The RIC Report

Ten surprises for 2024

Not so fast

After the fastest easing of financial conditions in history (Exhibit 2), investors should consider whether: 1. the bond market is right to be more dovish than the Fed; and 2. whether Fed cuts this year might stoke structural inflationary forces. We update our barometer of the economic sectors proving impervious so far to rate hikes (Exhibit 3).

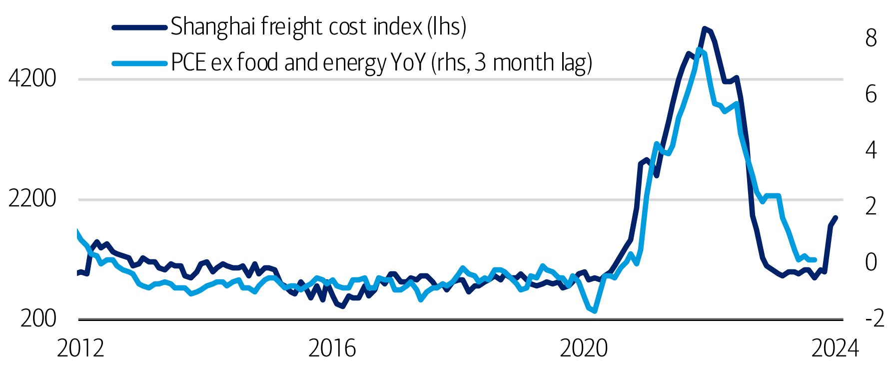
We favor credit > equities > bonds in case of a more volatile, range-bound year. Don't get shaken out of inflation hedges.

Ten surprises

This month, we offer some plausible surprises that could affect markets in 2024:

1. High bond taxes push investors back to stocks
2. Companies survive 5% rates without a surge in bankruptcies
3. IPOs come roaring back
4. The worst developed market of the past 40 years is this year's best
5. Suddenly, geopolitical risk is factored into the Magnificent Seven
6. Biotech & pharma push to record highs
7. Investors get pragmatic about energy
8. One path to 2% inflation, one hundred paths to 5% (Exhibit 1)
9. Government debt buyers demand a premium
10. Investors fall in love again with free markets

Exhibit 1: Supply chain inflation spikes as Red Sea attacks escalate
Shanghai container freight costs and US CPI inflation



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

09 January 2024

Investment Strategy
Global

Table of Contents

Research Investment Committee
BofAS

Jared Woodard
Investment & ETF Strategist
BofAS
+1 646 855 2600
jared.woodard@bofa.com

John Glascock
Investment & ETF Strategist
BofAS
+1 646 855 3402
john.glascock@bofa.com

Phoebe Block
Investment & ETF Strategist
BofAS
+1 646 241 5941
phoebe.block@bofa.com

Derek Harris
Portfolio Strategist
BofAS
+1 646 743 0218
derek.harris@bofa.com

Chris Flanagan
FI/MBS/CLO Strategist
BofAS
+1 646 855 6119
christopher.flanagan@bofa.com

See Team Page for List of Analysts

The RIC Outlook

In our 2024 year ahead report, we suggested that longer term investors should consider whether Fed rate cuts this year might reignite structural inflationary forces.

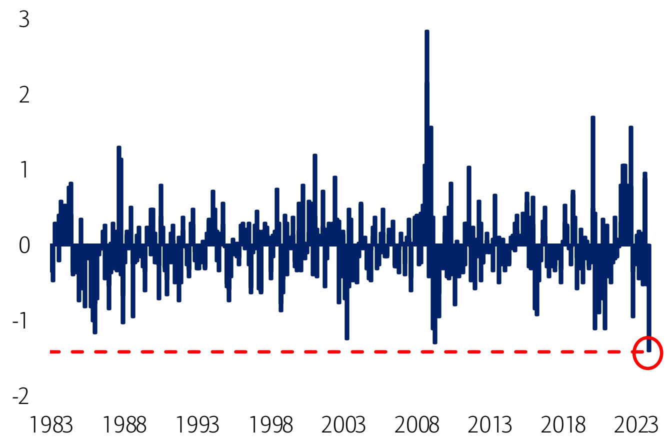
We note many parts of the economy that, so far, have proven robust or even impervious to rate hikes: record government deficits; high household savings, rising wages & record home prices; corporates cushioned by private credit and cash.

The barometer at Exhibit 3 shows that these measures are 1-2 standard deviations above long-term averages.

In recent weeks, investors have taken the opposite view, pricing in >5 rate cuts and a maximally sunny outlook on inflation. In fact, the easing in financial conditions over the past two months was the fastest in history (Exhibit 2).

We suspect that this year any large moves in markets may be self-limiting. Big drops in stocks could prompt Fed cuts; big rallies further ease financial conditions and rekindle the very inflation that the Fed thought it had smothered. It's a recipe for a range-bound, if volatile year, at least in the US. That's why we favor credit > equities > bonds for asset allocation in 2024.

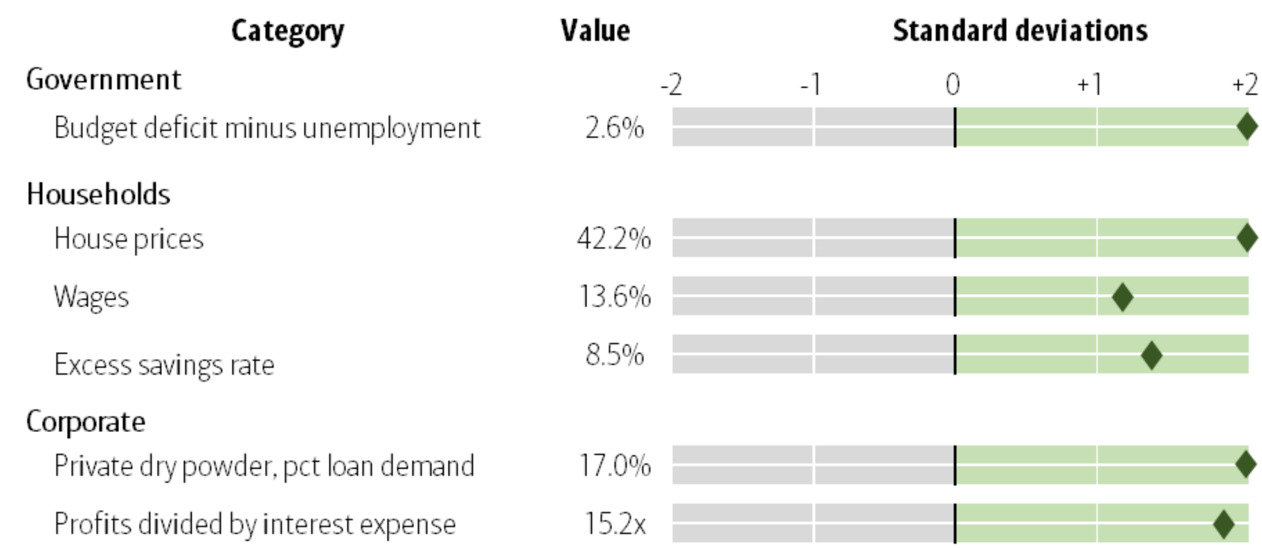
Exhibit 2: The fastest easing of financial conditions in history
GS US Financial Conditions Index, 2 month change



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 3: The lack of slack
Many economic variables are still much stronger & more inflationary than normal, despite Fed hikes



Source: BofA Global Research; Budget deficit minus unemployment rate measures the spread between the US budget deficit and US unemployment rate (Bloomberg, start date = Jan. 1969); House price = 3-year change in FHFA US House Price Index NSA (Bloomberg, start date = Mar. 1975); Wages = 3 year change in Employment Cost Index (ECI, Bloomberg, start date = Mar. 1982); Savings rate = 4 year annualized savings rate, % disposable income (Bloomberg, start date = Jan 1993), Private credit dry powder (Prequin) divided by total commercial and industrial loans outstanding (Federal Reserve, start state = 200), Profits divided by interest expense (Haver, start date = Jan. 1948)

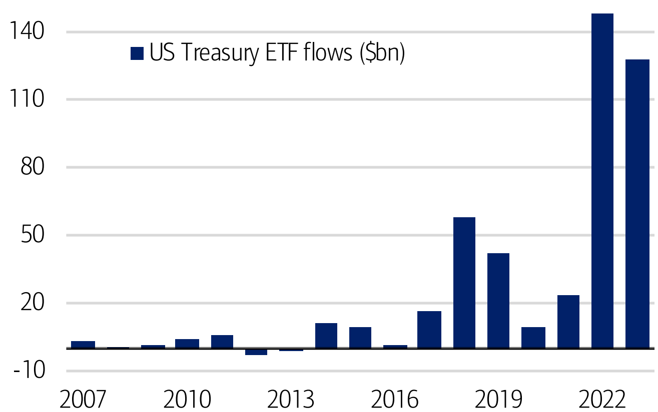
BofA GLOBAL RESEARCH

Ten surprises for 2024

Byron Wien, who passed away in 2023, famously made a list each year of ten surprises. It's a worthwhile exercise to think of scenarios that some investors may have not considered, or have assigned a very low probability. This month, we offer some plausible surprises that could affect markets this year.

1. High bond taxes push investors back to stocks

Exhibit 4: Relentless love for Treasuries & T-bills…now pay the tax bill
Annual cumulative Treasury security ETF flows, $bn



Source: BofA Global Research, EPFR

BofA GLOBAL RESEARCH

The lure of yields above 5% for T-bills and bonds drew $3.7 trillion into Treasury securities in the first three quarters of '23.

As tax bills come due this year, we suspect some investors may come to appreciate the merits of equities, especially the lower tax rate of 20% on stocks held for at least one year. Treasury coupon payments are taxed at ordinary income rates – 37% for top earners.

All of the 2023 returns from Treasury bonds came from coupons. The S&P 500 saw a 24% price gain with just 1.9% paid as dividends last year. Municipal bonds could also benefit from investors seeking to keep more of their returns.

Bullish for: stocks and municipal bond flows

2. Companies survive 5% rates without a surge in bankruptcies

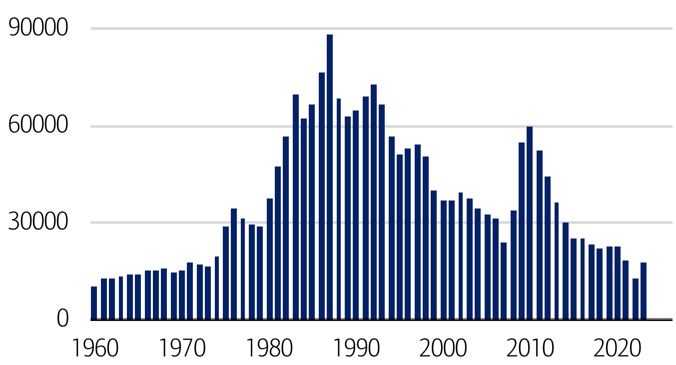
Higher interest rates are intended to slow the economy, in part, by making it more expensive for companies to borrow capital for expansion and investment.

But after one of the fast and most aggressive rate hiking cycles in history, the number of firms declaring bankruptcy was the 2nd lowest in modern history (Exhibit 6). Note that corporate interest expenses are just 7% of profits, the most favorable level since 1957.

Our credit strategists do expect default rates to inch higher this year, and they have been effective at noting tactical entry and exit points. From a longer term view, termed-out corporate debt burdens, high cash & profit buffers, and $500bn in private credit dry powder make a big default and bankruptcy cycle seem unlikely.

Bullish for: "Prudent Yield" assets like fallen angel corporate bonds and senior loans

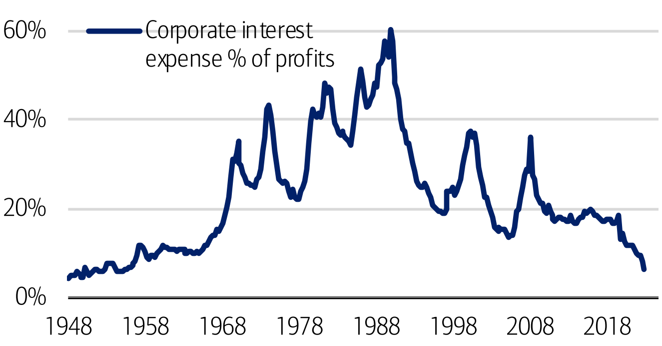
Exhibit 5: Bankruptcies near record lows despite 525bps of rate hikes
Annual US bankruptcies



Source: BofA Global Research, Haver

BofA GLOBAL RESEARCH

Exhibit 6: Interest expense = just 7% of profits
Corporate interest expense as a percentage of corporate profits

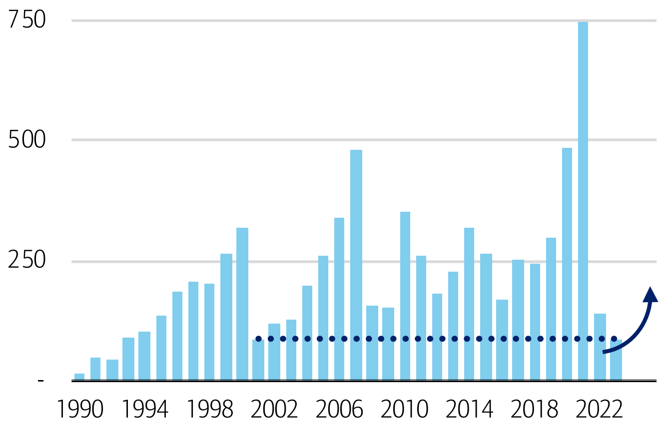


Source: BofA Global Research, Haver

BofA GLOBAL RESEARCH

3. IPOs come roaring back

Exhibit 7: Fed cuts could bring the IPO market roaring back
Value of global initial public offerings by date announced, $bn



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

2023 was the slowest year of IPO activity since the bursting of the dot-com bubble in 2001. Just $87bn of deals came to the market from first-time issuers.

If ideal macro conditions do permit substantial rate cuts this year, smaller growth stocks could become much more attractive, drawing private companies into public markets.

In technology, venture capital funds are seeking exits after two unfriendly years; high-burn companies need cash and may see IPOs as preferable to raising capital at a lower valuation.

In biotech and pharma, our analysts expect an IPO and M&A resurgence (see below).

In consumer discretionary, several high-profile brands and retail chains have already filed initial paperwork.

Bullish for: large banks (KBE) and exchanges

4. The worst developed market of the past 40 years is this year's best: Japan

Less than 24 hours after a 7.5 magnitude earthquake, bullet-train lines were running again in the same region. The Japanese economy is resilient, undervalued, and becoming more productive. Strategist Masashi Akutsu sees 13% upside and expects recent corporate governance reforms & restructuring to bear fruit in the form of higher ROE, management buyouts, and share buybacks. He likes the TOPIX trading at 13x earnings given stronger EPS revisions. We note the attractive valuation vs. US equities (Exhibit 9).

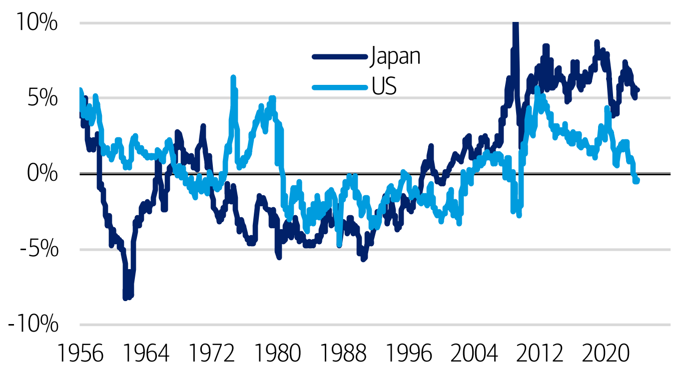
Bullish for: Japanese equities (DXJ & EWJ)

Exhibit 8: BofA bullish Japan view = break above 1989 highs
Nikkei 225 index in $USD

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 9: Japan remains deeply undervalued
Equity earnings yield minus government bond yield

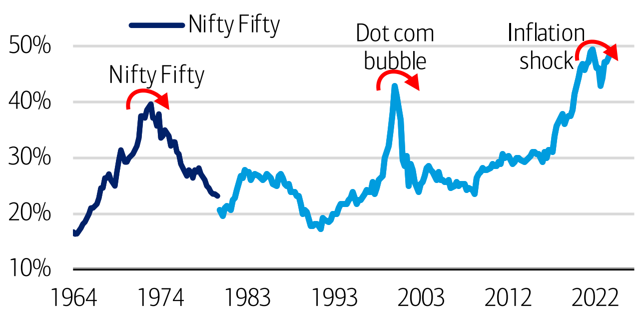


Source: BofA Global Research, Global Financial Data

BofA GLOBAL RESEARCH

5. Geopolitical risk is factored into the Mag Seven

Exhibit 10: Higher tech concentration = higher geopolitical risk
S&P 500 concentration over different market regimes



Source: BofA Global Research, Global Financial Data, Standard and Poor's, Bloomberg. "New" economy = Tech + Communication Services + Consumer Discretionary

BofA GLOBAL RESEARCH

According to CSIS, the "Magnificent Seven" companies like Apple, Amazon, Google, and NVIDIA use Taiwanese manufacturers for over 90% of their chips. Growing dependence has sent their correlation to Taiwan Semiconductor (TSMC) to a record-high 66%.

