

The Flow Show

Overshoots ≠ Soft Landings

Scores on the Doors: crypto 78.5%, stocks 17.6%, gold 7.9%, HY bonds 6.6%, IG bonds 4.7%, cash 2.6%, govt bonds 1.5%, commodities 1.5%, oil -1.8%, US dollar -2.5% YTD.

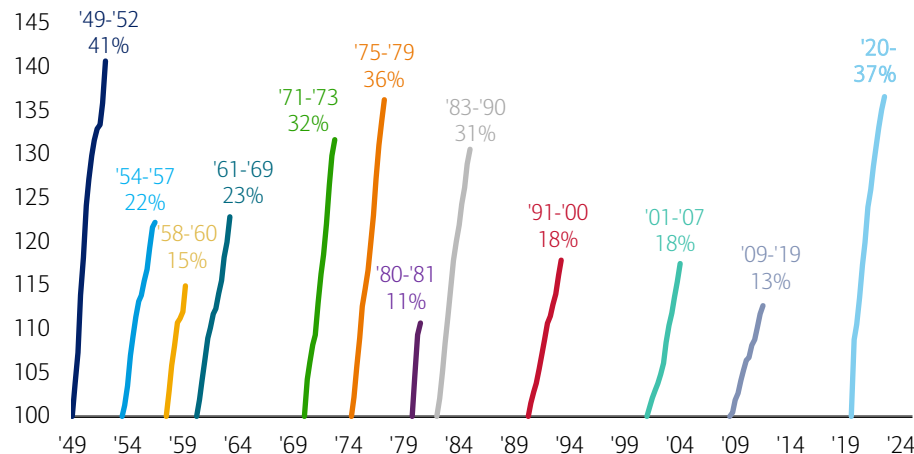
The Biggest Picture: the fastest nominal GDP recovery since WW2 (Chart 2); 10-year yields back >4%, threatening 3.6-4.1% Goldilocks range; oil +19%, diesel +30% (tracks CPI – Chart 4), house prices up, labor flexing muscles (tentative [Teamsters/UPS deal](#) = 35% wage jump for 155k part-time workers, 6.5% for 155k full-time; all say Fed “done” & inflation “done & won”...yet 1st week of inflows to TIPS since Aug'22 & FCIs on rise.

Tale of the Tape: Bank of Japan has set “floor” for global rates past 30 years; BoJ 1st to zero rates (Feb'99), 1st to QE (Mar'01), 1st to YCC (Sep'16), has added \$1.3tn to global liquidity past 18 months; BoJ set to expand YCC “target range” from 50bps to 75-100bps = tightening = higher floor for global rates (should lead to good entry back into Nikkei).

The Price is Right: Magnificent 7 stocks now up 2x, back to almost 30% of S&P 500 (Chart 3); few want to play AI in China (HSTECH +5% YTD), long-duration Biotech fading, so monopolistic tech dominant (see QQQ vs QQQE); 4% real yields popped internet, 3% popped subprime, crypto crashed on real yield rip from -100bps to 150bps; real rates too low to pop AI ‘baby bubble’ but we think trading risk is tighter financial conditions in Aug.

Chart 2: Fastest recovery in US Nominal GDP since WW2

US nominal GDP growth*



Source: BofA Global Investment Strategy, Haver, *US nominal GDP rebased to 100 as of last quarter of US recession (% growth 13 quarters into expansion cycle)

BofA GLOBAL RESEARCH

More on page 2...

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

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules.

Refer to “Other Important Disclosures” for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 12 to 14.

27 July 2023

Investment Strategy
Global

BofA

Data
Analytics



Michael Hartnett
Investment Strategist
BofAS
+1 646 855 1508
michael.hartnett@bofa.com

Elyas Galou >>
Investment Strategist
BofASE (France)
+33 1 8770 0087
elyas.galou@bofa.com

Anya Shelekhin
Investment Strategist
BofAS
+1 646 855 3753
anya.shelekhin@bofa.com

Myung-Jee Jung
Investment Strategist
BofAS
+1 646 855 0389
myung-je.jung@bofa.com

Chart 1: BofA Bull & Bear Indicator

Rises to 4.0 from 3.8



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

BofA GLOBAL RESEARCH

Weekly Flows: \$40.6bn to cash, \$13.8bn to stocks, \$11.0bn to bonds, \$0.5bn from gold.

Flows to Know:

- Cash: inflows past 2 weeks and \$104.1bn inflow to cash MTD...no exodus from cash;
- TIPS: 1st inflow since Aug'22 (\$0.5bn)...so interesting to see inflation hedges back on after CPI 9% to 3% drop since autumn'22 (Chart 16);
- Tech: inflows past 6 weeks, albeit smallest inflow over the period in past week (just \$0.1bn - Chart 17);
- Materials: largest inflow past 25 weeks and \$1.9bn inflow past 2 weeks, as investors position for improvement in China outlook (Chart 18);
- Small cap: largest inflow past 6 weeks;
- Japan: 1st outflow past 8 weeks (\$0.1bn - Chart 19).

BofA Private Clients: \$3.3tn AUM...60.9% stocks, 21.0% bonds, 11.4% cash; largest private client buying of bonds in 8 weeks (ETFs show big inflow to IG & HY); largest outflow from stocks in 9 weeks (ETFs show selling financials & growth); T-bills flat after record outflow last week

BofA Bull & Bear Indicator: rises to 4.0 from 3.8, highest since US regional banking turmoil; 5 out of 6 Bull & Bear indicator components either signaling "bullish" sentiment (Hedge Funds positioning, stock market breadth, equity & bond flows) or very close to it (credit technicals), cash allocation (5.3% in [July Global FMS](#)) still a drag.

World of Overshoots: pandemics, wars, nationalism, political polarization, heavy (\$28tn) policy stimulus, lowest rates in 5000 years to fastest nominal GDP recovery since WW2...asset price overshoots the new normal; worst US Treasury returns since 1788 in 2022 (-17%), oil price was -ve -\$37/bbl April'20, then \$123/bbl in Mar'22 then collapsed to \$67/bbl following 12 months; Bitcoin \$5k (Jan'20) to \$68k (Nov'21) to \$16k (Nov'22) to \$29k today; S&P 500 from 3300 to 2200 to 4800 to 3500 to 4600 thus far in 2020s...AI simply the new overshoot.

The Nominal Bull: US nominal GDP +37% since Covid Q2'20 low = most explosive nominal GDP expansion since WW2; strong nominal GDP = strong revenue growth (+35% same period - Chart 5) = strong EPS, simple; 81% beating EPS in Q2 EPS season...strong; SPX 4600 on 20x forward EPS \$230 or 21x trailing \$220 (Chart 6); that multiple expansion discounts Fed done, Fed cuts in 2024; could happen and much slower wage growth, driven by high immigration or perhaps magically tied to AI, can be catalyst; but while tighter financial conditions a 4-6 week trading risk, 4-6 month bear risk is simply that economy weaker than expected; market belief in new "steady state" of permanently high nominal GDP (Q2 latest = 6.3% YoY) and EPS upside disrupted by a US & global economy that stalls or contracts.

