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# Navigating major regime shifts

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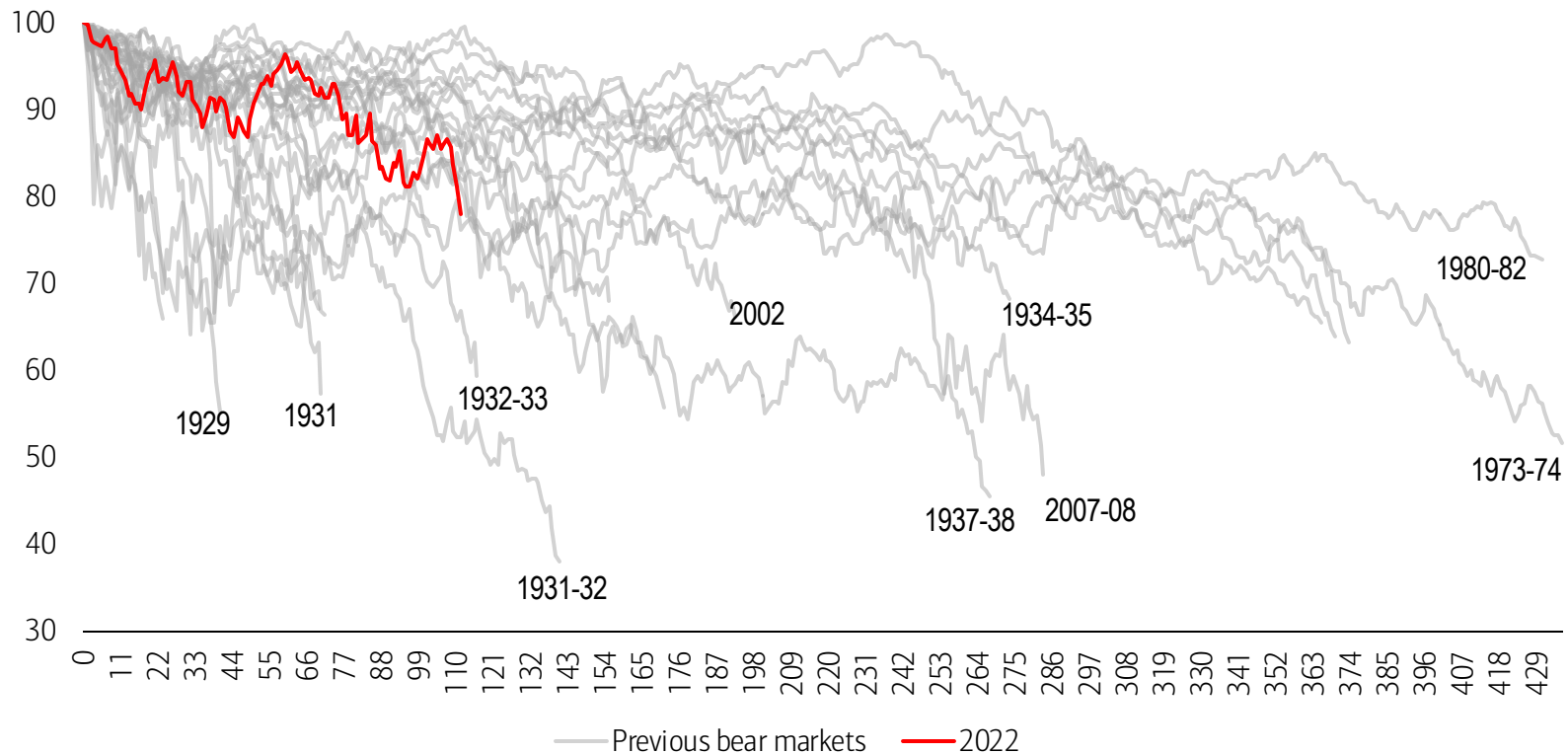
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# It's officially a bear market



## Bear market post-mortem

Peak-to-trough declines in historical bear markets (declines of 20%+ without a 20% rally) since 1929



Source: BofA US Equity & Quant Strategy, Bloomberg



# Lower for longer S&P 500 price returns

**S&P 500 2022 year-end price forecast = 4500 assuming no recession; recession floor: 3000**

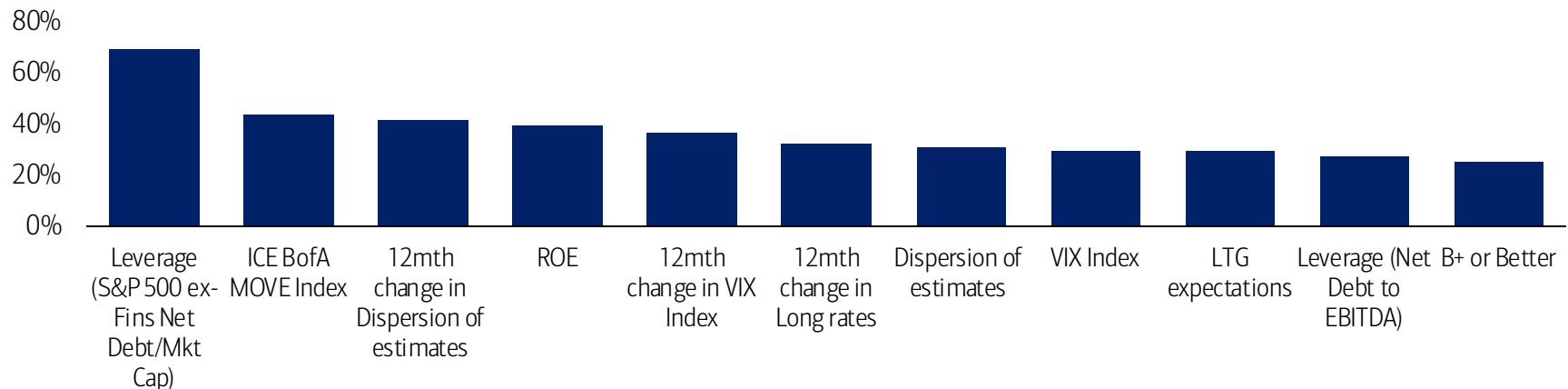
S&P 500 2022 Target Models

Model	Category	Time Horizon	2022 Target	Current Weight in Forecast
BofA Fair Value Model	Fundamental/Valuation	Medium Term	4,368	20%
Sell Side Indicator	Sentiment	Medium Term	4,562	20%
Estimate Revisions	Fundamental/Sentiment	Short-term	4,603	20%
Long-term Valuation Model	Valuation	Long-term	4,346	20%
12-Month Price Momentum	Technical	Medium Term	4,521	20%
<b>Official S&amp;P 500 Target</b>			<b>4,500</b>	

**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 4/28/22, and round to closest 50.

## 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) post the Global Financial Crisis (2009-5/22)



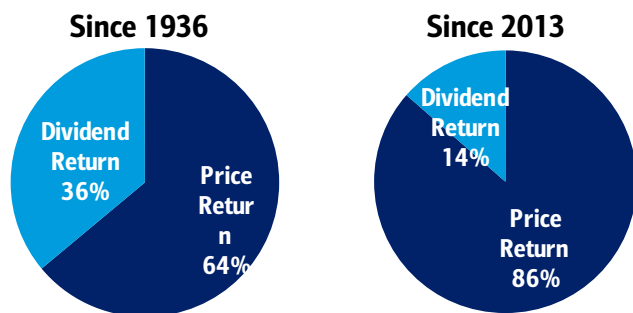
**Source:** FactSet, Bloomberg, ICE BofA, Haver Analytics, BofA US Equity & US Quant Strategy

# Get ready for a total return world



## Dividends have contributed 36% of total returns since 1936 but just 14% since 2013

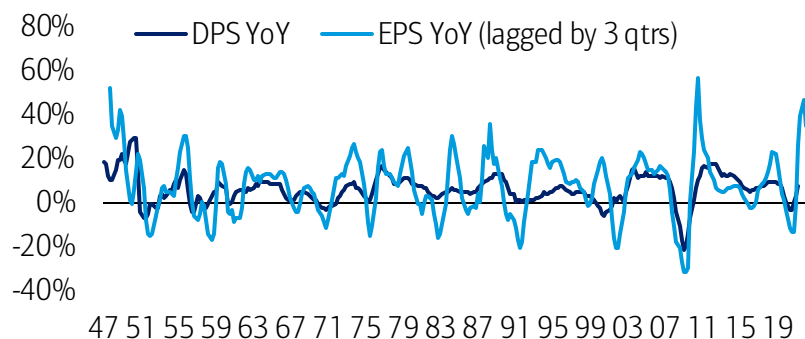
S&P 500 price return and dividend contributions to total return



Source: BofA US Equity & US Quant Strategy, FactSet

## DPS growth lagged EPS by ~30ppt; expect some catch up

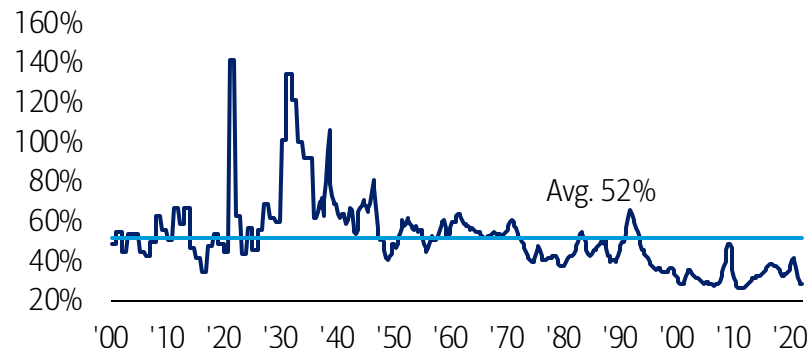
S&P 500 TTM dividend per share vs. EPS YoY with a 3-qtr lag (1945-1Q22)



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

## Room to raise dividends

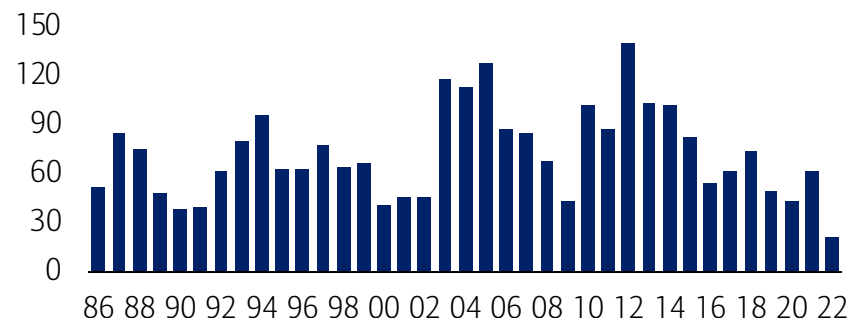
S&P 500 dividend payout ratio, 1900-1Q22



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

## Scarcity value: fewer initiations

The number of Russell 3000 companies initiating dividends 1986-YTD



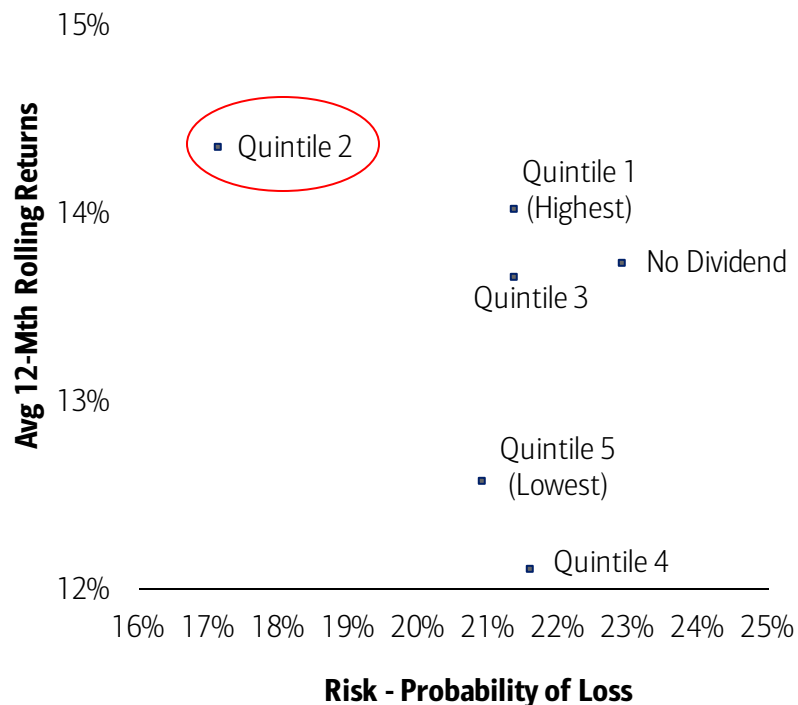
Source: BofA US Equity & US Quant Strategy, FactSet

# Where to get yield: Quintile 2



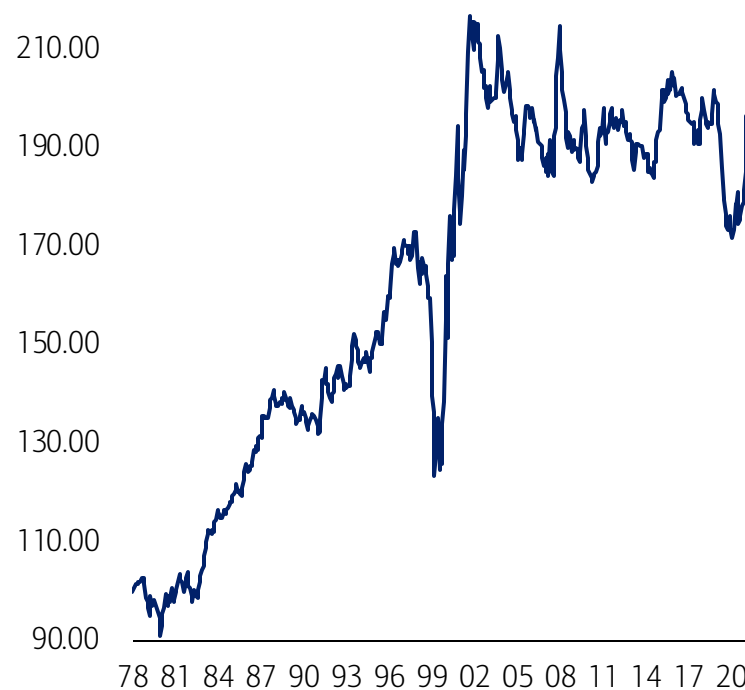
## Sometimes highest is not best – second quintile has had lowest loss risk, highest total return

Average annual return vs. loss risk of Russell 1000 trailing 12-mth dividend yield quintiles and no yield basket – monthly rebalance (1/31/84-05/31/22)



## Quintile 2 has beat benchmark by 10.5ppts in 2022

Cumulative relative performance of Quintile 2 by High Dividend Yield vs the Russell 1000 index (total equal-weighted return) as of 5/31/22



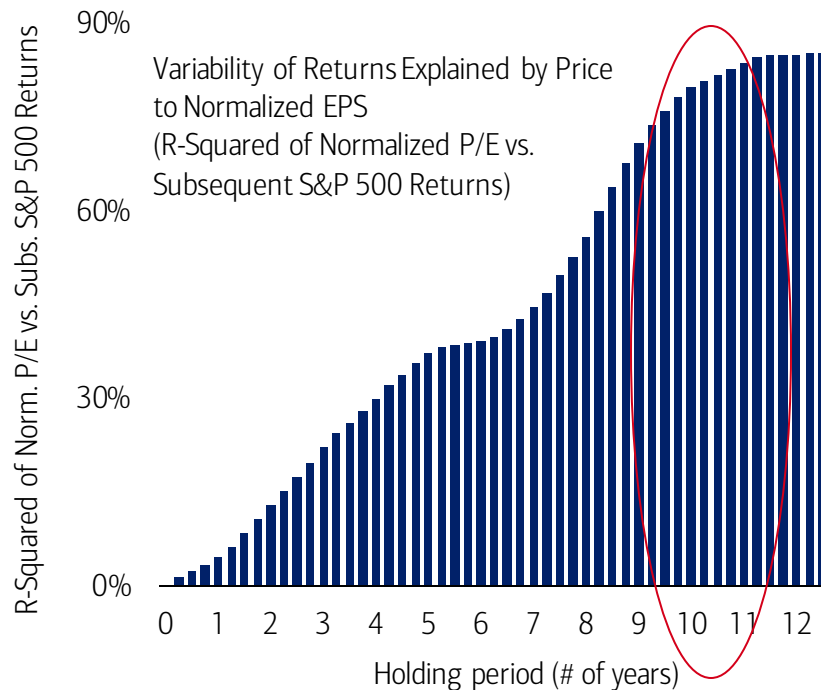
**Source:** BofA US Equity and Quant Strategy, Russell

**Note:** Average 12-month performance in the above exhibit is based on backtested results from 1/31/84 through 9/28/10 and actual performance from 9/28/10 to present. And does not represent the actual performance of any account or fund. Backtested 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 screen identified as Quintile 2 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 screen was not created to act as a benchmark.

# Valuation matters in the long-term, and suggests paltry price returns

## Price to normalized earnings explains 80% of S&P 500 returns over subsequent 10 years

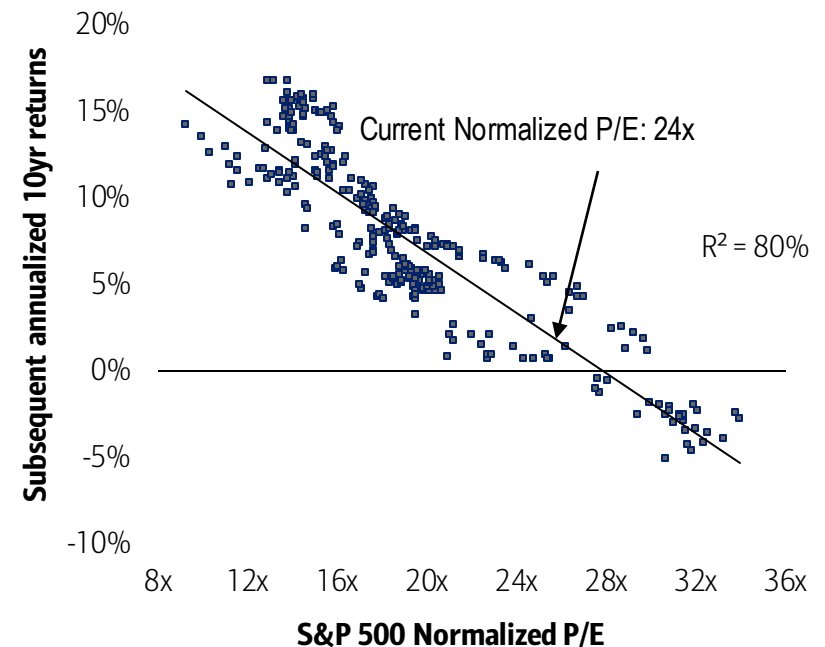
S&P 500 ann. forward 10-year returns (forecast vs. actual) (since 1990, as of May 2022)



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

## Valuation currently suggests ~2 to 3ppt p.a. price returns over next decade

S&P 500 normalized P/E vs. subsequent annualized returns (since 1987, as of May 2022)



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

# We're in a bear market – why is S&P 500 still so expensive?



## S&P 500 Valuations – shading indicates that metric is statistically expensive relative to history (as of 5/31/22)

S&P 500 valuation metrics

Metric	Current	Average	Avg. ex. Tech Bubble	Min	Max	% Above (below) avg	Z-Score	History
Trailing PE	19.2	16.5	15.9	6.7	30.5	16.0%	0.5	1960-present
Trailing GAAP PE	20.3	19.6	18.8	6.7	122.4	3.6%	0.1	1960-present
Forward Consensus PE	16.5	15.7	14.8	9.8	25.1	5.3%	0.2	1986-present
Trailing Normalized PE	23.7	19.5	18.2	9.2	33.9	21.7%	0.9	9/1987-present
Median Forward P/E	17.6	15.4	15.2	9.7	22.0	14.3%	0.9	1986-present
Shiller PE	32.9	17.3	16.7	4.8	44.2	90.3%	2.2	1881-present
P/BV	4.21	2.62	2.43	0.98	5.34	61.1%	1.6	1978-present
EV/EBITDA	12.7	10.4	10.1	6.0	17.1	22.0%	1.0	1986-present
Trailing PEG	1.49	1.64	1.61	1.07	2.90	-8.9%	-0.5	1986-present
Forward PEG	1.29	1.40	1.37	0.92	3.36	-8.0%	-0.4	1986-present
P/OCF	16.1	11.1	10.5	5.4	19.6	44.2%	1.5	1986-present
P/FCF	25.2	27.9	25.0	12.9	65.7	-9.6%	-0.3	1986-present
EV/Sales	2.80	1.95	1.88	0.86	3.38	43.4%	1.5	1986-present
ERP (Market-Based)	657	501	518	136	880	31.0%	-0.8	11/1980-present
Normalized ERP	462	319	360	-91	965	44.9%	-0.7	1987-present
S&P 500 Div. Yld. vs. 10yr Tsy. Yld.	0.50	0.66	0.65	0.17	3.01	-24.2%	0.4	1953-present
S&P 500 in WTI terms	36.7	26.2	23.9	2.7	175.3	39.7%	0.6	1960-present
S&P 500 in Gold terms	2.18	1.63	1.40	0.17	5.48	34.0%	0.5	1968-present
S&P 500 vs. R2000 Fwd. P/E	1.36	1.02	0.97	0.76	1.70	33.8%	1.8	1986-present
S&P 500 Market Cap/GDP	1.43	0.64	0.61	0.22	1.68	122.2%	2.4	1964-present

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

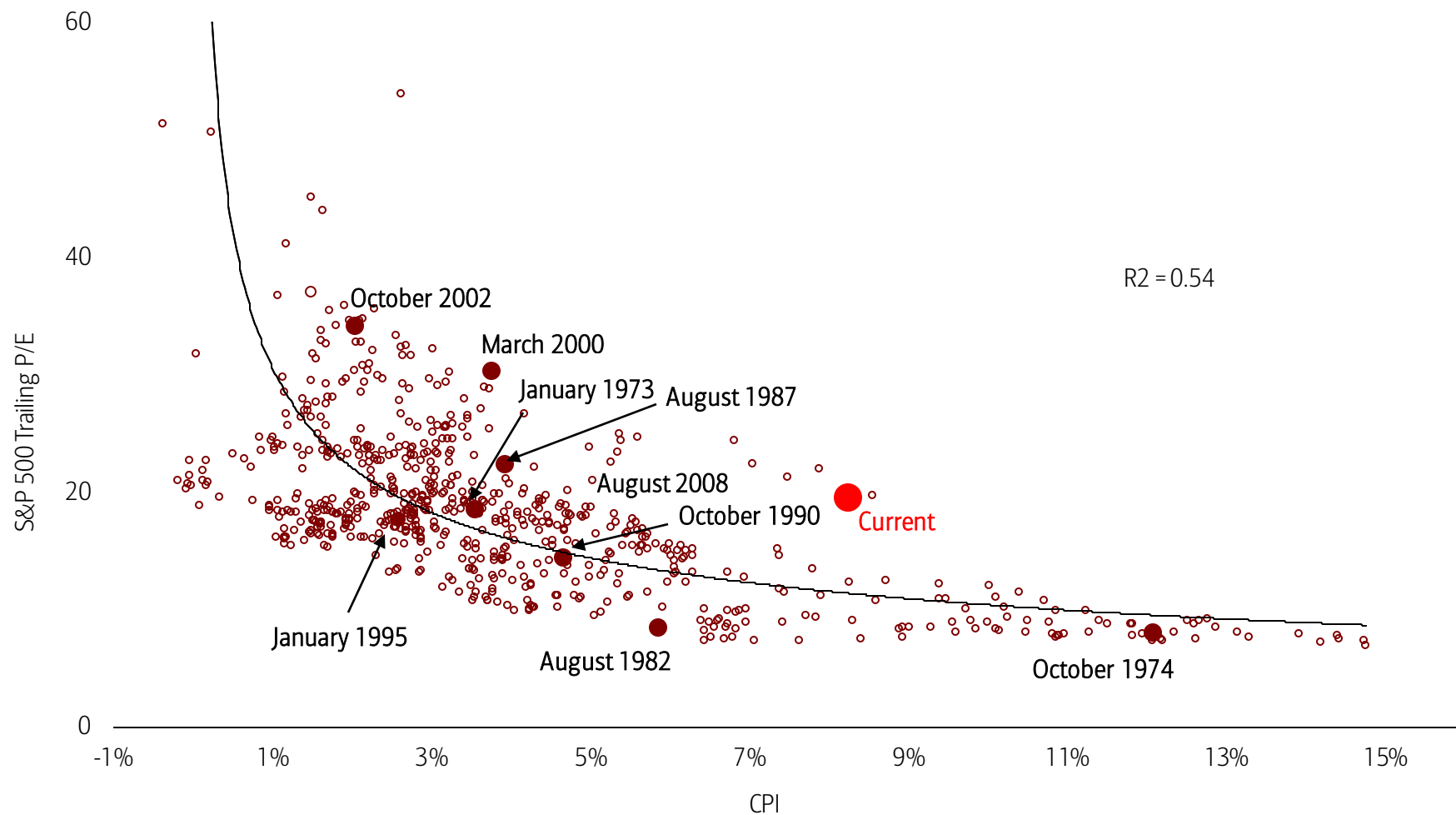
Source: S&P, Compustat, Bloomberg, FactSet/First Call, BofA US Equity & Quant Strategy

# P/E vs. inflation: something's got to give



**Current valuation implies that CPI should be 2 - 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, 1965-5/22



Source: BofA US Equity & Quant Strategy, FactSet

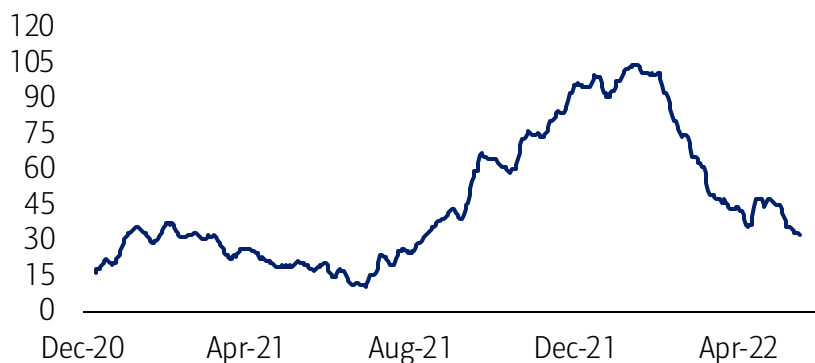


# Signs of moderating inflation?



## Queue at Port of LA/LB down to 30-40 ships

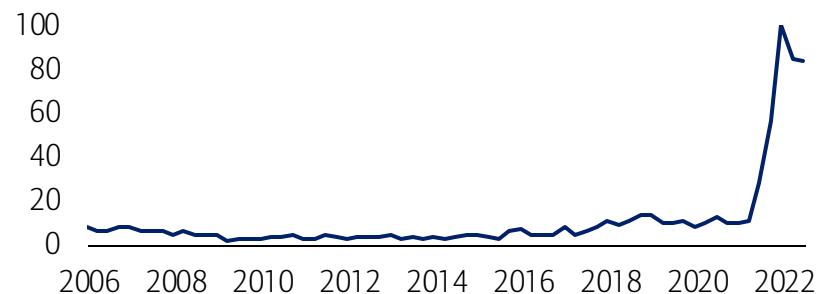
Ports of LA/LB vessel queue (#7D MA) (Dec. 2020 - May 2022)



Source: MXSOCAL

## Mentions of labor shortages down from peak

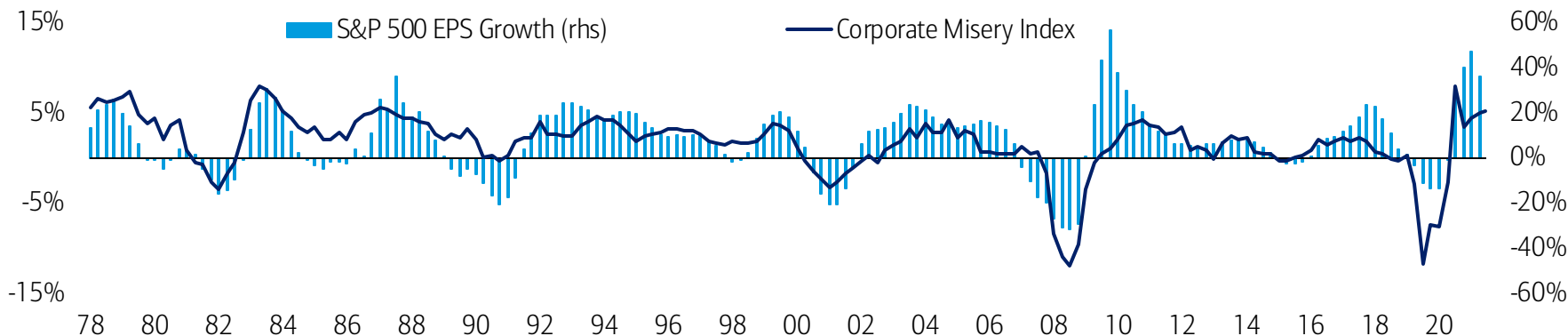
Trend line represents the normalized score of no. of transcripts with the keywords/total number of transcripts (2006-present)



Source: Alphasense

## Corporate misery (pricing vs labor pressure) still above zero

BofA Corp. Misery Indicator (lower=more miserable) and YoY S&P 500 EPS Growth 4Q78-5/22



Source: BofA US Equity & Quant Strategy, Conference Board, BLS

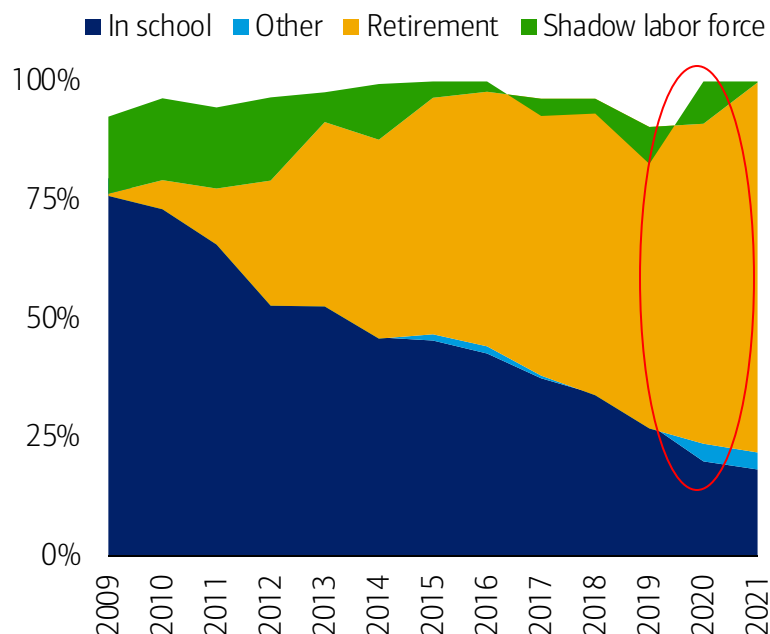
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# On watch: early retirees returning to work



## Early retirees may have to return to work...

% contribution of each category to the total change in LFP rate since 1998

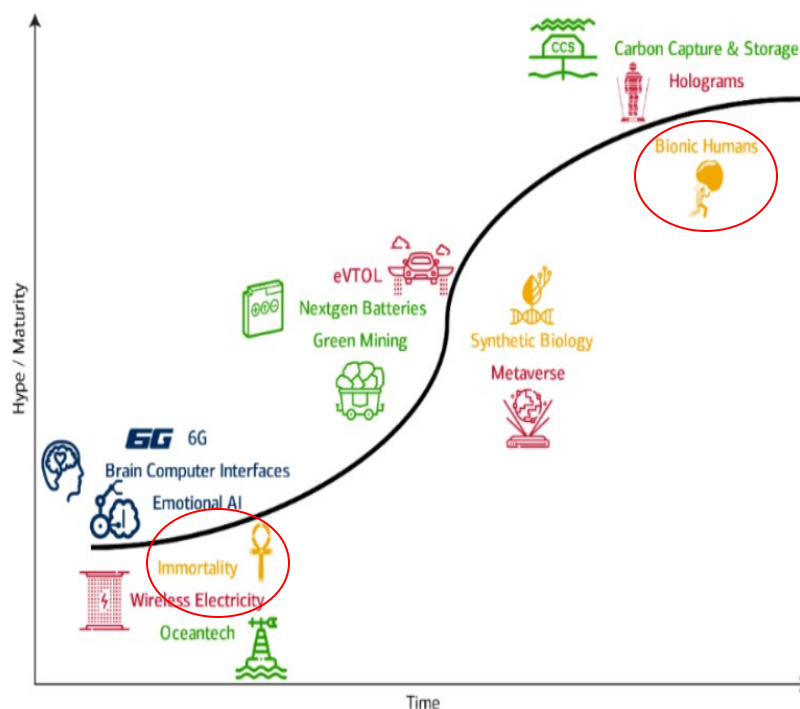


Source: FRB Atlanta, BofA US Equity & Quant Strategy

Note: Disability/illness and family responsibilities not included.

