Credit market outlook:
High rates and slowing economy creating opportunities for credit investors

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Bonds more attractive than equities

Source: Bloomberg, Apollo Chief Economist
A default cycle has started
US bond default rates

Source: Moody's Analytics, Apollo Chief Economist
Leveraged loan index default rates starting to rise

Source: Pitchbook LCD, Apollo Chief Economist
Bankruptcy filings rising for companies with at least $10mn in liabilities

Source: S&P Capital IQ, Bloomberg, Apollo Chief Economist. Note: Bankruptcy figures include public companies or private companies with public debt with a minimum of $2 million in assets or liabilities at the time of filing, in addition to private companies with at least $10 million in assets or liabilities.
Weekly bankruptcy filings rising for companies with at least $50mn in liabilities

Source: Bloomberg, Apollo Chief Economist. Note: Filings are for companies with more than $50mn in liabilities. For week ending on June 28, 2023.
Yield levels
US IG yield around 5.5% and HY yield around 8.3%
US IG yield levels, by rating

Source: ICE BofA, Haver Analytics, Apollo Chief Economist
US HY yield levels, by rating

Source: ICE BofA, Haver Analytics, Apollo Chief Economist
European corporate IG and HY yields

Source: ICE BofA, Bloomberg, Apollo Chief Economist
European IG yield levels, by rating

Europe investment grade yields, by rating

Source: ICE BofA, Bloomberg, Apollo Chief Economist
European HY yield levels, by rating

Source: ICE BofA, Bloomberg, Apollo Chief Economist
Annual returns for HY

US HY index total return (%)

Source: Bloomberg, Apollo Chief Economist
Yield for the leveraged loan index: 10%

Source: Pitchbook LCD, Apollo Chief Economist
Spread levels
Credit spreads wider, but not pricing in a recession
IG spreads by rating

US investment grade corporate bond spreads, by rating

Source: ICE BoA, Bloomberg, Apollo Chief Economist
HY spreads by rating

US high yield corporate bond spreads, by rating

Source: ICE BofA, Bloomberg, Apollo Chief Economist
IG quality spreads, some differentiation between BBB and single-A

US spread differentials, by rating

- AA - AAA
- A - AA
- BBB - A

Source: ICE BofA, Bloomberg, Apollo Chief Economist
HY quality spreads, less differentiation between CCC and B

US spread differentials, by rating

Source: ICE BofA, Bloomberg, Apollo Chief Economist
US HY spread minus IG spread

Source: ICE BoA, Bloomberg, Apollo Chief Economist. Note: Bloomberg Index used C0A0 Index and H0A0 Index
European IG and HY spreads

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Ticker used HE00 Index and ER00 Index.
European IG spreads by rating

Source: ICE, BoA, Bloomberg, Apollo Chief Economist.
European HY spreads by rating

Source: ICE BofA, Bloomberg, Apollo Chief Economist.
European HY spread minus IG spread

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Ticker used HE00 Index and ER00 Index.
Spread between Europe HY and IG default swaps

Source: Bloomberg, Apollo Chief Economist. Note: Tickers used ITRXEXE CBBT Currency and ITRXEBE CBBT Currency
Global HY spread minus global IG spread

Source: Bloomberg, Apollo Chief Economist. Note: Bloomberg Index used BGLCTRUU index and LG50TRUU Index
HY spreads by sector

Source: ICE BofA, Bloomberg, Apollo Chief Economist
HY spreads by sector

US HY spread by sector

Source: ICE BofA, Bloomberg, Apollo Chief Economist
HY spreads by sector

Source: ICE BofA, Bloomberg, Apollo Chief Economist
HY spreads by sector

Source: ICE BofA, Bloomberg, Apollo Chief Economist
IG spreads for financials and non-financials

Source: ICE BofA, Bloomberg, Apollo Chief Economist
CDS spreads

Source: Markit, Bloomberg, Apollo Chief Economist
Long-duration IG spreads in US and Europe
New issuance
Source: Pitchbook LCD, Apollo Chief Economist
IG issuance by rating

