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TRIVARIATE RESEARCH

VALUATION – NOW AND WHEN IT MATTERS

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PART 1: CURRENT STATE OF AFFAIRS INVESTMENT CONCLUSIONS

Background: Given the substantial moves in the market and individual stocks in the last few weeks, we thought we would take a look at valuation and provide insights about key valuation metrics and their efficacy in today's work. **We can provide detailed information on each individual security or any market sub-group, so please don't hesitate to ask if we can be helpful.**

Current state of affairs: Energy is quite cheap vs. its own history on free cash flow yield whereas Materials are expensive. Value stocks are not particularly cheap on price-to-forward earnings, in the 82nd percentile vs. their own history. Interestingly, that is now more expensive vs. its own history than the growth universe, in the 70th percentile.

Financials: The median Bank is still quite attractively valued vs. history, while Insurance companies are quite expensive. **Insurance is in the 89th percentile vs. its own history on price-to-forward earnings and the 98th percentile on price-to-tangible book, whereas the cap-weighted Bank valuations are still relatively cheap vs. their histories, in the 24th and 32nd percentiles**, respectively, on the same metrics.

Mag 7: The Mag 7 is now cheaper vs. its own history than the market ex-Mag 7 vs. each's own history. One of the pillars of our early February Mag 7 downgrade was the valuation was not adjusting for business model changes. The relative correction in multiples makes that less true today, though we still think a modest relative underweight is sensible. The challenge is that on FCF yield, the Mag 7 is not particularly attractive.

Healthcare: This remains a sector that is relatively cheap on price-to-forward earnings both in absolute terms and relative to its own history. **The median Healthcare stock has 2x the FCF yield of the median Mag 7 stock.**

Stock ideas: See Slide 9 for stocks that are cheap vs. their own histories on FCF yield and Slide 10 for stocks that are expensive vs. their own histories on price-to-forward earnings.

DID YOU KNOW VALUE IS MORE EXPENSIVE THAN GROWTH?

We show the price-to-forward earnings (left) and the free cash flow yield (right) of the major industries and sectors today and where that compares to their 25-year history. Energy is quite cheap vs. its own history on free cash flow yield whereas Materials are expensive. Value stocks are not particularly cheap on price-to-forward earnings, in the 82nd percentile vs. their own history. Interestingly, that is now more expensive vs. its own history than the growth universe, in the 70th percentile.

Price-to-Forward Earnings of Top 500 US Equities by Cohort
As of April 11th, 2025

Cohort	Cap-Weighted	Median	Cap-Weighted %ile Rank vs. History	Median %tile Rank vs. History
Communication Services	18.3x	19.3x	71%	55%
Consumer Discretionary	26.1x	22.8x	72%	83%
Consumer Staples	23.6x	19.2x	99%	60%
Energy	13.5x	14.3x	47%	38%
Health Care	17.1x	18.3x	48%	39%
Industrials	21.8x	20.8x	87%	85%
Information Technology	24.9x	25.8x	68%	67%
Materials	19.4x	18.1x	78%	61%
Utilities	17.7x	18.8x	76%	85%
Ex-Magnificent 7	19.1x	19.3x	79%	68%
Growth	25.9x	27.2x	70%	70%
High Quality	22.1x	24.0x	74%	72%
Magnificent 7	25.3x	26.5x	61%	46%
Value	13.7x	15.6x	56%	82%

Source: Trivariate Research

Free Cash Flow Yield of Top 500 US Equities by Cohort
As of April 11th, 2025

Cohort	Cap-Weighted	Median	Cap-Weighted %ile Rank vs. History	Median %tile Rank vs. History
Communication Services	6.4%	5.3%	48%	44%
Consumer Discretionary	3.1%	4.5%	72%	41%
Consumer Staples	3.4%	4.1%	93%	78%
Energy	5.9%	5.8%	18%	15%
Health Care	4.2%	3.8%	75%	59%
Industrials	3.3%	3.9%	83%	67%
Information Technology	2.9%	3.7%	84%	66%
Materials	2.6%	3.1%	96%	86%
Utilities	(3.9%)	(3.3%)	75%	79%
Ex-Magnificent 7	3.8%	4.0%	77%	59%
Growth	3.0%	2.9%	69%	67%
High Quality	3.8%	3.7%	87%	67%
Magnificent 7	3.3%	2.4%	84%	76%
Value	5.7%	5.6%	53%	34%

Source: Trivariate Research

THE VALUATION OF THE MAG-7 VS. EX-MAG 7 HAS SHARPLY MOVED

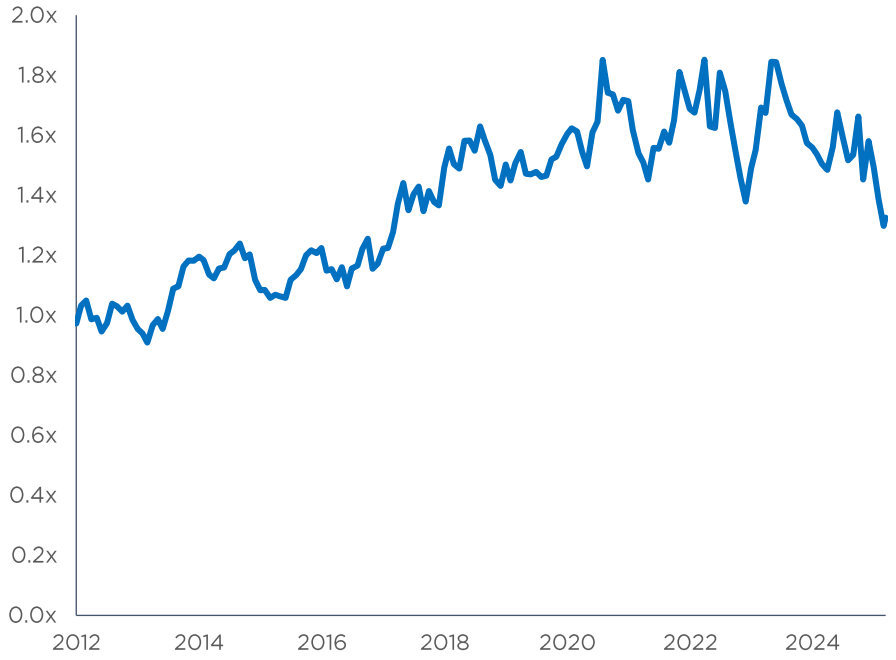
Among the Financials, the median Bank is still quite attractively valued vs. history, while Insurance companies are quite expensive. Insurance is in the 89th percentile vs. its own history on price-to-forward earnings and the 98th percentile on price-to-tangible book, whereas the cap-weighted Bank valuations are still relatively cheap vs. their histories, in the 24th and 32nd percentiles, respectively, on the same metrics (left). The Mag 7 is now cheaper vs. its own history than the market ex-Mag 7 vs. each's own history (right). One of the pillars of our early February Mag 7 downgrade was the valuation was not adjusting for business model changes. The relative correction in multiples makes that less true today, though we still think a modest relative underweight is sensible.

