

S&P 500 Relative Value Cheat Sheet

Three reasons to buy large cap value and sell small cap growth

True or False: higher rates = lower P/E? Mostly false.

Mostly false. Real rates are usually accompanied by falling equity risk premia. The swing factor is earnings and the correlation between rates and PE has minimal historically because higher rates often meant better growth and *higher* - not lower - P/E (Exhibit 2). Also note that despite higher rates and likely trough earnings, the equal-weighted S&P 500 looks historically inexpensive on trailing and forward P/E, dividend and FCF yield.

Short duration (LCV) is good, infinite (SCG) duration is bad

When it comes to rates, duration matters. When it comes to equity duration, size *and* style matter. Mature larger co's throw off cash, startups need it. Value investors look for near-term cash, growth investors buy for out year growth. Russell 1000 Value offers the best duration hedge against rising rates via (1) low growth expectations (a contrarian bull sign), (2) higher yield / manageable payout and (3) the fewest "infinite duration" non-earners. Russell 2000 Growth is the opposite: 1 of 3 co's lose money. Since Jan 2021 large benchmarks managed rate risk through attrition: 75% more co's dropped from R1 to R2 than grew into R1 from R2, the most "fallen angels" in at least 40 yrs

Tactical: own Comm Svcs & Energy; sell IT Mats & Stpls

We like cyclicals where earnings should inflect higher ([preview](#)) but our short-term model favors Comm. Svcs. and Energy. Despite their distinct product profiles (internet v. commodities) both have attractive valuations, momentum and EPS revisions (Exhibit 53). Info Tech and Materials screen as weakest, as do Staples and Real Estate.

Exhibit 1: Size and style map vs. duration risk – buy Large Value sell Small growth

Russell style & size indices and their current metrics as of 9/23

	Value	Core	Growth
Large	Shortest duration: LTG: 5% Div. payout: 34% FCF/EV: 4% % of non-earners: 6%	LTG: 8% Div. payout: 31% FCF/EV: 4% % of non-earners: 7%	LTG: 13% Div. payout: 25% FCF/EV: 3% % of non-earners: 10%
Mid	LTG: 8% Div. payout: 30% FCF/EV: 3% % of non-earners: 7%	LTG: 9% Div. payout: 29% FCF/EV: 3% % of non-earners: 8%	LTG: 16% Div. payout: 22% FCF/EV: 3% % of non-earners: 12%
Small	LTG: 7% Div. payout: 30% FCF/EV: 3% % of non-earners: 26%	LTG: 12% Div. payout: 30% FCF/EV: 3% % of non-earners: 28%	Longest duration: LTG: 20% Div. payout: 24% FCF/EV: 2% % of non-earners: 33%

Highest Duration Risk

Highest Duration Risk

Source: BofA Equity & Quant Strategy, FactSet

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LCV: Large cap value
SCG: Small cap growth

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

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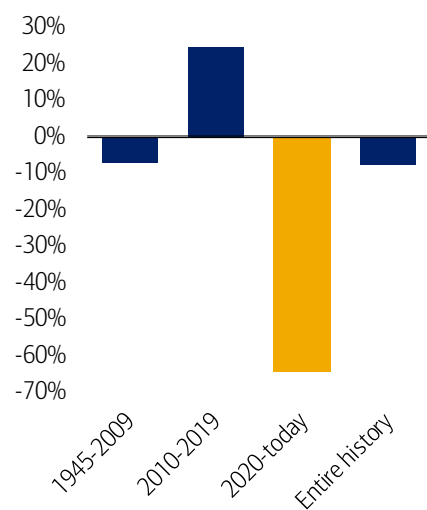
Refer to important disclosures on page 19 to 21.

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Timestamp: 18 October 2023 01:21PM EDT

Exhibit 2: Higher real rates & lower multiples was a post-COVID phenomenon that is over

Correlation between real rates YoY and trailing P/E YoY (1945-9/23)

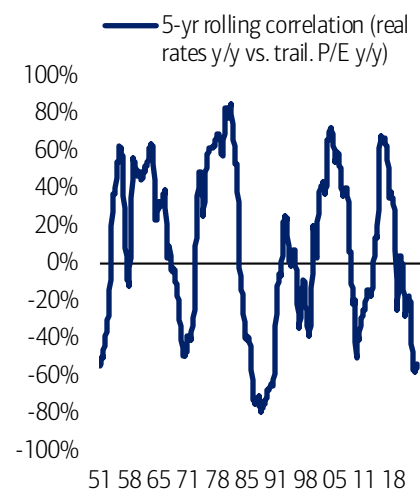


Source: BofA Equity & Quant Strategy, Bloomberg, FactSet, Haver Analytics, Global Financial Data

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Exhibit 3: Real rates and P/haven't been this negatively correlated since Volcker years

5-yr rolling correlation between real rates y/y and S&P 500 trailing P/Ey/y (1951-9/23)

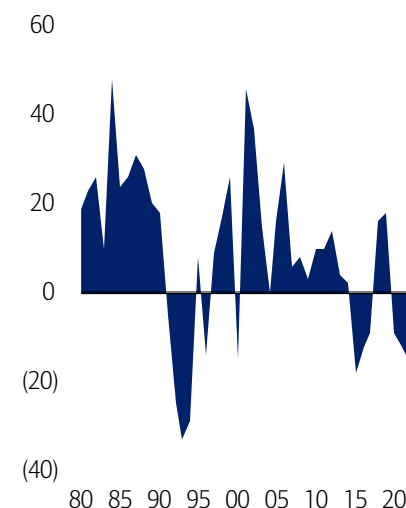


Source: BofA Equity & Quant Strategy, Bloomberg, FactSet, Haver Analytics, Global Financial Data

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Exhibit 4: Fallen angels outnumber rising stars (Russell 2000 into Russell 1000)

Annual index change – companies shifting from Russell 2000 to Russell 1000 (- means more fallen angels, + means more rising stars) 1980 to



Source: BofA US Equity & Quant Strategy

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S&P 500: cheap or expensive?

Exhibit 5: S&P 500 Valuations – shading indicates that metric is statistically expensive relative to history (as of 9/23)

S&P 500 valuation metrics

Metric	Current	Average	Avg. ex. Tech Bubble	Min	Max	% Above (below) avg		Z-Score	History
						avg			
Trailing PE	19.5	14.8	14.5	5.2	30.5	31.6%		1.0	1960-present
Trailing GAAP PE	23.7	15.1	14.8	4.2	122.4	56.7%		1.0	1832-present
Forward Consensus PE	18.5	15.8	15.0	9.8	25.1	17.2%		0.8	1986-present
Trailing Normalized PE	21.5	19.1	17.8	9.2	34.5	12.9%		0.5	9/1987-present
Median Forward P/E	15.7	15.5	15.3	10.0	21.9	1.0%		0.1	1986-present
Shiller PE	30.8	17.4	16.8	4.8	44.2	77.2%		1.9	1881-present
P/BV	4.17	2.66	2.49	0.98	5.34	56.8%		1.5	1978-present
EV/EBITDA	13.2	10.5	10.2	6.0	17.1	25.4%		1.1	1986-present
Trailing PEG	2.46	1.67	1.64	1.05	3.24	47.6%		2.3	1986-present
Forward PEG	2.33	1.43	1.41	0.93	3.50	62.8%		2.5	1986-present
P/OCF	15.7	11.3	10.7	5.4	19.3	38.9%		1.3	1986-present
P/FCF	27.3	27.8	25.0	12.9	65.7	-1.9%		-0.1	1986-present
EV/Sales	2.67	1.98	1.91	0.86	3.40	35.2%		1.2	1986-present
ERP (Market-Based)	584	504	521	136	880	15.8%		-0.4	11/1980-present
Normalized ERP	275	348	395	-143	880	-21.0%		0.3	1987-present
S&P 500 Div. Yld. vs. 10yr Tsy. Yld.	0.35	1.23	1.25	0.17	4.20	-71.4%		1.4	1792-present
S&P 500 in WTI terms	47.9	26.7	24.5	2.7	175.3	79.2%		1.1	1960-present
S&P 500 in Gold terms	2.29	1.64	1.42	0.17	5.48	39.6%		0.6	1968-present
S&P 500 vs. R2000 Fwd. P/E	1.44	1.03	0.99	0.76	1.70	38.8%		2.0	1986-present
S&P 500 Market Cap/GDP	1.33	0.66	0.63	0.22	1.64	101.9%		2.0	1964-present

*Above average implied equities are attractive relative to bonds. Note: Trailing P/E based on GAAP EPS from 1960-77, Operating EPS from 1978-87, Pro forma EPS 1988-now. Trailing GAAP P/E based on GAAP P/E for entire series. Market-based ERP based on DDM-implied S&P 500 return less AAA corp bond yield. Normalized ERP based on normalized EPS yield less normalized real risk-free rate.

Source: S&P, Compustat, Bloomberg, FactSet/First Call, BofA US Equity & Quant Strategy

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Exhibit 6: Relative valuation (vs. S&P 500) by sector (based on data from 1986 - 9/23)

Relative price to book, price to operating cash flow, price to earnings by sector

Sector	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
S&P 500 (absolute metrics)	4.17	2.95	-29%	15.65	11.25	-28%	17.92	15.78	-12%
Consumer Discretionary	2.18	1.36	-38%	1.13	0.91	-19%	1.34	1.05	-22%
Consumer Staples	1.31	1.69	29%	1.00	1.27	27%	1.04	1.13	8%
Energy	0.59	0.77	31%	0.41	0.73	76%	0.65	1.05	61%
Financials	0.44	0.59	34%	N/A	N/A	N/A	0.74	0.77	4%
Health Care	1.12	1.69	51%	0.98	1.57	59%	0.94	1.09	16%
Industrials	1.23	1.16	-6%	0.95	1.01	6%	0.97	1.01	4%
Information Technology	2.45	1.49	-39%	1.54	1.23	-20%	1.35	1.12	-17%
Materials	0.66	0.90	35%	0.78	0.89	14%	0.94	1.04	10%
Real Estate	0.62	0.87	41%	N/A	N/A	N/A	0.83	1.54	85%
Communication Services	0.89	1.00	12%	0.75	0.84	12%	0.92	1.18	28%
Utilities	0.43	0.60	39%	0.71	0.65	-9%	0.83	0.89	7%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

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See page 19 for definitions of valuation measures.

