# Global Convertibles Chartbook

# A broader rally can boost CBs

## Underwhelming small-caps have kept a lid on CB returns

Many would agree that CB outright returns have been disappointing year-to-date, especially given large-cap stocks continue to make new highs and cash still yields nearly 5%. We believe the malaise in CB returns can mostly be explained by the market's close link to small-cap issuers, whose equities have underperformed amid the rise of the Magnificent 7, AI-hype, and higher-for-longer borrowing costs. Other factors weighing on CBs include the dearth of primary activity in January and early February, ongoing outflows from outright funds, and sizable drawdowns from a number of large issuers.

## While the prospects for a broader rally have improved…

Fortunately, our strategists believe the outlook for small-cap equities is more favorable from here. Specifically, they point to macro support from the peaking rates cycle, which historically has benefitted small-caps versus large-caps, and fundamental backing from improved earnings growth of small-cap issuers and positive trends in key macroeconomic indicators (such as PMIs, consumer sentiment, and small business optimism). Additionally, they believe the historically large valuation gap relative to large-caps and light investor positioning may serve as additional tailwinds for small-caps.

## …FOMC + FOMO risks continue to challenge the bull case

While we believe CBs are well positioned to profit from the small-cap bull case, the pace of FOMC rate cuts and the FOMO trade in large-cap tech remain key risks. Indeed, history suggests that upward surprises in inflation data which coerces the market to reprice rates expectations (like we saw last month) typically results in both small-cap and CB issuer equity underperformance. What's more comparisons to the 2000's Tech Bubble era and their relatively low volatility indicate that the large-cap Magnificent 7 stocks may have more room for upside despite rising concerns that they are in a bubble.

## CBs lagged stocks on repriced rates and surge in big tech

Though they saw solid gains last month, global CBs (+2.5%) trailed broad-market stocks amid the market's repricing of rates expectations (now pricing just three 25bps cuts in 2024) and the surge in mega-cap tech. Year-to-date, global CBs have returned +1.8%.

## Issuance doldrums broken in top month for US since 2021

Although the global CB primary market was sluggish at the start of February, deal flow returned in spectacular fashion later in the month as issuers came to terms with higher-for-longer rates and capitalized on the recent stock rally. Despite the slow take up, February's volumes totaled $9.1bn globally with over $7.9bn from the US, the region's best month since November 2021. Year-to-date, global issuance now totals $14.3bn.

## Chartbook access

To view the Excel Chartbook, which includes a variety of data, tables, and charts focused primarily on returns, markets characteristics, and supply and demand, among other topics, please refer to our Global Convertibles Chartbook.



Timestamp: 01 March 2024 01:37PM EST

**01 March 2024**

Convertibles
Global

BofA Data Analytics

**Michael Youngworth, CFA**
CBs, Pfds & Derivs Strategist
BofAS
+1 646 855 6493
michael.youngworth@bofa.com

**Matthew Welty**
Equity-Linked Analyst
BofAS
matthew.welty@bofa.com

## Chartbook access:

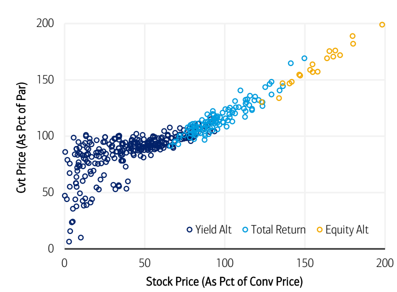
Access the Chartbook here.

**Exhibit 1: Global convertible performance**
Local currency terms

| Region | Code | Feb '24 | YTD |
|---|---|---|---|
| G300 | VG00 | 2.45% | 1.82% |
| US | VXA0 | 1.20% | 0.02% |
| Europe | VE00 | 1.75% | 1.46% |
| Asia-ex Japan | VASI | 3.26% | 0.81% |
| Japan Domestic | VJDM | -- | -- |
| Japan Euro | VJEU | 2.31% | 6.33% |
| Emerging Markets | VEMK | 3.08% | 0.26% |

**Source:** ICE Data Indices, LLC
BofA GLOBAL RESEARCH

**Exhibit 2: Global convertibles Tableau visualization tool**
Click the chart to access the tool




**Source:** BofA Global Research, ICE Data Indices, LLC. Universe capped at names which are trading at less than 200% of par. Mandatories are excluded.
BofA GLOBAL RESEARCH

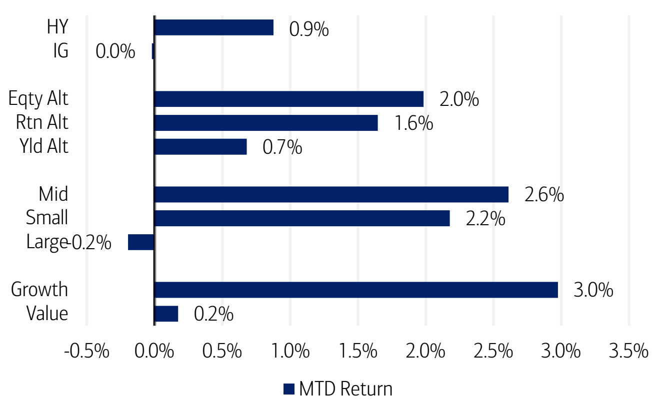
We include a list of abbreviations at the end of this report.

# CBs gain modestly amid repriced rates expectations and mega-cap tech surge

Global convertibles, as measured by the ICE BofA Global Convertibles G300 (VG00), added nearly 2.5% last month on a local currency basis, while US CBs underperformed with a +1.2% return (Exhibit 1). Though positive, CB market returns were modest relative to broad-market equities—the MSCI World rallied 4.7%, while the S&P 500 gained 5.3%. Indeed, smaller-cap CB issuers underperformed their bigger counterparts amid the surge in mega-cap tech (catalyzed by Nvidia's knockout earnings release and forward guidance—see our fundamental analysts' take in their 22-Feb NVDA note) and the market's repricing of rates expectations following January's hotter-than-expected CPI report. Specifically, due mainly to sticky inflation in the services sector, the Fed pushed back on the prospect of a March rate cut. The market is now pricing in just three 25bps cuts versus more than six at the start of the year, and our BofA economists are now calling for three cuts, beginning in June (see their 16-Feb Global Economic Weekly for details). We offer more detail on the relationship among interest rates, small-cap stocks, and CBs in the main topic below.

Within the US, growth names, mid-caps, and high delta "equity alternatives" outperformed, while on sectors consumer staples, telecommunications, and industrials led. Sectors more prominent within CBs, including consumer discretionary, healthcare, utilities, and media, underperformed (Exhibit 3 and Exhibit 4). Convertible arbitrage, as measured by the HFR Convertible Arbitrage Index, gained about 0.9% last month.

