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US Equity Strategy Year Ahead

Year Ahead 2023: Sprint lower, marathon higher

S&P 500 2023 year-end target 4000, 2023 EPS $200

But there is a lot of variability here. Our bull case, 4600, is based on our Sell Side Indicator being as close to a "Buy" signal as it was in prior market bottoms – Wall Street is bearish, which is bullish. Our bear case from stressing our signals yields 3000. In 2023, don't index, outdex. If we kicked out the 50 largest companies, valuations are in line with history for the remaining S&P 450. But still crowded mega caps de-rating could dwarf these gains. Changes in leadership last longer than expected.

Focus on the marathon, not the sprint

In the near term, pain from EPS cuts (estimates are 15% higher than our 2023 forecast of $200 – see our EPS model) is likely – note that returns ahead of revision troughs have been deeply negative (Exhibit 58). But the best phase is that which follows – low but rising earnings revision ratios. The market typically bottoms six months before the end of a recession, so buy in 1H based on our economists forecast of the recession ending by 3Q 2023. Our 10-yr valuation model (80% r-sq) suggests that even if you buy today, you will enjoy ~5% price returns p.a., pushing the S&P to 6000+ by 2032.

2022 Fed; 2023 real economy

In 2022, we saw a -96% correlation between 2yr yields and S&P returns; Long Equity Duration was one of the worst performing factors in our quantitative factor book. The market is hoping for a Fed pivot, but it really shouldn't: a Fed easing cycle amid tightening credit conditions (i.e. recession) has been the worst backdrop for stocks.

Quality, income, reshoring, green and brown, small caps

Cyclical (slow growth) and secular (Fed ka-put) forces favor high quality stocks. Dividend contribution lagged over the last decade, catch-up implies >50% of total returns will be from income (equivalent to S&P 500 at 9000+ by 2032!) Reshoring is well underway, and manufacturing capex is likely to eclipse tech spend for the first time in a long while. War + Net Zero means fossil fuels and renewables could outperform simultaneously.

Sectors: o/w income+defense; u/w long duration+goods

We tweak sector weights for 2023 (see Exhibit 181) but remain focused on income and defense. If bonds do well (see GIS note), Utilities should too: we raise our view to overweight. We lower our Health Care view to marketweight on crowding risk/ Comm. Svcs. appears to be a value trap, and we lower our Tech view to underweight on its cyclicality and de-globalization risk.

Key risk: it is different this time

We worry about (1) a wealth effect on steroids from broader participation in the destruction of $22T in wealth; (2) liquidity risk in odd places – the S&P 500 (most crowded ticker in the world) and T-bonds (Fed & China have left the building); (3) unprecedented public sector debt, and (4) polarized politics (Russia, N. Korea, China, Trump 2.0) plus sticky, high inflation. But the silver lining of public debt is private health: corporates and consumers look far better capitalized than they have in prior recessions.

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.
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Refer to important disclosures on page 109 to 110.
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United States



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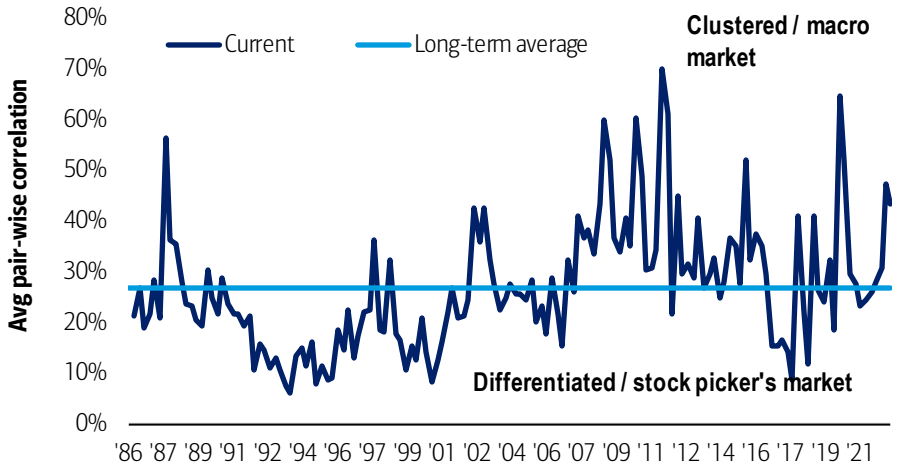
Not your mom and dad's recession

Some of the biggest risks that we see over the next 12 months *are* driven by the fact that things are different this time. Since COVID, idiosyncratic risk in the market has dropped, and average pair-wise stock correlations surged in 2022. The biggest rate shock in history, the most aggressive hiking cycle, the biggest inflationary pressure in 40+ years, rising recession fears (Bloomberg probability of US recession within 12 months at 100%), wartime and ongoing geopolitical risks, urgency building around carbon emission reduction suggest macro will loom large in 2023.

Exhibit 1: A macro-driven market environment
Average pair-wise stock correlations based on 90-day periods, daily frequency



Source: BofA US Equity & Quantitative Strategy, FactSet

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What's different this time?

Our economists forecast a US economic recession starting in 1Q23, with GDP falling 0.4% in 2023 and the unemployment rate rising ~2ppt to 5.5% by 1Q24. Historically, recessions have resulted in an average peak-to-trough S&P 500 decline of 30%, EPS decline of 20%, and equity risk premium increase of 250bps. But this recession is likely to be different for reasons including:

Balance sheet health: Corporates and consumers are less exposed to credit and leverage risk than they have been historically, which could mitigate earnings risk considerably. But healthier consumer balance sheets means the Fed may have to hike longer.

Mandatory capex cycle: good for the economy, but draw on corporate cash. Could also keep inflation elevated for longer. See De-globalization, reshoring & capex resilience.

The biggest bubble: Monumental, unprecedented leverage risk at **governments** and **central banks.**

Wealth effect on steroids: a more democratized investor-base in equities, crypto-currency and less liquid vehicles like SPACs where $20tn was lost in 2022 YTD.

Fed forced to stomach a deeper recession to **curb inflation**.

Healthy consumer = more aggressive Fed

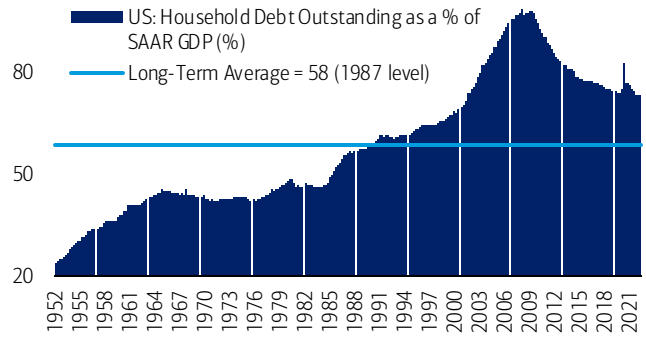
A big difference between today and prior downturns is consumer health.

- $10T transferred from the Fed/Gov't to households/corporates.
- Low rates have kept financial obligations ratio contained so far.

- 90% of US mortgages are fixed, far below levels seen in prior tightening cycles.
- Wage growth offsetting higher oil, food and staples prices at the low end.

The key implication here is positive as a floor for earnings but may be negative for markets: no 2008-like bailout is necessary, and the Fed may have hike longer and engage in quantitative tightening to curb inflation, leading to a higher discount rate for stocks.

Exhibit 2: Consumer balance have improved to 2001 levels
Us Household Debt as a % of US GDP, 1952-present



Source: Haver Analytics/Federal Reserve, BofA US Equity & US Quant Strategy

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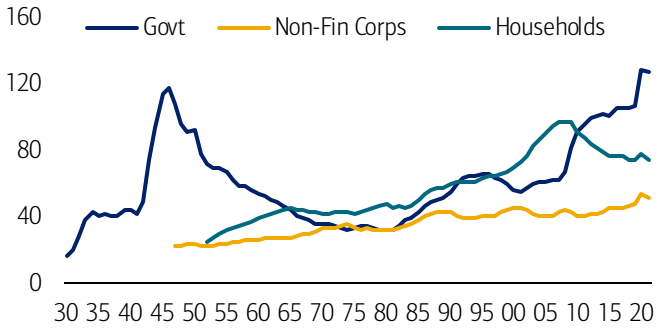
Exhibit 3: US Government holds the debt burden
US public debt to GDP, US non-financial corporate debt/GDP, and US household debt/GDP, fiscal years 1930-present



Source: Haver Analytics/Federal Reserve, BofA US Equity & US Quant Strategy

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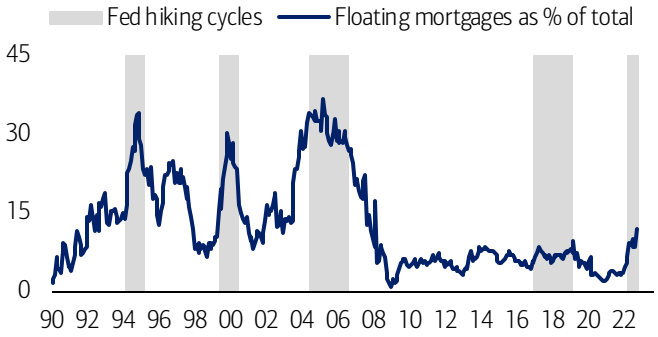
Exhibit 4: ~90% of mortgages are fixed-rate
New floating mortgages as a % of total vs. Fed hiking cycles (1990-9/2022)



Source: Bloomberg, BofA US Equity & Quant Strategy

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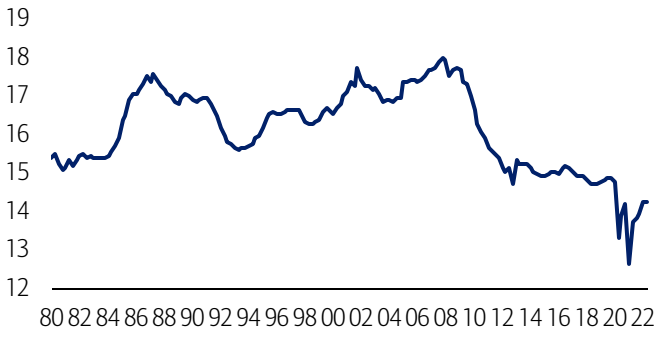
Exhibit 5: Consumer balance sheets still healthy
US Financial obligations ratio (Total, SA % of disposable income), 1980-2Q22



Source: Bloomberg, BofA US Equity & US Quant Strategy

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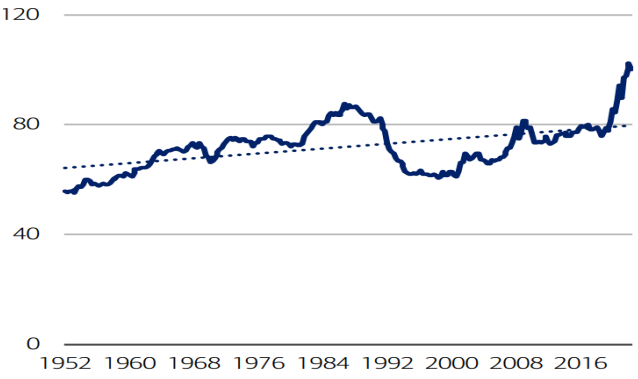
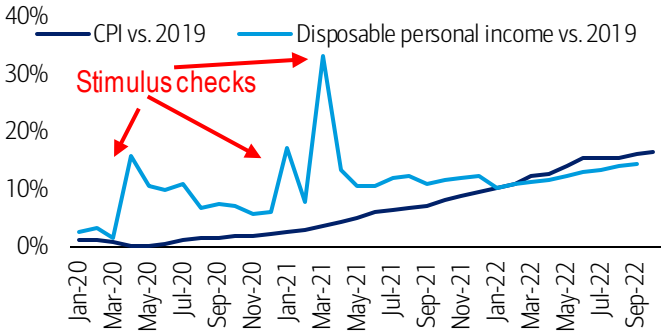
Exhibit 6: Household deposits as a percentage of disposable income
Pandemic saw a rise in deposits relative to disposable income



Source: Bank of America Institute, Financial Accounts of the United States, Federal Reserve

Exhibit 7: Inflation has now caught up with increases in disposable income
Disposable personal income and CPI vs. 2019 levels (1/2020-10/2022)



Source: Bloomberg, BofA US Equity & US Quant Strategy

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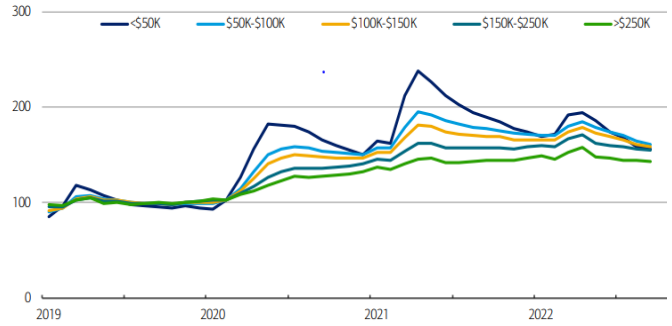
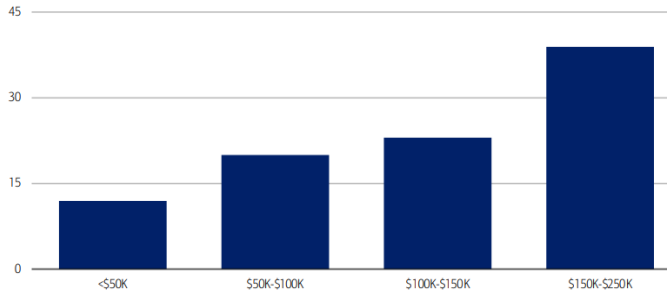
Exhibit 8: Deposit balances remain well above pre-pandemic levels, with some signs of a draw-down particularly among lower income cohorts
Monthly median household savings and checking balances by income (2019=100) for a fixed group of households



Source: Bank of America internal data (Bank of America Institute). Monthly data includes those households that had a consumer deposit account (checking and/or savings account) for all months from January 2019 through September 2022

Exhibit 9: At the current rate of decline even the lower income groups would have a significant period of time before their buffers returned to 2019 levels
Months for median deposit to return to average 2019 level given rate of decline in last three months

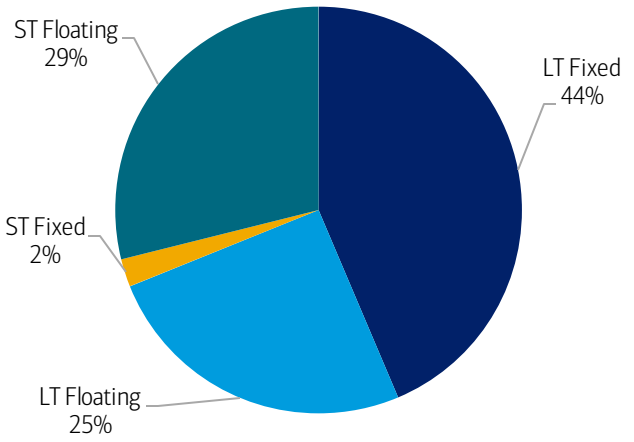


Source: Bank of America internal data (Bank of America Institute).

Healthier corporate leverage ratios

Like consumers, US corporates have largely shifted to longer-dated fixed rate debt – today over 75% of S&P 500 debt is long-term fixed vs. 40% in 2007. The average maturity of debt on S&P 500 balance sheets today is 11 years vs. 7 years in 2007.

Exhibit 10: 44% of US corporate (S&P 500) debt was L/T fixed in 2007
S&P 500 debt composition (as of 4Q 2007)



Source: Bloomberg, BofA US Equity & US Quant Strategy

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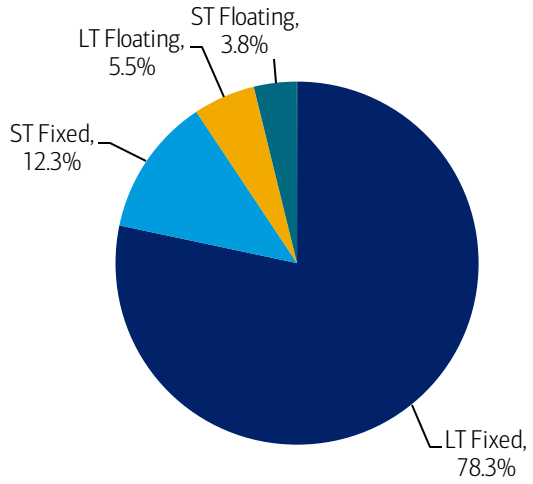
Exhibit 11: More than 75% of US corporate (S&P 500) debt is L/T fixed
S&P 500 debt composition (as of 3Q 2022)



Source: Bloomberg, BofA US Equity & US Quant Strategy

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Exhibit 12: Weighted average maturity of S&P 500 debt was 7 yrs back in 2007
Weighted average maturity of S&P 500 debt (long-term, short-term, total) by sector as of 4Q07

	LT Fixed	ST Fixed	Floating*	Total
Telecomm. Services	13.5	0.5	0	10.5
Cons. Discretionary	12.6	0.6	0	5.5
Cons. Staples	11.4	0.5	0	6.0
Energy	13.2	0.4	0	8.2
Health care	11.4	0.6	0	6.6
Industrials	11.9	0.5	0	5.4
Info. Technology	9.4	0.3	0	4.6
Materials	10.0	0.5	0	5.6
Utilities	13.8	0.4	0	9.6
S&P 500 (ex. Fin.)	**12.3**	**0.5**	**0**	**6.7**

Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy
*Assuming 0 maturity for floating debt

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Exhibit 13: Weighted average maturity is 11 yrs
Weighted average maturity of S&P 500 debt (long-term, short-term, total) by sector as of 3Q22

	LT Fixed	ST Fixed	Floating*	Total
Comm. Services	14.6	0.5	0.0	13.3
Cons. Discretionary	10.7	0.5	0.0	9.0
Cons. Staples	11.6	0.4	0.0	10.5
Energy	12.0	0.5	0.0	10.8
Health Care	12.3	0.4	0.0	10.6
Industrials	11.8	0.5	0.0	9.8
Info. Technology	11.9	0.4	0.0	10.0
Materials	11.7	0.5	0.0	10.2
Real Estate	8.9	0.5	0.0	7.4
Utilities	15.6	0.4	0.0	13.4
S&P 500 (ex. Fin.)	**12.5**	**0.4**	**0.0**	**10.8**

Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy
*Assuming 0 maturity for floating debt

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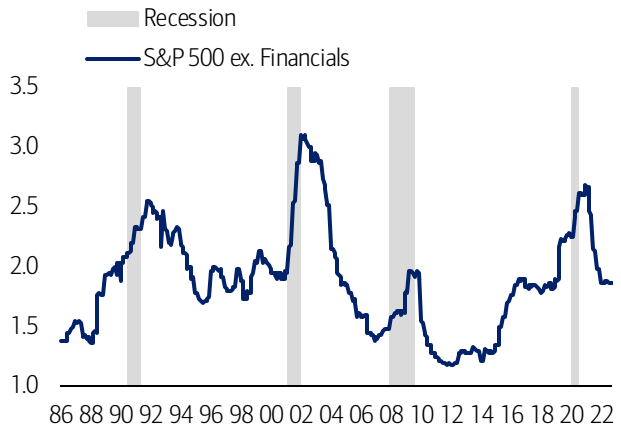
Like consumer balance sheets, corporate balance sheets remain healthy, aided by a massive deleveraging cycle after the global financial crisis (GFC) especially in the banking sector plus an ultra-low rate environment for the past decade as well as a bolus of gains via asset inflation from central bank asset purchase programs. Evidence includes:

- Net charge-offs at US banks are at record lows, indicating the best credit environment in history.
- High commodity prices bolster the riskiest credit, given that the majority of defaults since 2015 have occurred in Energy & Metals amid depressed commodity prices.
- The hit to earnings from refinancing costs will be marginal for the S&P 500 (Exhibit 105) in 2023 and could be as little as 3% through 2026.

Exhibit 14: S&P 500 leverage ex. Financials is below COVID levels...
S&P 500 ex-Financials Net Debt/EBITDA (1986-9/2022)



Source: Bloomberg, BofA US Equity & Quant Strategy

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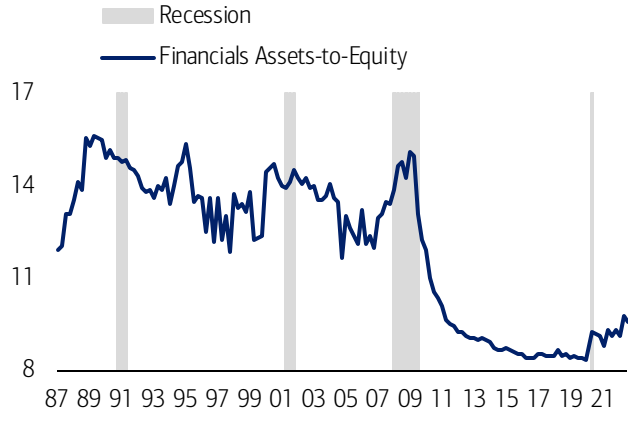
Exhibit 15: ...and Financials leverage is still near record lows
S&P 500 ex-Financials Net Debt/EBITDA (1987-2Q22)



Source: FactSet, BofA US Equity & Quant Strategy

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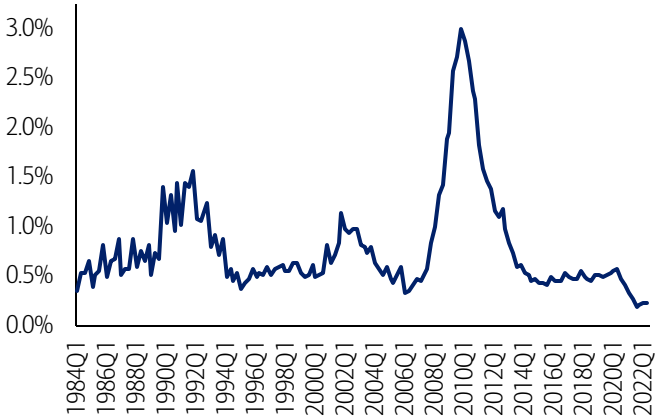
Exhibit 16: The best credit environment in history
US banks' net charge offs as % of total loans (1984-2Q22)



Source: FDIC, BofA Global Research

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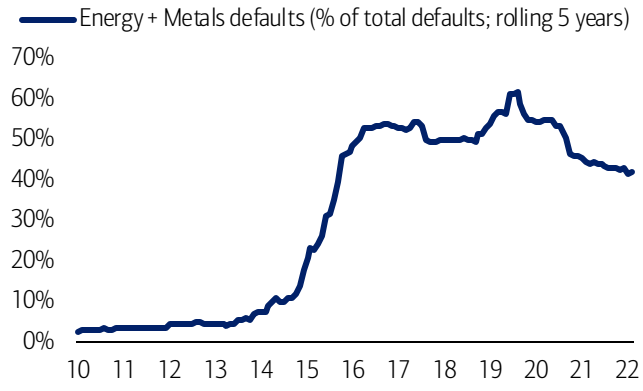
Exhibit 17: Majority of defaults have occurred in Energy & Metals since 2015. Strong commodity prices suggest limited risk in these sectors
% of total defaults from Energy & Metals (2005-9/22; rolling 5 years)



Source: BofA Global Research, ICE

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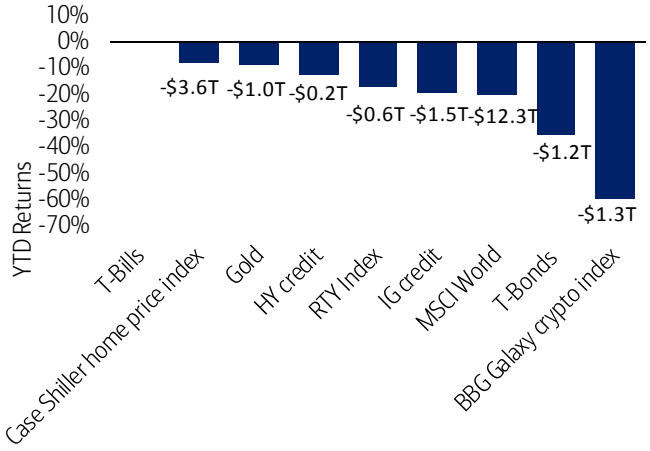
Wealth effect on steroids

One dollar of wealth destroyed translates into a 2c to 4c hit to consumption or thereabouts (NBER). The $22tn lost in equities, bonds, cryptocurrency and real estate this year would represent about a $700bn hit to consumption, which represents about 4% of total current consumption, plus or minus. Of course, this is likely to overstate the impact given that US consumers hold a part of these instruments. But the wealth effect could be more pronounced given a more democratized market. Interestingly, our Cryptocurrency strategists' June survey highlights that 43% of respondents were planning to initiate cryptocurrency holdings over the next six months (losing 36% in the Half-to-date) and of the respondents that held crypto, 75% were planning to add more exposure over the next six months.

Exhibit 18: 2022 losses tracking ~$22T
YTD returns and cumulative losses for different asset classes



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

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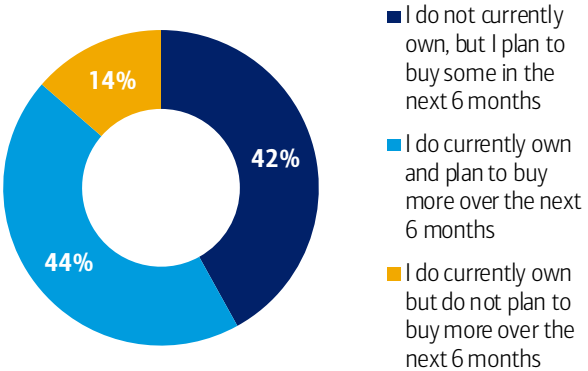
Exhibit 19: According to June '23 survey, 42% top-ticked the crypto market, 86% added exposure in 3Q/4Q
Responses to: Which of the following best describes your ownership of cryptocurrencies / digital assets? (n=1,013)



Source: Survey Monkey; BofA Global Research

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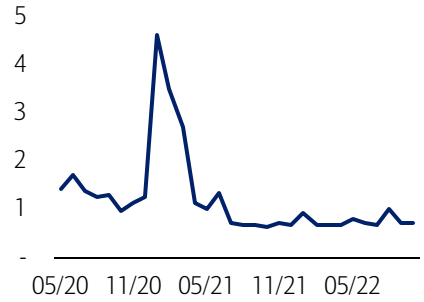
Democratized investing in recent years could amplify and broaden the negative impact.

Democratization can amplify the wealth effect. 2000s saw broadening home ownership, and economists estimate that the $8tn loss in household net worth in 2008 hit consumption by as much as 1ppt QoQ SAAR at peak.

Signs of democratized investing today include:

- **Retail participation**: down from its late 2020/early 2021 highs after peak stimulus, but elevated vs. pre-COVID: ~20% of large cap and ~28% of small cap trading volumes.
- **Robinhood**: also down from peaks, but above pre-COVID levels.
- **SPAC vs. IPO activity**: Deal value surged in 2021 (with ~60% of deal value from SPACs).

Exhibit 20: 2021 saw a surge in stock discussions on Reddit's WallStreetBets forum
Total monthly WallStreetBets conversations on Reddit (millions) (5/20-10/22)



Source: ListenFirst, BofA Global Research

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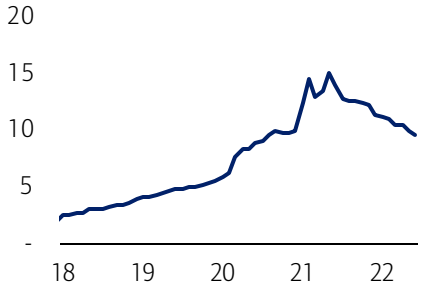
Exhibit 21: Robinhood users down from peak but still elevated vs. pre-COVID
Robinhood monthly active users since 2018 (millions) (as of 10/22)



Source: Sensortower, BofA Global Research

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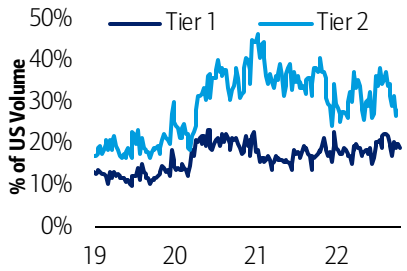
Exhibit 22: Retail participation makes up ~20% of large cap and ~28% of small cap volumes
Retail participation (Tier 1 = large, Tier 2 = small) as a % of US volumes (1/19-10/22)



Source: FINRA OTC Transparency Data and BofA Securities Methodology

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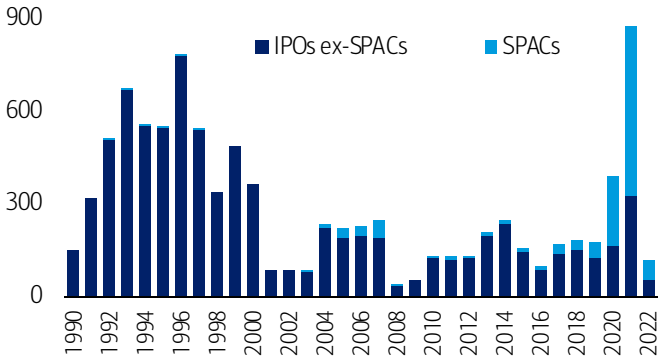
Exhibit 23: IPOs in 2000, SPACs in 2021
Count of US IPOs: traditional (non-SPAC) and SPAC 1990-Oct 2022



Source: Dealogic, BofA Global Research

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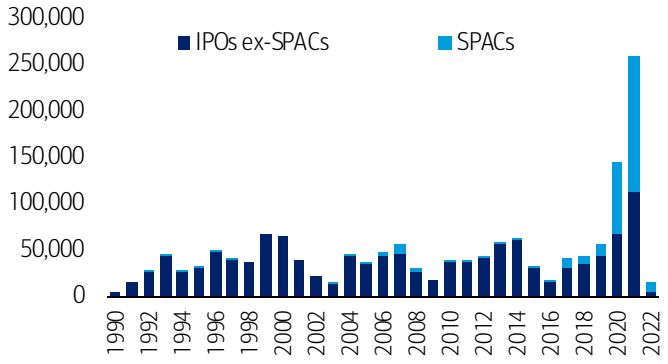
Exhibit 24: SPACs comprised ~60% of US deal value in 2021
Deal value of US IPOs: traditional (non-SPAC) and SPAC 1990-Oct 2022



Source: Dealogic, BofA Global Research

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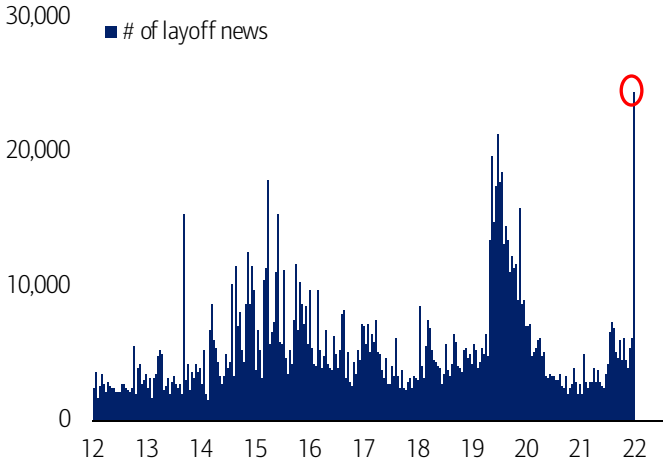
High-income (biggest spender) consumer decelerating

Layoff pressure is building, with a weekly record number of layoff news on Bloomberg, following the notable headlines from META and AMZN. Monthly new job postings have plummeted YTD, down 30% for the S&P 500 YTD, led by high paying jobs in Tech and Financials: Comm. Svcs. -63%, Tech -47%, and Financials -34%. Wage growth data

indicates that highest wage earnings saw the largest decline in real wages, whereas lowest earners' wage growth largely matched inflation (Exhibit 27). As a result, companies are seeing high-income consumers trading down for cheaper goods/services – mentions of "trade down" during earnings calls soared to a record level, topping the GFC level (Exhibit 28).

> Walmart: "We've continued to gain grocery market share from households across income demographics, with nearly three-quarters of the share gain coming from those exceeding $100,000 in annual income."

Exhibit 25: Record number of layoff news articles
# of layoff news on Bloomberg



Source: Bloomberg, BofA US Equity & Quant Strategy

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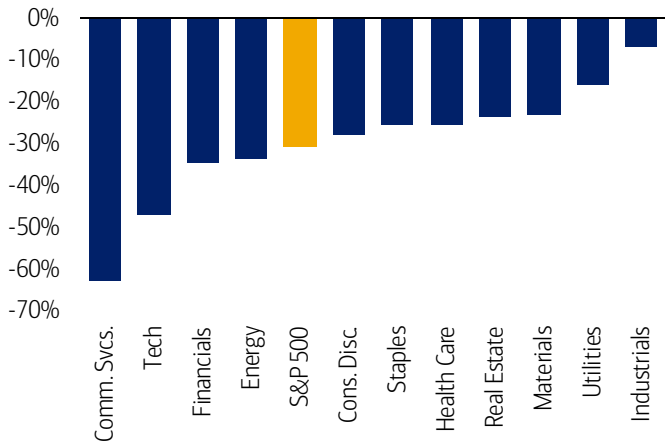
Exhibit 26: New job openings plummeted, led by Tech/Financials (skilled labor)
YTD change in the # of monthly new listings (as of 10/22)



Source: Revelio Labs, BofA Global Research

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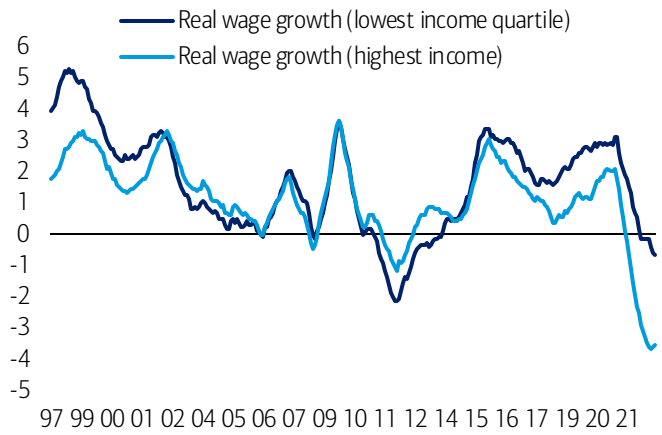
Exhibit 27: High-income wage growth has lagged inflation more than low-income
Real wage growth in highest vs. lowest income group (ppt)



Source: Current Population Survey, Bureau of Labor Statistics, and Federal Reserve Bank of Atlanta Calculations, BofA US Equity & Quant Strategy

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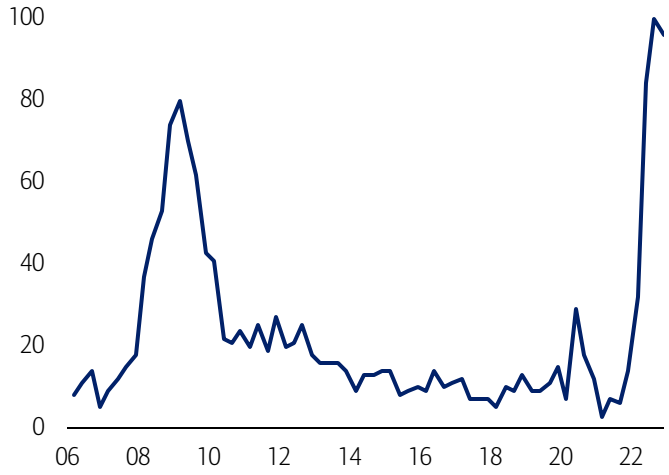
Exhibit 28: Consumers are trading down amid inflation
Mentions of "trade down" during earnings calls



Source: AlphaSense, BofA Global Research

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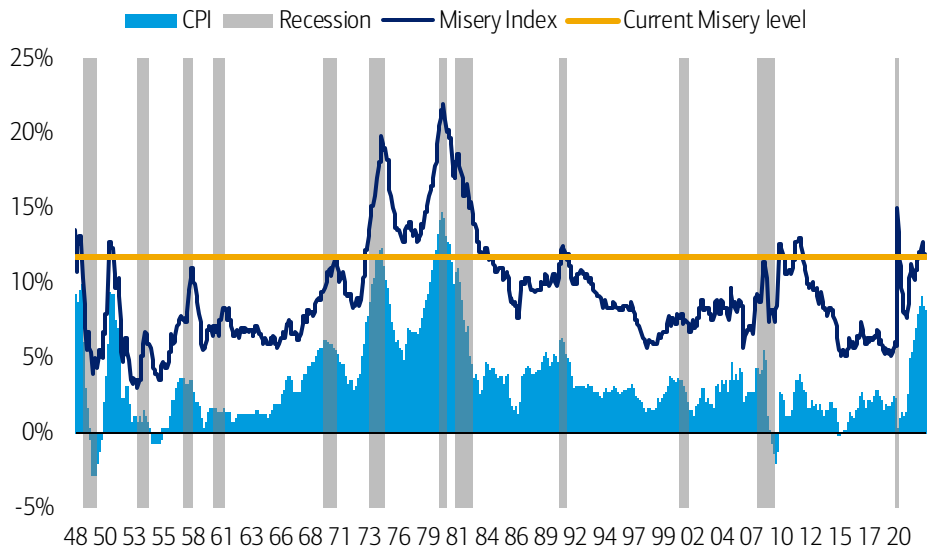
Fed forced to fight inflation over recession

The Fed may be forced to push the economy into a deeper recession to curb inflation. The current US Misery Index (inflation + unemployment) is at a similar level to prior recessions, driven entirely by higher inflation given that the unemployment rate remains near historic lows at 3.7%. The Fed will be more focused on curbing inflation rather than averting a recession until inflation is under control and unemployment rates rise.

Exhibit 29: US Misery Index (inflation + unemployment) is at prior recessionary levels, but driven by inflation rather than unemployment
US Misery Indicator and CPI (1948-10/22)



Source: BofA US Equity & Quant Strategy, Bloomberg

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Market outlook

S&P 500 target: 4000 in 2023, bear case = 3000

Our six-factor framework yields 4000 for the S&P 500 at year-end 2023. We added our Fed Liquidity framework (first published in this Nov. 2021 note) to our target framework incorporating the impact of Quantitative Tightening (QT). Our Sell Side Indicator, which has been one of our most predictive models, is inching towards a "Buy" signal amid bearish sentiment. We believe the two models that incorporate liquidity and sentiment are likely the key indicators next year and assign a 20% weight for each. For the other four target models, we assign a 15% weight each.

Exhibit 30: 2023 S&P 500 year-end forecast = 4000
S&P 500 2023 Target Models

Model	Category	Time Horizon	2023 Target	Expected Return (Annualized)	Current Weight in Forecast
BofA Fair Value Model	Fundamental/Valuation	Medium Term	3,324	-12.3%	15%
Sell Side Indicator	Sentiment	Medium Term	4,612	16.2%	20%
Fed Liquidity Framework	Macro	Medium Term	3,327	-12.2%	20%
Estimate Revisions	Fundamental/Sentiment	Short-term	4,201	7.2%	15%
Long-term Valuation Model	Valuation	Long-term	4,104	5.1%	15%
12-Month Price Momentum	Technical	Medium Term	4,341	10.3%	15%
		Official S&P 500 Target	**4,000**	**+0.8%**	

Source: BofA US Equity & US Quant Strategy; Short-term = 1-3 months, medium-term = 1 year, and long-term = 5+ years. We calculate our price target based on S&P 500 price as of 10/22, and round to closest 50.

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S&P 500 Target Models

#1: BofA Fair Value Model

Exhibit 31: S&P 500 2022 Fair Value = 3324
BofA Fair Value Model (2023)

BofA Fair Value Model (2023)	
Normalized 2023 EPS	$188
Normalized 2024 EPS	$199
Nominal Long-Term Risk-Free Rate	3.75%
- Assumed Long-Term Inflation	2.25%
=Normalized Real Risk-Free Rate	1.50%
+Equity Risk Premium	450bp
=Fair Real Cost of Equity Capital (Ke)	6.00%
Fair Forward PE (1 ÷ Fair Ke)	16.7x
2022 Year-End Target (Fair PE × Normalized 2023 EPS)	**3,324**

Source: BofA US Equity & Quantitative Strategy

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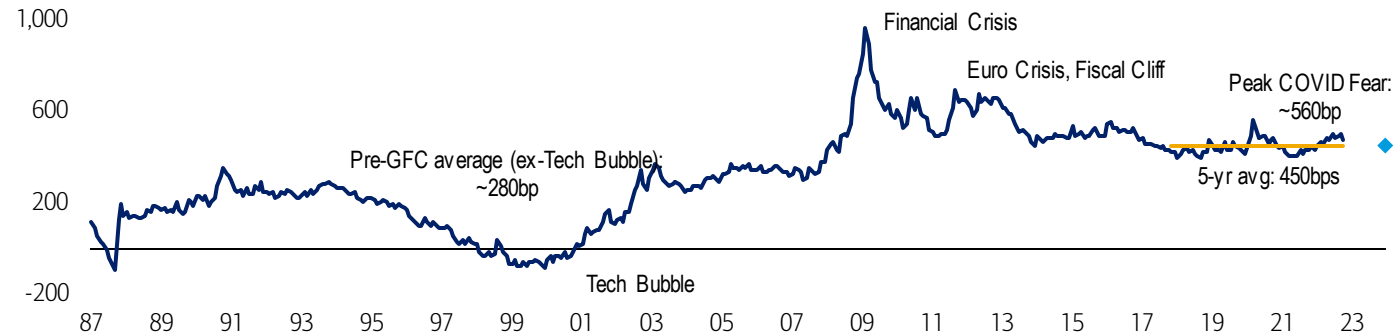
S&P 500's fair value = 3324 for 2023

We make the following assumptions for our Fair Value Model based on the current market environment:

- Our normalized 2024E EPS is $199 based on a long-run log-linear regression, which is intended to estimate the underlying earnings power of the S&P 500 based on historical trends.
- We use 1.5% as our normalized real risk-free rate, in line with the current market level. We expect the equity risk premium (ERP) to rise in the near-term as we head into a recession, but expect a more normal level (450bps) by the year-end, in line with the 5-year avg.

Exhibit 32: We forecast the equity risk premium normalizing to 450bps by year-end, in line with the 5-yr average
Normalized equity risk premium (ERP) with BofA forecast for YE 2023 (450bps), 1/1987-10/2022



Note: Norm. ERP is calculated as the spread between the normalized EPS yield and normalized real risk-free rate, where normalized EPS is based on a log linear regression of S&P 500 operating EPS and the real normalized risk-free rate is the difference between (1) the average of the 30-yr Treasury yield and the 5-yr rolling average 10-yr Treasury yield and (2) average of the 10-yr TIPS spread and the 5-yr rolling average CPI inflation rate.

Source: BofA US Equity & Quant Strategy, Federal Reserve Board, Standard & Poor's, BLS

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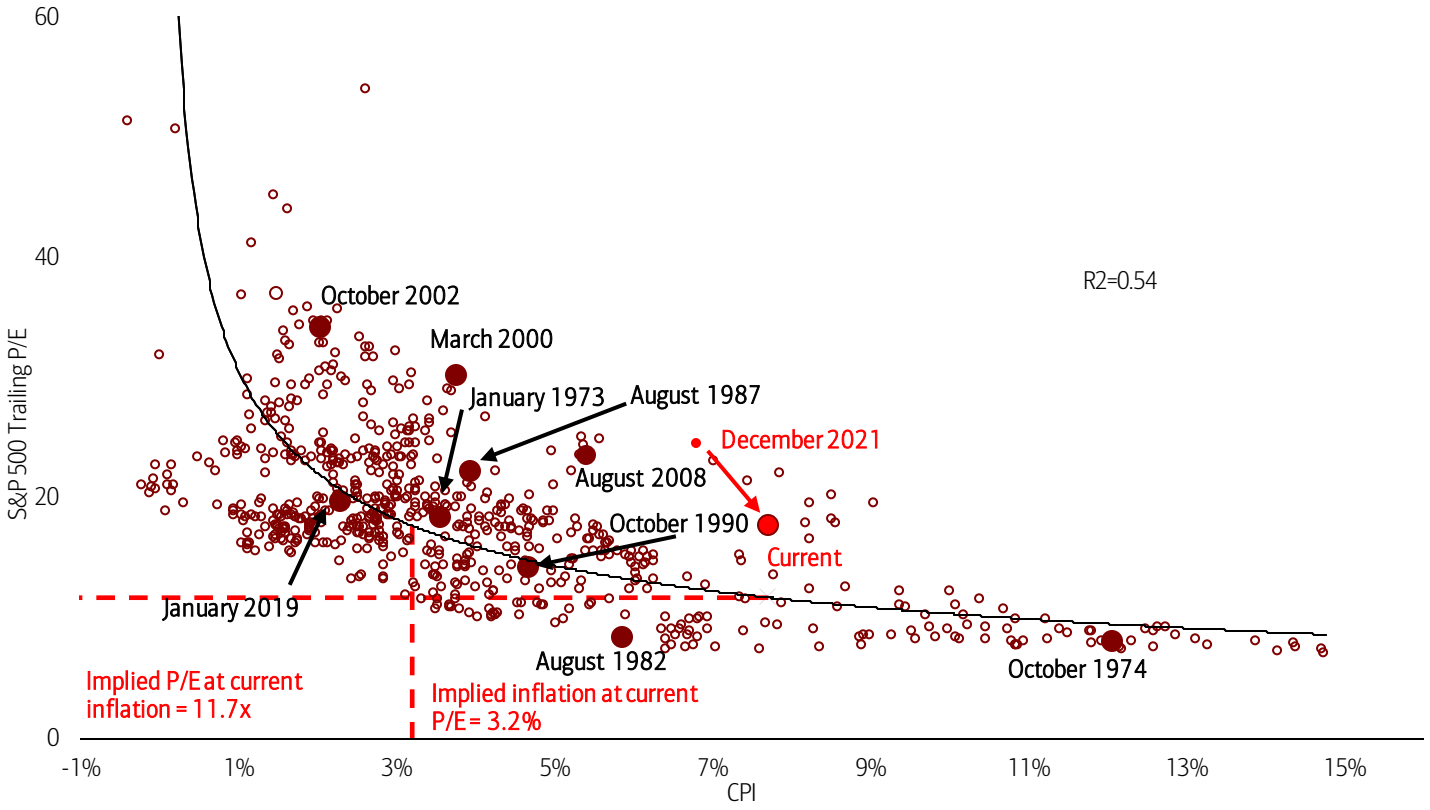
Exhibit 33: Current valuation implies that CPI should be ~3%, EPS should be higher or price should be a lot lower
S&P 500 Trailing Price to Earnings Ratio vs. YoY change in CPI, 1965-present



Source: BofA US Equity & Quant Strategy, FactSet

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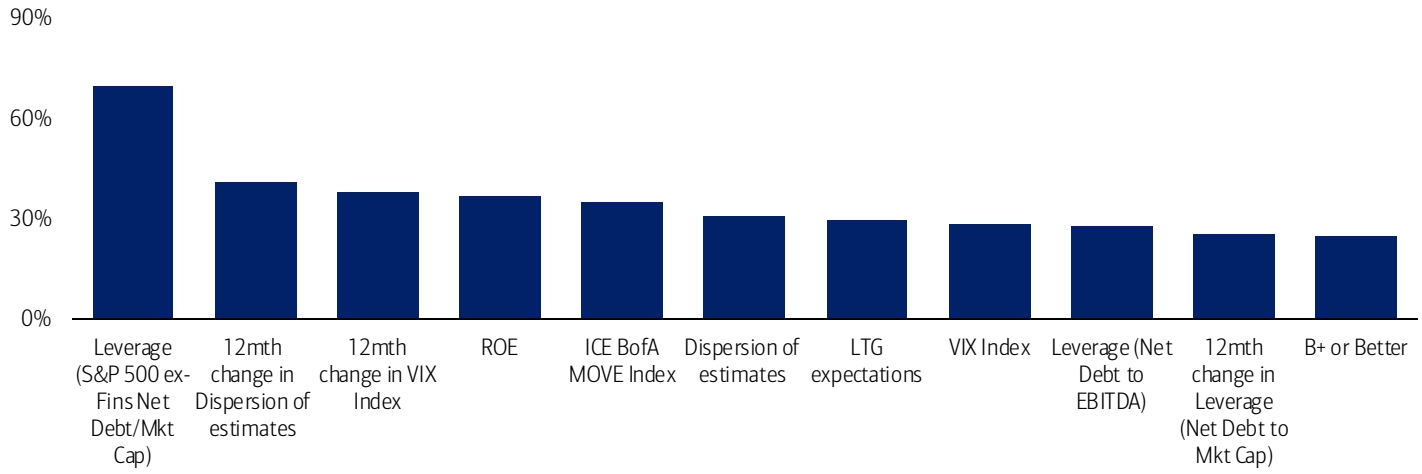
Exhibit 34: What drives Equity Risk Premium: leverage, volatility, visibility and growth
R-squared of S&P 500 fundamental factors and macro factors (both change and level) vs. change and level of normalized S&P 500 equity risk premium (ERP) 2009-10/2022



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

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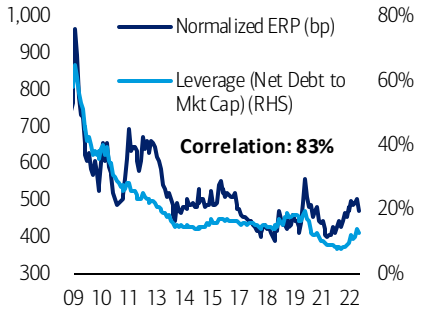
Exhibit 35: Low leverage = low ERP (how much lower can it go?)
Norm. ERP (LHS) vs. S&P 500 non-Financials net debt to market cap (RHS), 2009-10/22



Source: FactSet, Haver Analytics, BofA US Equity & Quant Strategy

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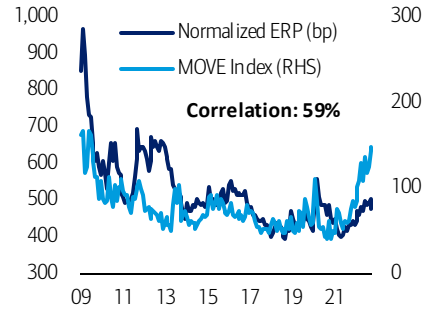
Exhibit 36: MOVE Index moved; ERP should catch up
Norm. ERP (LHS) vs. ICE BofA MOVE Index (RHS), 2009-10/22



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

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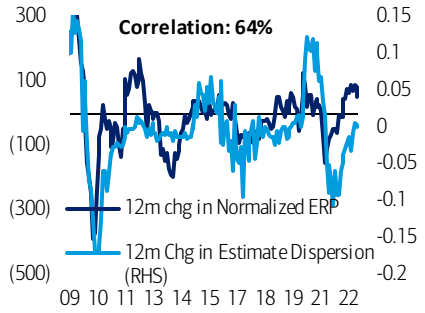
Exhibit 37: Earnings certainty is correlated with falling ERP post-GFC
12m change in vs. Norm ERP (LHS) vs. S&P 500 Estimate Dispersion (RHS), 2009-10/22



Source: FactSet, Haver Analytics, BofA US Equity & Quant Strategy

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Near record duration risk

Exhibit 38: Stocks look vulnerable to rising rates, as S&P 500 duration remains near highs
S&P 500 duration based on our DDM framework (as of 10/2022)



Source: BofA US Equity & Quant Strategy

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Exhibit 39: 10bp increase in discount rate = 2% hit (all else equal)
S&P 500 2022 fair value sensitivity to real risk-free rate and ERP assumptions (bold = current trading range)

Normalized Real Risk-Free Rate \ Equity Risk Premium (ERP)	200	225	250	275	300	325	350	375	400
1.2%	5,860	5,435	5,068	4,747	4,465	4,214	3,990	3,788	3,606
1.3%	5,682	5,282	4,935	4,630	4,361	4,121	3,907	3,713	3,538
1.4%	5,515	5,137	4,808	4,518	4,262	4,033	3,827	3,641	3,473
1.5%	5,358	5,000	4,688	4,412	4,167	3,948	3,750	3,572	3,409
1.6%	5,209	4,871	4,574	4,311	**4,076**	3,866	3,677	3,505	3,349
1.7%	5,068	4,747	4,465	4,214	3,990	3,788	3,606	3,441	3,290
1.8%	4,935	4,630	4,361	4,121	3,907	3,713	3,538	3,379	3,233
1.9%	4,808	4,518	4,262	4,033	3,827	3,641	3,473	3,319	3,178
2.0%	4,688	4,412	4,167	3,948	3,750	3,572	3,409	3,261	3,125

Source: BofA US Equity & Quant Strategy

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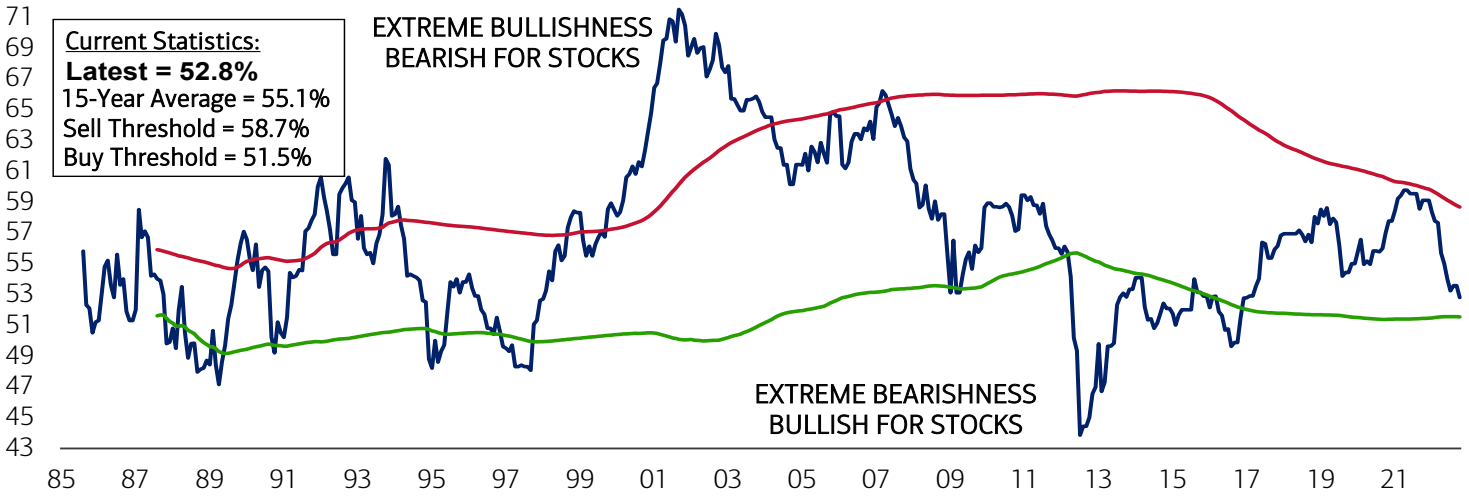
#2: Sell Side Indicator (SSI)

Inching towards "Buy": +16% price return over next 12 months

Wall Street's consensus equity allocation has been a reliable contrarian indicator over time. The SSI has dropped over 6ppt YTD to 52.8%, closer to a "Buy" signal than a "Sell" signal but still in "Neutral" territory. This level implies price returns of +16.2% over the next 12 months. Historically, when the SSI was at current levels or lower, subsequent 12-month S&P 500 returns were positive 94% of the time (vs. 82% over the full history) and the median 12-month return was 22%. See Appendix for more details on our Sell Side Indicator.

Exhibit 40: Our Sell Side Indicator has been inching towards a Buy signal
Sell Side Indicator (SSI), as of 10/2022



Disclaimer: The indicator identified as the Sell Side Consensus 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 relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark.
Source: BofA US Equity & Quant Strategy. Note: Buy and Sell signals are based on rolling 15-year +/- 1 standard deviation from the rolling 15-year mean. A reading above the red line indicates a Sell signal and a reading below the green line indicates a Buy signal

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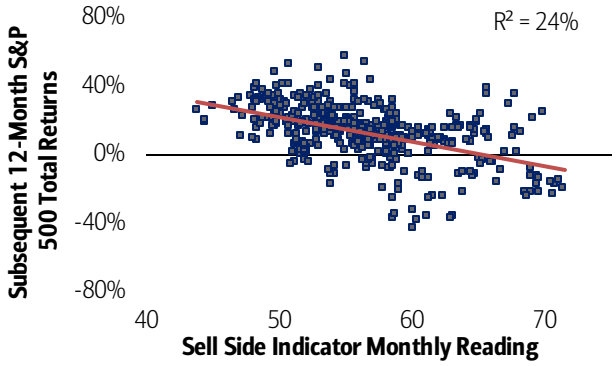
Exhibit 41: Sell Side Indicator has historically been a reliable contrarian indicator
Sell Side Indicator monthly readings & subsequent 12-month S&P 500 total returns



Source: BofA US Equity & Quantitative Strategy

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Exhibit 42: Sell Side Indicator has a higher R-sq. than most single-factor market timing models
Predictive Power of Selected Indicators Forecasting 12-Month S&P 500 Total Returns

Indicator	R2
Sell Side Indicator	24%
Sell Side Indicator at extremes (Buy or Sell)	34%
S&P 500 Dividend Yield	11%
Proforma PE	10%
Adj. Fed Model (EPS Yld - Real 10-Yr Tsy Yld)	4%
M1 Growth	3%
Fed Model (EPS Yield - 10-Yr Treasury)	2%
M2 Growth	0%
BBB to Treasury Spread	0%
GAAP PE	0%
10-Yr Treasury Yield	0%
3-Mo T-Bill Rate	0%
Yield Curve (10-Yr - 3-Mo)	0%

Source: BofA US Equity & Quantitative Strategy

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#3: Fed Liquidity Framework

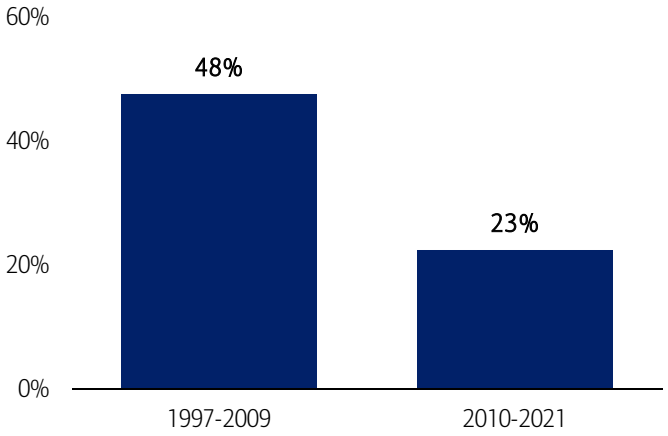
If QE mattered, QT should matter too

Pre-GFC, earnings were nearly all that mattered, explaining ~50% of S&P 500 returns. But post-GFC, we saw a regime shift, where earnings mattered less (23% explanatory power), with the Fed balance significantly gaining importance. The Fed balance sheet didn't matter at all before the GFC, but it drove over half of non-earnings driven return of the S&P 500. If QE mattered, shouldn't quantitative tightening matter too?