**US IG issuance by rating**

- **AAA**
- **AA**
- **A**
- **BBB**
- **BB**
- **NR**

Source: Pitchbook LCD, Apollo Chief Economist.
Sector distribution of new IG issuance

New issuance by sector for US IG

Source: Bloomberg, Apollo Chief Economist. Note: Issuance includes bonds, loans, leveraged loans, and preferred.
HY issuance by rating

Source: Pitchbook LCD, Apollo Chief Economist.
Sector distribution of new HY issuance

Source: Bloomberg, Apollo Chief Economist. Note: Issuance includes bonds, loans, leveraged loans and preferred.
Leveraged loan volume

Source: Pitchbook LCD, Apollo Chief Economist.
IG new money primary mix

Source: Pitchbook LCD, Apollo Chief Economist. Note: Data as of 30th June 2023.
HY new money primary mix

HY yearly new money primary mix

Source: Pitchbook LCD, Apollo Chief Economist. Note: Data as of 30th June 2023
Loans new money primary mix

Leveraged loans yearly new money primary mix

Source: Pitchbook LCD, Apollo Chief Economist. Note: 2022 YTD till 30th June 2023
High grade volume by proceeds

Source: Pitchbook LCD, Apollo Chief Economist
High yield volumes by proceeds

Source: Pitchbook LCD, Apollo Chief Economist
Loan volumes by proceeds

Loan issuance volumes by proceeds

- Refinancing
- LBO
- M&A
- Recap/Dividend
- Other

Source: Pitchbook LCD, Apollo Chief Economist
Covenant lite loan issuance

Source: Pitchbook LCD, Apollo Chief Economist. Note: A covenant-lite loan is a type of financing with fewer restrictions on the borrower and fewer protections for the lender, often used in leveraged buyouts. Data as of 30th June 2023.
Corporate bond issuance

Source: SIFMA, Apollo Chief Economist.
Secured junk bond issuance volume

Secured junk bonds as a share of total issuance

Source: Pitchbook LCD, Apollo Chief Economist. Note: A secured bond is the bond issued with the collateral as a security for the bond.
Credit fundamentals
IG leverage has come down after the pandemic

Source: ICE BoA, Bloomberg, Apollo Chief Economist. Note: Index used C0A0 Index
High yield leverage has come down after the pandemic

Source: Bloomberg, Apollo Chief Economist. Note: Median leverage for the bonds in H0A0 index.
Maturity profile for US fixed income

Source: ICE, Bloomberg, Pitchbook LCD, Mortgage Bankers Association, Apollo Chief Economist. Data as of March 2023
Default rates for auto loans and credit cards are moving higher

Source: S&P, Bloomberg, Apollo Chief Economist
29% of the loans in the Morningstar LSTA Leveraged Loan Index are rated B-.
Quality composition of the IG Index

Source: ICE BoA, Bloomberg, Apollo Chief Economist. Note: Breakdown by market value. Data as of 30th June 2023.
Quality composition of the HY Index

Quality breakdown of the HY Index

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Breakdown by market value. Data as of 30th June 2023
Quality composition of the leveraged loans index

Leveraged loans index quality breakdown

- BBB
- BB
- B
- CCC and below

Source: Pitchbook LCD, Apollo Chief Economist
IG market is eight times bigger than HY and eight times bigger than the loan market

Source: ICE BofA, Bloomberg, Pitchbook LCD, Apollo Chief Economist. Note: Ticker used for HY is H0A0 Index and for IG it is C0A0 Index and for Loans it is SPBDALB Index.
Global default rates rising

Year-to-date defaults by region

Count
80

Sources: S&P Global Ratings Research and S&P Global Market Intelligence’s CreditPro®, Apollo Chief Economist. Note: Data as of 30th April 2023
Default rates differ across sectors

Sources: S&P Global Ratings Research and S&P Global Market Intelligence’s CreditPro®, Apollo Chief Economist. Note: Data as 31st December 2022
Global bond default rates