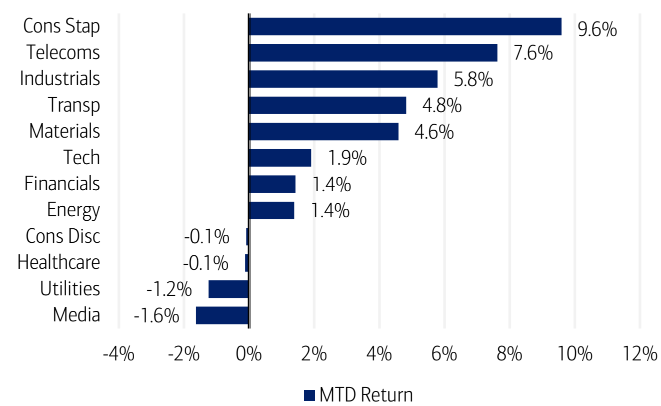
**Exhibit 3: US convertible bond performance by bucket**
Growth, mid-caps, and high delta "equity alternatives" outperformed…




**Source:** ICE Data Indices, LLC

BofA GLOBAL RESEARCH

**Exhibit 4: US convertible bond performance by sector**
…as did consumer staples, telecommunications, and industrials




**Source:** ICE Data Indices, LLC

BofA GLOBAL RESEARCH

Though they trailed stocks in February, global CBs largely outperformed each global HY, IG, and sovereign credit. Year-to-date, global convertibles have returned +1.8%, second only to global stocks (+6.0%), as measured by the MSCI World Index (Exhibit 5).

**Exhibit 5: Global cross asset returns**
Both USD and local currency terms

| Asset Class | Code | Feb '24 USD | Feb '24 LOC | YTD USD | YTD LOC |
|---|---|---|---|---|---|
| Global Govt Bonds | W0G1 | -1.59% | -0.92% | -3.35% | -1.47% |
| Global IG Index | G0BC | -1.34% | -1.12% | -1.80% | -1.06% |
| Global HY Index | HW00 | 0.35% | 0.45% | 0.41% | 0.86% |
| MSCI World Equity Index | GDUEACWF | 4.33% | 4.69% | 4.96% | 6.01% |
| Global Convertibles (G300) | VG00 | 2.25% | 2.45% | 1.18% | 1.82% |

**Source:** ICE Data Indices, LLC

BofA GLOBAL RESEARCH

**For comprehensive data on returns, including detailed breakouts by structure and sector, heat maps, and single names, please refer to section 1 of the attached Excel Chartbook.**

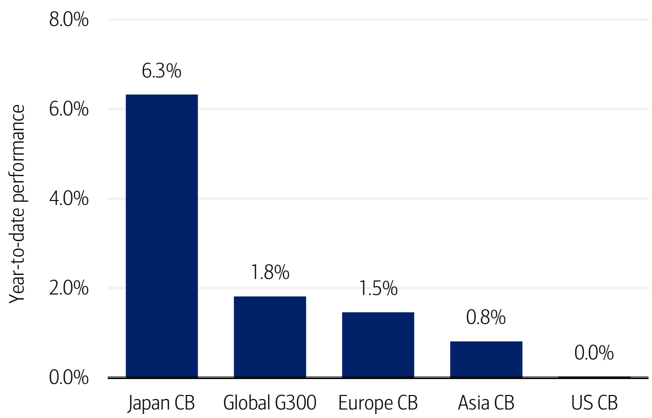
# A broader rally would benefit CBs, but FOMC and FOMO risks are alive and well

## Underwhelming small cap returns have kept a lid on CBs

### Convertible outright returns have been tepid for the first two months of 2024

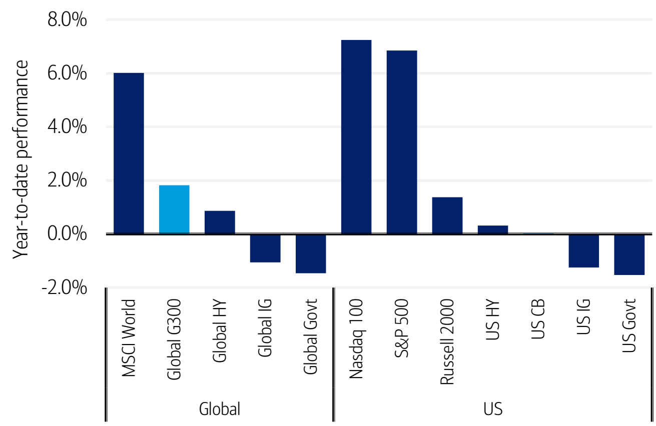
It's fair to say that convertible bond outright returns have been somewhat disappointing in the first two months of 2024. With the exception of Japan Euro CBs, which have added 6.3% year-to-date, all regions have logged sub-2% gains, and the US has added less than 0.1% (Exhibit 6). Though we expected this year would be challenging for CB outright returns and made the case for tempered performance expectations in 2024, (see our 20-Nov Global Convertibles Year Ahead), it is a tough pill to swallow when broad large-cap stock indices continue to make all-time highs and cash still yields close to 5%. Year-to-date, the Nasdaq 100 (NDX) has rallied 7.2%, the S&P 500 (SPX) has added 6.8%, and the MSCI World (MXWO) has gained 6.0%—all well ahead of their respective regional convertible indices. However, compared to their traditional fixed income counterparts, CBs have fared well as they've led IG corporates and government bonds both within the US and globally, and they've also topped HY bonds globally (Exhibit 7).

**Exhibit 6: Global convertible bond year-to-date performance by region**
With the exception of Japan, convertible bond outright performance across regions has been just modest year-to-date




**Source:** BofA Global Research, ICE Data Indices, LLC. Data as of 29-Feb-2024.
BofA GLOBAL RESEARCH

**Exhibit 7: Global and US cross-asset year-to-date performance**
While fixed income has also underwhelmed, large-cap stocks have handily outperformed convertible bonds year-to-date



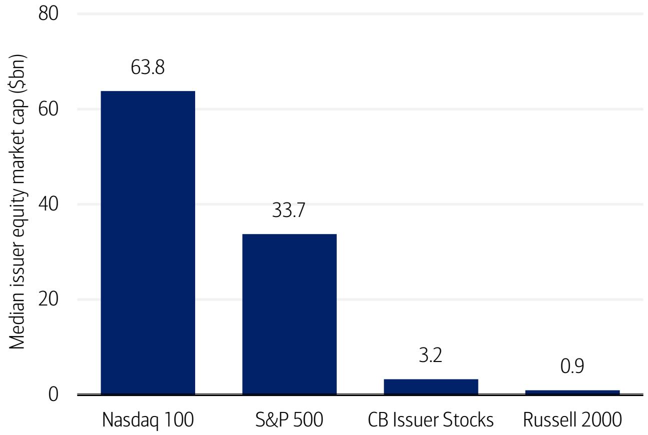

**Source:** BofA Global Research, ICE Data Indices, LLC., Bloomberg. Data as of 29-Feb-2024.
BofA GLOBAL RESEARCH

### The small-cap tilt of CB issuers has held back convertible bond returns...

What's behind the malaise in 2024's year-to-date CB performance? We believe the bulk can be explained by the CB's close link to small-caps, which have largely underperformed large-cap equities both last year and so far this year (see our 2024 postmortem and Exhibit 7 above, which shows that the Russell 2000 small-cap equity index has lagged both the Nasdaq and the S&P). Indeed, while the rate repricing in Q4 2023 helped to ease the pain, generally small-caps have struggled to keep pace with large-caps amid the rise of the Magnificent 7, AI-hype, and higher-for-longer borrowing costs.