We calculate that a $1.1T reduction in the Fed balance sheet by the end of 2023 (house view) and our $200 EPS forecast in 2023 (and trend-growth of 6%/yr thereafter) could result in the S&P 500 falling to 3300 by end of 2023 (Exhibit 32).

Even in a soft-landing, trend-growth environment in 2023, QT yields a flat market over the next two years. If the Fed were to stop QT, we could see 6% upside risk to our target.

Exhibit 43: Earnings explained nearly 50% of market returns pre-GFC, but only 23% of post-GFC returns
R-sq of S&P 500 fwd EPS YoY vs. S&P 500 price returns on a monthly basis (5/97-12/21)



Source: FactSet, BofA US Equity & Quant Strategy

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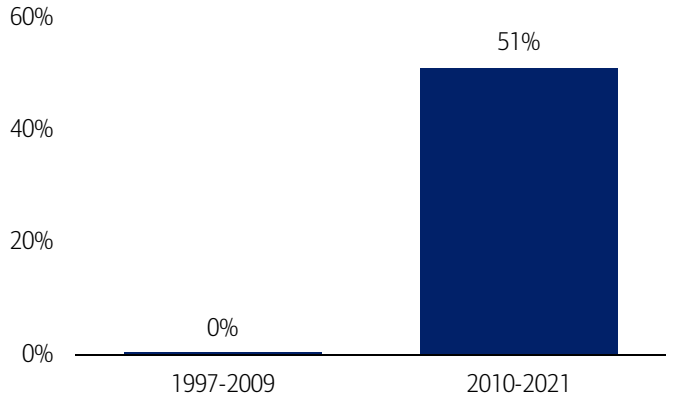
Exhibit 44: Over half of non-earnings driven market cap changes was explained by the Fed balance sheet expansion since GFC
R-sq of Fed balance sheet YoY vs. YoY change in S&P 500 market cap that is not driven by earnings (5/97-12/21)



Source: FactSet, BofA US Equity & Quant Strategy
*Non-earnings driven market cap change = [total market cap change] – [historical avg. fwd P/E] x [chg. in fwd EPS]

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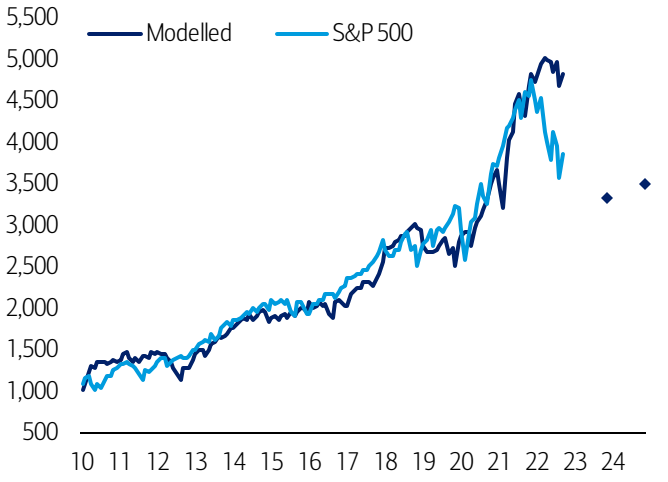
Exhibit 45: Base case: $1.1T reduction in the Fed balance sheet and an earnings decline could result in the S&P 500 at 3300 in 2023
Modelled S&P 500 based on chg in fwd EPS and YoY chg in Fed balance sheet since 2010 vs. actual S&P 500



Source: BofA US Equity & Quant Strategy, FactSet
Note: 2023-24 dots are based on EPS growing at 6%/yr after our $200 estimate in 2023 and BofA Fed balance sheet forecast

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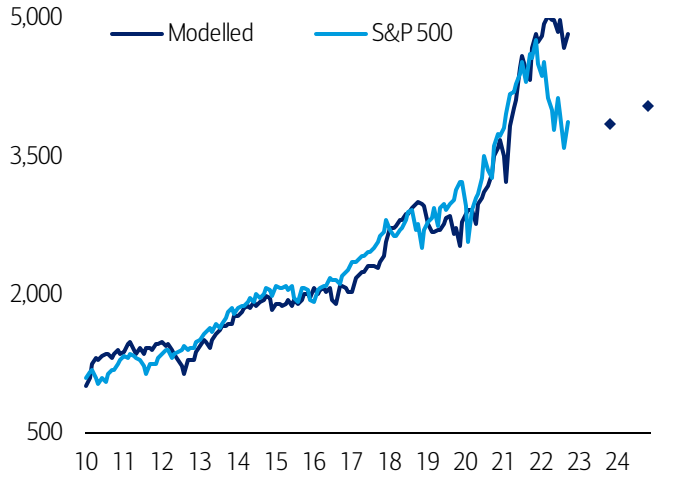
Exhibit 46: Even in a soft-landing, trend-growth environment, QT yields a flat market (3850-4000) over the next two years
Based on EPS growing at 6%/yr & $1.1T reduction in Fed balance sheet by 2023



Source: BofA US Equity & Quant Strategy, FactSet

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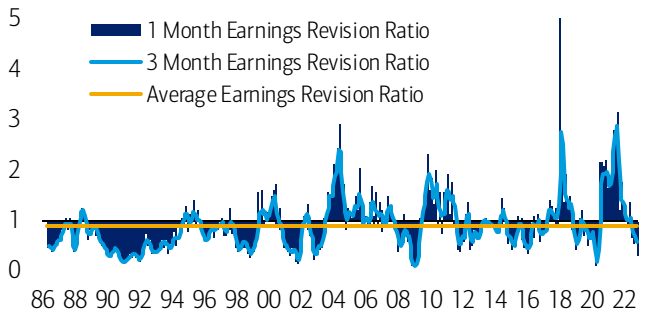
#4: Estimate Revision Ratios

Earnings revisions below avg = weaker subsequent returns

- S&P 500 returns have displayed predictable patterns based on the pace of upward or downward revisions. We track the ratio of upward to downward changes to consensus earnings estimates as a breadth measure.
- Our 3-month Earnings Revision Ratio (ERR) remains weak at 0.6x in October, well below the historical average of 0.9x. The 1-month ratio is even weaker, suggesting the momentum is to the downside, falling to just 0.3x, the 6th percentile in history.
- Historically, when the ERR was below its average, the S&P 500 has annualized forward 2-month returns of 7% vs. 10% when above the average.
- Our 3-month guidance ratio (# of above- vs. below-consensus guidance) also remains weak at 0.8x. Guidance typically leads revisions.

Exhibit 47: Our 1-mo. earnings revision ratio fell sharply to 0.3x in October, the 6th percentile in history
S&P 500 earnings estimate revision ratio, 1/86-10/22



Source: BofA US Equity and Quant Strategy, I/B/E/S, FactSet

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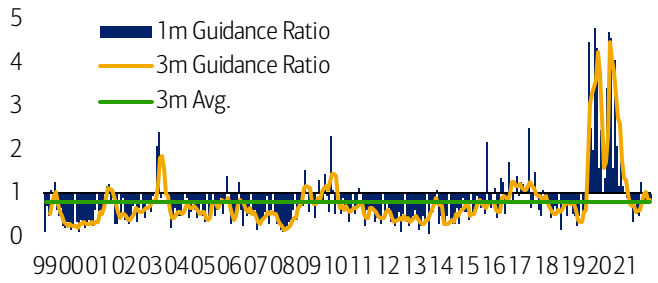
Exhibit 48: Our 3-month management guidance ratio (0.8x) is still slightly above avg. but weakening
S&P 500 Management Guidance Ratio (# Above vs. Below Consensus) – 11/18/22



Source: BofA US Equity and Quantitative Strategy

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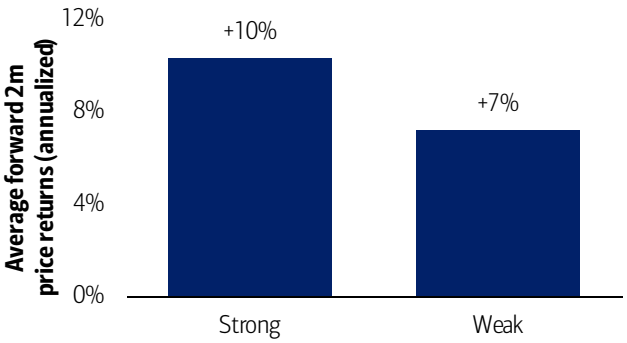
Exhibit 49: ERR vs. annualized forward 2-month returns (1986-present)
ERR vs. annualized fwd 2-month returns (1986-present)



Source: BofA US Equity & US Quant Strategy, FactSet

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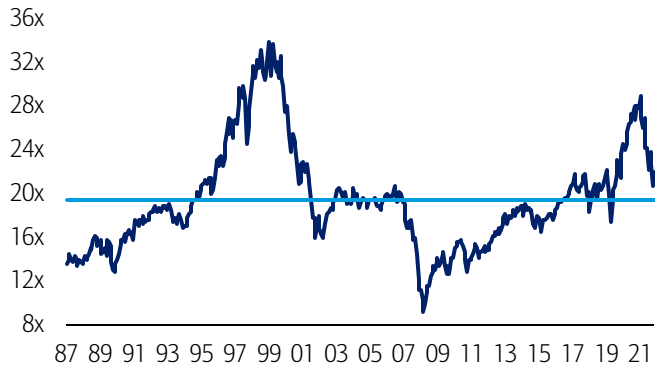
#5: Long Term Valuation Model

10-year return forecast = +5% annualized price returns

The current normalized P/E of 22x implies 5.1%/yr annualized returns over the next 10 years based on the historical relationship. This is well above this model's negative return projection at the beginning of 2022. With ~2% dividends, it implies ~7% in total returns.

Exhibit 50: At 22x, the S&P trades 13% rich vs. the long-term avg.
S&P 500 Normalized P/E Ratio (1987-10/2022)



Source: BofA US Equity & Quant Strategy, FactSet, Haver Analytics

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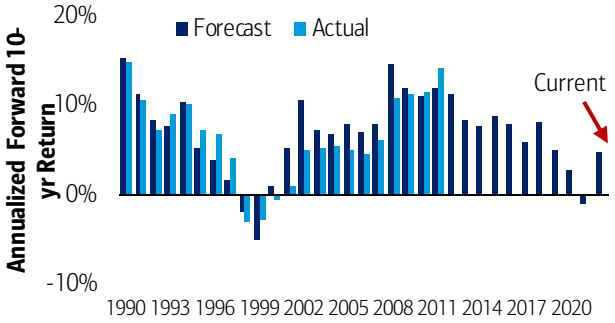
Exhibit 51: Valuation currently suggests ~5ppt p.a. price returns over the next decade
S&P 500 normalized P/E vs. subsequent annualized returns (since 1987, as of 10/2022)



Source: FactSet, Haver Analytics, BofA US Equity & Quant Strategy

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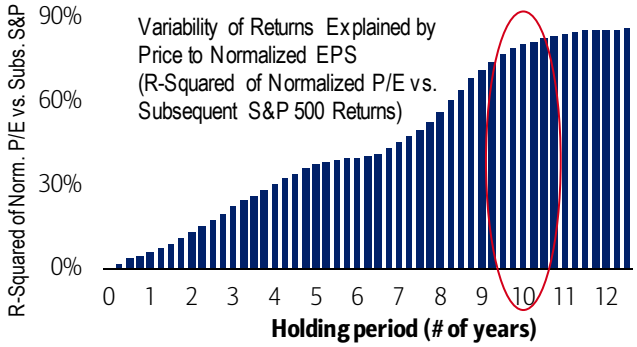
Exhibit 52: Valuation is almost all that matters for long-term stock returns
Price to normalized earnings predictive power on subsequent holding period returns (since 1987)



Source: BofA US Equity & Quant Strategy, Haver Analytics, FactSet

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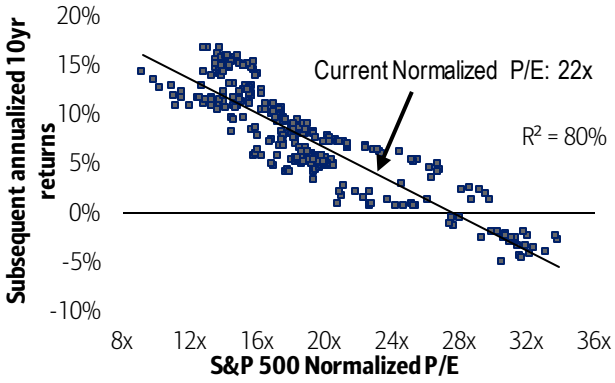
Exhibit 53: Valuations explained ~80% of 10yr returns
S&P 500 normalized P/E vs. subsequent annualized returns (since 1987, as of 10/2022)



Source: BofA US Equity & Quant Strategy, Haver Analytics, FactSet

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#6: 12-month Price Momentum

Reversion to mean suggests 12m returns of +10%

- Our technical model is based on the often-cited notion of equity returns reverting to a "normal" level.
- The last 12 months' return was -16% as of month-end October 2022. This is 1.2 standard deviations below the historical average. This would imply a projected 12-month return of 10.3%, all else equal.

Exhibit 54: The last 12-mo. price return of -16% is 1.2 std. dev below average and implies a projected 12-month price return of 10.3%, all else equal.
Historical 12-month S&P 500 price return z-scores by range and average subsequent 12-month S&P 500 price returns, as of 10/2022

	-2 or Less Std Dev Below Avg.	-1 to -2 Std Dev Below Avg.	-1 to 0 Std Dev Below Avg.	0 to +1 Std Dev Above Avg.	+1 to +2 Std Dev Above Avg/	+2 or More Std Dev Above Avg.
Average 12-Month Return	30.9%	10.3%	9.3%	8.1%	9.6%	-0.2%
Standard Deviation of 12m Returns	13.9%	21.2%	18.8%	14.0%	14.5%	16.5%
Probability of Negative Returns	0.0%	30.8%	28.0%	28.6%	23.2%	60.0%
Percent of observations	0.7%	4.7%	34.6%	43.0%	7.4%	0.4%

Note: Based on S&P 500 return data since 1928, with cumulative average and z-scores beginning in 1933 when at least 5 years of data history is available

Source: FactSet, BofA US Equity & US Quant Strategy

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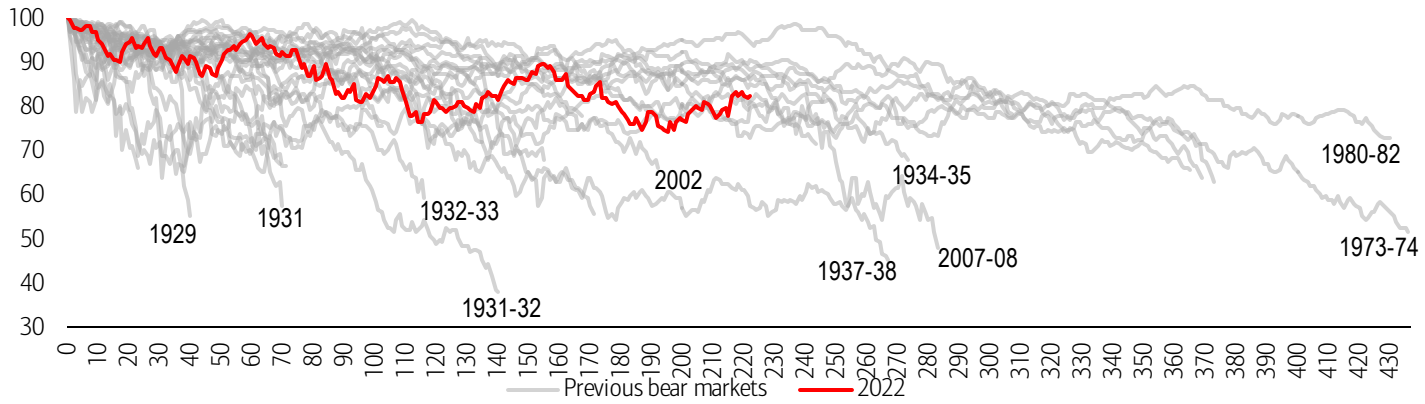
Sprint lower, then marathon higher

Although the S&P 500 is already down 18% from its peak, we believe more near-term pain is ahead with the Fed aggressively hiking into a potential recession.

The market has never bottomed ahead of a recession and our economists expect a recession starting in 1Q23, which suggests a bottom is not in yet. Our Bull Market Signposts also still show little signs of a bottom.

When will the market bottom? Outside of the Tech Bubble (the market bottomed one year after the recession) and COVID (shortest bear market), the market bottomed around six months before the end of recession. Our house view of the recession ending after 3Q23 suggests a potential market bottom in the middle of 2023. Our Bull Market Signposts could also breach the 80% threshold in the summer 2023 (more below).

Exhibit 55: Bear market post-mortem
Peak-to-trough declines in historical bear markets (declines of 20%+ without a 20% rally) since 1929



Source: Bloomberg, BofA US Equity & Quant Strategy

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Exhibit 56: The market has almost always bottomed during a recession, but never before
Historical recession stats since 1950

S&P 500		Days before (-) / after (+) start of recession	Days before (-) / after (+) end of recession	
Peak date	Trough date	S&P 500 peak	S&P 500 trough	Trough date
1/5/1953	9/14/1953	-207	45	-259
8/2/1956	10/22/1957	-394	52	-190
8/3/1959	10/25/1960	-271	178	-126
11/29/1968	5/26/1970	-397	146	-188
1/11/1973	10/3/1974	-323	307	-179
2/13/1980	3/27/1980	13	56	-126
11/28/1980	8/12/1982	-245	377	-110
7/16/1990	10/11/1990	-15	72	-171
3/24/2000	10/9/2002	-372	557	313
10/9/2007	3/9/2009	-83	434	-113
12/27/2019	3/23/2020	-64	23	-38
	Median:	-214	204	-108
	Avg:	-245	146	-126
Ex. COVID & Tech Bubble				
	Median:	-245	146	-171
	Avg:	-214	185	-162

Source: Bloomberg, BofA US Equity & Quant Strategy

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Exhibit 57: Market tends to bottom before EPS, but lots of variability
S&P 500 troughs vs. EPS trough (trailing 4-qtr) in past recessions since 1953

S&P 500 Trough	EPS Trough	Months between S&P Trough and EPS Trough
9/14/1953	6/30/1952	15
10/22/1957	9/30/1958	-11
10/25/1960	6/30/1961	-8
5/26/1970	12/31/1970	-7
10/3/1974	9/30/1975	-12
3/27/1980	3/31/1981	-12
8/12/1982	3/31/1983	-8
10/11/1990	12/31/1991	-15
10/9/2002	3/31/2002	6
3/9/2009	9/30/2009	-7
3/23/2020	9/30/2020	-6
	Median	-8
	Avg.	-6
	Min.	-15
	Max.	15

Source: BofA US Equity & Quant Strategy, FactSet

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Things will get worse before they get better

The earnings revision ratio (ERR) fell to its lowest level since COVID last month (0.3x, implying ~3 analysts cut for every analyst that raised estimates). Despite the breadth of cuts, **we expect aggregate earnings need to fall another 10-15% to get to our 2023 S&P 500 EPS forecast of $200,** which will likely drive more downside. Note that the market has typically declined when the ERR is below average and falling (Exhibit 58). On average it has taken the ERR 1 or 2 months to bottom from similarly low levels, indicating that the market bottom may be near. But don't buy too early – market returns in the quarter or two ahead of an ERR trough are deeply negative (-15%). The good news is that the best phase for S&P 500 monthly returns is what immediately follows – when the ERR rises from its lows as analysts get less negative.

Exhibit 58: Weak market returns prior to ERR trough
S&P 500 returns prior to trough of 1-month Earnings Revision Ratio (ERR)

	Returns in last...	
1m ERR trough	3m	6m
12/31/1987	-23.2%	-18.7%
1/31/1991	13.1%	-3.4%
10/31/2002	-2.8%	-17.8%
11/30/2008	-30.1%	-36.0%
3/31/2020	-20.0%	-13.2%
Avg.	-12.6%	-17.8%
Median.	-20.0%	-17.8%

Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 59: Light at the end of the tunnel
Monthly S&P 500 returns in different phases of our 1-month Earnings Revision Ratio (ERR)

When 1m ERR is...	Avg. Monthly Ret.
Falling & Below Avg. (Current)	-0.3%
Falling & Above Avg.	1.0%
Increasing & Below Avg. (Next)	1.9%
Increasing & Above Avg.	1.0%

Source: FactSet, BofA US Equity & Quant Strategy

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Signposts suggest that bottom is not in

Our bull market signposts, a composite of 10 indicators that have historically signaled market bottoms, continue to suggest risk that the market hasn't yet bottomed. Of the 10 indicators, 40% were triggered in October, whereas prior market bottoms coincided with over 80% being triggered (Exhibit 60). Consistent negative subsequent 12-mo. returns when less than 80% were triggered suggests it is too early pick a bottom in equities (Exhibit 61). Moreover, prior bear markets suggest that it is better to be late than early when picking a bottom (Exhibit 62). See Appendix for details on methodology.

Exhibit 60: Only 40% of signposts triggered vs. over 80% before prior market bottoms
List of indicators that have typically occurred before market bottom

Signpost	Sep-74	Jul-82	Nov-87	Oct-90	Sep-02	Feb-09	Mar-20	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22
Fed cutting rates (prior 12m)	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Unemployment rates rise (vs. 12-mo. low)	☑	☑	☐	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☑	☐	☑
More bears than bulls (AAII)			☐	☑	☑	☑	☑	☑	☑	☐	☑	☑	☑	☑	☑	☑	☑
ERP increases by >75bps vs. 12-mo. low	☑	☑	☑	☑	☑	☑	☑	☑	☑	☐	☑	☑	☐	☐	☐	☐	☐
50bps+ decline in the 2-yr yield (vs. 6-mo. high)		☑	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Sell Side Indicator Buy Signal (prior 3m)			☑	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Yield curve steepens (vs. 6-mo. low)		☑	☑	☑	☑	☑	☑	☐	☐	☐	☑	☑	☑	☐	☐	☐	☑
5% bear market rallies (prior 3m)	☑	☐	☑	☐	☑	☑	☑	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑
Rule of 20	☑	☑	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
PMI improves (vs. 12-mo. YoY low)	☐	☑	☑	☑	☑	☑	☑	☐	☐	☐	☑	☑	☐	☑	☑	☐	☐
% triggered	83%	88%	80%	90%	90%	100%	90%	30%	30%	10%	50%	50%	30%	30%	40%	20%	40%
S&P 500	64	107	230	304	815	735	2585	4516	4374	4530	4132	4132	3785	4130	3955	3586	3872

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

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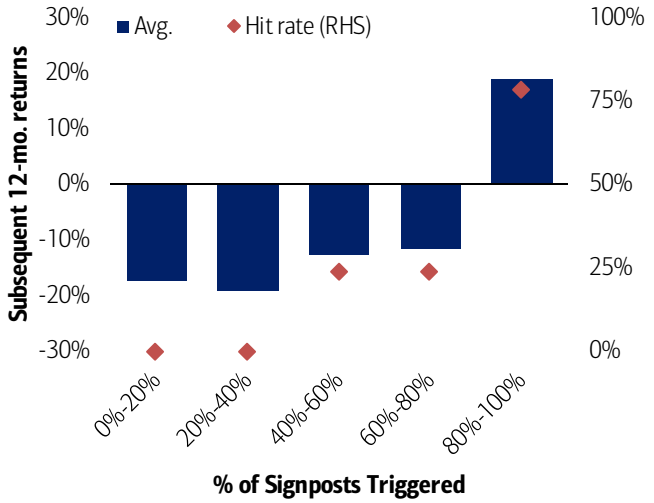
Exhibit 61: 80%+ triggered has historically led to far superior returns
Avg. S&P 500 subsequent 12-mo. returns and hit rate of positive returns prior seven bear markets



Source: Bloomberg, BofA US Equity & Quant Strategy

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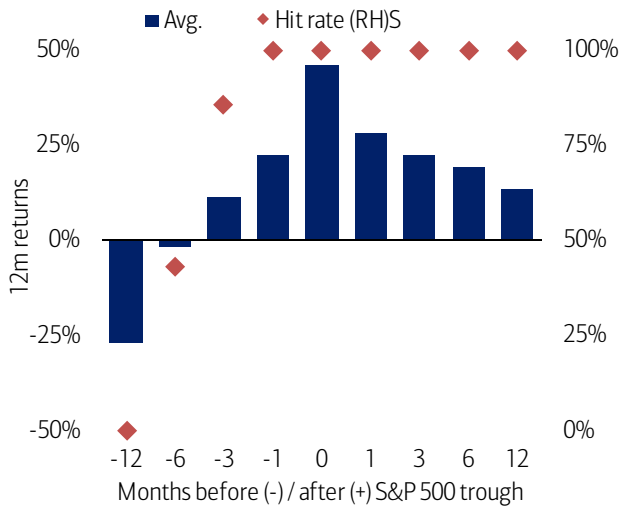
Exhibit 62: Picking a bottom: Better late than early
Subsequent 12-mo. returns around S&P 500 troughs during prior seven bear markets



Source: Bloomberg, BofA US Equity & Quant Strategy

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Path to the 80% threshold – potential bottom in summer

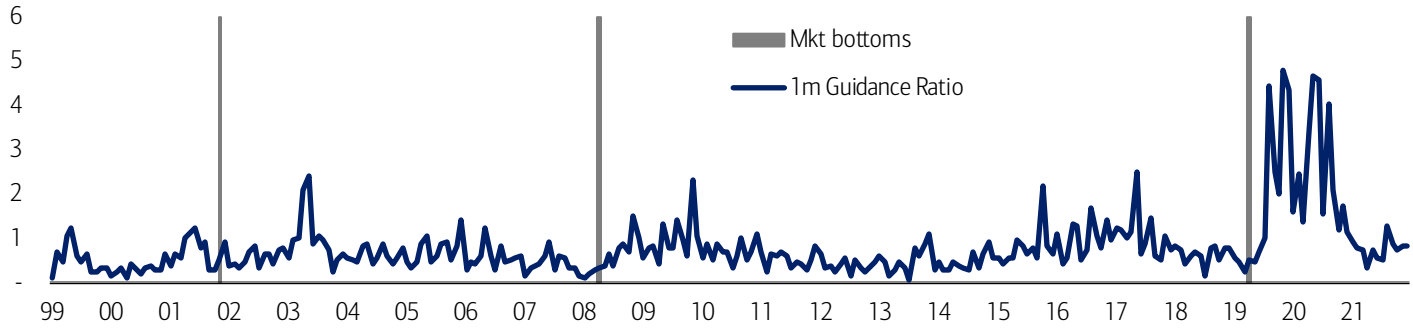
The 80% threshold suggests at least four more indicators need to get triggered for a Buy signal. We list the indicators that have not yet triggered and a potential timeline for triggers, which suggests we could see the 80% threshold triggering **around the summer with the S&P 500 below 3400.**

- **Fed cutting rates:** The Fed always cut rates before the market bottomed. Our economists expect the Fed start cutting in **December 2023**. On average, the market bottomed 11 months after the Fed cut. However, pivot might be enough this time given the S&P 500 is much longer duration today.
- **ERP increases by 75bps+:** Historical market bottoms have occurred after the equity risk premium (ERP) rose by more than 75bps. As of October-end, the ERP stood at a 4-year low. Assuming current real rates of 1.5%, a 75bp increase in the ERP would imply **3500 on the S&P 500**.
- **50bps+ decrease in the 2-yr yield:** The market has historically priced at least two rate cuts before the market bottomed. Based on our house view of the Fed pausing after March and start cutting in December, the 2-yr yield could potentially be down 50bps+ from the peak in **3Q23**.
- **Sell Side Indicator's Buy signal:** Our Sell Side Indicator has been a reliable contrary indicator and has been inching towards the Buy signal. If the YTD pace continues, we could potentially see the indicator triggering a Buy in **January 2023**.
- **Rule of 20 (CPI + trialing P/E < 20):** The market always bottomed when the sum of CPI and trailing P/E was below 20. The current trailing P/E of 17.6x suggests inflation has to fall below 2.4%, which is unlikely in the near term. Based on the cadence of our 2023 EPS forecast of $200 (-9% YoY) and our house view of CPI, the Rule of 20 could get triggered **either under 3100 on the S&P 500 in 1Q or around 3400 in 2Q23**.
- **PMI improves vs. 12-mo. YoY low:** Early signs of macro improvement have occurred before market bottoms. Our economists expect **3Q23** to mark the bottom in YoY GDP change, which can coincide with the PMI YoY bottoming.

On watch: Guidance

Our 1-month guidance ratio (# of above- vs. below-consensus guides) is tracking at 0.8x in November, similar to October. Although our sample size for guidance is more limited than for indicators that we included in our bull market signposts, our 1-month guidance ratio has typically troughed before the market. In contrast, our 1m ERR has not been as reliable, typically bottoming after the market (exception: GFC).

Exhibit 63: Guidance typically starts to improve before the market bottoms
1m Guidance Ratio (above- vs. below-consensus guides) vs. market bottoms



Source: FactSet, BofA US Equity & Quant Strategy

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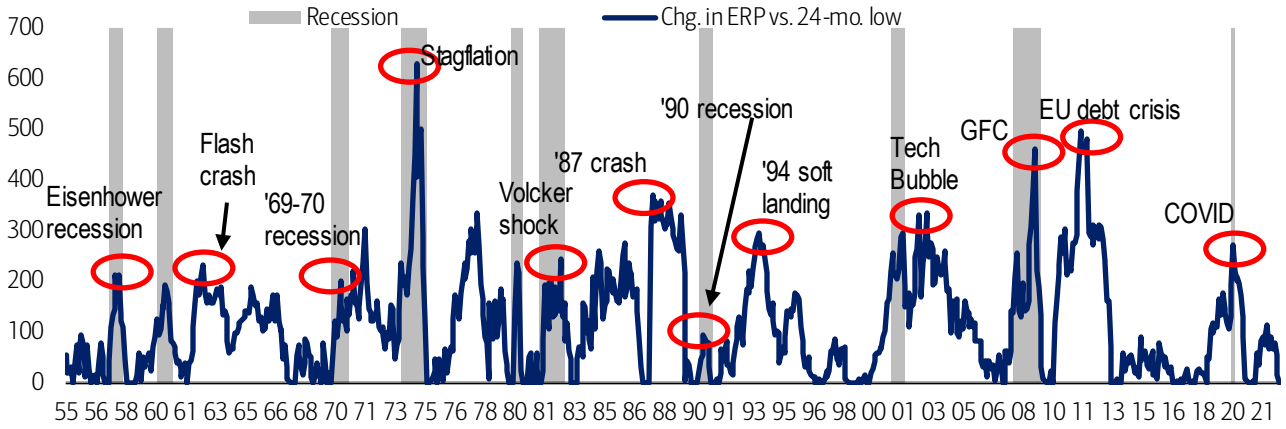
Narrative shift from the Fed to recession

The S&P 500's trailing P/E has compressed ~30% YTD vs. the average 20% compression amid prior recessions, and bulls argue that stocks are more than adequately discounting a recession. But P/E compression has been driven exclusively by higher real rates – the equity risk premium peaked earlier this year, but fell to a 4-year low as of October. That compares to an average 250bp increase in the ERP during historical recessions, which poses downside risk to equities from a higher ERP. Expectations for the Fed to slow its pace of hikes are already priced in, and the focus should shift from the Fed to the real economy and earnings, translating to a higher ERP.

Exhibit 64: Historical downturns have resulted in a much sharper increase in ERP vs. now
Change in ERP vs. 24-mo. lows (1955-10/22); ERP = trailing earnings yield - 10-yr real rate



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

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Historically, a rise in cost of equity during recessions has been mostly driven by the ERP (Exhibit 65), where the ERP and rates have been negatively correlated as rates typically fall during economic slowdowns. Falling rates from here (house view) could at least partly offset the expected increase in ERP. However, persistent inflation leaves the door open for the ERP and rates rising together (or at least rates staying elevated), similar to what happened during the 70s stagflation, which will be the worst-case scenario for equities.

Exhibit 65: Cost of equity has risen by 220bps, but unlike prior recessions, it was driven by higher rates, not ERP
Trough-to-peak change in cost of equity and contribution from ERP and rates (today as of 10/22)

	Chg in cost of E	ERP	Rates
Oct-57	131	135	-4
Oct-60	91	180	-89
Jun-70	**228**	**159**	**69**
Sep-74	**890**	**629**	**260**
May-79	**382**	**113**	**269**
Mar-82	**264**	**54**	**209**
Sep-90	**129**	**96**	**33**
Sep-01	170	289	-119
Feb-09	409	457	-48
Mar-20	153	270	-117
Today	**224**	**-16**	**241**
Avg.	**285**	**238**	**46**

Source: BofA US Equity & Quant Strategy, FactSet, Bloomberg, Global Financial Data
Bold = when both ERP and rates rose

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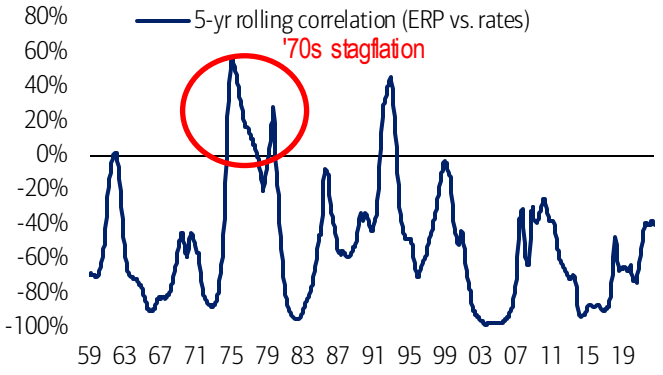
Exhibit 66: ERP and rates are usually negatively correlated, but the '70s stagflation resulted in positive correlations between the two
5-yr rolling correlation between ERP and 10-yr real rates (1959-10/22)



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

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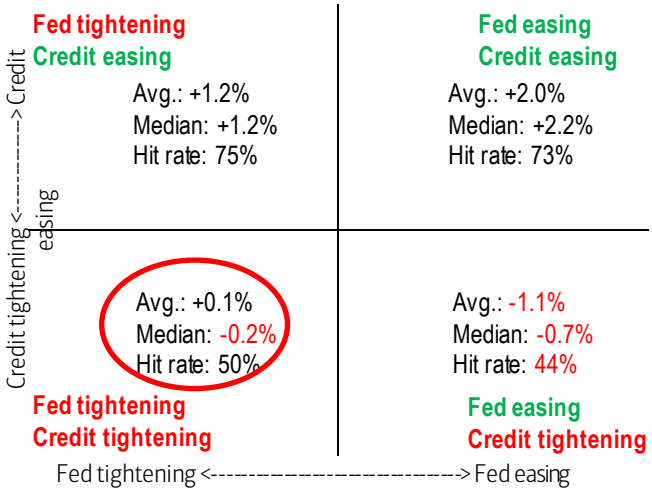
Double-tightening cycle today, but the next phase could be worse

S&P 500 returns have been largely aligned with the credit and Fed cycles. Today, both the Fed and credit conditions are tightening, a phase that has historically produced the second weakest stock returns, with a 50% positive hit rate (Exhibit 67).

> The worst phase for equities has been when the Fed was easing and credit conditions were tightening, a regime that we typically see in a recession.

This indicates that while the bulls have been hoping for a Fed pivot next year, history suggests a Fed pivot caused by a recession with continued tightening in credit will not likely be a good outcome for equities.

Exhibit 67: Double tightening has historically resulted in weak returns, but Fed easing/credit tightening resulted in the weakest return
S&P 500 avg., median and positive hit rate of monthly returns based on credit/Fed cycles (1996-10/22)



Source: BofA US Equity & Quant Strategy, Bloomberg
*Fed cycle based on the 2-yr yield. Credit cycle based on the IG credit spread

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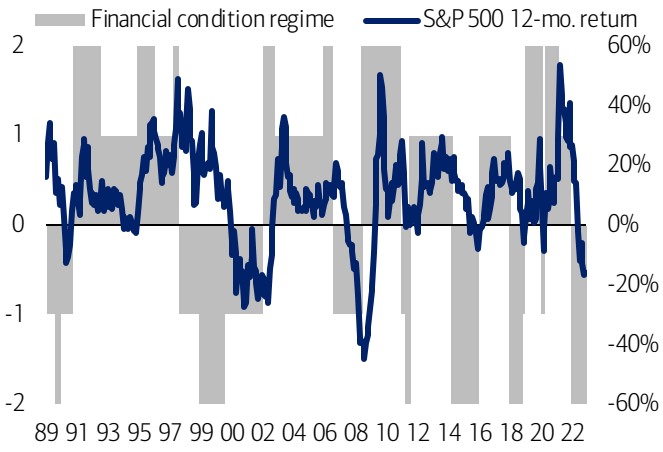
Exhibit 68: S&P 500 returns have been largely aligned with credit & Fed cycles
S&P 500 12-mo. returns in different financial condition regimes (1996-10/22)



Source: BofA US Equity & Quant Strategy, Bloomberg
*Financial condition regime: 2=Fed easing/credit easing, 1=Fed tightening/credit easing, -1=Fed easing/credit tightening, -2=Fed tightening/credit tightening

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QE also has had diminishing returns

QE impacts have had diminishing returns – requiring more and more dollars to drive risk rallies. This means that even if the Fed dialed QE back up, the risk response would be muted at best.

Exhibit 69: Diminishing returns from Fed easing policy
Relative performance of risky stocks ("B or Worse" S&P Quality) vs. safe ("B+ or Better" S&P Quality) stocks (2008-present)



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

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Exhibit 70: More firepower was needed for risk rally
Relative performance of risky stocks ("B or Worse" S&P Quality) vs. safe ("B+ or Better" S&P Quality) stocks (2008-present)

			Change in Fed Balance Sheet		Rel. Perf. of Risky vs. Safe Stocks by S&P Quality	
	Start	End	$T	%	Risk rally	Reversal
QE1	3/31/2009	3/31/2010	$0.4	20.1%	32.3%	0.0%
QE2	11/30/2010	6/30/2011	$0.6	24.5%	0.9%	-3.8%
QE3	9/30/2012	10/31/2014	$1.7	58.7%	11.5%	-6.6%
QE4	3/31/2020	3/31/2022	$4.8	113.6%	48.0%	-24.1%

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

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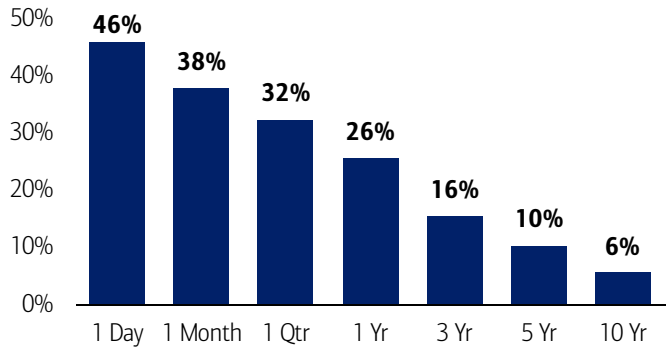
Time is on your side as an equity investor

While we remain cautious on equities near-term, there is a silver lining for long-term investors. Valuation matters long-term, explaining ~80% of subsequent 10-yr S&P 500 returns (Exhibit 53). And this year's bear market provides an attractive opportunity for long-term investors, in our view. Heading into this year, our long-term valuation model had forecast negative returns over the next decade (-1%/yr). But today, it forecasts +5%/yr price returns (Exhibit 51). With ~2% dividends, it implies ~7% in total returns.

Moreover, the best arbitrage opportunity for stocks is time. Lengthening one's time horizon has been a recipe for loss avoidance: 10yr S&P 500 returns were negative just 6% of the time since 1929. This benefit is unique to stocks: for commodities, the 10-yr loss ratio is 30%. Market timing is also difficult, and panic selling can result in outsized opportunity cost, as the best market days often follow the worst days. Since the 1930s, if you sat out the 10 best days per decade, your returns would be just 30% vs. ~18,000% (Exhibit 72).

Exhibit 71: As time horizons grew, equity losses plummeted
Probability of negative returns, based on S&P 500 total returns from 1929-10/2022



Source: S&P, Bloomberg, BofA US Equity & Quant Strategy

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Exhibit 72: Market timing can lead to missing out on the best days
S&P 500 returns by decade excluding the 10 best and 10 worst days, as of 10/2022

Decade	Price return	Excluding best 10d per decade	Excluding worst 10d per decade	Excluding best/worst 10d per decade
1930	-42%	-79%	39%	-50%
1940	35%	-14%	136%	51%
1950	257%	167%	425%	293%
1960	54%	14%	107%	54%
1970	17%	-20%	59%	8%
1980	227%	108%	572%	328%
1990	316%	186%	526%	330%
2000	-24%	-62%	57%	-21%
2010	190%	95%	351%	203%
2020	20%	-32%	129%	30%
Since 1930	**17,951%**	**30%**	**3,875,990%**	**27,804%**

Source: S&P, BofA US Equity & Quant Strategy

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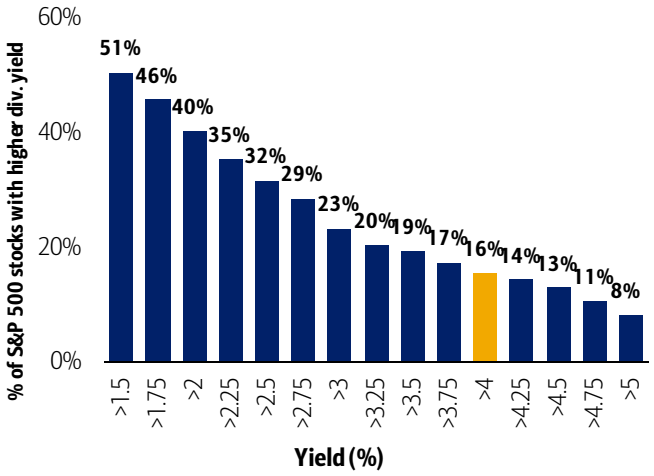
TINA (There is no alternative to equities) is over

Exhibit 73: Only 16% of stocks have above-4% dividend yield…
% of S&P 500 stocks with a div. yield above stated levels, as 10/22



Source: BofA US Equity & Quant Strategy, FactSet

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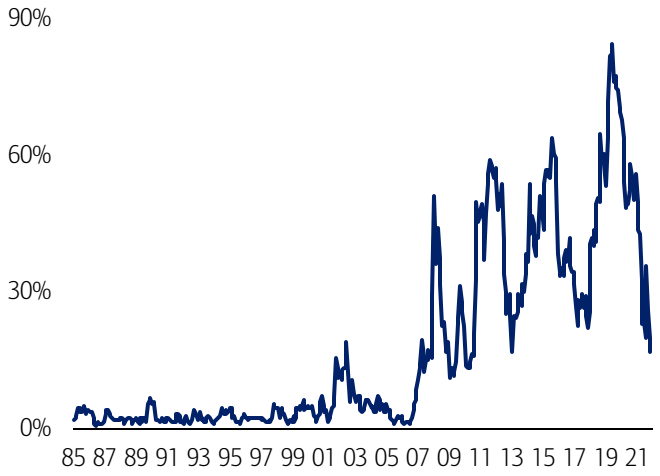
Exhibit 74: …representing the lowest level in 11 years
% of S&P 500 stocks with trailing dividend yield > 10yr Treasury yield (1/86-10/22)



Source: BofA US Equity & Quant Strategy, FactSet

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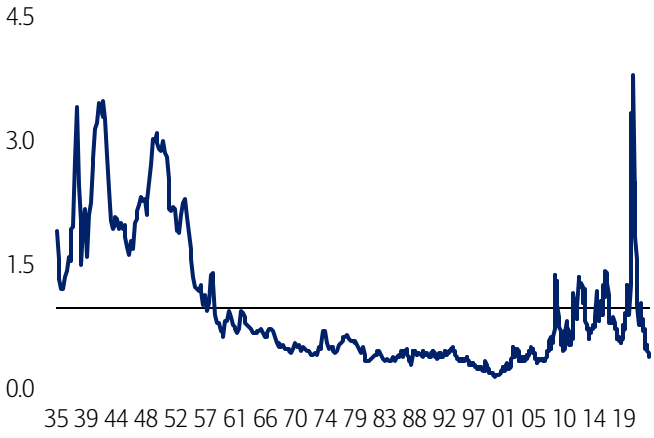
Exhibit 75: …and the lowest ratio of dividend/bond yield since 2007
S&P 500 dividend yield divided by 10-year Treasury (1935-10/22)



Source: BofA US Equity & Quant Strategy, FactSet

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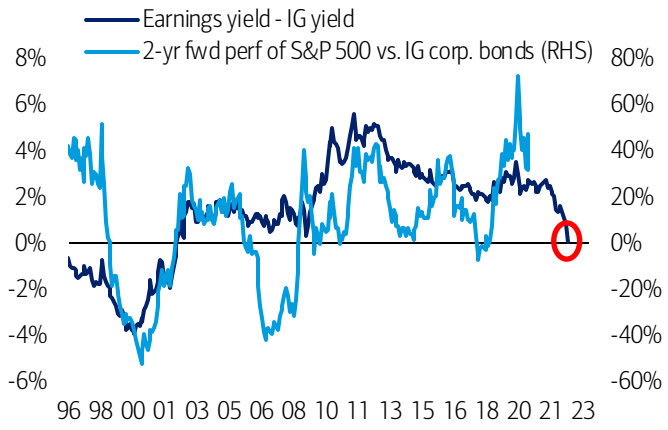
Exhibit 76: Credit is now a compelling alternative asset class to stocks
Spread between S&P 500 fwd earnings yield and investment-grade bond yield vs. 2-yr fwd performance of S&P 500 vs. IG corp. bonds (1996-10/22; 52% correlation)



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

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2022-23 EPS Outlook

Recession EPS: $200 in 2023 (-9% YoY)

- We forecast $200 EPS in 2023 (-9% YoY), which compares to a typical recessionary decline in EPS of 20% (Exhibit 80).
- We expect a small drop in sales (-0.6% YoY), helped by inflation, but lower volume and cost headwinds should translate to lower margins. We expect net margins (ex-Fins) declining 120bps to 11.2% (in-line with 2019 levels) vs. consensus 12.3%.
- We see the biggest downside risk to consensus earnings in Consumer Discretionary, where inflation is hurting the most. Mentions of weak demand soared to a record level in the sector, even topping COVID and GFC peak levels (Exhibit 279). Negative correlations between Consumer Discretionary and Energy earnings also suggest the higher-for-longer oil environment is a big headwind for the sector (Exhibit 274).
- We estimate higher interest rates shaving just $1 in EPS in 2023. 75%+ of total debt is long-term fixed, with the weighted avg. maturity of 11 years (Exhibit 11 & Exhibit 13). The debt structure, along with a much higher cash yield in 2023 (5% on avg.), should largely offset the headwind from higher rates. But sectors with a large floating debt mix (Cons. Disc.) and/or large debt burden (Real Estate) are expected to see bigger impacts (Exhibit 105). Heading into 2024-25, the mix of long-term fixed debt sharply declines to 71% on average in 2024 and 64% in 2025 (vs. 76% in 2023), potentially leading to higher financing costs if rates remain elevated.
- Despite the earnings decline, we expect dividends to hold up as payout ratios remain near record lows. We expect 3% dividend growth in 2023, with the payout ratio rising to 35% vs. current 30%. We expect no net benefits from buybacks.

Exhibit 77: We expect a 9% decline in EPS in 2023 (vs. -20% in prior recessions) – see Excel model
BofA S&P 500 EPS outlook

All based on current constituents unless specified		Bottom-up Consensus				BofA Analyst estimates				BofA Strategy			
	2021	2022	y/y	2023	y/y	2022	y/y	2023	y/y	2022	y/y	2023	y/y
S&P 500 Pro-forma EPS (Historical Index)	**$208.1**												
S&P 500 Pro-forma EPS (Current Constituents)	**$208.3**	**$220.3**	**6%**	**$231.2**	**5%**	**$222.7**	**7%**	**$235.1**	**6%**	**$220.0**	**6%**	**$200.0**	**-9%**
Sector ($ billions)													
Consumer Discretionary	132.5	120.8	-9%	153.1	27%	134.4	1%	168.5	25%	118.9	-10%	95.8	-19%
Consumer Staples	104.3	106.8	2%	110.4	3%	107.0	3%	110.2	3%	106.9	3%	102.9	-4%
Energy	80.1	203.3	154%	174.0	-14%	202.0	152%	193.8	-4%	205.6	157%	195.1	-5%
Financials	331.2	265.9	-20%	296.2	11%	266.7	-19%	296.8	11%	264.5	-20%	257.5	-3%
Health Care	291.9	305.0	5%	293.8	-4%	304.0	4%	292.8	-4%	304.7	4%	281.3	-8%
Industrials	107.5	135.8	26%	151.2	11%	136.9	27%	153.0	12%	134.1	25%	113.7	-15%
Information Technology	384.4	399.3	4%	409.9	3%	397.2	3%	401.6	1%	396.4	3%	343.5	-13%
Materials	58.3	60.8	4%	53.5	-12%	60.5	4%	54.9	-9%	60.4	4%	48.4	-20%
Real Estate	42.9	51.8	21%	53.3	3%	45.5	6%	48.5	7%	51.5	20%	49.6	-4%
Communication Services	189.1	159.0	-16%	166.7	5%	183.9	-3%	197.5	7%	156.9	-17%	145.2	-7%
Utilities	49.0	51.0	4%	54.8	7%	55.6	13%	57.8	4%	50.9	4%	48.4	-5%
S&P 500	**1,771.3**	**1,859.6**	**5%**	**1,916.8**	**3%**	**1,893.6**	**7%**	**1,975.4**	**4%**	**1,850.8**	**4%**	**1,681.3**	**-9%**
S&P 500 ex. Financials	1,440.1	1,593.8	11%	1,620.7	2%	1,626.9	13%	1,678.6	3%	1,586.3	10%	1,423.8	-10%
S&P 500 ex. Energy and Financials	1,360.0	1,390.4	2%	1,446.6	4%	1,424.9	5%	1,484.9	4%	1,380.7	2%	1,228.7	-11%
S&P 500 ex. Energy	1,691.2	1,656.3	-2%	1,742.8	5%	1,691.7	0%	1,781.6	5%	1,645.2	-3%	1,486.2	-10%
Energy Sector ($bn)	**80.1**	**203.3**	**154%**	**174.0**	**-14%**	**202.0**	**152%**	**193.8**	**-4%**	**205.6**	**157%**	**195.1**	**-5%**
Avg. Oil Price (wtd. blend of Brent & WTI)	*$70/bbl*									*~$99/bbl*	*41%*	*~$98/bbl*	*-1%*
S&P 500 Dividends (Historical Constituents, $/share)	***$60.40***									**$68.00**	**13%**	**$70.00**	**3%**
Key Macro Economic Forecasts													
Global GDP growth (real)	6.2%									3.3%		2.3%	
US GDP growth (real)	5.9%									1.8%		-0.4%	
FX Rate: US$/Euro (average)	1.18									1.05		1.06	

Source: BofA US Equity & Quant Strategy, FactSet

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BofA vs. consensus EPS

Exhibit 78: S&P 500 quarterly EPS forecasts
Bottom-up consensus vs. our estimates

	Btm-up analysts	YoY	BofA Strategy	YoY
2021	**$208**	**49%**	**$208**	**49%**
1Q22	54.80	12%	54.80	12%
2Q22	57.62	10%	57.62	10%
3Q22E	55.92	4%	55.00	2%
4Q22E	54.62	1%	53.00	-2%
2022E	**$220**	**6%**	**$220**	**6%**
1Q23E	54.56	0%	50.00	-9%
2Q23E	56.78	-1%	50.00	-13%
3Q23E	58.85	5%	49.00	-11%
4Q23E	59.86	10%	51.00	-4%
2023E	**$231**	**5%**	**$200**	**-9%**

Source: FactSet, BofA US Equity & Quant Strategy

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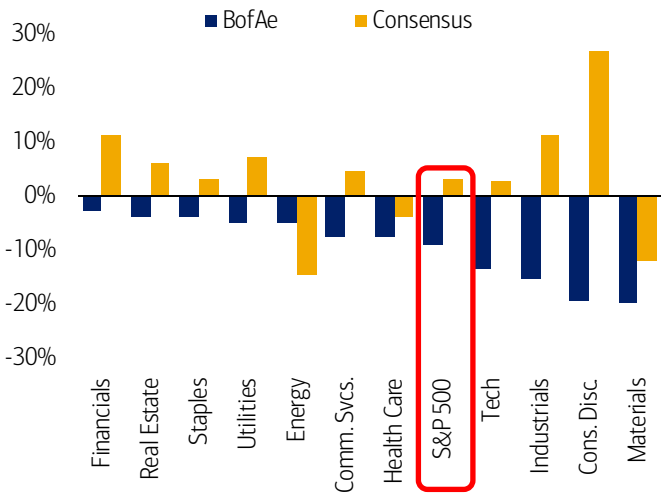
Exhibit 79: We expect the biggest downside risk to consensus estimates in Consumer Discretionary
2023 YoY earnings growth estimates by sector: BofA Strategy vs. consensus



Source: FactSet, BofA US Equity & Quant Strategy

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Historical recession stats

Exhibit 80: During prior recessions, EPS declined by ~20% peak-to-trough on average
Historical recession stats since 1950

	S&P 500		Price peak-to-trough		Trailing P/E			ERP (trailing EY - Rf)			Fwd P/E			GDP	USD	EPS
Recession	Peak date	Trough date	% return	# of months	Peak	Trough	% chg.	Trough	Peak	Chg. (bps)	Peak	Trough	% chg.	% chg.	% chg.	% chg.
3Q53-2Q54	1/5/53	9/14/53	(14.8%)	8	11.1	9.6	(13.1%)	8.2%	9.4%	1.2%				(2.5%)		(17.6%)
4Q57-2Q58	8/2/56	10/22/57	(21.6%)	15	13.0	12.2	(6.3%)	4.9%	7.0%	2.1%				(3.6%)		(22.0%)
3Q60-1Q61	8/3/59	10/25/60	(13.9%)	15	17.2	16.4	(4.8%)	3.5%	5.2%	1.7%				(1.3%)		(11.7%)
1Q70-4Q70	11/29/68	5/26/70	(36.1%)	18	18.0	14.8	(17.7%)	5.8%	7.8%	2.0%				(0.7%)	(0.5%)	(12.9%)
1Q74-1Q75	1/11/73	10/3/74	(48.2%)	21	18.4	7.0	(62.1%)	8.1%	14.0%	5.8%				(3.1%)	(7.1%)	(14.8%)
2Q80-3Q80	2/13/80	3/27/80	(17.1%)	1	7.5	7.4	(0.4%)	5.7%	8.1%	2.4%				(2.2%)	7.8%	(5.2%)
4Q81-4Q82	11/28/80	8/12/82	(27.1%)	21	8.6	7.9	(9.0%)	0.9%	3.3%	2.4%				(2.6%)	34.8%	(17.0%)
4Q90-1Q91	7/16/90	10/11/90	(19.9%)	3	15.5	13.0	(16.1%)	0.7%	1.6%	1.0%	12.2	10.4	(14.3%)	(1.3%)	(8.2%)	(27.6%)
2Q01-4Q01	3/24/00	10/9/02	(49.1%)	31	28.1	18.1	(35.5%)	(1.0%)	1.9%	3.0%	22.7	14.7	(35.5%)	(0.3%)	2.1%	(23.0%)
1Q08-2Q09	10/9/07	3/9/09	(56.8%)	17	17.0	10.2	(40.1%)	3.2%	7.8%	4.6%	14.7	11.1	(24.5%)	(3.8%)	13.3%	(44.8%)
1Q20-2Q20	12/27/19	3/23/20	(30.9%)	3	19.1	18.0	(5.6%)	5.0%	6.6%	1.6%	17.8	16.5	(6.9%)	(9.6%)	5.7%	(13.9%)
		Median	**(27.1%)**	**15**	**15.8**	**12.2**	**(13.1%)**	**4.1%**	**6.6%**	**2.1%**	**16.8**	**13.2**	**(19.4%)**	**(2.5%)**	**3.9%**	**(17.0%)**
		Avg.	**(30.5%)**	**14**	**16.2**	**12.5**	**(19.2%)**	**3.7%**	**6.4%**	**2.5%**	**16.8**	**13.2**	**(20.3%)**	**(2.8%)**	**6.0%**	**(19.1%)**
Today	1/3/22	11/18/22	(17.7%)	11	26.0	17.9	(31.1%)	4.1%	?		21.4	17.0	(20.1%)	?	11.2%	5.7%

