%	0.1%	10.0%	-5.3%	0
	Consumer Staples Distribution & Retail	25.2	23.2	2.5%	6.0%	0.6%	14.5%	-10.8%	0
	Food Products	14.8	15.3	-4.7%	1.4%	0.3%	9.9%	1.8%	0
	Beverages	25.1	20.9	12.2%	7.1%	1.4%	11.1%	-2.3%	1
	Tobacco	12.6	11.6	3.5%	5.0%	-1.5%	2.8%	-5.6%	-1
	Household Products	26.7	22.5	9.7%	8.1%	0.2%	6.6%	-11.5%	0
	Personal Care Products	43.9	23.3	83.2%	3.0%	-6.5%	5.4%	-8.7%	-1
Energy		8.8	11.1	-19.6%	-1.4%	0.4%	-7.1%	4.9%	-1
	Energy Equipment & Services	26.4	13.1	68.8%	19.5%	0.2%	-14.4%	16.2%	0
	Oil Gas & Consumable Fuels	8.3	11.0	-22.2%	-2.8%	0.4%	-6.3%	2.4%	-1
Financials		16.9	14.6	8.3%	7.1%	0.4%	13.8%	-5.2%	0
	Banks	10.9	10.3	11.8%	-5.0%	1.5%	20.6%	-5.3%	1
	Financial Services	27.1	21.2	16.7%	9.4%	-0.9%	8.9%	-1.9%	0
	Consumer Finance	9.8	11.0	-16.8%	7.6%	2.5%	24.9%	-6.4%	1
	Capital Markets	19.0	17.4	-6.9%	17.5%	-4.0%	17.7%	-26.9%	-1
	Insurance	18.8	12.9	19.2%	22.8%	3.6%	7.1%	9.6%	1
Health Care		17.2	18.4	-20.6%	17.5%	-7.5%	8.4%	4.9%	-1
	Health Care Providers & Services	17.1	14.5	8.1%	8.9%	0.5%	2.1%	10.9%	0
	Health Care Equipment & Supplies	27.6	25.0	2.2%	7.8%	0.4%	20.8%	-0.9%	0
	Life Sciences Tools & Services	23.1	26.7	-14.9%	1.4%	-4.3%	9.6%	-24.9%	-1
	Biotechnology	13.6	17.2	-28.1%	9.5%	-4.9%	10.4%	8.7%	-1
	Pharmaceuticals	14.4	17.4	-42.8%	44.5%	-20.9%	4.6%	6.3%	-1
Industrials		27.4	19.6	25.2%	11.7%	-0.8%	11.8%	-6.0%	0
	Aerospace & Defense	47.9	21.4	66.7%	34.3%	-7.2%	12.5%	-6.1%	0
	Building Products	20.8	18.3	8.5%	4.3%	1.6%	17.3%	-12.3%	1
	Trading Companies & Distributors	25.5	19.1	25.4%	6.3%	1.0%	16.7%	-1.3%	1
	Electrical Equipment	26.6	21.6	9.9%	11.9%	1.5%	10.0%	3.9%	0
	Construction & Engineering	32.5	24.2	14.8%	17.0%	0.1%	16.7%	-8.5%	1
	Industrial Conglomerates	23.8	19.6	-0.3%	21.9%	3.5%	15.9%	0.4%	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

Source: Factset, DWS Investment GmbH as of 1/12/2024. Past performance may not be indicative of future results.

S&P 500 industry monitor (2 of 2)