On Immigration: increased supply of labor = lower wage growth ceteris paribus; immigration to Canada past 12 months = 1.2mn, to EU since Feb'22 = 2.5mn from Ukraine, US border crossings topped 2.7mn in 2022.

Green Shoots: US real household earnings...+1.2% in June follows 2 years of negative real earnings (Chart 7); US ISM...set to bounce from 46 to >50 based on ratio new orders to inventories (note industrials & semis have discounted this - Charts 9-10); US housing...residential prices up past 4 months; US consumer confidence...highest since Jul'21.

Brown Shoots: global services sector slowing...95% of service sector PMIs declining = most since Apr'20; Europe...economic surprises most -ve since Jun'20, biggest drop bank



loan demand on record in Q2 (Chart 12), German PMI 38.8 = worst since May'20 (set to worsen – Chart 11); China...youth unemployment = record 21.3% in June; Asia... export growth -9.0% YoY in June (Chart 13).

China's "Great Leap Sideways": new China stimulus we think reduces "tail risk from banks/real estate, good enough to lift domestic China assets, positive for EM assets, but not enough to lift China GDP forecasts; the old adage used to be that China has 2 economic gears...4th & reverse; China no longer a boom-bust economic cycle.

US Consumer: get China producer & US consumer right and most macro stuff falls into place; US consumer buoyed by excess savings, new secular belief that government intervention (stimulus checks, energy rebates, guaranteed bank deposits...) nullifies need to save, new super-strong post-COVID labor market (inclusion, hoarding...), and consumer spend +3.1% in H1 despite fears that credit crunch would cause recession; and yet...

- US real retail sales are falling 1.6% YoY...this indicator has faithfully coincided with US recession since 1967 (YoY drops > 3% associated with "hard" landings...'80-'82, '90-'91, GFC, COVID – Chart 14);
- US household saving rate up 3.0% in Sep'22 to 4.6% in May'23 and historically 2-3ppt rise in saving rate = recessionary (i.e. 5-6% savings rate – Chart 15); note excess savings rundown by year-end;
- US unemployment rate remains remarkably low but again history shows that a 0.5-1.0ppt increase in unemployment rate is typical recession event...which means U-rate >4-4.5% no bueno.

Soooo...real retail sales -3% YoY, savings rate >5-6%, unemployment rate >4-4.5% & recession nailed-on. Ain't happened yet but that's where it's trending bar lagging U-rate.

Zeitgeist in May was..."It would be so 'on-brand' for stocks to melt-up into recession, suck 'em all in right before the hard landing."

Zeitgeist in July is..."It would be so '2020s' for the economy to hit a brick wall just as everyone punts 'soft landing' into 2024."

Hot vs Gold vs Cold: handicapping next week's data...

Hot: NFP >250k, AHE 0.4%, U-rate 3.4%, ISM >48...10-year yields likely punch through top-of-range 4.1%...tighter financial conditions;

Goldilocks: NFP of 150-200k, AHE of 0.2% MoM...happy-happy data;

Cold: NFP <100k, U-rate >3.8%, ISM <46...this would now be the bigger surprise, data that shows US economy stalling.

Green Shoots, Overshoots & Crapshoots:

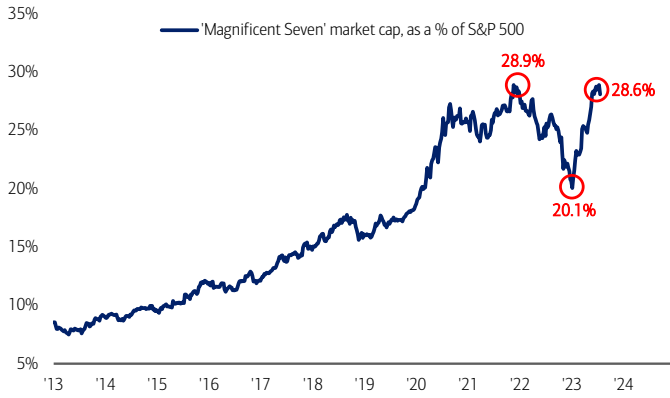
Bull: overshoot era, AI bubble, immigration solves wages, fiscal maintains nominal boom;

Bear: FCI tighten next Q3, then >5% savings rate & >4% U-rate trigger macro contraction Q4;

We like EM/commodities as summer upside plays & credit/tech as autumn downside plays.

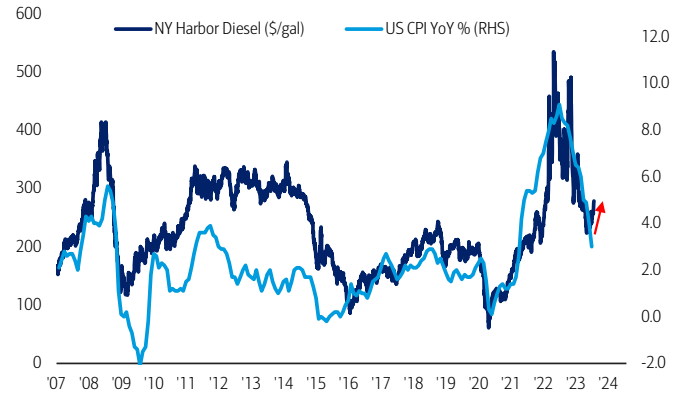


Chart 3: Concentration of “Magnificent Seven” still v high
 “Magnificent Seven” market cap, as % of S&P 500



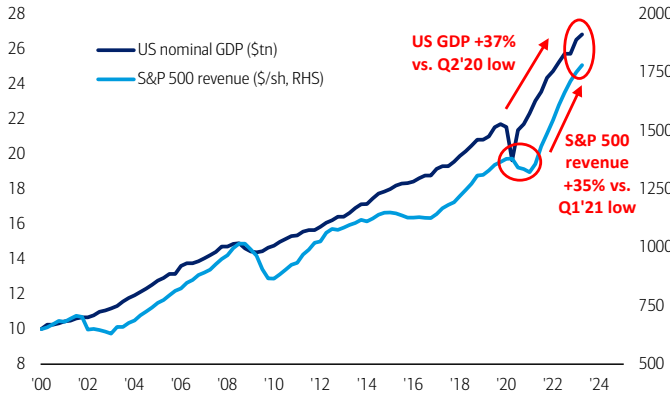
Source: BofA Global Investment Strategy, Bloomberg, Magnificent Seven = AAPL, AMZN, GOOGL, META, MSFT, NVDA, TSLA
 BofA GLOBAL RESEARCH