## ...if med tech driving 500+ year life expectancy by 2029

Moonshot Future Tech S-Curve Adoption Trajectory



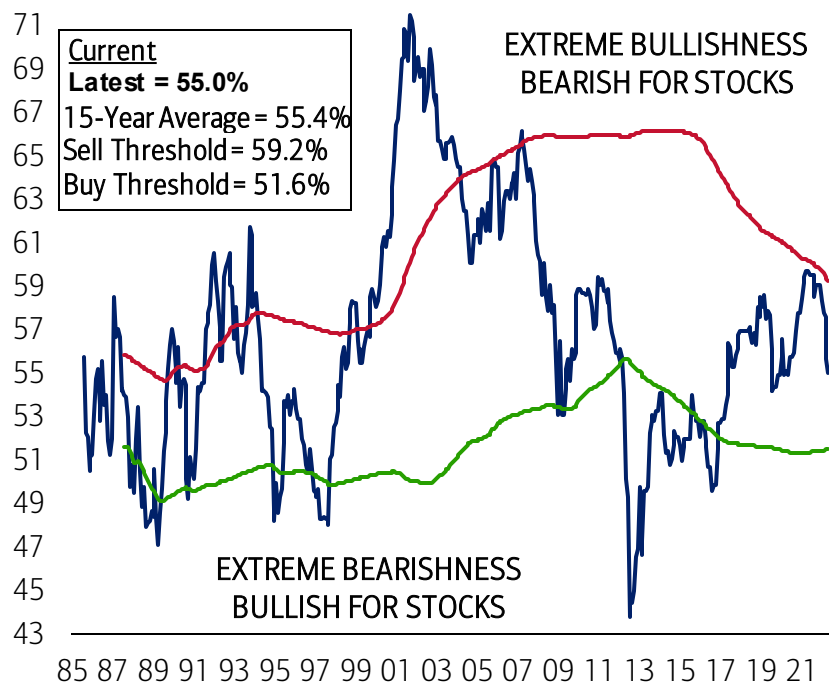
Source: BofA Global Research

# The aftermath of bubbles: bulls fade, discount rates get rational



## Both 2000 and 2021 saw ~15ppt increases in stock allocations Negative ERP in 2000, negative real rates in 2021

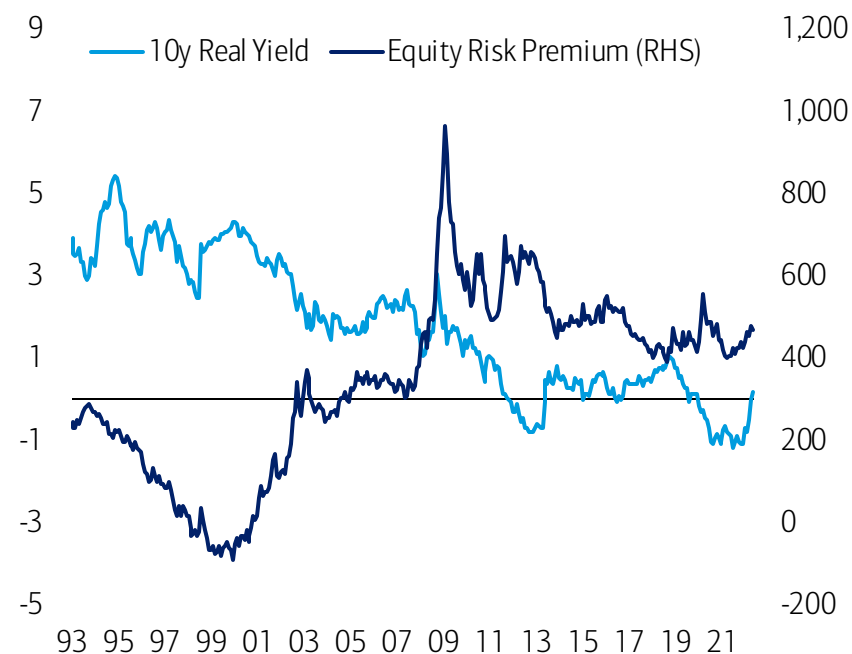
Sell Side Indicator (SSI), as of 5/2022



**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

Normalized equity risk premium and real 10-yr US Treasury yield (1997-5/31/2022)



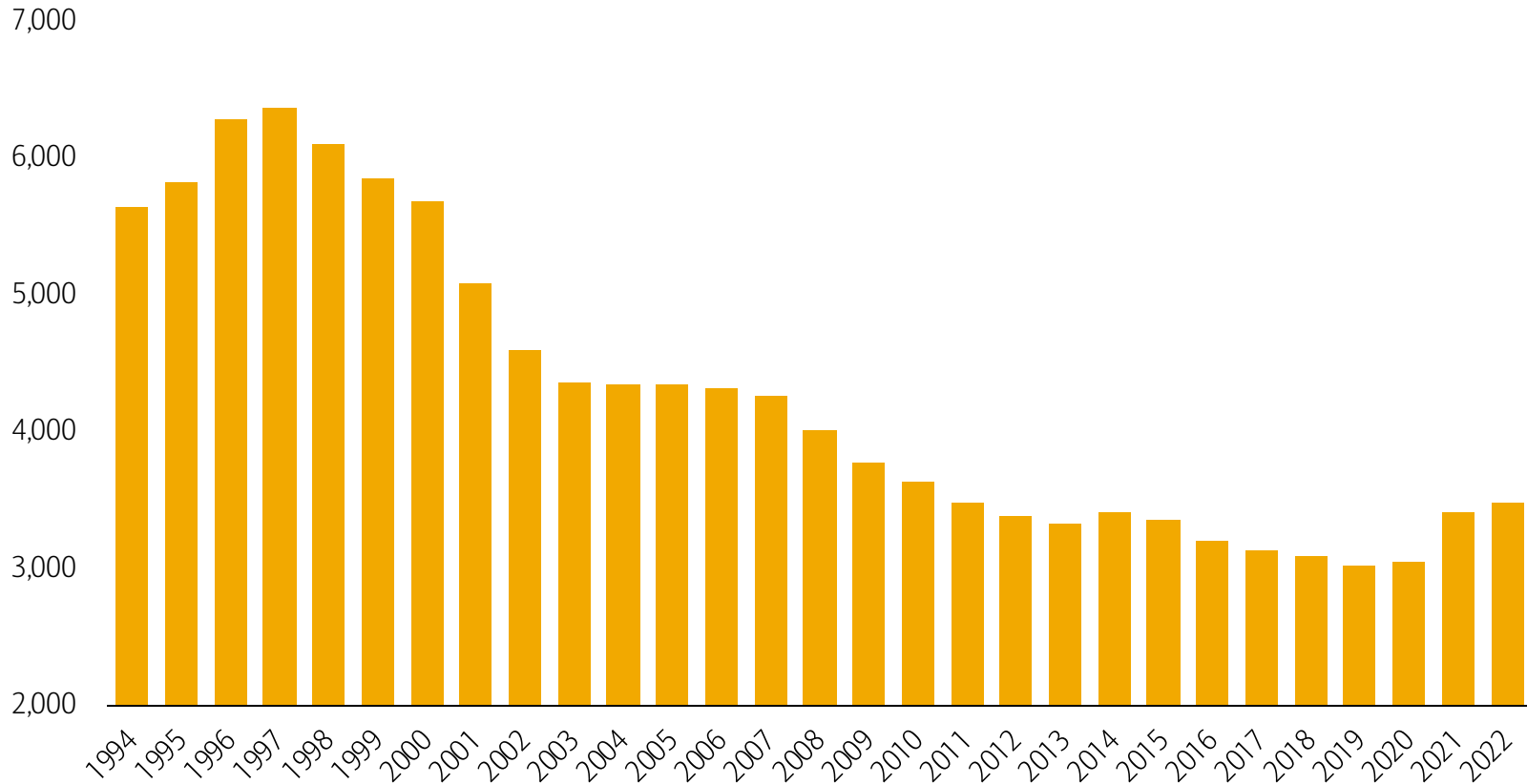
**Source:** Bloomberg, BofA US Equity & Quant Strategy

**Note:** 10-yr real yield prior to 1998 is based on realized 10-yr forward CPI

# End of equity shrinkage



Number of US public companies (1994-2022 YTD, as of 4/2022)

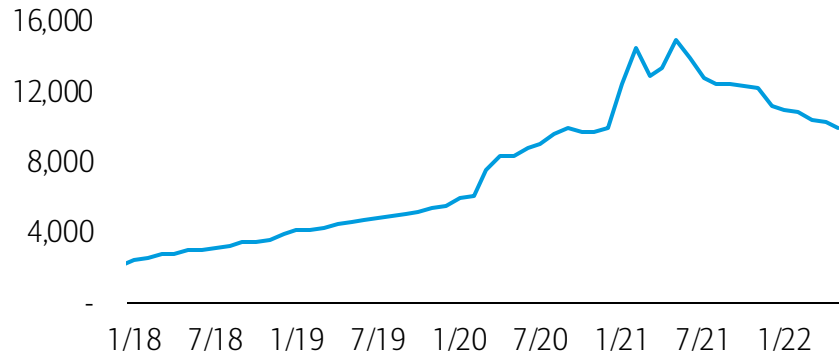


**Source:** CRSP®, Center for Research in Security Prices. Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. [www.crsp.uchicago.edu](http://www.crsp.uchicago.edu).



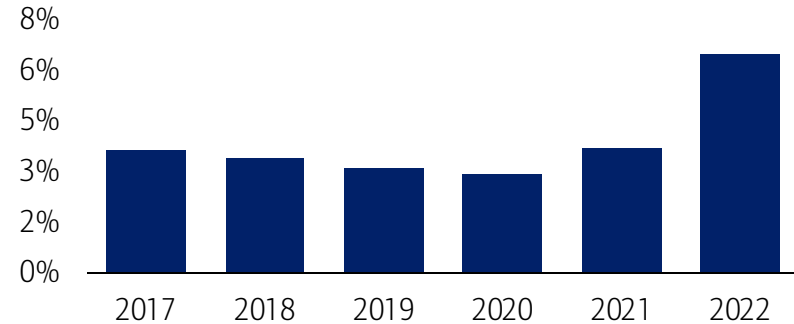
# Democratization of hyper-growth investing

**Robinhood monthly active users (thousands) (2018-5/22)**



Source: SensorTower, BofA US Equity & Quant Strategy

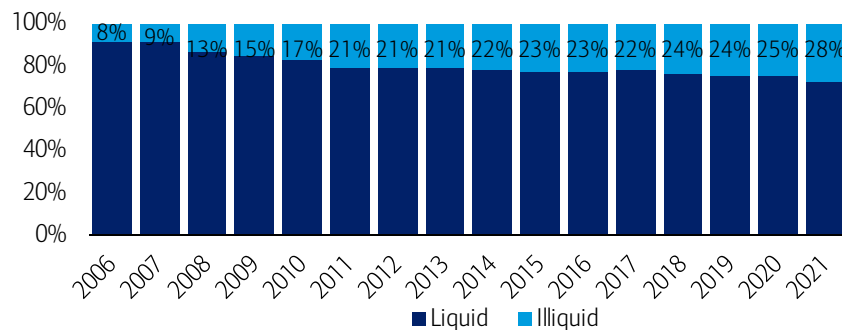
**Average alternative allocation % from Global Wealth Management Survey 2022**



Source: Wealth Management Marketing Research, BofA US Equity & Quant Strategy

## Attention teachers and firefighters: your liquidity risk has tripled

Pension Plan Asset Allocation (% liquid vs. illiquid assets)

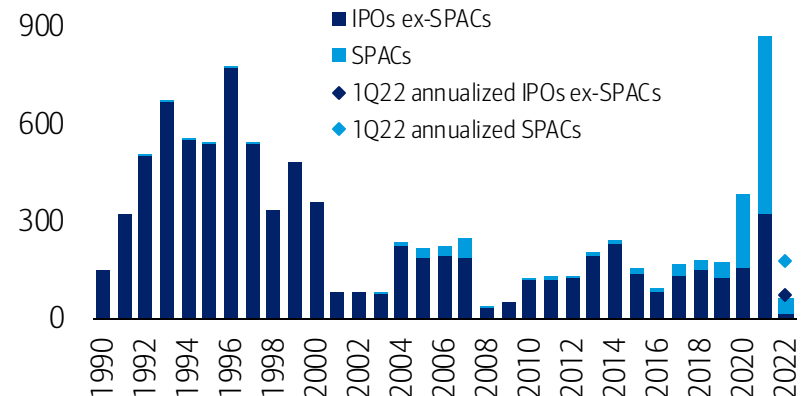


Source: Pensions & Investments, BofA US Equity & US Quant Strategy

**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.

## IPOs in 2000, SPACs in 2021

Count of US IPOs: traditional (non-SPAC) and SPAC (1990-1Q22)



Source: Dealogic, BofA US Equity & Quant Strategy

# Duration risk: S&P 500 now a 34-year zero coupon bond



**Stocks more vulnerable to rising rates than ever; near record duration via increasing secular growth proportion**

S&P 500 duration based on bottom-up DDM (as of 5/22)



Source: BofA US Equity & Quant Strategy



# Higher rates disproportionately hurt long duration assets

## 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)

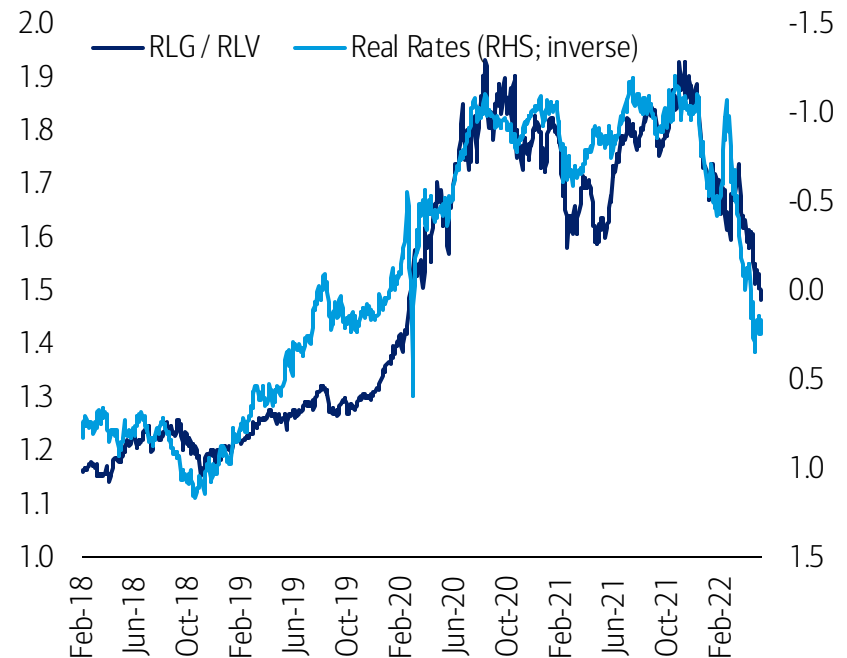
	Equity Risk Premium (ERP)								
	400	410	420	430	440	450	460	470	480
-0.1%	4,760	4,641	4,528	4,420	4,317	4,219	4,125	4,036	3,950
0.0%	4,641	4,528	4,420	4,317	4,219	4,125	4,036	3,950	3,867
0.1%	4,528	4,420	4,317	4,219	4,125	4,036	3,950	3,867	3,788
0.2%	4,420	4,317	4,219	4,125	4,036	3,950	3,867	3,788	3,713
0.3%	4,317	4,219	4,125	4,036	<b>3,950</b>	3,867	3,788	3,713	3,640
0.4%	4,219	4,125	4,036	3,950	3,867	3,788	3,713	3,640	3,570
0.5%	4,125	4,036	3,950	3,867	3,788	3,713	3,640	3,570	3,503
0.6%	4,036	3,950	3,867	3,788	3,713	3,640	3,570	3,503	3,438
0.7%	3,950	3,867	3,788	3,713	3,640	3,570	3,503	3,438	3,375

Source: BofA US Equity & Quant Strategy

Note: ERP scenarios based on \$186 in normalized 2022 operating EPS

## Growth vs. Value inversely correlated to real rates

Rel. performance of Russell 1000 Growth vs. Value and the 10-yr real rates (-95% correlation since 2018)



Source: BofA US Equity & Quant Strategy, Bloomberg



# Bear market signposts poised to hit 63%

## 58% triggered; Fed hiking threshold (75bps) now reached

Bear Market Signposts at previous peaks and 9/2021-5/2022

Signpost	Mar-00	Oct-07	Sep-18	Feb-20	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22
Fed raising rates (> 75bps)	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
Tightening credit conditions	☑	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
Trailing S&P 500 12m returns > 11%	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☐	☐
Trailing S&P 500 24m returns > 30%	☑	☑	☑	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑
Low quality outperforms high quality (6m)	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Momentum outperforming (6m/12m)	☑	☑	☑	☑	☐	☑	☐	☑	☐	☐	☐	☐	☑
Growth outperforming (6m/12m)	☑	☑	☑	☐	☐	☑	☐	☐	☐	☐	☑	☑	☑
5% pullback over prior 12m	☑	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Low PE underperforms (6m/12m)	☑	☑	☑	☑	☑	☐	☑	☐	☐	☐	☐	☐	☐
Conf Board consumer confidence (prior 24m)	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Conf Board net % expecting stocks higher (pri	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
Lack of reward to EPS & sales beats (prior 3 qr	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Sell Side Indicator	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
FMS cash levels	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Inverted yield curve (YC)	☑	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☑	☑
Chg in long-term growth expectations > +0.6p	☑	☑	☑	☐	☑	☑	☑	☑	☑	☑	☐	☑	☑
Rule of 20 (prior 12m)	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
VIX rises > 20 (prior 3m)	☑	☑	☑	☐	☑	☑	☑	☑	☑	☑	☑	☑	☑
ERR rule	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑	☑
<b>% triggered</b>	<b>79%</b>	<b>89%</b>	<b>79%</b>	<b>63%</b>	<b>47%</b>	<b>53%</b>	<b>47%</b>	<b>47%</b>	<b>42%</b>	<b>42%</b>	<b>42%</b>	<b>53%</b>	<b>58%</b>
S&P 500	1379.2	1547.0	2914.0	3386.2	4354.2	4549.8	4567.0	4766.2	4515.6	4373.9	4530.4	4131.9	4132.2

Source: BofA US Equity & Quant Strategy, BofA Global Investment Strategy, FRB, S&P, Conference Board, BLS

Note: VIX Based on VXO from 1986-1989; ERR rule: Within six months' window 1) the 1m ERR is below 1.0 for two or more months, 2) the 1m ERR drops from 1.0+ to below 1.0 and, 3) the 3m ERR is under 1.10; Performance relative to equal-weighted S&P 500 price index

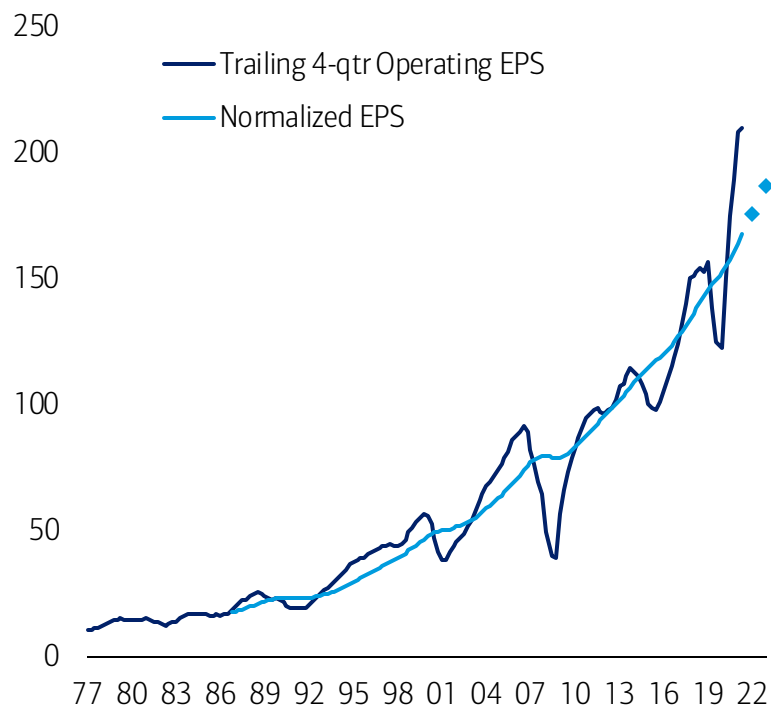


# Cyclically peaked earnings – all levers played out



## Widest gap ever between actual and normalized EPS, from max buybacks, max stimulus, min financing costs and peak globalization

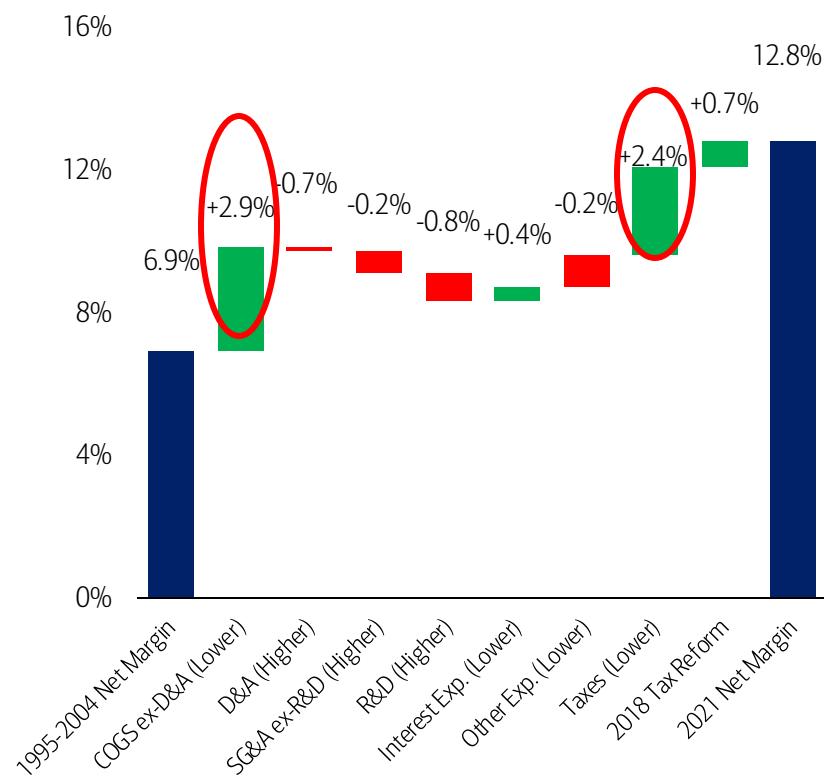
S&P 500 operating EPS vs. normalized EPS (1977-present; light blue dots = 2022-23E normalized earnings)



Source: Haver Analytics, BofA US Equity & Quant Strategy

## Globalization (which drove margin growth) is slowing

2021 net margin (ex-Financials) expansion waterfall vs. 1995-2004 levels (factors related to globalization circled in red)



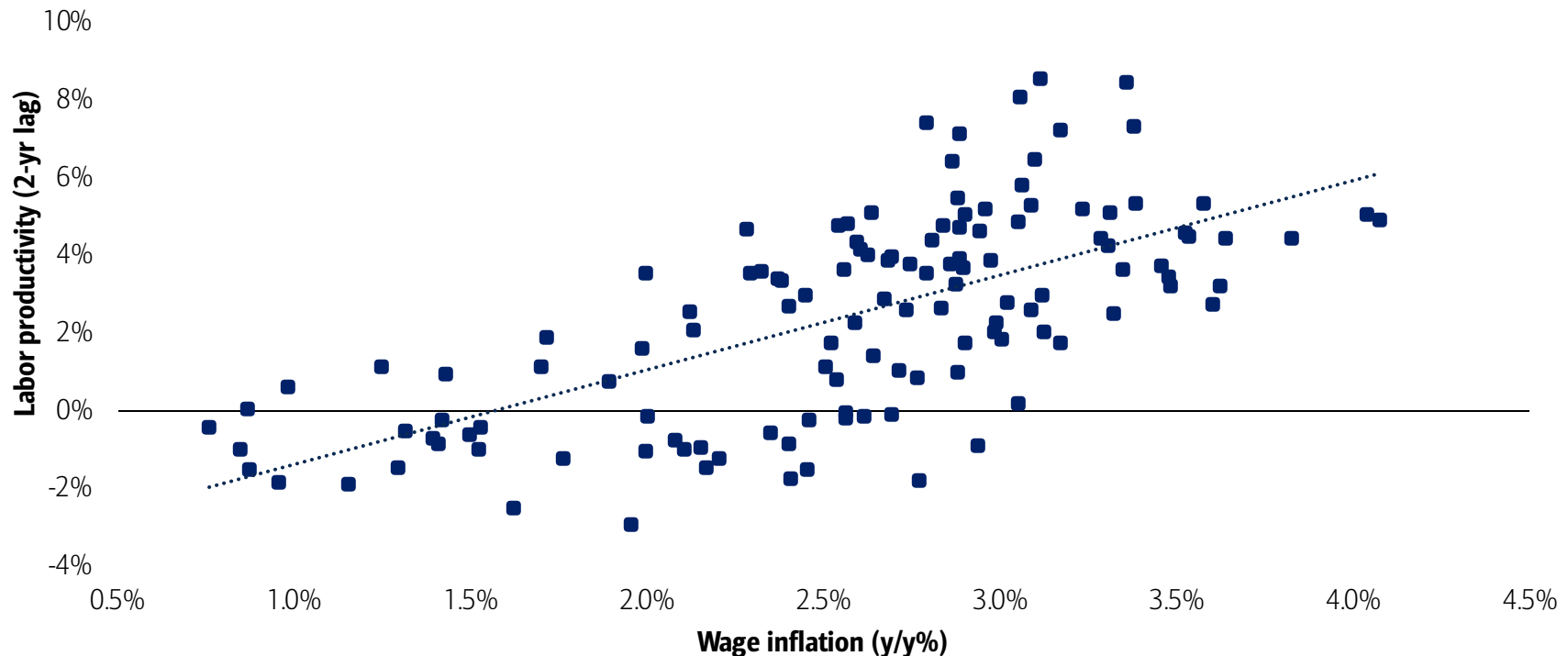
Source: BofA US Equity & US Quant Strategy, FactSet



# Silver lining: margin pressure could drive long-term growth

## Finally, a reason for a real capex cycle and productivity: wage inflation and non-zero hurdle rates; benefit in 2024/25?

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



# EPS Outlook: slowdown to 4ppt is our good case

**We expect 6% in 2022 / 4% growth in 2023 with no recession. Recession EPS would be -10%**

BofA S&P 500 EPS outlook

All based on current constituents unless specified	2021	Bottom-up Consensus				BofA Analyst estimates				BofA Strategy				BofA recession scenario	
		2022	y/y	2023	y/y	2022	y/y	2023	y/y	2022	y/y	2023	y/y	2023	y/y
S&P 500 Pro-forma EPS (Historical Index)	\$208.5														
S&P 500 Pro-forma EPS (Current Constituents)	\$208.5	\$227.5	9%	\$250.1	10%	\$229.7	10%	\$246.4	7%	\$221.0	6%	\$230.0	4%	\$200.0	-10%
Sector (\$ billions)															
Consumer Discretionary	134.0	158.2	18%	191.3	21%	162.3	21%	187.9	16%	142.8	7%	164.4	15%	133.4	-7%
Consumer Staples	102.8	107.7	5%	115.4	7%	106.1	3%	113.5	7%	104.8	2%	111.2	6%	108.2	3%
Energy	79.4	111.1	40%	102.0	-8%	159.1	100%	135.4	-15%	157.6	98%	130.5	-17%	114.3	-28%
Financials	330.8	278.7	-16%	313.2	12%	273.9	-17%	309.8	13%	275.6	-17%	296.4	8%	254.9	-8%
Health Care	293.0	316.4	8%	312.0	-1%	313.8	7%	312.4	0%	311.7	6%	304.1	-2%	288.5	-7%
Industrials	109.3	144.2	32%	170.9	19%	143.2	31%	166.5	16%	136.7	25%	149.8	10%	108.9	-20%
Information Technology	383.4	425.9	11%	470.5	10%	423.0	10%	472.7	12%	410.0	7%	442.6	8%	378.6	-8%
Materials	58.3	61.5	6%	56.6	-8%	65.7	13%	61.2	-7%	63.5	9%	57.3	-10%	40.3	-37%
Real Estate	42.1	46.5	11%	49.8	7%	46.8	11%	50.6	8%	46.3	10%	48.5	5%	47.8	3%
Communication Services	190.9	192.6	1%	219.3	14%	212.5	11%	234.6	10%	182.5	-4%	198.4	9%	176.8	-3%
Utilities	47.8	47.6	0%	51.5	8%	49.5	4%	52.8	7%	47.4	-1%	51.6	9%	45.6	-4%
S&P 500	1,771.6	1,890.3	7%	2,052.6	9%	1,955.8	10%	2,097.6	7%	1,879.0	6%	1,954.8	4%	1,697.3	-10%
S&P 500 ex. Financials	1,440.9	1,611.6	12%	1,739.4	8%	1,681.9	17%	1,787.8	6%	1,603.4	11%	1,658.4	3%	1,442.5	-10%
S&P 500 ex. Energy and Financials	1,361.5	1,500.5	10%	1,637.4	9%	1,522.8	12%	1,652.4	9%	1,445.8	6%	1,527.9	6%	1,328.2	-8%
S&P 500 ex. Energy	1,692.2	1,779.3	5%	1,950.6	10%	1,796.7	6%	1,962.1	9%	1,721.4	2%	1,824.2	6%	1,583.1	-8%
Energy Sector (\$bn)	79.4	111.1	40%	102.0	-8%	159.1	100%	135.4	-15%	157.6	98%	130.5	-17%	114.3	-28%
Avg. Oil Price (wt'd. blend of Brent & WTI)	\$70/bbl									-\$108/bbl	55%	-\$93/bbl	-14%		
S&P 500 Dividends (Historical Constituents, \$/share)	\$60.40									\$68.00	13%	\$73.00	7%		
Key Macro Economic Forecasts															
Global GDP growth (real)	6.0%									3.6%		3.3%			
US GDP growth (real)	5.7%									3.3%		1.8%			
FX Rate: US\$/Euro (average)	1.18									1.08		1.11			

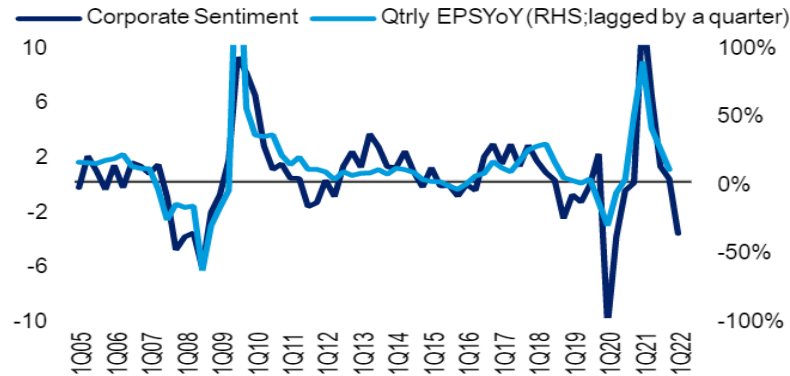
Source: BofA US Equity & Quant Strategy, FactSet/First Call



# Corporate sentiment peaked

## Big sentiment drop = earnings downside risk

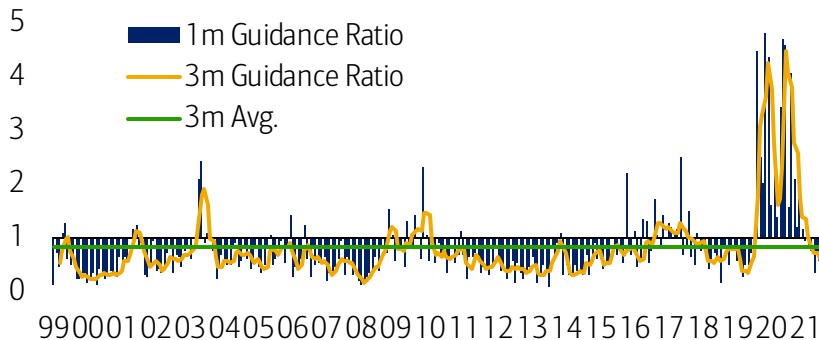
S&P 500 avg. negative sentiment score YoY vs. quarterly EPS YoY with a quarter lag (r-sq=53%; 1Q05-1Q22)



Source: FactSet, BofA Global Research

## Management guidance ratio at lowest level since 2Q20

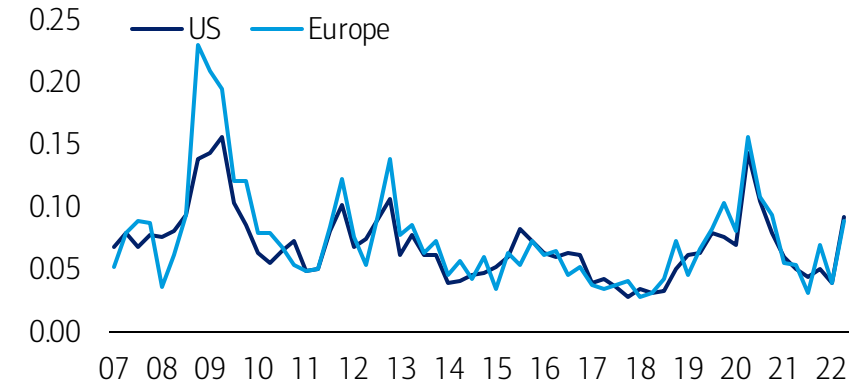
S&P 500 Management Guidance Ratio (# Above vs. Below Consensus) – 5/2022



Source: Bloomberg, BofA US Equity & US Quant Strategy

## US companies cited weak demand as much as Europe

Avg weak demand mentions in the US vs. Europe (2007-present)

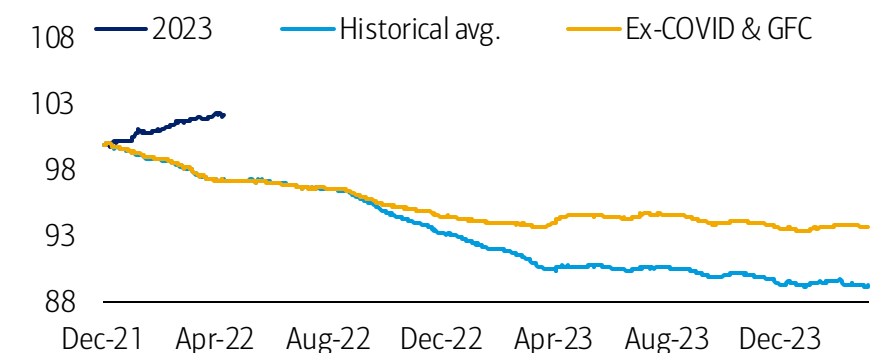


Source: BofA Global Research

Note: mentions include "lower," "softer," "moderating," "weaker"

## Consensus EPS up, but typically revised down

Historical trend of consensus FY2 EPS (Dec 31, -2Y= 100, '01-'23 EPS)



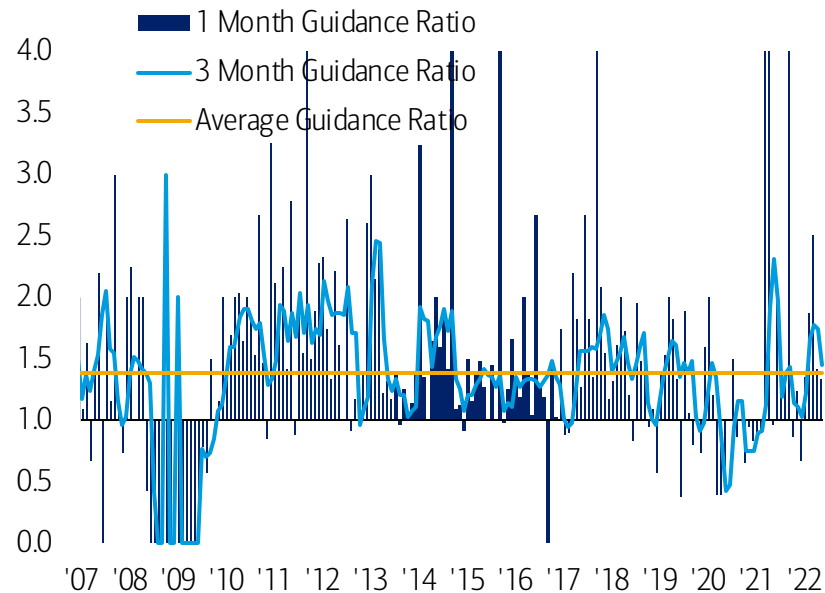
Source: FactSet, BofA US Equity & US Quant Strategy

