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2023 Sector Snapshot: US TMT

5 Dec 2022, 1:54 AM

Executive Summary

- **We provide our Telecom, Media, & Technology sector strategy for 2023, including key themes, picks and pans, and risks for the coming year.**
- **IG Media (Market Perform).** IG Media trades wide for a reason as the sector is characterized by rising secular pressures (cord-cutting and streaming transition), while the macro backdrop creates additional pressure on credit metrics. We believe fallen-angel risk at WBD and PARA (~45% of the IG Media index) is largely factored into spreads (~100 bp wide to BBB index), but we struggle to identify a catalyst for re-pricing in the near-term.
- **HY Media (Underperform).** We see more downside risk for HY Media, as the sector deals with potential negative pressure on advertising, the loss of political revenue and accelerated cord cutting, which could slow growth in retransmission consent revenue. As such, we are shifting our recommendation to Underperform from Market perform for 2023.
- **IG Telecom/Cable/Satellite (Outperform).** We believe the IG Communications sector should be relatively defensive in 2023 against recession risk and inflationary pressures and like taking both credit and duration risk in the sector. While competition is intensifying, we believe free cash flow in the sector should remain robust and leverage in check, especially for the large US telcos that continue to focus on deleveraging.
- **HY Telecom/Cable/Satellite (Outperform).** For 2023, we are raising our recommendation on HY Communications to Outperform from Underperform. We believe much of the negativity has been priced into the sector related to higher leverage and funding risks. Our Outperform is driven by attractive first-lien bond yields, a potential IG upgrade candidate in Sprint and attractive yields for Charter, offset by still-high execution risk weighing down bonds further down the cap stack.
- **IG Technology (Market perform).** We reiterate our Market perform recommendation on the IG Tech sector. While tech generally holds up well in risk-off environments, there will be sector-specific weakness and spreads have already tightened in 2022 relative to IG index.
- **HY Technology (Underperform).** We are downgrading our recommendation on HY Tech from Market perform to Underperform. We expect challenging operating trends in early 2023 for the largest issuers including Commscope and Seagate.

Relative Value

| US IG and HY vs. Media | | | | | | | | | | | | |
|------------------------|---------|---------|--------|---------|---------|--------|----------|----------|----------|----------|-------------|---------|
| | OAS | | | YTW | | | \$ Price | | | Duration | YTD Returns | |
| | Current | YE 2021 | Change | Current | YE 2021 | Change | Current | YE 2021 | Change | | Excess | Total |
| US IG | 142 bp | 98 bp | 44 bp | 5.4% | 2.4% | 306 bp | \$89.58 | \$109.14 | -\$19.57 | 6.9 yrs | -1.8% | -15.3% |
| IG Media | 172 bp | 117 bp | 55 bp | 5.7% | 2.7% | 295 bp | \$85.82 | \$110.80 | -\$24.98 | 8.5 yrs | -3.1% | -19.5% |
| Difference | 30 bp | 19 bp | 11 bp | 23 bp | 34 bp | -11 bp | -\$3.75 | \$1.66 | -\$5.42 | 1.6 yrs | -130 bp | -427 bp |
| US HY | 455 bp | 310 bp | 145 bp | 8.6% | 4.3% | 430 bp | \$87.02 | \$103.31 | -\$16.29 | 4.1 yrs | -2.6% | -10.5% |
| HY Media | 519 bp | 341 bp | 178 bp | 9.2% | 4.8% | 440 bp | \$82.08 | \$100.18 | -\$18.10 | 4.4 yrs | -5.2% | 0.0% |
| Difference | 64 bp | 31 bp | 33 bp | 53 bp | 44 bp | 9 bp | -\$4.94 | -\$3.13 | -\$1.81 | 0.4 yrs | -255 bp | 1054 bp |

Source: CreditSights, FactSet, ICE Data Indices, LLC

| US IG and HY vs. Technology | | | | | | | | | | | | |
|-----------------------------|---------|---------|--------|---------|---------|--------|----------|----------|----------|----------|-------------|---------|
| | OAS | | | YTW | | | \$ Price | | | Duration | YTD Returns | |
| | Current | YE 2021 | Change | Current | YE 2021 | Change | Current | YE 2021 | Change | | Excess | Total |
| US IG | 142 bp | 98 bp | 44 bp | 5.4% | 2.4% | 306 bp | \$89.58 | \$109.14 | -\$19.57 | 6.9 yrs | -1.8% | -15.3% |
| US IG Technology | 114 bp | 84 bp | 30 bp | 5.1% | 2.3% | 285 bp | \$88.09 | \$107.30 | -\$19.21 | 7.8 yrs | -0.9% | -15.3% |
| Difference | -28 bp | -14 bp | -14 bp | -32 bp | -11 bp | -22 bp | -\$1.48 | -\$1.84 | \$0.36 | 0.8 yrs | 90 bp | -2 bp |
| US HY | 455 bp | 310 bp | 145 bp | 8.6% | 4.3% | 430 bp | \$87.02 | \$103.31 | -\$16.29 | 4.1 yrs | -2.6% | -10.5% |
| US HY Technology | 451 bp | 269 bp | 182 bp | 8.5% | 4.0% | 452 bp | \$86.34 | \$102.69 | -\$16.35 | 4.1 yrs | -3.7% | -11.9% |
| Difference | -4 bp | -41 bp | 37 bp | -8 bp | -30 bp | 22 bp | -\$0.68 | -\$0.62 | -\$0.06 | 0.0 yrs | -110 bp | -136 bp |

Source: CreditSights, FactSet, ICE Data Indices, LLC

| US IG and HY vs. Telecom | | | | | | | | | | | | |
|--------------------------|---------|---------|--------|---------|---------|--------|----------|----------|----------|----------|-------------|---------|
| | OAS | | | YTW | | | \$ Price | | | Duration | YTD Returns | |
| | Current | YE 2021 | Change | Current | YE 2021 | Change | Current | YE 2021 | Change | | Excess | Total |
| US IG | 142 bp | 98 bp | 44 bp | 5.4% | 2.4% | 306 bp | \$89.58 | \$109.14 | -\$19.57 | 6.9 yrs | -1.8% | -15.3% |
| US IG Telecom | 149 bp | 119 bp | 30 bp | 5.4% | 2.8% | 262 bp | \$86.93 | \$110.92 | -\$24.00 | 8.9 yrs | -1.5% | -18.3% |
| Difference | 7 bp | 21 bp | -14 bp | -5 bp | 39 bp | -44 bp | -\$2.65 | \$1.78 | -\$4.43 | 2.0 yrs | 30 bp | -304 bp |
| US HY | 455 bp | 310 bp | 145 bp | 8.6% | 4.3% | 430 bp | \$87.02 | \$103.31 | -\$16.29 | 4.1 yrs | -2.6% | -10.5% |
| US HY Telecom | 511 bp | 373 bp | 138 bp | 9.1% | 5.0% | 404 bp | \$84.86 | \$103.89 | -\$19.02 | 4.5 yrs | -4.9% | -13.0% |
| Difference | 56 bp | 63 bp | -7 bp | 46 bp | 72 bp | -26 bp | -\$2.15 | \$0.57 | -\$2.73 | 0.4 yrs | -230 bp | -246 bp |

Source: CreditSights, FactSet, ICE Data Indices, LLC

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US TMT Snapshot

Media

Executive Summary

- **IG Media (Market Perform).** IG Media trades wide for a reason as the sector is characterized by rising secular pressures (cord-cutting and streaming transition), while the macro backdrop creates additional pressure on credit metrics. We believe fallen-angel risk at WBD and PARA (~45% of the IG Media index) is largely factored into spreads (~100 bp wide to BBB index), but we struggle to identify a catalyst for re-pricing in the near-term.
- **HY Media (Underperform).** We see more downside risk for HY Media, as the sector deals with potential negative pressure on advertising, the loss of political revenue and accelerated cord cutting, which could slow growth in retransmission consent revenue. As such, we are shifting our recommendation to Underperform from Market perform for 2023.
- **IG Picks & Pans.** Our top two picks (NFLX and WBD) benefit from wide starting spreads and material tightening potential, driven by a likely Moody's upgrade to IG at Netflix and gradual execution on management's deleveraging plan at WBD. Our top two pans (PARA and FOXA) are characterized by negative event risk related to their relative lack of scale, with significant credit metric deterioration forecast at Paramount.

- **HY Picks & Pans.** We continue to favor the outdoor sector within HY Media and like CCO secured bonds, as well as Gray TV within the broadcast TV space. Our top pans are iHeart, which we think has exposure to ad revenue pressure, and Sinclair, which has the overhang of DSPORT and declining net retrans next year.
- **New Issue Outlook – Down Year.** We expect issuance IG Media issuance will be modest (~\$5 billion) in 2023 due to a lack of near-term maturities and a general prioritization towards debt repayment across the sector. HY Media issuance to highlight would be funding for TEGNA's pending LBO (\$5 billion secured, \$2 billion unsecured).