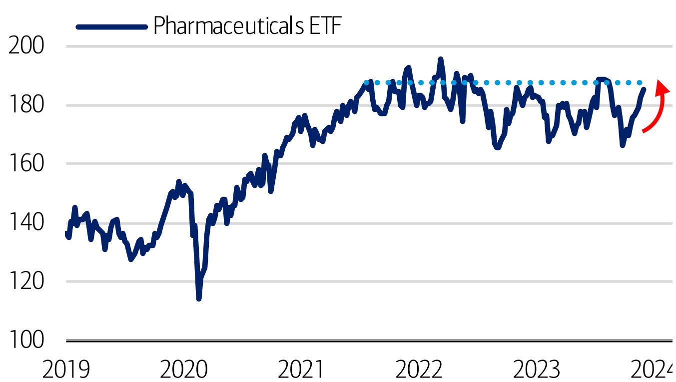
As those same companies comprise a record-high share of the S&P 500 Index, the whole US stock market is more sensitive than ever to any geopolitical escalation that disrupts the supply of semiconductors.

Tensions continue to mount in the region and we suspect the risks will be priced into megacap growth stocks in 2024.

Bullish for: equal-weighted equity indexes, "ex-tech" baskets

6. Biotech & pharma push to record highs

Exhibit 11: Secular catalysts to drive biotech higher, lower rates or not
IHE US Equity price history since 2019



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Out of 29 industry groups, the "pharma, biotech & life sciences" group was one of the worst performers in 2023, essentially unchanged vs. the S&P 500 +26%.

But the BofA Health Care group sees greater catalysts for '24. Valuation is attractive in pharma (18x PE) and biotech (14x). and Geoff Meacham and Tazeen Ahmad are bullish on prospects for more M&A activity.

If '23 was the year of diabetes and obesity drugs, '24 could be all about Alzheimer's, with seven vaccines in trials and tests in progress on diabetes drugs as treatments for Alzheimer's.

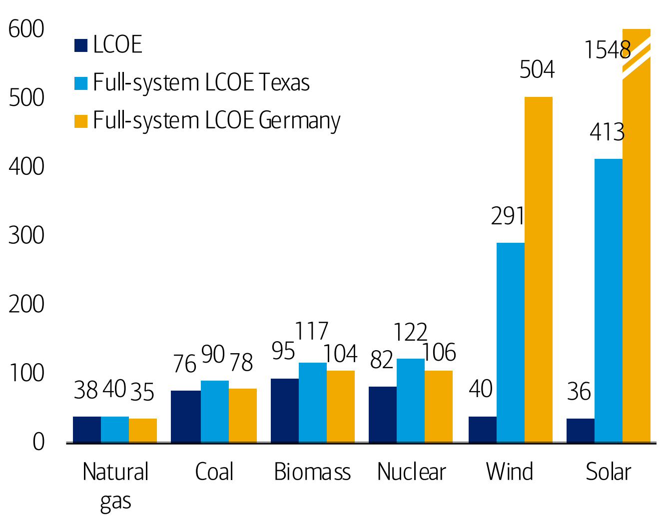
Drug discovery via molecular simulation remains one of the most plausible uses for artificial intelligence.

IHE has substantial exposure to the team's top picks like LLY and MRK.

Bullish for: pharma stocks (IHE)

7. Investors get pragmatic about energy

Exhibit 12: Counting all the costs, conventional > alternative energy
Levelized full system cost of electricity by energy source; $ per MWh



Source: Research Investment Committee; Robert Idel, *Energy* 259 (2022)

BofA GLOBAL RESEARCH

In 2024 we expect investors to become more pragmatic about the need for reliable, affordable power. Wind & solar stocks have been punished as project economics proved unworkable (Orsted -72% from peak; SolarEdge -77%; Sunrun -82%). On an all-in basis including storage & transmission, the average cost per megawatt-hour for natural gas is $38; nuclear $114; wind $291-504; for solar $413-1,548.

Supply is tight & fragile after years of underinvestment in reliable baseload resources. In 2023 the NERC added "energy policy" as a key grid stability risk: in its view, the push for wind & solar has made the grid more fragile to extreme events.

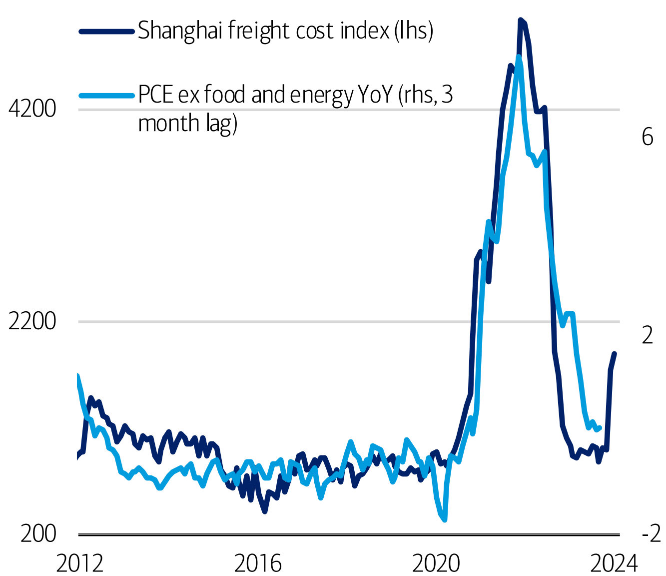
Demand is high and rising. Aggressive electrification efforts draw more power but have failed to match EVs with grid capacity. The 1.5mn AI units NVIDIA is expected to ship in the future would consume 85 terawatt-hours of power per year, almost a third of the annual consumption of the UK.

Investor pragmatism on a "physics > politics" view of energy policy could mean multiple expansion and reward natural resource companies. Oil & gas stocks trade at just 10x earnings today; mining firms at 13x. Compare the S&P 500 and "clean energy" ETFs at 21-22x.

Bullish for: hydrocarbons & nuclear

8. One path to 2% inflation, one hundred paths to 5%

Exhibit 13: Supply chain inflation spikes as Red Sea attacks escalate
Shanghai freight container costs and US CPI inflation



Source: BofA Global Research, Bloomberg

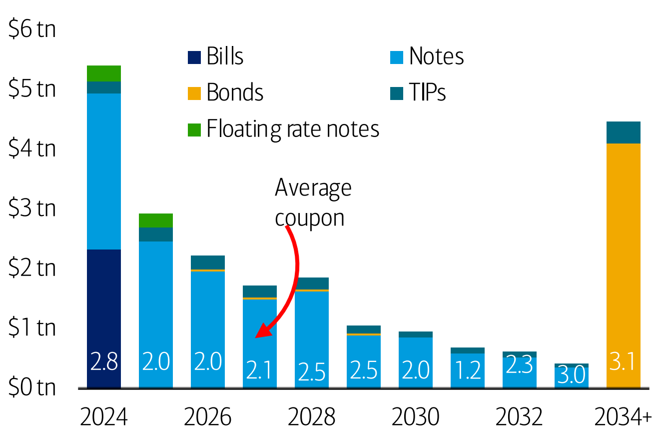
BofA GLOBAL RESEARCH

The consensus priced now into markets assumes a steady decline in inflation, which could be disrupted by any number of "imperfect endings" to the story:

- The US-led coalition has been ineffective so far in stopping Houthi attacks on cargo ships in the Red Sea. 28% of world container trade passes through the Suez Canal. Container prices have spiked 90% in recent weeks (Exhibit 13).
- Escalation of the Israel/Hamas war could cause oil prices to spike to $150/bbl according to Francisco Blanch; recent drone strikes and attacks have raised concerns the conflict could expand into Lebanon.
- CPI core services less housing (the Fed's "supercore" measure) remains at 3.9% and has been steady around that level since June 2023; still almost double the 2% Fed target.
- In an executive order signed just before Christmas, the White House raised wages for government employees by 5.2% for 2024.
- The rate of housing starts rose by 255k homes in the past three months, the fastest pace since July 2020.
- El Nino, Black Sea grain deals & geopolitics risk higher food prices (see "Don't take disinflation for granted").

9. Government debt buyers demand a premium

Exhibit 14: Higher interest rates could collapse the US maturity wall
Outstanding marketable Treasury securities by maturity year; simple average coupon rate



Source: BofA Global Research, US Treasury

BofA GLOBAL RESEARCH

Investors may demand higher yields to own longer term US government debt as prospects for a sustainable budget fade.

The Treasury department has more than $5tn of securities maturing next year for which buyers will need to be found.

An economy slow enough to prompt Fed rate cuts may also be slow enough to depress tax receipts and raise unemployment payments, making the US budget deficit even worse. We find that, on average, federal tax receipts rise or fall by about 1.6x the change in GDP. A decline in nominal GDP from 6% to 3% would imply a drop of $230bn in receipts from 2023 levels.

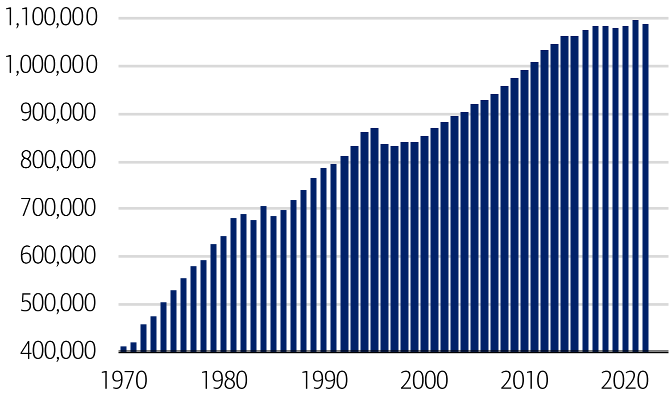
The highest-polling major party Presidential candidates have both promised policies that would further expand public debt.

For more, see *The probable path to impossible debts*.

Bearish for: US government bonds

10. Investors fall in love again with free markets

Exhibit 15: Deregulation could unlock US productivity
Number of regulatory restrictions in the Code of Federal Regulations



Source: Research Investment Committee, Mercatus Center at George Mason University.
BofA GLOBAL RESEARCH

There are nearly 1.1 million regulatory restrictions in the US Code of Federal Regulations, a number that almost never declines.

One study estimates that the cumulative costs of regulation has been 0.8ppt of GDP per year, and that if regulation had been held steady at 1980 levels, by 2012 the US economy would have been 25 per cent larger (+$4 trillion).[1]

As the US election approaches, prospects for a friendlier business environment could raise investor expectations for higher profits and productivity, stoking animal spirits and prompting a greater allocation to equities.

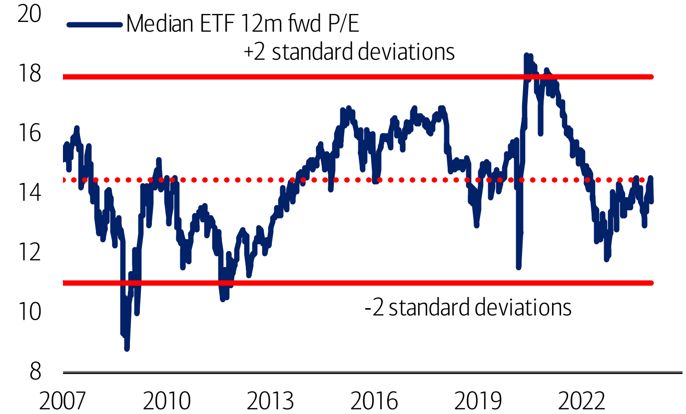
[1] Coffey, McLaughlin & Peretto, "The Cumulative Cost of Regulations," *Review of Economic Dynamics* 38 (October 2020).

ETF Valuation

December median ETF P/E in line with average

- The median equity ETF in our coverage ended December at 14.5x forward earnings, exactly in line with average (Exhibit 16).
- Mid cap and small cap ETFs trade at below average valuations. Market cap weighted large cap ETFs continue to diverge from other size factors.
- Financials ETFs continue to become more expensive relative to history on increased soft-landing sentiment. On an absolute P/E basis, they are the second cheapest sector.
- Japan ETFs had a sustained rally since October 2023, but sold off to start 2024. The average Japan ETF now trades slightly below historical averages.

Exhibit 16: Equity ETF valuations approaching historical norms
Median 12 month forward P/E ratio across BofA equity ETF coverage



Source: BofA ETF Research, Factset. Note: Median calculated using12m fwd P/E ratios for all equity ETFs in our coverage.

BofA GLOBAL RESEARCH

Exhibit 17: Equity ETF valuations by category
ETF valuation ratios and composite score (lower is better)

	Sub-category	Composite Valuation (stdev)	12m fwd P/E	12m fwd P/B	12m fwd EV/EBITDA	12m fwd P/FCF	Top-rated fund	Bottom-rated fund	Link
US Equity Sector	Communication Services	-0.75	16.28	2.52	8.64	15.21	XLC	IYZ	Getting so defensive
	Real Estate	-0.59	14.36	2.40	15.78	19.36	XLRE	SCHH	Getting so defensive
	Energy	-0.01	10.79	1.92	5.88	11.30	XLE	PXI	ETFs for the cyclical extremes
	Utilities	0.12	15.60	1.76	10.81	n.a.	XLU	RSPU	Getting so defensive
	Consumer Staples	0.39	18.20	4.81	12.58	20.55	IYK	RSPS	Getting so defensive
	Consumer Discretionary	0.60	21.50	6.20	12.60	22.32	VCR	IYC	ETFs for the cyclical extremes
	Financials	0.68	13.94	1.73	na	na	XLF	FXO	ETFs for the cyclical extremes
	Industrials	0.97	18.56	4.57	12.44	20.90	XLI	FXR	ETFs for the cyclical extremes
	Health Care	1.11	17.87	4.06	13.84	18.87	XLV	PTH	Getting so defensive
	Materials	1.18	17.83	2.54	10.33	24.42	FXZ	IYM	ETFs for the cyclical extremes
	Information Technology	1.39	23.51	6.24	16.35	27.13	XLK	QTEC	ETFs for the cyclical extremes
Single Factor	International Dividend	-0.91	9.78	1.29	7.23	14.30	VYMI	PID	Going global: markets to rent & markets to own
	Dividend	-0.48	12.41	2.47	9.28	16.00	SPYD	AIVL	Follow the money with Dividend & Buyback ETFs
	Buybacks	-0.34	12.54	2.51	8.60	12.77	DIVB	IPKW	Follow the money with Dividend & Buyback ETFs
	Value	0.18	13.20	2.15	9.60	17.10	VTV	RPV	Initiating coverage of value ETFs
	Quality	0.87	17.60	4.82	12.12	19.46	COWZ	QLC	One factor to rule them all
	Growth	1.28	24.61	7.75	16.20	27.19	SCHG	IVW	Growth for contrarians
US Size	Small Cap Equity	-0.46	17.14	1.61	9.33	20.34	CALF	FYX	Shopping small
	Mid Cap	-0.25	14.47	2.21	10.18	17.90	SCHM	FNX	The Sweet Middle
	Large Cap Non Market Cap	0.45	16.58	3.32	11.74	19.22	FNDX	LRGF	The Sweet Middle
	Large Cap Market Cap	1.30	21.79	4.04	13.05	22.27	IVV	OEF	The Sweet Middle
Thematic	AI	0.18	23.37	3.22	14.13	38.00	AIQ	DTEC	Some AI ETFs are smarter than others
	ESG Broad	0.29	16.93	3.23	12.09	21.51	VOTE	ESGE	ESG ETFs get a better model and a VOTE
	Clean Energy	0.79	387.50	1.91	15.57	-18.14	ICLN	PBW	Valuations up, catalysts down: Neutral clean energy ETFs
Int'l Equity	China	-0.99	8.19	0.96	7.42	14.59	KBA	EWH	Going global: markets to rent & markets to own
	Latin America	-0.96	8.45	1.43	5.10	12.08	EWW	ECH	All the global growth you don't own
	Emerging Markets	-0.75	10.24	1.35	7.14	17.85	EMXC	DBEM	All the global growth you don't own
	Developed Markets ex-US	-0.68	11.61	1.40	8.02	17.58	HEFA	RODM	Going global: markets to rent & markets to own
	Global ex-US	-0.62	11.13	1.38	7.80	17.61	VEU	ACWX	Going global: markets to rent & markets to own
	Canada	-0.60	12.55	1.63	8.83	19.14	FLCA	EWC	Going global: markets to rent & markets to own
	Single-country Emerging Market	-0.55	9.83	1.12	6.37	16.87	KSA	VNM	Going global: markets to rent & markets to own
	Europe	-0.34	11.21	1.55	7.91	16.87	FEZ	FDD	Going global: markets to rent & markets to own
	Japan	-0.23	12.69	1.20	8.82	20.99	DXJ	JPXN	Going global: markets to rent & markets to own
	India	0.79	18.35	2.94	12.39	31.15	EPI	SMIN	Going global: markets to rent & markets to own

Source: BofA ETF Research, Factset. Note: All valuation metrics are based on next twelve month (NTM) I/B/E/S estimates. "Composite Valuation" is the market-cap weighted average standard deviation of each fund's P/E, P/B, EV/EBITDA, and P/FCF ratios. A higher number indicates that funds are more expensive relative to history while lower numbers suggest that funds are inexpensive.