Price-to-Forward Earnings and Price-to-Tangible Book
Insurance & Banks, Top 500 US Equities
As of April 11th, 2025

Metric & Cohort	Cap-Weighted	Median	Cap-Weighted %ile Rank vs. History	Median %tile Rank vs. History
Price-to-Forward Earnings of Banks	9.5x	10.9x	24%	6%
Price-to-Forward Earnings of Insurance	14.0x	14.8x	89%	89%
Price-to-Tangible Book of Banks	1.5x	1.6x	32%	26%
Price-to-Tangible Book of Insurance	2.7x	4.0x	98%	96%

Source: Trivariate Research

Ratio of Mag. 7 to Excluding Mag. 7
Cap-Weighted Price-to-Forward Earnings
Top 500 US Equities
As of April 11th, 2025

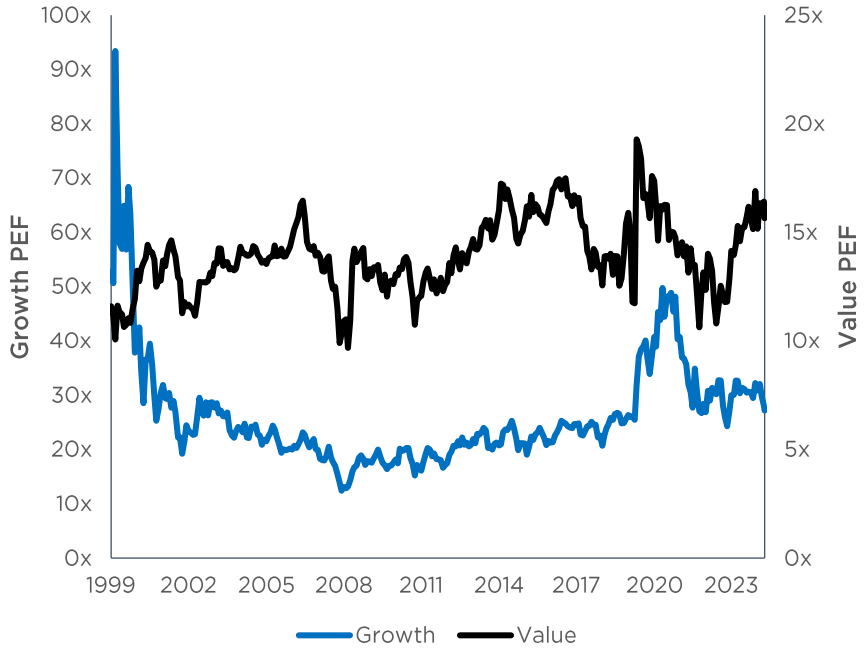


Source: Trivariate Research

HEALTHCARE VALUATION IS NEAR A TEN-YEAR LOW

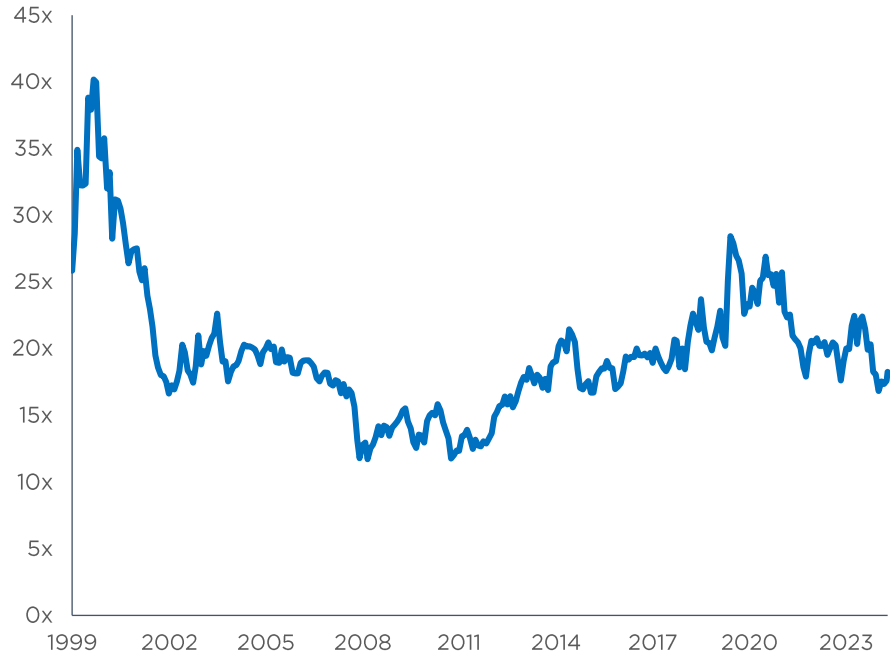
On the left, we show that the price-to-forward for the median growth stock is now about average vs. the three- year average, where as the value universe is more expensive vs. its own history. The median Healthcare stocks is near 10-year lows on price-to-forward earnings (right), a compelling valuation level relative to most of areas of the equity market.

Median Price-to-Forward Earnings
Growth and Value
Top 500 US Equities
As of April 11th, 2025



Source: Trivariate Research

Healthcare
Median Price-to-Forward Earnings
Top 500 US Equities
As of April 11th, 2025



Source: Trivariate Research

THE MAG 7'S FCF YIELD IS NOT COMPELLING, ITS ½ OF HEALTHCARE

We downgraded the Mag 7 in early February, and while valuation on price-to-forward earnings has corrected, the free cash flow yield (left) is hardly compelling, and with the massive capital spending guidance, we don't see a near-term step up in relative free cash flow yield. The median Healthcare stock has nearly twice the free cash flow yield of the median Mag7 stock (right). Valuation is one of many reasons we think the risk-reward of Healthcare is relatively attractive.

Source: Trivariate Research

Source: Trivariate Research

STOCKS CHEAP VS. HISTORY ON FREE CASH FLOW YIELD

Stocks that are cheap vs. their own history on free cash flow yield include PYPL, ARES, and IQV, among others.

Companies Cheap on Free Cash Flow Yield vs. History, Top 500 US Equities
As of April 11th, 2025

Ticker	Company	Sector	Market Cap ($Bn.)	Free Cash Flow Yield
SHOP	Shopify Inc.	Information Technology	108.39	1.6%
KKR	KKR & Co. Inc.	Financials	90.10	7.2%
PYPL	PayPal Holdings, Inc.	Financials	61.92	10.9%
DDOG	Datadog, Inc.	Information Technology	31.54	2.9%
ARES	Ares Management Corporation	Financials	28.59	9.6%
EXR	Extra Space Storage Inc.	Real Estate	28.41	6.6%
HUBS	HubSpot, Inc.	Information Technology	27.53	2.0%
VRT	Vertiv Holdings Co	Industrials	26.51	4.3%
IQV	IQVIA Holdings Inc.	Health Care	25.66	8.2%
MPWR	Monolithic Power Systems, Inc.	Information Technology	25.52	2.5%
TTD	The Trade Desk, Inc.	Communication Services	24.47	2.9%
TDY	Teledyne Technologies Incorporated	Information Technology	21.77	5.1%
IOT	Samsara Inc.	Information Technology	21.51	1.0%
SW	Smurfit Westrock Plc	Materials	21.21	0.1%
LII	Lennox International Inc.	Industrials	19.66	4.0%
UI	Ubiquiti Inc.	Information Technology	18.64	4.1%
RDDT	Reddit, Inc.	Communication Services	18.30	1.7%
PINS	Pinterest, Inc.	Communication Services	17.89	6.0%
PODD	Insulet Corporation	Health Care	17.84	1.7%
OKTA	Okta, Inc.	Information Technology	17.68	4.4%

Source: Trivariate Research

STOCKS EXPENSIVE VS. HISTORY ON PRICE-TO-FORWARD EARNINGS

Stocks like RSG, CCI, FAST, and CASY are expensive in absolute terms, and relative to their own histories on price-to-forward earnings.