Source: Moody's Analytics, Apollo Chief Economist
Non-US bond default rates

Source: Moody’s Analytics, Apollo Chief Economist
Corporate bond holdings
The biggest holder of US corporate bonds is foreigners
ECB purchases of corporate bonds

Source: ECB, Bloomberg, Apollo Chief Economist
ECB QE ending

ECB asset purchase programmes, net purchases

- Covered Bond 3
- Asset Backed Securities
- Public Sector
- Corporate Sector

Source: ECB, Bloomberg, Apollo Chief Economist
Leveraged loan deals, by multiple

Share of leveraged deals

- Less than 3.0x
- Between 3.0x and 3.99x
- Between 4.0x and 4.99x
- Between 5.0x and 5.99x
- Between 6.0x and 6.99x
- 7.0x or more

Source: Pitchbook LCD, Apollo Chief Economist
Credit metrics for leveraged loan deals

Median credit metrics for US Leveraged loans universe

- Leverage
- Interest Coverage
- Cash flow coverage

Source: Pitchbook LCD, Apollo Chief Economist
Leveraged loans rating distribution, 2023Q2

US leveraged loan rating distribution

- 58.62% BBB/BB or higher
- 20.55% BB
- 10.73% BB/B
- 8.25% B
- 0.59% B/CCC
- 0.62% CCC or lower
- 0.65% NR

Source: Pitchbook LCD, Apollo Chief Economist
Leveraged loans distribution, by industry, 2023Q2

Source: Pitchbook LCD, Apollo Chief Economist
US CLO total volume

US CLO total volume

Source: Pitchbook LCD, Apollo Chief Economist.
Loans: Institutional spread relative to bespoke loans

Source: Pitchbook LCD, Apollo Chief Economist
Liquidity in US credit markets
IG trading liquidity

Source: ICE BofA, FINRA TRACE, Haver Analytics, Apollo Chief Economist
Bid-ask spread for US IG

Source: Bloomberg, Apollo Chief Economist. Note: The bid-ask spread is the weighted average of Bloomberg Barclays US IG Index.
Bid-ask spread for US HY

Source: Bloomberg, Apollo Chief Economist. Note: The bid-ask spread is the weighted average of Bloomberg Barclays US HY Index.
Dealing inventory of corporate bonds (IG+HY)
Liquidity deteriorating in UK bond market

Source: Bloomberg, Apollo Chief Economist. Note: The index displays the average yield error across the universe of government notes and bonds with remaining maturity 1-year or greater, based off the intra-day Bloomberg relative value curve fitter. When liquidity conditions are favorable the average yield errors are small as any dislocations from fair values are normalized within a short time frame. Average yield error is defined as an aggregate measure for dislocations in Treasury securities across the curve.
Market technicals
Not a broad-based rally in the S&P500

S&P 500: Market Cap change YTD

Source: Bloomberg, Apollo Chief Economist.
US IG spread highly correlated with implied rates vol
Investment grade maturity wall

Source: S&P Global ratings Research, Apollo Chief Economist. Note: Data as of July 1, 2022. Includes issuers’ investment-grade bonds, loans, and revolving credit facilities that are rated by S&P Global Ratings.
High yield maturity wall

Speculative grade maturing debt

Source: S&P Global ratings Research, Apollo Chief Economist. Note: Data as of July 1, 2022. Includes issuers’ speculative-grade bonds, loans, and revolving credit facilities that are rated by S&P Global Ratings.
IG: US Non financials maturity wall

Source: S&P, Apollo Chief Economist. Note: CP&ES—Chemicals, packaging, and environmental services. FP&BM—Forest products and building materials. Media and entertainment includes the leisure sector. Includes bonds, loans, and revolving credit facilities that are rated by S&P Global Ratings. Data as of July 1, 2022.
Source: S&P, Apollo Chief Economist. Note: CP&ES—Chemicals, packaging, and environmental services. FP&BM—Forest products and building materials. Media and entertainment includes the leisure sector. Includes bonds, loans, and revolving credit facilities that are rated by S&P Global Ratings. Data as of July 1, 2022.
Regional banks
Regional bank spreads still very wide