# The one area where companies are still bullish: capex



## Capex is usually pro-cyclical, but remains above average in spite of downward profits guidance

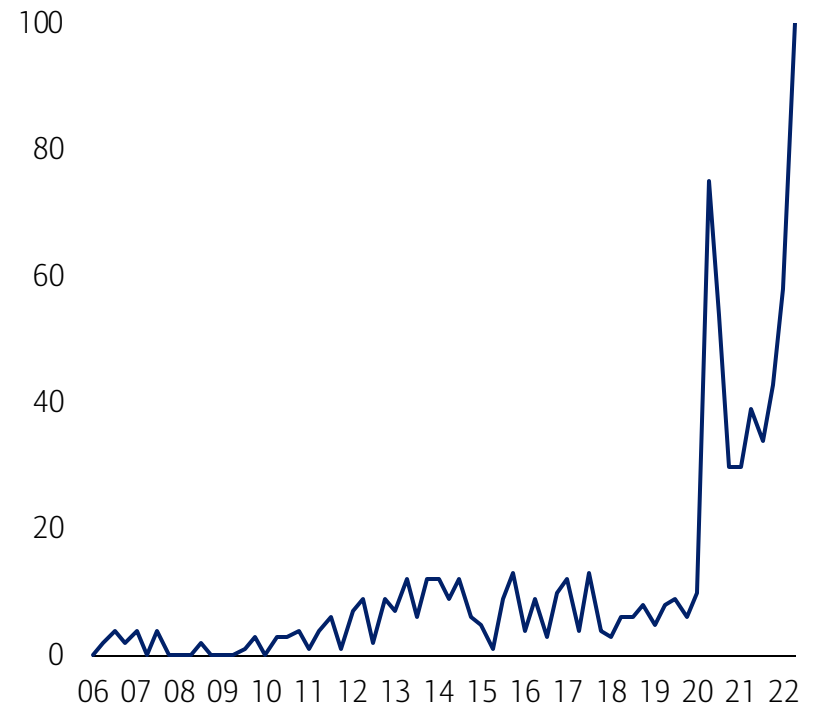
S&P 500 Capex Guidance Ratio (# Above vs. Below Consensus) - 05/20/22



Source: FactSet, BofA US Equity & Quant Strategy

## Necessity breeds spending: re-shoring rhetoric

Companies mentions of re-/near-/on-shoring (2006-1Q22)



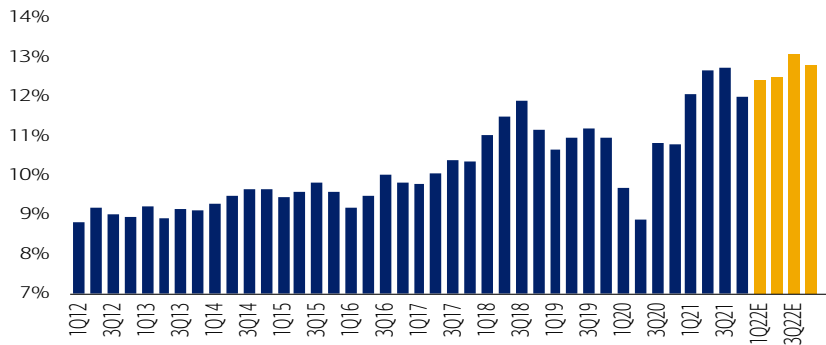
Source: AlphaSense, BofA Global Research



# Downside risk to 2022 earnings

## Record margins forecast for 2022

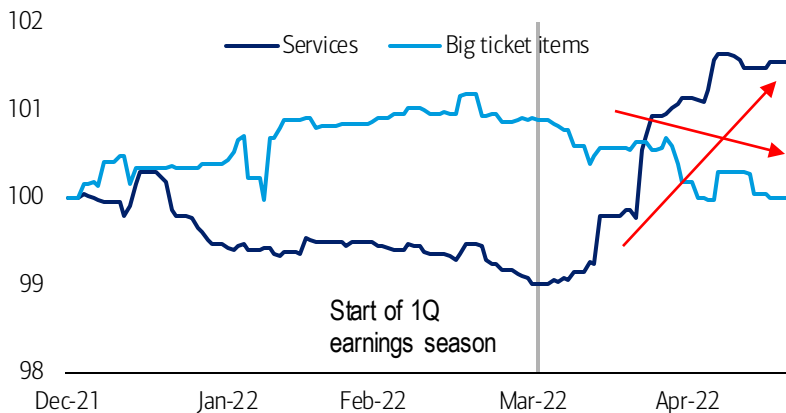
S&P 500 quarterly net margins ex-Financials (2012-4Q22E)



Source: FactSet, BofA US Equity & Quant Strategy

## Analyst cut goods demand, raise services demand

2022 consensus sales for services vs. big ticket items (12/31/21-5/20/22)

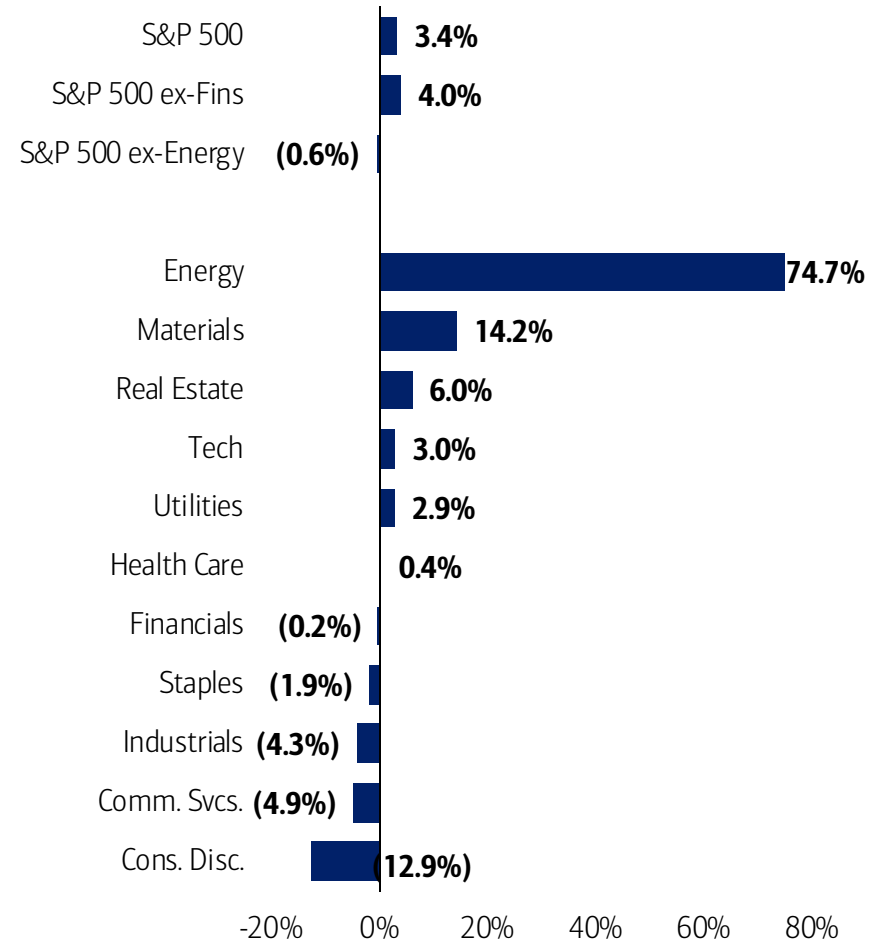


Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy

Notes: Services: Hotels, Restaurants, Airlines; Big ticket items: Autos (ex-TSLA), Auto Retailers, Homebuilders

## S&P earnings revisions are down ex-Energy

S&P 500 2022 consensus earnings revisions YTD (as of 6/07/22)



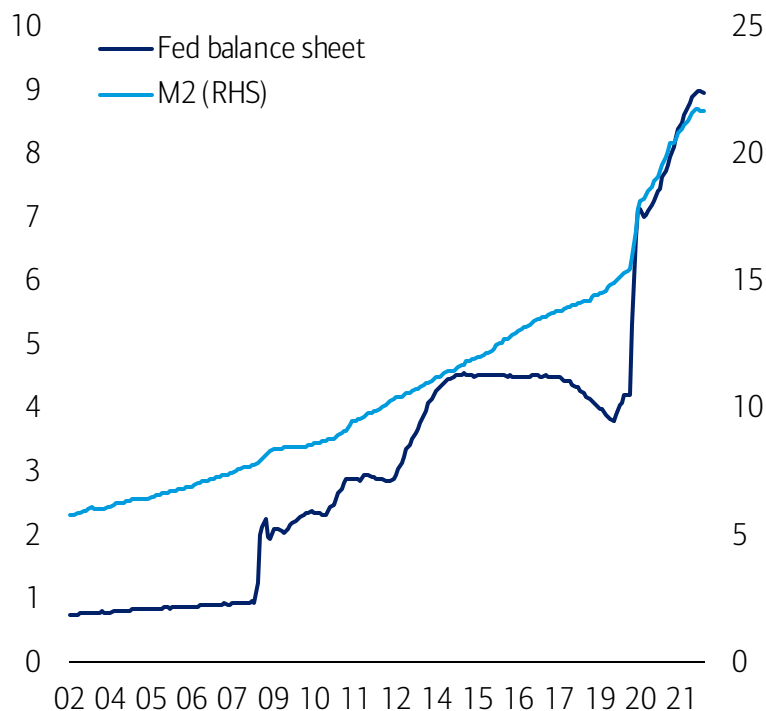
Source: FactSet, BofA US Equity & Quant Strategy

# Liquidity hand-off: Fed/US Gov't to consumer/corporates



## +\$4.7T in Fed balance sheet & +6.5T in M2 since 2019

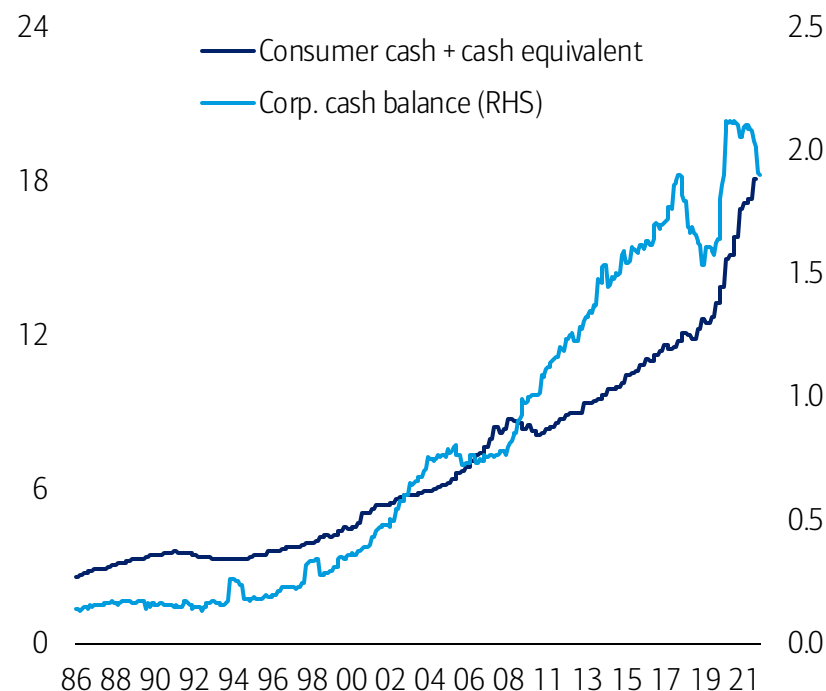
Fed balance sheet and M2 money supply (\$T; 2002-present)



Source: Bloomberg, BofA US Equity & Quant Strategy

## US consumer & US corporates hold ~\$20T in cash, a 35% increase vs. 2019

Consumer and S&P 500 cash balance (\$T; 1986-present)



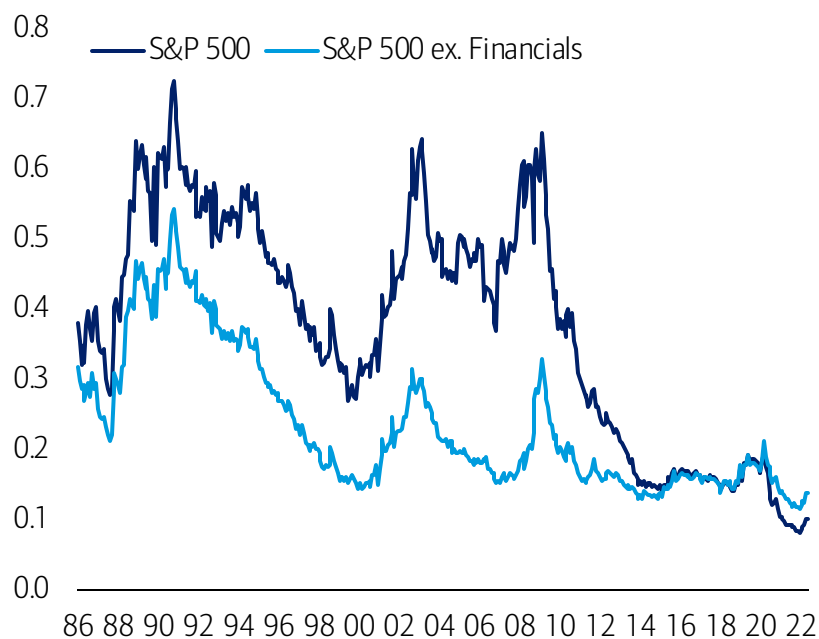
Source: FactSet, Haver Analytics, BofA US Equity & Quant Strategy

# Less leverage than 06



## S&P 500 net debt to equity still below 2019 levels

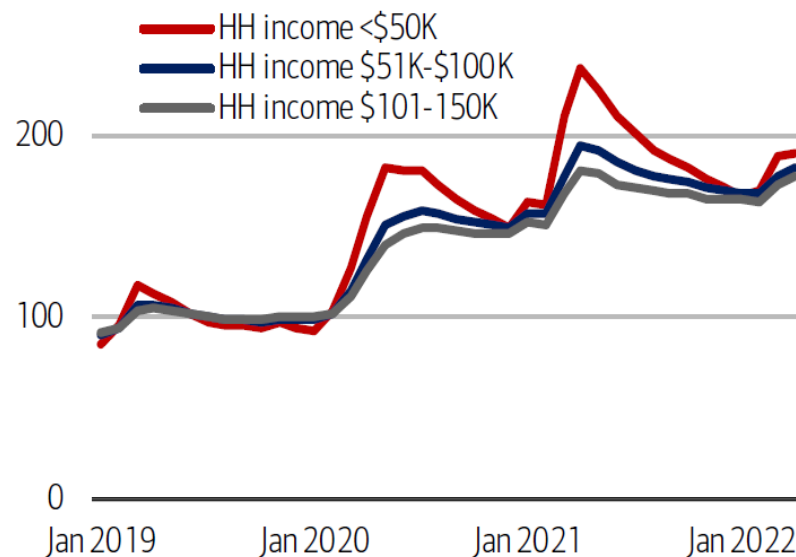
Net debt to equity of S&P 500 (1986-5/2022)



Source: FactSet, BofA US Equity & Quant Strategy

## Households' savings still above 2019 levels

Median household savings and checking balances (index, 2019 avg. = 100 for each group) for a fixed group of households (HH)<sup>2</sup> between 2019 to April 2022



Source: Bank of America internal data

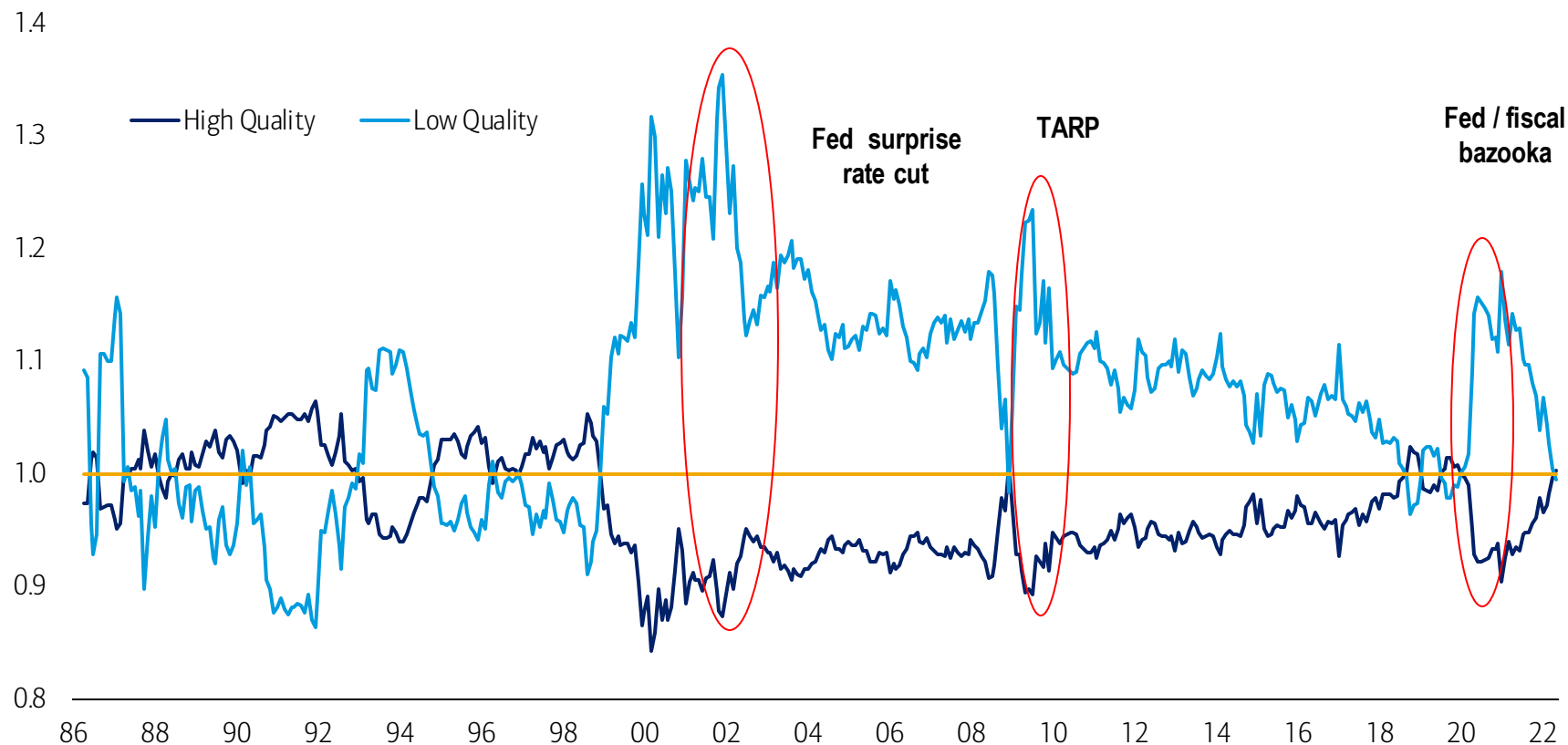


# Peak liquidity implications: Fed call



## Moral hazard created irrational market – premium for risk, discount for safety

B+ or Better vs. B or Worse Fwd. P/E relative to BofA Universe (1986-5/22)



Source: FactSet, BofA US Equity & Quant Strategy



# Peak liquidity = market downside, volatility upside

## Diminishing returns from policy put

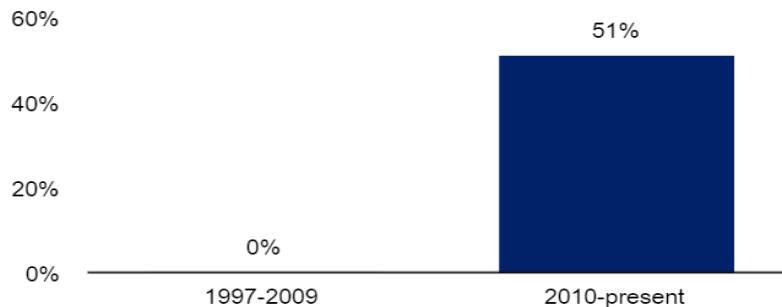
Low Quality vs. High Quality performance over periods with easy monetary policy (i.e., QE)

From	To	Low Quality vs. High Quality performance	B+ or Better	B or Worse
Mar-09	Jul-09	19.20%	35.50%	54.70%
Aug-10	Feb-11	4.20%	28.70%	32.90%
Dec-11	Mar-12	3.30%	10.70%	14.00%
May-13	Dec-13	1.10%	13.60%	14.70%
Mar-20	Mar-22	-9.79%	51.44%	41.65%

Source: FactSet, BofA US Equity & Quant Strategy

## Post-GFC world: half of S&P 500 gains (ex-EPS) explained by liquidity

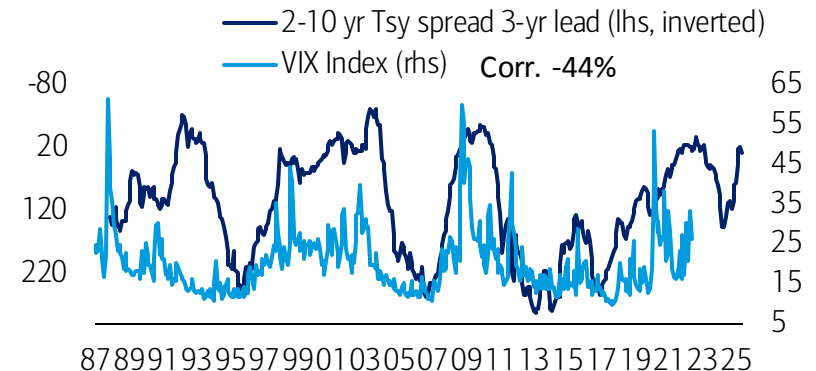
R-sq of Fed balance sheet YoY vs. YoY change in S&P 500 market cap that is not driven by earnings (May 1997-Dec. 2021)



Source: FactSet, BofA US Equity & Quant Strategy

## Volatility slated to remain elevated

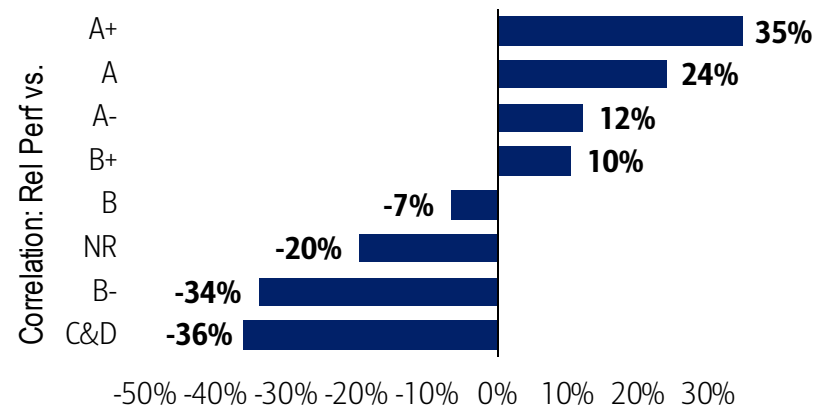
CBOE VIX and Inverted Slope of Yield Curve (1986 to 5/2022)



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

## High Quality has outperformed as VIX rises

BofA Quality Indices 12m Performance Correlation to 12m Changes in CBOE VIX (1986 to 5/22)

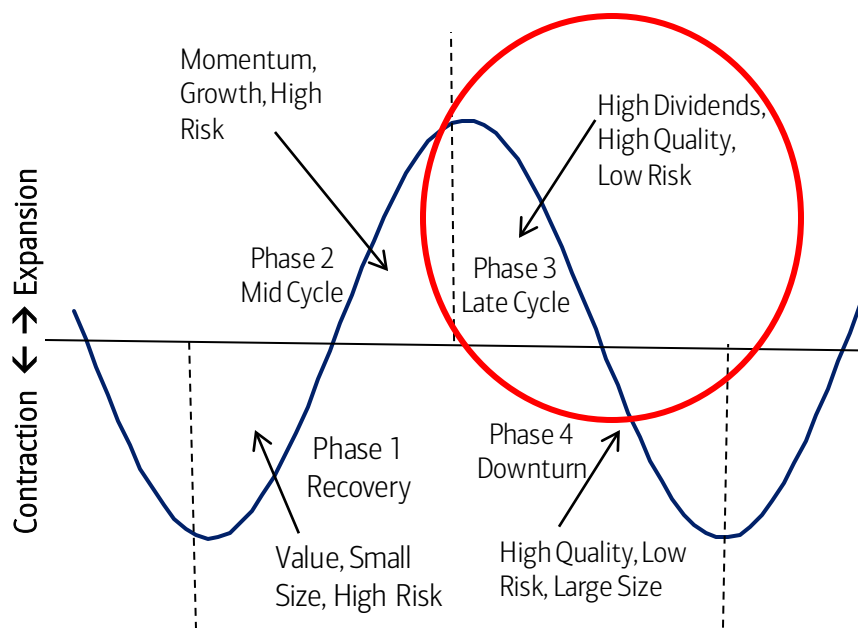


Source: FactSet, BofA US Equity & Quant Strategy

# Late Cycle = tightening conditions

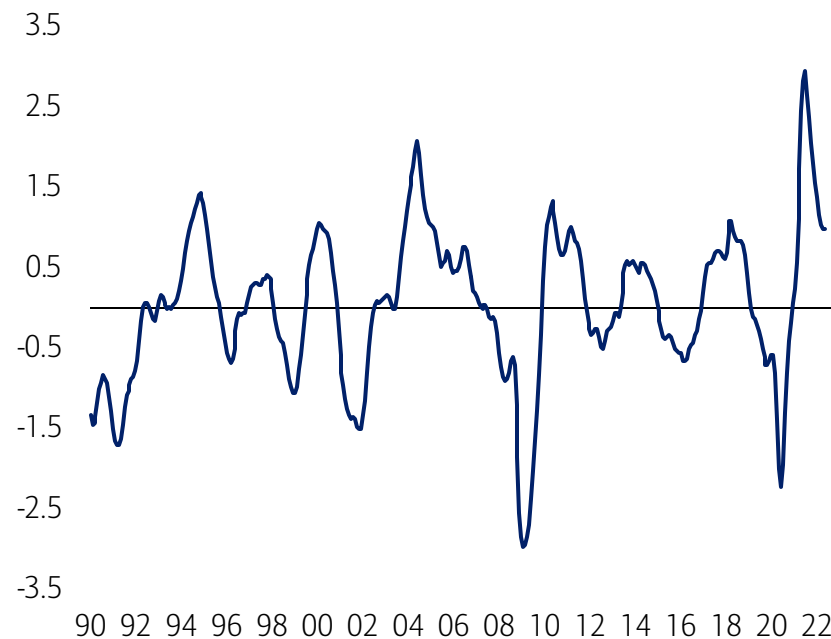


## US Regime Model – a heuristic



## US Regime Indicator is in Late Cycle

The indicator stayed flat at 1.0 in May (1990-5/2022)



**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.

# Late Cycle favors quality and yield



## 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
<b>Phase 1</b> Recovery	Avg:	19.4%	-7.5%	-5.9%	-6.0%	8.4%	18.4%	-10.7%	-8.4%	19.0%	-12.8%	7.0%
	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%
<b>Phase 2</b> Mid Cycle	Avg:	3.8%	10.9%	11.2%	0.8%	3.9%	11.0%	-6.6%	-2.1%	6.0%	-12.6%	-6.7%
	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%
<b>Phase 3</b> Late Cycle (Current)	Avg:	-0.9%	-7.5%	-4.9%	4.5%	-8.1%	-13.9%	8.9%	-0.6%	-8.2%	6.9%	6.7%
	Median:	-1.6%	-2.9%	0.3%	5.9%	-7.4%	-12.1%	9.9%	3.2%	-8.6%	0.3%	2.5%
	Hit Rate:	37.5%	25.0%	50.0%	75.0%	12.5%	0.0%	75.0%	62.5%	12.5%	50.0%	75.0%
<b>Phase 4</b> Downturn	Avg:	-0.8%	-0.2%	3.1%	5.2%	-4.7%	-6.1%	4.8%	5.6%	-3.0%	-0.9%	-2.4%
	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

# Sector outlook: old economy vs. new economy



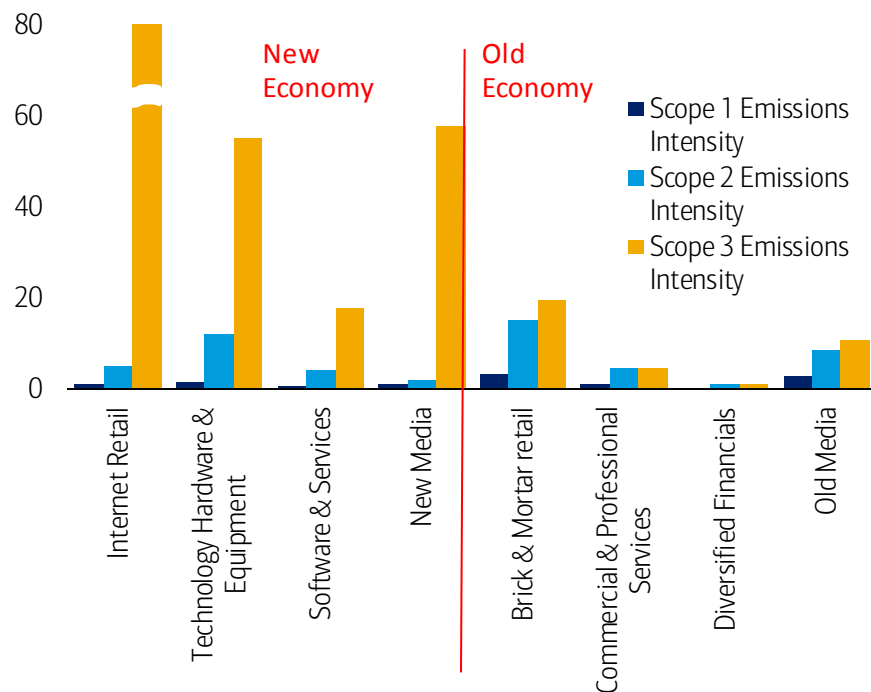
**Overweight:** Health Care, Energy, Consumer Staples, Financials

**Marketweight:** Real Estate, Industrials, Tech, Utilities

**Underweight:** Consumer Discretionary, Materials, Communication Services

## Supply chain emissions greater in new economy sectors

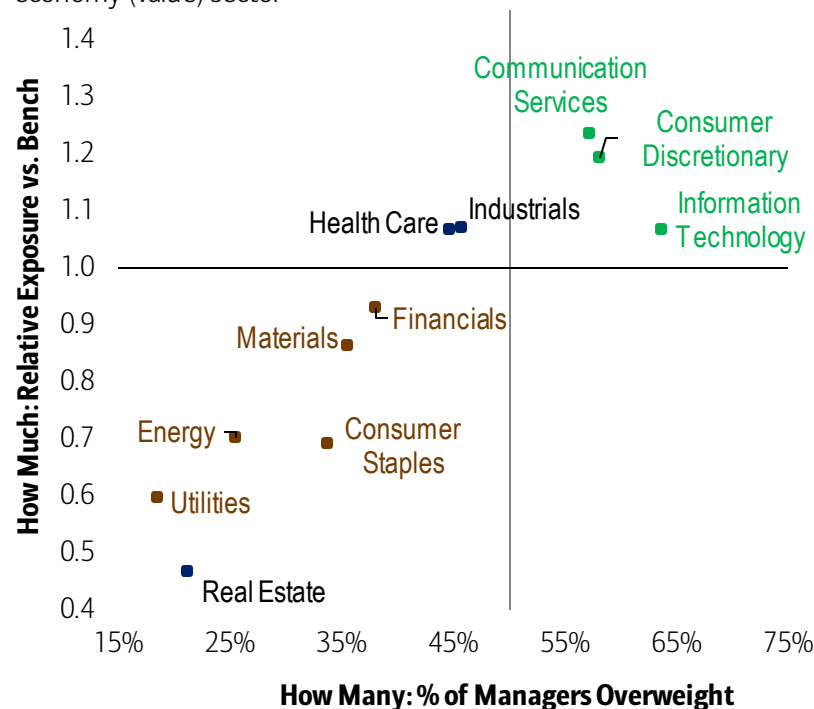
Median Scope 1, 2, and 3 greenhouse gas emissions (metric tons) per million dollars of revenue by sub-industry group



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

## Active mutual fund sector exposure – April 2022

Green indicates new economy (growth) sector, Brown indicates old economy (value) sector



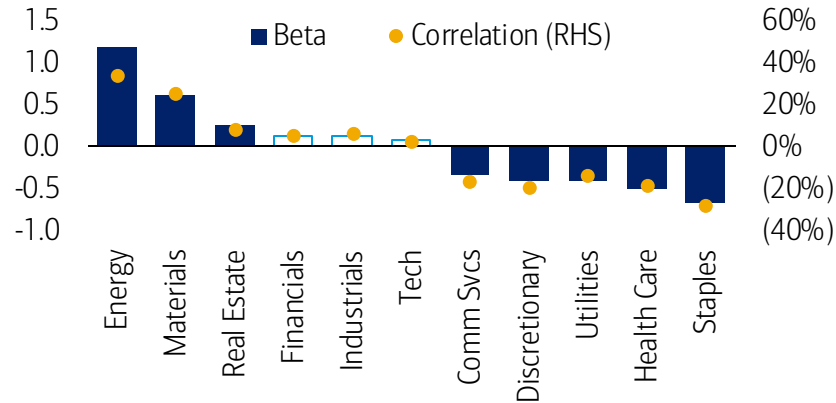
Source: FactSet, BofA US Equity & Quant Strategy