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

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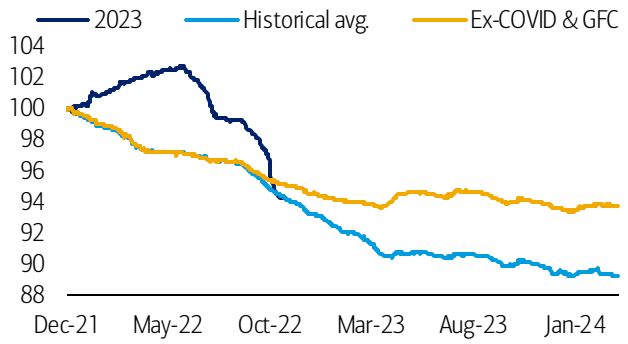
Downward revisions accelerating

Exhibit 81: 2023 EPS revision is now trending similar to the historical average
S&P 500 historical FY2 EPS revisions vs. 2023 consensus EPS (2023 as of 11/18/22)



Source: BofA US Equity & Quant Strategy, FactSet; Note: historical average based on 2001-2021
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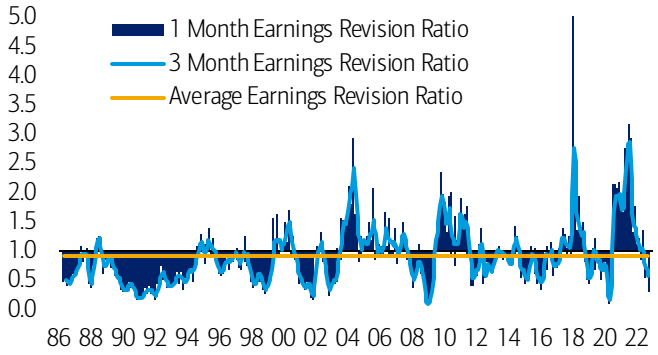
Exhibit 82: Our 1-mo. earnings revision ratio fell sharply to 0.3x in October, the 6th percentile in history
S&P 500 earnings estimate revision ratio, 1/86-10/22



Source: BofA US Equity and Quant Strategy, I/B/E/S
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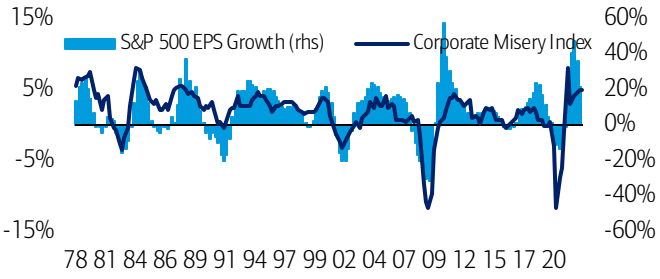
Peak pricing & demand + sticky costs = corporate misery

Exhibit 83: Our Corporate Misery Indicator remains well off its highs
BofA Corp. Misery Indicator (lower=more miserable) 4Q78-3Q22



Disclaimer: The indicator identified as BofA Corporate Misery 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 relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark. Note: see Appendix for full details/methodology.
Source: BofA US Equity & Quant Strategy, Conference Board, BLS
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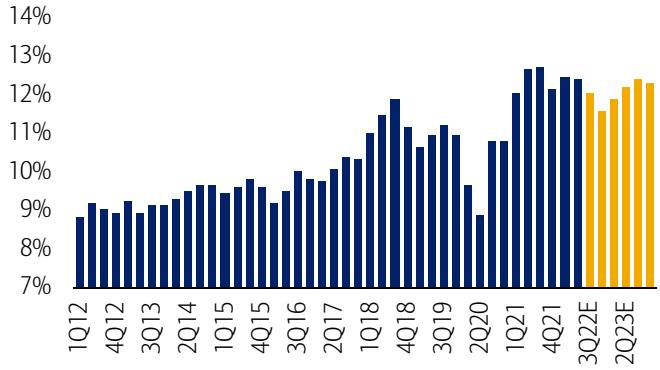
Exhibit 84: Margin expectations have fallen, but 2H23 margins still look optimistic
S&P 500 quarterly net margins ex-Financials (2012-4Q23E)



Source: FactSet, BofA US Equity & Quant Strategy
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Exhibit 85: Consensus expects net margins reaching near prior highs by 3Q23E, led by Comm. Svcs., Industrials, and Cons. Disc.
S&P 500 quarterly net margins by sectors

Sector	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22E	4Q22E	1Q23E	2Q23E	3Q23E	4Q23E
Consumer Discretionary	3.0%	2.5%	7.5%	6.1%	7.8%	8.0%	7.4%	6.2%	6.5%	6.3%	7.0%	6.1%	6.8%	7.8%	8.3%	7.1%
Consumer Staples	6.3%	6.6%	7.3%	6.8%	6.9%	7.2%	7.1%	6.6%	6.7%	6.7%	6.6%	6.2%	6.5%	6.9%	6.9%	6.5%
Energy	3.6%	-8.7%	-0.7%	-0.4%	4.5%	6.5%	9.0%	11.1%	10.7%	14.7%	14.7%	13.8%	13.3%	13.4%	13.1%	13.5%
Financials	10.9%	8.3%	15.1%	17.4%	23.0%	21.1%	19.6%	17.5%	18.3%	17.0%	13.9%	17.5%	18.5%	18.0%	17.9%	18.3%
Health Care	9.9%	10.8%	10.4%	9.6%	11.6%	11.5%	11.6%	11.4%	11.8%	11.1%	10.7%	9.4%	10.4%	10.2%	10.1%	9.5%
Industrials	6.5%	2.5%	6.2%	6.8%	7.0%	9.4%	9.4%	8.2%	8.1%	10.3%	9.6%	9.9%	9.3%	10.6%	10.7%	10.3%
Information Technology	21.3%	21.1%	22.5%	24.4%	25.0%	25.7%	25.9%	24.5%	25.2%	23.9%	23.9%	24.2%	23.6%	23.6%	24.3%	25.6%
Materials	8.2%	8.6%	9.5%	10.6%	11.8%	14.9%	13.7%	13.0%	13.6%	14.4%	11.0%	10.4%	10.7%	12.2%	11.4%	11.3%
Real Estate	31.0%	30.9%	31.5%	32.5%	36.3%	37.5%	36.0%	35.3%	37.1%	36.1%	36.0%	36.7%	37.2%	38.4%	37.5%	36.7%
Communication Services	15.4%	13.4%	15.1%	16.6%	18.7%	18.8%	17.8%	16.2%	16.8%	14.3%	12.9%	13.3%	14.5%	14.9%	14.8%	15.0%
Utilities	15.1%	14.6%	22.5%	11.4%	13.0%	15.0%	18.1%	14.2%	15.2%	11.9%	13.4%	11.1%	14.1%	12.4%	16.0%	13.8%
S&P 500 ex. Financials	**9.7%**	**8.9%**	**10.8%**	**10.8%**	**12.1%**	**12.7%**	**12.7%**	**12.1%**	**12.5%**	**12.4%**	**12.0%**	**11.6%**	**11.9%**	**12.2%**	**12.4%**	**12.3%**
S&P 500	**9.8%**	**8.8%**	**11.4%**	**11.6%**	**13.4%**	**13.7%**	**13.5%**	**12.7%**	**13.1%**	**12.9%**	**12.3%**	**12.2%**	**12.7%**	**12.9%**	**13.0%**	**13.0%**
ex. Fins & Energy	**10.2%**	**9.8%**	**11.6%**	**11.5%**	**12.7%**	**13.2%**	**13.1%**	**12.2%**	**12.7%**	**12.1%**	**11.7%**	**11.3%**	**11.7%**	**12.1%**	**12.3%**	**12.2%**
ex. Energy	**10.3%**	**9.6%**	**12.1%**	**12.3%**	**14.0%**	**14.3%**	**13.9%**	**12.9%**	**13.4%**	**12.7%**	**12.0%**	**12.1%**	**12.6%**	**12.8%**	**13.0%**	**12.9%**

Source: FactSet, BofA US Equity & Quant Strategy
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Half of S&P companies have negative real sales growth

Exhibit 86: Ex-Energy, S&P 500 companies reported negative real sales growth in 3Q
3Q nominal and real sales growth

	Sales		3Q sales growth	
Sectors	3Q22	3Q21	Nominal YoY	Real YoY
Health Care	730,704	693,375	5.4%	(2.9%)
Real Estate	35,499	31,461	12.8%	4.5%
Information Technology	418,215	395,247	5.8%	(2.5%)
Materials	124,443	117,945	5.5%	(2.8%)
Industrials	388,911	346,352	12.3%	4.0%
Consumer Staples	483,666	447,891	8.0%	(0.3%)
Communication Services	300,684	294,592	2.1%	(6.3%)
Utilities	113,061	98,701	14.5%	6.2%
Consumer Discretionary	523,911	458,193	14.3%	6.0%
Energy	412,029	281,727	46.3%	37.9%
S&P 500 ex. Fins	**3,531,123**	**3,165,485**	**11.6%**	**3.2%**
ex. Fins & Energy	**3,119,094**	**2,883,758**	**8.2%**	**(0.2%)**

Source: FactSet, BofA US Equity & Quant Strategy

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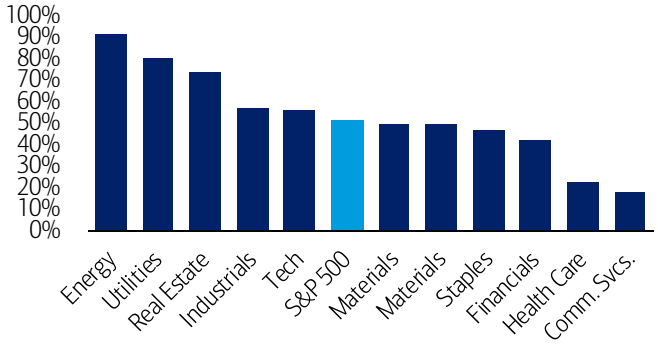
Exhibit 87: Half of S&P 500 companies posted negative real sales growth in 3Q
% of companies with positive real sales growth in 3Q22



Source: FactSet, BofA US Equity & Quant Strategy

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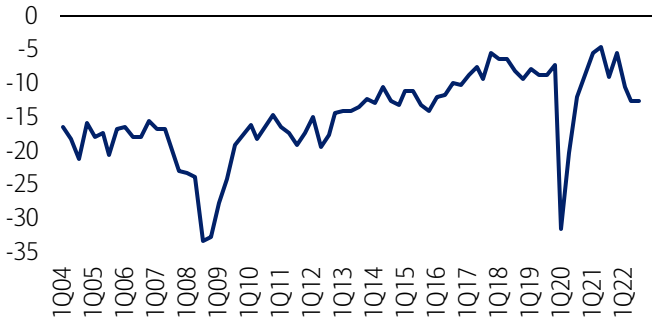
Corporate sentiment fell this year

Exhibit 88: Corporate sentiment flat in 3Q after declining in prior two quarters
Avg. negative sentiment score for S&P 500 companies



Source: BofA Global Research, FactSet

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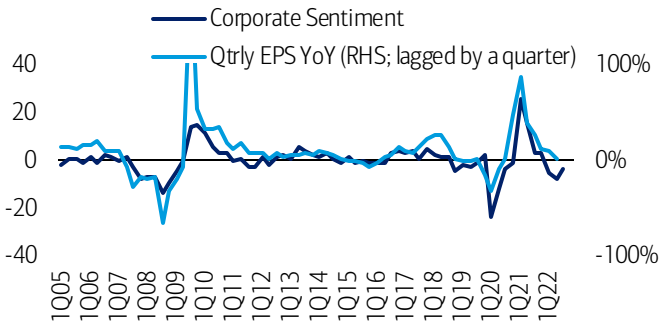
Exhibit 89: Falling sentiment points to an earnings decline
S&P 500 avg. negative sentiment score YoY vs. quarterly EPS YoY with a quarter lag (r-sq=50%; 1Q05-3Q22)



Source: BofA Global Research, FactSet

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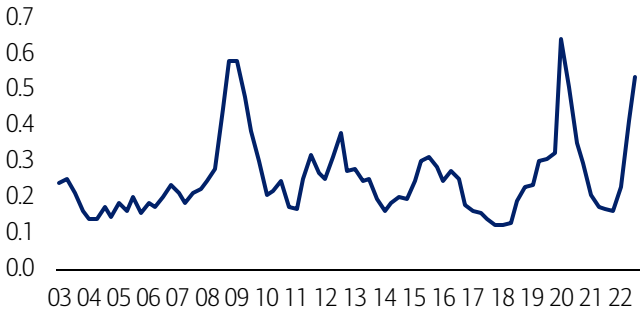
Looming recession risk

Exhibit 90: Companies' mentions of weak demand surged
Average mentions of weak demand per company (2003-11/14/22)



Source: BofA Global Research, FactSet
Note: mentions include "lower," "softer," "moderating," "weaker"

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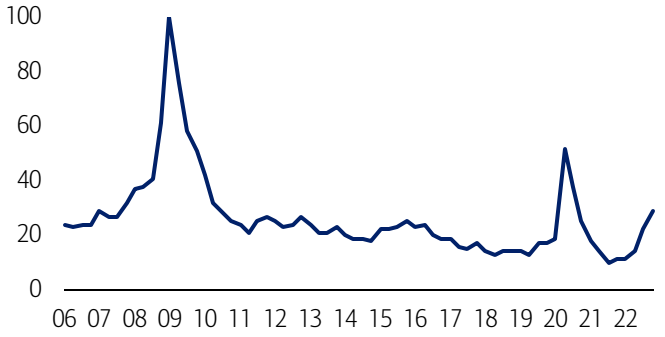
Exhibit 91: Layoff mentions have also jumped recently
Companies' mentions of layoffs (100=max; 2006-11/16/22)



Source: BofA Global Research, FactSet

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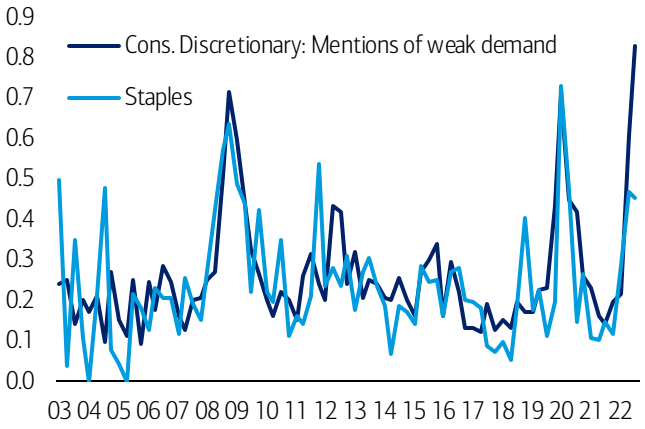
Consumer weakness

Exhibit 92: Record weakness in Consumer Discretionary
Average mention of weak demand per company for Consumer sectors (2003-11/14/22)



Source: BofA Global Research, FactSet
Note: mentions include "lower," "softer," "moderating," "weaker"

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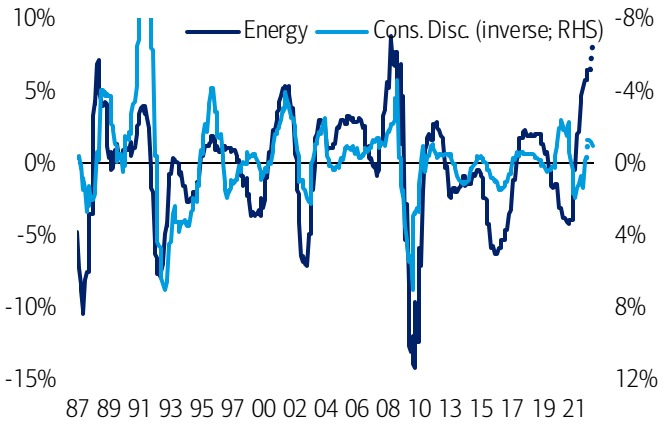
Exhibit 93: Energy and Consumer Discretionary earnings have been negatively correlated (52% correlation)
YoY ppt chg in S&P 500 net income contribution (% of total); 1986-10/2022



Source: FactSet, BofA US Equity & Quant Strategy
Note: The dotted line indicates consensus earnings forecast for 2022.

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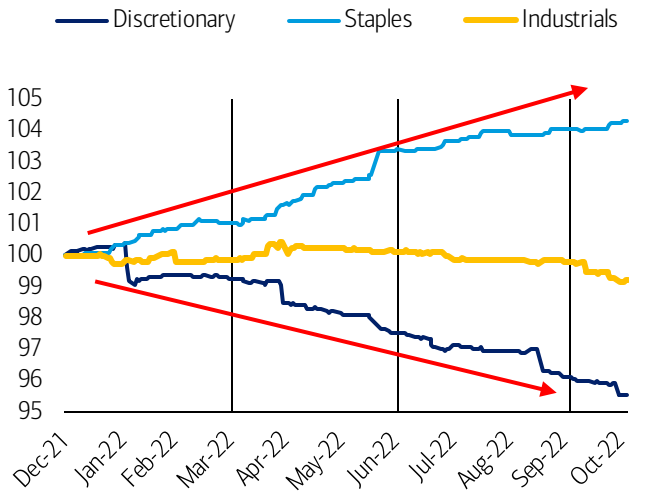
Exhibit 94: Staples spending is eating away discretionary spending
2022 consensus sales for Staples, Discretionary and Industrials (12/31/21-11/4/22)



Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 95: 41% of Americans are having difficulty paying bills
Census Bureau Household Pulse Survey: % of respondents indicating it is somewhat or very difficult paying expenses (9/20-10/25/22)



Source: Haver Analytics, BofA US Equity & US Quant Strategy

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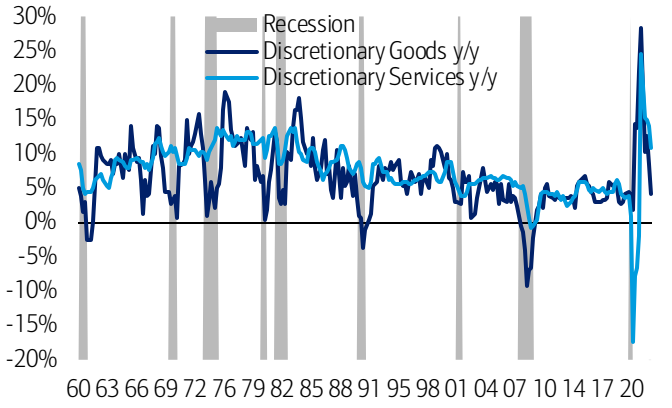
Services > goods is a headwind for S&P earnings

Exhibit 96: Except for during COVID, goods spending always hit harder than services spending in recessions
YoY growth in personal consumption expenditures on discretionary goods vs discretionary services, 1960-present



Source: Haver Analytics, BofA US Equity & Quant Strategy
Note: Based on Haver definitions for discretionary spending which excludes food and energy/gasoline from total goods spending and excludes housing and utilities from total services spending

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Exhibit 97: Goods spending usually slowed 2-3x as much as services spending
Deceleration in growth in personal consumption expenditures on discretionary goods vs. discretionary services during recessions since 1960

	Deceleration in spending growth:	
US recessions	**Discretionary Goods**	**Discretionary Services**
1960	-7%	-4%
1970	-13%	-4%
1974-75	-15%	-2%
1980	-13%	-4%
1981-82	-11%	-5%
1990	-11%	-4%
2001	-8%	-5%
2008-09	-15%	-7%
2020	-3%	-21%
Avg ex-COVID	**-12%**	**-4%**

Source: Haver Analytics, BofA US Equity & Quant Strategy
Note: Based on Haver definitions for discretionary spending which excludes food and energy/gasoline from total goods spending and excludes housing and utilities from total services spending

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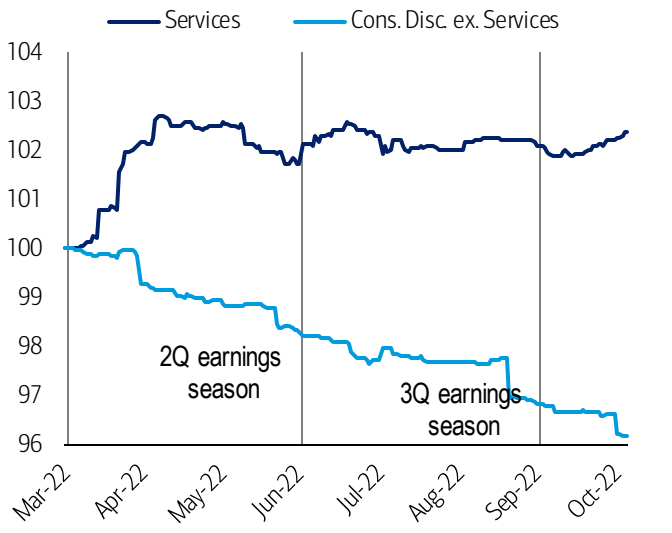
Exhibit 98: But no cracks in services demand yet
2022 consensus sales for services vs. Consumer Discretionary ex. Consumer Services (3/31/22-11/4/22)



Source: FactSet, BofA US Equity & Quant Strategy; Services: Hotels, Restaurants, Airlines

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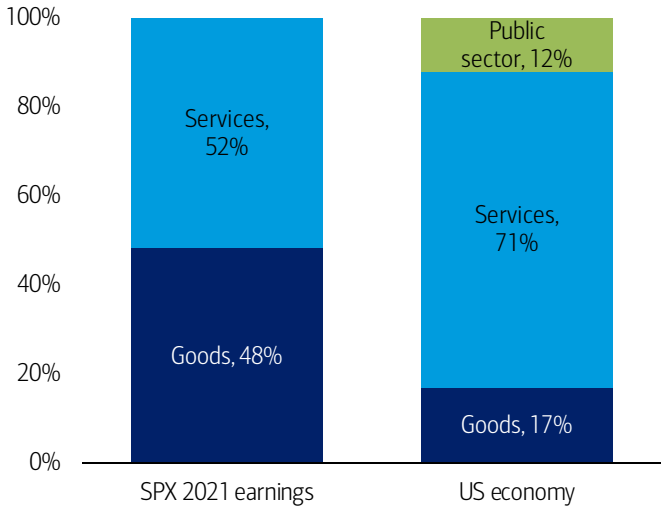
Exhibit 99: S&P 500 is more geared towards goods than overall economy
Our estimate for Goods vs. Services exposure of S&P 500 based on industry breakout of 2021 earnings vs. % goods/services for US economy (based on gross value added by industry, 2021)



Source: Haver Analytics, FactSet, BofA US Equity & US Quant Strategy

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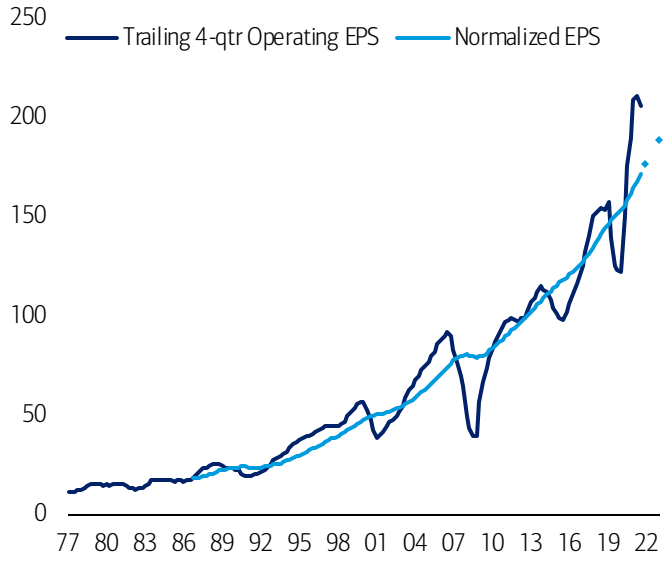
Earnings are cyclically elevated

Exhibit 100: Earnings are cyclically elevated...
S&P 500 operating EPS vs. normalized EPS (1977-present; light blue dots = 2022-23E normalized earnings)



Source: Haver Analytics, BofA US Equity & US Quant Strategy

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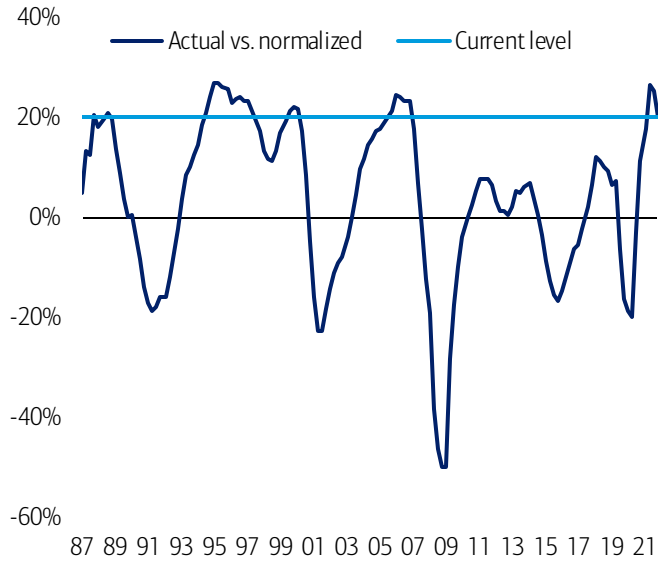
Exhibit 101: ...with one of the biggest spreads vs. trend in history
% spread between S&P 500 operating EPS vs. normalized EPS (1987-2Q22)



Source: Haver Analytics, BofA US Equity & US Quant Strategy

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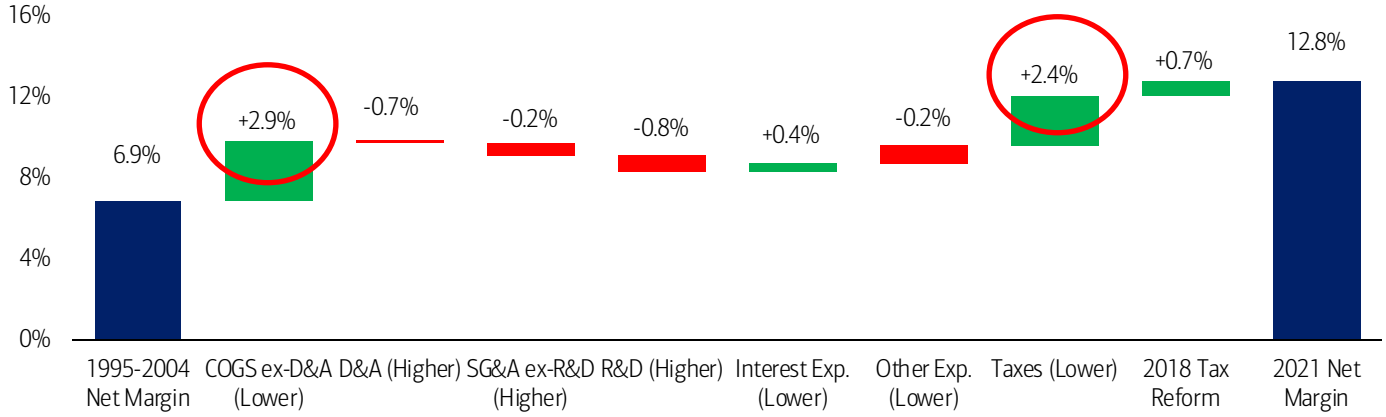
Plus, secular pressure from de-globalization

Exhibit 102: Globalization has been a big contributor to S&P 500 net margins since 2004
2021 net margin (ex-Financials) expansion waterfall vs. 1995-2004 levels (factors related to globalization circled in red)



Source: BofA US Equity & Quant Strategy, FactSet

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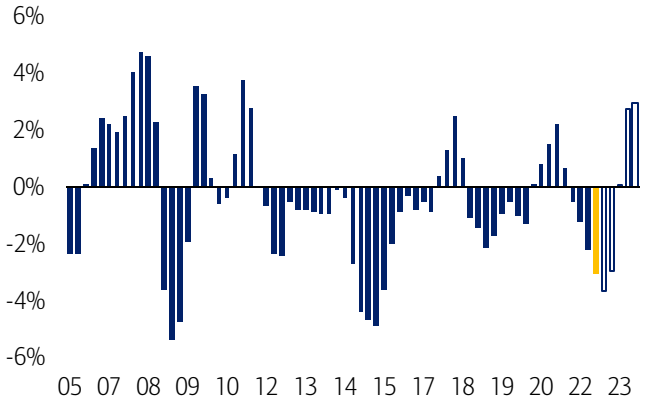
FX likely remains a headwind in 1H, but flips to a tailwind in 2H

FX has been a big headwind for earnings in 2022, and is likely going to remain a headwind at least in 1H23 despite our house view of weakening USD from here. But the forecast of $1.07/EUR and $1.10/EUR in 3Q and 4Q suggests FX flipping to a tailwind in 2H. The rule-of-thumb calculation (every 10% rise in USD translates to a 3% decline in S&P EPS) suggests S&P earnings benefiting as much as 3% in 2H23. The most foreign-exposed Tech and Materials sectors are expected to see the biggest impact from FX.

Exhibit 103: FX expected to flip to a tailwind in 2H23
Estimated currency impact (in ppt) to S&P 500 quarterly YoY sales growth, 4Q05-4Q23E



Source: FactSet, BofA US Equity & Quant Strategy
*Orange bar = 3Q23; empty bars = ppt impact based on the rule of thumb & BofA house view on EURUSD

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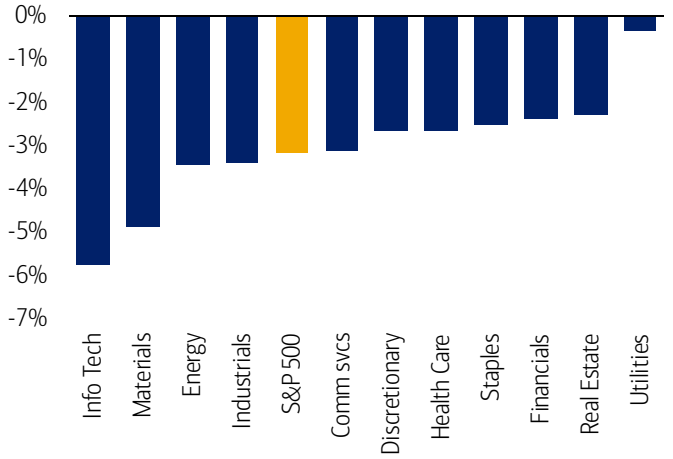
Exhibit 104: Tech and Materials saw the biggest FX impact in 3Q
Estimated FX impact (in ppt) to quarterly YoY sales growth by sector in 3Q22



Source: FactSet, BofA US Equity & Quant Strategy

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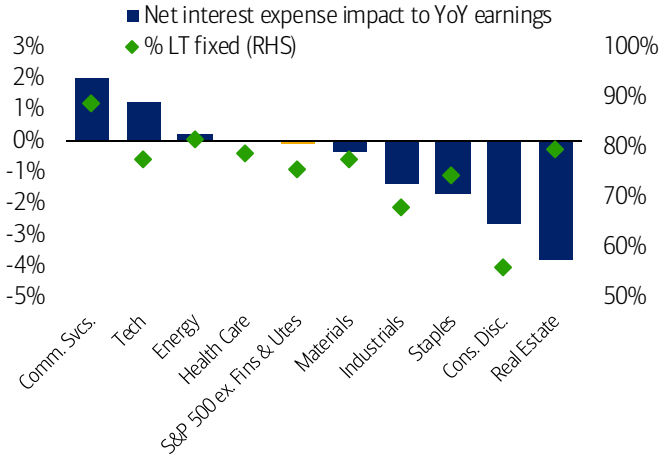
How much of a risk are higher rates?

US corporates have largely shifted to longer-dated fixed rate debt – today over 75% of S&P 500 debt is long-term fixed (Exhibit 11). The average maturity of debt on S&P 500 balance sheets today is 11 years (Exhibit 13). 15 years ago, it was seven years.

Below we analyze the potential impact to 2023 earnings growth YoY (ppt) based on house views on rates and the current debt composition of the S&P 500. The largest impacts are likely to be Real Estate and Consumer Discretionary.

Exhibit 105: Marginal impact at the index level in 2023, but sectors with high debt burden (Real Estate) and high floating debt mix (Cons. Disc.) are expected to see bigger impacts
Impact to YoY earnings growth from net interest expense & % of debt that is long-term fixed



Source: BofA US Equity & US Quant Strategy, Bloomberg, FactSet
*Assuming floating/refinanced rate of 7% on average in 2023 vs. 4% in 2022, and cash yield of 5% in 2023 vs. 2% in 2022. Excludes the financing arms of GM, F, CAT, and DE

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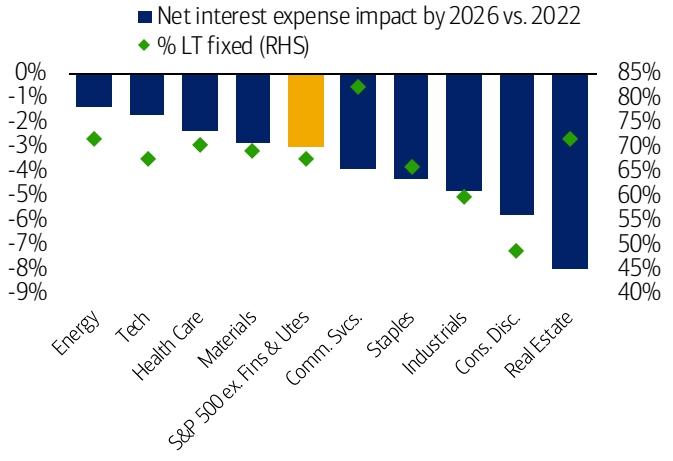
Exhibit 106: ...but if rates stay elevated for longer, higher interest expense could shave 3ppt of earnings growth by 2026
Impact to YoY earnings growth from net interest expense & % of debt that is long-term fixed



Source: BofA US Equity & US Quant Strategy, Bloomberg, FactSet
*Assuming floating/refinanced rate of 7% in 2023, 6% in 2024, and 5% in 2025-26 vs. 4% in 2022, and cash yield of 5% in 2023, 4% in 2024, and 3% in 2025-26 vs. 2% in 2022. Excludes the financing arms of GM, F, CAT, and DE

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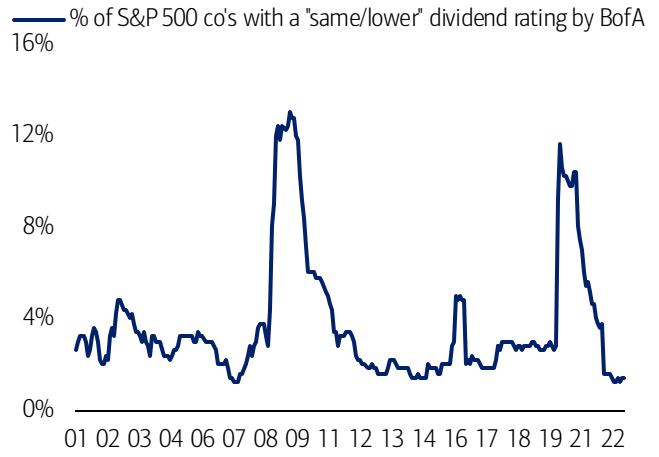
We expect dividends to remain more resilient, but buybacks to be more muted

Exhibit 107: Only 1% of S&P 500 dividends are viewed by BofA as at risk
% of S&P 500 companies with a "same/lower" dividend rating by BofA analysts (2001-10/22)



Source: BofA Global Research

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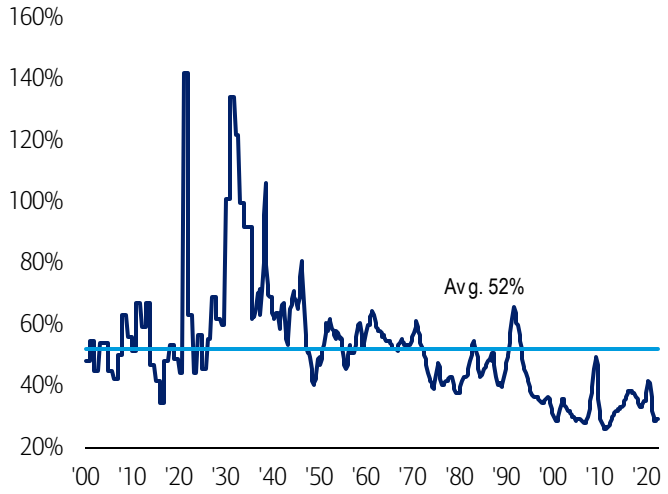
Exhibit 108: The payout ratio remains near record lows
S&P 500 dividend payout ratio, 1900-9/22



Source: BofA US Equity & Quant Strategy, Haver Analytics, S&P

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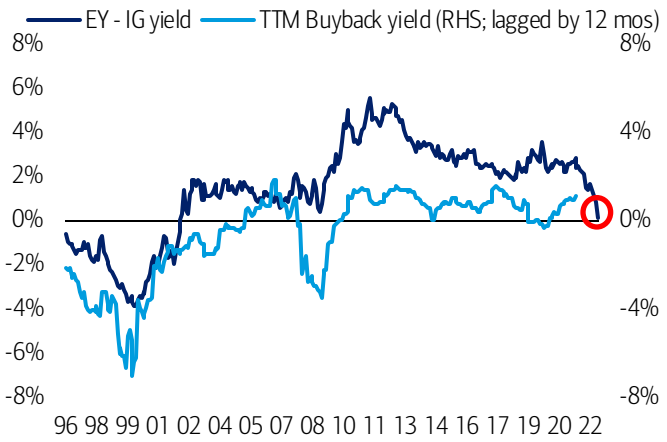
Exhibit 109: Higher rates represent a headwind for buybacks
S&P 500 earnings yield (EY) less IG bond yield vs. TTM buyback yield with a 12-mo lag (1996-present)



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

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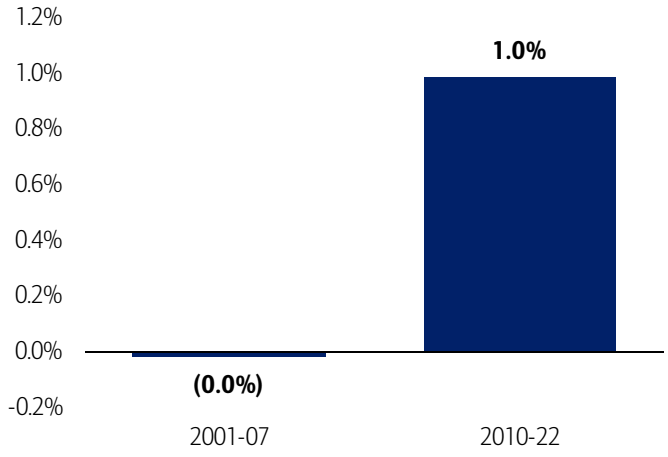
Exhibit 110: Pre-GFC, there were no buyback benefits
Annualized buyback benefits to S&P 500 earnings pre- and post-GFC (as of 10/22)



Source: FactSet, BofA US Equity & Quant Strategy

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Themes

- Deglobalization, re-shoring and capex resilience
- Net Zero transition + War: fossil fuels and renewables can both outperform
- Changing leadership: Buy S&P 450, sell Nifty 50
- Total return decade: from high dividend yield to dividend growth
- Quality: secular and cyclical case

De-globalization, reshoring & capex resilience

The 2020s may mark the beginning of deglobalization, where re-shoring, near-shoring and "friend-shoring" of US manufacturing has strengthened amid COVID-19 and accompanying supply chain disruptions, trade tensions, geopolitical conflict and ESG considerations (increased focus on carbon emissions, greater transparency/less complexity in supply chains and workforce health/safety considerations – see our supply chain report and Net Zero reports).

Additionally, the CHIPS Act – which includes $53B for US semi production and R&D – should add to the momentum in domestic capex (see Semis and Multi-Industrials notes), as should The Infrastructure Investment and Jobs Act enacted in late 2021 ($1.2tn bill with $550B of federal investment in new infrastructure, including "Buy America" provisions that may drive re-shoring and investment in industrial automation).

> Our Industrials analysts expect an 8.1%-9.3% CAGR for US manufacturing capex from 2019-24; this compares to a mere 2.8% CAGR from 2007-19.

Our BofA Industrials team estimates that every $10bn of manufacturing revenue moved to the US drives a related ~$3.8bn of capex (1/3 buildings, 2/3 equipment). This is based on the ratio of plant, property, and equipment (PP&E) to revenue for S&P 500 industrial companies. They expect an 8.1%-9.3% CAGR for US manufacturing capex from 2019-24; this compares to a mere 2.8% CAGR from 2007-19. The semiconductor industry alone has announced 120+ bn in manufacturing capex and is likely to increase it, where this represents ~10% of durable goods manufacturing according to our analysts. See: US semiconductor fabs coming faster than you think.

Exhibit 5: BofA view: US manufacturing CapEx at an inflection point
Key historical trends and prospective changes

Trend over last 20 years...	...inflection point
Shrinking tech capacity	~$122bn in announced semi CapEx
Globalization of supply chains	In-country/near shoring
Productivity CapEx	Capacity CapEx

Source: BofA Global Research

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Exhibit 6: Estimated impact of changes to US manufacturing CapEx
We see the Inflation Reduction Act as adding 1.0% of annual growth to US Capex

2007-2019 CAGR	2.8%
Announced semi investments	1.8-2.5%
Stable mix of imported intermediary goods	1.0%
American Rescue Plan Act of 2021	1.0-1.5%
Infrastructure Investment and Jobs Act	~0.5%
Inflation Reduction Act	1.0%
2019-2024E CAGR	**8.1-9.3%**

Source: BofA Global Research, Bureau of Economic Analysis

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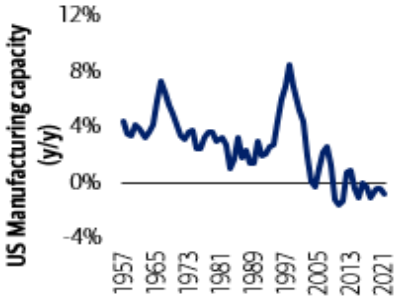
> S&P 500 margin risk is the key negative of de-globalization. We found that more than half of S&P 500 margin expansion over the last two

decades was driven by tax arbitrage, labor arbitrage, cheaper manufacturing costs and other benefits of globalization (Exhibit 102).

Exhibit 111: Limited capacity additions since 2008 recession
US manufacturing capacity (1957-2021)



Source: Federal Reserve, BofA Global Research
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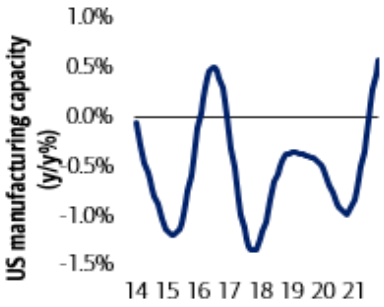
Exhibit 112: US manufacturing capacity growth turned positive in March 2022
US manufacturing capacity (2014-22)



Source: Federal Reserve, BofA Global Research
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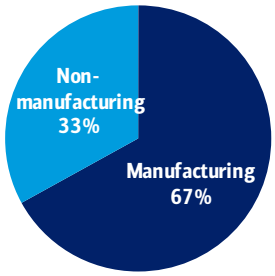
Exhibit 113: Two-thirds of S&P 500 Industrials sector = manufacturing exposed
Estimated exposure of S&P 500 Industrials companies



Source: BofA Global Research estimates
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Emissions risk is driving reshoring

Every major region of the world has pledged to get to net zero. 3 out of four 4 S&P 500 companies have announced targets and plans to reduce GHG emissions. Investors are paying a premium for companies meeting their goals, and boards are encouraging C-suites to link compensation with achieving sustainability goals. One of the most clear-cut ways to reduce emissions (especially Scope 3 risks) is by moving supply chains closer to the consumer.

- A decarbonization pathway exercise suggests that total Scope 3 emissions could be reduced by 30% through measures like product and logistics optimization and procurement of low-carbon energy by suppliers (McKinsey).
- Our 2022 survey of corporations covered by our analysts reveals that reshoring is one of the strategies most frequently cited by corporates to get to net-zero. (See Corporate strategies for Net Zero)
- Lower transportation-related emissions as global supply chains shrink in footprint - freight alone contributes about 8% of global greenhouse gas emissions.
- Re-shoring from emerging to developed geographies with tighter emission controls but higher labor costs could encourage energy efficient, automation-based green manufacturing.

Exhibit 114: Enhancing energy efficiency, switching to clean energy or renewables, carbon offsets and re-shoring/near-shoring of supply chains are most commonly cited strategies by corporates in getting to net-zero
Strategies that corporates are employing to navigate towards their goal of net-zero

	Enhancing energy efficiency	Switching to clean energy / renewables	Carbon offset schemes	Re-shoring/ near-shoring of supply chains	Automation	Digitalization	Sustainable packaging	Carbon capture and storage (CCS) technologies	Restructuring
Autos	✓	✓		✓	✓	✓			✓
Cons Durables	✓	✓	✓	✓			✓		
Consumer Services	✓	✓	✓	✓					
Retailing	✓	✓	✓	✓			✓		
Food/Staples Retail	✓	✓		✓			✓		
Food Beverage	✓	✓		✓			✓		
Household Products	✓	✓		✓			✓		
Energy	✓	✓	✓					✓	✓
Materials	✓	✓		✓	✓			✓	✓
Capital Goods	✓	✓	✓	✓	✓	✓			✓
Commercial Services	✓	✓		✓		✓			✓
Transportation	✓	✓	✓						
Utilities	✓	✓		✓				✓	✓
Semis	✓	✓	✓	✓					
Software	✓	✓	✓	✓					
Tech Hard/Equip	✓	✓		✓	✓		✓		
Telecom	✓	✓		✓					
Media & Ent.	✓	✓	✓						
Health Care Equip/Svc	✓	✓	✓	✓		✓			
Pharma & Biotech	✓	✓	✓	✓		✓	✓		
Real Estate	✓	✓	✓	✓	✓				✓
Banks	✓	✓				✓			✓
Div Financials	✓	✓	✓		✓	✓			
Insurance	✓	✓				✓			✓

Source: BofA Global Research

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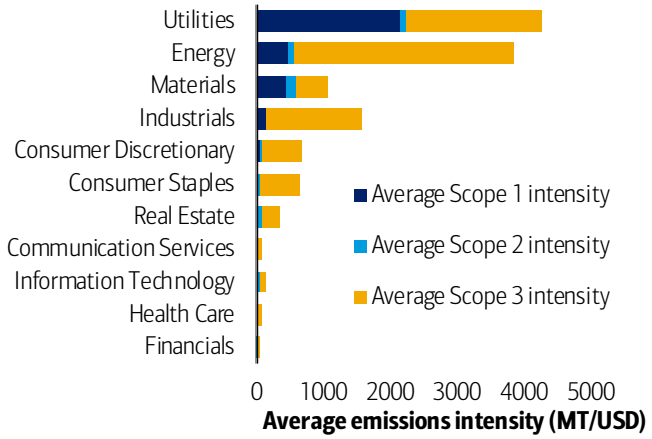
Exhibit 115: Scope 3 emission intensity 3x larger than Scope 1 & 2 combined
Average scope 1, 2, and 3 emissions intensity (MT/USD) for S&P 500, as of 10/22



Source: ICE Data Services, company reports, BofA US Equity & Quant Strategy
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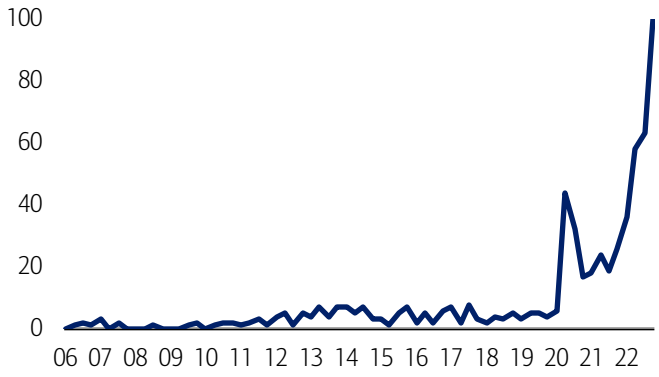
Reshoring is happening. Here's the evidence:

- US companies' mentions of re-shoring skyrocketed recently amid supply chain challenges
- US manufacturing jobs have accelerated, particularly in key reshoring states (see: SMID Cap Focus Point: Back to the USA take 2: reshoring update...and who benefits).
- Reshoring Initiative data reveals a surge in reshoring and foreign direct investment (FDI) jobs over the last two years.
- The South and Midwest have been the biggest re-shoring/FDI destinations; key reshoring states over the past year have included Michigan, Texas, Tennessee, Arizona and North Carolina.

Exhibit 116: Mentions of re-shoring skyrocketed
Companies mentions of re-/near-/on-shoring (100=max; 2006-11/04/22)



Source: AlphaSense, BofA Global Research
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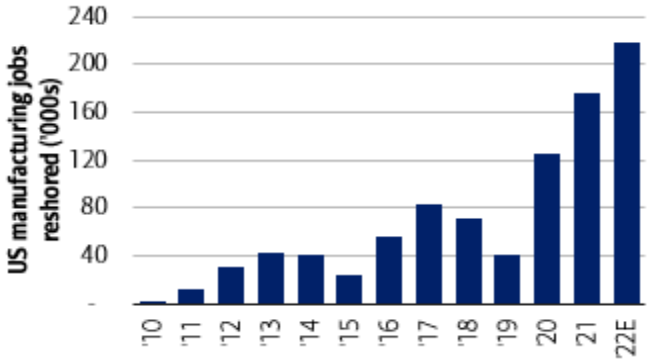
Exhibit 117: US manufacturing jobs from reshoring activities
2021 was a record year for reshoring



Source: AlphaSense, BofA Global Research
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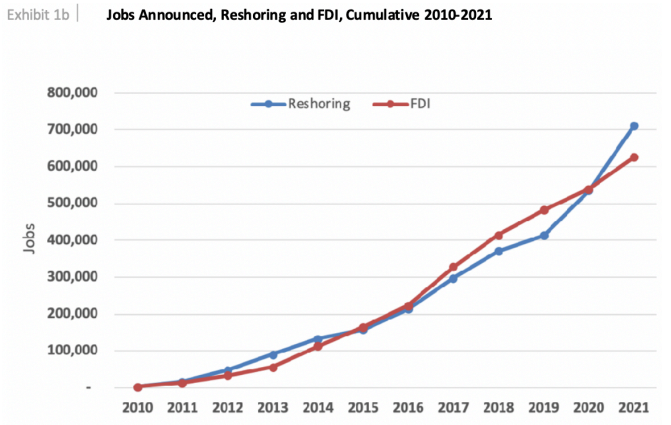
Exhibit 118: Over 1.3million reshoring + FDI jobs since 2010...
Cumulative Reshoring + FDI jobs announced, 2010-2021



Source: The Reshoring Initiative® 2021 Data Report (https://reshorenow.org/content/pdf/2021_RI_data_report.pdf). Reprinted with permission.
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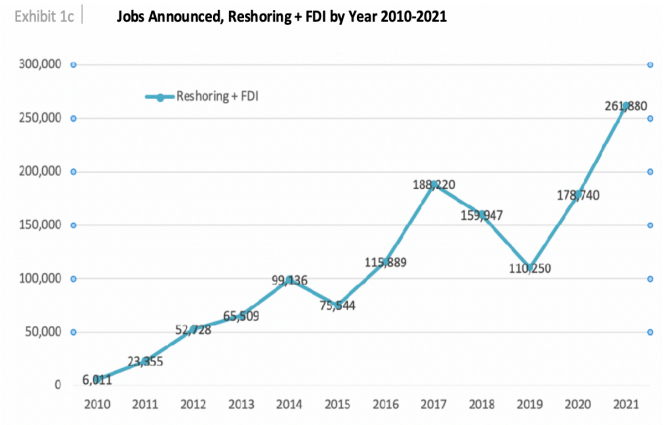
Exhibit 119: ...with a surge in those announcements the last two years
Reshoring + FDI jobs announced by year, 2010-2021



Source: The Reshoring Initiative® 2021 Data Report (https://reshorenow.org/content/pdf/2021_RI_data_report.pdf). Reprinted with permission.
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Resilient and mandatory capex

Despite macro uncertainty and weakening corporate sentiment, capex spending has remained strong, accelerating to +23% YoY in 3Q22 following ~20% growth rates the prior two quarters. Capex is typically pro-cyclical – and admittedly, our S&P 500 Capex Guidance Ratio has recently faltered. But capex will likely be more resilient during this recession than in the past, for several reasons:

- Persistent supply challenges suggest capex is more of a "need" than a "want"
- The need to spend on automation amid wage inflation/tight labor market
- Reshoring/localization urgency – with evidence that this is happening
- Underinvestment by corporates for decades
- "Big Tech" spend on physical capacity is in the early innings. Amazon has tripled its US logistics facilities capacity (from 120mn in 2017 to 388mn in 2022) and our analysts expect capacity to expand another ~30% in 2023-24.
- Energy transition is well underway, as highlighted by the recent Inflation Reduction Act (IRA). US Corporates had already earmarked $740bn capex to reduce emissions and will likely pull this amount forward given beneficial tax treatment from the IRA (see IRA note).