BofA GLOBAL RESEARCH

RIC Themes Watch

Prudent Yield: Fully invested into the New Year

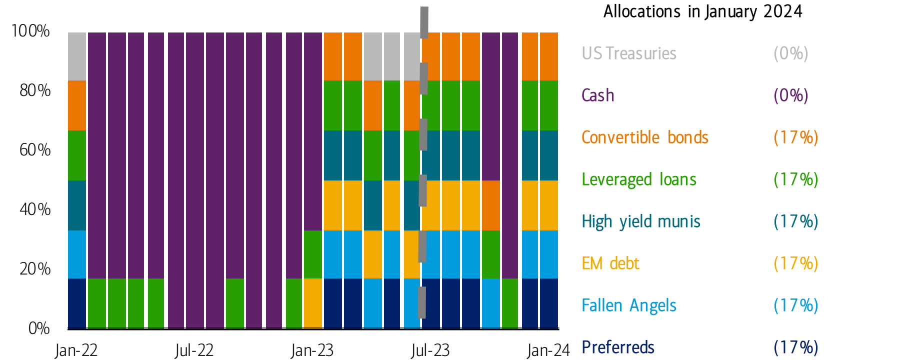
The BofA Dynamic Prudent Yield strategy remains fully invested, with no changes for January. In December, most bond sectors continued to rally on a dovish Fed pause and hopes for material cuts in 2024. In December, TLT 2023 returns flipped positive after being down over -14% this year.

For details on the Dynamic Prudent Yield Strategy including the full Appendix see: *The RIC Report: A new bond strategy for the end of 60/40*.

Monthly updates can be received via email immediately after publishing by subscribing to "The ETF Angle". Full ETF coverage can be found on our ETF Research Library.

Exhibit 18: Dynamic Prudent Yield remains fully invested

Historical allocation of backtested Dynamic Prudent Yield Strategy, 2022-2023



Source: BofA ETF Research, Bloomberg, ICE Data Services, LLC. Note: weights rounded from 16.7%. This performance is backtested 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. See appendix for more details

BofA GLOBAL RESEARCH

Updates to Efficient Growth and Intangible Value

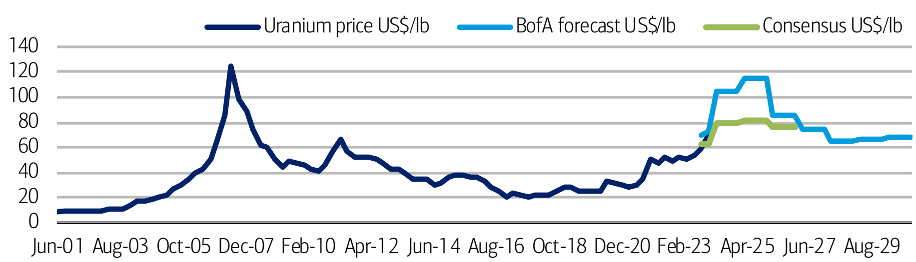
In the appendix of this report, we update the constituents of our Efficient Growth and Intangible Value screens. Since September 2020, we have updated these screens quarterly. Detailed screening methodology can be found on page 18.

Uranium's third bull market set up for a promising 2024

BofA's metals and mining team sees continued tightness in Uranium markets well into 2025. They recently increased their uranium spot price forecasts to $105/lb (+34%) in 2024 and $115/lb (+53%) in 2025. Near term catalysts include: 1. Higher electricity prices make higher uranium prices more absorbable; 2. Investment fund volumes continue to increase 3. Inventories are lower than previously thought while production slippages also remain a risk.

Exhibit 19: Uranium price US$/lb

Spot uranium is currently trading at US$92/lb U3O8 (+87% YTD 2023) with the market expected to remain in deficit until year-end 2024.



Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Macro & Econ Highlights

For every month, a surprise

After months and months of macro, Michael Hartnett sees "events" as key drivers of corporate profits and policy in 2024.

In this month's Flow Show, Hartnett identifies catalysts in every month of 2024 and their potential impact on global markets. From global elections to flow capitulation, "known unknowns" are plentiful entering the new year.

Key events to watch in 1H24:

- Refunding announcements in January (impact: government debt)
- US election primaries and FOMC meetings in March (Impact: Fed fund target rate)
- Google antitrust trial in May (Impact: Magnificent 7 leadership)
- OPEC and G7 meetings in June, potential end to quantitative tightening (Impact: USD)

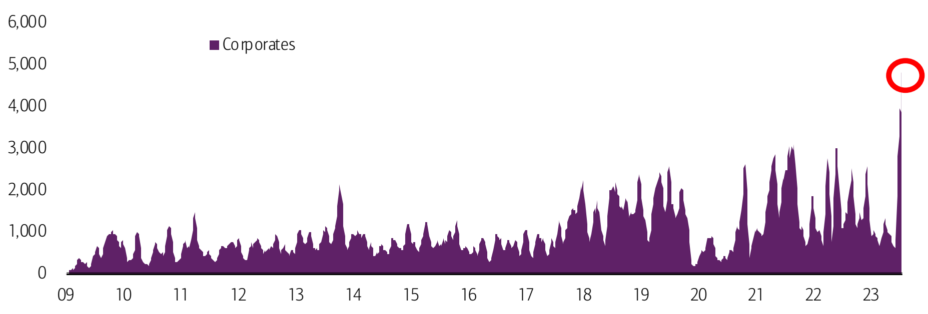
Out with the old, in with the new

Anticipation of peak rates is causing major waves in equity and fixed income market flows. November and December's yearend rally in equities triggered one of the largest weekly inflows on record for BofA clients. Inflows from corporate buybacks continue to be significant contributor. Meanwhile, after two years of strong buying, investors are beginning to rotate out of US Treasury funds.

In equities, investors continue to have a risk-on temperament with technology and communications leading inflows. Jill Hall points out that tech had the largest weekly inflow in her data history. Meanwhile, investors continue to shun industrials and healthcare.

In fixed income, short term US Treasuries saw their sixth week in a row of outflows. Long and intermediate term US Treasury funds have seen inflows moderate. According to Megan Swiber, moderating flows have coincided with peak rates historically. Future fund demand could be supported by institutional buying or investors looking to increase long duration exposure.

Exhibit 20: Largest weekly corporate buybacks in our data history (since '09)
Weekly inflows/outflows corporate buybacks since 2009-present



Source: BofA Securities

BofA GLOBAL RESEARCH

Something for everyone in BofA Derivatives 2023 lessons

With Fed cuts finally on the horizon, it might be easy to forget several key lessons from 2023. BofA Global Equity Derivatives research offers 15 lessons from 2023 for everyone from the common investor to a seasoned trader. Three trends stand out highlighting the complexities of navigating the year to come. See the full report for full list of lessons and detailed explanations.

Lesson 2: Magnificent 7 valuations are high but remain 50% below the tech bubble. While it's hard to say how high these valuations could rise or if the Magnificent 7 are truly in a bubble, the tech bubble can be used as a benchmark for how stretched valuations can become before a major fallout. The Mag7 could rise 55% and remain within the valuations reached in the tech bubble, leading to a 15% rise in the S&P 500 all else equal. Upside risks remain on the table for US equities even after a stellar 2023 for the concentrated S&P 500.

Lesson 5: In 2023, the rates markets underestimated the Fed's commitment to hiking. In 2024, rates markets could overestimate cuts. Expectations for a soft landing, dramatic rate cuts, and a goldilocks economy in 2024 should be taken with caution. Globally, hawkish policy paths remain possible as higher for longer rates may be needed to tame inflation amidst macro uncertainty and potential shocks.

Lesson 7: Reversion to pre-Covid trends is not a given. It's worth remembering that the last 30 years of low interest rates, stable inflation, rapid globalization, and lack of major world wars are an outlier, not the norm. If global economies revert back to pre-1980s norms, there is a strong case for higher inflation, continued economic uncertainty, and a Fed that staunchly prioritizes economic stability over market performance.

Peak rates? Study up on gold

Gold ended 2023 notching +13.4% returns, outperforming most commodities and fixed income. Lower real rates and a weak dollar provide continued support for owning the yellow metal. Ahead of a highly anticipated cutting cycle, understanding the dynamics of gold pricing will be beneficial for identifying entry points for owning a well-tested hedge.

BofA gold and precious metals analysts published a comprehensive gold primer in December, unpacking the economics of gold trade, production, and valuation. The primer dives deeper on key trends that gained attention in 2023 like central bank purchases, gold ETFs, and the breakdown of the gold economy globally.

In addition to the primer, the team provides primer picks and gold price outlook in a separate report. For now, Michael Widmer sees gold as a rates trade. In his view, a clear end to the Fed hiking cycle will bring new buyers into the market. Earlier Fed cuts could drive gold to $2,400/oz (vs spot around $2000). At the same time, Paul Ciana's technical analysis finds that gold could break out to $2,300.

Equity Highlights

End of year banks rebound could be sustained 2024 rally

After being shunned in 2023, banks remain both cheap and unloved heading into 2024. Regulatory clarity, a rebound in M&A, and soft-landing potential are among budding catalysts leading investors to reassess their appetite for banks stocks.

Ebrahim Poonawala isn't expecting extraordinary changes in the sector. However, he points out that merely a return to normal suggests strong upside. Discounts are so steep that mega-cap banks currently trade at a 50% discount to the S&P 500. If banks return to their pre-pandemic average P/E, Poonawala calculates that there's potential for 50% returns.

Overall, Poonawala anticipates that bank stocks will continue their yearend rally. He has written for the last several months that banks need a clearing event for sustained gains, and peak rates could be the clearing event that investors have been waiting on all along.

Aerospace & Defense has great election year track record

In a year that seems all but certain with 60% of global GDP heading to the polls, aerospace and defense stocks have history on their side. Since 1980, defense stocks have outperformed the S&P 500 in 80% of election years. In step with this trend, President Biden recently signed the FY24 National Defense Authorization Act (NDAA). The NDAA calls for $866bn in defense spending, $44bn higher than the President's original request.

Beyond the historical trend, several catalysts lead Ron Epstein to be bullish on the sector for 2024: 1. Commercial aerospace production appears to be normalizing after COVID-era turbulence; 2. Potential defense spending cuts by Democrats are likely overstated 3. Spending in Ukraine and Israel is incremental to the NDAA balance.

The main risk to Epstein's view is a soft landing that triggers rotation into risk assets instead of defensives. On the other hand, a harder landing could generate demand for defensive industries like aerospace and defense.

Semis take a bow for '23, with strong potential '24 encore

After a 65% rally in 2023, valuations and crowded positioning raise questions about 2024 semiconductor performance. 3 catalysts give Vivek Arya and BofA's semiconductor team confidence for continued growth in 2024.

First, Arya anticipates new upcycles, citing potential for 15% and 14% sales growth in 2024 and 2025 respectively. Typically, upcycles last 2-2.25 years and average 67% semiconductor returns on average. Second, generative AI is still in the early innings of what could be a 10-year cycle. Third, reshoring continues to be a positive catalyst for semiconductor manufacturing.

Rise of the laggards in cybersecurity

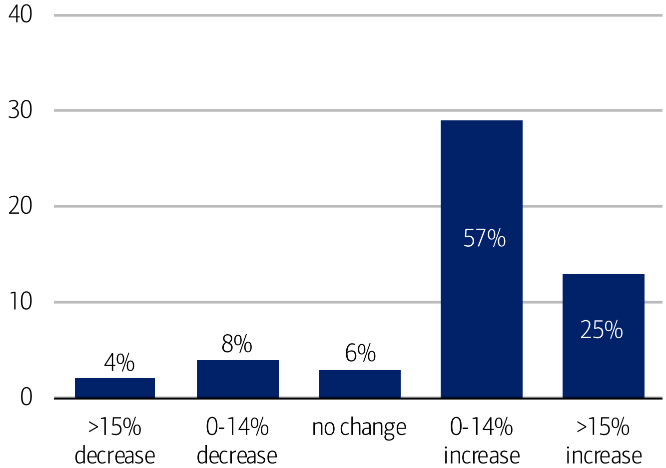
Cybersecurity offered investors a goldilocks trade for 2023: tech exposure that was largely insulted from the macroeconomic environment. Secular catalysts combined with a strong equity market drove top cybersecurity stocks up >75% by year end.

There's still strong support for cybersecurity going forward. Cybersecurity allocations in IT budgets remain robust even during periods of downturn. Further, enterprise security budgets could increase over the next year. Vendor/product consolidation, Cloud transformation, SASE, and AI are other secular trends to look out for.

Going into 2024, Tal Liani and the BofA cybersecurity team favor 2023's laggards to gain exposure to these strong fundamentals.

After assessing current valuations and growth assumptions across the cybersecurity universe, last year's laggards show the most upside potential. Liani finds that even with strong growth and margin assumptions, last year's winners have limited upside heading into 2024.

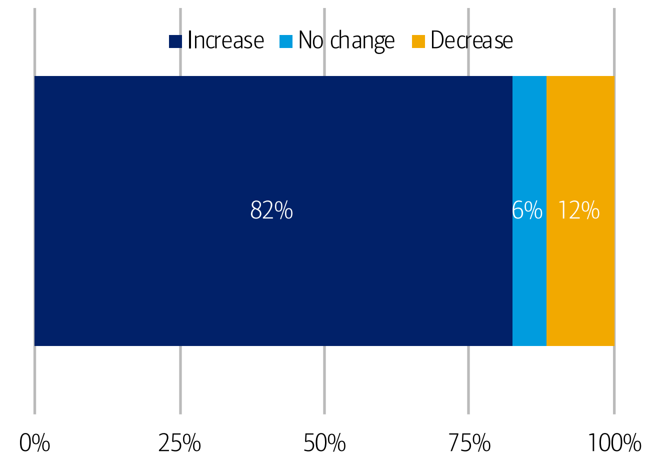
Exhibit 21: Cybersecurity budgets expected changes in next year
82% of respondents expect their security-specific budgets to increase



Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 22: Expected change in cybersecurity budgets (n=51)
We compare the expected increase to decrease in 2023 budgets and back out an up-to-down ratio of ~7x



Source: BofA Global Research

BofA GLOBAL RESEARCH

Catalysts abound across biotech & pharma industries

Broad healthcare was one of the worst performing sectors in 2023 (+2.1%). A rotation out of defensives and the impact of higher rates further weighed on healthcare subindustries like biopharmaceuticals, biotech, and medtech.

BofA analysts across these industries all take an optimistic view for 2024. Generally, resurgence of M&A, improving IPO markets, solid fundamentals, reasonable valuation, and major innovation contribute to a bullish view.

See year aheads for top picks:

US Biopharma, Geoff Meacham: "Major innovation in very large therapeutic categories such as obesity, pain, and oncology is quite evident and should help orient generalist investors towards the sector… Overall, we remain positive on the group in 2024 with a preference for higher growth names in Biopharma."

US SMid Biotech, Tazeen Ahmad: "While we expect continued improvement in conditions for SMid biotechs in 2024, we think a full recovery could still take some time and we might not see clearer signs of recovery until 2H24/2025."

US SMid Biopharma, Jason Gerberry: "Our analysis suggests a more favorable market environment for companies with high impact catalysts while a tepid '22-'23 biotech IPO market should be aided by decreasing interest rates. Our 2024 top picks are focused on companies with high impact clinical catalysts with a disproportionate risk/reward skew to the upside."

US Medical Technology, Travis Steed: "We kick off 2024 at one of the lowest relative valuations in a decade (+2.8% vs S&P). This creates a much lower bar for stocks to work in 2024. EPS revisions likely drive stocks in 2024 as it's not clear what changes medtech multiples in 2024 outside of macro (soft vs hard landing)."