Sector valuations

Consumer Discretionary

Exhibit 7: Relative Valuation (vs. S&P 500) for Consumer Discretionary industries (based on data from 1986-9/23)

Consumer Discretionary relative price to book, price to operating cash flow, price to earnings by industry

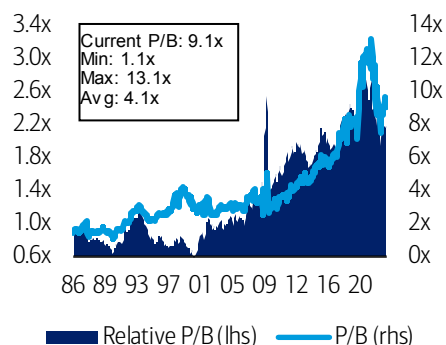
Consumer Discretionary (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Automobile Components (2)	0.52	0.78	50%	0.68	0.78	14%	0.78	0.81	4%
Automobiles (3)	1.39	0.84	-40%	1.28	0.28	-78%	1.65	0.67	-59%
Distributors (3)	1.00	1.10	10%	0.96	1.14	19%	0.86	1.01	18%
Hotels Restaurants & Leisure (18)	31.83	1.51	-95%	1.06	1.14	8%	1.16	1.22	5%
Household Durables (7)	0.44	0.73	68%	0.66	1.04	58%	0.49	0.80	64%
Broadline Retail (3)	1.87	1.01	-46%	1.33	1.05	-21%	2.28	1.15	-50%
Leisure Products (1)	0.90	1.15	28%	1.70	0.97	-43%	0.77	0.91	19%
Specialty Retail (11)	76.29	1.66	-98%	0.93	1.28	37%	1.01	1.12	11%
Textiles Apparel & Luxury Goods (4)	1.91	1.21	-36%	0.93	1.32	42%	1.10	1.01	-8%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

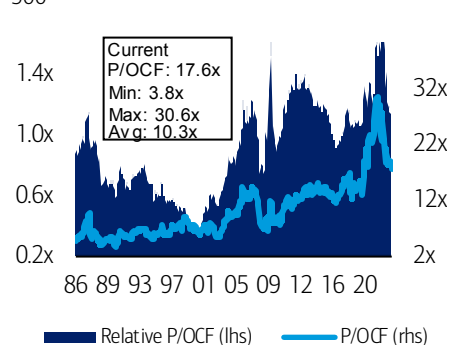
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Exhibit 8: Consumer Discretionary P/B at 9.1x vs. 4.1x historical average, 1986-09/23

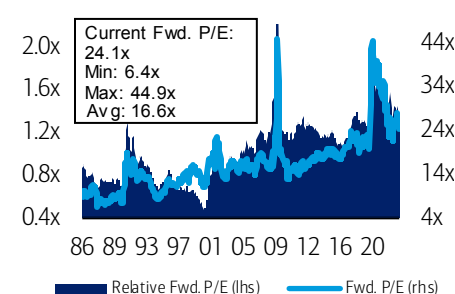
Consumer Discretionary price-to-book and relative price-to-book vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 9: Consumer Discretionary P/OCF at 17.6x vs. 10.3x historical average, 1986-09/23**

Consumer Discretionary price-to-operating cash flow and relative price-to-op. cash flow vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 10: Consumer Discretionary fwd P/E at 24.1x vs. 16.6x historical average, 1986-09/23**

Consumer Discretionary price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
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Consumer Staples

Exhibit 11: Relative Valuation (vs. S&P 500) for Consumer Staples industries (based on data from 1986-9/23)

Consumer Staples relative price to book, price to operating cash flow, price to earnings by industry

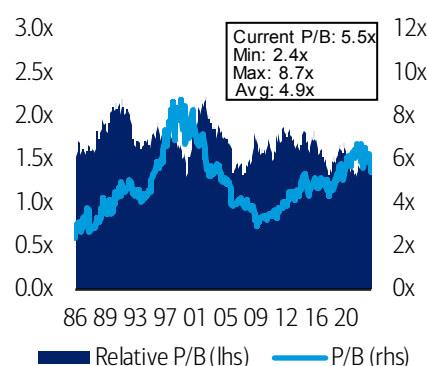
Consumer Staples (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Beverages (7)	1.58	2.07	32%	1.40	1.49	7%	1.16	1.29	11%
Consumer Staples Distribution & Retail (8)	1.27	1.37	8%	0.78	1.08	38%	1.16	1.16	-1%
Food Products (14)	0.53	1.20	126%	0.97	1.22	26%	0.83	1.07	28%
Household Products (5)	2.34	1.80	-23%	1.26	1.35	7%	1.22	1.18	-3%
Personal Care Products (2)	1.30	2.90	123%	1.41	1.74	23%	1.28	1.38	8%
Tobacco (2)	-3.88	2.48	NM	0.80	0.96	20%	0.63	0.75	19%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

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Exhibit 12: Consumer Staples P/B at 5.5x vs. 4.9x historical average, 1986-09/23

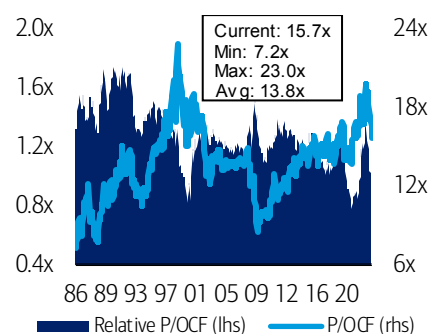
Consumer Staples price-to-book and relative price-to-book vs. S&P 500



Source: Compustat, BofA US Equity & US Quant Strategy
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Exhibit 13: Consumer Staples P/OCF at 15.7x vs. 13.8x historical average, 1986-09/23

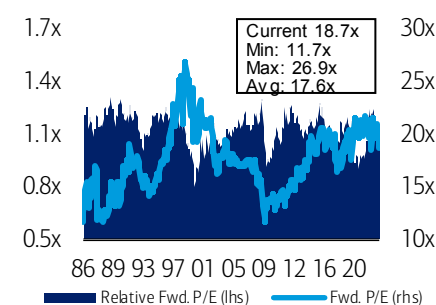
Consumer Staples price-to-op. cash flow and relative price-to-op. cash flow vs. S&P 500



Source: Compustat, BofA US Equity & US Quant Strategy
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Exhibit 14: Consumer Staples fwd P/E at 18.7x vs. 17.6x historical average, 1986-09/23

Consumer Staples price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500



Source: Compustat, BofA US Equity & US Quant Strategy
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Energy

Exhibit 15: Relative Valuation (vs. S&P500) for Energy industries (based on data from 1986-9/23)

Energy relative price to book, price to operating cash flow, price to earnings by industry

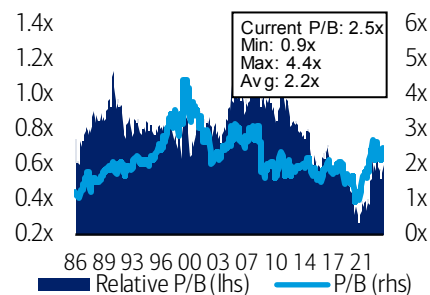
Energy (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Energy Equipment & Services (3)	0.89	0.83	-6%	0.91	1.22	34%	0.87	1.31	50%
Oil Gas & Consumable Fuels (20)	0.58	0.71	23%	0.39	0.65	66%	0.64	0.92	44%

Source: Compustat, First Call, BofA US Equity & Quant Strategy

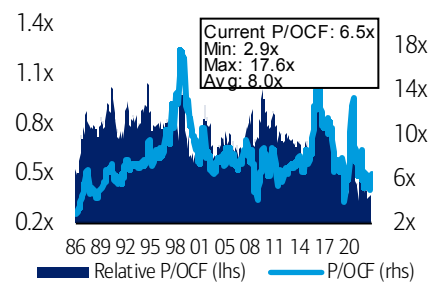
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Exhibit 16: Energy P/B at 2.5x vs. 2.2x historical average, 1986-09/23

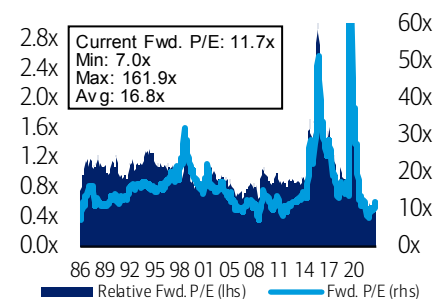
Energy price-to-book and relative price-to-book vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 17: Energy P/OCF at 6.5x vs. 8.0x historical average, 1986-09/23**

Energy price-to-op. cash flow and relative price-to-op. cash flow vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 18: Energy fwd P/E at 11.7x vs. 16.8x historical average, 1986-09/23**

Energy price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Financials****Exhibit 19: Relative Valuation (vs. S&P 500) for Financials industries (based on data from 1986-9/23)**

Financials relative price to book, price to operating cash flow, price to earnings by industry

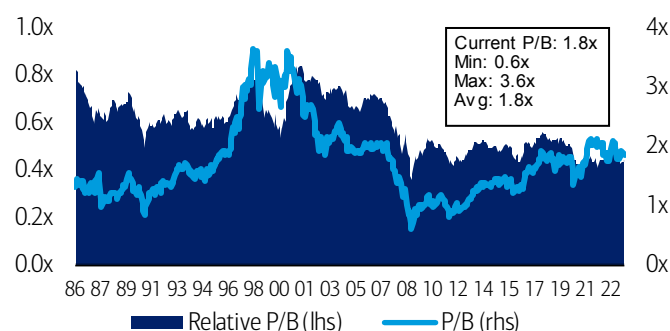
Financials (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Capital Markets (22)	0.55	0.56	1%	N/A	N/A	N/A	0.83	0.75	-9%
Banks (15)	0.24	0.50	110%	N/A	N/A	N/A	0.48	0.68	42%
Consumer Finance (4)	0.44	0.75	73%	N/A	N/A	N/A	0.52	0.79	52%
Financial Services (9)	0.66	0.68	3%	N/A	N/A	N/A	1.11	0.85	-23%
Insurance (22)	0.56	0.50	-10%	N/A	N/A	N/A	0.69	0.75	9%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

