Global Convertibles

Year Ahead 2024: Rates are a double-edged sword

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Convertibles Strategy
Global

View Transcript

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High rates cut both ways, limiting CB upside potential…

The biggest surprise of 2023 was the recession that never was—resilient consumers and a hot labor market buttressed economic activity despite the tightest monetary policy since before the Global Financial Crisis. As a result, interest rates have remained higher-for-longer, which has pressured convertible bonds despite their short-duration credit profile. Why? Their higher-growth and smaller-cap issuers are quite rates-sensitive. Next year, our economists are forecasting a soft-landing. Though historically such events have been supportive of risk assets, we expect CB upside may be somewhat limited by an extension of 2023's elevated rates environment. However, we believe CBs also offer investors a number of key advantages, including opportunities for asymmetric exposure to the burgeoning AI theme, refi-driven alpha, and overlooked pockets of relative value. Bearing in mind both our macro views and our multi-pronged framework for projecting CB performance, we're calling for US converts to return +7-9% next year, while we think European, Asian, and Japanese converts will add +3-5%, +6-8%, and +5-7%, respectively.

…while aiding new supply given CBs' lower costs of capital

Although higher-for-longer rates may serve as a limiting factor to returns, we think they may play to the benefit of CB issuance. Indeed, with costs of capital at 15+ year highs and a significant chunk of pandemic-era deals nearing maturity, we expect borrowers will seek alternative, less expensive means of raising new funds—a need that we believe CBs are uniquely qualified to meet as they can significantly trim interest expenses, especially for higher-growth and cyclical issuers. This may compel not only traditional converts names, but also crossover issuers to refinance maturing debt in the CB space.

Refis and crossover issuance may boost volumes 20%+

While already we've seen a number of issuers replace existing straight debt with new convertibles in 2023, we believe many more would be prudent to consider this trade in 2024—in particular, those with relatively high leverage, healthy equity performance, and upcoming maturities. Indeed, this suggests a sizable set of credible crossover issuers spanning both the IG and HY markets. If even just a small portion of these names opt for new CBs in 2024, paired with refis from existing CB issuers, it would imply meaningful growth in global primary market volumes of 20%+ year-over-year. In all, we're forecasting $90-100bn of new CB paper globally with $60-65bn from the US, $16-18bn from Europe, $10-12bn from Asia, and $4-5bn from Japan. This would represent a post-pandemic high and would usher-in global net-expansion for the first time since 2021.

Exhibit 1: 2024 forecast summary

Regional total returns and issuance expectations for 2024

	Tot Rtn (Local)	Issuance ($bn)	Redemptions ($bn)
US	7 - 9%	60 - 65	40 - 45
Europe	3 - 5%	16 - 18	16 - 20
Asia	6 - 8%	10 - 12	9 - 12
Japan	5 - 7%	4 - 5	5 - 8
Global		90 - 100	70 - 85

Source: BofA Global Research

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A recession, rather than a soft-landing, remains a key risk

What might derail our baseline views? We believe the top downside risk is that we tip into recession rather than realize a soft-landing. This would not only result in widening credit spreads and defaults, but also would curtail new financing activity. On the upside, though, if higher-for-longer rates has a less-restrictive impact on CB underlying equities than we anticipate, it would be more supportive of both CB performance and issuance.

We include a list of abbreviations in the appendix of this report.

Refer to important disclosures on page 37 to 39.
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The shock that never was

The biggest surprise of 2023 was the recession that never was. Our outlook for this past year was centered around the common narrative that in order to battle soaring inflation, central banks would need to hike benchmark rates until they "break" something. While there were a number of near-misses (the regional bank failures and rising defaults, to name a few), both consumers and the labor market remained resilient, supporting economic activity despite facing the tightest monetary policy since before the Global Financial Crisis. This has resulted in an environment where interest rates have remained higher-for-longer to the benefit of large-cap equities, cash, and commodities and to the detriment of small-cap stocks and duration. How have convertible bonds fared in this new world? Despite their generally shorter-duration credit profile, most CB issuers fall into the camp of small- to mid-cap, and thus they have performed more like Russell 2000 names (+0.7% year-to-date) than their Nasdaq (+34.8%) or S&P 500 (+17.4%) peers. The market faced a number of other key headwinds as well, including persistent outflows, negative net-new issuance, and historically low deltas. Year-to-date, global convertibles (as measured by the ICE BofA Global G300 index), have returned +5.9%, and all regions have seen modest single-digit gains—led by Japan and Asia (Exhibit 3).

So, where does this leave us? In 2024, our economists' base-case scenario is that restrictive policy will cause growth to slow, though it will not trigger a recession (a soft-landing). Though we believe this backdrop would be supportive of risk assets, we think CB upside may be somewhat limited by an extension of the elevated interest rates environment, which has weighed on the asset class in 2023. However, convertible bonds have a number of notable advantages as well. Indeed, we think they provide numerous opportunities to gain exposure to the burgeoning AI theme in a liquid, asymmetric way—a key advantage given the highly uncertain nature of the space. What's more, the market offers a variety of attractive alpha opportunities, including participating in the refi trade, overlooked pockets of relative value, and new deal discounts in the primary market.

More on primary, though higher-for-longer rates may limit the potential for CB upside returns, we believe that they are a double-edged sword, and elevated borrowing costs may play to the benefit convertible bond issuance. With costs of capital at 15+ year highs and a significant chunk of pandemic-era deals nearing maturity, we expect borrowers will seek alternative, less expensive means of raising new funds—a need that we think converts are uniquely qualified to meet. This may compel not only traditional converts issuers, but also crossover issuers, to refinance maturing debt in the CB space.

This considered, in 2024 we expect global convertibles will see modest, mid- to upper-single-digit returns, while we think global CB issuance will rise to post-pandemic highs. Specifically, we believe US and European CBs will return +7-9% and +3-5%, respectively, while Asia and Japan will add +6-8% and +5-7%. On new supply, we expect volumes will climb to $90-100bn globally next year, representing more than 20% of year-over-year growth, with $60-65bn from the US, $16-18bn from Europe, $10-12bn from Asia, and $4-5bn from Japan. Notably, we're also calling for fewer redemptions next year, which should spark global market expansion for the first time since the pandemic (Exhibit 2).

Exhibit 2: 2024 forecast summary

Total returns, issuance, and redemptions forecasts for 2024

	Total Return (Local)	Issuance ($bn)	Redemptions ($bn)
US	7 - 9%	60 - 65	40 - 45
Europe	3 - 5%	16 - 18	16 - 20
Asia	6 - 8%	10 - 12	9 - 12
Japan	5 - 7%	4 - 5	5 - 8
Global		90 - 100	70 - 85

Source: BofA Global Research

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Exhibit 3: 2023 year-to-date realized summary

Total returns, issuance, and redemptions totals for 2023 year-to-date

	Total Return (Local)	Issuance ($bn)	Redemptions ($bn)
US	4.4%	45.8	64.7
Europe	4.5%	10.8	16.5
Asia	6.2%	8.5	11.2
Japan	7.6%	2.7	1.6
Global	5.9%	67.8	94.0

Source: BofA Global Research

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Global convertibles outlook

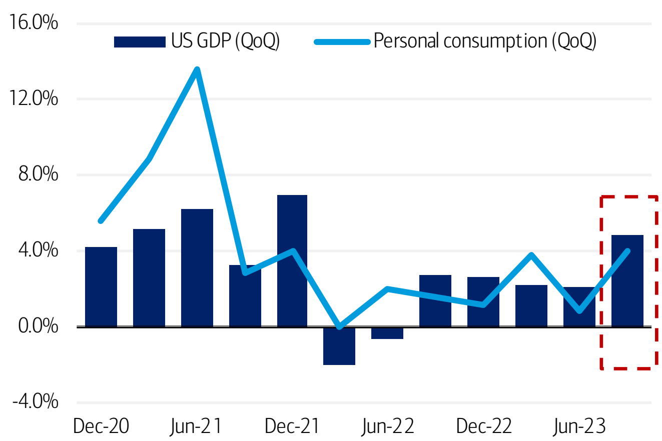
This year's global convertibles outlook is focused on three themes we think will be instrumental to convertible performance, positioning, and primary market activity in 2024: (1) what a soft-landing and avoidance of a full blown recession would mean for convertible bonds, (2) how higher-for-longer rates may impact the credit cycle, particularly as pandemic-era deals approach their maturity dates, and (3) how investors can utilize CBs to participate in the AI theme with less risk, a key benefit given the theme's boundless potential yet significant uncertainty. This considered, we'll also explore a number of themes more particular to Europe and Asia, and we'll offer some parting thoughts on ways we think investors can generate alpha in CBs in 2024.

Soft-landing would support CBs, but is this time different?

Resilient consumers and a strong labor market have abated recession fears

At the start of the year, recession concerns were pervasive as rapidly rising inflation dented consumer confidence and catalyzed corporate belt-tightening. However, both the labor market and retail spending has remained strikingly resilient, and economic growth has maintained a healthy pace—capped by last quarter's US GDP growth of +4.9% quarter-over-quarter, the fastest pace since 2021 (Exhibit 4). Bearing this, and the fact that data has shown inflation has been decelerating, over the summer our economists revised their US economic outlook in favor of a soft-landing (refer to their 02-Aug US Economic Viewpoint), and they now expect the Fed has stopped hiking benchmark rates this cycle (see their 14-Nov US Watch). Investors agree, as data from our most recent Global Convertibles Investor Survey (see our 01-Nov Global Convertibles Chartbook) suggests that US CB managers have also become less worried about a recession (Exhibit 5). Though higher commodity prices and tighter policy may threaten economic growth both in the US and abroad, the recent strength in the data is certainly encouraging (see our economists' 26-Oct US Watch for their analysis on the Q3 GDP print).

Exhibit 4: US GDP and personal consumption growth (QoQ)
The US economy grew 4.9% last quarter, the fastest pace since 2021, driven primarily by strong growth in personal spending



Source: Bureau of Economic Analysis

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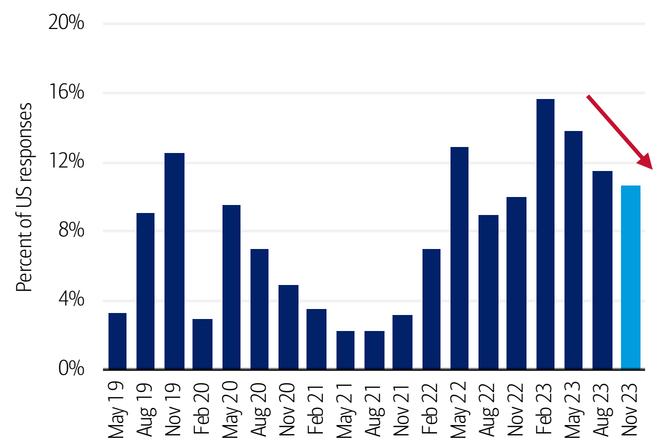
Exhibit 5: Portion of US CB survey respondents who fear a recession
According to our Global Convertibles Investor Survey, US convertible bond investors have become less concerned about a recession in the next year



Source: BofA Global Convertibles Investor Survey

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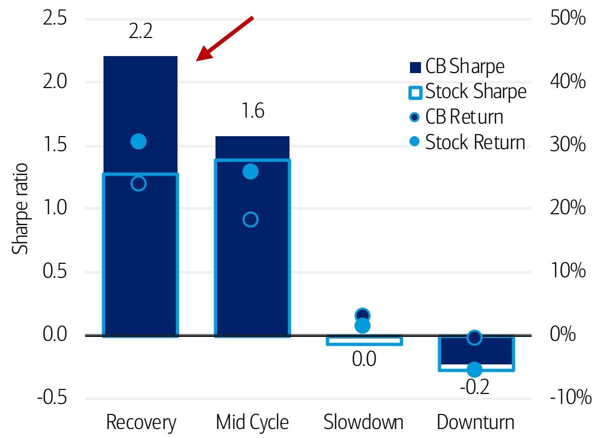
Historically, the "Recovery" phase of the cycle has been supportive of CBs…

Aligned with our economists' call, our equity strategists' Regime Indicator, which attempts to identify where we are in the cycle based on eight top-down macro indicators that capture earnings and economic growth expectations, inflation, and credit conditions, concurs that the cycle has moved out of its "Downturn" phase and into its "Recovery" phase (see their 10-Sep Quantitative Profiles for details). Historically, this phase of the cycle has favored value versus growth, cyclical sectors, and small-caps over large-caps—factors that generally lend themselves well to CB issuers, which have a pro-cyclical and small-cap bias. Indeed, CBs have done well during past "Recovery" periods.

Based on daily data since 1995, we've found that US CBs (as measured by the ICE BofA US Convertibles Index, or VXA0) realized an average annualized return of nearly 24% during historical "Recovery" periods and a 2.2 Sharpe ratio—each the best relative to the other phases of the cycle, led by cyclical sectors like consumer discretionary, energy, industrials, and technology (Exhibit 6 and Exhibit 7).

Exhibit 6: CB v. stock performance during each Regime Indicator phase
Historically, both CB absolute and risk-adjusted performance has been best during the Regime Indicator's "Recovery" phase



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 14-Nov-2023. Stocks represent convertible bond underlying equities.

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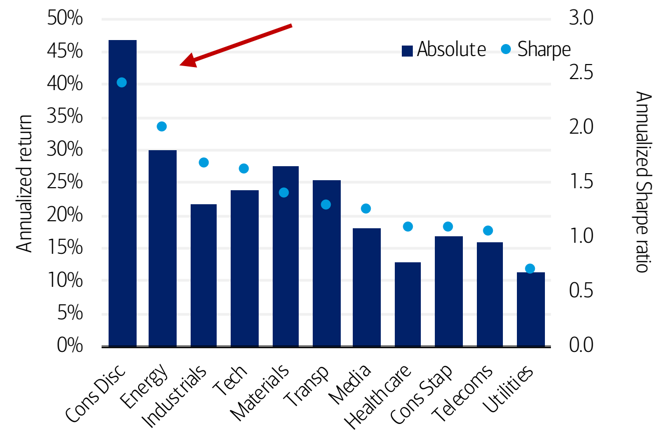
Exhibit 7: CB sector performance during historical "Recovery" periods
During past "Recovery" periods, cyclical CB sectors, including consumer discretionary, energy, industrials, and tech, have led



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 14-Nov-2023. Excludes the financials sector.

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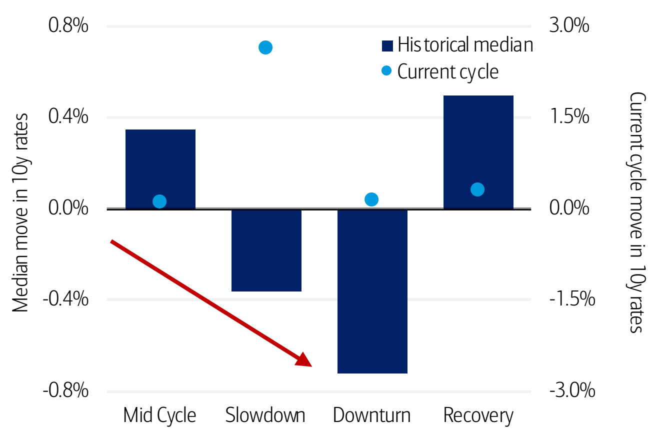
...but higher-for-longer interest rates may challenge the bull case for returns

Despite the historical precedent, we are concerned that this time may be different. For starters, though the economic cycle has shifted into "Recovery", the rates cycle has yet to reset. Typically, based on the same data since 1995, we've found that benchmark yields move lower during "Slowdown" and "Downturn" phases, and therefore are near their cycle bottom prior to entering "Recovery" (Exhibit 8). However, throughout the current cycle, rates have trended meaningfully upward. Additionally, while the market perceived October's soft inflation data as a sign the cycle may be peaking, upside risks to rates, including another hot data print or hawkish rhetoric, remain prevalent (see the 14-Nov US Watch). Policymakers (and our rates strategists) have also backed this claim, suggesting rates may remain higher-for-longer given the strength of recent data.

Exhibit 8: Change in 10y rates during each Regime Indicator phase
Historically, Treasury yields have declined in "Slowdown" and "Downturn" phases before "Recovery", but that hasn't occurred in the current cycle



Source: BofA Global Research, ICE Data Indices, LLC. Data from 30-Sep-1995 to 14-Nov-2023.

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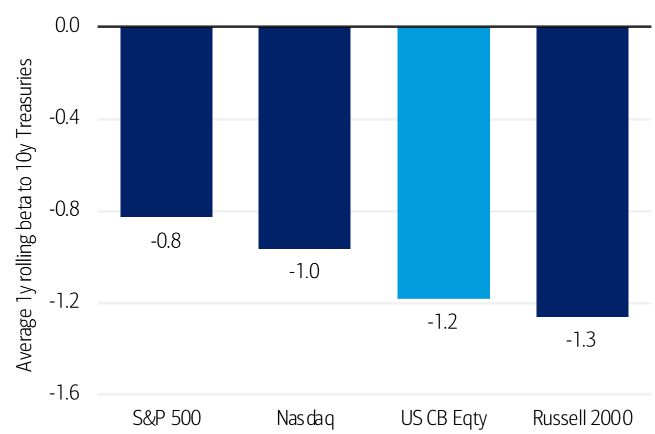
Exhibit 9: Equity sensitivity to changes in US Treasuries
The stocks that underlie the US CB index are highly sensitive to changes in Treasury rates—even more so than the S&P 500 and Nasdaq indices



Source: BofA Global Research, ICE Data Indices, LLC. Data from 30-Sep-1995 to 14-Nov-2023.

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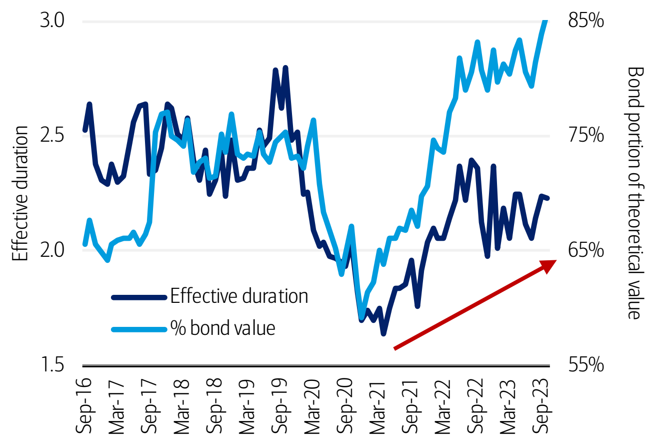
Given a sizable subset of CB issuers have a long-duration profile and are high-beta (even more so following the pandemic-era opportunistic issuance wave, when negative-earnings companies flooded the CB space), we expect that persistent elevated interest rates may continue to weigh on CB underlying equity performance, limiting CB's upside potential. Indeed, we've found that the index of US CB underlying stocks is more sensitive to changes in Treasury rates than even the S&P 500 and the Nasdaq (Exhibit 9). What's more, as their bond components have increasingly comprised greater portions of CBs' valuations with embedded options trading deep out-of-the-money, the US CB average effective duration has risen, indicating that the converts themselves (and not just their underlying issuers) are also more rates sensitive than they've been in the past 3-years (Exhibit 10). Nonetheless, CB duration remains well-below that of non-convertible corporate credit, government bonds, and preferred shares, which has proved to be an important benefit amid 2023's sharp move higher in interest rates (Exhibit 11).

Exhibit 10: US CB effective duration v. bond portion of CB value

While still low versus other asset classes, the effective duration of CBs has risen as bonds have comprised a larger share of CBs' theoretical values



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.

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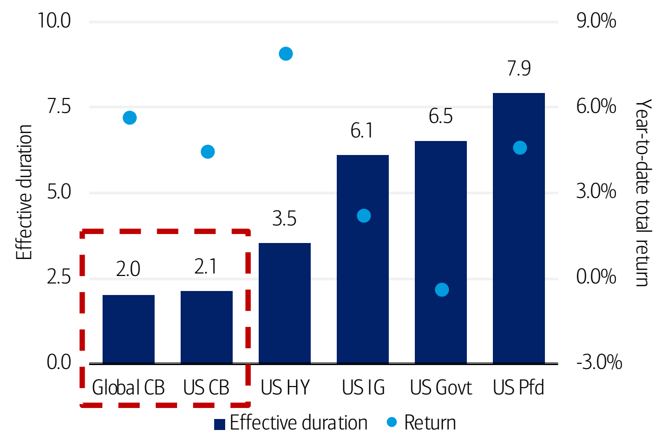
Exhibit 11: Cross-asset effective duration v. YTD return

Shorter-duration asset classes, including converts, have outperformed longer-duration assets this year given the sharp move higher in rates



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 14-Nov-2023.

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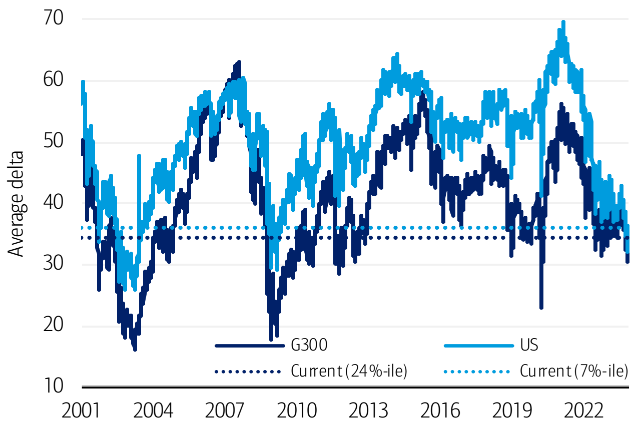
Still, higher rates may prove to be a double-edged sword. While they may prove to be a challenge for convertible bond performance, we think they'll play to the benefit of the CB primary market as more expensive borrowing costs may push borrowers to lower-cost CBs. We'll explore this topic in much more detail later in the issuance section.