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Unweighted average spreads of bonds from ICE 5-10 Year US Banking Index, C6PX Index for bonds issued before 1st Jan 2023. There are 8 banks in the Regional index and 41 banks in the Diversified index, and Regional banks include BankUnited Inc, Citizens Financial Group, Huntington Bancshares Incorporated, Regions Financial Corporation, Truist Financial Corporation, Webster Financial Corp, Wintrust Financial Corp, Zions, and Diversified banks includes JP Morgan, Citibank, Bank of America, etc.
Almost 700 US banks exceed the 2006 CRE loan concentration guidance

Source: S&P Global Market Intelligence, Apollo Chief Economist. Note: C&D = Construction and Development, data as of May 2023 and based on regulatory filings.
US banks account for the bulk of CRE lending

Source: S&P Capital IQ, Apollo Chief Economist
U.S. REITs hold approximately $14 billion of debt maturing this year.
More leveraged loans are held by banks

Primary investor market: leveraged loans

- Banks & Sec. Firms
- Non-Banks (institutional investors and finance companies)

Source: Pitchbook LCD, Apollo Chief Economist
Credit markets in a broader perspective
US fixed income markets by yield and size

Source: Bloomberg Barclays, SIFMA, ICE BofA, Pitchbook LCD, Bloomberg, Apollo Chief Economist. Note: data as of 4Q21
European fixed income markets by yield and size

Yield vs. market value for Euro fixed income securities
- Euro High Yield
- EM Euro
- EURO CMBS
- Euro Asset Backed & Mortgage Backed Securities
- 10+ Year Euro Government
- Euro IG Non-Financial
- Euro RMBS
- Euro IG Financial
- 7-10 Year Euro Government
- Euro Covered Bond
- 3-7 Year Euro Government
- 0-3 Year Euro Government

Source: Bloomberg Barclays, AFME, ICE BoA, Pitchbook LCD, Bloomberg, Apollo Chief Economist. Note: data as of 4Q21
Japanese fixed income markets by yield and size

Yield vs. market value for JPY fixed income securities

- 10+ Year Japan Government
- 7-10 Year Japan Government Index
- 5-7 Year Japan Government
- 3-5 Year Japan Government
- 1-3 Year Japan Government
- 0-1 Year Japan Government
- Japan IG Corporate
- 5-7 Year Japan Government

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 1Q22
Market cap of US credit markets

Source: ICE BoFA, Bloomberg, Apollo Chief Economist. Data as of 30th June 2023
Corporate bond market cap, by rating

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 30th June 2023
HY sector rating distributions

Sector rating distributions as of Dec 31, 2021

- BB
- B+/B
- B-
- CCC/C

Source: S&P Global Ratings Research and S&P Global Market Intelligence’s CreditPro®, Apollo Chief Economist. Note: Numbers in parentheses represent overall sector’s proportion of the speculative-grade population. CP&ES—Chemicals, packaging, and environmental services. FP&BM—Forest products and building materials. Home/RE—Homebuilders and real estate companies.
US corporate bond markets as a share of GDP

Source: ICE BofA, BEA, Haver Analytics, Bloomberg, Apollo Chief Economist
Distribution of corporate credit ratings
Debt-to-equity ratio is very low for corporate America

Source: FRB, Haver Analytics, Apollo Chief Economist.
Fewer and fewer corporate bonds are rated AAA and AA

Source: Fitch Ratings, Apollo Chief Economist. Note: Including state-linked issuers with Standalone Credit Profiles in the ‘AA’ category. Data cover issuers that have been rated for at least six years or at end-2020.
Comparing the US IG index with the EU IG index

Sectoral breakdown of US and Europe investment grade corporate index

Source: Bloomberg Barclays, Bloomberg, Apollo Chief Economist. Data as of 30th June 2023
Comparing the US HY index with the EU HY index

Sectoral breakdown of US and Europe high yield corporate index

- Consumer Discretionary
- Communications
- Energy
- Financials
- Health Care
- Materials
- Industrials
- Technology
- Consumer Staples
- Utilities