Companies Expensive on Price-to-Forward Earnings vs. History, Top 500 US Equities
As of April 11th, 2025

Ticker	Company	Sector	Market Cap ($Bn.)	Price-to-Forward Earnings
ORLY	O'Reilly Automotive, Inc.	Consumer Discretionary	79.6	31.3x
RSG	Republic Services, Inc.	Industrials	76.17	35.5x
AZO	AutoZone, Inc.	Consumer Discretionary	61.22	23.3x
FAST	Fastenal Company	Industrials	46.24	37.3x
CCI	Crown Castle Inc.	Real Estate	42.09	127.3x
AU	AngloGold Ashanti plc	Materials	21.55	12.4x
CASY	Casey's General Stores, Inc.	Consumer Staples	16.97	28.9x
BJ	BJ's Wholesale Club Holdings, Inc.	Consumer Staples	15.45	27.7x
SFM	Sprouts Farmers Market, Inc.	Consumer Staples	15.44	33.8x

Source: Trivariate Research

PART 2: VALUATION EFFICACY - INVESTMENT CONCLUSIONS

Background: We have learned over the past several years that rarely, if ever, has valuation alone been a good reason to buy or sell a stock. We have written that when stocks get to 50x price-to-forward earnings, on average they begin to lag 9 months later (*Do You Worry About Stocks At 50x Earnings?*) and that when they become too cheap, it is not a positive catalyst (*12X Earnings Is Cheap, But 6X Is Not*). Recently, long-term, long-only, quantitative approaches with a valuation bias have performed better, and this is our focus in the second half of this research.

Methodology: We analyzed the top 2000 US equities (excluding Financials and Real Estate) by market capitalization, studying the level and change in Enterprise Value-to-Forecasted Sales, Price-to-Forward Earnings, and Free Cash Flow Yield to predict subsequent stock performance.

We broke our assessment into five parts:

Part 1: What valuation metrics work? We analyzed the top vs. bottom quintile return spreads and Sharpe ratios for level and change of Enterprise-Value-to-Forecasted Sales, Price-to-Forward Earnings, and Free Cash Flow Yield, and studied which metrics are effective overall, and by size, substance and style.

1) Valuation level: Free Cash Flow Yield is the most effective metric, with the highest Sharpe Ratios, owing to lower volatility of efficacy, particularly vs. Price-to-Forward Earnings. **Knowing if a stock is at 10x or 25x Price-to-Forward earnings provides little useful predictive information for security selection.** Free Cash Flow Yield level is the one metric that is just as effective for stock selection among Mega / Large Caps as it is for Mid-and-Small Caps.

2) Change in valuation: Knowing whether multiples just expanded or contracted was generally not effective for stock selection in Mega / Large Caps (change in EV-to-forecasted sales has a 50% monthly hit rate). Change in Free Cash Flow Yield was reasonably effective as a metric for small caps, largely owing to low volatility of efficacy. Change in Price-to-Forward Earnings is an equally ineffective metric for stock selection as is level.

3) By size: Change in Free Cash Flow yield is best on a volatility-adjusted basis for Mid- and Small-Cap stocks. Both the change and level of Price-to-Forward Earnings are poor metrics for stock selection across the market cap. spectrum. Level of EV-to-Forecasted Sales is efficacious among small caps, though volatile.

INVESTMENT CONCLUSIONS

4) By style: Among **growth stocks**, change in **Free Cash Flow Yield is the most effective metric**, volatility-adjusted, but level of Free Cash Flow Yield generates the highest long-short spread. The classic Price-to-Forward Earnings multiple has limited efficacy for stock selection in the growth universe. **Valuation metrics are less effective for stock selection among value stocks than growth stocks.** For value stocks, change in EV-to-Forecasted Sales and change in Free Cash Flow Yield work best.

5) By substance: On a volatility-adjusted basis, change in Free Cash Flow Yield was the most effective valuation-based signal for stock selection among high-quality stocks. **Among junk stocks, valuation was in general less helpful than among high-quality stocks.** Level of EV-to-Forecasted Sales had the highest Q1-Q5 return spread among the six level / change metrics.

Part 2: When do these valuation metrics work? We took a traditional metric like Price-to-Forward Earnings and analyzed efficacy in three-year windows to assess when it has failed and worked for security selection.

Valuation has worked well for stock selection recently: Valuation metrics were broadly effective from 2001-2006, then failed or were even perverse (with expensive beating cheap) from 2007-2021. Since 2022, however, the Sharpe Ratios and return spreads have worked, **meaning traditional valuation has mattered more for stock selection in the last three years than at anytime in over twenty years.**

Part 3: Does a combination of change and level of valuation matter? We studied if cheap and contracting multiples result in better subsequent returns than cheap and expanding multiples, as well as for expensive and contracting vs. expensive and expanding multiples.

1) We studied the Top 1000 US Equities and analyzed quintiles of change and level of Price-to-Forward Earnings. **Cheap stocks with moves in the multiple that were not extreme performed best.** Expensive stocks with multiple expansion performed the worst. Stocks that are in the most expensive 40% on price-to-forward earnings perform best if their multiples were more stable (2nd through 4th quintile on change), **while expensive stocks with the most multiple expansion or contraction subsequently performed worst.**

2) For stocks in the highest 60% of Free Cash Flow Yield, **multiple contraction the previous month resulted in better subsequent performance than multiple expansion the previous month.**

INVESTMENT CONCLUSIONS

Part 4: How correlated are valuation and momentum metrics? Traditional long-only quant models use both valuation and momentum as factors and we assess the correlation of these factors over time.

1) The correlation between the two is near a 20-year high. The 36-month rolling correlation between the top quintile on Free Cash Flow Yield and the top quintile in 12-month price momentum is at its highest level since before the Financial Crisis. The correlation is even stronger among bottom quintile stocks. **Valuation and momentum were strongly aligned in 2024, meaning traditional quantitative models should have worked well in 2024.**

2) The correlation between EV-to-Forecasted Sales and 12-month momentum is also at 20-year highs for both top and bottom quintile stocks. The overall correlation values are slightly lower than for the FCF Yield and Momentum correlations, but still noteworthy.

Part 5: Are there any sector-level nuances worth exploiting? Valuation metrics seem to work in some sectors of the market and not in others, and we analyzed the change and level of these metrics for each sector and identify quantitatively-derived long-short ideas based on factor efficacy.

1) We looked at nine sectors, and six valuation signals for each, for a total of 54 sector level signal assessments. The highest Sharpe Ratio signal of those 54 metrics was Change in Free Cash Flow Yield among Technology stocks, though that signal has not worked well in the last year.