BofA Global Research house view

Exhibit 23: BofA Global Research House View

Near-term outlook of our BofA macro & market strategists across key regions and asset classes

	Core view (3-6 months)	Rationale
Investment Strategy	Bearish	
		We continue to be bullish Bonds, Bullion, and Breadth in 2024, but given i) huge price action of past 2 months, very high optimism on Fed cuts in March, and a cross-asset positioning that is no longer a contrarian positive for risk assets (BofA Bull & Bear Indicator up to 5.3), we think risk assets may struggle in early weeks of '23; more broadly rates & corporate earnings are all that matters for the price of equities and corporate bonds, and if Q4-23 narrative was 'lower inflation, lower rates = bullish risk assets', we think narrative flips to 'higher unemployment, lower rates = bearish risk assets' in Q1-24.
Economics	Bearish	
		In our baseline scenario, we expect a soft landing for the US economy, with positive but below-potential sequential growth for the next 6 quarters. These growth dynamics imply gradual disinflation and a slowdown in employment, which should allow the Fed to start cutting rates by 25bp per quarter in June, until it reaches a terminal rate of 3% in 2026. In 2023, global growth was stronger than expected, driven by the resilience of the US. We forecast a mild deceleration in global growth in 2024, and a gradual recovery in 2025. We expect heterogeneous growth dynamics across regions to persist, but we foresee more homogeneous inflation dynamics, gradually moving lower and allowing central banks to cut rates. Elections will take place in several countries next year. With polarization and populism on the rise, expect volatility driven by the political cycle.
Rates & FX	Neutral	
		We see near-term US rate risks as being skewed to the downside though the easy part of the duration trade is likely over. Rate downside is informed by risks to Fed outlook, historical patterns after the last Fed hike, and market pricing vs forwards. Our core rate guidance: (1) trade tactically but with a lower rate bias, (2) trust rate sell-offs are likely to be seen as buying opportunities, (3) duration is likely the easier trade vs curve.

Region	Ticker	Core view (3-6 months)	Rationale
Equities	MXWD	Neutral	
North America	MXNA	Bullish	Savita Subramanian targets 5000 on the S&P 500 by YE24. She is bullish not because she expects an aggressive Fed easing cycle, but because of what the Fed has accomplished. US corporates have adapted to non-zero hurdle rates, some inflation and a more rational market backdrop. She believes the profits cycle has inflected higher and forecasts EPS of $235 (+6% YoY) in 2024 despite a decelerating GDP growth outlook. Historically, accelerating EPS and decelerating GDP has been the best environment for stocks. Election years have been positive for equities and bipartisan support for defense spending as well as near-shoring / US manufacturing and jobs are pro-cyclical. She is overweight Energy, Consumer Discretionary, Financials and Real Estate, and are underweight Tech, Consumer Staples, and Health Care.
Eurozone	MXEM	Bearish	Sebastian Raedler expects a slowdown in global growth momentum driven by tightening credit conditions, fading US fiscal support and depleting order backlogs. This is set to translate into widening risk premia and downgrades to EPS expectations, with the resulting drag on equities only mildly offset by falling real bond yields (i.e. a lower discount rate for equities) on the back of dovish central banks. Our macro projections imply around 20% downside for the Stoxx 600 to 390 by the middle of the year, followed by a rebound to 420 by the end of the year, as improving growth momentum and a continued fade in real rates lead to renewed multiple expansion.
UK	MXGB	Bearish	Sebastian Raedler remains negative on UK relative to European equities, given his expectation for energy sector underperformance, with energy a key overweight in the UK index. On an absolute basis, he sees scope for the FTSE 100 to decline to a trough of 6,200 around mid-year (around 20% downside from current levels), before a tepid recovery to 6,550 by year-end.
Japan	MXJP	Bullish	Masashi Akutsu expects TOPIX to reach 2,650 by the end of 2024. Sustained inflation, continued corporate reforms and relatively low valuation should provide tailwinds to the market. He notes when the market loses momentum in the second year of an EPS recovery, low beta and alpha earnings tend to outperform due to stock selection of individual names
Fixed Income	GFIM	Neutral	
Government	W0G1	Neutral	We have closed our long duration bias in both the US and the Euro Area. Markets are pricing in more aggressive cutting cycles than our economists expect – especially for 2024. Supply pressures remain high – in particular in 1Q24, and real money investors are already long duration, which suggests some concession may be necessary to allow for the supply to be absorbed. More medium-term, we continue to see room for term and inflation risk premia to rebuild along the US curve which suggests this cutting cycle may see structurally steeper curves than what we have seen in prior cycles. Finally, we expect to see much more persistent interest differentials between the US and the Euro Area as fundamental differences between the growth and inflation stories since the pandemic remain stark and much more persistent than markets are pricing.
Investment Grade	G0LC	Neutral	We look for 2024 to be the year when US IG non-financial, mostly single-A or better issuers gradually begin to add leverage. That will end the 2022 - 2023 deleveraging cycle and high-quality issuer outperformance. Reasons for adding debt in 2024 include: 1) less need to improve balance sheets as recession fears fade, 2) slower economic growth encourages the use of leverage to improve EPS, 3) lower borrowing costs as the Fed cuts rates make debt cheaper. As a result, we continue to prefer BBB-rated industrials, which also still trade relatively cheap, although the gap is shrinking. We also screen for potential re-leveraging candidates inside.
High Yield	HW00	Neutral	Today's market environment represents the exact opposite of last October. Current valuations in high-quality credit imply potential returns that fail to beat cash yields in most realistic scenarios. Whether a no-landing with higher rates or a soft-landing with rates where they are or an impact with lower rates but wider spreads - total returns across BBs, BBBs and broader IG are coming in at low single-digits. This is a rare opportunity to act - by derisking away from high-quality credit and into cash.
EM debt	DXEM	Neutral	Sovereign: Neutral. EM sovereigns returns should come mostly from yield, given that spreads and UST yields are already near our year-end 2024 targets. The high duration of the sovereign bonds provides some protection in case of a hard landing scenario, as decline in UST yields could offset spread widening. Corp: Neutral positioning on valuation following the Nov/Dec rally. Expect moderate to low returns driven by carry, possible mild spread expansion from current levels. EM elections and issuance key themes going into the next year.
Securitized Products	G0LL	Bullish	Securitized products credit spreads have tightened significantly since May and are biased tighter over next month.. Agency MBS have tightened into recent bond rally: long term OW.
Commodities	MLCXTR	Bullish	
Energy	MLCXENTR	Bullish	We project Brent and WTI to average $90/bbl and $86/bbl, respectively, in 2024 supported by OPEC cuts with soft floor from US SPR, elevated Chinese coal prices.
Industrial Metals	MLCXIMTR	Neutral	Michael Widmer notes that metal markets have remained tight. Copper has held up in 2023, carried by China's investment in renewables, which we believe to remain supportive also this year. As China's traditional economy accelerates and the US/ Europe also bottom out, copper should rally in 2H24.
Precious Metals	MLCXPMTR	Neutral	As Michael Widmer notes, gold rallied to $2,000/oz on what had been perceived to be the end of the hiking cycle. Yet, The Fed now needs to deliver on rates cuts for sustained upside. If monetary easing came through already in March, gold could rally to $2,400/oz this year
Cash	G0B1	Bullish	

Source: BofA GLOBAL RESEARCH

BofA GLOBAL RESEARCH

Exhibit 24: BofA Year-end 2024 Forecasts vs. Consensus

BofA year-end forecasts, consensus year-end 2024 forecasts for GDP, CPI, rates, and global markets

FX and Rates

FX	Latest Value	BofA	Consensus	3 year range	High/Low	Rates	Latest Value	BofA	Consensus	3 year range	High/Low
EUR-USD	1.10	**1.15**	1.12		1.22 0.98	US 10-year	3.88	**4.25**	3.8		4.93 1.07
USD-JPY	141	**142**	135		152 105	Germany 10-year	2.02	**2.10**	2.24		2.84 -0.52
EUR-JPY	156	**163**	153.5		161 127	Japan 10-year	0.61	**1.30**	0.96		0.95 0.02
GBP-USD	1.27	**1.31**	1.3		1.42 1.12	UK 10-year	3.54	**4.50**	3.75		4.51 0.33
USD-CNY	7.10	**6.90**	6.98		7.32 6.31						

Equities and Commodities

Equities	Latest Value	BofA	Consensus	3 year range	High/Low	Commodities	Latest Value	BofA	Consensus	3 year range	High/Low
S&P 500	4,770	**5,000**	4,833		4770 3586	WTI Crude - $/bbl	72	**84**	81		115 52
2023 EPS	218	**235**	215		241 172	Brent Crude - $/bbl	77	**88**	85		123 56
Stoxx 600	479	**420**	535		488 388	Gold $/oz	2,063	**2,000**	2,090		2063 1634
FTSE 100	7,733	**6,550**	8,923		7876 6407						
Nikkei 225	33,464	**37,500**	36,614		33487 25937						

GDP and CPI Inflation

GDP growth	Latest Value	BofA	Consensus	High/Low	CPI inflation	Latest Value	BofA	Consensus	High/Low
US	4.9	**1.4**	1.3	7.0 -2.0	US	3.1	**2.7**	2.6	9.1 1.4
Euro area	0.0	**0.5**	0.5	14.8 -0.2	Euro area	2.9	**2.6**	2.5	10.6 0.9
Japan	1.5	**0.8**	0.8	8.0 -0.6	Japan	2.7	**3.2**	2.3	4.4 -1.2
UK	-0.1	**0.1**	0.3	7.3 -1.0	UK	3.9	**3.4**	3.0	11.1 0.4
China	4.9	**4.8**	4.5	18.7 0.4	China	-0.5	**1.4**	1.4	2.8 -0.5

Source: BofA Global Research, Bloomberg, Datastream; FX, rates, equities and commodities data as of 12/31/2023; GDP data of 9/31/2023. CPI data for CPI through 12/31/2023; Equity consensus price and EPS forecasts as of 12/31/2023.

BofA GLOBAL RESEARCH

BofA US equity sector views

Exhibit 25: BofA US Equity Strategy sector views
Bull & bear case by sector

Sector	Weight in S&P 500	BofA View	Bull case	Bear case
Energy	4.0%	O/W	Commodity cycles end w/ oversupply; not likely if CEO pay is on ESG /div targets, not production. Avg. $80/bbl Brent in 2023 (house view); attractive FCF even at $70 Inflation-protected yield; peak USD? War pushes energy security ahead of decarbonization Re-rating on capital and supply discipline, IRA beneficiary	Lowest Quality sector based on S&P rankingsHigh GHG direct emissions profile + secular headwinds from renewables, green capexCeasefires, peace breaks out
Consumer Discretionary	10.6%	O/W	Housing (leading indicator) benefits from structural shortages long-only fund and hedge fund positioning near historical lows Real wage growth now positive, #3 in Quant model, Recovery regime beneficiary Secular shift into e-commerce / EVs (AMZN + TSLA: ~50% of the sector) Consumer still resilient - 85% of US mortgages are fixed Fed is done hiking	Risk if job losses extend beyond Silicon Valley/Wall Street Long duration (AMZN + TSLA represent 50% of the sector), AMZN = COVID demand pull forward Expensive (but in line ex. TSLA/AMZN) Continued Fed hiking Temu
Financials	13.2%	O/W	Contagion risk largely mitigated - Regional Banks = 2.5% of the sector High quality and low leverage Mispriced risk: Lower EPS vol than S&P 500 but high price beta Higher interest rates vs. prior cycle 100% hit rate in Recovery regimes; historically inexpensive	Rising deposit costs & increased regulatory risk after bank fallouts Commercial Real Estate (23% of total loans)
Real Estate	2.5%	O/W	Dividend yield (~50% of stocks yielding higher than the 10yr) Inexpensive and unloved by long-only funds and hedge funds Real asset, but also a bond proxy	Commercial real estate risk (but only 14% of sector) Biggest exposure to refinancing risk & most hurt by rising real rates
Materials	2.4%	M/W	Underinvestment in manufacturing, single family, mining over last decade drives higher returns Continued capex cycle Attractive FCF/EV Potential recovery in goods spending (exposed to housing/autos/etc.)	Most exposed sector to China (along with Tech) Overweight by hedge funds, long-only positioning is near a 7-yr high Ranks last in Quant model Commodity chemicals may be near a bottom but recovery could be slow
Industrials	8.8%	M/W	Capex, automation, re-shoring beneficiary Half cyclical, half Quality Fiscal stimulus (bipartisan infrastructure bill = 11% of nonresidential construction spend)	Industrials is crowded (only cyclical sector overweight by both long-only and hedge funds) Rising earnings volatility amid de-globalization / loss of diversification
Communication Services	8.6%	M/W	#2 in our tactical quant model Big buybacks and cash returns mean duration risk shortening Valuations reasonable	Positioning risk rising after strong YTD performance Headline risk in 2024 regulatory, anti-monopolistic Too big to grow Corp ad spend slowdown potential
Utilities	2.4%	M/W	Stable fundamentals / defensive hedge / Quality IRA / energy transition beneficiary Disinflation and lower rates	Positioning risk: HFs are overweight, long only positioning near decade highs Dividend yield vs. 10-yr yield below post-GFC avg. Underperforms in Recovery regimes with a 100% hit rate
Technology	28.1%	U/W	Secular themes (AI, cloud, telecommuting, robotics, etc.) and onshoring automation & capex Long-only positioning risk has largely subsided Clean balance sheets, strong margins, and improving earnings trends AI arms race	Peak globalization (most multinational sector) COVID demand pull-forward was just as extreme as into Y2K Regulatory / anti-monopolistic overhang Expensive, Mag 7 crowding risk Destocking risk evident for semis, tech hardware & autos
Health Care	13.1%	U/W	Defensive sector offering secular growth Baby boomer spend beneficiary Select stocks can benefit from AI	Crowded (overweight by both long-only funds and hedge funds) after a year of preparing for a recession Government sales exposure ahead of fiscal cuts, overhang from drug pricing pressure Labor tightness not likely to be automated or AI'd away Floating rate risk .. Higher refinancing dollar risks than other sectors Election year - drug price regulations likely to hit headlines
Consumer Staples	6.3%	U/W	No matter what, we still have to eat - defensive hedge Benefits from consumers trading down Weakening USD	Elevated positioning: funds have been preparing for recession but soft landing more likely Typically underperforms in Recovery regime Ranks poorly in Quant model; lower quality vs. history Citing deflation trends GLP-1 = thematic overhang

Note: O/W = overweight, M/W = market weight, U/W = underweight. Weights in S&P 500 as of 12/31/2023 and may not add to 100% due to rounding. **Source:** BofA US Equity & Quant Strategy

BofA GLOBAL RESEARCH

Global cross-asset returns

December 2023 Review

- Global equity markets rose 4.4% on average in December. This month, the NASDAQ (5.6%) and EAFE markets (+5.3%) were the best performers. Once again, the Hang Seng was flat on the month, the only market not posting >4% gains.

- Small caps were the best performing size factor (+12.2%), outperforming large caps (4.9%) and mid-caps (7.7%) by a wide margin. Value outperformed growth across all size factors by 0.6% on average.

- Cyclicals continued to lead the rally. Real estate (+8.7%) and industrials (+7%) were standouts. For the second month in a row energy was the worst performing sector (flat).

- Long duration US Treasuries lead for the second month, notching 8.2% returns in December. This year-end rally flipped the 30Y Treasury positive for 2023 after having negative returns for the majority of the year.

- Gold gained 1.7% last month, finishing the year +13.4%, outperforming 6 GICS sectors and most fixed income.