Source: Bloomberg Barclays, Bloomberg, Apollo Chief Economist Data as of 30th June 2023
Pension funding status has improved

Source: Milliman, Bloomberg, Apollo Chief Economist. Note: Funded status measures planned assets minus projected benefit obligation.
Retail investor activity in IG and HY

High yield and investment grade corporate bond ETF shares outstanding

- iShares iBoxx Investment Grade Corporate Bond ETF
- iShares iBoxx High Yield Corporate Bond ETF

Source: Bloomberg, Apollo Chief Economist. Note: Tickers used HYG US Equity and LQD US Equity
Put volumes for IG and HY ETF

High yield and investment grade ETF put volume

- iShares iBoxx High Yield Corporate Bond ETF
- iShares iBoxx Investment Grade Corporate Bond ETF

Source: Bloomberg, Apollo Chief Economist
Fewer high yield bonds being traded
IG index drawdown

Source: Bloomberg, Apollo Chief Economist. Note: Index used LUACTRUU Index
Bonds outstanding trading at negative interest rates

Source: Bloomberg, Apollo Chief Economist
The total value of negative yielding debt in the world

Source: Bloomberg, Apollo Chief Economist
All corporate bonds now have positive yields

Source: Bloomberg, Apollo Chief Economist
Credit spreads normally widen when the Fed is hiking.
US: Floating rate bonds outstanding, July 2023

Source: Bloomberg, Apollo Chief Economist. Note: Other includes Munis, Agency and Securitized. The chart filters floating rate securities for all asset class from the fixed income SRCH <GO> screen on Bloomberg.
From QE to QT to BoJ QE (to maintain YCC)

Source: Bloomberg, Apollo Chief Economist. Pace of purchases for 2021: BOE: £3.4bn per week till mid December 2021, FED: USD120bn per month with wind down from December with purchases ending in March 2022, ECB: Euro 90bn per month (20 bn APP + 60 bn PEPP), PEPP till March 2022, Euro 40bn in April, Euro 30bn in May and Euro 20bn in June, and only redemptions reinvested from August. BOJ: USD 60bn per month. For 2022: All programs are expected to wind down linearly from January 2022 to December 2022. Fed QT $ 95 per month from May 2022. BoE starts to sell GBP80 bn in the next 12 months and ECB starts QT in 2Q23.
Inflation is reversing the hunt for yield

Risk spectrum

RISK-FREE ASSETS
Fed funds 10y TSY IG HY

HIGH RISK ASSETS
S&P500 EM

Source: Apollo Chief Economist
Dual class IPOs, driven by tech

Source: Jay Ritter, Apollo Chief Economist
Median age of IPOs

Source: Jay Ritter, Apollo Chief Economist
M&A activity declining

Source: Bloomberg, Apollo Chief Economist. Note: Ticker used is MAATUS Index
M&A activity declining

Source: Bloomberg, Apollo Chief Economist.
Declining share of fallen angels in the HY index

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Tickers used HDA0 Index and HOFA Index.
Big differences between weights in S&P500 and IG index

Note: Data as of 30th June 2023. Source: Bloomberg, Apollo Chief Economist
Big differences between weights in S&P500 and HY index
Synchronized sell-off in credit so far. Little differentiation between credits compared with 2008 and March 2020 episodes.

Source: Bloomberg, Apollo Chief Economist
Synchronized sell-off in credit so far. Little differentiation between credits compared with 2008 and March 2020 episodes.