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Exhibit 20: Financials P/B at 1.8x vs. 1.8x historical average, 1986-09/23

Financials price-to-book and relative price-to-book vs. S&P 500

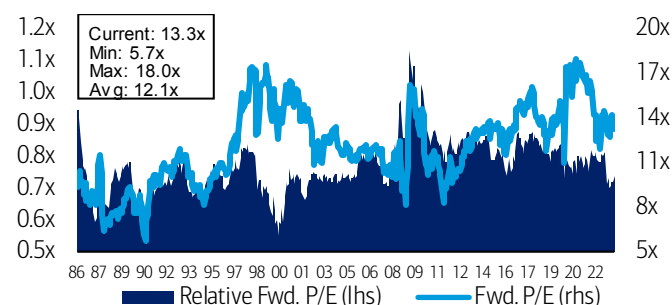


Source: Compustat, BofA US Equity & US Quant Strategy

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Exhibit 21: Financials fwd P/E at 13.3x vs. 12.1x historical average, 1986-09/23

Financials price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500



Source: Compustat, BofA US Equity & US Quant Strategy

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Health Care

Exhibit 22: Relative Valuation (vs. S&P 500) for Health Care industries (based on data from 1986 – 9/23)

Health Care relative price to book, price to operating cash flow, price to earnings by industry

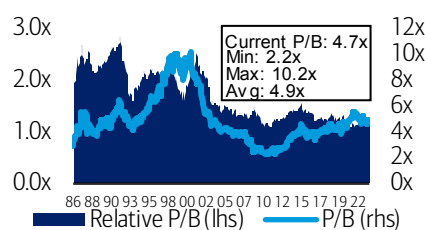
Health Care (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		P/E Implied upside
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	
Biotechnology (8)	1.61	2.25	40%	0.88	1.44	65%	0.88	1.15	30%
Health Care Equipment & Supplies (20)	0.99	1.32	34%	1.73	1.63	-5%	1.25	1.22	-2%
Health Care Providers & Services (16)	0.89	1.07	20%	0.52	1.05	102%	0.77	0.90	16%
Life Sciences Tools & Services (12)	1.02	0.94	-8%	1.57	1.42	-9%	1.32	1.13	-14%
Pharmaceuticals (9)	1.32	1.65	24%	1.39	1.47	5%	0.88	1.01	15%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

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Exhibit 23: Health Care P/B at 4.7x vs. 4.9x historical average, 1986-09/23

Health Care price-to-book and relative price-to-book vs. S&P 500

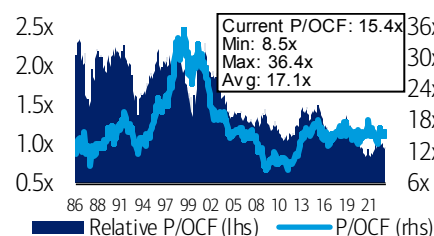


Source: Compustat, BofA US Equity & US Quant Strategy

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Exhibit 24: Health Care P/OCF at 15.4x vs. 17.1x historical average, 1986-09/23

Health Care price-to-op. cash flow and relative price-to-op. cash flow vs. S&P 500

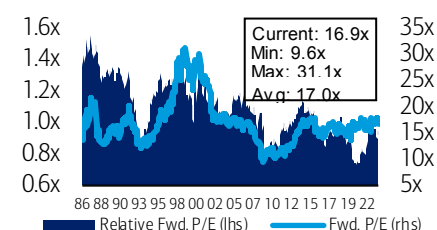


Source: Compustat, BofA US Equity & US Quant Strategy

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Exhibit 25: Health Care fwd P/E at 16.9x vs. 17.0x historical average, 1986-09/23

Health Care price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500



Source: Compustat, BofA US Equity & US Quant Strategy

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Industrials

Exhibit 26: Relative Valuation (vs. S&P 500) for Industrials industries (based on data from 1986-9/23)

Industrials relative price to book, price to operating cash flow, price to earnings by industry

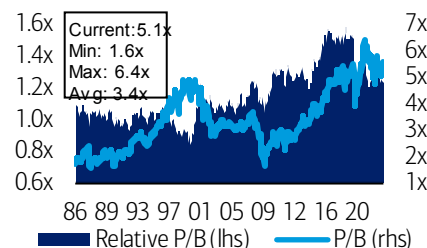
Industrials (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Aerospace & Defense (11)	1.07	1.02	-5%	1.04	1.03	-1%	1.05	0.89	-15%
Air Freight & Logistics (4)	1.10	1.07	-3%	0.59	0.73	22%	0.85	0.99	17%
Passenger Airlines (5)	0.62	0.70	13%	0.18	0.50	175%	0.31	1.04	238%
Building Products (6)	1.17	1.07	-8%	1.21	1.10	-9%	0.96	0.94	-2%
Commercial Services & Supplies (6)	1.87	1.28	-32%	1.24	0.96	-23%	1.53	1.14	-25%
Construction & Engineering (1)	1.16	0.77	-34%	1.63	1.31	-20%	1.29	0.84	-35%
Electrical Equipment (5)	0.99	1.13	14%	1.65	1.23	-26%	1.18	1.03	-13%
Industrial Conglomerates (3)	1.27	1.22	-4%	1.09	0.99	-9%	1.03	1.10	7%
Machinery (17)	1.11	1.00	-10%	1.11	1.03	-7%	0.83	0.91	9%
Professional Services (10)	2.04	1.60	-22%	1.54	1.54	0%	1.42	1.33	-7%
Ground Transportation (5)	1.57	0.77	-51%	0.85	0.71	-16%	1.01	0.89	-12%
Trading Companies & Distributors (3)	1.70	1.17	-31%	0.82	1.09	33%	0.90	0.98	9%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

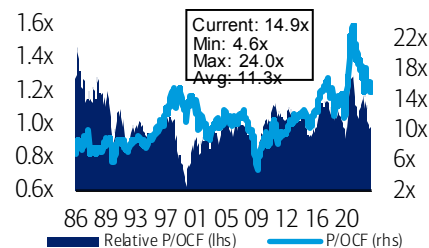
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Exhibit 27: Industrials P/B at 5.1x vs. 3.4x historical average, 1986-09/23

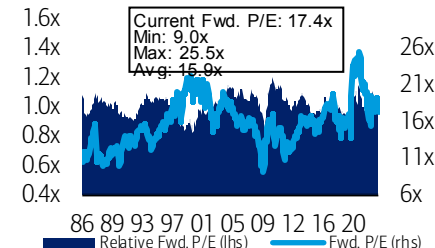
Industrials price-to-book and relative price-to-book vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 28: Industrials P/OCF at 14.9x vs. 11.3x historical average, 1986-09/23**

Industrials price-to-op. cash flow and relative price-to-op. cash flow vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 29: Industrials fwd P/E at 17.4x vs. 15.9x historical average, 1986-09/23**

Industrials price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Information Technology****Exhibit 30: Relative Valuation (vs. S&P500) for information Technology industries (based on data from 1986-9/23)**

Information Technology relative price to book, price to operating cash flow, price to earnings by industry

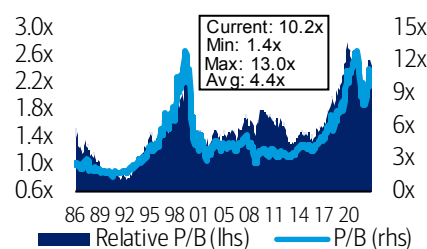
Information Technology (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Communications Equipment (5)	1.44	1.24	-14%	0.92	1.37	49%	0.85	1.15	35%
Electronic Equipment Instruments & Components (8)	0.97	0.97	0%	1.19	1.30	9%	1.05	1.13	7%
IT Services (7)	1.52	1.38	-9%	0.96	0.87	-10%	1.06	0.93	-12%
Semiconductors & Semiconductor Equipment (21)	1.64	1.25	-24%	1.79	1.11	-38%	1.26	1.08	-15%
Software (17)	2.62	2.14	-19%	1.69	1.61	-4%	1.52	1.30	-14%
Technology Hardware Storage & Peripherals (6)	7.59	1.30	-83%	1.45	1.19	-18%	1.40	1.04	-26%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

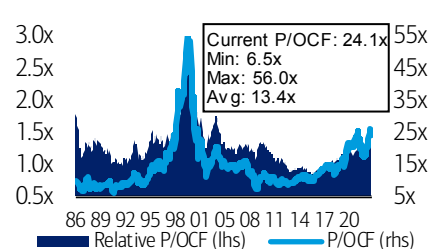
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Exhibit 31: Tech P/B at 10.2x vs. 4.4x historical average, 1986-09/23

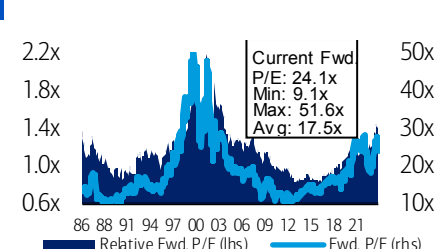
Information Technology price-to-book and relative price-to-book vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 32: Tech P/OCF at 24.1x vs. 13.4x historical average, 1986-09/23**

Information Technology price-to-op. cash flow and relative price-to-op. cash flow vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 33: Tech fwd P/E at 24.1x vs. 17.5x historical average, 1986-09/23**

Information Technology price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Materials****Exhibit 34: Relative Valuation (vs. S&P 500) for Materials industries (based on 1986-9/23)**

Materials relative price to book, price to operating cash flow, price to earnings by industry

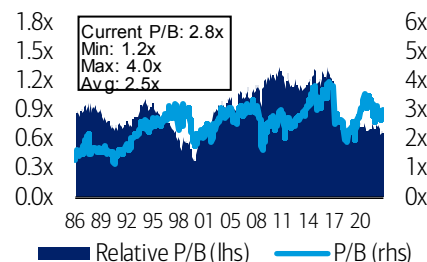
Materials (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Chemicals (16)	0.69	1.03	49%	0.93	0.94	0%	0.98	1.07	9%
Construction Materials (2)	0.86	0.75	-13%	1.31	1.27	-3%	1.30	1.60	23%
Containers & Packaging (7)	0.62	0.81	30%	0.61	0.77	26%	0.86	0.88	1%
Metals & Mining (4)	0.53	0.62	17%	0.45	0.72	59%	0.77	0.91	19%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

