

Quantitative Profiles

Five reasons for high dividend yield in 2024

US Regime signal still muddled...

Our US Regime Indicator (based on a 3m moving average of an amalgamation of eight macro inputs) edged deeper into a Downturn in December, but inputs are mixed. Earnings Revisions, ISM Manufacturing, Capacity Utilization and HY credit improved (i.e. moved the indicator into Recovery), but inflation, 10y Tsy yld and Leading Indicators dragged it lower. GDP was the only unchanged factor. The unadjusted (1m) indicator flat-lined. This is coupled with a perfectly neutral signal from our sentiment indicator (see [SSI](#)). But the earnings recovery appears to be intact (see [Earnings Tracker](#)).

... but Global Wave has troughed

Our Chief Global Quant Strategist Nigel Tupper's [Global Wave](#) has troughed. Upturns average two years. A rising Global Wave is usually accompanied by equity rallies, and cyclical regions and sectors (Financials, IT, Media, Cons. Disc. & Industrials) tend to lead.

Quality barbell, but High beat Low in '23

Consistent with 2023's Downturn, Quality (+25% for group) undisputedly won in 2023, taking 3 of the top 5 spots - 5y & 1y Return on Equity, plus Return on Assets with +41%, +24% and +26% returns, respectively. But Quality now trades at a remarkable 89% historical premium. Consistent with mid-year muddled signals, Low Quality (+19%) also beat the eq-wt. S&P 500, with all Low Quality factors ahead. 2023's narrowest market since 1987 saw Large beat Small (+16.3ppt spread between S&P 500 size deciles). Low Quality and Small Size are now cheap, neglected and benefit from a rising Global Wave.

2023 felt like a Growth year, but wasn't so clear-cut

Growth factors outperformed Value but lagged the equal-wt. S&P 500 in 2023. Two of five Growth factors (Long Duration, +21.0% and Long term EPS Growth, +15.0%, both secular growth factors led but cyclical growth factors like Upward EPS Revisions (+7.3%) and EPS Momentum (+5.2%) lagged. Elevated valuations and extreme positioning in four of the five Growth factors we track are headwinds for Growth in 2024.

OK Boomer, remember equity income?

2024 could be a banner year for dividends: (1) High Div. Yield tends to lead in Recoveries/ Global Wave upturns; (2) Dividends bridge a gap between muddled macro signals that stymie a full cyclical/small cap recovery but waning credit risk as the Fed pauses and/or cuts; (3) Even if the Fed hikes a few more times amid sticky inflation, recall that 2022's year of rate hikes saw Dividend Yield lead by >15ppt (see [QP22](#)) on inflation and downside protection. (4) Trillions of USD sit in cash in retiree accounts; if short rates fall - 5ppt seems to be the tipping point - see [FAQs](#) - flows would seek equity income. 85 of S&P 500 stocks offer higher dividend yield over the next 3yrs than cash, assuming short rates peak here. Capital appreciation would be "gravity". This new list (Magnificent 85?) is dominated by overweighted sectors Real Estate, Energy and Financials plus Utilities and Comm. Svcs. (mkt wt.); (5) Div. yield is unloved & cheap after 2023's credit scares.

Download stock lists/historical returns in Excel: [Research Library](#)

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Refer to important disclosures on page 38 to 40.

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Exhibit 1: Best and worst performing screens in 2023

As of 12/31/2023

Top 5 / Bottom 5 screens

Top 5 screens	Perf.
ROE (5-Yr Avg. Adj. by Debt)	40.8%
ROA	25.9%
ROE (1-Yr Avg. Adj. by Debt)	24.3%
Share Repurchase	22.5%
Institutional Neglect	22.5%
S&P 500 (Equal weighted)	12.1%

Bottom 5 screens	Perf.
Price Returns (3-Month)	-1.4%
Earnings Yield	3.3%
Low Price	3.8%
Forward Earnings Yield	4.9%
Price Returns (9-Month)	5.0%
S&P 500 (Equal weighted)	12.1%

Source: FactSet, BofA US Equity & Quant Strategy

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Disclaimer: The valuations and screens contained herein are useful in assessing comparative valuations and comparative earnings prospects and are not intended to recommend transactions relating to any specific security. These indicators should be used in investment decisions only with other factors including financial risk, investment risk, management strategies and operating and financial outlooks.

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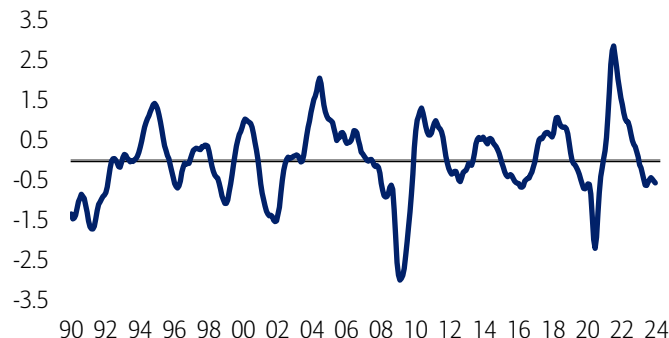
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More US macro muddle...

US Regime Indicator declined in December, in a muddle

Exhibit 2: US Regime Indicator declined in December

The US Regime indicator (Jan. 1990-December 2023)



Source: BofA US Equity & Quant Strategy, Refinitiv, ICE Data Indices, LLC, Institute for Supply Management, Bureau of Labor Statistics, Federal Reserve

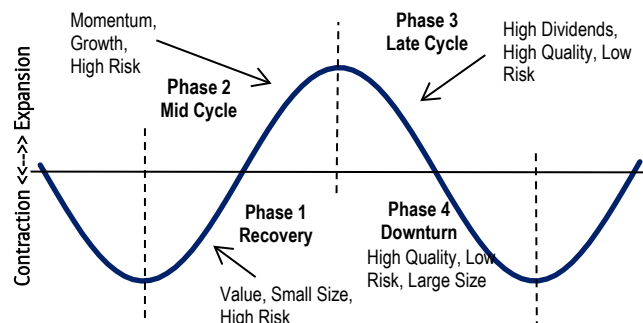
Note: Phase 1 – Early Cycle; Phase 2 – Mid Cycle; Phase 3 – Late Cycle; Phase 4 – Recession

Disclaimer: The indicator identified as the US Regime Indicator above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise be relied upon by third parties for any other purpose, without the written consent of BofA Global Research. This indicator was not created to act as a benchmark.

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Exhibit 3: US Regimes – a heuristic

High Quality, Low Risk and Large Size tend to fare well in Downturn



Source: BofA US Equity & US Quant Strategy

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Exhibit 4: Four raw level inputs improved from last month (EPS Revisions, ISM Manufacturing, Capacity Utilization and High Yield credit spreads)

US Regime indicator inputs (available as of 12/31/2023)

	Z-Score summary				Raw Level summary			Description	
	Z-Score base on:	Z-Score Latest	Z-Score Prev.	1m chg (+/-)	Current Level	Prev Month	1m chg (+/-)	L-T Avg	Description
EPS Revisions Ratio	level	-0.36	-0.46	+	0.73	0.69	+	0.9	% of companies with improving EPS forecasts vs 3-m ago vs those with declining forecasts
Inflation composite	y/y	-0.41	-0.30	-	463.7	465.7	-	293.0	A BofA composite based on CPI, PPI, Commodity prices and wage inflation
CPI (11/23)					3.1	3.2	-	2.8	Consumer Price Index
PPI (11/23)					-0.9	-0.4	-	2.5	Producer Price Index
Commodities (y/y, 11/23)					-2.2	2.6	-	5.0	Prices of 19 commodities weighted by importance to global trade
AHE (y/y, 11/23)					4.3	4.4	-	3.2	Average Hourly Earnings
GDP Forecast	level	-1.10	-1.11	+	1.3%	1.3%	-	2.5%	US GDP Economic Forecast
10-yr US Treasury Yield	y/y	-0.09	0.47	-	3.88	4.33	-	4.23	General level of interest rates in the economy
ISM Manufacturing PMI	level	-1.05	-1.19	+	47.4	46.7	+	52.5	Survey measuring manufacturing trends (>50 expansion)
Leading Econ. Indicators	y/y	-1.65	-1.66	+	103.0	103.9	-	91.0	Factors that can predict economic changes before shifts occur
Capacity Utilization	y/y	-0.47	-0.61	+	78.8	78.7	+	78.7	Tracks the utilization of the installed productive capacity in the production of goods and svcs
High Yield credit spread	-1*y/y	0.80	0.53	+	339.0	384.0	+	539.7	A gauge of financial/credit stress (higher = more stress)

Source: BofA US Equity & Quant Strategy, Refinitiv, ICE Data Indices, LLC, Institute for Supply management, Bureau of Labor Statistics, Federal Reserve

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US Regime Indicator as a tool for factor investing

Factor behavior has been relatively well behaved during different phases of the US Regime cycle. High Quality and Large Cap tend to outperform during the “Downturn” phase of the cycle, whereas Value, High Risk and Small Caps tend to outperform during the “Recovery” phase.

Exhibit 5: Style performance in the four US Regime indicator phases

Relative performance vs. equal-weighted S&P 500

		Value	Growth	Momentum	High Quality	Low Quality	High Risk	Low Risk	Large Cap	Small Cap	Low Beta	High Div. Yield
Phase 1	Avg:	19.4%	-7.5%	-5.9%	-6.0%	8.4%	18.4%	-10.7%	-8.4%	19.0%	-12.8%	7.0%
Recovery	Median:	14.9%	-5.3%	-1.7%	-6.5%	10.7%	12.9%	-12.5%	-7.8%	11.2%	-13.4%	7.8%
(Current)	Hit Rate:	100.0%	12.5%	50.0%	25.0%	75.0%	75.0%	25.0%	12.5%	75.0%	12.5%	87.5%
Phase 2	Avg:	3.8%	10.9%	11.2%	0.8%	3.9%	11.0%	-6.6%	-2.1%	6.0%	-12.6%	-6.7%
Mid Cycle	Median:	4.3%	2.3%	4.0%	-0.7%	2.2%	10.3%	-4.9%	-6.6%	9.1%	-12.1%	-7.1%
	Hit Rate:	77.8%	66.7%	77.8%	44.4%	66.7%	77.8%	22.2%	33.3%	77.8%	0.0%	11.1%
	Hit Rate ex. Tech Bubble:	87.5%	62.5%	75.0%	37.5%	75.0%	75.0%	25.0%	25.0%	87.5%	0.0%	12.5%
Phase 3	Avg:	-0.8%	-6.2%	-3.4%	3.5%	-6.9%	-11.4%	8.4%	-1.2%	-7.6%	7.0%	7.5%
Late Cycle	Median:	-0.9%	-1.8%	2.3%	5.8%	-6.6%	-8.9%	9.8%	2.3%	-8.1%	3.2%	3.5%
	Hit Rate:	44.4%	33.3%	55.6%	66.7%	22.2%	11.1%	77.8%	55.6%	11.1%	55.6%	77.8%
Phase 4	Avg:	-3.2%	1.5%	2.4%	7.5%	-3.1%	-3.7%	2.3%	6.7%	-3.6%	-2.5%	-3.9%
Downturn	Median:	-6.9%	1.1%	-0.1%	7.6%	0.0%	0.0%	3.0%	6.6%	-7.7%	-0.3%	-6.0%
	Hit Rate:	25.0%	62.5%	50.0%	75.0%	37.5%	50.0%	75.0%	87.5%	12.5%	50.0%	25.0%

Note: Performance is calculated as price return relative to equal-weighted S&P 500, for all styles except High Dividend Yield, where total return for the style and the index are used. Hit rate = % of months in phase where style outperformed equal-weighted S&P 500 and based on the January 1990 – present time period.

Source: BofA US Equity & Quant Strategy, Refinitiv, ICE Data Indices, LLC, Institute for Supply Management, Bureau of Labor Statistics, Federal Reserve

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Inputs for the US Regime Indicator include the following eight macroeconomic or top-down variables:

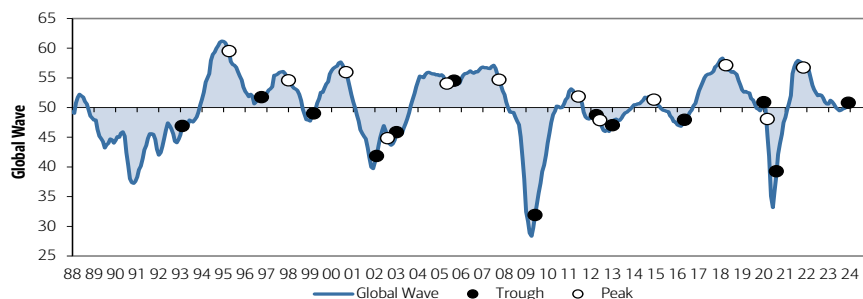
- **Earnings Revision ratio:** Calculated as the ratio between the number of companies in the S&P 500 for which Thomson Financial consensus earnings estimates have been raised versus those that have been lowered. A rising ratio indicates an improving economic cycle.
- **ISM PMI:** ISM PMI Institute for Supply Management Manufacturing Purchasing Managers Index, represented as the Z-Score. The ISM Manufacturing Index monitors economic activity as reported by 300 supply management professionals. The reading of the index above (below) 50 indicated economic expansion (contraction).
- **Inflation:** The 12-month change in the BofA Inflation Composite (see methodology further below), represented as the Z-Score. Rising inflation indicates improving economic conditions.
- **GDP Forecast:** The next 12-month US GDP growth forecast from the Federal Reserve Bank of Philadelphia Survey, represented as the Z-Score.
- **Leading Economic Indicators index:** The 12-month change in the Conference Board US Leading Index of Ten Economic Indicators, represented as a Z-Score. A rising Z-Score indicates improving economic conditions.
- **US Capacity Utilization:** The 12-month change in US capacity utilization, represented as the Z-score. The capacity utilization rate indicates the percentage of total economic capacity currently utilized. Rising capacity utilization implies improving economic conditions. Rising capacity utilization suggests more expanding economic cycle and potentially rising inflationary pressure.
- **10-yr US Treasury Bond Yield:** The 12-month change in the bond yield, represented as the Z-Score. Rising yields indicate improving economic conditions.
- **High Yield corporate bond credit spread:** The 12-month change in the US High Yield credit spread of the ICE BofA US High Yield Index, represented as a Z-score. Falling spreads indicate improving economic conditions.

Global Wave has troughed

Our Chief Global Quant Strategist Nigel Tupper's [Global Wave](#) has troughed. Upturns average two years. A rising Global Wave is usually accompanied by equity rallies, and cyclical regions and sectors (Financials, IT, Media, Cons. Disc. & Industrials) tend to lead.

Chart 1: Global Wave

The Global Wave has troughed after a 25-months downturn



Source: BofA Global Quantitative Strategy, MSCI, IBES, Haver, Bloomberg, OECD, IMF, ICE Bond Indices, National Statistics Database
The sentiment indicator identified as Global Wave above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for other purpose, without the prior written consent of BofA Research. This sentiment indicator was not created to act as a benchmark.

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Value likely, Dividend Yield a good hedge

Exhibit 6: Historically, Russell 1000 Growth lagged Russell Value after periods of extreme (25%+) outperformance

Subsequent Russell 1000 Growth index relative performance vs the Russell 1000 Value index after 12-month rolling periods of 25%+ outperformance

	Next 3 months	Next 6 months	Next 12 months
Rel. Ret:	-3.9%	-10.4%	-16.5%
Hit Rate (Value led):	63%	79%	74%

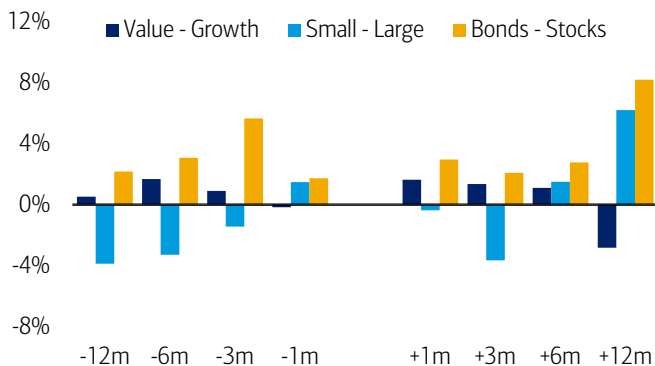
Source: BofA US Equity & Quant Strategy, Bloomberg

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The Russell 1000 Growth index outperformed the Russell 1000 Value index by 33% in 2023. Historically, Russell Value led Russell Growth over the 3-, 6- and 12- subsequent months after episodes of Russell Growth extreme outperformance.

Exhibit 7: First Fed rate cut favors Value, Small caps and Bonds

Factor performance prior and after the first Fed rate cut



Source: Bloomberg, US Equity & Quant Strategy; Dartmouth university data library; Fama-French definition of Value, Growth, Small Cap and Large Cap

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Exhibit 8: S&P 500 sectors' outperformance hit rate around the first Fed cut

% of time sectors outperformed the S&P 500 around the first Fed cut since 1974

	# of months before/after first cut							
	-12	-6	-3	-1	1	3	6	12
Comm. Svcs.	56%	56%	33%	89%	11%	33%	44%	44%
Cons. Disc.	33%	44%	22%	22%	89%	78%	89%	44%
Staples	78%	67%	89%	56%	33%	11%	22%	33%
Energy	56%	44%	56%	67%	56%	56%	22%	56%
Financials	56%	67%	67%	67%	33%	33%	56%	56%
Health Care	56%	44%	67%	22%	22%	22%	22%	11%
Industrials	44%	56%	22%	33%	78%	56%	56%	44%
Tech	33%	33%	33%	33%	78%	44%	78%	67%
Materials	33%	56%	44%	33%	56%	56%	78%	78%
Real Estate	44%	44%	44%	56%	44%	56%	89%	67%
Utilities	22%	44%	56%	56%	44%	33%	22%	67%

Source: BofA US Equity & Quant Strategy, FactSet, Bloomberg

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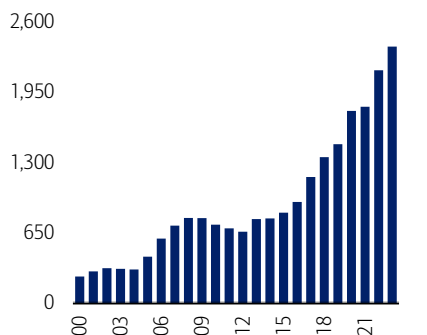
Dividend yield in 2024

Following a year of investors bracing for a recession as the Fed hiked cash yields to 5%+, every type of US investor holds more cash and less equities. Expectations for a soft landing and Fed easing cycle have dominated the headlines, but cash levels have barely budged since mid-2023. We see some inklings of warming sentiment toward equities in our [Sell Side Indicator](#) and in [BofA's Global Fund Manager Survey](#), but are far from levels of euphoria that would mark the end of a bull market.