Other headwinds to upside include historically low deltas and lackluster demand

Besides higher-for-longer interest rates, cycle-driven CB upside faces a number of other key headwinds, most notably historically low deltas and disappointing retail demand. On deltas, as we mentioned above, many pandemic-era CBs' embedded options are now deep-out-of-the-money (the global and US average conversion premium is around 50% and 58%, respectively), a combination of the rates-driven selloff and aggressive pricing. As a result, CB average deltas are close to record lows—the global G300 index average delta is just 35, in its 24^{th} percentile since 2001, while the US CB index average delta is 36, in its 7^{th} percentile (Exhibit 12). Near-record low equity sensitivity indicates that CB upside participation in a "Recovery" period stock rally may be somewhat limited (though this cuts both ways, and downside participation may also remain in-check, which could prove to be a key advantage given CB issuers' high sensitivity to yields—see Exhibit 9).

Additionally, continued lackluster retail demand can also weigh on performance. Convertible bond mutual funds and ETFs, particularly those which invest in global and European CBs, have suffered consistent outflows throughout 2023, making it more challenging for managers to deploy capital and seek alpha opportunities (Exhibit 13). Indeed, CB managers, especially those domiciled in Europe, are concerned that outflows will persist in the near-term (see our 01-Nov Global Convertibles Chartbook for details).

Exhibit 12: Global and US convertible bond average delta time series
Convertible bond average deltas are low versus history with the global G300's at 35 (24th percentile since 2001) and the US's at 36 (7th percentile)



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 14-Nov-2023.
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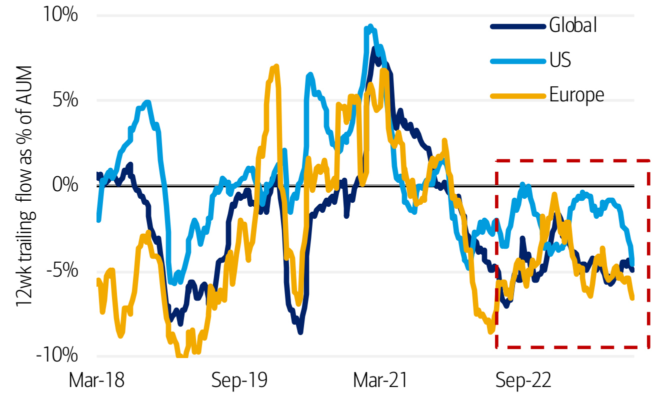
Exhibit 13: Global, US, and European 12-week trailing fund flows
Convertible bond funds, particularly those that invest globally and in Europe, saw consistent outflows throughout 2023



Source: BofA Global Research, EPFR Global. Data as of 15-Nov-2023.
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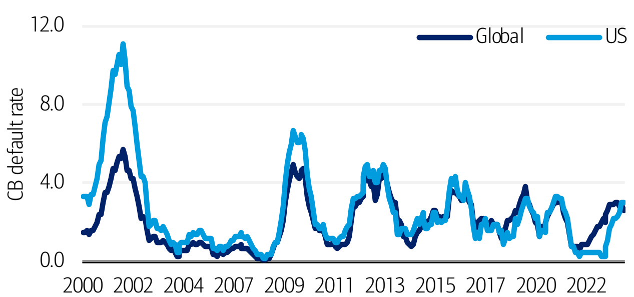
What if we do tip into recession? CBs may prove defensive versus their stocks
Though popular opinion favors the avoiding recession scenario, the risk of an economic downturn no doubt remains as inflation is still running hot, geopolitical tension is flaring in the Middle East, and cracks are widening in credit markets. We note that while risk-asset and CB performance has typically struggled during previous "Downturn" phases of the cycle, their defensive features have resulted in their outperformance over their underlying stocks—in fact, CBs have historically logged their best absolute returns relative to their underlying equities during previous "Downturn" phases (Exhibit 6).

The credit cycle is in focus as "busted" CBs face refi risks

CB defaults have accelerated, but opportunities in "busted" names persist
As we had expected heading into the year, defaults among convertible bond issuers have accelerated this past year, particularly among money-losing companies (mainly from the US) that came to market during the easy-money pandemic-era. Over the last 12-months, both the global and US default rates have risen to about 3%, up from 2% and near 0%, respectively, last December, and they include notable issuers such as SmileDirectClub, Amyris, and Shift Technologies (Exhibit 14). Despite the spate of bankruptcies and missed interest payments, the market still contains a large subset of so-called "busted" converts, whose embedded warrants are so deep out-of-the-money that they trade like pure bonds. In fact, over 20% of all outstanding global converts (by their dollar notional value) trade below 80 cents on the dollar, still well-above pre-pandemic levels, while more than 6% are in distressed territory below 60 cents on the dollar (Exhibit 15).

Exhibit 14: Global and US CB trailing 12-month default rate
Both the global and US CB trailing 12-month issuer default rates have risen to 3%, up from about 2% and near 0%, respectively, at the start of the year



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.
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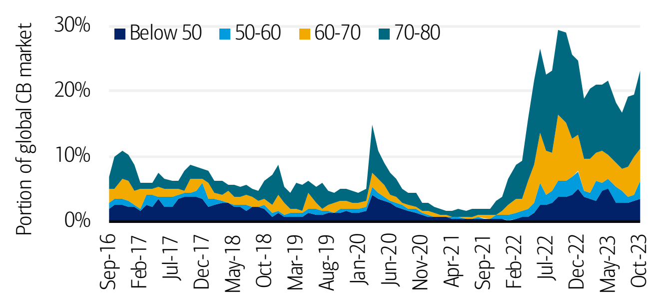
Exhibit 15: Portion of global CB market trading below 80 cents
"Busted" names remain prominent in the CB market as over 20% of the global market still trades below 80 cents on the dollar



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.
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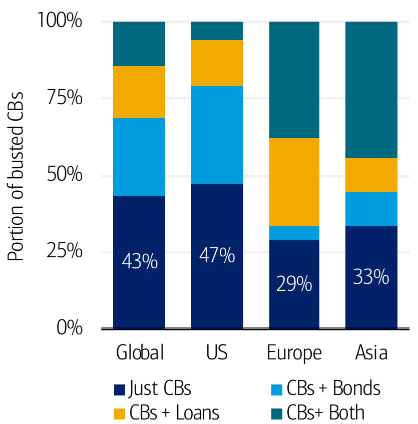
Easy debt service and rebounding share prices aided "busted" converts in 2023...
The prevalence of high yielding "busted" converts can be explained by a few factors, notably that they've enjoyed relatively easy debt service and have faced a mostly amenable macro backdrop this year of rebounding share prices and tight credit spreads. Indeed, nearly half of US "busted" CB issuers and 43% of global "busted" issuers (again, defined as those trading below 80 cents on the dollar) have no other debt on their balance sheets other than their convertible bonds (Exhibit 16), and the average coupons of those CBs remain comfortably below 2%—suggesting relatively easy debt service requirements despite the now elevated borrowing costs. Additionally, the 2023 bounce back in equities, particularly among the higher-growth tech and consumer sectors (which comprise the bulk of the "busted" space) paired with little stress in credit spreads (US HY OAS is now 400bps, about 80bps tighter year-to-date) has been supportive (Exhibit 17). This considered, global "busted" converts have managed to outperform all other CBs year-to-date (+9.6% versus +3.8%), led by the likes of online consumer, crypto-linked, and biotech names including MicroStrategy, DraftKings, Wayfair, and BridgeBio (Exhibit 18).

Exhibit 16: Debt distribution of "busted" CBs
Nearly half of "busted" CB issuers have no other debt on their balance sheets except their CBs



Source: BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 15-Nov-2023.
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Exhibit 17: US HY OAS history
US HY bond credit spreads have remained tight throughout 2023

Source: BofA Global Research, ICE Data Indices, LLC. Data as of 16-Nov-2023.
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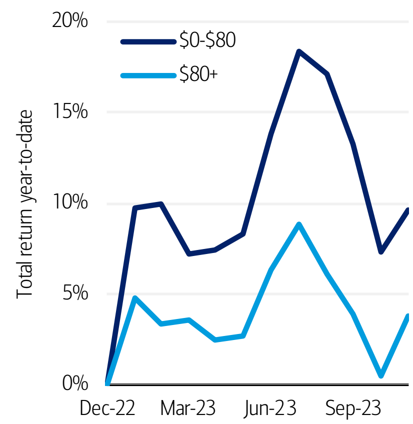
Exhibit 18: Global "busted" CB returns
Global "busted" convertibles have outperformed all others year-to-date (+9.6% versus +3.8%)



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 16-Nov-2023.
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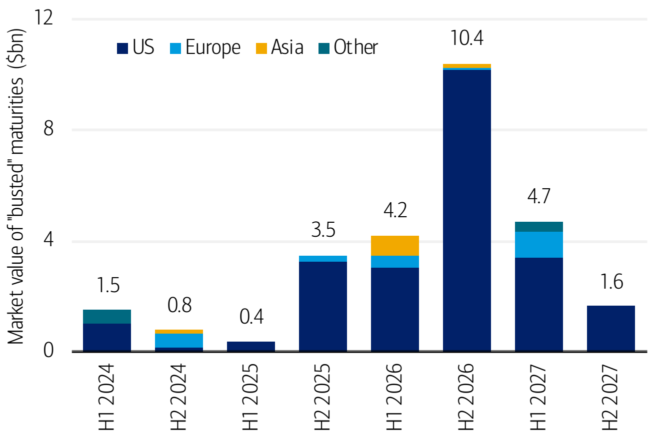
...but the looming maturity wall suggests time is running out for stressed names
However, we're now one year closer to the sizable maturity hurdle. Almost $4bn of "busted" converts are set to retire in 2025, while almost $15bn will come out in 2026 (Exhibit 19). Although their costs of capital are currently low (as we alluded to earlier), and many may not technically need to refi until 2025 or later, we expect the CFOs of healthy "busted" CB issuers will look to refinance soon regardless. Why? By acting earlier they can capitalize on today's supportive macro backdrop (stocks higher, spreads tighter) and get ahead of the massive refi wave in the broader CB market that we expect will begin in earnest next year (see our issuance section for more)—waiting around risks a potentially worse environment to raise fresh capital, especially given rates are expected to remain higher-for-longer. Notably, we've found that these refis can also present lucrative alpha opportunities for investors (see Exhibit 41 below for details).

Though we think refinancing sooner-rather-than-later would likely prove cost effective for issuers, we're certain that nonetheless, their borrowing costs will be much higher than what they currently pay. Based on current benchmark rates and each outstanding name's credit spread (OAS), we've estimated the average refi rates for CB issuers by price bucket. Indeed, while we think costs would increase for all CB issuers, they would rise the most for "busted" names trading below 80 cents on the dollar. In fact, we found that "busted" CB issuers would likely pay at least 700bps more in coupon, and the most distressed names would have to pay over 1,500bps more, effectively pricing them out of the market altogether (Exhibit 20).

Exhibit 19: Global maturity profile of "busted" convertibles
We're now one year closer to the 2025 and 2026 maturity hurdle among global "busted" convertible bonds



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 16-Nov-2023.
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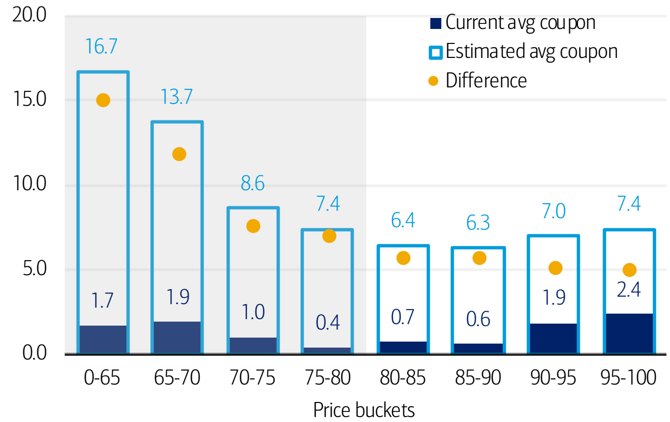
Exhibit 20: Estimated refi rates of US CBs versus their current price
Based on current market conditions, "busted" US CB issuers would likely need to pay at least 700bps more in coupon than they did previously



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 16-Nov-2023. Excludes the most distressed names that will likely be unable to refi and excludes 2023 new deals.
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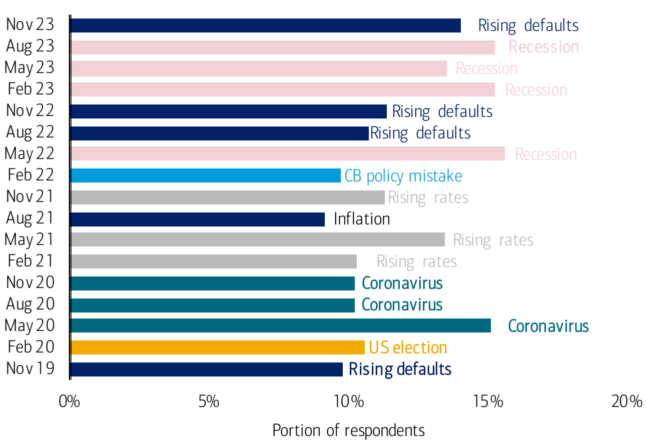
Default risks are prominent, but we expect only little upside to the default rate

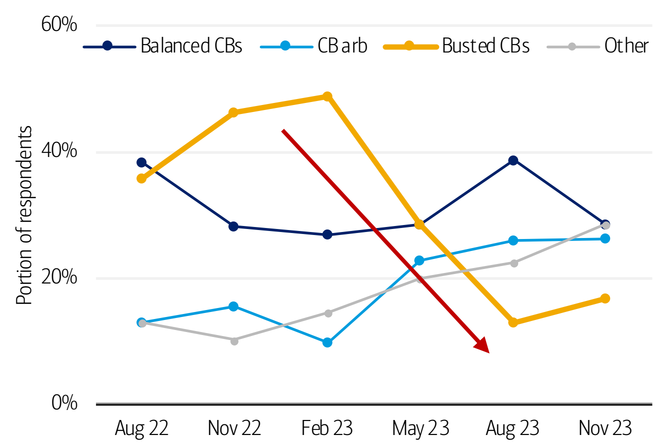
Given their prohibitively high costs of capital, what will be the fate of these most-distressed CBs? Some may be able to raise fresh capital elsewhere, such as in the private credit markets, but others will ultimately face default. Indeed, this is the number-one worry among CB managers, according to our most recent Global Convertibles Investor Survey (see our 01-Nov Global Convertibles Chartbook), who now rank rising defaults ahead of a recession as their top macro concern for the next year (Exhibit 21). What's more, our survey data suggests owning "busted" converts has fallen sharply out of favor among global CB managers, who now prefer buying mid-delta "balanced" names, CB arbitrage, or other strategies such as owning high quality paper (Exhibit 22).

Exhibit 21: Top CB investor macro concerns over the next year
Last month, rising defaults surpassed a recession as global CB investors' top macro concern over the next year



Source: BofA Global Convertibles Investor Survey
BofA GLOBAL RESEARCH

Exhibit 22: Most attractive CB strategy, according to CB managers
Owning "busted" converts has fallen out of favor among global CB managers, who now prefer "balanced" names, CB arb, or other (such as quality yield)



Source: BofA Global Convertibles Investor Survey
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However, though rising defaults are certainly worth tracking and will affect the subset of distressed names, given our base-case expectations we're less concerned about a meaningful impact on the broader CB space. Indeed, though our credit strategists think there may come a point in 2024 when the damage from higher rates becomes evident, triggering HY defaults and credit spread widening, they think the current phase (US HY spreads averaging 450bps and the US HY default rate of 3.4%) will persist for some time, likely the next 3-6 months (see their 10-Nov HY Strategy note).

Bottom's up analysis suggests the global CB default rate can reach just over 3%

Additionally, a bottom's up analysis of CB names we think are most at-risk of default doesn't suggest a particularly large pickup in the CB issuer default rate in 2024. To identify which names we believe are most "at-risk", similar to an exercise we did for last year's outlook, we found all "busted" CB issuers globally who do not have enough cash flow to support current operations for another 18 months without additional financing. Among the names with the most CB debt outstanding that meet these criteria include electric vehicle makers Lucid and Fisker, renewable energy provider Sunnova Energy, faux meat producer Beyond Meat, and pharmaceutical name Idorsia (Exhibit 23). Indeed, by sector we've found consumer and healthcare names are most "at-risk" (Exhibit 25).

Exhibit 23: List of global "busted" convertibles with cash burn of less than 18 months, sorted by market value of outstanding CBs

We think the below names may run out of cash in the next 12 months without additional financing if operations do not improve

Cusip	Issuer	Bond	Currency	Sector	Region	Market Value ($mn)	Equity Mkt Cap ($bn)	Price	Delta	Yield	Conv Prem	Cash Burn (months)
549498AA1	Lucid Group	LCID 1 1/4 12/15/26	USD	Cons Disc	US	1,059	9.85	52.10	0.00	24.2%	576%	14.8
550424AA3	Luminar Technologies	LAZR 1 1/4 12/15/26	USD	Cons Disc	US	339	1.16	53.70	0.03	23.1%	222%	13.1
86745KAF1	Sunnova Energy	NOVA 0 1/4 12/01/26	USD	Utilities	US	315	1.27	54.75	0.12	21.2%	80%	3.2
ZK3060728	L&F Co	LANDFC 2 1/2 04/26/30	USD	Tech	Asia	314	4.29	62.65	0.31	10.7%	74%	2.9
BQ7602213	Idorsia	IDIASW 2 1/8 08/04/28	CHF	Healthcare	Europe	272	0.46	39.50	0.00	25.6%	451%	4.3
86745KAH7	Sunnova Energy	NOVA 2 5/8 02/15/28	USD	Utilities	US	247	1.27	48.75	0.19	21.7%	58%	3.2
08862EAB5	Beyond Meat	BYND 0 03/15/27	USD	Cons Stap	US	236	0.44	20.50	0.00	53.7%	483%	17.3
33813JAA4	Fisker	FSR 2 1/2 09/15/26	USD	Cons Disc	US	184	1.03	27.18	0.08	57.5%	64%	8.9
92918VAB5	Vroom	VRM 0 3/4 07/01/26	USD	Cons Disc	US	180	0.11	53.75	0.00	26.2%	3569%	4.7
85859NAC6	Stem	STEM 4 1/4 04/01/30	USD	Tech	US	165	0.46	68.20	0.41	11.4%	50%	5.7
74623VAA1	PureCycle Technologies	PCT 7 1/4 08/15/30	USD	Industrials	US	143	0.65	55.50	0.19	19.3%	95%	2.2
AT5564436	Idorsia	IDIASW 0 3/4 07/17/24	CHF	Healthcare	Europe	143	0.46	63.00	0.00	100.0%	846%	4.3
85859NAA0	Stem	STEM 0 1/2 12/01/28	USD	Tech	US	141	0.46	47.16	0.04	16.3%	326%	5.7
29664WAB1	Esperion Therapeutics	ESPR 4 11/15/25	USD	Healthcare	US	138	0.13	52.13	0.00	41.6%	1400%	9.8
399473AF4	Groupon	GRPN 1 1/8 03/15/26	USD	Cons Disc	US	131	0.30	56.80	0.01	27.4%	286%	7.5
19249HAB9	Coherus Biosciences	CHRS 1 1/2 04/15/26	USD	Healthcare	US	120	0.19	52.06	0.00	31.2%	457%	6.0
236272AA8	Danimer Scientific	DNMR 3 1/4 12/15/26	USD	Materials	US	75	0.15	30.02	0.05	50.2%	116%	10.1
87266JAA2	TPI Composites	TPIC 5 1/4 03/15/28	USD	Industrials	US	59	0.11	43.34	0.09	29.1%	123%	17.7
45783QAB6	Inotiv Inc.	NOTV 3 1/4 10/15/27	USD	Healthcare	US	56	0.05	40.01	0.00	30.5%	745%	15.6
91532BAA9	UpHealth	UPH 6 1/4 06/15/26	USD	Healthcare	US	43	0.02	24.50	0.00	78.6%	2563%	17.2
BT8137494	Logan Group	LOGPH 6.95 08/04/26	HKD	Financials	Asia	25	0.52	8.00	0.00	100.0%	-22%	17.4

Source: BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 16-Nov-2023. Note: This screen is not a recommended list either individually or as a group of securities. Investors should consider the fundamentals of the companies and their own individual circumstances/objectives before making any investment decisions.

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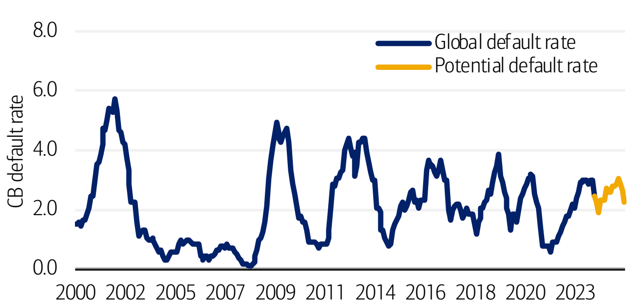
If we were to assume the worst and each of these names were to default when they are due to run out of cash, our global CB default rate would remain around 3%, on par with current levels (Exhibit 24). However, we recognize this analysis has limitations—if other names outside of our screening were to default or if issuers were to default at a faster pace, it could put upward pressure on the bankruptcy rate. On the other hand, it's also unlikely all of these stressed names will result in default as some may be taken private, others may successfully refinance, and some may achieve improved operations.

Exhibit 24: Global CB default rate if all "at-risk" names default

If all "at-risk" names default when they would run out of cash, the global CB default rate may remain around 3% next year



Source: BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 16-Nov-2023.

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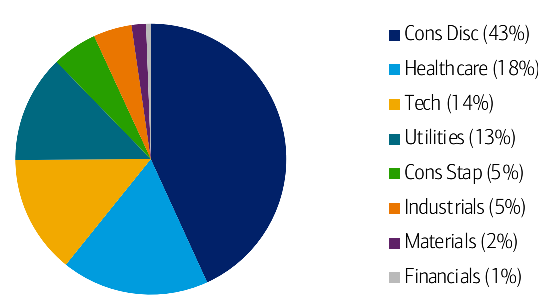
Exhibit 25: "At-risk" of CB issuer breakdown by sector

Over 40% of most "at-risk" issuers are higher-beta names from the consumer discretionary sector



Source: BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 16-Nov-2023.