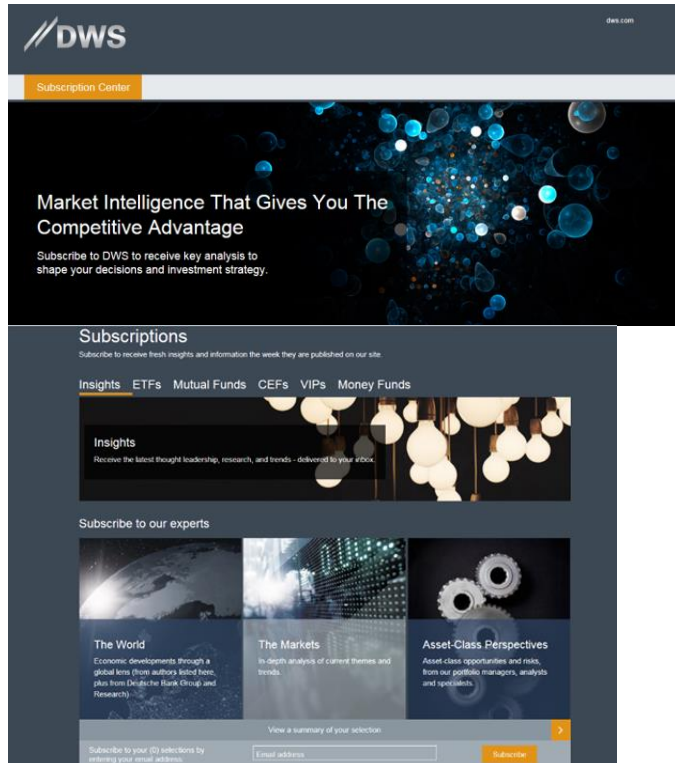
Sector	Industry	PE on 2022 EPS	PE on 2023 Consensus EPS	2023 Consensus EPS Growth	2024 Consensus EPS Growth	2023 EPS 3m Revision	3m Total Return Momentum	2024 End Upside (Intrinsic Valuation)	Combined Signal
	Machinery	21.9	16.6	33.5%	-1.4%	2.0%	10.1%	-0.8%	1
	Commercial Services & Supplies	42.5	30.2	26.8%	11.2%	13.0%	11.8%	-32.2%	1
	Professional Services	29.7	24.5	9.3%	10.9%	0.3%	1.4%	-18.2%	0
	Air Freight & Logistics	12.6	15.8	-28.5%	12.0%	-4.4%	3.7%	-15.7%	-1
	Passenger Airlines	27.2	6.6	315.0%	-0.1%	-11.4%	10.7%	32.2%	0
	Ground Transportation	42.2	24.8	41.6%	20.4%	-2.1%	19.4%	-14.2%	1
Information Technology		32.6	26.8	4.0%	16.9%	1.8%	14.3%	-2.5%	0
	IT Services	25.0	22.3	5.9%	5.8%	0.2%	18.8%	-8.7%	0
	Software	43.4	32.0	18.2%	14.7%	1.3%	17.6%	2.0%	1
	Communications Equipment	19.5	16.0	18.1%	2.9%	-0.7%	4.1%	10.0%	0
	Technology Hardware Storage & Peripherals	28.2	26.6	-2.7%	9.0%	0.7%	4.3%	-7.9%	0
	Electronic Equipment Instruments & Components	20.6	20.2	-4.6%	7.1%	-0.7%	10.7%	-18.6%	0
	Semiconductors & Semiconductor Equipment	31.2	24.6	-5.2%	33.7%	4.8%	20.3%	-13.6%	1
Materials		14.4	18.8	-26.1%	4.1%	-3.2%	8.3%	-13.2%	-1
	Chemicals	16.2	19.3	-21.7%	7.1%	-2.4%	6.8%	-8.1%	-1
	Construction Materials	41.0	25.6	40.4%	14.3%	3.1%	11.7%	-45.1%	1
	Metals & Mining	8.9	16.1	-40.9%	-6.8%	-7.8%	10.2%	-30.8%	-1
	Containers & Packaging	13.2	17.1	-26.9%	5.2%	-0.7%	13.9%	-19.4%	0
Real Estate		30.8	38.0	-18.4%	-0.9%	1.3%	16.4%	-4.0%	0
	Industrial REITs	30.2	50.2	-26.3%	-18.2%	6.1%	20.8%	-26.1%	1
	Hotel & Resort REITs	17.5	21.0	-8.6%	-8.6%	4.3%	27.4%	23.9%	1
	Office REITs	22.1	32.0	-69.1%	123.2%	-47.1%	28.6%	-10.8%	-1
	Health Care REITs	111.7	103.7	-5.2%	13.7%	-1.9%	11.7%	0.2%	0
	Residential REITs	28.6	42.0	-16.8%	-18.1%	0.6%	6.0%	7.3%	-1
	Retail REITs	32.5	30.0	11.1%	-2.6%	3.0%	25.1%	-5.1%	1
	Specialized REITs	29.5	35.5	-18.6%	2.0%	4.6%	16.8%	-2.3%	1
	Real Estate Management & Development	25.2	31.8	-31.5%	15.9%	-8.9%	10.1%	-37.4%	-1
Communication Services		22.1	17.8	7.4%	15.6%	2.1%	10.3%	13.9%	0
	Diversified Telecommunication Services	6.5	7.6	-13.2%	-0.7%	0.2%	22.9%	-5.7%	0
	Wireless Telecommunication Services	93.4	16.5	311.8%	37.4%	-2.6%	15.2%	22.6%	0
	Media	12.2	10.6	3.3%	11.1%	1.9%	-1.4%	0.1%	0
	Entertainment	32.5	25.9	-15.1%	47.8%	-2.2%	19.4%	2.9%	-1
	Interactive Media & Services	30.5	21.5	20.4%	18.0%	3.6%	8.7%	20.9%	1
Utilities		18.0	15.9	5.2%	8.2%	-0.2%	7.8%	9.8%	0
	Multi-Utilities	17.0	16.3	-3.5%	8.1%	-3.5%	5.9%	0.5%	-1
	Water Utilities	30.8	25.6	12.1%	7.2%	0.0%	12.6%	-20.7%	0
	Gas Utilities	20.5	17.3	9.8%	7.5%	1.0%	4.1%	-5.5%	0
	Electric Utilities	18.4	15.6	8.9%	8.2%	1.2%	8.1%	13.8%	0
	Independent Power and Renewable Electricity Producers	11.3	9.7	5.8%	10.0%	1.4%	41.4%	13.6%	1
S&P 500		22.3	19.9	0.8%	11.1%	-0.3%	11.0%	-0.6%	0

Source: Factset, DWS Investment GmbH as of 1/12/2024. Past performance may not be indicative of future results.

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