Institutional and individual investors are sitting on elevated cash levels

Exhibit 9: Private equity funds: record dry powder

Private equities' total dry powder (\$B) (2000-2023 as of 9/12/2023)

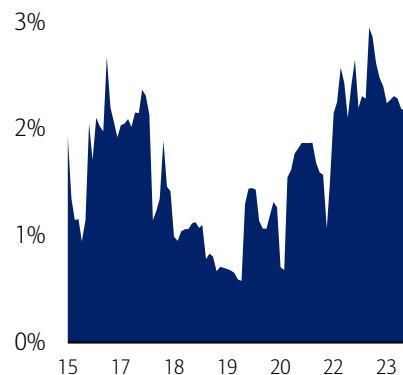


Source: Preqin, BofA Global Research

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Exhibit 10: Equity mutual funds: cash is 1 std dev above average

US large cap equity mutual funds: Cash as a % of AUM

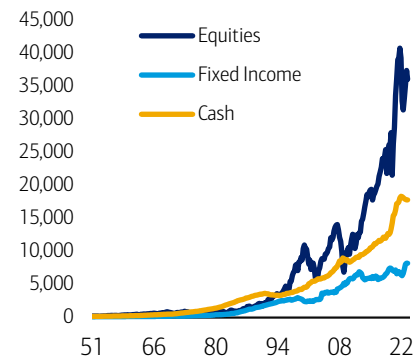


Source: FactSet Ownership, BofA US Equity & Quant Strategy

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Exhibit 11: Households have \$18tn in cash, up from \$13tn pre-COVID

US household financial assets: equities, fixed income, cash



Source: BofA Research Investment Committee, Haver, Federal Reserve FoF

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Retail cash may be used to fund equities, with an emphasis on equity income

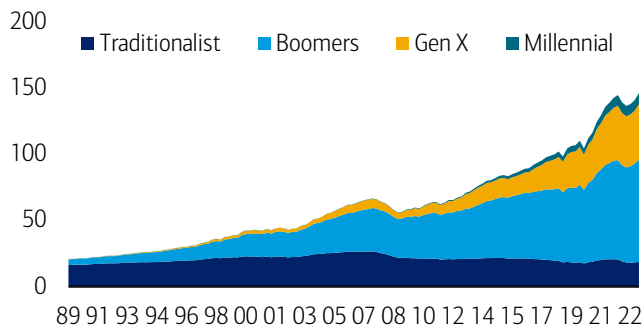
We expect more cash to revert to equity income as retirees reach for yield as cash yields ebb. Retirees hold 2/3 of total net worth and are generating a spread on high cash yields and low mortgage costs.

Exhibit 12: Household net worth = \$146T (540% of GDP)

Boomers + Traditionalists = 2/3 of total net worth

Lower fed funds rate = less compelling income from cash

Household net worth by generation (1989-2Q23)

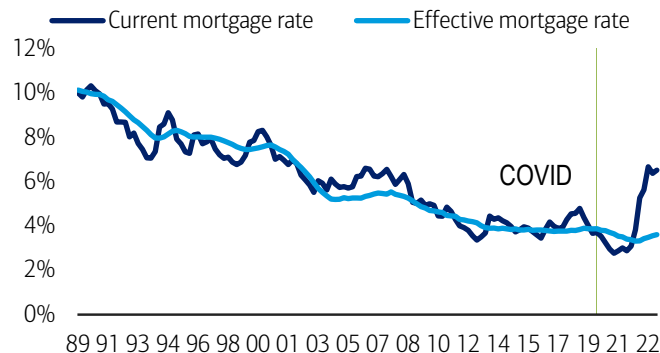


Source: Haver Analytics, BofA US Equity & Quant Strategy

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Exhibit 13: Effective mortgage rate (liability cost) is 3.6%

Current mortgage rate vs. effective rate on all mortgage debt outstanding (1989-2Q23)



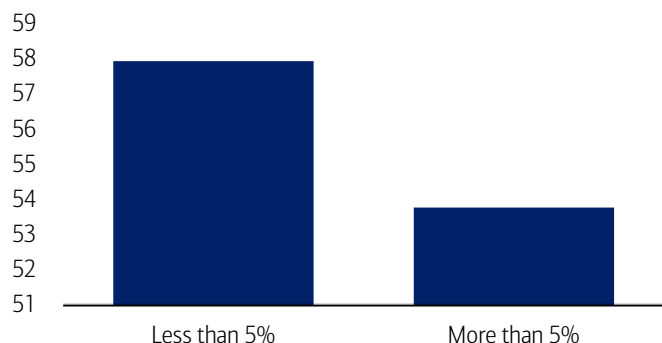
Source: Bloomberg, BofA US Equity & Quant Strategy

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The 5% tipping point: based on our Sell Side indicator data history as well as the RIC Report, investors allocate more toward equities when cash yields are below 5%, and vice versa.

Exhibit 14: 5% cash yield mark the tipping point for higher / lower equity allocations

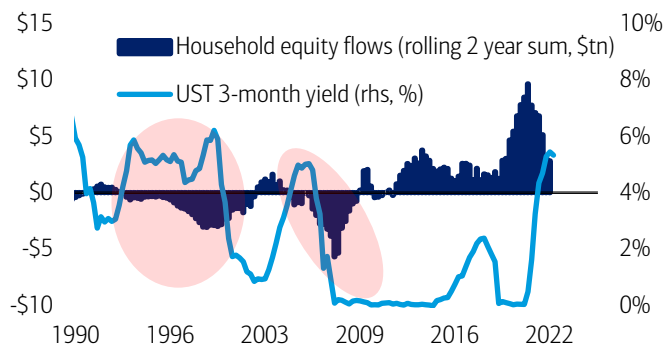
Sell side indicator bucketed by 3m US treasury yield (Aug 1985 to Dec 2023)



Source: BofA US Equity & Quant Strategy, Bloomberg

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Exhibit 15: Households typically sell stocks once cash pays >4.5% 3-month US treasury yield vs US household equity flows



Source: BofA Research Investment Committee, Haver, Federal Reserve FoF, Bloomberg. Note: Flow data through 3Q22. Household equity flows are based on buying/selling of single name equities and equity mutual fund shares.

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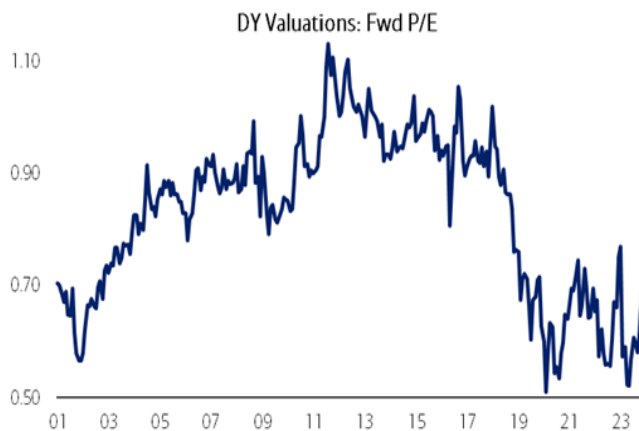
Exhibit 16: Dividend yield is unloved by active funds 9/08 - present.



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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Exhibit 17: ..and relatively inexpensive vs. history 29/08 - present.



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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Top decile factor performance

Exhibit 18: 5-yr Debt Adj'd ROE fared best in 2023

Quantitative Strategies Performance (Top Decile as of 12/31/2023)

Strategies (based on the S&P 500)						2 Yr Perf.			3 Yr Perf.		5 Yr Perf.		Inception Date
		1 M	3 M	6 M	12 M	YTD	Gross	Anlzd	Gross	Anlzd	Gross	Anlzd	
ROE (5-Yr Avg. Adj. by Debt)	Quality	8.6	14.8	11.0	40.8	40.8	2.1	1.1	36.2	10.9	130.5	18.2	4/30/1997
ROA	Quality	7.9	13.2	10.6	25.9	25.9	-4.2	-2.1	25.9	8.0	107.1	15.7	4/30/1997
ROE (1-Yr Avg. Adj. by Debt)	Quality	6.2	9.8	7.7	24.3	24.3	-7.7	-3.9	18.3	5.8	90.4	13.7	4/30/1997
S&P 500 Index (Price Return)	Benchmark	4.4	11.2	7.2	24.2	24.2	0.1	0.0	27.0	8.3	90.3	13.7	
Share Repurchase	Corp Cash Deployment	5.1	9.5	11.2	22.5	22.5	8.1	4.0	48.0	14.0	84.5	13.0	12/31/2004
Institutional Neglect	Miscellaneous	5.6	9.8	4.2	22.5	22.5	8.4	4.1	32.1	9.7	84.3	13.0	12/31/1988
Most Active	Technical	7.7	13.0	8.1	22.1	22.1	4.4	2.2	35.8	10.7	104.9	15.4	8/31/2003
ROC	Quality	5.3	10.7	8.3	21.6	21.6	-4.4	-2.2	23.7	7.4	96.1	14.4	4/30/1997
ROE (1-Yr Average)	Quality	7.3	13.4	9.2	21.1	21.1	3.6	1.8	37.6	11.2	106.4	15.6	4/30/1997
High Duration	Growth	8.2	15.3	6.6	21.0	21.0	-9.8	-5.1	13.0	4.1	83.5	12.9	12/31/1988
High Foreign Exposure	Miscellaneous	8.8	11.0	4.5	19.5	19.5	1.2	0.6	31.7	9.6	120.6	17.1	12/31/1988
ROE (5-Yr Average)	Quality	6.7	13.4	6.0	18.1	18.1	3.7	1.8	31.4	9.5	87.2	13.4	4/30/1997
Price Returns (12-Month plus 1-Month Reversal)	Technical	2.7	10.6	1.7	18.0	18.0	9.9	4.8	30.9	9.4	81.2	12.6	1/31/2010
High EPS Estimate Dispersion	Risk	8.9	8.8	8.1	15.8	15.8	20.0	9.5	52.6	15.1	63.1	10.3	12/31/1988
High Beta	Risk	11.3	10.6	5.6	15.5	15.5	5.3	2.6	45.1	13.2	107.5	15.7	12/31/1988
High Projected 5-Yr Growth	Growth	5.5	10.9	3.2	15.0	15.0	10.0	4.9	31.6	9.6	102.3	15.1	12/31/1988
Price Returns (12-Month plus 1-Month)	Technical	8.0	14.8	9.9	14.6	14.6	-1.0	-0.5	18.7	5.9	75.4	11.9	1/31/2010
S&P 500 Equal Weighted (Total Return)	Benchmark	7.0	12.2	6.9	14.4	14.4	1.6	0.8	31.9	9.7	92.0	13.9	
High Variability of EPS	Risk	7.8	9.9	6.7	13.3	13.3	1.5	0.7	30.0	9.2	75.2	11.9	12/31/1988
Analyst Coverage Neglect	Miscellaneous	7.8	13.4	6.9	12.2	12.2	-2.8	-1.4	22.3	7.0	81.2	12.6	6/30/1989
DDM Valuation	Value	5.5	8.0	2.6	12.1	12.1	1.7	0.9	19.5	6.1	28.5	5.1	12/31/1988
S&P 500 Equal Weighted (Price Return)	Benchmark	6.8	11.6	5.7	12.1	12.1	-2.5	-1.3	24.4	7.6	73.3	11.6	
Relative Strength (Price/200-Day Moving Avg)	Technical	4.9	9.5	1.6	11.9	11.9	3.3	1.7	33.0	10.0	93.5	14.1	1/31/2010
Relative Strength (30wk/75wk)	Technical	6.4	16.5	10.0	11.9	11.9	3.4	1.7	23.6	7.3	80.6	12.6	8/31/1995
High Dividend Growth (Total Return)	Corp Cash Deployment	6.4	10.1	8.9	11.7	11.7	9.5	4.7	50.5	14.6	110.7	16.1	10/2/2001
Price Returns (12-Month)	Technical	6.4	14.7	5.5	11.6	11.6	8.6	4.2	28.4	8.7	80.7	12.6	1/31/2010
Low EPS Torpedo	Growth (Negative)	7.8	9.7	13.0	11.4	11.4	-2.4	-1.2	32.8	9.9	99.4	14.8	12/31/1988
Short Interest	Miscellaneous	5.3	11.3	5.7	10.9	10.9	-5.9	-3.0	17.9	5.6	51.1	8.6	10/31/2013
Low Price to Free Cash Flow	Value	6.3	9.2	9.5	10.8	10.8	-1.1	-0.5	24.3	7.5	39.4	6.9	7/30/2003
High Free Cash Flow to EV	Value	5.2	8.4	12.0	10.6	10.6	-2.8	-1.4	20.5	6.4	44.3	7.6	7/31/2010
Dividend Yield (Total Return)	Corp Cash Deployment	9.7	14.9	13.1	10.2	10.2	14.3	6.9	60.4	17.1	92.6	14.0	10/3/2001
Relative Strength (10wk/40wk)	Technical	2.4	7.5	1.0	9.8	9.8	2.1	1.1	25.3	7.8	74.3	11.8	1/31/2010
Price Returns (11-Month since 1 year ago)	Technical	4.5	12.0	3.8	9.4	9.4	3.1	1.5	19.3	6.0	75.2	11.9	1/31/2010
Low EV/EBITDA	Value	4.9	5.5	7.2	9.1	9.1	1.7	0.8	36.8	11.0	37.7	6.6	9/30/2001
Low Price to Cash Flow	Value	4.7	5.1	4.9	9.0	9.0	-2.9	-1.5	23.8	7.4	16.4	3.1	12/31/1988
High Dividend Growth (Price Return)	Corp Cash Deployment	5.9	9.4	7.5	8.7	8.7	3.6	1.8	39.6	11.8	85.8	13.2	12/31/2004
Low PE to GROWTH	GARP	5.7	8.0	5.4	8.5	8.5	0.5	0.3	32.9	9.9	58.6	9.7	12/30/1988
Forecast Positive Earnings Surprise	Growth	5.1	9.2	3.0	7.9	7.9	-4.1	-2.1	20.1	6.3	71.6	11.4	12/31/1988
Forecast Negative Earnings Surprise	Growth (Negative)	7.8	13.7	7.0	7.6	7.6	0.3	0.1	28.4	8.7	60.1	9.9	12/31/1988
Relative Strength (5wk/30wk)	Technical	2.8	3.7	-2.3	7.5	7.5	1.3	0.7	30.9	9.4	78.2	12.2	1/31/2010
Upward Estimate Revisions	Growth	3.9	7.8	-1.7	7.3	7.3	11.0	5.4	62.8	17.6	109.5	15.9	12/31/1988
Small Size	Miscellaneous	12.2	13.9	6.1	6.8	6.8	-7.6	-3.9	21.7	6.8	53.0	8.9	12/31/1988
Low Price to Sales	Value	6.1	10.2	6.1	6.5	6.5	-2.5	-1.3	28.9	8.8	80.0	12.5	12/31/1988
Low Price to Book Value	Value	10.3	15.3	13.9	5.7	5.7	-5.5	-2.8	32.8	9.9	55.7	9.3	12/31/1988
EPS Momentum	Growth	5.7	8.1	1.9	5.2	5.2	-6.0	-3.1	17.0	5.4	55.7	9.3	12/31/1988
Price Returns (9-Month)	Technical	4.7	11.1	4.1	5.0	5.0	-0.9	-0.4	26.6	8.2	82.1	12.7	1/31/2010
Forward Earnings Yield	Value	9.9	13.6	12.2	4.9	4.9	-0.4	-0.2	38.7	11.5	56.3	9.4	12/31/1988
Dividend Yield (Price Return)	Corp Cash Deployment	9.1	13.4	10.2	4.2	4.2	2.8	1.4	37.8	11.3	48.8	8.3	12/31/1988
Low Price	Risk	9.7	13.4	6.7	3.8	3.8	-1.5	-0.8	32.0	9.7	66.3	10.7	12/31/1988
Earnings Yield	Value	8.4	11.5	12.1	3.3	3.3	-14.3	-7.4	12.6	4.0	26.5	4.8	12/31/1988
Price Returns (3-Month)	Technical	1.9	2.9	-6.5	-1.4	-1.4	-14.7	-7.6	9.0	2.9	58.3	9.6	1/31/2010

Source: BofA US Equity and Quant Strategy, FactSet

The performance does not reflect transaction costs or tax withholdings or any applicable advisory fees. Had these costs been reflected, the performance would have been lower. Performance is calculated on the basis of price return unless noted. Total return performance calculations assume that dividends paid on securities in a portfolio are deposited in a cash account on the ex-dividend date, and are not reinvested. Please see Performance Calculation methodology on page 60 for a full explanation.

[†]For screens that have less than 5 years history, the performance is since inception.