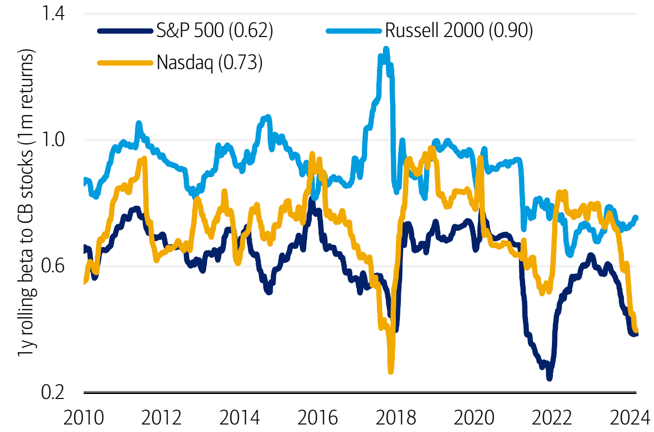
Though a tech-heavy market, CB issuers are largely earlier-stage and smaller in size with a median equity market cap of just $3.2bn (Exhibit 8), and their historical returns have been much more closely-linked to the Russell 2000 than the much larger-cap S&P 500 or Nasdaq 100. Specifically, we've found that US CB underlying stocks have an average 1-year rolling beta of 0.90 versus the Russell, compared to a 0.73 beta to the Nasdaq and a 0.62 beta to the S&P (Exhibit 9). This is also reflected in year-to-date performance trends—on a cumulative basis since the start of 2024, CB issuer stock returns have been more similar to the Russell's than the other indices' returns (Exhibit 10). While we can also point to historically low deltas as a limiting factor on their performance (the US average delta is now just 0.40, in its 14th percentile since 2001), given the weak price action in convertible bond underlying stocks, this has been less impactful (Exhibit 11). Indeed, CBs themselves have been outperforming their underlying stocks year-to-date.

**Exhibit 8: Median issuer market cap of equity and CB indices**
CB issuer underlying stocks have a median market cap of $3.2bn, much closer to the median cap of Russell 2000 issuers than S&P or Nasdaq issuers



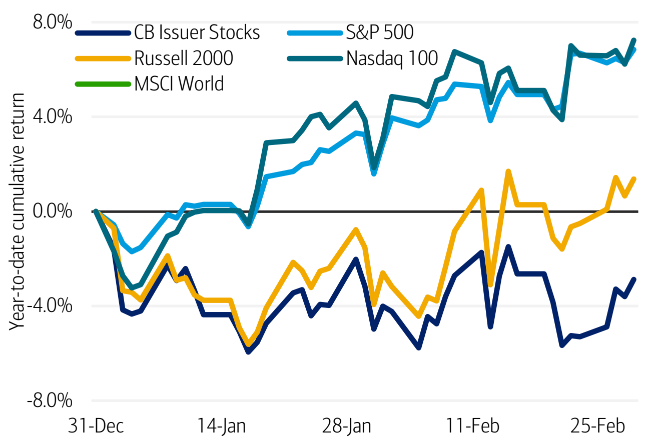

**Source:** BofA Global Research, ICE Data Indices, LLC., Bloomberg. Data as of 29-Feb-2024.
BofA GLOBAL RESEARCH

**Exhibit 9: 1y rolling beta to CB underlying stocks**
CB underlying stocks have a 0.90 average beta to Russell 2000 stocks, more than its beta to S&P 500 or Nasdaq names



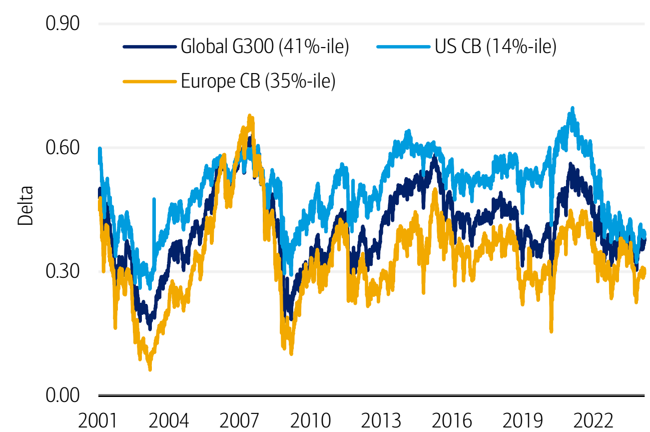

**Source:** BofA Global Research, ICE Data Indices, LLC., Bloomberg. Data as of 29-Feb-2024.
BofA GLOBAL RESEARCH

**Exhibit 10: Year-to-date cumulative performance of equity indices**
Year-to-date, CB issuer underlying stock performance has closely tracked that of the Russell 2000




**Source:** BofA Global Research, ICE Data Indices, LLC., Bloomberg. Data as of 29-Feb-2024.
BofA GLOBAL RESEARCH

**Exhibit 11: Global, US, and European CB market average deltas**
While low deltas suggest CBs haven't captured much of their stocks' performance, that's been favorable given small cap declines



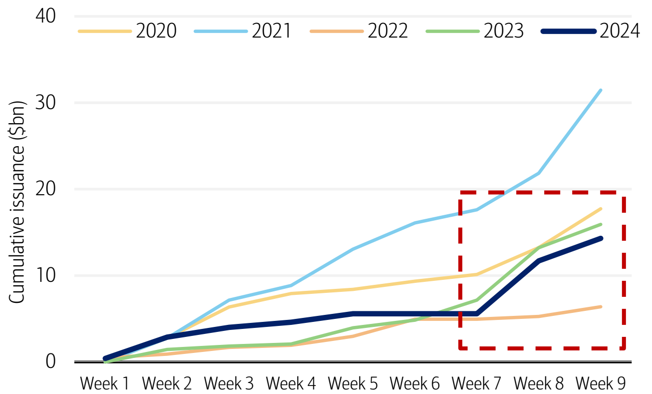

**Source:** BofA Global Research, ICE Data Indices, LLC. Data as of 29-Feb-2024.
BofA GLOBAL RESEARCH

## …while a slow start to primary and outflows have limited alpha opportunities

While we think the small-cap issuer bias is the leading reason why CB performance has been relatively muted, other factors have also played contributing roles. For one, primary market activity was very sluggish for the first seven weeks of the year—just $5.6bn had priced globally through mid-February, a pace more on par with 2022's historically low volumes than other recent years (Exhibit 12). Although deal volumes have picked up meaningfully (nearly tripling in the final two weeks of February to $14.3bn globally—see our issuance section below), the dearth through much of January and the first half of February allowed convertible bond investors few chances to seize alpha opportunities surrounding new paper, which is often priced at a discount to fair value and to names in the secondary market, and it limited chances to profit from the portfolio rebalancing that typically occurs around new deals. Fortunately, this headwind has begun to fade as deal activity has resumed (see our 28-Feb Global Convertibles Quick Note for details).

Additionally, though they have cooled somewhat since mid-2023, CB retail funds across regions continue to face net outflows, making it more difficult for managers to deploy capital and seek alpha opportunities (Exhibit 13).