2) We took the median Sharpe Ratio of the six different valuation metrics we assessed over the last 25 years, by sector, and found that **valuation works best among Industrials stocks**, and **is perverse on average in Communication Services.**

AMONG VALUATION LEVEL FACTORS, FCF YIELD IS BEST

Below we show the top vs. bottom quintile spread of three common valuation metrics, Enterprise Value-to-Forecasted Sales, Price-to-Forward Earnings, and Free Cash Flow Yield. We broke the top 2000 US equity universe into three size cohorts, Mega / Large, Mid, and Small-Cap, and studied the top vs. bottom quintile spread from 1999 through January 2025. In general, Free Cash Flow Yield is the most effective metric, with the highest Sharpe Ratios, owing to lower volatility of efficacy, particularly vs. Price-to-Forward Earnings. Free Cash Flow Yield level is the one metric that is just as effective for stock selection among Mega / Large caps as it is for Mid-and-Small Caps. Valuation metrics work better in Small caps than Mega / Large caps.

Performance Statistics by Cohort and Valuation Metric, Q1 vs. Q5 Spread
Top 2000 US Equities, Ex-Financials & Real Estate
1999 to End-March, 2025

	EV-to-Forecast Sales			Price-to-Forward Earnings			Free Cash Flow Yield		
Statistic	Mega / Large	Mid	Small / Micro	Mega / Large	Mid	Small / Micro	Mega / Large	Mid	Small / Micro
Annualized Mean Return	6.1%	8.5%	10.6%	7.9%	7.3%	9.5%	8.2%	7.3%	8.2%
Annualized Standard Deviation	15.6%	18.0%	19.1%	22.8%	25.0%	25.2%	12.0%	13.4%	13.9%
Sharpe Ratio	0.39	0.47	0.56	0.35	0.29	0.38	0.68	0.55	0.59
Hit Rate	52%	52%	53%	54%	50%	53%	56%	57%	53%
Asymmetry	1.27	1.41	1.39	1.16	1.30	1.23	1.36	1.20	1.45

Source: Trivariate Research

CHANGE IN MULTIPLES FAILED, APART FROM FCF IN SMALL CAPS

Most of us have questioned whether the valuation level of a stock matters, as we know it is at least partially associated with gross margin level and perception about future growth. Hence, we studied whether there was any information in the change in valuation level by studying the Q1 vs. Q5 spreads of monthly changes in multiples. Change in valuation was generally not effective for Mega / Large caps, as evidenced by change in EV-to-forecasted sales having a 50% hit rate among Mega / Large caps. Change in Free Cash Flow Yield was reasonably effective as a metric for Small caps, largely owing to low volatility of efficacy. Change in Price-to-Forward Earnings is not a more effective metric for stock selection than level.

Performance Statistics by Cohort and Valuation Metric (1-Month Change), Q1 vs. Q5 Spread
Top 2000 US Equities, Ex-Financials & Real Estate
1999 to End-March, 2025

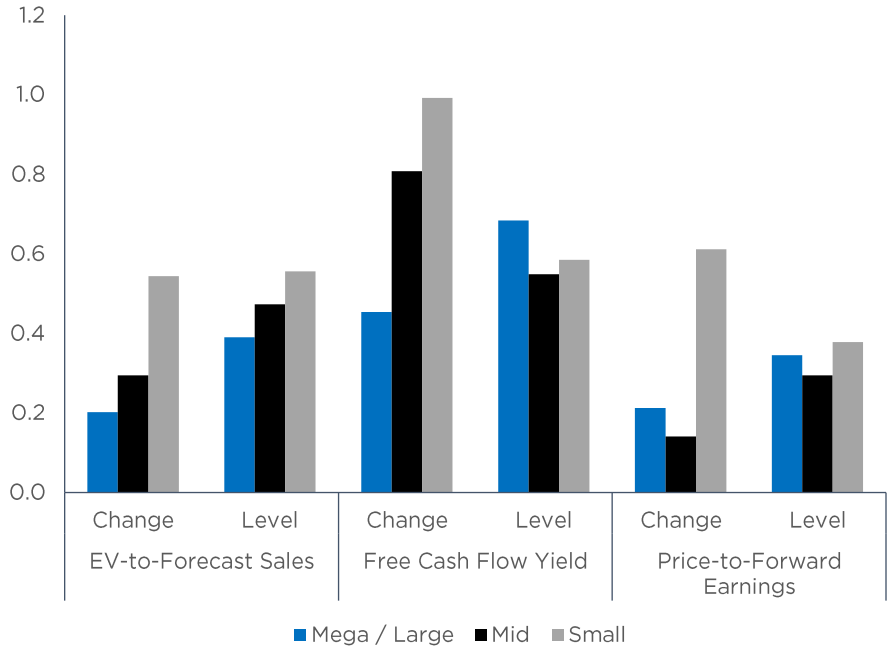
	1-Month Change of EV-to-Forecast Sales			1-Month Change of Price-to-Forward Earnings			1-Month Change of Free Cash Flow Yield		
Statistic	Mega / Large	Mid	Small / Micro	Mega / Large	Mid	Small / Micro	Mega / Large	Mid	Small / Micro
Annualized Mean Return	2.6%	3.7%	7.3%	3.0%	1.6%	6.8%	3.8%	6.0%	7.9%
Annualized Standard Deviation	12.8%	12.5%	13.4%	14.0%	11.7%	11.2%	8.3%	7.4%	8.0%
Sharpe Ratio	0.20	0.29	0.54	0.21	0.14	0.61	0.45	0.81	0.99
Hit Rate	50%	54%	58%	51%	53%	56%	52%	58%	64%
Asymmetry	1.16	1.08	1.18	1.13	1.01	1.28	1.30	1.33	1.18