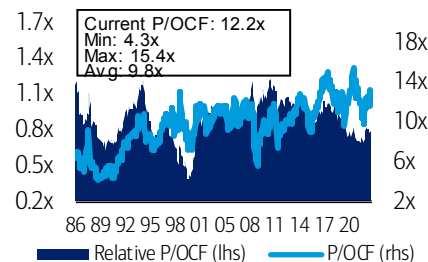
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Exhibit 35: Materials P/B at 2.8x vs. 2.5x historical average, 1986-09/23

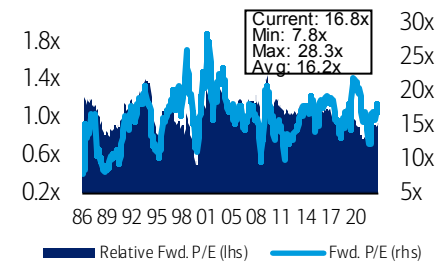
Materials price-to-book and relative price-to-book vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 36: Materials P/OCF at 12.2x vs. 9.8x historical average, 1986-09/23**

Materials price-to-op. cash flow and relative price-to-op. cash flow vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 37: Materials fwd P/E at 16.8x vs. 16.2x historical average, 1986-09/23**

Materials price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Real Estate****Exhibit 38: Relative Valuation (vs. S&P 500) for Real Estate industries (based on data from 2001-9/23)**

Real Estate relative price to book, price to operating cash flow, price to earnings by industries

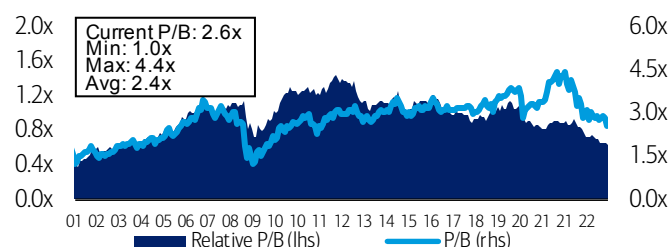
Real Estate (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)**		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Health Care REITs (3)	0.43	0.61	45%	N/A	N/A	N/A	0.90	0.96	7%
Hotel & Resort REITs (1)	0.40	0.72	83%	N/A	N/A	N/A	0.48	0.98	105%
Industrial REITs (1)	0.46	0.53	16%	N/A	N/A	N/A	1.12	1.51	35%
Office REITs (2)	0.25	0.76	201%	N/A	N/A	N/A	0.53	1.09	104%
Real Estate Management & Development (2)	0.70	0.92	32%	N/A	N/A	N/A	0.82	0.99	20%
Residential REITs (7)	0.52	0.81	56%	N/A	N/A	N/A	0.82	1.11	34%
Retail REITs (5)	0.44	1.10	150%	N/A	N/A	N/A	0.60	0.86	43%
Specialized REITs (10)	1.14	0.84	-26%	N/A	N/A	N/A	0.91	1.61	77%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

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Exhibit 39: Real Estate P/B at 2.6x vs. 2.4x historical average, 1986-09/23

Real Estate price-to-book and relative price-to-book vs. S&P 500

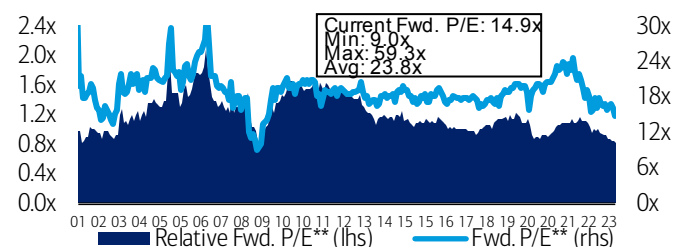


Source: Compustat, BofA US Equity & US Quant Strategy

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Exhibit 40: Real Estate fwd P/E at 14.9x vs. 23.8x historical average, 1986-09/23

Real Estate price-to-fwd EPS and relative price-to-fwd EPS vs. S&P 500



Source: Compustat, BofA US Equity & US Quant Strategy

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Communication Services**Exhibit 41: Relative Valuation (vs. S&P 500) for Communication Services industries (based on data from 1986-9/23)**

Communication Services relative price to book, price to operating cash flow, price to earnings by industry

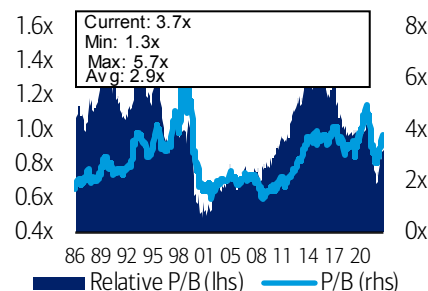
Comm. Svcs (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Diversified Telecommunication Services (2)	0.30	0.77	157%	0.21	0.52	146%	0.36	0.83	128%
Media (7)	0.54	0.91	67%	0.44	0.92	106%	0.62	1.34	117%
Entertainment (7)	0.59	0.90	53%	1.38	1.33	-4%	1.26	1.49	18%
Interactive Media & Services (3)	1.49	1.34	-10%	1.01	1.48	46%	1.11	1.71	55%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

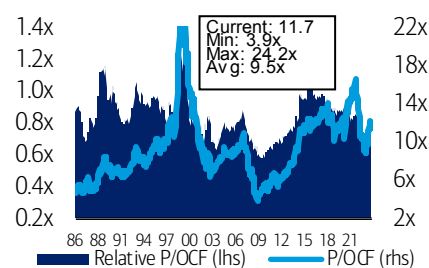
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Exhibit 42: Communication Services P/B at 3.7x vs. 2.9x historical average, 1986-09/23

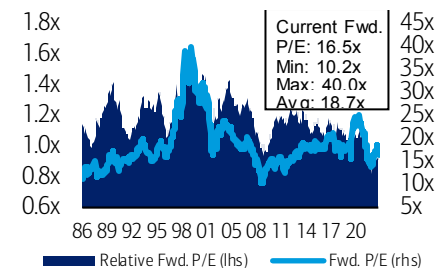
Communication Services price-to-book and relative price-to-book vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 43: Communication Services P/OCF at 11.7x vs. 9.5x historical average, 1986-09/23**

Communication Services price-to-op. cash flow and relative price-to-op. cash flow vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 44: Communication Services fwd P/E at 16.5x vs. 18.7x historical average, 1986-09/23**

Communication Services price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Utilities****Exhibit 45: Relative Valuation (vs. S&P 500) for Utilities industries (based on data from 1986-9/23)**

Utilities relative price to book, price to operating cash flow, price to earnings by industry

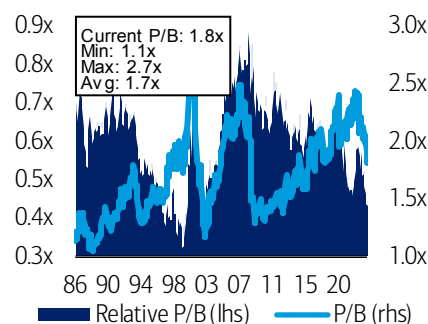
Utilities (# of co's)	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
	Current	Average	Implied upside	Current	Average	Implied upside	Current	Average	Implied upside
Electric Utilities (17)	0.44	0.56	28%	0.87	0.60	-31%	0.82	0.83	1%
Independent Power and Renewable Electricity Producers (1)	1.52	0.78	-49%	0.21	0.40	90%	0.46	0.79	72%
Multi-Utilities (10)	0.41	0.61	49%	0.56	0.67	20%	0.85	0.99	17%

Source: Compustat, First Call, BofA US Equity & US Quant Strategy

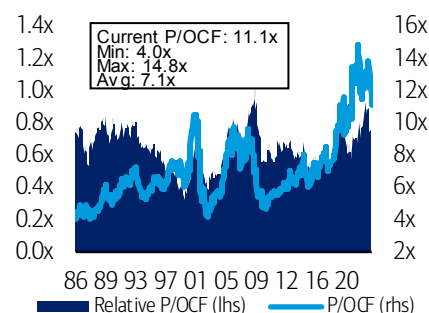
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Exhibit 46: Utilities P/B at 1.8x vs. 1.7x historical average, 1986-09/23

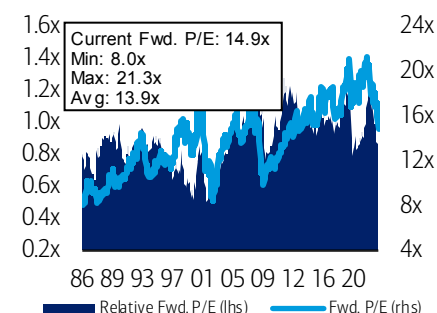
Utilities price-to-book and relative price-to-book vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 47: Utilities P/OCF at 11.1x vs. 7.1x historical average, 1986-09/23**

Utilities price-to-op. cash flow and relative price-to-op. cash flow vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
BofA GLOBAL RESEARCH**Exhibit 48: Utilities fwd P/E at 14.9x vs. 13.9x historical average, 1986-09/23**

Utilities price-to-fwd earnings and relative price-to-fwd earnings vs. S&P 500

Source: Compustat, BofA US Equity & US Quant Strategy
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Tactical industry rotation framework