Key Themes for 2023

- **Out of favor with investors due to cyclical and secular headwinds.** Investor sentiment has deteriorated significantly over the course of 2022 due to a combination of: (1) a weakening macro backdrop; (2) signs of saturation in DTC subscriber growth with profitability still a way off and (3) the acceleration in the pace of cord-cutting. Unfortunately, we do not see a clear inflection point for any of these issues in 2023.
- **Advertising revenue under pressure.** Macro headwinds are weighing heavily on digital advertising spend and the national TV scatter market in 2H22, and we expect this to persist at least into early 2023. At the same time, TV station groups will face a tough comp from political revenue in 2H22. So far, local has been outperforming national within the TV station sector, but recessionary pressures could change this outlook.
- **Cord-cutting reaches new highs.** We forecast that the pace of cord-cutting accelerated to ~7.5% in 2022, from ~4.5% in 2021, and will remain elevated at the 7+% area in 2023. We believe that annual subscriber losses above 5% result in affiliate revenue declines for most cable networks and exposes retrans to slower growth (or even potential declines).
- **Sizable profit declines at cable networks.** The combination of lower advertising and subscription revenue with limited cost flexibility (sports rights fees march upward) will take a heavy toll on the profitability of cable and broadcast networks in 2023.
- **Streaming remains a heavy drag on profits and financial metrics.** Netflix is the only streaming video service to achieve profitability, leaving investors (rightly) questioning the long-term economics of DTC services, with increased skepticism about the ability of DTC to offset linear declines. Heavy DTC losses are weighing particularly on the credit metrics of WBD and PARA.

Top Risks for 2023

- **Hard-landing would wreak havoc.** While media sector sentiment is already negative, we think that consensus forecasts assume a soft-landing in 2023 and thus see additional risk to metrics/spreads in the event of a hard-landing. We also fear that a prolonged macro downturn may lead the rating agencies to tighten up metric targets.
- **Retrans risk.** Broadcasters now generate 50% (and climbing) of revenue from retransmission consent fees. With cord cutting and blackout risk, we believe any indication of this important revenue stream sliding backwards would be a significant negative catalyst for broadcast TV yields.
- **CTV disrupts the linear TV advertising market.** Despite steadily declining viewership, the national TV advertising market has proved resilient as marketers lacked a better option to deploy brand advertising dollars. We believe that the influx of connected TV (CTV) advertising inventory, bolstered by the launch of ad-tiers at Netflix and Disney+ and continued growth at YouTube and Amazon's Prime Video, may lead to a shift in advertising spend away from legacy media companies.
- **More M&A dominoes still to fall.** The media sector has seen an immense amount of consolidation in recent years, but we believe there is still more to come as scale and synergies provide an offset for secular pressures and the lower-margin nature of DTC streaming video.

Picks, Pans & Recommendations

Investment Grade Picks

- **Netflix (NFLX):** The group's gross leverage is already best in class at ~2.1x, and we expect FCF to Debt to rise to the 15-20% range in 2023. We believe the improved visibility on subscriber/top line growth, coupled with management's enthusiasm around the recent ad-tier launch and upcoming password sharing initiative, should make it easier for Moody's to justify the long-awaited upgrade to investment grade in the near-term.
- **Warner Bros. Discovery (WBD):** While the merger with WarnerMedia has gotten off to a bumpy start, we forecast that WBD can still cut net leverage by roughly a turn next year and close 2023 with net leverage below 4x and ~10% FCF/gross debt. Management is highly focused on FCF generation and deleveraging, and the rating agencies have signaled they will give WBD plenty of runway, which is important given the uncertain macro backdrop. From a relative value perspective, we believe spreads have room to grind tighter as management delivers on its objectives and investors gradually regain confidence, while downside is limited since WBD is currently priced like a strong BB.

Investment Grade Pans

- **Paramount Global (PARA):** We believe Paramount Global deservedly trades as one of the widest large-cap credits in the investment-grade universe. While the group is making steady progress growing its DTC business, PARA's FCF generation remains anemic, and we expect credit metrics to deteriorate meaningfully (net leverage ~4.5x) in 2023 following three straight years of double-digit EBITDA declines.
- **Fox Corp (FOXA):** While we acknowledge Fox's strong FCF generation and relatively low leverage, we believe these attributes are outweighed by material event risk. Fox is currently evaluating a merger with BB+ rated News Corp, which we think could result in a downgrade to BBB-, and we believe a pivot into sports betting is also likely (with unknown financial repercussions).

| US IG Media Company Recommendations | | |
|-------------------------------------|------------------------------|-------------------------|
| Outperform | Market Perform | Underperform |
| Netflix (NFLX) | Warner Bros. Discovery (WBD) | Paramount Global (PARA) |
| Omnicom (OMC) | Interpublic (IPG) | Fox Corp (FOXA) |
| | | Walt Disney (DIS) |
| | | WPP (WPPLN) |

Source: CreditSights

High Yield Picks

- **Clear Channel Outdoor (CCO):** We believe the outdoor sector is one of the most insulated from trends broadly impacting the media landscape. CCO has high leverage (9x), but we believe the debt is fully covered and FCF could inflect to the positive side in 2023.
- **Gray TV (GTN):** We believe GTN faces risk from core ad headwinds and high leverage, however, we like the company's competitive position in the industry and believe 2024 political could help delever the company over time (no major maturity until 2026).

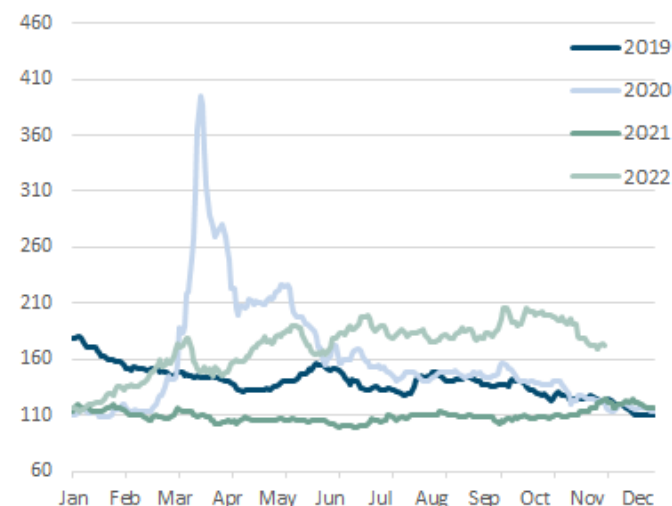
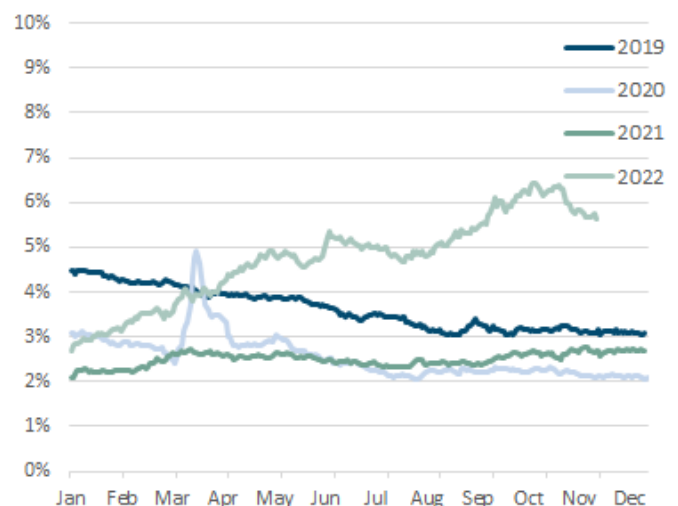
High Yield Pans

- **Sinclair (SBGI):** We believe Sinclair's fundamentals will be more challenged in 2023, with core ad headwinds, a net retrans decline (due in part to contract timing) and potential loss of the DSPORT management fee upon a restructuring. We also see litigation "tail risk" for the credit if DSPORT files Ch. 11 and those creditors aim to hold Sinclair liable for damages.
- **iHeart (IHRT):** We think the broadcast radio sector could face significant pressure in 2023, especially without political ad dollars and a challenged economy. We think IHRT yields do not appropriately price in this risk.