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In comparison, our HY strategists expect a comparable default rate among HY issuers in the next 12 months. They are targeting 3.4% as their base case, though they note it may rise as high as 8% in their downside scenario, which consists of ongoing inflationary pressures requiring a tighter central bank policy response, or fall to 1.5% in their upside scenario of lower inflation and more corporate deleveraging (see their 13-Oct HY Strategy and 03-Nov HY Strategy notes for details).

Is AI for real? CBs have asymmetric exposure to the theme

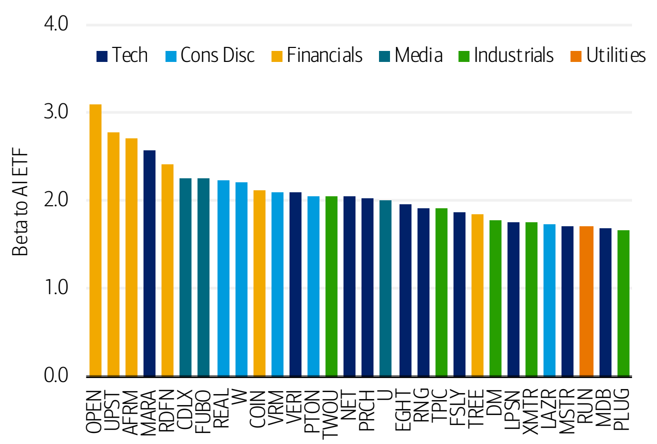
Tech, consumer, and fintech CBs have the highest beta to artificial intelligence

The explosion of interest and hype surrounding artificial intelligence (AI) has been among the standout investment themes in 2023. Indeed, given the perceived advantage certain tech names have in the burgeoning space, the "Magnificent Seven" big tech issuers and Nasdaq index has substantially outperformed peers in 2023, and even more specifically the Global X Funds Global X Artificial Intelligence & Technology ETF (AIQ), which tracks companies positioned to benefit from the utilization of AI, has rallied about 45% year-to-date. Though the converts market now lacks these "Magnificent Seven" issuers and therefore missed out on some of the AI headline gains in 2023, we believe there are still plenty of opportunities for participation within the convertibles space.

In fact, given that CBs are a very attractive financing option for high-potential growth names, there are quite a few names currently outstanding in the market that offer significant exposure to the AI theme, which our equity strategists think may drive another bull run in stocks (see their 08-Nov Global Research Unlocked podcast). To determine them, we measured the beta of all US CB issuer underlying stocks to the Global X AI ETF, based on one-day returns since the start of the year. Overall, we found that the most-exposed names were in the tech, consumer-tech, and fintech sectors, and include names such as Opendoor Technologies, Upstart, Affirm, Marathon Digital, and Redfin (Exhibit 26 and Exhibit 27). What's more, we expect the universe of AI-exposed CBs will continue to expand as CBs remain an excellent source of follow-on financing for high-growth new IPOs, particularly when rates are high.

Exhibit 26: Top 30 US CB issuer beta to AIQ (AI ETF)

Fintech CB issuers Opendoor Technologies (OPEN), Upstart (UPST), and Affirm (AFRM) have the highest beta to the Global X AI ETF (AIQ)



Source: BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 15-Nov-2023.

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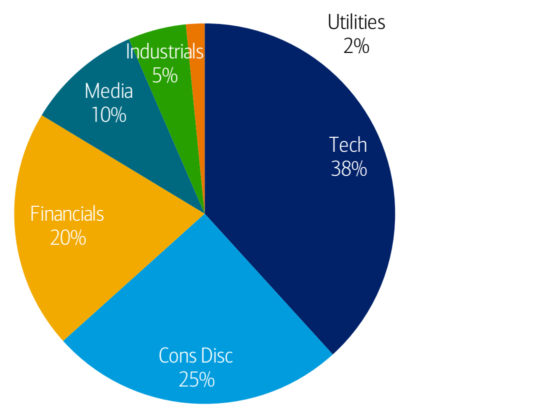
Exhibit 27: Sectors of top 30 most AI-exposed issuers

The majority of AI-exposed CB issuers are names in the tech, consumer-tech, and fintech sectors



Source: BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 15-Nov-2023.

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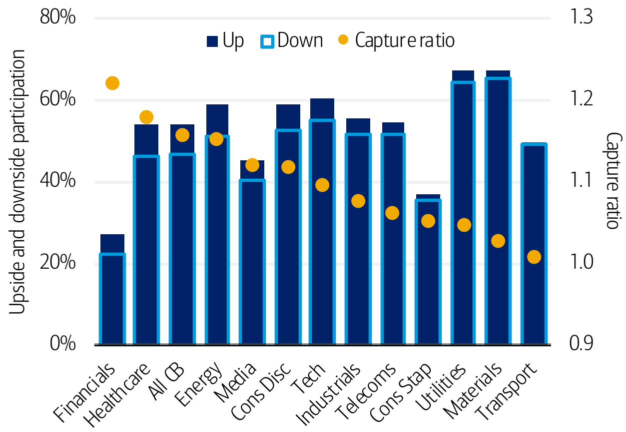
High uncertainty over AI winners promotes asymmetry and downside protection

No matter how promising the theme, it is very early in the AI hype-cycle, and much uncertainty remains. Indeed, at the macro level regulatory or technological hurdles may pressure the entire industry, and among single names it can be very difficult for investors to separate the AI winners from the rest of the pack. To us, this suggests investors would be prudent to build exposure to AI using asymmetry which provides both upside exposure and downside protection—we believe convertibles can fit this need.

In fact, based on daily data over the past 5 years (a period which captures a wide array of macro scenarios and outcomes for risk assets), we've found that converts across all sectors have captured more of their underlying stocks' upside returns than downside—a demonstration of the product's asymmetric risk profile (Exhibit 28). This considered, CBs in nearly all industries outperformed their underlying equities on a risk-adjusted basis (as measured by the annualized average Sharpe ratio) during the same timeframe (Exhibit 29). Notably, the sectors with the best CB Sharpe ratios were consumer discretionary (1.05 compared to 0.77 from its stocks) and tech (0.69 versus 0.54 from its stocks), which as we noted earlier are the most AI-exposed sectors in the CB space (Exhibit 27).

Exhibit 28: Upside versus downside CB participation with stocks
Convertible bonds across all sectors have captured more of their underlying stocks' upside performance than their downside performance since 2019



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 14-Nov-2023. Based on daily data since 31-Dec-2018. Bars show average portion of performance that CBs capture of their underlying stock performance on up or down days, and dots show the ratio up versus down.
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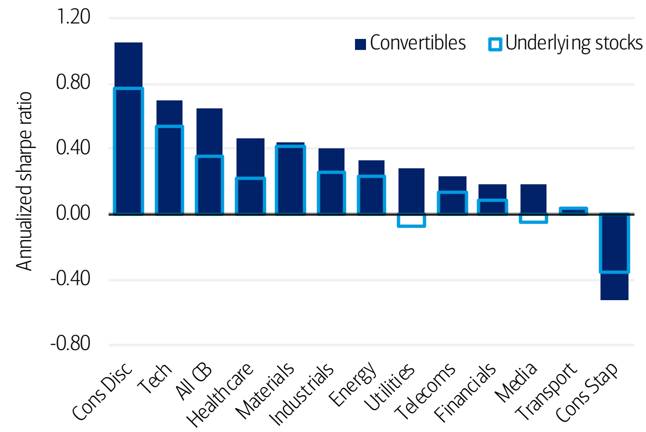
Exhibit 29: CB versus underlying stock Sharpe ratios since 2019
Over the past 5 years, CBs in nearly all sectors have logged better annualized average Sharpe ratios than their underlying stocks



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 14-Nov-2023. Based on average annualized daily performance data since 31-Dec-2018.
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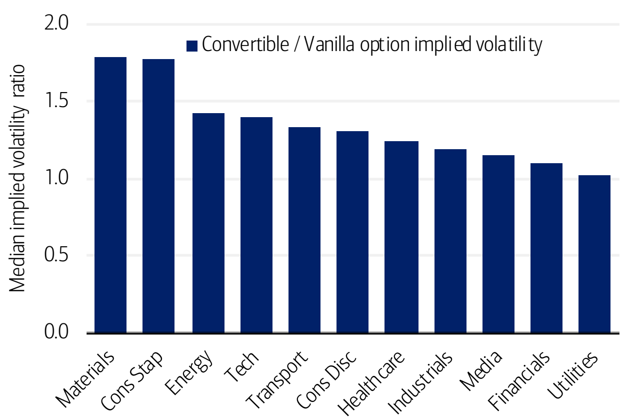
Why participate via CBs as opposed to other asymmetric products, such as call options? We see the AI theme as a multi-year story, and often converts are the only way to get liquid, long-term optionality on exposed single names (in other words, CB tenors are typically much longer than those of listed options). Further, CB implied vols are often similar to call options but with potentially better liquidity, particularly for longer-dated tenors (Exhibit 30 and Exhibit 31).

Exhibit 30: Relative implied volatility of CBs versus vanilla call options
CBs in the US often have an implied volatility marginally higher than a vanilla call option on the same underlying with comparable expiration and delta



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 18-Oct-2023. Based on daily data since Jul-2023. No Telecom CBs met the criteria for similar expiration dates to a call option.
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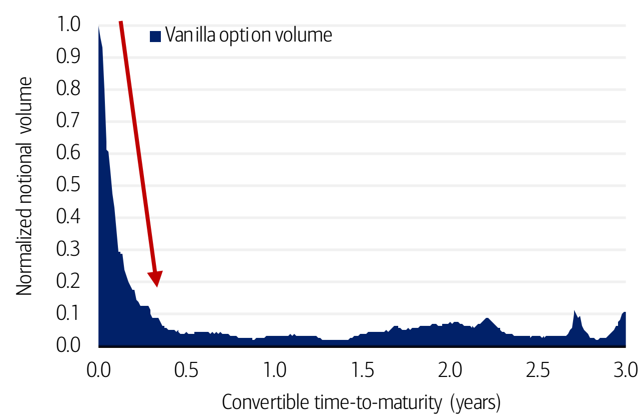
Exhibit 31: Volume in vanilla options with comparable tenor to a CB
However, for many names vanilla option volumes are heavily skewed towards short-term expiries and may be less liquid than CBs for longer tenors



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 18-Oct-2023. Based on daily data since Jan-2023. Volume normalized to a maximum value of 1.
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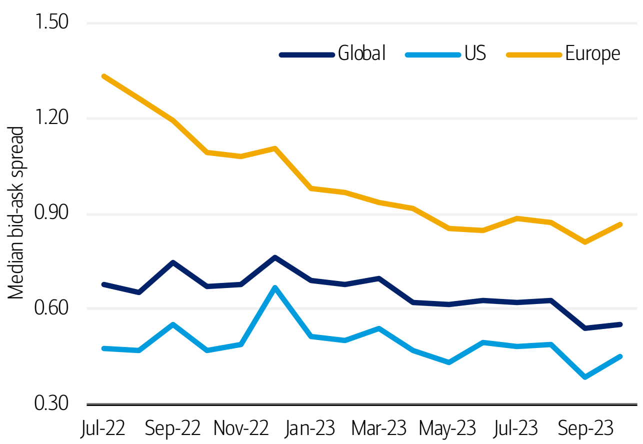
Europe: Watch for further deviations from the benchmark

European CBs have struggled amid challenged liquidity and net outflows

It has been a been a difficult year for the European CB market. In fact, although it has caught up to its regional peers more recently given the US-driven selloff in October, the region has underperformed for the majority of the year (Exhibit 3)—a function of disappointing equity returns, a slower economy, ongoing challenged liquidity, and net outflows. Indeed, while it has improved relative to last year, the European CB market's liquidity (as measured by median bid-ask spreads of single name CBs) remains inferior relative to the US market's and is heavily subject to index rebalancing periods and the primary market calendar (Exhibit 32). Additionally, as the sentiment from our latest Global Convertibles Investor Survey illustrates (see our 01-Nov Global Convertibles Chartbook), managers globally (though particularly those domiciled in Europe that manage European or global assets) have suffered net outflows for the majority of 2023. Even global and European CB funds that market themselves as ESG-focused, which enjoyed significant fanfare in recent years and even managed to stave off outflows during the severe 2022 rout, realized significant net outflows over the past 6 months (Exhibit 33). While we're hopeful that improved primary market activity and reduced investor focus on the index (see below) will benefit European CB market liquidity and demand, we believe the space faces an uphill battle heading into 2024.

Exhibit 32: Median bid-ask spreads of US versus European converts

Though the European CB market's liquidity (as measured by median bid-ask spreads) has improved versus last year, it remains worse than US liquidity



Source: BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 31-Oct-2023.

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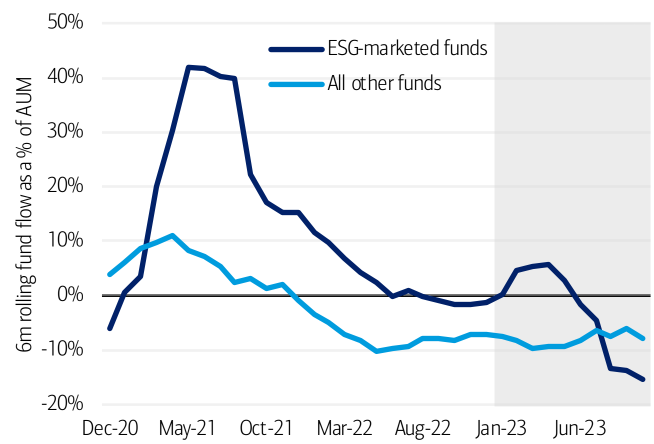
Exhibit 33: ESG versus all other global retail CB fund flows

After years of inflows, even retail funds that are marketed as ESG funds have faced net outflows so far in 2023



Source: BofA Global Research, EPFR Global. Data as of 31-Oct-2023.

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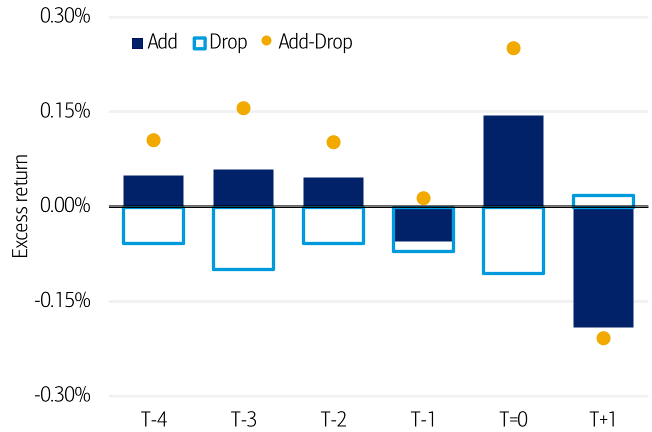
Investor FOMO may drive a divorce from the benchmark, benefitting liquidity

Having said this, we're hopeful that that European CB universe will become less dependent on index rebalancing to drive liquidity and valuation. As we outlined at length earlier this year (see our 01-Sep Global Convertibles Chartbook), given the hefty focus European-based CB managers place on the Refinitiv Global Focus Convertibles Index (which tracks mid-delta "balanced" convertible bonds), the benchmark's rebalancing can sway single name CB returns and cheapness or richness to fair value. Though we see evidence of the index's influence in names globally, unsurprisingly the impact is most consistent among European converts, which typically gain in the days leading up their addition to the index and fall immediately following their inclusion (Exhibit 34).

Given that the Global Focus index is intended to reflect only "balanced" CBs, it does not capture the entirety of a single-name CB's returns on either its upside or its downside as names that appreciate or depreciate significantly are removed. Specifically, we have found that while most downside is, in fact, captured by the index, just a median 60% of a name's upside gets included, suggesting that investors who closely hug the benchmark may miss out on significant performance (Exhibit 35).

Exhibit 34: Median excess returns of added and dropped European CBs
The Global Focus index has a big influence on the European CB market as added CBs outperformed dropped CBs ahead of the rebalance date



Source: BofA Global Research, Refinitiv, Bloomberg, ICE Data Indices, LLC. Data from December 2019 to February 2023.

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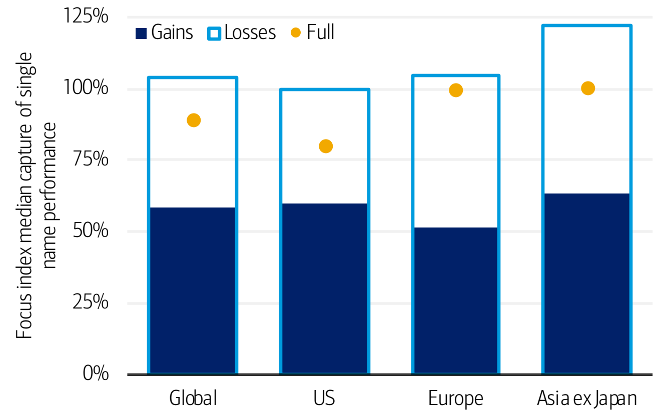
Exhibit 35: Median portion of single CB returns captured by the index
The Global Focus index captures nearly 90% of single-name performance globally, though it captures more downside performance than upside



Source: BofA Global Research, Refinitiv, Bloomberg, ICE Data Indices, LLC. Data from December 2019 to February 2023. Depicts the average portion of each name's gain and losses captured by the index.

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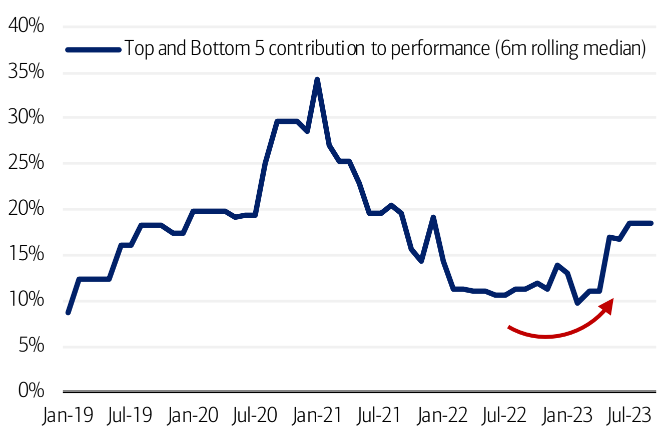
This in mind, we think that fear of missing out on significant gains may result in more managers retaining names that drop out on the upside, particularly as performance concentration has been rising and just a handful of names have been driving the bulk of returns (Exhibit 36). Indeed, we've seen more evidence of this already. Our work on index rebalancing trends suggests that managers have been waiting until the last moment to sell dropped names (dropped-name returns are weakest both at the absolute level and versus added names on the rebalance effective date—see Exhibit 34), and even more notably we've noticed more managers making off-benchmark bets in specific issues. As an anecdote, take EV-maker Rivian—we found numerous investors had kept their Rivian '29 CBs despite the fact that they traded above the index's $140 upper limit last July out of concern it might become the next Tesla, which powered CB performance in 2020 and drove a meaningful wedge between funds that owned and did not own the name (Exhibit 37). Ultimately, we expect this behavior may become more prevalent if fund flows improve, which would allow managers to take more risk with excess cash rather than fund redemptions. Overall, if the European CB space does become further divorced from the benchmark's influence, we expect it would positively impact the region's liquidity.

Exhibit 36: Global top and bottom 5 contributors to performance
Over the last 6 months, the top and bottom 5 contributors to global CB performance have comprised over 18% of total returns, the most since 2021



Source: BofA Global Research, ICE Data Indices, LLC. Based on monthly single name contribution to the ICE BofA Global Convertibles Index (CONV). Time series shows a 6-month rolling median.

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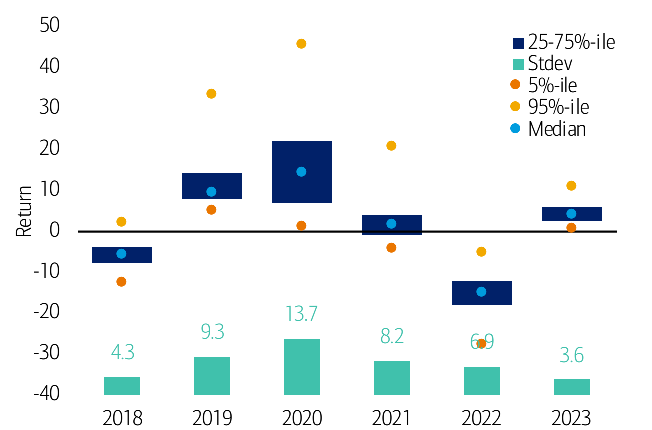
Exhibit 37: Global CB fund performance distribution by year
2020 saw the widest distribution of returns among global CB funds as those who held Tesla converts meaningfully outperformed



Source: BofA Global Research, Bloomberg. Includes all global CB funds listed on the Bloomberg Fund Performance screen with total assets of at least $100mn.

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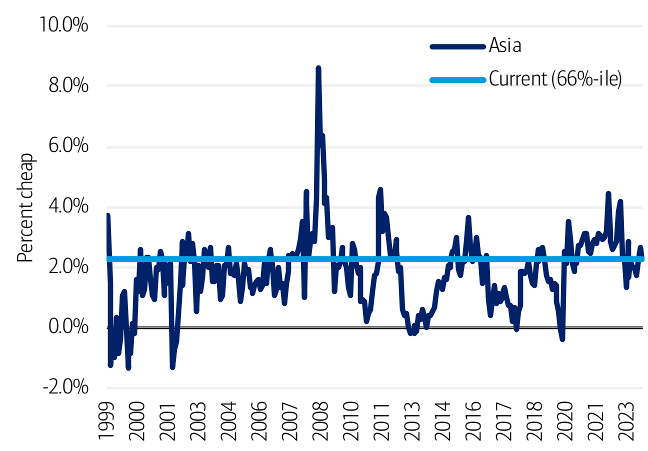
Asia: Cheapness reflects concerns on China and liquidity

Asia trades at a discount to fair value, but China property weighs on the market

On a comparative basis, the Asian CB market has held up well for most of 2023 (+6.2%) and is currently underperforming only Japan. Indeed, the region has been supported by a number of names, most notably ADRs (including Chinese EV-marker Li Auto and Chinese streaming service iQIYI) as the threat of forced delisting from US exchanges eased considerably—this was a headline concern among investors in 2022. Still, despite the comparatively healthy performance, the Asia CB market now trades at a 2.3% discount to fair value, the largest discount versus other CB regions (see Exhibit 45 below) and modestly cheap relative to history in its 66th percentile since 1999 (Exhibit 38).