Exhibit 49: S&P 500 Momentum & Value Framework - industry ranks as of 9/23

Industry ranks based on relative price momentum, EPS revision and valuation

Industry	Sector	Combined Rank	Price Momentum Rank	EPS Revision Rank	Valuation Rank	Style Highlight
Interactive Media & Services	Communication Services	30	10	10	10	Opportunity
Media	Communication Services	28	10	8	10	Opportunity
Energy Equipment & Services	Energy	26	10	8	8	Opportunity
Household Durables	Consumer Discretionary	24	4	10	10	
Specialized Reits	Real Estate	24	7	9	8	Opportunity
Oil Gas & Consumable Fuels	Energy	24	10	5	9	
Communications Equipment	Information Technology	23	10	5	8	
Machinery	Industrials	22	8	9	5	
Health Care Providers & Services	Health Care	22	9	7	6	Opportunity
Biotechnology	Health Care	22	10	4	8	
Insurance	Financials	21	10	6	5	
Professional Services	Industrials	21	9	9	3	
Semiconductors & Semiconductor Equipment	Information Technology	20	8	10	2	
Leisure Products	Consumer Discretionary	20	9	4	7	
Industrial Conglomerates	Industrials	20	5	10	5	
Banks	Financials	20	8	3	9	
Office Reits	Real Estate	19	4	5	10	
Building Products	Industrials	19	7	8	4	
Electrical Equipment	Industrials	19	8	9	2	
Broadline Retail	Consumer Discretionary	19	8	10	1	
Entertainment	Communication Services	19	3	9	7	
Specialty Retail	Consumer Discretionary	19	7	7	5	
Financial Services	Financials	19	9	8	2	
Beverages	Consumer Staples	18	5	7	6	
Construction Materials	Materials	17	2	10	5	
Hotels Restaurants & Leisure	Consumer Discretionary	17	5	8	4	
Trading Companies & Distributors	Industrials	17	5	6	6	
Personal Care Products	Consumer Staples	17	1	10	6	
Hotel & Resort Reits	Real Estate	17	6	2	9	
Health Care Reits	Real Estate	17	7	6	4	
Residential Reits	Real Estate	16	2	5	9	
Food Products	Consumer Staples	16	3	5	8	
Tobacco	Consumer Staples	16	5	4	7	
Diversified Telecommunication Services	Communication Services	16	3	3	10	Value Trap
It Services	Information Technology	16	9	5	2	
Automobiles	Consumer Discretionary	15	5	9	1	
Construction & Engineering	Industrials	15	6	8	1	
Independent Power And Renewable Electricity Producers	Utilities	15	1	4	10	
Retail Reits	Real Estate	15	3	3	9	Value Trap
Capital Markets	Financials	15	8	3	4	
Electric Utilities	Utilities	15	3	7	5	
Pharmaceuticals	Health Care	15	8	1	6	
Software	Information Technology	15	6	8	1	
Distributors	Consumer Discretionary	14	2	4	8	
Chemicals	Materials	14	6	2	6	
Household Products	Consumer Staples	14	5	6	3	
Multi-Utilities	Utilities	14	3	3	8	Value Trap
Passenger Airlines	Industrials	13	1	2	10	Value Trap
Auto Components	Consumer Discretionary	13	7	3	3	Momentum Breakdown
Consumer Finance	Financials	13	1	3	9	Value Trap
Containers & Packaging	Materials	13	9	1	3	
Metals & Mining	Materials	12	4	1	7	
Air Freight & Logistics	Industrials	12	4	1	7	
Commercial Services & Supplies	Industrials	12	4	7	1	
Electronic Equipment Instruments & Components	Information Technology	11	4	2	5	
Aerospace & Defense	Industrials	11	2	7	2	
Health Care Equipment & Supplies	Health Care	11	1	6	4	
Ground Transportation	Industrials	11	7	2	2	
Industrial Reits	Real Estate	11	3	4	4	
Consumer Staples Distribution & Retail	Consumer Staples	11	6	2	3	
Real Estate Management & Development	Real Estate	10	2	1	7	Value Trap

Exhibit 49: S&P 500 Momentum & Value Framework - industry ranks as of 9/23

Industry ranks based on relative price momentum, EPS revision and valuation

Industry	Sector	Combined Rank	Price Momentum Rank	EPS Revision Rank	Valuation Rank	Style Highlight
Life Sciences Tools & Services	Health Care	10	6	1	3	
Technology Hardware Storage & Peripherals	Information Technology	9	2	6	1	
Textiles Apparel & Luxury Goods	Consumer Discretionary	9	1	5	3	

Source: BofA US Equity & US Quant Strategy

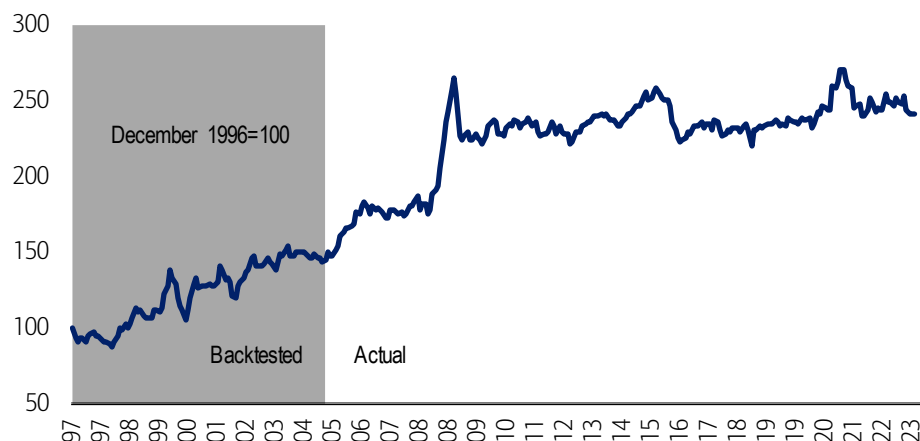
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Industry framework performance

Each month, we track the performance of industries categorized as Opportunities, Value Traps, and Momentum Breakdowns as defined above.

Exhibit 50: “Opportunities” Cumulative Relative Performance, 12/1996-9/2023 (backtested)

Cumulative relative performance of “Opportunities” vs. the equal-weighted S&P industries



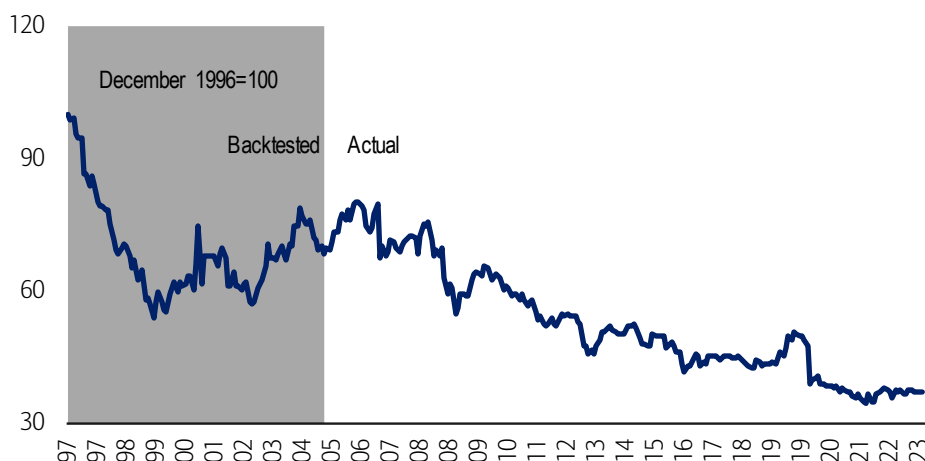
Note: the shaded area shows backtested results during the period from month-end December 1996 to month-end December 2004. The unshaded portion represents actual performance since January 2005. Backtesting is hypothetical in nature and reflects application of the screen prior to its introduction. It is not actual performance and is not intended to be indicative of future performance. The backtested performance results are based on criteria applied retroactively with the benefit of hindsight and knowledge of factors that may have positively affected its performance, and cannot account for all financial risks that may affect the performance of the screen going forward. See Appendix for performance data and calculation methodology.

Source: BofA US Equity & US Quant Strategy

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Exhibit 51: “Value Traps” Cumulative Relative Performance, 12/1996-9/2023 (backtested)

Cumulative relative performance of “Value Traps” vs. the equal-weighted S&P industries



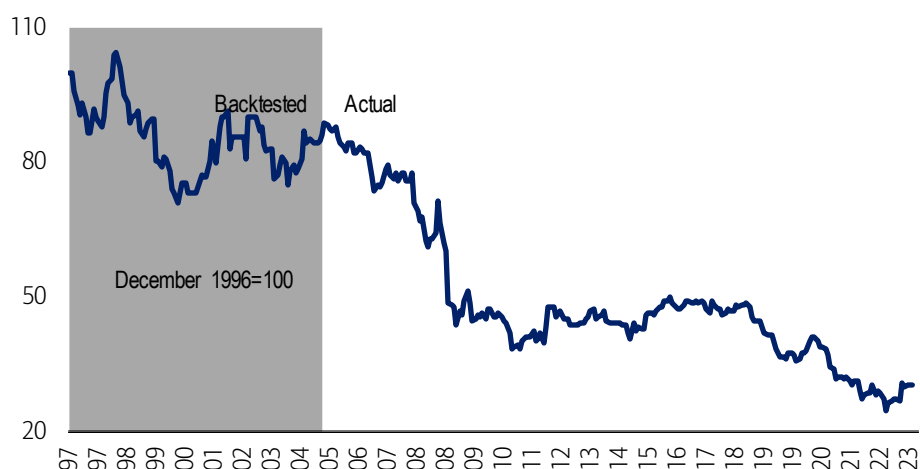
Note: the shaded area shows backtested results during the period from month-end December 1996 to month-end December 2004. The unshaded portion represents actual performance since January 2005. Backtesting is hypothetical in nature and reflects application of the screen prior to its introduction. It is not actual performance and is not intended to be indicative of future performance. The backtested performance results are based on criteria applied retroactively with the benefit of hindsight and knowledge of factors that may have positively affected its performance, and cannot account for all financial risks that may affect the performance of the screen going forward. See Appendix for performance data and calculation methodology.

Source: BofA US Equity & US Quant Strategy

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Exhibit 52: “Momentum Breakdowns” Cumulative Relative Performance, 12/1996-9/2023 (backtested)

Cumulative relative performance of “Momentum Breakdowns” vs. the equal-weighted S&P industries



Note: the shaded area shows backtested results during the period from month-end December 1996 to month-end December 2004. The unshaded portion represents actual performance since January 2005. Backtesting is hypothetical in nature and reflects application of the screen prior to its introduction. It is not actual performance and is not intended to be indicative of future performance. The backtested performance results are based on criteria applied retroactively with the benefit of hindsight and knowledge of factors that may have positively affected its performance, and cannot account for all financial risks that may affect the performance of the screen going forward. See Appendix for performance data and calculation methodology.

Source: BofA US Equity & US Quant Strategy

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Sector ranks

We also use this framework to rank sectors based on price momentum, earnings momentum, and valuation factors. Sectors are sorted from highest (most attractive) to lowest (least attractive) ranks as of the latest month below.