US HY Media Company Recommendations

| Outperform | Market Perform | Underperform |
|---------------------|--------------------------------|------------------------------|
| Clear Channel (CCO) | Lamar (LAMR) | Outfront (OUT) |
| Gray TV (GTN) | Sirius XM (SIRI) | iHeart (IHRT) |
| TEGNA (TGNA) | EW Scripps (SSP) | Sinclair (SBGI) |
| Cinemark (CNK) | Audacy (AUD) - Hold | AMC Networks (AMCX) |
| | AMC Entertainment (AMC) - Hold | Diamond Sports (DSPT) - Sell |

Source: CreditSights

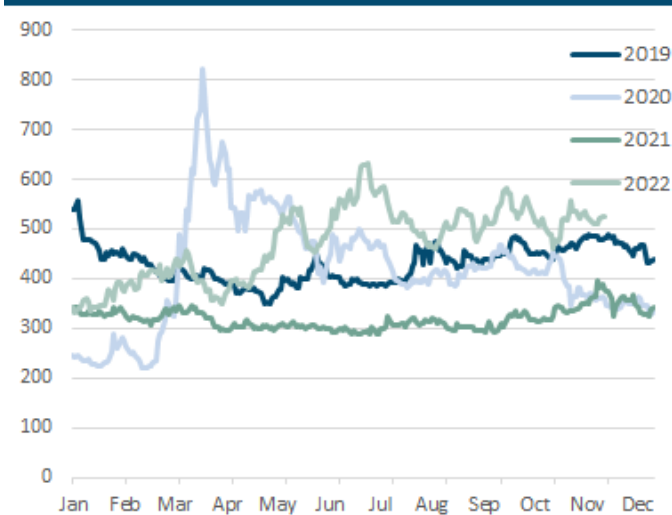
Relative Value**Investment Grade****US IG Media Annual OAS History: 2019-2022****US IG Media Annual YTW History: 2019-2022**

Source: CreditSights, FactSet, ICE Data Indices, LLC

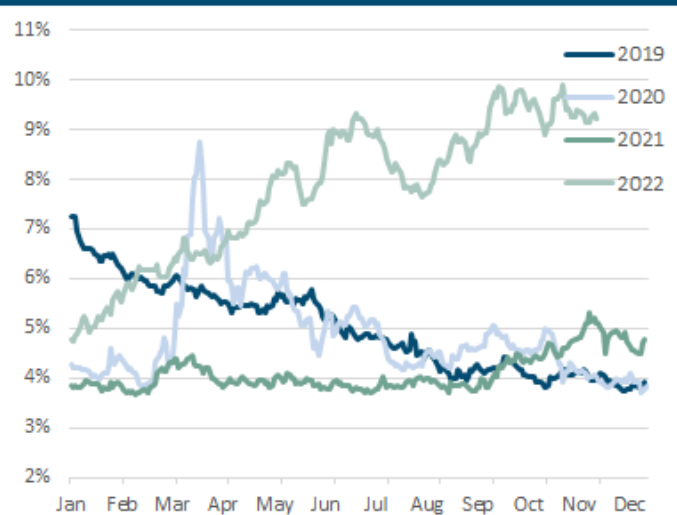
Our IG Media coverage universe has a blended rating of BBB and currently trades at an OAS of ~175, which is bang in-line with the BBB Index. Warner Bros. Discovery (\$42 billion USD bonds) and Disney (\$38 billion) together comprise 63% of the IG Media index, with the top five credits (Paramount Global, Netflix and Fox) covering a whopping 87% of the sector's notional value. We expect to see spread tightening at Warner Bros. Discovery (OAS of ~260) and Netflix (OAS ~165), which together are ~40% of the index, driven by deleveraging at WBD and an upgrade to IG by Moody's at NFLX. Our two pans, Paramount Global and Fox, only make up ~18% of the index. Given meaningful exposure to advertising revenue at the major cable/broadcast networks and the ad agency holding companies, we believe that the macro/market backdrop and execution milestones at WBD are the two main determinants of overall sector performance in 2023.

High Yield

US HY Media Annual OAS History: 2019-2022



US HY Media Annual YTW History: 2019-2022



Source: CreditSights, FactSet, ICE Data Indices, LLC

HY Media yields in the mid-9% area (based on BAML index), which is only ~50 bps behind the HY index overall. However, we think the sector faces many pressure points in 2023, including recessionary pressure on core advertising, the loss of political revenue and accelerated cord cutting. We note that most issuers will struggle to improve balance sheets with this backdrop, given the much lower FCF generation without political.

Fundamental Outlook

Investment Grade

IG Media Largest Issuer Fundamental Snapshot

| Issuer | Total | Net Leverage | | | FY2023 Leverage Direction |
|--|-------------------|--------------|---------|------------|---------------------------|
| | Outstanding (\$B) | Current | YE 2021 | YTD Change | |
| Warner Bros. Discovery (WBD) | \$42.1 | 5.1x | 3.0x | 2.1x | Lower |
| Walt Disney (DIS) | \$38.2 | 2.6x | 3.5x | -0.9x | Lower |
| Paramount Global (PARA) | \$14.1 | 3.9x | 2.6x | 1.3x | Higher |
| Netflix (NFLX) | \$8.9 | 1.2x | 1.4x | -0.2x | Lower |
| Fox Corp. (FOXA) | \$7.0 | 0.8x | 1.2x | -0.4x | Higher |
| Omnicom (OMC) ¹ | \$4.2 | 2.3x | 2.4x | -0.1x | Flat |
| Activision Blizzard (ATVI) | \$3.7 | 1.5x | 0.9x | 0.6x | Lower |
| Interpublic (IPG) ¹ | \$2.9 | 1.6x | 1.7x | -0.1x | Flat |
| Take-Two Interactive (TTWO) ^{1,2} | \$2.7 | 1.9x | 1.9x | 0.0x | Flat |
| Electronic Arts (EA) | \$1.9 | 1.0x | 1.3x | -0.3x | Flat |

Source: CreditSights, FactSet, ICE Data Indices, LLC, Company Filings

Notes: ¹ Gross leverage used for ATVI, EA, IPG, OMC and TTWO. ² TTWO 2021 gross leverage pro forma for Zynga acquisition.

IG Media companies face multiple headwinds in 2023 including elevated rates of cord-cutting (~7%), a weak macro/advertising backdrop and heavy losses at streaming segments. At the sector level, FCF after dividends will be allocated primarily toward debt reduction, aside from a few exceptions (FOXA, IPG and OMC) where credit metrics are conservatively positioned. We expect WBD will reduce leverage by roughly a turn to under 4x in 2023 due to a mix of merger synergies (\$2 billion step-up) and reduced losses at the DTC segment, and we also forecast Disney will deleverage further next year as a strong performance at Parks and lower DTC losses offset rising losses at its TV networks. In contrast, we forecast another year of double-digit EBITDA decline at Paramount Global, with minimal FCF generation and leverage rising to ~4.5x on a pro forma basis. We expect the advertising agency holding companies may report modest (low-single digit) organic top-line declines due to the softer macro environment, but these groups are well positioned given their flexible cost bases, strong FCF generation and strong balance sheets.

High Yield

| HY Media Largest Issuer Fundamental Snapshot | | | | | |
|--|-------------------|--------------|---------|------------|---------------------------|
| Issuer | Total | Net Leverage | | | FY2023 Leverage Direction |
| | Outstanding (\$B) | Current | YE 2021 | YTD Change | |
| Sirius XM (SIRI) | \$8.8 | 3.5x | 3.1x | 0.4x | Flat |
| Diamond Sports (DSPORT) | \$4.8 | NM | NM | NM | Higher |
| Univision (UVN) | \$4.9 | 5.7x | 5.5x | 0.2x | Flat |
| Clear Channel (CCO) | \$3.7 | 9.1x | 12.3x | -3.2x | Lower |
| Gray TV (GTN) | \$3.6 | 5.2x | 5.5x | -0.3x | Flat |
| iHeart (IHRT) | \$3.3 | 5.7x | 6.6x | -0.9x | Lower |
| TEGNA (TGNA) | \$3.1 | 2.5x | 3.2x | -0.7x | Higher |
| Nexstar (NXST) | \$2.8 | 3.6x | 3.2x | 0.4x | Flat |
| AMC Networks (AMCX) | \$0.2 | 2.9x | 2.4x | 0.5x | Higher |
| Lamar (LAMR) | \$2.1 | 3.4x | 3.5x | -0.1x | Flat |
| Outfront (OUT) | \$2.1 | 5.4x | 6.5x | -1.1x | Lower |

Source: CreditSights, FactSet, ICE Data Indices, LLC, Company Filings

The HY Media sector faces a likely downshift in revenue in 2023 due to potential core advertising headwinds, the loss of political and the acceleration of cord cutting. As a result, we see little credit improvement ahead next year and, if advertising faces a downturn, leverage could worsen in the sector. We note that Diamond Sports and Audacy have high default risk in 2023, with the latter dependent on a “soft landing” to keep it solvent. We also do not see M&A as a catalyst, given the high cost of capital and low equity valuations.

Primary Market Outlook

Investment Grade

| IG Media 2023 Primary Market Expectations | | | | |
|---|---------------|-------------------|--|--------------------|
| Issuer | Rating | Est. Amount (\$B) | Use of Proceeds | Anticipated Timing |
| DIS | A2/BBB+/A- | \$2.50 | Pre-financing 2024 maturities and 33% Hulu purchase. | 3Q/4Q |
| FOXA | Baa2/BBB/NR | \$1.25 | Pre-financing Jan-24 maturity. | 4Q |
| IPG | Baa2/BBB/BBB+ | \$0.50 | Pre-financing Apr-24 maturity. | 4Q |

Source: CreditSights, Bloomberg, L.P.