Why the discount among Asian CBs? We think much can be attributed to a number of factors. First, like the European converts market, the Asian market also struggles with liquidity, especially compared to its US counterpart. Indeed, relatively few US investors participate in the space amid mistrust of company management teams, skepticism of economic data, and lack of access, resulting in a shallower market. Second, the Asia CB space is still dealing with the hangover from distressed Chinese property developers. Overall, the real estate sector has been the leading underperformer year-to-date by a wide margin (Exhibit 39), topped by the likes of Country Garden and Agile Group, and recent missed interest payments from Evergrande, Logan Group, and CIFI (among others) remain fresh in managers' minds. Finally, our strategists think elevated geopolitical tension and higher-for-longer rates are unfavorable for Chinese equities in the short-term (see their 24-Oct China Equity Strategy note). Though the market may struggle for the coming quarters, our strategists also believe that we may be near the beginning of a longer-term fundamental turnaround for the region, driven by monetary easing (such as rate cuts and property market stimulus), structural reforms, and technological breakthroughs, including the rise of new economy leaders (many of which currently have CBs outstanding or may turn to the market for additional financing).

Exhibit 38: Asian CB market average discount or premium to fair value
On average, Asian converts now trade at a 2.3% discount to fair value, the cheapest of all regions and relatively cheap compared to history



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.
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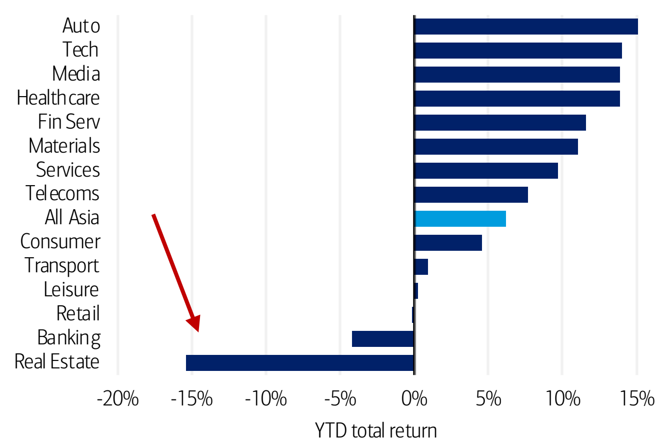
Exhibit 39: Asian CB sector performance year-to-date
The real estate sector has driven much of the discount as investors are very concerned about distressed China property developers



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 16-Nov-2023.
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Parting thoughts: How to generate alpha in CBs in 2024

Look for new deal discounts, the refi trade, and pockets of relative value

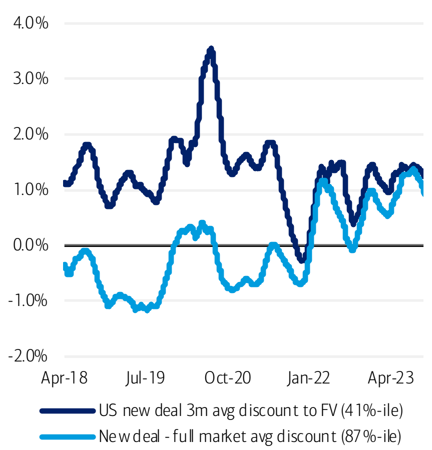
All of this considered, we thought we'd conclude our outlook section by providing some quick parting thoughts on what we think investors should be looking at in order to generate alpha in 2024.

- **Take advantage of new deal discounts:** As we discuss in more detail in our below issuance section, we're expecting a pickup in the CB primary market next year as issuers look to save on refinancing costs with borrowing costs elevated. Though recent new issue CBs have not priced exceptionally cheap to fair value (see our [17-Aug Global Convertibles Quick Note]), optically deal terms have improved, and we've found that new issues remain a relative source of value within the CB space. Indeed, on a rolling 3-month basis, the average discount to fair value of new deal converts versus the broader market is now close to 1 percentage point, elevated in its 87th percentile since the start of 2018 (Exhibit 40).

- **Consider the refi trade:** As we wrote about earlier this year, in 2023 CB issuers have been more willing to redeem and refi existing CBs to take advantage of the depressed prices of their debt, lock in financing costs before they potentially rise even higher, and get ahead of the looming maturity wall (see our [22-May Global Convertibles] note). Typically, the take-outs have occurred at premiums to current prices, rewarding their owners (especially those holding the CBs outright). In fact, we've found that on a weighted-average basis, these bought-back and bought-out names (including all names fully repurchased, tendered, or exchanged) have outperformed the broader market across nearly all regions year-to-date (Exhibit 41). Europe was the only exception, dragged down by state-owned French utility EDF. We expect that refi activity will remain elevated next year (see Exhibit 60 below), and investors should continue to look for opportunities here.
- **Seek out overlooked pockets of relative value:** Given that a sizable portion of the market, particularly mid-delta "balanced" names that qualify for the Global Focus index, are now fairly expensive (see Exhibit 48 below), we recommend investors search for value in alternative or more overlooked pockets. For example, we believe there's value to be had among "busted" CBs that fall between indexers and distressed investors, longer-dated names with more distant maturity dates (Exhibit 42), and Asian CBs (see Exhibit 38 above). Additionally, to reiterate our point from earlier, we also see relative discounts among new issue CBs (Exhibit 40). Of course, investors should be wary of additional risks and value traps—indeed, though longer-tenor CBs are comparatively cheap, they are more sensitive to changes in rates (an especially concerning point given today's highly elevated rates volatility), and Asia's cheapness may be partially a reflection of poorer liquidity.

Exhibit 40: US CB new issue average discount or premium to fair value

CB new deals remain modestly cheap to fair value, though they are much cheaper than CBs in the broader secondary market



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023. New issue index includes all deals issued within the last 6 months on a rolling basis, rebalanced monthly.

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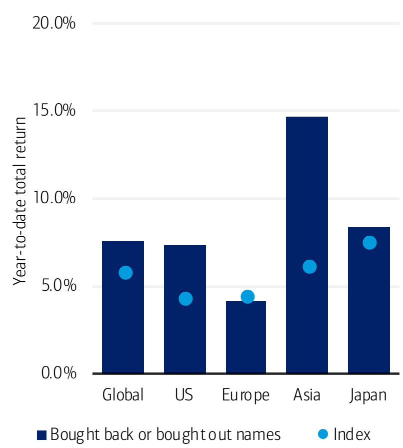
Exhibit 41: Return of bought-back and bought-out CBs year-to-date

On a weighted-average basis, bought-back and bought-out CBs have outperformed the broader market in each region (except for Europe)



Source: BofA Global Research, ICE Data Indices, LLC, Bloomberg. Data as of 16-Nov-2023. Includes all CBs bought-back (<$100mn remain outstanding) and bought-out during 2023.

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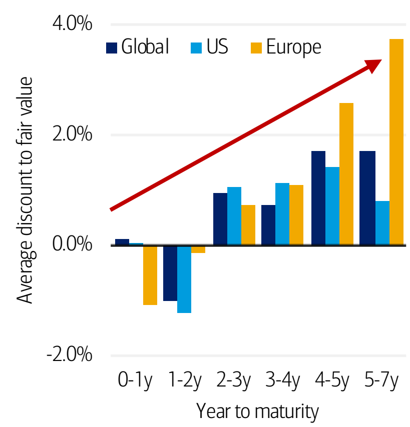
Exhibit 42: Average discount or premium to fair value by tenor

Across regions, longer-dated convertibles screen at deeper discounts to fair value than shorter-dated names



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.

BofA GLOBAL RESEARCH

Return forecast

CBs to gain, but upside limited by higher-for-longer rates

US and Asia CBs to lead outright convertible bond performance in 2024

In 2024, we expect global CB performance will improve relative to 2023's modest gains given our expectation of a soft-landing, limited credit cycle impact on CBs, and potential for more AI-driven gains, though we think that higher-for-longer rates' drag on longer-duration small- and mid-cap growth issuers (along with low deltas) puts a ceiling on upside. Timing-wise, we expect CBs will face more headwinds in the first half, mostly due to the uncertainty about the pace of the Fed hiking/cutting cycle, though we expect more clarity (and stronger returns) in the second half. This corresponds with our economists, who expect economic softening throughout 2024 will prompt a less hawkish policy response, and our rates strategists who believe yields are now near peak levels but will be slow to come down from here—they are calling for US 10y to end 2024 at 4.25% (see their 19-Nov Global Rates Outlook). Though a bit lower than today's levels, they think rates will stay well above pre-pandemic highs (hence, "higher-for-longer").

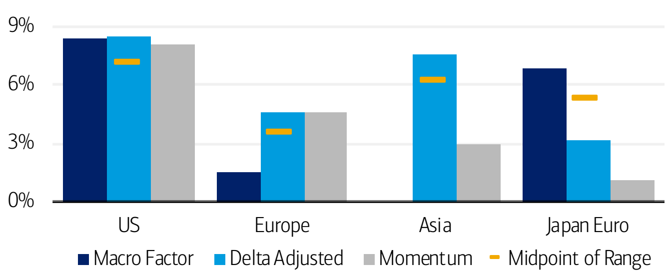
All of this considered, we are calling for US convertibles to return +7-9%, a solid improvement over 2023's +4.4% year-to-date. In Europe, we think returns will range from +3-5% (similar to the 2023 year-to-date return of +4.5%), while in the Asia-ex Japan and Japan Euro convertibles markets we are forecasting performance of +6-8% and +5-7% respectively (compared to +6.2% and +7.6% year-to-date). Please note we exclude the Japan Domestic market from our forecast since currently, the index representing the region contains zero members (Exhibit 44).

To help develop these forecasts, we employed several methods—two with a fundamental focus, and one with a technical focus. Our first methodology uses a traditional top-down factor framework. As inputs, we use our BofA strategists' 2024 forecasts for equity, credit spreads, and rates, and we compare these against convert returns by region. Next, we look at a market value weighted delta-adjusted return based on our BofA equity analysts' twelve-month stock price forecasts of the underlying equities of the constituents in each region (about two-thirds of all CB issuers' stocks are covered by our BofA fundamental analysts). We find this bottom-up approach typically offers more optimistic forecasts than the factor framework provides, and we discount it somewhat relative to the factor framework. Finally, we use a more technical approach based on mean reversion of the ICE BofA indices. Specifically, we forecast future returns by determining the number of standard deviations (z-score) the current twelve-month return is away from the historical average. Note that we put the least amount of weight on this last method as it completely ignores the macro backdrop (Exhibit 43).

Please keep in mind that we use these frameworks as guidelines, and we determine our final forecasts using not only the quantitative approaches discussed here, but also our fundamental opinions based on our outlook, which we outlined in the section above.

Exhibit 43: CB total return estimates for 2024 by method

We use three approaches to estimate returns: (1) macro factor regressions, (2) delta-adjusted single-name price targets, and (3) momentum



Source: BofA Global Research

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Exhibit 44: Total return forecasts for 2024, local currency

Our final forecast blends the outputs of the three approaches and reflects our fundamental opinions for each region

Region	Mkt Delta	Delta Adjusted	Macro Factor	Momentum	2024 Forecast
US	0.36	8.6%	8.4%	8.1%	7 - 9%
Europe	0.27	4.6%	1.5%	4.6%	3 - 5%
Asia	0.32	7.5%	NA	2.9%	6 - 8%
Japan Euro	0.47	3.1%	6.9%	1.1%	5 - 7%

Source: BofA Global Research, ICE Data Indices, LLC. Data as of 16-Nov-2023.

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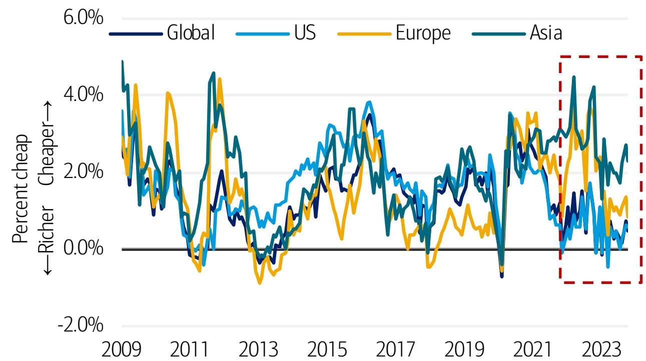
Global CB valuations to marginally cheapen amid market net expansion

A consequence of the ongoing decline in net new supply we saw in 2023 (see Exhibit 84 in the issuance section below) and moderate positive returns, converts across regions richened last year (Exhibit 45). As of October month-end, the US and Europe trade at just modest discounts to fair value (about 65bps and 85bps, respectively), however the Asian market is notably cheaper with a 2.3% average discount (Exhibit 46). As we discussed previously, we see this a reflection of comparatively poor liquidity and concerns about the Chinese property sector. Our clients agree—according to our most recent Global Convertibles Investor Survey (see our [01-Nov Global Convertibles Chartbook](#)), the majority of respondents think that Asian CBs are cheap to fair value, while most think CBs from the US, Europe, and Japan are rich (Exhibit 47). Finally, we note that given their low supply and strong demand from investors, Global Focus index-eligible "balanced" names trade at premiums, while deep out-of-the-money "busted" and distressed names trade at discounts (Exhibit 48). In 2024, we anticipate global CB valuations will marginally cheapen, primarily a function of our call for global market net expansion (see Exhibit 85 below), which should help ease the current supply/demand imbalance, particularly among "balanced" names (Exhibit 48).

Exhibit 45: Global CB discount premium to fair value by region

CBs across regions saw richening this past year, and most now trade at a small average discount to fair value (though Asia screens cheap)



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.

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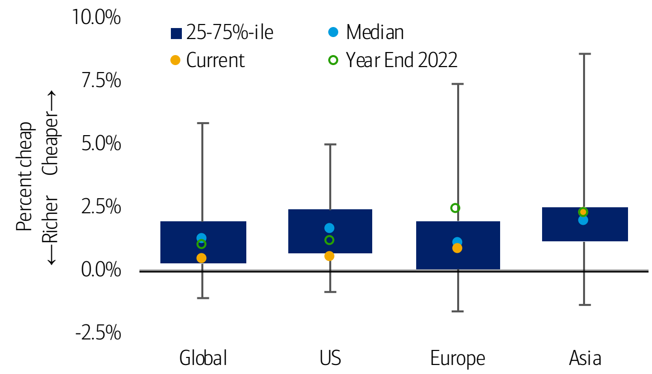
Exhibit 46: Historical distribution of CB percent cheap by region

Nearly all regions' discounts to fair value are very modest compared to history, particularly the US's



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.

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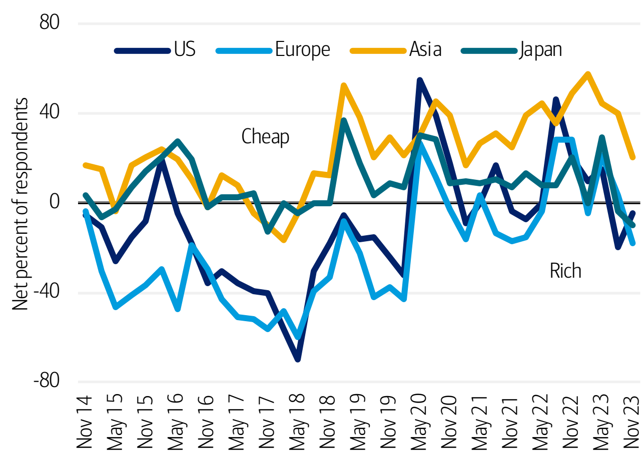
Exhibit 47: CB global manager views on current global CB valuations

The majority of investors think that Asian CBs are cheap to fair value (in-line with our data), while most think CBs from the US, Europe, and Japan are rich



Source: BofA Global Convertibles Investor Survey

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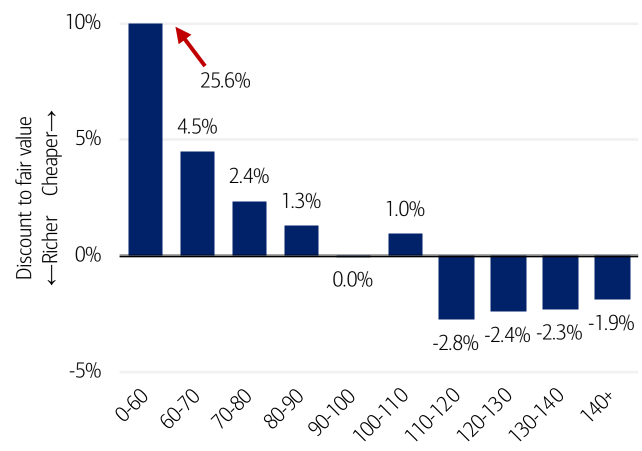
Exhibit 48: Global CB discount to fair value by price bucket

In-demand, yet sparse, "balanced" CBs trade rich to fair value, while deep out-of-the-money "busted" and distressed names trade at discounts



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 01-Nov-2023.

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Failure to achieve a soft-landing is the top downside risk to our return forecast

Our outright performance expectations are sensitive to our views on credit conditions, economic growth, central bank policy, inflation, rates, and equity market performance (among others). This in mind, we view the leading downside risk to our forecast is that the soft-landing scenario envisioned by our economists does not pan out, and instead global economies tip into recession—possibly triggered by either ongoing hawkish central bank policy to fight persistent inflation or a commodity price shock in light of the ongoing global geopolitical conflicts. In such a scenario we'd expect credit spreads and borrowing costs would blow out, and more of the most-stressed CB issuers (such as the ones we listed in Exhibit 23) would be unable to refi and would ultimately default. Relatedly, in the event that permanent inflation compels central banks to maintain more hawkish-than-expected policy (namely additional rate hikes), we think that high-growth equities would remain under pressure, weighing on CBs (as we illustrated in Exhibit 9). However, this risk is somewhat countered by the fact that CB averaged deltas are quite low relative to history, suggesting less sensitivity to weakening share prices (Exhibit 12).

On the upside, we think the top risk is that higher-for-longer rates has a less-restrictive impact on performance than we expect. Indeed, our equity strategists recently found that rising rates are not always bad for stocks if driven by growth, and they noted that consumer activity remains very strong despite higher borrowing costs (given little debt and fixed-rate mortgages) and that today's credit cycle may look starkly different than those from the past (see their 01-Nov US Fixed Income Strategy joint note). However, they do concede that the most duration risk resides among small-caps and high-growth names, which of course comprise a significant portion of the convertibles market.

Pickup in new supply pace to be accommodative of CB arb

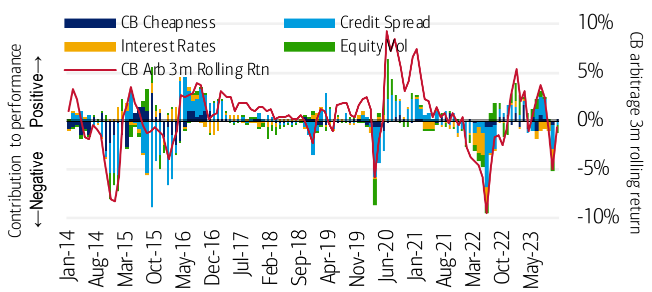
Backdrop for CB arb remains supportive amid improved issuance expectations

As we wrote in our recent [Convertible Arbitrage Primer](), we had expected 2023 would be supportive for CB arbitrage due to due to credit spread tightening and a pickup in new supply, which generally favors CB arb returns. This has played out—for most of the year, tighter spreads and improved issuance volumes have been among the leading drivers of CB arb gains (Exhibit 49). Indeed, the HFR CB arbitrage index remains +5.0% year-to-date despite dropping 3.0% in October amid the interest rate and credit spread moves.

Though we think the case for further spread tightening is now less compelling, we are in the camp that CB issuance has upside potential in 2024 (see below), which would be supportive of CB arb performance. Why? CBs are typically issued at discounts to fair value, and therefore more new supply creates more opportunity for arbitragers to monetize mispricings. Additionally, new supply introduces more trading opportunities as holders must frequently rebalance their portfolios to rotate into new names. Indeed, CB arb returns and changes in issuance volumes are closely linked, historically (Exhibit 50).

Exhibit 49: Drivers of convertible arbitrage performance

Improved credit has benefitted CB for most of 2023, though performance suffered during October's rates and credit-driven stress



Source: BofA Global Research, Hedge Fund Research, Inc, ICE Data Indices, LLC. Data as of 16-Nov-2023. Unexplained factors that drive performance are excluded.

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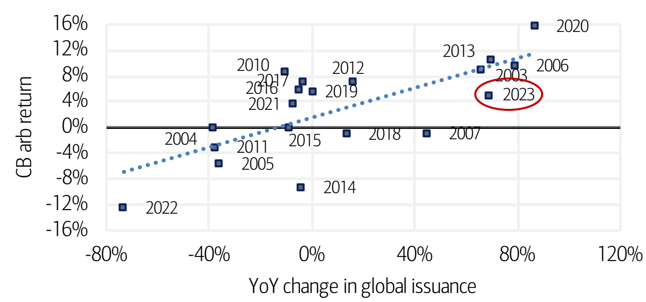
Exhibit 50: CB arbitrage performance versus YoY change in issuance

Since CB arb returns are positively related to primary market volumes, we're hopeful that an issuance pickup in 2024 will benefit performance



Source: BofA Global Research, HFR Inc. Excludes 2008 and 2009. Data as of 16-Nov-2023.