Exhibit 120: S&P 500 capex +23% YoY in 3Q22
S&P 500 3Q22 capex growth by sector

Sector	Aggregate YoY	Median YoY
Consumer Discretionary	3%	12%
Consumer Staples	4%	0%
Energy	76%	53%
Financials	13%	13%
Health Care	7%	2%
Industrials	33%	23%
Information Technology	32%	0%
Materials	14%	15%
Real Estate	24%	54%
Communication Services	30%	23%
Utilities	19%	16%
S&P 500	**23%**	**15%**

Source: FactSet, BofA US Equity & US Quant Strategy

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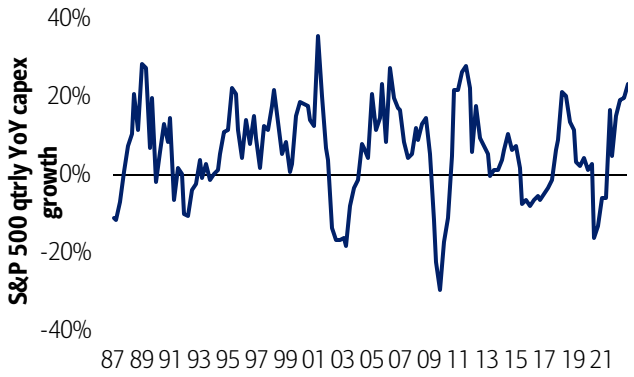
Exhibit 121: S&P 500 capex growth accelerated to +23% YoY in 3Q
S&P 500 quarterly YoY capex growth, 1987-3Q22



Source: FactSet, BofA US Equity & US Quant Strategy

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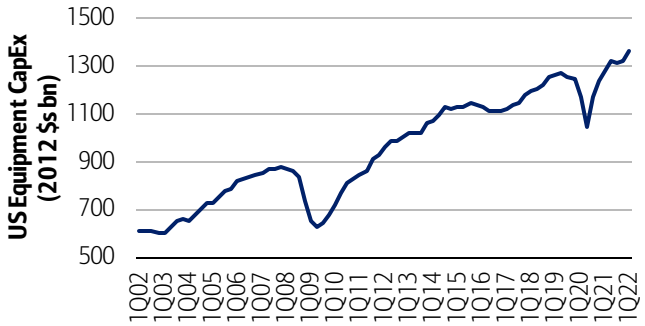
Exhibit 122: Equipment spend is running 10% above pre-COVID levels in 1Q22
Fixed Nonresidential Investment (constant $s, SAAR)



Source: Bureau of Economic Analysis, BofA Global Research

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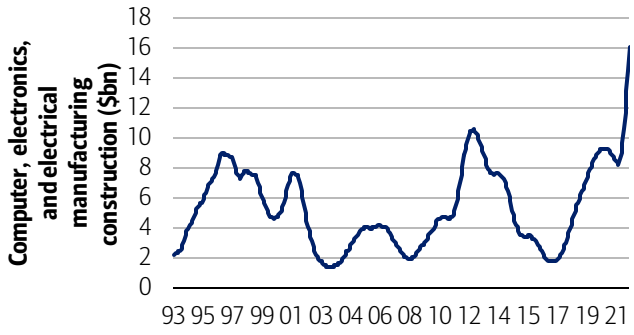
Exhibit 123: Construction for computer, electronics, & electrical manufacturing facilities is above Dot Com levels
Value of Private Construction Put in Place (Not Seasonally Adjusted)



Source: Bureau of Economic Analysis, BofA Global Research

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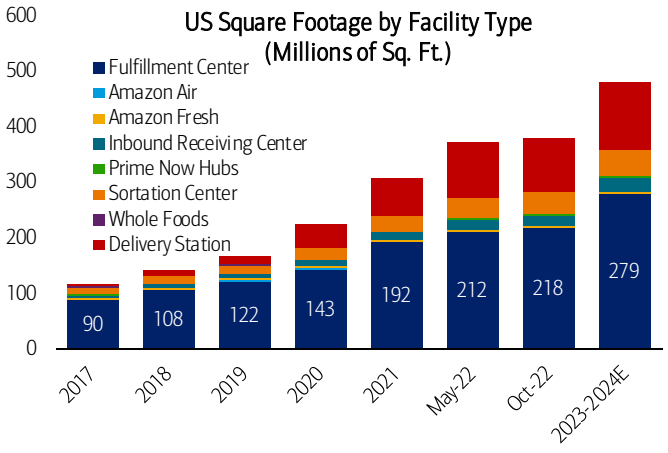
Exhibit 124: Amazon continues to increase capacity, which should continue to drive structures capex
US square footage (mn) of Amazon logistics facilities, 2017-2024E



Source: Amazon, BofA Global Research estimates

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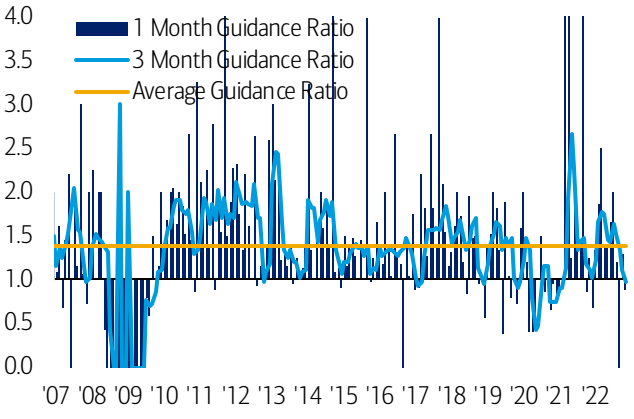
Exhibit 125: One risk: S&P 500 capex guidance ratio has begun to fall
Capex guidance ratio (ratio of above-consensus to below-consensus capex guidance instances by S&P 500 companies), 2007-11/2022 (as of 11/10/22)



Source: FactSet, BofA US Equity & US Quant Strategy

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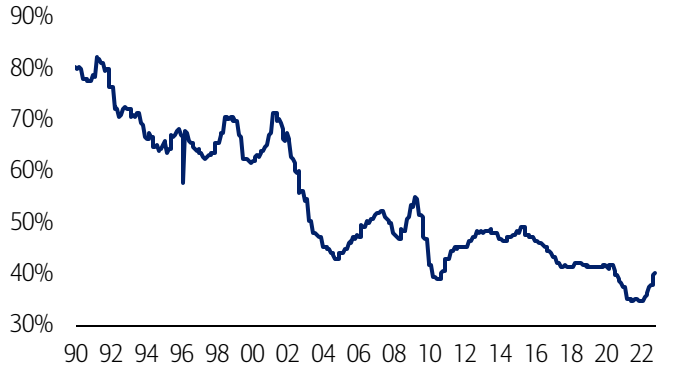
Exhibit 126: Corporates have underinvested for decades: capex as a % of operating cash flow at historic lows
S&P 500 capex as a share of operating cash flow use 1990-10/2022



Source: FactSet, BofA US Equity & US Quant Strategy

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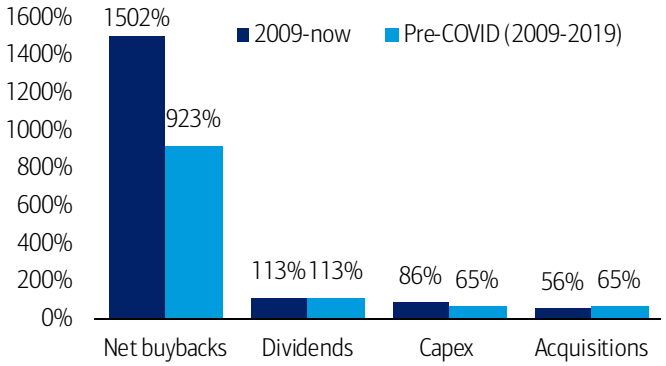
Exhibit 127: S&P 500 companies have spent on buybacks over everything else post-GFC
Cumulative growth in spending on net buybacks, dividends, capex and M&A since 2009 (as of 10/2022)



Source: FactSet, BofA US Equity & US Quant Strategy

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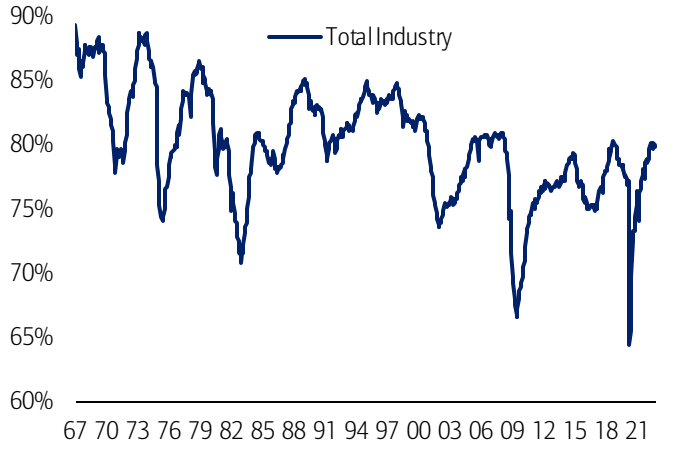
Exhibit 128: US capacity utilization is at 80 today...
US capacity utilization (total industry; % of capacity), 1967-10/2022



Source: Haver Analytics, BofA US Equity & US Quant Strategy

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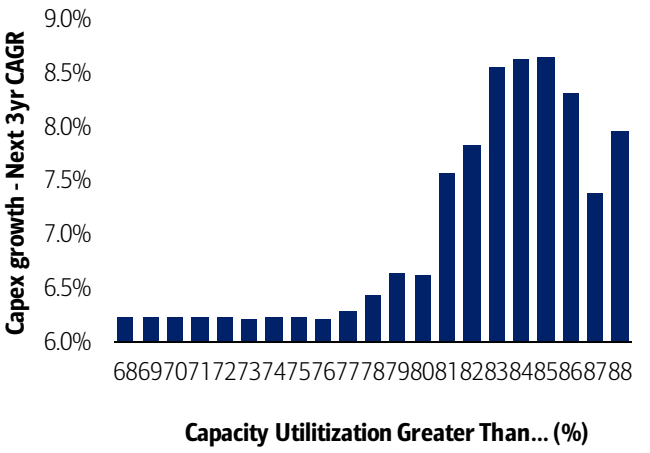
Exhibit 129: ...a level above which has typically driven a capex pickup
Capacity utilization vs. subsequent 3-yr capex growth (CAGR), 1967-present



Source: Haver Analytics, BofA US Equity & US Quant Strategy

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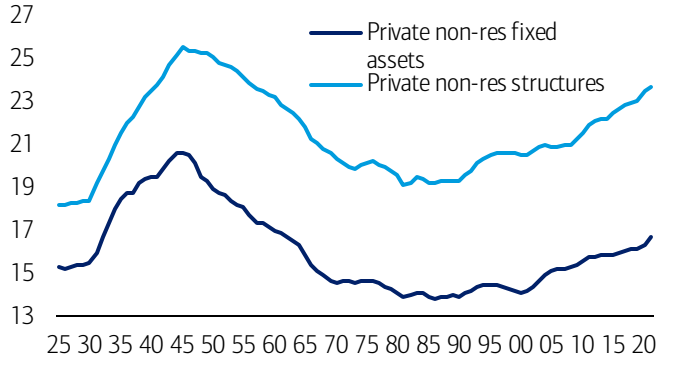
Exhibit 130: Stuff is old
Average age of private nonresidential fixed assets (years)



Source: Haver Analytics, BofA US Equity & US Quant Strategy

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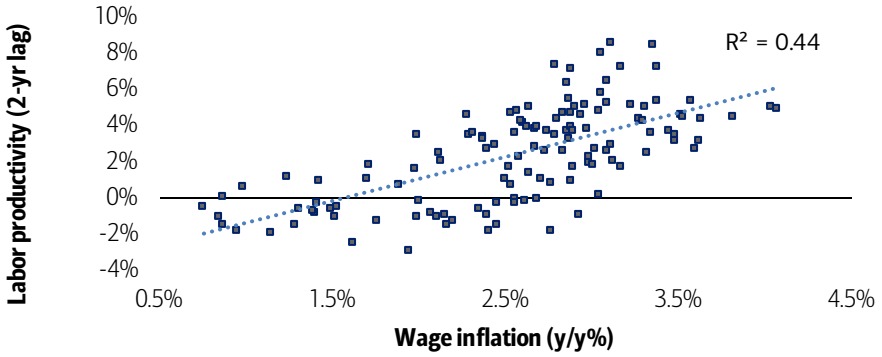
Wage inflation/tight labor market = need for automation

The tight labor market points to companies' need to automate. Historically, high wage inflation has led to increased labor productivity (i.e. automation) on a lagged basis.

Exhibit 131: Wage inflation has historically driven labor productivity growth on a lagged basis
US Manufacturing wage inflation and labor productivity (y/y% changes)



Source: Bureau of Labor Statistics, BofA Global Research
Note: Quarterly data of US manufacturing labor productivity versus average hourly earnings of production & nonsupervisory employees
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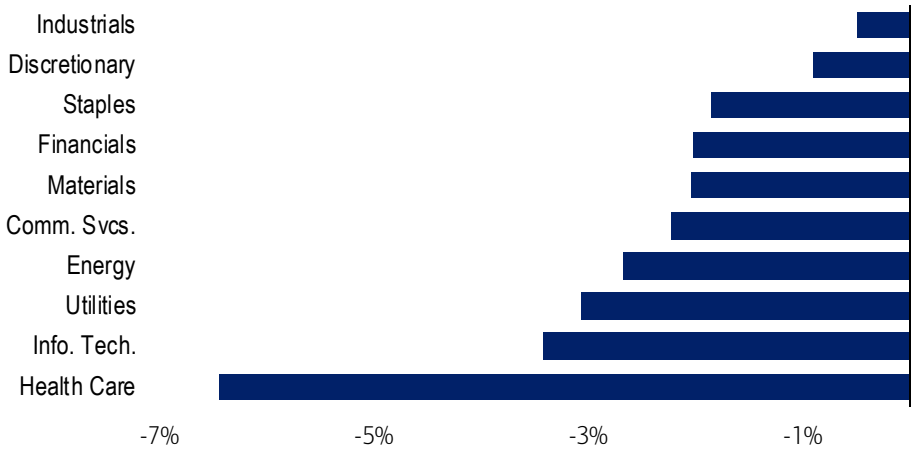
Avoid capex spenders, buy capex beneficiaries

Our work suggests that the biggest capex spenders in every S&P 500 sector tend to underperform their overall sector. Buy the beneficiaries of capex, not the spenders. Spending is also a drag on free cash flow, and companies with high free cash flow tend to be rewarded during Late Cycle (where we are today), as well as during Downturn (likely the next phase).

Exhibit 132: The biggest capex spenders have lagged their sectors
Annualized relative performance: Top quintile by CapEx / Sales vs sector (1986 – present)



Source: FactSet, US Equity & Quant Strategy
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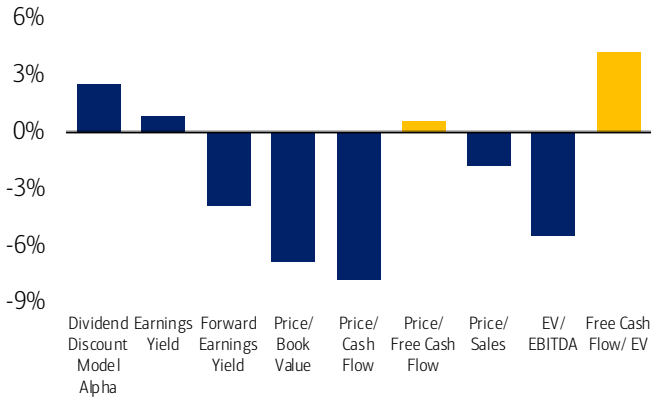
Exhibit 133: Draws on free cash flow like capex are unappealing during Late Cycle markets (today)
Factor performance in Late Cycle phase of our US Regime Indicator (average relative vs equal weighted S&P 500 index, annualized, 1990-present)



Source: FactSet, US Equity & Quant Strategy
See Appendix for complete information on our US Regime Indicator

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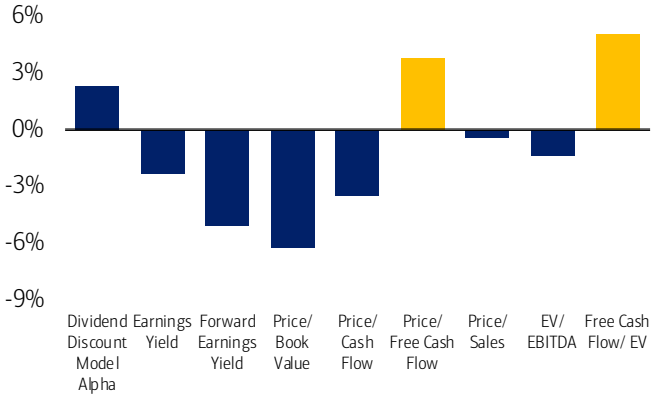
Exhibit 134: ...as well as during Downturns (soon to come)
Factor performance in Downturn phase of our US Regime Indicator (average relative vs equal weighted S&P 500 index, annualized, 1990-present



Source: FactSet, US Equity & Quant Strategy
See Appendix for complete information on our US Regime Indicator

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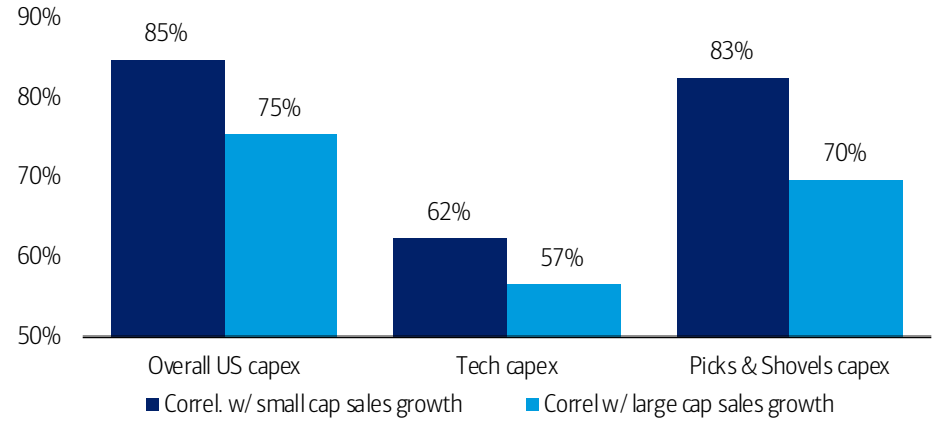
Own capex/automation-exposed Industrials

Our Industrials and Semis teams have highlighted that semiconductor fab capacity announcements are shifting to actual construction, which will benefit US manufacturing capex, particularly equipment capex (see our report: US semiconductor fabs coming faster than you think). Automation-exposed Industrials are also poised to benefit as companies automate more amid today's wage/labor market backdrop.

Buy small caps – bigger beneficiaries of capex cycles

We've highlighted SMID caps as beneficiaries of reshoring – see our report: SMID Cap Focus Point: Back to the USA take 2: reshoring update...and who benefits. Small caps have historically benefitted more from US capex spending than large caps, and we believe domestic SMID caps in portions of Industrials, Tech, REITs, Health Care and Regional Banks are poised to benefit (stock ideas in note linked).

Exhibit 135: Small caps' sales growth is more correlated with US capex spending than large caps'; particularly "Picks & shovels" capex
US quarterly YoY capex growth vs. S&P 500 and Russell 2000 YoY sales growth, 1986-3Q22



Source: FactSet, Haver Analytics, BofA US Equity & US Quant Strategy

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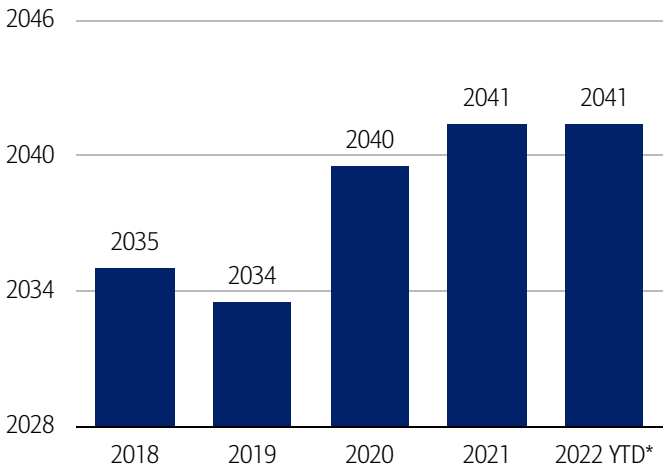
Net Zero + War: oil & renewables can both outperform

2022 marked a regime shift in the global energy sector: 1) soaring oil prices provided a tailwind for U.S. energy stocks, 2) rising interest rates reduced the appetite for long duration growthier stocks, and 3) the Russia/Ukraine war exacerbated supply risk and highlighted the long-run risks of underinvestment in energy. The transition will take time, and the role of fossil fuels on the path to net zero is important.

A global transition from fossil fuels will take time. Companies are pushing out reduction goal dates rather than left-shifting them, as they realize the complexity of the undertaking.

Exhibit 136: Average net zero target dates have been pushed out from 2035 to 2041
Average net-zero target years within the S&P 500 universe



Source: ICE Data Services, BofA US Equity & Quant Strategy. *Target updates are typically published annually.

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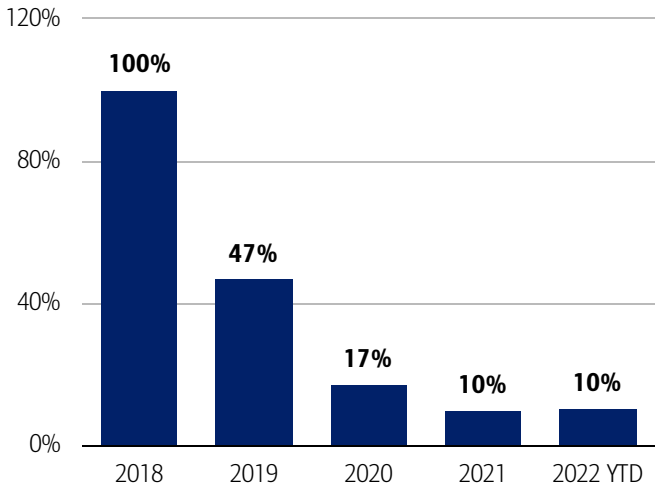
Exhibit 137: Today, fewer companies are on track to meet net-zero goals
Percentage companies in S&P500 on track to meeting their net zero target



Source: ICE Data Services, BofA US Equity & Quant Strategy. *Target updates are typically published annually.

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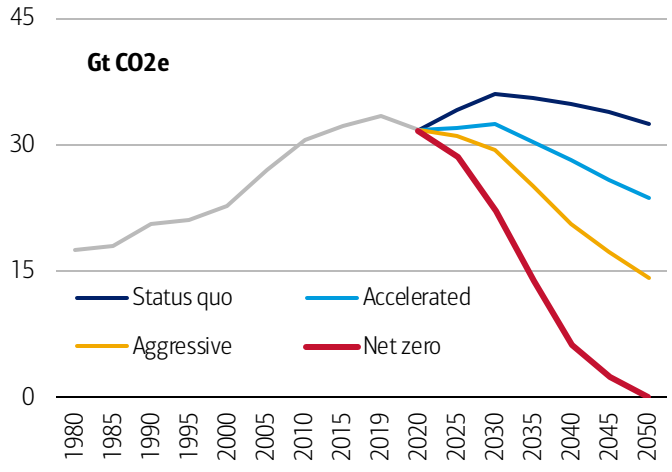
In our status quo scenario, fossil fuels remain the main energy source, accounting for about half of total energy demand by 2050, against 10% share for renewables. In our accelerated decarbonization scenario, coal is by far the biggest loser. We estimate that global energy consumption will increase at an annual modest rate of 0.2% to 2050 and coal consumption falls by 77% compared to pre-pandemic levels. In our most optimistic scenario, we see coal demand and thermal fuels consumption falling further out to 2050, favoring a larger share of renewable energy (35%). While still below the net zero trajectory, the trend for renewables is noteworthy, implying a 9% CAGR within a 30year span.

Exhibit 138: Our status quo scenario still projects more than 30 Gt CO2 by 2050, whereas our aggressive scenario sees it falling to 14 Gt CO2
BofA decarbonization scenarios and IEA net zero



Source: IEA, Equinor, BP, Shell, BofA Global Research estimates

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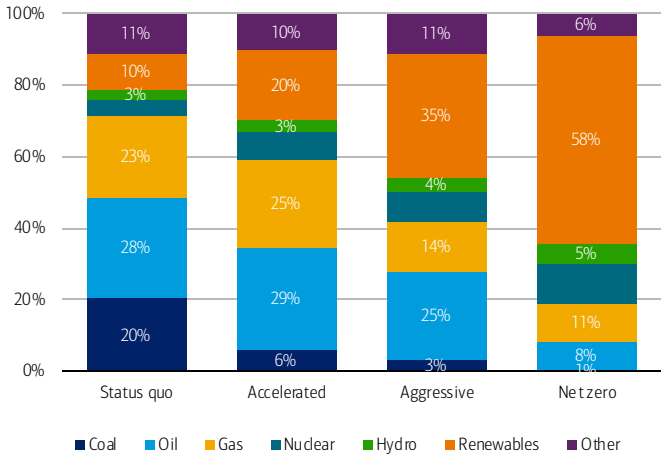
Exhibit 139: In our status quo scenario, fossil fuels are still the main energy sources, with coal and oil accounting for 48% of total energy consumption in 2050
Share of energy sources in total consumption, by scenario



Source: IEA, Equinor, BP, Shell, BofA Global Research estimates

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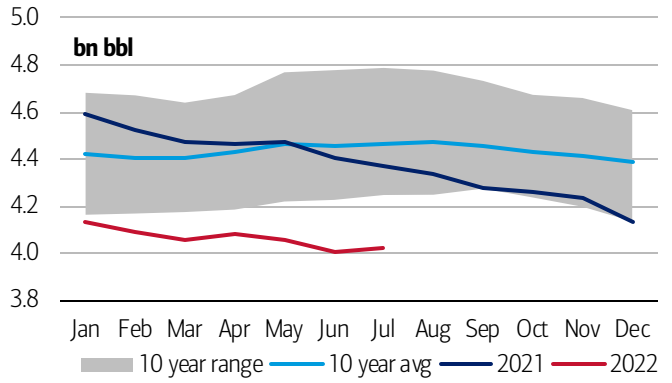
Oil markets still tight

- Inventories have been trending far below 10 year seasonal levels in the OECD this year (Exhibit 140), while the US SPR has been drawing at a fast pace this year, currently standing at ~400mn bbl, a level not seen since the 1980s (Exhibit 141).
- OPEC+ announced a cut to its production quotas by 2mmbpd, a departure from trend.
- Energy companies are loathe to increase production given that ESG targets like reducing emissions are increasingly tied to CEO pay.

Exhibit 140: Global oil inventories trend near multi-year lows
OECD total oil inventory (this includes US SPR) (in billions of bbls)



Source: IEA

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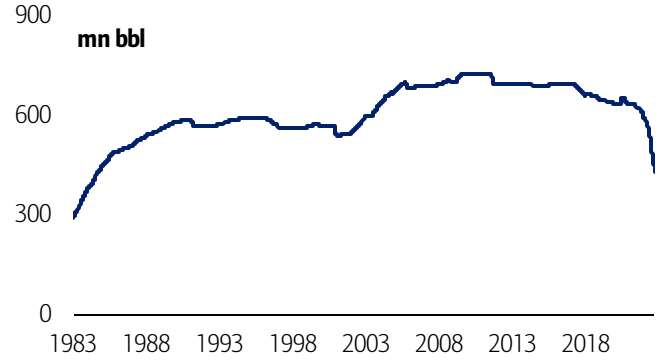
Exhibit 141: The SPR has been drawing at a fast pace this year, currently at levels not seen since the 1980s
US Strategic Petroleum Reserve (SPR) inventory level (millions of bbls)



Source: Bloomberg

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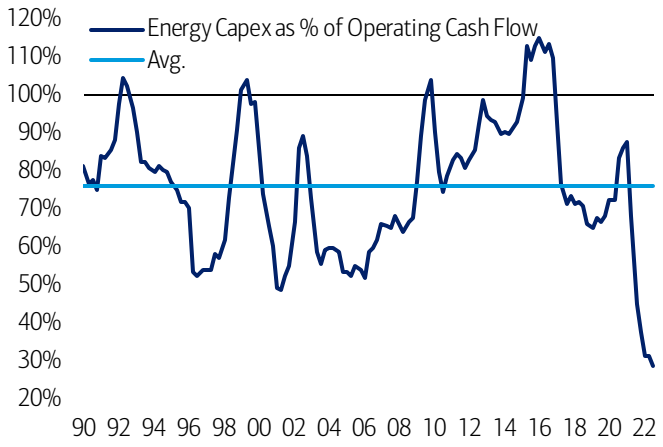
Exhibit 142: No supply response from US Energy
S&P 500 Energy capex as % of operating cash flow (1990-2Q22)



Source: BofA US Equity & Quant Strategy, FactSet

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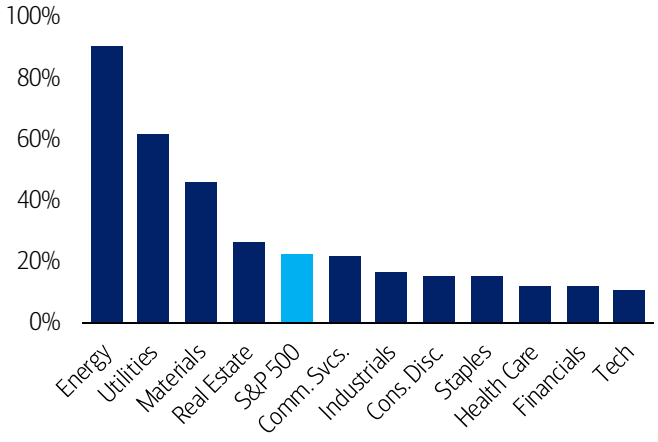
Exhibit 143: Why? Oil capex will hit compensation
% of S&P 500 companies with ESG metrics as part of CEO short-term incentive comp plan



Source: ICE Data Services, BofA US Equity & Quant Strategy

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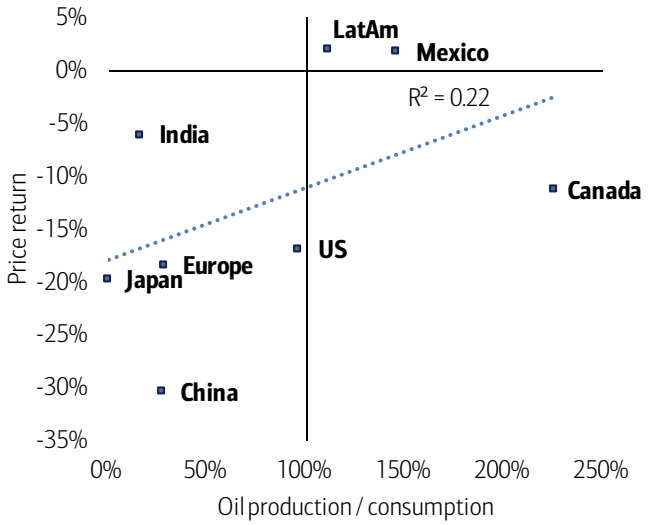
Energy security vs. ESG

Europe's energy crisis underscores the importance of energy independence, and countries with strong energy security has broadly outperformed YTD (Exhibit 144). This is a stark difference vs. last year when regional P/E multiples were positively correlated with ESG scores (see our sovereign ESG model) where higher scoring regions had higher P/E multiples – we are seeing an inverse relationship YTD (Exhibit 145). Energy security appears to matter more than emissions risk today.

Exhibit 144: War has revealed risk of oil insecurity
YTD price returns in MSCI country indices (S&P 500 for the US) and the country's energy independence (as of 11/18/2022)



Source: Datastream, Bloomberg, BP, BofA US Equity & Quant Strategy. Note: Oil production/consumption data as of 2020

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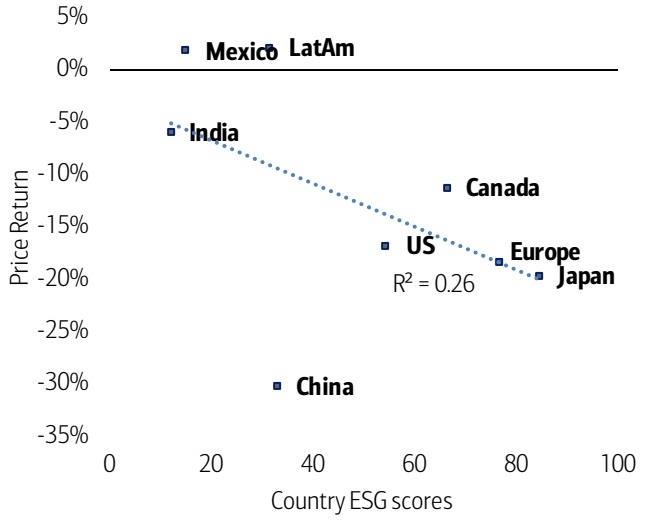
Exhibit 145: In 2022, country ESG scores have been negatively correlated with performance
YTD price returns in MSCI country indices (S&P 500 for the US) and the country's ESG score (as of 11/18/2022)



Source: Datastream, BofA EMEA ESG Research estimates, data from World Bank, World Economic Forum, OECD, WHO, Yale, World Resource Institute, Bloomberg

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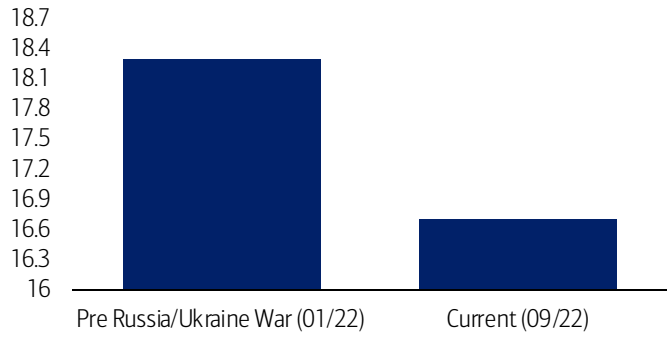
Our wealth management data shows that investors are now embracing a more inclusive investing approach that includes traditional energy stocks in their portfolios—unheard of just two years ago. And institutional ESG investors have shifted from deeply underweight to slightly less underweight.

Exhibit 146: Individual investors dropped fossil fuel exclusion screens post Russia/Ukraine War1
% of accounts with oil & gas exclusion screens applied



Source: Merrill Wealth Management, BofA US Equity & US Quant & Strategy
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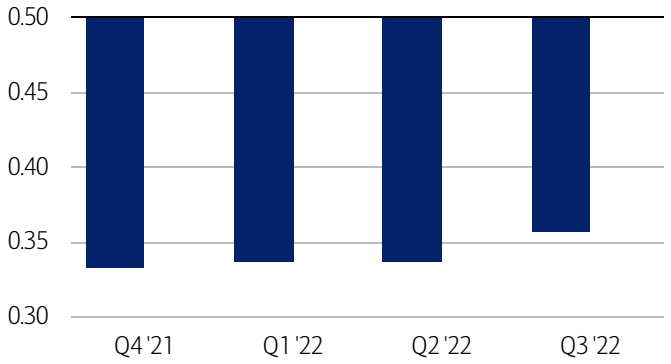
Exhibit 147: Energy still underweight in ESG funds, but less so
Energy sector relative weight of ESG funds vs S&P 500 index, Q4 2021-Q3 2022



Source: BofA US Equity & Quant Strategy, FactSet Ownership. Note: weighting as of last date of each quarter
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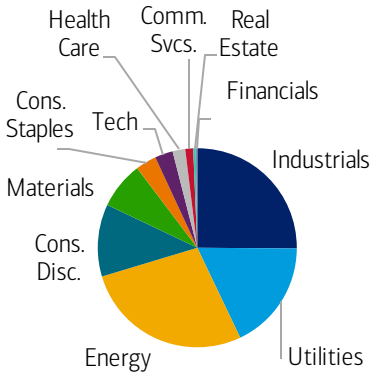
Despite being one of the biggest emitters, Energy leads in Environmental metrics like disclosure, target setting, biodiversity policies etc. And investors are paying up for improvers: over the last 12 months, ESG factors have been strongest within Energy relative to all S&P 500 sectors, generating alpha of +7% vs average sector alpha of -3%.

Exhibit 148: Industrials, Utilities, and Energy sectors account for over 70% of S&P 500 carbon emissions
S&P 500 Scope 1, 2, and 3 emissions by sector, as of 10/2022



Source: ICE Data Services, company reports, BofA US Equity & Quant Strategy
Note: Sector average emissions are assumed for companies without disclosure
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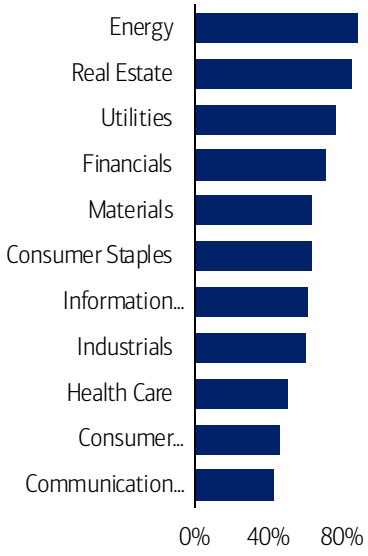
Exhibit 149: 80% of Energy companies report in accordance with TCFD recommendations
Percent of S&P 500 companies following TCFD reporting recommendations by sector in FY2021



Source: Bloomberg
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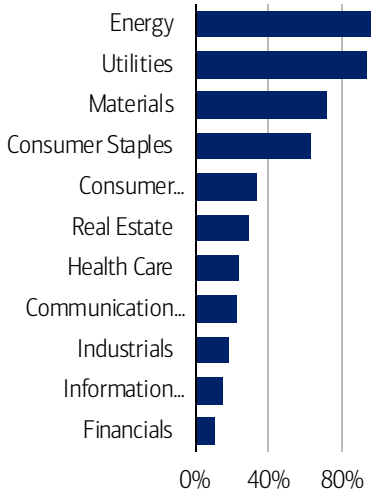
Exhibit 150: Energy and Utilities lead in biodiversity impact reduction, despite being highest emitters
Percent of S&P500 companies that report on biodiversity impact and biodiversity impact reduction activities by sector, as of 10/22



Source: Refinitiv Eikon, BofA US Equity & Quant Strategy
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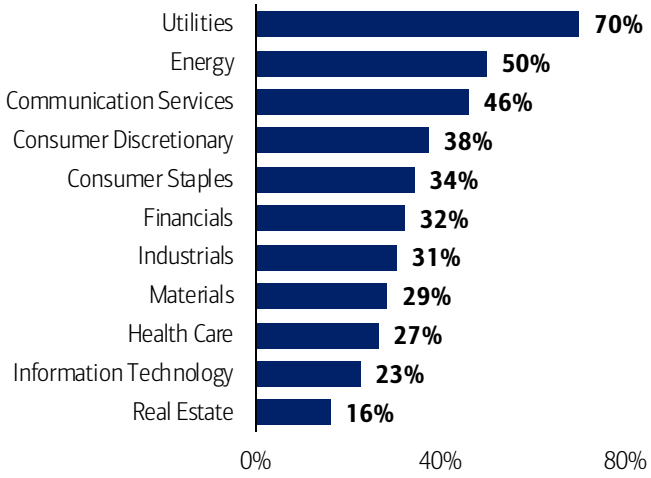
Exhibit 151: Within S&P 500, Utilities and Energy are most active in setting net-zero targets
Percentage of companies within the S&P500 universe that have net-zero targets by sector, as of 10/22



Source: ICE Data Services, BofA US Equity & Quant Strategy

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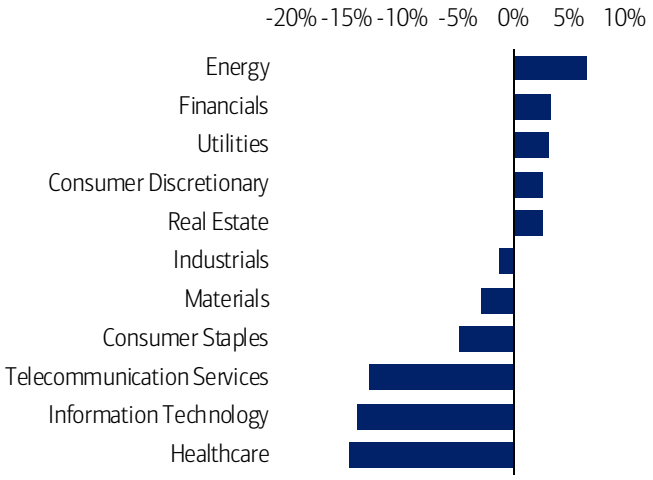
Exhibit 152: Energy has seen strongest ESG factor alpha YTD
Average top vs. bottom quintile price performances by sector over YTD ending 11/16/2022



Source: BofA US Equity Quant Strategy, Sustainalytics. Note: Universe based on Global stocks covered by Sustainalytics with market capitalization > 10mn USD. Each category needs to have at least 10 stocks to calculate the performance, if there is less than 10 stocks the performances are not calculated. ESG factors categorized into E, S, and G dimensions by BofA US Equity & Quant Strategy for illustrative purposes and may overlap with multiple pillar dimensions

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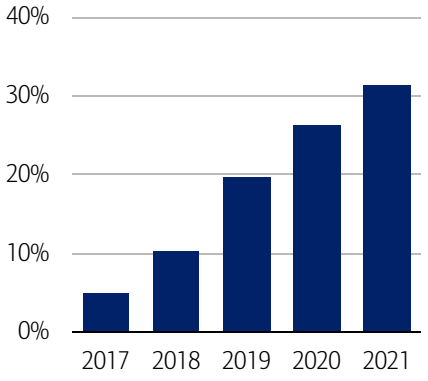
Green and brown energy can outperform simultaneously

Investment in renewable energy is gaining in popularity as it meets sustainability requirements while also having inflation-hedging properties against rising energy prices. We believe green energy (growth story) and traditional energy (supply constrained, gated capital) will both be scarce in the period ahead.

Exhibit 153: More S&P 500 companies set are setting renewable energy targets
% of S&P 500 companies with renewable energy targets, 2017-2021



Source: ICE, BofA US Equity & Quant Strategy

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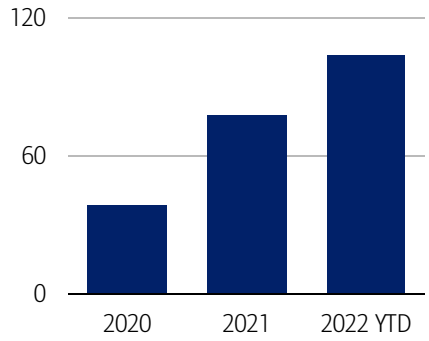
Exhibit 154: The number of clean energy related ESG funds is increasing at a rapid rate (1.7x increase since 2020)
# of funds (YTD 2022 as of 9/30/2022)



Source: EPFR; BofA US Equity & Quant Strategy. Note: funds are considered to be energy-related if they include clean energy, renewable, wind, solar, or hydrogen in their name

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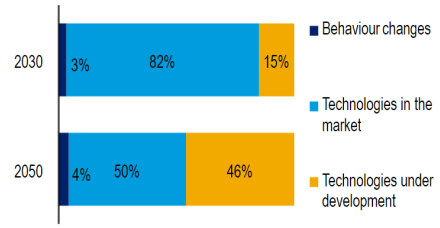
Exhibit 155: Emission reduction to 2030 increases assumed role of renewables
% of where emission reduction will likely come from



Source: IEA

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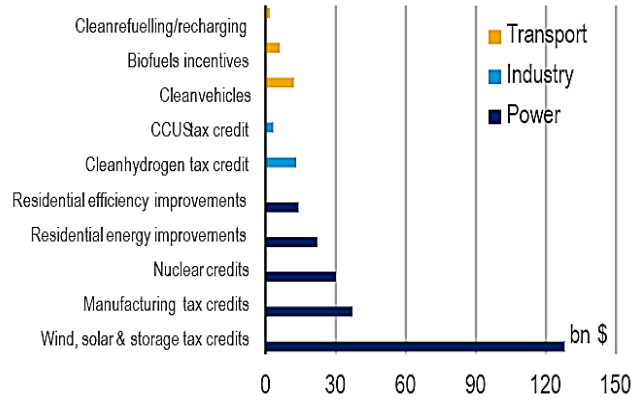
Inflation Reduction Act incentivizing energy transition

The IRA has potential to double the pace of de-carbonization. Corporates have earmarked capital (BofA estimates >$740B of capex) to meet emission reduction goals over the next 5 years (see Corporate Strategies for Net Zero note). The IRA tax benefits alone could offset >10% of that spend where the benefit to Utilities is seemingly the largest. The IRA also allocates $300bn in loans and guarantees for energy infrastructure at preferential rates.

Exhibit 156: Renewable energy and storage credits make up a large portion of spending, followed by domestic manufacturing, nuclear, and residential spend
Inflation Reduction Act estimated spending on select energy transition items



Source: Platts, BofA Global Research estimates

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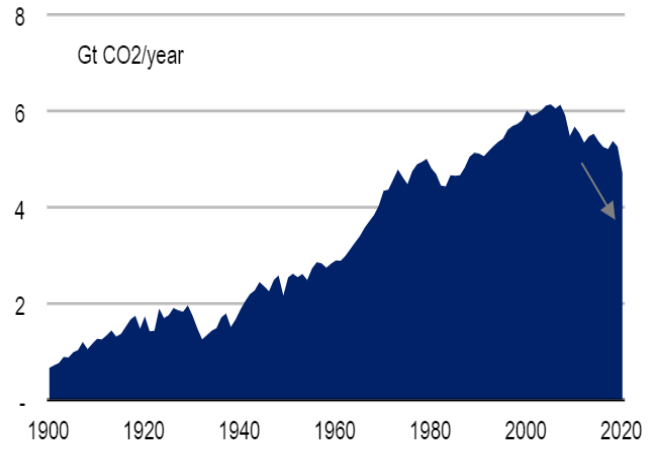
Exhibit 157: Senate Democrats suggest that this bill will help reduce carbon emissions by 40% in 2030 from 2005 levels
US emissions and IRA 2022 emissions reduction goal



Source: OWID

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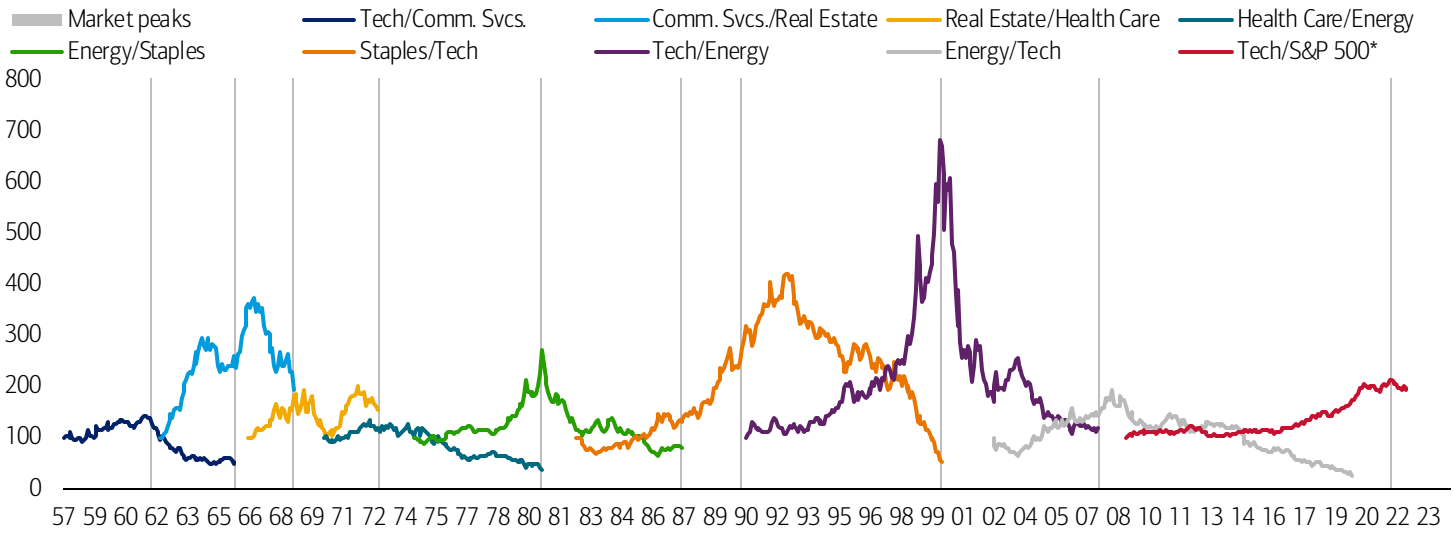
Leadership change is far from over

Sell the Nifty 50, Buy the S&P 450

Bear markets have historically resulted in leadership changes (Exhibit 158). 2022's bear market has already resulted in post-GFC leaders significantly lagging the S&P 500 YTD (Tech -8ppt & Cons. Disc. -15ppt) with the 2010's laggard Energy outperforming by +82ppt. But Value and the Not-so-nifty 450's valuation discounts vs. Growth and the Nifty 50 suggest the rotation out of mega caps is far from over.

Exhibit 158: Historical bear markets have historically resulted in leadership changes
Relative performance of prior bull market leader vs. the next bull market leader (beginning of bull market = 100)



Source: BofA US Equity & Quant Strategy, FactSet *the next leader unknown

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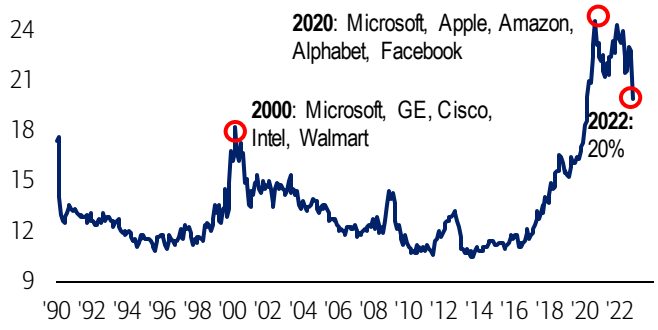
Exhibit 159: Largest five stocks still represent 1/5 of the S&P 500
Weight of largest five stocks in S&P 500



Source: FactSet, BofA US Equity & Quant Strategy

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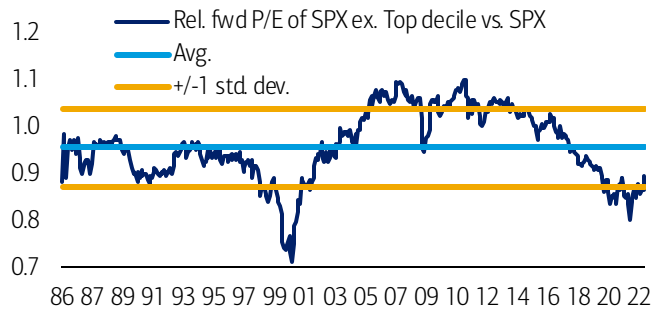
Exhibit 160: Bottom 450 stocks remain cheap vs. top 50 stocks
Relative fwd P/E of bottom S&P 500 ex. top decile stocks vs. S&P 500 (1986-10/22)



Source: FactSet, BofA US Equity & Quant Strategy

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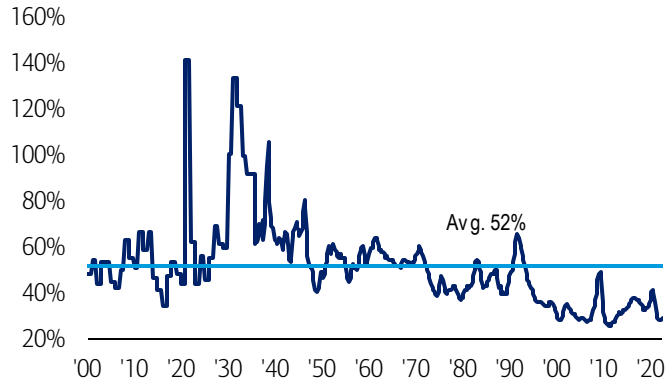
Welcome to a total return world

High Dividend Yield has been one of few factors to offer positive returns of the ~50 factors we follow this year, with +5% total return YTD (vs. -12% total return for the equal-weighted S&P 500). High Dividend Yield is also typically one of the best performing factors in Late Cycle, the current phase of our Regime Indicator (see US Regime Indicator: Late Cycle now, Downturn 1H23).

Exhibit 161: Dividend payout ratio is ~30% today vs. long-term average of ~50%
S&P 500 dividend payout ratio 1900-3Q2022



Source: Haver Analytics/S&P, FactSet, BofA US Equity & US Quant Strategy

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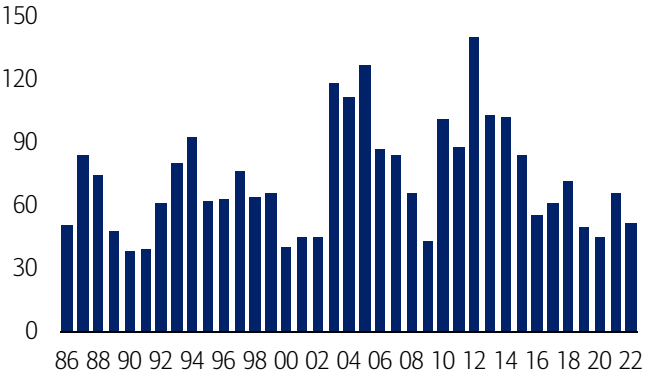
Exhibit 162: New dividends have scarcity value
The number of Russell 3000 companies initiating dividends 1986-YTD'22



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

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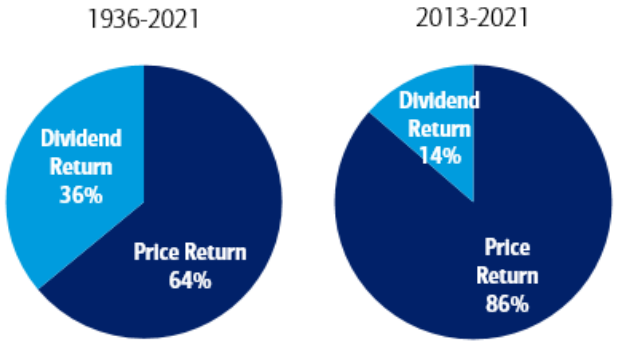
Exhibit 163: Dividends have contributed 36% of total returns since 1936 but just 14% since 2013
S&P 500 price return and dividend contributions to total return



Source: BofA US Equity & Quant Strategy, Bloomberg

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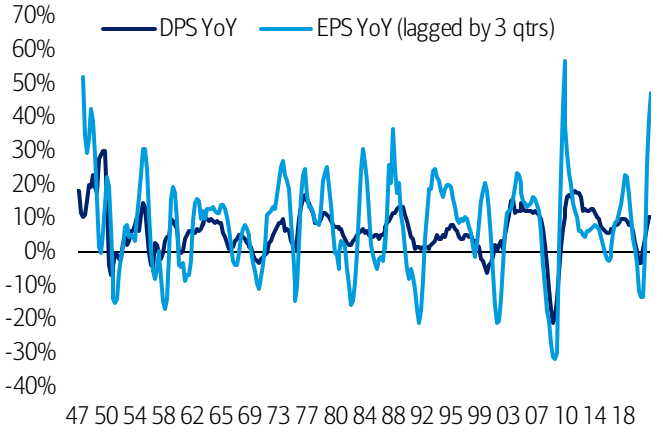
Exhibit 164: DPS growth lagged EPS by >40ppt; expect some catch up
S&P 500 TTM div. per share vs. EPS YoY with a 3-qtr lag (1945-present)



Source: BofA US Equity & Quant Strategy, FactSet, Haver Analytics

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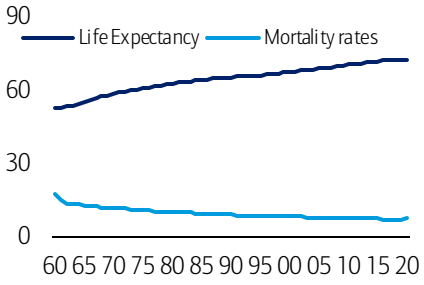
Demand still skews to income over capital appreciation

Exhibit 165: Demographics suggest demand for income will accelerate from here
Life expectancy vs mortality rates, 1960-2020



Source: World Bank

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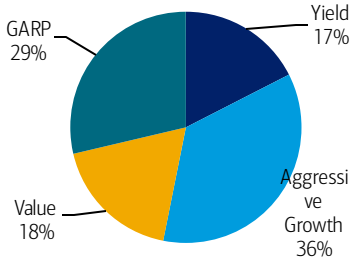
Exhibit 166: Income funds have grown from less than 20% of active AUM in 2010…
Active equity AUM landscape by fund category – Aug 2010



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

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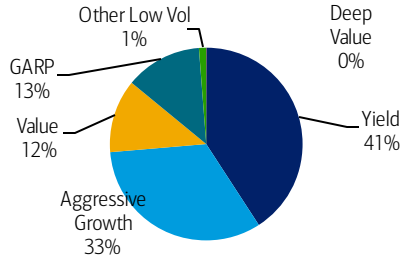
Exhibit 167: …To 40% of active funds by 2022
Active equity AUM landscape by fund category – Nov 2022



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

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Quality: Cyclical and secular tailwinds

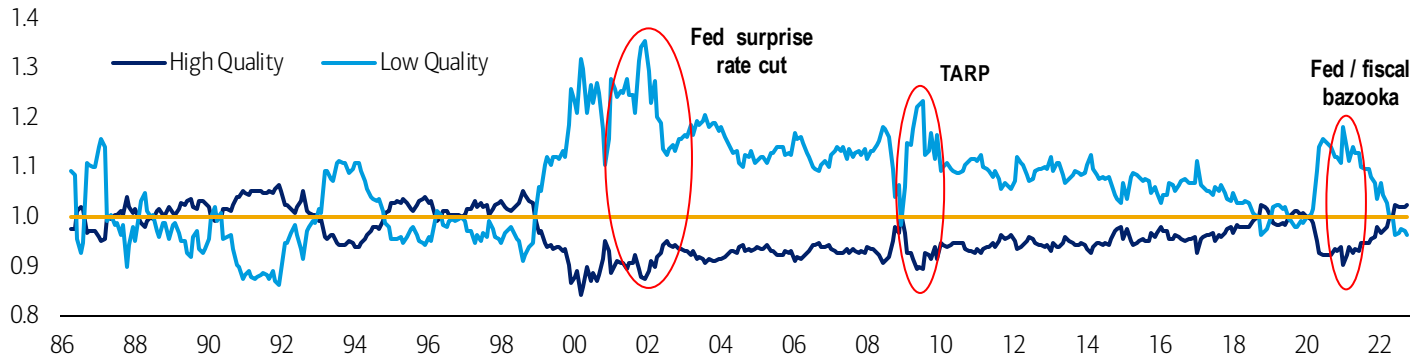
We have found predictable behavior across Quality factor baskets based on where we are in the economic cycle and where we are in the behavioral cycle. How much risk aversion or gain-seeking is driving investor preferences? How plentiful or scarce is growth? We see several reasons for investors to shift toward a higher quality portfolio today. The secular case is that of tighter liquidity going forward. The cyclical case is slowing profits growth, rising volatility. The fundamental case? Valuation – Quality is inexpensive by our work, and is likely to re-rate for the reasons we outline below.

How do we measure Quality? We use S&P Common Stock quality rankings (different from their debt ratings) which gauge the stability and growth of a company's earnings and dividends over a long time period.

Secular: The end of easy money and irrational markets

For the past 20+ years, risky stocks have traded at a premium to safe stocks, the opposite of what we learned in Finance 101 ("Investors will pay a premium for safety, but require higher returns when taking risk.") Why? Fiscal and monetary stimulus buoyed risk assets amid unprecedented and quick policy responses. The converse is true as well: after a 9-month period of policy tightening, High Quality re-rated to trade at a slight premium to Low Quality (Exhibit 168). Is quality leadership over? We don't think so, given that High Quality historically led Low Quality for the 6-month period prior to the last Fed hike and for six and 12-month periods *after* the last hike (Exhibit 170).

Exhibit 168: Finally, a rational market: Quality trades at a premium, risk trades at a discount
B+ or Better vs. B or Worse Fwd. P/E relative to BofA Universe (1986 – 10/30/22)



Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 169: Diminishing returns from Fed easing policy
Relative performance of risky stocks ("B or Worse" S&P Quality) vs. safe ("B+ or Better" S&P Quality) stocks (2008-present)

			Change in Fed Balance Sheet		Rel. Perf. of Risky vs. Safe Stocks by S&P Quality	
	Start	End	$T	%	Risk rally	Reversal
QE1	3/31/2009	3/31/2010	$0.4	20.1%	32.3%	0.0%
QE2	11/30/2010	6/30/2011	$0.6	24.5%	0.9%	-3.8%
QE3	9/30/2012	10/31/2014	$1.7	58.7%	11.5%	-6.6%
QE4	3/31/2020	3/31/2022	$4.8	113.6%	48.0%	-24.1%

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

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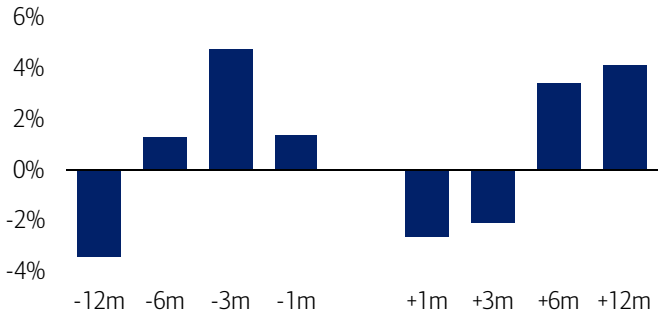
Will next policy move actually work?

Following the Global Financial Crisis, each policy response was met with a smaller response by riskier stocks, suggesting diminishing returns.

2020's "bazooka" of fiscal and monetary stimulus drove a meaningful reflation in low quality stock premia.