Chart 4: Rising diesel prices..tracks CPI inflation
 NY Harbor Diesel (\$/gal) vs US CPI YoY %



Source: BofA Global Investment Strategy, Bloomberg
 BofA GLOBAL RESEARCH

Chart 5: Strong nominal GDP = strong revenue growth
 US nominal GDP growth* & S&P 500 revenue (\$/share)



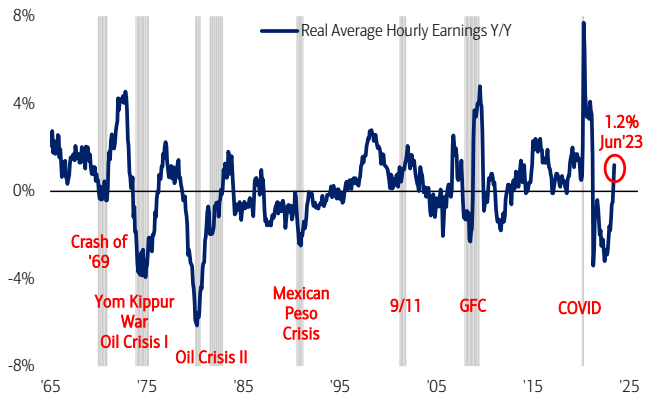
Source: BofA Global Investment Strategy, Bloomberg
 BofA GLOBAL RESEARCH

Chart 6: SPX 4600 on 20x forward EPS \$230 or 21x trailing \$220
 S&P 500 12m forward EPS and P/E multiple

P/E multiple	S&P 500 12m fwd EPS				
	210	220	230	240	250
	-9% EPS	-5% EPS	+0% EPS	+5% EPS	+9% EPS
16.0	3367	3514	3680	3846	3993
18.0	3788	3954	4140	4326	4492
20.0	4209	4393	4600	4807	4991
22.0	4630	4832	5060	5288	5490
24.0	5051	5272	5520	5768	5989

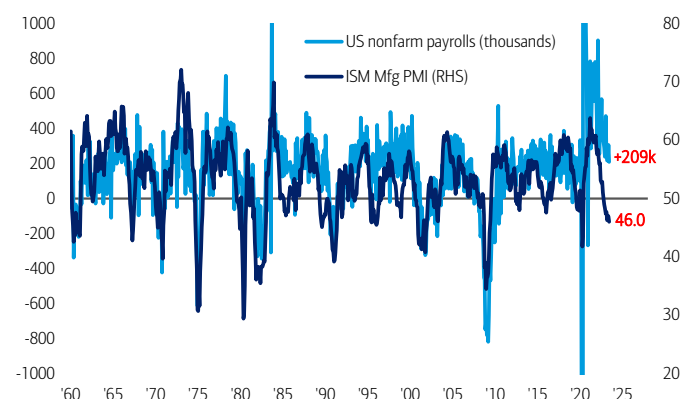
Source: BofA Global Investment Strategy, Refinitiv Datastream
 BofA GLOBAL RESEARCH

Chart 7: US real wages positive after 2 years of negative real earnings
 US average hourly earnings Y/Y adjusted for CPI inflation



Source: BofA Global Investment Strategy, Bloomberg, Haver
 BofA GLOBAL RESEARCH

Chart 8: Profits & Payrolls
 US nonfarm payrolls vs ISM Manufacturing PMI

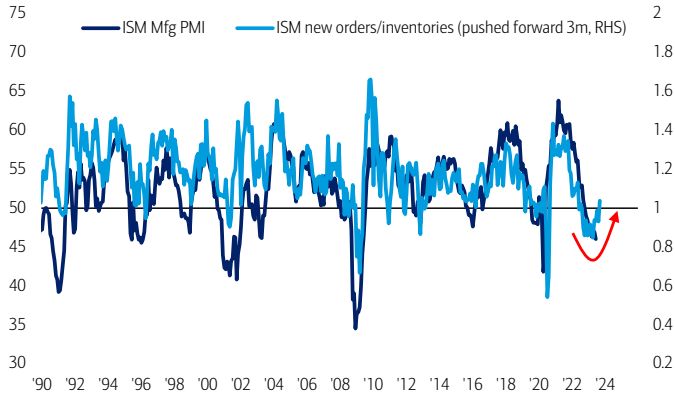


Source: BofA Global Investment Strategy, Bloomberg
 BofA GLOBAL RESEARCH



Chart 9: US ISM set to bounce to >50...

ISM manufacturing PMI vs new orders/inventories (pushed forward 3m)

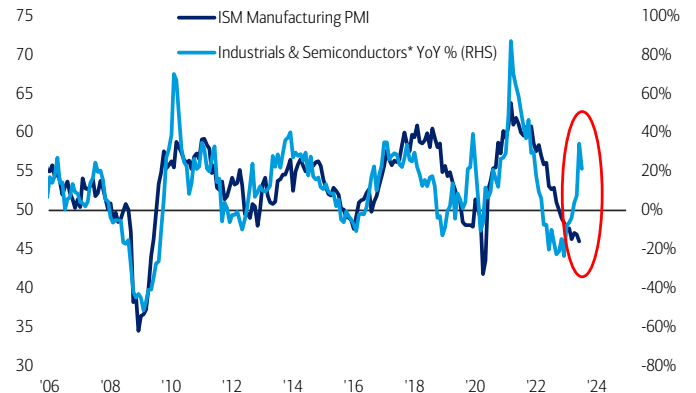


Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

Chart 10: ...though industrials & semis have already discounted...

ISM Manufacturing PMI vs Industrials & Semiconductors* YoY %

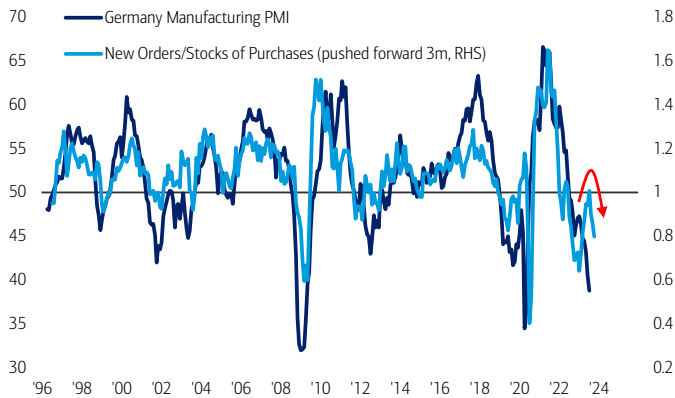


Source: BofA Global Investment Strategy, Bloomberg, *equal-weighted basket of VIS US Equity and SOX Index

BofA GLOBAL RESEARCH

Chart 11: ...while German PMI set to worsen

Germany Manufacturing PMI vs new orders/stocks of purchases (3m lead)