Past performance should not and cannot be viewed as an indicator of future performance. A complete performance record is available upon request

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Bottom decile factor performance

Exhibit 19: Low Beta lagged all Bottom decile factors in 2023

Quantitative Strategies Performance (Bottom Decile, as of 12/31/2023)

							2 Yr Perf.		3 Yr Perf.		5 Yr Perf.		Inception
Strategies (Universe based on the S&P 500)		1 M	3 M	6 M	12 M	YTD	Gross	Anlzd	Gross	Anlzd	Gross	Anlzd	Date
Low Beta	Risk	2.5	6.3	-2.2	-2.7	-2.7	2.3	1.2	18.3	5.8	40.1	7.0	7/30/1986
Low Free Cash Flow/ EV	Value	4.3	8.1	-3.9	-2.1	-2.1	-9.8	-5.0	16.3	5.2	64.3	10.4	3/31/2001
Low EPS Estimate Dispersion	Risk	3.7	8.3	0.3	-0.8	-0.8	-1.4	-0.7	20.8	6.5	54.5	9.1	2/28/1989
Low Foreign Exposure	Miscellaneous	6.0	12.4	6.4	1.5	1.5	-2.3	-1.1	29.6	9.0	57.0	9.4	1/31/1995
Low Variability of Earnings	Risk	4.6	9.1	4.0	3.0	3.0	-4.3	-2.2	24.2	7.5	66.5	10.7	3/31/2001
Rising Short Interest	Miscellaneous	9.9	13.5	6.0	4.4	4.4	-14.5	-7.5	16.7	5.3	67.6	10.9	4/30/1994
Low Share Repurchase	Cash Deployment	5.1	11.9	4.4	4.5	4.5	-12.5	-6.4	10.5	3.4	46.8	8.0	3/31/2005
High Institutional Ownership	Miscellaneous	9.2	15.6	9.6	6.0	6.0	-5.7	-2.9	22.2	6.9	48.9	8.3	3/31/2001
Low Projected 5-Yr Growth	Growth	9.6	12.3	11.5	6.8	6.8	1.7	0.9	30.3	9.2	72.3	11.5	3/31/2001
Relative Strength (10wk/40wk)	Technical	12.8	16.7	8.9	7.3	7.3	-14.6	-7.6	3.3	1.1	39.1	6.8	2/27/1987
Forecast Negative Earnings Surprise	Growth	7.8	13.7	7.0	7.6	7.6	0.3	0.1	28.4	8.7	60.1	9.9	3/31/1986
High Price/ Free Cash Flow	Value	8.5	12.5	-1.3	7.9	7.9	-13.5	-7.0	4.3	1.4	64.4	10.5	8/31/2003
Low EPS Momentum	Growth	9.3	12.3	4.6	9.3	9.3	4.2	2.1	29.4	9.0	71.9	11.4	3/31/2001
Relative Strength (5wk/30wk)	Technical	13.7	17.6	9.8	10.0	10.0	-13.0	-6.7	8.8	2.9	53.9	9.0	2/27/1987
Relative Strength (Price/200-Day MA)	Technical	12.5	16.8	10.3	10.7	10.7	-14.8	-7.7	5.8	1.9	33.3	5.9	2/27/1987
Low Dividend Growth	Cash Deployment	5.1	12.0	8.7	10.8	10.8	10.8	5.2	40.0	11.9	89.7	13.7	9/30/2004
Low Duration	Growth	7.2	10.5	6.3	11.1	11.1	18.3	8.8	55.6	15.9	85.0	13.1	3/31/2001
Price Returns (12-Month plus 1-Month)	Technical	8.9	10.6	4.6	11.1	11.1	-12.8	-6.6	25.1	7.7	86.5	13.3	2/27/1987
Earnings Torpedo	Growth	7.8	9.7	13.0	11.4	11.4	-2.4	-1.2	32.8	9.9	99.4	14.8	
Price Returns (3-Month)	Technical	13.7	16.7	6.8	11.5	11.5	-7.0	-3.6	22.4	7.0	82.9	12.8	2/27/1987
High P/E-to-Growth	GARP	6.6	11.2	4.2	11.8	11.8	3.5	1.7	23.4	7.3	51.2	8.6	3/30/2001
S&P 500 Equal Weighted (Price Return)	Benchmark	6.8	11.6	5.7	12.1	12.1	-2.5	-1.3	24.4	7.6	73.3	11.6	
Low ROE (5-Yr Average)	Quality	6.4	9.7	2.3	12.6	12.6	15.9	7.6	61.1	17.2	114.8	16.5	3/31/2001
S&P 500 Equal Weighted (Total Return)	Benchmark	7.0	12.2	6.9	14.4	14.4	1.6	0.8	31.9	9.7	92.0	13.9	
Price Returns (12-Month)	Technical	12.9	14.5	8.1	14.7	14.7	-8.9	-4.5	30.4	9.3	71.1	11.3	2/27/1987
Price Returns (9-Month)	Technical	13.4	18.9	13.2	15.3	15.3	-9.3	-4.8	15.5	4.9	36.5	6.4	2/27/1987
Low Estimate Revisions	Growth	11.6	12.2	11.5	16.6	16.6	4.1	2.1	26.1	8.0	75.2	11.9	3/31/2001
Low ROE (1-Yr Average)	Quality	11.0	14.4	5.6	16.7	16.7	12.1	5.9	40.1	11.9	91.9	13.9	3/31/1986
Price Returns (11-Month since 1 year ago)	Technical	13.1	14.4	8.2	17.1	17.1	-8.0	-4.1	27.9	8.5	71.5	11.4	2/27/1987
Low ROE (5-Yr Avg. Adj. by Debt)	Quality	6.1	15.0	8.9	18.4	18.4	10.5	5.1	34.5	10.4	90.4	13.7	3/31/2001
Most Active	Technical	7.8	13.3	8.3	19.1	19.1	-3.1	-1.6	22.6	7.0	95.5	14.3	8/31/2003
Low Forward Earnings Yield	Value	7.4	14.6	5.3	20.1	20.1	-10.6	-5.4	14.4	4.6	64.6	10.5	5/31/2005
Low ROC	Quality	11.4	15.2	7.6	20.4	20.4	16.9	8.1	45.4	13.3	91.6	13.9	3/31/2001
Relative Strength (30wk/75wk)	Technical	12.9	15.8	10.4	21.1	21.1	10.2	5.0	55.0	15.7	79.3	12.4	3/31/2001
Low ROA	Quality	10.9	16.8	8.9	21.3	21.3	15.9	7.6	43.5	12.8	102.5	15.2	3/31/2001
Low ROE (1-Yr Avg. Adj. by Debt)	Quality	6.4	15.9	9.3	21.7	21.7	12.4	6.0	41.3	12.2	99.0	14.8	3/31/2001
High EV/ EBITDA	Value	7.6	15.2	1.9	21.8	21.8	-9.9	-5.1	10.4	3.3	116.8	16.7	10/30/2004
Low Earnings Yield	Value	9.7	15.7	7.0	22.7	22.7	13.7	6.6	41.7	12.3	101.1	15.0	3/30/2001
Large Size	Miscellaneous	4.1	9.5	6.7	23.1	23.1	1.5	0.8	26.2	8.1	81.4	12.6	3/31/2001
High Price/ Book Value	Value	6.7	16.7	9.8	23.4	23.4	5.0	2.5	31.6	9.6	117.8	16.8	3/30/2001
Dividend Discount Model Alpha	Value	9.6	16.2	8.9	23.6	23.6	1.3	0.6	37.8	11.3	100.5	14.9	3/30/2001
No Dividend Yield	Cash Deployment	9.5	13.9	5.1	23.6	23.6	-5.0	-2.5	16.5	5.2	109.6	15.9	3/31/2001
S&P 500 Index (Price Return)	Benchmark	4.4	11.2	7.2	24.2	24.2	0.1	0.0	27.0	8.3	90.3	13.7	
High Price	Risk	5.1	14.0	11.6	25.7	25.7	-0.4	-0.2	26.7	8.2	109.8	16.0	7/30/1986
Price Returns (12-m plus 1-m Reversal)	Technical	11.7	16.3	11.6	25.8	25.8	2.4	1.2	37.4	11.2	57.8	9.6	2/27/1987
High Price/ Sales	Value	7.8	18.0	9.1	25.8	25.8	-7.9	-4.0	13.3	4.2	87.3	13.4	3/31/2001
High Price/ Cash Flow	Value	6.9	15.8	6.6	26.7	26.7	-4.9	-2.5	14.3	4.6	110.4	16.0	8/31/2003
High Analyst Coverage	Miscellaneous	6.0	13.8	7.5	32.4	32.4	15.5	7.5	44.8	13.1	129.8	18.1	3/31/2001

Source: BofA US Equity and Quant Strategy, FactSet

The performance does not reflect transaction costs or tax withholdings or any applicable advisory fees. Had these costs been reflected, the performance would have been lower. Performance is calculated on the basis of price return unless noted. Total return performance calculations assume that dividends paid on securities in a portfolio are deposited in a cash account on the ex-dividend date, and are not reinvested. Please see Performance Calculation methodology on page 60 for a full explanation.

*For screens that have less than 5 years history, the performance is since inception.

Past performance should not and cannot be viewed as an indicator of future performance. A complete performance record is available upon request.

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Factor crowding

Most expensive / crowded long factors and least expensive / crowded short factors.

Exhibit 20: Factor valuations and positioning as of 12/31/2023

Long-short factors listed from most to least expensive & crowded using a multi-indicator ranking

Factor	Long Factors (S&P 500 top decile)				Short Factors (S&P 500 bottom decile)				
	Price to Book	Forward P/E	Crowdedness	Long Rank	Price to Book	Forward P/E	Crowdedness	Short Rank	
	(Relative)	(Relative)			(Relative)	(Relative)			
	Relative multiple vs. history (>1 = expensive vs. history)	Relative multiple vs. history (>1 = expensive vs. history)	Long Only Funds' Relative Wt.	Rank for Long Factor (1=most expensive / most crowded)	Relative multiple vs. history (>1 = expensive vs. history)	Relative multiple vs. history (>1 = expensive vs. history)	Long Only Funds' Relative Wt.	Rank for Short Factor (1=least expensive / least crowded)	Rank for long-short factor (1=most downside risk)
High (Low) Relative Strength (30wk/75wk)	1.28	1.17	1.33	3	0.89	0.78	0.69	4	1
High (Low) Price Returns (12-Month)	1.85	1.36	1.28	1	1.00	0.79	0.72	13	2
High (Low) Price Ret. (11-m since 1 y ago)	1.77	1.36	1.14	2	0.93	0.79	0.71	9	3
High (Low) Price Ret. (12-m + 1-m Reversal)	1.47	1.30	1.07	5	0.77	0.78	0.82	2	3
High (Low) Price Returns (9-Month)	1.28	1.12	1.36	4	1.15	0.86	0.60	9	5
High (Low) ROA	1.64	1.19	1.07	6	0.85	0.89	0.71	8	6
High (Low) Price Returns (3-Month)	1.33	0.94	1.25	13	0.84	0.72	0.86	5	7
High (Low) ROC	4.53	1.19	0.90	7	0.86	1.09	0.67	11	8
High (Low) Rel. Strength (Price/200-Day MA)	1.40	1.06	1.25	8	1.16	0.86	0.66	11	9
High (Low) Price Returns (12-m plus 1-m)	1.20	0.98	1.32	11	0.92	0.80	0.83	15	10
High (Low) Dividend Growth	1.24	1.09	1.11	15	0.74	0.74	0.97	7	11
High (Low) Relative Strength (5wk/30wk)	1.29	1.07	1.19	9	0.99	0.93	0.66	17	11
High (Low) ROE (1-Yr Average)	1.28	1.15	0.89	18	0.52	1.09	0.69	6	13
High (Low) Duration	1.58	1.18	0.81	17	0.90	0.61	1.02	19	14
High (Low) Relative Strength (10wk/40wk)	1.10	1.10	1.32	11	1.21	0.97	0.68	25	15
High (No) Foreign Exposure	1.14	1.02	1.13	18	0.81	0.89	0.87	17	16
Low EPS Torpedo	na	na	0.76	25	0.84	0.62	0.76	1	17
Forecast Positive (Negative) EPS Surprise	1.09	0.97	1.18	20	0.80	0.89	1.02	21	18
High (Low) Projected 5-Yr Growth	0.76	0.82	1.30	26	0.87	0.70	0.75	2	19
High (Low) Upward Estimate Revisions	0.95	0.93	1.30	22	0.93	0.89	0.86	23	20
High (Low) EPS Momentum	1.02	0.94	1.14	23	0.92	0.92	0.73	20	21
Low (High) PE to GROWTH	1.06	0.96	1.20	20	1.16	1.26	0.65	26	22
Low (High) Institutional Ownership	1.12	0.98	0.68	24	0.58	0.73	1.09	15	23
High (Low) ROE (1-Yr Avg. Adj. by Debt)	1.10	1.26	1.09	14	1.50	1.01	0.83	28	23
High (Low) ROE (5-Yr Average)	1.69	1.14	0.84	15	0.91	0.94	1.14	27	25
High (Low) ROE (5-Yr Avg. Adj. by Debt)	1.10	1.22	1.17	9	1.72	1.18	0.84	30	25
High (Low) Beta	1.17	0.66	0.89	28	0.76	0.88	0.95	13	27
High (Low) EPS Estimate Dispersion	0.92	0.49	0.96	32	0.58	1.17	0.93	21	28
High (Low) Free Cash Flow to EV	0.83	0.82	0.72	39	0.90	0.91	0.92	24	29
Low (High) DDM Valuation	0.75	0.87	1.15	27	2.18	1.36	0.86	34	30
High (Low) Earnings Yield	0.79	0.89	0.56	40	1.13	1.25	0.95	29	31
Falling (Rising) Short Interest	0.81	0.84	0.86	36	1.36	1.14	0.99	31	32
Small (Large) Size	1.03	0.87	0.57	34	1.32	1.24	0.98	32	33
High (Low) Variability of EPS	0.77	0.89	1.01	29	1.16	1.20	1.20	36	34
High (Low) Share Repurchase	0.73	0.87	0.93	31	1.04	1.46	1.05	33	35
Most (Least) Active	0.69	0.78	0.93	43	1.25	1.40	1.04	35	36
Low (High) Analyst Coverage	0.68	1.19	0.38	34	1.52	1.42	1.09	40	37
High (Low) Forward Earnings Yield	0.83	0.91	0.87	29	1.93	2.71	1.03	42	37
Low (High) Price to Book Value	0.88	0.81	0.80	40	1.39	1.64	0.99	37	39
Low (High) Price to Free Cash Flow	0.81	0.85	0.68	40	1.16	1.76	1.12	38	40
Low (High) Price to Cash Flow	0.93	0.82	0.84	32	1.46	2.09	1.19	43	41
Low (High) EV/EBITDA	0.83	0.83	0.80	38	1.33	2.16	1.15	41	42
Low (High) Price to Sales	0.92	0.81	0.81	37	1.60	2.09	1.26	45	43
High (Low) Dividend Yield	0.69	0.84	0.49	44	1.25	1.42	1.14	38	43
Low (High) Price	0.78	0.63	0.66	45	1.84	1.47	1.39	44	45

Source: BofA US Equity and Quant Strategy, FactSet. Based on data since February 2001. For the following short factors valuation data are available as indicated: Fwd EPS Yield since 4/05; Price/ Cash Flow and Price / Free Cash Flo since 7/03; EV/EBITDA since 9/04; FCF/EV since 9/12; Dividend Growth since 8/04; Share Repurchase since 2/05; Most Active since 7/03; Analyst Coverage since 11/05; Foreign Exposure since 7/03. Relative multiple vs. history is based on relative valuation the factor versus the S&P 500 and calculated as the latest value dividend by historic average. Long Only Funds' Relative Wt. (Avg.) is calculated as the average of individual factor constituents' relative weight in funds vs. weight in the index. Long Rank is calculated as the average of ranks of Price / Book, Fwd P/E and Long Only Funds' relative ownership with rank =1 indicating most expensive and most crowded long factor. Short Rank is based on the average of ranks of Price / Book, Fwd P/E and Long Only Funds' relative ownership with rank =1 indicating least expensive and least crowded short factor. Long/Short Rank is based on the average of Long Rank and Short Rank with rank = 1 indicating long / short factor with most downside risk. Fund holdings data as of 12/31/2021

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Exhibit 21: Advances and Declines (Top Decile)

As of 12/31/2023

Quantitative Strategies	1M		3M		6M		12M		YTD		2Yr		3Yr		5Y	
	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.
ROE (5-Yr Avg. Adj. by Debt)	43	7	102	48	162	138	359	241	359	241	590	610	957	843	1698	1302
ROA	40	10	96	54	152	148	334	266	334	266	567	633	941	859	1702	1298
ROE (1-Yr Avg. Adj. by Debt)	37	13	90	60	151	149	331	269	331	269	568	632	934	866	1664	1336
Share Repurchase	36	14	88	62	162	138	319	281	319	281	600	600	980	819	1678	1319
Institutional Neglect	39	11	98	52	166	139	331	274	331	274	609	593	947	854	1660	1341
Most Active	43	7	100	50	160	140	334	265	334	265	598	599	935	862	1620	1375
ROC	39	11	94	56	149	151	327	273	327	273	568	632	931	869	1693	1307
ROE (1-Yr Average)	42	8	97	53	159	141	331	269	331	269	586	613	953	846	1692	1307
High Duration	44	6	103	47	161	139	339	261	339	261	561	639	913	887	1661	1339
High Foreign Exposure	45	4	95	54	157	142	324	275	324	275	578	619	941	855	1689	1304
ROE (5-Yr Average)	42	8	99	51	151	149	320	280	320	280	583	616	935	864	1657	1341
Price Returns (12-m plus 1-m Reversal)	29	20	87	62	139	160	314	285	314	285	591	607	926	871	1639	1357
High EPS Estimate Dispersion	42	9	81	54	143	108	280	228	280	228	498	454	683	598	1098	982
High Beta	46	5	90	66	161	152	325	296	325	296	615	627	979	876	1684	1409
High Projected 5-Yr Growth	39	10	94	55	155	144	315	284	315	284	590	609	916	883	1629	1372
Price Returns (12-Month plus 1-Month)	43	7	107	43	165	135	319	281	319	281	580	620	921	879	1656	1341
High Variability of EPS	59	7	129	72	218	176	417	359	417	359	767	763	1216	1081	2195	1807
Analyst Coverage Neglect	50	6	130	59	191	160	380	295	380	295	590	579	937	813	1664	1264
DDM Valuation	25	6	56	41	102	102	209	201	209	201	421	454	801	767	1622	1399
Relative Strength (Price/200-Day MA)	35	15	94	56	154	146	311	289	311	289	582	618	942	858	1664	1333
Relative Strength (30wk/75wk)	37	13	100	50	160	140	314	287	314	287	589	612	923	879	1626	1377
Price Returns (12-Month)	37	13	96	54	152	148	313	287	313	287	599	600	930	868	1628	1368
Low EPS Torpedo	38	12	84	66	158	142	308	292	308	292	595	605	950	850	1616	1381
Short Interest	40	9	96	51	157	137	316	269	316	269	565	604	905	853	1608	1310
Low Price to Free Cash Flow	36	14	85	65	163	137	305	295	305	295	585	615	926	874	1576	1423
High Free Cash Flow to EV	27	11	63	51	127	99	233	224	233	224	452	494	735	703	1273	1135
Relative Strength (10wk/40wk)	28	22	84	66	142	158	299	301	299	301	580	620	918	882	1626	1369
Price Returns (11-Month since 1 year ago)	33	17	91	59	147	153	310	290	310	290	586	613	907	891	1607	1390
Low EV/EBITDA	34	16	76	74	157	143	304	296	304	296	593	607	952	848	1592	1407
Low Price to Cash Flow	35	15	77	73	153	147	297	303	297	303	578	622	912	888	1538	1461
High Dividend Growth (Price Return)	39	10	86	63	154	145	312	287	312	287	588	611	976	823	1663	1336
Low PE to GROWTH	38	11	86	63	157	142	305	294	305	294	586	613	953	846	1627	1371
Forecast Positive Earnings Surprise	68	21	163	86	258	226	483	449	483	449	875	948	1361	1274	2432	1916
Forecast Negative Earnings Surprise	85	10	157	75	245	217	506	455	506	455	943	943	1439	1306	2463	2054
Relative Strength (5wk/30wk)	29	21	77	73	135	165	292	308	292	308	568	632	926	874	1640	1355
Upward Estimate Revisions	34	16	87	63	140	160	293	307	293	307	593	606	975	824	1691	1305
Small Size	49	1	107	43	158	142	308	292	308	292	575	625	943	857	1600	1396
Low Price to Sales	39	11	98	52	163	137	312	288	312	288	610	590	956	844	1621	1379
Low Price to Book Value	45	5	101	49	167	133	310	289	310	289	612	588	993	816	1684	1341
EPS Momentum	42	8	99	51	157	143	316	283	316	283	588	611	939	860	1619	1379
Price Returns (9-Month)	32	18	93	57	151	149	299	301	299	301	581	619	930	870	1630	1367
Forward Earnings Yield	44	6	95	55	162	138	305	294	305	294	602	597	964	835	1636	1361
Dividend Yield (Price Return)	41	9	97	53	157	143	300	298	300	298	611	585	978	817	1640	1353
Low Price	47	3	103	47	165	135	313	285	313	285	597	599	948	847	1609	1382
Earnings Yield	38	12	83	67	154	146	293	306	293	306	571	628	947	852	1626	1372
Price Returns (3-Month)	27	23	77	73	127	173	279	321	279	321	535	665	885	915	1607	1389