Only three IG Media companies issued bonds in 2022, of which two were related to M&A transactions and one (Paramount Global) was a hybrid refi. Warner Bros. Discovery priced \$30 billion in an 11-tranche jumbo deal in March, followed by a \$2.7 billion 4-tranche deal inaugural deal by Take-Two as part of the financing for its acquisition of Zynga. We expect IG Media issuance will be modest (~\$5 billion) in 2023 due to a lack of near-term maturities and a general prioritization towards debt repayment across the sector. We view Fox as the most probably issuer (\$1.25 billion maturity in Jan-24) and think Disney is a strong candidate to return to the market to pre-finance 2024 maturities and the likely purchase of Comcast’s 33% stake in Hulu (call option in early 2024).

High Yield

| HY Media 2023 Primary Market Expectations | | | | |
|---|-----------|--------------------|--|--------------------|
| Issuer | Rating | Est. Amount (\$B) | Use of Proceeds | Anticipated Timing |
| TGNA | TBD (LBO) | \$5 sec, \$2 unsec | Fund take-private by Standard Gen., Apollo | 1Q |
| SIRI | Ba3/BB/NR | \$1 | Share buybacks | 2Q |

Source: CreditSights, Bloomberg, L.P.

The primary market is likely to be slow in HY Media, with the exception of the pending LBO of TEGNA (~\$5 billion of secured, ~\$2 billion of unsecured). Debt maturities are fairly light this year, so we do not see much in the way of refinancing activity. We believe one key issuer will be Sirius XM, which continues to be active in stock buybacks.

Event Risk/M&A Landscape

Macro pressures and numerous ongoing secular transitions (cord-cutting, linear viewership declines, shift to streaming video, pivot to mobile gaming, impact of privacy initiatives on digital advertising, etc.) result in elevated event risk for legacy media groups in 2023. Several announced deals remain in flux, including Microsoft’s proposed

acquisition of Activision Blizzard (which is facing significant regulatory opposition) and Standard General's purchase of TEGNA (also potentially facing pushback). We also see a high likelihood of a transformation deal at Fox Corp following Rupert Murdoch's proposal for a tie-up with News Corp and the recent arbitration decision establishing a price (\$4+ billion) for Fox to exercise its option to acquire a ~19% stake in FanDuel. Family ownership/control at many media groups limits the threat from activist investors, but we view Paramount Global, Lions Gate (in the process of separating its Studio business) and AMC Networks as sub-scale and likely to be broken-up/taken-private or absorbed by a larger competitor in the medium-term. We see Comcast as a potential kingmaker/consolidator, but our base-case is that the cable leader will wait until 2024 (when WBD is no longer encumbered by tax restrictions) before making a decision on a transformational deal. Beyond M&A, we view rating downgrade risk as a particular concern for Warner Bros. Discovery and Paramount Global, both of which have "very high" CreditSights' fallen angel scores (FAS), although we believe the rating agencies will give these groups a long runway and believe this risk is largely factored in at current trading levels.

ESG Considerations

Our main ESG considerations for IG and HY Media issuers are governance related and attributable to the high proportion of family-controlled companies. The most topical situation at present is the **proposed combination of Fox and News Corp**, which was put forward by Rupert Murdoch (~40% voting interest) in October 2022. On the plus side, the deal is currently being evaluated by independent board committees and any transaction would need to be approved by a majority of non-affiliated shareholders. However, we believe that a potential disconnect between the best interests of controlling shareholders and creditors may also become an issue for companies like Paramount Global and AMC Networks, particularly given our aforementioned expectation of continued consolidation.

Technology

Executive Summary

- We reiterate our Market perform recommendation on the IG tech sector. While tech generally holds up well in risk-off environments, there will be sector-specific weakness and spreads have already tightened in 2022 relative to IG index.
- We are downgrading our recommendation on HY tech from Market perform to Underperform. We expect challenging operating trends in early 2023 for the largest issuers including Commscope and Seagate.
- Our top picks in IG tech include Meta, Broadcom, and Nvidia, while our top pans include Intel, Lam Research, and HPE. Meta is trading extremely cheap for its ratings category, while Broadcom and Nvidia remain well-positioned to weather the chip downturn given leadership in served markets. Intel and Lam Research will face softening operational trends amid weakness in hardware demand and memory capex respectively. For HPE, we think risk is skewed to the downside for 2H of 2023 given where we are in the enterprise hardware cycle.
- Our top pick in HY tech is Twilio, and our top pans are Seagate and Commscope. Twilio has strong liquidity and is committed to improving profitability. Seagate's leverage will spike in early 2023 given a very weak trough in the HDD market. We think Commscope will face softening demand from telco customers, limiting its ability to delever.
- We think IG tech new issuance will see another down year in 2023, less than the \$100 bn of YTD issuance in 2022. We are expecting fewer opportunistic bond deals given higher rates, with issuance mostly driven by refinancing, capital investments, and pending M&A.

Key Themes for 2023

- Public cloud (IaaS) revenue growth deceleration should stabilize in mid-2023, as customers will need the capacity and have already done bill optimizations given the macro backdrop.

- We are projecting PC market shipments of 265 mn units in 2023 which is substantially below the IDC research firm estimate of 298 mn units and also substantially below what is implied by consensus estimates.
- We expect data center devices such as servers and storage will have a decent 1H and see weakness in 2H. Demand will soften although elevated backlog will benefit shipments and margins at the start of the year.
- We think semiconductors manage to eke out low single-digit growth in 2022, but 2023 will likely be a negative trough year. We see continued pressure in memory and compute / handset chips, particularly in 1H, while analog / embedded growth could moderate through most of next year.
- HDD suppliers will have very weak revenue and profitability in early 2023 although we anticipate strong sequential improvements throughout the year, leading to a decent 2H. After hyperscale customers work down excess inventory, we expect them to purchase large quantities of HDDs with high-capacity points to satisfy customer demand for cheap storage.

Top Risks for 2023

- US-China relations, and China-Taiwan provocations, are always a top risk for technology given the strategic importance of the region. There are efforts to diversify supply of semiconductors outside of Taiwan, although that will take years to accomplish. Also, recent export controls imposed by the US could escalate tensions with China, with direct implications for the technology supply chain.
- Despite a divided US government, we continue to expect increased scrutiny on Big Tech. This includes potential legislation, new anti-trust lawsuits, and M&A. We expect the European Commission and UK's CMA to continue to be tough on Big Tech as well.
- Softening demand in certain end-markets is causing a spike in leverage and deteriorating liquidity. This includes storage providers like Seagate and Western Digital. Depending on how long it takes for demand to come back, it could be necessary to raise capital.

Picks, Pans & Recommendations

Investment Grade Picks

- **Meta:** Despite staggering investments in 2023, we believe an Outperform recommendation remains warranted due to a combination of an extremely cheap valuation for its rating category and our confidence in the durability of the company's (highly cash generative) Family of Apps business. Gross leverage is just 0.2x and the company has \$32 bn net cash, although we do expect a significant decline in net cash as shareholder returns exceed FCF through year-end 2023.
- **Broadcom:** Pro forma leverage for Broadcom pending the VMware acquisition is ~3.3x gross before synergies, but we think IG ratings are comfortably supported by a larger and stronger business profile, higher software mix, and commitment to a degree of post-deal delevering. While we are in the middle innings of a semiconductor downturn, we expect Broadcom's chip business to hold up better than the overall semiconductor market, and its highly recurring software business should provide additional stability to EBITDA and cash flows.
- **Nvidia:** We think investors should look through near-term headwinds in consumer gaming and China data center given NVDA's healthy credit metrics (~1x gross leverage, net cash position, FCF >40% of debt) and durable technology leadership in accelerated compute. In the medium to longer term, we think NVDA will continue gaining share in the compute landscape with its broad high-end logic portfolio and industry leading CUDA software platform.