We use this framework as one component in determining our overall S&P 500 sector preferences, but fundamentals, risk and other macro factors are also important drivers. We more heavily utilize this framework in determining our favored industries (though again, other factors also contribute) and in highlighting attractive short-term sector opportunities for more tactical investors.

Exhibit 53: S&P 500 Momentum & Value Framework Sector Ranks as of 9/23

Sector ranks based on relative price momentum, EPS revision and valuation

Sector	Combined Rank	Price Momentum Rank	EPS Revision Rank	Valuation Rank
Communication Services	29	10	10	9
Energy	28	11	6	11
Consumer Discretionary	19	7	11	1
Financials	17	9	4	4
Health Care	17	8	2	7
Industrials	16	5	8	3
Utilities	16	1	7	8
Information Technology	15	4	9	2
Real Estate	15	2	3	10
Materials	13	6	1	6
Consumer Staples	13	3	5	5

Source: BofA US Equity & US Quant Strategy

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Methodology

Definitions of valuation metrics:

- **Price/Book:** month-end market cap divided by latest total common equity.
- **Price/Operating Cash Flow:** Month-end market cap divided by the last twelve months cash flow from operations as of the most recent fiscal quarter.
Note: All industries' multiples are relative to the S&P 500 ex. Fins. for P/OCF.
- **Forward Price/Earnings:** Month-end market cap divided by I/B/E/S consensus next twelve months earnings.

Implied upside is based on comparing the current relative multiple vs. the historical average relative multiple. Industries with <10 yrs of data history are excluded. Boxes highlight sectors/industries with the highest greatest upside and implied downside.

Momentum & Value Model

Our tactical "momentum and value" framework was backtested from January 1997-December 2004, and has been running live since January 2005. We calculate price momentum, earnings momentum and valuation for the S&P 500 GICS sectors and industries relative to the index beginning in January 1997. We exclude industries that have only one company or have less than five years of historical price data. For our backtest, we have used as a market benchmark the portfolio of equal-weighted S&P 500 industries that were eligible for the framework at a given point in time.

Price momentum

The price momentum of an industry is the change in the industry's relative price in the current month vs. three months ago, with relative price defined as the month-end industry price dividend by the month-end index level of the S&P 500. Industries are assigned a price momentum rank from 1 to 10, with 10 being the strongest price momentum and 1 being the weakest. Sectors are assigned a price momentum rank from 1 to 11, with 11 being the strongest price momentum and 1 being the weakest.

Earnings momentum

The earnings momentum of an industry is the change in relative forecast EPS between the current month and three months ago. Relative EPS is the ratio of the 12-month rolling forward I/B/E/S consensus earnings forecast of a given industry divided by that of the S&P 500. Industries are assigned an earnings revision rank of 1 to 10, with 10 being the strongest earnings momentum and 1 being the weakest. Sectors are assigned an earnings revision rank of 1 to 11, with 11 being the strongest earnings momentum and 1 being the weakest.

Valuation

We calculate the earnings yield (E/P) of an industry as the ratio of current relative forward (consensus) EPS divided by current relative price. We then calculate the earnings yield relative to its historical average by dividing the current E/P by the average E/P for the industry since the framework's inception in January 1997. For industries introduced after the inception date, at least one year of data is required before an industry is eligible for a rank. Industries are assigned a valuation rank from 1 to 10, with 10 being the highest relative earnings yield (most inexpensive) and 1 being the lowest relative earnings yield (most expensive). Sectors are assigned a valuation rank from 1 to 11, with 11 being the highest relative earnings yield (most inexpensive) and 1 being the lowest relative earnings yield (most expensive). Current data is compared to this average using the following formula: $(\text{Current E/P} - \text{Historical Avg. E/P}) / \text{Abs (Historical Avg. E/P)}$. We calculate both the current and historical average relative to the market because of P/E multiple expansion in the market, and use earnings yield (inverse of P/E) to accommodate industries which have negative aggregate earnings.

Combined rank

The combined rank of an industry is the sum of the three ranks from the price momentum, earnings momentum, and valuation factors above, with 30 ranking the best and 3 ranking the worst. For sectors, 33 ranks the best and 3 ranks the worst.

Opportunities, Value Traps and Momentum Breakdowns

We classify industries based on their framework ranks as follows:

- Opportunities are industries with above avg. (6 or higher) ranks in all three ranks.
- Value Traps are industries that have above avg. ranks in valuation (6 or higher) but are in the bottom tertile in price momentum and earnings momentum (ranks 1-3).
- Momentum Breakdowns are industries with below avg. ranks in valuation (4 or lower), lower price momentum ranks than in the previous month, and below avg. earnings momentum ranks (4 or lower).

Exhibit 54: Relative performance of Opportunities, Value Traps and Momentum Breakdowns (as of 9/23)

Relative performance vs. equal-weighted S&P industries

	1m	3m	6m	12m	YTD	2yr	Ann'zed	3yr	Ann'zed	5yr	Ann'zed
Opportunities	0.0%	-1.1%	-3.4%	-0.9%	-3.2%	-6.7%	-3.4%	-0.1%	0.0%	6.7%	1.0%
Value Traps	0.4%	0.3%	0.8%	0.7%	0.2%	1.5%	0.8%	-5.2%	-1.5%	-19.5%	-3.0%
Momentum Breakdown	-0.5%	0.4%	11.9%	6.5%	16.1%	-3.4%	-1.7%	-33.6%	-10.1%	-47.5%	-8.1%

Source: BofA US Equity & US Quant Strategy

BofA GLOBAL RESEARCH



S&P 500 Company Distribution

Exhibit 55: Latest month's end S&P 500 weights for companies sorted by sectors/industries

Company Distribution of S&P 500 by GICS Sector/Industry Classifications as of 9/30/2023