Source: BofA US Equity and Quant Strategy, FactSet

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Exhibit 22: Advances and Declines (Bottom Decile)

As of 12/31/2023

Quantitative Strategies	1M		3M		6M		12M		YTD		2Yr		3Yr		5Yr	
	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.	Adv.	Dec.
Low Beta	35	18	108	50	161	161	319	309	319	309	640	609	974	892	1704	1395
FCF / EV	28	9	83	28	118	104	230	217	230	217	469	453	739	664	1291	1063
Low Estimate Dispersion	66	21	194	76	289	265	559	530	559	530	1030	1076	1631	1485	2832	2229
Low Foreign Exposure	93	29	257	108	394	336	751	715	751	715	1417	1497	2302	2055	4039	3251
Low Variability of Earnings	47	11	119	48	181	148	348	302	348	302	628	661	1067	921	1783	1394
Short Interest	44	6	105	45	163	137	316	283	316	283	576	622	939	858	1635	1350
Low Share Repurchase	39	11	105	45	164	136	320	279	320	279	575	623	928	870	1632	1362
High Institutional Ownership	44	6	100	50	155	145	309	293	309	293	572	628	940	860	1637	1362
Low Proj. 5yr EPS Growth	40	10	88	62	153	147	293	306	293	306	582	621	921	882	1585	1415
Relative Strength (10wk/40wk)	49	1	104	46	158	142	309	291	309	291	567	633	907	893	1569	1429
Negative EPS Surprise	85	10	157	75	245	217	506	455	506	455	943	943	1439	1306	2463	2054
High Price/ Free Cash Flow	41	9	101	49	141	159	310	290	310	290	559	641	887	913	1623	1376
Low Earning Momentum	46	4	102	48	164	136	321	279	321	279	596	602	917	881	1586	1410
Relative Strength (5wk/30wk)	49	1	104	46	161	139	317	282	317	282	575	624	933	866	1602	1394
Relative Strength (Price/200-Day Moving Avg)	48	2	105	45	164	136	321	278	321	278	572	627	918	881	1571	1425
Low Dividend Growth	39	11	102	48	168	132	319	281	319	281	602	596	933	864	1613	1382
Low Equity Duration	41	8	93	56	158	141	309	290	309	290	599	600	968	831	1656	1342
Price Returns (12-Month plus 1-Month)	43	7	95	55	154	146	322	276	322	276	573	625	936	862	1632	1366
Price Returns (3-Month)	49	1	104	46	157	143	316	283	316	283	584	615	945	854	1632	1365
High P/E-to-Growth	45	5	105	45	162	138	328	271	328	271	601	596	946	851	1636	1359
Low 5y ROE	38	11	89	60	149	150	305	294	305	294	588	610	948	850	1616	1379
Price Returns (12-Month)	48	2	98	52	155	145	316	283	316	283	578	621	934	865	1586	1409
Price Returns (9-Month)	48	2	103	47	161	139	317	283	317	283	575	625	914	886	1564	1433
Low EPS Estimate Revisions	46	4	98	52	166	134	328	272	328	272	596	602	934	864	1604	1392
Low 1yr ROE	47	3	105	45	169	131	329	271	329	271	604	594	938	860	1616	1379
Price Returns (11-Month since 1 year ago)	47	3	96	54	152	148	314	285	314	285	571	628	925	874	1582	1414
Low 5yr ROE Adj	42	8	105	45	164	136	334	266	334	266	597	602	945	854	1661	1337
Least Active	43	7	104	46	166	134	338	262	338	262	574	626	945	855	1687	1313
Low Forward Earnings Yield	39	11	103	47	151	149	320	279	320	279	542	655	893	904	1559	1435
Low ROC	49	3	108	44	175	127	339	263	339	263	621	577	952	846	1607	1386
Relative Strength - 30wk/75wk MA	47	3	97	53	157	143	323	277	323	277	597	603	954	846	1605	1394
Low ROA	48	2	107	43	171	129	331	269	331	269	608	589	939	858	1609	1384
Low 1yr ROE Adj	43	7	104	46	164	136	338	262	338	262	597	602	949	850	1666	1332
High EV/ EBITDA	39	11	103	47	152	148	333	267	333	267	558	641	896	903	1660	1338
Low Earnings Yield	45	5	104	46	168	132	332	268	332	268	589	608	919	878	1595	1396
Large Size	38	12	96	54	161	139	342	258	342	258	582	617	942	857	1676	1323
High Price/ Book Value	39	11	106	44	165	135	346	254	346	254	588	611	938	861	1686	1313
Dividend Discount Model Alpha	63	4	138	59	206	160	417	322	417	322	713	794	1126	1054	1927	1596
Low Dividend Yield	88	14	203	104	319	296	691	555	691	555	1203	1328	2002	1933	3434	2808
High Price	36	14	102	48	171	129	345	255	345	255	579	621	943	857	1700	1299
Price Returns (12-Month plus 1-Month Reversal)	48	2	113	37	176	124	333	267	333	267	594	606	963	837	1630	1367
High Price/ Sales	39	11	106	44	156	144	343	257	343	257	554	645	905	894	1652	1346
High Price/ Cash Flow	40	10	98	52	153	147	335	265	335	265	566	633	897	902	1643	1354
High Analyst Coverage	43	7	113	44	172	141	389	259	389	259	669	646	1044	934	1839	1438

Source: BofA US Equity and Quant Strategy, FactSet

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Note on back testing

The analysis of certain indicators in this report is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the hypothetical back-tested performance of a particular strategy over the time period indicated. In future periods, market and economic conditions will differ and the same strategy will not necessarily produce the same results. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. In fact, there are frequently sharp differences between back-tested returns and the actual results realized in the actual management of a portfolio. Back-tested performance results are created by applying an investment strategy or methodology to historical data and attempts to give an indication as to how a strategy might have performed during a certain period in the past if the product had been in existence during

such time. Back-tested results have inherent limitations including the fact that they are calculated with the full benefit of hindsight, which allows the security selection methodology to be adjusted to maximize the returns. Further, the results shown do not reflect actual trading or the impact that material economic and market factors might have had on a portfolio manager's decision-making under actual circumstances. Back-tested returns do not reflect advisory fees, trading costs, or other fees or expenses

Exhibit 23: Growth vs Value expensive on Book Value

Russell 1000 Growth vs Russell 1000 Value relative Price to Book Value, Jan. 1980 – Dec. 2023



Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 24: Growth vs Value expensive on trailing EPS

Russell 1000 Growth vs Russell 1000 Value relative Price to trailing EPS, Jan. 1980 – Dec. 2023

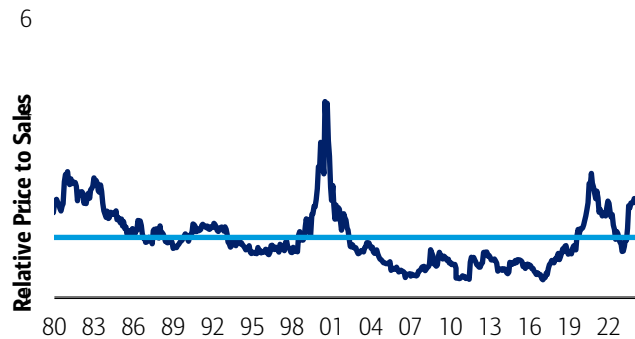


Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 25: Growth vs Value elevated on Price to Sales

Russell 1000 Growth vs Russell 1000 Value relative Price to Sales Value, Jan. 1980 – Dec. 2023

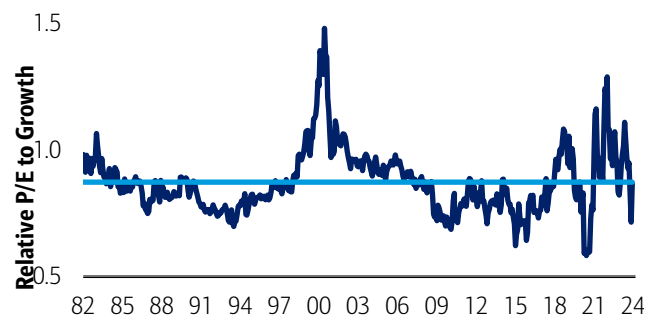


Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 26: Growth vs Value elevated on PE to Growth

Russell 1000 Growth vs Russell 1000 Value relative PE-to-Growth, Jan. 1980 – Dec. 2023

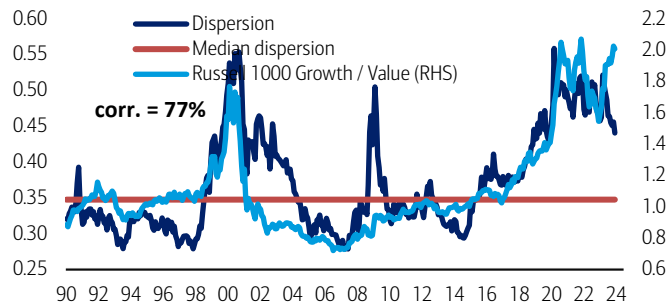


Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 27: Valuations dispersion remains historically high – lots of alpha

S&P 500 valuation dispersion of forward P/E (std. dev / avg) vs. rel. perf. of Russell 1000 Growth over Value (1990–12/2023)

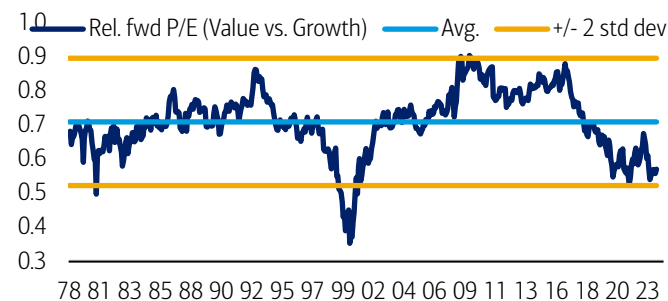


Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 28: Value vs. Growth valuations dipped almost 2 St. Dev. below the historic average

Relative forward P/E of Russell 1000 Value vs. Growth indices, 1978-12/23

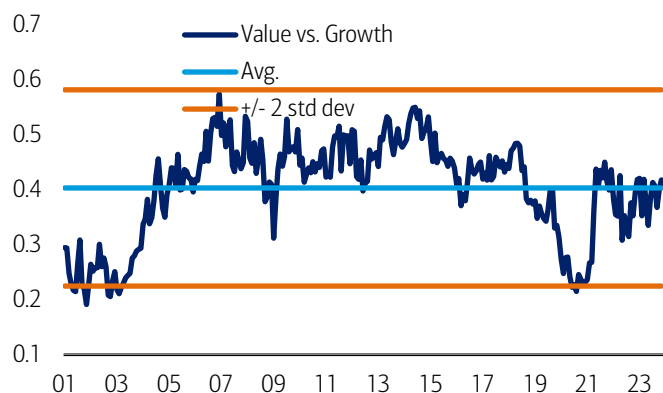


Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 29: Factor valuations of Fwd P/E vs LT EPS Growth edged above long-term average

Relative Fwd P/E of Value (Forward P/E) vs Growth (Long-Term EPS Growth), 2/01 – 12/23

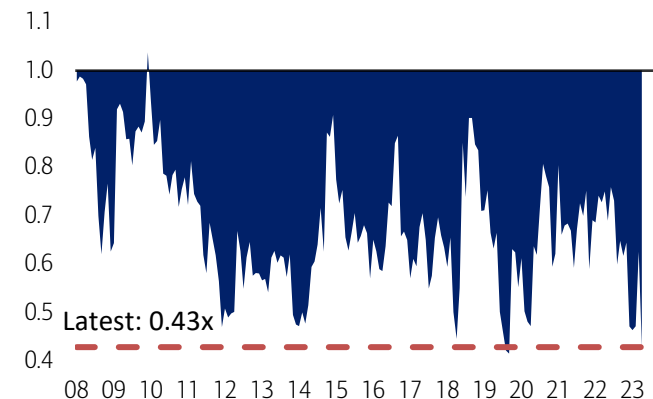


Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 30: But crowded positions in Growth stocks still evident based on factors (Low P/E vs High LTG)

Long Only Positioning in Value vs Growth proxied by Low P/E vs High Long-Term Growth Deciles of S&P 500 (9/2008-12/2023)

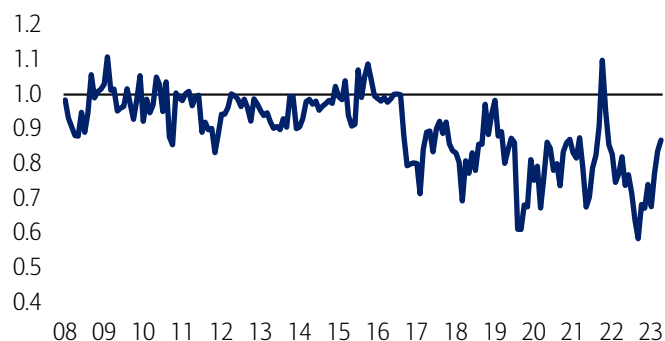


Source: BofA US Equity & Quant Strategy, FactSet Ownership

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Exhibit 31: High Fwd EPS Yield (Low Fwd P/E) remains underowned by Fund Managers

High EPS Yield – Weight in Mutual Funds (9/08-12/23)

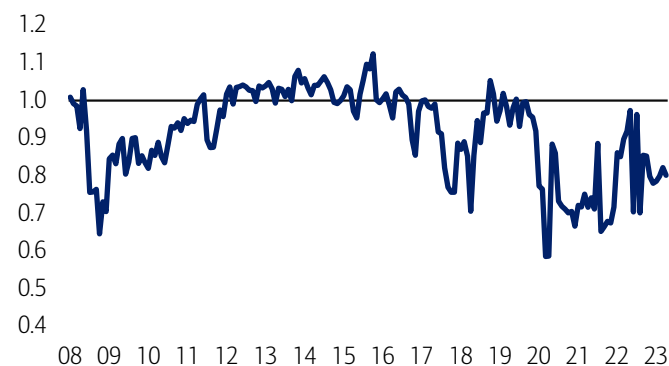


Source: BofA US Equity & Quant Strategy, FactSet Ownership

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Exhibit 32: Low Price to Book is underowned by Fund Managers

Low Price to Book – Weight in Mutual Funds (9/08-12/23)



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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Exhibit 33: High Fwd EPS Yield (Low P/E) trades below historical average

Valuations: Relative Price to Book Value (2/01 – 12/23)



Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 34: Low Price to Book trades below historical average

Valuations: Relative Price to Book Value (2/01 – 12/23)



Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 35: Share Repurchase factor trades near historic low valuations

Valuations: Price to Book Value (2/01 – 12/23)

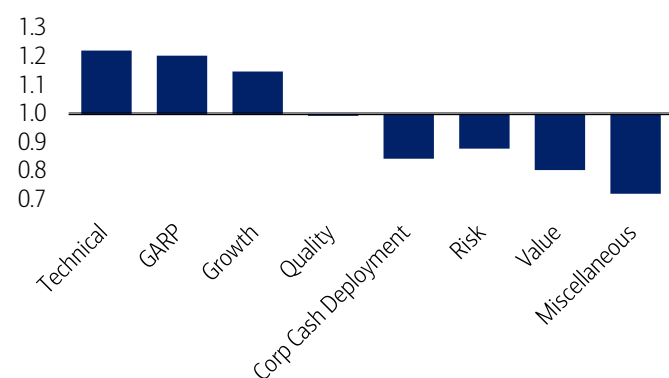


Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 36: Value remains deeply underweight by active managers

Relative Weight in Mutual Fund holdings (Dec. 2023)

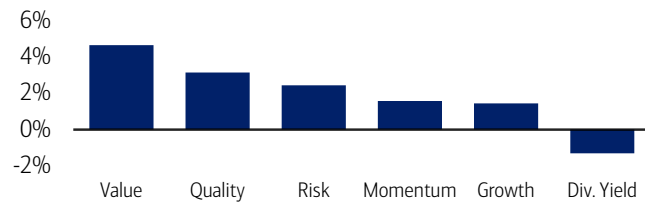


Source: BofA US Equity & Quant Strategy, FactSet Ownership

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Exhibit 37: Factor performance during periods of above average interest rates volatility

Value fared best when volatility was elevated (1990 – present annualized relative performance vs equal weighted index).