Exhibit 26: Equity Indexes

Total return (%)

	As of 31 December 2023						
Asset class	1mo	3mo	12mo	YTD	3yr²	5yr²	10yr²
Equity Indices (%, US dollar terms)							
S&P 500	4.5	11.7	26.3	26.3	10.0	15.7	12.0
Dow Jones Industrial Avg.	4.9	13.1	16.2	16.2	9.4	12.5	11.1
NASDAQ Comp	5.6	13.8	44.6	44.6	6.0	18.8	14.8
MSCI All Country World	4.8	11.1	22.8	22.8	6.2	12.3	8.5
FTSE 100	5.0	7.0	13.9	13.9	7.8	6.8	2.6
DJ Euro Stoxx 50	4.9	13.5	26.3	26.3	7.3	10.3	4.1
MSCI EAFE	5.3	10.5	18.9	18.9	4.5	8.7	4.8
TOPIX	5.0	8.2	19.3	19.3	1.1	7.0	5.4
Hang Seng	0.2	-3.7	-10.6	-10.6	-11.8	-4.8	0.3
MSCI Emerging Markets	3.9	7.9	10.3	10.3	-4.7	4.1	3.0
Size & Style (%, US dollar terms)							
Russell 1000	4.9	12.0	26.5	26.5	9.0	15.5	11.8
Russell 1000 Growth	4.4	14.2	42.7	42.7	8.9	19.5	14.9
Russell 1000 Value	5.5	9.5	11.5	11.5	8.9	10.9	8.4
Russell Midcap	7.7	12.8	17.2	17.2	5.9	12.7	9.4
Russell Midcap Growth	7.6	14.5	25.9	25.9	1.3	13.8	10.6
Russell Midcap Value	7.8	12.1	12.7	12.7	8.4	11.2	8.3
Russell 2000	12.2	14.0	16.9	16.9	2.2	10.0	7.2
Russell 2000 Growth	12.0	12.7	18.7	18.7	-3.5	9.2	7.2
Russell 2000 Value	12.4	15.3	14.6	14.6	7.9	10.0	6.8
S&P 500 Sectors (%, US dollar terms)							
Consumer Discretionary	6.1	12.4	42.4	42.4	3.7	13.7	11.7
Consumer Staples	2.7	5.5	0.5	0.5	5.8	10.9	8.5
Energy	0.0	-6.9	-1.3	-1.3	36.2	13.4	3.5
Financials	5.4	14.0	12.1	12.1	10.7	12.0	10.0
Health Care	4.3	6.4	2.1	2.1	8.1	11.6	11.4
Industrials	7.0	13.1	18.1	18.1	10.6	14.2	10.0
Information Technology	3.8	17.2	57.8	57.8	15.1	26.9	20.8
Materials	4.6	9.7	12.5	12.5	7.9	13.6	8.6
Real Estate	8.7	18.8	12.4	12.4	6.7	8.9	8.9
Communication Services	4.8	10.9	55.8	55.8	4.4	13.3	7.8
Utilities	1.9	8.6	-7.1	-7.1	3.6	7.1	8.9

Source: BofA Global Research, S&P, MSCI, Bloomberg. Notes: * Performance is gross of foreign dividend withholding taxes, 23yr, 5yr, and 10yr returns are annualized.

BofA GLOBAL RESEARCH

Exhibit 27: Bond/currency/commodity/hedge fund indexes

Total return (%)

	As of 31 December 2023						
Asset class	1mo	3mo	12mo	YTD	3yr²	5yr²	10yr²
BofA Global Research Bond Indices (%, US dollar terms)							
2-Year Treasury	1.1	2.4	3.5	3.5	-0.5	1.0	0.9
5-Year Treasury	2.3	4.4	3.7	3.7	-3.1	0.6	1.0
10-Year Treasury	4.0	6.6	2.8	2.8	-6.1	0.0	1.3
30-Year Treasury	8.2	12.3	1.2	1.2	-13.7	-2.4	1.7
US Broad Market Index	3.7	6.6	5.4	5.4	-3.4	1.1	1.8
TIPS	2.5	4.5	3.6	3.6	-1.4	3.1	2.5
Municipals*	2.4	7.6	6.5	6.5	-0.5	2.3	3.1
US Corporate Bonds	4.0	7.9	8.4	8.4	-3.2	2.6	3.0
US High Yield Bonds	3.7	7.1	13.5	13.5	2.0	5.2	4.5
Emerging Mkt Corp Bonds	3.3	6.2	7.9	7.9	-3.4	1.7	2.6
Emerging Mkt Sov Bonds	5.0	10.2	10.9	10.9	-4.6	0.9	2.2
Preferreds	2.5	6.4	9.6	9.6	-3.5	3.9	5.0
Foreign exchange							
DXY Index	-2.1	-4.6	-2.1	-2.1	4.1	1.1	2.4
GBP/USD	0.8	4.4	5.4	5.4	-2.3	0.0	-2.6
EUR/USD	1.4	4.4	3.1	3.1	-3.3	-0.8	-2.2
USD/JPY	-4.8	-5.6	7.6	7.6	11.0	5.2	3.0
Commodities (%, US dollar terms)**							
CRB Index	-3.6	-7.3	-5.0	-5.0	16.3	9.2	-0.6
Gold	1.7	12.1	13.4	13.4	3.0	10.1	5.6
WTI Crude Oil	-5.7	-21.1	-10.7	-10.7	13.9	9.6	-3.1
Brent Crude Oil	-7.0	-19.2	-10.3	-10.3	14.1	7.4	-3.6
Alternative Investments† (%, US dollar terms)							
Hedge Fund - CS Tremont¹	1.5	1.7	5.2	5.1	6.1	5.7	3.9
Hedge Fund - Bloomberg¹	2.8	0.9	3.9	4.8	3.5	4.6	-

Source: S&P, MSCI, Bloomberg, FactSet, BofA Bond Indices (US Treasury Current 10yr, Current 2yr, Inflation-Linked; Muni Master, US Corp Master, US HY Master II, EM Corp Plus Index; EM External Debt Sovereign Index; US Preferred Stock Index).

Notes: * Not tax adjusted. **BoE calculated effective FX indices. ¹Data lagged by one month; 23yr, 5yr, and 10yr returns are annualized; CS AUM-weighted, HFRI equal-weighted; †AI data not comparable to other asset classes because of reporting delays, lack of standardized reporting, and survivorship and self-selection biases. Crude oil prices are spot USD.

BofA GLOBAL RESEARCH

Appendix

BofA Intangible Value

The BofA Intangible Value Index screens the S&P 500 for stocks with the lowest quintile price to adjusted book value ratio where adjusted book value adds the following to tangible book value:

1. Reported intangible assets ex-goodwill;
2. Capitalized research & development expense: The initial R&D expense for stocks added to the index is grossed up and then depreciated using a 5% annual rate and increased in subsequent periods by R&D expense;
3. Organizational capital: 30% of SG&A expense depreciated at 20% per year.

A return on invested capital (ROIC) filter is then applied to the bottom quintile; the bottom third of stocks with the lowest average 20-quarter ROIC are removed.

The index calculation begins March 30, 2000 and is rebalanced quarterly without transaction cost estimates. This screen was launched September 8, 2020.

Exhibit 28: Intangible Value members for 4Q 2023
BofA Intangible Value screen results as of end of 4Q 2023

Name	Ticker	BofA rating	Sector	Weight BofA Value	Weight SPX Value	Weight difference	Price	QRQ
Johnson & Johnson	JNJ	Neutral	Health Care	10.95%	2.07%	8.87%	161.13	A-2-7
Merck & Co Inc	MRK	Buy	Health Care	8.02%	0.95%	7.07%	117.22	A-1-7
Intel Corp	INTC	Neutral	Information Technology	6.15%	1.06%	5.09%	46.89	B-2-8
Comcast Corp	CMCSA	Buy	Communication Services	5.16%	0.92%	4.24%	43.04	B-1-7
Pfizer Inc	PFE	Neutral	Health Care	4.72%	0.89%	3.83%	29.47	B-2-7
Verizon Communications Inc	VZ	Neutral	Communication Services	4.60%	0.90%	3.69%	40.20	B-2-7
Amgen Inc	AMGN	Neutral	Health Care	4.47%	0.87%	3.60%	303.00	B-2-7
RTX Corp	RTX	Underperform	Industrials	3.51%	0.66%	2.85%	85.38	B-3-7
AT&T Inc	T	Buy	Communication Services	3.48%	0.67%	2.81%	17.47	B-1-7
Medtronic PLC	MDT	Buy	Health Care	3.18%	0.60%	2.58%	84.57	B-1-7
Bristol-Myers Squibb Co	BMY	Neutral	Health Care	3.03%	0.57%	2.46%	52.23	B-2-7
CVS Health Corp	CVS	Buy	Health Care	2.95%	0.56%	2.39%	81.42	B-1-7
Gilead Sciences Inc	GILD	Buy	Health Care	2.93%	0.56%	2.38%	83.31	B-1-7
PayPal Holdings Inc	PYPL	Neutral	Financials	1.92%	0.35%	1.58%	60.12	B-2-9
3M Co	MMM	Neutral	Industrials	1.75%	0.32%	1.43%	108.59	B-2-8
NXP Semiconductors NV	NXPI	Buy	Information Technology	1.71%	0.07%	1.64%	205.72	B-1-7
Charter Communications Inc	CHTR	Neutral	Communication Services	1.67%	0.11%	1.56%	372.20	B-2-9
Motorola Solutions Inc	MSI	Buy	Information Technology	1.51%	0.12%	1.39%	309.16	B-1-7
General Motors Co	GM	Buy	Consumer Discretionary	1.46%	0.26%	1.20%	35.99	B-1-7
Ford Motor Co	F	Buy	Consumer Discretionary	1.42%	0.25%	1.17%	11.85	B-1-7
Kraft Heinz Co/The	KHC	Buy	Consumer Staples	1.32%	0.16%	1.15%	37.94	B-1-7
Kenvue Inc	KVUE	Buy	Consumer Staples	1.20%	0.20%	1.00%	21.35	C-1-7
Centene Corp	CNC	Neutral	Health Care	1.15%	0.22%	0.93%	77.38	B-2-9
Johnson Controls International plc	JCI	Neutral	Industrials	1.14%	0.21%	0.93%	57.18	B-2-7
Moderna Inc	MRNA	Neutral	Health Care	1.10%	0.20%	0.90%	111.12	C-2-9
Biogen Inc	BIIB	Neutral	Health Care	1.09%	0.20%	0.89%	257.88	B-2-9
Prudential Financial Inc	PRU	Neutral	Financials	1.09%	0.20%	0.89%	104.31	B-2-7
GE HealthCare Technologies Inc	GEHC	Neutral	Health Care	1.02%	0.16%	0.86%	76.62	C-2-7
Cummins Inc	CMI	Neutral	Industrials	0.98%	0.18%	0.80%	238.16	B-2-7
Corteva Inc	CTVA	Neutral	Materials	0.98%	0.18%	0.80%	47.33	B-2-7
Warner Bros Discovery Inc	WBD	Buy	Communication Services	0.80%	0.13%	0.67%	11.20	C-1-9
Zimmer Biomet Holdings Inc	ZBH	Neutral	Health Care	0.74%	0.13%	0.60%	119.98	B-2-7
Aptiv PLC	APTV	Buy	Consumer Discretionary	0.74%	0.13%	0.61%	83.48	C-1-9
eBay Inc	EBAY	Neutral	Consumer Discretionary	0.66%	0.12%	0.54%	42.79	B-2-7
Walgreens Boots Alliance Inc	WBA	Underperform	Consumer Staples	0.65%	0.10%	0.56%	25.01	B-3-7
Illumina Inc	ILMN	Underperform	Health Care	0.64%	0.11%	0.53%	130.48	B-3-9
Hewlett Packard Enterprise Co	HPE	Neutral	Information Technology	0.63%	0.12%	0.51%	17.17	B-2-7
Baxter International Inc	BAX	Neutral	Health Care	0.57%	0.11%	0.46%	39.16	B-2-7
Tyson Foods Inc	TSN	Underperform	Consumer Staples	0.54%	0.08%	0.46%	54.92	B-3-7
Seagate Technology Holdings PLC	STX	Buy	Information Technology	0.52%	0.05%	0.47%	80.28	B-1-8
Best Buy Co Inc	BBY	Underperform	Consumer Discretionary	0.49%	0.08%	0.41%	75.83	B-3-7

Exhibit 28: Intangible Value members for 4Q 2023
BofA Intangible Value screen results as of end of 4Q 2023

Name	Ticker	BofA rating	Sector	Weight BofA Value	Weight SPX Value	Weight difference	Price	QRQ
Stanley Black & Decker Inc	SWK	NA	Industrials	0.44%	0.08%	0.36%	95.51	NA
Incyte Corp	INCY	Neutral	Health Care	0.41%	0.06%	0.34%	65.26	B-2-9
News Corp	NWSA	NA	Communication Services	0.41%	0.05%	0.36%	24.43	NA
Zebra Technologies Corp	ZBRA	NA	Information Technology	0.41%	0.07%	0.34%	252.69	NA
Revvity Inc	RVTY	Neutral	Health Care	0.39%	0.07%	0.32%	107.36	B-2-7
Trimble Inc	TRMB	NA	Information Technology	0.38%	0.07%	0.32%	50.77	NA
Viatris Inc	VTRS	Underperform	Health Care	0.38%	0.08%	0.31%	11.98	B-3-7
Molson Coors Beverage Co	TAP	Neutral	Consumer Staples	0.38%	0.06%	0.32%	61.51	B-2-7
J M Smucker Co/The	SJM	Neutral	Consumer Staples	0.37%	0.07%	0.30%	128.10	A-2-7
Campbell Soup Co	CPB	Underperform	Consumer Staples	0.37%	0.05%	0.33%	43.61	B-3-7
NRG Energy Inc	NRG	Buy	Utilities	0.34%	0.06%	0.28%	51.73	B-1-7
Teleflex Inc	TFX	Neutral	Health Care	0.34%	0.06%	0.28%	239.46	B-2-7
Qorvo Inc	QRVO	Underperform	Information Technology	0.32%	0.05%	0.26%	103.12	B-3-9
Caesars Entertainment Inc	CZR	Neutral	Consumer Discretionary	0.29%	0.02%	0.27%	44.91	C-2-9
Paramount Global	PARA	Underperform	Communication Services	0.28%	0.04%	0.24%	14.65	C-3-7
Bio-Rad Laboratories Inc	BIO	NA	Health Care	0.27%	0.04%	0.24%	316.38	NA
Juniper Networks Inc	JNPR	Underperform	Information Technology	0.27%	0.05%	0.22%	29.91	B-3-7
Tapestry Inc	TPR	Buy	Consumer Discretionary	0.24%	0.05%	0.20%	37.33	B-1-7
FMC Corp	FMC	Neutral	Materials	0.23%	0.04%	0.19%	60.78	B-2-7
DENTSPLY SIRONA Inc	XRAY	Neutral	Health Care	0.22%	0.04%	0.18%	35.38	B-2-7
VF Corp	VFC	Underperform	Consumer Discretionary	0.21%	0.03%	0.18%	16.90	B-3-8
Hasbro Inc	HAS	Neutral	Consumer Discretionary	0.21%	0.03%	0.17%	48.38	B-2-7
Whirlpool Corp	WHR	Underperform	Consumer Discretionary	0.19%	0.04%	0.16%	120.95	B-3-7

Source: BofA Global Research, Factset; This screen is 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. Disclaimer: The screen identified 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 screen was not created to act as a benchmark. Price as of close 01/05/2024.

BofA GLOBAL RESEARCH

BofA Efficient Growth

The BofA Efficient Growth Index is created by weighting the results of each of two screens by 50%:

1) R&D Innovation (screen 1) uses the largest 3,000 publicly listed US stocks as a universe and regresses one-year lagged R&D, SG&A and Capex against revenue. Stocks are ranked by highest R&D coefficient and the top quintile are selected.

2) Capex Achievers (screen 2) uses the NASDAQ US Benchmark Index (NQUSB) as a universe and screens for companies that:

    a) Have a minimum market capitalization of $200mm;

    b) Have a minimum three-month average daily dollar trading volume of $500k;

    c) Have at least three consecutive years of increasing annual capex expenditure;

    d) Have an average ROIC greater than 10% over the trailing four years.

The Capex Achievers index is rebalanced annually at the end of March using market data through the end of December.

The Efficient Growth index calculation begins 12/31/2004 and does not include transaction cost estimates. This screen was launched September 8, 2020.