Investment Grade Pans

- **Intel:** While INTC's execution struggles are now well understood, we see little respite coming in 2023 given continued weakness in consumer PC and ongoing share loss to AMD in data center. Capital investment needs will remain elevated vs. prior years, resulting in pressure on free cash flow and likely higher leverage as operational trends stay weak.
- **Lam Research:** Global wafer fab equipment spend is likely to decline by double-digits in 2023 given rapidly weakening end demand, and risks associated with US export controls aimed at slowing China's chipmaking ambitions are rising. We expect operational trends for LRCX to soften over the next 12-18 months, especially given a business profile skewed towards memory, which is seeing the most near-term pressure.
- **HPE:** Despite the healthy balance sheet and rosy outlook provided by management, we think risk is skewed the downside for 2H of 2023 given the economic backdrop and where we are currently in the enterprise hardware cycle. There is also some event risk as it relates to M&A since HPE has reportedly had talks with Nutanix, which is exploring a sale that could be in the \$7-8 bn range, and given HPE's put option is expiring soon on H3C.

| US IG Technology Company Recommendations | | |
|--|------------------------------|--|
| Outperform | Market Perform | Underperform |
| Amazon (AMZN) | Adobe (ADBE) | eBay (EBAY) |
| Broadcom (AVGO) | Advanced Micro Devices (AMD) | Fidelity National Information Services (FIS) |
| Jabil (JBL) | Alphabet (GOOGL) | Fiserv (FISV) |
| Meta Platforms (META) | Analog Devices (ADI) | Hewlett Packard Enterprise (HPE) |
| Microsoft (MSFT) | Apple (AAPL) | Intel (INTC) |
| Nvidia (NVDA) | Applied Materials (AMAT) | Lam Research (LRCX) |
| Qualcomm (QCOM) | Arrow Electronics (ARW) | Micron (MU) |
| VMware (VMW) | Avnet (AVT) | |
| | Cisco Systems (CSCO) | |
| | Corning (GLW) | |
| | Dell (DELL) | |
| | Flex (FLEX) | |
| | HP Inc. (HPQ) | |
| | IBM (IBM) | |
| | KLA Corp (KLAC) | |
| | Microchip Technology (MCHP) | |
| | Motorola Solutions (MSI) | |
| | NXP Semiconductors (NXPI) | |
| | Oracle (ORCL) | |
| | Salesforce.com (CRM) | |
| | SAP (SAP) | |
| | Texas Instruments (TXN) | |
| | VeriSign (VRSN) | |

Source: CreditSights

High Yield Picks

- **Twilio:** Twilio's growth is slowing although the company remains committed to positive non-GAAP operating profit in 2023 and expects 100-300 bp operating margin expansion in 2024 and beyond. Twilio has strong liquidity with \$4.2 bn cash which is more than sufficient to cover its cash burn while it works to improve its profitability.

High Yield Pans

- **Seagate:** We are confident in the medium-term trends, although Seagate is in a precarious position given its aggressive debt-funded shareholder returns over the past few years, combined with significant near-term weakness. Seagate is pausing buybacks although remains committed to its dividend. Given EBITDA pressure, we expect gross leverage to continue to climb quickly from 3.0x currently to above 4x in early calendar 2023.

- **Commscope:** COMM's softening book-to-bill and reports of project delays and inventory adjustments as of 3Q22 cast doubt on management's EBITDA growth targets for '23 and '24, and leverage remains very high at >8x gross. We think the targets are optimistic given that telco capex in the US was widely expected to moderate from 2022 levels even prior to the significant softening in macro conditions in recent months.

US HY Technology Company Recommendations

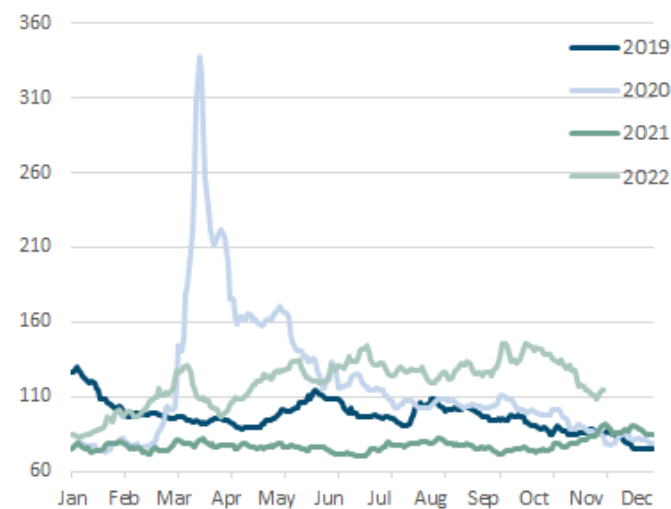
| Outperform | Market Perform | Underperform |
|---------------|-----------------------|------------------|
| Sensata (ST) | Gen Digital Inc (GEN) | Commscope (COMM) |
| Twilio (TWLO) | NCR Corp (NCR) | Seagate (STX) |
| | Western Digital (WDC) | |
| | Xerox (XRX) | |

Source: CreditSights

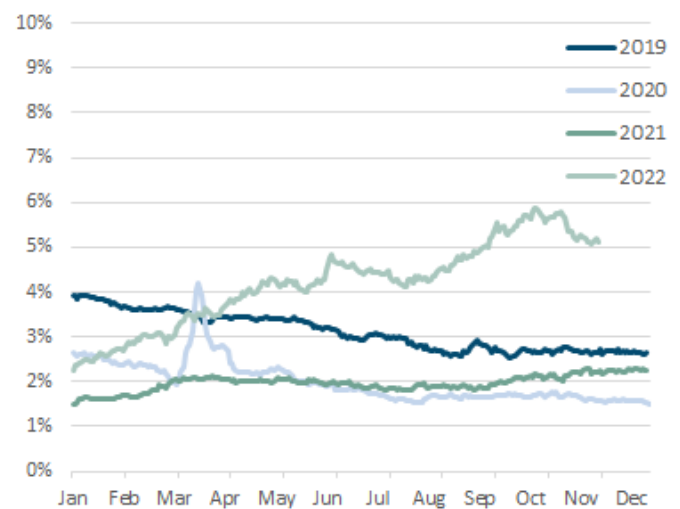
Relative Value

Investment Grade

US IG Technology Annual OAS History: 2019-2022



US IG Technology Annual YTW History: 2019-2022



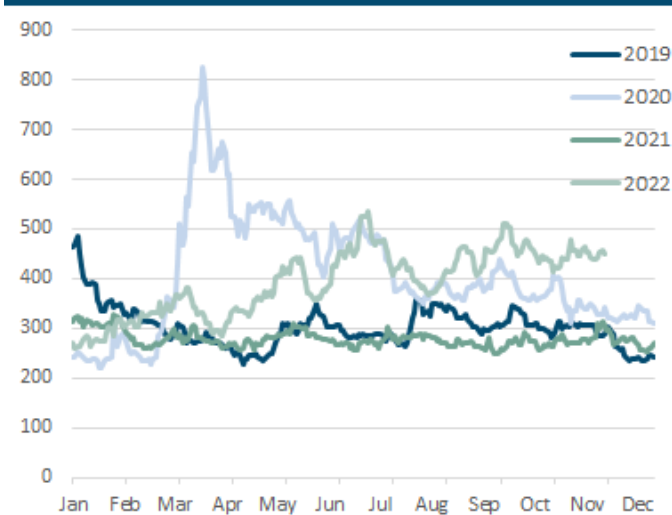
Source: CreditSights, FactSet, ICE Data Indices, LLC

On a YTD excess returns basis through 11/30/2022, IG tech (-0.9%) has outperformed the IG corporate index (-1.8%). IG tech spreads widened by +30 bp vs. +44 bp for the IG corporate index, which more than offset the sector's lower carry. IG tech is now trading at 114 bp which is 28 bp inside the IG corporate index at 142 bp.

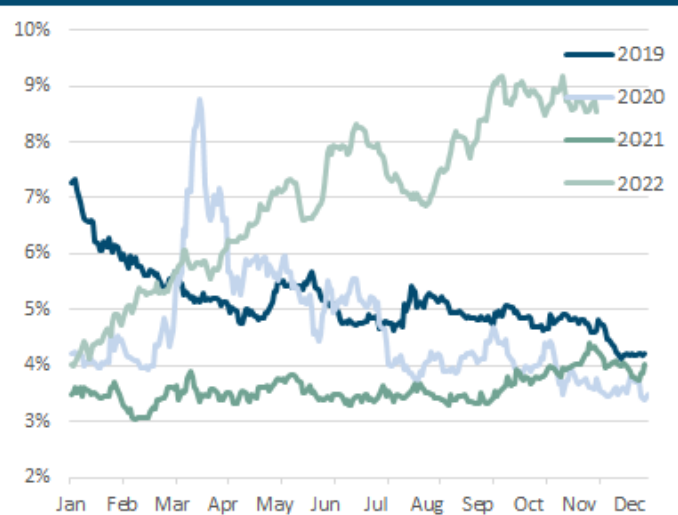
IG tech is a defensive sector which generally outperforms only during risk-off environments. The macro outlook is highly uncertain for 2023, although there will continue to be tech-specific weakness next year given a hangover from the COVID-related binge. As a result, we are maintaining our Market perform recommendation.

High Yield

US HY Technology Annual OAS History: 2019-2022



US HY Technology Annual YTW History: 2019-2022



Source: CreditSights, FactSet, ICE Data Indices, LLC

On a YTD total returns basis through 11/30/2022, HY tech (-11.9%) has underperformed the overall HY index (-10.5%). HY tech is 451 bp OAS vs. 455 bp for the overall HY index. Commscope is the largest issuer in HY tech at 9% of the index, and we see limited ability to delever over the next 12 months given a less accommodative network infrastructure spending environment. Seagate and Citrix/Tibco are the next largest issuers at nearly 6% of the index each. We expect Seagate to continue to see its leverage spike in early 2023 given a very deep trough in the HDD cycle.