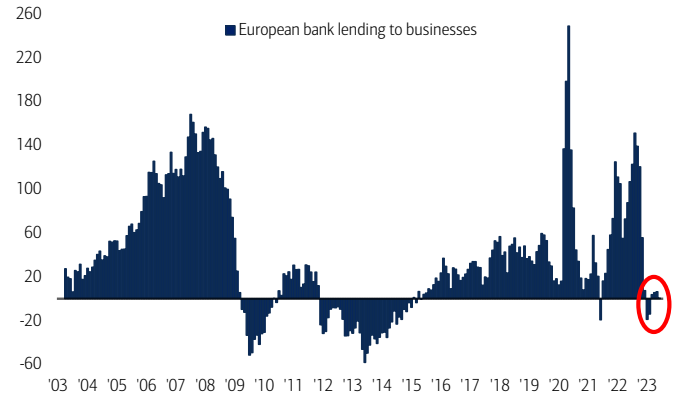


Source: BofA Global Investment Strategy, Bloomberg

BofA GLOBAL RESEARCH

Chart 12: Weak bank loan demand in Europe

Eurozone bank lending flows to nonfinancial corporations (€ bn)



Source: BofA Global Investment Strategy, Haver, ECB. 3-month cumulative lending flow

BofA GLOBAL RESEARCH

Chart 13: Asian export growth still v negative

Average exports growth YoY across Asia top 4 exporting economies

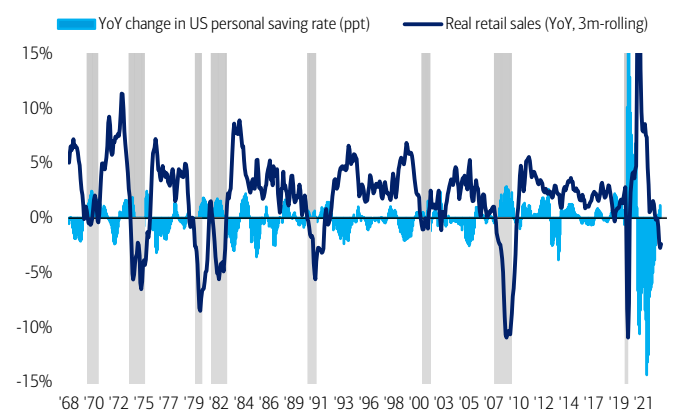


Source: BofA Global Investment Strategy, Bloomberg. *Average YoY exports growth for China, Japan, Korea, Taiwan

BofA GLOBAL RESEARCH

Chart 14: Big drops in US retail sales associated with 'hard landing'

US personal saving rate YoY % vs Real US retail sales YoY %



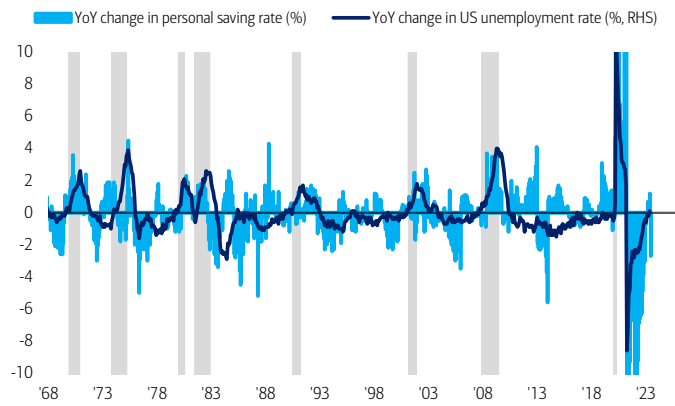
Source: BofA Global Investment Strategy, Haver, GFD Finaeon

BofA GLOBAL RESEARCH



Chart 15: Rising savings rate = recessionary

US personal saving rate YoY % vs US unemployment rate YoY %

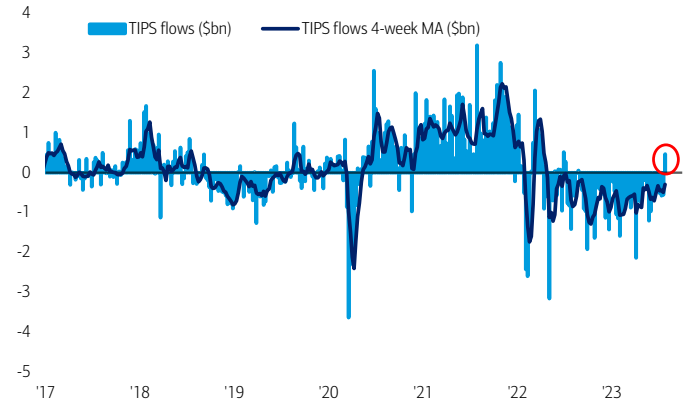


Source: BofA Global Investment Strategy, Haver, GFD Finaeon

BofA GLOBAL RESEARCH

Chart 16: First inflow to TIPS since Aug'22

Flows to TIPS: weekly vs 4wk-MA (\$ bn)

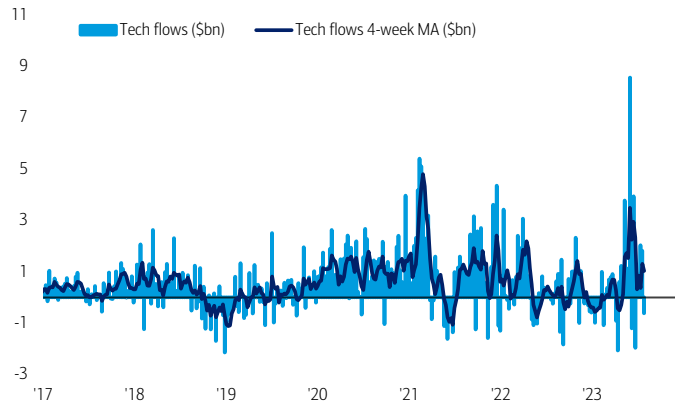


Source: BofA Global Investment Strategy, EPFR

BofA GLOBAL RESEARCH

Chart 17: Inflows past 6 weeks

Flows to Tech: weekly vs 4wk-MA (\$ bn)

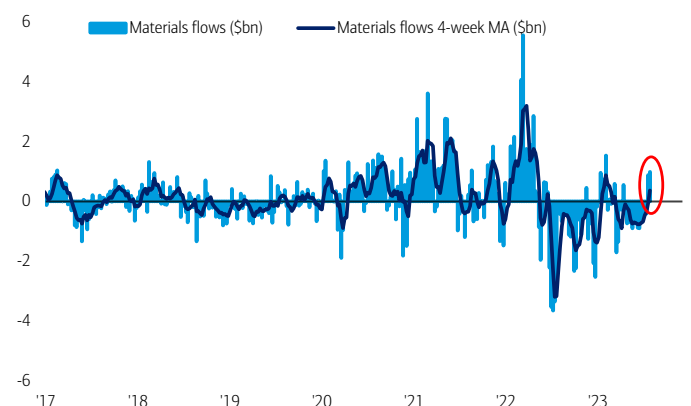


Source: BofA Global Investment Strategy, EPFR

BofA GLOBAL RESEARCH

Chart 18: Strongest momentum into materials since Feb'23

Flows to Materials: weekly vs 4wk-MA (\$ bn)