Exhibit 29: Efficient Growth members for 4Q 2023

BofA Efficient Growth screen results as of end of 4Q 2023

Name	Ticker	BofA rating	Sector	Weight Efficient Growth	Weight SPX Growth	Weight difference	Price	QRQ
Microsoft Corp	MSFT	Buy	Information Technology	4.38%	13.18%	-8.81%	367.75	B-1-7
Advanced Micro Devices	AMD	Buy	Information Technology	4.00%	1.08%	2.92%	138.58	C-1-9
Meta Platforms Inc-Class A	META	Buy	Communication Services	4.00%	3.77%	0.23%	351.95	C-1-9
Pepsico Inc	PEP	Buy	Consumer Staples	4.00%	0.40%	3.60%	168.94	A-1-7
Kla Corp	KLAC	Buy	Information Technology	2.38%	0.36%	2.02%	544.31	B-1-7
Colgate-Palmolive Co	CL	Buy	Consumer Staples	2.29%	0.12%	2.16%	79.98	A-1-7
Lowe's Cos Inc	LOW	Buy	Consumer Discretionary	2.00%	NA	NA	212.51	B-1-7
Qualcomm Inc	QCOM	Buy	Information Technology	2.00%	0.38%	1.62%	136.73	B-1-7
Moody'S Corp	MCO	Buy	Financials	1.98%	0.13%	1.84%	371.69	B-1-7
Chipotle Mexican Grill Inc	CMG	Buy	Consumer Discretionary	1.77%	0.29%	1.48%	2212.80	B-1-9
Carrier Global Corp	CARR	Underperform	Industrials	1.46%	0.11%	1.35%	55.72	B-3-7
Moderna Inc	MRNA	Neutral	Health Care	1.24%	NA	NA	111.12	C-2-9
Nucor Corp	NUE	Buy	Materials	1.22%	0.13%	1.10%	170.57	C-1-7
Hershey Co/The	HSY	Neutral	Consumer Staples	1.13%	0.05%	1.07%	187.64	A-2-7
West Pharmaceutical Services	WST	Buy	Health Care	1.12%	0.12%	1.00%	339.48	B-1-7
Resmed Inc	RMD	Buy	Health Care	1.10%	NA	NA	166.82	B-1-7
Church & Dwight Co Inc	CHD	Neutral	Consumer Staples	1.06%	0.05%	1.01%	93.87	B-2-7
Verisk Analytics Inc	VRSK	Buy	Industrials	1.00%	0.09%	0.91%	233.70	B-1-7
Dollar General Corp	DG	Underperform	Consumer Staples	0.88%	NA	NA	135.76	B-3-7
Entegris Inc	ENTG	NA	Information Technology	0.87%	NA	NA	109.93	NA
Arch Capital Group Ltd	ACGL	Buy	Financials	0.85%	0.14%	0.71%	76.81	B-1-9
Tractor Supply Company	TSCO	Underperform	Consumer Discretionary	0.70%	0.05%	0.65%	218.91	B-3-7
Molina Healthcare Inc	MOH	Neutral	Health Care	0.66%	0.06%	0.59%	378.59	B-2-9
Pultegroup Inc	PHM	Buy	Consumer Discretionary	0.65%	0.11%	0.54%	101.48	B-1-7
Zoom Video Communications-A	ZM	Neutral	Information Technology	0.61%	NA	NA	66.96	C-2-9
Fleetcor Technologies Inc	FLT	Buy	Financials	0.61%	0.10%	0.51%	280.76	B-1-9
Sps Commerce Inc	SPSC	NA	Information Technology	0.58%	NA	NA	173.11	NA
Stepan Co	SCL	NA	Materials	0.46%	NA	NA	89.91	NA
Packaging Corp Of America	PKG	Neutral	Materials	0.45%	NA	NA	167.75	B-2-7
Carlisle Cos Inc	CSL	NA	Industrials	0.45%	NA	NA	306.25	NA
Fidelity National Financial	FNF	NA	Financials	0.40%	NA	NA	48.85	NA
Abbvie Inc	ABBV	Neutral	Health Care	0.38%	0.51%	-0.13%	162.14	B-2-7
Arbutus Biopharma Corp	ABUS	NA	Health Care	0.38%	NA	NA	2.49	NA
Adobe Inc	ADBE	Buy	Information Technology	0.38%	1.24%	-0.86%	564.60	B-1-9
Archer-Daniels-Midland Co	ADM	Neutral	Consumer Staples	0.38%	NA	NA	70.81	B-2-7
Automatic Data Processing	ADP	Underperform	Industrials	0.38%	0.18%	0.19%	235.21	B-3-7
Advanced Energy Industries	AEIS	Neutral	Information Technology	0.38%	NA	NA	100.87	B-2-8
Agco Corp	AGCO	Neutral	Industrials	0.38%	NA	NA	122.01	B-2-7
Allient Inc	ALNT	NA	Industrials	0.38%	NA	NA	28.17	NA
Alnylam Pharmaceuticals Inc	ALNY	Buy	Health Care	0.38%	NA	NA	189.38	B-1-9
Applied Materials Inc	AMAT	Buy	Information Technology	0.38%	0.60%	-0.23%	149.00	B-1-7
Ametek Inc	AME	Neutral	Industrials	0.38%	0.09%	0.29%	160.74	B-2-7
Alpha & Omega Semiconductor	AOSL	NA	Information Technology	0.38%	NA	NA	26.31	NA
Appfolio Inc - A	APPF	NA	Information Technology	0.38%	NA	NA	164.35	NA
Arrowhead Pharmaceuticals In	ARWR	Buy	Health Care	0.38%	NA	NA	35.60	C-1-9
Atricure Inc	ATRC	NA	Health Care	0.38%	NA	NA	33.03	NA
Audiocodes Ltd	AUDC	NA	Information Technology	0.38%	NA	NA	11.63	NA
Broadcom Inc	AVGO	Buy	Information Technology	0.38%	2.22%	-1.85%	1049.28	B-1-7
Aviat Networks Inc	AVNW	NA	Information Technology	0.38%	NA	NA	30.71	NA
Biocryst Pharmaceuticals Inc	BCRX	Buy	Health Care	0.38%	NA	NA	6.09	C-1-9
Brunswick Corp	BC	NA	Consumer Discretionary	0.38%	NA	NA	89.64	NA
Bloom Energy Corp- A	BE	Neutral	Industrials	0.38%	NA	NA	13.77	C-2-9
Badger Meter Inc	BMI	NA	Information Technology	0.38%	NA	NA	149.12	NA
Box Inc - Class A	BOX	NA	Information Technology	0.38%	NA	NA	24.67	NA
Borgwarner Inc	BWA	Buy	Consumer Discretionary	0.38%	NA	NA	34.99	B-1-7
Camtek Ltd	CAMT	Buy	Information Technology	0.38%	NA	NA	67.93	C-1-9
Cargurus Inc	CARG	NA	Communication Services	0.38%	NA	NA	22.49	NA
Cadence Design Sys Inc	CDNS	Buy	Information Technology	0.38%	0.33%	0.04%	252.71	B-1-9
Cerus Corp	CERS	NA	Health Care	0.38%	NA	NA	1.96	NA
Celanese Corp	CE	Neutral	Materials	0.38%	0.07%	0.30%	150.13	B-2-7
Chegg Inc	CHGG	Neutral	Consumer Discretionary	0.38%	NA	NA	10.78	C-2-9
Celldex Therapeutics Inc	CLDX	NA	Health Care	0.38%	NA	NA	39.68	NA
Cohu Inc	COHU	NA	Information Technology	0.38%	NA	NA	32.95	NA

Exhibit 29: Efficient Growth members for 4Q 2023
BofA Efficient Growth screen results as of end of 4Q 2023

Name	Ticker	BofA rating	Sector	Weight Efficient Growth	Weight SPX Growth	Weight difference	Price	QRQ
Salesforce Inc	CRM	Buy	Information Technology	0.38%	1.18%	-0.80%	251.12	B-1-9
Corsair Gaming Inc	CRSR	NA	Information Technology	0.38%	NA	NA	13.59	NA
Costar Group Inc	CSGP	Buy	Real Estate	0.38%	0.07%	0.31%	81.34	B-1-9
Deckers Outdoor Corp	DECK	Buy	Consumer Discretionary	0.38%	NA	NA	652.29	B-1-9
Danaher Corp	DHR	Neutral	Health Care	0.38%	NA	NA	230.29	B-2-7
Diodes Inc	DIOD	NA	Information Technology	0.38%	NA	NA	73.55	NA
Consolidated Edison Inc	ED	Buy	Utilities	0.38%	NA	NA	93.52	A-1-7
Fate Therapeutics Inc	FATE	Underperform	Health Care	0.38%	NA	NA	3.77	C-3-9
First Solar Inc	FSLR	Buy	Information Technology	0.38%	NA	NA	166.87	C-1-9
H.B. Fuller Co.	FUL	NA	Materials	0.38%	NA	NA	77.82	NA
Graco Inc	GGG	NA	Industrials	0.38%	NA	NA	83.16	NA
General Mills Inc	GIS	Neutral	Consumer Staples	0.38%	NA	NA	64.99	A-2-7
Corning Inc	GLW	Buy	Information Technology	0.38%	NA	NA	30.57	B-1-7
Generac Holdings Inc	GNRC	Neutral	Industrials	0.38%	0.02%	0.35%	117.62	C-2-9
Alphabet Inc-Cl A	GOOGL	Buy	Communication Services	0.38%	3.87%	-3.50%	135.73	B-1-9
Howmet Aerospace Inc	HWM	Buy	Industrials	0.38%	0.06%	0.32%	53.83	B-1-7
Immunitybio Inc	IBRX	NA	Health Care	0.38%	NA	NA	4.41	NA
Ichor Holdings Ltd	ICHR	NA	Information Technology	0.38%	NA	NA	32.29	NA
Intl Flavors & Fragrances	IFF	Neutral	Materials	0.38%	NA	NA	79.97	B-2-8
Infinera Corp	INFN	NA	Information Technology	0.38%	NA	NA	4.38	NA
Intuitive Surgical Inc	ISRG	Buy	Health Care	0.38%	0.36%	0.01%	322.50	B-1-9
Jack Henry & Associates Inc	JKHY	Buy	Financials	0.38%	NA	NA	166.72	B-1-7
Kadant Inc	KAI	NA	Industrials	0.38%	NA	NA	258.74	NA
Keysight Technologies In	KEYS	Underperform	Information Technology	0.38%	NA	NA	148.96	B-3-9
Kulicke & Soffa Industries	KLIC	NA	Information Technology	0.38%	NA	NA	50.81	NA
Lennox International Inc	LII	NA	Industrials	0.38%	NA	NA	430.59	NA
Eli Lilly & Co	LLY	Buy	Health Care	0.38%	2.38%	-2.00%	618.55	B-1-7
Lemaitre Vascular Inc	LMAT	NA	Health Care	0.38%	NA	NA	54.00	NA
Liveperson Inc	LPSN	NA	Information Technology	0.38%	NA	NA	3.67	NA
Lam Research Corp	LRCX	Buy	Information Technology	0.38%	0.47%	-0.09%	732.40	C-1-7
Lattice Semiconductor Corp	LSCC	Neutral	Information Technology	0.38%	NA	NA	64.59	C-2-9
Masimo Corp	MASI	NA	Health Care	0.38%	NA	NA	111.62	NA
Microchip Technology Inc	MCHP	Buy	Information Technology	0.38%	0.13%	0.25%	83.99	B-1-7
Methode Electronics Inc	MEI	NA	Information Technology	0.38%	NA	NA	20.98	NA
Magnite Inc	MGNI	NA	Communication Services	0.38%	NA	NA	8.90	NA
Macrogenics Inc	MGNX	NA	Health Care	0.38%	NA	NA	9.77	NA
Mitek Systems Inc	MITK	NA	Information Technology	0.38%	NA	NA	11.98	NA
Mks Instruments Inc	MKSI	NA	Information Technology	0.38%	NA	NA	97.96	NA
Merit Medical Systems Inc	MMSI	NA	Health Care	0.38%	NA	NA	75.36	NA
Model N Inc	MODN	NA	Information Technology	0.38%	NA	NA	25.35	NA
Mercury Systems Inc	MRCY	Underperform	Industrials	0.38%	NA	NA	33.42	B-3-9
Motorola Solutions Inc	MSI	Buy	Information Technology	0.38%	0.14%	0.23%	309.16	B-1-7
Maxlinear Inc	MXL	NA	Information Technology	0.38%	NA	NA	21.69	NA
Netflix Inc	NFLX	Buy	Communication Services	0.38%	1.00%	-0.62%	474.06	C-1-9
Napco Security Technologies	NSSC	NA	Information Technology	0.38%	NA	NA	32.94	NA
Nova Ltd	NVMI	Buy	Information Technology	0.38%	NA	NA	129.32	B-1-9
Nxp Semiconductors Nv	NXPI	Buy	Information Technology	0.38%	0.19%	0.18%	205.72	B-1-7
Okta Inc	OKTA	Underperform	Information Technology	0.38%	NA	NA	82.46	C-3-9
Universal Display Corp	OLED	Buy	Information Technology	0.38%	NA	NA	176.59	B-1-7
Onto Innovation Inc	ONTO	NA	Information Technology	0.38%	NA	NA	136.19	NA
Oracle Corp	ORCL	Neutral	Information Technology	0.38%	0.79%	-0.41%	102.73	B-2-7
Pacific Biosciences Of Calif	PACB	NA	Health Care	0.38%	NA	NA	9.40	NA
Par Technology Corp/Del	PAR	NA	Information Technology	0.38%	NA	NA	40.20	NA
Perion Network Ltd	PERI	NA	Communication Services	0.38%	NA	NA	28.76	NA
Pfizer Inc	PFE	Neutral	Health Care	0.38%	NA	NA	29.47	B-2-7
Polaris Inc	PII	NA	Consumer Discretionary	0.38%	NA	NA	89.17	NA
Impinj Inc	PI	NA	Information Technology	0.38%	NA	NA	80.51	NA
Plug Power Inc	PLUG	NA	Industrials	0.38%	NA	NA	4.25	NA
Pentair Plc	PNR	Underperform	Industrials	0.38%	0.04%	0.34%	68.69	B-3-7
Progress Software Corp	PRGS	NA	Information Technology	0.38%	NA	NA	52.07	NA
Prothena Corp Plc	PRTA	Buy	Health Care	0.38%	NA	NA	40.66	C-1-9
Pure Storage Inc - Class A	PSTG	Neutral	Information Technology	0.38%	NA	NA	35.89	C-2-9
Ptc Inc	PTC	Buy	Information Technology	0.38%	0.06%	0.32%	165.85	B-1-9

Exhibit 29: Efficient Growth members for 4Q 2023
BofA Efficient Growth screen results as of end of 4Q 2023