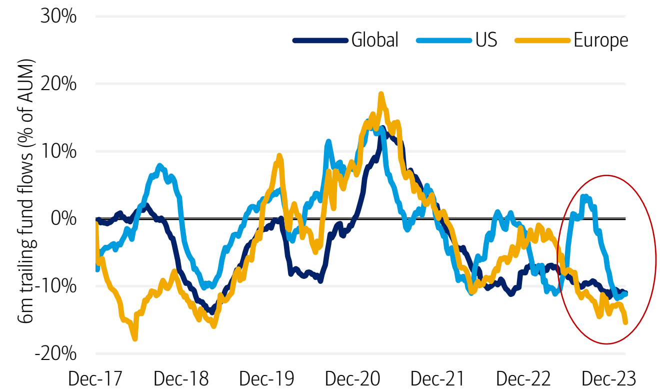
**Exhibit 12: Global convertible bond cumulative new issuance pace**
2024's year-to-date new issuance pace has struggled for the first 7 weeks of the year, though its improved meaningfully since then




**Source:** BofA Global Research. Data as of 29-Feb-2024.

BofA GLOBAL RESEARCH

**Exhibit 13: Convertible bond 6-month trailing fund flows (% of AUM)**
Convertible bond retail funds globally have continued to see outflows on a 6-month trailing basis



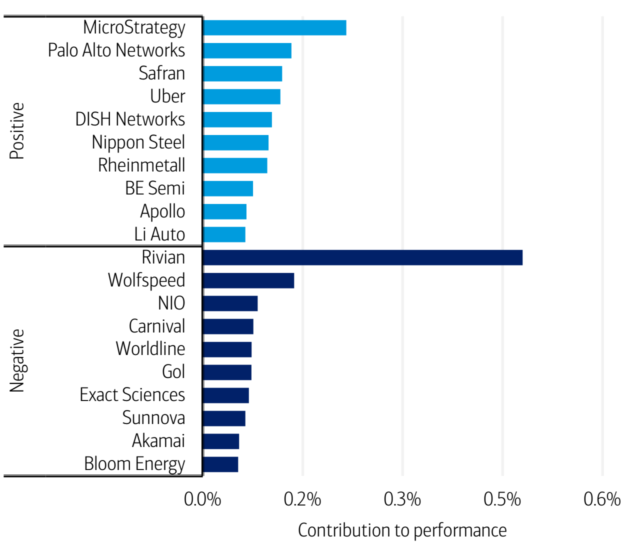

**Source:** EPFR Global. Data as of 28-Feb-2024.

BofA GLOBAL RESEARCH

### Underperformance of several large CB issuers has also weighed on returns

Though we think broader trends are more at play here than idiosyncratic ones, we'd be remiss to ignore that a number of single names have been meaningful drags on both global and US index-level performance year-to-date. Top contractors from top-line returns include Rivian (RIVN), Wolfspeed (WOLF), NIO (NIO), and Carnival (CCL), each of which has multiple tranches outstanding which have seen sharp declines since the start of the year (Exhibit 14 and Exhibit 15). However, though those losses have been partially offset by the likes of MicroStrategy (MSTR), Palo Alto Networks (PANW), Safran (SAF), Uber (UBER), DISH Networks (DISH), and Nippon Steel (NIPSTL).

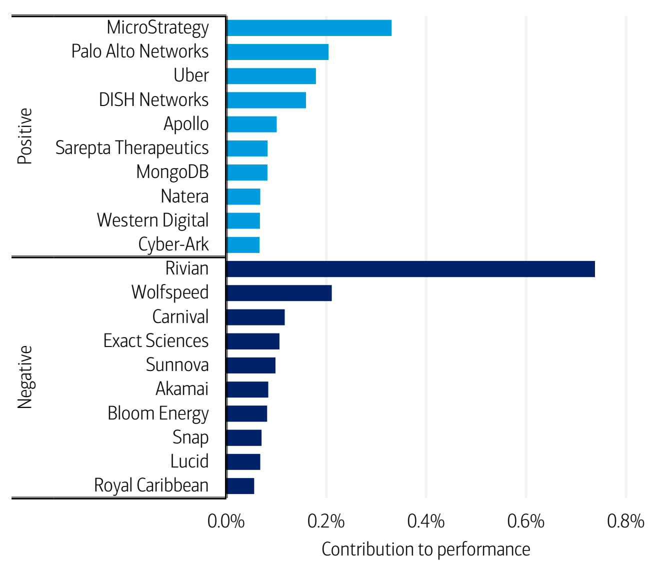
**Exhibit 14: Top and bottom contributors to global CB performance**
Globally, leading laggards were Rivian, Wolfspeed, and NIO




**Source:** ICE Data Indices, LLC. Data as of 29-Feb-2024.

BofA GLOBAL RESEARCH

**Exhibit 15: Top and bottom contributors to US CB performance**
Within the US, leading laggards were Rivian, Wolfspeed, and Carnival




**Source:** ICE Data Indices, LLC. Data as of 29-Feb-2024.

BofA GLOBAL RESEARCH

## Convertibles would benefit from a broader market rally

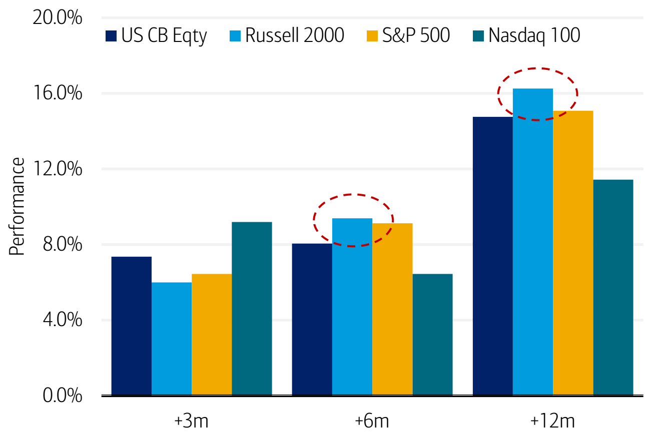
### Improving macro support suggests there's a chance for small-cap leadership…

Though small-caps being a harbinger for CBs has been challenging thus far, the outlook for small-cap stocks now looks more favorable. In their recent Small/Mid-Cap Strategy Year Ahead Outlook, our equity strategists outlined a bullish case for small-cap equities based on a number of key points, including fundamental macro support, improving market breadth, light positioning, and a historic valuation discount to large-caps.

With respect to the Fed cycle, our strategists noted that small-caps have typically outperformed following hiking cycles and in the period following rate cuts, historically. Indeed, we found that in the 6- and 12-month windows after the past four cycle peaks (Mar-95, Jun-00, Jun-06, and Dec-18), the Russell 2000 outperformed both the S&P 500 and the Nasdaq 100, on average, and CB underlying stocks posted comparable returns (Exhibit 16). Though last month's hot inflation data, particularly in the services sector, has challenged the view, investor consensus and our economists still believe the hiking cycle has concluded, and the Fed will begin to cut rates later in 2024 (our BofA economists are calling for the first cut in June, though they concede that the risks are skewed toward a further delay—see their 16-Feb Global Economic Weekly for details).

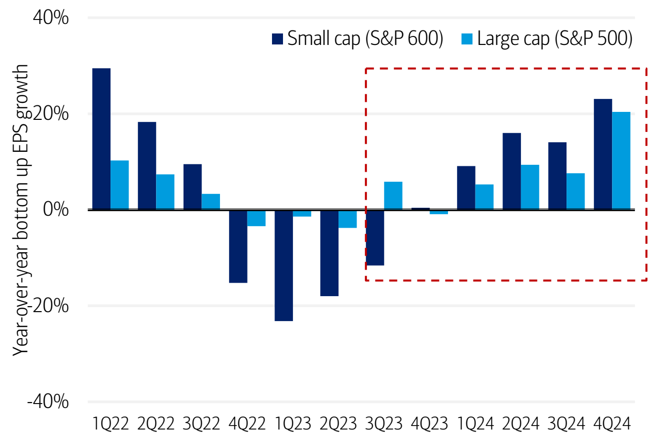
Besides support from the peaking rates cycle, our equity strategists think small-cap stocks may benefit from improved earnings growth. They note that while large-cap profit growth already turned positive in Q3 2023, small-cap profit growth is expected to turn positive in 2024 and outpace that of large-caps for the remainder of the year—historically, small-cap profit growth lags large-caps by one quarter (Exhibit 17). In addition to the rates cycle and profits, other macro support features include positive trends in key macroeconomic indicators for small-caps (such as PMIs, consumer sentiment, and small business optimism), the potential for margin expansion among small-cap issuers, and improving breadth in equity markets. Please refer to our equity strategists' Small/Mid-Cap Strategy Year Ahead Outlook for full details of their views.