Source: FactSet, BofA US Equity & Quant Strategy

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Interestingly, during periods of above-average interest rate volatility based on big upward or downward daily moves in the 10-yr Treasury yields, Value factors led by the widest margin (4.6ppt vs. the equal-wtd. S&P 500 index).

Exhibit 38: BofA Quantitative Strategy Financial Confidence (back tested results from month end March 1986 to month end December 1988)

Low Debt / Equity companies outperformed the equal weighted S&P 500 index in YTD



Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein.

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Exhibit 39: Secular Growth vs. Value: high 5-yr projected EPS growth vs. high EPS yield

Growth has outperformed Value YTD (Back tested results from month end March 1986 to month end December 1988)



Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein.

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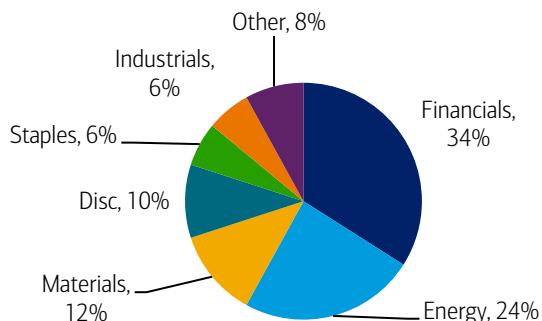
Earnings Yield

Top Decile S&P 500 Companies By High Earnings Yield

Earnings Yield: Trailing 12-month EPS divided by month-end price.

Sector weights of Earnings Yield Model Top Decile

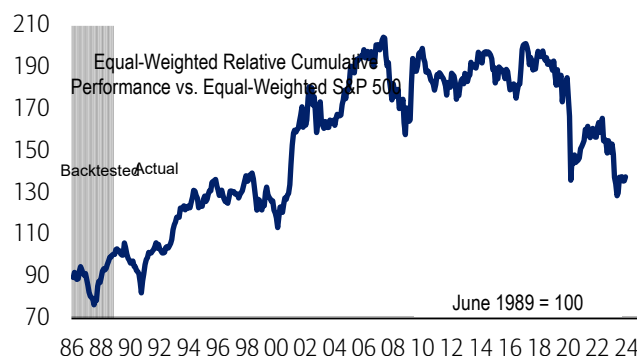
The factor has the highest weight in Financials (34%)



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Earnings Yield Top Decile: Relative cumulative performance

The factor underperformed the index in 2023



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Table 1: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month

Last 3 Months

Last 6 Months

Last 12 Months

2023 YTD

8.37%

11.53%

12.06%

3.29%

3.29%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks.

Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

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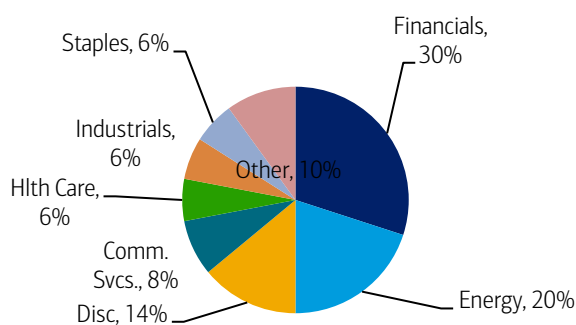
Forward Earnings Yield

Top Decile S&P 500 Companies By High Forward Earnings Yield

Earnings Yield: Rolling 12-month Forward EPS divided by month-end price.

Sector weights of Forward Earnings Yield Model Top Decile

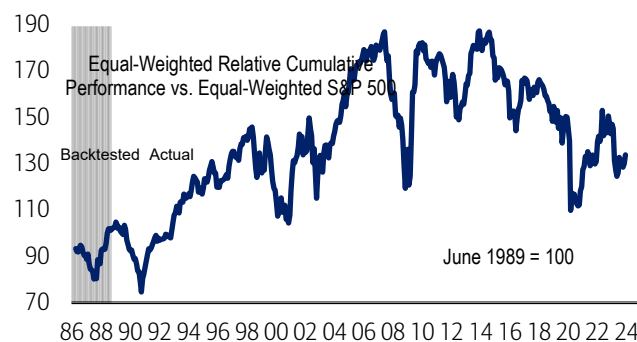
The factor has the highest weight in Financials (30%)



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Forward Earnings Yield Top Decile: Relative cumulative performance

The factor underperformed the index in 2023



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Table 2: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month

Last 3 Months

Last 6 Months

Last 12 Months

2023 YTD

9.95%

13.59%

12.17%

4.93%

4.93%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks.

Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH



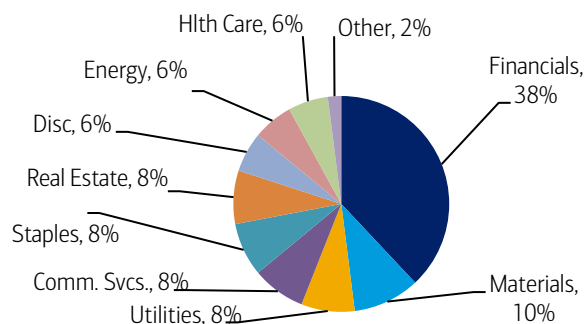
Price/Book Value

Top Decile S&P 500 Companies By Low Price to Book

Price/Book Value: Month-end price divided by latest reported book value per share.

Sector weights of Price/Book Top Decile

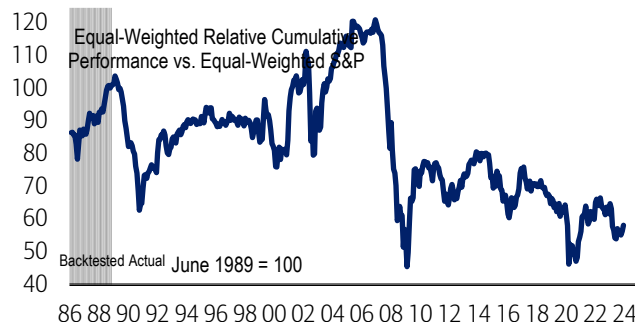
The factor has the highest weight in Financials (38%)



BofA GLOBAL RESEARCH

Price/Book Top Decile: Relative cumulative performance

The factor underperformed the index in 2023



BofA GLOBAL RESEARCH

Table 3: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	10.26%
Last 3 Months	15.29%
Last 6 Months	13.89%
Last 12 Months	5.67%
2023 YTD	5.67%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

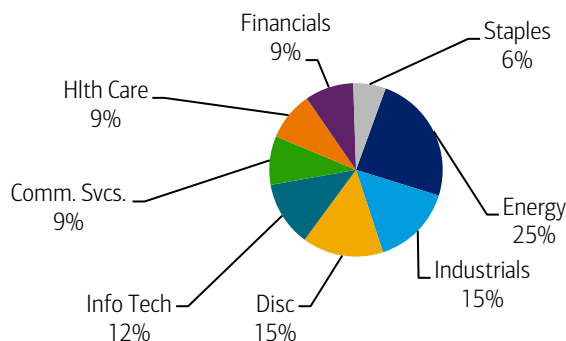
Dividend Discount Model Alpha

Top S&P 500 Companies By High DDM Alpha

Dividend Discount Model Alpha: The implied return from the BofA Quantitative Strategy three-stage dividend discount model less the required return from a Capital Asset Pricing Model. Presented as a decile rank.

Sector weights of Dividend Discount Model Top Decile

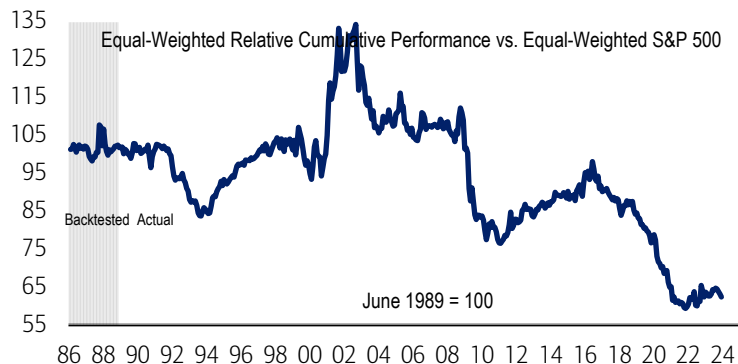
The factor has the highest weight in Energy (25%)



BofA GLOBAL RESEARCH

Dividend Discount Model Top Decile: Relative cumulative performance

The factor outperformed the index in 2023



BofA GLOBAL RESEARCH

Table 4: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	5.51%
Last 3 Months	8.02%
Last 6 Months	2.58%
Last 12 Months	12.11%
2023 YTD	12.11%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

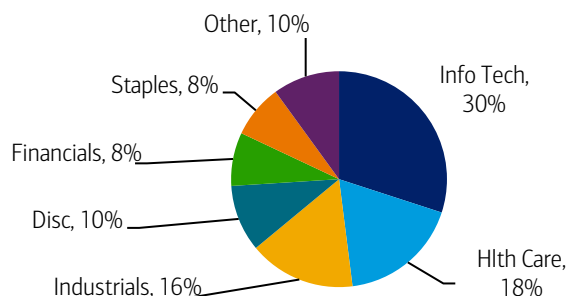
Equity Duration

Top Decile S&P 500 Companies By HIGH DURATION

Equity Duration: An adaptation of our Dividend Discount Model that measures the interest-rate sensitivity of a stock. Longer duration (higher numbers) suggests more interest-rate sensitivity.

Sector weights of Duration Top Decile

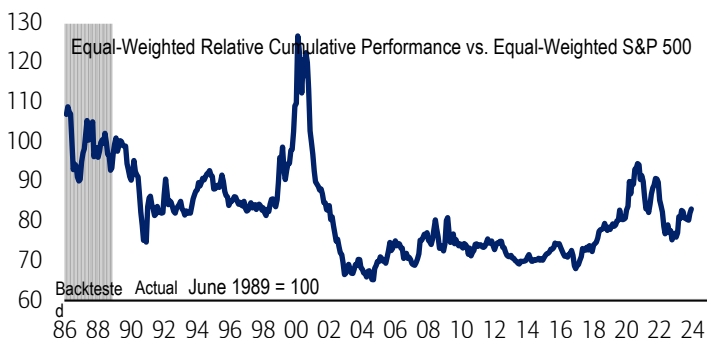
The factor has the highest weight in Tech (30%)



BofA GLOBAL RESEARCH

Duration Top Decile: Relative cumulative performance

The factor outperformed the index in 2023



BofA GLOBAL RESEARCH

Table 5: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	8.18%
Last 3 Months	15.31%
Last 6 Months	6.55%
Last 12 Months	21.03%
2023 YTD	21.03%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

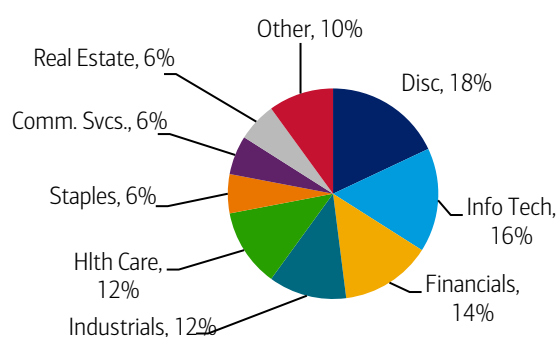
Earnings Momentum

Top Decile S&P 500 Companies By EPS MOMENTUM

Earnings Momentum: The difference between 12-month trailing EPS and year-ago 12-month trailing EPS divided by year-ago 12-month trailing EPS.

Sector weights of Earnings Momentum Top Decile

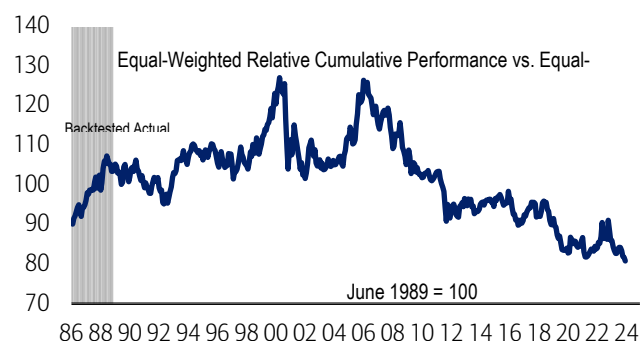
The factor has the highest weight in Disc (18%)



BofA GLOBAL RESEARCH

Earnings Momentum Top Decile: Relative cumulative performance

The factor underperformed the index in 2023



BofA GLOBAL RESEARCH

Table 6: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	5.66%
Last 3 Months	8.14%
Last 6 Months	1.88%
Last 12 Months	5.23%
2023 YTD	5.23%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

Projected Five-Year EPS Growth

Top Decile S&P 500 Companies By PROJ. 5-YR EPS GROWTH

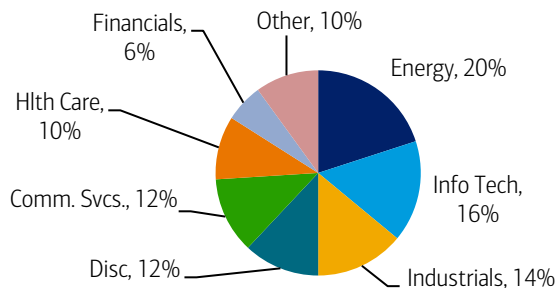
Projected 5-Year EPS Growth: The five-year EPS growth rate estimated by BofA

Fundamental Equity Research. If no BofA estimate exists, then the IBES Mean

Long Term Growth Estimate is used.

Sector weights of Proj. 5 Year EPS Growth Top Decile

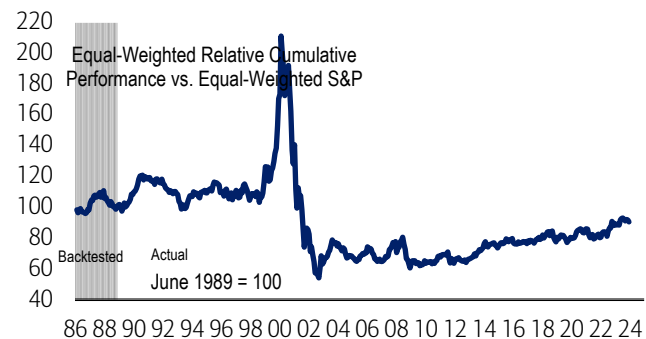
The factor has the highest weight in Energy (20%)



BofA GLOBAL RESEARCH

Proj. 5 Year EPS Growth Top Decile: Relative cumulative performance

The factor outperformed the index in 2023



BofA GLOBAL RESEARCH

Table 7: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month

Last 3 Months
Last 6 Months
Last 12 Months
2023 YTD

5.47%

10.89%
3.21%
14.99%
14.99%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

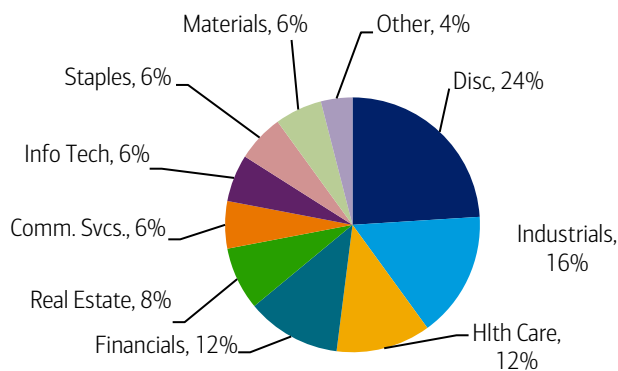
Size

Top Decile S&P 500 Companies By SMALL SIZE

Firm Size: Month-end market value.

Sector weights of Small size Top Decile

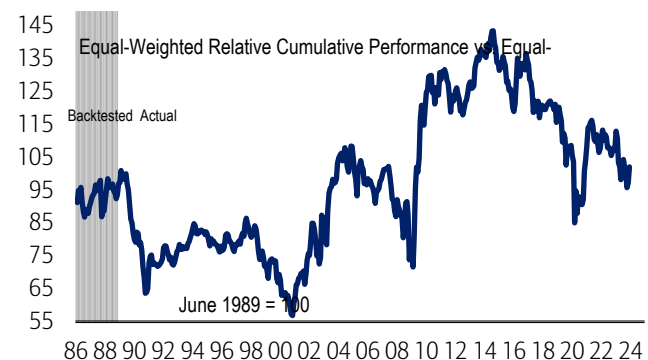
The factor has the highest weight in Discretionary (24%)



BofA GLOBAL RESEARCH

Small Size Top Decile: Relative cumulative performance

The factor underperformed the index in 2023



BofA GLOBAL RESEARCH

Table 8: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	12.15%
Last 3 Months	13.89%
Last 6 Months	6.08%
Last 12 Months	6.82%
2023 YTD	6.82%

BofA GLOBAL RESEARCH

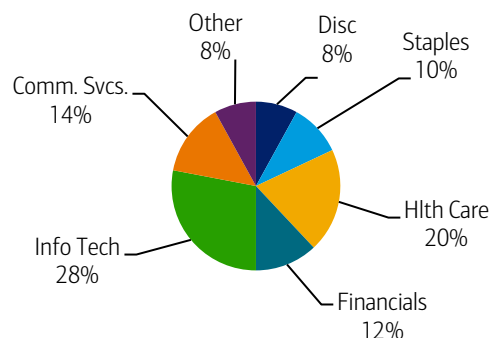
Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end December 1988. The unshaded portion represents actual performance since January 1989. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

Top Decile S&P 500 Companies By LARGE SIZE**Sector weights of Top Decile by Large Size**

The factor has the highest weight in Health Care (20%)



BofA GLOBAL RESEARCH

Top Decile by Large Size: Relative cumulative performance

The factor outperformed the index in 2023



BofA GLOBAL RESEARCH

Table 9: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	4.12%
Last 3 Months	9.48%
Last 6 Months	6.69%
Last 12 Months	23.13%
2023 YTD	23.13%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The performance chart represents actual returns since February 2001. There are no back tested results. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

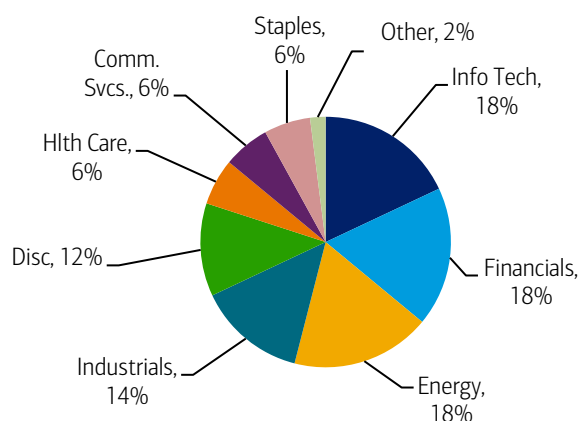
Earnings Estimate Revision

Top Decile S&P 500 Companies By UPWARD EPS EST. REVISION

EPS Estimate Revision: The difference between the I/B/E/S FY1 estimate and that of three months ago divided by the absolute value of the I/B/E/S FY1 estimate of three months ago.