Exhibit 170: High Quality outperformed Low Quality in the 6m, 3m and 1m prior to the last Fed rates hike, as well as for the 6m and12m periods after
Average High Quality (B+ or Better) vs Low Quality (B or Worse) performance around last Fed hike since 1989



Source: Bloomberg, BofA US Equity & Quant Strategy

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Quality leads before and after Fed hiking cycle

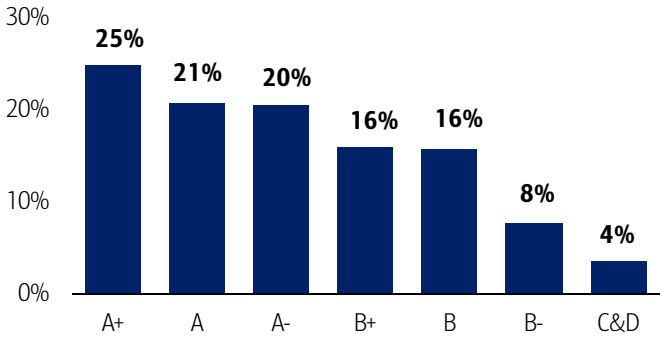
High Quality tends to outperform Low quality before and after the last Fed hike in a sequence: on average, High Quality led Low in the six months, three months and one month periods before the last hike, and in the six months and 12 months periods after.

But if the Fed cuts within the 12month period of the last hike, as our economists forecast, then quality could peak earlier.

Cyclical drivers: profits growth and volatility

When profits are scarce, investors tend to pay up for stable earnings growth. High Quality stocks have historically outperformed during periods of profits deceleration. We expect profits to decelerate considerably over the next 12 months (see Earnings Tracker), which would favor higher quality.

Exhibit 171: High Quality stocks (A+) have outperformed when the profits cycle decelerates…
Average performance by S&P 500 Quality Ranks when the profits cycle decelerated (last nine cycles, 1988-present)



Source: BofA US Equity and Quant Strategy, S&P

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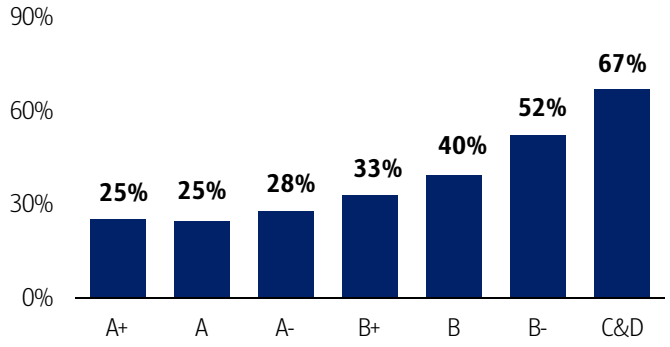
Exhibit 172: …and have underperformed when the profits cycle accelerates
Average performance by S&P Quality Ranks when the profits cycle accelerated (last eight cycles, 1988-present)



Source: BofA US Equity and Quant Strategy, S&P

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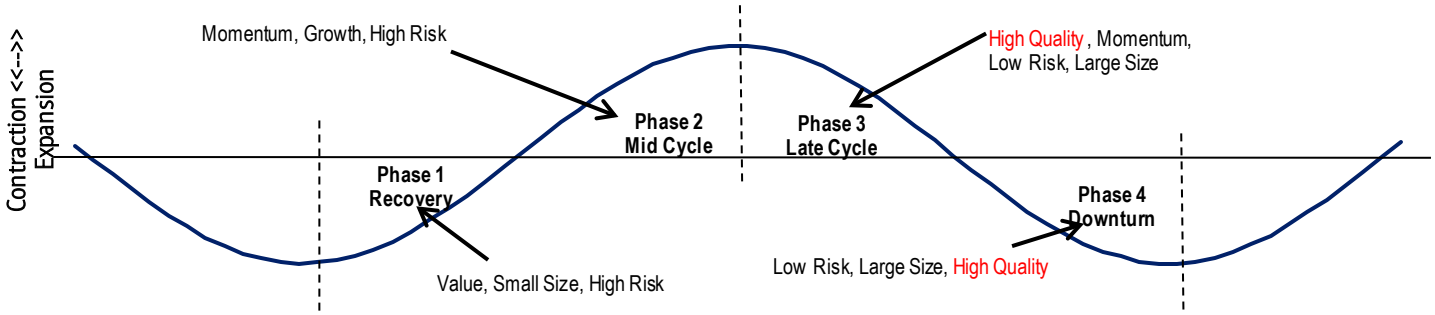
Exhibit 173: Late-cycle favors Quality
US Regimes – a heuristic



Source: BofA US Equity & US Quant Strategy

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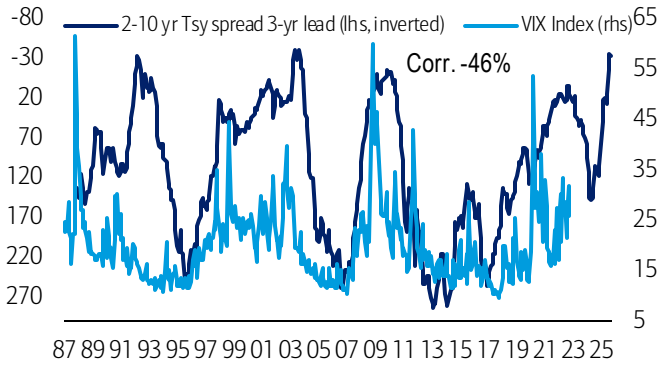
Volatility more likely to increase than decrease

We began tracking the slope of the yield curve as a predictor of volatility in the 2000s, and found a strong long-lead predictive capacity for changes in the VIX. Currently, it suggests that volatility is likely to increase precipitously over the next twelve months (Exhibit 174). Quantitative tightening also tends to amplify volatility whereas easing tends to suppress it.

Exhibit 174: Volatility is likely to rise from current levels
CBOE VIX and Inverted Slope of Yield Curve (1986 to 10/31/2022)



Source: CBOE, BEA, BofA US Equity & Quant Strategy

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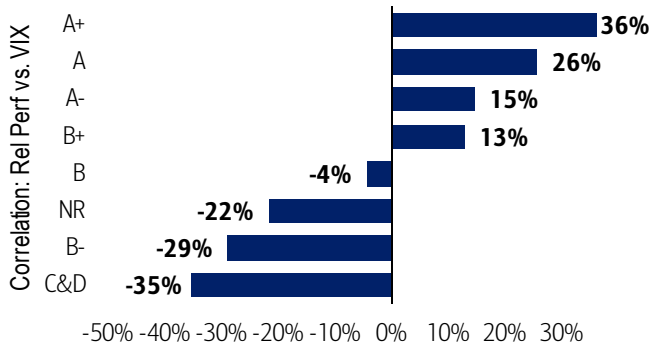
Exhibit 175: High Quality tends to outperform when volatility rises
BofA Quality Indices 12m Performance Correlation to 12m Changes in CBOE VIX (1986 to 10/31/22)



Source: BofA US Equity and Quant Strategy, Standard & Poor's

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Exhibit 176: Nearly every spike in volatility has coincided with the outperformance of higher Quality stocks
B+ or Higher vs. B or Lower relative index and 3m avg VIX, 1990-10/31/22



Source: BofA US Equity & Quant Strategy, S&P, FactSet, CBOE

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Exhibit 177: The positive relationship between High Quality stock outperformance and volatility has strengthened over the last five years
High Quality vs. Low Quality and 3-month average VIX correlation, as of 10/31/22

	Correlation
Since 1990	22.4%
Last 10 years	53.0%
Last 5 years	44.0%

Source: BofA US Equity & Quant Strategy, S&P, FactSet, CBOE

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Quality = capital preservation

Based on data from 1986 to today, high quality stocks ("B+ or Better") have never had negative returns over a 10-year period – even excluding the benefit of dividends.

Exhibit 178: Quality offers stronger capital preservation: 10yr returns have never been negative
High quality stocks (B+ or Better S&P Quality rank) 10-yr rolling price returns, 1996-10/31/22



Source: BofA US Equity & Quant Strategy, S&P

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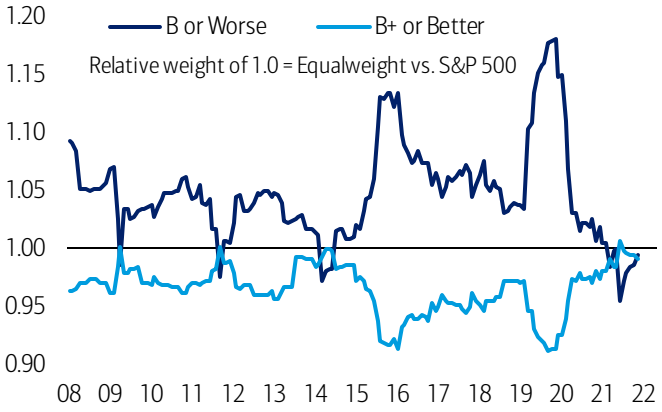
Risk: positioning in high vs. low quality has neutralized

Exhibit 179: Risk: High Quality positioning has neutralized
Relative long-only fund positioning of stocks ranked B+ or better vs. B or Worse (2008-10/31/22)



Source: BofA US Equity & Quant Strategy, Lionshares, Standard & Poor's

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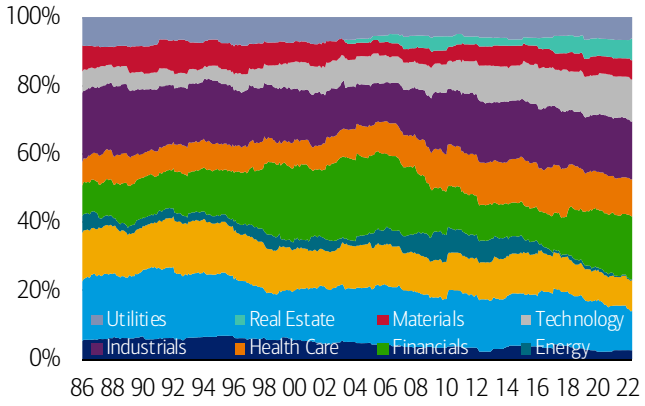
Exhibit 180: What's Quality? Sector composition has changed
B+ or Better sector exposure over time based on number of co.'s (as of 10/31/22)



Source: BofA US Equity and Quant Strategy, FactSet, S&P

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Sector outlook

Summary outlook

Exhibit 181: BofA US Equity Strategy sector views
Bull & bear case by sector

Sector	Weight in S&P 500	BofA View	Bull case	Bear case
Energy	5.3%	O/W	No supply response in oil Higher-for-longer – avg. $100/bbl Brent in 2023 (house view) War has prioritized energy security over ESG Inflation-protected yield Biggest earnings growth in 2022 / highest earnings revision ratio; #1 in tactical framework ESG purge behind us; represents ESG "improver", beneficiary of IRA tax breaks Energy just doubled in the index, but LOs & HFs still underweight	Usually underperforms in recessions Lowest Quality sector One of the highest direct emissions profile + secular headwinds from renewables Historically been hurt by stronger dollar, but relationship has moderated. Event risk: Russia / Ukraine ceasefire.
Consumer Staples	7.0%	O/W	No matter what, we still have to eat. Defensive. Positioning remains low Benefits from consumers trading down Pricing power remains intact Quality and dividend yield. Outperforms when rates fall	Valuations getting more expensive Some signs of a draw-down in deposits
Utilities	3.0%	O/W (up from M/W)	Helped by moderating inflation and rates (BofA call) Resilient fundamentals / defensive hedge / highest Quality sector Underweight by LOs	Dividend yield vs. 10-yr yield below post-GFC avg. Ranks poorly in our tactical quant frame work Valuations above LT avg.
Financials	11.6%	O/W	Rare example of inexpensive high quality Mispriced risk: Lower EPS vol than S&P 500 but high price beta Higher interest rates vs. prior cycle LO still underweight Funding costs for fintech have increased, lowering the risk of disintermediation	Multiples sensitive to yield curve slope Disinflationary pressures from disruptors (passive, fin-tech) Recession has been negative for financials historically
Industrials	8.5%	M/W	Beneficiary of capex Half cyclical, half Quality / re-shoring and automation beneficiary Underweight by long-only funds	Peak PMI Overweight by ESG funds Increasingly expensive valuations, rising earnings volatility
Health Care	15.2%	M/W (down from O/W)	Inexpensive defensive sector Secular growth: second fastest growing sector since 1986 Strong fundamentals / activist campaigns leading to alpha Social factors of ESG could drive increased corporate HC spending	Crowded Headline risk on drug pricing pressure although regulatory risk has subsidized
Real Estate	2.7%	M/W	Inflation-protected yield Strong fundamentals / record low earnings volatility / domestic Shift from financial asset inflation to real asset inflation	Typically underperforms in recessions Biggest exposure to refinancing risk Less underweight by long only funds, but still very underweight Most hurt by rising real rates.
Technology	26.4%	U/W (down from M/W)	Secular themes (cloud, telecommuting, robotics, etc.) and onshoring automation & capex Long-only positioning risk has largely subsided Clean balance sheets, strong margins	Recession – Tech has been just as cyclical as the S&P 500 Peak globalization – Tech is the poster child of globalization Regulatory / anti-monopolistic overhang From Trade War to Tech War / Tech may not be as green as it seems Human capital and cybersecurity factors (most important for IT) deteriorating
Materials	2.7%	U/W	China re-opening. Most exposed sector to China Inexpensive & underweight by long only funds Infrastructure/capex beneficiary	Recession led by weakening goods consumption Hurt by a strong dollar Low quality
Communication Services	7.4%	U/W	Valuations / expectations have reset TMT = Disruptors / secular winners	Still crowded, albeit less so than before Weakening fundamentals Weakening Data Privacy/Employee Satisfaction scores in ESG Regulatory risk + anti-monopolistic risk Value trap
Consumer Discretionary	10.3%	U/W	Fed pivot – historically outperformed during easing cycles Canaries (Homebuilders) stopped underperforming Secular shift into e-commerce / EVs (AMZN + TSLA: ~40% of the sector)	Augmented wealth effect from broadened investor base + consumption hit from high oil/rent. Housing affordability collapsed – leading indicator The most labor-intensive sector amid still elevated unskilled wages. Expensive on all valuation measures we track.

Note: O/W = overweight, M/W = marketweight, U/W = underweight. Weights in S&P 500 as of 11/18/2022 and may not add to 100% due to rounding. **Source:** BofA US Equity & Quant Strategy

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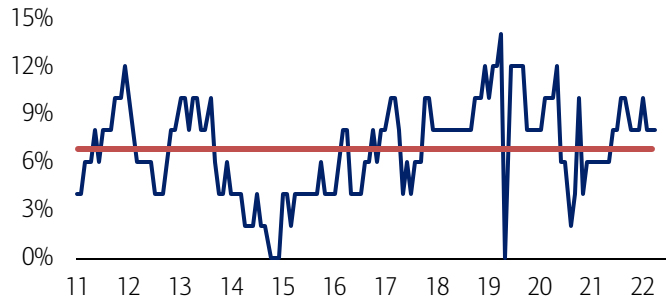
Big picture view on sectors

Exhibit 182: HFs and LOs converging on same overweights
% of stocks in both top 50 LO and HF overweights (7/2011-10/2022)



Source: FactSet, BofA US Equity & Quant Strategy

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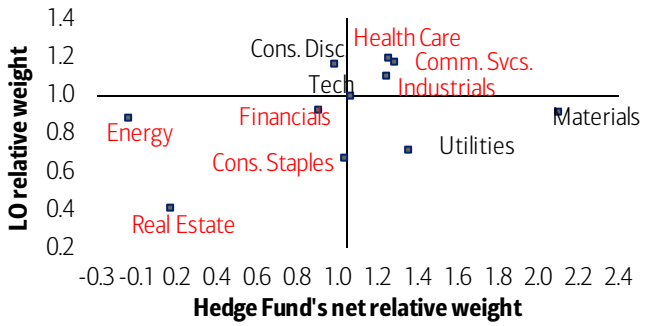
Exhibit 183: HFs and LOs agree on 8 of 11 sectors
LO and HF sector weights relative to the S&P 500 (as of 10/22) (red = agreement; black = disagreement)



Source: FactSet, BofA US Equity & Quant Strategy

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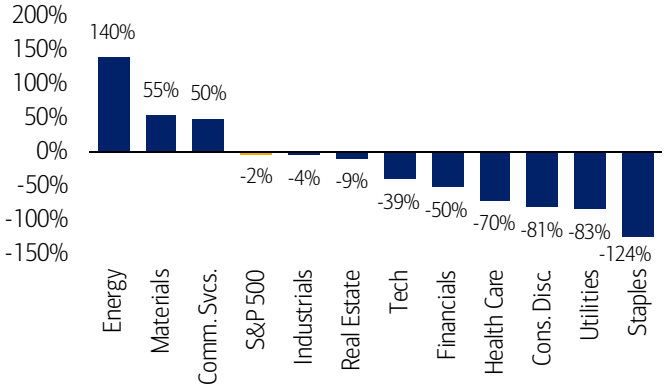
Exhibit 184: Most sectors are not pricing in recession risk based on ERP
Change in ERP (trailing E/P – 10-yr real rate) / avg. trough-to-peak ERP increase in prior four recessions (as of 10/22)



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

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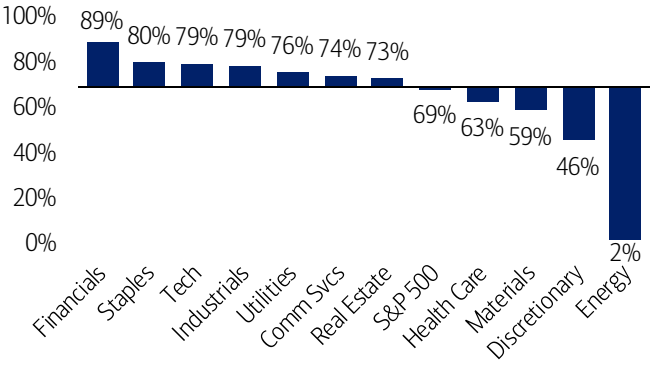
Exhibit 185: Quality (cyclical & secular tailwinds): Financials, Staples, Tech & Industrials are the highest Quality sectors
Market cap-weighted proportion of B+ or better (High Quality) stocks, as of 10/2022



Source: BofA US Equity & Quant Strategy, FactSet. Financials excludes BRK.

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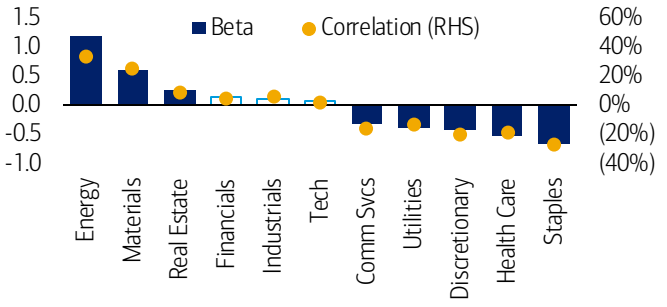
Exhibit 186: Inflation playbook: own commodities/cyclicals, avoid consumer/defensives
Sectors' rel. perf. correlation (since '74) with our BofA Inflation Composite (as of 10/22)



Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy
Note: Empty bars indicate not statistically significant

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Exhibit 187: Materials and Tech have struggled most in periods of below-trend growth and above-trend but decelerating inflation
S&P 500 sector performance in periods of below-trend growth and above-trend but decelerating inflation (since 1957)

	Below-trend growth, high but slowing inflation	
Sector	**Avg. annualized returns**	**Median annualized returns**
Discretionary*	31%	23%
Comm. Svcs.	26%	19%
Staples	25%	19%
Health Care	22%	27%
Financials	22%	22%
Industrials	21%	22%
S&P 500	**20%**	14%
Energy	19%	21%
Real Estate	18%	28%
Utilities	17%	16%
Technology	16%	6%
Materials	14%	0%

Source: Bloomberg, Haver, FactSet, Global Financial Data, BofA US Equity & Quant Strategy. Global Financial Data (used from 1957-1969) combines Utilities and Telecom into one sector.
*Major factor changes within sector since 1990s make this sector hard to evaluate

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Exhibit 188: In stagflationary environments, Discretionary, Industrials, and Tech have lagged
S&P 500 sector performance during historical stagflation regimes (three different definitions) (data since 1957)

	Average annualized growth			Median annualized growth		
Asset class	Below-trend growth, rising inflation	Below-trend growth, above-trend inflation	Below trend growth, high & rising inflation	Below-trend growth, rising inflation	Below-trend growth, above-trend inflation	Below trend growth, high & rising inflation
Utilities	11%	9%	2%	12%	11%	8%
Staples	10%	14%	4%	9%	11%	2%
Health Care	10%	9%	-1%	13%	7%	-5%
Energy	9%	9%	1%	9%	10%	3%
Communication Services	9%	10%	-3%	11%	12%	6%
Real Estate	7%	9%	2%	8%	13%	-5%
Financials	7%	5%	-9%	8%	13%	0%
Materials	5%	2%	-8%	11%	-4%	-7%
S&P 500	**5%**	**4%**	**-9%**	**8%**	**2%**	**-10%**
Technology	5%	-4%	-19%	10%	-1%	-14%
Industrials	3%	-1%	-17%	7%	-1%	-15%
Discretionary	0%	2%	-19%	4%	4%	-14%

Source: Bloomberg, Haver Analytics, FactSet, Global Financial Data, BofA US Equity & Quant Strategy. Global Financial Data (used from 1957-1969) combines Utilities and Telecom into one sector.

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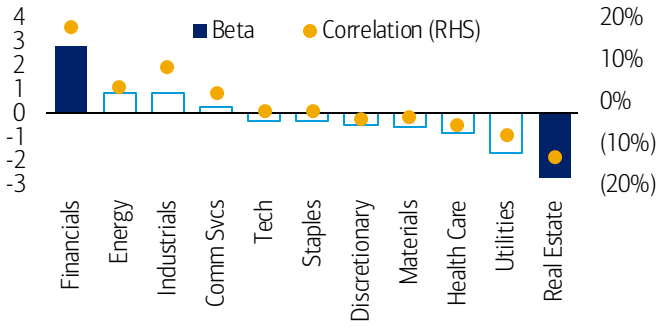
Exhibit 189: Real rates: Financials has most positive beta, Real Estate most negative beta
S&P 500 sectors' relative performance sensitivity to real rates (1997-10/22)



Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy
Note: Empty bars indicate not statistically significant

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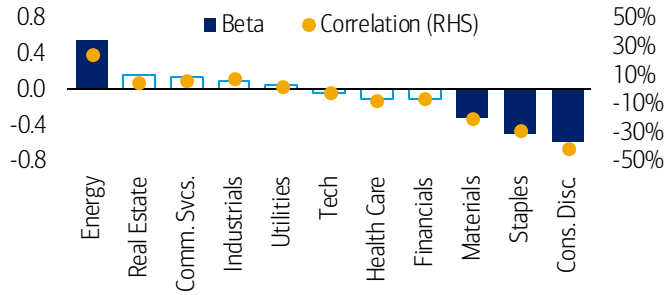
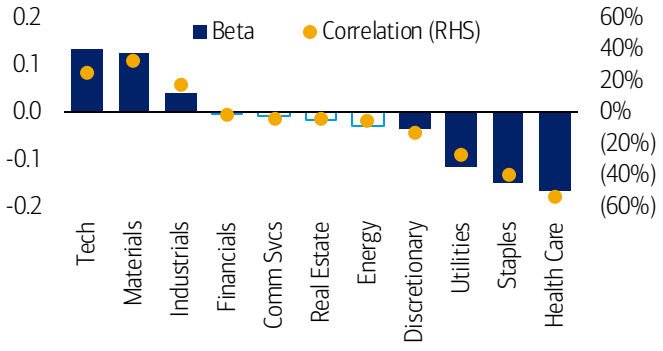
Exhibit 190: Capex: Energy tends to benefit most, Consumer Discretionary tends to underperform
S&P 500 sectors' relative performance sensitivity to capex (1957-3Q22)



Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy, Global Financial Data
Note: Empty bars indicate not statistically significant. Global Financial Data (used from 1957-1969) combines Utilities and Telecom into one sector.

BofA GLOBAL RESEARCH

Exhibit 191: China: Tech and Materials have highest betas
S&P 500 sectors' rel. perf. to MSCI China (May 1996-10/22)



Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy
Note: Based on MSCI China index on a YoY basis; Empty bars indicate not statistically significant

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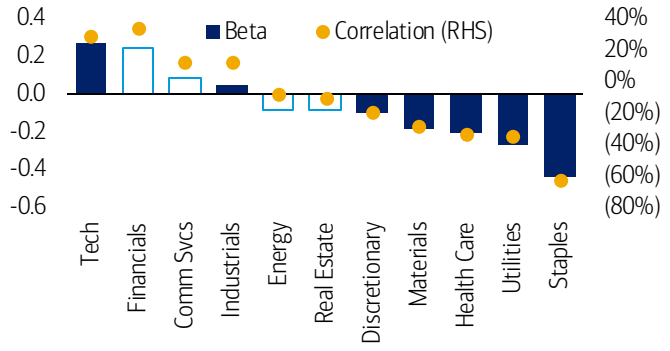
Exhibit 192: Europe: Tech has highest beta, Staples most negative
S&P 500 sectors' rel. perf. to Stoxx 600 (1993 to 10/22)



Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy
Note: Based on the Stoxx 600 on a YoY basis; Empty bars indicate not statistically significant

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What's cheap, what's expensive?

Exhibit 193: Financials and Energy are the most attractive sectors from a valuation standpoint vs. history; Cons. Disc. most historically expensive
Relative price to book, price to operating cash flow, price to earnings by sector, as of 10/2022

	Price to Book (Relative)			Price to Operating Cash Flow (Relative)			Forward P/E (Relative)		
Sector	**Current**	**Average**	**Implied upside**	**Current**	**Average**	**Implied upside**	**Current**	**Average**	**Implied upside**
S&P 500 (absolute metrics)	**3.98**	**3.05**	**-23%**	**14.71**	**11.22**	**-24%**	**16.55**	**15.70**	**-5%**
Consumer Discretionary	2.18	1.36	-38%	1.54	0.93	-40%	1.41	1.07	-24%
Consumer Staples	1.51	1.70	13%	1.23	1.25	2%	1.24	1.11	-10%
Energy	0.68	0.76	12%	0.46	0.73	59%	0.58	1.07	83%
Financials	0.41	0.59	47%	N/A	N/A	N/A	0.74	0.75	2%
Health Care	1.27	1.68	32%	1.04	1.59	53%	1.00	1.08	8%
Industrials	1.30	1.11	-15%	1.13	1.00	-12%	1.05	1.01	-4%
Information Technology	2.11	1.48	-30%	1.28	1.23	-4%	1.22	1.13	-7%
Materials	0.70	0.88	25%	0.73	0.89	22%	0.85	0.99	16%
Real Estate	0.73	0.99	36%	N/A	N/A	N/A	0.97	1.15	19%
Communication Services	0.69	1.00	46%	0.62	0.85	38%	0.82	1.19	45%
Utilities	0.53	0.58	10%	0.75	0.64	-15%	1.08	0.89	-17%

Note: Averages for Tech exclude the Tech Bubble (7/98-10/00 excluded). Financials excludes Real Estate historically. Relative Fwd. P/E for Real Estate uses P/FFO for REITs and Fwd P/E for Real Estate Management & Development, relative to the S&P 500 Fwd. P/E over time. Real Estate valuations from 2001-present.
Source: FactSet/FirstCall, Compustat, BofA US Equity & Quant Strategy

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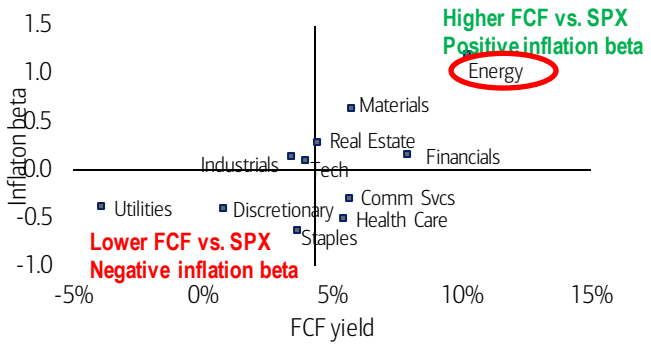
Overweight Energy

Exhibit 194: Energy is helped by inflation and can raise dividends
Free Cash Flow yield vs. inflation beta (based on relative performance vs. SPX), 10/22)



Source: FactSet, BofA US Equity & Quant Strategy

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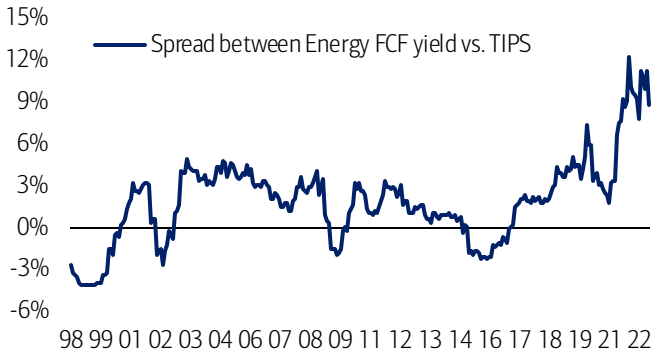
Exhibit 195: Inflation protected yield on steroids: TIPS + 9ppt
Spread between Energy FCF yield vs. TIPS (1998-10/2022)



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

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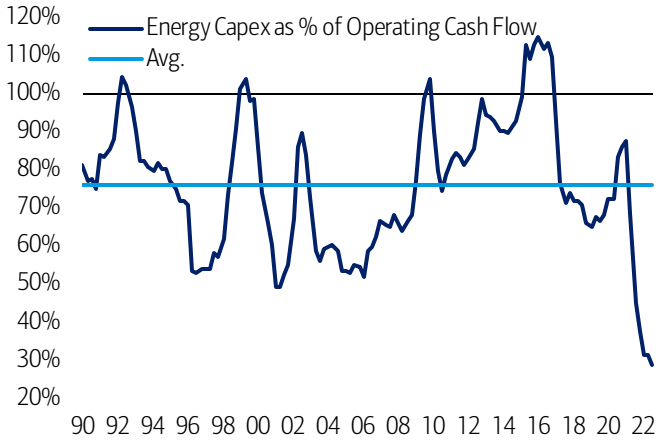
Exhibit 196: No supply response in Energy
S&P 500 Energy capex as % of operating cash flow (1990-2Q22)



Source: BofA US Equity & Quant Strategy, FactSet

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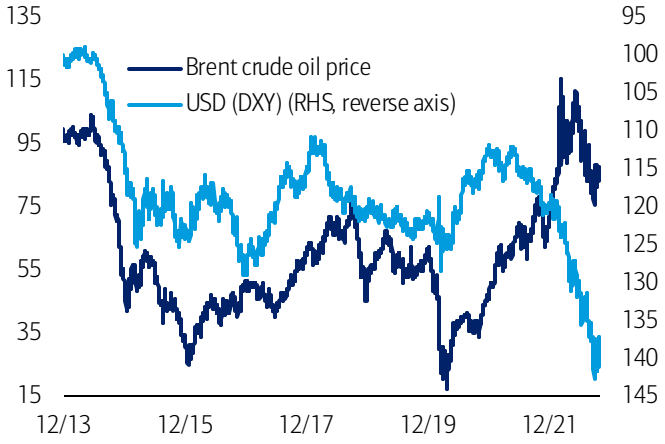
Exhibit 197: Recent decoupling in oil prices and USD
Brent crude oil price and USD (DXY) indexed to 12/2013 (as of 10/31/22)



Source: Bloomberg, BofA US Equity & Quant Strategy

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Exhibit 198: Energy #1 in our tactical framework
S&P 500 Momentum & Value Framework Sector Ranks as of 10/22

Sector	Combined Rank	Price Momentum Rank	EPS Revision Rank	Valuation Rank
Energy	**28**	11	6	11
Financials	**26**	10	8	8
Health Care	**22**	9	7	6
Consumer Staples	**19**	7	9	3
Industrials	**18**	8	5	5
Utilities	**18**	5	11	2
Real Estate	**18**	1	10	7
Comm. Svcs.	**16**	2	4	10
Materials	**16**	6	1	9
Tech	**10**	4	2	4
Discretionary	**7**	3	3	1

Source: BofA US Equity & US Quant Strategy

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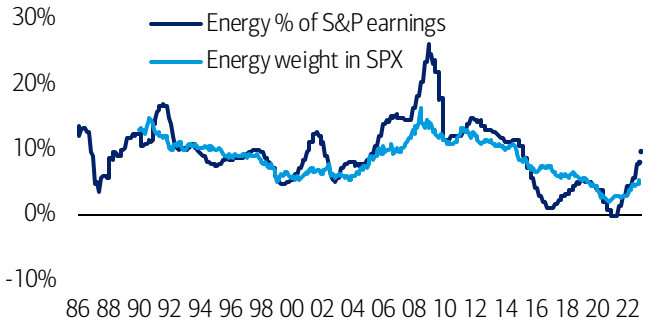
Exhibit 199: The catchup trade
Energy earnings and weight as % of S&P 500 (83% correlation; 1986-10/22)



Source: FactSet, BofA US Equity & US Quant Strategy
Note: The dotted line indicates consensus earnings forecast for 2022.

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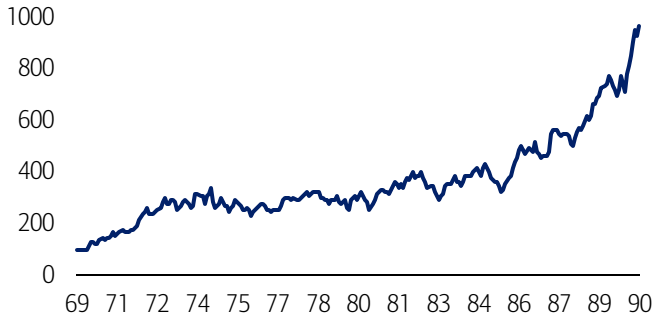
Exhibit 200: Oil going to $0? Tobacco was similarly "doomed" after surgeon general cancer announcement in 60s
S&P 500 Tobacco industry's relative performance vs. the S&P 500 (1969-90)



Source: FactSet, BofA US Equity & Quant Strategy

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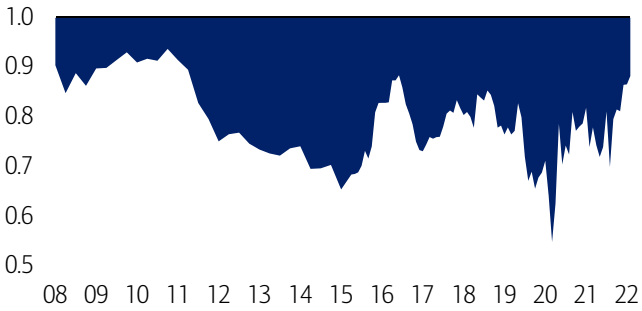
Exhibit 201: Long only funds are still underweight Energy, but less so than in recent history
Long-only funds' Energy weight relative to the S&P 500 (9/2008-10/22)



Source: FactSet, BofA US Equity & Quant Strategy

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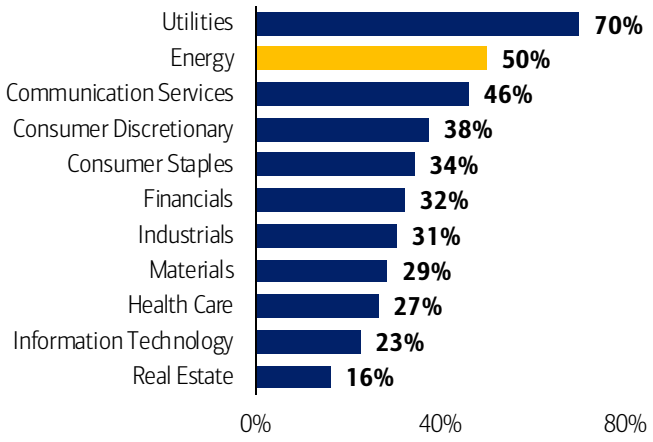
Exhibit 202: Energy companies got the ESG memo
Percentage of companies within the S&P 500 universe that have net-zero targets by sector, as of 10/22



Source: ICE data services, BofA US Equity & Quant Strategy

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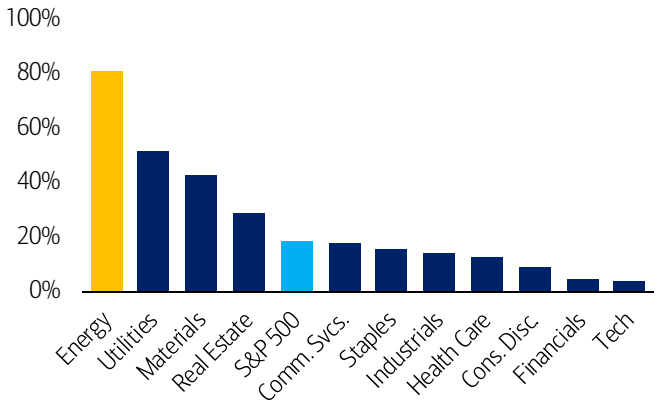
Exhibit 203: The Energy sector leads the S&P 500 in aligning CEO compensation to ESG metrics
% of S&P 500 companies with ESG metrics as part of CEO short-term compensation plan



Source: ICE data services, BofA US Equity & Quant Strategy

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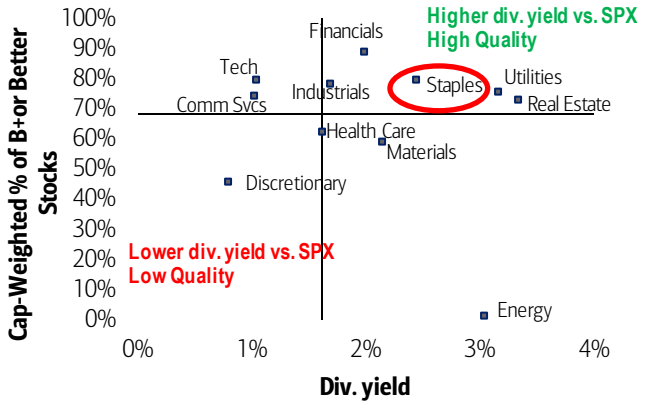
Overweight Consumer Staples

Even higher income consumers are trading down (see High-income (biggest spender) consumer decelerating).

Walmart: "We've continued to gain grocery market share from households across income demographics, with nearly three-quarters of the share gain coming from those exceeding $100,000 in annual income."

Exhibit 204: Staples = Dividend Yield and Quality
S&P 500 sectors' Quality rankings (cap-wtd. % of Low Quality B or Worse stocks) vs. Dividend Yield (as of 10/22)



Source: FactSet, BofA US Equity & Quant Strategy

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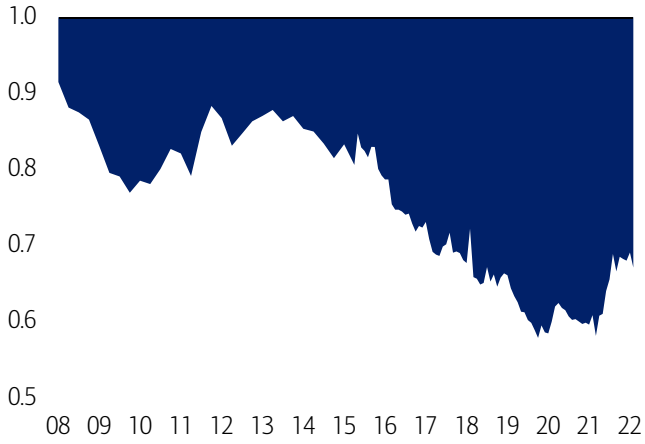
Exhibit 205: Contrarian positive: hated by active funds
Long-only funds' Staples weight relative to the S&P 500 (1/2008-10/2022)



Source: FactSet, BofA US Equity & Quant Strategy

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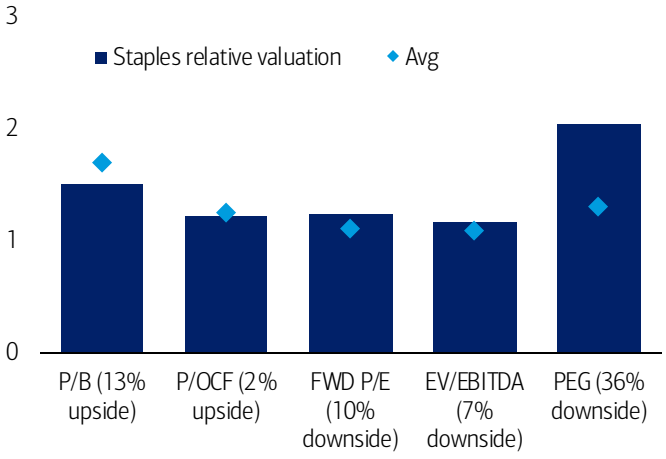
Exhibit 206: Staples ain't cheap
Relative valuations of Staples (versus S&P 500) and percent upside/downside versus historical average as of 10/2022



Source: FactSet, BofA US Equity & Quant Strategy

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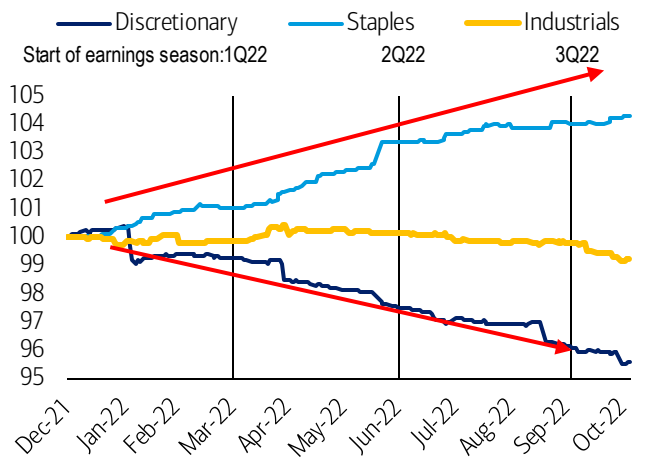
Exhibit 207: Staples spending is eating away discretionary spending
2022 consensus sales for Staples, Discretionary and Industrials (12/31/21-11/04/22)



Source: FactSet, BofA US Equity & Quant Strategy

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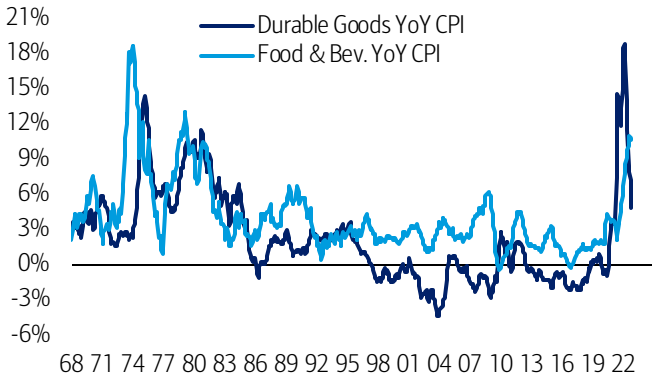
Exhibit 208: Pricing power remains intact in Staples (Food & Beverage), vs. Discretionary (Durable Goods)
Food and Beverage YoY CPI vs. Durable Goods YoY CPI (1968-present)



Source: Haver, BofA US Equity & Quant Strategy

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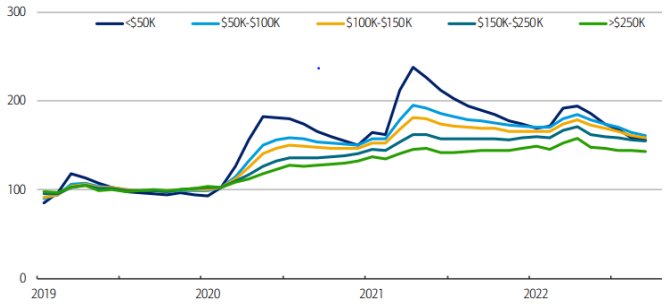
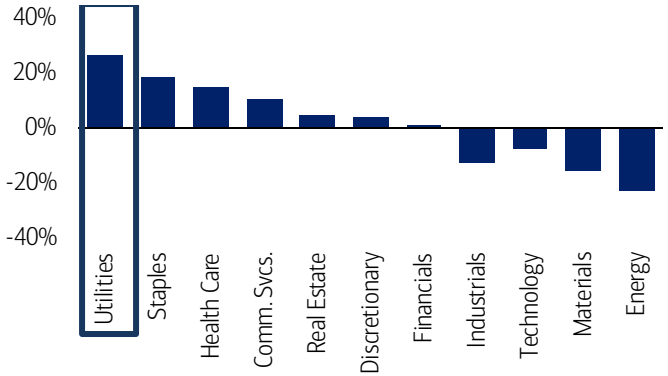
Exhibit 209: Risk: some signs of a draw-down in deposits among lower income cohorts
Monthly median household savings and checking balances by income (2019=100) for a fixed group of households



Source: Bank of America internal data (Bank of America Institute). Monthly data includes those households that had a consumer deposit account (checking and/or savings account) for all months from January 2019 through September 2022

Overweight Utilities (raising from marketweight)

Exhibit 210: If bonds do well in 1H23, Utilities should too
Correlation of S&P 500 sectors' relative total returns (vs. index) to long-term (15+yr) government bonds, 1978-10/2022



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

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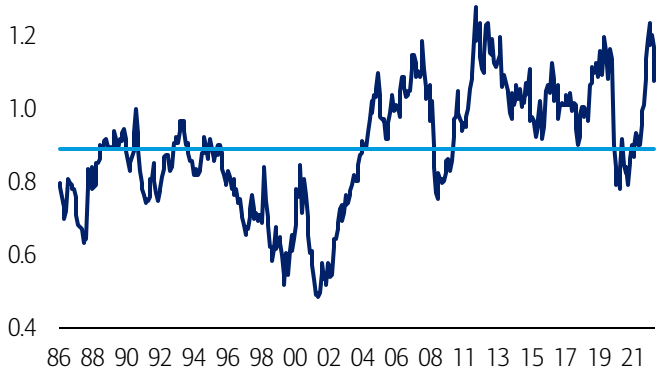
Exhibit 211: Valuations above LT avg levels but falling
Relative (versus S&P 500) forward PE (1/1986-10/2022)



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

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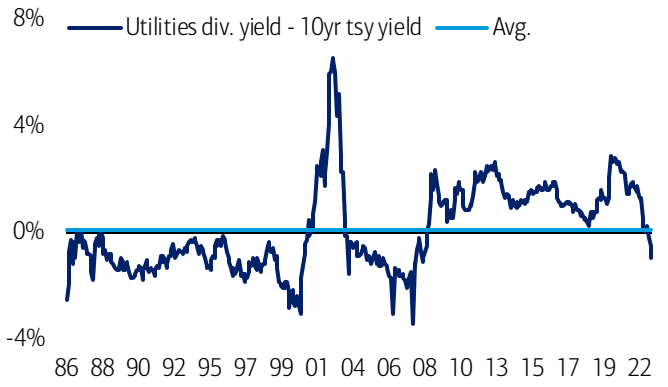
Exhibit 212: Risk: Yield vs. bonds now below post-GFC avg.
Utilities dividend yield less 10-year yield (1/1986-10/2022)



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

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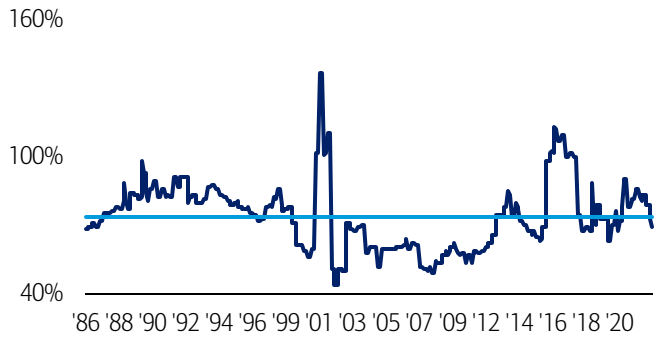
Exhibit 213: Payout ratio slightly below average
Utilities dividend payout ratio (1/1986-10/2022)



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

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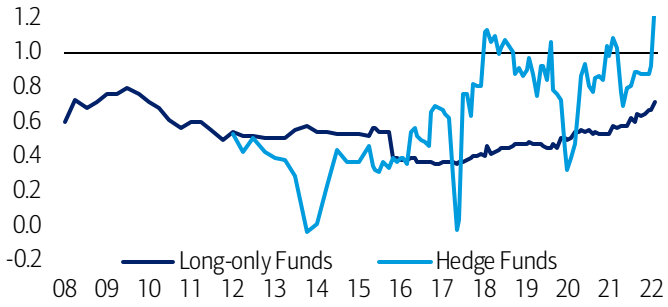
Exhibit 214: Hedge funds are net long for the third time in history and mutual funds are getting warmer
Long-only and hedge funds' net relative weight in Utilities (as of 10/2022)



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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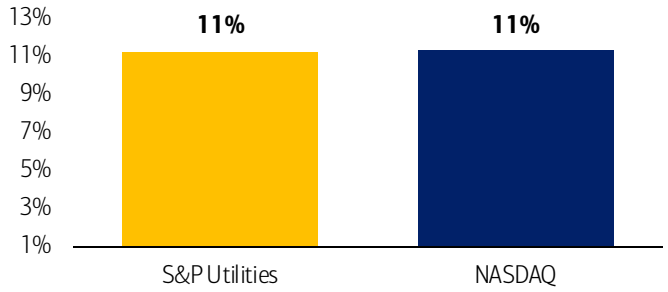
Exhibit 215: A dead heat for the tortoise (Utilities) and the hair (NASDAQ) – same annualized returns since 1980
Annualized returns 1980-present, S&P Utilities vs. NASDAQ



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

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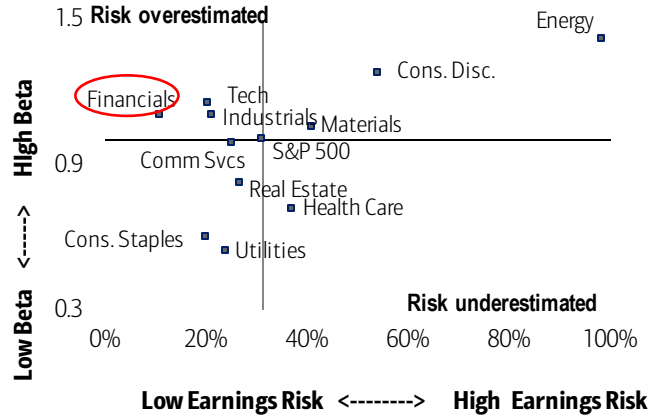
Overweight Financials

Exhibit 216: Mispriced risk: High earnings quality but high price beta
S&P Quality rankings (cap-wtd. % of Low Quality B or Worse stocks) vs. 5-yr price beta (as of 10/22)



Note: Financials excludes BRK/B (14% of Financials' market cap).
Source: S&P, FactSet, BofA US Equity & Quant Strategy

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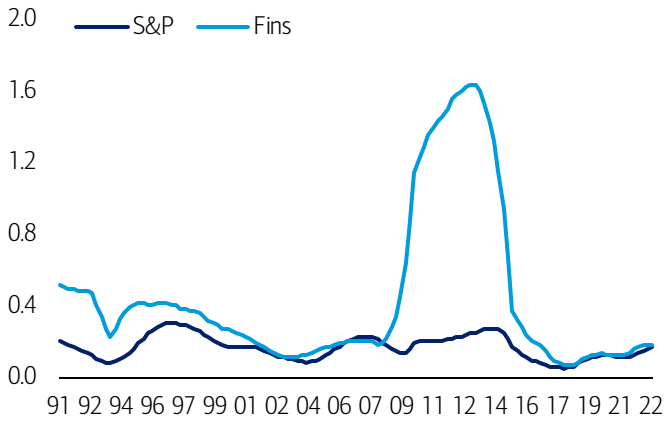
Exhibit 217: Similar EPS stability as S&P 500's
Rolling 5yr trailing earnings vol for S&P 500 and Financials (std dev of trailing net income divided by mean trailing net income; 1990-3Q22)



Source: US Equity & Quant Strategy, FactSet

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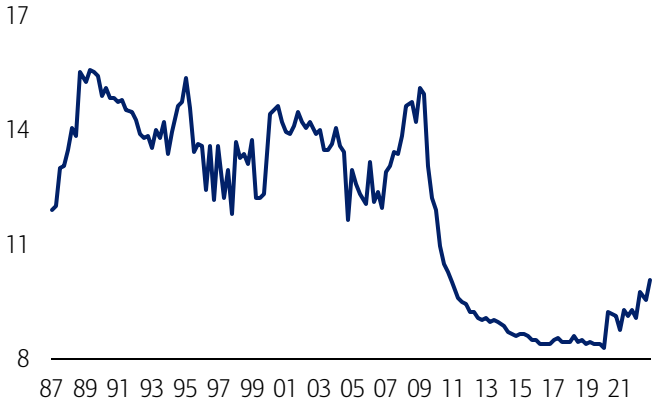
Exhibit 218: From levered to overcapitalized, thanks to Uncle Sam
S&P 500 Financials: Total Assets/Equity (1987-3Q22)



Source: FactSet, BofA US Equity & Quant Strategy

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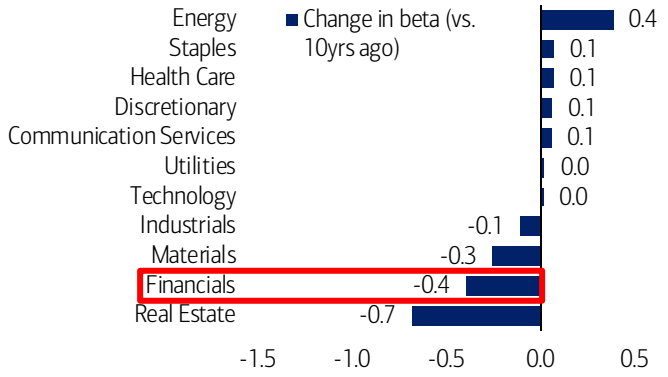
Exhibit 219: The new low volatility sector
5-year beta by sector (now vs 10 years ago, spreads), as of 10/22



Source: FactSet, BofA US Quantitative Strategy

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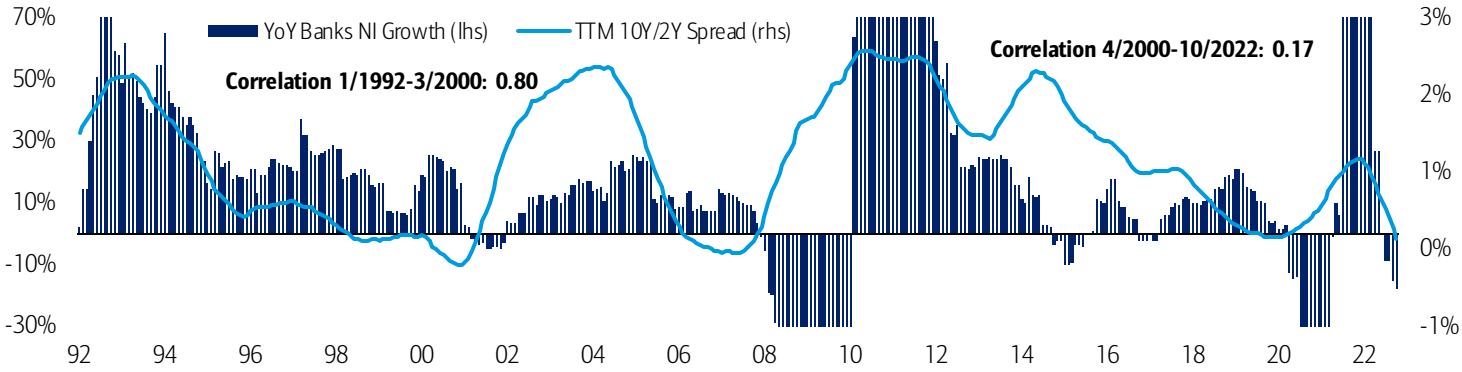
Exhibit 220: Bank earnings growth is no longer correlated with YC spread
YoY NI growth for S&P 500 Banks vs. TTM 10Y/2Y Spread (1/92-10/22)



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

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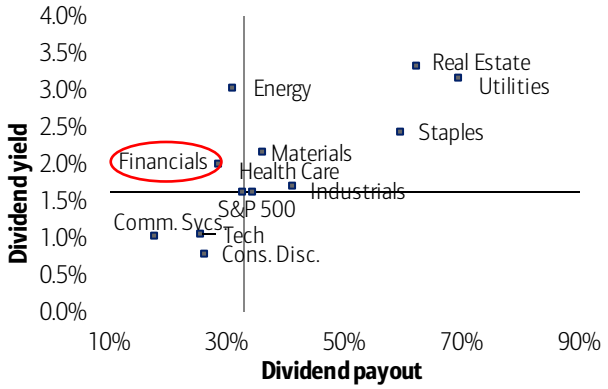
Exhibit 221: High dividend yield, comfortable payout ratio
Dividend yield vs. dividend payout ratio for S&P 500 sectors, as of 10/22



Source: FactSet, BofA US Equity & Quant Strategy

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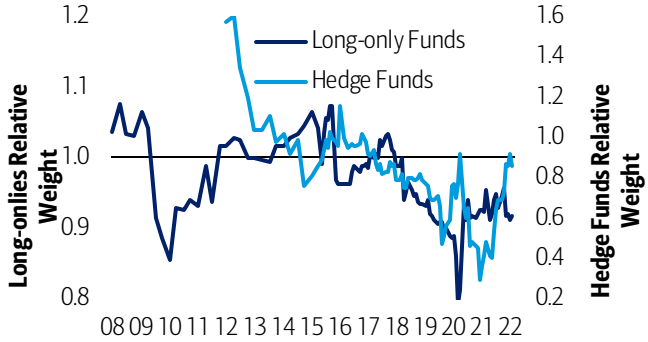
Exhibit 222: LO positioning still underweight, HF positioning historically low but rising
Long-only and Hedge Fund (>1 is overweight) relative positioning (versus S&P 500) in Financials, 9/2008-10/2022



Source: FactSet, BofA US Equity & Quant Strategy

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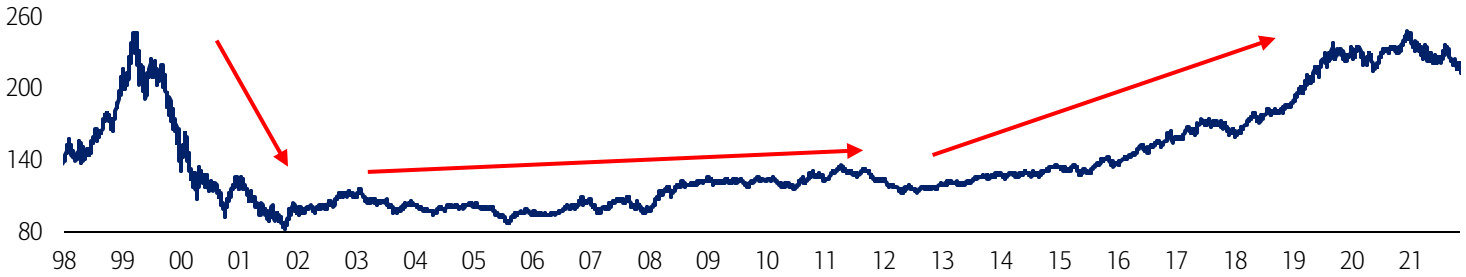
Problem sectors take years to rise from the ashes

And require three steps: i. Shoring up capital; ii. Consolidation; iii. Investor indifference

Exhibit 223: Tech 10yrs after bubble burst = Financials today
S&P 500 Tech relative performance vs. S&P 500 1997-11/07/2022 (indexed to 100 12/31/1997)



Source: BofA US Equity & Quant Strategy, Bloomberg

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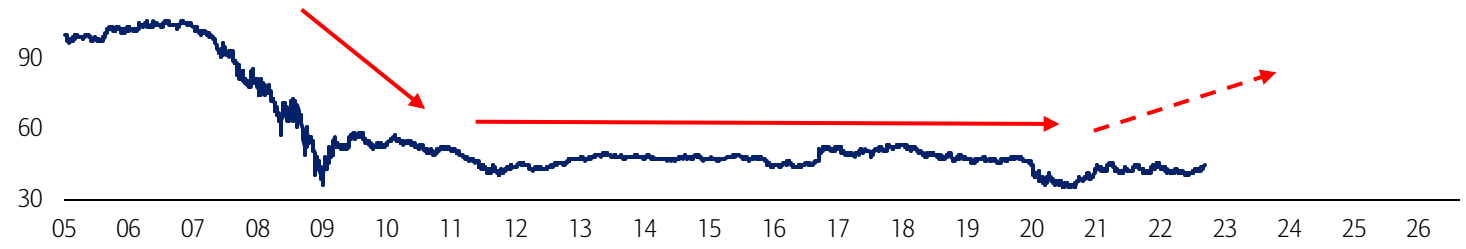
Exhibit 224: Financials poised to outperform after a 10yr period of post-crisis healing (similar to Tech following the Tech Bubble)
S&P 500 Financials relative performance vs. S&P 500 2005-11/07/2022 (indexed to 100 12/31/2004)



Source: BofA US Equity & Quant Strategy, Bloomberg

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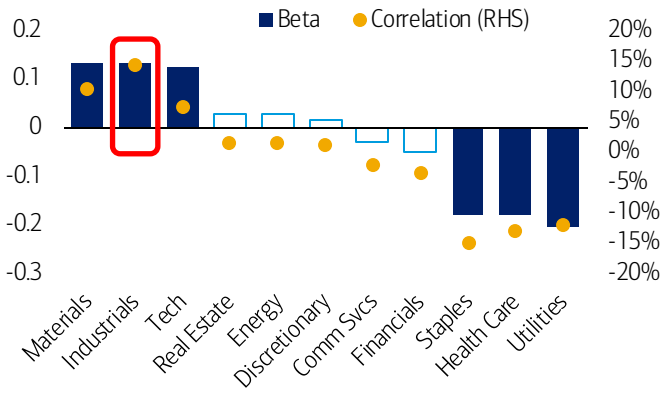
Marketweight Industrials

We believe capex will be much more resilient this recession than in the past given the tight labor market, supply chain frictions and re-shoring efforts (see De-globalization, reshoring & capex resilience). Our Industrials analysts expect an 8.1%-9.3% CAGR for US manufacturing capex from 2019-24 (vs. 2.8% CAGR from 2007-19), boosted by supply chain re-shoring.