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Supply and demand

The refi wave is coming for the convertible bond market

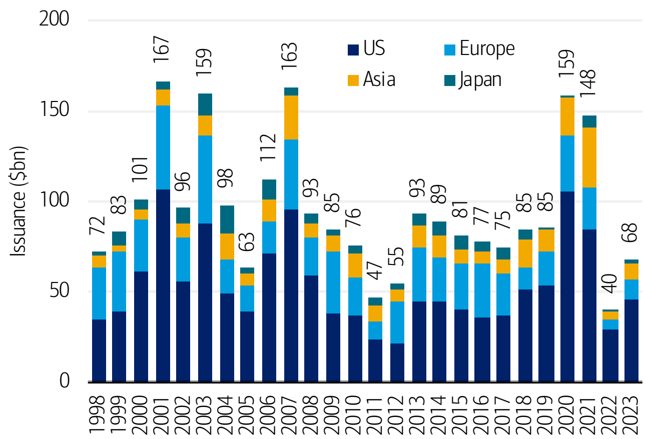
Global convertible bond issuance returned to pre-pandemic levels in 2023

Though perhaps not quite as strong as many CB investors had hoped for, 2023's global convertibles primary market was sharply improved from 2022's in just about every way—volumes were much higher, issuer quality improved, and deal terms remained optically attractive (we include the details below). Due heavily to refinancings of existing convertibles, in all $68bn has come to market globally year-to-date, and the market is currently running at a rate to reach a bit shy of $80bn by year-end (Exhibit 51). For context, that's nearly double 2022's pace and almost identical to the pre-pandemic pace, though it is about half the volumes of the 2020-2021 pandemic-era (Exhibit 52).

Indeed, 2023's total volumes have landed in-line with our expectations ($75-85bn globally), which were relatively tempered compared to many of our counterparts. Regionally, the US has realized almost $46bn year-to-date (versus our call for $50-55bn), Europe almost $11bn ($14-16bn forecast), Asia nearly $9bn ($9-11bn forecast), and Japan just under $3bn ($2-3bn forecast).

Exhibit 51: Global convertible bond new issuance by year

Global convertible bond new supply has totaled $68bn year-to-date, a sharp increase from last year's disappointing volumes



Source: BofA Global Research. Data as of 16-Nov-2023.

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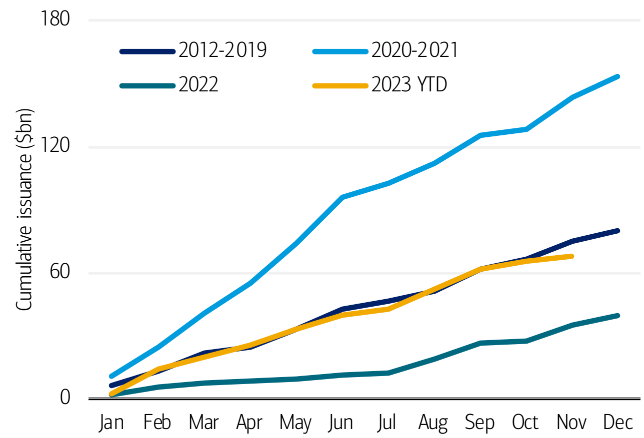
Exhibit 52: Global convertible cumulative new issuance since 2012

Though well-below the pandemic-era average pace of new supply, 2023's volumes have paced in-line with the pre-pandemic levels



Source: BofA Global Research. Data as of 16-Nov-2023.

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We're calling for $90-100bn globally in 2024 with $60-65bn from US companies

For 2024, we expect the wave of refis will amplify amid the impending maturity hurdle, which steps up meaningfully in the next 12 months as the class of pandemic-era deals approaches retirement. What's more, we're growing more hopeful that the CB primary market will benefit from higher-for-longer rates as issuers of maturing non-convertible debt seek lower-cost alternatives to save on interest expenses. This considered, along with our views outlined in our global outlook above, we're calling for $90-100bn globally with $60-65bn from the US, $16-18bn from Europe, $10-12bn from Asia, and $4-5bn from Japan (Exhibit 53).

Exhibit 53: 2024 global convertibles issuance forecast

We are forecasting $90-100bn of new convertible issuance globally next year with $60-65bn from the US, $16-18bn from Europe, $10-12bn from Asia, and $4-5bn from Japan

Issuance ($bn)	US	Europe	Asia	Japan	Global
2023 YTD realized	45.8	10.8	8.5	2.7	67.8
2023 run rate	52.3	12.3	9.7	3.1	77.3
2023 forecast	50 -55	14 - 16	9 - 11	2 - 3	75 - 85
2024 forecast	60 - 65	16 - 18	10 - 12	4 - 5	90 - 100

Source: BofA Global Research. Data as of 16-Nov-2023.

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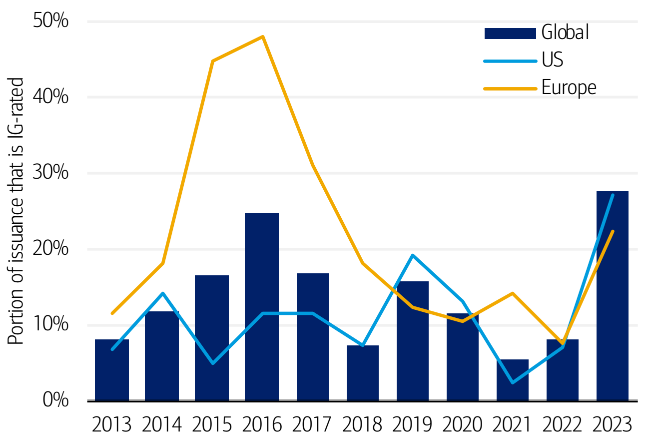
Higher-for-longer rates plus the maturity wall boosts CBs

Convertible bond new deal quality and issuer diversity improved in 2023…

Although 2023's issuance volumes were in-line with pre-pandemic levels, the similarities ended there. In fact, a hefty portion of 2023's new deals have been IG-rated (close to 30% globally, a record since at least 2013), driven heavily by utilities, which comprised a record 15% of all new paper globally and 20% in the US (Exhibit 54 and Exhibit 55). What's more, just 8% and 31% of US CB issuance volumes were from young companies (defined as trading publicly for 3 years or less) and first-time issuers in the CB market, respectively (Exhibit 56 and Exhibit 57). To us, this suggests a more mature and higher-quality set of issuers—especially compared to the young and opportunistic names that drove the pandemic-era boom. Though the quality and diversity were initially welcome by CB managers exhausted of the money-losing high-growth names that dominated the previous cycle, CB investors have now grown somewhat fatigued of the higher-quality utilities names, which are generally less interesting from a vol perspective.

Exhibit 54: Portion of CB issuance that has an IG credit rating

Almost 30% of global new deal volumes were IG-rated year-to-date, a record since at least 2013



Source: BofA Global Research. Data as of 16-Nov-2023.

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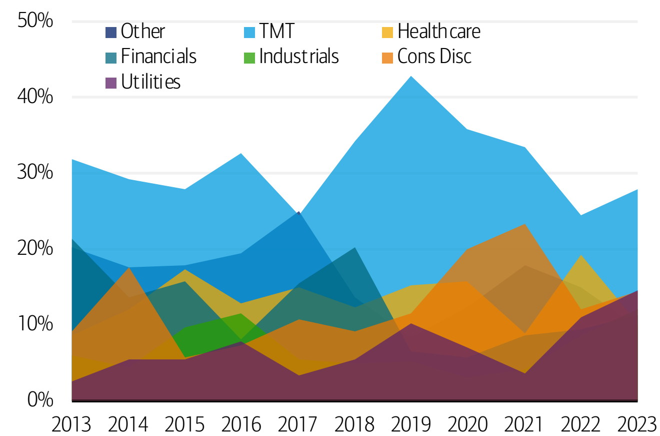
Exhibit 55: Global CB new issuance sector breakdown by year

Though tech, media, and telecoms still led CB new supply volumes globally, issuance from utilities grew to 15% (20% in the US), the most on record



Source: BofA Global Research. Data as of 16-Nov-2023.

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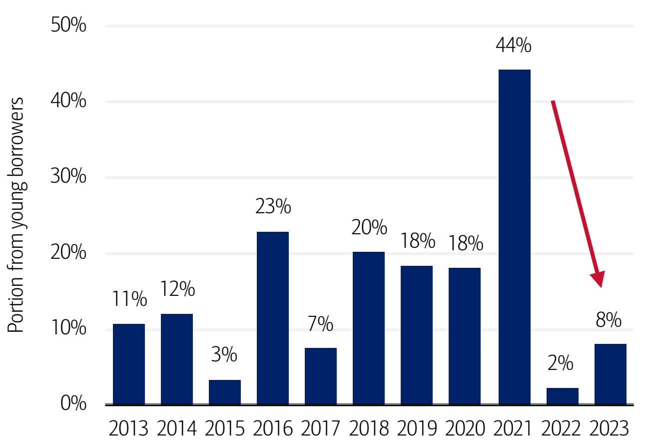
Exhibit 56: Portion of US new deals from young borrowers (<3y public)

Just 8% of US CB issuance volumes have been from young companies so far in 2023, suggesting more mature issuers than we saw in the pandemic-era



Source: BofA Global Research. Data as of 16-Nov-2023.

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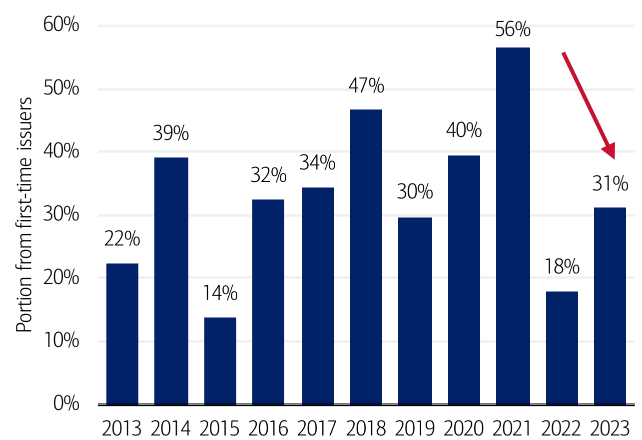
Exhibit 57: Portion of US new deals from first time CB issuers

31% of US volumes were from first-time issuers, still well-below 2021's 56%, another indication of a higher-quality issuer-base, in our view



Source: BofA Global Research. Data as of 16-Nov-2023.

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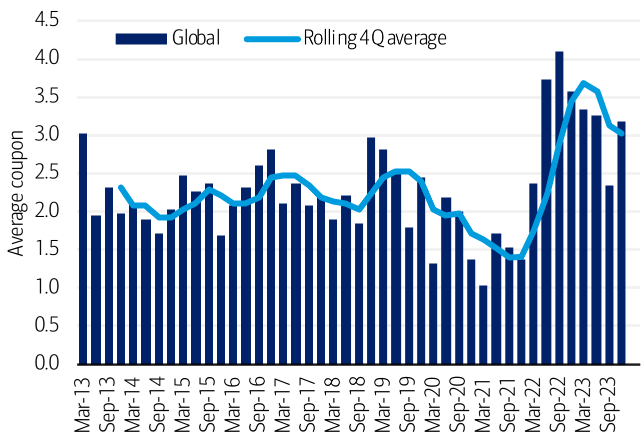
…and investors enjoyed more attractive pricing relative to pandemic-era deals

Besides higher quality issuers, CB managers have also enjoyed more optically improved new issue pricing than in the past. Indeed, global new deal coupons have averaged about 3% over the past year, compared to the pandemic-era lows of sub-1.5% (and many deals paid zero coupon), while initial coupons have narrowed to about 27%, on average, versus the pandemic-era era wide of almost 37% (Exhibit 58 and Exhibit 59). However, as we wrote in a recent note (see our 19-Sep Global Convertibles note), we've found the discounts embedded in CB new deals have been fading despite the better pricing terms—a function of both the improved macro picture versus 2022 (equities higher, credit spreads tighter) and negative net-new supply (see Exhibit 84 below). Though CB issuers have regained some pricing power in recent months, new deals are inexpensive compared to the broader convertible bond market, as we mentioned previously, and we think they remain a source of relative value within the space (see Exhibit 40 above).

Exhibit 58: Global convertibles average new deal coupons

Global CB new deal coupons have remained elevated relative to history…



Source: BofA Global Research. Data as of 16-Nov-2023. Excludes mandatories.

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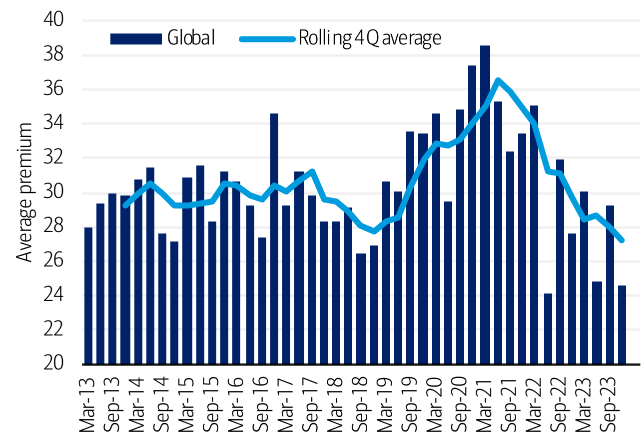
Exhibit 59: Global convertibles average new deal initial premiums

…while average initial premiums are still very narrow compared to the past



Source: BofA Global Research. Data as of 16-Nov-2023. Excludes mandatories.

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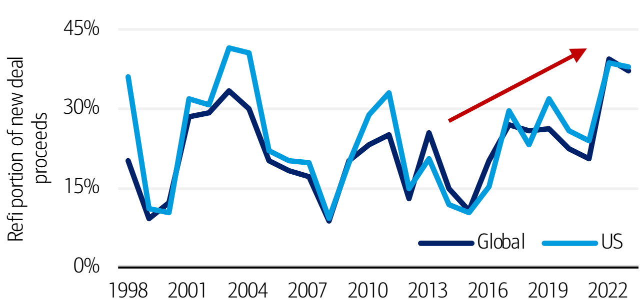
Refinancings, rather than opportunistic borrowing, drove new volumes in 2023…

Notably, these higher-quality and better-priced volumes have been driven mostly by refinancing activity—indeed, close to 40% of global proceeds year-to-date have been used to refinance debt, a near-record since 1998 (Exhibit 60). As we discussed previously, we've found companies have been more eager to repurchase and refinance existing CBs to capitalize on their depressed secondary market pricing and to preempt the impending maturity wall (see Exhibit 63 below). By the same token, the portion of new deal proceeds slated simply for general corporate purposes (implying no specific use and thus a proxy for opportunistic issuance) dropped to 8-year lows (Exhibit 61).

Exhibit 60: Refi portion of CB new deal proceeds

In 2023, nearly 40% of global new deals were used to refinance existing debt



Source: BofA Global Research. Data as of 16-Nov-2023.

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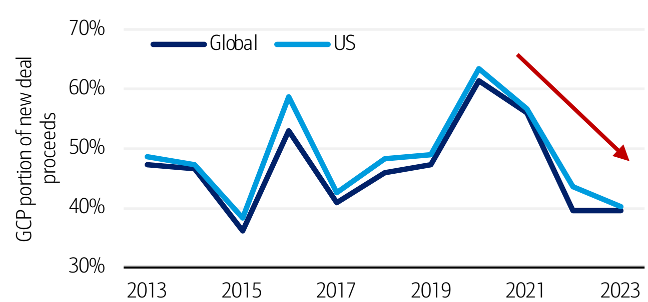
Exhibit 61: General corporate purpose portion of CB new deal proceeds

The portion of proceeds slated simply for GCP dropped to near 8-year lows



Source: BofA Global Research. Data as of 16-Nov-2023.

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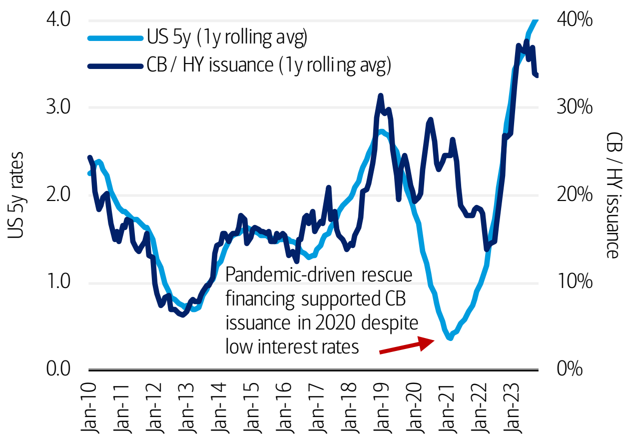
...and high costs suggests refis will persist among both CB and crossover issuers

In 2024, we expect this refi trend will continue, not only from existing CB issuers but also from crossover issuers from straight credit markets as higher-for-longer interest rates paired with the looming maturity walls in both convertible bonds and straight bonds will compel borrowers to seek out cheaper alternatives to raise capital. As we've belabored in past research, historically a backdrop of more expensive borrowing costs favors CB over straight credit financing—a point that's especially noteworthy today given a significant chunk of paper is set to retire by 2025 and 2026 (over $200bn of global CBs and over $600bn of global HY) which may prompt imminent refis (Exhibit 62 and Exhibit 63). Indeed, 2025 maturities will "go current" on balance sheets next year, and our credit strategists recently noted that IG and HY issuers typically prefund 12-months and 18-months before maturity, respectively (see their 01-Nov US Fixed Income Strategy joint note). In contrast to what we've experienced in 2023, when CFOs had the luxury of time to wait for a period of lower costs before pulling the trigger, the impending maturity hurdle suggests that they may be more compelled to act, especially given that rates are unlikely to return to 2020-2021 levels in the coming quarters (see our rates strategists' 19-Nov Global Rates Outlook for more detail on their views).

Exhibit 62: CB v. HY issuance with respect to interest rates
Historically, CB issuance rises versus HY issuance during periods when borrowing costs are elevated



Source: BofA Global Research, Bloomberg. Data as of 31-Oct-2023.

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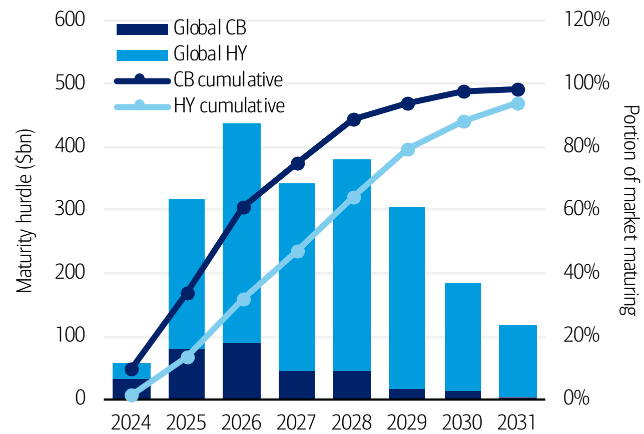
Exhibit 63: Global convertibles and high yield maturity hurdles
The majority of the converts market and a sizable portion of the high yield market are set to mature in 2025 and 2026



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.

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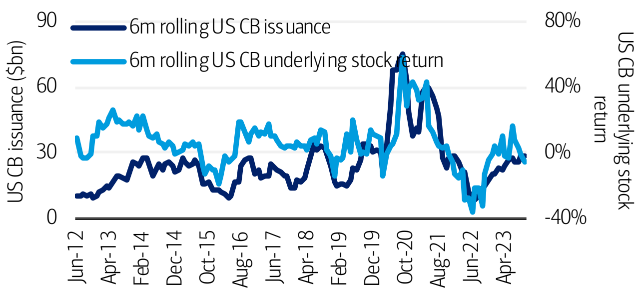
Why? Coupon savings in CBs can be significant, especially for cyclical industries

The reason that converts provide issuers a cost advantage is that they offer investors a warrant (effectively a call option) on the issuer's underlying stock in exchange for lower coupon payments. As a result, our expectations for more constructive equities in 2024 magnifies CBs' cost benefits—CB issuers can attain better terms when their stock is performing well. Indeed, we've found a close link between equity returns and CB issuance volumes (Exhibit 64).

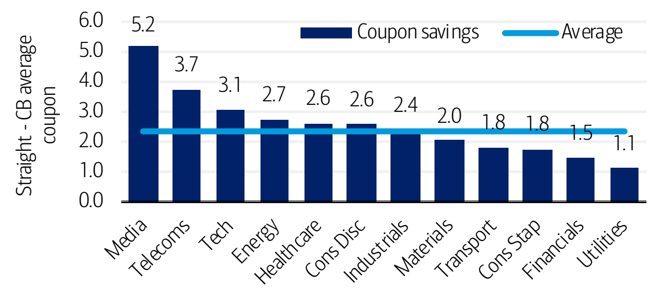
How much can borrowers save? We've found that based on outstanding bonds in the global CB, HY, and IG secondary markets, CB coupons are about 2.4 percentage points lower, on average, than straight debt coupons. Notably, however, interest savings are even greater for names in more cyclical sectors, which can monetize their higher equity vol and upside potential for more attractive pricing. Specifically, based on global credit issuers that have both non-convertible and convertible debt outstanding, we've found that CBs provide the largest coupon savings in the media, telecoms, and tech sectors, whereas savings are less meaningful in utilities and financials (Exhibit 65). Notably, however, this hasn't precluded utilities from offering new CBs—as we discussed earlier, utilities have trailed only tech primary volumes year-to-date (see Exhibit 55 above).