Source: Trivariate Research

FCF YIELD WORKS FOR MEGA / LARGE CAPS AS WELL AS FOR SMALL

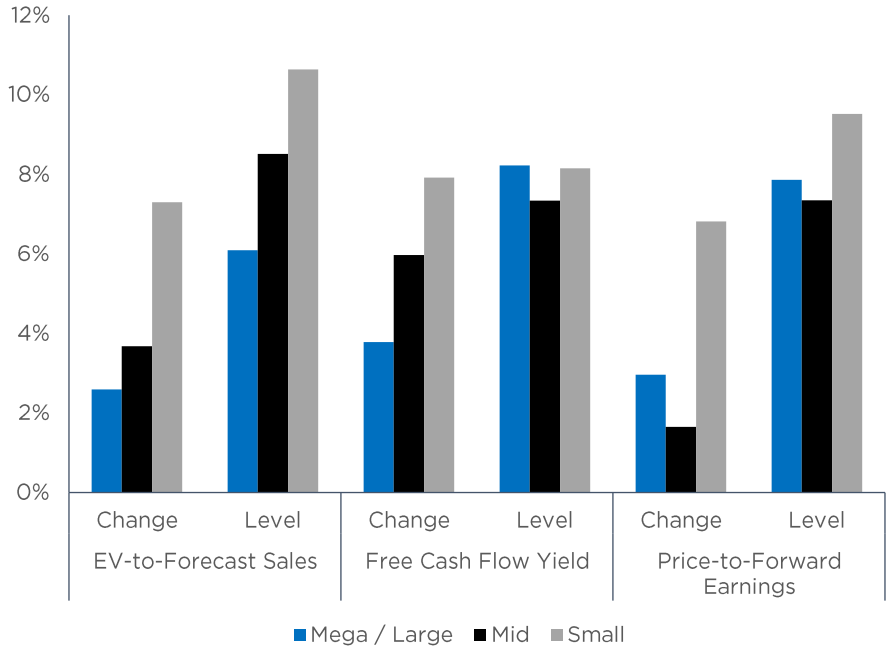
We analyzed factor efficacy, both level and change, for Mega / Large-, Mid-, and Small-cap stocks separately, with the Sharpe Ratios (left) and annualized return spreads (right) shown below. Generally, valuation metrics work best for Small caps, as evidenced by the gray bars being highest. Change in Free Cash Flow yield is best on a volatility-adjusted basis for Mid- and Small-Cap stocks. Change and level of Price-to-Forward Earnings are poor metrics for stock selection across the market cap. spectrum. Level of EV-to-Forecasted Sales is efficacious among small caps, though volatile.

Sharpe Ratio of Level & Change by Valuation Metric
Top 2000 US Equities by Market Cap. Group
Q1 vs. Q5 Spread Portfolio, Rebalanced Monthly
Through End-March, 2025



Source: Trivariate Research

Mean Annual Return of Level & Change by Valuation Metric
Top 2000 US Equities by Market Cap. Group
Q1 vs. Q5 Spread Portfolio, Rebalanced Monthly
Through End-March, 2025

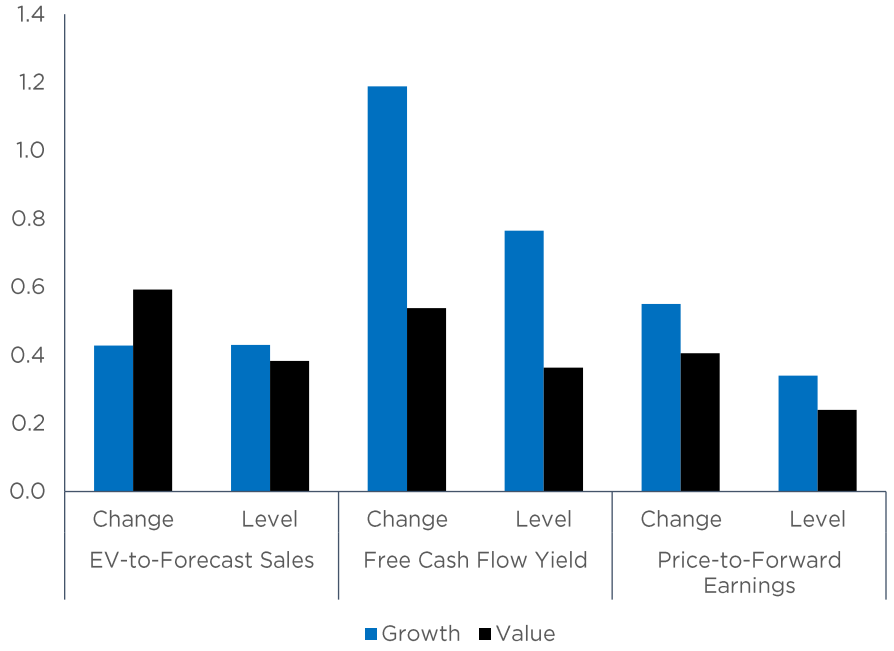


Source: Trivariate Research

VALUATION METRICS ARE MORE EFFECTIVE IN GROWTH THAN VALUE

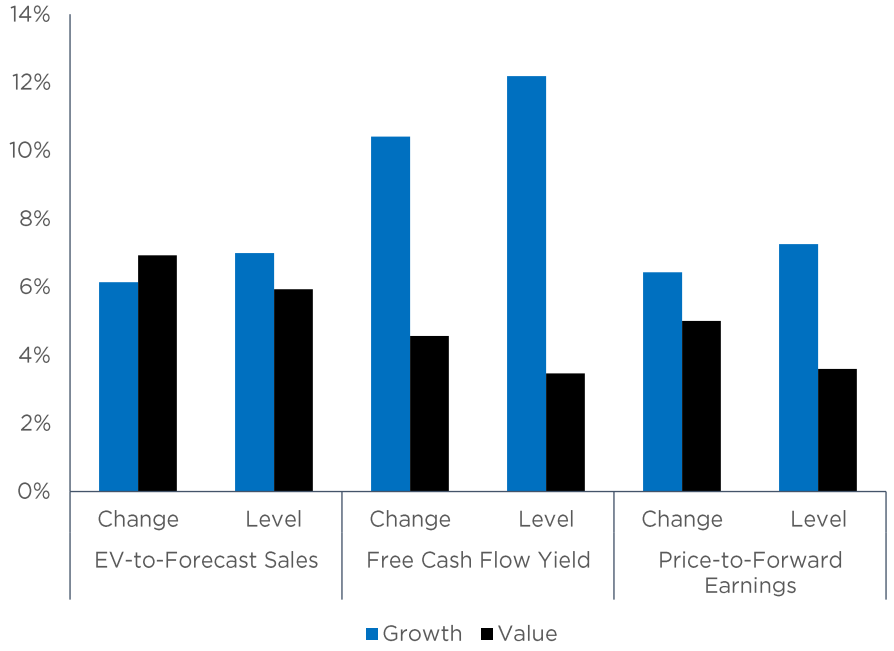
We analyzed factor efficacy, both level and change, for growth and value stocks separately, with the Sharpe Ratios (left) and annualized return spreads (right) shown below. Among growth stocks, change in Free Cash Flow Yield is the most effective metric, volatility-adjusted, but level of Free Cash Flow Yield generates the highest long-short spread. The classic Price-to-Forward Earnings multiple has the lowest Sharpe Ratio for growth stocks. In general, valuation is less effective for stock selection among value stocks than growth stocks as evidenced by the blue bars generally being above the black bars across most level and change metrics. For value stocks, change in EV-to-Forecasted Sales and change in Free Cash Flow Yield work best.