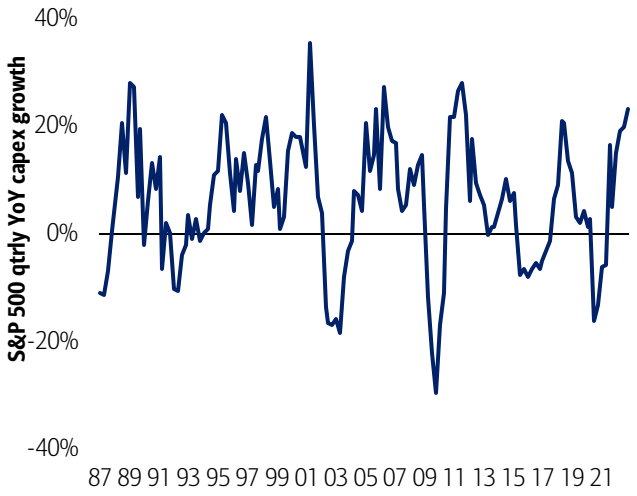
Exhibit 225: Most correlated sector to PMI (peaked)
S&P 500 sectors' monthly relative performance sensitivity to monthly changes in PMI (1957-10/22)



Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy, Global Financial Data
Note: Empty bars indicate not statistically significant. Global Financial Data (used from 1957-1969) combines Utilities and Telecom into one sector.

BofA GLOBAL RESEARCH

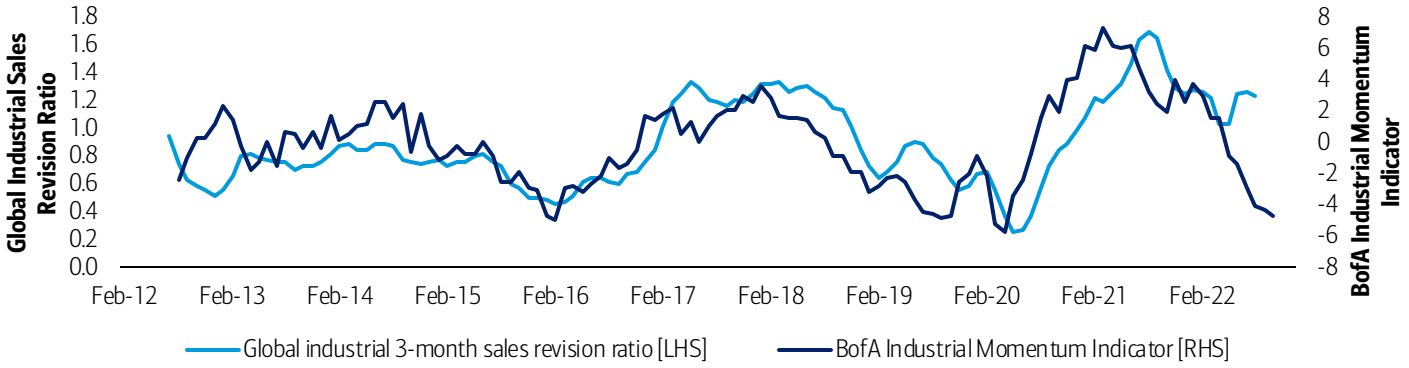
Exhibit 226: S&P 500 capex growth accelerated to +23% YoY in 3Q
S&P 500 quarterly YoY capex growth, 1987-3Q22



Source: FactSet, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

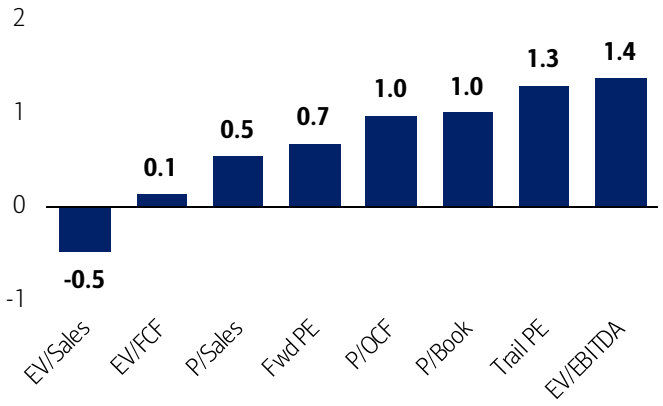
Exhibit 227: BofA Industrial Momentum Indicator (which has been falling) typically leads Global Industrial Sales Revisions
BofA Industrial Momentum Indicator versus Global Industrials Sales Revision Ratio (3 months) as of 10/2022



Source: BofA Global Research, Backtested period = January 2012 through January 2019, Actual Performance since February 2019. This performance is back-tested and does not represent the actual performance of any account or fund. 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. Disclaimer: The indicator identified as BofA Industrial Momentum 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 relied upon by third parties for any other purposes, without the prior written consent of BofA Global Research. The indicator was not created to act as a benchmark

BofA GLOBAL RESEARCH

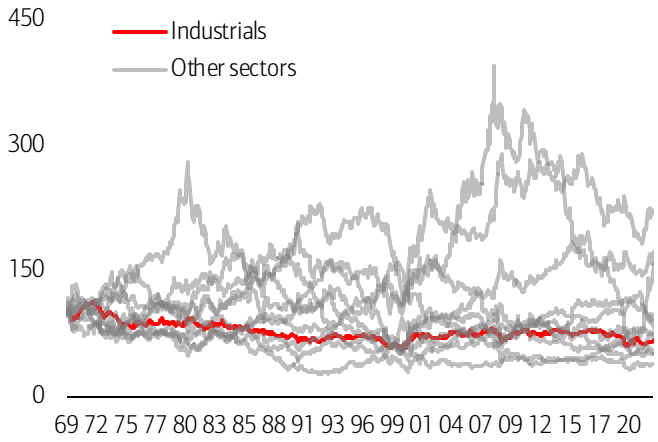
Exhibit 228: Expensive (been bid up as lower emissions risk oil proxy)
Industrials relative valuations z-score (since 1986), as of 10/2022



Source: BofA US Equity & Quant Strategy, FactSet

BofA GLOBAL RESEARCH

Exhibit 229: Industrials = a perpetual market performer
Sector relative performance (total return) vs. S&P 500 (1969-10/2022)

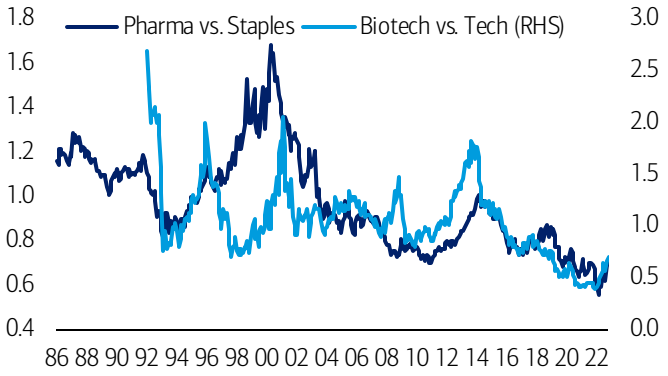


Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Marketweight Health Care (lowering from overweight)

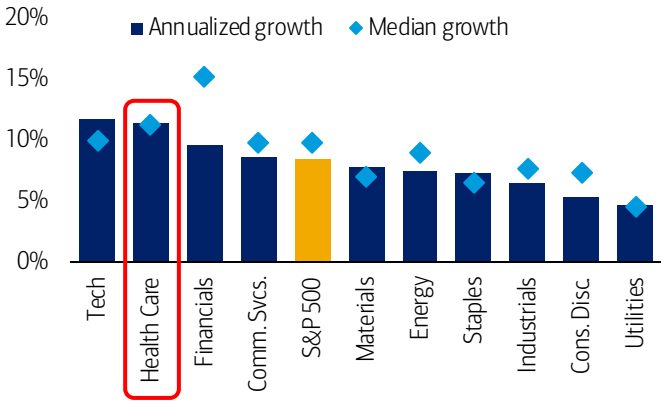
Exhibit 230: "DARP" and "GARP": big discount to defensive (Staples) & growth (Tech) peers
Relative fwd P/E of Pharma vs. Staples and Biotech vs. Tech (1986-10/22)



Source: BofA US Equity & Quant Strategy, FactSet. "DARP" = Defense at a Reasonable Price.

BofA GLOBAL RESEARCH

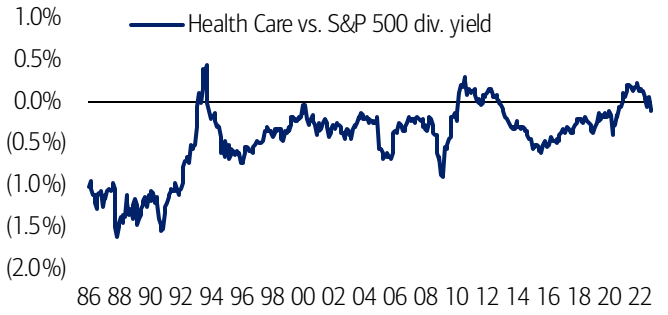
Exhibit 231: Secular growth: 2nd fastest growing sector in history
Annualized and median YoY earnings growth rate since 1986 (as of 10/22)



Source: BofA US Equity & Quant Strategy, FactSet

BofA GLOBAL RESEARCH

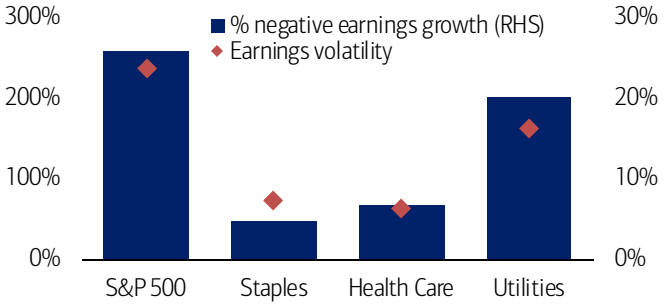
Exhibit 232: Similar dividend yield as S&P 500
Spread of Health Care dividend yield vs. the S&P 500 (1986-10/22)



Source: BofA US Equity & Quant Strategy, FactSet

BofA GLOBAL RESEARCH

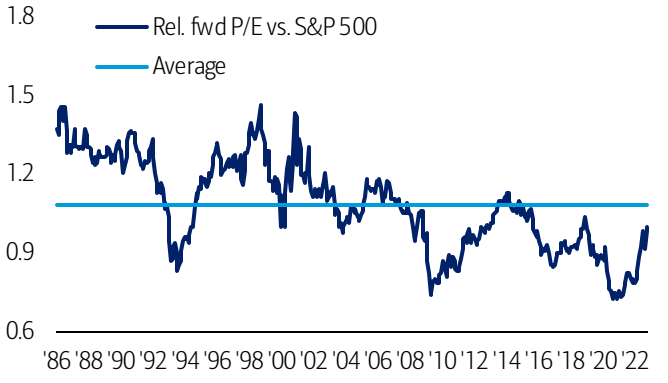
Exhibit 233: Defensive earnings
% of historical negative YoY earnings growth and coefficient of variation of YoY earnings growth (1986-10/22)



Source: BofA US Equity & Quant Strategy, FactSet

BofA GLOBAL RESEARCH

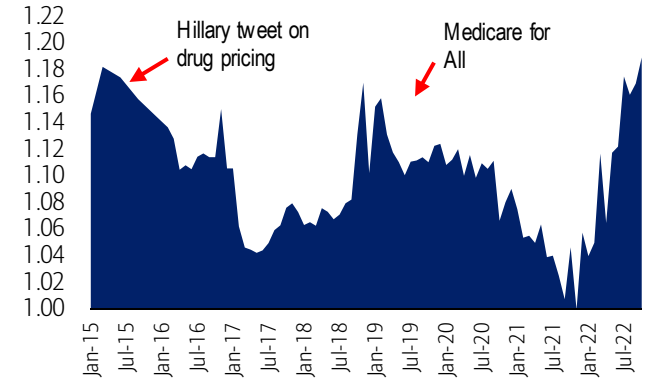
Exhibit 234: Still trades slightly cheaper than history, but getting more expensive
Health Care relative forward Price/Earnings Ratio (1/1986-10/2022)



Source: FactSet, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Exhibit 235: Positioning risk is back
Large cap active managers' relative weight in HC: 1Q15-10/22

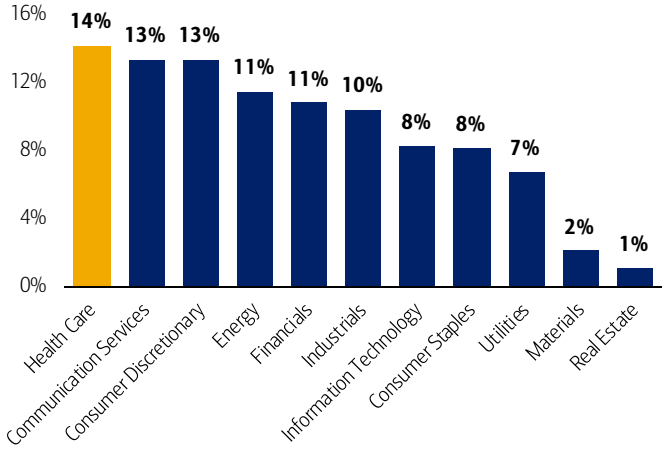


Source: FactSet, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Exhibit 236: Health Care has been at the center of activist campaigns over the past five years…

% of activist campaigns over the past five years by sector (2017-11/04/22)

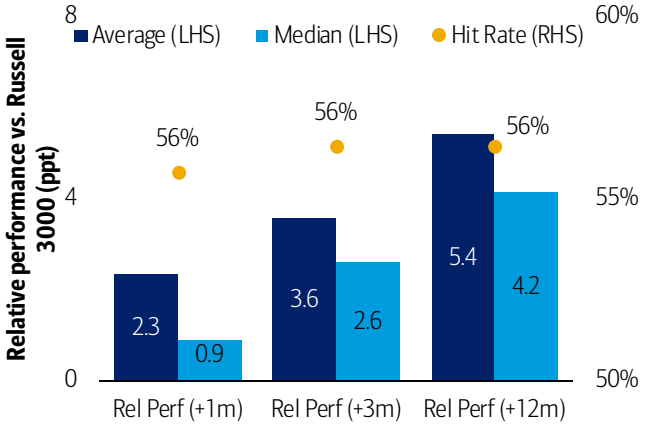


Source: FactSet, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Exhibit 237: …And activist campaigns have historically driven future outperformance

Subsequent relative performance of Russell 3000 companies targeted by corporate governance campaigns (12/1994-11/04/22)



Source: FactSet, BofA US Equity & Quant Strategy

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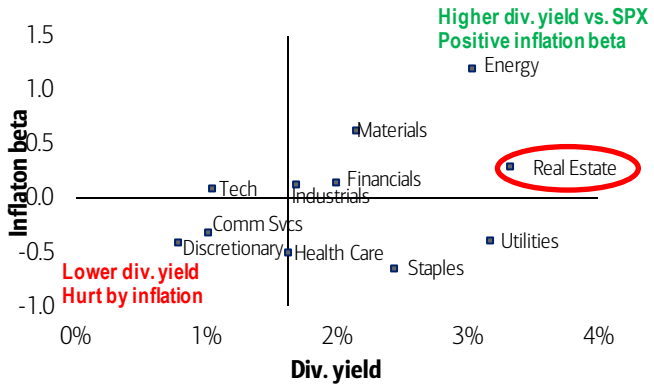
Marketweight Real Estate

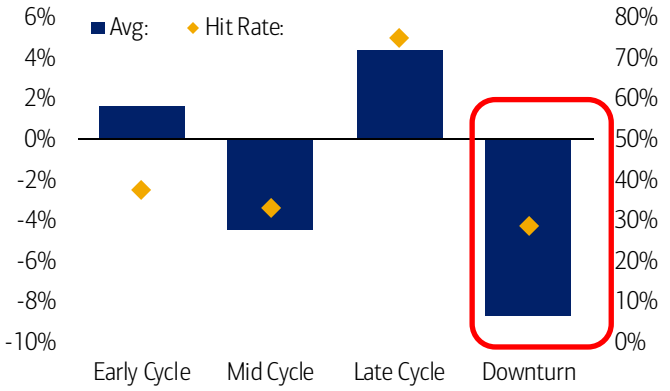
Exhibit 238: Real Estate offers inflation-protected yield
Div. yield vs. inflation beta (based on relative performance vs. SPX) of S&P 500 sectors, 10/22



Source: BofA US Equity & Quant Strategy, FactSet

BofA GLOBAL RESEARCH

Exhibit 239: Historically underperformed during Downturn (likely next phase in our Regime Indicator)
Real Estate avg. relative performance and positive hit rate in different regimes (1990-10/22)



Source: BofA US Equity & Quant Strategy, FactSet

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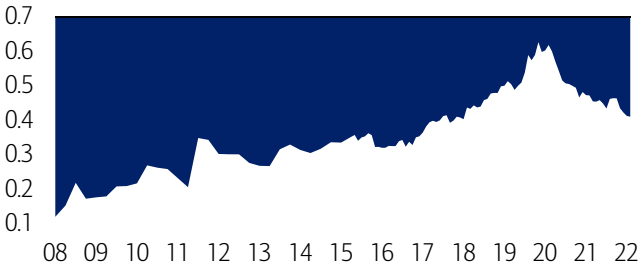
Exhibit 240: Still underweight (with positioning at a multi-year low), but historically more underweight
Large cap active funds' relative weight in Real Estate (vs. S&P 500) as of 10/2022



Source: FactSet, S&P, BofA US Equity & Quant Strategy

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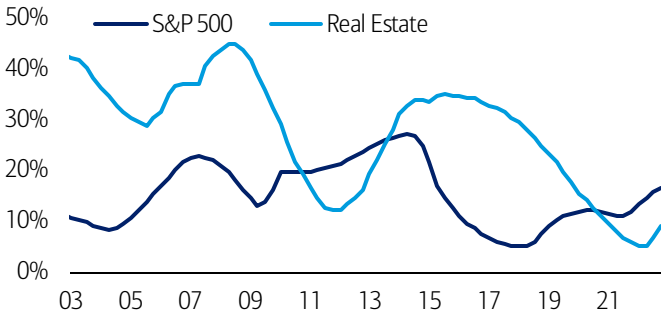
Exhibit 241: Near record low earnings volatility
Rolling 5yr trailing 12m earnings volatility (std. dev. / average) of Real Estate vs S&P 500, 2003-3Q22



Source: BofA US Equity & US Quant Strategy, FactSet

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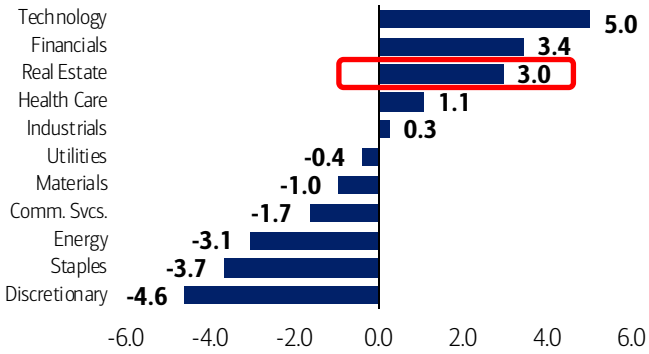
Exhibit 242: Big improvement in High Quality rank vs history
B+ or Better current sector weight vs. historical avg (ppt), as of 10/22

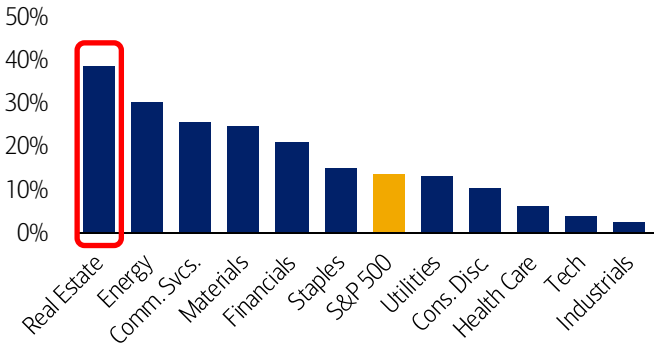


Note: based on equal weight (number of companies), Real Estate since 5/2003, all other sectors since 1986.

Source: BofA US Equity and Quant Strategy, FactSet

BofA GLOBAL RESEARCH

Exhibit 243: 40% of RE stocks yielding higher than the 10-yr
% of stocks with a higher dividend yield than the 10-yr yield by sector (as of 10/22)



Source: FactSet, BofA US Equity & Quant Strategy

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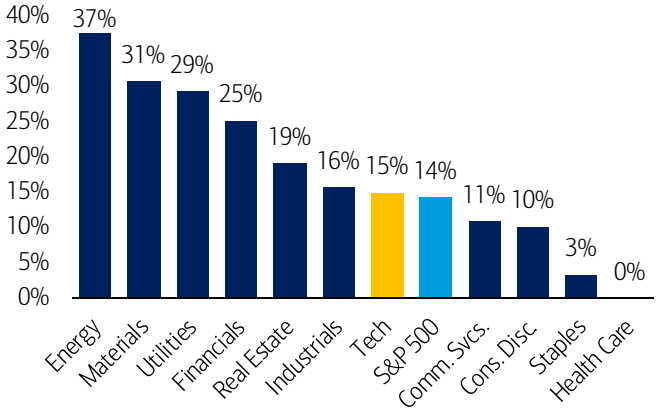
Underweight Technology (lowering from marketweight)

Exhibit 244: Tech has historically been just as cyclical as the S&P 500
Probability of YoY quarterly sales declines (4Q85-2Q22)



Source: FactSet, BofA US Equity & Quant Strategy

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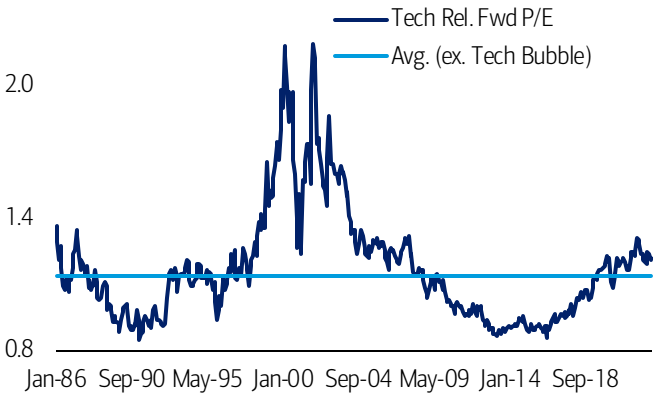
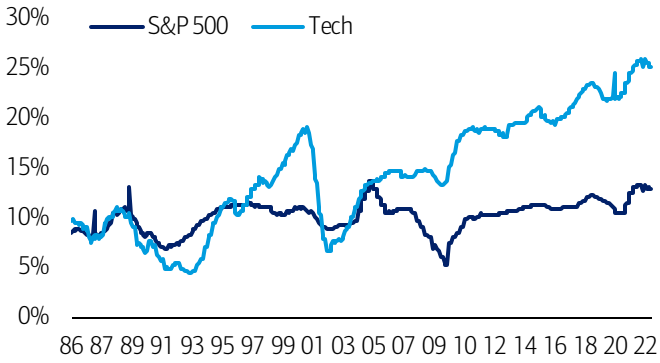
Exhibit 245: Tech trades slightly above historical avg. on rel. fwd PE
Tech relative fwd PE vs. S&P 500 (1986-10/31/2022)



Source: FactSet, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Exhibit 246: Tech profitability significantly improved over the past 20 years…
Net margins % of S&P 500 vs. Tech (1986-10/2022)



Source: FactSet, BofA US Equity & Quant Strategy

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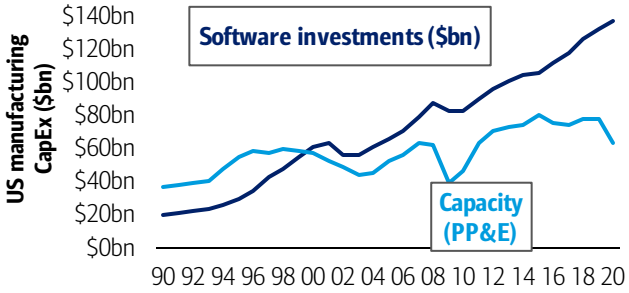
Exhibit 247: But there is risk of shift in secular trend amid near-shoring
US Manufacturing Capex spending: software vs. "core" industrial equipment (1990-2020)



Source: Bureau of Economic Analysis, BofA Global Research
Note: Software investments include both third-party purchased and custom software. Equipment investments include industrial and transportation equipment and exclude information processing equipment (e.g. computers, communication equipment, etc.)

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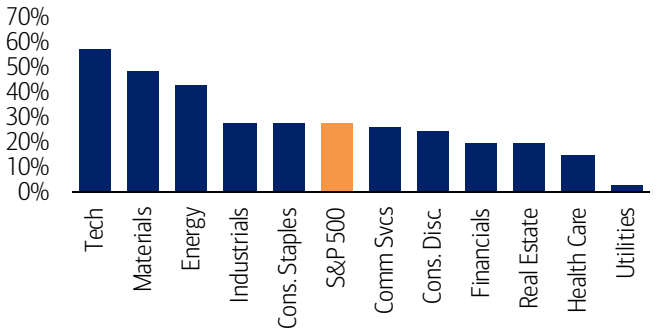
Exhibit 248: Tech is the poster child for globalization
S&P 500 foreign exposure by sector (based on 2020 sales)



Source: BofA US Equity & Quant Strategy, 2020FY company filings, Georev, FactSet, BofA analyst estimates

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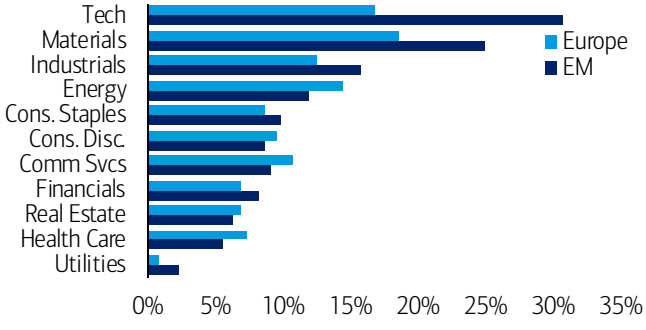
Exhibit 249: Tech has large EM/China exposure
S&P 500 Europe vs EM foreign exposure by sector



Source: BofA US Equity & Quant Strategy, 2020FY company filings, Georev, FactSet, BofA analyst estimates

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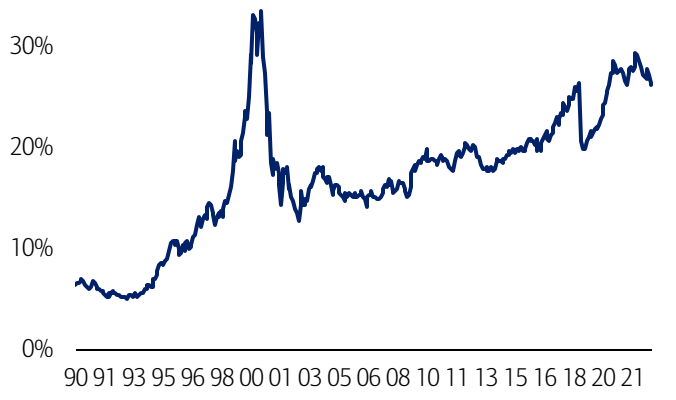
Exhibit 250: Tech accounts for 26% of the S&P 500 today (vs. 34% in Tech Bubble)
Tech weight in S&P 500 (1990-10/2022)



Source: Haver Analytics, FactSet, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Exhibit 251: 20-25% weight has historically been a tipping point for the biggest sector's underperformance
Relative N12m relative sector performance (vs. S&P 500) of sector with the biggest weight, when weight is greater than specified (1990-10/2022)

Weight	Avg. N12m relative returns	Median N12m relative returns	# of periods represented
15%	0.6%	2.0%	86.9%
16%	0.6%	1.8%	77.7%
17%	1.2%	2.3%	71.2%
18%	1.3%	2.1%	63.9%
19%	1.2%	1.8%	51.8%
20%	0.8%	2.6%	40.3%
21%	-0.1%	2.6%	25.1%
22%	-1.2%	3.6%	17.0%
23%	-3.0%	3.1%	13.9%
24%	-5.7%	2.0%	11.5%
25%	-8.9%	-1.1%	9.7%
26%	-12.0%	-2.2%	7.9%
27%	-15.0%	-4.5%	6.5%
28%	-29.7%	-36.3%	3.1%

Source: Haver Analytics, FactSet, BofA US Equity & US Quant Strategy

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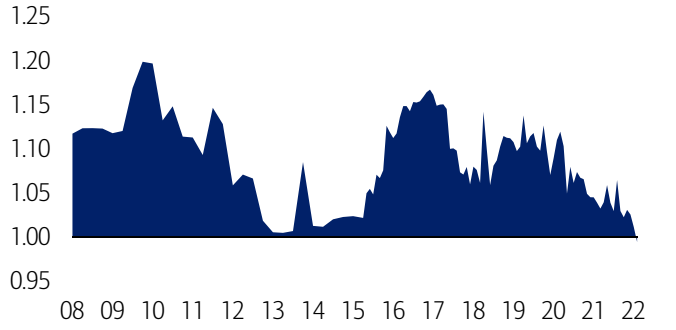
Exhibit 252: Long-only positioning: overweight but below avg.
Relative weight (versus S&P 500) in Information Technology by long-only funds, 1/2008-10/2022



Source: FactSet, BofA US Equity & Quant Strategy

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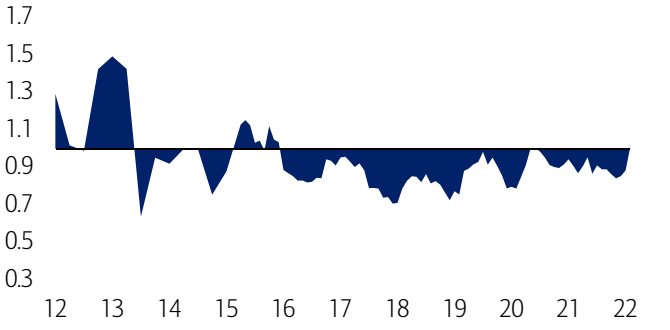
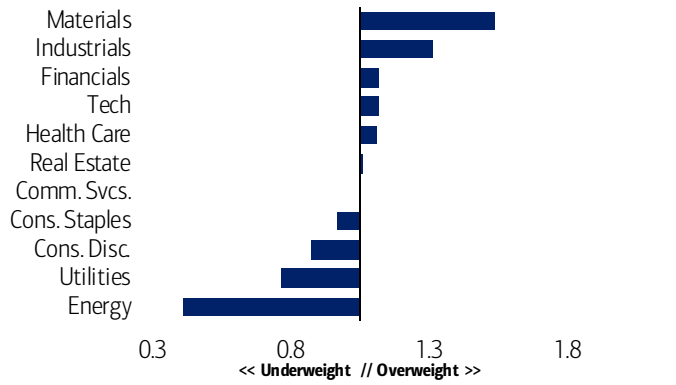
Exhibit 253: Hedge fund positioning underweight but above avg.
Relative weight (versus S&P 500) in Information Technology by hedge funds, 9/2012-10/2022



Source: FactSet, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Exhibit 254: Consensus OW by ESG funds
Sectors relative weight of ESG funds vs S&P 500 index as of 10/31/22



Source: BofA US Equity & Quant Strategy, FactSet Ownership. Note: Utility sector relative weight against USSLM omitted due to lower representation of the sector in the index

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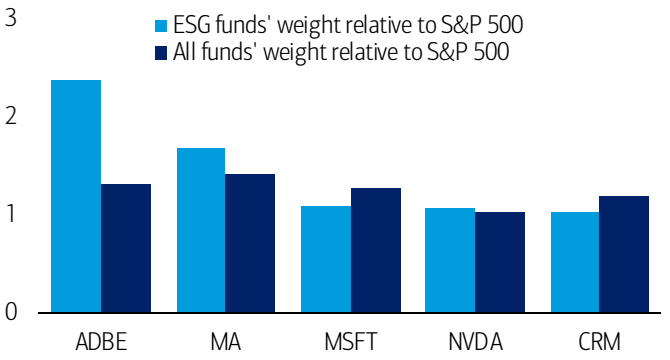
Exhibit 255: Most popular ESG stocks: US ESG funds more OW vs. all US Funds
US-domiciled ESG funds' and all US-domiciled funds' weight relative to S&P 500 Index 09/30/22



Source: BofA US Equity & Quant Strategy; Factset Ownership

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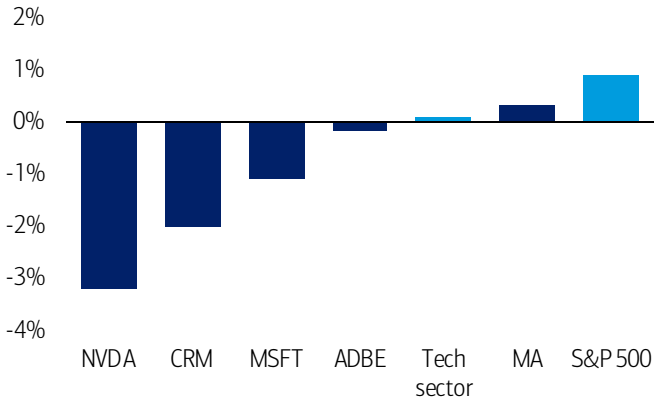
Tech is a sector driven by human innovation. Social factors like human capital management and employee satisfaction are key ESG risks (innovators going to competitors) and the sector has started to deteriorate on these measures.

Another risk: cybersecurity and ransomware attacks are on the rise.

Exhibit 256: Deteriorating employee satisfaction for Tech darlings
Percent change in Glassdoor overall rating from Q1 2022 to Q3 2022; [Glassdoor ratings reflect a company's performance as an employer based on review by past and current employees]



Source: Glassdoor, BofA Research

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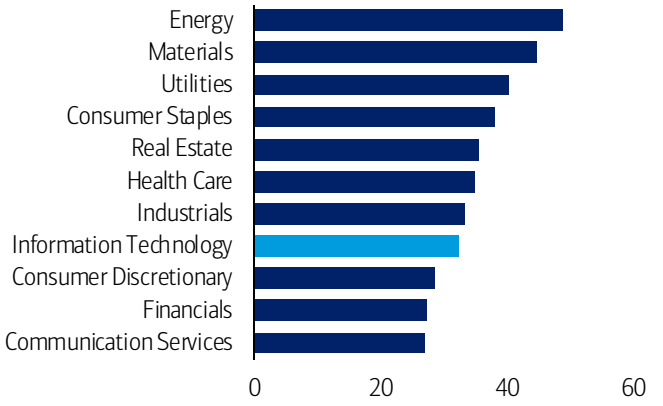
Exhibit 257: Tech sector lags in sharing S data
Average Bloomberg Social Disclosure Score by sector, as of 11/10/2022 [Bloomberg Social Disclosure Score represents the amount of social data a company reports publicly]



Source: BofA US Equity & Strategy; Bloomberg

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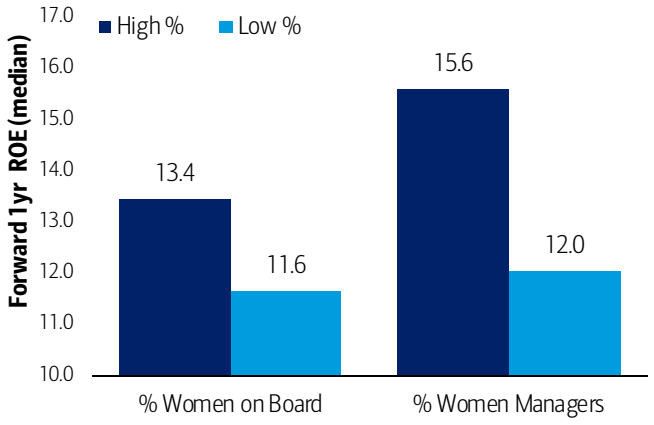
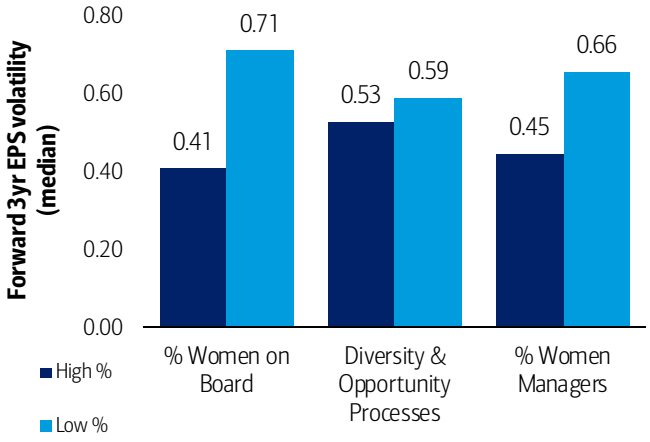
Exhibit 258: Gender diversity correlates with higher future ROE
Median forward 1yr ROE based on % women on board and % women managers (2005-2020)



*Data from 2010 on for % Women Managers
Note: High (Low) % of Women on Board defined as above (below) the universe median; High (Low) % of Women Managers defined as above (below) 30%
Source: Refinitiv, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Exhibit 259: Gender diversity signaled lower earnings risk
Median forward 3yr EPS volatility based on ESG scores (annually, 2005-18) for Board Diversity (Governance), Diversity & Opportunity Processes (Social), and % Women Managers (Social)



**data from 2010 on for % Women Managers
Note: High ESG Score based on >50 score on Board Diversity, Yes on Diversity and Opportunity Processes, and >30% women in management. Low ESG Score based on <50 score on Board Diversity, No on Diversity and Opportunity Processes and <30% women in management.
Source: Refinitiv, BofA US Equity & Quant Strategy

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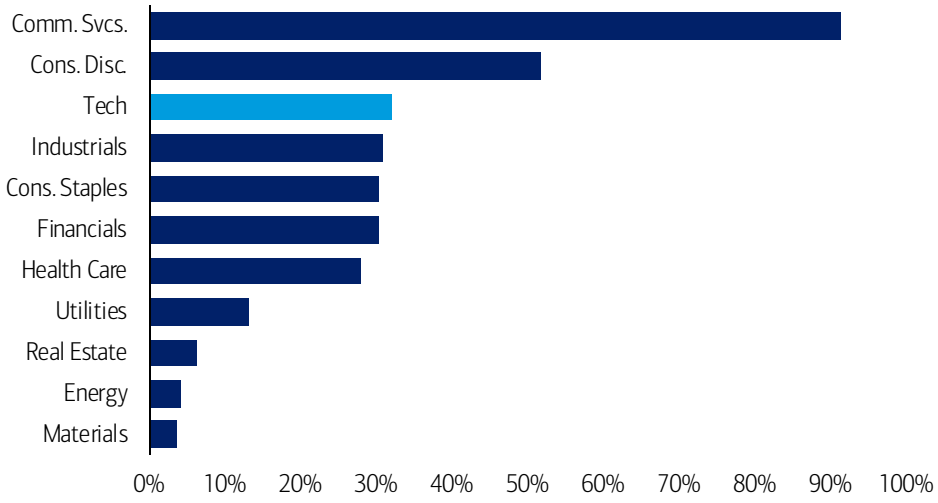
Exhibit 260: Nearly a third of S&P 500 Tech companies have had recent controversies in data privacy & security

% Data Privacy and Security related controversies by sector, as of 11/1/22

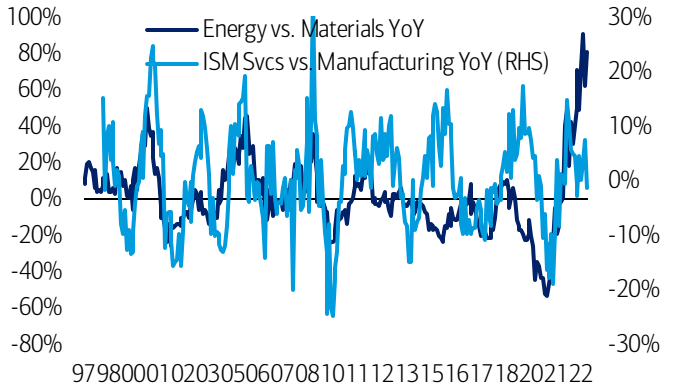


Source: Sustainalytics, BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Underweight Materials

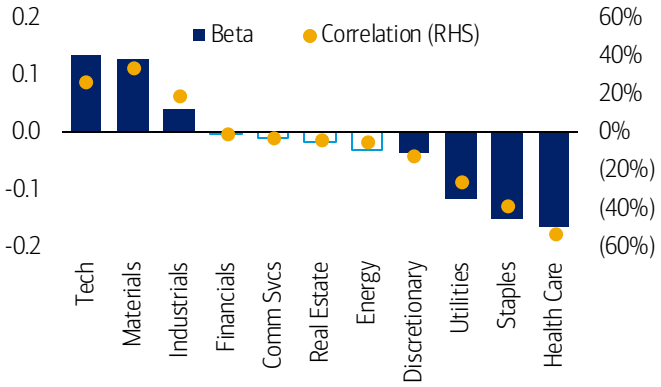
Exhibit 261: Materials = goods, Energy = services. A shift from goods to services is a headwind for Materials
Relative performance of Energy vs. Materials YoY and the ISM Services vs. ISM Manufacturing PMI YoY (1997-10/22)



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

BofA GLOBAL RESEARCH

Exhibit 262: Materials is most correlated to China
S&P 500 sectors' rel. perf. to MSCI China (5/1996-10/22)



Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy
Note: Based on MSCI China index on a YoY basis; Empty bars indicate not statistically significant

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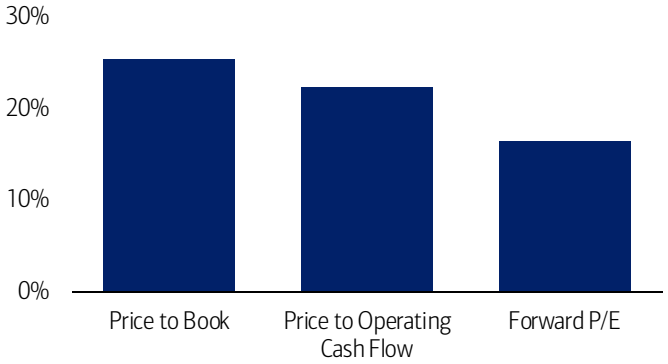
Exhibit 263: Upside potential on valuation, but earnings are elevated (consensus EPS -9% YoY in 2023)
Upside/(downside) % from historical average for Materials based on relative valuations (vs. S&P 500) since 1986, as of 10/2022



Source: BofA US Equity & Quant Strategy, FactSet

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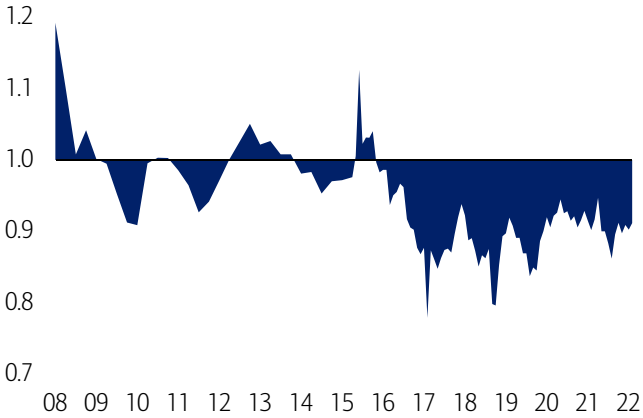
Exhibit 264: Active positioning remains underweight
Materials' long-only relative weight vs S&P 500 (1/2008-10/2022)



Source: BofA US Equity & Quant Strategy, FactSet

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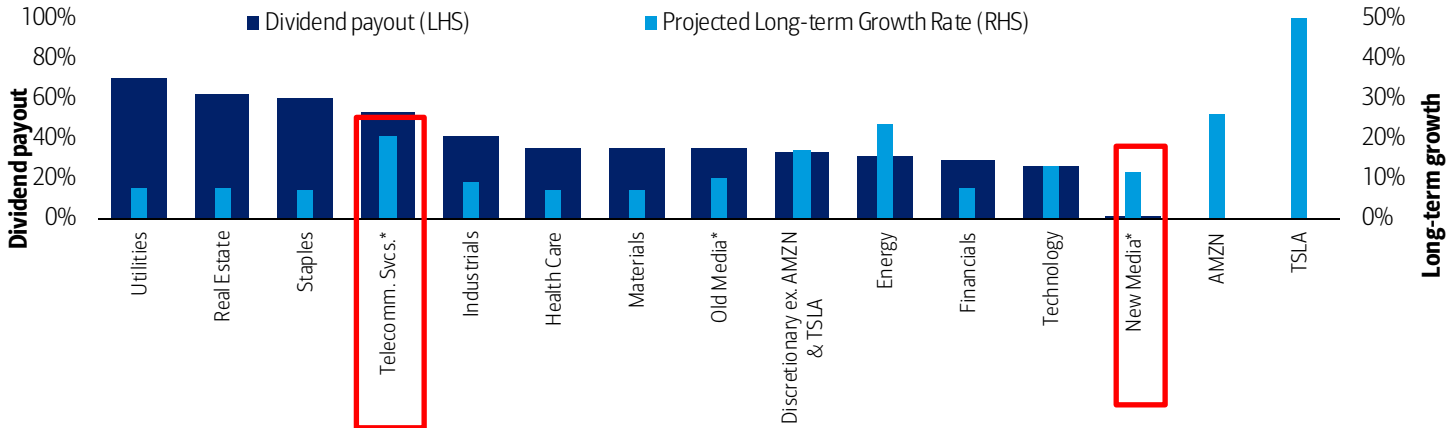
Underweight Communication Services

Communication Services has hallmark characteristics of a value trap, with price falling faster than earnings are deteriorating. The bulk of the sector (Interactive Media & Services) is classified as a Value Trap in our quant model, where these industries have underperformed the average industry by 4ppt/yr since 1997.

Exhibit 265: Sector and select industry group spectrum from short duration (high payout/low growth) to long duration (high growth/low payout) – Comm. Svcs. exposed at both ends
S&P 500 dividend payout ratios and projected long-term growth rates as of 11/3/22



Source: FactSet, BofA US Equity & Quant Strategy. *denotes industry groups/industries in Communication Services; "New Media" includes Entertainment and Interactive Media & Services industries; "Old Media" includes Media industry.

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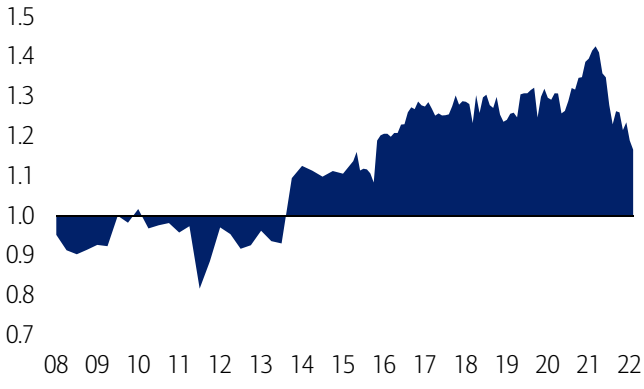
Exhibit 266: Still crowded by long-only funds, but down from peak
Relative weight (versus S&P 500) in Comm. Svcs. by long-only funds, 1/2008-10/2022



Source: FactSet, BofA US Equity & Quant Strategy

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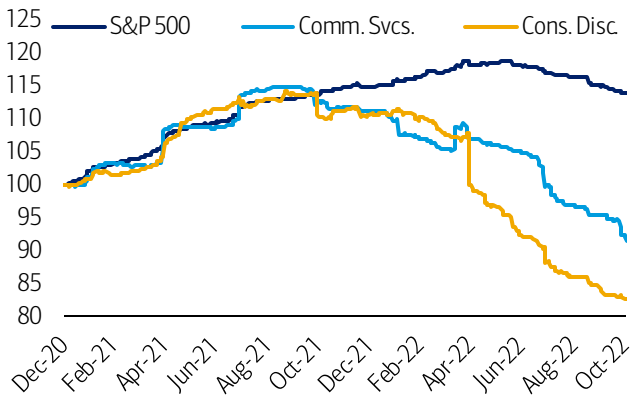
Exhibit 267: Along with Cons. Disc., Comm. Svcs. earnings have lagged S&P 500 earnings the most
2022 consensus earnings estimates (12/20-11/8/22)



Source: FactSet, BofA US Equity & Quant Strategy

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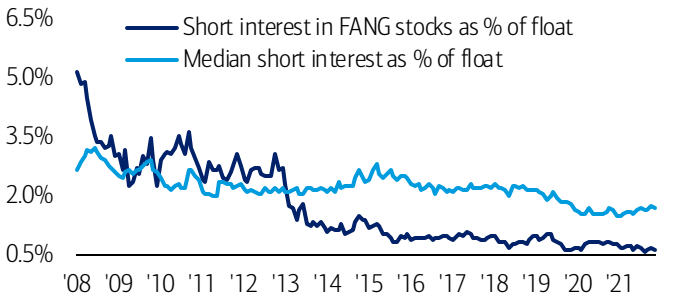
Exhibit 268: Record low short interest
Short interest on FANG stocks vs. S&P 500 as % of float: 12/2008 – 10/2022



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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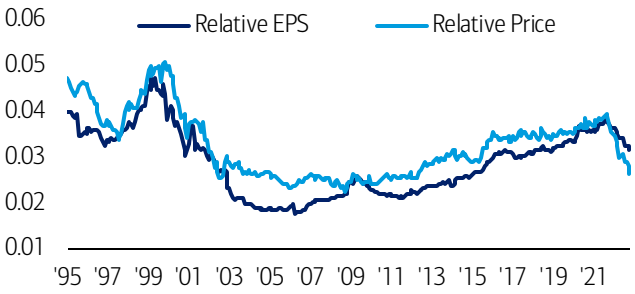
Exhibit 269: Hallmark characteristics of a value trap; price is falling faster than earnings are deteriorating
Communication Services Relative EPS vs. Relative Price (vs. S&P 500)



Source: FactSet, BofA US Equity & Quant Strategy

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Underweight Consumer Discretionary

The wealth effect, which typically states that one dollar of wealth destroyed translates into a 2c to 4c hit to consumption (NBER), could be more pronounced this downturn given the democratization of markets in recent years (see Wealth effect on steroids). Moreover, with layoff pressure building and job postings in high paying jobs (e.g., Tech, Financials) plummeting, we see further downside in the high-income consumer (see High-income (biggest spender) consumer decelerating).

Exhibit 270: Statistically expensive
% upside/downside of relative valuations vs relative long-term average by sector, 1986-10/22*

Sector	P/BV	P/OCF	Fwd P/E	EV/Sales
S&P 500 (absolute)	-23%	-24%	-5%	-32%
Comm. Svcs.	46%	38%	45%	17%
Cons. Disc.	-38%	-40%	-24%	-42%
Energy	12%	59%	83%	32%
Financials	47%	N/A	2%	135%
Health Care	32%	53%	8%	88%
Industrials	-15%	-12%	-4%	7%
Materials	25%	22%	16%	5%
Real Estate	36%	N/A	19%	10%
Staples	13%	2%	-10%	26%
Technology	-30%	-4%	-7%	-40%
Utilities	10%	-15%	-17%	-19%

*Note: Real Estate since 2002. **Source:** BofA US Equity & Quant Strategy, FactSet

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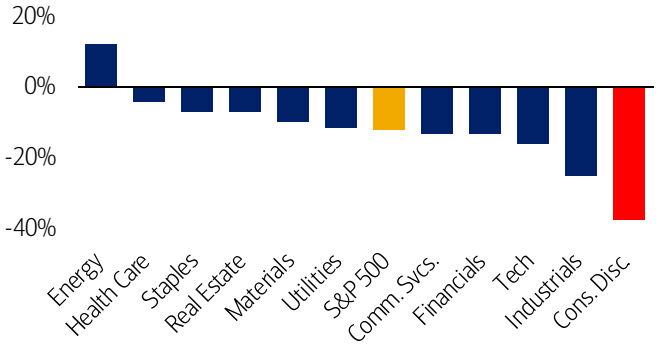
Exhibit 271: Biggest earnings cut YTD, but a lot more to go, in our view
BofA 2023 earnings estimates vs. consensus



Source: BofA US Equity & Quant Strategy, FactSet

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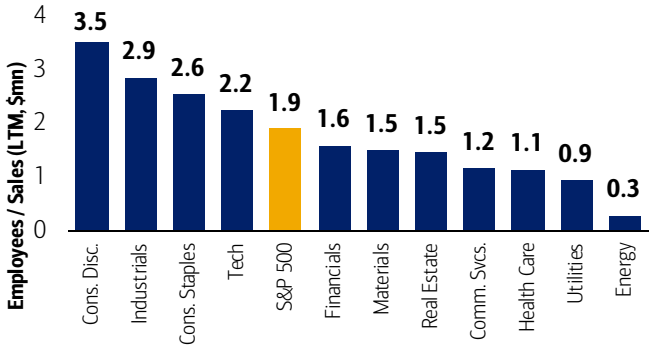
Exhibit 272: Labor-intensive– a risk if wages remain elevated
Employees/sales (LTM; $mn) by S&P 500 sector as of 10/31/22



Note: Employee data is based on data as of latest fiscal year, sales are latest 12 months
Source: BofA US Equity & Quant Strategy, FactSet

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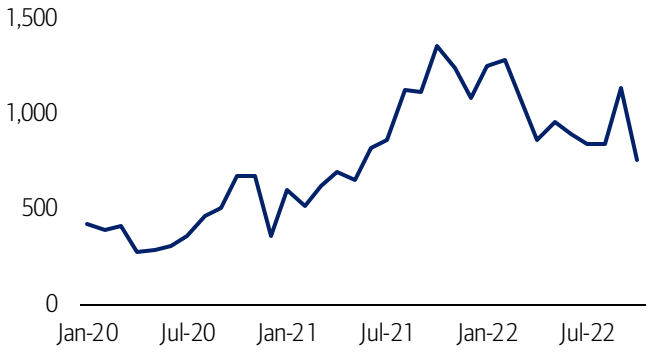
Exhibit 273: Labor pressures off peak, but still tight
# of new job postings each month for the S&P 500 (thousands) (Jan 2020-Oct. 2022)



Source: Revelio Labs, BofA Global Research

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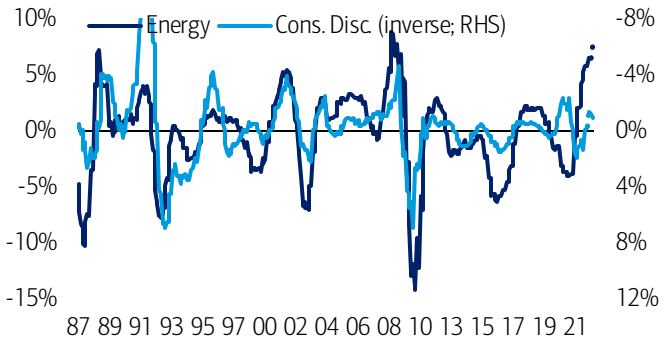
Exhibit 274: Energy and Consumer Discretionary earnings have been negatively correlated (52% correlation)
YoY ppt chg in S&P 500 net income contribution (% of total); 1986-10/2022



Source: FactSet, BofA US Equity & Quant Strategy
Note: The dotted line indicates consensus earnings forecast for 2022.