Sector weights of Earnings Estimate Revisions Top Decile

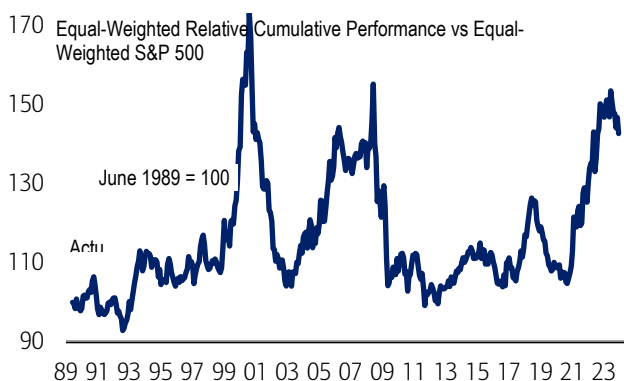
The factor has the highest weight in Tech and Financials. (18% each)



BofA GLOBAL RESEARCH

Earnings Estimate Revisions Top Decile: Relative cumulative performance

The factor underperformed the index in 2023



BofA GLOBAL RESEARCH

Table 10: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	3.88%
Last 3 Months	7.81%
Last 6 Months	-1.68%
Last 12 Months	7.34%
2023 YTD	7.34%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The performance chart represents actual returns since July 1989. There are no back tested results. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

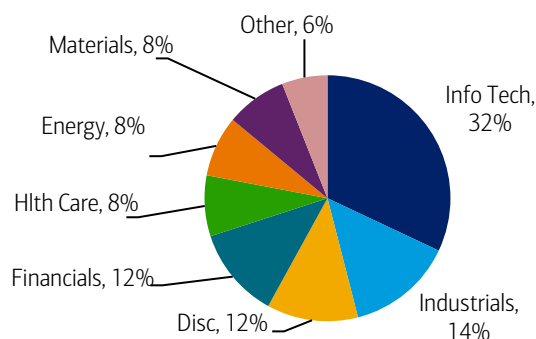
One-Year Return on Equity (Adjusted for Debt)

Top Decile S&P 500 Companies By ROE (1-Yr Avg. Adj. for Debt)

Return on Equity One-Year Average (Adjusted for Debt): The ROE of companies with higher debt levels are considered lower than those of companies with lower debt levels based on their debt-to-equity ratios.

Sector weights of ROE (Adj. for Debt) Top Decile

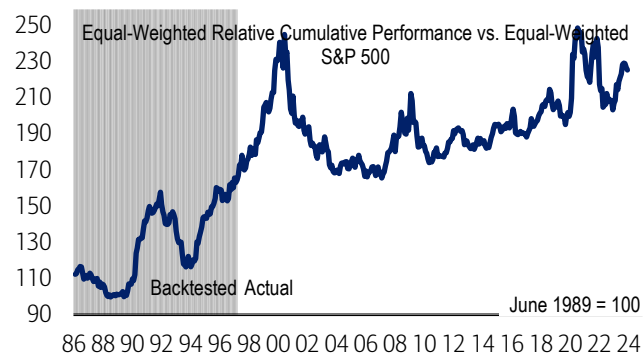
The factor has the highest weight in Tech (32%)



BofA GLOBAL RESEARCH

ROE (Adj. for Debt) Top Decile: Relative cumulative performance

The factor has underperformed the index in recent months



BofA GLOBAL RESEARCH

Table 11: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	6.21%
Last 3 Months	9.75%
Last 6 Months	7.69%
Last 12 Months	24.28%
2023 YTD	24.28%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end April 1997. The unshaded portion represents actual performance since May 1997. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

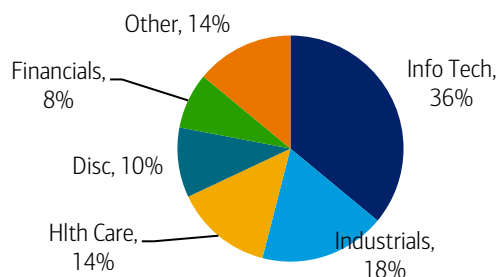
Five-Year Return on Equity (Adjusted by Debt)

Top Decile S&P 500 Companies By ROE (5-Yr Avg. Adj. for Debt)

Return on Equity Five-year Average (Adjusted for Debt): The average five year ROE of companies with higher debt levels are considered lower than those of companies with lower debt levels based on their debt-to-equity ratios.

Sector weights of ROE 5 year (Adj. for Debt) Top Decile

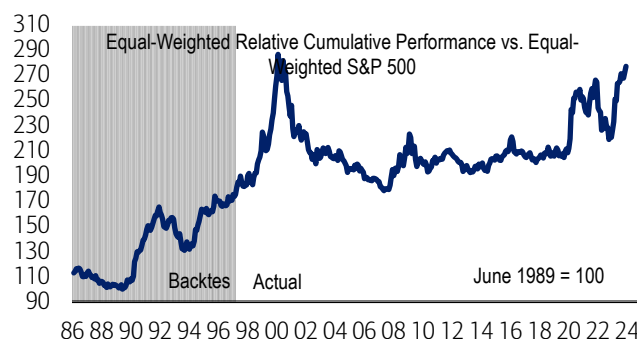
The factor has the highest weight in Tech (36%)



BofA GLOBAL RESEARCH

ROE 5 year (Adj. for Debt) Top Decile: Relative cumulative performance

The factor outperformed the index in 2023



BofA GLOBAL RESEARCH

Exhibit 40: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	8.63%
Last 3 Months	14.76%
Last 6 Months	11.04%
Last 12 Months	40.78%
2023 YTD	40.78%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end April 1997. The unshaded portion represents actual performance since May 1997. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

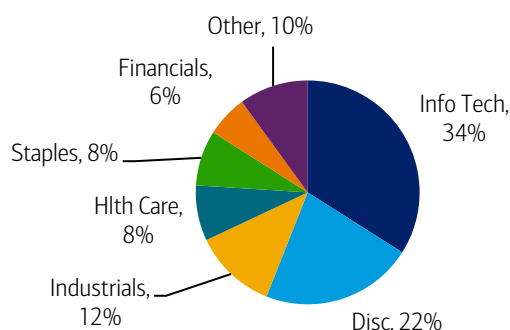
Return on Assets

Top Decile S&P 500 Companies by ROA

Return on Assets: Net income plus interest and taxes as a percent of average total assets.

Sector weights of ROA Top Decile

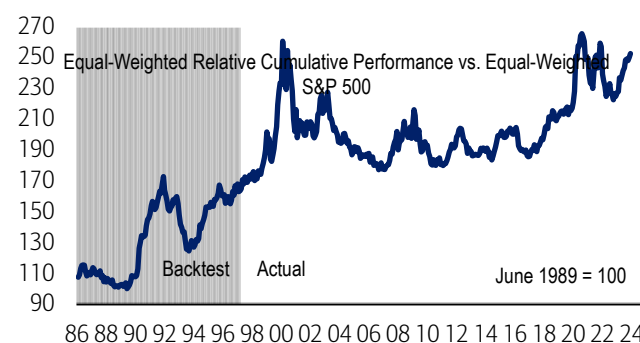
The factor has the highest weight in Tech (34%)



BofA GLOBAL RESEARCH

ROA Top Decile: Relative cumulative performance

The factor outperformed the index in 2023



BofA GLOBAL RESEARCH

Table 12: Absolute Returns

Factor performance over 1m, 3m, 6m, 12m and YTD

Last 1 Month	7.89%
Last 3 Months	13.17%
Last 6 Months	10.60%
Last 12 Months	25.90%
2023 YTD	25.90%

BofA GLOBAL RESEARCH

Source: BofA US Equity and Quant Strategy, FactSet

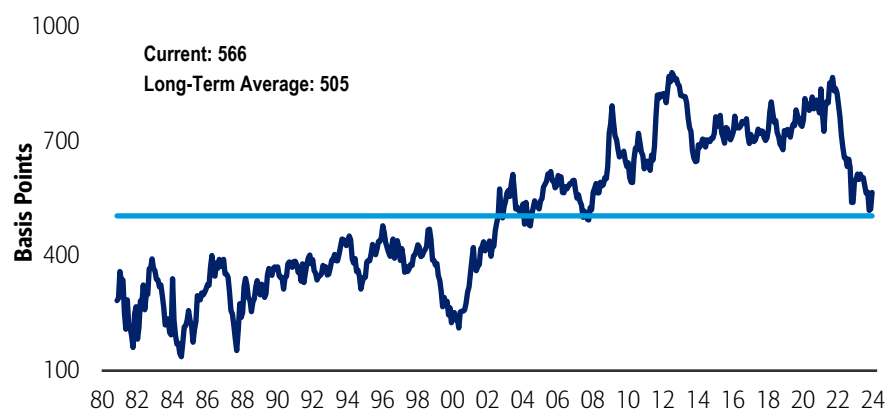
The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end April 1997. The unshaded portion represents actual performance since May 1997. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

BofA GLOBAL RESEARCH

Valuation Backdrop

Exhibit 41: S&P 500 Risk Premium rose in recent months

S&P 500 Risk Premium (DDM Expected Return less AAA Corporate Bond Rate)



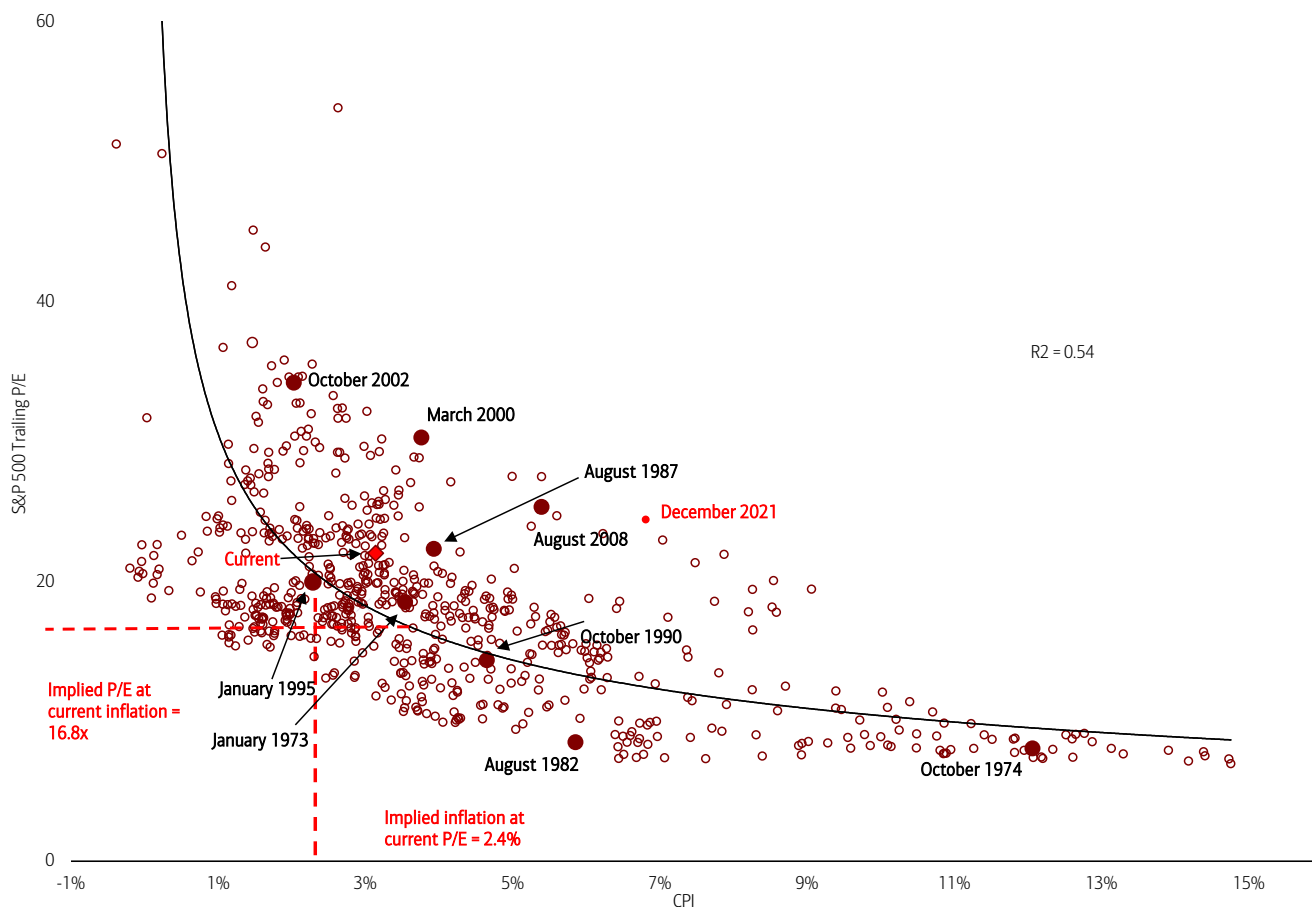
Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH

Note: In the chart below we exclude deflationary points from trend line calculation. Historically, the relationship between inflation and valuation breaks down during deflationary periods. For example, from 1949 to 1950, S&P 500 valuation was below average, and from 1954 to 1955, valuation was well above average.

Exhibit 42: Inflation vs. P/E Model

S&P 500 trailing P/E remains above the trend line (1965 to 12/31/23)

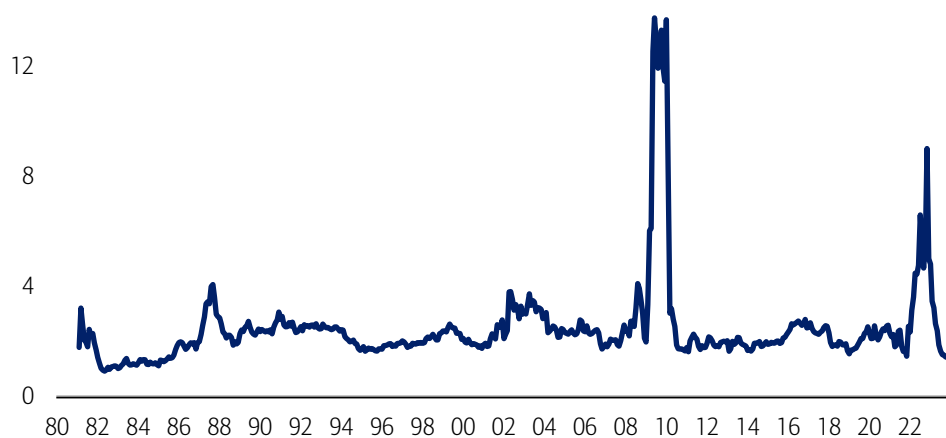


Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH

Exhibit 43: S&P 500 Real PE-to-Growth Ratio (Trailing P/E Divided by Proj. 5-Yr EPS Growth less Inflation)

Real P/E to Growth ratio rose in recent months (as of 12/31/2023)

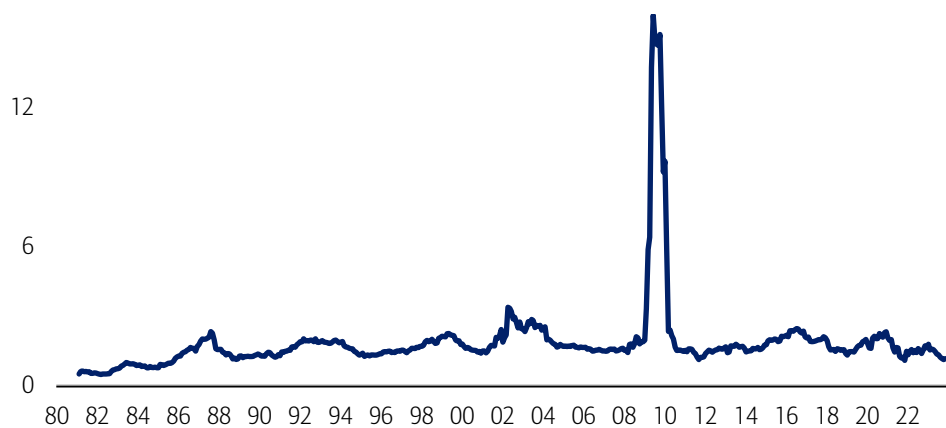


Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH

Exhibit 44: S&P 500 PE-to-Growth Ratio (Trailing P/E Divided by Proj. 5-Yr EPS Growth)

P/E to Growth ratio rose in recent months (as of 12/31/2023)



Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH

**Exhibit 45: BofA Universe Sector/Industry Factor Evaluation**

As of 12/31/2023

	# of Comp	% Univ BofA	Impl. Return	Reqd Return	Valuation Analysis					Expectation Analysis								
					DDM Alpha	Eqty. Duration	BofA Adj Beta	P/E Ratio	Price/Book	Yield	Surprise	Earnings (Decile)			PR 5yr Growth	EPS Growth		
												Risk	Torp	Disp	Est. Rev.		2023E	2024E
Economic Sectors																		
Energy	68	4.29	14.2	11.6	2.6	17.4	1.21	9.8	2.07	3.7	4	8	3	7	5	23.7	-22	4
Materials	62	2.75	10.1	10.5	-0.4	36.8	1.10	18.6	2.85	2.1	5	5	4	5	6	5.1	-25	6
Industrials	165	8.25	10.1	11.1	-1	35.4	1.10	19.4	4.43	1.5	6	4	6	4	5	18.3	16	12
Consumer Discretionary	181	11.49	9.9	12.1	-2.2	32.9	1.26	22.4	5.43	0.7	4	6	6	6	5	34.5	49	20
Consumer Staples	57	5.79	9.8	8.9	0.9	35.2	0.75	19.5	4.92	2.6	7	4	5	2	6	8.5	3	11
Health Care	236	12.67	10.5	8.9	1.6	35.0	0.78	20.4	4.45	1.5	5	5	5	3	7	9.8	-19	13
Financials	165	11.27	10.7	11.0	-0.3	32.8	1.10	14	2.21	2.1	6	4	6	4	5	13.3	8	7
Information Technology	162	28.17	9.9	11.4	-1.5	37.4	1.14	27.5	10.12	0.7	7	4	6	5	5	24.1	6	15
Communication Services	43	10.19	12.7	10.9	1.8	29.1	1.05	15.4	4.07	0.6	2	4	7	5	4	20.2	18	19
Utilities	55	2.36	10.2	8.8	1.4	30.6	0.75	15.7	1.83	3.6	5	5	5	2	6	7.8	8	9
Real Estate	89	2.77	9.5	10.2	-0.7	34.5	0.98	19.5	2.41	3.6	5	5	4	2	6	7.0	1	3
Capitalization Sectors (\$ Million)																		
8 To 2206	257	0.65	12.1	11.7	0.4	27.0	1.20	188	1.58	2.0	6	7	6	7	6	21.5	-33	111
2220 To 5136	256	2.01	11.6	11.6	0	29.1	1.18	16.9	1.88	1.9	5	6	6	6	6	19.2	7	13
5153 To 11679	257	4.61	11.1	11.4	-0.3	32.1	1.17	15.7	2.26	1.6	6	5	5	5	5	17.1	-6	16
11717 To 33974	256	11.31	10.4	10.7	-0.3	34.2	1.07	16.6	2.66	1.7	6	5	5	4	6	13.5	0	11
34112 To 2814709	257	81.42	10.4	10.8	-0.4	34.2	1.05	19.7	4.98	1.4	5	5	6	4	5	20.0	4	11
Risk Sectors																		
-3.36 To 0.84	254	20.83	10.3	8.4	1.9	33.0	0.69	16.9	3.59	2.5	5	5	5	3	6	10.7	-6	9
0.85 To 1.03	251	22.21	10.1	10.1	0	36.5	0.95	21.1	4.45	1.6	6	4	5	4	5	14.1	-3	10
1.04 To 1.20	258	34.58	10.8	11.2	-0.4	33.7	1.12	19.7	5.18	0.9	5	4	6	5	5	22.2	12	10
1.21 To 1.41	239	11.84	10.5	12.4	-1.9	34.5	1.29	16.9	2.70	1.4	6	6	6	5	5	17.3	-1	11
1.42 To 2.83	249	9.99	10.3	14.5	-4.2	30.4	1.62	21.8	4.70	0.8	5	7	6	7	5	39.9	19	37
Uncoded	32	0.55	11.2			32.6		18.3	2.66	1.3	5	9	6	5	4	16.1	12	153
DDM Alpha																		
Most Undervalued	176	13.49	15.2	11.5	3.7	17.5	1.16	18	4.62	1.0	4	8	7	7	3	73.4	27	34
Undervalued	175	20.91	12.0	9.8	2.2	29.3	0.90	14.6	3.56	1.6	4	5	6	4	5	14.7	9	10
Fair Value	175	20.54	10.2	10.0	0.2	36.2	0.93	21.4	5.03	1.6	6	4	6	3	5	12.9	8	9
Overvalued	175	16.30	9.8	11.0	-1.2	37.9	1.09	20.3	3.68	1.5	6	4	6	3	5	10.5	5	7
Most Overvalued	176	17.43	8.8	12.4	-3.6	46.0	1.30	27.9	8.12	0.7	7	3	5	4	6	9.7	-1	9
Uncoded	406	11.33	11.1	-18.3	29.4	32.6	1.05	17.3	2.44	2.5	6	6	4	5	6	-2.2	-24	10

Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH

Exhibit 46: BofA Universe Sector/Industry Factor Evaluation (cont'd)

As of 12/31/2023

	# of Comp	% Univ BofA	Impl. Return	Reqd Return	Valuation Analysis							Expectation Analysis						
					DDM Alpha	Eqty. Duration	BofA Adj Beta	P/E Ratio	Price/ Book	Yield	Surprise	Earnings (Decile)			PR 5yr Growth	EPS Growth		
												Risk	Torp	Disp	Est. Rev.		2023E	2024E
Duration																		
4.39 To 21.39	180	13.23	14.9	11.9	3	16.5	1.21	15.2	3.46	1.4	4	8	7	7	3	71.0	19	29
21.47 To 28.59	179	10.40	13.0	10.9	2.1	25.7	1.07	14.3	2.86	2.2	4	5	6	5	5	18.3	9	7
28.63 To 33.83	179	21.40	11.3	10.1	1.2	31.4	0.95	16.8	4.08	1.5	4	5	6	4	5	14.2	8	11
33.93 To 40.67	179	15.87	9.8	10.3	-0.5	37.4	0.98	19.7	3.97	1.7	5	4	6	3	5	10.2	7	7
40.74 To 82.31	180	28.17	8.9	11.2	-2.3	45.3	1.12	30.6	9.42	0.6	7	3	5	4	6	11.3	3	10
Uncoded	386	10.93					1.05	17.3	2.44	2.6	6	6	3	5	6	-3.2	-25	10
Growth Sectors																		
Growth	541	42.30	10.9	10.9	0	34.2	1.08	23.4	5.96	0.7	4	4	6	5	4	24.6	21	21
Growth Cyclical	243	24.82	9.7	11.6	-1.9	36.5	1.16	22.4	6.22	1.1	6	4	6	4	6	21.8	5	12
Growth Defensive	122	11.26	10.0	9.5	0.5	34.6	0.84	17.2	3.77	2.6	5	5	5	3	6	8.7	-14	10
Cyclical	238	11.47	10.9	11.5	-0.6	30.9	1.19	12.8	1.95	2.2	6	6	5	5	6	10.6	-3	1
Defensive	139	10.14	10.3	9.2	1.1	29.2	0.82	13.3	2.32	3.3	5	5	4	3	6	11.1	-11	8
EPS Surprise																		
Most Optimistic	244	24.82	11.6	10.4	1.2	28.5	1.01	16.5	4.40	1.2	1	5	6	5	5	26.7	10	18
Optimistic	243	13.90	10.0	11.6	-1.6	36.3	1.18	19	3.38	1.5	4	5	5	5	6	17.3	1	15
Neutral	243	19.92	10.6	11.3	-0.7	30.8	1.11	19	4.31	1.6	6	5	6	4	5	24.7	-4	17
Less Optimistic	243	26.31	9.9	10.7	-0.8	39.6	1.02	22.9	6.43	1.2	8	3	5	4	5	11.7	0	8
Not Optimistic	244	13.30	10.2	10.6	-0.4	35.0	1.04	17.9	2.54	2.0	9	5	6	4	5	13.7	6	-1
Uncoded	66	1.75	6.4	9.2	-2.8	54.2	0.93	33.4	3.62	2.3		6	5	4	5	12.2	11	35
Quality Rank																		
A+	26	19.17	9.6	10.7	-1.1	41.2	1.03	27.3	13.59	0.9	7	2	5	3	6	11.9	4	9
A	70	8.17	9.5	10.2	-0.7	37.5	0.96	22.1	4.18	1.7	6	3	5	3	6	15.1	2	10
A-	102	13.83	10.4	10.7	-0.3	30.4	1.02	17.7	3.80	1.9	6	5	6	4	5	22.3	11	8
B+	216	24.07	10.8	10.5	0.3	33.9	0.99	16.9	4.13	1.6	4	5	6	4	5	11.7	-3	10
B	171	14.08	11.9	11.0	0.9	25.0	1.06	15	2.93	1.6	4	7	6	6	4	30.6	4	8
B-	148	9.46	10.4	12.2	-1.8	35.6	1.27	16.2	3.18	1.5	5	9	5	6	6	19.3	-7	15
C & D	96	2.25	11.5	11.4	0.1	30.4	1.14	24.4	2.76	0.4	5	9	6	6	5	32.5	0	43
Not Rated	454	8.98	11.3	11.7	-0.4	31.7	1.21	26.8	3.38	1.2	5	6	6	6	5	33.6	31	47
B+ or Better	414	65.23	10.2	10.5	-0.3	35.9	1.01	19.9	5.11	1.5	6	4	6	4	5	14.4	2	9
B or Worse	869	34.77	11.2	11.5	-0.3	30.0	1.16	17.8	3.09	1.4	5	7	6	6	5	28.2	3	17
BofA Universe	1283	100.00	10.5	10.9	-0.4	34.0	1.06	21.7	4.15	1.5						19.1	3	13
S&P 500	503	91.62	10.4	10.7	-0.3	34.3	1.04	21.1	4.21	1.4						17.9	3	12

Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH





Exhibit 47: BofA Universe Sector/Industry Factor Evaluation (cont'd)

As of 12/31/2023

	Valuation Analysis										Expectation Analysis							
	# of Comp	% Univ BofAML	Impl. Return	Reqd Return	DDM Alpha	Eqty. Duration	BofAML Adj Beta	P/E Ratio	Price/Book	Yield	Surprise	Earnings (Decile)			Est. Rev.	PR 5yr Growth	EPS Growth	
												Risk	Torp	Disp			2023E	2024E
ENERGY	68	4.29	14.2	11.6	2.6	17.4	1.21	9.8	2.07	3.70	4	8	3	7	5	23.7	-22	4
ENERGY EQUIP & SVS	16	0.43	15.1	13.8	1.3	20.0	1.52	13.5	2.48	1.80	6	10	9	5	6	53.8	52	30
OIL & GAS	52	3.85	13.6	11.2	2.4	17.0	1.18	9.5	2.04	3.90	4	8	3	7	5	20.3	-25	2
MATERIALS	62	2.75	10.1	10.5	-0.4	36.8	1.10	18.6	2.85	2.10	5	5	4	5	6	5.1	-25	6
CHEMICALS	28	1.61	10.1	10.7	-0.6	37.2	1.07	19.9	3.00	1.90	4	5	5	4	5	7.6	-22	8
CONSTR MATERIALS	2	0.14	11.5	9.8	1.7	34.1	0.90	26.5	4.00	0.70	7	2	8	4	4	22.4	41	15
CONTAINERS & PCKG	17	0.33	10.3	10.0	0.3	36.2	0.96	15.2	2.76	2.70	7	5	4	5	7	5.0	-17	-1
METALS & MINING	13	0.67	9.2	10.6	-1.4	37.1	1.30	16.8	2.45	2.40	5	7	3	8	8	-5.0	-38	7
PAPER & FOREST PROD	2	0.02	18.9	9.7	9.2	15.5	1.35	16.3	3.06	1.70	8	10	1	8	8	7.8	-51	-7
INDUSTRIALS	165	8.25	10.1	11.1	-1	35.4	1.10	19.4	4.43	1.50	6	4	6	4	5	18.3	16	12
AEROSPACE & DEF	19	1.55	9.7	10.5	-0.8	32.0	1.01	23.1	3.16	1.40	8	5	7	4	6	46.5	23	34
BLDGS PRODUCTS	12	0.52	9.9	11.5	-1.6	38.2	1.22	18.4	4.52	1.30	6	4	6	3	5	8.0	3	4
CONSTR. & ENGR	8	0.11	12.8	12.6	0.2	28.8	1.28	17.7	3.69	0.40	6	6	7	4	4	23.9	27	16
ELECTRICAL EQUIP	19	0.62	10.0	11.7	-1.7	36.5	1.20	25.9	4.07	1.20	5	3	6	3	4	20.8	5	22
IND CONGLOMERATES	3	0.75	9.5	11.2	-1.7	41.6	1.11	19.8	6.68	1.90	5	3	6	3	4	8.2	0	22
MACHINERY	27	1.48	10.5	11.3	-0.8	34.8	1.12	15.4	4.40	1.50	6	4	6	4	5	9.5	29	-3
TRADING COMPANIES	9	0.27	11.0	12.9	-1.9	35.6	1.38	12.2	2.75	1.10	6	5	6	6	4	8.1	7	4
COMMERCIAL SVS	10	0.40	9.1	10.0	-0.9	41.7	0.93	30.7	8.11	1.20	4	2	5	3	5	11.7	11	13
PROFESSIONAL SVS	27	0.80	10.6	10.3	0.3	35.1	0.99	20.8	5.64	1.50	6	2	5	3	6	12.7	4	10
AIR FREIGHT & LOGIS	3	0.41	11.8	11.1	0.7	28.6	1.06	15.2	4.29	3.40	6	8	4	5	8	0.8	-26	13
PASSENGER AIRLINES	11	0.18	10.2	12.3	-2.1	20.9	1.29	9.1	1.74	1.10	8	9	9	8	9	29.5	133	-8
MARINE	2	0.01	9.0	11.3	-2.3	45.3	1.23	nm	1.02	19.30	2		7	4	8	12.0	nm	87
GROUND	15	1.15	9.9	11.3	-1.4	37.1	1.15	24.7	6.62	1.10	4	4	5	5	6	12.5	144	29
CONSUMER DISCR	181	11.49	9.9	12.1	-2.2	32.9	1.26	22.4	5.43	0.70	4	6	6	6	5	34.5	49	20
AUTO COMP	13	0.25	10.7	13.7	-3	35.6	1.49	16.3	2.32	0.60	5	7	6	5	5	16.1	10	31
AUTOMOBILES	7	1.84	8.3	15.9	-7.6	52.3	1.81	32.4	4.51	0.40	4	9	3	8	9	9.0	-15	41
HOUSEHOLD DURABLES	14	0.45	9.9	12.8	-2.9	39.7	1.33	12.7	2.35	1.00	6	3	5	6	4	2.4	-7	-6
LEISURE PRODUCTS	6	0.05	10.4	13.3	-2.9	32.0	1.27	18.1	2.28	1.60	4	7	5	6	7	9.2	nm	59
TEXTILES, APPAREL	17	0.64	10.9	11.6	-0.7	35.5	1.19	22.0	6.92	1.00	7	4	6	5	6	16.1	0	14
HOTELS, RESTAURANTS & LEISURE	57	2.43	10.7	11.6	-0.9	33.8	1.20	23.7	5.83	1.10	5	6	7	4	5	23.0	226	16
DIV CONSUMER SVS	9	0.07	9.3	9.7	-0.4	29.6	0.99	15.3	4.27	0.70	4	4	5	6	4	101.4	12	27
MEDIA	1	0.02					1.08	11.9		0.00					2		-15	-22
DISTRIBUTORS	2	0.08	11.0	10.2	0.8	30.2	0.97	17.9	6.22	2.00	5	7	5	2	6	2.9	-5	8
MULTILINE RETAIL	10	3.46	15.2	11.3	3.9	17.0	1.13	23.5	8.36	0.10	2	8	8	8	1	82.3	211	36
SPECIALTY RETAIL	45	2.20	9.2	10.7	-1.5	39.7	1.07	19.4	5.17	1.60	4	4	4	3	6	5.6	16	10
CONSUMER STAPLES	57	5.79	9.8	8.9	0.9	35.2	0.75	19.5	4.92	2.60	7	4	5	2	6	8.5	3	11
DISTRIBUTION & RETAIL	13	1.71	9.2	9.6	-0.4	42.4	0.79	22.0	5.70	1.40	5	4	5	3	5	7.4	2	29
BEVERAGES	11	1.44	9.3	8.9	0.4	36.3	0.76	22.2	6.65	2.60	8	5	6	1	5	9.8	13	7
FOOD PRODUCTS	20	0.83	10.2	8.4	1.8	30.9	0.71	15.6	2.29	2.90	6	4	5	3	6	8.3	-5	1
TOBACCO	2	0.49	12.0	9.1	2.9	20.5	0.79	11.4		6.90	6	4	5	2	8	5.7	2	4
HOUSEHOLD PRODUCTS	5	1.10	9.5	8.0	1.5	35.7	0.63	22.1	7.82	2.60	9	6	5	1	5	8.4	6	8
PERSONAL PRODUCTS	6	0.22	10.9	11.5	-0.6	35.1	1.16	25.2	5.14	2.00	8	7	5	6	8	18.6	-17	16

Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH

Exhibit 48: BofA Universe Sector/Industry Factor Evaluation (cont'd)