Exhibit 64: US CB issuance versus underlying stock returns
CB issuers can attain better terms when their stock is performing well, which explains why volumes are higher amid equity market rallies



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.
BofA GLOBAL RESEARCH

Exhibit 65: Global straight bond v. CB average coupon differential
Based on issuer-level comparisons of outstanding global bonds, cyclicals (media, telecoms, and tech) realize the top coupon savings from CBs



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023.
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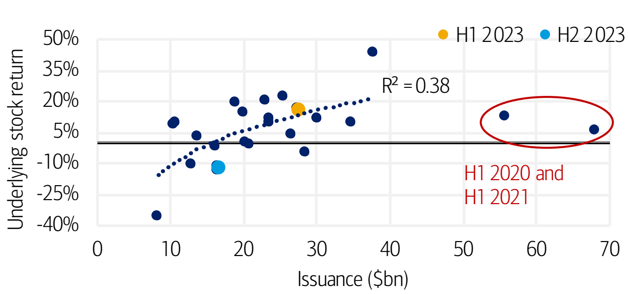
Who might make the switch to CBs from straight credit?

Credible CB issuers include more leveraged names with strong stock returns

A number of issuers have offered new CBs this year to replace existing straight debt, including Seagate Technology, Fluor, and Welltower, just to name a few. However, we think there are numerous others that would also be prudent to consider CBs when refinancing their soon-to-mature straight debt. To determine which global issuers might be most likely to do a convert, we expanded on our recent analysis on potential US issuers to include European, Asian, and Japanese names as well (see our 19-Sep Global Convertibles note). Here, we considered all outstanding issuers in the global IG and HY corporate credit markets, and we defined our universe based on the below features:

- **Upcoming maturity by 2025:** We only considered issuers that have debt due by 2025 (we expect CFOs are more compelled to refi debt before it "goes current").
- **Strong equity performance:** We eliminated all credit issuers that currently do not have publicly-traded stock on a global exchange. Additionally, we limited our credible issuer-set to only names whose year-to-date equity returns were in the top half of the full universe. As we mentioned before, CB new issuance has been closely-tied to the performance underlying stocks as companies are able to command better terms and are more willing to tap their equity after their stocks have rallied, while they're less likely to do so following a period of weak equity performance (Exhibit 66).
- **Relatively high leverage:** We included only issuers that have modest net leverage of at least 2.5x, or roughly the top half of the full universe. Unsurprisingly, we've found that more levered names pay higher coupons, on average, and thus may be more likely to benefit from a new CB versus new straight debt (Exhibit 67).

Exhibit 66: US CB issuance v. underlying stock performance by half
Historically, convertible bond issuance is better during periods of strong CB underlying issuer performance



Source: BofA Global Research, ICE Data Indices, LLC. Data as of 31-Oct-2023. Dots represent halves since H1 2012. Trendline excludes pandemic-era outliers.
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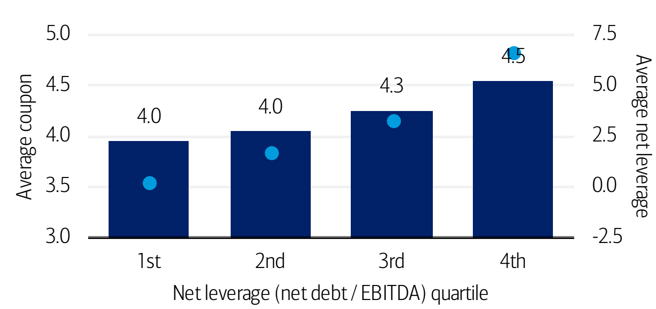
Exhibit 67: Global average coupon versus issuer net leverage
Global credit issuers with lower net leverage have outstanding debt with lower coupons, on average



Source: BofA Global Research, Bloomberg, ICE Data Indices, LLC. Data as of 31-Oct-2023
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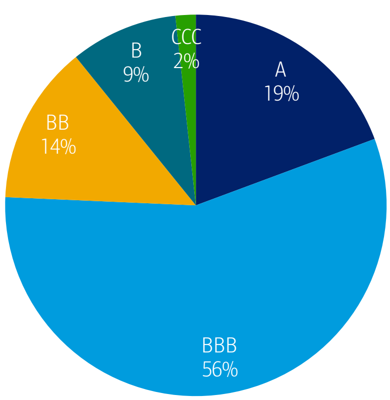
We think borderline IG cyclical issuers represent a sizable crossover opportunity

Based on these criteria, we think that the global credible opportunity set of crossover issuance volumes is just under $240bn (of course, it's highly unlikely all would refi in the CB space, but if even just 10% did it would represent about $24bn—a significant portion given global CB volumes have averaged $95bn since 1998). Notably, of these names, more than half (52%) have priced at least one CB in the past (5% currently have one outstanding), which we see as a signal of greater likelihood they would do one again.

On credit rating, by market value more than half (56%) of candidate issuers are BBB rated (mostly the lower notches of BBB and BBB- rather than BBB+), while 19% are A rated and 14% are BB rated (Exhibit 68). While a bit higher than the current average credit rating of US CB issuers (BB+), this seems plausible in the context of today's primary market. In fact, almost 30% of realized primary volumes year-to-date have been IG-rated, the most in at least the past 10 years (see Exhibit 54 from earlier). We note that the Financial Accounting Standards Board's (FASB) elimination of the requirement that issuers bifurcate their CBs on their balance sheets into part equity, part debt makes the structure especially attractive for EPS-sensitive IG names, particularly in an environment when financing costs are elevated, and balance sheet protection is key.

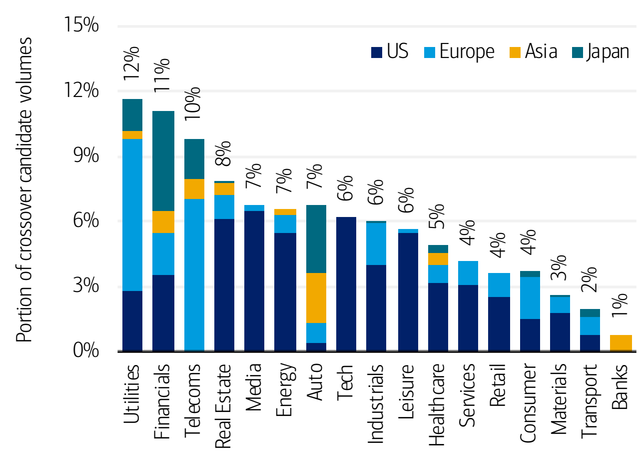
Sector-wise, the leaders among our CB crossover candidate issuers (again, based on market value) are non-US utilities, non-bank financials, and telecoms, while within the US top sectors tilt toward more cyclical media, tech, travel/leisure, energy, and real estate (Exhibit 69).

Exhibit 68: CB crossover candidates breakdown by credit rating
More than half of our global CB crossover candidates are BBB rated (mostly the lower BBB and BBB- notches)



Source: BofA Global Research, Bloomberg, ICE Data Indices, LLC. Data as of 31-Oct-2023.
BofA GLOBAL RESEARCH

Exhibit 69: Global CB crossover candidates breakdown by sector
The top sectors among our global CB crossover candidate issuers include non-US utilities, financials, and telecoms



Source: BofA Global Research, Bloomberg, ICE Data Indices, LLC. Data as of 31-Oct-2023.
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Below, we include a table with the top 20 convertible bond crossover candidate issuers for each region based on the criteria we outlined earlier (upcoming maturity by 2025, strong equity performance, and relatively high net leverage versus the full consideration set of issuers). Please note that we measure net leverage based on each company's most recent filing's net debt and trailing 12-month EBITDA metrics. The market value column displays the current market value of all 2024 and 2025 IG and HY maturities, while the current and past CB columns show whether or not the issuer currently has a CB outstanding and whether or not it had offered one historically. We'd expect that candidates which have a history with converts would be more likely to return to the market. Note the table is sorted by region, and then by market value of maturing debt within each region (Exhibit 70).

The global candidate issuers with the most maturing debt include Oracle (ORCL), Honda Motor (HNDA), Comcast (CMCSA), Enel (ENELIM), IBM (IBM), and Charter Communications (CHTR). The full list is available upon request.

Exhibit 70: Global convertible bond credible crossover candidate screen by region

We think the below issuers are plausible CB crossover candidates based on their upcoming debt maturities, modest net leverage, and stock performance year-to-date

Ticker	Equity Ticker	Issuer	Sector	Region	Rating	2024/2025 Maturities	Mkt Val ($mn)	Net Leverage	Stock YTD	Current CB	Past CB
ORCL	ORCL US Equity	Oracle Corp	Tech	US	BBB	5	9,598	4.3	33.6%		Yes
CMCSA	CMCSA US Equity	Comcast Corp	Media	US	A-	5	6,100	2.7	24.6%		Yes
IBM	IBM US Equity	IBM	Tech	US	A-	5	4,769	3.6	9.9%		Yes
CHTR	CHTR US Equity	Charter Communications Inc	Media	US	BB-	1	4,468	4.7	22.1%		Yes
BA	BA US Equity	Boeing Co/The	Industrials	US	BBB-	3	3,974	87.4	2.3%		
MCD	MCD US Equity	McDonald's Corp	Retail	US	BBB+	6	3,521	3.4	3.6%		
CZR	CZR US Equity	Caesars Entertainment Inc	Leisure	US	B+	1	3,450	6.9	6.4%		Yes
WBD	WBD US Equity	Warner Bros Discovery Inc	Media	US	BBB-	5	3,439	16.0	19.2%		
EIX	EIX US Equity	Edison International	Utilities	US	BB+	5	2,460	6.1	3.9%		
ET	ET US Equity	Energy Transfer LP	Energy	US	BBB-	3	2,361	4.0	25.3%		
BHCCN	BHC CN Equity	Bausch Health Cos Inc	Healthcare	US	B-	2	2,349	12.3	22.1%		
EQIX	EQIX US Equity	Equinix Inc	Real Estate	US	BBB	3	2,085	4.3	18.1%		Yes
PCG	PCG US Equity	PG&E Corp	Utilities	US	BB-	3	1,875	9.6	4.0%		Yes
MDLZ	MDLZ US Equity	Mondelez International Inc	Consumer	US	BBB	4	1,844	3.4	5.1%	Yes	Yes
SANLTD	LVS US Equity	Las Vegas Sands Corp	Leisure	US	BBB-	1	1,757	3.8	4.1%		
PAA	PAA US Equity	Plains All American Pipeline L	Energy	US	BBB-	2	1,708	4.1	46.6%		
BDX	BDX US Equity	Becton Dickinson & Co	Healthcare	US	BBB	3	1,670	3.4	2.9%		Yes
SPG	SPG US Equity	Simon Property Group Inc	Real Estate	US	A-	2	1,580	6.1	4.6%	Yes	Yes
WCC	WCC US Equity	WESCO International Inc	Services	US	BB	1	1,552	3.3	13.4%		Yes
FI	FI US Equity	Fiserv Inc	Financials	US	BBB	2	1,510	2.7	18.3%		
ENELIM	ENEL IM Equity	Enel SpA	Utilities	Europe	BBB+	6	5,790	3.4	30.4%		
SIEGR	SIE GR Equity	Siemens AG	Industrials	Europe	A+	4	3,960	2.7	2.4%		Yes
TELEFO	TEF SM Equity	Telefonica SA	Telecoms	Europe	BB	3	3,519	2.9	14.7%		Yes
BNFP	BN FP Equity	Danone SA	Consumer	Europe	BBB+	4	3,393	3.1	19.6%		Yes
AER	AER US Equity	AerCap Holdings NV	Financials	Europe	BB+	4	3,149	6.6	11.2%		
TMUS	DTE GR Equity	Deutsche Telekom AG	Telecoms	Europe	BBB	1	2,911	3.4	18.2%		Yes
NGGLN	NG/ LN Equity	National Grid PLC	Utilities	Europe	BB+	4	2,568	6.0	1.9%		Yes
EOANGR	EOAN GR Equity	E.ON SE	Utilities	Europe	BBB+	4	2,496	4.5	26.1%		Yes
TITIM	TIT IM Equity	Telecom Italia SpA/Milano	Telecoms	Europe	B+	2	2,059	5.1	16.5%		Yes
DT	DTE GR Equity	Deutsche Telekom AG	Telecoms	Europe	BBB+	4	2,022	3.4	18.2%		Yes
BRITEL	BT/A LN Equity	BT Group PLC	Telecoms	Europe	BB+	3	2,019	2.6	16.7%		Yes
GRFSM	GRF SM Equity	Grifols SA	Healthcare	Europe	BB	2	1,910	10.2	9.7%		
S	DTE GR Equity	Deutsche Telekom AG	Telecoms	Europe	BBB	1	1,547	3.4	18.2%		Yes
TELNO	TEL NO Equity	Telenor ASA	Telecoms	Europe	BBB+	2	1,341	3.1	37.3%		Yes
SRGIM	SRG IM Equity	Snam SpA	Energy	Europe	BBB+	3	1,290	4.6	2.6%		Yes
NTGYSM	NTGY SM Equity	Naturgy Energy Group SA	Utilities	Europe	BB+	2	1,243	2.6	15.5%		
CCEP	CCEP US Equity	Coca-Cola Europacific Partners	Consumer	Europe	BBB+	2	1,171	3.4	10.6%		
ASTONM	AML LN Equity	Aston Martin Lagonda Global Ho	Auto	Europe	CCC+	1	1,132	3.1	37.1%		
EOFP	FRVIA FP Equity	Forvia SE	Auto	Europe	BB	1	1,051	2.9	23.5%		Yes
IREIM	IRE IM Equity	Iren SpA	Utilities	Europe	BBB	2	1,036	3.6	40.0%		
HYNMTR	005380 KS Equity	Hyundai Motor Co	Auto	Asia	BBB+	5	2,951	4.7	19.6%		Yes
BHARTI	BHARTI IN Equity	Bharti Airtel Ltd	Telecoms	Asia	BB	2	1,668	2.8	17.0%	Yes	Yes
TTMTIN	TTMT IN Equity	Tata Motors Ltd	Auto	Asia	B+	3	1,559	2.6	67.1%		Yes
TEVA	TEVA IT Equity	Teva Pharmaceutical Industries	Healthcare	Asia	BB-	3	1,407	124.2	6.5%		Yes
CITNAT	105560 KS Equity	KB Financial Group Inc	Banks	Asia	A+	2	856	6.8	18.4%		
HYUCAP	005380 KS Equity	Hyundai Motor Co	Auto	Asia	BBB+	3	834	4.7	19.6%		
DARALA	ALARKAN AB Equity	Dar Al Arkan Real Estate Devel	Real Estate	Asia	B+	1	600	4.8	29.3%		
HKLSP	JAR LN Equity	Jardine Matheson Holdings Ltd	Real Estate	Asia	A	1	587	2.8	3.5%		Yes
GFHSUK	GFH BI Equity	GFH FINANCIAL GROUP BSC	Financials	Asia	B	1	503	3.5	8.2%		
NTPCIN	NTPC IN Equity	NTPC Ltd	Utilities	Asia	BBB-	1	502	4.4	48.8%		
BPCLIN	BPCL IN Equity	Bharat Petroleum Corp Ltd	Energy	Asia	BBB-	1	496	5.0	12.1%		
TABREED	TABREED UH Equity	National Central Cooling Co PJ	Utilities	Asia	BBB-	1	494	4.8	32.3%		
RECLIN	POWF IN Equity	Power Finance Corp Ltd	Financials	Asia	BBB-	1	492	9.9	141.9%		
HKTGHD	8 HK Equity	PCCW Ltd	Telecoms	Asia	BBB	1	486	4.6	22.7%		
SHINFN	055550 KS Equity	Shinhan Financial Group Co Ltd	Banks	Asia	BBB	1	485	6.3	7.3%		
KBFING	105560 KS Equity	KB Financial Group Inc	Financials	Asia	A	1	394	6.8	18.4%		
SHFLIN	SHFL IN Equity	Shriram Finance Ltd	Financials	Asia	BB	1	377	5.1	49.8%		
SHINCA	055550 KS Equity	Shinhan Financial Group Co Ltd	Banks	Asia	A-	1	366	6.3	7.3%		
DAESEC	006800 KS Equity	Mirae Asset Securities Co Ltd	Financials	Asia	BBB	1	282	14.0	24.2%		
HANMIL	105560 KS Equity	KB Financial Group Inc	Financials	Asia	A-	1	272	6.8	18.4%		
HNDA	7267 JP Equity	Honda Motor Co Ltd	Auto	Japan	A-	14	7,227	2.5	65.5%		
NTT	9432 JP Equity	NTT	Telecoms	Japan	A	4	4,165	2.5	21.0%		Yes
NOMURA	8604 JP Equity	Nomura Holdings Inc	Financials	Japan	BBB+	4	3,807	21.1	30.9%		Yes
SOFTBK	9984 JP Equity	SoftBank Group Corp	Financials	Japan	BB	6	3,003	5.0	14.4%		Yes
ACGCAP	8439 JP Equity	Tokyo Century Corp	Financials	Japan	BBB-	3	1,782	13.7	33.5%		
CHUBEP	9502 JP Equity	Chubu Electric Power Co Inc	Utilities	Japan	A-	8	1,206	7.1	46.6%		
KANSEL	9503 JP Equity	Kansai Electric Power Co Inc/T	Utilities	Japan	A-	6	1,140	5.3	62.4%		
EJRAIL	9020 JP Equity	East Japan Railway Co	Transport	Japan	A+	2	878	7.3	8.8%		
MITHCC	8593 JP Equity	Mitsubishi HC Capital Inc	Financials	Japan	A-	2	792	16.0	60.9%		
TACHEM	4502 JP Equity	Takeda Pharmaceutical Co Ltd	Healthcare	Japan	BBB+	1	791	4.3	4.6%		Yes

Exhibit 70: Global convertible bond credible crossover candidate screen by region
We think the below issuers are plausible CB crossover candidates based on their upcoming debt maturities, modest net leverage, and stock performance year-to-date

Ticker	Equity Ticker	Issuer	Sector	Region	Rating	2024/2025 Maturities	Mkt Val ($mn)	Net Leverage	Stock YTD	Current CB	Past CB
ORIX	8591 JP Equity	ORIX Corp	Financials	Japan	A-	1	690	6.0	32.5%		Yes
AYR	8002 JP Equity	Marubeni Corp	Financials	Japan	BBB	1	642	4.5	60.5%		
ASABRE	2502 JP Equity	Asahi Group Holdings Ltd	Consumer	Japan	BBB+	1	613	4.3	38.8%		Yes
ELPWRD	9513 JP Equity	Electric Power Development Co	Utilities	Japan	A	4	553	6.6	14.7%		
KYUSEL	9508 JP Equity	Kyushu Electric Power Co Inc	Utilities	Japan	A-	3	443	9.0	46.5%		Yes
MITCO	8058 JP Equity	Mitsubishi Corp	Industrials	Japan	BBB+	1	272	3.9	69.4%		Yes
MITEST	8802 JP Equity	Mitsubishi Estate Co Ltd	Real Estate	Japan	A	1	200	7.6	18.7%		Yes
JFEHLD	5411 JP Equity	JFE Holdings Inc	Materials	Japan	BBB-	1	134	4.1	42.3%	Yes	Yes

Source: BofA Global Research, Bloomberg, ICE Data Indices, LLC. Data as of 31-Oct-2023. Disclaimer: The screen above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This screen was not created to act as a benchmark. Note: This screen is not a recommended list either individually or as a group of stocks. Investors should consider the fundamentals of the companies and their own individual circumstances/objectives before making any investment decisions.

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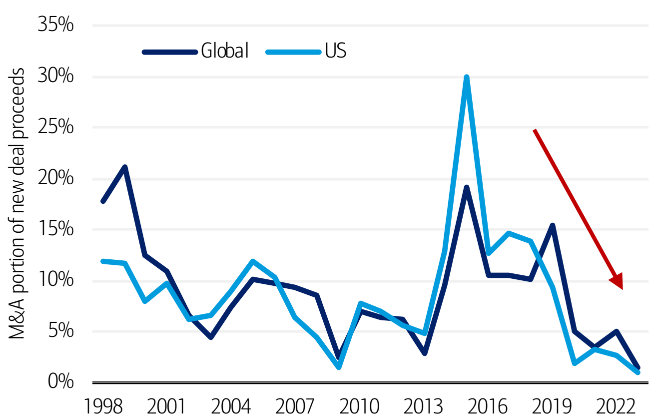
M&A issuance has been negligible, but it may be source of new names in 2024

Besides refis and crossover issuers, we're growing more optimistic that dealmaking activity will drive new CB financing in 2024. Globally, M&A struggled in 2023 as interest rate and macroeconomic uncertainty complicated dealmaking. While buyers have been struggling with the higher costs of financing and leverage and increased scrutiny around due diligence, targets have been concerned about selling stakes well-below pandemic-era sky-high valuations. Of course, this has dragged on M&A financing. To quantify the dearth in the CB space, we've found that less than 2% of all global new deal proceeds have been used for M&A in 2023 (about 1% in the US), a record low according to our data since 2013 (Exhibit 71). Along the same lines, mandatory convertible bonds, which are often included in M&A financing given their high equity treatment on corporate balance sheets (see our Global Convertibles Primer for details), have comprised just 3% of all US issuance volumes (about 2% of global volumes) via just one new deal—the $1.4bn Apollo Global 6.75% mandatories (Exhibit 72). Note that Silicon Valley Bank also attempted to launch a mandatory to shore up its liquidity just prior to the bank's collapse in March, though the deal was ultimately cancelled when the bank failed.

However, we think there are reasons to be hopeful for an M&A pickup in 2023—as recession concerns have eased and we see more clarity around interest rates, we expect to find buyers eager for deals and a backlog of assets on the market. This may foster a wave of new M&A-linked financing, which should play to the benefit of CB primary activity, and mandatories in particular. Indeed, we're also hopeful this brings new names to the space as M&A-driven CB financing has historically cultivated issuer diversity.

Exhibit 71: Portion of global CB new deal proceeds slated for M&A
CBs with proceeds listed for acquisition financing have comprised less than 2% of all new deal volumes so far in 2023



Source: BofA Global Research. Data as of 16-Nov-2023.