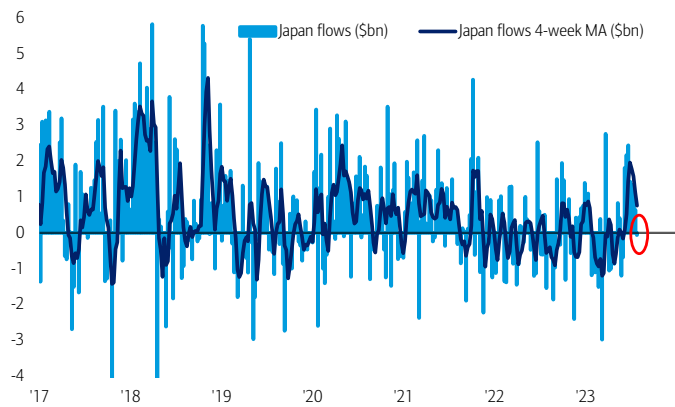


Source: BofA Global Investment Strategy, EPFR

BofA GLOBAL RESEARCH

Chart 19: 1st outflow past 8 weeks from Japan

Flows to Japan equities: weekly vs 4wk-MA (\$ bn)



Source: BofA Global Investment Strategy, EPFR

BofA GLOBAL RESEARCH



Asset Class Flows (Table 1)

Equities: \$13.8bn inflow (\$20.4bn inflow to ETFs, \$6.6bn outflow from mutual funds)

Bonds: inflows past 18 weeks (\$11.0bn)

Precious metals: outflows past 9 weeks (\$0.5bn)

Table 1: Cumulative YTD flows by asset class

Global flows by asset class, \$mn

	Wk % AUM	YTD	YTD %AUM
Equities	0.1%	79,157	0.5%
ETFs	0.2%	241,161	3.2%
LO	-0.1%	-161,294	-1.9%
Bonds	0.2%	215,258	3.2%
Commodities	-0.1%	-4,382	-1.2%
Money-market	0.5%	856,247	11.4%

*week of 07/26/2023: Source: EPFR Global

BofA GLOBAL RESEARCH

Fixed Income Flows (Chart 20)

IG Bond inflows resume (\$5.8bn)

HY Bond outflows resume (\$0.6bn)

EM Debt inflows past 2 weeks (\$0.2bn)

Munis inflows past 3 weeks (\$0.7bn)

Govt/Tsy inflows past 24 weeks (\$4.1bn)

TIPS inflows resume (\$0.5bn)

Bank loan outflows resume (\$0.0bn)

Equity Flows (Table 2)

US: inflows resume (\$9.9bn)

Japan: outflows resume (\$0.1bn)

Europe: outflows past 20 weeks (\$1.3bn)

EM: inflows past 3 weeks (\$3.6bn)

By style: inflows **US large cap** (\$8.0bn), **US small cap** (\$0.9bn); outflows **US value** (\$1.3bn), **US growth** (\$3.1bn).

By sector: inflows **materials** (\$1.0bn), **financials** (\$0.4bn), **com svcs** (\$0.2bn), **tech** (\$0.1bn); outflows **healthcare** (\$15mn), **utilities** (\$0.2bn), **real estate** (\$0.3bn), **energy** (\$0.3bn), **consumer** (\$0.4bn).

Table 2: Net fund inflows to EM, outflows from DM YTD

Global equity flows by region

	Wk % AUM	YTD
Total Equities	0.1%	79,157
long-only funds	-0.1%	-161,294
ETFs	0.2%	241,161
Total EM	0.2%	73,541
Brazil	-0.6%	127
Russia	0.0%	-19
India	1.2%	5,846
China	1.1%	43,126
Total DM	0.1%	5,617
US	0.1%	-6,710
Europe	-0.1%	-34,637
Japan	0.0%	3,222
International	0.0%	41,718

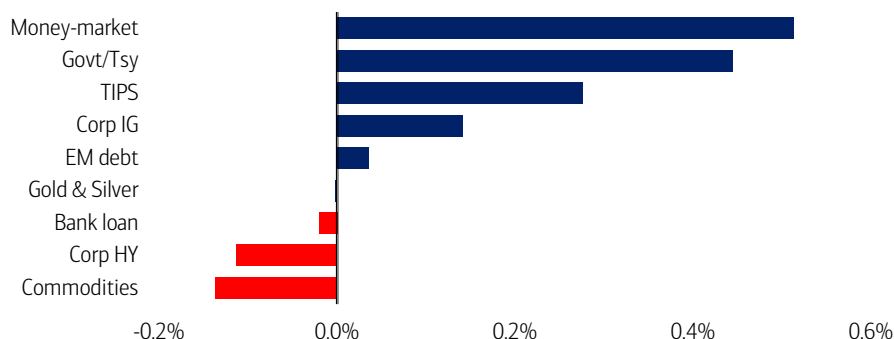
Total Equities = Total EM + Total DM

Source: EPFR Global

BofA GLOBAL RESEARCH

Chart 20: FICC inflows to cash, Treasuries, TIPS, outflows from commodities, HY bonds