**Exhibit 16: Performance following the past four rate cycle peaks**
The Russell 2000 has outperformed over the subsequent 6m and 12m periods, on average, following the past four rate cycle peaks




**Source:** BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 29-Feb-2024.
BofA GLOBAL RESEARCH

**Exhibit 17: Bottom up EPS growth for small-caps v. large-caps**
From Q4 2023 to Q4 2024, consensus estimates suggest that small-cap equities will see better earnings growth than large-cap equities



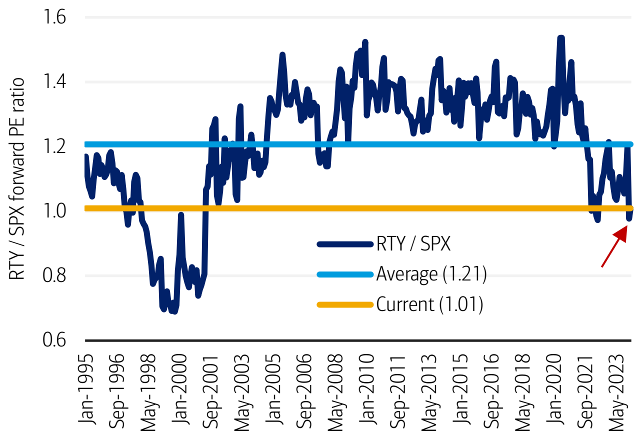

**Source:** BofA Equity & Quant Strategy, FactSet. Consensus estimate from 3Q 2023 onward.
BofA GLOBAL RESEARCH

**…as does their valuation gap versus large-caps and light manager positioning**

The historically large valuation gap between small-caps and large-caps and light investor positioning in small-cap names are also potential tailwinds to small-caps, and therefore CBs, in 2024. On valuations, even despite the Q4 2023 rally, Russell 2000 stocks not only trade at just their median historical forward PE since 1995 (about 18, based on Bloomberg data), but also trade at a historically large discount to S&P 500 stocks. Indeed, the ratio between the two (1.01) is currently in its 14$^{th}$ percentile since 1995 and well below its long-term average of 1.21 (Exhibit 18). To us, this relative valuation gap suggests another potential opportunity for small-caps to catch up, alongside the macro factors we discussed earlier.

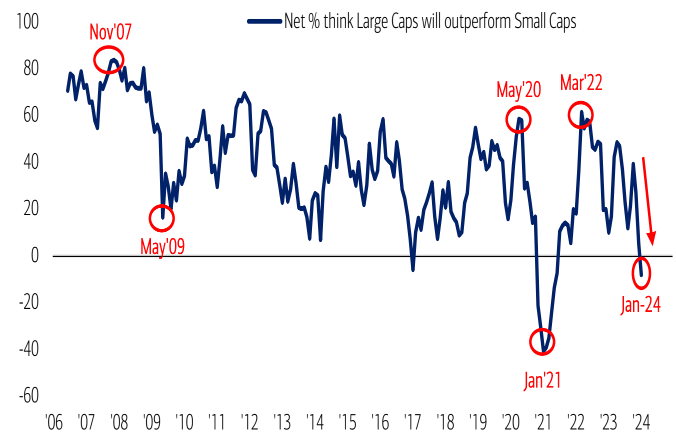
Data from BofA's Fund Manager Survey (FMS) indicates that global equity investors see the opportunity in small caps—in January, the most participants since June 2021 thought that small-cap stocks would outperform large-cap stocks since over the next 12 months (Exhibit 19). However, investors are not positioned for this view. Specifically, we've found that over the past year, inflows into global small-cap equity funds still meaningfully trail those into global large-cap equity funds, and the relative difference is near its lowest levels in the past 5 years (Exhibit 20). What's more, even within the smaller-cap CB space, managers continue to favor converts from bigger-cap issuers, according to data from our most recent Global Convertibles Investor Survey (Exhibit 21).

**Exhibit 18: Russell 2000 versus S&P 500 forward PE ratio**
Compared to history, the Russell 2000 index is currently trading at a relative discount to the S&P 500



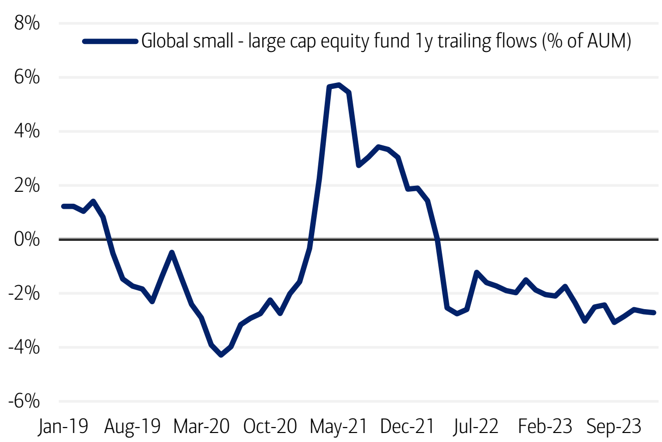

**Source:** BofA Global Research, Bloomberg. Data as of 29-Feb-2024.
BofA GLOBAL RESEARCH

**Exhibit 19: Net % FMS investors who expect large > small in next 12m**
In January, Fund Manager Survey participants thought small-cap stocks would lead large-cap stocks for the first time since June 2021



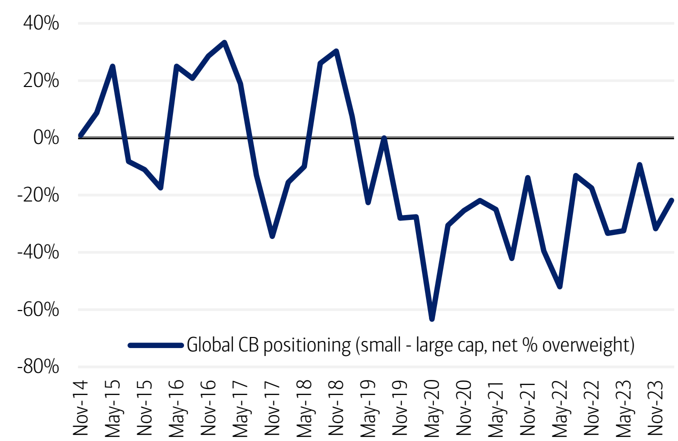

**Source:** BofA Global Fund Manager Survey
BofA GLOBAL RESEARCH

**Exhibit 20: Global small- versus large-cap equity fund flows**
On a relative basis during the last 5 years, small-cap stock funds have seen among the fewest inflows versus large-cap funds on a 1y trailing basis