As of 12/31/2023

	Valuation Analysis										Expectation Analysis							
	# of	% Univ	Impl.	Reqd	DDM	Eqty.	BofA	P/E	Price/		Earnings (Decile)				PR 5yr		EPS Growth	
	Comp	BofA	Return	Return	Alpha	Duration	Adj Beta	Ratio	Book	Yield	Surprise	Risk	Torp	Disp	Est. Rev.	Growth	2023E	2024E
HEALTH CARE	236	12.67	10.5	8.9	1.6	35.0	0.78	20.4	4.45	1.50	5	5	5	3	7	9.8	-19	13
HEALTH CARE EQUIP	39	2.38	9.5	10.6	-1.1	41.9	0.96	25.2	4.23	1.00	7	6	5	2	6	8.1	-2	8
HEALTH CARE PROV	47	2.76	10.9	9.0	1.9	33.5	0.78	15.0	3.16	1.30	4	3	7	2	6	11.8	7	10
HEALTH CARE TECH	8	0.11	9.6	10.5	-0.9	41.9	1.00	53.7	4.34	0.00	5	2	5	4	5	18.2	142	7
BIOTECH	96	2.51	10.4	8.2	2.2	31.6	0.70	33.2	6.40	1.70	6	6	4	5	5	10.7	-35	33
PHARMACEUTICALS	28	3.48	11.1	8.0	3.1	31.9	0.64	16.3	5.20	2.50	3	7	5	4	8	11.8	-41	18
LIFE SCIENCES	18	1.42	9.0	11.2	-2.2	46.2	0.99	27.3	4.14	0.30	7	4	3	3	8	1.8	-14	1
FINANCIALS	165	11.27	10.7	11.0	-0.3	32.8	1.10	14.0	2.21	2.10	6	4	6	4	5	13.3	8	7
BANKS	30	2.68	11.3	11.1	0.2	28.5	1.11	10.7	1.23	3.20	8	4	6	5	4	8.8	7	-7
FINANCIAL SERVICES	33	2.75	10.7	11.1	-0.4	35.5	1.12	18.6	5.97	0.80	6	2	6	3	6	16.6	15	16
CONSUMER FINANCE	9	0.52	11.9	11.8	0.1	30.2	1.26	11.4	1.94	1.90	5	6	5	5	5	7.3	-15	11
CAPITAL MARKETS	50	3.32	10.3	11.7	-1.4	34.5	1.19	17.2	2.60	2.30	5	4	6	4	6	10.7	1	14
MORTGAGE REITS	12	0.08	12.5	14.4	-1.9	20.0	1.42	7.2	0.99	11.60	5	6	2	5	6	8.5	-17	-5
INSURANCE	31	1.92	10.6	9.4	1.2	31.7	0.84	12.2	2.27	1.80	5	5	8	3	4	20.9	29	19
INFO TECH	162	28.17	9.9	11.4	-1.5	37.4	1.14	27.5	10.12	0.70	7	4	6	5	5	24.1	6	15
INTERNET SOFTWARE	1	0.03	7.6	14.3	-6.7	54.2	1.58	48.5		0.00	9		4	8	5	4.7	-29	-4
IT SERVICES	21	1.73	10.9	11.5	-0.6	31.7	1.15	28.5	6.80	1.30	6	3	5	5	5	48.8	7	9
SOFTWARE	73	10.81	10.2	10.5	-0.3	39.4	1.01	32.4	11.22	0.50	7	3	6	4	4	18.9	17	14
COMMUNICA. EQUIP	9	0.78	11.0	10.2	0.8	33.3	0.96	15.7	4.44	2.10	4	6	5	3	7	11.2	16	5
TECH. H/W, STORAGE & PERIPH	8	6.67	9.2	11.7	-2.5	44.6	1.19	27.4	31.45	0.60	8	2	5	4	7	10.7	-2	6
ELECTR EQUIP & INSTR	17	0.64	9.5	11.6	-2.1	41.2	1.17	17.4	3.31	1.00	6	5	5	4	6	6.4	-5	5
SEMICONDUCTORS	33	7.51	9.9	12.5	-2.6	29.5	1.31	25.0	7.65	0.80	6	6	6	6	4	41.0	3	29
COMMUNICATION SERVICES	43	10.19	12.7	10.9	1.8	29.1	1.05	15.4	4.07	0.60	2	4	7	5	4	20.2	18	19
DIVERSIFIED TELECOM SVS	5	0.65	12.7	8.5	4.2	20.4	0.66	8.1	1.29	6.60	7	6	3	4	5	1.0	-27	23
WIRELESS TELECOM SVS	1	0.18		8.3		17.5	0.68	15.1	2.88	1.60	2	6	9	5	8	71.9	287	45
MEDIA	12	0.67	11.5	10.7	0.8	29.4	1.04	10.6	1.86	2.10	5	6	6	5	5	8.4	-10	15
ENTERTAINMENT	14	1.28	12.3	11.7	0.6	30.6	1.21	23.3	2.88	0.10	3	6	7	6	6	26.2	28	47
INTERACTIVE MEDIA & SVCS	11	7.41	12.9	10.9	2	29.4	1.07	16.4	6.41	0.00	1	4	7	5	3	20.6	34	15
UTILITIES	55	2.36	10.2	8.8	1.4	30.6	0.75	15.7	1.83	3.60	5	5	5	2	6	7.8	8	9
ELECTRIC UTILITIES	25	1.47	10.2	8.7	1.5	30.8	0.74	15.5	1.83	3.50	5	5	6	2	6	6.3	7	8
GAS UTILITIES	7	0.10	10.8	9.0	1.8	29.4	0.79	14.0	1.49	3.80	5	4	6	3	6	6.9	2	4
MULTI-UTILITIES	13	0.61	10.0	8.6	1.4	30.7	0.72	16.4	1.76	3.80	6	5	5	2	6	6.1	2	11
WATER UTILITIES	2	0.08	9.0	9.1	-0.1	37.3	0.80	23.0	2.27	2.50	2	3	5	1	6	6.9	7	7
INDEP POWER PROD & ENERGY TRAD	8	0.10	13.7	10.3	3.4	19.4	1.00	12.4	2.54	3.60	5	6	7	7	8	44.4	94	25
REAL ESTATE	89	2.77	9.5	10.2	-0.7	34.5	0.98	19.5	2.41	3.60	5	5	4	2	6	7.0	1	3
DIVERSIFIED REITS	5	0.05	10.1	11.9	-1.8	31.7	1.05	13.2	1.48	5.80	8	4	3	2	6	-0.5	3	-6
INDUSTRIAL REITS	6	0.36	9.7	10.5	-0.8	34.0	1.01	23.0	2.22	2.70	3	5	4	1	6	8.6	9	1
HOTEL & RESORT REITS	9	0.08	11.2	13.0	-1.8	15.7	1.32	10.6	1.51	3.30	7	9	6	4	5	4.5	10	-4
OFFICE REITS	12	0.13	10.9	11.1	-0.2	26.7	1.14	10.4	1.06	4.40	5	7	4	2	6	3.9	-7	2
HEALTH CARE REITS	7	0.22	10.2	11.1	-0.9	31.5	1.08	14.6	1.69	4.30	3	8	5	1	5	6.7	-1	5
RESIDENTIAL REITS	11	0.37	9.5	9.8	-0.3	32.9	0.91	17.1	2.41	3.50	5	4	5	1	7	4.7	5	3
RETAIL REITS	18	0.38	10.1	11.4	-1.3	27.8	1.15	12.8	2.02	4.90	4	5	4	1	5	2.5	1	3
SPECIALIZED REITS	16	1.06	8.8	9.1	-0.3	39.4	0.83	30.4	4.04	3.50	6	5	4	2	6	8.7	-2	2
REAL ESTATE MGMT & DEV	5	0.12	9.0	11.2	-2.2	45.6	1.17	157.1	3.86	0.20	6	3	4	5	7	16.3	nm	nm
BofA UNIVERSE	1283	100.00	10.5	10.9	-0.4	34.0	1.06	21.7	4.15	1.50						19.1	3	13
S&P 500	503	91.62	10.4	10.7	-0.3	34.3	1.04	21.1	4.21	1.40						17.9	3	12

Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH



Performance Calculation Methodology

For each of the strategies represented in this report, rebalancing and performance calculations are conducted each month, using data and closing prices corresponding to the market's close on the last business day of each month. The performance of each index is computed on the basis of price return. The performance is presented relative to the benchmark which consists of the equal weighted price performance of stocks in the S&P 500 as of the last business day of each month. For Alpha Surprise model, the performance is also represented as relative to the market capitalization-weighted S&P 500 benchmark.

The results of quantitative strategies presented here may differ from the S&P 500 in that they are significantly less diversified, and, as such, their performance is more exposed to specific stock or sector results. Therefore investors following these strategies may experience greater volatility in their returns.

The analysis in this report is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the hypothetical back-tested performance of a particular strategy over the time period indicated. In future periods, market and economic conditions will differ and the same strategy will not necessarily produce the same results. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. In fact, there are frequently sharp differences between back-tested returns and the actual results realized in the actual management of a portfolio. Back-tested performance results are created by applying an investment strategy or methodology to historical data and attempts to give an indication as to how a strategy might have performed during a certain period in the past if the product had been in existence during such time. Back-tested results have inherent limitations including the fact that they are calculated with the full benefit of hindsight, which allows the security selection methodology to be adjusted to maximize the returns. Further, the results shown do not reflect actual trading or the impact that material economic and market factors might have had on a portfolio manager's decision-making under actual circumstances. Back-tested returns do not reflect advisory fees, trading costs, or other fees or expenses.

The performance results do not reflect transaction costs, tax withholdings or any investment advisory fees. Had these costs been reflected, the performance would have been lower. The performance results of individuals following the strategies presented here will differ from the performance contained in this report for a variety of reasons, including differences related to incurring transaction costs and/or investment advisory fees, as well as differences in the time and price that securities were acquired and disposed of, and differences in the weighting of such securities. The performance results of individuals following these strategies will also differ based on differences in treatment of dividends received, including the amount received and whether and when such dividends were reinvested.

Dividend Yield and Dividend Growth Strategies

We also provide total returns for dividend oriented strategies (high dividend yield strategy and high dividend growth strategy). The total return performance calculation assumes that dividends paid on securities in a portfolio are deposited in a cash account on the ex-dividend date, and are not reinvested. The performance is presented relative to the equal weighted total returns index of stocks in the S&P 500 as of the last business day of each month.

This report includes strategies for informational or descriptive purposes, and inclusion here is not equivalent to a recommendation of the strategy or portfolio.

Past performance should not and cannot be viewed as an indicator of future performance. A complete performance record is available upon request.



Advances & Declines

Advances and declines are based on the price returns of each stock for each relevant period. The portfolio rebalancing done each month constitutes the start of a new period for each stock in the portfolio. The performance period for the stock being removed will end when the stock is removed from the portfolio. For the stock being added, the performance period will begin when it is added to the portfolio.

Definitions

Absolute return: Absolute return is calculated based on monthly returns and reflects simple price appreciation (depreciation) over the stated period. Stocks in each screen are equally weighted. Returns do not reflect dividend or transaction costs.

P/E-to-Growth: Trailing twelve months P/E divided by the five-year EPS growth rate estimated by BofA Fundamental Equity Research. If no BofA estimate exists, then the IBES Mean Long Term Growth Estimate is used.

Dividend Discount Model Alpha: The implied return from the BofA Quantitative Strategy three-stage dividend discount model less the required return from a Capital Asset Pricing Model. Presented as a decile rank.

Earnings Yield: Trailing 12-month EPS divided by month-end price

Forward Earnings Yield: Rolling 12-month forward EPS divided by month-end price

Price/Book Value: Month-end price divided by the most recently reported book value per share.

Price/Cash Flow: Month-end price divided by the most recently reported cash flow. Cash flow is defined as earnings post extraordinary items plus depreciation.

Price/Free Cash Flow: Month-end price divided by most recently reported free cash flow. Starting November 2022, we updated Free Cash Flow (FCF) calculation methodology from (Net Income + Depreciation & Amortization – CapEx) to use (Operating Cash Flow – CapEx) instead.

Price/Sales: Month-end market value divided by most recently reported sales.

EV/EBITDA: Enterprise Value (Equity Market Capitalization + Long Term Debt + Short Term Debt + Preferred Stock + Minority Interest – Cash & Cash Equivalents) divided by EBITDA (Reported Net Income + Special Items – Minority Interest + Interest Expense + Income Tax Expense + Depreciation and Amortization) – most recently reported.

Free Cash Flow/EV: Free Cash Flow divided by Enterprise Value (Equity Market Capitalization + Long Term Debt + Short Term Debt + Preferred Stock + Minority Interest – Cash & Cash Equivalents). Starting November 2022, we updated Free Cash Flow (FCF) calculation methodology from (Net Income + Depreciation & Amortization – CapEx) to use (Operating Cash Flow – CapEx) instead. For our FCF/EV factor, in addition to the methodology change to our FCF calculation (which represents Free Cash Flow to Equity), we also changed to use FCF to the Firm (FCFF) by adding back interest expense: (Operating Cash Flow – CapEx + Interest Expense*(1-tax rate)).

Dividend Yield: Indicated dividend divided by month-end price.

Dividend Growth: The growth between trailing 4-quarter total common dividends and year-ago trailing 4-quarter total common dividends.

Share Repurchase: The year-to-year change in shares outstanding

Rel Str – 30Wk/75Wk MA: The ratio of the 30-week moving average of price to the 75-week moving average.

Rel Str – 5Wk/30Wk MA: The ratio of the 5-week moving average of price to the 30-week moving average.

Rel Str – 10Wk/40Wk MA: The ratio of the 10-week moving average of price to the 40-week moving average.

Price/200-Day Moving Average: A ratio between month-end closing price and average closing price over the last 200 days.

Price Return – 12-Month Performance: Absolute price return over the last twelve months.

Price Return – 9-Month Performance: Absolute price return over the last nine months.

Price Return – 3-Month Performance: Absolute price return over the last three months.

Price Return – 11-Month Performance: Absolute price return from one year ago, ignoring the most recent month.

Price Return – 12-Month and 1-Month Performance: Equal weighted rank of stocks by (1) highest price return over the last twelve months and (2) highest price return over the most recently ended month.

Price Return – 12-Month and 1-Month Reversal: Equal weighted rank of stocks by (1) highest price return over the last twelve months and (2) lowest price return over the last one month.

Most Active: Stocks have the highest monthly share trading volume.

Earnings Momentum: The difference between 12-month trailing EPS and year-ago 12-month trailing EPS divided by year-ago 12-month trailing EPS.

Projected 5-Year EPS Growth: The five-year EPS growth rate estimated by BofA Fundamental Equity Research. If no BofA estimate exist, then I/B/E/S Mean Long Term Growth Estimate is used.

Forecast Earnings Surprise: A forecast earnings surprise variable which compares BofA estimates to those of the consensus after adjusting for the range of estimates. Stocks are ranked from 1 to 10, with 1 being among the most optimistic, relative to the consensus, 10 being among the most pessimistic. Consensus estimated earnings data are courtesy of I/B/E/S. If the projected Surprise is greater than 13 standard deviations, the stock is excluded as an outlier.

Positive (Negative) Forecast Earnings Surprise: The companies ranked 1 or 2 (9 or 10) by Forecast Earnings Surprise.

EPS Estimate Revision: The difference between the I/B/E/S FY1 estimate and that of three months ago divided by the absolute value of I/B/E/S FY1 estimate of three months ago.

Equity Duration: An adaptation of our Dividend Discount Model which measures the interest-rate sensitivity of a stock. Longer durations (higher numbers) suggest more interest-rate sensitivity.

Earnings Torpedo: I/B/E/S FY2 estimate less latest actual annual EPS divided by month-end price.

Return on Equity One-Year Average: Net income divided by average equity provided.

Return on Equity Five-Year Average: Five-year average return on equity.

Return on Equity One-Year Average (Adjusted for Debt): The ROE of companies with higher debt levels are considered lower than those of companies with lower debt levels based on their debt-to-equity ratios.



Return on Equity Five-Year Average (Adjusted for Debt): The average five year ROE of companies with higher debt levels are considered lower than those of companies with lower debt levels based on their debt-to-equity ratios.

Return on Assets: Net income plus interest and taxes as a percent of average total assets.

Return on Capital: The sum of net income, interest expense and minority interest, as a percent of average total invested capital which is inclusive of long-term debt, preferred stock, common equity, and minority interest.

Beta: A measure of non-diversifiable risk. It is calculated using regression Strategy incorporating 60 months of price performance versus that of the S&P 500.

Variability of EPS: The degree of variability in quarterly EPS over the past 5 years. Stocks are ranked from 10 to 1 with 10 being the most variable.

EPS Estimate Dispersion: The coefficient of variation among I/B/E/S FY2 estimates. Presented as a decile rank.

Price: Absolute price level of the stock at month-end.

Neglect-Institutional Ownership: Those companies with the lowest proportions of float-adjusted shares held by institutional owners are considered more neglected.

Neglect-Analyst Coverage: Those companies with the lowest number of analysts submitting ratings to FirstCall.

Firm Size: Month-end market value.

Foreign Exposure: The ratio of foreign sales to total sales.

Short Interest 12-mth Z-Score: (Most recent number of short shares – 12mth average of short shares)/ 12mth standard deviation of short shares.

Inputs for the US Regime Indicator

Inputs for the US regime indicator include the following eight macroeconomic or top-down variables listed below. In this report we also extended the indicator history going back to 1970, with available inputs listed on the bottom of the page.

- **Earnings Revision ratio:** Calculated as the ratio between the number of companies in the S&P 500 for which Thomson Financial consensus earnings estimates have been raised versus those that have been lowered. A rising ratio indicates an improving economic cycle.
- **ISM PMI:** ISM PMI Institute for Supply Management Manufacturing Purchasing Managers Index, represented as the Z-Score. The ISM Manufacturing Index monitors economic activity as reported by 300 supply management professionals. The reading of the index above (below) 50 indicated economic expansion (contraction).
- **Inflation:** The 12-month change in the BofA Inflation Composite (see methodology further below), represented as the Z-Score. Rising inflation indicates improving economic conditions.
- **GDP Forecast:** The next 12-month US GDP growth forecast from the Federal Reserve Bank of Philadelphia Survey, represented as the Z-Score.
- **Leading Economic Indicators index:** The 12-month change in the Conference Board US Leading Index of Ten Economic Indicators, represented as a Z-Score. A rising Z-Score indicates improving economic conditions.
- **US Capacity Utilization:** The 12-month change in US capacity utilization, represented as the Z-score. The capacity utilization rate indicates the percentage of total economic capacity currently utilized. Rising capacity utilization implies improving economic conditions. Rising capacity utilization suggests more expanding economic cycle and potentially rising inflationary pressure.
- **10-yr US Treasury Bond Yield:** The 12-month change in the bond yield, represented as the Z-Score. Rising yields indicate improving economic conditions.
- **High Yield corporate bond credit spread:** The 12-month change in the US High Yield credit spread of the ICE BofA US High Yield Index, represented as a Z-score. Falling spreads indicate improving economic conditions.

For the historic period from January 1970 to December 1989, the US Regime Indicator was based on the available inputs listed above, which were:

- 1/70 to 1/82: 5 inputs: Inflation, 10-yr US Treasury Bond Yield, ISM PMI, Leading Economic Indicators index, US Capacity Utilization;
- 2/82 to 3/88: 6 inputs: all of the above plus GDP Forecast;
- 4/88 to 4/89: 7 inputs: all of the above plus the High Yield corporate bond credit spread;
- 5/89 to 12/89: all 8 inputs: all of the above plus the Earnings Revision Ratio.

Performance of sizes/styles during regimes prior to January 1990 could be impacted by the more limited set of factors used to determine regimes, different definitions for Growth, Value and Size (where we use Fama-French performance data for the 1970-1989 period vs. performance of our S&P 500 top/bottom decile factors over the original history of our indicator from 1990-present), as well as the different macro backdrop in the earlier period marked by high inflation.



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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}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

^{R1} Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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