# Macro matters for sectors

## Inflation: commodities/cyclicals over consumer/defensives

Sectors' rel. perf. correlation with our BofA Inflation Composite since '74

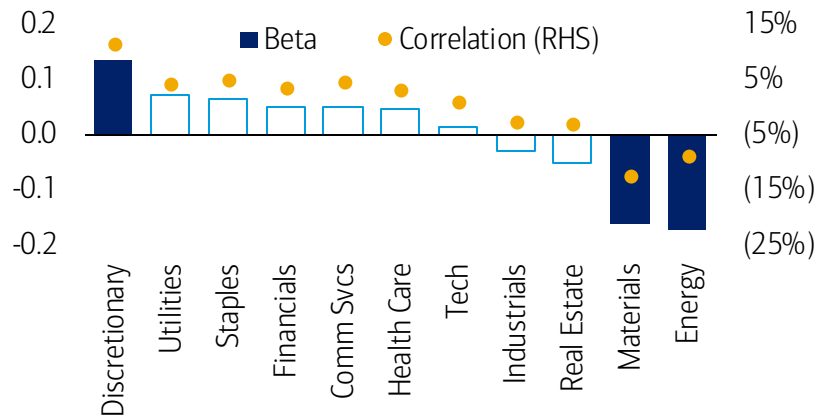


Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy

Note: Empty bars indicate not statistically significant

## Strong USD: commodities hurt; Cons, Utes & Fins helped

S&P 500 sectors' relative performance sensitivity to USD since '97



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

Note: Empty bars indicate not statistically significant

## Stagflation: own commodities and defensives

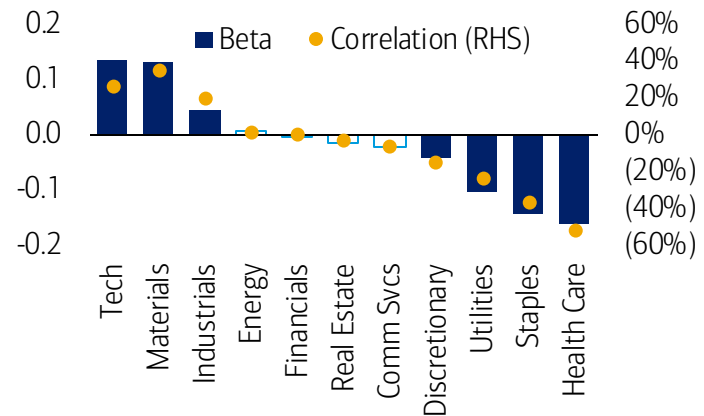
Avg. annualized quarterly returns of S&P 500 sectors during periods of below-trend US GDP growth, rising inflation; since '72

Sector	Avg. ann. total rets
Energy	9.7%
Utilities	8.5%
Staples	3.6%
Financials	3.3%
Health Care	2.0%
Real Estate	1.4%
Materials	0.5%
<b>S&amp;P 500</b>	<b>0.3%</b>
Industrials	-1.1%
Communication Services	-1.9%
Technology	-4.2%
Discretionary	-6.3%

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

## China risk: Tech and Materials most exposed

S&P 500 sectors' rel. perf. to MSCI China since '96



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

Note: Empty bars indicate not statistically significant

# Overweight Energy



## Inflation protected yield on steroids: TIPS + 8ppt

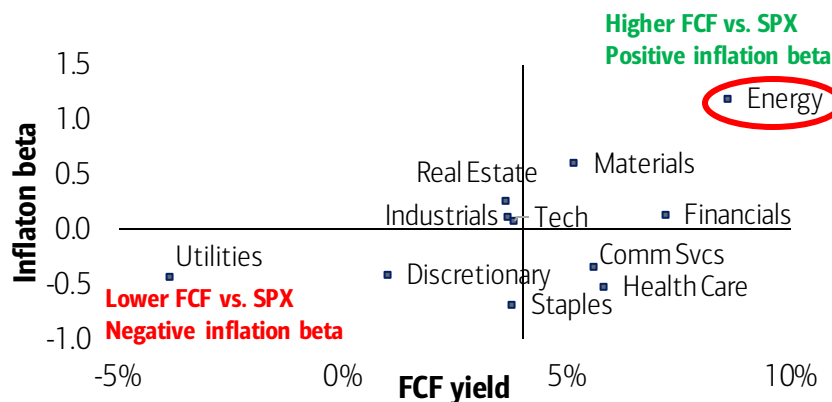
FCF yield of S&P 500 Energy sector vs. TIPS yield (1998-5/22)



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

## Energy is helped by inflation and can raise dividends

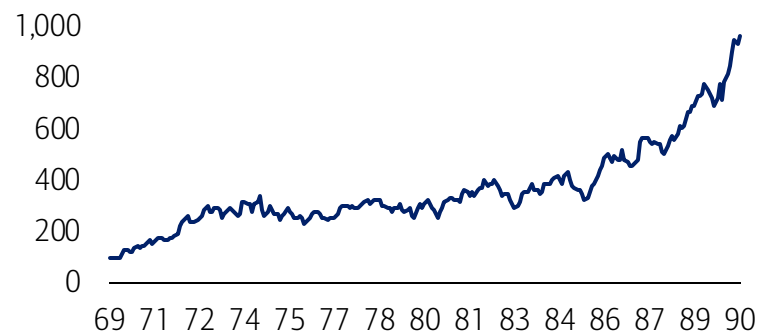
FCF yield vs. inflation beta (based on rel. perf. vs. SPX) (as of 5/22)



Source: BofA US Equity & Quant Strategy, FactSet

## Oil going to \$0? Tobacco was similarly “doomed” after surgeon general cancer announcement in 60s

S&P 500 Tobacco industry's rel. perf (total return) vs. SPX (1969-90)



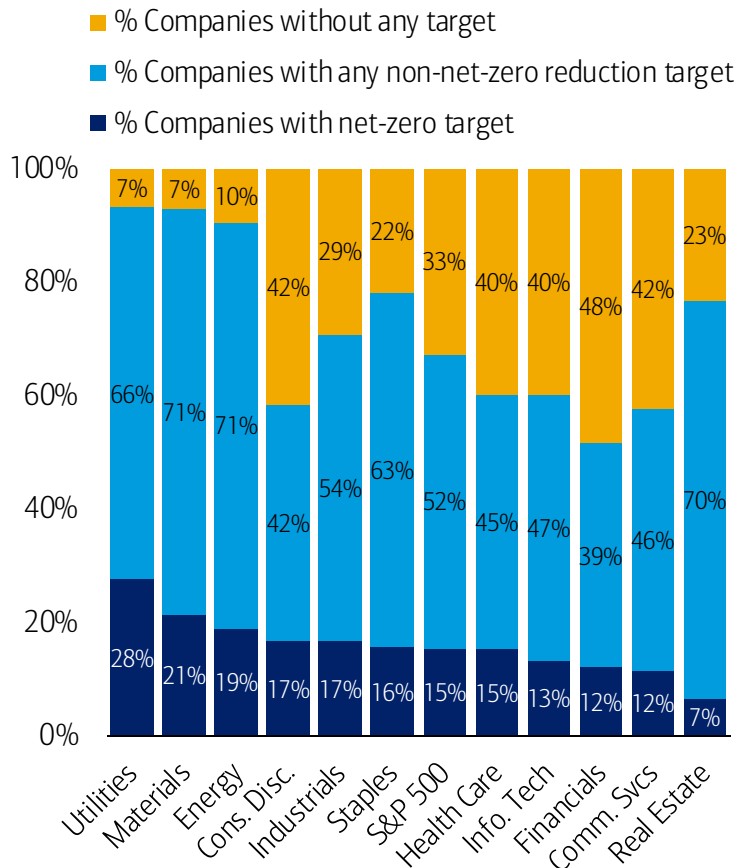
Source: BofA US Equity & Quant Strategy, FactSet

# Energy meets ESG



## Energy companies got the ESG memo

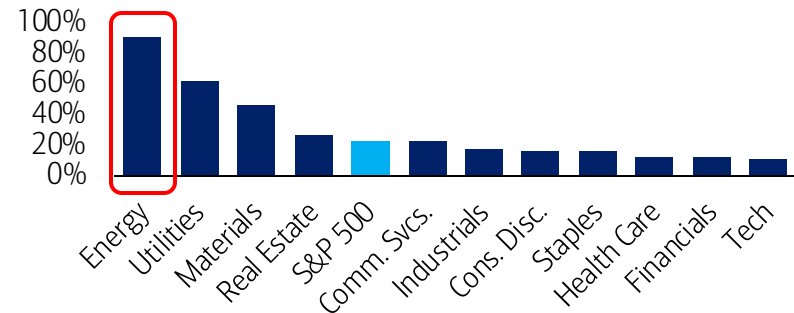
% of S&P 500 companies with emissions reduction targets



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

## Energy leads in aligning CEO short-term compensation to ESG metrics (another reason for limited oil supply?)

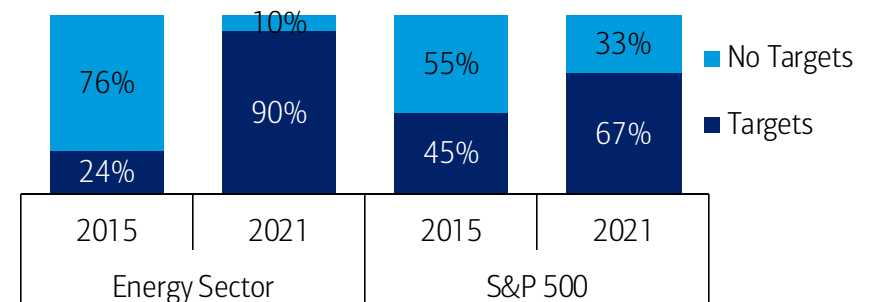
% of S&P 500 companies with ESG metrics as part of CEO short-term incentive compensation plan



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

## Energy no longer lags S&P in setting targets

% of S&P 500 companies that set carbon emissions reduction targets



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

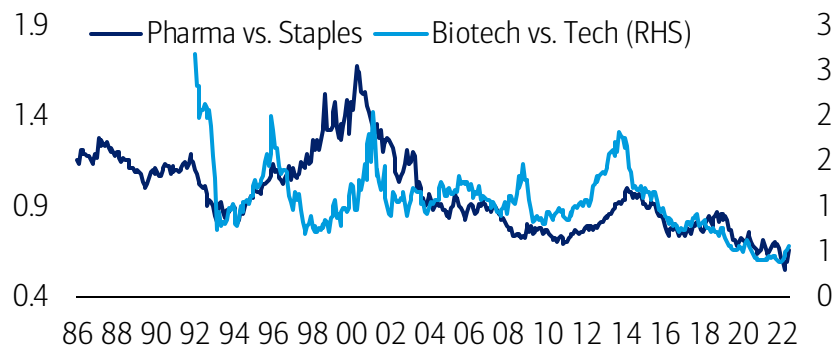


# Overweight Health Care



## “DARP”: Health Care trades at a near record discount to defensive (Staples) & growth (Tech) peers

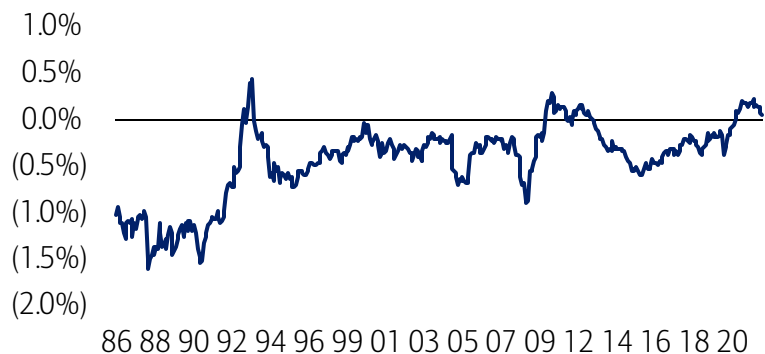
Relative fwd P/E of Pharma vs. Staples and Biotech vs. Tech (1986-5/22)



Source: BofA US Equity & Quant Strategy, FactSet

## Higher dividend yield than S&P 500 for just 3<sup>rd</sup> time

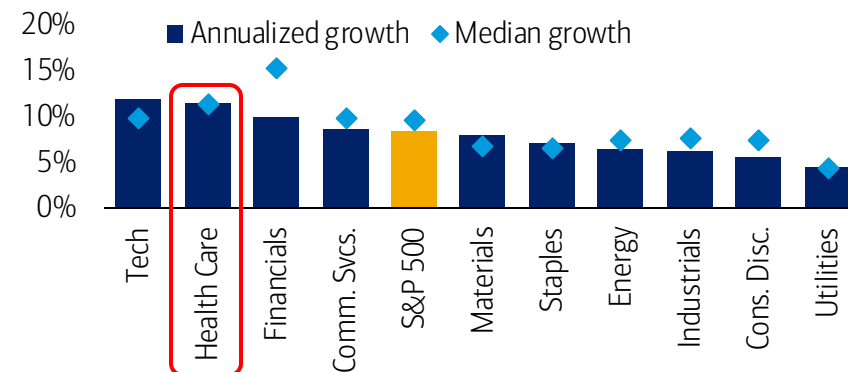
Spread of Health Care dividend yield vs. the S&P 500 (1986-5/22)



Source: BofA US Equity & Quant Strategy, FactSet

## “GARP”: One of the fastest growing sectors in history

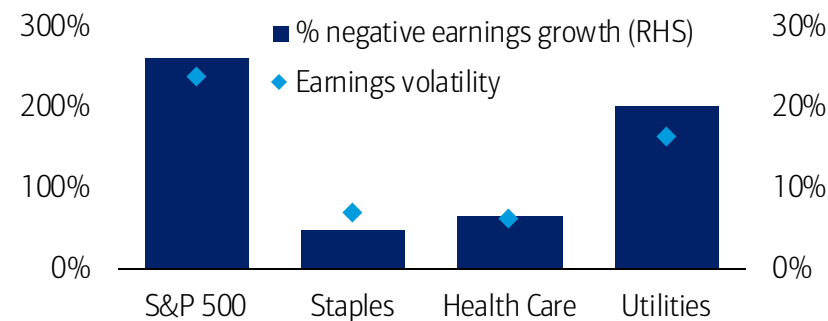
Annualized and median YoY growth rate since 1986 (as of 5/22)



Source: BofA US Equity & Quant Strategy, FactSet

## Defensive earnings

% of historical negative YoY earnings growth and coefficient of variation of YoY earnings growth (1986-5/22)



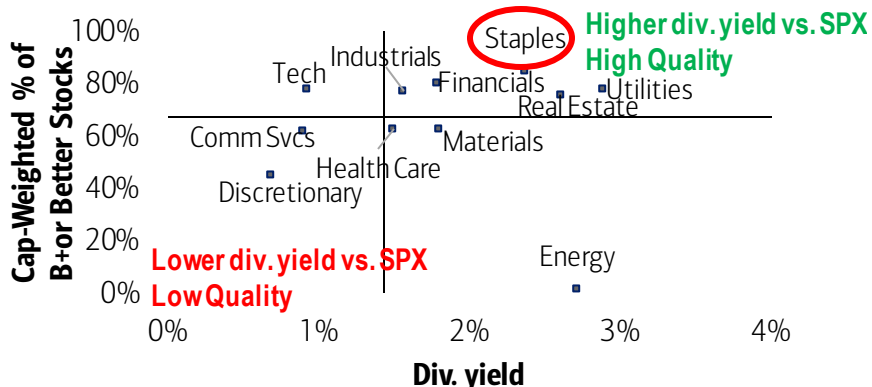
Source: BofA US Equity & Quant Strategy, FactSet

# Overweight Consumer Staples: no matter what, we have to eat



## Dividend Yield and Quality

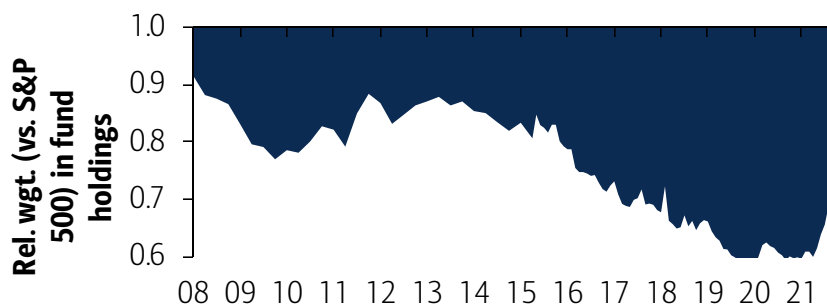
S&P Quality ratings (cap-wtd. % of Low Quality B or Worse stocks) vs. Dividend Yield (as of 5/2022)



Source: FactSet, BofA US Equity & Quant Strategy

## Contrarian positive: hated by active funds

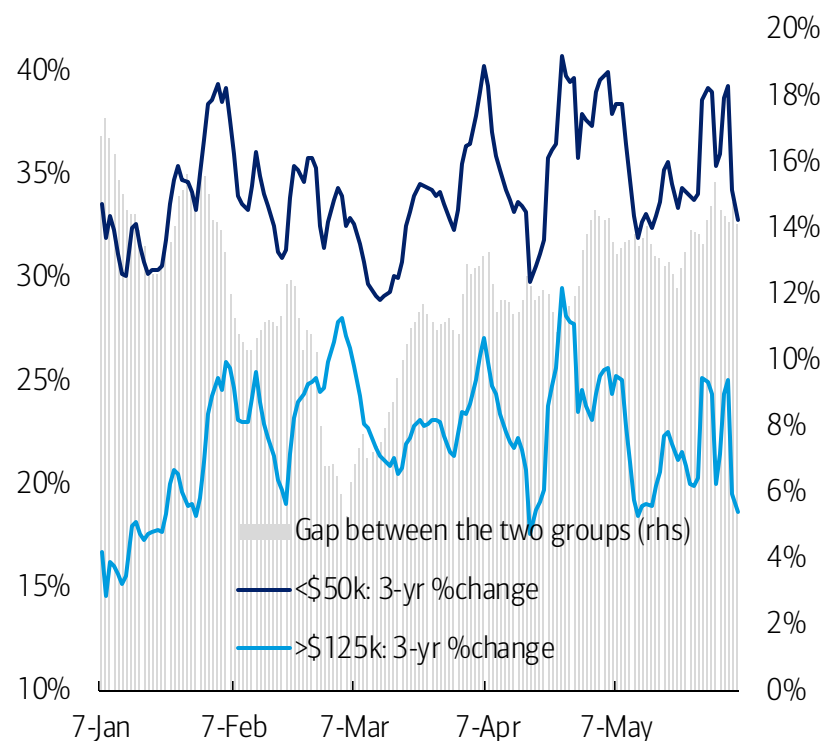
Staples' relative weight vs. S&P 500 in fund holdings (1/2008-5/2022)



Source: FactSet, BofA US Equity & Quant Strategy

## Ex-gas and groceries, lower income leads spending

Total card spending ex grocery ex gas by income group based on aggregated BAC credit and debit card data (3-yr % change of the 7-day moving average of spending levels)



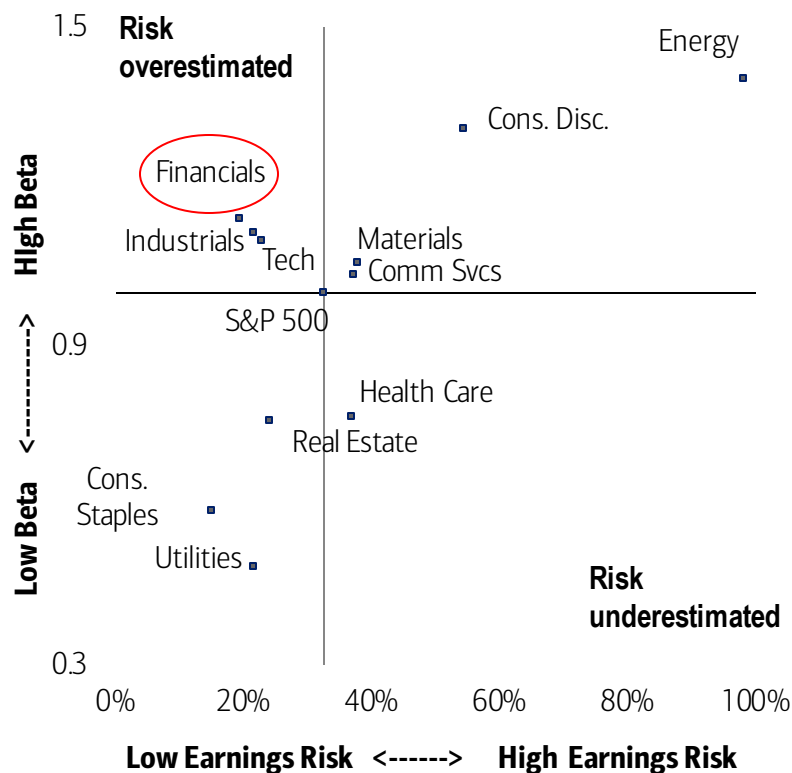
Source: BAC internal data

# Overweight Financials: from toxic (2007) to quality (today)



## Mispriced risk: High earnings quality but high price beta

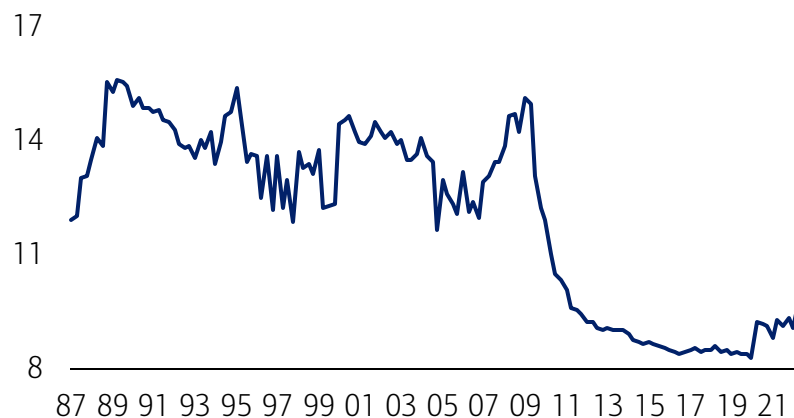
Market cap-weighted proportion of Low Quality B or Worse stocks vs. average 5-yr price beta (as of 5/2022)



Source: BofA US Equity & Quant Strategy, FactSet

## From levered to overcapitalized, thanks to Uncle Sam

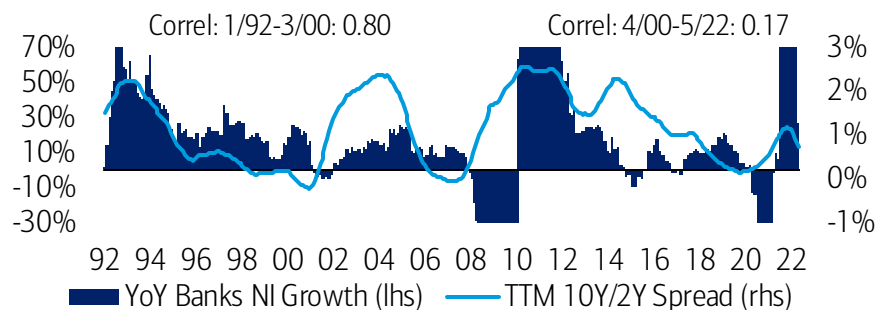
S&P 500 Financials: Total Assets/Equity (1987-1Q22)



Source: BofA US Equity & Quant Strategy, FactSet

## Bank earnings growth no longer correlated with YC spread

YoY NI growth for S&P 500 Banks vs. TTM 10Y/2Y Spread (1/92-5/22)



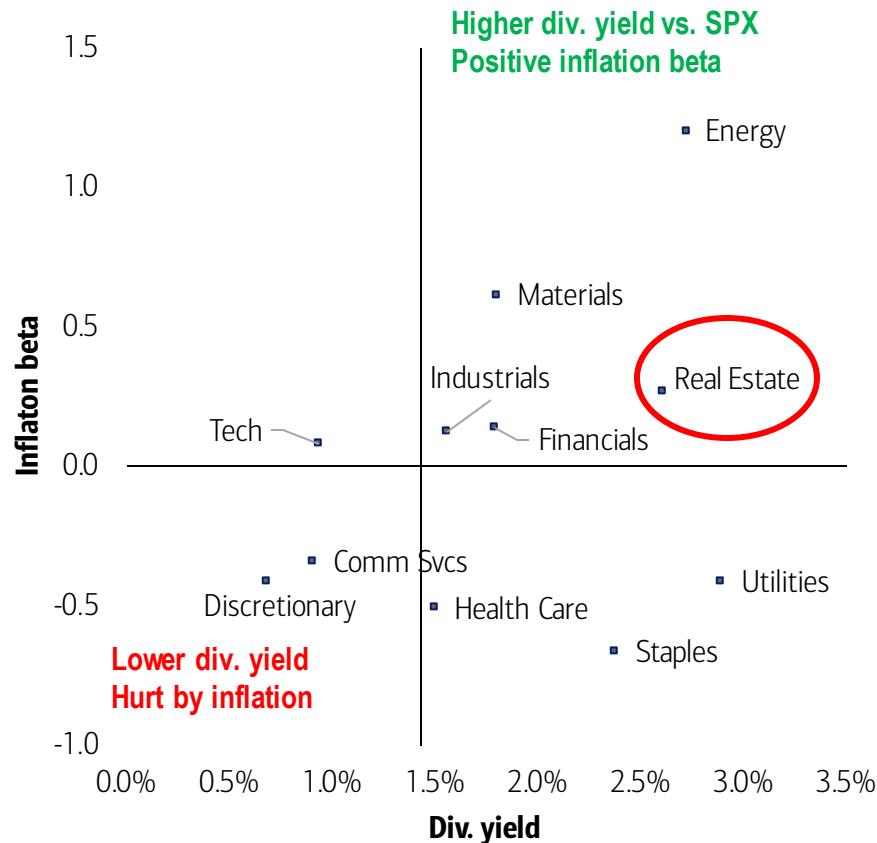
Source: BofA US Equity & Quant Strategy, Bloomberg

# Marketweight Real Estate



## Real Estate offers attractive inflation-protected yield

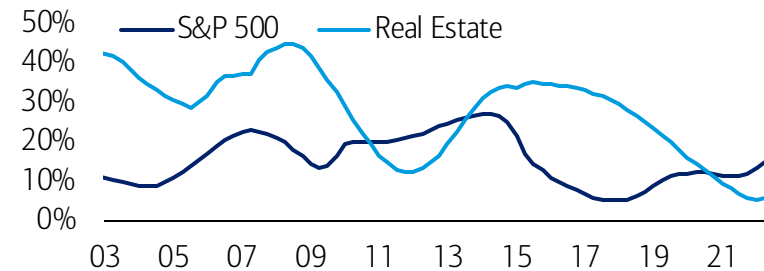
Div. yield vs. inflation beta (based on relative performance vs. SPX) of S&P 500 sectors, 5/2022



Source: BofA US Equity & Quant Strategy, FactSet

## Record low earnings volatility

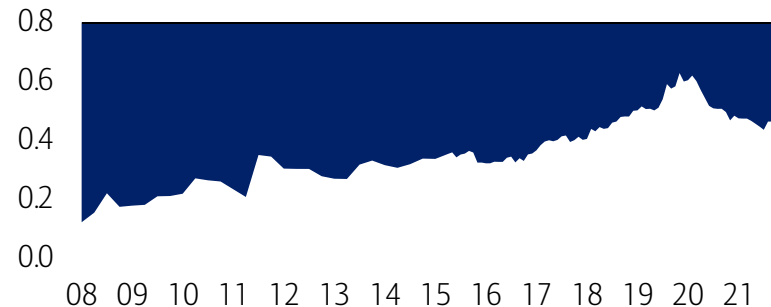
Rolling 5yr trailing 12m earnings volatility (std. dev. / average) of Real Estate vs S&P 500, 2003-1Q22



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

## 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 5/2022



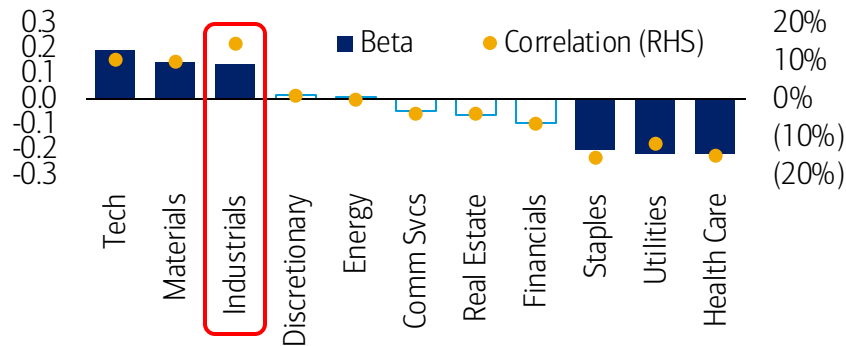
Source: BofA US Equity & Quant Strategy, FactSet



# Marketweight Industrials

## Most correlated sector to PMI (peaked)

S&P 500 sectors' monthly relative performance sensitivity to monthly changes in PMI since '70

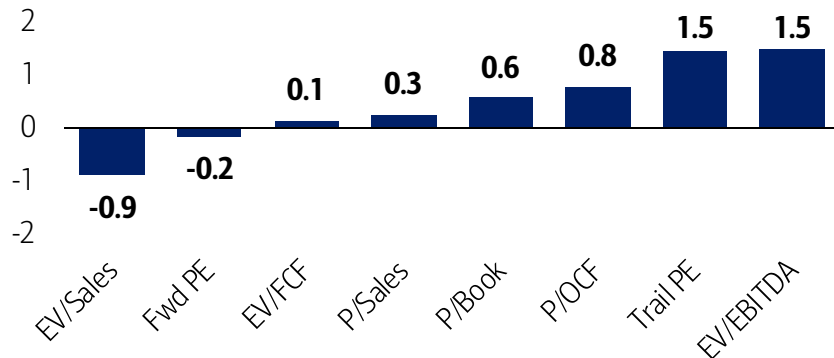


Source: Bloomberg, FactSet, BofA US Equity & Quant Strategy

Note: Empty bars indicate not statistically significant

## Expensive (been bid up as lower emissions risk oil proxy)

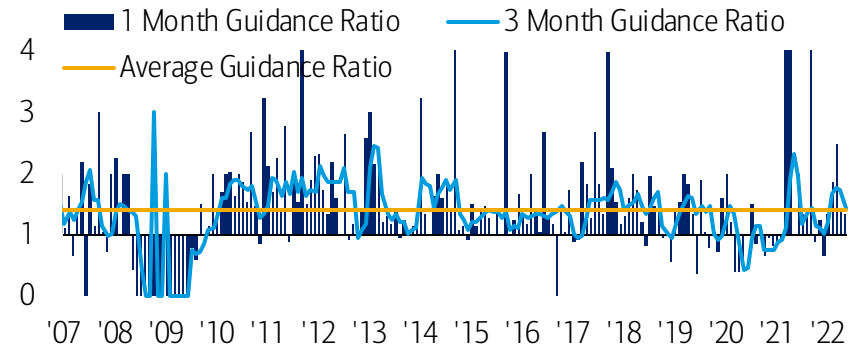
Industrials relative valuations z-score (since 1986), as of 5/2022



Source: FactSet, BofA US Equity & Quant Strategy

## Bright spot: capex guidance ratio still strong

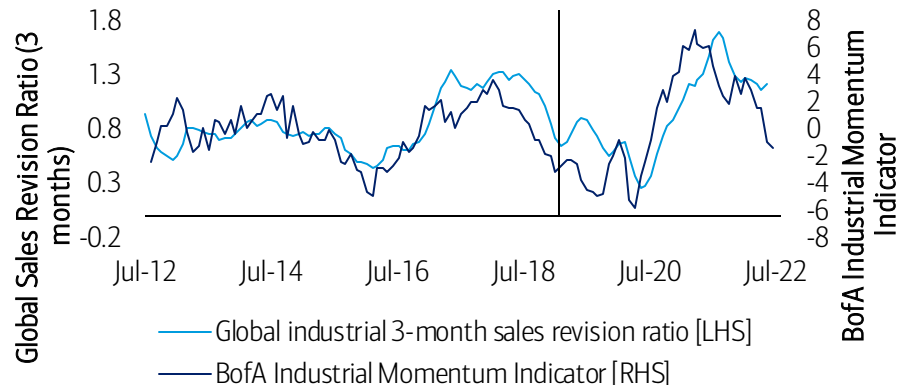
S&P 500 capex guidance ratio (2007-5/20/22)



Source: FactSet, BofA US Equity & Quant Strategy

## BofA Industrial Momentum Indicator leads Sales Revisions

BofA Industrial Momentum Indicator vs Global Industrial Sales Revisions (5/22)



Source: BofA Global Research

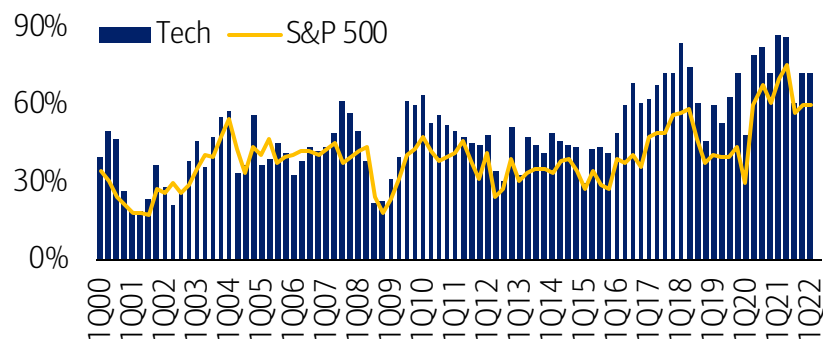
**BofA Industrial Momentum Indicator:** Backtested period = January 2012 through January 2019, Actual Performance since February 2019. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance 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

# Marketweight Technology



## Strong fundamentals so far: 54 straight quarters of beats (longest of any sector)

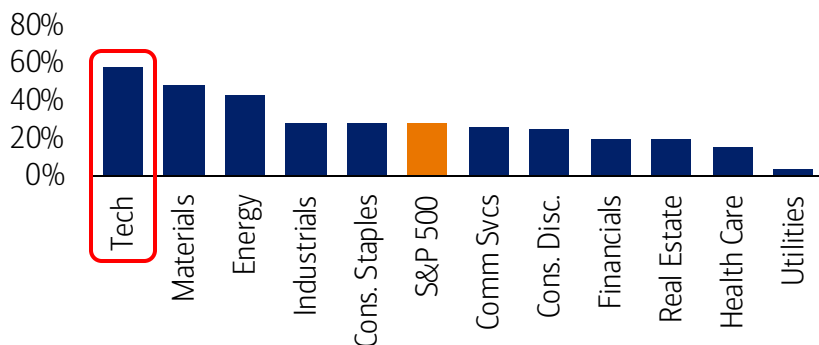
% of companies beating on both sales & EPS (2000-1Q22)



Source: BofA US Equity & Quant Strategy, FactSet

## Risk: Tech is poster child for globalization

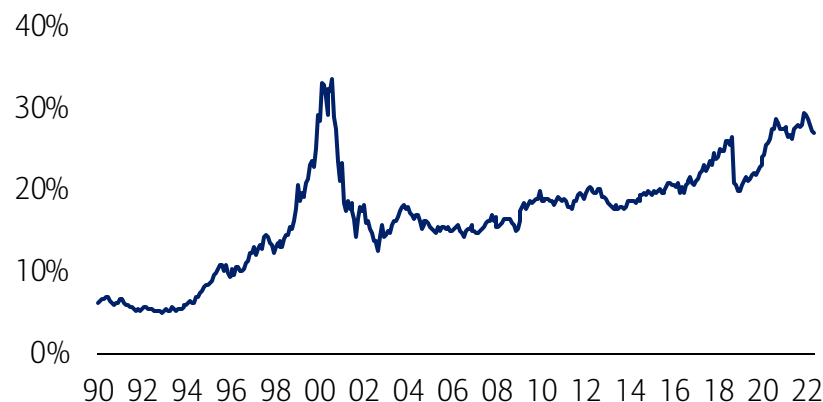
S&P 500 foreign exposure by sector (based on 2020 sales)



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

## Tech still a near-record weight in the S&P 500

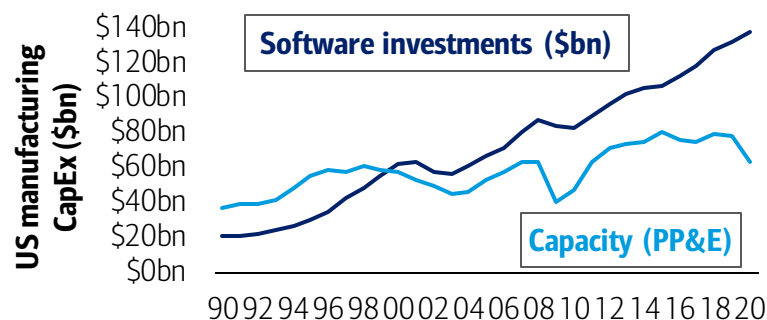
Tech weight in S&P 500, 1990-5/22



Source: BofA US Equity & Quant Strategy, FactSet

## Secular trend could shift amid near-shoring

US Manufacturing Capex spending: software vs. “core” industrial equipment (1990-2020)



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.)