Weekly FICC flows as a % AUM



Source: EPFR Global

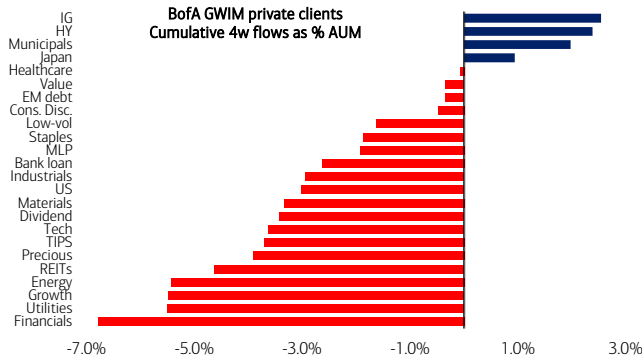
BofA GLOBAL RESEARCH



BofA private client flows & allocations

Chart 21: GWIM clients bought Japan & HY, sold TIPS past 4 wks

BofA private clients 4-week ETF flows as % of AUM

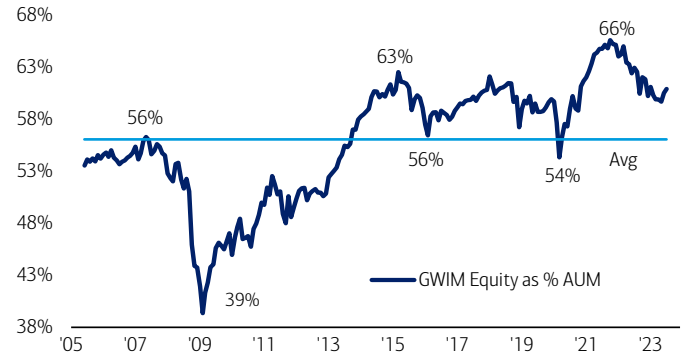


Source: BofA Global Investment Strategy

BofA GLOBAL RESEARCH

Chart 22: GWIM equity allocation at 61%

BofA private client equity holdings as % of AUM

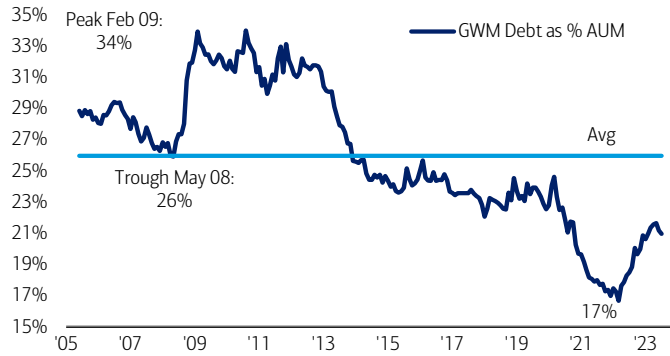


Source: BofA Global Investment Strategy

BofA GLOBAL RESEARCH

Chart 23: GWIM debt allocation at 21%

BofA private client debt holdings as % of AUM

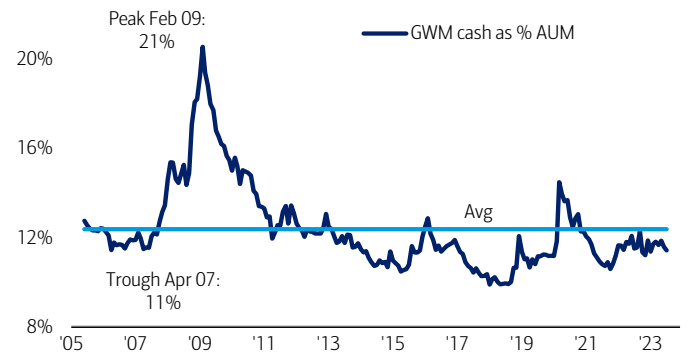


Source: BofA Global Investment Strategy

BofA GLOBAL RESEARCH

Chart 24: GWIM cash allocation vs LT average

BofA private client cash holdings as % of AUM

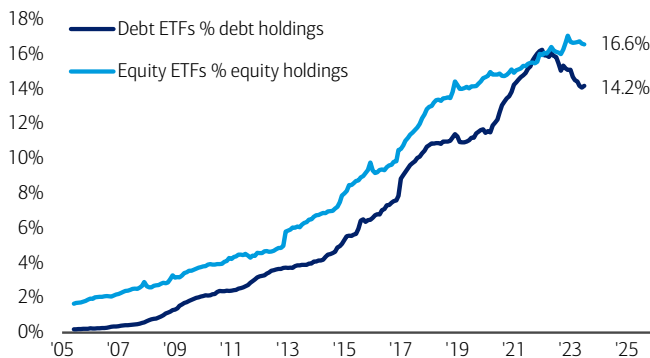


Source: BofA Global Investment Strategy

BofA GLOBAL RESEARCH

Chart 25: GWIM ETF holdings as % of AUM

BofA private client ETF holdings as % of AUM

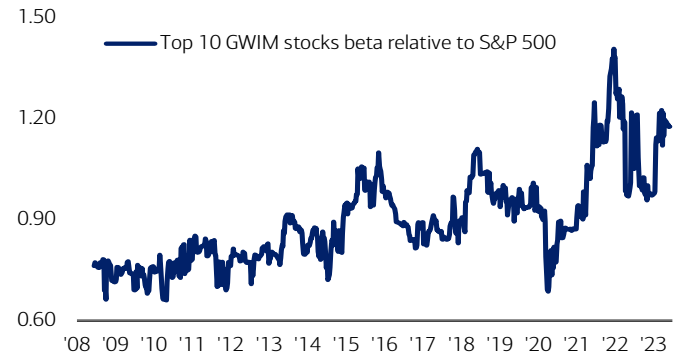


Source: BofA Global Investment Strategy

BofA GLOBAL RESEARCH

Chart 26: GWIM top 10 stocks for 1-year SPX beta

1-yr S&P 500 beta for top 10 stocks held by BofA private clients



Source: BofA Global Investment Strategy. Cash & T-bills.