Sector/Industry	Wgt	Sector/Industry	Wgt	Sector/Industry	Wgt	Sector/Industry	Wgt
COMMUNICATION SERVICES	8.87%	AUTOZONE INC	0.13	EXXON MOBIL CORP	1.31%	BROWN & BROWN INC	0.05%
DIVERSIFIED TELECOM	0.68%	BATH & BODY WORKS	0.02	HESS CORP	0.12%	CHUBB LIMITED	0.24%
AT&T INC	0.30%	BEST BUY CO INC	0.04	KINDER MORGAN INC	0.09%	CINCINNATI FINANCIAL CORP	0.04%
VERIZON	0.38%	CARMAX INC	0.03	MARATHON OIL CORP	0.05%	EVEREST GROUP LTD	0.04%
ENTERTAINMENT	1.31%	HOME DEPOT INC	0.85	MARATHON PETROLEUM CORP	0.17%	GLOBE LIFE INC	0.03%
ACTIVISION BLIZZARD INC	0.19%	LOWE'S COS INC	0.34	OCCIDENTAL PETROLEUM	0.12%	HARTFORD FINL SERVICES	0.06%
ELECTRONIC ARTS	0.08%	O'REILLY AUTOMOTIVE	0.15	ONEOK INC	0.10%	LOEWS CORP	0.03%
LIVE NATION	0.03%	ROSS STORES INC	0.11	PHILLIPS 66	0.15%	MARSH & MCLENNAN	0.26%
NETFLIX INC	0.47%	TJX COS INC	0.28	PIONEER NATURAL RESOURCES	0.15%	METLIFE INC	0.11%
TAKE-TWO INTERACTIVE	0.06%	TRACTOR SUPPLY CO	0.06	TARGA RESOURCES CORP	0.05%	PRINCIPAL FINANCIAL GROUP	0.04%
WALT DISNEY CO	0.41%	ULTA BEAUTY, INC	0.06	THE WILLIAMS COMPANIES INC	0.11%	PROGRESSIVE CORP	0.23%
WARNER BROS DISCOVERY	0.07%	TEXTILES APPAREL & LUX	0.37	VALERO ENERGY CORP	0.14%	PRUDENTIAL FINANCIAL INC	0.10%
INTERACTIVE MEDIA & SERV	5.90%	NIKE INC B	0.33	FINANCIALS	12.81%	TRAVELERS COS INC	0.10%
ALPHABET INC A	2.16%	RALPH LAUREN CORP A	0.01	BANKS	3.01%	WILLIS TOWERS WATSON PLC	0.06%
ALPHABET INC C	1.85%	TAPESTRY, INC	0.02	BANK OF AMERICA CORP	0.53%	WR BERKLEY CORP	0.04%
MATCH GROUP, INC.	0.03%	VF CORP	0.02	CITIGROUP INC	0.22%	HEALTH CARE	13.36%
META PLATFORMS, INC.	1.86%	CONSUMER STAPLES	6.57	CITIZENS FINANCIAL GROUP INC	0.04%	BIOTECHNOLOGY	2.11%
MEDIA	0.78%	BEVERAGES	1.63	COMERICA INC (MI)	0.02%	ABBVIE INC.	0.73%
CHARTER	0.12%	BROWN-FORMAN CORP	0.03	FIFTH THIRD BANCORP (OH)	0.05%	AMGEN INC	0.40%
COMCAST CORP A	0.51%	COCA-COLA CO	0.61	HUNTINGTON BANCSHARES	0.04%	BIAGEN INC	0.10%
FOX CORP A	0.02%	CONSTELLATION	0.11	JP MORGAN CHASE & CO	1.17%	GILEAD SCIENCES INC	0.26%
FOX CORP B	0.01%	KEURIG DR PEPPER INC	0.09	KEYCORP	0.03%	INCYTE CORP	0.03%
INTERPUBLIC GROUP COS	0.03%	MOLSON COORS	0.03	M&T BANK CORP	0.06%	MODERNA, INC.	0.10%
NEWS CORP A	0.02%	MONSTER BEVERAGE	0.11	PNC FINL SERVICES GROU	0.14%	REGENERON PHARMACEUTICALS	0.24%
NEWS CORP B	0.01%	PEPSICO INC	0.65	REGIONS FINANCIAL CORP	0.04%	VERTEX PHARMACEUTICALS INC	0.25%
OMNICOM GROUP	0.04%	CONSUMER STAPLES DIST	1.82	TRUIST FINANCIAL CORP	0.11%	HEALTH EQUIP & SUPPLIES	2.58%
PARAMOUNT GLOBAL	0.02%	COSTCO WHOLESALE	0.70	US BANCORP	0.14%	ABBOTT LABORATORIES	0.47%
WIRELESS TELECOM	0.20%	DOLLAR GENERAL CORP	0.06	WELLS FARGO & CO	0.42%	ALIGN TECHNOLOGY INC	0.06%
T-MOBILE US INC	0.20%	DOLLAR TREE INC	0.06	ZIONS BANCORPORATION N.A.	0.01%	BAXTER INTL INC	0.05%
CONSUMER DISCRETIONARY	10.67%	KROGER CO	0.08	CAPITAL MARKETS	2.84%	BECTON DICKINSON & CO	0.21%
AUTO COMPONENTS	0.10%	SYSCO CORP	0.09	AMERIPRISE FINANCIAL INC	0.09%	BOSTON SCIENTIFIC CORP	0.22%
APTIV PLC	0.08%	TARGET CORP	0.14	BLACKROCK INC	0.25%	COOPER COMPANIES INC	0.04%
BORGWARNER INC	0.03%	WALGREENS BOOTS	0.04	BLACKSTONE INC.	0.21%	DENTSPLY SIRONA INC.	0.02%
AUTOMOBILES	2.18%	WALMART INC.	0.64	CBOE GLOBAL MARKETS, INC	0.05%	DEXCOM INC	0.10%
FORD MOTOR CO	0.14%	FOOD PRODUCTS	0.98	CHARLES SCHWAB CORP	0.23%	EDWARDS LIFESCIENCES CORP	0.12%
GENERAL MOTORS	0.13%	ARCHER-DANIELS-	0.11	CME GROUP INC A	0.20%	GE HEALTHCARE TECHNOLOGIES	0.07%
TESLA, INC	1.92%	BUNGE LTD	0.05	FACTSET RESEARCH SYSTEM	0.05%	HOLOGIC INC	0.05%
BROADLINE RETAIL	3.30%	CAMPBELL SOUP CO	0.02	FRANKLIN RESOURCES INC	0.02%	IDEXX LABORATORIES INC	0.10%
AMAZON.COM INC	3.21%	CONAGRA BRANDS, INC	0.04	GOLDMAN SACHS GROUP INC	0.30%	INSULET CORP	0.03%
EBAY INC.	0.07%	GENERAL MILLS INC	0.10	INTERCONTINENTAL EXCHANGE	0.18%	INTUITIVE SURGICAL INC	0.29%
ETSY, INC.	0.02%	HERSHEY FOODS CORP	0.08	INVECO LTD	0.02%	MEDTRONIC PLC	0.29%
DISTRIBUTORS	0.13%	HORMEL FOODS CORP	0.03	MARKETAXESS HOLDINGS	0.02%	RESMED INC	0.06%
GENUINE PARTS CO	0.06%	J.M. SMUCKER CO	0.03	MOODY'S CORP	0.14%	STERIS PLC	0.06%
LKQ CORP	0.04%	KELLOGG CO	0.04	MORGAN STANLEY	0.29%	STRYKER CORP	0.26%
POOL CORP	0.04%	LAMB WESTON	0.04	MSCI INC	0.11%	TELEFLEX INC	0.03%
HOTELS REST LEIS	2.14%	MCCORMICK & CO	0.05	NASDAQ INC	0.05%	ZIMMER BIOMET HOLDINGS INC	0.07%
AIRBNB, INC. CLASS A	0.16%	MONDELEZ	0.26	NORTHERN TRUST CORP (IL)	0.04%	HEALTH PROVIDERS & SVS	2.99%
BOOKING HOLDINGS INC	0.31%	THE KRAFT HEINZ	0.07	RAYMOND JAMES FINANCIAL	0.05%	CARDINAL HEALTH INC	0.06%
CAESARS ENTERTAINMENT,	0.03%	TYSON FOODS INC A	0.04	S&P GLOBAL INC	0.33%	CENCORA, INC.	0.08%
CARNIVAL CORP	0.04%	HOUSEHOLD PRODUCTS	1.34	STATE STREET CORP	0.06%	CENTENE CORP	0.10%
CHIPOTLE MEXICAN GRILL	0.14%	CHURCH & DWIGHT CO	0.06	T ROWE PRICE GROUP INC	0.07%	CVS HEALTH CORPORATION	0.25%
DARDEN RESTAURANTS INC	0.05%	CLOROX CO	0.05	THE BANK OF NEW YORK	0.09%	DAVITA INC	0.01%
DOMINO'S PIZZA INC	0.04%	COLGATE-PALMOLIVE	0.16	CONSUMER FINANCE	0.44%	ELEVANCE HEALTH, INC.	0.29%
EXPEDIA GROUP, INC.	0.04%	KIMBERLY-CLARK	0.11	AMERICAN EXPRESS CO	0.24%	HCA HEALTHCARE INC	0.14%
HILTON WORLDWIDE	0.11%	PROCTER & GAMBLE	0.96	CAPITAL ONE FINANCIAL	0.10%	HENRY SCHEIN INC	0.03%
LAS VEGAS SANDS	0.04%	PERSONAL PRODUCTS	0.19	DISCOVER FINANCIAL SERVICES	0.06%	HUMANA INC	0.17%
MARRIOTT INTL A	0.14%	ESTEE LAUDER COS. A	0.09	SYNCHRONY FINANCIAL	0.04%	LABORATORY CORPORATION OF	0.05%
MCDONALD'S CORP	0.53%	KENVUE INC.	0.10	FINANCIAL SVS	4.35%	MCKESSON CORP	0.16%
MGM RESORTS	0.03%	TOBACCO	0.61	BERKSHIRE HATHAWAY B	1.78%	MOLINA HEALTHCARE	0.05%
NORWEGIAN CRUISE LINE	0.02%	AL TRIA GROUP INC	0.21	FIDELITY NATIONAL	0.09%	QUEST DIAGNOSTICS	0.04%
ROYAL CARIBBEAN GROUP	0.06%	PHILIP MORRIS	0.40	FISERV INC	0.19%	THE CIGNA GROUP	0.24%
STARBUCKS CORP	0.29%	ENERGY	4.72	FLEETCOR TECHNOLOGIES INC	0.05%	UNITEDHEALTH GROUP INC	1.30%
WYNN RESORTS LTD	0.02%	ENERGY EQUIP & SVS	0.43	GLOBAL PAYMENTS INC	0.08%	UNIVERSAL HEALTH SERVICES B	0.02%
YUM! BRANDS INC	0.10%	BAKER HUGHES	0.10	JACK HENRY & ASSOCIATES INC.	0.03%	LIFE SCIENCES TOOLS	1.56%
HOUSEHOLD DURABLES	0.35%	HALLIBURTON CO	0.10	MASTERCARD INC A	0.92%	AGILENT TECHNOLOGIES INC	0.09%
GARMIN LTD	0.04%	SCHLUMBERGER LTD	0.23	PAYPAL HOLDINGS INC.	0.18%	BIO-RAD LABORATORIES INC A	0.02%
HORTON D.R. INC	0.09%	OIL GAS & CONSUMABLE	4.29	VISA INC A	1.03%	BIO-TECHNE CORP	0.03%
LENNAR CORP A	0.08%	APA CORPORATION	0.04	INSURANCE	2.17%	CHARLES RIVER LABORATORIES	0.03%
MOHAWK INDUSTRIES INC	0.01%	CHEVRON CORP	0.83	AFLAC INC	0.12%	DANAHER CORP	0.45%
NVR INC	0.05%	CONOCOPHILLIPS	0.40	ALLSTATE CORP	0.08%	ILLUMINA INC	0.06%
PULTE GROUP INC	0.05%	COTERRA ENERGY INC	0.06	AMERICAN INTL GROUP INC	0.12%	IQVIA HOLDINGS INC	0.10%
WHIRLPOOL CORP	0.02%	DEVON ENERGY CORP	0.09	AON PLC	0.18%	METTLER-TOLEDO INTL	0.07%
LEISURE PRODUCTS	0.02%	DIAMONDBACK ENERGY	0.08	ARCH CAPITAL GROUP LTD	0.08%	REVTIVY, INC.	0.04%
HASBRO INC	0.02%	EOG RESOURCES	0.21	ARTHUR J. GALLAGHER & CO	0.14%	THERMO FISHER SCIENTIFIC	0.54%
SPECIALTY RETAIL	2.06%	EQT CORPORATION	0.04	ASSURANT INC	0.02%	WATERS CORP	0.05%

Source: Bloomberg, FactSet



Exhibit 56: Latest month's end S&P 500 weights for companies sorted by sectors/industries

Company Distribution of S&P 500 by GICS Sector/Industry Classifications as of 9/30/2023