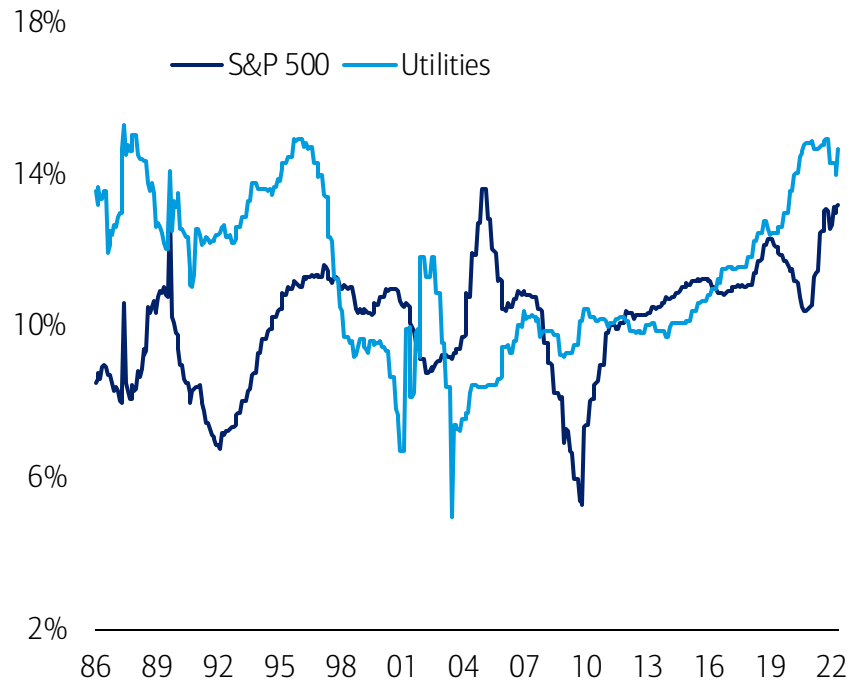
Source: BofA US Equity & Quant Strategy, BEA

# Marketweight Utilities



## Pro: strong fundamentals, improved earnings visibility

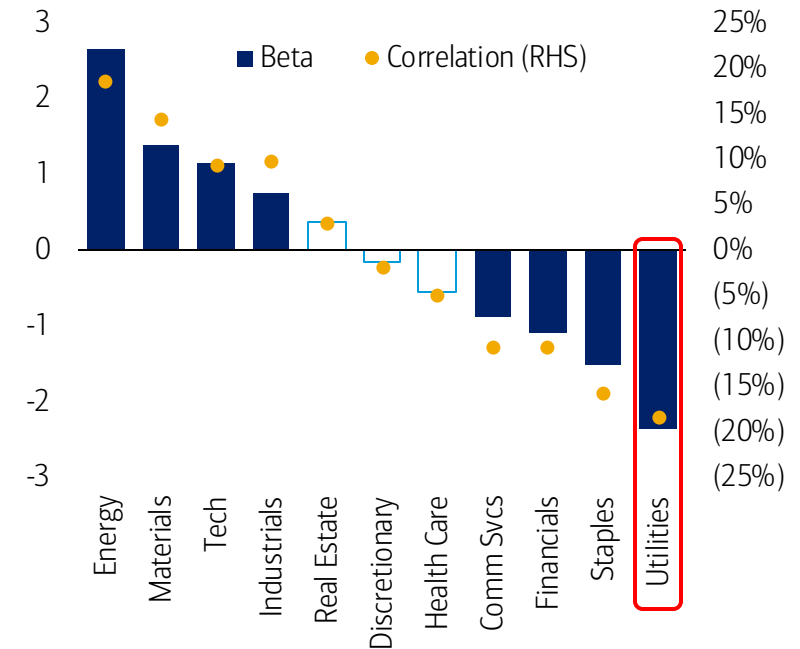
S&P 500 and Utilities net margin, 1/1986-5/2022



Source: FactSet, BofA US Equity & Quant Strategy

## Con: Worst performer when rates rise

S&P 500 sectors' relative performance sensitivity to nominal rates since '72



Source: FactSet, BofA US Equity & Quant Strategy

Note: Empty bars indicate not statistically significant

# Underweight Consumer Discretionary



## Statistically expensive on most measures

% upside/downside of relative valuations vs relative long-term average by sector, 1986-5/22\*

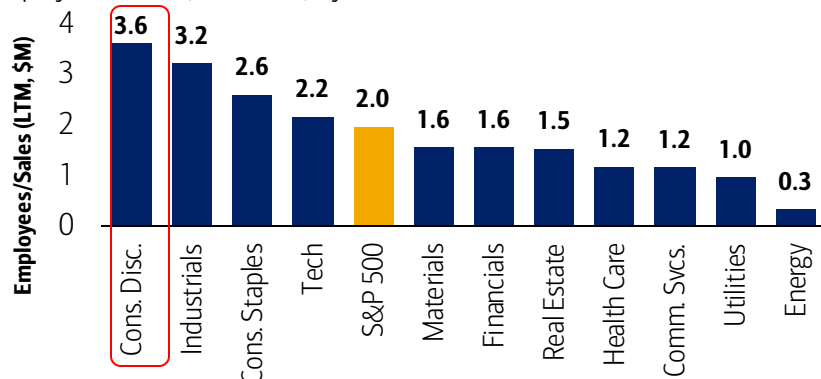
Sector	P/BV	P/OCF	Fwd P/E	EV/Sales
S&P 500 (absolute)	-27.8%	-30.5%	-10.2%	-33.4%
Comm. Svcs.	25.2%	27.3%	30.3%	-26.6%
Cons. Disc.	-39.0%	-39.2%	-25.8%	-57.8%
Energy	18.7%	35.6%	79.5%	-17.3%
Financials	57.3%	N/A	2.7%	-28.6%
Health Care	39.1%	67.9%	17.6%	54.8%
Industrials	-9.1%	-7.6%	1.1%	10.8%
Materials	15.5%	20.6%	21.0%	-28.6%
Real Estate	11.3%	N/A	2.9%	-56.2%
Staples	16.7%	15.3%	-6.2%	-37.8%
Technology	-31.8%	-3.1%	-5.7%	-15.1%
Utilities	0.8%	-16.3%	-25.2%	-49.3%

\*Real Estate since 2002.

Source: BofA US Equity & Quant Strategy, FactSet

## Labor-intensive – a risk if wage inflation continues

Employees/sales (LTM; \$mn) by S&P 500 sector as of 5/22



Note: Employee data is based on data as of latest fiscal year, sales are latest 12 months

Source: BofA US Equity & Quant Strategy, FactSet

## Higher oil hits consumption with a 4qtr lag

Correlation of YoY change in qtrly WTI prices vs. YoY change in consumption (PCE ex. Gasoline & Energy), 1987-1Q22 and last 10yrs

	Full history (since 1987):				Last 10 years:			
	PCE ex. Energy/ Gasoline	Discretionary spend	Staples spend	Savings Rate	PCE ex. Energy/ Gasoline	Discretionary spend	Staples spend	Savings Rate
Coincident	46%	50%	44%	-39%	76%	77%	71%	-48%
1 Qtr Lag	32%	32%	38%	-26%	53%	51%	62%	-40%
2 Qtr Lag	19%	18%	23%	-6%	33%	30%	45%	-24%
3 Qtr Lag	7%	4%	7%	-1%	19%	13%	30%	-24%
4 Qtr Lag	-11%	-16%	-15%	11%	-14%	-19%	-2%	1%
5 Qtr Lag	-14%	-16%	-23%	10%	-12%	-14%	-7%	6%
6 Qtr Lag	-17%	-19%	-27%	8%	-16%	-17%	-16%	12%

Source: BofA US Equity & Quant Strategy, HaverAnalytics

## One positive: labor pressures alleviating

# of new job postings each month for the S&P 500 (Jan 2020-Apr 2022)



Source: Revelio Labs, BofA Global Research

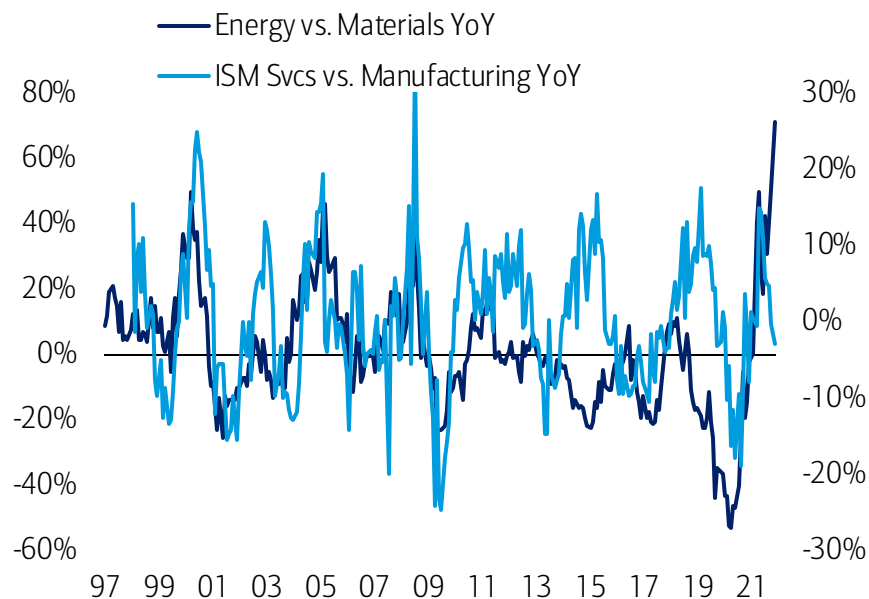


# Underweight Materials



**Materials = goods, Energy = services. COVID shift from goods to services = headwind for Materials**

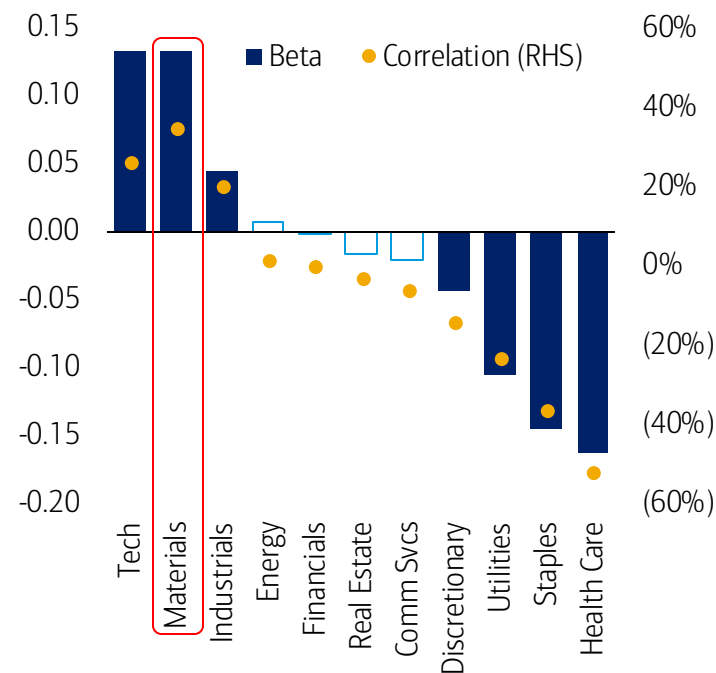
Relative performance of Energy vs. Materials YoY and the ISM Services vs. ISM Manufacturing PMI YoY (1997-5/22)



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

## One of the most exposed sectors to China

S&P 500 sectors' rel. perf. to MSCI China since '96



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

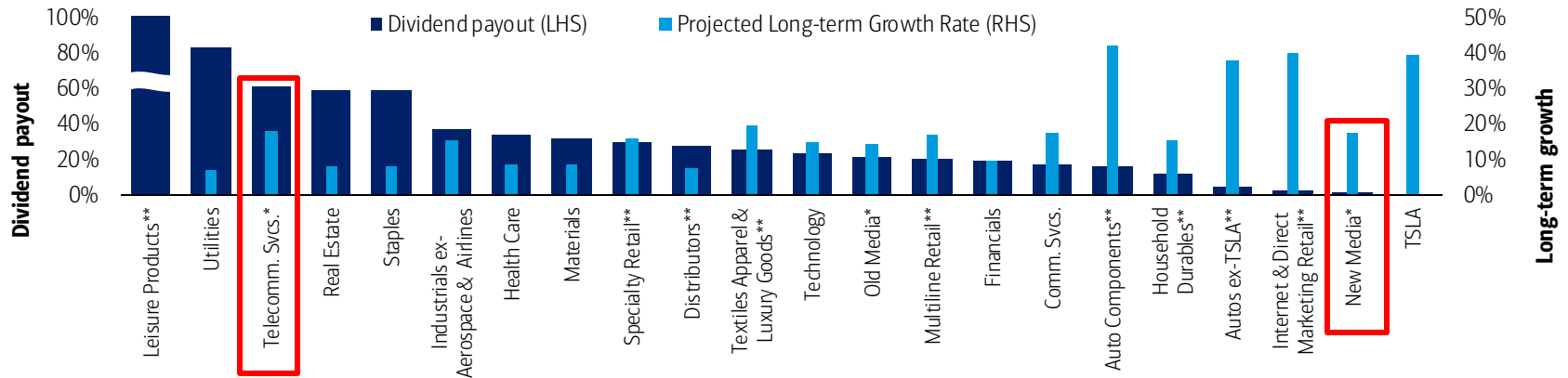
**Note:** Based on MSCI China index on a YoY basis; Empty bars indicate not statistically significant



# Underweight Communication Services

## Rising rates hit short and long duration stocks; Communication Services exposed at both ends

S&P 500 dividend payout ratios and projected long-term growth rates as of 6/7/2022

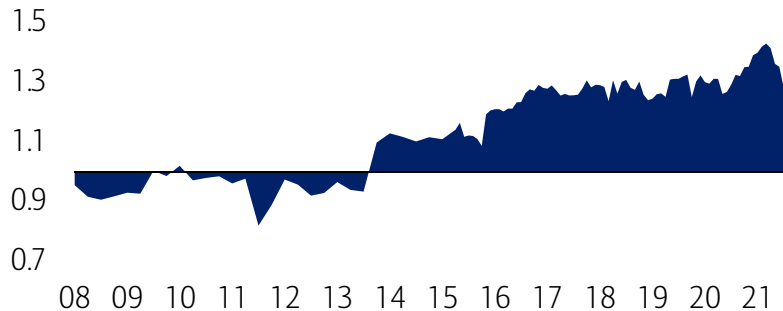


**Note:** \*denotes industry groups/industries in Comm. Svcs.; \*\*denotes industry groups in Cons. Disc.; Energy, Hotels Restaurants & Leisure, and Aerospace and Airlines excluded due to non-earners

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

## Close to max crowding by long-only funds

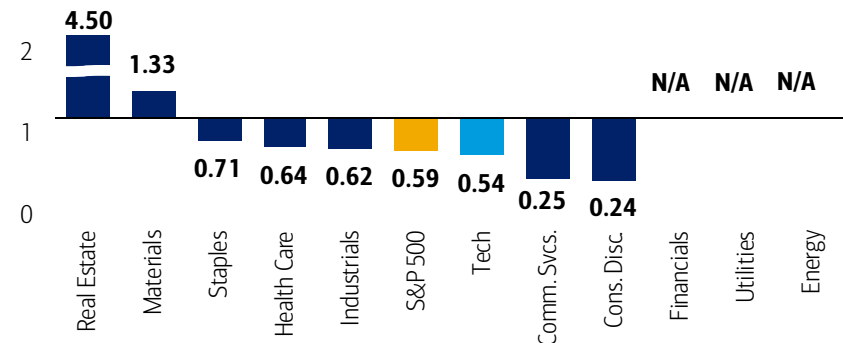
Relative weight (versus S&P 500) in Comm. Svcs. by long-only funds, 1/2008-4/2022



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

## TMT has among the weakest guidance of all sectors

S&P 500 3-mo. guidance ratio (# of above- vs. below-consensus guidance; as of 5/22)



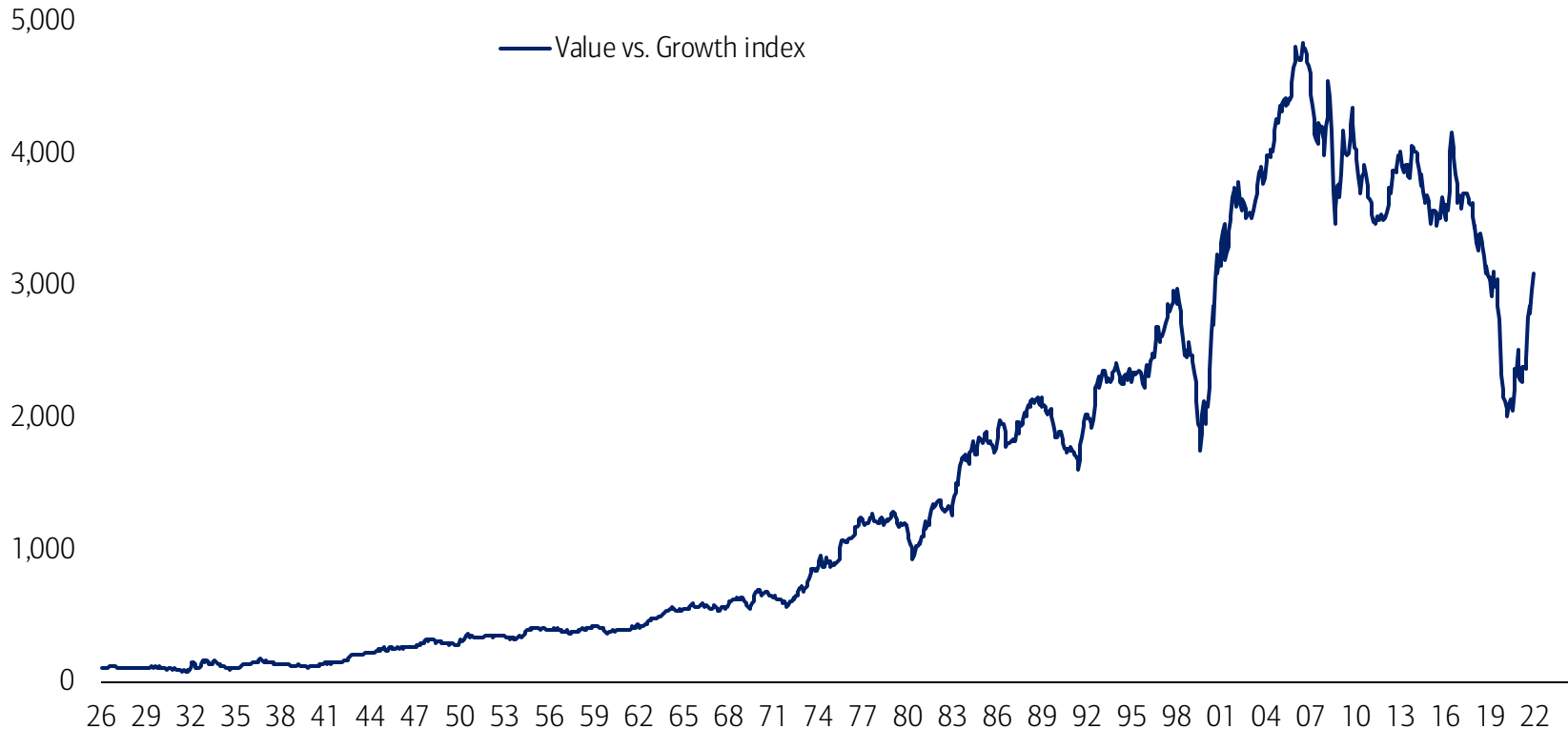
**Source:** BofA US Equity & Quant Strategy, FactSet

# Average value cycle lasts 7 yrs; we're in year two



## Value has outperformed over the long haul

Cumulative Relative Value vs Growth performance based on Fama/French research factors (as of 5/22)



**Source:** Tuck School of Business data library, BofA US Equity & Quant Strategy.

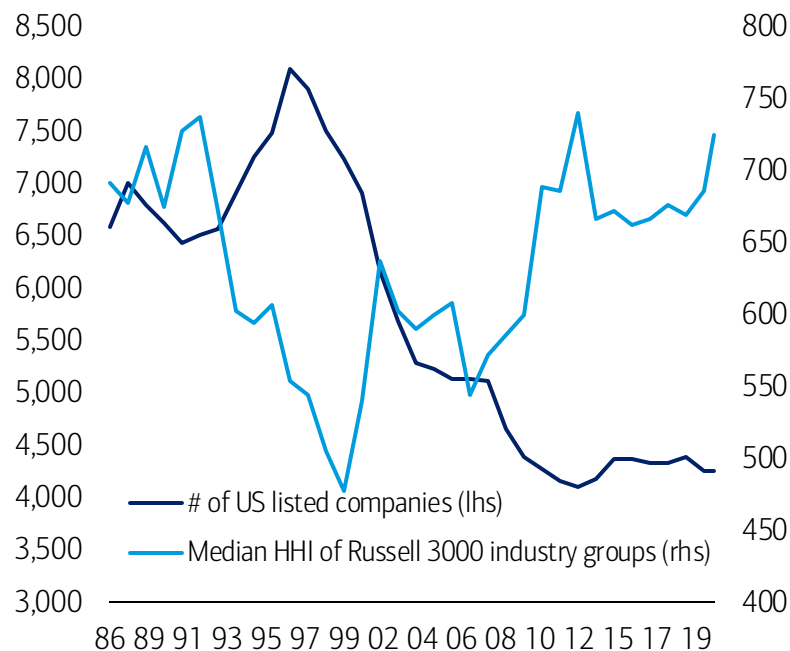
**Note:** March performance is based on the Russell 1000 Value and Growth index.

# Risk to growth stocks: regulation, anti-monopolistic scrutiny



## Market has grown increasingly oligopolistic

# of US listed companies vs. median HHI (1986-present)

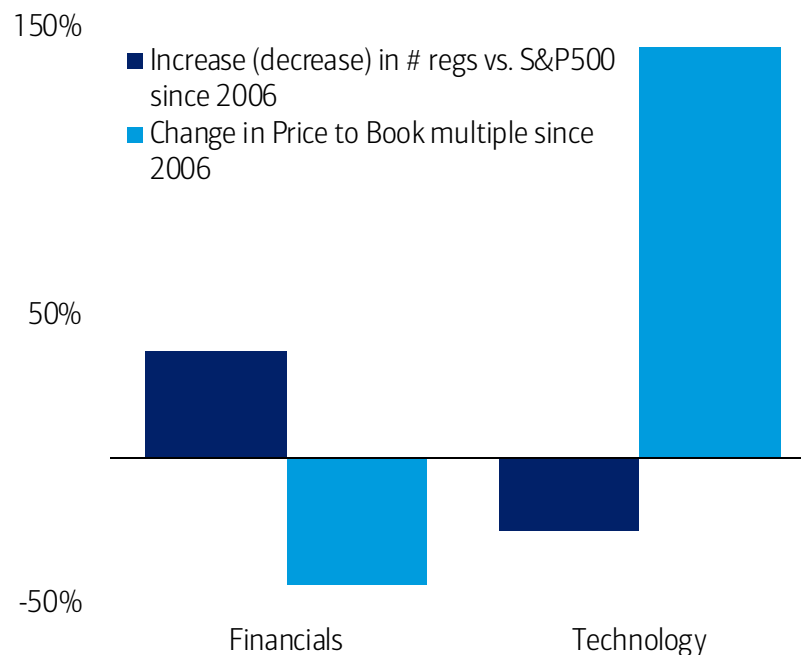


**Note:** HHI=Herfindahl-Hirschman Index of market concentration; 0 = fully competitive industry and 10,000 = monopoly, based on the sum of the squares of the market share of each firm in the industry

**Source:** World Bank, FactSet, BofA US Equity & US Quant Strategy

## Regulations led to lower multiples for Fins

# of regulations vs. change in Price to Book Value, 2006 vs. 2017



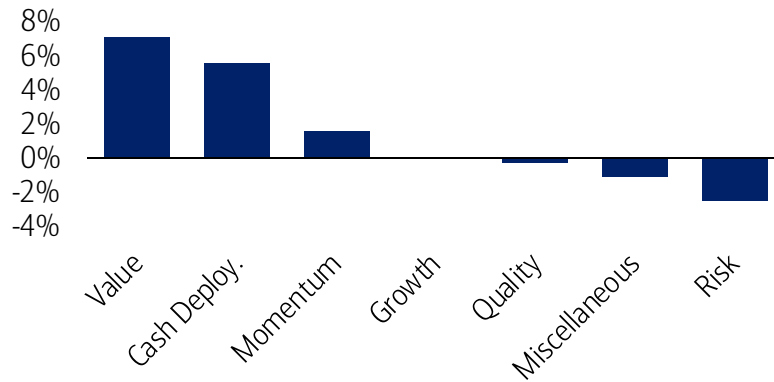
**Source:** BofA US Equity & Quant Strategy, quantGov



# Cash is king (unless cash yields are zero)

## Cash return and Value outperform when Fed starts hiking

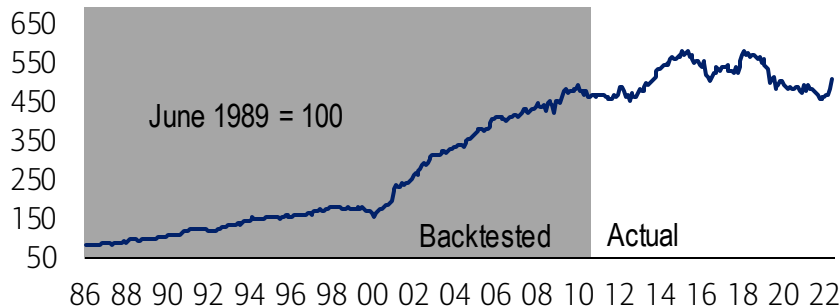
Factor group ann median relative return when Fed tightens (1986-2017, ex Tech bubble 1999-2000)



Source: BofA US Equity & Quant Strategy, FactSet

## FCF to EV outperformed until 2015 amid zero cash yields and a flattening yield curve

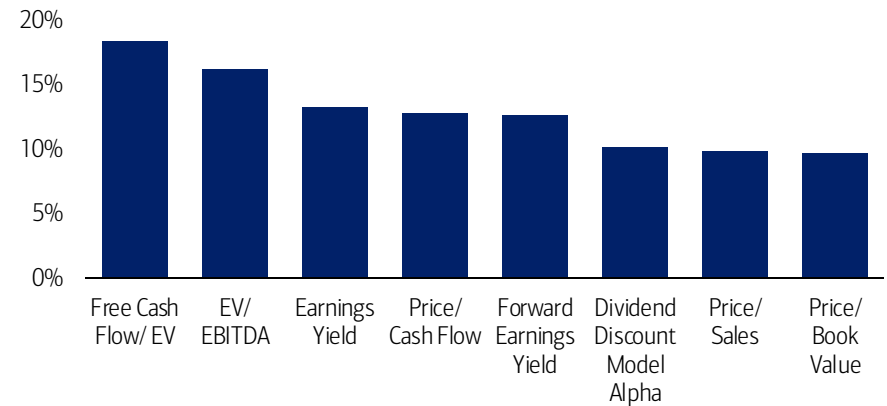
Equal-Wgt. Rel. Cumulative Perf. vs. Equal-Wgt. S&P 500 (1986-5/2022)



Source: BofA US Equity & Quant Strategy, FactSet

## Free Cash Flow to EV best performer pre-GFC

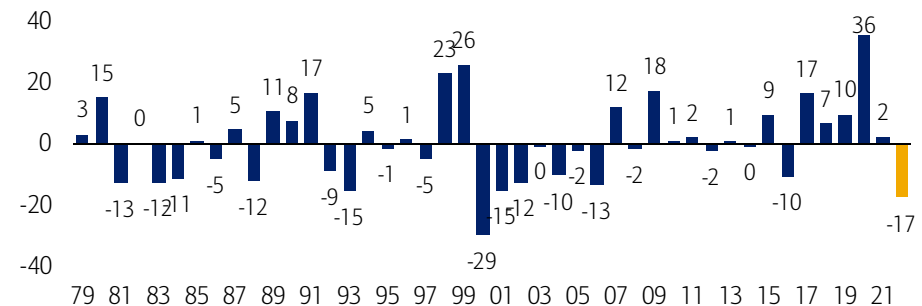
Factor performance May 1986-December 2007



Source: BofA US Equity & Quant Strategy, FactSet

## Annual relative (Growth vs. Value) total returns for Russell Large Caps

Relative total return of the Russell 1000 Growth Index vs. the Russell 1000 Value Index (1979-YTD as of 5/2022)



Source: BofA US Equity & Quant Strategy, Bloomberg

**FCF to EV:** The shaded area in performance chart shows back tested results during the period from month end March 1986 to month end July 2010. The unshaded portion represents actual performance since July 2010. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. This is a screen and not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances / objectives before making any investment decisions.