**Source:** EPFR Global. Data as of 31-Jan-2024.
BofA GLOBAL RESEARCH

**Exhibit 21: Small- versus large-cap positioning of global CB investors**
Among global convertible bond investors, managers continue to favor CBs from large-cap issuers relative to those from small-cap issuers




**Source:** BofA Global Convertibles Investor Survey
BofA GLOBAL RESEARCH

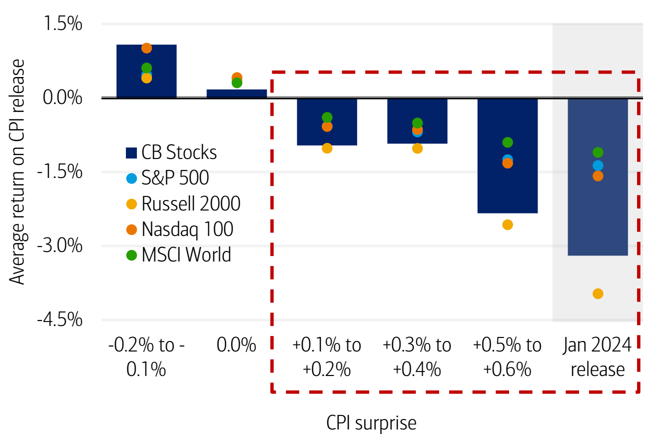
## However, the FOMC and FOMO trade in large-cap tech pose significant risks

While we believe converts are well positioned to benefit from the small-cap bull case, there are a number of key risks, most of which are centered around the pace of FOMC rate cuts and the FOMO trade in large-cap tech. On rate cuts, to account for the recent hotter-than-expected CPI data, the market has already begun repricing lower its pace of cuts in 2024 (now just three 25bps cuts are priced-in versus more than six at the start of the year). However, given the sticky labor, consumer, and services inflation, our economists concede risks are skewed to fewer, rather than additional, cuts, and some commentators are now even questioning whether the Fed's next move will actually be a rate hike. We believe the risk that further hot inflation data which challenges the pace of rate cuts is central to the outlook for CB performance in 2024—indeed, CB issuer stocks (along with the Russell 2000) have underperformed large-cap equities, on average, on days when core CPI data surprised to the upside this past cycle (since 2020), including during January 2024's release mid-last month. On the contrary, CB underlying equities outperformed during instances when core CPI surprised to the downside (Exhibit 22).

In addition to FOMC risks, FOMO risks may also challenge small-cap stock, and thus CB, performance. While alarms have been ringing that the large-cap Magnificent 7 stocks are starting to look bubbly, comparisons to the early 2000's Tech Bubble period's own top 7 stocks suggest they may have more room to run—a point made clear by last week's strong quarterly results and guidance from Nvidia. In fact, we've found that the average 12m trailing PE of the 7 largest tech issuers at the 2000's era peak was around 81, still more than double the current average 12m trailing PE of the Magnificent 7 names of about 36 (Exhibit 23). What's more, our equity derivatives strategists have found that in historical asset bubbles (including Bitcoin in 2017 and the Nikkei in 1990), volatility typically rose alongside asset prices as they decoupled from fundamentals and reached bubble peaks. However, the Magnificent 7 stocks have not yet conformed to this trend—their average single-stock vol is actually lower than it was a year ago at the start of the AI-driven rally, suggesting we're not yet in peak bubble territory. Why? Investors have learned behavior to buy dips and are fearful of missing further upside in the AI-linked names (see their 21-Feb Global Equity Volatility Insights for details). Taken together, this suggests that large-caps may still have room to appreciate relative to small-caps despite small-caps' macro, fundamental, and technical advantages, as we outlined earlier.

**Exhibit 22: Average return following CPI data releases since 2020**

This past cycle, the Russell 2000 and CB underlying equities underperformed on days when inflation data (headline CPI) surprised to the upside

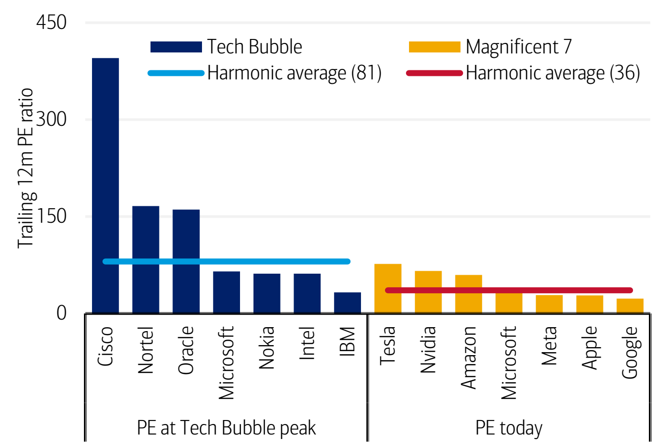



**Source:** BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 29-Feb-2024.

BofA GLOBAL RESEARCH

**Exhibit 23: Trailing PE ratios of Tech Bubble top 7 versus Magnificent 7**

Though the Magnificent 7 stocks have high average PE ratios, they are still well below those of the top 7 tech stocks at the height of the Tech Bubble




**Source:** Bloomberg. Data as of 29-Feb-2024. Tech Bubble peak was 27-Mar-2000.

BofA GLOBAL RESEARCH

# Issuance

Although global CB issuance was sluggish in January and early February, the primary market enjoyed a strong revival over the past two weeks. In fact, the week ending 23-Feb saw $6.1bn in issuance globally and was among the best weeks for volumes historically. We attribute the wave of new supply to the market's acceptance that rates are likely to remain higher-for-longer, coupled with the recent stock rally, which presents a window of opportunity for issuers to raise equity-linked capital under more favorable conditions. See our 28-Feb Global Convertibles Quick Note for an in-depth discussion of the recent surge in volumes and our thoughts on new issuance going forward.

Overall, despite the slow start, global issuance totaled almost $9.1bn last month and outpaced historical trends for February (Exhibit 25). What's more, historical volumes for March suggest the market may continue to enjoy a strong pace next month. February's issuance was concentrated in the US ($7.9bn, its best month since November 2021) and Japan ($1.2bn), while Europe and Asia were both dormant (Exhibit 24). Year-to-date issuance now totals over $14.3bn globally led by the US ($10.2bn) and Japan ($2.5bn).

**Exhibit 24: Global convertible issuance ($mn)**

Global CB issuance totaled $9.1bn last month, driven by the US and Japan

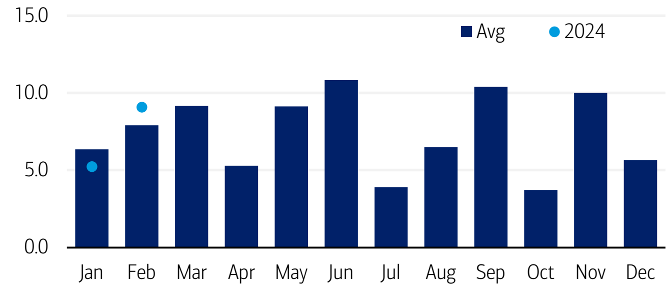
| | US | Europe | Asia | Japan | Total |
|---|---|---|---|---|---|
| Feb | 7,915 | 0 | 0 | 1,166 | 9,081 |
| Jan | 2,310 | 1,139 | 400 | 1,377 | 5,226 |
| Dec | 3,664 | 326 | 220 | 149 | 4,360 |
| Nov | 5,705 | 3,099 | 330 | 757 | 9,890 |
| 2024 YTD | 10,225 | 1,139 | 400 | 2,543 | 14,307 |
| 2023 YTD | 8,984 | 3,917 | 637 | 266 | 13,805 |
| 2023 | 53,400 | 13,381 | 9,019 | 3,634 | 79,434 |
| 2022 | 28,704 | 6,215 | 4,218 | 417 | 39,555 |
| 2021 | 84,332 | 22,912 | 33,208 | 7,373 | 147,824 |