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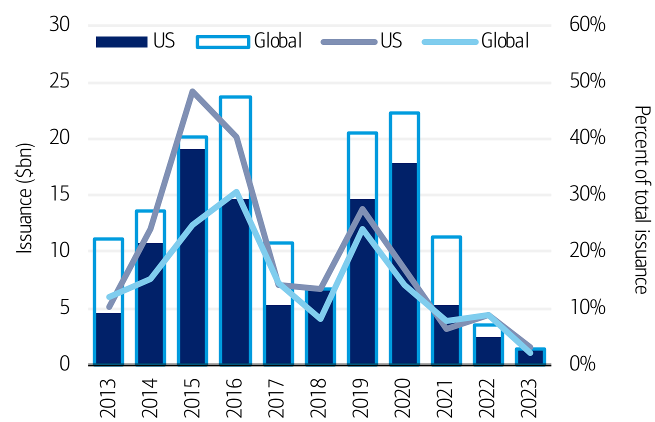
Exhibit 72: Mandatory convertible portion of global CB issuance
Issuance of mandatory convertibles, which are often priced in connection with M&A, has dropped to record lows



Source: BofA Global Research. Data as of 16-Nov-2023.

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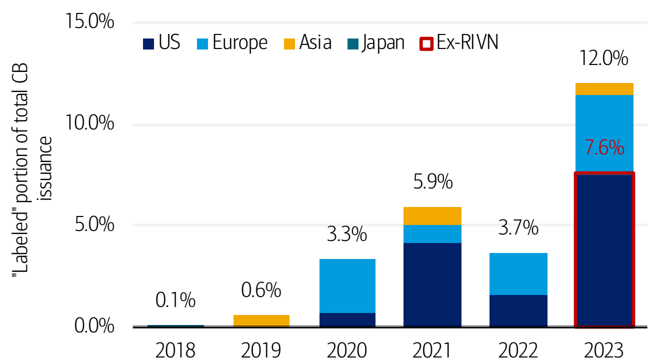
Growth in "labeled" and ESG-focused convertibles also remains encouraging

Another encouraging source of growth remains green and sustainability-linked "labeled" CBs, which posted a record year in CBs in 2023. Despite ongoing pushback against ESG investing (driven by new regulatory hurdles and greenwashing concerns) and outflows from ESG-marketed funds (see Exhibit 33 from earlier), "labeled" issuance grew to around 12% of global volumes, about double 2021's high of about 6% (Exhibit 73). Even stripping out electric vehicle-maker Rivian, which launched two green CBs in 2023 totaling more than $3.2bn, "labeled" volumes reached a new high. Notably, though, "labeled" deals did not carry premium pricing (including lower coupons and wider premiums) relative to the broader market as they had in the past—likely in response to the aforementioned headwinds in the ESG investing space (Exhibit 74).

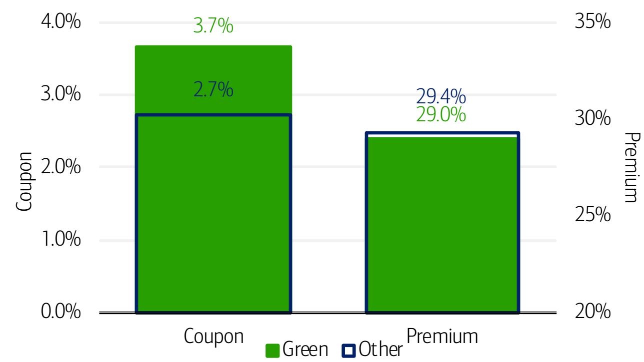
2023's strong supply of green and sustainability-linked CBs despite ESG headwinds suggests to us that the "labeled" convertibles market is here to stay. In fact, we think the cheaper terms will only drive further investor demand. As a result, we anticipate such deals will remain a significant portion of global CB issuance volumes in 2024.

Exhibit 73: Green and sustainability-linked global CB issuance history
Green and sustainability-linked deal volumes rose to records in 2023 (as a percentage of total volumes) despite the broader pushback against ESG



Source: BofA Global Research. Data as of 16-Nov-2023.
BofA GLOBAL RESEARCH

Exhibit 74: Pricing of 2023's "labeled" deals versus the broader market
In contrast to previous years, "labeled" new deals were not priced at a premium to deals from the broader market



Source: BofA Global Research. Data as of 16-Nov-2023.
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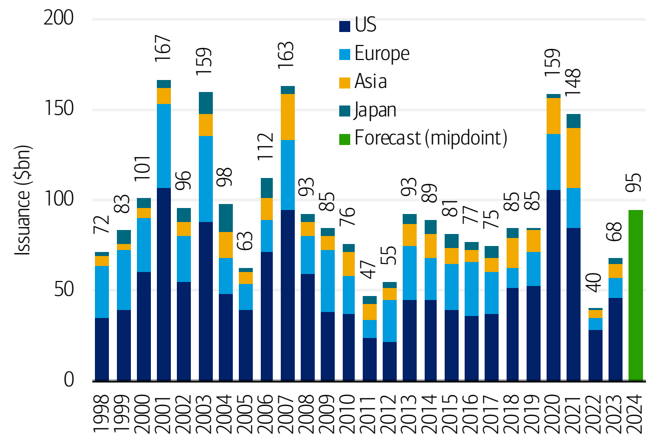
Global CB issuance volumes to reach a post-pandemic high

Global convertible bond issuance volumes to expand over 20% year-over-year

Taking our above outlook into regard alongside our framework that considers historical convertible bond issuance versus interest rates, stock performance, and other macro factors, we arrive at our forecasts for 2024. As we mentioned earlier, we're calling for $90-100bn globally with $60-65bn from the US, $16-18bn from Europe, $10-12bn from Asia, and $4-5bn from Japan (see Exhibit 53 above). This global total (+23% year-over-year versus the 2023 run-rate) would represent a post-pandemic high, and in fact, would be the most new supply since 2007, excluding the pandemic-era boom years of 2020 and 2021 (Exhibit 75). To reiterate, we expect much of the issuance will be refi-driven, both from within the CB space and from new straight-credit crossover issuers. Bearing this, we think that cyclicals (namely TMT, consumer, and real estate) will likely drive volumes, and we expect that overall issuer quality will remain elevated compared to the past (a point our clients agree with—refer to our 01-Nov Global Convertibles Chartbook).

Regionally, though we expect the US will see the most growth at the absolute level, we think Europe and Japan will experience the most growth relative to sizes of their respective markets, each in excess of about +40% (Exhibit 76). Indeed, Japanese CB issuance (and performance, for that matter) in particular has benefitted from the surge in Japanese stocks in 2023, a function of low equity valuations re-rating higher, inflation strengthening, and corporate earnings improving. On the other hand, we think Asia will experience the lowest relative growth (+14%) amid the aforementioned concerns about China property developers and weakening demand for ADRs as these pockets of the Asian CB market have been among the leading sources of growth in recent years.

Exhibit 75: Global convertible bond new issuance by year plus forecast
The midpoint of our global CB issuance forecast for 2024 suggests a post-pandemic high next year ($95bn)



Source: BofA Global Research. Data as of 16-Nov-2023.

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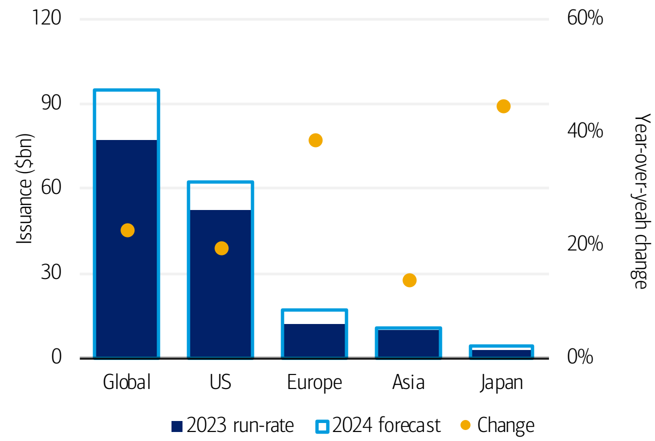
Exhibit 76: Comparison of 2023 run-rate to 2024 forecasts
Our forecasts suggest global new supply will increase more than 20% versus 2023 with the most relative growth from Europe and Japan



Source: BofA Global Research. Data as of 16-Nov-2023.

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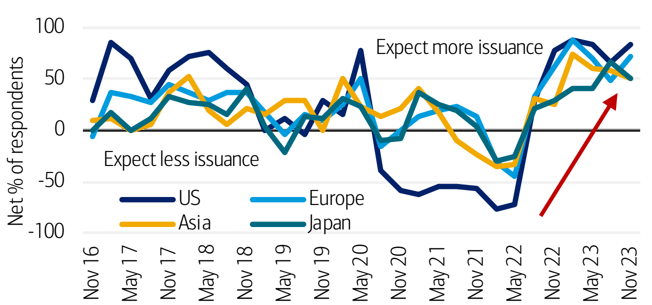
Convertible bond manager expectations for new supply remain sky-high

As we illustrated in last month's Global Convertibles Investor Survey, manager hopes for the CB primary market remain quite elevated versus history (see our 01-Nov Global Convertibles Chartbook). In fact, though marginally below February's records, the number of respondents that expect issuance will increase in the next 12 months compared to the last remains near highs, especially in the US (Exhibit 77). What's more, survey respondents noted that new deal coupons, premiums, and call protections would continue to become less aggressive—particularly coupons and premiums (Exhibit 78). This sentiment aligns with our call that CB issuance volumes will improve and that new deals will remain a source of relative value within the broader convertibles market.

Exhibit 77: Global CB investor views on global CB new deal volumes
CB managers expect that issuance will improve across all regions over the next 12 months relative to the last 12 months



Source: BofA Global Convertibles Investor Survey

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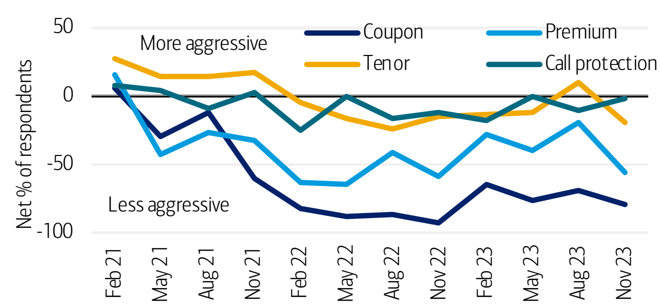
Exhibit 78: Global CB investor views on new deal pricing
CB managers believe that new issue deal terms, particularly coupons and initial conversion premiums, will cheapen



Source: BofA Global Convertibles Investor Survey

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Meaningfully lower interest rates are the leading downside risk to our forecast

Our issuance forecast for 2024 is highly dependent on interest rates remaining higher-for-longer, encouraging refis in the CB space rather than other, less affordable markets. This considered, we see rates moving meaningfully lower as the leading downside risk to our forecast. We envision this scenario could occur if the soft-landing narrative does not pan out, and instead global economies tip into recession. Nonetheless, we think the floor for rates remains above 2020-2021 levels given today's backdrop of higher inflation. Besides lower rates, another risk is that a larger portion of stressed names are barred from refinancing at all (this would also apply upward pressure on the default rate), or more issuers opt to wait longer until refinancing (similar to what happened in 2023)—indeed, as we discussed earlier, the maturity hurdle steps up in earnest in 2025, not 2024, though CFOs typically prefund a year to 18 months in advance of retirement.

In contrast, if elevated rates remain a more permanent fixture amid still-high inflation and a resilient economy, it may encourage even more issuers than we expect to raise fresh debt in the relatively low-cost CB market. We think this upside risk would be more likely if equity performance remains supportive alongside the higher borrowing costs. Additionally, if AI turns out to be an even larger engine of growth than we anticipate, exposed names may need to raise more growth capital. As we mentioned earlier, we think CBs would be a clear financing option for such names, especially with interest rates at 16-year highs.

More deals plus fewer redemptions equal net expansion

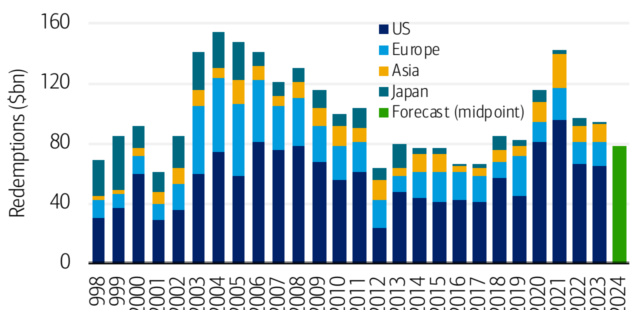
Despite more refis, 2024 to see less redemption volume amid fewer maturities

In 2023, we've seen about $94bn of redemptions globally year-to-date, pacing in-line with our forecast for $85-100bn by year-end (Exhibit 79). The bulk of the redemptions were from a number of large maturities and mandatory conversions, including those of the Danaher mandos, NextEra mandos, T-Mobile US mandos, to name a few. However, other notable redemptions were due to company buy-backs, exchanges, and tenders (EDF, IQ, and Dexcom), calls (Sika, Fluor, and Silicon Labs), and M&A activity (Coupa Software and Oak Street Health).

For next year, our redemptions forecast considers upcoming maturities, the expected lifetime for each name in the outstanding universe (which encompasses expectations for refis, conversion likelihood, calls, and puts), and M&A trends that result in converts coming out of the market. Based on these inputs, we expect global redemptions in 2024 will total $70-85bn due to (1) $28-33bn of maturities, (2) $36-41bn of calls, puts, early conversion, and other redemptions, and (3) $6-11bn of potential M&A activity (Exhibit 80). Regionally, while we expect the US will see the most redemptions on an absolute level ($40-45bn), we think Japan ($5-8bn) will face the most redemptions as a percentage of its market size (about 50% of its total market value). Finally, we're calling for $16-20bn and $9-12bn of redemptions from Europe and Asia, respectively. Overall, our redemptions call for 2024 is comfortably below what we saw in 2023.

Exhibit 79: Global redemptions history and forecast

Global redemptions have totaled $94bn year-to-date, in-line with our forecast in 2023



Source: BofA Global Research, Bloomberg. Data as of 16-Nov-2023.

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Exhibit 80: Global redemptions forecast breakdown

Next year, we are calling for $70-85bn of redemptions globally with the majority from US repurchases, conversions to shares, calls, and puts

	Maturity	Other	M&A	Total	YTD 2023
US	15 - 17	21 - 23	4 - 5	40 - 45	64.7
Europe	8 - 9	6 - 7	2 - 4	16 - 20	16.5
Asia	1 - 2	8 - 9	0 - 1	9 - 12	11.2
Japan	4 - 5	1 - 2	0 - 1	5 - 8	1.6
Total	28 - 33	36 - 41	6 - 11	70 - 85	94.0

Source: BofA Global Research, Bloomberg. Data as of 16-Nov-2023.

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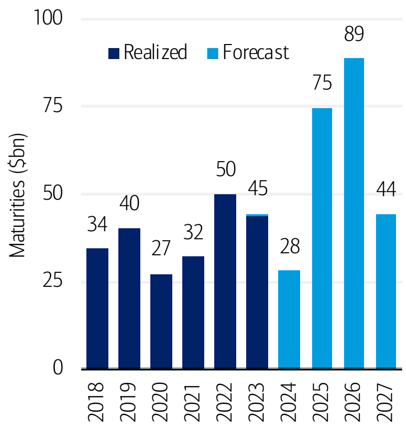
Notably, much of the reason for our call for a drop in redemptions in 2024 comes from a stepped-down maturity hurdle, particularly in the US. In fact, current prices suggest that global maturities will total just $28bn next year with about half from the US, down meaningfully from 2023's year-to-date maturity total of about $45bn ($33bn from the US). Of course, as we discussed at length above, the hurdle picks up sizably in 2025 and 2026, when the majority of the pandemic-era issuance comes due (Exhibit 81). However, in place of maturities, we expect to see significant repurchase and refi activity in 2024 as CFOs prefund some of the 2025 and 2026 maturities (Exhibit 82). Finally, on sectors, based on our framework we expect the bulk of the redemptions will be concentrated in the tech sector (26%, mostly from the US), followed by the financials (12%), healthcare (11%), and consumer discretionary (10%) sectors (Exhibit 83).

Exhibit 81: Global CB maturity hurdle

Current prices imply that next year's global maturity hurdle is around just $28bn



Source: BofA Global Research. Data as of 16-Nov-2023.

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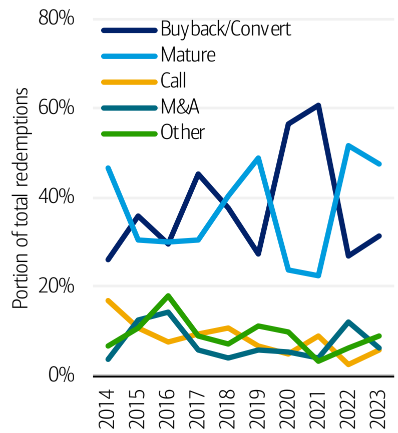
Exhibit 82: Redemptions breakdown

Once again, maturities have made up the largest portion of global redemptions in 2023



Source: BofA Global Research. Data as of 16-Nov-2023.

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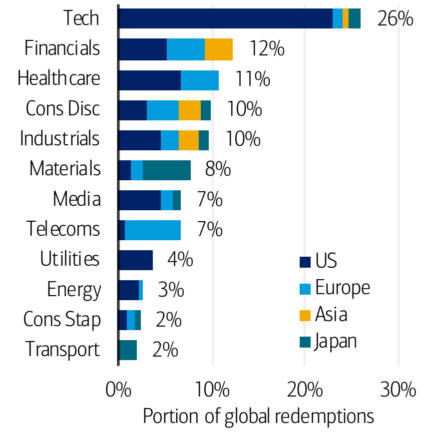
Exhibit 83: Expected redemption sectors

2024's global redemptions will be focused within the tech, financials, and healthcare sectors



Source: BofA Global Research. Data as of 16-Nov-2023.

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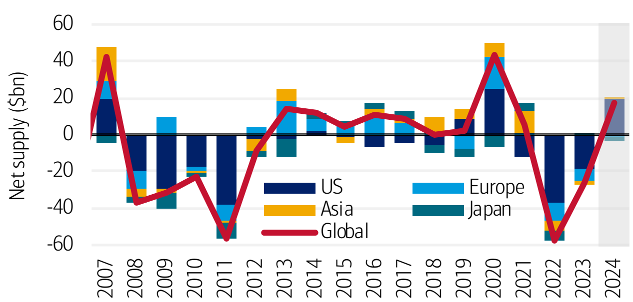
Issuance and redemptions expectations portend net expansion, led by the US

Based on the midpoints of both our issuance and redemptions forecasts, in 2024 we expect that while Europe (-1.7%) and Asia (+1.2%) will land around net flat, the US market will realize considerable net expansion (+9.2%). On the other hand, Japan may realize net contraction (-15.1%). Taken together, this suggests modest global net expansion of +5.3% (Exhibit 85). These forecasts imply a return to global net expansion for the first time since 2021—indeed, the global converts space saw meaningful net contractions of -11.4% and -7.4%, respectively, over the last two years in the wake of the pandemic-era boom and bust cycle (Exhibit 84).

Exhibit 84: Global net new supply history (new issuance - redemptions)

In light of light new issuance and many redemptions, the global CB market has contracted $26bn in 2023 year-to-date, over 7% of total market value



Source: BofA Global Research. Data as of 16-Nov-2023.

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Exhibit 85: Global convertibles net new supply forecast

Based on both our issuance and redemptions forecasts, we expect the global market to see a modest net expansion of about 5.3% in 2024

	US	Europe	Asia	Japan	Total
2024 issuance forecast	60 - 65	16 - 18	10 - 12	4 - 5	90 - 100
2024 redemp forecast	40 - 45	16 - 20	9 - 12	5 - 8	70 - 85
2024 net forecast	15 to 25	-4 to 2	-2 to 3	-4 to 0	5 to 30
Mid of forecast range	20	-1	1	-2	18
% of market	9.2%	-1.7%	1.2%	-15.1%	5.3%

Source: BofA Global Research. Data as of 16-Nov-2023.

BofA GLOBAL RESEARCH

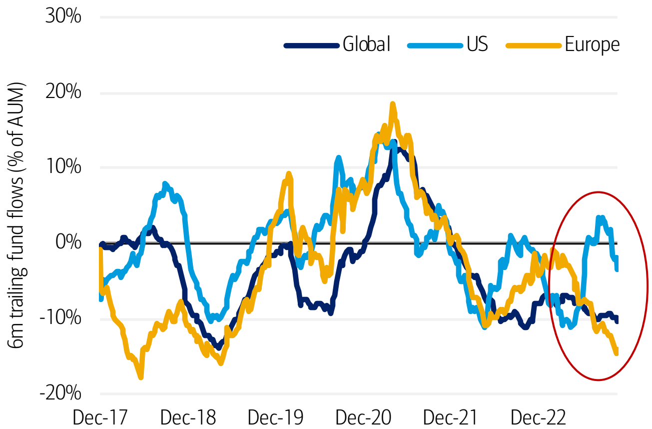
Performance and issuance rebound may attract inflows

CB funds struggled with outflows in 2023, topped by global and European funds

A consequence of modest relative performance and net contraction, CB funds across the globe suffered outflows in 2023. Europe-domiciled global and European-focused CB funds suffered the most severe outflows (-10.5% and -14.2% of AUM, respectively, over the last 6 months), while US CB fund outflows were notably less severe (Exhibit 86). Indeed, though US CB mutual funds did report small net outflows, ETFs have managed to remain positive despite extraordinary flow volatility (Exhibit 87). Instead of CBs, allocators have flocked to cash and short-duration bonds to capitalize on elevated short-dated interest rates (see our strategists' 16-Nov Flow Show).

Exhibit 86: 6-month trailing fund flows (as a percentage of AUM)

CB funds across regions have struggled with outflows in 2023, especially Europe-domiciled global and Europe-focused funds



Source: BofA Global Research, EPFR Global. Data as of 15-Nov-2023.