Fundamental Outlook

IG Technology Largest Issuer Fundamental Snapshot

| Issuer | Total Outstanding (\$B) | Net Leverage | | | FY2023 Leverage Direction |
|----------|----------------------------|--------------|---------|------------|---------------------------|
| | | Current | YE 2021 | YTD Change | |
| AAPL | \$97.5 | -0.4x | -0.6x | 0.2x | Flat |
| ORCL | \$80.7 | 3.7x | 2.6x | 1.1x | Lower |
| AMZN (1) | \$62.7 | 1.3x | 0.5x | 0.8x | Flat |
| MSFT | \$51.4 | -0.5x | -0.7x | 0.2x | Flat |
| AVGO | \$41.2 | 1.5x | 1.7x | -0.2x | Higher |
| INTC | \$39.3 | 0.7x | 0.3x | 0.4x | Higher |
| IBM | \$33.6 | 3.0x | 2.7x | 0.3x | Flat |
| DELL (2) | \$18.8 | 0.9x | 0.5x | 0.4x | Higher |
| TAISEM | \$17.5 | -0.4x | -0.4x | 0.0x | Flat |
| QCOM | \$17.3 | 0.5x | 0.3x | 0.2x | Higher |

(1) Lease-adjusted net leverage

(2) Core net leverage (excluding the financing business)

Source: CreditSights, FactSet, ICE Data Indices, LLC, Company Filings

HY Technology Largest Issuer Fundamental Snapshot

| Issuer | Total Outstanding (\$B) | Net Leverage | | | FY2023 Leverage Direction |
|--------|----------------------------|--------------|---------|------------|---------------------------|
| | | Current | YE 2021 | YTD Change | |
| COMM | \$6.5 | 8.2x | 8.2x | 0.0x | Flat |
| STX | \$4.5 | 2.6x | 1.7x | 0.9x | Higher |
| WDC | \$3.3 | 1.6x | 1.3x | 0.3x | Higher |
| ST | \$3.3 | 3.5x | 2.7x | 0.8x | Flat |
| NCR | \$3.3 | 3.9x | 4.1x | -0.2x | Flat |
| XRX | \$3.1 | 5.7x | 3.4x | 2.3x | Lower |

Source: CreditSights, FactSet, ICE Data Indices, LLC, Company Filings

We expect some unintentional releveraging in the tech sector as there is near-term EBITDA pressure across several end markets. This includes semiconductor companies and HDD providers, among others. As a result, we expect capital allocation policies to be conservative, with several companies focusing on liquidity preservation and

protecting credit ratings.

Primary Market Outlook

Investment Grade

| IG Technology 2023 Primary Market Expectations | | | | |
|--|----------------|-------------------|--------------------------------------|--------------------|
| Issuer | Rating | Est. Amount (\$B) | Use of Proceeds | Anticipated Timing |
| AAPL | Aaa/AA+/NR | \$9.0 | GCP, refinancing | 3Q |
| AVGO | Baa3/BBB-/BBB- | \$12.0 | VMware acquisition (partial funding) | 3Q |
| AMZN | A1/AA/AA- | \$10.0 | GCP, investments | 2Q |
| INTC | A1/A+/A+ | \$5.0 | GCP, CapEx, refinancing | 3Q |
| TAISEM | Aa3/AA-/NR | \$5.0 | GCP, CapEx, refinancing | 2Q |

Source: CreditSights, Bloomberg, L.P.

IG tech issuance is \$100 bn in YTD 2022 through 11/30/2022, down significantly from 2021 (\$186 bn) and 2020 (\$167 bn). Significantly higher rates led to less large, opportunistic bond deals. Some companies used loans to limit the size of their bond deals such as Oracle and Flex. For 2023, we are expecting companies to have relatively conservative capital allocation plans, i.e., probably less buybacks and/or large acquisitions funded with debt, with the notable exception being likely issuance for the Broadcom-VMware deal. Overall, we think issuance will be down slightly YoY in 2023.

High Grade

| HY Technology 2023 Primary Market Expectations | | | | |
|--|--------------|-------------------|-----------------|--------------------|
| Issuer | Rating | Est. Amount (\$B) | Use of Proceeds | Anticipated Timing |
| XRX | Ba2/BB/NR | \$0.7 | Refinancing | 1Q/2Q |
| STX | Ba2/BB+/BB | \$0.5 | Refinancing | 2Q |
| WDC | Baa3/BB/BBB- | \$1.0 | Refinancing | 4Q |
| TWTR | | \$3.0 | Refinancing | 2Q/3Q |

Source: CreditSights, Bloomberg, L.P.

HY tech issuance is \$17+ bn in YTD 2022 which includes Citrix/Tibco (\$4.0 bn), Carvana (\$3.3 bn), athenahealth (\$2.4 bn), McAfee (\$2.0 bn), Gen Digital/NortonLifeLock (\$1.5 bn), and Twitter pre-LBO (\$1.0 bn), among others. In 2023, we think HY tech issuance will primarily be driven by refinancing needs. Given weak operating trends, we think companies will need to come to market to maintain sufficient liquidity, as opposed to repaying debt that is maturing. Twitter could possibly come to market with bonds if/when banks offload its bridge facilities (\$3 bn secured, \$3 bn unsecured) at a loss.

Event Risk/M&A Landscape

While there has been some recent noise from activists in the sector, it's not all credit negative. There have been recent attempts to rein in spending at Big Tech firms including Alphabet and Meta. There could be some M&A activity, as companies with strong balance sheets take advantage of depressed valuations in software and other end-markets (e.g., Nutanix is a potential target in the \$7-8 bn range). Regulatory risk is relevant for Big Tech in terms of new anti-trust lawsuits, potentially new legislation, and deal approvals.

ESG Considerations

Governance and Social tend to be the most relevant ESG factors for the tech sector. On social, anti-trust is a big concern particularly for Big Tech, and we expect that to remain the case in 2023. On governance, we think there will be less debt-funded shareholder returns next year, and there could be increased investor demands for things like splitting up Chairman and CEO roles and eliminating dual class share structures, among other factors.

Telecom

Executive Summary

- **IG Telecom/Cable/Satellite: Outperform.** We believe the IG Communications sector should be relatively defensive in 2023 against recession risk and inflationary pressures and like taking both credit and duration risk in the sector. While competition is intensifying, we believe free cash flow in the sector should remain robust and leverage in check, especially for the large US telcos that continue to focus on deleveraging.
- **HY Telecom/Cable/Satellite: Outperform.** For 2023, we are raising our recommendation on HY Communications to Outperform from Underperform. We believe much of the negativity has been priced into the sector related to higher leverage and funding risks. We think wireline leverage will go higher, but we believe the sector could see growth inflection points for broadband subscribers and revenue/EBITDA in 2023, helping get investors comfortable with the multi-year projects. Our Outperform is driven by attractive first-lien bond yields (30% of our index), a potential IG upgrade candidate in Sprint (10% of our index) and attractive yields for Charter (22% of our index) offset by still-high execution risk weighing down bonds further down the cap stack. We think credit selection will be incredibly important for the sector this year.
- **IG Picks & Pans.** Our top picks in 2023 are T-Mobile, Comcast and American Tower, all of which should be relatively defensive. Top pans are Verizon, which is struggling competitively in the wireless sector, and Digital Realty, which has high leverage and is exposed to rising power costs.
- **HY Picks & Pans.** Our top picks in 2023 are Sprint bonds (on a potential IG upgrade), DISH 1Ls and Frontier (1L and 2L). Top pans are Lumen holdco bonds, CSC Holdings unsecured notes and Uniti.
- **New issue outlook.** We believe new issue should remain fairly muted again in 2023 for both IG (\$22 billion) and HY (\$5 billion), assuming a quiet M&A environment. In IG, maturities are relatively light in 2023 for the key issuers, although we do expect TMUS, CMCSA and CHTR to be active. In HY, we see CHTR active as well and believe that FTTH players might be opportunistic if cost of capital improves (but not a necessity).

Key Themes for 2023

- **Competitive clashes in “broadband wars.”** We see cable’s growth slowing for much of 2023, at the hands of the newer and cheaper fixed wireless service offered by Verizon and T-Mobile and new fiber-enabled footprints. We also see fixed wireless taking share from low-bandwidth DSL services.
- **Wireless pricing in focus as bundled offerings grow.** Cable has had reasonably good success with a bundled wireless offering, while T-Mobile and Verizon aim to tie fixed wireless with mobile service in select areas. We see pricing being a key area of focus as consumers deal with recession concerns and inflationary pressures.
- **Satellite “kings of LEO.”** Satellite providers have long been dealing with pricing pressure and overcapacity in the GEO world. The promise of new growth opportunities in broadband and mobile device coverage have new and traditional players looking at multi-orbit strategies with LEO constellations.
- **Accelerated cord cutting.** We see cord cutting accelerating in 2023, as consumers deal with ever-rising prices and cable broadband subscriber growth slows. Satellite credits DISH and DTV are the most exposed to this risk, as cable video margins are relatively low.
- **Data Centers and power costs.** Inflationary pressures with energy costs and rising interest rates could be thorns in the side for data center operators. Despite being positioned to pass-through higher expenses, through contractual reimbursements and repricing at contract renewals, elevated prices could result in margin pressure in 2023.