**Source:** BofA Global Research

BofA GLOBAL RESEARCH

**Exhibit 25: Average global issuance by month ($bn)**

Despite a slow start, February's volumes exceeded historical trends




**Source:** BofA Global Research

BofA GLOBAL RESEARCH

February's largest offering was the $2.0bn Global Payments 1.5% up 20% 7-year IG-rated convertible bonds (Exhibit 26). The company will use proceeds to repay outstanding debt, while a small portion of the funds will also be used for share buybacks. Among the most noteworthy deals last month was Super Micro Computer's $1.7bn 0% up 37.5% 5-year CBs. The notes were the issuer's first ever convert, and they were issued opportunistically on the back of record equity performance (the stock has roughly tripled year-to-date), offering CB investors strong volatility and direct exposure to the AI space. Given the zero coupon (the first in a US deal of meaningful size since Confluent's issue from December 2021) and buzzy stock, the deal was reminiscent of the pandemic-era financing wave (though the deal's premium was just 37.5%, well-below 2021 levels).

Other large deals from February include serial issuer NextEra's $1.0bn 3-year 3% up 22.5% notes (to fund investments, repay outstanding debt, and for general corporate purposes), Parsons' $800mn 5-year 2.625% up 25% bonds (to repurchase a portion of outstanding 0.25% CBs due in 2025 and for general corporate purposes), and Kansai Paint's $665mn 0% up 20% two-tranche deal with expiries in 2029 and 2031 (to finance acquisitions, research and capital investments, and share buybacks).

**Exhibit 26: Global convertibles issued during February**

Last month's largest deal was the $2.0bn Global Payments Inc. 1.5% up 20% IG-rated convertible bonds

| Region | Date | Cusip | Issuer | Description | Coupon | Issue Amt (USD) | Issue Amt (LOC) | Currency | Initial Cv Prem | Seniority | Rating | Mandatory | Cvt Sector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US | 2/21/2024 | 37940XAT9 | GLOBAL PAYMENTS INC | GPN 1 1/2 03/01/31 | 1.500 | 2,000.00 | 2,000.00 | USD | 20.00 | Unsecured | IG | N | Financials |
| US | 2/23/2024 | 86800UAA2 | SUPER MICRO COMPUTER INC | SMCI 0 03/01/29 | 0.000 | 1,725.00 | 1,725.00 | USD | 37.50 | Unsecured | NR | N | Technology |
| US | 2/28/2024 | 65339KCX6 | NEXTERA ENERGY CAPITAL | NEE 3 03/01/27 | 3.000 | 1,000.00 | 1,000.00 | USD | 22.50 | Unsecured | NR | N | Utilities |
| US | 2/22/2024 | 70202LAC6 | PARSONS CORP | PSN 2 5/8 03/01/29 | 2.625 | 800.00 | 800.00 | USD | 25.00 | Unsecured | NR | N | Industrials |
| US | 2/28/2024 | 338307AE1 | FIVE9 INC | FIVN 1 03/15/29 | 1.000 | 650.00 | 650.00 | USD | 30.00 | Unsecured | NR | N | Technology |
| US | 2/23/2024 | 86771WAC9 | SUNRUN INC | RUN 4 03/01/30 | 4.000 | 475.00 | 475.00 | USD | 27.50 | Unsecured | NR | N | Energy |
| Japan | 2/28/2024 | ZD3722935 | IBIDEN CO LTD | IBIDEN 0 03/14/31 | 0.000 | 467.26 | 70,000.00 | JPY | 26.99 | Unsecured | NR | N | Technology |
| US | 2/23/2024 | 55087PAC8 | LYFT INC | LYFT 0 5/8 03/01/29 | 0.625 | 460.00 | 460.00 | USD | 32.50 | Unsecured | NR | N | Transportation |
| US | 2/28/2024 | 743312AC4 | PROGRESS SOFTWARE CORP | PRGS 3 1/2 03/01/30 | 3.500 | 450.00 | 450.00 | USD | 27.50 | Unsecured | NR | N | Technology |
| Japan | 2/22/2024 | ZD2084790 | KANSAI PAINT | KANPNT 0 03/08/29 | 0.000 | 398.96 | 60,000.00 | JPY | 20.01 | Unsecured | NR | N | Materials |
| Japan | 2/22/2024 | ZD2084766 | KANSAI PAINT | KANPNT 0 03/07/31 | 0.000 | 265.98 | 40,000.00 | JPY | 20.01 | Unsecured | NR | N | Materials |
| US | 2/2/2024 | 773122AA4 | ROCKET LAB USA | RKLB 4 1/4 02/01/29 | 4.250 | 355.00 | 355.00 | USD | 27.50 | Unsecured | NR | N | Industrials |
| Japan | 2/27/2024 | ZD3411570 | FRANCE BED HOLDINGS | FRANBD 0 03/14/29 | 0.000 | 33.38 | 5,000.00 | JPY | 5.02 | Unsecured | NR | N | Healthcare |

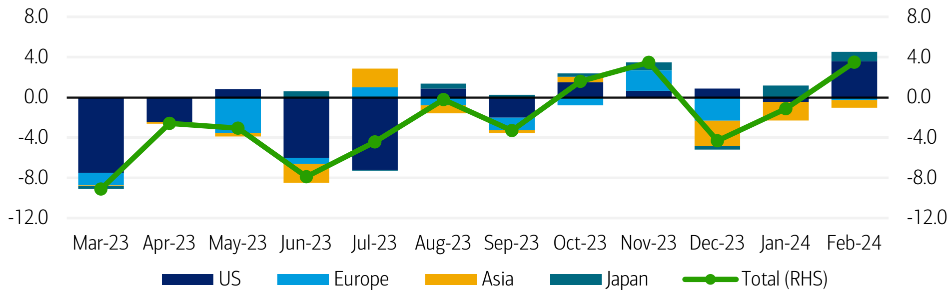
**Source:** BofA Global Research

BofA GLOBAL RESEARCH

On redemptions, the global CB market realized nearly $5.6bn, driven predominantly by $4.3bn from the US. Asia saw $759mn in redemptions followed by Europe's $278mn, and Japan's $235mn. Over 60% of all redemptions were from debt repurchases or conversions to shares ($3.6bn), such as the $1.3bn from Palo Alto's 0.375% 2025 notes. Other redemptions included nearly $1.4bn from maturities (NIO, AES, and Western Digital) and just shy of $600mn from a put (VNET Group's ADRs).

On a net-new supply basis, the global convertible bond market net-expanded about $3.5bn in February (Exhibit 27). In more detail, the US net-expanded $3.6bn last month—its most net-new supply growth in a single month since February 2023. Japan saw growth of $930mn while Europe (-$278mn) and Asia (-$759mn) both net-contracted.