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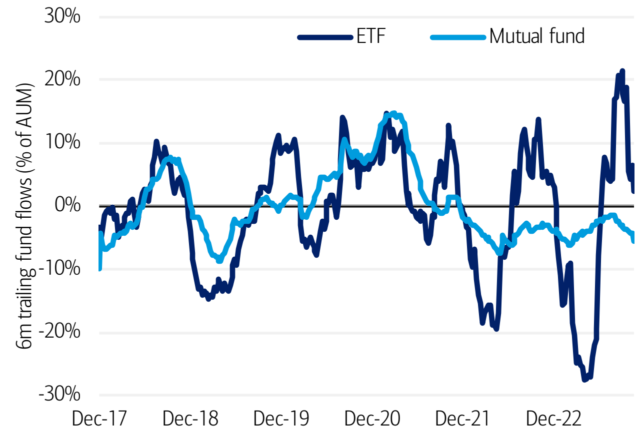
Exhibit 87: 6-month trailing fund flows (ETF v. mutual funds)

US CB mutual funds saw modest outflows as well, though CB ETF flows have been extraordinary volatile



Source: BofA Global Research, EPFR Global. Data as of 15-Nov-2023.

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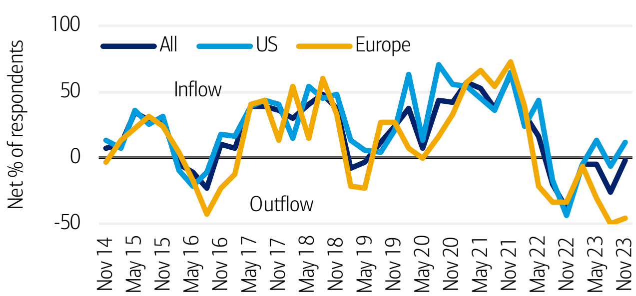
Performance rebound and market net expansion may draw new assets to CBs

In light of our call for a modest performance rebound and market net expansion in 2024, we expect assets will return to the CB market. In particular, we believe US funds will realize the biggest benefit—a function of our call for the best performance and most net expansion in the region versus the others. Indeed, we believe CBs remain an attractive alternative for credit investors who want to trim duration in an environment of higher-for-longer rates and still-elevated inflation. Notably, data from our most recent Global Convertibles Investor Survey illustrates that CB managers generally concur with our view (see our 01-Nov Global Convertibles Chartbook). While European asset managers, who bore the brunt of 2023's outflows, expect further net outflows, US managers are more hopeful for a turnaround (Exhibit 88 and Exhibit 89).

Exhibit 88: Global CB investor views on realized fund flows

European and global CB fund managers reported net outflows last quarter



Source: BofA Global Convertibles Survey

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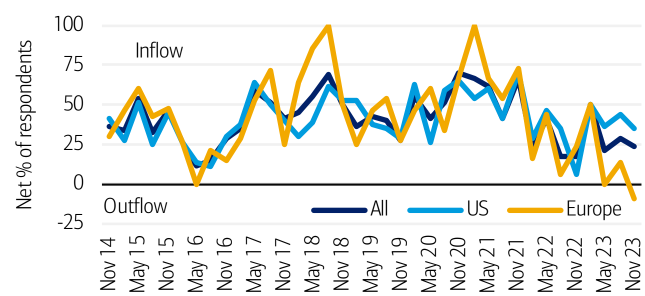
Exhibit 89: Global CB investor fund flow expectations

US CB investors expect inflows, but European managers expect outflows



Source: BofA Global Convertibles Survey

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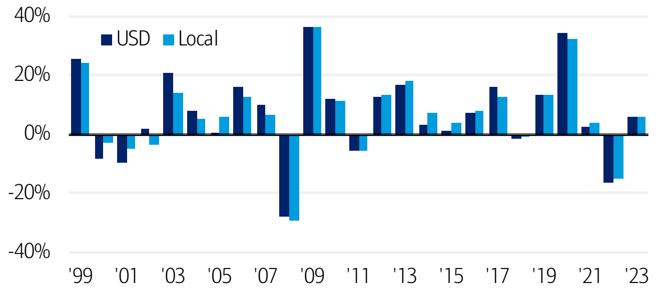
Appendix

Performance history

All charts and data as of 16-Nov-2023.

Exhibit 90: Global (G300) convertible performance history
USD and local performance depicted



Source: ICE Data Indices, LLC. Data as of 16-Nov-2023.

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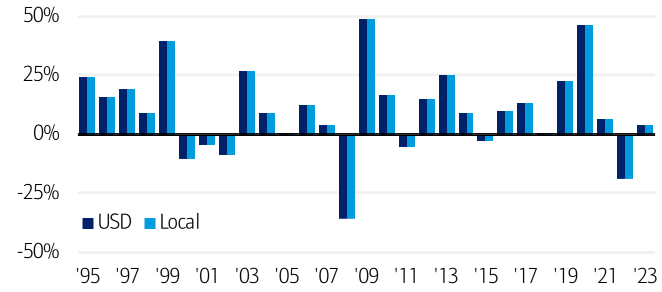
Exhibit 91: US (VXA0) convertible performance history
USD and local performance depicted



Source: ICE Data Indices, LLC. Data as of 16-Nov-2023.

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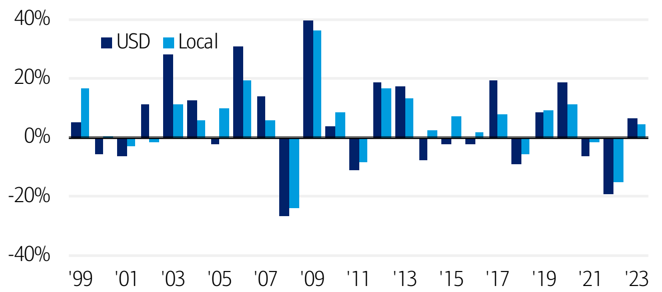
Exhibit 92: Europe (VE00) convertible performance history
USD and local performance depicted



Source: ICE Data Indices, LLC. Data as of 16-Nov-2023.

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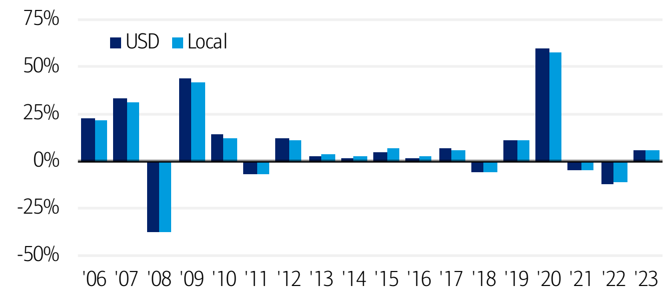
Exhibit 93: Asia (VASI) convertible performance history
USD and local performance depicted



Source: ICE Data Indices, LLC. Data as of 16-Nov-2023.

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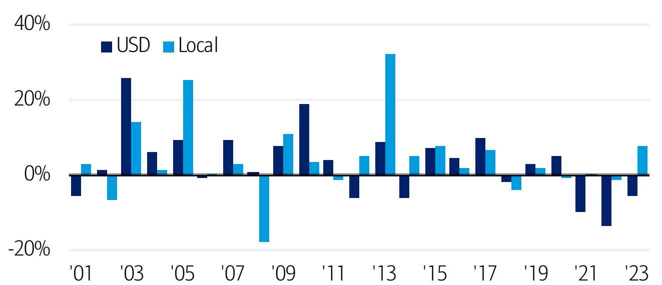
Exhibit 94: Japan Euro (VJEU) convertible performance history
USD and local performance depicted



Source: ICE Data Indices, LLC. Data as of 16-Nov-2023.

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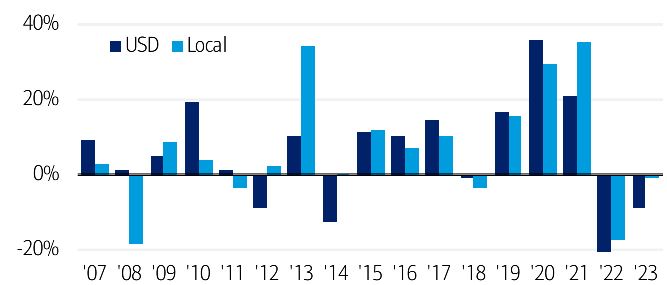
Exhibit 95: Japan Domestic (VJDM) convertible performance history
USD and local performance depicted



Source: ICE Data Indices, LLC. Data as of 16-Nov-2023.

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Performance heat map and cross asset comparison

All charts and data as of 16-Nov-2023.

Exhibit 96: Year-to-date performance heat map

USD and local performance depicted

USD

Region

	Global	US	Europe	Asia	Japan
Region	5.82%	4.41%	6.44%	6.10%	-5.50%

Credit Quality

	Global	US	Europe	Asia	Japan
IG	2.03%	0.49%	4.49%	7.48%	
HY	6.71%	-1.70%	7.27%	5.03%	-5.50%

Investment Objective

	Global	US	Europe	Asia	Japan
Eqty Alt	17.63%	9.62%	17.41%	2.39%	-19.11%
Rtn Alt	-0.29%	-2.86%	1.85%	1.98%	4.37%
Yld Alt	6.42%	5.86%	6.90%	8.28%	-10.70%

Company Size

	Global	US	Europe	Asia	Japan
Small	12.91%	-0.20%	14.49%	16.11%	-14.93%
Mid	7.32%	7.62%	5.23%	6.77%	-9.09%
Large	5.11%	3.99%	5.37%	5.07%	-2.17%

Sector

	Global	US	Europe	Asia	Japan
Cons Disc	6.96%	10.47%	7.74%	3.01%	-4.39%
Cons Stap	-0.19%	-3.93%	2.32%	4.53%	-9.27%
Energy	8.88%	10.37%	12.43%		
Financials	2.58%	7.48%	5.20%	-8.10%	
Healthcare	-1.02%	-2.46%	-5.04%	14.16%	-18.08%
Industrials	10.82%	2.80%	9.78%	9.95%	-6.49%
Materials	8.11%	2.52%	1.29%	12.65%	7.56%
Media	4.99%	3.38%	6.65%	13.22%	-18.75%
Tech	13.01%	11.11%	15.89%	13.95%	-5.30%
Telecoms	4.80%	0.97%	2.78%	7.65%	
Transp	-2.31%	-9.78%	7.76%	0.81%	-9.80%
Utilities	-0.33%	-9.47%	0.71%	0.00%	-11.94%

Local

Region

	Global	US	Europe	Asia	Japan
Region	5.90%	4.41%	4.55%	6.19%	7.54%

Credit Quality

	Global	US	Europe	Asia	Japan
IG	1.45%	0.49%	2.59%	7.79%	
HY	6.96%	-1.70%	5.35%	5.10%	7.54%

Investment Objective

	Global	US	Europe	Asia	Japan
Eqty Alt	16.92%	9.62%	14.83%	2.97%	-7.78%
Rtn Alt	0.17%	-2.86%	0.43%	2.03%	18.98%
Yld Alt	6.45%	5.86%	5.00%	8.15%	1.42%

Company Size

	Global	US	Europe	Asia	Japan
Small	13.09%	-0.20%	11.85%	17.39%	-3.05%
Mid	7.51%	7.62%	3.20%	7.79%	3.23%
Large	5.13%	3.99%	3.74%	4.90%	11.53%

Sector

	Global	US	Europe	Asia	Japan
Cons Disc	6.67%	10.47%	5.79%	3.17%	9.00%
Cons Stap	0.15%	-3.93%	0.40%	4.53%	3.43%
Energy	8.06%	10.37%	8.69%		
Financials	2.62%	7.48%	3.14%	-7.90%	
Healthcare	-0.71%	-2.46%	-6.17%	13.70%	-6.61%
Industrials	10.20%	2.80%	7.70%	10.75%	4.49%
Materials	10.74%	2.52%	-1.08%	12.23%	22.61%
Media	5.76%	3.38%	5.76%	13.17%	-7.37%
Tech	13.06%	11.11%	14.27%	13.95%	7.95%
Telecoms	3.74%	0.97%	0.85%	7.65%	
Transp	-1.33%	-9.78%	5.61%	0.92%	2.82%
Utilities	-1.14%	-9.47%	-1.12%	0.00%	0.38%

Source: ICE Data Indices, LLC. Data as of 16-Nov-2023. Ticker list available upon request.

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Exhibit 97: Year-to-date cross asset performance

USD and local performance depicted

USD	**Global**	**US**	**Europe**	**Asia**	**Japan**	**Local**	**Global**	**US**	**Europe**	**Asia**	**Japan**
Govt	-2.16%	-0.43%	4.05%	1.79%	-12.91%	Govt	0.17%	-0.43%	2.09%	1.79%	-0.72%
IG	3.40%	2.34%	6.27%	3.25%	-11.66%	IG	2.97%	2.34%	4.27%	3.25%	0.71%
HY	7.53%	7.72%	9.63%	-2.97%		HY	7.05%	7.72%	7.57%	-2.97%	
Equity	15.24%	19.14%	10.47%	2.26%	11.55%	Equity	15.91%	19.14%	8.95%	4.45%	28.16%
Converts	5.82%	4.41%	6.44%	6.10%	-5.43%	Converts	5.90%	4.41%	4.55%	6.19%	7.57%

Source: ICE Data Indices, LLC. Data as of 16-Nov-2023. Ticker list available upon request.

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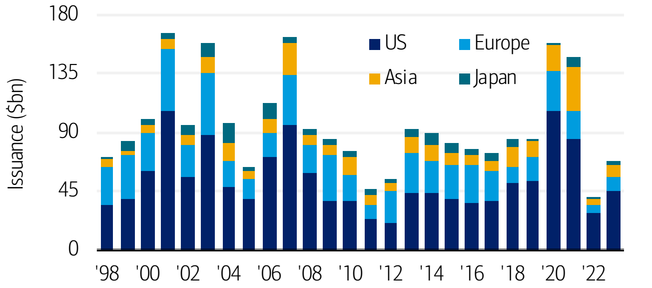
New and net issuance history

All charts and data as of 16-Nov-2023.

Exhibit 98: Global new issuance history
In USD ($bn)



Source: BofA Global Research. Data as of 16-Nov-2023.

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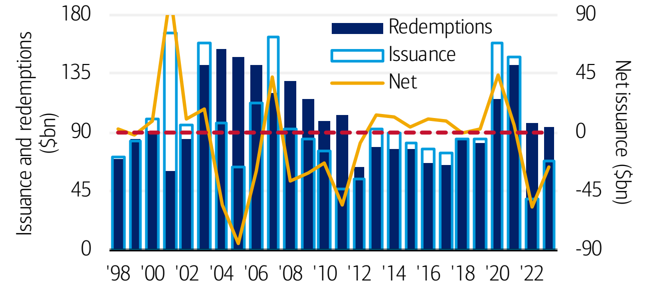
Exhibit 99: Global net issuance history
In USD ($bn)



Source: BofA Global Research. Data as of 16-Nov-2023.

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Exhibit 100: Global new supply breakdown
In USD ($bn)

		Rating			Seniority				Mandatory		Company Size			144a	
Region	Total	IG	HY	NR	Secured	Unsecured	Sub	Preferred	N	Y	Small Cap	Mid Cap	Large Cap	N	Y
US															
2013	44,404	3,065	13,904	27,435	75	34,706	5,008	4,615	39,775	4,629	8,045	12,422	23,937	40,424	3,980
2014	44,430	6,258	14,119	24,053	50	31,643	6,597	6,140	33,732	10,698	5,130	14,702	24,597	27,759	16,671
2015	39,633	1,950	6,852	30,831	100	17,696	1,725	20,112	20,467	19,167	3,549	9,184	26,900	22,118	17,515
2016	36,272	4,158	11,911	20,203	6,888	20,845	308	8,232	21,667	14,605	3,910	14,807	17,555	15,551	20,721
2017	37,305	4,327	8,258	24,720	0	27,847	3,365	6,094	31,978	5,328	4,372	15,985	16,949	13,548	23,757
2018	51,172	3,729	1,509	45,934	295	43,435	210	7,232	44,369	6,803	4,657	18,854	27,661	16,752	34,420
2019	53,123	10,256	3,165	39,701	270	36,702	323	15,828	38,450	14,673	3,008	16,379	33,735	21,737	31,385
2020	105,809	14,028	3,294	88,487	14	85,127	1,726	18,943	87,950	17,859	5,983	27,776	72,051	26,459	79,350
2021	84,332	2,038	3,509	78,785	616	77,840	0	5,876	79,086	5,246	4,155	21,753	58,423	11,046	73,285
2022	28,704	2,000	300	26,404	318	25,859	0	2,528	26,177	2,528	1,582	10,026	17,096	3,820	24,884
2023	45,831	12,443	1,131	32,257	639	43,755	0	1,438	44,393	1,438	2,234	12,216	31,381	3,263	42,568
Europe															
2013	29,988	3,450	6,385	20,153	2,704	21,034	6,077	173	23,426	6,561	1,939	8,678	19,371	29,728	260
2014	24,070	4,359	6,169	13,542	1,239	20,892	1,939	0	21,117	2,953	2,433	5,788	15,848	22,920	1,150
2015	25,656	11,520	2,886	11,250	550	24,532	574	0	24,698	958	1,672	3,728	20,255	25,656	0
2016	29,104	13,977	850	14,277	1,826	18,292	8,986	0	20,168	8,936	1,719	7,281	20,104	27,858	1,246
2017	23,027	7,176	768	15,083	4,489	18,422	116	0	18,539	4,489	1,098	3,431	18,498	23,027	0
2018	11,855	2,150	286	9,419	0	11,855	0	0	11,855	0	364	2,705	8,785	11,453	403
2019	18,833	2,324	0	16,509	69	12,586	6,177	0	13,006	5,827	1,371	2,227	15,235	18,833	0
2020	31,113	3,305	0	27,809	0	29,173	1,940	0	29,173	1,940	280	4,897	25,937	30,998	115
2021	22,912	3,255	0	19,657	0	20,985	489	1,438	21,475	1,438	667	6,172	16,073	21,992	920
2022	6,215	473	0	5,742	131	4,813	1,271	0	5,259	956	447	1,799	3,969	5,357	858
2023	10,757	2,404	0	8,352	27	10,730	0	0	10,757	0	116	2,488	8,154	10,757	0
Asia															
2013	12,026	465	0	11,561	551	11,475	0	0	12,026	0	1,191	4,700	6,135	11,741	285
2014	12,379	0	0	12,379	0	12,379	0	0	12,379	0	1,691	4,210	6,478	10,699	1,680
2015	8,564	0	0	8,564	56	8,507	0	0	8,564	0	665	1,319	6,579	7,464	1,100
2016	7,394	1,003	0	6,391	452	6,686	256	0	7,288	106	768	2,048	4,578	6,494	900
2017	7,847	1,000	0	6,847	0	7,362	485	0	6,886	961	476	1,758	5,613	7,047	800
2018	16,245	430	0	15,815	7,152	8,982	111	0	16,245	0	530	2,381	13,334	13,970	2,275
2019	12,105	810	0	11,295	141	11,964	0	0	12,105	0	395	3,575	8,135	5,685	6,420
2020	20,059	1,167	0	18,892	150	19,909	0	0	17,533	2,526	529	2,921	16,609	16,659	3,400
2021	33,208	2,984	0	30,224	725	32,482	0	0	28,526	4,682	282	5,175	27,750	29,915	3,293
2022	4,218	759	0	3,459	661	3,557	0	0	4,218	0	0	681	3,537	3,218	1,000
2023	8,469	3,906	0	4,563	281	8,188	0	0	8,469	0	132	536	7,801	6,719	1,750
Japan															
2013	6,433	500	0	5,933	0	6,287	146	0	6,433	0	1,423	3,730	1,280	6,433	0
2014	8,262	0	0	8,262	0	8,195	67	0	8,262	0	1,033	4,927	2,301	8,262	0
2015	7,467	0	0	7,467	0	7,267	200	0	7,467	0	760	1,999	4,708	7,467	0
2016	4,489	0	0	4,489	0	4,489	0	0	4,489	0	686	1,125	2,678	4,489	0
2017	6,350	0	0	6,350	1,553	4,797	0	0	6,350	0	180	2,936	3,233	6,350	0
2018	5,303	0	0	5,303	0	5,238	66	0	5,303	0	396	3,039	1,869	5,303	0
2019	971	0	0	971	0	971	0	0	971	0	374	228	369	971	0
2020	1,723	0	0	1,723	0	1,723	0	0	1,723	0	186	886	651	1,723	0
2021	7,373	0	0	7,373	0	7,373	0	0	7,373	0	154	2,138	5,081	7,373	0
2022	417	0	0	417	0	417	0	0	417	0	0	417	0	417	0
2023	2,728	0	0	2,728	0	2,728	0	0	2,728	0	102	1,172	1,455	2,728	0

Source: BofA Global Research. Data as of 16-Nov-2023.

BofA GLOBAL RESEARCH

List of abbreviations

General abbreviations

- ADR: American Depository Receipt
- AI: Artificial intelligence
- Arb: Arbitrage
- AUM: Assets under management
- Avg: Average
- CB: Convertible bond
- CFO: Chief financial officer
- Div: Dividend
- EBITDA: Earnings before interest, taxes, depreciation, and amortization
- Eqty: Equity
- ESG: Environmental, social, governance
- ETF: Exchange-traded fund
- EV: Electric vehicle
- FASB: Financial Accounting Standards Board
- FOMO: Fear of missing out
- FV: Fair value
- GCP: General corporate purposes
- GDP: Gross domestic product
- HY: High yield
- IG: Investment grade
- LOC: Local currency
- M&A: Mergers and acquisitions
- Mando: Mandatory
- OAS: Option adjusted spread
- Pfd: Preferred
- QoQ: Quarter-over-quarter
- Refi: Refinancing
- Rtn: Return
- TMT: Technology, media, and telecom
- US: United States
- USD: US dollars
- Vol: Volatility
- Yld: Yield
- YoY: Year-over-year
- YTD: Year-to-date
- YTM: Yield-to-maturity
- YTW: Yield-to-worst

Months of the year

- Jan: January
- Feb: February
- Mar: March
- Apr: April
- May: May
- Jun: June
- Jul: July
- Aug: August
- Sep: September
- Oct: October
- Nov: November
- Dec: December

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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.

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