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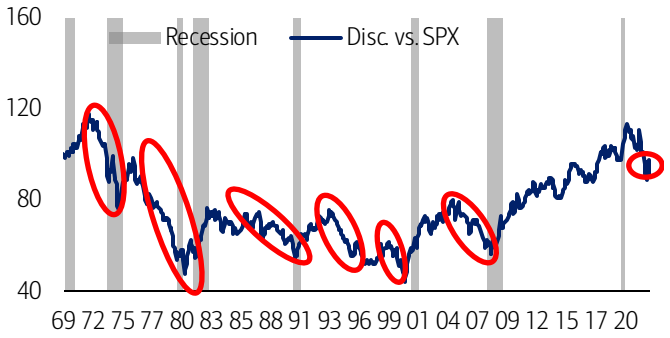
Exhibit 275: Wait until the pivot: a chronic laggard during Fed tightening cycles
Consumer Discretionary sector historical relative performance vs. S&P 500



Source: Bloomberg, BofA US Equity & Quant Strategy

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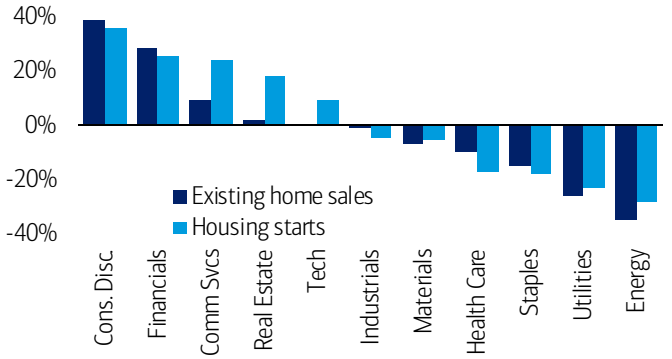
Exhibit 276: Housing (discretionary spending) headwind to the sector if affordability continues to fall
Correlation between housing data vs. relative sector performance: 1/1959-9/2022



*Based on data since 2000 for existing home sales and 1959 for housing starts. Global Financial Data (used from 1959-1969) combines Utilities and Telecom into one sector.
Source: Bloomberg, BofA US Equity & Quant Strategy, Global Financial Data

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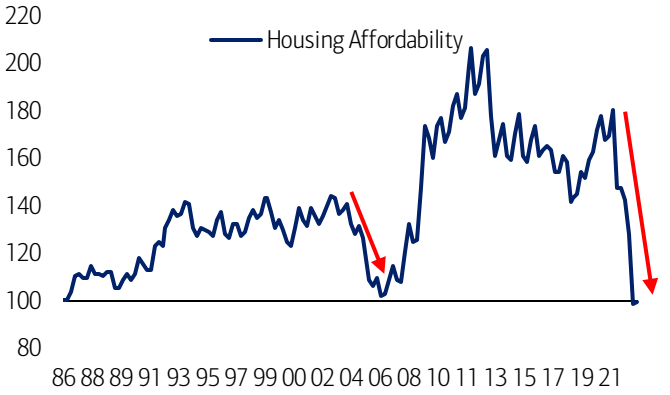
Exhibit 277: Housing affordability plummeted to a record low, at a much faster rate vs. heading into GFC
Housing affordability composite index (100=median income family has the exact amount needed to purchase a median-price home; 1986-3Q22)



Source: Bloomberg, National Association of Realtors

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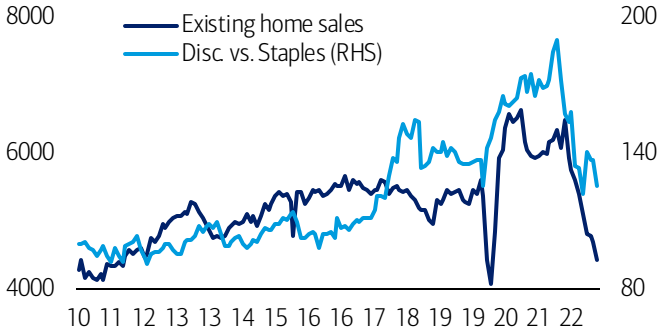
Exhibit 278: Existing home sales are correlated to relative performance of Discretionary vs. Staples
Existing home sales vs. relative performance of Consumer Discretionary vs. Staples (indexed to 100=12/2009)



Source: BofA US Equity & Quant Strategy

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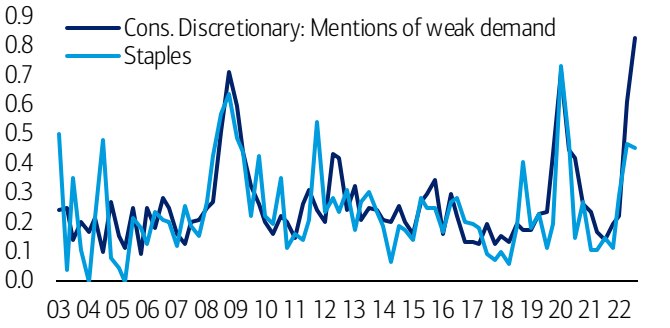
Exhibit 279: Record weakness in Discretionary vs. Staples
Average mention of weak demand per company for Consumer sectors (2003-11/14/22)



Source: BofA Global Research, FactSet
Note: mentions include "lower," "softer," "moderating," "weaker"

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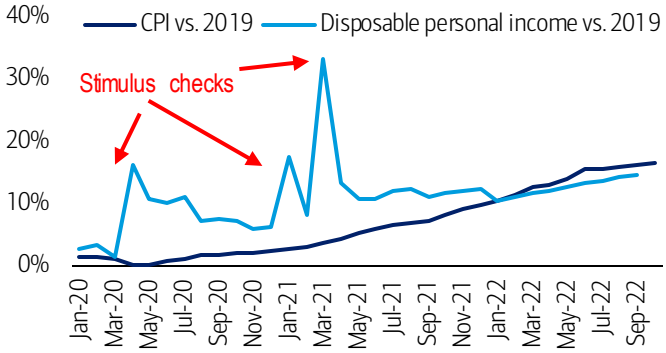
Exhibit 280: Inflation has caught up with income growth
Disposable personal income and CPI vs. 2019 levels (1/2020-10/2022)



Source: Bloomberg, BofA US Equity & US Quant Strategy

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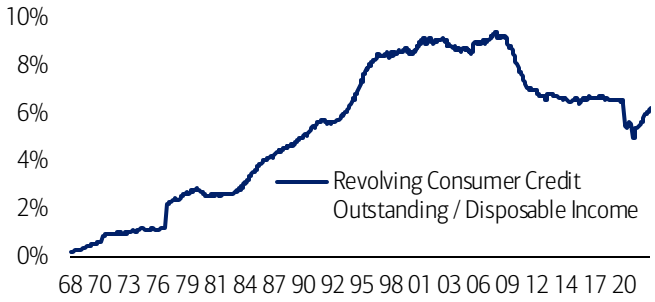
Exhibit 281: Consumer debt as % of disposable income: manageable but rate-sensitive
Revolving Consumer Credit Outstanding as a % of Disposable Income (1968-9/30/2022)



Source: Haver Analytics, BofA US Equity & Quant Strategy

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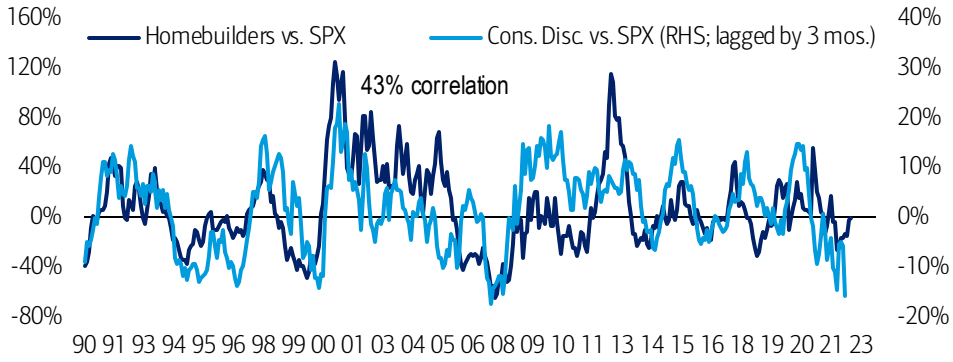
Exhibit 282: Upside risk: Homebuilders stopped underperforming
Relative performance of S&P 500 Homebuilders vs. S&P 500 & Cons. Disc. vs. S&P 500 (3-mo. lag), 1990-10/2022



Source: BofA US Equity & Quant Strategy, Bloomberg

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Size and style outlook

- Small caps > large caps (even in a recession!)
- Regime indicator: Late Cycle today, Downturn to Recovery in 2023
- Overweight Quality, FCF to EV, Dividend Discount valuation
- Underweight Momentum, Long Duration
- Secular growth is no longer defensive

Small>Large Caps (even in a recession!)

Amid a year of two parts – downside risk to equities near-term vs. potential that the S&P 500 bottoms mid-way through 2023 before the recession is over – we would overweight small caps for 2023. While small caps could still see downside risk on an absolute basis in the coming months prior to a market bottom, we believe any downside is likely to be more limited in this size segment, and expect the outperformance of small vs. large that began in May to continue. And once the market bottoms – where small caps typically bottom the same month as large caps – this tends to be a particularly bullish time for small vs. large caps.

Reasons to stick with small caps over large caps in 2023:

- Small caps are already pricing in a deep recession
- Relative valuations suggest a historic opportunity to overweight small caps
- Small caps typically lag in Downturns...but not always (70s/80s a different story)
- Small caps are best positioned for a continued backdrop of elevated inflation
- Small caps are bigger beneficiaries of a multi-year theme: capex / reshoring
- Services spending has held up better than goods spending (and typically does so in recessions except COVID), which benefits small caps
- Fed pauses and Fed cuts have typically been positive for small>large

Exhibit 283: Russell 2000 typically bottoms the same month as the S&P 500 following S&P bear markets
Russell 2000 vs. S&P 500 market bottom timing during S&P 500 bear markets since 1930

				6m perf after S&P bottom			12m perf after S&P bottom		
Bear markets	**Russell 2000**	**S&P 500**	**# mos of R2 bottom after S&P bottom**	**Russell 2000**	**S&P 500**	**Relative**	**Russell 2000**	**S&P 500**	**Relative**
1930	Dec-30	Dec-30	0	2%	-1%	3%	-50%	-43%	-7%
1932	May-32	May-32	0	76%	42%	35%	286%	111%	175%
1933 Pt.1	Feb-33	Feb-33	0	216%	88%	128%	242%	88%	154%
1933 Pt.2	Oct-33	Oct-33	0	48%	18%	29%	10%	6%	4%
1934/1935	Jul-34	Mar-35	-8	52%	35%	17%	135%	73%	62%
1938	Mar-38	Mar-38	0	57%	42%	14%	43%	35%	8%
1939	Jun-39	May-39	1	18%	9%	9%	-7%	-11%	4%
Early 40s	Jul-40	May-40	2	26%	15%	11%	15%	6%	9%
Mid-Late 40s	May-47	May-47	0	10%	7%	2%	25%	21%	4%
Late 40s	Jun-49	May-49	1	19%	18%	1%	46%	41%	5%
Late 50s	Dec-57	Oct-57	2	12%	8%	5%	44%	29%	15%
Mid 60s	Oct-62	Jun-62	4	10%	18%	-8%	26%	31%	-6%
Late 60s	Oct-66	Sep-66	1	36%	20%	16%	66%	29%	37%
Early 70s	Aug-70	May-70	3	17%	15%	1%	50%	33%	17%
Mid 70s	Dec-74	Sep-74	3	42%	33%	8%	52%	36%	15%
Early 80s	Jul-82	Jul-82	0	50%	39%	11%	89%	59%	30%
1987	Nov-87	Nov-87	0	27%	16%	11%	27%	23%	4%
Early 90s	Oct-90	Oct-90	0	43%	26%	17%	55%	33%	22%
Tech Bubble	Feb-03	Sep-02	5	1%	5%	-4%	36%	24%	12%
GFC	Feb-09	Feb-09	0	48%	41%	8%	64%	54%	10%
COVID	Apr-20	Mar-20	1	32%	31%	0%	95%	56%	38%
		Average	**0.7**	**40%**	**25%**	**15%**	**64%**	**35%**	**29%**
		Median	**0.0**	**32%**	**18%**	**9%**	**46%**	**33%**	**12%**
		Hit Rate		**100%**	**95%**	**90%**	**90%**	**90%**	**90%**

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

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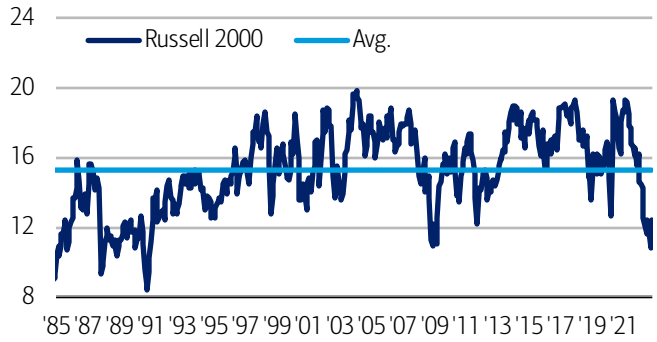
Small caps already pricing in a deep recession

At 12x, the Russell 2000 forward P/E is trading at its lowest levels in over 30 years, in-line with lows during the Global Financial Crisis and below the COVID recession and 2001 recession lows. The relative forward P/E vs. the Russell 1000 is also near historic lows. Additionally, the equity risk premium of small caps is at record highs, at or above levels reached in prior recessions or crises.

Exhibit 284: Small caps trading at deep recessionary multiples (12x forward earnings)
Russell 2000 Forward P/E 1985-10/31/22



Source: BofA US Equity & Quant Strategy, Russell Investment Group, I/B/E/S, Compustat
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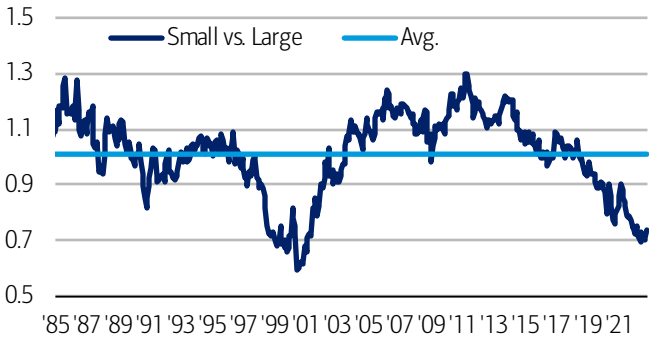
Exhibit 285: Small caps trading at extreme discount vs. large caps (0.7x) only ever seen once before during the Tech Bubble
Relative Forward P/E: Russell 2000 vs. Russell 1000, 1985-10/31/22



Source: BofA US Equity & Quant Strategy, Russell Investment Group, I/B/E/S, Compustat
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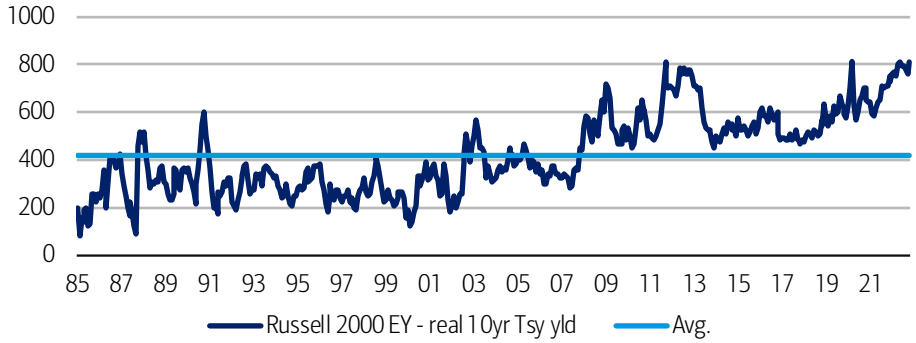
Exhibit 286: Small cap equity risk premium remains at record levels
Russell 2000 forward earnings yield – real 10-year Treasury yield (1985-10/2022)



Source: FactSet, Bloomberg, BofA US Equity & Quant Strategy
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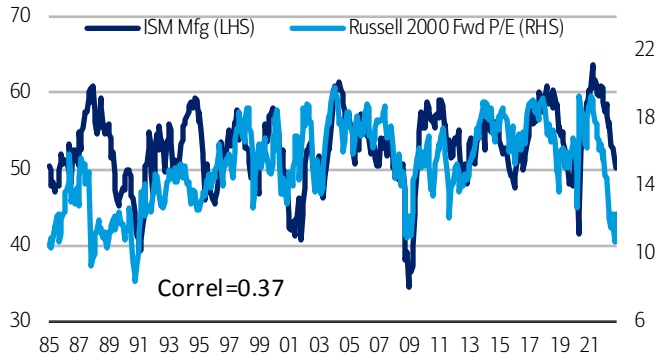
ISM at 35? Small caps already priced for it

Analyst Andrew Obin sees risk the ISM could trough at 35 (Multi-Industrials note), similar to the 2008 trough, given the prevalence of supply chain issues across industries and the fact that the PMI is a diffusion index, not measuring severity. Since 1985, the Russell 2000 fwd. P/E has had a 0.37 correlation with the ISM, and today's 12x multiple is pricing in an ISM of ~30 – consistent with record lows in the 1974 and 1980 recessions.

Exhibit 287: Small cap P/E correlated with ISM (correl = 0.37)
Russell 2000 Fw P/E vs. ISM Mfg (1985-10/31/22)



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

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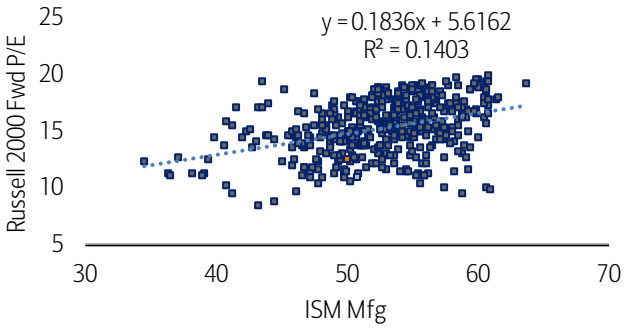
Exhibit 288: Russell 2000 forward P/E of 12x implies an ISM of ~29
Russell 2000 forward P/E vs. ISM Mfg. (1985-10/31/22); orange dot indicates current P/E



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

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EPS recession should be mild; small caps pricing in a GFC-like collapse

Russell 2000 earnings have typically fallen ~50% on average during economic recessions (vs. ~20% for S&P 500 earnings). While earnings fell close that that magnitude in the 1990s recession, the sectors with the biggest $$ earnings declines were Discretionary, Financials and Industrials. Today, Discretionary is half the weight in the index it was then (10% vs. 20%). Financials is a higher weight today (18% vs. 11%), but the sector has become much higher quality (50% of market cap ranked High Quality by S&P ranks vs. 30% then). And while Industrials is a bigger weight today (20% vs. 15%), we expect capex spending to be much more resilient this recession as discussed above.

Exhibit 289: Russell 2000 earnings recessions
Earnings recessions considered at least 2 qtrs. of negative trailing 4-qtr earnings growth (with start/end dates of earnings recessions shown), and peak-to-trough earnings declines around these periods shown

First qtr of negative earnings growth	Last qtr of negative earnings growth	# of qrts	Peak-to-trough earnings decline
2Q1986	41Q1987	3	-74%
3Q1989	**4Q1991**	**9**	**-46%**
1Q1999	3Q1999	2	-7%
3Q2001	**1Q2003**	**6**	**-69%**
4Q2007	**1Q2010**	**9**	**-73%**
2Q2013	2Q2014	4	-13%
2Q2017	4Q2017	2	-12%
1Q2020	**1Q2021**	**4**	**-24%**
Avg.		**5**	**-40%**
Avg. during recessions		**7**	**-53%**
Med.		**4**	**-35%**

Source: FactSet, BofA US Equity & US Quant Strategy

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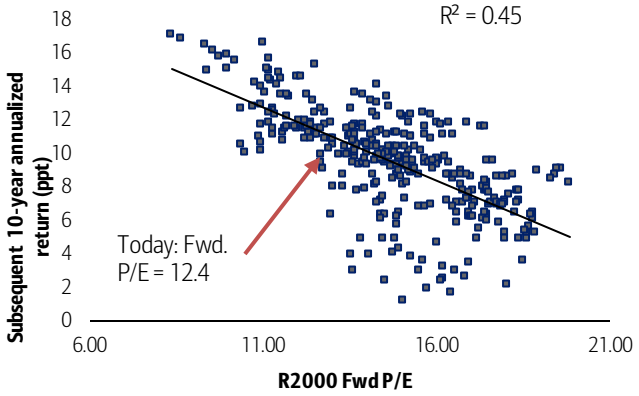
The (very volatile) trailing Russell 2000 P/E including non-earners and outliers has traded at a median of 40x trough earnings considering all earnings recession since 1989. The average is higher – 140x. But splitting the difference (90x), the current level of the Russell 2000 would imply a ~70% earnings collapse, similar to the GFC.

Historic opportunity for L/T investors: small caps for the decade

The relationship (since 1985) between forward P/E and subsequent 10-year returns for the Russell 2000 suggests that based on today's valuations, small caps could see low double digit (~13%) annualized returns over the next decade. The relative forward P/E (0.74x) also suggests small caps should outperform large caps over the next decade.

Exhibit 290: The absolute fwd. P/E for the Russell 2000 suggests low double digit annualized 10yr returns
Russell 2000 fwd P/E vs. next 10yr annualized returns, 1985-10/31/22



Source: FactSet, BofA US Equity & US Quant Strategy

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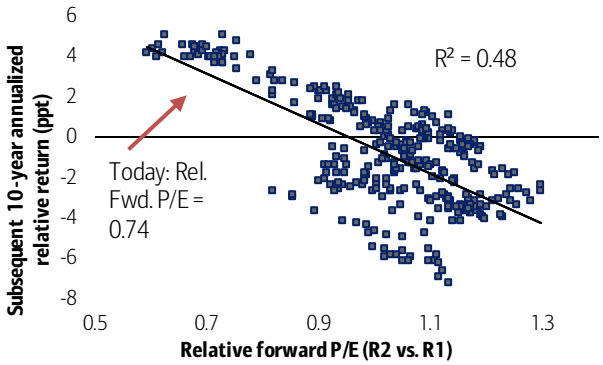
Exhibit 291: Relative multiple suggests that small caps could outperform large caps over the next ten years
Relationship between relative fwd. P/E of Russell 2000 vs. Russell 1000 and next 10yr annualized relative returns, 1985-10/31/22



Note: Represents the relationship between the relative forward PE for the Russell 2000 vs the Russell 1000 (since 1979) and subsequent rolling 10-year annualized returns differential.
Source: FactSet, BofA US Equity & US Quant Strategy

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The only other time small caps were this cheap relative to large caps was during the Tech Bubble period of 1999-2001. And in the 10 years following March 1999 (trough in small vs. large cap performance), small caps were up over 90% over the next 7 years, whereas large caps were flat. And over the full decade (ending in March 2009), small caps were +6% over that decade vs. -38% for large caps.

Exhibit 292: The 10 years following March of 1999 were a positive decade for small caps, negative decade for large caps
Cumulative performance over the next 1, 2, 3, 4, 5, 6, 7, 8, 9 & 10 years for small and large caps beginning in Mar'99 (start of small cap secular outperformance cycle)

Cumulative	N1Y	N2Y	N3Y	N4Y	N5Y	N6Y	N7Y	N8Y	N9Y	N10Y
3/31/1999	3/31/2000	3/30/2001	3/29/2002	3/31/2003	3/31/2004	3/31/2005	3/31/2006	3/30/2007	3/31/2008	3/31/2009
S&P 500	16%	-10%	-11%	-34%	-12%	-8%	1%	10%	3%	-38%
Russell 2000	36%	13%	27%	-8%	48%	54%	92%	101%	73%	6%
Relative	19%	23%	38%	26%	61%	63%	91%	91%	70%	44%

Source: Russell, S&P, BofA US Equity & US Quant Strategy

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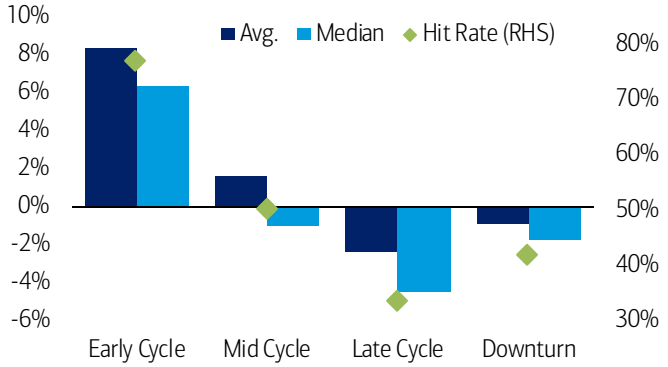
Small usually lags in Downturns…but not the 70s/early 80s

Our US Regime Indicator (see US Regime Indicator: Late Cycle now, Downturn 1H23 for a complete discussion) remains in Late Cycle but continues to move closer to the Downturn phase. Downturns have historically been the most negative phase for small caps relative to large caps (Exhibit 293). But not always: small caps outperformed large caps (and saw positive absolute returns) during the three Downturn phases of the mid/late 1970s and early 1980s (Exhibit 294), the period closest to today's environment of a Fed trying to stem high inflation (more below).

Exhibit 293: Early Cycle typically best phase for small vs. large caps, with small typically lagging large in Downturns
Average and median relative performance of small vs. large caps during the four phases of our US Regime Indicator (since 1970)



Note: Based on Russell indices for from 1979-present; source for historical returns prior to 1979: CRSP®, Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.uchicago.edu Performance has been calculated by BofA US Equity & Quant Strategy. For details on our US Regime Indicator, please see the discussion earlier in this report as well as the Appendix for methodology.
Source: Bloomberg, CRSP, BofA US Equity & US Quant Strategy

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Exhibit 294: But small caps outperformed during each of the Downturn/Recession phases of the mid/late 70s and early 80s
Performance of small vs. large caps during Downturn/Recession regimes of our US Regime Indicator since 1970

Start	End	Small caps	Large Caps	Relative
5/31/1974	3/31/1975	14%	-3%	17%
6/30/1979	7/31/1980	26%	18%	8%
10/31/1981	10/31/1982	11%	9%	2%
2/28/1985	8/31/1985	4%	9%	-5%
5/31/1989	3/31/1990	-5%	5%	-11%
8/31/1990	3/31/1991	42%	32%	10%
9/30/1995	3/31/1996	14%	21%	-8%
2/28/1998	1/31/1999	-8%	22%	-31%
11/30/2000	11/30/2001	3%	-13%	17%
7/31/2007	2/28/2009	-35%	-35%	0%
11/30/2011	8/31/2012	14%	17%	-3%
1/31/2015	2/29/2016	-10%	-4%	-7%
	Avg.	**6%**	**7%**	**-1%**
	Median	**8%**	**9%**	**-2%**
	Hit Rate	**67%**	**67%**	**42%**

Note: Based on Russell indices for from 1979-present; source for historical returns prior to 1979: CRSP®, Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.uchicago.edu Performance has been calculated by BofA US Equity & Quant Strategy. For details on our US Regime Indicator, please see the discussion earlier in this report as well as the Appendix for methodology.
Source: BofA US Equity & Quant Strategy, CRSP, Bloomberg.

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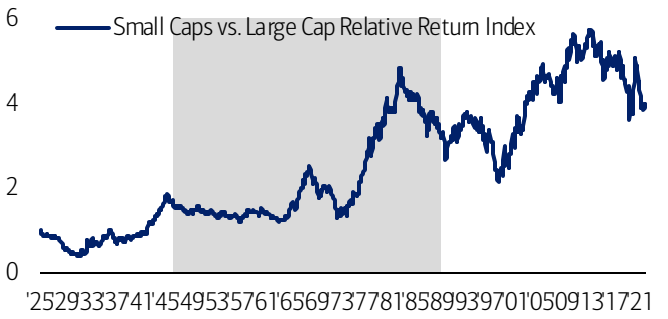
Small caps best-positioned for continued inflation...

Small caps outperformed during the 1970s – in fact, the period from 1973-1983 was one of the greatest bull markets in small caps relative to large caps of all time (Exhibit 295). Our work suggests that small cap margins have been less negatively correlated (or more positively correlated) with the various sources of inflation than large cap margins (Exhibit 297). And amid BofA's expectations for a higher-for-longer oil price backdrop, small caps are more exposed to beneficiaries of higher commodity prices than sectors hurt by them (Exhibit 296). While we expect inflation to slow from here, small caps are still well positioned for this backdrop: they were the best-performing asset class in periods of below-trend GDP growth and above-trend but slowing inflation (Exhibit 298).

Exhibit 295: Small caps outperformed during the inflationary period of the 1970s and during the full protectionist Cold War period (in grey)
Small caps vs. large cap relative performance (1926-9/30/22)



Source of historical returns: CRSP®, Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.uchicago.edu Performance has been calculated by BofA US Equity & Quant Strategy
Source: CRSP, The University of Chicago; BofA US Equity & Quant Strategy

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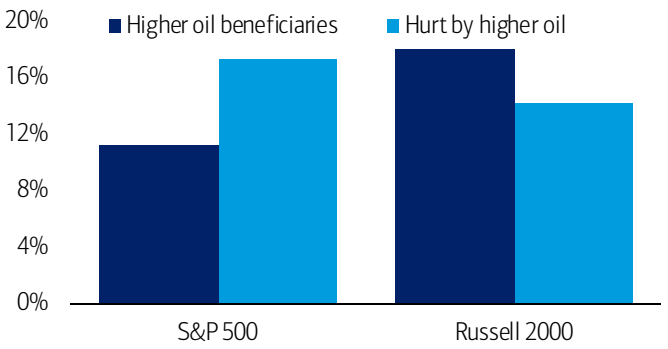
Exhibit 296: Small caps more exposed to higher oil beneficiaries (Energy, Capital Goods) vs. less exposed to sectors hurt by higher oil (Consumer)
Energy/Capital Goods vs. Consumer sector weights in S&P 500 vs. Russell 2000 (as of 11/17/22)



Source: Bloomberg, BofA US Equity &US Quant Strategy

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Exhibit 297: Small cap margins have been less negatively (or more positively) correlated with most sources of inflation than large caps
Correlation of inflation vs. YoY change in margins for Russell 2000 vs. S&P 500 margins, 1987-present

Inflation Type	Correlation with EBIT Margin YoY Change	
Coincident	Small Caps	Large Caps
(Avg. Hrly. Earnings YoY)	-42%	-18%
Employment Cost Index YoY	1%	-6%
CPI YoY	23%	18%
Core CPI YoY	-12%	-19%
CRB Index YoY	59%	49%
4 qtr lagged impact	Small Caps	Large Caps
(Avg. Hrly. Earnings YoY)	-8%	-21%
Employment Cost Index YoY	-7%	-18%
CPI YoY	-32%	-38%
Core CPI YoY	-14%	-31%
CRB Index YoY	5%	16%

Source: Bloomberg, Haver Analytics, FactSet, BofA US Equity & US Quant Strategy
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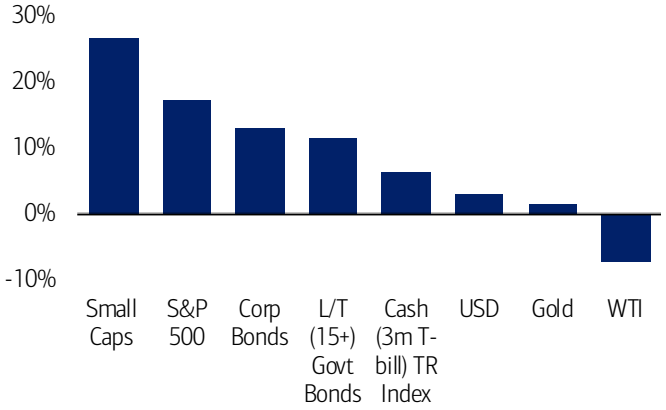
Exhibit 298: Small caps were best performing asset class in backdrops of high but slowing inflation and below-trend economic growth
Annualized returns of asset classes in periods of below-trend GDP growth and above-trend but decelerating inflation (on a 3m basis), 1947-present



Note: USD since 1967, WTI since 1974, other asset classes since 1947. Russell 2000 for small caps 1979-on. Prior to 1979, source of historical returns: CRSP®, Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.uchicago.edu Performance has been calculated by BofA US Equity & Quant Strategy
Source: Haver, Bloomberg, Global Financial Data, DOE, CRSP, BofA US Equity & US Quant Strategy
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Small typically leads after Fed pauses/Fed cuts…

Once the Fed stops hiking, this is usually a favorable backdrop for small>large…

The months before the last rate hike have also generally been mixed to negative for small cap relative performance, but more positive in the 70s/early 80s hiking cycles – and the 6/12 months following the last rate hike has typically seen small beat large.

Exhibit 299: Small caps typically outperformed, on average, once the Fed stops hiking – which was particularly true in the 70s/early 80s
Relative performance (ppt) of small caps vs. large caps around Fed tightening cycles since 1971 with returns prior to and following the final rate hike

		3m before last hike	6m before last hike	12m before last hike	3m after last hike	6m after last hike	12m after last hike
Avg.	Full history	-3%	2%	3%	-1%	2%	5%
	70s/early 80s	-1%	6%	9%	1%	3%	10%
Hit Rate	Full history	21%	43%	57%	43%	64%	50%
	70s/early 80s	29%	57%	86%	57%	71%	71%

Note; 70s/early 80s period includes 7 hiking cycles in the average. Returns based on Russell 2000 vs. Russell 1000 indices for hiking cycles from 1983-now. Prior to 1981, source of historical returns: CRSP®, Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.uchicago.edu Performance has been calculated by BofA US Equity & Quant Strategy. **Source:** CRSP, Bloomberg, BofA Us Equity & US Quant Strategy
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…and Fed rate cuts around recessions have also been positive for small>large

Performance of small vs. large caps has been mixed leading into the first rate cut, but if considering only Fed cuts that occurred around recessions, small caps typically outperformed in the six and 12 months prior to the first cut. And once cutting begins, for the cutting cycles around recessions, small caps beat large caps 57%/57%/71% of the time over the subsequent three/six/12 months, with small outperforming large by an average of 2ppt/5ppt/8ppt over those periods and by 8ppt over the full cutting cycle.

Exhibit 300: Small caps have typically outperformed during Fed cutting cycles that occurred around economic recessions
Absolute and relative performance of small caps during Fed rate cutting cycles 1974-present

				Small Cap absolute performance							Relative Performance: Small vs. Large caps						
				Prior to first rate cut			Following first rate cut:			Full easing cycle	Prior to first rate cut			Following first rate cut:			Full easing cycle
First cut	Last cut	# of mos	Econ recession?	-12m	-6m	-3m	+3m	+6m	+12m	Annualized	-12m	-6m	-3m	+3m	+6m	+12m	Annualized
7/31/1974	4/30/1975	9	1	-24%	-20%	-14%	-7%	6%	39%	33%	3%	-3%	0%	1%	11%	27%	20%
4/30/1980	6/30/1980	2	1	7%	4%	-15%	24%	43%	61%	101%	2%	1%	-9%	8%	22%	36%	46%
1/31/1981	12/31/1982	23	1	22%	16%	2%	11%	8%	-5%	10%	10%	9%	1%	8%	7%	3%	5%
10/2/1984	8/19/1986	23		-11%	2%	4%	-2%	11%	9%	18%	-10%	-4%	-3%	-5%	0%	-4%	-6%
10/19/1987	2/10/1988	4		-2%	-17%	-20%	-7%	6%	11%	-14%	4%	4%	7%	-19%	-9%	-13%	-68%
6/5/1989	9/4/1992	39	1	20%	20%	10%	3%	-2%	-1%	3%	-1%	4%	0%	-7%	-11%	-15%	-5%
7/6/1995	11/17/1998	40		19%	16%	10%	5%	11%	19%	10%	-5%	-5%	1%	0%	-1%	0%	-14%
1/3/2001	6/25/2003	30	1	1%	-8%	-4%	-12%	3%	2%	-4%	5%	1%	3%	6%	11%	16%	9%
9/18/2007	12/16/2008	15	1	11%	0%	-4%	-8%	-18%	-16%	-34%	-4%	-6%	-4%	-4%	-3%	8%	0%
8/1/2019	3/15/2020	7	1	-7%	3%	-4%	1%	7%	-5%	-33%	-12%	-6%	-4%	-2%	-4%	-15%	-20%
Avg.		**19**		**4%**	**2%**	**-4%**	**1%**	**7%**	**11%**	**9%**	**-1%**	**0%**	**-1%**	**-1%**	**2%**	**4%**	**-3%**
Avg. (recessions only)		**18**		**4%**	**2%**	**-4%**	**2%**	**7%**	**11%**	**11%**	**0%**	**0%**	**-2%**	**2%**	**5%**	**8%**	**8%**
Median		**19**		**4%**	**2%**	**-4%**	**0%**	**7%**	**6%**	**6%**	**1%**	**-1%**	**0%**	**-1%**	**-1%**	**1%**	**-3%**
Hit Rate				**60%**	**60%**	**40%**	**50%**	**80%**	**60%**	**60%**	**50%**	**50%**	**40%**	**50%**	**50%**	**50%**	**40%**
Hit Rate (recessions only)				**71%**	**57%**	**29%**	**57%**	**71%**	**43%**	**57%**	**57%**	**57%**	**29%**	**57%**	**57%**	**71%**	**57%**

Source: BofA US Equity & Quant Strategy, Bloomberg (for Russell 2000 small cap returns in all cycles post-1975 and S&P 500 large cap index returns in all cycles) Haver Analytics, Source of historical returns for small caps in 1974-75 cycle: CRSP®, Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. www.crsp.uchicago.edu Performance has been calculated by BofA US Equity & Quant Strategy

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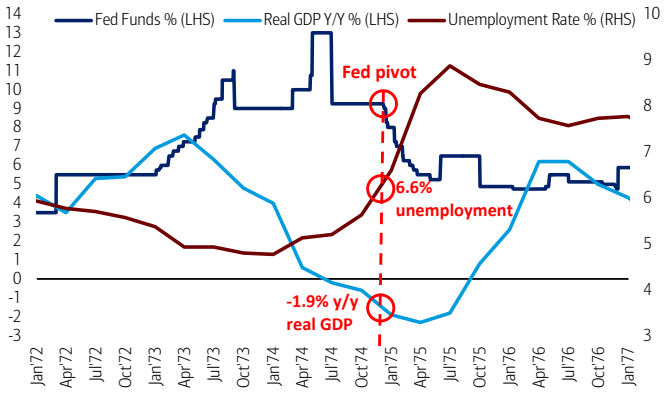
...And 1974 "Fed pivot" was very positive for small caps

Global Investment Strategist Michael Hartnett is similarly positive on small caps. In in his Nov. 3 report (The Next Big Thing is Small), he highlighted that small caps were the single best performing asset class following the 1974 "Fed pivot", leading all other asset classes every year of the latter half of the 1970s and over the full period from 1975-81. Stagflation continued throughout the full 1970s, but once the inflation shock of 1973/74 was over, small caps entered one of their biggest bull markets of all time.

Chart 301: Dec'74 Fed pivot driven by worsening recession
Fed funds rate vs US real GDP growth YoY vs US unemployment rate (RHS)



Source: BofA Global Investment Strategy, Bloomberg

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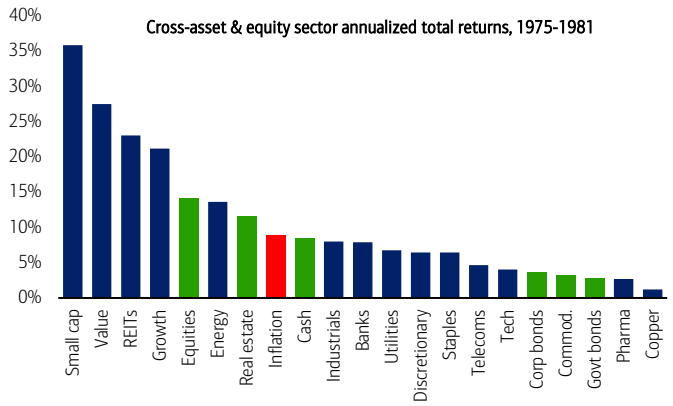
Chart 302: Small cap the standout "winner" of the Dec'74 Fed pivot
Cross-asset annualized returns in 1975-1981



Source: BofA Global Investment Strategy, Bloomberg

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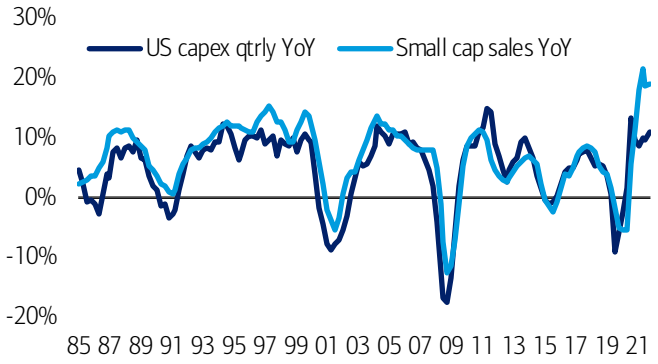
Capex resilience / reshoring benefits small caps

As highlighted earlier in our De-globalization, reshoring & capex resilience section, small caps are bigger beneficiaries of capex spending in the US, and are also poised to benefit from reshoring.

Exhibit 303: Small cap sales growth has been highly correlated with US capex growth...
US qtrly YoY capex growth vs. Russell 2000 YoY sales growth, 1986-3Q22



Source: FactSet, Haver Analytics, BofA US Equity & US Quant Strategy

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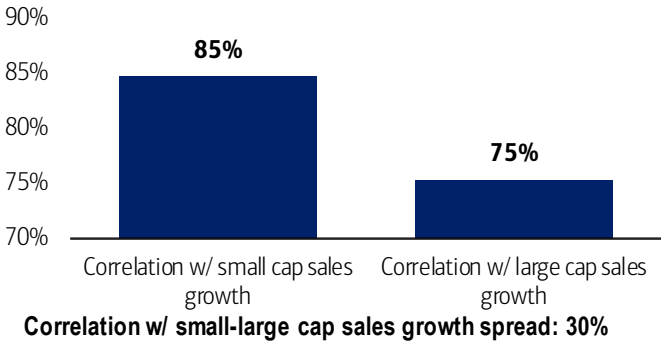
Exhibit 304: ...where the correlation (85%) is higher than for large caps' sales (75%)
Correlation of US capex growth with small cap (Russell 2000) and large cap (S&P 500) sales growth, 1985-present



Source: FactSet, Haver Analytics, BofA US Equity & US Quant Strategy

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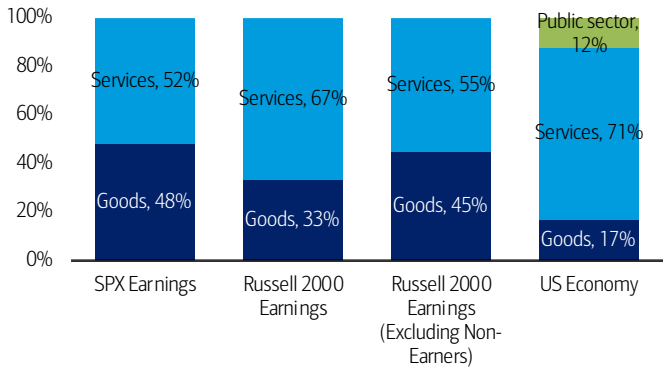
Services>goods supports small>large

Small caps are more similar in composition to the US economy, with a largely services-oriented earnings skew than large caps. As we showed earlier (Services > goods is a headwind for S&P earnings), with the exception of COVID, goods spending was hit harder than services spending during recessions. And today, we still have yet to see any major cracks in services demand, whereas goods demand has been weakening.

Exhibit 305: Small caps more geared toward services (like US GDP) than large caps
Our estimate for Goods vs. Services exposure of S&P 500 vs. Russell 2000 vs US economy (as of 2021)



Source: Haver, FactSet, BofA US Equity & US Quant Strategy. Based on industry breakout of 2021 earnings for Russell 2000/S&P 500 and gross value added by industry in 2021 for US economy.

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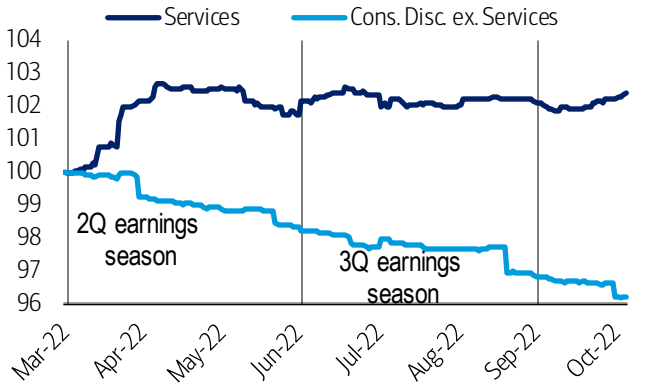
Exhibit 306: No cracks in services demand yet
2022 consensus sales for services vs. Consumer Discretionary ex. Consumer Services (3/31/22-11/4/22)



Source: FactSet, BofA US Equity & Quant Strategy; Services: Hotels, Restaurants, Airlines

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Risk for small beyond next few years: debt & rate risk

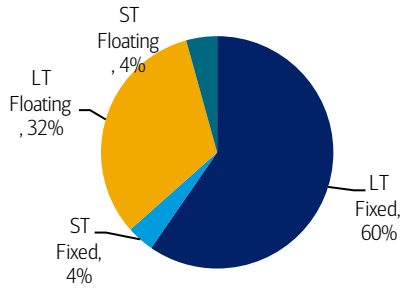
Weighted average maturity of small cap debt is five years

One of the biggest risks to small caps today, in our view, is the risk from higher rates based on small caps' debt composition: debt maturities coming due (particularly beyond 2024) and floating rate risk, where small caps have more floating rate debt than large caps. Small caps have been increasingly locking in more long-term fixed rate debt: five years ago, just under half of Russell 2000 debt was long-term fixed, vs. 60% today, but that is still much lower than 80% for large caps. The weighted avg. maturity of debt is 5 years (half that of large), where Staples and Tech have the shortest maturities (2.5 yrs).

About three-quarters of small cap debt is high yield. In the US Credit Research's team's recent report (see Capital Allocation: Thinking Like a CFO), our High Yield strategists noted that HY issuer balance sheets are in relatively good shape, with leverage below historical averages (but would rise to 70th percentile next year assuming a 15% hit to

EBITDA), and 85% of bonds mature 3+ years out. HY interest coverage is currently at record highs at ~5.5x, and would fall to ~3.4x next year assuming a 5% Fed Funds rate and a 15% fall in EBITDA. This compares to a fall to ~2.3x during the GFC; the team sees risk at <3x.

Exhibit 307: Today 60% of Russell 2000 debt is long-term fixed
Russell 2000 debt by maturity (Oct 2022)



Source: Bloomberg, BofA US Equity & US Quant Strategy
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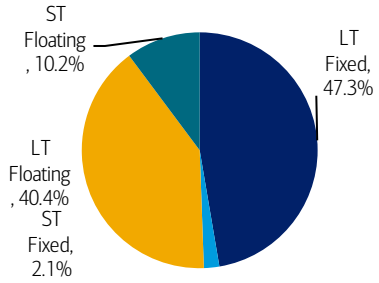
Exhibit 308: Five years ago, less than half of Russell 2000 debt was long-term fixed
Russell 2000 debt by maturity (12/2017)



Source: Bloomberg, BofA US Equity & US Quant Strategy
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Exhibit 309: Weighted avg. maturity of Russell 2000 debt = 5 years
Russell 2000 non-Financials debt: wtd. avg. maturity (as of 10/2022)

Sector	Overall
Communication Services	5.0
Consumer Discretionary	4.9
Consumer Staples	2.5
Energy	4.0
Health Care	3.5
Industrials	4.5
Information Technology	2.5
Materials	3.1
Real Estate	3.7
Utilities	11.7
Russell 2000	**4.5**

Source: FactSet, BofA US Equity & US Quant Strategy
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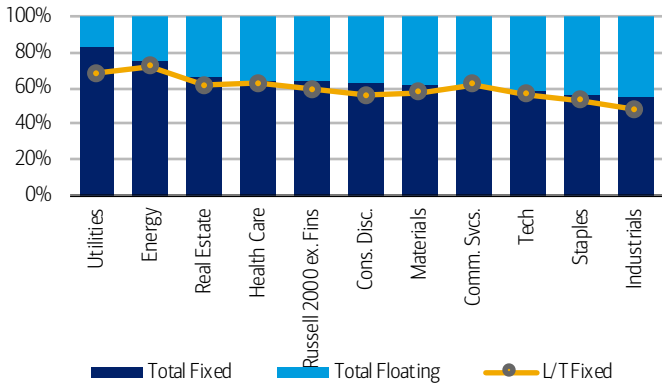
Exhibit 310: Floating rate risk highest in Industrials, Staples; Utilities and Energy have most L/T fixed debt
Russell 2000 debt by sector: % fixed vs. % floating rate (as of 10/2022)



Source: FactSet, BofA US Equity & US Quant Strategy
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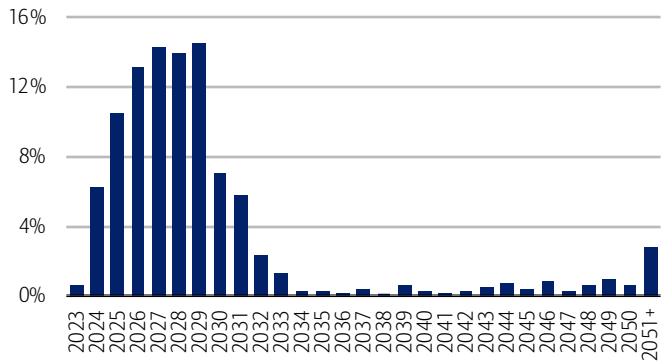
Exhibit 311: Most (over half) of small cap long-term fixed debt comes due between 2024-2029
Russell 2000: % of long-term fixed rate debt coming due by year



Source: Bloomberg, BofA US Equity & US Quant Strategy
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Limited risk to earnings in 2023; risks rise in subsequent years

Below, we estimate the potential incremental impact to small cap operating earnings from higher net interest expense over the next five years, assuming BofA house views for short-term rates through 2024 (held static beyond that) and current credit spreads for the non-long-term-fixed portion of Russell 2000 non-Financials debt each quarter over time, plus BofA forecasts for the cash yield for interest income. Our analysis suggests a 3-4% incremental hit to small cap non-Financials operating earnings relative to 2022 from higher net interest expense in each of the next two years (as a % of 2022 operating earnings). But this could ramp up to 6%, 11% and 15% respectively in 2025/26/27. While the impact the next two years is not dire, we think this becomes a bigger risk to monitor as we move forward, particularly if interest rates remain high.

What's priced in?

If there's "good news" to cite here, it's that is small caps overall are already pricing in a lot of bad news given the extreme valuation discounts vs. history of the size segment as well as the fact that small caps with a high proportion of floating rate debt, high proportion of short-term debt, and those with high net debt/EBITDA overall are trading at discounts to their industry group peers across valuation measures we track.

Exhibit 312: Our analysis suggests a 3-4% incremental hit to small cap non-Financials 2022 EBIT from higher net interest expense in each of the next 2 years vs. 2022; impact ramps up thereafter
Increase in Russell 2000 net interest expense relative to current (2022) as a % of '22 EBIT from floating rate date + refi of fixed date coming due

	Increase (decrease) in net interest exp. vs. 2022 as a % of 2022 EBIT				
Sector	**2023**	**2024**	**2025**	**2026**	**2027**
Comm. Svcs.	6.5%	4.9%	5.0%	10.1%	20.2%
Cons. Disc.	4.8%	4.0%	4.8%	7.1%	9.6%
Staples	7.1%	7.0%	9.9%	14.6%	23.6%
Energy	0.3%	0.6%	1.8%	3.0%	4.5%
Health Care	NM	NM	NM	NM	NM
Industrials	4.6%	4.6%	5.5%	8.0%	9.9%
Tech	-2.8%	-0.7%	5.4%	14.0%	20.5%
Materials	3.4%	2.7%	4.5%	6.3%	7.5%
Real Estate	19.9%	20.9%	27.9%	38.3%	48.8%
Utilities	9.8%	9.8%	8.8%	10.8%	13.5%
Russell 2000 ex. Fins	**3.3%**	**3.9%**	**6.5%**	**10.7%**	**15.4%**
ex. Fins & Utilities	**3.0%**	**3.7%**	**6.4%**	**10.7%**	**15.5%**

Source: Bloomberg, BofA US Equity & US Quant Strategy
Note: Uses 3m LIBOR + credit spread (where we assume weighted average of HY and IG spreads based on HY vs. IG weight in small cap debt) for interest expense (using BofA forecasts for Fed Funds rate trajectory through 2024 and then holding at those levels thereafter); BofA cash yield forecasts through 2024 and constant thereafter for interest income.