BofA GLOBAL RESEARCH



The Asset Class Quilt of Total Returns

Chart 27: Commodities worst returning asset class YTD

Ranked cross asset returns by year since 2000

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
Commodities 58.2%	US Treasuries 6.7%	Commodities 39.5%	MSCI EM 56.3%	REITS 32.0%	MSCI EM 34.5%	REITS 37.5%	MSCI EM 39.8%	US Treasuries 14.0%	MSCI EM 79.0%	Gold 29.2%	US Treasuries 9.8%	REITS 23.8%	S&P 500 32.4%	S&P 500 13.7%	S&P 500 1.4%	Commodities 17.5%	MSCI EM 37.8%	Cash 1.8%	S&P 500 31.5%	Gold 24.8%	Commodities 46.3%	Commodities 31.1%	S&P 500 20.0%
US Treasuries 13.4%	Global IG 4.6%	Gold 25.6%	MSCI EAFE 39.2%	Commodities 28.7%	Commodities 33.7%	MSCI EM 32.6%	Commodities 33.0%	Gold 4.3%	Global HY 62.0%	MSCI EM 19.2%	Gold 8.9%	Global HY 19.3%	MSCI EAFE 23.3%	REITS 11.7%	US Treasuries 0.8%	Global HY 14.8%	MSCI EAFE 25.9%	US Treasuries 0.8%	REITS 27.4%	MSCI EM 18.8%	REITS 37.1%	Cash 1.5%	MSCI EAFE 14.9%
REITS 8.5%	Cash 4.4%	Global IG 14.9%	REITS 33.5%	MSCI EM 26.0%	Gold 17.8%	MSCI EAFE 26.9%	Gold 31.9%	Cash 2.1%	MSCI EAFE 32.5%	REITS 15.9%	Global IG 4.5%	MSCI EM 18.6%	Global HY 8.0%	US Treasuries 6.0%	Cash 0.1%	S&P 500 12.0%	S&P 500 22.0%	Gold -1.9%	MSCI EAFE 22.8%	S&P 500 18.4%	S&P 500 28.7%	Gold -0.8%	MSCI EM 10.0%
Cash 6.2%	Global HY 3.1%	US Treasuries 11.6%	Commodities 30.1%	MSCI EAFE 20.7%	MSCI EAFE 14.0%	Gold 23.2%	MSCI EAFE 11.6%	Global IG -8.3%	REITS 31.7%	S&P 500 15.1%	Global HY 2.6%	MSCI EAFE 17.9%	REITS 0.7%	Global IG 3.2%	MSCI EAFE -0.8%	MSCI EM 11.2%	Gold 12.9%	Global HY -3.3%	Commodities 20.1%	Global IG 10.3%	MSCI EAFE 11.9%	US Treasuries -12.9%	Gold 8.1%
Global IG 3.1%	Gold -0.7%	Cash 1.8%	Global HY 30.7%	Global HY 12.4%	REITS 10.7%	S&P 500 15.8%	US Treasuries 9.1%	Global HY -27.9%	S&P 500 26.5%	Global HY 13.9%	S&P 500 2.1%	S&P 500 16.0%	Global IG 0.1%	Gold 0.1%	REITS -3.4%	Gold 8.6%	REITS 11.5%	Global IG -3.4%	MSCI EM 18.6%	MSCI EAFE 8.4%	Global HY 1.4%	Global HY -13.2%	Global HY 6.6%
Gold -5.4%	MSCI EM -2.4%	Global HY -1.1%	S&P 500 28.7%	S&P 500 10.9%	S&P 500 4.9%	Global HY 13.5%	Global IG 7.3%	S&P 500 -37.0%	Commodities 26.1%	Commodities 13.3%	Cash 0.1%	Global IG 11.1%	Cash 0.1%	Cash 0.0%	Global IG -3.8%	Global IG 4.3%	Global HY 10.2%	REITS -3.9%	Gold 17.9%	US Treasuries 8.2%	Cash 0.0%	MSCI EAFE -13.9%	REITS 6.0%
Global HY -5.8%	REITS -7.8%	REITS -2.4%	Gold 19.9%	Global IG 9.4%	Cash 3.1%	Global IG 7.2%	S&P 500 5.5%	Commodities -42.6%	Gold 25.0%	MSCI EAFE 8.2%	Commodities -2.6%	Gold 8.3%	Commodities -2.1%	Global HY -0.1%	Global HY -4.2%	REITS 1.3%	Global IG 9.3%	S&P 500 -4.3%	Global HY 13.7%	Global HY 8.0%	MSCI EM -2.3%	Global IG -16.7%	Global IG 4.6%
S&P 500 -9.1%	S&P 500 -11.9%	MSCI EM -6.0%	Global IG 14.5%	Gold 4.6%	US Treasuries 2.8%	Cash 4.9%	Cash 5.0%	MSCI EAFE -43.1%	Global IG 19.2%	Global IG 6.0%	REITS -9.4%	US Treasuries 2.2%	MSCI EM -2.3%	MSCI EM -1.8%	Gold -10.4%	US Treasuries 1.1%	Commodities 7.6%	Commodities -13.1%	Global IG 11.4%	Cash 0.5%	US Treasuries -2.4%	S&P 500 -18.1%	Cash 2.7%
MSCI EAFE -14.0%	MSCI EAFE -21.2%	MSCI EAFE -15.7%	US Treasuries 2.3%	US Treasuries 3.5%	Global HY 1.5%	US Treasuries 3.1%	Global HY 3.0%	REITS -50.2%	Cash 0.2%	US Treasuries 5.9%	MSCI EAFE -11.7%	Cash 0.1%	US Treasuries -3.3%	MSCI EAFE -4.5%	MSCI EM -14.9%	MSCI EAFE 1.0%	US Treasuries 2.4%	MSCI EAFE -13.2%	US Treasuries 7.0%	REITS -4.4%	Global IG -3.0%	MSCI EM -19.8%	US Treasuries 1.6%
MSCI EM -30.6%	Commodities -21.4%	S&P 500 -22.1%	Cash 1.1%	Cash 1.3%	Global IG -3.0%	Commodities -0.2%	REITS -10.0%	MSCI EM -53.2%	US Treasuries -3.7%	Cash 0.1%	MSCI EM -18.2%	Commodities -0.3%	Gold -27.3%	Commodities -29.3%	Commodities -29.4%	Cash 0.3%	Cash 0.8%	MSCI EM -14.3%	Cash 2.2%	Commodities -15.0%	Gold -4.1%	REITS -25.2%	Commodities 1.5%

Source: BofA Global Investment Strategy, Bloomberg. *2023 YTD

BoFA GLOBAL RESEARCH

BofA Rules & Tools

Table 3: BofA Global Investment Strategy Proprietary Indicators

Current reading of all BofA Global Investment Strategy Proprietary Indicators

Proprietary Indicators	Category	Current reading	Current signal	Duration of signal
Contrarian				
BofA Bull & Bear Indicator (B&B) Sell when investor sentiment > 8.0; Buy when investor sentiment < 2.0	Contrarian	4.0	Neutral	1-3 months
BofA Global FMS Cash Indicator Buy when cash at or above 5.0%; Sell when cash at or below 4.0%	Contrarian	5.3%	Buy	4 weeks
BofA Global Breadth Rule Buy when net 88% of markets in MSCI ACWI trading below 200-day moving & 50-day moving averages	Contrarian	71.1%	Neutral	3 months
BofA Global Flow Trading Rule Buy when outflows from global equities & HY > 1.0% AUM over 4wks; Sell when inflows > 1.0% AUM over 4wks	Contrarian	0.4%	Neutral	8 weeks
BofA EM Flow Trading Rule Buy when outflows from EM equities > 3.0% of AUM; Sell when inflows > 1.5% of AUM over 4 wks	Contrarian	0.4%	Neutral	8 weeks
Macro				
BofA Global EPS Growth Model Model indicates trend in year-on-year change in 12-month forward global EPS growth.	Macro	-17%	EPS growth declining	6-12 months

Source: BofA Global Investment Strategy/ For a [guide to our trading models](#)

BofA GLOBAL RESEARCH

BofA Bull & Bear Indicator (B&B)

Our BofA Bull & Bear Indicator is at 4.0, signal is Neutral.