Top Risks for 2023

- Verizon vulnerable as highest priced carrier. We see Verizon as being particularly vulnerable if consumers shift to lower-priced plans from competitors. We note that cable continues to be aggressive on pricing and DISH has yet to break onto the retail wireless scene.
- Broadband subscriber share shifts. We see two pressure points developing for cable – on the value side, fixed wireless offers a cheaper alternative for those willing to tolerate lower speeds, while on the premium side, fiber-to-the-home deployments will continue in 2023.
- Inflation and supply chain issues could slow FTTH. Many of the FTTH providers have guided investors to fiber IRRs in the teens and above 20% based on the estimated cost per passing at \$600-\$1,000. Any upward pressure on this number could lower the return profile of these capital intensive projects.
- M&A is a common theme in telecom/cable. We don't see the major issuers (AT&T, Verizon, Comcast, Charter) being active in M&A, but we note that Altice USA has openly talked about going private (especially if it sells SuddenLink, in our view). DirecTV and DISH could also attempt a deal, while some fiber operators have talked about public/private partnerships as a way to fund new buildouts.

Picks, Pans & Recommendations

Investment Grade Picks

- **T-Mobile** has been the only place to “hide” in a competitive broadband marketplace – it has been near the top in wireless postpaid growth and leading the pack for home broadband customer growth via fixed wireless. We see TMUS as the only major upgrade candidate in our world in 2023 (potentially from BBB- to BBB).
- **Comcast** should see competitive pressure in broadband, but we believe the group's strong FCF generation and low leverage leaves the group well positioned to handle the slowdown in customer growth and a potential ramp in network investment requirements.
- **American Tower** has been more creditor-friendly as of late. The company is prioritizing balance sheet repair, reducing leverage through equity capital raises, and scaling back its M&A appetite.

Investment Grade Pans

- **Verizon** is vulnerable as the highest-priced carrier, with the largest market share. While we see VZ free cash flow expanding in 2023, we think both AT&T and T-Mobile will narrow the competitive gap next year.
- **Digital Realty** is carrying leverage that is above its target range (6.5x pro forma for recent equity offering), while power costs are elevated and certain major tech customers (e.g. Meta) face macro headwinds.

| US IG Telecom Company Recommendations | | |
|---------------------------------------|----------------|--------------|
| Outperform | Market Perform | Underperform |
| TMUS | T | DLR |
| CMCSA | VZ | |
| AMT | AMXLMM | |
| | CCI | |
| | EQIX | |

Source: CreditSights

High Yield Picks

- Sprint bonds are good upgrade candidates to investment grade in 2023. We estimate Sprint offers 70 bps of spread pickup against T-Mobile IG bonds of similar tenor.
- **Frontier** is showing good fiber subscriber growth and we expect to see YoY EBITDA growth take hold in 2023. While leverage will continue to increase due to high capex, we don't see a need for capital near-term and believe growth would be helpful for sentiment.

- **Dish** DBS bonds should benefit from the company's recent capital raise at the parent level (\$2 billion) that takes funding pressure off DBS. We believe FCF should adequately handle maturities in 2023 and 2024.

High Yield Pans

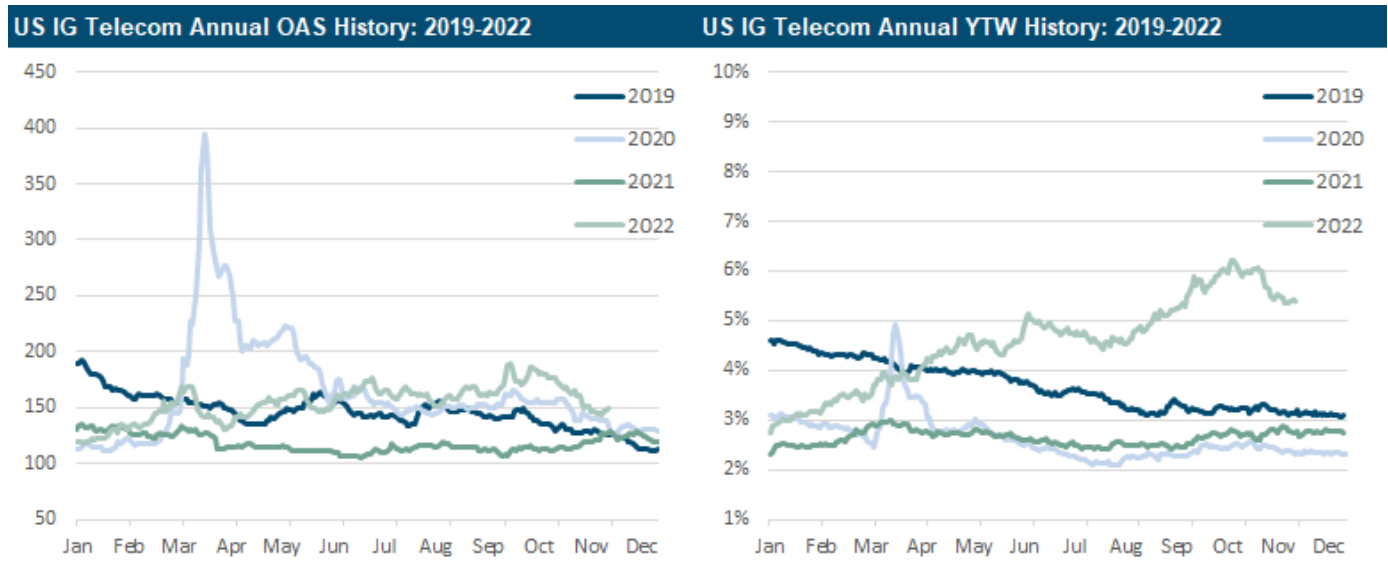
- **Lumen** continues to be an asset sale mode and recently eliminated its dividend. However, credit improvement might be limited due to enterprise revenue headwinds, consumer broadband losses and heavy capex for FTTH.
- CSC Holdings unsecured bonds (Altice USA) could face downward pressure if Altice fails to gain traction after putting the SuddenLink sale on ice and controlling shareholder Patrick Drahi aims to take the company private in 2023. We are skeptical about Altice's ability to execute, but believe an LBO is unlikely.
- **Uniti** might not face operating headwinds, but the rising cost of capital, FCF burn, high leverage and interlocked relationship with Windstream continue to leave us averse to the credit.

| US HY Telecom Company Recommendations | | |
|---------------------------------------|----------------|--------------|
| Outperform | Market Perform | Underperform |
| S | CNSL | LUMN |
| DISH | ATUS | LVL |
| FYBR | SATS | UNIT |
| TSAT | ISATLN | VSAT |

Source: CreditSights

Relative Value

Investment Grade

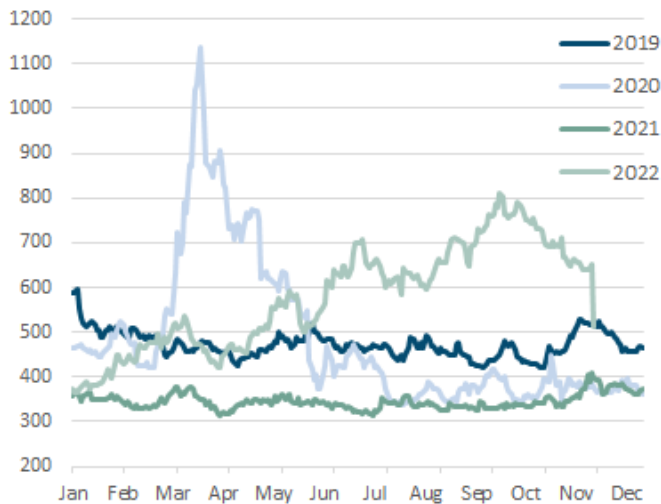


Source: CreditSights, FactSet, ICE Data Indices, LLC

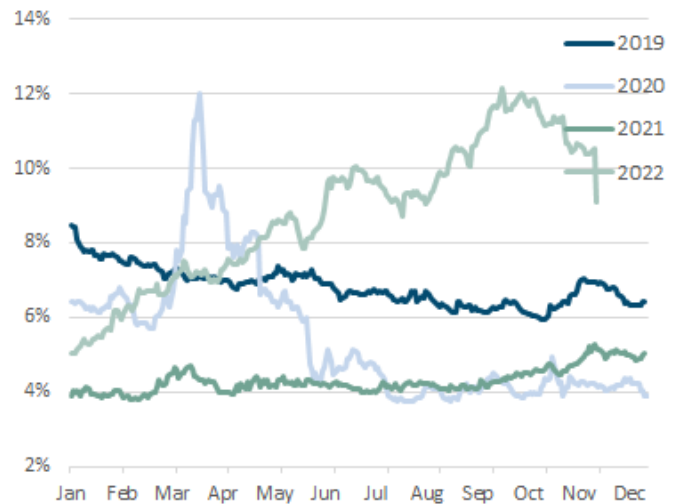
Total return in IG Telecom and Cable is more sensitive to duration (9 years on average versus 7 for the market), but spreads are in line with the market (+147 versus +145 for the market) and excess return has outperformed in 2022 (-1.4% versus -2% for the market). On the fundamental side, we like being overweight the sector in 2023 as we believe the sector is insulated from recession concerns and inflationary pressure, while balance sheets should be stable (e.g., CMCSA, CHTR and CCI) to improving (T, VZ, TMUS and AMT). We also do not see material negative event catalysts (M&A or otherwise) or meaningful new issue on the horizon next year.