Sharpe Ratio of Level & Change by Valuation Metric
Top 2000 US Equities, Growth and Value Universe
Q1 vs. Q5 Spread Portfolio, Rebalanced Monthly
Through End-March, 2025



Source: Trivariate Research

Mean Annual Return of Level & Change by Valuation Metric
Top 2000 US Equities, Growth and Value Universe
Q1 vs. Q5 Spread Portfolio, Rebalanced Monthly
Through End-March, 2025

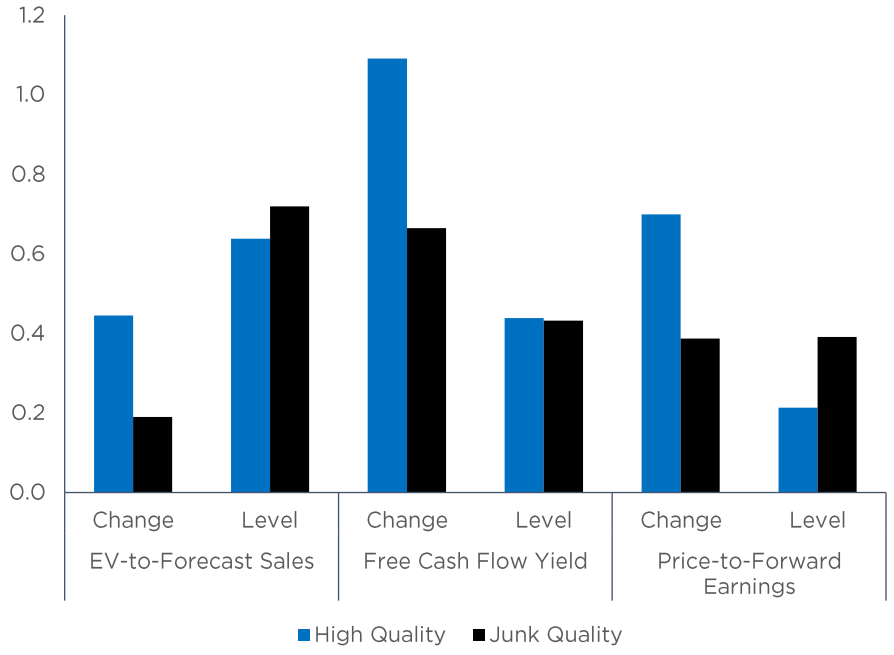


Source: Trivariate Research

DIFFERENT METRICS WORK FOR HIGH QUALITY THAN JUNK STOCKS

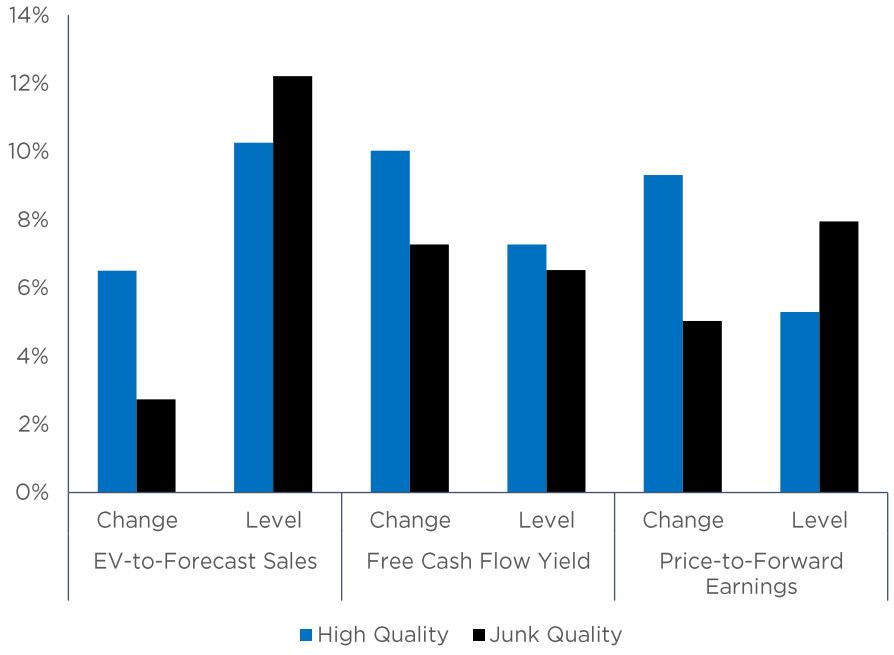
We also analyzed factor efficacy, both level and change, for high-quality and junk stocks separately, with the Sharpe Ratios (left) and annualized return spreads (right) shown. On a volatility-adjusted basis, change in free cash flow yield was the most effective valuation-based signal for stock selection among high-quality stocks. Among junk stocks, valuation was in general less helpful than among high-quality stocks. Level of EV-to-forecasted sales had the highest Q1-Q5 return spread among the six level / change metrics.

Sharpe Ratio of Level & Change by Valuation Metric
Top 2000 US Equities, Quality and Junk Universe
Q1 vs. Q5 Spread Portfolio, Rebalanced Monthly
Through End-March, 2025



Source: Trivariate Research

Mean Annual Return of Level & Change by Valuation Metric
Top 2000 US Equities, Quality and Junk Universe
Q1 vs. Q5 Spread Portfolio, Rebalanced Monthly
Through End-March, 2025



Source: Trivariate Research

VALUATION HAS WORKED BETTER SINCE 2022 THAN IT DID BEFORE

We show the efficacy of Price-to-Forward Earnings level in three-year increments. Valuation metrics were broadly effective from 2001-2006, then failed or were even perverse (with expensive beating cheap) from 2007-2021. Since 2022 however, the Sharpe Ratios and return spreads have worked, **meaning traditional valuation has mattered more for stock selection than anytime in twenty years.**

Performance Statistics of Price-to-Forward Earnings Q1 vs. Q5 Spread
By Cap. and Year Range, Ex-Financials & Real Estate
2001 to 2024

	Annualized Mean			Sharpe Ratio		
Year Range	Mega / Large	Mid	Small / Micro	Mega / Large	Mid	Small / Micro
2001 to 2003	26%	37%	27%	0.83	1.17	0.70
2004 to 2006	15%	12%	14%	1.30	1.25	1.10
2007 to 2009	5%	(5%)	(1%)	0.40	(0.40)	(0.07)
2010 to 2012	2%	1%	10%	0.18	0.07	0.90
2013 to 2015	4%	5%	(2%)	0.36	0.48	(0.11)
2016 to 2018	(2%)	(10%)	(3%)	(0.17)	(0.75)	(0.19)
2019 to 2021	(9%)	(10%)	7%	(0.45)	(0.41)	0.30
2022 to 2024	10%	14%	22%	0.46	0.68	0.82

Source: Trivariate Research

EXPENSIVE STOCKS WITH BIG CHANGES IN MULTIPLES ARE BAD

We studied the Top 1000 US Equities and analyzed quintiles of change and level of Price-to-Forward Earnings (left) and the median number of stocks in each cell (right). Cheap stocks with moves in that multiple that were not extreme performed best. Expensive stocks with multiple expansion performed the worst. Stocks that are in the most expensive 40% on price-to-forward earnings performed best if their multiples were more stable (2nd through 4th quintile on change), while expensive stocks with the most multiple expansion or contraction subsequently performed worst.