Chart 28: BofA Bull & Bear Indicator

Rises to 4.0 from 3.8



Source: BofA Global Investment Strategy
BofA GLOBAL RESEARCH

Table 4: BofA B&B Indicator

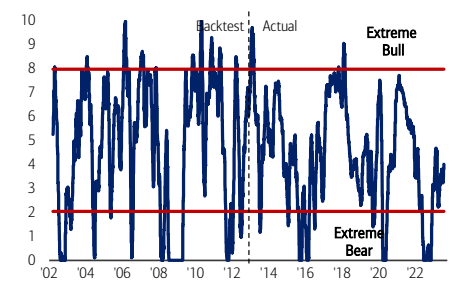
BofA Bull & Bear current component readings

Components	Percentile	Sentiment
HF positioning	57%	Bullish
Credit mkt technicals	49%	Neutral
Equity market breadth	58%	Bullish
Equity flows	59%	Bullish
Bond flows	55%	Bullish
LO positioning	9%	V Bearish

Source: BofA Global Investment Strategy, Bloomberg, EPFR Global, Lipper FMI, Global FMS, CFTC, MSCI
BofA GLOBAL RESEARCH

Chart 29: BofA Bull & Bear Indicator

BofA Bull & Bear Indicator since 2002



Source: BofA Global Investment Strategy, EPFR Global, FMS, CFTC, MSCI
BofA GLOBAL RESEARCH

Disclaimer: The indicators identified above as the BofA Bull & Bear Indicator, MVP Model, BofA Global Breadth Rule, BofA EM Flow Trading Rule, BofA Global Flow Trading Rule, BofA Global FMS Macro Indicator, BofA Global FMS Cash Rule, Global Wave, Sell-Side Indicator, and Global Financial Stress Indicator are intended to be indicative metrics 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. These indicators were not created to act as a benchmark.

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



2023 Cross-Asset Winners & Losers

Table 5: 2023 YTD ranked returns

Year-to-date ranked crossasset returns

Ranked Returns, USD-terms (2023)

Assets	Equities	Sectors	Fixed Income	FX vs. USD	Commodities	
1 US Equities	20.5%	1 Greece Equities	31.9%	12.0	1 Bitcoin	78.5%
2 Europe Equities	16.6%	2 Mexico Equities	28.8%	%	2 Mexican peso	15.8%
3 Japan Equities	16.1%	3 Italy Equities	25.1%	2 European HY	3 Brazilian real	11.4%
4 UK Equities	12.5%	4 Spain Equities	15.5%	3 US Corp HY	4 Swiss franc	7.4%
5 EM Equities	10.1%	5 Brazil Equities	8.2%	4 EM Sovereign	5 British pound	7.1%
6 Gold	7.9%	6 Taiwan Equities	6.9%	5 German Govt	6 Indonesian rupiah	3.7%
7 High Yield Bonds	6.6%	7 Korea Equities	5.8%	6 BBB IG	7 Euro	3.5%
8 EM Sovereign Bonds	5.5%	8 US Equities	20.5%	7 UK Govt	8 Canadian dollar	2.6%
9 Investment Grade Bonds	4.7%	9 Germany Equities	20.4%	8 US Corp IG	9 Singapore dollar	1.1%
10 Pacific Rim xJapan	4.0%	10 France Equities	19.4%	9 EM Corporate	10 Indian rupee	0.9%
11 Government Bonds	1.5%	11 Japan Equities	16.1%	10 3-Month Treasury Bills	11 Swedish krona	0.2%
12 Oil	-1.8%	12 Switzerland Equities	15.3%	11 TIPS	12 Korean won	-0.7%
13 US Dollar	-2.5%	13 UK Equities	12.5%	12 US Mortgage Master	13 Australian dollar	-0.8%
14 Industrial Metals	-4.4%	14 Canada Equities	11.2%	13 30-year Treasury	14 Taiwanese dollar	-1.7%
		15 India Equities	8.3%	14 Treasury Master	15 NZ dollar	-2.2%
		16 Australia Equities	7.5%	15 Non-US IG Government	16 Norwegian krone	-3.0%
		17 Singapore Equities	7.4%	16 2-year Treasury	17 South African rand	-3.3%
		18 Portugal Equities	6.5%	17 Japan Govt	18 Chinese renminbi	-3.4%
		19 S. Africa Equities	4.9%		19 Japanese yen	-6.5%
		20 China Equities	0.2%		20 Turkish lira	-30.6%
		21 Hong Kong Equities	-6.5%			
		22 Turkey Equities	-10.2%			

Source: BofA Global Investment Strategy, Bloomberg, as of 26 Jul 2023.

BofA GLOBAL RESEARCH

Table 6: The Overbought & Oversold

Ranked deviation from 200-day moving averages in US dollar terms

Ranked Deviation from 200-Day Moving Average, USD-terms (as of 26 Jul '23)

Assets	Equities	Sectors	Fixed Income	FX vs. USD	Commodities	
1 US Equities	12.6%	1 Greece Equities	19.2%	1 Mexican peso	1 Silver	7.7%
2 Japan Equities	10.3%	2 Brazil Equities	14.5%	2 Brazilian real	2 Iron Ore	6.6%
3 Europe Equities	8.6%	3 Italy Equities	12.7%	3 Swiss franc	3 Gold	4.4%
4 UK Equities	7.4%	4 Spain Equities	10.2%	4 British pound	4 WTI Crude Oil	2.9%
5 EM Equities	7.3%	5 Mexico Equities	6.0%	5 Euro	5 Brent Crude Oil	1.3%
6 Gold	4.5%	6 US Equities	5.5%	6 Korean won	6 Copper	0.7%
7 EM Sov Bonds	4.3%	7 Korea Equities	5.4%	7 Norwegian krone	7 Platinum	-3.9%
8 High Yield Bonds	4.1%	8 Taiwan Equities	3.5%	8 South African rand	8 Natural Gas	-22.9%
9 Pacific Rim xJapan	3.2%	9 Japan Equities	2.8%	9 Canadian dollar		
10 Oil	2.9%	10 Germany Equities	2.6%	10 Singapore dollar		
11 Investment Grade Bonds	2.8%	11 India Equities	2.5%	11 Indonesian rupiah		
12 Government Bonds	0.6%	12 France Equities	8.7%	12 Swedish krona		
13 Industrial Metals	-2.8%	13 Switzerland Equities	8.6%	13 Australian dollar		
14 US Dollar	-2.9%	14 UK Equities	7.4%	14 Indian rupee		
		15 S. Africa Equities	6.8%	15 German Govt		
		16 Portugal Equities	6.3%	16 30-year Treasury		
		17 Canada Equities	6.1%	17 UK Govt		
		18 Singapore Equities	4.9%			
		19 Australia Equities	4.7%			
		20 China Equities	1.3%			
		21 Russia Equities	0.0%			
		22 Turkey Equities	-0.2%			
		23 Hong Kong Equities	-2.0%			

Source: BofA Global Investment Strategy, Bloomberg, as of 26 Jul 2023.

BofA GLOBAL RESEARCH

Acronyms

FMS – Fund Manager Survey

GWIM – Global Wealth and Investment Management



YCC – Yield Curve Control
 QE – Quantitative Easing
 QT – Quantitative Tightening
 S&L – Savings & Loan
 MMF – Money Market Fund
 LTCM - Long-Term Capital Management
 FCI – Financial conditions index

Disclosures

Important Disclosures

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 ^{R1}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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

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.

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.

Other Important Disclosures

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.bofam.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 (HKSF); 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 Investment Industry Regulatory Organization of Canada; 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 HKSCF; 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.

Copyright and General Information:

Copyright 2023 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities.

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 or 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.

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.