**Exhibit 27: Global net supply by month (last 12 months)**
Global net supply totaled +$3.5bn last month as issuance outpaced redemptions




**Source:** BofA Global Research

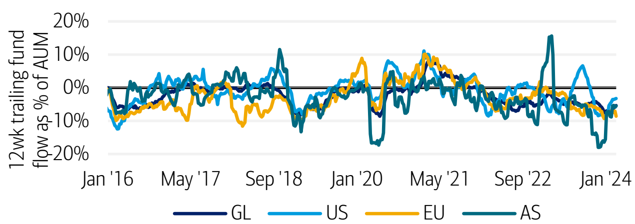
BofA GLOBAL RESEARCH

**For comprehensive data on issuance and redemptions trends, including net supply totals, sector and structure trends, and use of proceeds information, please refer to section 3 of the attached Excel Chartbook.**

# Fund flows

Aggregated weekly fund flows show that convert funds which invest globally (-$415mn, -1.3% of AUM), in the US (-$220mn, -1.0% of AUM), in Europe (-$225mn, -3.8% of AUM), and in Asia-ex Japan (-$9mn, -2.1% of AUM) all realized net outflows in February (Exhibit 29). On a 12-week trailing basis, CB funds across all regions continued to net-contract, however, the pace of outflows has moderated across regions relative to recent history—a phenomenon particularly pronounced for Asia-ex Japan funds (Exhibit 28).

**Exhibit 28: 12-week trailing flows as a percentage of AUM**
On a trailing 12-week basis, CB funds across regions have reported outflows




**Source:** EPFR Global

BofA GLOBAL RESEARCH

**Exhibit 29: Aggregated weekly flows from February**
Weekly fund flows indicate that CB funds globally saw outflows last month

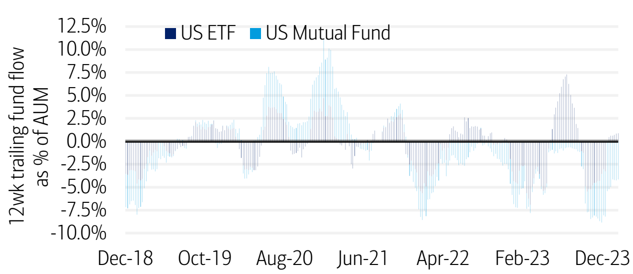
| | Flows $mn | Flow % AUM | Total Assets | NAV % |
|---|---|---|---|---|
| Global | -415 | -1.3 | 32,850 | 0.7 |
| US | -220 | -1.0 | 21,984 | 1.0 |
| Europe | -225 | -3.8 | 5,888 | 0.6 |
| Asia-ex Japan | -9 | -2.1 | 402 | 2.3 |

**Source:** EPFR Global

BofA GLOBAL RESEARCH

Digging into US convertible bond flows in more detail, over the past 12 weeks outflows from convertibles have been concentrated in mutual funds while ETFs have seen sustained, albeit modest, inflows (Exhibit 30). Outflows from CB mutual funds continue to be quite pronounced (6th percentile), while ETFs have enjoyed slight inflows in contrast to the large contraction ETFs endured in prior months (Exhibit 31).

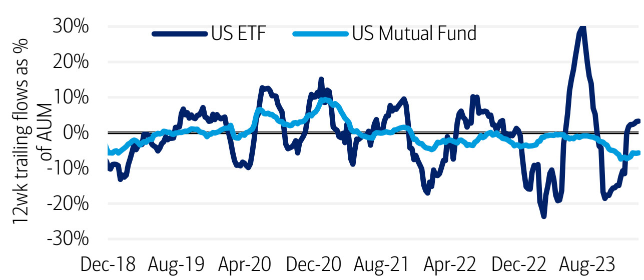
**Exhibit 30: US ETF vs. mutual fund breakdown of 12-week trailing flows**
Over the past 12 weeks, US convertible bond mutual funds saw net outflows, while convertible bond ETFs saw inflows




**Source:** EPFR Global

BofA GLOBAL RESEARCH

**Exhibit 31: US ETF and mutual fund trailing 12-week fund flows**
CB mutual funds realized strong outflows last month, while ETFs enjoyed slight inflows




**Source:** EPFR Global

BofA GLOBAL RESEARCH

Monthly fund flow data, which is reported on a one-month lag, indicates that funds which invest in CBs across all regions continued to realize net outflows during January, though generally they've been declining relative to the past few months (Exhibit 32). In more detail, global funds lost $589mn (-1.7% of AUM), US funds realized net outflows of $80mn (-0.3% of AUM), European CB funds endured outflows of $116mn (-1.8% of AUM), and Asia-ex Japan funds contracted $10mn (-2.4% of AUM). In January, global CB funds saw the largest outflows in dollar terms, while Asia-ex Japan funds realized the most extreme outflows as a percentage of their total assets under management. Relative to other regions, US funds held up quite well.

**Exhibit 32: Monthly flow breakdown for 2024**
Convertible bond funds across all regions realized net outflows during January

| | Global | | US | | Europe | | Asia-ex Jap | |
|---|---|---|---|---|---|---|---|---|
| | % AUM | Flows $mn | % AUM | Flows $mn | % AUM | Flows $mn | % AUM | Flows $mn |
| October | -1.8 | -621 | -4.5 | -1,202 | -3.5 | -224 | -9.8 | -47 |
| November | -3.1 | -1,042 | -2.1 | -499 | -2.6 | -160 | -5.1 | -22 |
| December | -2.8 | -969 | -1.9 | -465 | -3.3 | -208 | -1.7 | -7 |
| January | -1.7 | -589 | -0.3 | -80 | -1.8 | -116 | -2.4 | -10 |
| YTD | -1.7 | -589 | -0.3 | -80 | -1.8 | -116 | -2.4 | -10 |

**Source:** EPFR Global

BofA GLOBAL RESEARCH

**For additional charts and data on flow trends, please refer to the Fund Flows slide on tab 3.01 to the attached Excel Chartbook.**

# Chartbook access

To view the Excel Chartbook, which includes a variety of data, tables, and charts focused primarily on returns, markets characteristics, and supply and demand, among other topics, please refer to our Global Convertibles Chartbook.

**Abbreviations**

AI: Artificial intelligence
AUM: Assets under management
CB: Convertible bond
CPI: Consumer Price Index
ETF: Exchange-traded fund
EPS: Earnings per share
FMS: Fund Manager Survey
FOMC: Federal Open Market Committee
FOMO: Fear of missing out
GFC: Global Financial Crisis
HF: Hedge fund
HY: High yield
IG: Investment grade
II: Institutional investor
OAS: Option adjusted spread
PE: Price to earnings ratio
PMI: Purchasing Managers' Index
USD: US Dollar
YTD: Year-to-date

# Disclosures

## Important Disclosures

Due to the nature of the market for convertible securities, 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.
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.
BofA Securities fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

## Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.
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.
Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended.
SECURITIES OR OTHER FINANCIAL INSTRUMENTS DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.
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.
The securities or other financial instruments discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these instruments are exempt from registration or have been qualified for sale.
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.
This report, and the securities or other financial instruments discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors, including retail investors.

**Information relating to Affiliates of BofAS, MLPF&S and Distribution of Affiliate Research Reports:**
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.**

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.

Futures and options are not appropriate for all investors. Such financial instruments may expire worthless. Before investing in futures or options, clients must receive the appropriate risk disclosure documents. Investment strategies explained in this report may not be appropriate at all times. Costs of such strategies do not include commission or margin expenses.

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.

Convertible bonds are traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale. BofAS or one of its affiliates may make a market in the convertible bonds of this issuer.

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:**



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.