# Value still neglected, still cheap, and still slated to outperform



## TMT (long duration/growth) over Energy (value)

Energy sector vs Communication Services sector relative weight in mutual funds (9/08-4/22)



Source: FactSet, BofA US Equity & Quant Strategy

## NDX earnings as % of SPX earnings are now below the Dec 2020 level

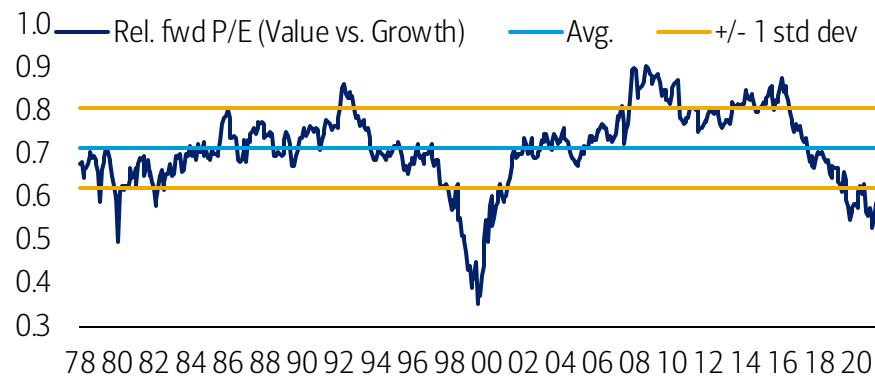
NDX 2022E earnings as % of SPX 2022E earnings (12/31/20-5/23/22)



Source: FactSet, BofA US Equity & Quant Strategy

## Value is really inexpensive vs. Growth

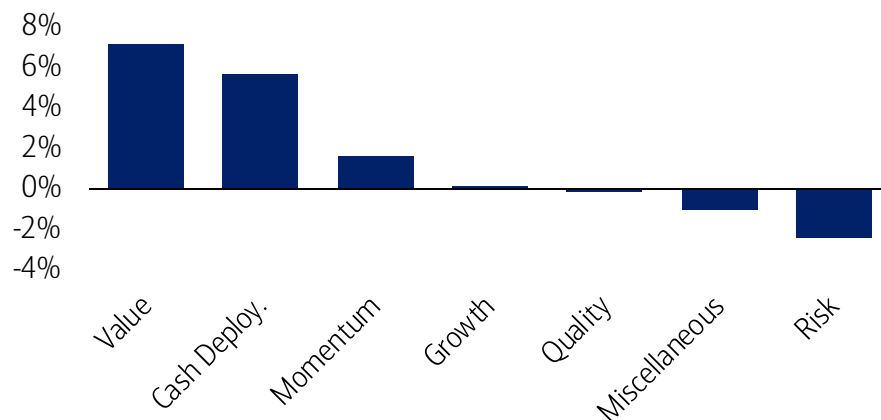
Relative fwd. P/E of Russell 1000 Value vs Growth style indices, 5/22



Source: FactSet, BofA US Equity & Quant Strategy

## Value factors fared best during first 12m of tightening cycles

Factor group annual median relative return when Fed tightens (1986-2017, ex Tech bubble 1999-2000)

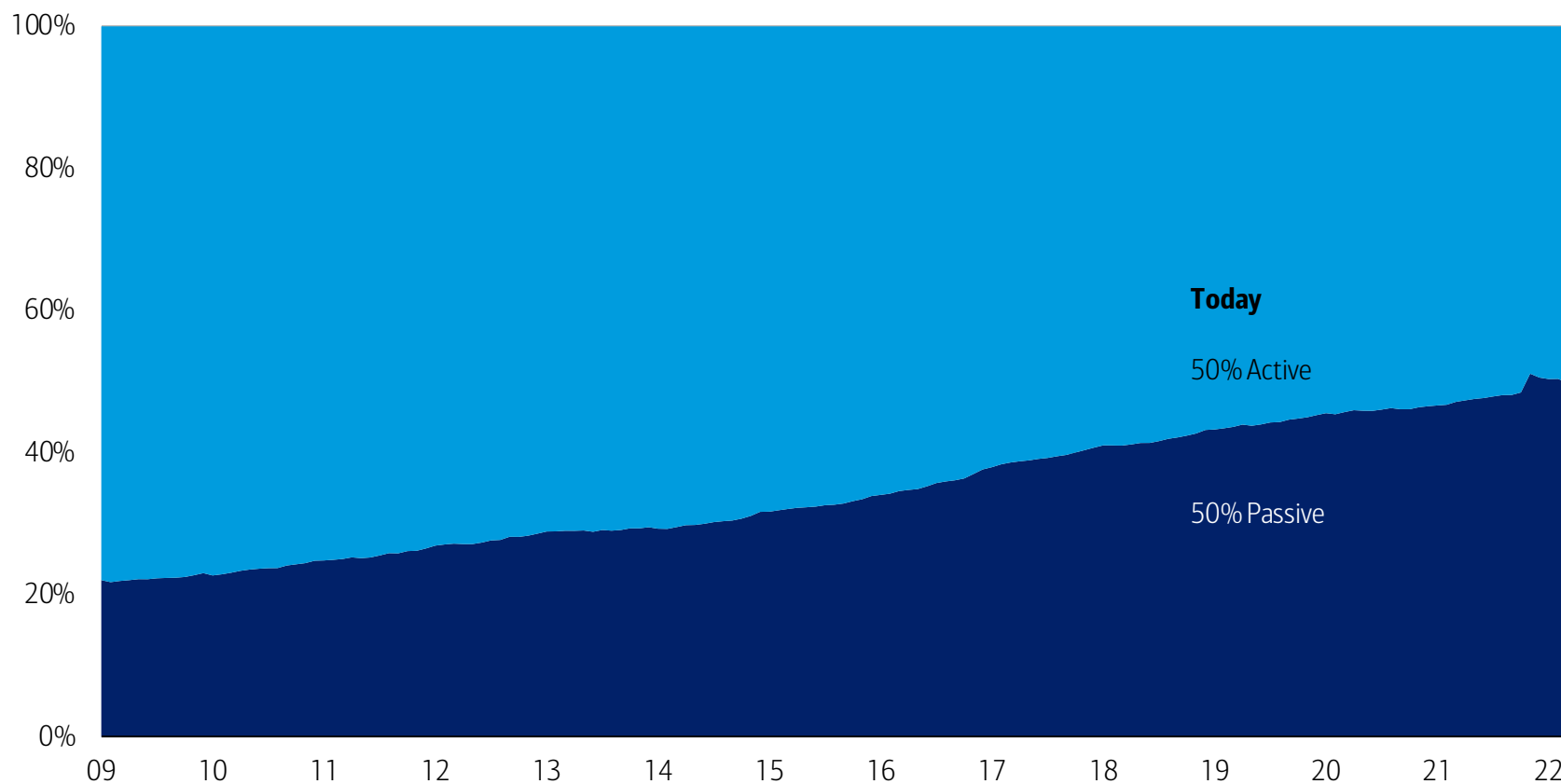


Source: FactSet, BofA US Equity & Quant Strategy

# Active vs. passive 50/50



Asset under management (AUM) allocation between active and passive funds (2009-4/22)



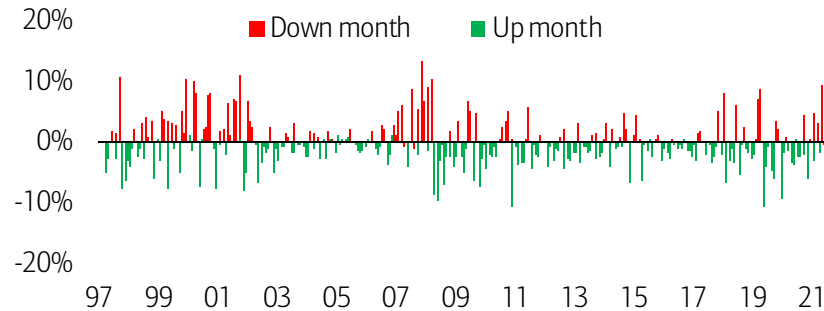
Source: Strategic Insights, SimFund, BofA US Equity & US Quant Strategy



# Active > passive: pick your spots

## Hedge funds shine in down markets

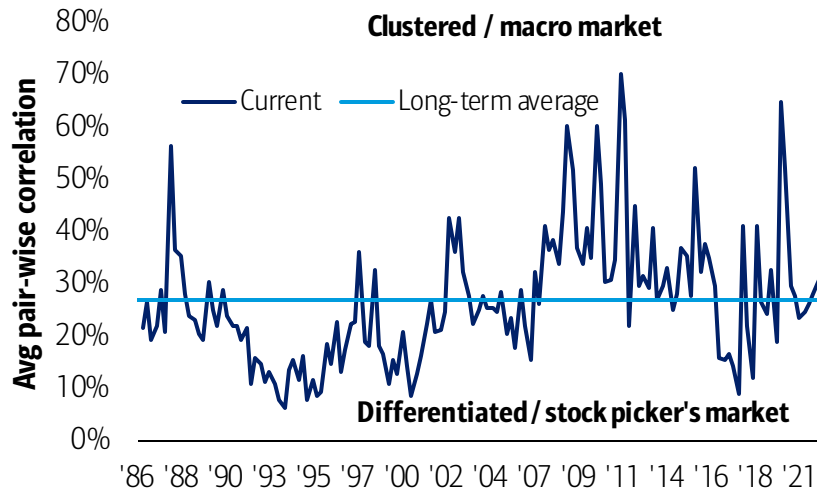
HFRI alpha vs. Russell 1000 during down vs. up months (1997-5/22)



Source: Bloomberg, BofA US Equity & US Quant Strategy

## Key risk: back to a macro market (solution: use macro betas)

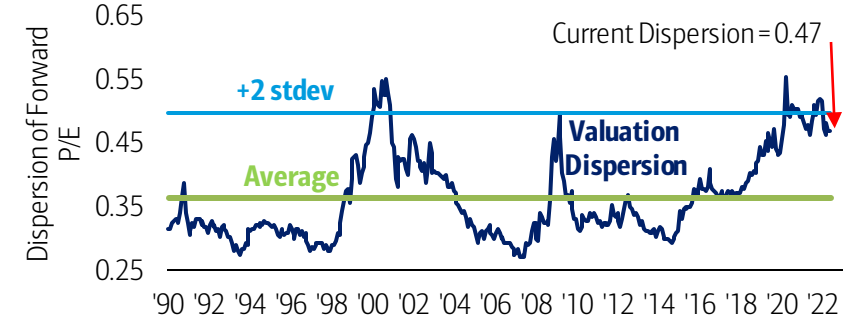
Avg. pair-wise stock correlations based on 90-day periods, daily frequency (as of 5/22)



Source: FactSet, BofA US Equity & US Quant Strategy

## High valuation dispersion = mean reversion opportunity

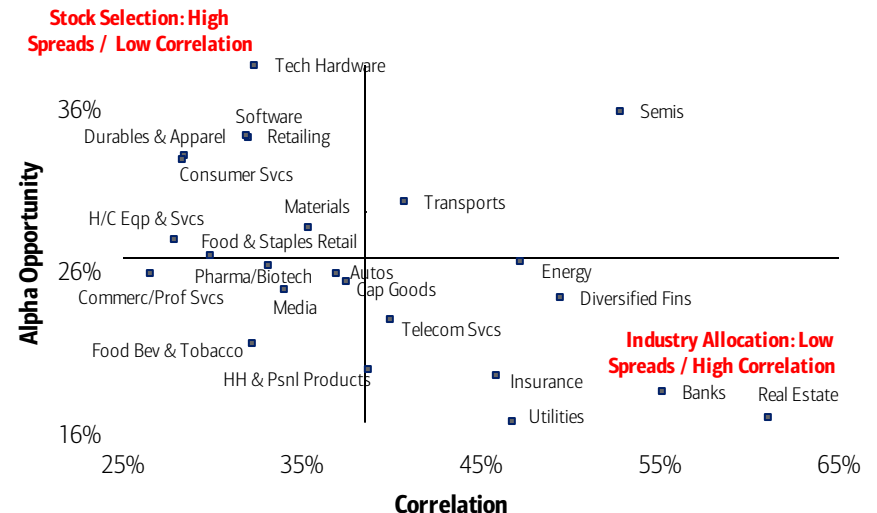
S&P 500 valuation dispersion of fwd P/E (std. dev / avg) (1990-5/22)



Source: FactSet, BofA US Equity & US Quant Strategy

## Tech, Consumer & Health Care: more idiosyncratic, less macro

Historical Intra-stock correlation vs. performance spread (3Q86 to 1Q22)



Source: FactSet, BofA US Equity & US Quant Strategy

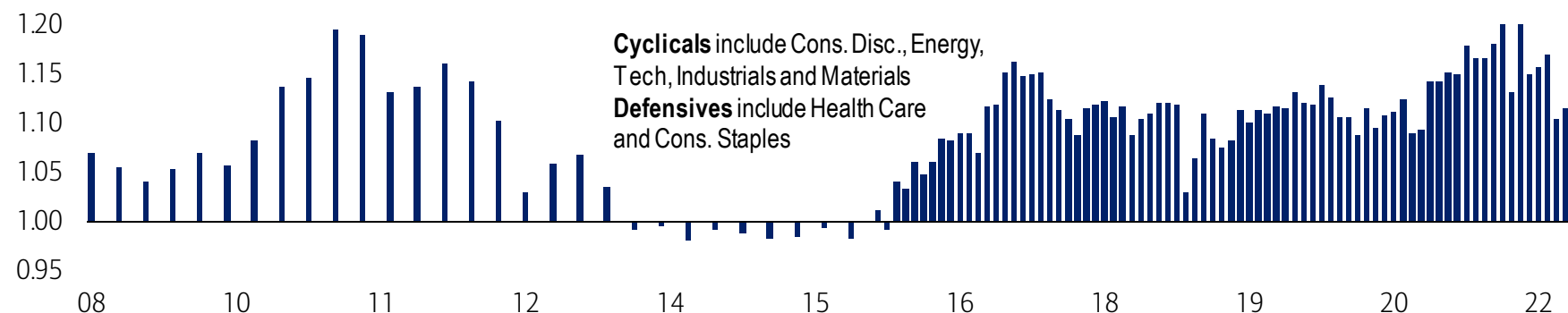


# The world has changed, active funds not so much



## Long only funds remain overweight cyclicals vs. defensives and increased this bias marginally in April

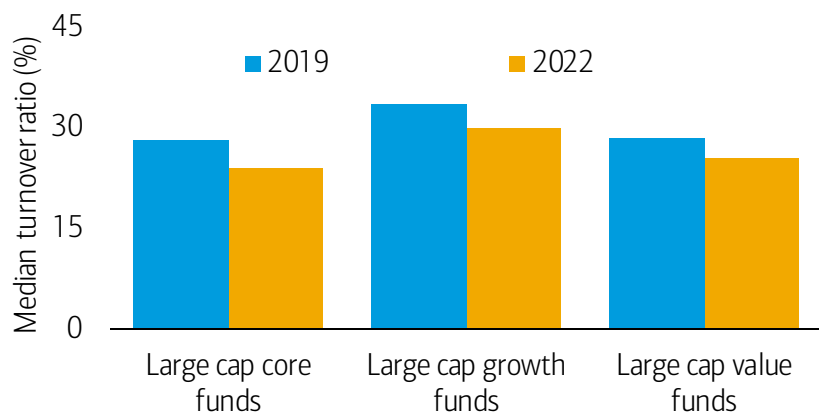
Long only fund relative positioning in cyclical vs. defensive sectors April 2022



Source: BofA US Equity & Quant Strategy, FactSet Ownership

## 180 degree shifts this year (liquidity, inflation, wartime, etc.) but today's turnover is remarkably lower than in 2019

Two-sided turnover ratios of large cap mutual funds 2019 vs. present



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

## Active funds maintain record duration tilt vs. the market

Active managers' average portfolio duration relative to the S&P 500 equity duration (9/2008 - 4/2022)



Source: BofA US Equity & Quant Strategy, FactSet Ownership



# Geopolitical shocks and stocks

**S&P 500 peak-to-trough declines have been 8% on average during major macro shocks/geopolitical events, but more than fully recovered after three months**

S&P 500 price changes around historical macro shocks and geopolitical events since 2010

Events	-1 month	-1 day	+1 day	+1 month	+3 month	Peak to trough	Trough to +3m after event	Trough days after (before) event
S&P downgrades Greek Sovereign Debt to junk/1st Greek Bailout	3.9%	-0.4%	-2.3%	-9.0%	-8.1%	-16.0%	9.0%	66
Arab Spring: "Beginning", Tunisian Revolution begins	3.9%	0.1%	0.3%	4.1%	2.8%	-1.6%	13.8%	-18
Arab Spring: Syrian/Libyan civil war begins	-2.4%	-0.6%	-1.1%	1.8%	-2.4%	-6.4%	8.5%	1
S&P downgrades US debt	-10.3%	-4.8%	-0.1%	-2.2%	4.4%	-18.8%	16.9%	59
US government shuts down	3.0%	-0.6%	0.8%	4.8%	9.9%	-5.4%	13.2%	7
Scotland passes referendum to vote on independence (voting date was 9/18/14)	3.6%	-0.4%	0.3%	2.8%	1.5%	-2.3%	11.7%	-24
Russia annexes Crimea	1.0%	1.0%	0.7%	0.3%	5.3%	-4.0%	7.8%	24
Swiss abandons cap on Franc vs. Euro FX rate	1.1%	-0.6%	-0.9%	4.3%	4.7%	-0.8%	7.3%	-30
Greece: misses debt payment to IMF	-2.3%	0.3%	0.7%	2.0%	-6.8%	-12.2%	6.8%	55
China: Devalues yuan	1.3%	1.3%	-1.0%	-6.8%	-1.4%	-12.2%	13.0%	14
S&P downgrades Japan credit rating	-5.4%	1.3%	0.9%	2.8%	4.8%	-11.2%	13.0%	-22
Turkey shoots down Russian plane for violating Turkish airspace	0.6%	-0.1%	0.1%	-1.2%	-7.5%	-13.3%	6.4%	79
Fed - 1st rate hike - increase interest rate 25bps	-0.5%	1.1%	1.5%	-8.0%	-0.8%	-13.0%	10.8%	57
Brazil: House votes to begin President impeachment trial	1.5%	-0.1%	0.7%	-1.6%	4.1%	-5.6%	8.3%	70
Brexit: UK votes to leave the EU	3.2%	1.3%	-3.6%	2.9%	2.4%	-5.6%	9.5%	4
Trump orders 59 Tomahawk cruise missiles to be fired at the Shayrat airbase in Syria	-0.9%	-0.3%	0.2%	2.0%	2.4%	-2.4%	5.3%	7
Trump fires FBI director James Comey	1.9%	0.0%	-0.1%	1.3%	3.1%	-1.2%	6.5%	-26
North Korea detonates a hydrogen bomb -its most powerful nuclear test ever	0.0%	0.2%	0.0%	2.1%	6.7%	-2.2%	9.2%	-15
Catalonia votes for independence from Spain	1.7%	0.4%	0.4%	2.4%	6.1%	-0.8%	9.5%	-26
The US announces imports of steel and aluminum threaten national security Under Section 232	-1.6%	1.2%	0.0%	0.8%	-0.3%	-10.2%	8.0%	-8
Trump administration releases initial list of Chinese products worth \$50bn that are under consideration for tariffs	-4.1%	-2.2%	1.3%	1.9%	5.1%	-7.3%	7.9%	-1
Italian bond yields spike on budget concerns	0.6%	0.4%	-0.1%	2.1%	4.7%	-2.9%	8.7%	-14
Collapse in Argentina and Turkey's currency ignites concerns of emerging market currency crisis	1.6%	-0.3%	0.7%	1.4%	5.5%	-1.5%	8.9%	-18
US releases list of \$200bn Chinese goods subject to tariffs	0.2%	0.9%	0.3%	1.8%	0.1%	-3.1%	8.6%	-13
Powell says we're "a long way" from neutral on interest rates	0.8%	0.0%	0.1%	-6.9%	-16.3%	-19.8%	6.8%	82
US government shuts down	-8.8%	-2.1%	-2.7%	8.9%	15.9%	-15.7%	21.4%	2
US Treasury designates China as a currency manipulator	-2.0%	-0.7%	-3.0%	1.5%	4.9%	-6.1%	8.4%	9
Drones were used to attack the state-owned Saudi Aramco oil processing facilities	4.1%	-0.1%	-0.3%	-0.6%	6.1%	-2.6%	12.1%	-24
Top Iranian military official killed by US airstrike	3.8%	0.0%	0.8%	-0.2%	-21.8%	-1.0%	17.6%	81
China puts Wuhan City, the center of the COVID-19 outbreak, on lockdown	3.0%	0.0%	0.1%	0.5%	-15.8%	-33.9%	28.5%	60
<b>Average</b>	0.1%	-0.1%	-0.2%	0.5%	0.7%	-8.0%	10.8%	15
<b>Median</b>	0.9%	0.0%	0.1%	1.6%	3.0%	-5.6%	9.0%	3
<b>Min</b>	-10.3%	-4.8%	-3.6%	-9.0%	-21.8%	-33.9%	5.3%	
<b>Max</b>	4.1%	1.3%	1.5%	8.9%	15.9%	-0.8%	28.5%	
<b>Average non-US</b>	1.2%	0.2%	-0.2%	0.6%	-0.3%	-6.9%	10.7%	
<b>% positive</b>	63%	47%	60%	70%	67%			

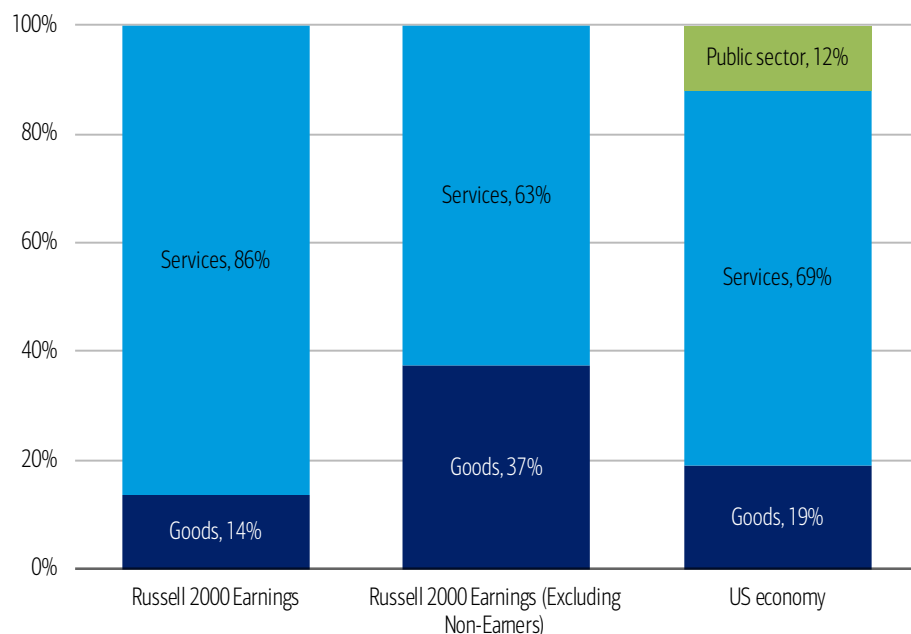
**Source:** BofA US Equity & US Quant Strategy, FactSet

# Small > Large: Small caps more levered to domestic growth & services recovery



**Small caps are more geared toward services than goods spending (like US GDP), vs. S&P 500 which is 50% goods**

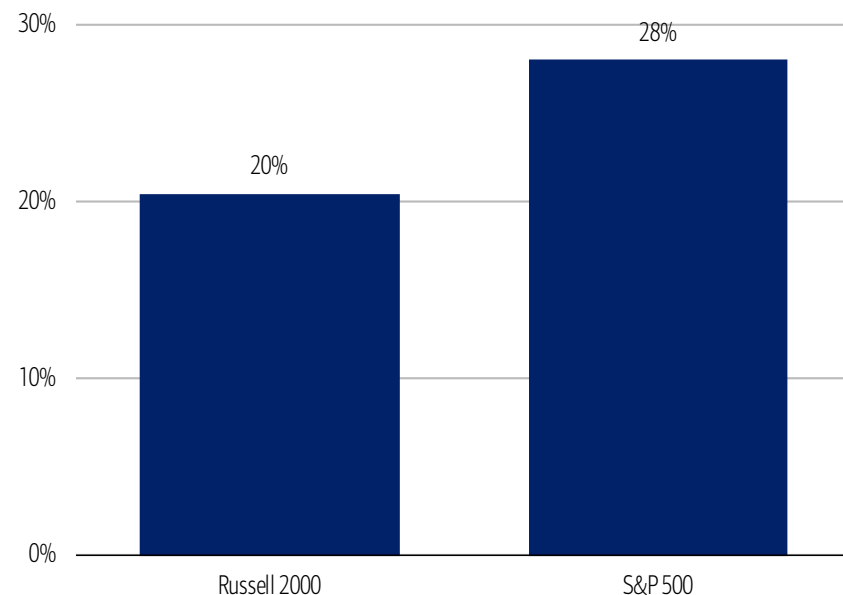
Russell 2000 vs. US economy: goods vs. services exposure estimate



**Source:** Haver Analytics, FactSet, BofA US Equity & US Quant Strategy. Based on industry breakout of 2019 earnings for Russell 2000 and gross value added by industry in 2019 for US economy.

**Small caps are more domestic (20% foreign exposure vs. ~30% for large caps)**

Foreign sales exposure for Russell 2000 vs. S&P 500 (as of 2020)



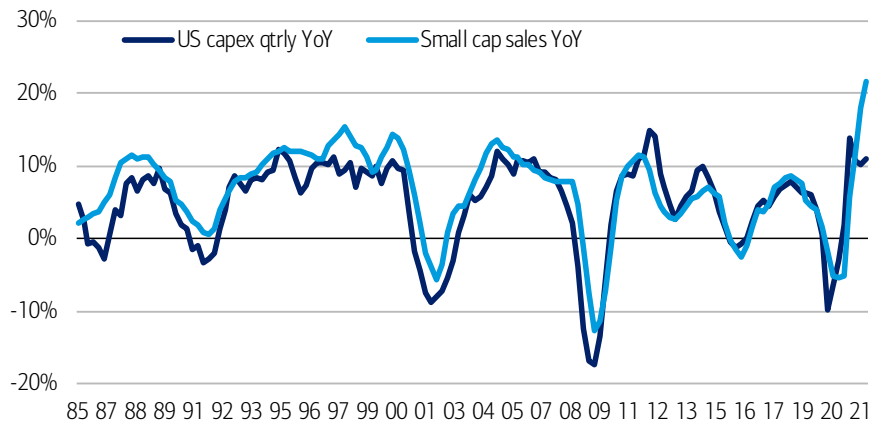
**Source:** FactSet, company reports, BofA US Equity & US Quant Strategy

# Bigger beneficiaries of capex / infrastructure / re-shoring



## Small caps' sales growth has been highly correlated with US capex growth....

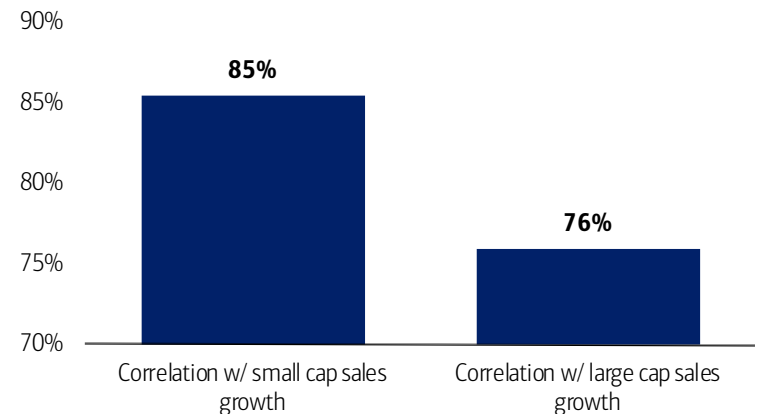
US qtrly. YoY capex growth vs. Russell 2000 YoY sales growth, 1986-1Q22



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

## ...more so than for large caps

Correlation of US capex growth with small cap (Russell 2000) and large cap (S&P500) sales growth, 1985-present



Correlation w/ small-large cap sales growth spread: 30%

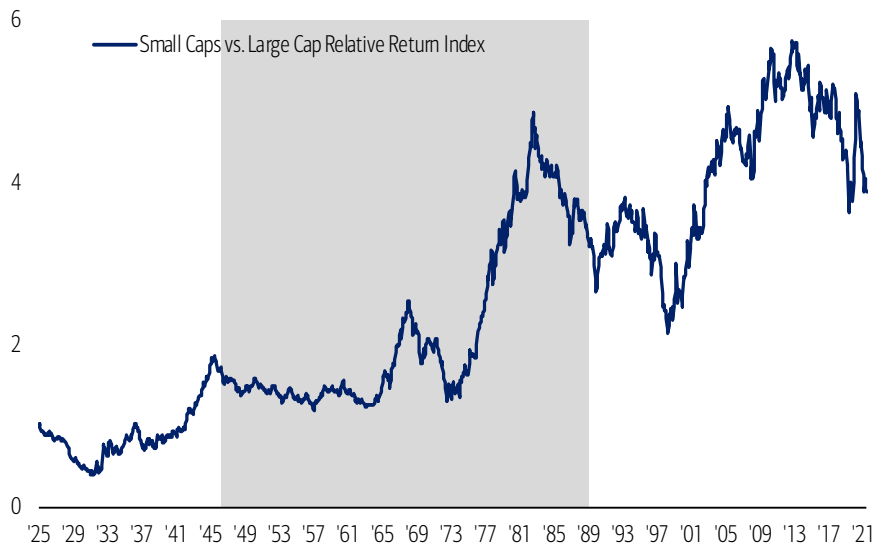
Source: FactSet, Haver Analytics, BofA US Equity & US Quant Strategy

# Small caps and geopolitics



## Small caps outperformed during the full Cold War period

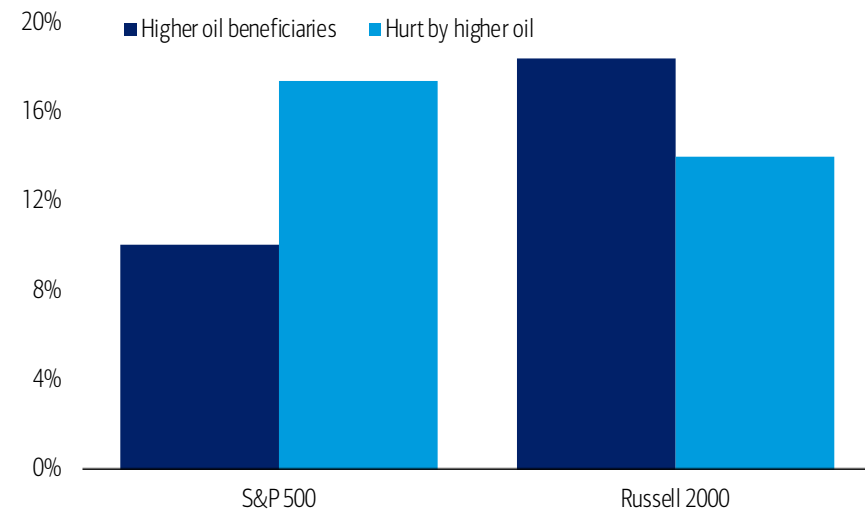
Small caps vs. large cap relative performance (1926-4/22)



**Source:** CRSP, The University of Chicago; BofA US Equity & Quant Strategy  
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](http://www.crsp.uchicago.edu) Performance has been calculated by BofA US Equity & Quant Strategy

## Small caps have greater exposure to sectors that benefit from higher oil & less exposure to those hurt by higher oil

S&P 500 vs. Russell 2000 current weights in higher oil beneficiaries (Energy, Capital Goods) vs. sectors hurt by higher oil (Consumer)



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

# Recession risks largely discounted by small caps



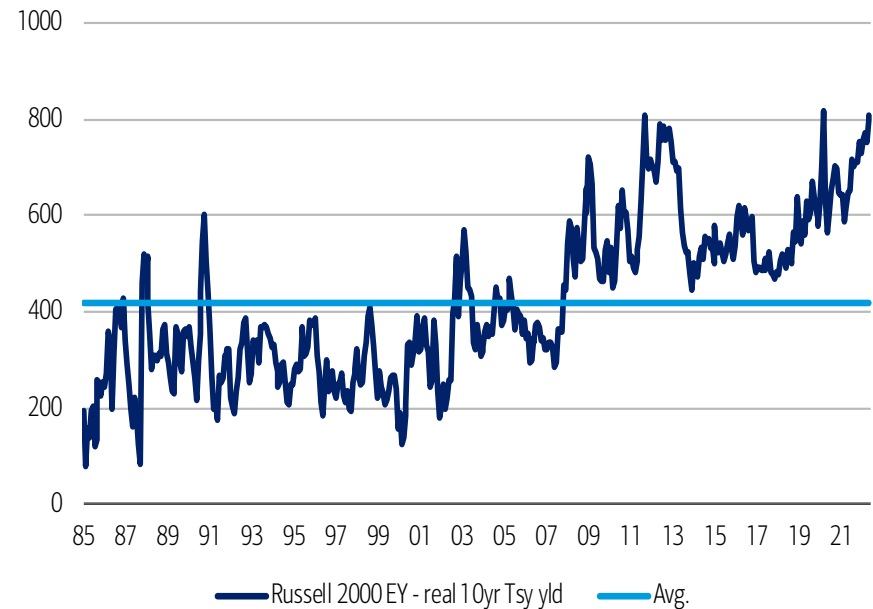
**Small caps have typically sold off 36% (vs. ~30% for large caps) during US recessions...where the recent selloff already represented ~80% of the historical avg. recessionary selloff**

Small cap\* peak-to-trough declines around US recessions since 1953

Recession	Small caps			
	Peak date	Trough date	% decline	# of months
3Q53-2Q54	2/28/1953	9/30/1953	-11%	7
4Q57-2Q58	5/31/1957	12/31/1957	-21%	7
3Q60-1Q61	5/31/1961	10/31/1962	-26%	17
1Q70-4Q70	11/30/1968	6/30/1970	-49%	19
1Q74-1Q75	4/30/1972	12/31/1974	-54%	33
2Q80-3Q80	2/8/1980	3/27/1980	-27%	2
4Q81-4Q82	6/15/1981	8/12/1982	-29%	14
4Q90-1Q91	10/9/1989	10/30/1990	-34%	13
2Q01-4Q01	3/9/2000	10/9/2002	-46%	31
1Q08-2Q09	7/13/2007	3/9/2009	-60%	20
1Q20-2Q20	1/16/2020	3/18/2020	-42%	2
		<b>Median</b>	<b>(34%)</b>	<b>14</b>
		<b>Avg.</b>	<b>(36%)</b>	<b>15</b>
	<b>Avg. since 1980</b>		<b>(40%)</b>	<b>16</b>

**Max small cap equity fear: Russell 2000 equity risk premium at record highs**

Russell 2000 forward earnings yield – real 10yr Tsy. yield (1985-5/2022)



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

\*based on Russell 2000 returns since 1980 (following inception of Russell indices in 1979). Based on CRSP total return index for small caps (monthly data) for recessions prior to 1980.

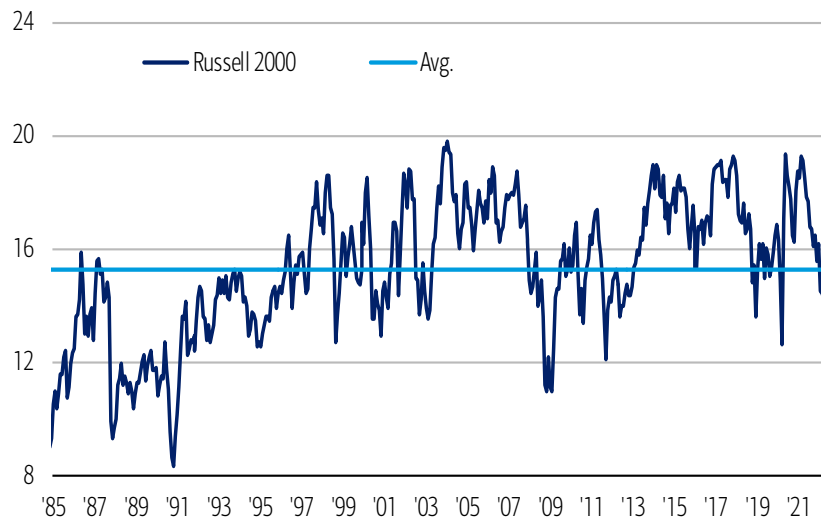
Source: Bloomberg, BofA US Equity & US Quant Strategy and CRSP®, Center for Research in Security Prices, Graduate School of Business, The University of Chicago. Used with permission. All rights reserved. [www.crsp.uchicago.edu](http://www.crsp.uchicago.edu).