Source: Bloomberg, Apollo Chief Economist
Valuation of credit versus equities
90% of the US IG market trading below par

Source: Bloomberg, Apollo Chief Economist. Note: Data used for members in the LBSTRUU Index as of 6th July 2023
Banks tightening credit conditions, HY spread should be trading wider
US share of the world economy and global financial markets

Source: Bloomberg, Haver, Apollo Chief Economist (Note: Bloomberg tickers: MXUS Index, MXWD Index, LUATTRUU Index, BTSYTRUU Index, LF98TRUU Index, LG30TRUU index, LUACTRUU Index, I09805US index)
Corporate debt is coming down as a share of GDP
Lower-rated firms are by definition more vulnerable to rising interest rates

Source: S&P, Apollo Chief Economist
Share of corporate bond market value outstanding rated BBB and below

Share of US corporate bonds outstanding rated BBB and below, by market cap

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 30th June 2023
IG credit index duration declining

Source: Bloomberg, Apollo Chief Economist. Note: The measure used is modified duration, which measures the expected change in a bond's price to a 1% change in interest rates.
HY credit index duration

Source: Bloomberg, Apollo Chief Economist. Note: The measure used is modified duration, which measures the expected change in a bond’s price to a 1% change in interest rates.
Flow monitor

Source: Bloomberg, Apollo Chief Economist (Note: bito US equity; Crypto ETF flows, BFFUEBK Index US Bank loans ETF flows, BFFUEHY Index HY ETF flows; BFFUEIG Index US IG ETF flows)
Convergence between EU equity vol and EU HY spreads

Source: Bloomberg, Apollo Chief Economist. Note: Tickers used are V2X Index and LP01OAS Index
18% of bonds in the world trading at less than 2% yield

Source: Bloomberg, Apollo Chief Economist
NY Fed measure of corporate bond market functioning elevated level of distress in IG

Source: FRB of New York, Apollo Chief Economist (Note: Corporate bonds are a key source of funding for U.S. non-financial corporations and a key investment security for insurance companies, pension funds, and mutual funds. Distress in the corporate bond market can thus both impair access to credit for corporate borrowers and reduce investment opportunities for key financial sub-sectors. CMDI offers a single measure to quantify joint dislocations in the primary and secondary corporate bond markets. Ranging from 0 to 1, a higher level of CMDI corresponds with historically extreme levels of dislocation. CMDI links bond market functioning to future economic activity through a new measure.)
20% of HY bonds trading with yield higher than 10%

Source: Bloomberg, Apollo Chief Economist. Note: HY bond universe is H0A0 Index
US: Total assets under management in private markets

Source: Preqin, Apollo Chief Economist (Note: Real estate includes private real estate and infrastructure funds)
Total assets under management in private markets funds globally

Source: Preqin, Apollo Chief Economist (Note: Real estate includes private real estate and infrastructure funds)
US CLO investor base by tranche

<table>
<thead>
<tr>
<th>Tranche</th>
<th>Insurance Company</th>
<th>Depository Institution</th>
<th>Fund or Other Investment Vehicle</th>
<th>Nonfinancial Organizations (incl. household)</th>
<th>Mutual Fund</th>
<th>Other Financial Organizations (incl. BHCs)</th>
<th>Pension Fund</th>
<th>Pension Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>33%</td>
<td>18%</td>
<td>18%</td>
<td>10%</td>
<td>6%</td>
<td>7%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Senior Notes</td>
<td>26%</td>
<td>19%</td>
<td>28%</td>
<td>10%</td>
<td>3%</td>
<td>8%</td>
<td>5%</td>
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<tr>
<td>Mezzanine and Junior Notes</td>
<td>54%</td>
<td>13%</td>
<td>2%</td>
<td>9%</td>
<td>7%</td>
<td>5%</td>
<td>10%</td>
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<tr>
<td>Equity Notes</td>
<td>4%</td>
<td>29%</td>
<td>2%</td>
<td>17%</td>
<td>27%</td>
<td>1%</td>
<td>20%</td>
<td></td>
</tr>
</tbody>
</table>