Sector/Industry	Wgt	Sector/Industry	Wgt	Sector/Industry	Wgt	Sector/Industry	Wgt
WEST PHARMACEUTICAL	0.08%	STANLEY BLACK & DECKER	0.04%	CADENCE DESIGN	0.18%	INVITATION HOMES	0.05%
PHARMACEUTICALS	4.11%	WABTEC	0.05%	FAIR ISAAC & CO INC	0.06%	MID-AMERICA APT	0.04%
BRISTOL-MYERS SQUIBB	0.34%	XYLEM INC	0.06%	FORTINET INC	0.11%	UDR INC	0.03%
CATALENT INC	0.02%	AIRLINES	0.19%	GEN DIGITAL INC.	0.03%	RETAIL REITS	0.27%
ELI LILLY & CO	1.19%	ALASKA AIR GROUP INC	0.01%	INTUIT INC	0.40%	FEDERAL REALTY INVT	0.02%
JOHNSON & JOHNSON	1.04%	AMERICAN AIRLINES GROUP	0.02%	MICROSOFT CORP	6.53%	KIMCO REALTY CORP	0.03%
MERCK & CO INC	0.73%	DELTA AIR LINES	0.07%	ORACLE CORP	0.46%	REALTY INCOME CORP	0.10%
ORGANON & CO	0.01%	SOUTHWEST AIRLINES CO	0.04%	PALO ALTO NETWORKS	0.20%	REGENCY CENTERS CORP	0.03%
PFIZER INC	0.52%	UNITED AIRLINES HOLDING,	0.04%	PTC INC	0.05%	SIMON PROPERTY	0.10%
VIATRIS INC	0.03%	PROFESSIONAL SERVICES	0.77%	ROPER TECHNOLOGIES,	0.14%	SPECIALIZED REITS	1.06%
ZOETIS INC	0.22%	AUTOMATIC DATA	0.28%	SALESFORCE, INC.	0.55%	AMERICAN TOWER CORP	0.21%
INDUSTRIALS	8.30%	BROADRIDGE FINANCIAL	0.06%	SERVICENOW INC.	0.32%	CROWN CASTLE INC.	0.11%
AEROSPACE & DEFENSE	1.54%	CERIDIAN HCM HOLDING INC.	0.03%	SYNOPSIS INC	0.19%	DIGITAL REALTY TRUST	0.10%
AXON ENTERPRISE INC	0.04%	EQUIFAX INC	0.06%	TYLER TECHNOLOGIES INC	0.05%	EQUINIX INC	0.19%
BOEING CO	0.30%	JACOBS SOLUTIONS INC.	0.05%	TECHNOLOGY HARDWARE	7.25%	EXTRA SPACE STORAGE	0.07%
GENERAL DYNAMICS	0.14%	LEIDOS HOLDINGS INC	0.04%	APPLE INC.	7.00%	IRON MOUNTAIN INC	0.05%
HOWMET AEROSPACE INC.	0.05%	PAYCHEX INC	0.10%	HEWLETT PACKARD	0.06%	PUBLIC STORAGE	0.12%
HUNTINGTON INGALLS	0.02%	PAYCOM SOFTWARE INC	0.04%	HP INC	0.06%	SBA COMMUNICATIONS	0.06%
L3HARRIS TECHNOLOGIES INC	0.09%	ROBERT HALF INC	0.02%	NETAPP INC	0.04%	VICI PROPERTIES INC.	0.08%
LOCKHEED MARTIN	0.26%	VERISK ANALYTICS INC	0.10%	SEAGATE TECHNOLOGY	0.04%	WEYERHAEUSER CO	0.06%
NORTHROP GRUMMAN CORP	0.17%	TRADING CO. & DISTR	0.26%	WESTERN DIGITAL CORP	0.04%	UTILITIES	2.41%
RTX CORPORATION	0.29%	FASTENAL CO	0.09%	MATERIALS	2.45%	ELECTRIC UTILITIES	1.59%
TEXTRON INC	0.04%	UNITED RENTALS INC	0.08%	CHEMICALS	1.68%	ALLIANT ENERGY CORP	0.03%
TRANSDIGM GROUP	0.13%	W.W. GRAINGER INC	0.09%	AIR PRODUCTS &	0.18%	AMERICAN ELECTRIC	0.11%
AIR FREIGHT & LOGISTICS	0.56%	INFORMATION TECHNOLOGY	27.46	ALBEMARLE CORP	0.06%	CONSTELLATION	0.10%
CH ROBINSON WORLDWIDE INC	0.03%	COMMUNICATIONS EQUIP	0.92%	CELANESE CORP A	0.03%	DUKE ENERGY CORP	0.19%
EXPEDITORS INTL OF WA INC	0.05%	ARISTA NETWORKS INC	0.13%	CF INDUSTRIES HOLDINGS	0.05%	EDISON INTL	0.07%
FEDEX CORP	0.17%	CISCO SYSTEMS INC	0.61%	CORTEVA INC.	0.10%	ENERGY CORP	0.05%
UNITED PARCEL SERVICE INC B	0.31%	F5, INC.	0.03%	DOW INC	0.10%	EVERGY INC.	0.03%
BUILDING PRODUCTS	0.44%	JUNIPER NETWORKS INC	0.02%	DUPONT DE NEMOURS	0.10%	EVERSOURCE ENERGY	0.06%
A.O. SMITH CORP	0.02%	MOTOROLA SOLUTIONS INC	0.13%	EASTMAN CHEMICAL CO	0.03%	EXELON CORP	0.10%
ALLEGION PLC	0.03%	ELECTRONIC EQUIP, INSTR &	0.58%	ECOLAB INC	0.12%	FIRSTENERGY CORP	0.05%
CARRIER GLOBAL CORP.	0.13%	AMPHENOL CORP A	0.14%	FMC CORP	0.02%	NEXTERA ENERGY INC	0.32%
JOHNSON CONTROLS	0.10%	CDW CORP	0.08%	INTL FLAVORS &	0.05%	NRG ENERGY	0.02%
MASCO CORP	0.03%	CORNING INC	0.07%	LINDE PLC	0.51%	PG&E CORPORATION	0.09%
TRANE TECHNOLOGIES PLC	0.13%	KEYSIGHT TECHNOLOGIES INC	0.07%	LYONDELLBASELL	0.07%	PINNACLE WEST CAPITAL	0.02%
COMMERCIAL SVS	0.49%	TE CONNECTIVITY LTD.	0.11%	MOSAIC CO	0.03%	PPL CORP	0.05%
CINTAS CORP	0.12%	TELEDYNE TECHNOLOGIES INC	0.05%	PPG INDUSTRIES INC	0.09%	SOUTHERN CO	0.20%
COPART INC	0.10%	TRIMBLE INC	0.04%	SHERWIN-WILLIAMS CO	0.17%	XCEL ENERGY INC	0.09%
REPUBLIC SERVICES INC	0.08%	ZEBRA TECHNOLOGIES CORP	0.03%	CONSTRUCTION MATERIALS	0.15%	GAS UTILITIES	0.04%
ROLLINS INC	0.03%	IT SVS	1.21%	MARTIN MARIETTA	0.07%	ATMOS ENERGY CORP	0.04%
WASTE MANAGEMENT INC	0.16%	ACCENTURE PLC A	0.54%	VULCAN MATERIALS CO	0.07%	INDEPENDENT POWER	0.03%
CONSTR & ENGINEERING	0.08%	AKAMAI TECHNOLOGIES INC	0.05%	CONTAINERS & PACKAGING	0.23%	AES CORP	0.03%
QUANTA SERVICES INC	0.08%	COGNIZANT TECH SOLUTIONS	0.10%	AMCOR PLC	0.04%	MULTI-UTILITIES	0.69%
ELECTRICAL EQUIP	0.60%	DXC TECHNOLOGY COMPANY	0.01%	AVERY DENNISON CORP	0.04%	AMEREN CORP	0.05%
AMETEK INC	0.09%	EPAM SYSTEMS INC	0.04%	BALL CORP	0.04%	CENTERPOINT ENERGY	0.05%
EATON CORP PLC	0.24%	GARTNER INC	0.08%	INTL PAPER CO	0.03%	CMS ENERGY CORP	0.04%
EMERSON ELECTRIC CO	0.15%	INTL BUSINESS MACHINES	0.36%	PACKAGING CORP OF	0.04%	CONSOLIDATED EDISON	0.08%
GENERAC HOLDINGS INC	0.02%	VERISIGN INC	0.05%	SEALED AIR CORP	0.01%	DOMINION ENERGY INC	0.10%
ROCKWELL AUTOMATION INC	0.09%	SEMICONDUCTORS	7.41%	WESTROCK CO	0.03%	DTE ENERGY CO	0.06%
GROUND TRANSP	0.79%	ADVANCED MICRO DEVICES	0.46%	METALS & MINING	0.39%	NISOURCE INC	0.03%
CSX CORPORATION	0.17%	ANALOG DEVICES INC	0.24%	FREEPORT-MCMORAN INC	0.15%	PUBLIC SERVICE	0.08%
J.B. HUNT TRANSPORT SERVICES	0.04%	APPLIED MATERIALS INC	0.32%	NEWMONT CORP	0.08%	SEMPRA	0.12%
NORFOLK SOUTHERN CORP	0.12%	BROADCOM INC	0.95%	NUCOR CORP	0.11%	WEC ENERGY GROUP INC	0.07%
OLD DOMINION FREIGHT LINE	0.10%	ENPHASE ENERGY INC	0.05%	STEEL DYNAMICS INC	0.05%	WATER UTILITIES	0.07%
UNION PACIFIC CORP	0.35%	FIRST SOLAR INC	0.05%	REAL ESTATE	2.37%	AMERICAN WATER	0.07%
IND CONGLOMERATES	0.82%	INTEL CORP	0.41%	HEALTH CARE REITS	0.19%		
3M CO	0.14%	KLA CORPORATION	0.17%	HEALTHPEAK PROPERTIES	0.03%		
GENERAL ELECTRIC CO	0.33%	LAM RESEARCH CORP	0.23%	VENTAS INC	0.05%		
HONEYWELL INTL INC	0.34%	MICROCHIP TECHNOLOGY INC	0.12%	WELLTOWER INC	0.12%		
MACHINERY	1.79%	MICRON TECHNOLOGY INC	0.21%	HOTEL & RESORT REITS	0.03%		
CATERPILLAR INC	0.39%	MONOLITHIC POWER	0.06%	HOST HOTELS & RESORTS	0.03%		
CUMMINS INC	0.09%	NVIDIA CORP	2.99%	INDUSTRIAL REITS	0.29%		
DEERE & CO	0.29%	NXP SEMICONDUCTOR NV	0.14%	PROLOGIS INC	0.29%		
DOVER CORP	0.05%	ON SEMICONDUCTOR CORP	0.11%	OFFICE REITS	0.07%		
FORTIVE CORP	0.07%	QORVO, INC	0.03%	ALEXANDRIA REAL ESTATE	0.04%		
IDEX CORP	0.04%	QUALCOMM INC	0.34%	BOSTON PROPERTIES INC	0.02%		
ILLINOIS TOOL WORKS INC	0.18%	SKYWORKS SOLUTIONS INC	0.04%	REAL ESTATE M&D	0.15%		
INGERSOLL RAND INC.	0.07%	SOLAREDGE TECHNOLOGIES	0.02%	CBRE GROUP INC.	0.06%		
NORDSON CORP	0.03%	TERADYNE INC	0.04%	COSTAR GROUP INC	0.09%		
OTIS WORLDWIDE CORP	0.09%	TEXAS INSTRUMENTS INC	0.40%	RESIDENTIAL REITS	0.31%		
PACCAR INC	0.12%	SOFTWARE	10.10	AVALONBAY	0.07%		
PARKER-HANNIFIN CORP	0.14%	ADOBE INC.	0.65%	CAMDEN PROPERTY	0.03%		
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Source: Bloomberg, FactSet

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R1}
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Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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