Name	Ticker	BofA rating	Sector	Weight Efficient Growth	Weight SPX Growth	Weight difference	Price	QRQ
Qualys Inc	QLYS	NA	Information Technology	0.38%	NA	NA	180.30	NA
Q2 Holdings Inc	QTWO	NA	Information Technology	0.38%	NA	NA	40.30	NA
Ribbon Communications Inc	RBBN	NA	Information Technology	0.38%	NA	NA	2.92	NA
Regeneron Pharmaceuticals	REGN	Underperform	Health Care	0.38%	0.28%	0.09%	913.17	B-3-9
Regenxbio Inc	RGNX	Buy	Health Care	0.38%	NA	NA	16.45	C-1-9
Rockwell Automation Inc	ROK	Neutral	Industrials	0.38%	0.08%	0.29%	305.05	B-2-7
Rpm International Inc	RPM	Underperform	Materials	0.38%	NA	NA	104.76	B-3-7
Regal Rexnord Corp	RRX	NA	Industrials	0.38%	NA	NA	139.56	NA
Solaredge Technologies Inc	SEDG	Underperform	Information Technology	0.38%	NA	NA	79.58	C-3-9
Shopify Inc - Class A	SHOP	Neutral	Information Technology	0.38%	NA	NA	74.51	C-2-9
Super Micro Computer Inc	SMCI	NA	Information Technology	0.38%	NA	NA	292.13	NA
Semtech Corp	SMTC	NA	Information Technology	0.38%	NA	NA	20.47	NA
Snap Inc - A	SNAP	Neutral	Communication Services	0.38%	NA	NA	16.55	C-2-9
Synopsys Inc	SNPS	Buy	Information Technology	0.38%	0.36%	0.02%	484.81	B-1-9
Steris Plc	STE	NA	Health Care	0.38%	0.06%	0.32%	215.93	NA
Teledyne Technologies Inc	TDY	Buy	Information Technology	0.38%	NA	NA	435.47	B-1-9
Atlassian Corp-Cl A	TEAM	NA	Information Technology	0.38%	NA	NA	226.10	NA
Gentherm Inc	THRM	NA	Consumer Discretionary	0.38%	NA	NA	49.14	NA
Trimble Inc	TRMB	NA	Information Technology	0.38%	NA	NA	50.77	NA
Tesla Inc	TSLA	Neutral	Consumer Discretionary	0.38%	3.17%	-2.79%	237.49	C-2-9
Ubiquiti Inc	UI	NA	Information Technology	0.38%	NA	NA	128.80	NA
Vicor Corp	VICR	NA	Industrials	0.38%	NA	NA	38.36	NA
Waters Corp	WAT	Neutral	Health Care	0.38%	0.03%	0.34%	305.07	B-2-9
Wix.Com Ltd	WIX	Buy	Information Technology	0.38%	NA	NA	118.10	C-1-9
Workiva Inc	WK	NA	Information Technology	0.38%	NA	NA	92.26	NA
Yelp Inc	YELP	NA	Communication Services	0.38%	NA	NA	44.97	NA
Zebra Technologies Corp-Cl A	ZBRA	NA	Information Technology	0.38%	NA	NA	252.69	NA
Zuora Inc - Class A	ZUO	NA	Information Technology	0.38%	NA	NA	8.29	NA
Zillow Group Inc - C	Z	Buy	Real Estate	0.38%	NA	NA	53.71	C-1-9
Paycom Software Inc	PAYC	Neutral	Industrials	0.36%	0.02%	0.34%	197.15	C-2-7
Nrg Energy Inc	NRG	Buy	Utilities	0.36%	NA	NA	51.73	B-1-7
Dick'S Sporting Goods Inc	DKS	Neutral	Consumer Discretionary	0.35%	NA	NA	138.93	C-2-7
Floor & Decor Holdings Inc-A	FND	Buy	Consumer Discretionary	0.34%	NA	NA	104.53	C-1-9
Marketaxess Holdings Inc	MKTX	NA	Financials	0.33%	NA	NA	276.17	NA
American Financial Group Inc	AFG	NA	Financials	0.31%	NA	NA	121.19	NA
Fortune Brands Innovations I	FBIN	Underperform	Industrials	0.29%	NA	NA	74.72	B-3-7
Bj'S Wholesale Club Holdings	BJ	Buy	Consumer Staples	0.27%	NA	NA	65.24	B-1-9
Tempur Sealy International I	TPX	Buy	Consumer Discretionary	0.26%	NA	NA	48.66	B-1-7
Lithia Motors Inc	LAD	Buy	Consumer Discretionary	0.26%	NA	NA	297.07	C-1-7
Murphy Usa Inc	MUSA	NA	Consumer Discretionary	0.25%	NA	NA	376.26	NA
Simpson Manufacturing Co Inc	SSD	NA	Industrials	0.25%	NA	NA	183.76	NA
Amkor Technology Inc	AMKR	NA	Information Technology	0.24%	NA	NA	30.28	NA
Ufp Industries Inc	UFPI	NA	Industrials	0.23%	NA	NA	118.18	NA
Siteone Landscape Supply Inc	SITE	NA	Industrials	0.22%	NA	NA	152.71	NA
First American Financial	FAF	NA	Financials	0.21%	NA	NA	61.66	NA
Doximity Inc-Class A	DOCS	Neutral	Health Care	0.17%	NA	NA	28.10	C-2-9
Crocs Inc	CROX	Buy	Consumer Discretionary	0.17%	NA	NA	86.46	C-1-9
Lancaster Colony Corp	LANC	NA	Consumer Staples	0.15%	NA	NA	163.11	NA
Franklin Electric Co Inc	FELE	NA	Industrials	0.14%	NA	NA	92.71	NA
Organon & Co	OGN	Underperform	Health Care	0.13%	NA	NA	14.41	B-3-7
Scotts Miracle-Gro Co	SMG	NA	Materials	0.12%	NA	NA	61.86	NA
Encore Wire Corp	WIRE	NA	Industrials	0.12%	NA	NA	214.87	NA
Piper Sandler Cos	PIPR	NA	Financials	0.11%	NA	NA	163.64	NA
Hub Group Inc-Cl A	HUBG	NA	Industrials	0.10%	NA	NA	88.41	NA
Amn Healthcare Services Inc	AMN	Neutral	Health Care	0.10%	NA	NA	74.14	B-2-9
Patrick Industries Inc	PATK	Underperform	Consumer Discretionary	0.08%	NA	NA	95.22	C-3-7
Enova International Inc	ENVA	NA	Financials	0.07%	NA	NA	55.03	NA
Arhaus Inc	ARHS	Buy	Consumer Discretionary	0.07%	NA	NA	11.35	C-1-9
Vizio Holding Corp-A	VZIO	Underperform	Consumer Discretionary	0.06%	NA	NA	7.46	C-3-9
Olaplex Holdings Inc	OLPX	NA	Consumer Staples	0.06%	NA	NA	2.12	NA
Herbalife Ltd	HLF	Underperform	Consumer Staples	0.06%	NA	NA	12.78	C-3-9
Ligand Pharmaceuticals	LGND	NA	Health Care	0.06%	NA	NA	70.83	NA
Perdoceo Education Corp	PRDO	NA	Consumer Discretionary	0.05%	NA	NA	17.19	NA

Exhibit 29: Efficient Growth members for 4Q 2023

BofA Efficient Growth screen results as of end of 4Q 2023

Name	Ticker	BofA rating	Sector	Weight Efficient Growth	Weight SPX Growth	Weight difference	Price	QRQ
Bank First Corp	BFC	NA	Financials	0.05%	NA	NA	82.93	NA
Standard Motor Prods	SMP	NA	Consumer Discretionary	0.05%	NA	NA	38.93	NA
Cross Country Healthcare Inc	CCRN	Underperform	Health Care	0.05%	NA	NA	22.73	C-3-9
Pubmatic Inc-Class A	PUBM	NA	Communication Services	0.04%	NA	NA	14.86	NA
Myers Industries Inc	MYE	NA	Materials	0.04%	NA	NA	19.20	NA
A-Mark Precious Metals Inc	AMRK	NA	Financials	0.04%	NA	NA	29.15	NA
1-800-Flowers.Com Inc-Cl A	FLWS	NA	Consumer Discretionary	0.04%	NA	NA	9.98	NA
Digital Turbine Inc	APPS	Neutral	Information Technology	0.04%	NA	NA	6.28	C-2-9
Hudson Technologies Inc	HDSN	NA	Industrials	0.04%	NA	NA	13.46	NA
First Foundation Inc	FFWM	NA	Financials	0.04%	NA	NA	9.95	NA
Iradimed Corp	IRMD	NA	Health Care	0.04%	NA	NA	44.70	NA
Washington Trust Bancorp	WASH	NA	Financials	0.04%	NA	NA	30.68	NA
Vaalco Energy Inc	EGY	NA	Energy	0.04%	NA	NA	4.59	NA
Hingham Institution For Svgs	HIFS	NA	Financials	0.03%	NA	NA	199.99	NA
America'S Car-Mart Inc	CRMT	Underperform	Consumer Discretionary	0.03%	NA	NA	62.70	C-3-9
Nacco Industries-Cl A	NC	NA	Energy	0.03%	NA	NA	37.11	NA
Pcb Bancorp	PCB	NA	Financials	0.03%	NA	NA	18.32	NA
Evolution Petroleum Corp	EPM	NA	Energy	0.03%	NA	NA	5.73	NA
One Group Hospitality Inc/Th	STKS	NA	Consumer Discretionary	0.03%	NA	NA	6.10	NA
Joint Corp/The	JYNT	NA	Health Care	0.03%	NA	NA	8.97	NA

Source: BofA Global Research, Factset; This screen is 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. Disclaimer: The screen identified 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 screen was not created to act as a benchmark. Price as of close 01/05/2024.

BofA GLOBAL RESEARCH

Exhibit 30: ETFs mentioned

Ticker, name, rating, price

Ticker	Name	Rating	Price
XLC	Communication Services Select Sector SPDR Fund	1-UF	72.04
XLRE	Real Estate Select Sector SPDR Fund	1-NV	39.29
XLE	Energy Select Sector SPDR Fund	1-FV	84.68
XLU	Utilities Select Sector SPDR Fund	1-NV	64.53
IYK	iShares U.S. Consumer Staples ETF	1-FV	192.96
VCR	Vanguard Consumer Discretionary ETF	1-UF	293.38
XLF	Financial Select Sector SPDR Fund	1-FV	37.75
XLI	Industrial Select Sector SPDR Fund	1-NV	111.43
XLV	Health Care Select Sector SPDR Fund	1-FV	139.12
FXZ	First Trust Materials AlphaDEX Fund	1-NV	67.56
XLK	Technology Select Sector SPDR Fund	1-UF	184.12
VYMI	Vanguard International High Dividend Yield ETF	1-FV	66.28
SPYD	SPDR Portfolio S&P 500 High Dividend ETF	1-FV	39.46
DIVB	iShares Core Dividend ETF	1-FV	40.83
VTV	Vanguard Value ETF	1-FV	149.62
COWZ	Pacer US Cash Cows 100 ETF	1-FV	51.81
SCHG	Schwab U.S. Large-Cap Growth ETF	1-FV	80.68
CALF	Pacer US Small Cap Cash Cows 100 ETF	1-FV	46.73
SCHM	Schwab U.S. Mid-Cap ETF	1-FV	73.47
FNDX	Schwab Fundamental U.S. Large Company Index ETF	1-NV	61.49
IVV	iShares Core S&P 500 ETF	1-NV	470.12
AIQ	Global X Artificial Intelligence & Technology ETF	1-NV	29.87
VOTE	TCW Transform 500 ETF	1-NV	54.68
ICLN	iShares Global Clean Energy ETF	1-NV	14.8
KBA	KraneShares Bosera MSCI China A 50 Connect Index ETF	1-UF	19.8
EWW	iShares MSCI Mexico ETF	1-FV	66.88
EMXC	iShares MSCI Emerging Markets ex China ETF	1-FV	54.54
HEFA	iShares Currency Hedged MSCI EAFE ETF	1-NV	31.43
VEU	Vanguard FTSE All-World ex-US ETF	1-NV	55.28
FLCA	Franklin FTSE Canada ETF	1-FV	33
KSA	iShares MSCI Saudi Arabia ETF	1-FV	42.99
FEZ	SPDR EURO STOXX 50 ETF	1-NV	46.61
DXJ	WisdomTree Japan Hedged Equity Fund	1-FV	90.35
EPI	WisdomTree India Earnings Fund	1-FV	41.45
IYZ	iShares U.S. Telecommunications ETF	3-UF	22.63
SCHH	Schwab U.S. REIT ETF	3-NV	20.38
PXI	Invesco Exchange-Traded Fund Trust Invesco Dorsey Wright Energy Momentum ETF	3-FV	44.54
RSPU	Invesco S&P 500 Equal Weight Utilities ETF	3-NV	55.46
RSPS	Invesco S&P 500 Equal Weight Consumer Staples ETF	3-FV	31.29
IYC	iShares U.S. Consumer Discretionary ETF	3-UF	73.55
FXO	First Trust Financial AlphaDEX Fund	2-FV	43.38
FXR	First Trust Industrials/Producer Durables AlphaDEX Fund	3-NV	63.29
PTH	Invesco Exchange-Traded Fund Trust Invesco Dorsey Wright Healthcare Momentum ETF	3-FV	38.25
IYM	iShares U.S. Basic Materials ETF	2-NV	135.74
QTEC	First Trust NASDAQ-100 Technology Index Fund	3-UF	167.03
PID	Invesco International Dividend Achievers ETF	3-FV	18.4251
AIVL	WisdomTree US AI Enhanced Valu	3-FV	95.5122
IPKW	Invesco International BuyBack Achievers ETF	3-FV	37.325
RPV	Invesco Exchange-Traded Fund Trust - Invesco S&P 500 Pure Value ETF	3-FV	82.69
QLC	FlexShares US Quality Large Cap Index Fund	3-FV	52.2627
IVW	iShares S&P 500 Growth ETF	3-FV	72.98
FYX	First Trust Small Cap Core AlphaDEX Fund	3-FV	88.1994
FNX	First Trust Mid Cap Core AlphaDEX Fund	3-FV	101.5
LRGF	iShares U.S. Equity Factor ETF	3-NV	47.49
OEF	iShares S&P 100 ETF	3-NV	220.07

Exhibit 30: ETFs mentioned

Ticker, name, rating, price

Ticker	Name	Rating	Price
DTEC	ALPS Disruptive Technologies ETF	3-NV	39.53
ESGE	iShares ESG Aware MSCI EM ETF	3-NV	31.33
PBW	Invesco WilderHill Clean Energy ETF	3-NV	27.29
EWH	iShares MSCI Hong Kong ETF	3-UF	16.67
ECH	iShares MSCI Chile ETF	3-FV	27.04
DBEM	Xtrackers MSCI Emerging Markets Hedged Equity ETF	3-FV	22.7195
RODM	Hartford Multifactor Developed Markets ex-US ETF	3-NV	27.27
ACWX	iShares MSCI ACWI ex U.S. ETF	3-NV	50.21
EWC	iShares MSCI Canada ETF	2-FV	36.37
VNM	VanEck Vietnam ETF	3-FV	13.115
FDD	First Trust STOXX European Select Dividend Index Fund	3-NV	12.01
JPXN	iShares JPX-Nikkei 400 ETF /US	3-FV	67.3011
SMIN	iShares MSCI India Small-Cap ETF	2-FV	71.63
EWJ	iShares MSCI Japan ETF	2-FV	63.53
KBE	SPDR S&P Bank ETF	1-NV	45.67
IHE	iShares U.S. Pharmaceuticals ETF	1-FV	190.4765

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Table 1: Stocks mentioned

Prices and ratings for stocks mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
LLY	LLY US	Eli Lilly	US$ 626.03	B-1-7
MRK	MRK US	Merck & Co.	US$ 117.38	A-1-7

Source: BofA Global Research

BofA GLOBAL RESEARCH

Price objective basis & risk

Eli Lilly and Company (LLY)

Our $700 price objective is based on a probability-adjusted net present value (NPV) analysis of franchise verticals including Endocrinology ($393/share), Oncology ($127/share), Cardiovascular ($4/share), Neuroscience ($12/share), Immunology ($28/share), other pharmaceutical products and early pipeline assets ($150/share), as well as approximately -$15/share in net cash. We use a WACC ranging from 5% for approved products to 9% for pipeline products, depending on the stage of development. We apply terminal values ranging from -12% (cardiology) to 1% (endocrinology) based on projected sales decline following loss of exclusivity within each business vertical.

Risks to our price objective are 1) better-than-expected launches of competing products, 2) emerging clinical data for pipeline assets that does not confirm prior observations, 3) failure to effectively commercialize approved products, 4) potential drug pricing system restructuring in the US.

Merck & Co. (MRK)

Our $130 price objective (PO) is based on the intrinsic value of Merck standalone. We use a 50/50 blended average of our P/E multiple applied to 2024E EPS (we think the current 17x vs.18x peer average makes sense to reflect continued strength of Merck's core growth franchises but broader Keytruda concentration risk concerns) and risk-adjusted DCF (7% WACC and -2% terminal growth rate).

Risks to our PO are 1) impressive competitor readouts results in key immuno-oncology (I/O) indications, 2) more rapid declines across the diabetes franchise than expected, 3) negative outcomes from the company's later-stage assets in ongoing development, and 4) pressures from headline risks facing the sector (including drug pricing reform).

Analyst Certification

We, Jared Woodard and Geoff Meacham, hereby certify that the views expressed in this research report accurately reflect our personal views about the subject equity securities and issuers. We also certify that no part of our compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed in this research report.

Special Disclosures

Korea imposes a capital gains tax on non-resident investors in Korean securities of the lesser of 22% of the net gain or 11% of the gross sales proceeds unless the investor is either (1) resident in a country which has a double tax treaty with Korea that exempts the investor's capital gains from Korean tax or (2) the shares sold are sold through the Korea Stock exchange or KOSDAQ exchange and the seller (including related parties) has not owned 25% or more of the shares of the issuer at any time during the year of sale plus the 5 calendar years preceding the year of sale. Investors should seek their own tax advice.

Disclosures

Important Disclosures

Equity Investment Rating Distribution: Health Care Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	234	60.94%	Buy	115	49.15%
Hold	80	20.83%	Hold	36	45.00%
Sell	70	18.23%	Sell	29	41.43%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

[R1] Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

Exchange-Traded Funds Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R2	Count	Percent
Buy	80	19.61%	Buy	53	66.25%
Hold	317	77.70%	Hold	241	76.03%
Sell	11	2.70%	Sell	7	63.64%

[R2] Exchange-traded funds (ETFs), or the ETF providers, that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only ETFs. An ETF rated 1-FV is included as a Buy; an ETF rated 2-FV, 3-FV, 1-NV, 2-NV, 3-NV, 1-UF or 2-UF is included as a Hold; and an ETF rated 3-UF is included as a Sell.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. VOLATILITY RISK RATINGS, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. INVESTMENT RATINGS reflect the analyst's assessment of both a stock's absolute total return potential as well as its attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). Our investment ratings are: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster[R3]
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

[R3] 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.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. *Coverage Cluster* is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

EXCHANGE-TRADED FUNDS (ETF) INVESTMENT OPINION KEY: Opinions reflect both an Outlook Rating and a Category Rating. OUTLOOK RATINGS reflect the analyst's assessment of the ETF's attractiveness relative to other ETFs within its category (including sector, region, asset class, thematic, and others). There are three outlook ratings: 1 - the ETF is more attractive than covered peers in the same category over the next 12 months; 2 - the ETF is similarly attractive to covered peers in the same category over the next 12 months; and 3 - the ETF is less attractive than covered peers in the same category over the next 12 months. CATEGORY RATINGS, indicators of the analyst's view of the ETF's category and which incorporate published views of BofA Global Research department analysts, are: FV - Favorable view, NV - Neutral view and UF - Unfavorable view.

Price Charts for the securities referenced in this research report are available on the Price Charts website, or call 1-800-MERRILL to have them mailed.