Sharpe Ratio by Quintile of Change (1-Month) and Level Of Price-to-Forward Earnings
Top 1000 US Equities, Ex-Financials & Real Estate
End-June, 1999 to End-March, 2025

Quintile	Multiple Contraction	Q2	Q3	Q4	Multiple Expansion
Cheap	0.58	0.74	1.03	0.85	0.77
Q2	0.69	0.75	0.84	0.65	0.63
Q3	0.51	0.82	0.80	0.74	0.43
Q4	0.11	0.62	0.61	0.56	0.24
Expensive	0.06	0.21	0.27	0.09	0.40

Source: Trivariate Research

Median Number of Stocks by Quintile of Change (1-Month) and Level Of Price-to-Forward Earnings
Top 1000 US Equities, Ex-Financials & Real Estate
End-June, 1999 to End-March, 2025

Quintile	Multiple Contraction	Q2	Q3	Q4	Multiple Expansion
Cheap	50	20	15	18	41
Q2	30	30	27	27	30
Q3	21	31	32	33	25
Q4	17	31	36	35	23
Expensive	21	29	33	28	22

Source: Trivariate Research

AMONG CHEAP STOCKS, PRIOR MULTIPLE CONTRACTION IS BEST

For stocks in the highest 60% of Free Cash Flow Yield, multiple contraction the previous month seems to result in better subsequent performance than multiple expansion the previous month. Among low Free Cash Flow Yield companies, the previous month change in FCF yield does not distinguish winners from losers the next month (left). We have a relatively small median sample size each month (right).

Sharpe Ratio by Quintile of Change (1-Month) and Level Of Free Cash Flow Yield
Top 1000 US Equities, Ex-Financials & Real Estate
End-June, 1999 to End-March, 2025

Quintile	Multiple Contraction	Q2	Q3	Q4	Multiple Expansion
Cheap	0.85	0.72	0.67	0.70	0.52
Q2	0.77	0.93	0.84	0.68	0.60
Q3	0.72	0.72	0.66	0.47	0.40
Q4	0.43	0.27	0.53	0.46	0.49
Expensive	0.30	0.24	0.29	0.15	0.33

Source: Trivariate Research

Median Number of Stocks by Quintile of Change (1-Month) and Level Of Free Cash Flow Yield
Top 1000 US Equities, Ex-Financials & Real Estate
End-June, 1999 to End-March, 2025

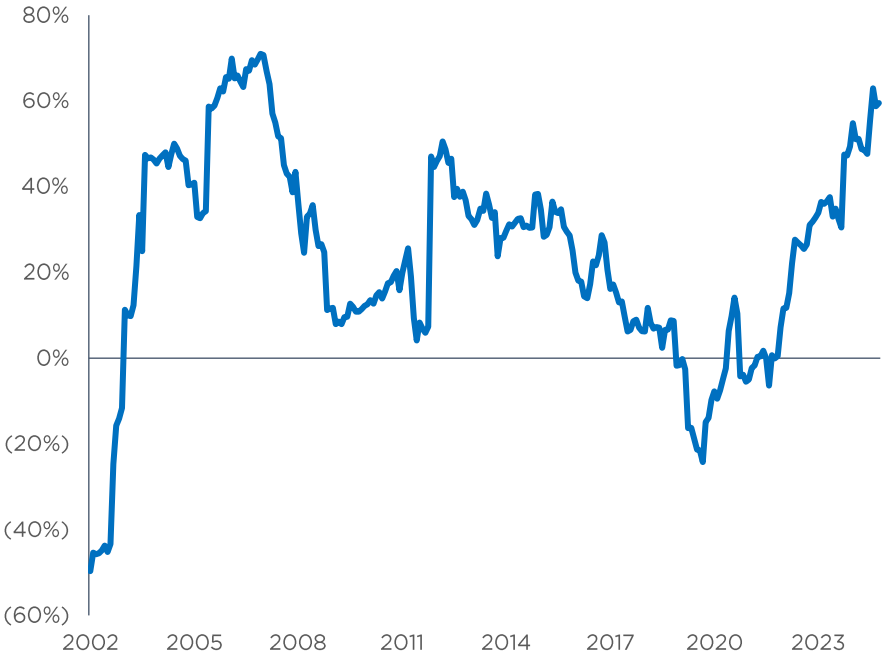
Quintile	Multiple Contraction	Q2	Q3	Q4	Multiple Expansion
Cheap	52	22	12	21	41
Q2	32	34	24	34	30
Q3	20	35	36	40	22
Q4	14	32	49	36	18
Expensive	31	25	25	19	37

Source: Trivariate Research

FCF YIELD AND MOMENTUM HAVE THEIR HIGHEST CORR. IN 20 YEARS

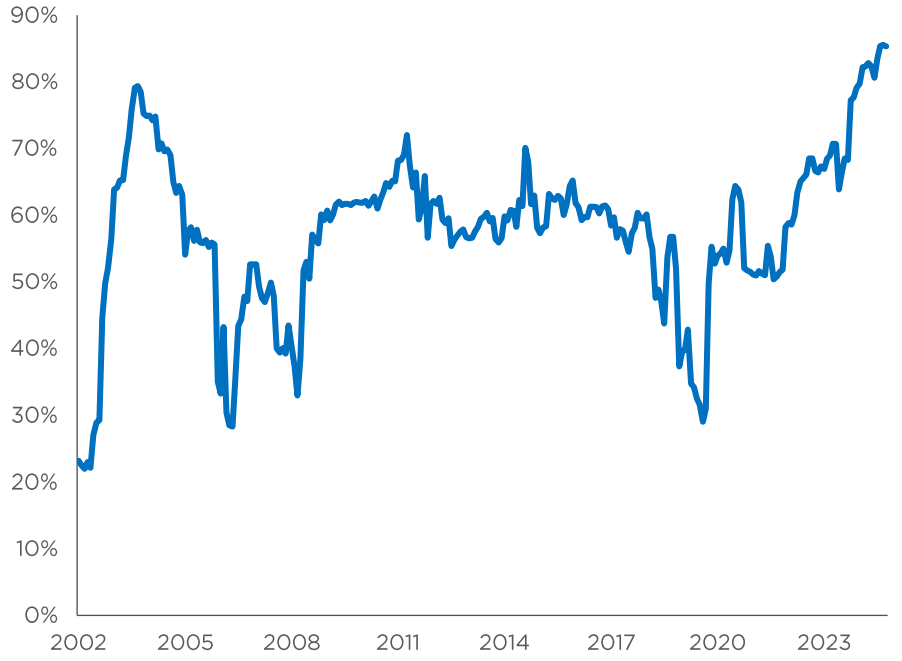
Traditional quantitative models have both valuation and momentum factors. The correlation between the two is near a 20-year high. The 36-month rolling correlation between the top quintile on Free Cash Flow Yield and the top quintile in 12-month price momentum (left) is at its highest level since before the Financial Crisis. The correlation is even stronger among bottom quintile stocks. **Valuation and momentum were strongly aligned in 2024 and though in a different direction, remain so this year.**

Rolling 36-Month Correlation: Factor Top Quintile
Free Cash Flow Yield vs. 1-Year Momentum
Beta-Adjusted Returns
Through End-March, 2025



Source: Trivariate Research

Rolling 36-Month Correlation: Factor Bottom Quintile
Free Cash Flow Yield vs. 1-Year Momentum
Beta-Adjusted Returns
Through End-March, 2025