# Small caps = only size segment cheap vs. history...and very inexpensive vs. large



## Small cap fwd P/E well below the long-term average

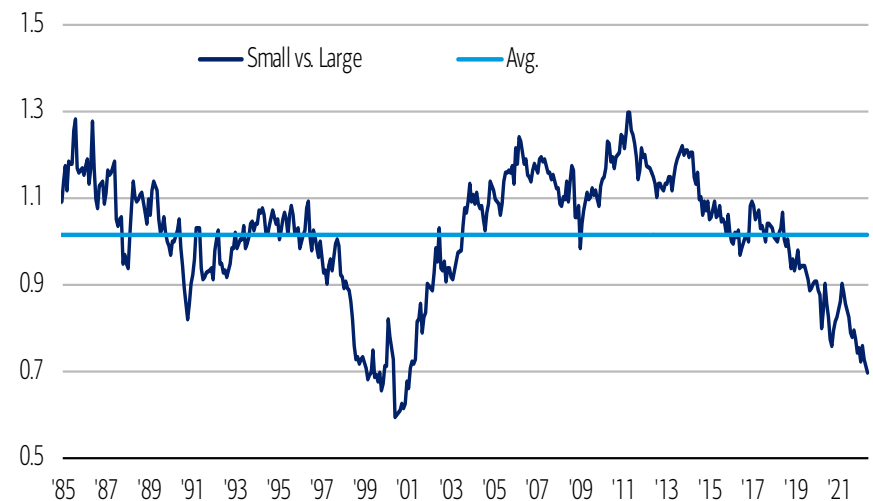
Forward P/E: Russell 2000, 1985-5/31/2022



Source: BofA US Equity & Quant Strategy, Russell Investment Group, I/B/E/S, Compustat

## Small caps trade at a near-record historical discount vs. large caps

Relative Forward P/E: Russell 2000 vs/ Russell 1000, 1985-5/31/2022



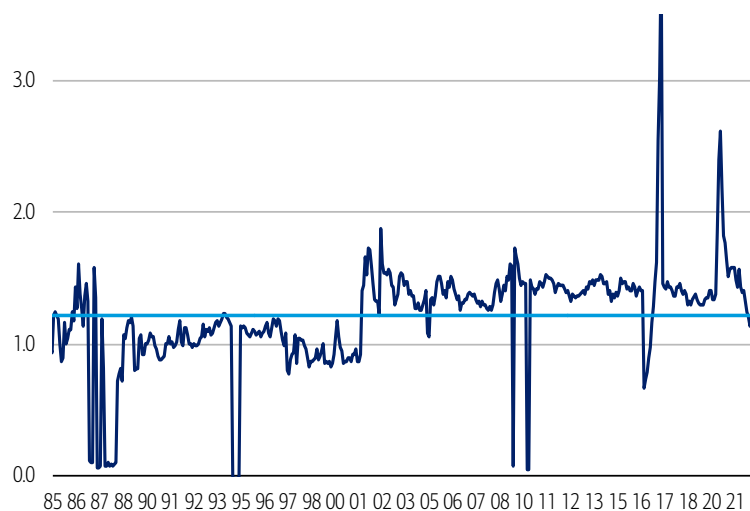
Source: BofA US Equity & Quant Strategy, Russell Investment Group, I/B/E/S, Compustat

# Small cheap vs. large even when including non-earners...



**While a more volatile measure, small caps are now also cheap vs. large caps on the Fwd. P/E including outliers & non-earners**

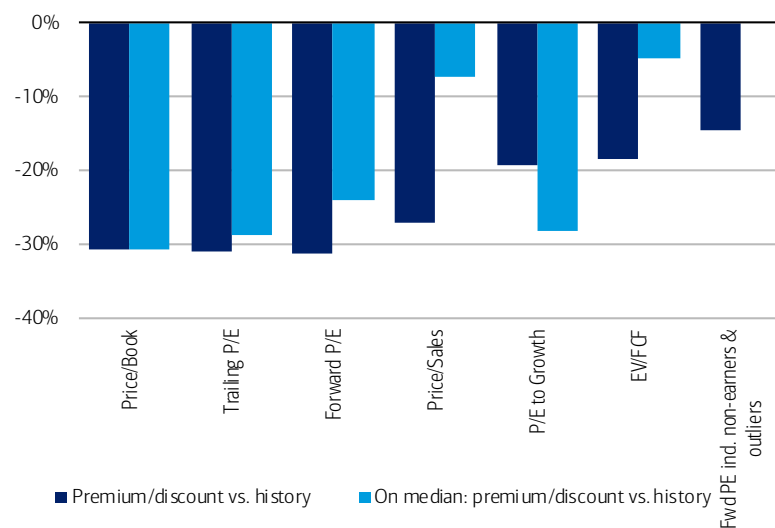
Relative Forward P/E (including outliers/non-earners) of Russell 2000 vs. Russell 1000, 1985-5/2022



Source: FactSet, BofA US Equity & Quant Strategy

**Small vs. large: cheap vs. history on all metrics**

Russell 2000 vs. Russell 1000 valuations vs. history (1985-5/2022)



Source: FactSet, BofA US Equity & Quant Strategy

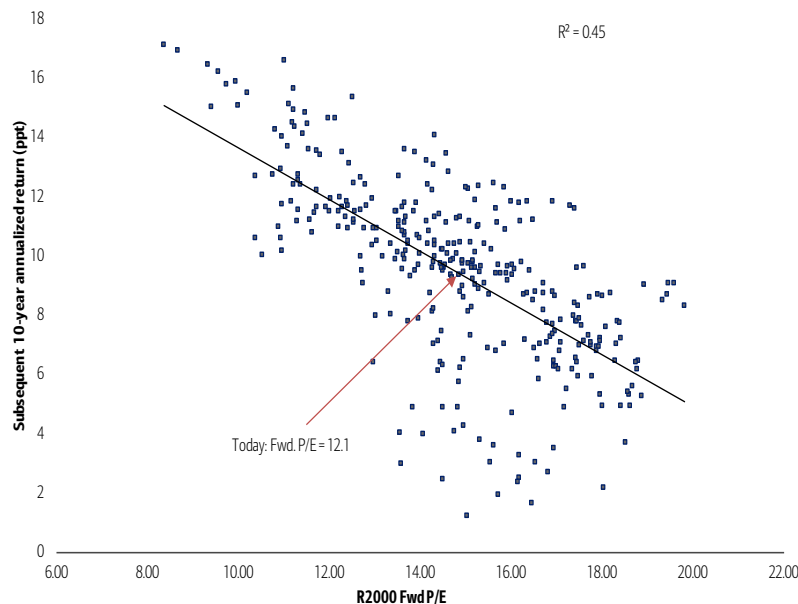


# Small caps for the next decade: better annualized return potential



## The absolute fwd. P/E for the Russell 2000 suggests double-digit annualized 10yr returns

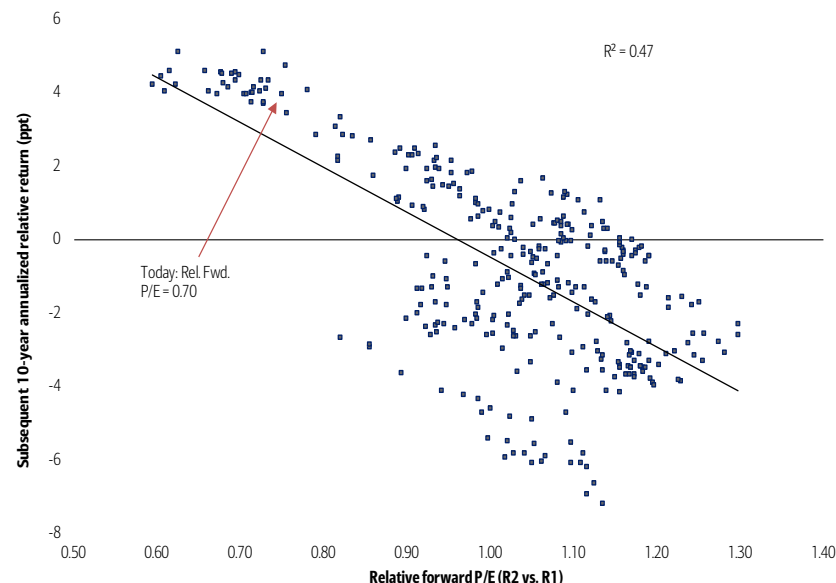
Russell 2000 fwd P/E vs. subsequent 10yr annualized returns, 1985-5/2022



Source: Russell Investment Group, FactSet, BofA US Equity & US Quant Strategy

## Relative multiple suggests that small caps could outperform large caps over the next ten years

Relative fwd. P/E of Russell 2000 vs. Russell 1000 and next 10yr annualized relative returns, 1985-5/2022



Source: Russell Investment Group, FactSet, BofA US Equity & Quant Strategy

## The 10yrs following March 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)

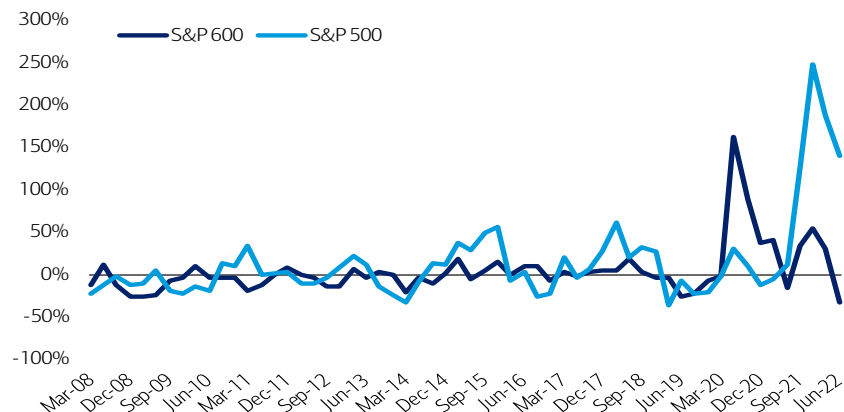
Cumulative	N1Y	N2Y	N3Y	N4Y	N5Y	N6Y	N7Y	N8Y	N9Y	N10Y
3/31/1999	3/31/2000	3/30/2001	3/29/2002	3/31/2003	3/31/2004	3/31/2005	3/31/2006	3/30/2007	3/31/2008	3/31/2009
S&P 500	16%	-10%	-11%	-34%	-12%	-8%	1%	10%	3%	-38%
Russell 2000	36%	13%	27%	-8%	48%	54%	92%	101%	73%	6.1%
Relative	19%	23%	38%	26%	61%	63%	91%	91%	70%	44%

Source: Bloomberg, BofA US Equity & US Quant Strategy

# Small caps and inflation

## Small caps have mentioned labor less YoY vs. large caps on earnings calls....

YoY change in mentions of "labor" per company on earnings calls



Source: BofA Global Research

## Labor inflation and CPI inflation have historically been more detrimental to large cap margins than small cap margins

Correlation of inflation vs. YoY change in margins, 1987-present

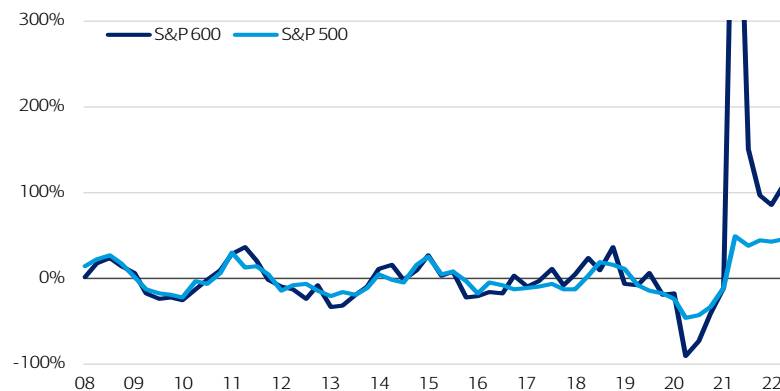
Inflation Type	Correlation with EBIT Margin YoY Change	
	Small Caps	Large Caps
Coincident		
Employment Cost Index YoY		1%
CPI YoY		23%
Core CPI YoY		-12%
CRB Index YoY		59%
4 qtr lagged impact		
Employment Cost Index YoY	-7%	-18%
CPI YoY	-32%	-38%
Core CPI YoY	-13%	-31%
CRB Index YoY	1%	14%

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



## ...and have seen a wider spread between mentions of pricing power and mentions of labor

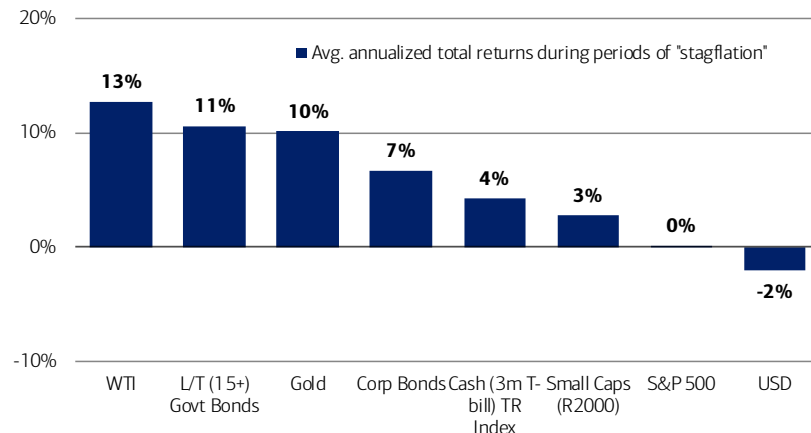
YoY change in mentions of "price" per company on earnings calls – YoY change in mentions of "labor" per company on earnings calls



Source: BofA Global Research

## Hedge against stagflation risk

Small caps outperformed large caps, on avg. during stagflationary environments (periods of slowing growth/rising inflation since 1972)



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

# Macro indicators: what matters for small vs. large



## ISM, Leading Indicators, Consumer Sentiment, Commodity Prices most positively correlated, credit conditions, credit spreads and the VIX most negatively correlated

Historical absolute & relative perf. correlations of Russell 2000 vs. macro variables since 1979 (or longest available history as noted), ranked from most positive to most negative correlations with relative returns

Indicator	Rel. Perf. (R2 vs. R1) Correlation	Absolute Perf. (R2) Correlation	Data since	R1 Absolute Perf. Correlation
ISM Mfg.	0.41	0.54	12/31/1979	0.43
OECD Leading Indicator	0.38	0.68	12/31/1979	0.63
ISM Non-Mfg	0.32	0.65	7/31/1998	0.59
UMich Consumer Sentiment	0.32	0.50	12/31/1979	0.42
CRB Index	0.29	0.35	12/31/1979	0.25
NFIB Small Biz Optimism	0.27	0.48	1/31/1987	0.41
Housing starts	0.26	0.46	12/31/1979	0.43
Real 10yr yld	0.24	0.08	1/31/2004	0.01
10yr Tsy Yld	0.19	0.05	12/31/1979	0.01
Conf Board Consumer Confidence	0.19	0.46	12/31/1979	0.51
WTI Oil	0.18	0.24	12/31/1979	0.21
Nominal US GDP	0.16	0.30	12/31/1979	0.28
US Dollar Index (DXY)	0.15	0.00	12/31/1979	-0.06
Yield Curve (10yr-2yr)	0.13	-0.04	12/31/1979	-0.17
CPI	0.12	0.10	12/31/1979	0.06
2yr Tsy Yld	0.08	0.06	12/31/1979	0.09
Trade-Wtd. USD (vs. major currencies)	0.09	-0.08	12/31/1979	-0.12
OECD GDP	0.02	0.22	12/31/1979	0.27
Fed Funds Rate (effective)	0.01	0.12	12/31/1979	0.20
Trade-Wtd. USD (Broad)	-0.01	-0.08	12/31/1979	-0.08
Inflation Exp (5yr)	-0.02	0.06	4/30/1991	0.09
Unemployment Rate	-0.02	-0.22	12/31/1979	-0.35
Real US GDP	-0.03	0.23	12/31/1979	0.31
Industrial Production	-0.04	0.27	12/31/1979	0.45
MOVE Index	-0.09	-0.30	4/30/1989	-0.19
Conference Board Coincident Indicators	-0.09	0.25	12/31/1979	0.45
Inflation Exp (1yr)	-0.12	0.01	12/31/1979	0.14
Initial Jobless Claims	-0.13	-0.17	12/31/1979	-0.12
IG Credit Spreads	-0.25	-0.63	12/31/1997	-0.49
SLOOS - Net % tightening (Small firms)	-0.28	-0.41	6/30/1991	-0.31
HY Credit Spreads	-0.34	-0.73	12/31/1997	-0.57
VIX Index	-0.34	-0.54	1/31/1991	-0.26
SLOOS - Net % tightening (Lg/Mid-size firms)	-0.36	-0.44	6/30/1991	-0.31

**Source:** Haver, ICE/BofA US corporate indices, Bloomberg, BofA US Equity & Quant Strategy

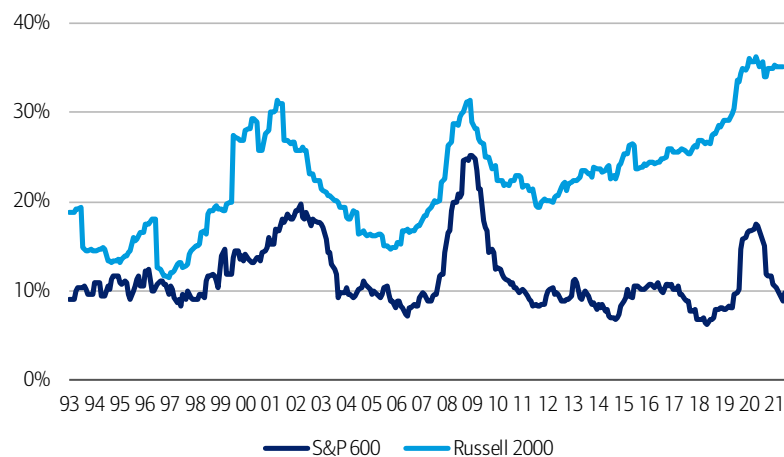
Note: based on monthly perf. for all indicators except SLOOS (Senior Loan Officer Opinion Survey) and GDP which are qtrly. All analysis since the inception of the Russell indices in 1979, or whenever the macro indicator became available.

# S&P 600 = a higher quality way to own small caps



## S&P 600 is higher quality than the Russell 2000: it has fewer non-earners...

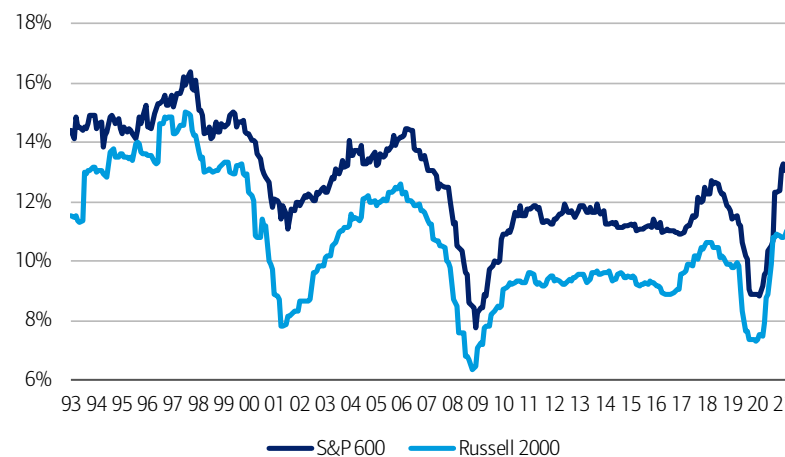
% non-earners: S&P 600 vs. Russell 2000 12/1993-present



Source: FactSet, BofA US Equity & Quant Strategy

## ...and higher median ROE than Russell 2000

Median ROE: S&P 600 vs. Russell 2000 12/1993-present



Source: FactSet, BofA US Equity & Quant Strategy

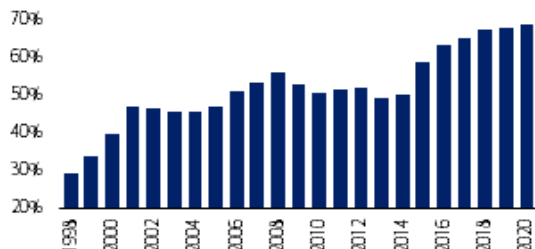
# Peak ESG?

# 10 ESG Surprises



## #1: 70% of S&P 500 assets can't be analyzed without ESG

S&P 500 intangible assets as a percent of book value, 1998-2020



## #2: ESG = one of the strongest risk signals

ESG factors are the **best signals of EPS risk** we have found, even more than financial leverage. Plus, screening out companies with below-average Environmental and Social scores would have **avoided 90% of S&P 500 bankruptcies** over 10 years.

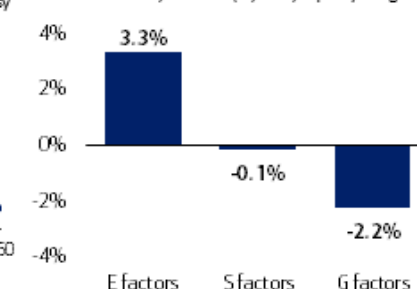
## #3: ESG controversies are costly & long-lived

Average peak-to-trough performance of ESG controversy stocks relative to the S&P 500 (market cap weighted)



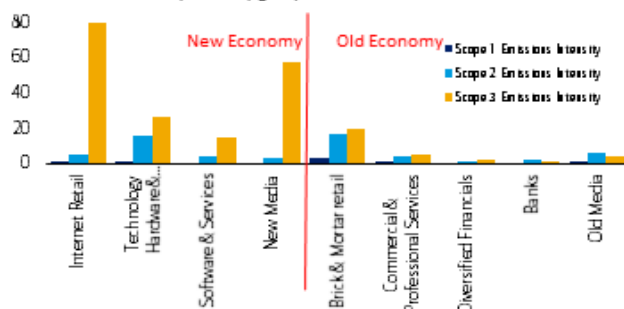
## #4: "E" factors = strongest YTD

Average top vs. bottom quintile price performance over YTD within E, S and G (% USD, equally weighted)



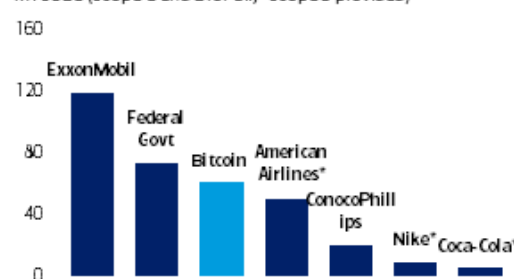
## #5: New Economy CO2 > Old Economy CO2

Median Scope 1, 2, and 3 greenhouse gas emissions (metric tons) per million dollars of revenue by industry group



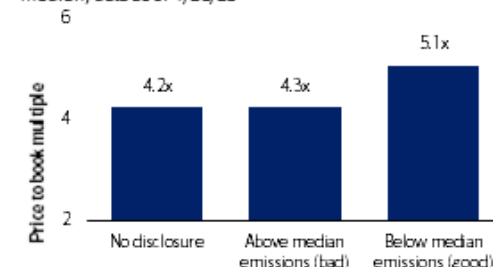
## #6: Bitcoin's dirty little secret

Annual Bitcoin emissions compared to select corporations, MTCO2e (Scope 1 and 2 for all, \*Scope 3 provided)



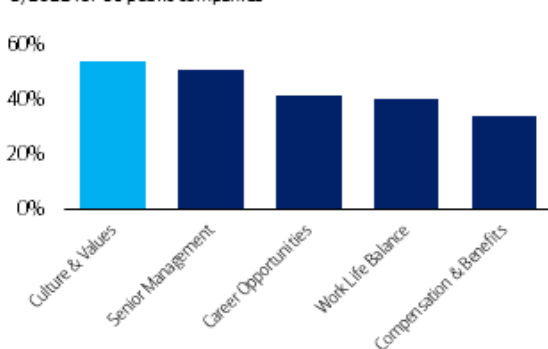
## #7: Saying nothing is worse than saying something bad

Price-to-book by carbon emissions intensity relative to sector median; data as of 4/21/21



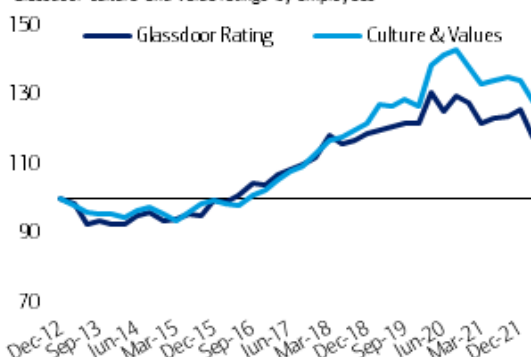
## #8: Culture 2x important as \$\$\$ for job satisfaction

R-sq of specific ranks on overall company rank, Glassdoor data as of 3/2022 for US public companies



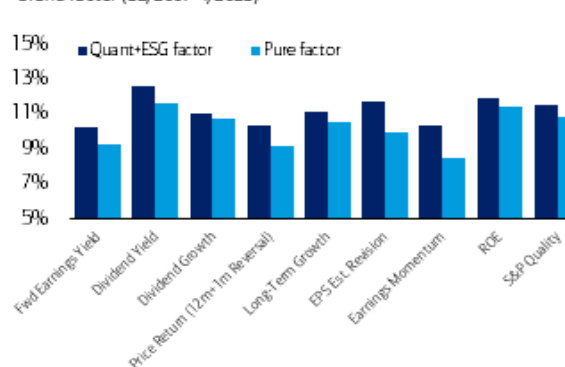
## #9: Happy employees add alpha

Cumulative relative performance of top vs. bottom quintile stocks by Glassdoor culture and value ratings by employees



## #10: ESG adds alpha for all style investors

Annualized total returns of top quintile stocks by each factor vs. ESG-blend factor (12/2007-4/2021)

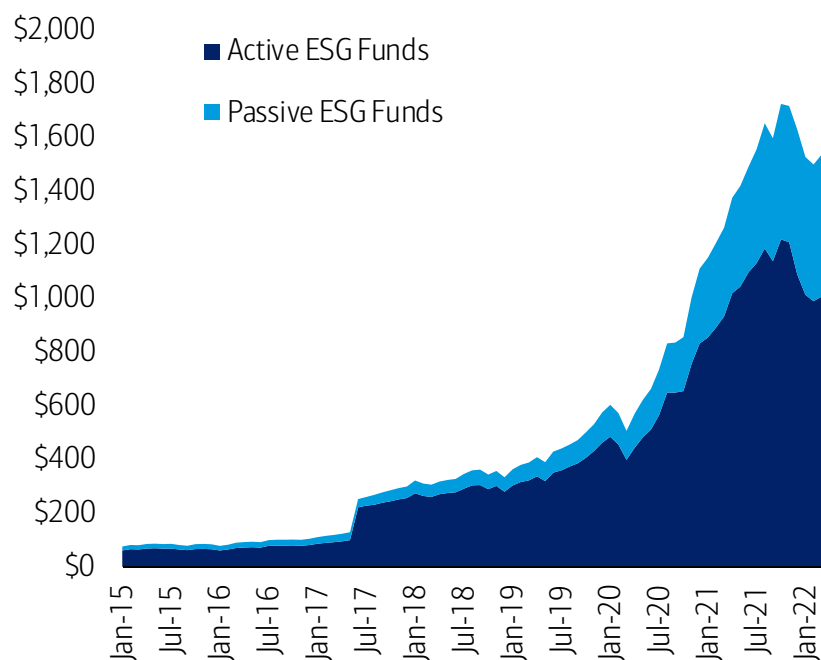


# Was 2021 peak ESG?



## AUM in global ESG equity funds peaked in Oct. 2021

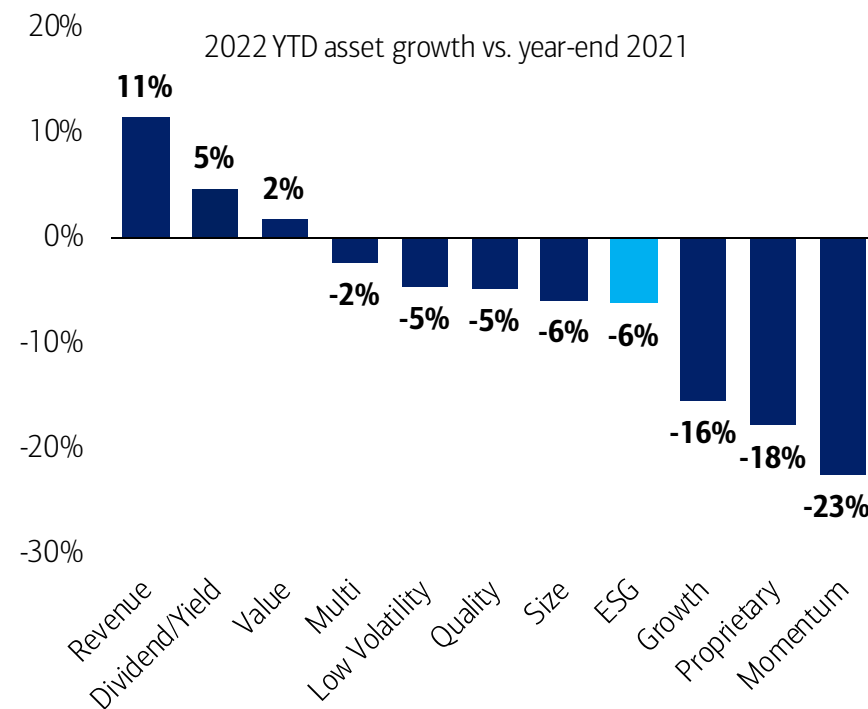
AUM in global ESG equity funds broken out by active and passive (1/2015-4/2022)



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

## ESG smart beta ETF AUM declined in 2022 YTD vs. 2021

Year-to-date AUM growth of smart beta ETF categories in Bloomberg, 12/2021-4/2022



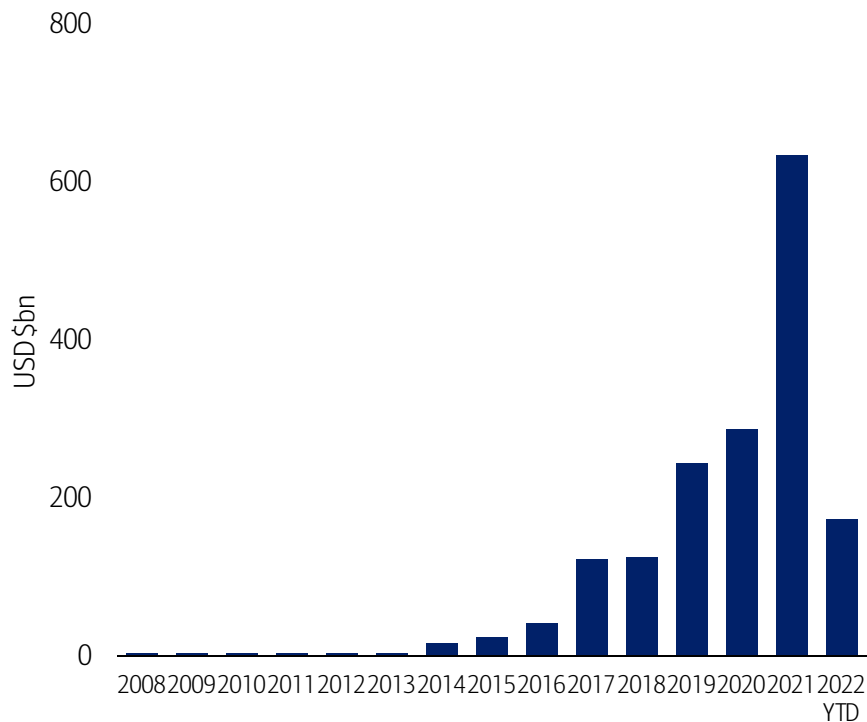
Source: BofA US Equity & Quant Strategy, Bloomberg

# Green fatigue



## Annual issuance of ESG-labelled bonds = \$634bn as of 2021 year end

Issuance of ESG-labelled bonds (\$bn), 2008-2022 YTD

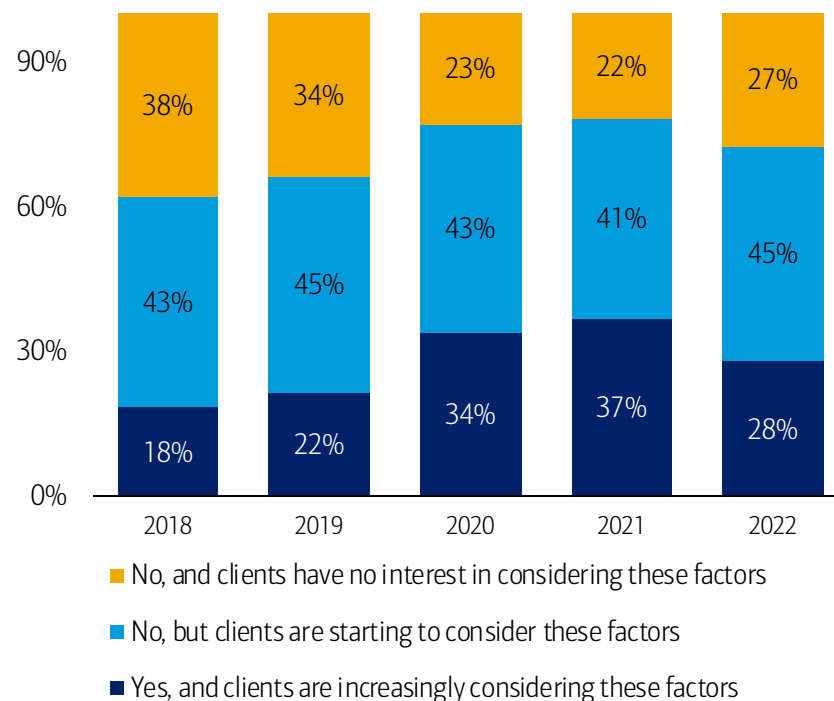


Source: Bloomberg (figures through 2022 year-to-date)

## ESG was less of a focal point this year but interest is still higher than 2018-2019 levels

Are Environmental, Social & Governance (ESG) factors a consideration in your current clients' investment process?