BofAS or one of its affiliates acts as a market maker for the equity securities recommended in the report: 1st Trust Financ ETF, 1st Trust Indus Fund, 1st Trust Mater ETF, 1st Trust MidCap ETF, 1st Trust Techn ETF, ALPS Disruptive Tech, Eli Lilly, Eng Transform500 ETF, FirstTrust SmCap ETF, FlexShares Qual LC, Franklin Canada ETF, FT STX EUROPE ETF, Global X AI & Tech, Hartford Dev Mkt ETF, Inv DWA EnrgMomentum, Invesco Cons ETF, Invesco DWA ETF, Invesco Intl Div, Invesco Int'lBuyback, Invesco S&P EWU ETF, Invesco Wh Cln Ener, InvescoSP500 PureVal, iShares ACWI ex US, iShares Canada ETF, iShares Chile ETF, iShares Cons Srv ETF, iShares Core S&P ETF, iShares Currency ETF, iShares Div&Buyback, iShares Edg MSCI ETF, iShares EM ex China, iShares Global Clean, iShares India SC ETF, iShares JPX-NIKK ETF, iShares Material ETF, iShares Mexico ETF, iShares MSCI HK ETF, iShares Pharma ETF, iShares S&P 100 ETF, iShares S&P 500 ETF, iShares Saudi Arabia, iShares US, iShares-DJ Telecom, iSharesESG MSCI EM, iShares-Japan ETF, KraneS CHINA ETF, Merck & Co., Pacer US S Cap C Cow, Pacer USCashCows ETF, Schwab L Cap Grw, Schwab US Large ETF, Schwab US MidCap ETF, Schwab US REIT ETF, SPDR Comm Serv ETF, SPDR Energy ETF, SPDR EuroStoxx50 ETF, SPDR Financ ETF, SPDR Healthca ETF, SPDR High Div ETF, SPDR Industr ETF, SPDR REIT ETF, SPDR S&P Bank ETF, SPDR Tech ETF, SPDR Utilities ETF, VanEck Vietnam ETF, Vanguard Cons ETF, Vanguard Intl Div, Vanguard Value ETF, Vanguard World ex US, WSDTRE JPN Hdg ETF, WT Ex-Val ETF, WTree India Earnings, Xtrackers EM Hdg ETF.

BofAS or an affiliate was a manager of a public offering of securities of this issuer within the last 12 months: BlackRock, Inc., Charles Schwab, Merck & Co., State Street.

The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: BlackRock, Inc., Charles Schwab, Deutsche Bank, Eli Lilly, Franklin Resources, Invesco, Merck & Co., Northern Trust Corpo, SS&C Technologies Ho, State Street, The Hartford, WisdomTree.

BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: BlackRock, Inc., Charles Schwab, Deutsche Bank, Eli Lilly, Eng Transform500 ETF, Franklin Resources, Invesco, Krane Funds Advisors, Merck & Co., MiraeAsset Sec, Northern Trust Corpo, Pacer Advisors, SS&C Technologies Ho, State Street, The Hartford, Vaneck, Vanguard Group Inc, WisdomTree.

The issuer is or was, within the last 12 months, a non-securities business client of BofAS and/or one or more of its affiliates: BlackRock, Inc., Charles Schwab, Deutsche Bank, Eli Lilly, Franklin Resources, Invesco, Krane Funds Advisors, Merck & Co., MiraeAsset Sec, Northern Trust Corpo, Pacer Advisors, SS&C Technologies Ho, State Street, The Hartford, Vaneck, Vanguard Group Inc, WisdomTree.

BofAS or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: BlackRock, Inc., Charles Schwab, Eli Lilly, Franklin Resources, Invesco,

Merck & Co., Northern Trust Corpo, SS&C Technologies Ho, State Street, The Hartford, WisdomTree.
BofAS or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: BlackRock, Inc., Charles Schwab, Deutsche Bank, Eli Lilly, Franklin Resources, Invesco, Merck & Co., Northern Trust Corpo, SS&C Technologies Ho, State Street, The Hartford, WisdomTree.
BofAS together with its affiliates beneficially owns one percent or more of the common stock of this issuer. If this report was issued on or after the 9th day of the month, it reflects the ownership position on the last day of the previous month. Reports issued before the 9th day of a month reflect the ownership position at the end of the second month preceding the date of the report: Eli Lilly, Merck & Co.
BofAS together with its affiliates beneficially owns one percent or more of the shares of this fund. If this report was issued on or after the 9th day of the month, it reflects the ownership position on the last day of the previous month. Reports issued before the 9th day of the month reflect the ownership position at the end of the second month preceding the date of the report: 1st Trust Financ ETF, 1st Trust Indus Fund, 1st Trust Mater ETF, 1st Trust MidCap ETF, 1st Trust Techn ETF, ALPS Disruptive Tech, Eng Transform500 ETF, FirstTrust SmCap ETF, Franklin Canada ETF, FT STX EUROPE ETF, Global X AI & Tech, Hartford Dev Mkt ETF, Inv DWA EnrgMomentum, Invesco Cons ETF, Invesco DWA ETF, Invesco Intl Div, Invesco Int'lBuyback, Invesco S&P EWU ETF, Invesco Wh Cln Ener, InvescoSP500 PureVal, iShares ACWI ex US, iShares Canada ETF, iShares Cons Srv ETF, iShares Core S&P ETF, iShares Div&Buyback, iShares Edg MSCI ETF, iShares EM ex China, iShares Global Clean, iShares JPX-NIKK ETF, iShares Material ETF, iShares Mexico ETF, iShares Pharma ETF, iShares S&P 100 ETF, iShares S&P 500 ETF, iShares Saudi Arabia, iShares US, iShares-DJ Telecom, iSharesESG MSCI EM, iShares-Japan ETF, Pacer US S Cap C Cow, Pacer USCashCows ETF, SPDR Comm Serv ETF, SPDR Energy ETF, SPDR EuroStoxx50 ETF, SPDR Financ ETF, SPDR Healthca ETF, SPDR High Div ETF, SPDR Industr ETF, SPDR REIT ETF, SPDR S&P Bank ETF, SPDR Tech ETF, SPDR Utilities ETF, Vanguard Cons ETF, Vanguard Intl Div, Vanguard Value ETF, Vanguard World ex US, WSDTRE JPN Hdg ETF, Xtrackers EM Hdg ETF.
BofAS or one of its affiliates is willing to sell to, or buy from, clients the common equity of the issuer on a principal basis: 1st Trust Financ ETF, 1st Trust Indus Fund, 1st Trust Mater ETF, 1st Trust MidCap ETF, 1st Trust Techn ETF, ALPS Disruptive Tech, Eli Lilly, Eng Transform500 ETF, FirstTrust SmCap ETF, FlexShares Qual LC, Franklin Canada ETF, FT STX EUROPE ETF, Global X AI & Tech, Hartford Dev Mkt ETF, Inv DWA EnrgMomentum, Invesco Cons ETF, Invesco DWA ETF, Invesco Intl Div, Invesco Int'lBuyback, Invesco S&P EWU ETF, Invesco Wh Cln Ener, InvescoSP500 PureVal, iShares ACWI ex US, iShares Canada ETF, iShares Chile ETF, iShares Cons Srv ETF, iShares Core S&P ETF, iShares Currency ETF, iShares Div&Buyback, iShares Edg MSCI ETF, iShares EM ex China, iShares Global Clean, iShares India SC ETF, iShares JPX-NIKK ETF, iShares Material ETF, iShares Mexico ETF, iShares MSCI HK ETF, iShares Pharma ETF, iShares S&P 100 ETF, iShares S&P 500 ETF, iShares Saudi Arabia, iShares US, iShares-DJ Telecom, iSharesESG MSCI EM, iShares-Japan ETF, KraneS CHINA ETF, Merck & Co., Pacer US S Cap C Cow, Pacer USCashCows ETF, Schwab L Cap Grw, Schwab US Large ETF, Schwab US MidCap ETF, Schwab US REIT ETF, SPDR Comm Serv ETF, SPDR Energy ETF, SPDR EuroStoxx50 ETF, SPDR Financ ETF, SPDR Healthca ETF, SPDR High Div ETF, SPDR Industr ETF, SPDR REIT ETF, SPDR S&P Bank ETF, SPDR Tech ETF, SPDR Utilities ETF, VanEck Vietnam ETF, Vanguard Cons ETF, Vanguard Intl Div, Vanguard Value ETF, Vanguard World ex US, WSDTRE JPN Hdg ETF, WT Ex-Val ETF, WTree India Earnings, Xtrackers EM Hdg ETF.
The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of BofAS and/or one or more of its affiliates: BlackRock, Inc., Charles Schwab, Deutsche Bank, Eli Lilly, Eng Transform500 ETF, Franklin Resources, Invesco, Krane Funds Advisors, Merck & Co., MiraeAsset Sec, Northern Trust Corpo, Pacer Advisors, SS&C Technologies Ho, State Street, The Hartford, Vaneck, Vanguard Group Inc, WisdomTree.
Due to the nature of strategic analysis, the issuers or securities recommended or discussed in this report are not continuously followed. Accordingly, investors must regard this report as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or securities.
BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.
BofAS and/or its affiliates participate in the creation and redemption of these ETFs and are an authorized participant for such ETFs: 1st Trust Financ ETF, 1st Trust Indus Fund, 1st Trust Mater ETF, 1st Trust MidCap ETF, 1st Trust Techn ETF, FirstTrust SmCap ETF, FlexShares Qual LC, FT STX EUROPE ETF, Hartford Dev Mkt ETF, Inv DWA EnrgMomentum, Invesco Cons ETF, Invesco DWA ETF, Invesco Intl Div, Invesco Int'lBuyback, Invesco S&P EWU ETF, Invesco Wh Cln Ener, InvescoSP500 PureVal, iShares ACWI ex US, iShares Canada ETF, iShares Chile ETF, iShares Cons Srv ETF, iShares Core S&P ETF, iShares Currency ETF, iShares Div&Buyback, iShares Edg MSCI ETF, iShares EM ex China, iShares Global Clean, iShares India SC ETF, iShares JPX-NIKK ETF, iShares Material ETF, iShares Mexico ETF, iShares MSCI HK ETF, iShares Pharma ETF, iShares S&P 100 ETF, iShares S&P 500 ETF, iShares Saudi Arabia, iShares US, iShares-DJ Telecom, iSharesESG MSCI EM, iShares-Japan ETF, KraneS CHINA ETF, Pacer US S Cap C Cow, Pacer USCashCows ETF, Schwab L Cap Grw, Schwab US Large ETF, Schwab US MidCap ETF, Schwab US REIT ETF, SPDR EuroStoxx50 ETF, SPDR High Div ETF, SPDR S&P Bank ETF, WSDTRE JPN Hdg ETF, WT Ex-Val ETF, WTree India Earnings, Xtrackers EM Hdg ETF

Other Important Disclosures

The covered issuer and/or one or more of its affiliates holds 5% or more of the total issued share capital of Bank of America Corporation: BlackRock, Inc., Vanguard Group Inc.
Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.
The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities or other financial instruments that may not be offered or sold in one or more states or jurisdictions, or to certain categories of investors, including retail investors. Readers of this report are advised that any discussion, recommendation or other mention of such instruments is not a solicitation or offer to transact in such instruments. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor for information relating to such instruments.
Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.
Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.
Refer to BofA Global Research policies relating to conflicts of interest.
"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.
Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:
BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofaml.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch

(Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the Electronic Communications Disclaimers for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities.

This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

ETFs are redeemable only in Creation Unit size through an Authorized Participant and may not be individually redeemed. ETFs also are redeemable on an "in-kind" basis. The mechanism for creation and redemption of ETFs may be disrupted due to market conditions or otherwise.

The public trading price of an ETF may be different from its net asset value, and an ETF could trade at a premium or discount to its net asset value.

Investors in ETFs with international securities assume currency risk.

U.S. exchange-listed, open-end ETFs must be offered under and sold only pursuant to a prospectus. U.S. exchange-listed ETFs may not be marketed or sold in a number of non-U.S. jurisdictions and may not be suitable for all investors. Investors should consider the investment objectives, risks, charges and expenses of the ETF carefully before investing. The prospectus for the ETF contains this and other information about the ETF. Clients may obtain prospectuses for the ETFs mentioned in this report from the ETF distributor or their Merrill Global Wealth Management financial advisor. The prospectuses contain more complete and important information about the ETFs mentioned in this report and should be read carefully before investing.

BofAS or one of its affiliates receives licensing fees in connection with certain Select Sector Indices, Select Sector SPDR Funds, and the use of various marks associated with the foregoing. Such fees are paid from The Select Sector SPDR Trust ("Trust"), in respect of each Select Sector SPDR Fund, based on the average aggregate daily net assets of such Select Sector SPDR Fund (based on net asset value as described in the Trust's prospectus). Such fees also may be made in respect of other ETF providers for the right to create ETFs based on the Select Sector Indices, or different versions thereof.

"Standard & Poor's®", "S&P®", "S&P 500®", "Standard & Poor's 500", "500", "Standard & Poor's Depositary Receipts®", "SPDRs®", "Select Sector SPDR" and "Select Sector Standard & Poor's

Depositary Receipts" are trademarks of The McGraw-Hill Companies, Inc. and have been licensed for use in connection with the listing and trading of Select Sector SPDRs on the AMEX. The stocks included in each Select Sector Index (upon which the Select Sector SPDRs are based) were selected by the index compilation agent in consultation with S&P from the universe of companies represented by the S&P 500 Index. The composition and weightings of the stocks included in each Select Sector Index can be expected to differ from the composition and weighting of stock included in any similar S&P 500 sector index that is published and disseminated by S&P.

For clients in Wealth Management, to the extent that the securities referenced in this report are ETFs or CEFs, investors should note that (1) the views and ratings presented by BofA Global Research personnel may vary from those of other business units of BofA Securities. including the Due Diligence group within the Chief Investment Office of MLPF&S ("CIO Due Diligence"); and (2) the CIO Due Diligence review process is used to determine the availability of an ETF or CEF for purchase through the Wealth Management division of MLPF&S and its affiliates.

BofA ESGMeter Methodology:

ESGMeter is a proprietary metric based on quantitative analysis and fundamental analyst inputs that reflects our assessment of a company's Environmental, Social and Governance-related attributes. The ESGMeter is intended to indicate a company's likelihood of experiencing stronger financial stability (higher return on equity and lower earnings and price volatility) over the next three years relative to peer group. There are three ESGMeter levels - Low, Medium, and High - which indicate whether a company has attributes most likely to translate into superior financial stability (in the case of a High level) or weaker financial stability (in the case of a Low level) over the next three years relative to its peer group. A Medium level suggests that a company exhibits ESG characteristics that are likely associated with financial stability results in line with its peer group over the next three years. Full details of our methodology, financial stability definition and disclaimers are available at BofA ESGMeter methodology. ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of the BofA Global Research fundamental equity analyst's investment rating, volatility risk rating, income rating or price objective for that company.

Copyright and General Information:

Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Securities policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

Research Analysts

Research Investment Committee

Jared Woodard
Investment & ETF Strategist
BofAS
jared.woodard@bofa.com

John Glascock
Investment & ETF Strategist
BofAS
john.glascock@bofa.com

Phoebe Block
Investment & ETF Strategist
BofAS
phoebe.block@bofa.com

Derek Harris
Portfolio Strategist
BofAS
derek.harris@bofa.com

Chris Flanagan
FI/MBS/CLO Strategist
BofAS
christopher.flanagan@bofa.com

Global Economics & Strategy

Michael Youngworth, CFA
CBs, Pfds & Derivs Strategist
BofAS
michael.youngworth@bofa.com

Benjamin Bowler
Equity-Linked Analyst
BofAS
benjamin.bowler@bofa.com

Warren Russell, CFA
Commodity Strategist
BofAS
warren.russell@bofa.com

Meghan Swiber, CFA
Rates Strategist
BofAS
meghan.swiber@bofa.com

Jill Carey Hall, CFA
Equity & Quant Strategist
BofAS
jill.carey@bofa.com

Paul Ciana, CMT
Technical Strategist
BofAS

Equity Research

Ebrahim H. Poonawala
Research Analyst
BofAS
ebrahim.poonawala@bofa.com

Geoff Meacham
Research Analyst
BofAS
geoff.meacham@bofa.com

Tazeen Ahmad
Research Analyst
BofAS
tazeen.ahmad@bofa.com

Jason M. Gerberry
Research Analyst
BofAS
jason.gerberry@bofa.com

Travis Steed
Research Analyst
BofAS
travis.steed@bofa.com

Lorraine Hutchinson, CFA
Research Analyst
BofAS
lorraine.hutchinson@bofa.com

Lawson Winder, CFA >>
Research Analyst
Merrill Lynch (Canada)
lawson.winder@bofa.com