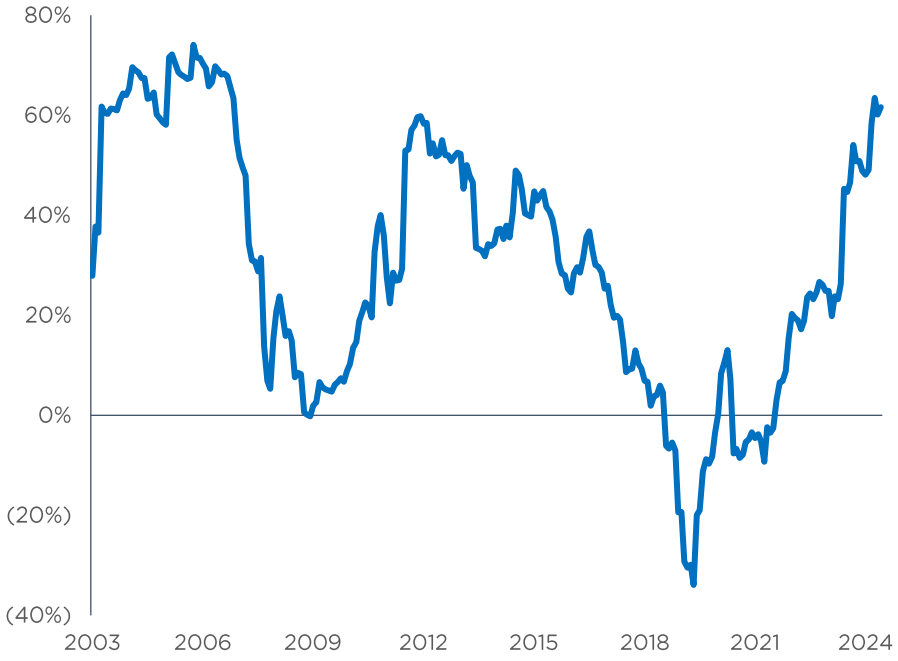


Source: Trivariate Research

SO DO EV-TO-FORECASTED SALES AND PRICE MOMENTUM

The correlation between EV-to-Forecasted Sales and 12-month momentum is also at 20-year highs for both top (left) and bottom quintile (right) stocks on these metrics. The overall correlation values are slightly lower than for the FCF Yield and Momentum correlations, but still noteworthy.

Rolling 36-Month Correlation: Factor Top Quintile
EV-to-Forecast Sales vs. 1-Year Momentum
Beta-Adjusted Returns
Through End-March, 2025



Source: Trivariate Research

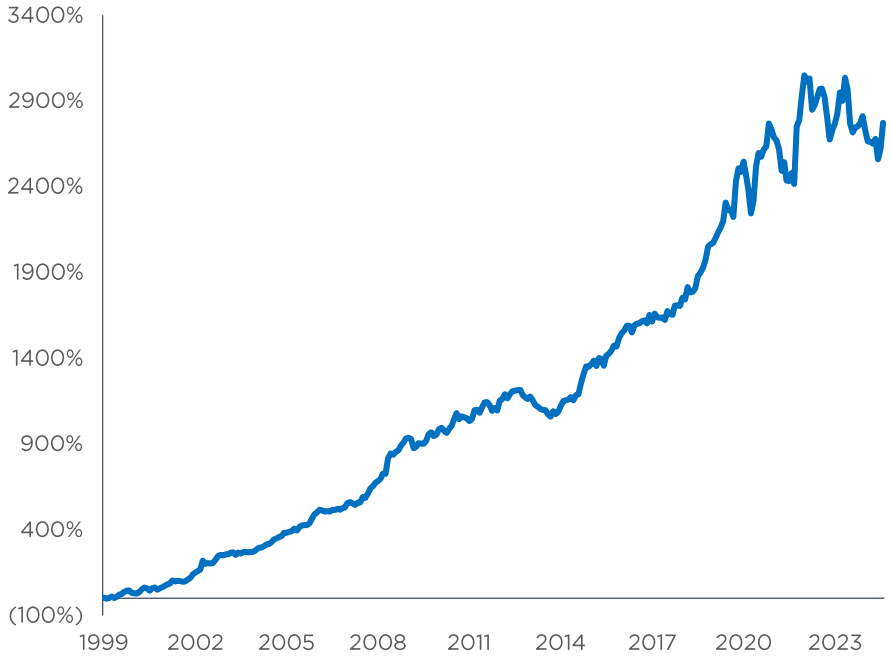
Rolling 36-Month Correlation: Factor Quintile Spread
EV-to-Forecast Sales vs. 1-Year Momentum
Beta-Adjusted Returns
Through End-March, 2025

Source: Trivariate Research

INDUSTRIALS IS THE SECTOR WHERE VALUATION WORKS BEST

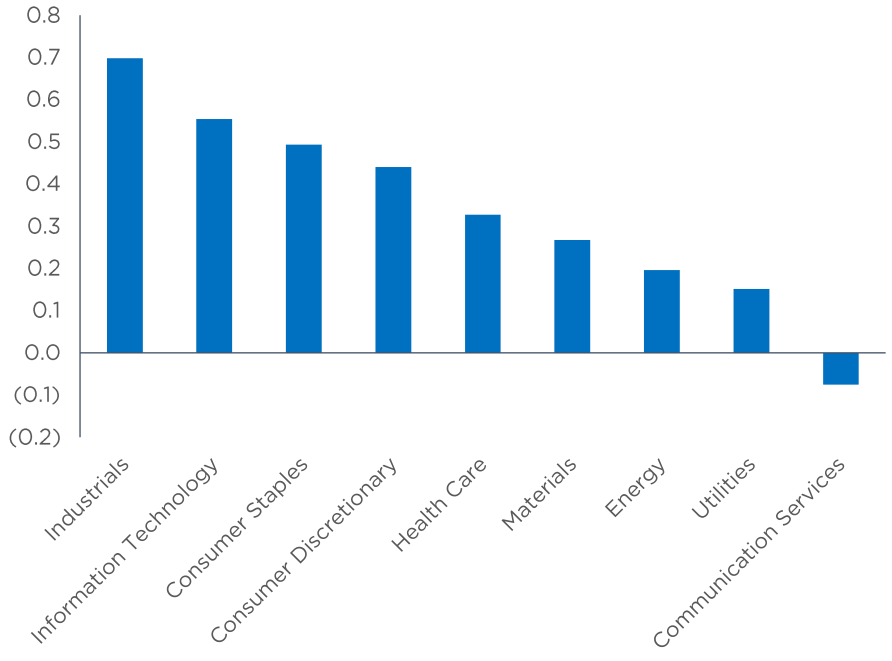
We looked at nine sectors, and six valuation signals for each, for a total of 54 sector level signal assessments. The highest Sharpe Ratio signal of those 54 metrics was change in Free Cash Flow Yield among Technology stocks (left), though that signal has not worked well in the last year. We took the median Sharpe Ratio of the six different valuation metrics over the last 25 years, by sector, and found that valuation works best among Industrials stocks, and is perverse on average in Communication Services (right).

Technology Sector, Change in FCF Yield Factor Efficacy
Cumulative Return, Rebalanced Monthly
Top 2000 US Equities, Ex-Financials & Real Estate
Through End-March, 2025



Source: Trivariate Research

Median Sharpe Ratio by Sector
Q1 vs. Q5 Spread of Level and Change for Valuation Metrics
Top 2000 US Equities, Ex-Financials & Real Estate
Through End-March, 2025



Source: Trivariate Research

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