2022 Global Wealth & Investment Management Survey



Source: BofA US Equity & Quant Strategy, Wealth Management Marketing Research

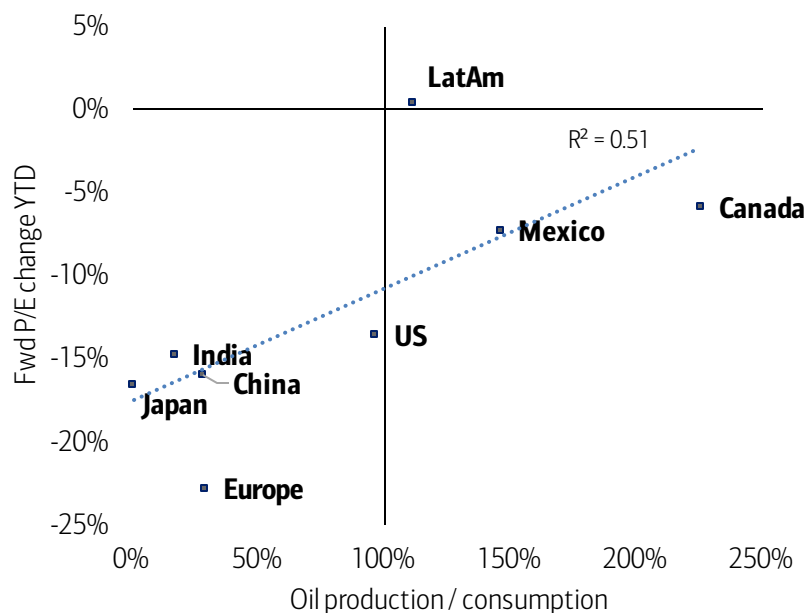


# War: oil security supersedes ESG in 2022



## Energy independence has explained changes in country risk premia this year...

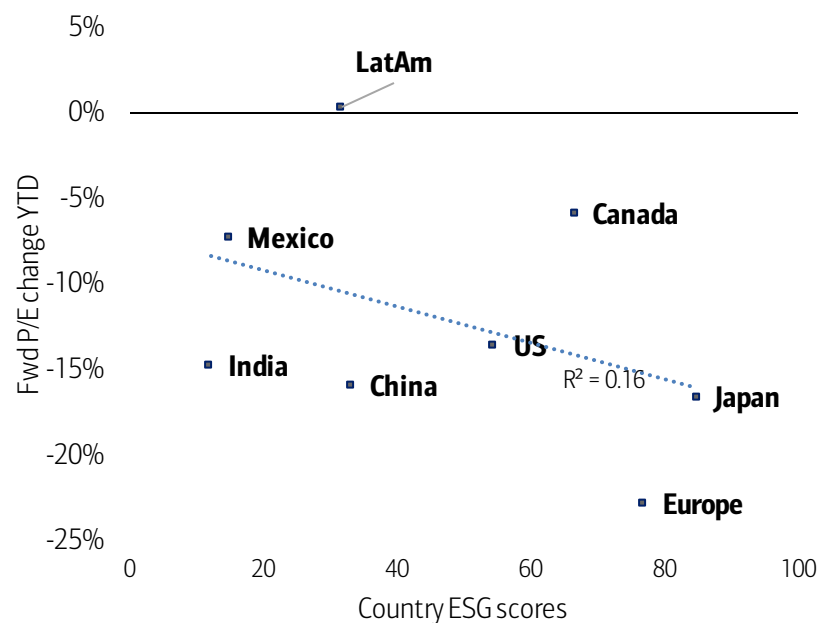
YTD fwd P/E change in MSCI country indices (S&P 500 for the US) and the country's energy independence



**Source:** Datastream, BofA US Equity & Quant Strategy, BofA EMEA ESG Research estimates, data from World Bank, World Economic Forum, OECD, WHO, Yale, World Resource Institute

## ... whereas ESG scores have been negatively correlated

YTD fwd P/E change in MSCI country indices (S&P 500 for the US) and the country's ESG scores



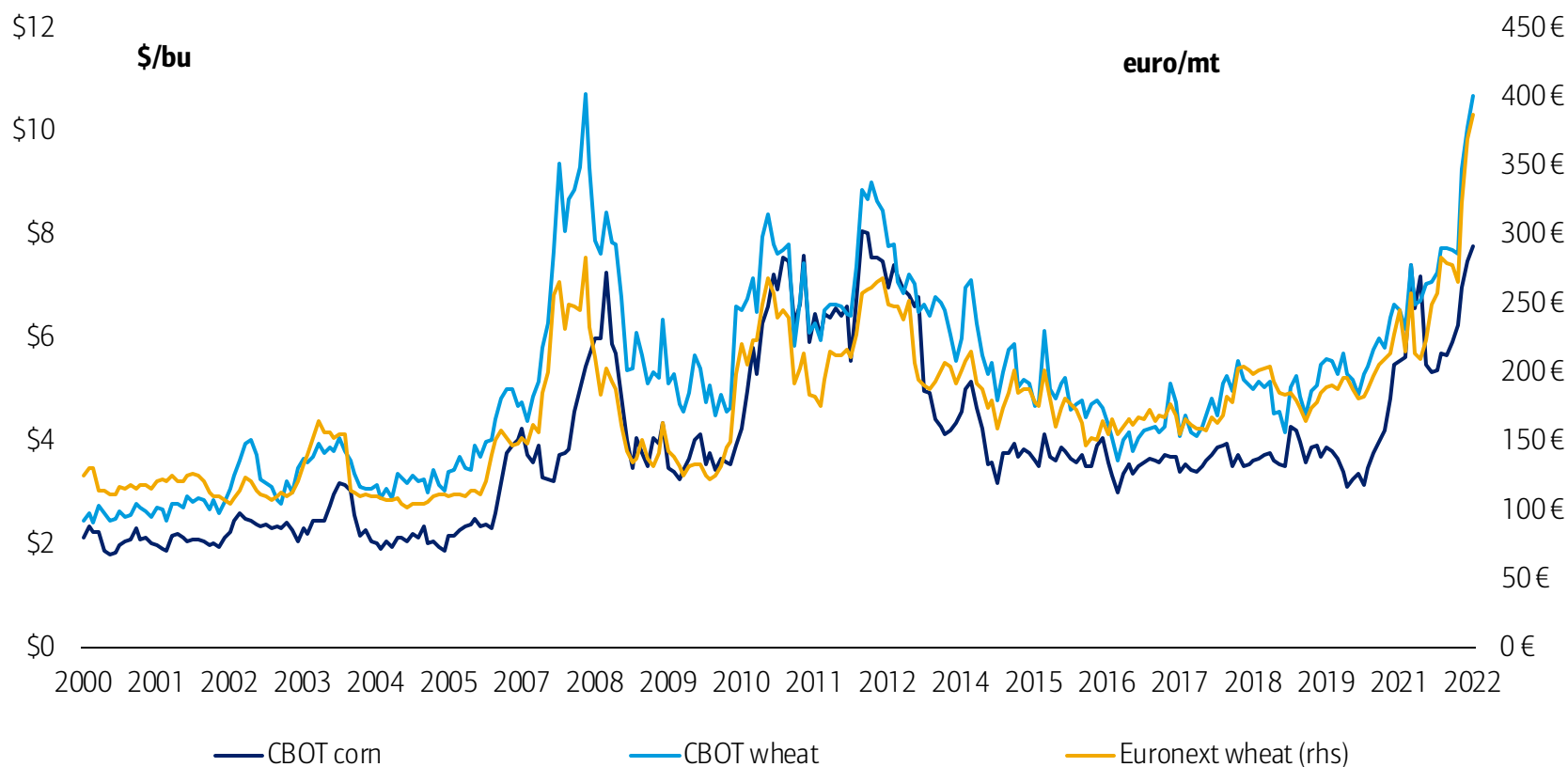
**Source:** Datastream, BofA US Equity & Quant Strategy, BofA EMEA ESG Research estimates, data from World Bank, World Economic Forum, OECD, WHO, Yale, World Resource Institute

# Food security could be next...



**The agriculture markets have been tightening since 2020 for a variety of reasons, including drought and biofuel demand...**

Global grain prices



Source: Bloomberg

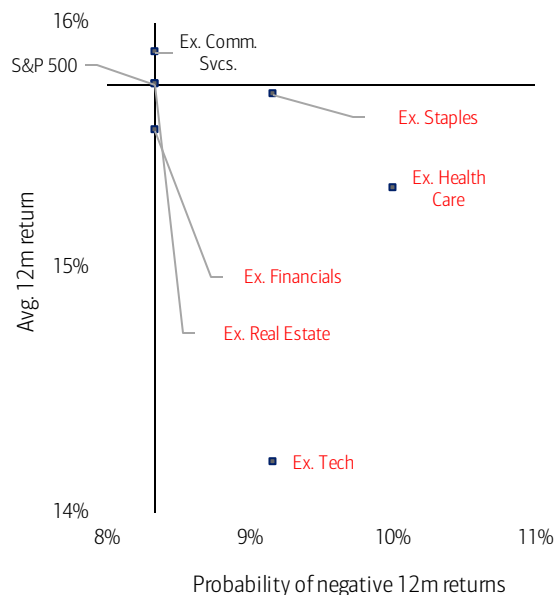
# Costs of exclusion



***Since 1990, excluding almost any sector would have hurt, not helped, for at least one of the last three decades***

## The worst exclusion strategies in the 1990s

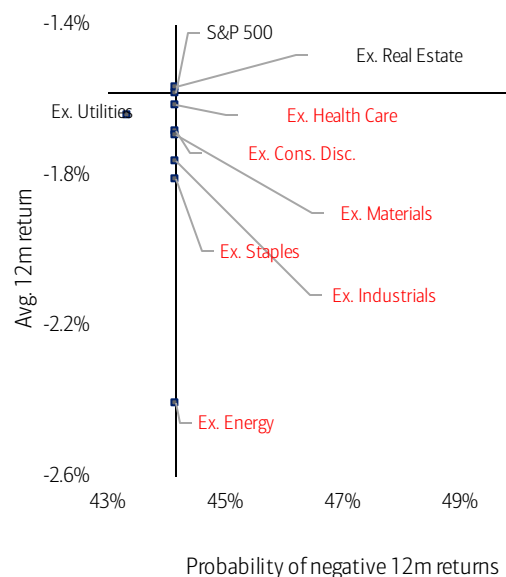
Average 12-month return and probability of negative 12-month returns in 1990s



Source: BofA US Equity & Quant Strategy, FactSet

## The worst exclusion strategies in the 2000s

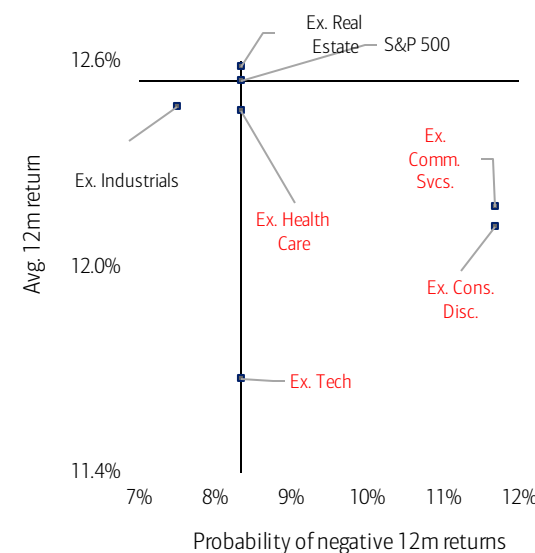
Average 12-month return and probability of negative 12-month returns in 2000s



Source: BofA US Equity & Quant Strategy, FactSet

## The worst exclusion strategies in the 2010s

Average 12-month return and probability of negative 12-month returns in 2010s



Source: BofA US Equity & Quant Strategy, FactSet

# Materiality over morality



## ESG signals that have been the most effective signals of future earnings volatility

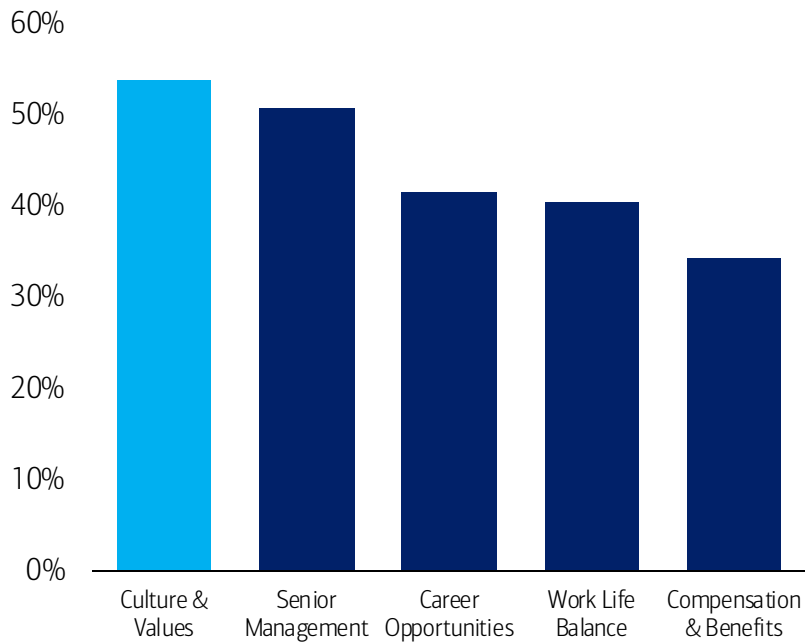
Sector	US	Europe	Asia
<b>Communication Services</b>	<b>E:</b> Resource Use, Opportunities in Clean Tech <b>S:</b> Human Capital Development, Supply Chain Standards	<b>E:</b> Carbon Emissions, Toxic Emissions & Waste <b>S:</b> Access to Communications <b>G:</b> Anti-Competitive Practices	<b>G:</b> Board structure, Compensation, Audit, Accounting, Voting, Diversity, Fraud <b>E:</b> Raw materials <b>S:</b> Product safety
<b>Consumer Discretionary</b>	<b>S:</b> Product Safety / Quality / Responsibility, Supply Chain Standards, Workforce / Society & Community Incidents <b>E:</b> Raw Material Sourcing, Resource Use, Emissions	<b>E:</b> Raw Material Sourcing, Toxic Emissions & Waste, Water Stress <b>S:</b> Product Safety & Quality, Chemical Safety, Privacy & Data Security, Health & Safety, Human Capital Development, Supply Chain Labour Standards <b>G:</b> Corporate Governance	<b>G:</b> Board structure, Compensation, Audit, Accounting, Voting, Risk, Fraud <b>E:</b> Green building, Water stress, E-waste, Clean tech <b>S:</b> Privacy and data security
<b>Consumer Staples</b>	<b>E:</b> Packaging Material & Waste, Green Supplier / Outsourcing Logistics <b>S:</b> Supply Chain Labor Standards, Health / Chemical Safety	<b>E:</b> Product Carbon Footprint, Packaging Materials & Waste, Carbon Emissions, Toxic Emissions & Waste <b>S:</b> Opportunities in Nutrition and Health, Health & Safety, Labour Management, Supply Chain Labour Standards, Chemical Safety <b>G:</b> Corporate Governance Issue	<b>G:</b> Board structure, Audit, Accounting, Voting, Risk, Controlling shareholders, Fraud <b>E:</b> Clean tech, Water stress <b>S:</b> Health and safety
<b>Energy</b>	<b>E:</b> Biodiversity & Land Use, Oil Spill Disclosure & Performance, Emissions, Environmental Innovation, Opportunity in Clean Tech	<b>E:</b> Water Stress, Carbon Emissions <b>S:</b> Health & Safety <b>G:</b> Corruption & Instability	<b>G:</b> Compensation, Audit, Accounting, Diversity
<b>Financials</b>	<b>G:</b> Compensation Policy, Anticompetitive Practices, Business Ethics and Fraud, Shareholder Rights <b>S:</b> Product Safety / Quality, Community, Responsible Marketing	<b>E:</b> Financing Environment Impact, Toxic Emissions & Waste, Opportunities in Green Building, Carbon Emissions, Climate Change Vulnerability, Water Stress <b>S:</b> Insuring Health & Demographic, Labour Management, Product Safety & Quality <b>G:</b> Financial System Instability, Corporate Governance	<b>G:</b> Board structure, Compensation, Accounting, Voting, Diversity, Related Party Transactions, Cross Shareholdings <b>E:</b> Clean tech
<b>Health Care</b>	<b>G:</b> Business Ethics and Fraud, Clinical Trial Standards <b>S:</b> Human Capital Development, Product Safety, Human Rights, Privacy & Data Security	<b>E:</b> Carbon Emissions, Water Stress, Toxic Emissions & Waste <b>S:</b> Access to Healthcare, Health & Safety, Human Capital Development, Labour Management <b>G:</b> Corruption & Instability	<b>G:</b> Board structure, Compensation, Audit, Accounting, Voting, Risk, Cross shareholdings, Fraud <b>E:</b> Clean tech
<b>Industrials</b>	<b>E:</b> Raw Material Sourcing, Carbon Emissions, Waste Intensity, Environmental Fines & Penalties <b>S:</b> Chemical Safety, Health and Safety Management	<b>E:</b> Toxic Emissions & Waste, Water Stress, Carbon Emissions <b>S:</b> Health & Safety, Labour Management <b>G:</b> Corporate Governance	<b>G:</b> Compensation, Audit, Accounting, Voting, Diversity, Fraud, Bankruptcy <b>E:</b> E-waste <b>S:</b> Supply chain labour, Human capital development, Privacy and data security
<b>Information Technology</b>	<b>G:</b> Corruption & Instability, Disclosure, Shareholder Rights <b>S:</b> Supply Chain Standards, Data Privacy Policy, Human Rights	<b>E:</b> Toxic Emissions & Waste <b>S:</b> Human Capital Development, Labour Management, Privacy & Data Security	<b>G:</b> Board structure, Compensation, Audit, Accounting, Voting, Fraud <b>S:</b> Human capital development, Supply chain labour
<b>Materials</b>	<b>E:</b> Water Stress, Toxic / Carbon Emissions, Waste, Environmental Innovation	<b>E:</b> Biodiversity & Land Use, Water Stress, Toxic Emissions & Waste, Carbon Emissions, Opportunities in Clean Tech <b>S:</b> Health & Safety, Labour Management <b>G:</b> Corruption & Instability	<b>G:</b> Board structure, Accounting, Voting, Risk <b>E:</b> Raw material sourcing
<b>Real Estate</b>	<b>E:</b> Biodiversity & Land Use, Opportunities in Green Building, Waste <b>G:</b> Anticompetitive Practices, Business Ethics Incidents	Included in Financials sector	<b>G:</b> Board structure, Compensation, Controlling shareholders <b>E:</b> Financing for environment impact, Green buildings <b>S:</b> Supply chain labour, Product safety
<b>Utilities</b>	<b>E:</b> Opportunities in Renewable Energy, Water Intensity, Emissions / Waste <b>S:</b> Labor Management, Health & Safety, Corporate Foundation	<b>E:</b> Toxic Emissions & Waste, Water Stress, Carbon Emissions, Opportunities in Renewable Energy <b>S:</b> Human Capital Development, Labour Management, Health & Safety <b>G:</b> Corporate Governance	<b>G:</b> Board structure, Compensation, Audit, Accounting, Voting, Diversity

# Culture is critical



## Culture & Values are 3x more important than compensation

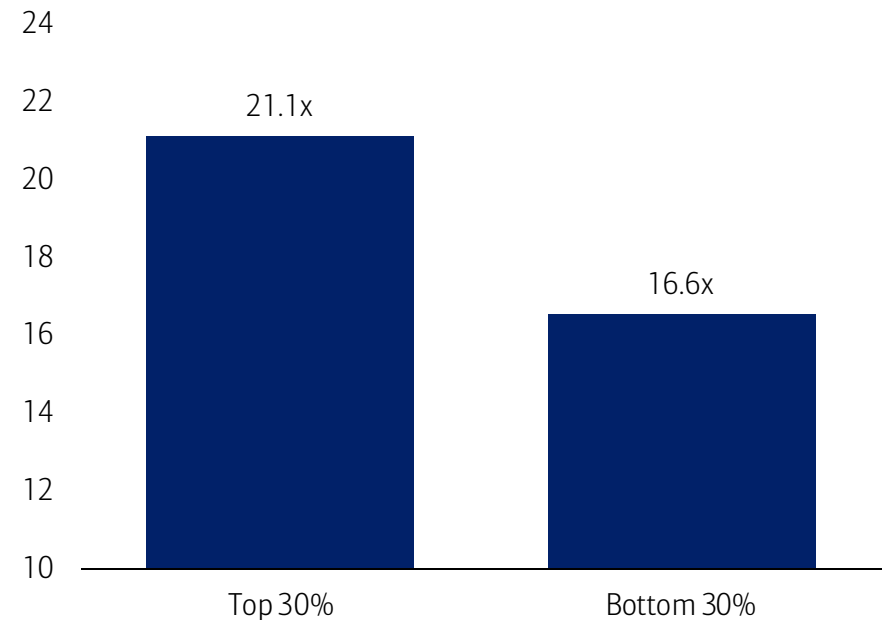
R-sq of specific ranks on overall company rank, Glassdoor data as of 3/2022 for US public companies



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

## Companies within top 30% culture quintile trade at a premium than the bottom 30%

Median forward 12-month P/E for companies within top 30% (highest) and bottom 30% (lowest) of Culture & Values scores as of 1Q22



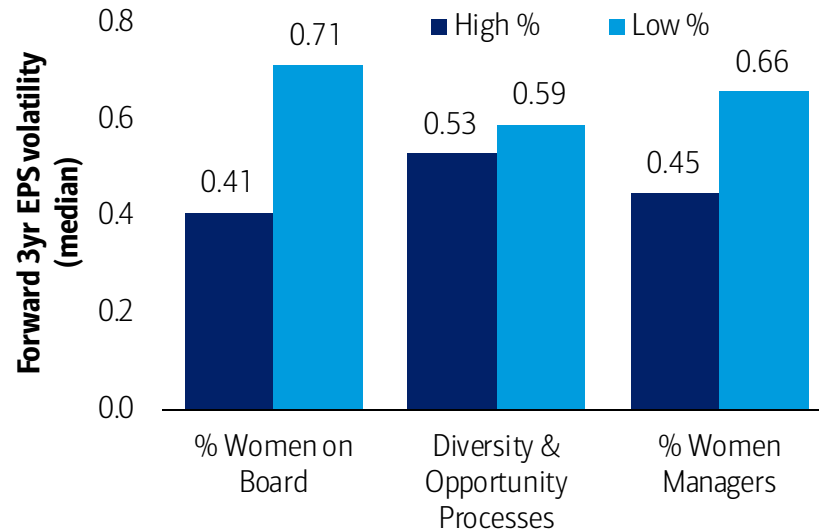
Source: BofA US Equity & Quant Strategy, Glassdoor, FactSet

# Diversity = lower earnings risk, lower cost of capital

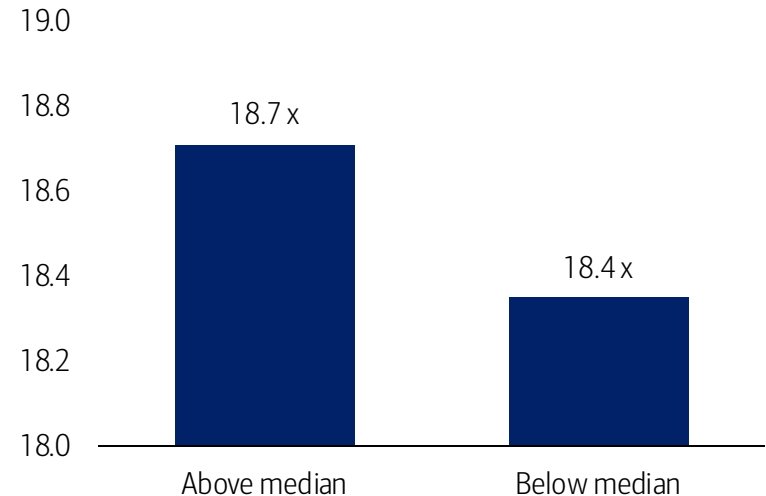


## Companies with greater gender diversity tend to have lower earnings risk

Median forward 3yr EPS volatility based on ESG scores (annually, 2005-2018) for Board Diversity (Governance), Diversity & Opportunity Processes (Social), and % Women Managers (Social)



Median forward P/E ratios of companies with above or below median % women in management within S&P 500



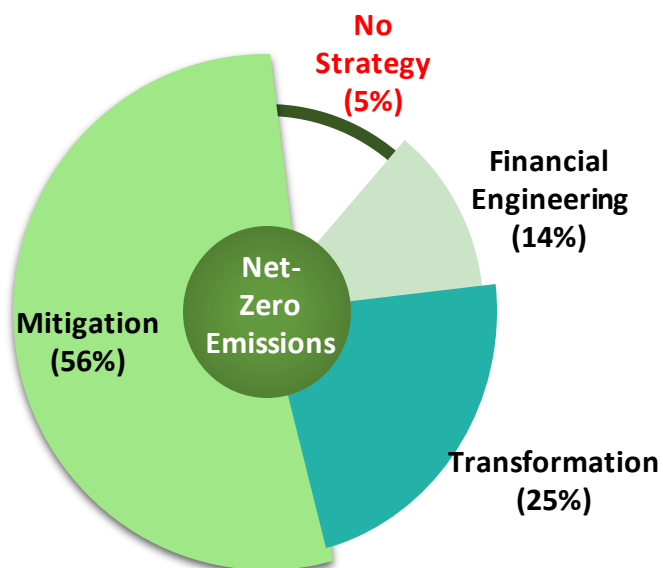
\*Data from 2010 on for % Women and <30% women in management. Price vol based on daily price volatility over subsequent year, EPS vol based on volatility in qtrly EPS over the three years.

**Source:** Refinitiv, Revelio Labs, BofA US Equity & US Quant Strategy. 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; People of color is defined as Black, Hispanic, and Asian.

# Net zero: from tell me to show me



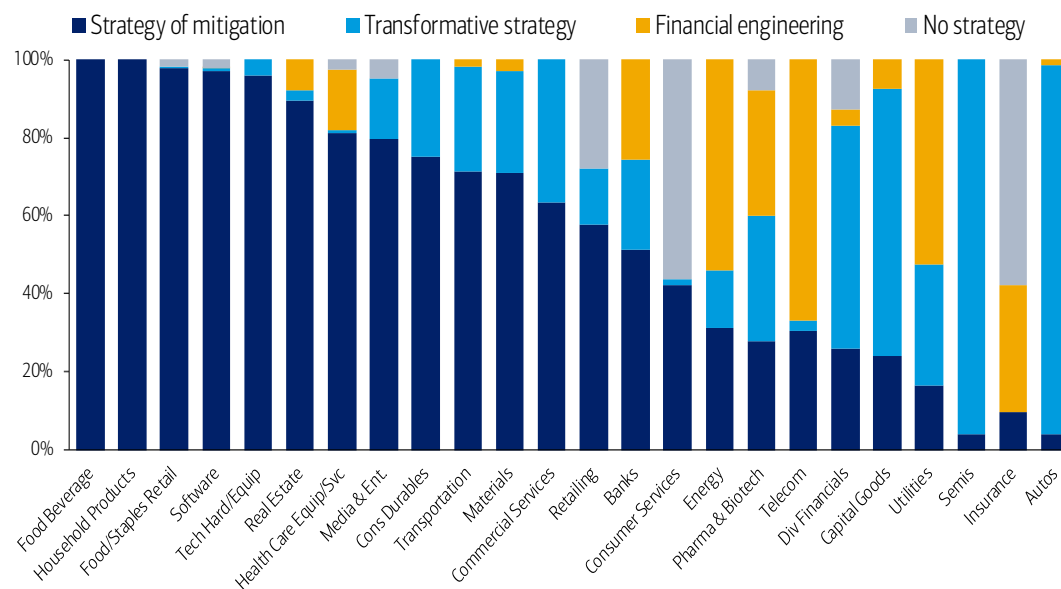
Corporate strategies encompass **mitigation**, financial **engineering** and **transformation**



% of companies by market cap

## Preferred strategy for achieving net-zero by global sectors (% of mkt cap)

Mitigation remains the most preferred strategy to achieve carbon neutrality



Source: BofA Global Research; Note: Based on BofA Global Research coverage

# Specific approaches ranging from carbon **offsets** to **automation, digitization** and **near-shoring**



## Strategies that corporates are employing to navigate towards their goal of net-zero

Enhancing energy efficiency, switching to clean energy or renewables, carbon offsets and re-shoring/near-shoring of supply chains are most commonly used strategies

	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

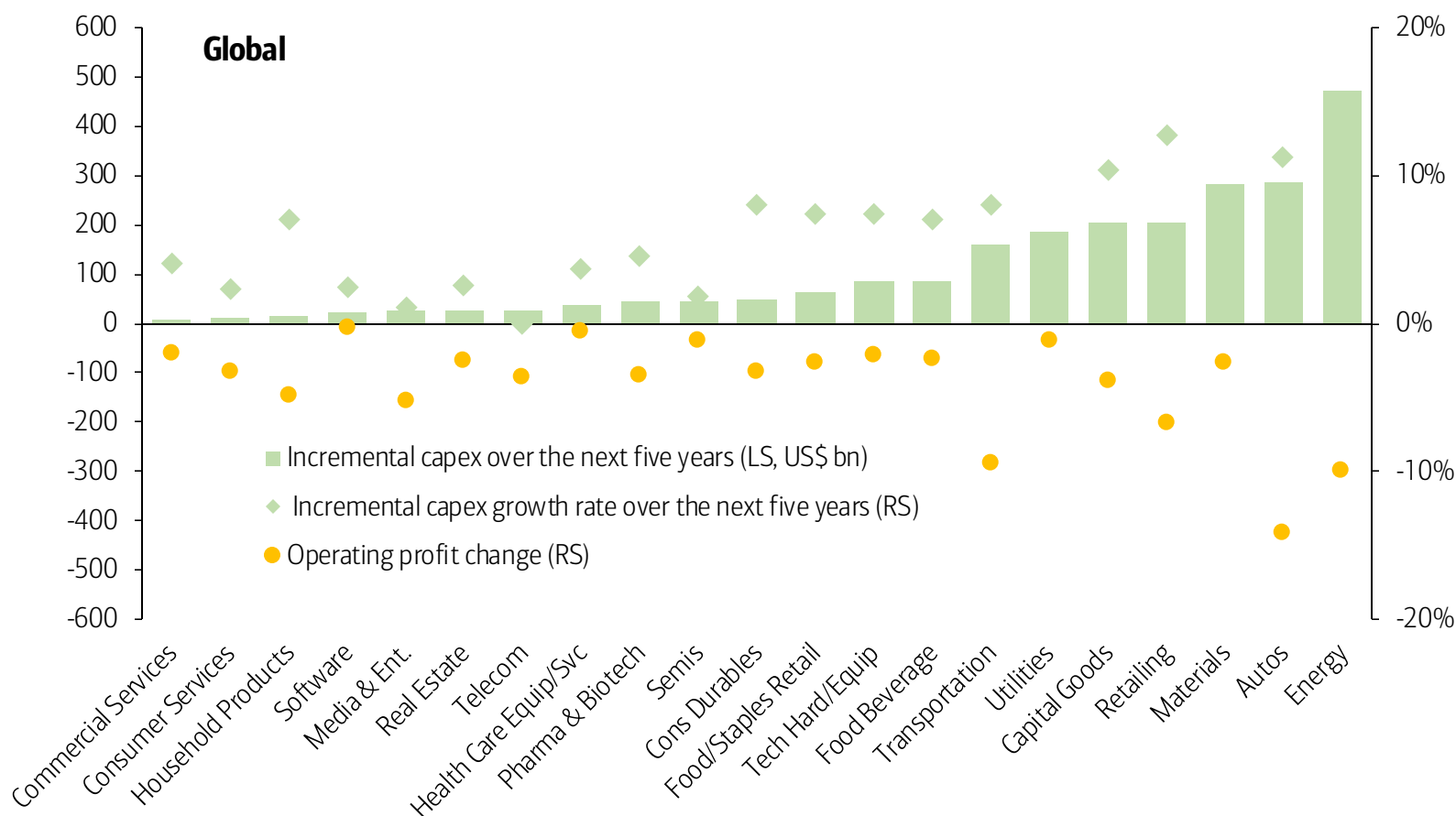


**US\$2.4tn** of extra capex over the next five years; operating profit to **fall 0 to 14%**



## Impact on capex and operating profit – Global

US\$2.4tn of extra capex over the next 5 years and operating profit to fall 5% (0 to 14% by sector)

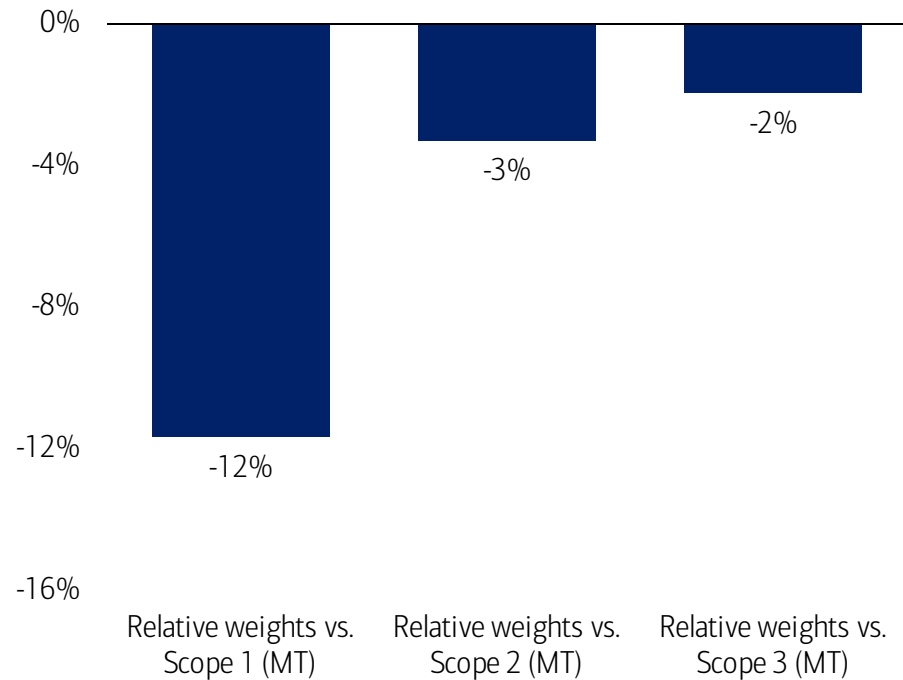


# The **Known-Unknown**: Scope 1 is well understood; Scope 3 is Terra Incognita



## ESG funds manage direct emissions risk

Correlation between ESG funds' relative weights vs. SPX and Emissions (Metric Tons)



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

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## **Methodology explained**

Readers should be aware that although the BAC datasets utilized in our analysis represent a significant number of data points, they nevertheless present a degree of selection bias, including but not limited to income levels and geographies. In addition, the data is limited to debit and credit cards and does not include other payment methods such as cash or checks.

Data regarding merchants who receive payments are identified and classified by the Merchant Categorization Code (MCC) defined by financial services companies.

The data are mapped using proprietary methods from the MCCs to the North American Industry Classification System (NAICS), which is also used by the Census Bureau, in order to classify spending data by subsector. Spending data may also be classified by other proprietary methods not using MCCs.

BAC data used in this report include spending from active US households only. Spending from corporate cards are excluded.

Our methodology for calculating the growth rates for daily data: we calculate the %yoy growth, the 2-year and 3-year %change by matching calendar days (Jan 1 ’22 matched to Jan 1 ’21, Jan 1, 2020 and Jan 1, 2019, respectively). The % change is calculated based on the 7-day moving average of spending levels.

Unless otherwise noted, the monthly subsector data are adjusted to control for seasonality and other factors.

The payroll and tax direct deposit data based on the BAC internal data is derived by anonymizing and aggregating direct deposit data from Bank of America consumer deposit accounts in the US and analyzing that data at a highly aggregated level. Additional information about the methodology used to aggregate the data is available upon request.

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster <sup>R1</sup>
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

<sup>R1</sup> Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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