High Yield

US HY Telecom Annual OAS History: 2019-2022



US HY Telecom Annual YTW History: 2019-2022



Source: CreditSights, FactSet, ICE Data Indices, LLC

We are raising our recommendation on HY Communications to Outperform from Underperform. After a brutal total return year in 2022 (our wireline index was down 37% overall and 31% excluding the Embarq notes), we believe much of the negativity related to increasing leverage and funding risks has been priced into the sector. We think wireline leverage will go higher, but believe the sector could see growth inflection points for broadband subscribers and revenue/EBITDA in 2023, helping investors get comfortable with the multi-year projects. Our Outperform is driven by attractive first-lien bond yields and dollar prices well under par (30% of our index), a potential IG upgrade candidate in Sprint (12% of our index) and attractive yields for Charter (22% of our index), offset by still-high execution risk weighing down bonds further down the cap stack. While our sector recommendation change is notable, we think credit selection will be incredibly important for the sector this year.

Fundamental Outlook

IG Telecom Largest Issuer Fundamental Snapshot

| Issuer | Total Outstanding (\$B) | Net Leverage | | | FY2023 Leverage Direction |
|------------------------|-------------------------|--------------|---------|------------|---------------------------|
| | | Current | YE 2021 | YTD Change | |
| AT&T (T) | \$79.0 | 3.2x | 3.2x | 0.0x | Lower |
| Verizon (VZ) | \$79.0 | 3.0x | 3.1x | -0.1x | Lower |
| Comcast (CMCSA) | \$69.5 | 2.5x | 2.4x | 0.1x | Flat |
| Charter (CHTR) | \$53.0 | 4.5x | 4.5x | 0.0x | Flat |
| T-Mobile (TMUS) | \$49.0 | 3.1x | 2.9x | 0.2x | Lower |
| Crown Castle (CCI) | \$13.4 | 5.2x | 4.9x | 0.3x | Higher |
| Rogers (RCICN) | \$15.3 | 3.0x | 3.0x | 0.0x | Higher |
| Equinix (EQIX) | \$9.9 | 3.9x | 3.5x | 0.4x | Flat |
| Cox (COXENT) | \$8.9 | NA | NA | NA | Private |
| America Movil (AMXLMM) | \$6.5 | 1.2x | 1.2x | 0.0x | Flat |

Source: CreditSights, FactSet, ICE Data Indices, LLC, Company Filings

| HY Telecom Largest Issuer Fundamental Snapshot | | | | | |
|--|-------------------|--------------|---------|------------|---------------------------|
| Issuer | Total | Net Leverage | | | FY2023 Leverage Direction |
| | Outstanding (\$B) | Current | YE 2021 | YTD Change | |
| Charter (CHTR) | \$26.6 | 4.5x | 4.5x | 0.0x | Flat |
| Altice USA (CSCHLD) | \$14.5 | 6.0x | 5.8x | 0.2x | Higher |
| Sprint (S) | \$14.2 | 3.1x | 2.9x | 0.2x | Lower |
| DISH DBS (DISH) | \$13.2 | 3.9x | 3.6x | 0.3x | Lower |
| Frontier (FYBR) | \$6.7 | 3.1x | 2.4x | 0.7x | Higher |
| Lumen (LUMN) | \$6.5 | 3.8x | 3.6x | 0.2x | Higher |
| Level 3 (LVL3) | \$5.4 | 3.8x | 3.4x | 0.4x | Higher |
| Uniti (UNIT) | \$4.6 | 5.9x | 5.7x | 0.2x | Flat |
| DirecTV (DTV) | \$3.7 | 1.2x | 1.2x | 0.0x | Flat |
| SBA Communications (SBAC) | \$3.0 | 6.8x | 7.3x | -0.5x | Higher |

Source: CreditSights, FactSet, ICE Data Indices, LLC, Company Filings

Competitive pressures are intensifying across the Telecom/Cable sector as wireless and wireline (cable/fiber) aim for share in both the in-home and out-of-home broadband marketplaces. However, we believe the pricing environment remains firm, with most promotional activity focused on one-year teaser rates or only available through bundling (in the case of cable MVNOs). As a result, we see slower growth overall, which could pressure equity valuations, but robust free cash flow generation (most important metric for credit) in a sector that we view to be largely insulated from recession and inflation pressures. We see leverage metrics largely remaining stable for those engaged in share buyback activity (e.g., Charter, Comcast, T-Mobile) or improving (AT&T, Verizon).

Primary Market Outlook

Investment Grade

| IG Telecom 2023 Primary Market Expectations | | | | |
|---|----------------|-------------------|--|--------------------|
| Issuer | Rating | Est. Amount (\$B) | Use of Proceeds | Anticipated Timing |
| TMUS | Baa3/BBB-/BBB- | \$10 | Spectrum, Sprint maturity, share repurchases | 1Q/3Q |
| CMCSA | A3/A-/A- | \$3 | Debt refinancing | 4Q |
| CHTR | Ba1/BBB-/BBB- | \$4 | Debt refinancing, share repurchases | 1Q/3Q |
| RCICN | Baa1/BBB+/BBB+ | \$2 | Debt refinancing | 3Q |
| AMT | Baa3/BBB-/BBB+ | \$2 | Debt refinancing | 1Q/2Q |
| CCI | Baa3/BBB-/BBB+ | \$1 | Debt refinancing | 2Q |
| COXENT | Baa2/BBB/BBB+ | \$1 | Debt refinancing | 1Q |

Source: CreditSights, Bloomberg, L.P.

Not surprisingly, new issue fell to a multi-year low in 2022. Only \$14 billion was issued in the USD market by IG issuers, \$7 billion of which is marked for the Rogers/Shaw transaction. T-Mobile issued \$3 billion after getting a parent IG upgrade and we see the company being active in 2023, with a \$4.25 billion Sprint maturity, \$3.5 billion spent on the 600 MHz transaction and potential share buyback activity. AT&T and Verizon, both of which have been serial issuers in past years, were both in debt repayment mode via tender offers in 2022 and we expect the two to be quiet again on new issue in 2023 with no material USD maturities next year.

High Yield

| HY Telecom 2023 Primary Market Expectations | | | | |
|---|------------|-------------------|-------------------------------------|--------------------|
| Issuer | Rating | Est. Amount (\$B) | Use of Proceeds | Anticipated Timing |
| FYBR | B3/B/NR | \$1 | Opportunistic for fiber investments | 2Q |
| CHTR | B1/BB-/BB+ | \$1 | Debt refinancing, share repurchases | 2Q |

Source: CreditSights, Bloomberg, L.P.

In HY, we saw only \$7 billion of new issue in 2022 even as high-capex projects like FTTH and DISH's 5G network build continue. We do not see an absolute capital need in 2023 for credits like FYBR, DISH or CNSL, but could see opportunistic capital raises if yields improve. We see serial issuers like Charter potentially tapping the market as well in 2023.

Event Risk/M&A Landscape

We believe M&A could be topical in 2023, centered around a small group of credits. First, DISH and DirecTV have danced around the potential for a merger and could look at something more formal now that we are on the other side of the mid-term elections. Second, Altice USA pulled the potential sale of SuddenLink, but we would be watching for renewed Patrick Drahi interest in a take-private transaction. We do not see Charter or Comcast active in cable M&A and believe Comcast M&A (if at all) would center around its NBCU division. Third, Lumen continues to offload assets (EMEA sold to Colt for \$1.8bn, or 11x) and is reportedly trying to offload more ILEC states, although these would be relatively small. Lastly, we note that WideOpenWest is under strategic review, although we don't see high interest from strategic players.

ESG Considerations

We believe the primary ESG concern for the sector relates to corporate governance (versus the 'E' or 'S'). Credits like Charter could allocate significant cash toward share buybacks (at the direction of its largest shareholder, Liberty Broadband), while we believe DISH/EchoStar (controlled by Charlie Ergen) and Altice USA (controlled by Patrick Drahi) are consistently at risk for corporate actions that might be detrimental to bondholders.

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