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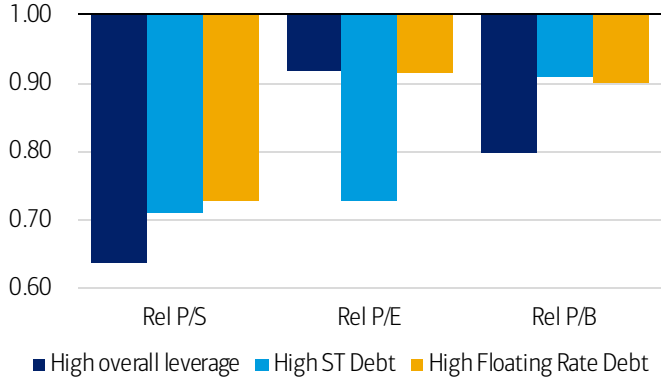
Exhibit 313: What's priced in? Small caps with high S/T debt, high floating rate debt, and high leverage overall (net debt/EBITDA) are trading at discounts to their industry group peers across metrics
Relative Price/Sales, Fwd. P/E and Price/Book of top 100 stocks in Russell 2000 ex-Financials by high net debt/EBITDA, high S/T debt as a % of total debt, and high floating rate debt as a % of total (as of 11/18/22)



Source: Bloomberg, BofA US Equity & US Quant Strategy

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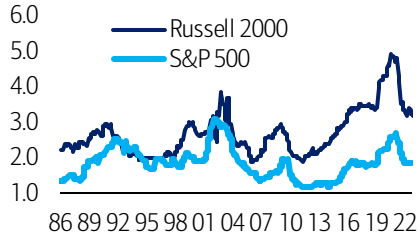
Exhibit 314: Net Debt/EBITDA has fallen to late 2018 levels (3.2x); still above avg. for small
Russell 2000 and S&P 500 non-Financials Net Debt/EBITDA, 1986-present



Source: FactSet, BofA US Equity & US Quant Strategy

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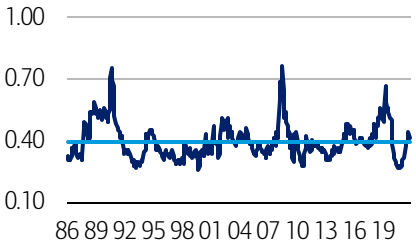
Exhibit 315: Net debt to market cap for small caps (42%) roughly in-line with avg (40%)
Russell 2000 & S&P 500 net debt/mkt. cap, 1986-present



Source: FactSet, BofA US Equity & US Quant Strategy

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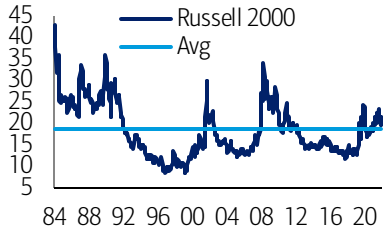
Exhibit 316: Cash on small cap balance sheets as a % of market cap is slightly above average
Russell 2000 non-financials cash to market cap (1985-10/31/22)



Source: FactSet, BofA US Equity & US Quant Strategy

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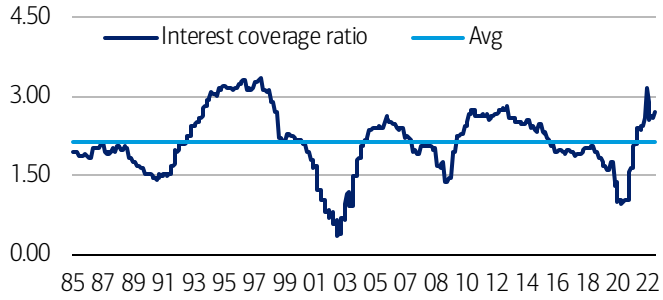
Exhibit 317: Interest coverage for small caps well above average
Russell 2000 interest coverage ratio 1986-present



Source: FactSet, BofA US Equity & US Quant Strategy

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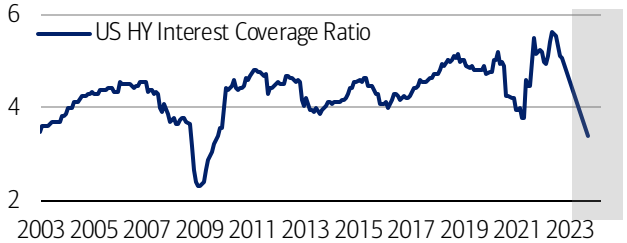
Exhibit 318: High Yield interest coverage ratio could fall to below average (3.4 in 2023 vs. 3.8 average and 2.3x during GFC)
US High Yield interest coverage ratio, 2003-2023F (2023 assumes 5% Fed Funds rate and a 15% decline in EBITDA)



Source: BofA Global Research

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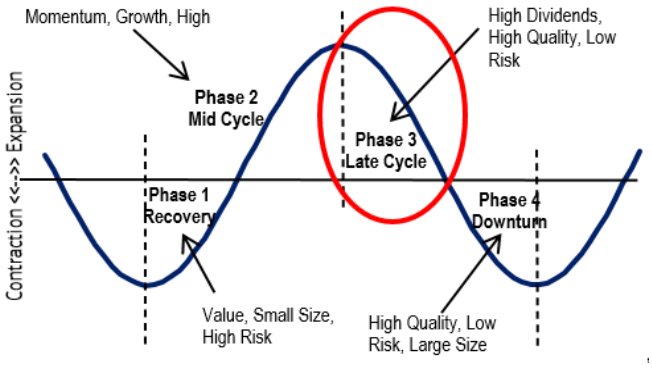
US Regime Indicator: Late Cycle now, Downturn 1H23

Our US Regime Indicator, a four-phase indicator based on macro and top-down inputs, continues to decline, still Late Cycle but closer to its next phase, Downturn. We have been in the Late Cycle period for longer than average (15 months vs 10 months on avg), but anticipated this in May (see Quantitative Profiles). Equity factor performance has been predictable – in fact far more predictable than sector performance - within its phases. Note that this indicator usually tracks the economic cycle but can de-couple. See Appendix for methodology.

It's getting complicated: Today, signs point to Free Cash Flow-based valuation, Low Risk and Quality outperforming. The risk of being in Deep Value strategies is growing increasingly pronounced. But the risk of not being in Deep Value strategies later in 2023 is equally pronounced (see The risk of market turns).
How to hedge: Avoid momentum and stick with free cash-flow-based valuation factors and a slight positive tilt toward quality until Early Cycle officially hits.

Exhibit 319: US Regimes – a heuristic
Early Cycle, Mid Cycle, Late Cycle and Recession/Downturn regimes



Source: BofA US Equity & Quant Strategy

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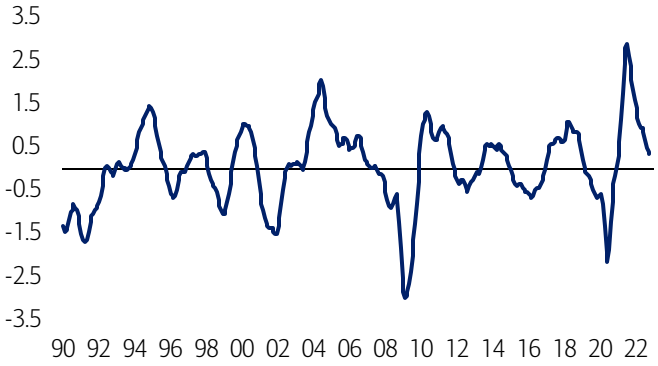
Exhibit 320: US Regime Indicator inched closed to Downturn in October, but remains in Late Cycle
US Regime Indicator (January 1990-Oct. 2022)



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 322: 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%
	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:	-0.9%	-7.5%	-4.9%	4.5%	-8.1%	-13.9%	8.9%	-0.6%	-8.2%	6.9%	6.7%
Late Cycle	Median:	-1.6%	-2.9%	0.3%	5.9%	-7.4%	-12.1%	9.9%	3.2%	-8.6%	0.3%	2.5%
(Current)	Hit Rate:	37.5%	25.0%	50.0%	75.0%	12.5%	0.0%	75.0%	62.5%	12.5%	50.0%	75.0%
Phase 4	Avg:	-0.8%	-0.2%	3.1%	5.2%	-4.7%	-6.1%	4.8%	5.6%	-3.0%	-0.9%	-2.4%
Downturn	Median:	-6.3%	0.4%	0.9%	3.7%	0.0%	-4.5%	4.3%	6.5%	-7.5%	0.9%	-5.9%
	Hit Rate:	28.6%	57.1%	57.1%	71.4%	28.6%	42.9%	85.7%	85.7%	14.3%	57.1%	28.6%

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.
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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Free Cash Flow is king in a rising cash yield environment

As the market cycle matures, companies that continue to generate healthy free cash become scarcer and sought after. Why?

Late Cycle regimes are usually accompanied by increasing costs, wage pressure, rising real rates and ramped up business investment amid tight capacity. All of these represent draws on cash flow.

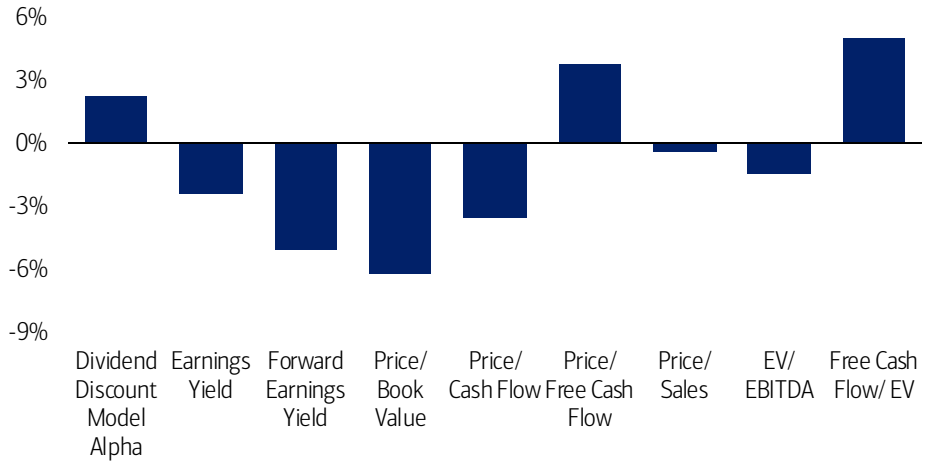
During Late Cycle, our Free Cash Flow to Enterprise Value (FCF/EV) factor (top decile of S&P 500 stocks) has generated annualized alpha of 4.2ppt, on average, more than any other Value factor we follow.

Additionally, in a rising cost of capital environment, investors are well served by swapping out equity value (price-based) measures and multiples for firm-value or Enterprise Value based measures to incorporate the rising cost of capital.

...and stick with it in Downturns

Cash producing companies continue to fare well during Downturns, with FCF/ EV leading the equal weighted S&P 500 index by 5.0ppt on avg (Exhibit 322). Another framework that fares well during a Downturn is our Dividend Discount Model, which incorporates the moves in rates and equity risk premia more explicitly than multiple-based value factors.

Exhibit 323: High Free Cash Flow to Enterprise Value, Low Price to Free Cash Flow and Dividend Discount Model Alpha fared best among Value factors during Downturns
Value factors historic average performance in the Downturn phase



Source: FactSet, BofA US Equity & Quant Strategy

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Value vs. Growth

We prefer Quality / Cash-Flow based Value over Deep Value

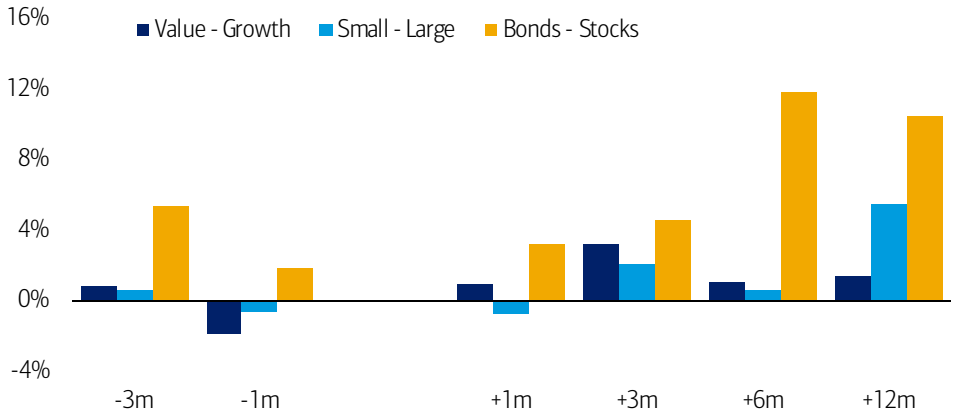
We prefer Value to Growth for the next twelve months, but would avoid deep value factors like price to book or price to sales in a downturn. Profits growth is likely to slow demonstrably from here, presenting a risk to a strong Value tilt.

Lessons from the 70s: Value>Growth, Small>Large

We extended the US Regime Indicator history an additional 20 years back to 1970. While not all inputs were available over the additional history (see Appendix), and we continue to present returns of our S&P 500 factors over the original history (on a hypothetical backtested basis since 1990), we use the extended history to analyze size, style and asset class performance in a comparable high inflation environment (based on Fama-French data for size/style).

During Downturn regimes of the 1970s and early 1980s (through '82), Value led Growth in the three months prior to a Downturn, and continued to lead Growth for up to 12 months after the onset of a Downturn (Exhibit 323). Small Caps led Large Caps in the three months before Downturns, and continued to outperform in the three, six and 12 months after the onset of a Downturn. Bonds outperformed stocks in the 3-months before and three/six/12 months after the onset of a Downturn.

Exhibit 324: 70s / early 80s Downturn phases saw Value outperform Growth, Small outperform Large (3-mth, 6-mth and 12-mth) and Bonds outperform Stocks
Factor performance prior and after entering Downturn during period of high inflation in the 70s / 80s



Source: US Equity & Quant Strategy, Dartmouth University data library; Fama-French definition of Value, Growth, Small Cap and Large Cap
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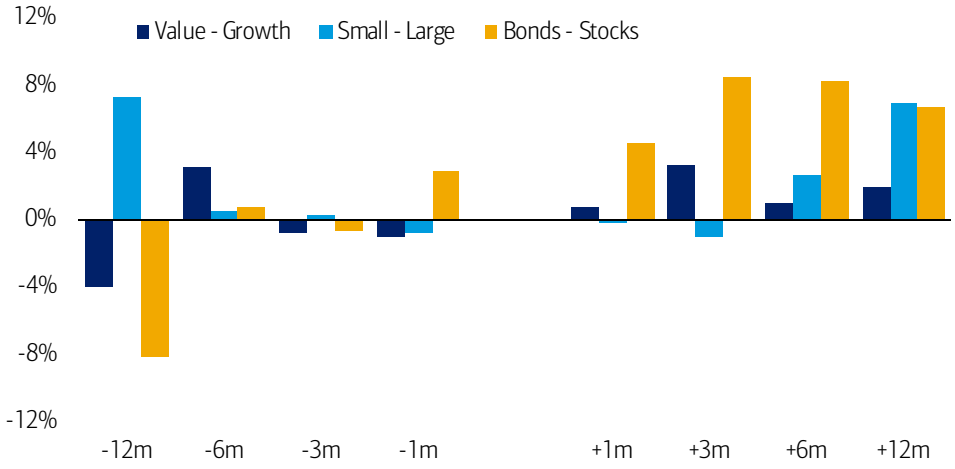
Value led even after hiking stopped

When the Fed fought inflation in the 70s, it took several hike cycles to get inflation in check. Even after the Fed was done, Value consistently led Growth for the next 12 months (Exhibit 324). Small Caps mostly led Large before the last hike (except for the last month), stumbled in the 3-mth after last hike, but subsequently led Large Caps in the six months and 12 months periods. Bonds generally led equities before last hike, and consistently led after (supporting our overweight of the bond-like Utilities sector.)

Exhibit 324: After the last Fed hike in the 70s / early 80s Value led Growth, Small led Large (6-mth and 12-mth) and bonds led stocks
Factor performance prior and after the last Fed hike during period of high inflation in the 70s / 80s



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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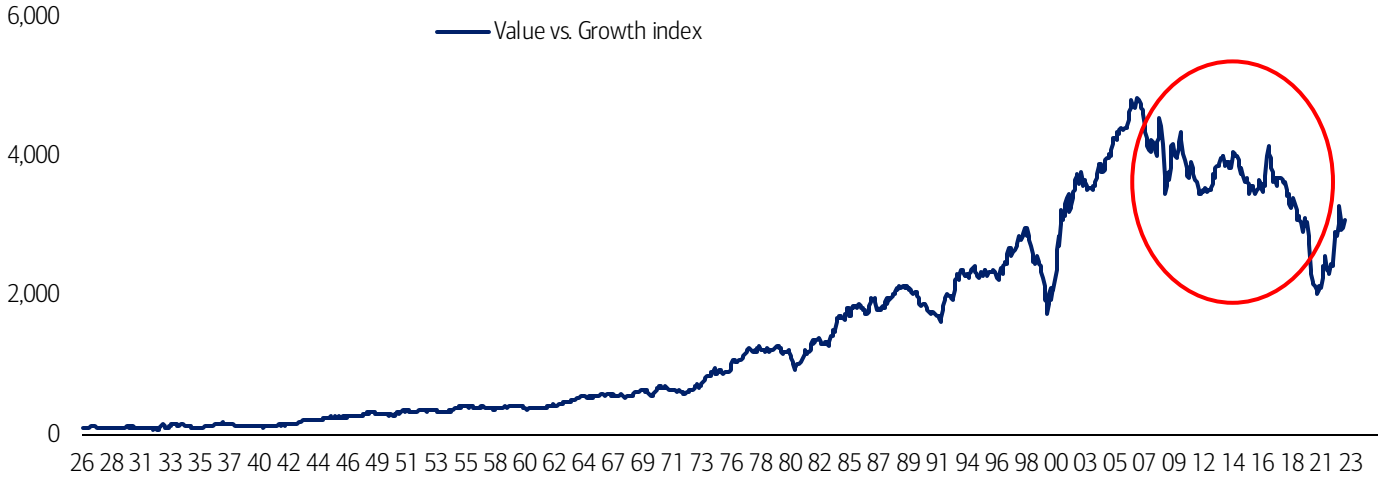
Forget the last 10 years: Value has outperformed Growth over the long-term

Exhibit 326: Growth crushing Value is a recent phenomenon
Cumulative Relative Value vs Growth performance based on Fama/French research factors (as of 10/22)



Source: Tuck School of Business data library, BofA US Equity & Quant Strategy.
Note: October performance is based on the Russell 1000 Value and Growth index

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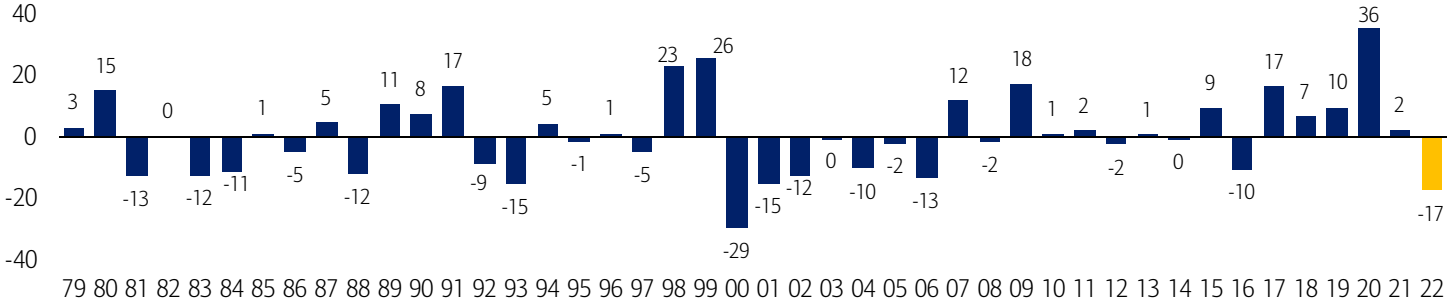
Exhibit 327: Value led more in 2000 (29ppt vs 17ppt YTD) and continued to outperform over the subsequent 6 years
Relative return of the Russell 1000 Growth Index vs. the Russell 1000 Value Index, 1979-2020YTD (as of 10/31/22)



Source: FactSet, BofA US Equity & Quant Strategy

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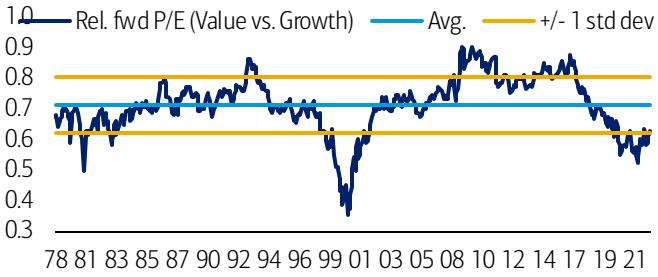
Exhibit 328: Value vs. Growth by index: 1 st dev cheap.
Relative forward P/E of Russell 1000 Growth vs Value style indices as of 10/22



Source: BofA US Equity and Quant Strategy, FactSet

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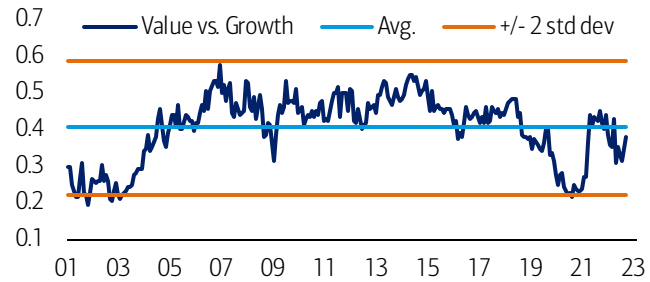
Exhibit 329: Value vs. Growth by Factor: cheap to neutral
Relative Fwd P/E of Value (Forward P/E) vs Growth (L-T EPS Growth), 2/01 – 10/22



Source: FactSet, BofA US Equity & Quant Strategy

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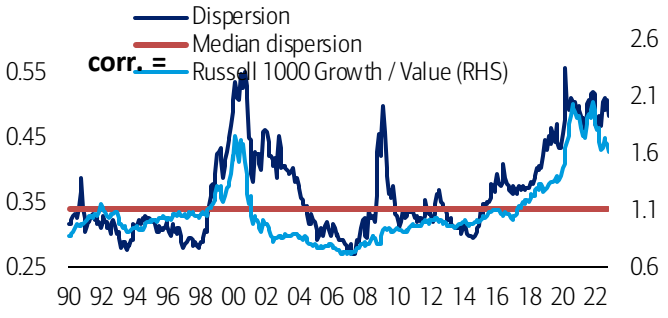
Exhibit 330: Valuation dispersion remains elevated – alpha to be had
S&P 500 valuation dispersion of forward P/E (std. dev / avg) vs. rel. perf. of Russell 1000 Growth over Value (1990--10/2022)



Source: FactSet, BofA US Equity & Quant Strategy

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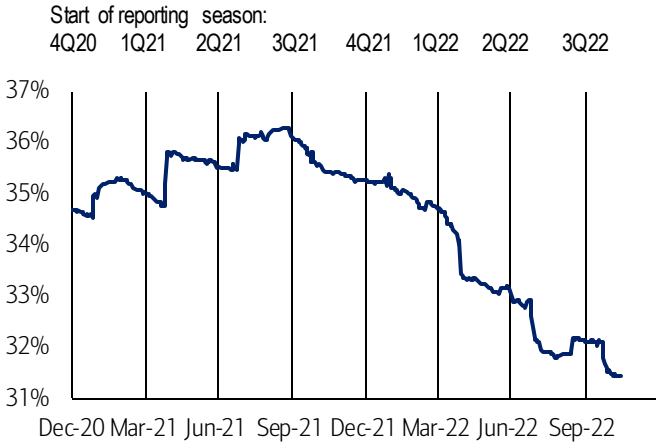
Perfect storm for Growth: weakening fundamentals & higher real rates

Short duration sectors have seen 2023 consensus earnings being revised +9% YTD vs. -19% for long duration sectors. And when it comes to extremes, Energy earnings have risen 90% YTD vs. -24% for Communication Services.

Exhibit 331: Nasdaq 100 earnings have been lagging S&P 500 earnings for 12+ months
Ratio of NDX vs. SPX 2022 consensus earnings (12/20-11/18/22)



Source: BofA US Equity & Quant Strategy, FactSet

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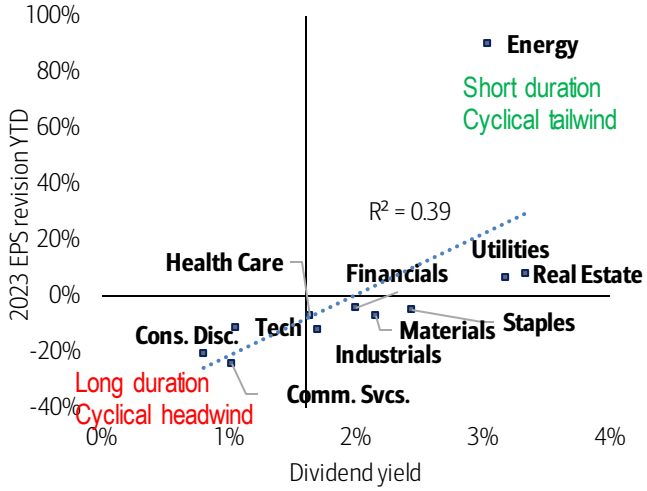
Exhibit 332: Long-duration, secular growth sectors saw bigger estimate cuts YTD than short duration sectors
2023 consensus earnings revision YTD vs. div yield (as of 11/18/22)



Source: BofA US Equity & Quant Strategy, FactSet

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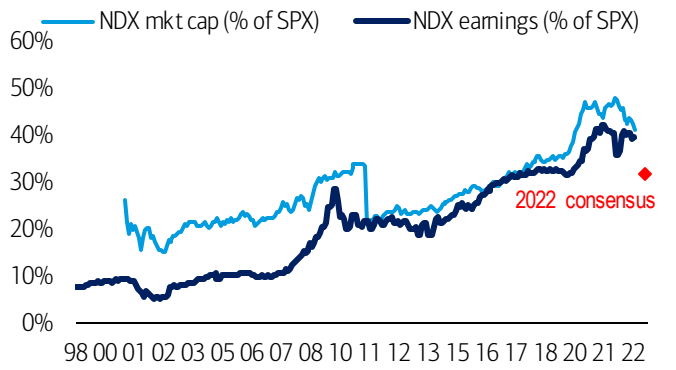
Exhibit 333: Weakening NDX earnings vs. S&P 500 suggest NDX potentially further underperforming the S&P 500
Nasdaq 100 earnings and market cap as % of S&P 500 (1998-10/22; 91% correlation)



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

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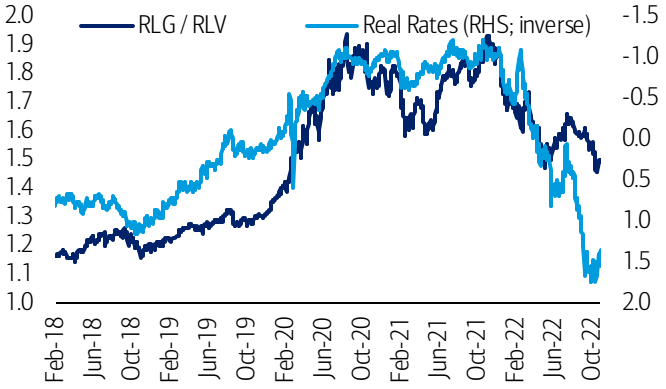
Exhibit 334: Russell 1000 Growth (RLG) vs. Russell 1000 Value (RLV) has been highly correlated to real rates
10-yr real rates vs. relative performance of RLG vs. RLV (2018-present; -84% correlation)



Source: BofA US Equity & Quant Strategy, Bloomberg

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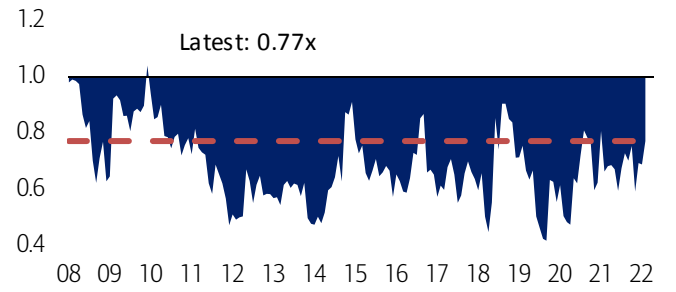
Value is still neglected & has less concentration risk

Exhibit 335: Value is still 23% underweight vs. Growth (Low P/E vs High LTG)
Long only positioning in Value vs Growth proxied by Price to Book Value vs Long-Term Growth of S&P 500 (9/2008-10/22)



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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Exhibit 336: Still overweight TMT (long duration/growth) vs. Energy (value) despite some reversal from max tilt in 2020
Energy sector vs Communication Services sector relative weight in mutual funds (9/08-10/22)



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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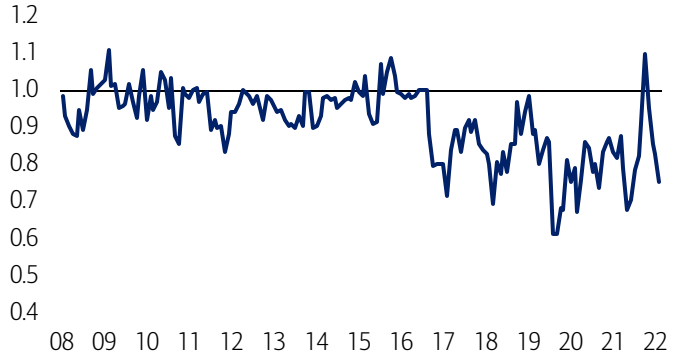
Exhibit 337: High Fwd EPS Yield (Low P/E) is underowned by Fund Managers
High EPS Yield – Weight in Mutual Funds (9/2008-10/2022)



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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Exhibit 338: High FCF/EV is underowned by Fund Managers
High FCF/EV – Weight in Mutual Funds (9/2008-10/2022)



Source: BofA US Equity & Quant Strategy, FactSet Ownership

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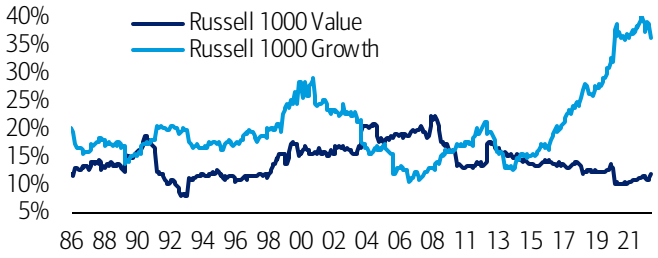
Exhibit 339: Concentration risk in Growth, not in Value
Top five largest stocks' market cap as % of total in the Russell 1000 Value and the Russell 1000 Growth Indices (1986-10/2022)



Source: FactSet, BofA US Equity & Quant Strategy

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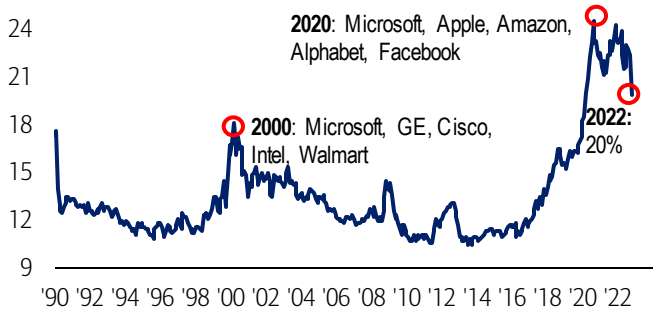
Exhibit 340: Largest five stocks still represent 1/5 of the S&P 500
Weight of largest five stocks in S&P 500



Source: FactSet, BofA US Equity & Quant Strategy

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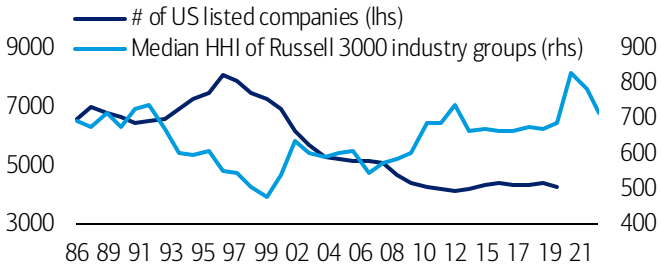
Growth could be hit by regulation, anti-monopolistic scrutiny

Exhibit 341: Market has grown increasingly oligopolistic over the past two decades
# of US listed companies vs. median HHI (1986-present)



Source: HHI=Herfindahl-Hirschman Index of market concentration; 0 = fully competitive industry and 10,000 = monopoly, based on the sum of the squares of the market share of each firm in the industry. World Bank, FactSet, BofA US Equity & Quant Strategy

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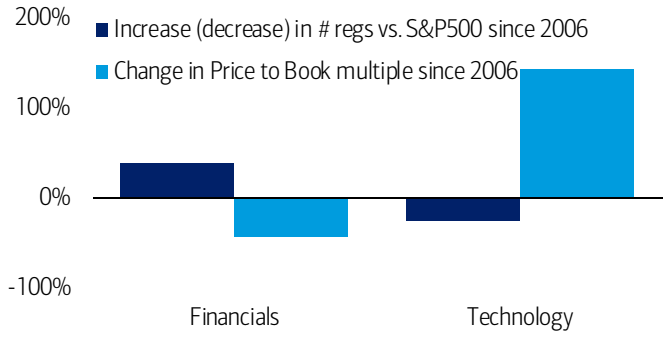
Exhibit 342: Regulations led to lower multiples for US Financials
# of regulations vs. change in Price to Book Value, 2006 vs. 2017



Source: BofA US Equity & Quant Strategy, QuantGov

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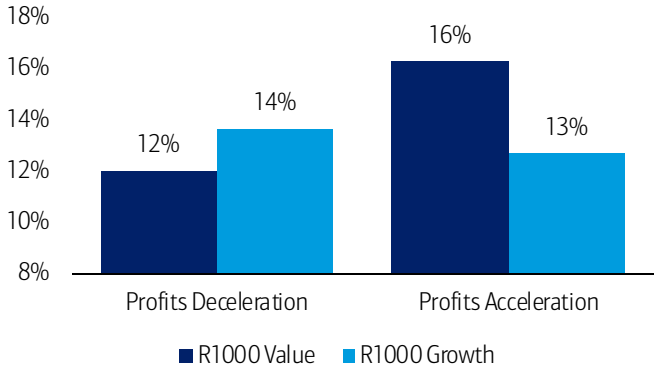
Risk to Value: Decelerating profits growth would historically favor Growth

Exhibit 343: Growth tends to outperform Value when profits decelerate
Growth vs. Value performance during the profits cycle (1982-present)



Source: Russell Investment Group, BofA US Equity Strategy

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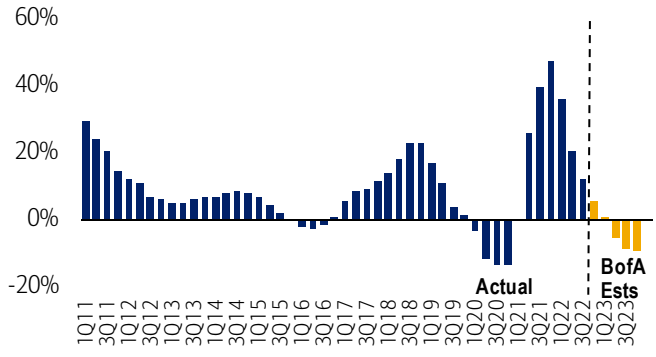
Exhibit 344: We expect earnings to decelerate in 2022
S&P 500 trailing 12-mo YoY profit growth, 1Q11-3Q22 and BofA forecasts for 4Q22-4Q23



Source: BofA US Equity & Quant Strategy, Haver Analytics, FactSet

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The risk of market turns

The tricky thing about market recoveries is the factor whipsaw: Quality and Momentum have outperformed most frequently as we approach the market bottom, and Deep Value

and Risk lag most. But in the initial recovery, Deep Value and Risk lead, and Quality and Momentum lag. How can we hedge around inflection points? Remain tilted toward value via free cash flow-based measures, and neutralize momentum exposure.

Exhibit 345: Short Interest, Momentum and Quality factors outperformed six months prior to market bottoms...

Top decile factor performance vs. equal-weighted S&P 500 six months prior to market bottoms (since 1986)

Factor Performance	Style	Avg Alpha	Hit Rate
Best performing factors (top decile)			
Short Interest	Sentiment	9.7%	80%
Price Return - 12-mth and 1-mth Perf.	Momentum	7.9%	80%
1yr ROE	Quality	7.8%	80%
ROA	Quality	7.7%	80%
Relative Strength - 5wk/30wk MA	Momentum	7.5%	80%
Worst performing factors (top decile)			
Low Price	Risk	-21.0%	0%
Beta	Risk	-19.8%	0%
Price/ Book Value	Value	-19.4%	0%
Estimate Dispersion	Risk	-15.3%	20%
Size	Sentiment	-15.2%	0%

Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 346: ...whereas Risk and Value factors outperformed 12 months following market bottoms

Top decile factor performance vs. equal-weighted S&P 500 12 months following market bottoms (since 1986)

Factor Performance	Style	Avg Alpha	Hit Rate
Best performing factors (top decile)			
Low Price	Risk	45.6%	100%
Beta	Risk	42.6%	100%
Size	Risk	37.0%	100%
Price/ Book Value	Value	34.8%	100%
Price/ Sales	Value	29.3%	100%
Worst performing factors (top decile)			
Relative Strength - 30wk/75wk MA	Momentum	-17.2%	0%
Price Return - 12-mth Perf.	Momentum	-13.9%	0%
Price Return - 11-mth Perf.	Momentum	-13.7%	0%
Price Return - 12-mth and 1-mth Perf.	Momentum	-13.4%	0%
Price to Moving Average (200 day)	Momentum	-12.4%	20%

Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 347: Bottom decile Momentum factors underperformed more than other short factors before market bottoms

Bottom decile factor performance vs. equal-weighted S&P 500 six months prior to market bottoms (since 1986)

Factor Performance	Style	Avg Alpha	Hit Rate
Best performing factors (bottom decile)			
EV/ EBITDA	Value	20.9%	100%
Most Active	Technical	19.1%	100%
Price/ Cash Flow	Value	18.4%	80%
Low Analyst Coverage	Sentiment	17.8%	100%
Price/ Free Cash Flow	Value	17.6%	100%
Worst performing factors (bottom decile)			
Price Return - 12-mth Perf.	Momentum	-22.9%	0%
Price to Moving Average (200 day)	Momentum	-22.4%	0%
Price Return - 9-mth Perf.	Momentum	-22.1%	20%
Relative Strength - 5wk/30wk MA	Momentum	-21.0%	0%
Price Return - 12-mth and 1-mth Perf.	Momentum	-20.8%	0%

Source: FactSet, BofA US Equity & Quant Strategy

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Exhibit 348: Bottom decile Risk factors underperformed more than other short factors following market bottoms

Bottom decile factor performance vs. equal-weighted S&P 500 12 months following market bottoms (since 1986)

Factor Performance	Style	Avg Alpha	Hit Rate
Best performing factors (bottom decile)			
Price Return - 12-mth Perf.	Momentum	52.6%	100%
Price Return - 11-mth Perf.	Momentum	49.8%	100%
Price Return - 9-mth Perf.	Momentum	48.8%	100%
Price to Moving Average (200 day)	Momentum	44.2%	100%
Price Return - 12-mth and 1-mth Perf.	Momentum	41.2%	100%
Worst performing factors (bottom decile)			
Beta	Risk	-24.0%	0%
Large Size	Risk	-20.4%	0%
Variability of Earnings	Risk	-20.2%	0%
Most Active	Momentum	-19.6%	0%
Price/ Free Cash Flow	Value	-19.3%	0%

Source: FactSet, BofA US Equity & Quant Strategy

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Remember the other Rule of 25

Exhibit 349: Rule of 25: buy momentum when VIX<25
1m relative returns vs. equal-wtd. S&P 500, 1990-10/2022

Momentum Factor	VIX > 25	VIX < 25
Relative Strength - 30wk/75wk MA	-0.6%	0.4%
Relative Strength - 5wk/30wk MA	0.0%	0.2%
Relative Strength - 10wk/40wk MA	-0.2%	0.3%
Price to Moving Average (200 day)	-0.1%	0.2%
Price Return - 12-mth Perf.	-0.5%	0.4%
Price Return - 9-mth Perf.	-0.4%	0.4%
Price Return - 3-mth Perf.	0.2%	0.1%
Price Return - 11-mth Perf.	-0.6%	0.4%
Price Return - 12-mth and 1-mth Perf.	-0.3%	0.1%
Price Return - 12-mth and 1-mth Reversal	-0.6%	0.4%
Average:	**-0.3%**	**0.3%**
Median:	**-0.4%**	**0.3%**

Note: for full details on our factors, please see: Quantitative Profiles 12 October 2022
Source: FactSet, US Equity & Quant Strategy

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The Rule of 25

Spikes in volatility typically come with a change in leadership. Thus momentum tends to work best in low volatility markets (VIX<25) but lags when volatility becomes elevated.

Liquidity risk in odd places

In addition to risks discussed above, (a more pronounced wealth effect, geopolitical risks, government and Fed balance sheet risk) liquidity risk is becoming increasingly evident in some of the largest and historically most liquid asset classes.

From Treasuries…

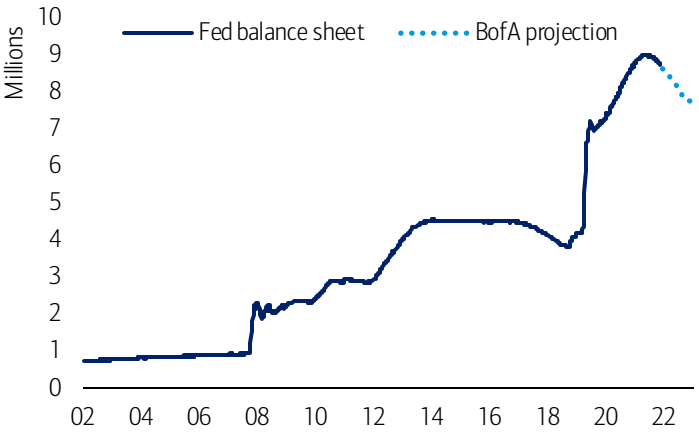
QT is accelerating up to $95B/mo. amid the biggest 6-mo. decline in M2 money supply in history. Liquidity in financial markets has begun to dry up. The Treasury market liquidity index jumped to the least healthy level since the European debt crisis (Exhibit 351) and the liability-driven investing (LDI) blow-up in the UK poses risk of liquidity drying up in financial systems elsewhere.

> Rates strategists: declining liquidity and resiliency of the Treasury market poses the single largest systemic risk to global financial stability today (see our Liquid Insight report).

Of the proposed solutions, "the dealer of last resort", a type of GSE (government sponsored enterprise), is the only definitive solution (stepping in on behalf of the Fed at times of distress to inject much needed liquidity into the Treasury market). Our rates strategists see this as yield curve flattening (focused in the long-end of the curve and offset via front-end sales, a "curve twist").

Rates volatility has been 3.6 standard deviations high (based on MOVE index) in October. As financial conditions tighten, equities should adjust to the new environment, pressuring valuations.

Exhibit 350: Fed's balance sheet normalization has begun
Fed balance sheet + BofA projection ($T)



Source: Bloomberg, BofA Global Research

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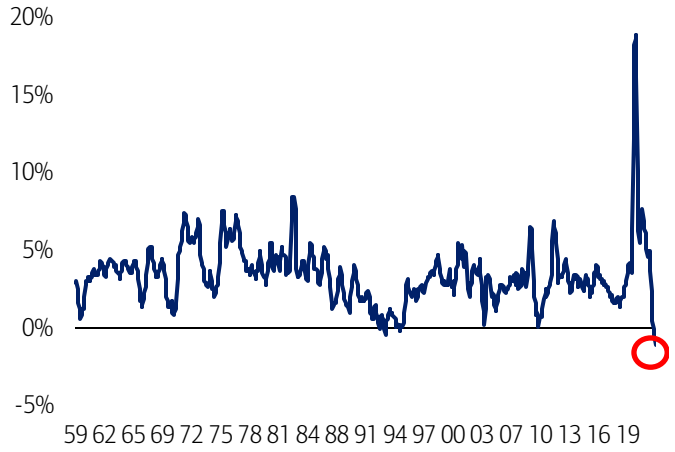
Exhibit 351: M2 money supply saw the biggest 6-mo. decline in history
M2 money supply 6-mo. chg. (1959-9/22)



Source: Bloomberg, BofA US Equity & Quant Strategy

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Exhibit 352: Liquidity conditions in the Treasury market is at the worst level since the Euro debt crisis
1-mo. avg. in US Government Securities Liquidity Index (2010-11/18/22)



Source: Bloomberg, BofA US Equity & Quant Strategy

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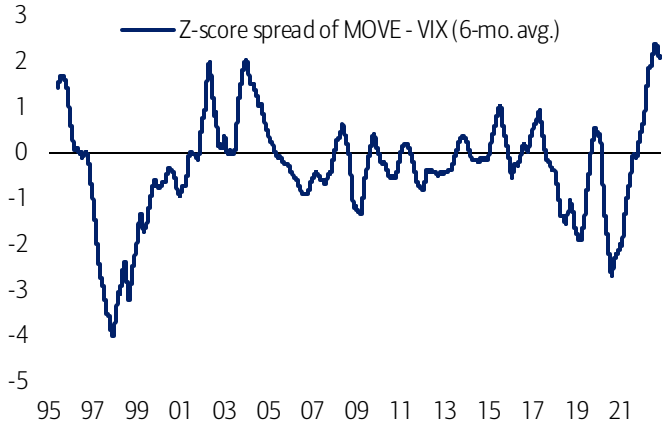
Exhibit 353: Stocks haven't fully absorbed the rate shock
6-mo. avg. in the rolling 5-yr z-score spread between MOVE and VIX (1995-11/18/22)



Source: Bloomberg, BofA US Equity & Quant Strategy

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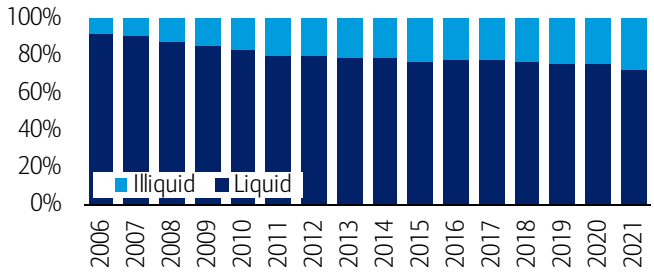
...to liquidity risk for the S&P 500

The most crowded ticker isn't a stock, it's the index.

Although Apple (AAPL) has the largest institutional base ($1.5tn of float held), this pales in comparison to the $9tn invested in passive (index/ETF) equities where $3-4tn resides in S&P 500 / large cap passive products. In 2017 we highlighted that stocks well-held by passive funds had higher realized volatility, regardless of beta, perhaps due to agnostic buy/sell disciplines (see our report on ETF-ization). In early 2022, passive overtook active AUM (see Exhibit 354) and today, the S&P 500 index has higher realized volatility than small caps or other high beta benchmarks during periods of stress (Exhibit 355) – a financial anomaly. Today's investor barbell is holding passive liquid public equity and illiquid long duration private equity (Exhibit 353). Oddly, the index could be the #1 victim of forced selling for cash, adding liquidity risk to the biggest equity benchmark in the world. It's time to get active.

Exhibit 354: Pension funds' allocation to illiquid assets has more than tripled since 2006
Pension Plan Asset Allocation (% liquid vs. illiquid assets)



Source: Pensions & Investments, BofA US Equity & US Quant Strategy
Note: Based on US pension funds within the top 1000 that have available asset allocations. Liquid = domestic equity, domestic fixed income, international equity, global equity, global/international fixed income (includes mortgages/credit strategies/leveraged loans) and cash. Illiquid = Private equity, real estate, other alternative investments.

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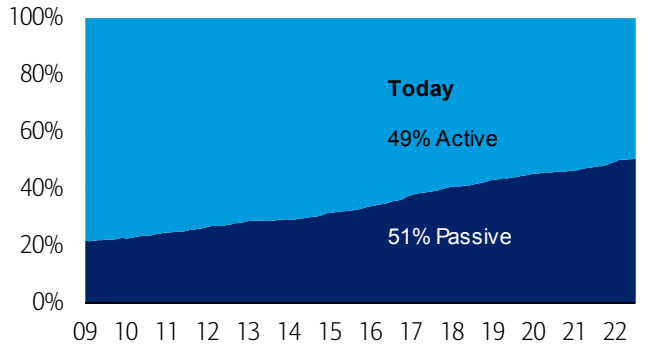
Exhibit 355: Passive now accounts for over 50% of all US domiciled fund assets
US AUM allocation active vs. passive (2009 to today)



Source: Strategic Insights, SimFund, BofA US Equity & US Quant Strategy

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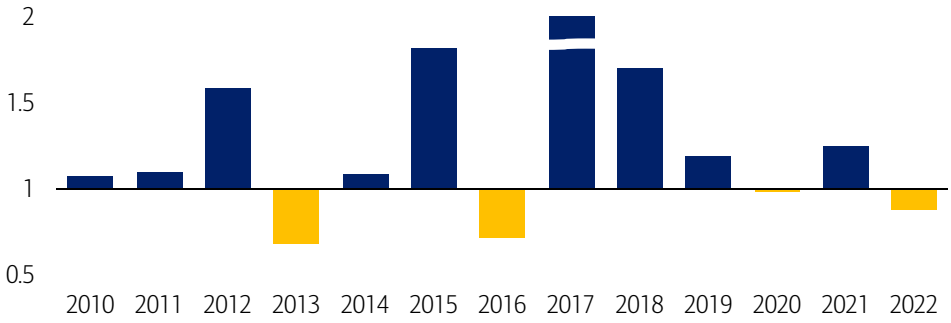
Exhibit 356: S&P 500 volatility beat Russell 2000 volatility amid macro risks (13 taper, 16 Brexit, 20 COVID, 22 rates) despite being lower beta

Ratio of Russell 2000 vs. S&P 500 Average 30-day volatility



Source: BofA US Equity & Quant Strategy, Bloomberg

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Methodology

Sell Side Indicator

The Sell Side Indicator (SSI) is based on our survey of the Wall Street Strategists that submit their asset allocation recommendations to us (currently, there are nine. Note that post the Global Financial Crisis, the number of respondents has typically ranged between 6 and 11). For this indicator, we use the simple average of the recommended equity weighting for each strategist as of the last business day of each month. The thresholds for the Buy and Sell readings are rolling 15-year +/- 1 standard deviations from the rolling 15-year mean.

BofA Corporate Misery Indicator methodology

The Corporate Misery Indicator is our macro-based predictor of the profits cycle and is based on the CPI, Average Hourly Earnings, and the Coincident Indicators. Our theory is that corporate profits are a function of how many units a company sells and their margin per unit. Implicitly, these factors incorporate productivity because enhanced productivity will result in either better margins or more units sold for the same inputs.

We use the year-to-year change in the Coincident Indicators as a proxy for units, because the Coincident Indicators are a proxy for Real GDP, a measure of unit growth. We use the spread between the year-to-year change in the CPI and the year-to-year change in Average Hourly Earnings to approximate margins:

Corporate Misery Indicator = CPI (y/y) – Average Hourly Earnings (y/y) + Coincident Indicators (y/y)

When the indicator declines, it implies that profits are being squeezed. This has historically coincided with a decelerating profits cycle.

Earnings Revision ratios

Beginning in April 1986 (and January 2006 for Real Estate), we calculate 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. We apply the same calculation to the S&P 500 GICS Sectors (where we use FFO for REITs within Real Estate). One-month revision ratios are computed as the number of companies for which estimates this month are higher than they were last month, divided by the number of companies for which estimates this month are *lower* than they were last month. For example, within a particular subgroup of the market, if consensus estimates have increased for 5 companies and have decreased for 10, the estimate revision ratio will be 0.5 (5 divided by 10).

The three-month revision ratio is similarly defined as the total number of earnings estimate increases divided by total number of earnings estimate decreases during the last *three* months. For example, in February 2002, the three-month revision ratio is computed as the total number of companies with increased monthly estimates, divided by the total number of companies with decreased estimates throughout December 2001, January 2002, and February 2002.

We similarly calculate the S&P 600 (small cap) earnings revision ratios (one-month and three-month) by the same methodology, with data beginning in February 2001.

For earnings/sales estimates, we look at the change in the FY1 estimate (current unreported year) if there's more than 120 days between the current date and the company's fiscal year-end date, otherwise we look at the change in the FY2 estimate (next unreported year).

Guidance Ratios

Earnings guidance: We track the number of instances of above- vs. below-consensus management guidance for earnings over the last three months for S&P 500 companies. If a company issues changes to its outlook more than once in a one-month period, we incorporate all instances of guidance into our aggregate number. The ratio also includes all instances of above- or below-consensus earnings guidance issued by a company (for example, if they issue both quarterly and annual guidance). The one-month and three-month revision ratios are calculated as they are for estimate revision ratios. The data source is Bloomberg. For companies that provide both GAAP and Operating guidance, or for REITs that provide both EPS and FFO guidance, we remove one data point if both data points provide the same guidance direction, otherwise both data points are used.

Capex guidance: We track the number of instances of above- vs. below-consensus management guidance for planned capex over the last three months for S&P 500 companies, calculated the same way as above; data source is FactSet.

Earnings Calls Sentiment

With the help of BofA's Predictive Analytics team, we parsed through earnings calls transcripts to calculate sentiment for the S&P500 universe of companies that have reported since 31st March 2020. We use the Loughran McDonald's financial dictionary to calculate sentiment scores as per the definition below.

Sentiment score = No. of Unique positive words – No. of unique negative and uncertainty words

The sentiment score is computed with three different filters: the full transcript, management discussion and answers of CEO/CFO from Q/A section. Calculated scores were then averaged on the Sector level. Loughran-McDonald Sentiment and Uncertainty:

1. **Loughran-McDonald Sentiment:** Examples of positive words include ***accomplish, achieve, outperform, stabilize, strength*** and negative words such as ***abandon, abnormal, downturn, evade, failing, stagnate.*** In total, the lexicon has 2,355 negative words and 354 positive words.

2. **Loughran-McDonald Uncertainty**: Examples of uncertain words include ***almost, ambiguity, hidden, fluctuate, doubts, unclear.*** In total, the lexicon has 297 words.

Note that the charts show the sentiment score multiplied by (- 1) and after applying the natural log to normalize the data on the same scale. Our Predictive Analytics team is currently researching more advance modeling approaches including Deep Learning so please stay tuned for future enhancements.

Bull market signposts

Our bull market signposts are a composite of 10 indicators that have historically signaled market bottoms in seven prior bear markets. All indicators are calculated on a month-end basis. See definitions of signposts below and a deep dive on our bull market signposts (note) for more information.

Fed cutting rates

During the prior seven bear markets, the Fed always cut before the market bottomed.

Unemployment rates rise (vs. 12-mo. low)

Rising unemployment rates preceded Fed rate cuts. The unemployment rate typically rose from its 12-mo. lows before the market bottomed.

More bears than bulls (AAII)

The AAII US Investment Sentiment Readings have been a reliable contrarian indicator when marking a bottom. During prior bear markets, the net bullish reading (bullish – bearish) was typically deeply bearish when the market bottomed.

Equity risk premium (ERP) increases by >75bps vs. 12-mo. low

Prior bear markets were accompanied by a rising ERP, as increased risk in stocks lead to investors requiring higher risk premium. Historically, stocks bottomed after adequately pricing in a downturn via higher ERP of at least 75bps. We calculate ERP as trailing earnings yield – real 10yr rates.

50bps+ decline in the 2-yr yield (vs. 6-mo. high)

The 2-yr yield fell at least 50 bps from its 6-month highs ahead of prior bull markets.

Sell Side Indicator Buy signal (prior 3m)

The Sell Side Indicator (SSI) is based on our survey of the Wall Street Strategists that submit their asset allocation recommendations to us. For this indicator, we use the simple average of the recommended equity weighting for each strategist as of the last business day of each month. The thresholds for the Buy and Sell readings are rolling 15-year +/- 1 standard deviations from the rolling 15-year mean. The SSI has been a reliable contrarian indicator over time. In other words, it has been a bullish signal when Wall Street strategists were extremely bearish, and vice versa.

Yield curve steepens (vs. 6 mo. low)

A widening 2-10yr yield spread indicates improving economic activity and/or a more dovish Fed.

5%+ bear market rallies (prior 3m)

Historically, bear market rallies of 5%+ occurred before the market ultimately bottomed.

Rule of 20 (trailing P/E + CPI < 20)

The sum of trailing P/E and CPI fell below 20 before prior market bottoms.

PMI improves (vs. 12-mo YoY low)

Historically, the S&P 500 troughed with some visibility into a recovery. The ISM Manufacturing PMI typically improved on a YoY basis vs. its 12-month lows ahead of market bottoms. We compared the YoY change in PMI to the YoY trough over the past 12 months.

Trigger lags

Exhibit 357: How many months before the bottom was the metric triggered?
# of months indicators triggered before market bottoms

Metrics	Sep-74	Jul-82	Nov-87	Oct-90	Sep-02	Feb-09	Mar-20	Average
Fed cutting rates (12m)	3	13	1	16	20	17	8	11
Unemployment rates rise (6m)	11	12		3	29	21	0	13
More bears than bulls (AAII) (3m)			0	2		10	2	4
ERP increases by >75bps from trough (12m)	21	9	2	4	6	9	2	8
Decreasing 2-yr yield (6m/12m)		1	2	4	5	6	1	3
Sell side indicator buy signal			1	0		0		0
Yield curve steepens		6		0	1	2	1	2
5% bear market rallies (prior 3m)	3		2		2	1	0	2
Rule of 20 (prior 12m)		17	2	3		6	0	6
PMI improves (12m YoY)		8	12	14	20	2	6	10

Source: BofA US Equity & Quant Strategy

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Momentum & Value Framework

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

Price momentum

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

Earnings momentum

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

Valuation

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

Combined rank

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

Opportunities, Value Traps and Momentum Breakdowns

We classify industries based on their framework ranks as follows:

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

Exhibit 358: Relative performance of Opportunities, Value Traps and Momentum Breakdowns (as of 10/22)
Relative performance vs. equal-weighted S&P industries

	1m	3m	6m	12m	YTD	2yr	Ann'zed	3yr	Ann'zed	5yr	Ann'zed
Opportunities	4.9%	3.4%	1.1%	3.2%	2.5%	4.0%	1.8%	9.2%	2.5%	15.8%	2.2%
Value Traps	-4.0%	-6.1%	-3.0%	-0.1%	2.6%	-9.8%	-4.4%	-38.1%	-11.8%	-31.0%	-4.8%
Momentum Breakdown	-5.1%	-3.3%	-4.8%	-8.8%	-11.3%	-38.3%	-18.4%	-35.8%	-11.0%	-62.7%	-10.9%

Source: BofA Us Equity & US Quant Strategy

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US Regime Indicator

Inputs for the US regime indicator include the following eight signals:

- **Earnings Revision ratio:** 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. Rising = improving economic cycle.
- **ISM PMI:** ISM PMI Institute for Supply Management Manufacturing Purchasing Managers Index, represented as the Z-Score. The index monitors activity reported by 300 supply management professionals. Above 50 indicates economic expansion.
- **Inflation:** The 12-month change in the BofA Inflation Composite (see methodology), represented a Z-Score. Rising inflation indicates improvement.
- **GDP Forecast:** The next 12-month US GDP growth forecast from the Federal Reserve Bank of Philadelphia Survey, represented as a Z-Score.
- LEI **index:** The 12-month change in the Conference Board US Leading Index of Ten Economic Indicators represented as a Z-Score. Rising = improving.
- **US Capacity Utilization:** The 12-month change in US capacity utilization, represented as a Z-score. The capacity utilization rate indicates the percentage of total economic capacity currently used. Rising capacity utilization implies improving economic conditions. Rising capacity utilization suggests expansion and potential 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 corp. bond spread:** The 12-month change in the credit spread of the ICE BofA US High Yield Index, represented as a Z-score. Falling = improving.

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.