Source: TIC, Moody’s data, Fed, Apollo Chief Economist
The yield on China HY is now at 20%
Little contagion from China HY to US and EU credit markets
Top issuer names
<table>
<thead>
<tr>
<th>Top 50 Investment Grade corporate bond issuers</th>
<th>Top 50 High Yield corporate bond issuers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of America Corporation</td>
<td>Ford Motor Credit Company LLC</td>
</tr>
<tr>
<td>JPMorgan Chase &amp; Co.</td>
<td>CCO Holdings LLC/ CCO Holdings Capital Corp.</td>
</tr>
<tr>
<td>Morgan Stanley</td>
<td>Tenet Healthcare Corporation</td>
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<tr>
<td>Citigroup Inc.</td>
<td>TransDigm Inc.</td>
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<tr>
<td>Goldman Sachs Group Inc.</td>
<td>Carnival Corporation</td>
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<tr>
<td>Wells Fargo &amp; Company</td>
<td>Ford Motor Company</td>
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<tr>
<td>Apple Inc.</td>
<td>Royal Caribbean Group</td>
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<tr>
<td>HSBC Holdings PLC</td>
<td>CSC Holdings LLC</td>
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<tr>
<td>AT&amp;T Inc.</td>
<td>Community Health Systems Incorporated</td>
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<tr>
<td>Oracle Corporation</td>
<td>DISH DBS Corporation</td>
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<tr>
<td>Verizon Communications Inc.</td>
<td>Bausch Health Companies Inc</td>
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<td>Comcast Corporation</td>
<td>Caesars Entertainment Inc New</td>
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<tr>
<td>UnitedHealth Group Inc.</td>
<td>Sirius Xm Radio Inc</td>
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<tr>
<td>Amazon.com Inc.</td>
<td>Iron Mountain Inc.</td>
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<tr>
<td>Amgen Inc.</td>
<td>OneMain Financial Corporation</td>
</tr>
<tr>
<td>JBS Group AG</td>
<td>Advantage Loyalty LP Ltd/ American Airlines Inc</td>
</tr>
<tr>
<td>CVS Health Corp</td>
<td>Albertsons Cos Inc / Safeway Inc / New Albertsons LP / Albertsons LLC / (Albertsons Safeway LLC)</td>
</tr>
<tr>
<td>T-Mobile USA Inc.</td>
<td>Mozart Debt Mgr Subordinated Inc.</td>
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<tr>
<td>Mitsubishi UFJ Financial Group Inc.</td>
<td>Equitrans Midstream Corporation</td>
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<tr>
<td>AbbVie Inc.</td>
<td>Altice France S.A</td>
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<tr>
<td>The Boeing Company</td>
<td>101177 B C. Unlimited Liability Company / New Red Finance Inc</td>
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<tr>
<td>Intel Corporation</td>
<td>Bombardier Inc</td>
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<tr>
<td>Microsoft Corporation</td>
<td>Ball Corporation</td>
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<tr>
<td>Barclays PLC</td>
<td>United Rentals (North America) Inc.</td>
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<tr>
<td>Sumitomo Mitsui Financial Group Inc.</td>
<td>Hilton Domestic Operating Co Inc.</td>
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<td>Walt Disney Company</td>
<td>Calpine Corporation</td>
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<td>Charter Communications Operating LLC/Charter Communications Operating Capital Corp.</td>
<td>Lahn Enterprises L P / lahn Enterprises Finance Corporation</td>
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<td>Home Depot Inc</td>
<td>Post Holdings Inc.</td>
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<td>Walmart Inc.</td>
<td>Level 3 Financing Inc.</td>
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<td>Lowe's Companies Inc.</td>
<td>Univision Communications Inc.</td>
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<td>Sinhueuru-Bush Indl. Worldwide Inc.</td>
<td>Vistra Operations Co LLC</td>
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<tr>
<td>Pfizer Investment Enterprises Pte Ltd</td>
<td>The Goodyear Tire &amp; Rubber Company</td>
</tr>
<tr>
<td>KCA Inc.</td>
<td>Venture Global LNG Inc.</td>
</tr>
<tr>
<td>General Motors Financial Company. Inc</td>
<td>FirstEnergy Corp.</td>
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<tr>
<td>Energy Transfer LP</td>
<td>HUB International Ltd</td>
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<tr>
<td>Broadcom Inc</td>
<td>Bath &amp; Body Works Inc</td>
</tr>
<tr>
<td>BNP Paribas SA</td>
<td>Service Properties Trust</td>
</tr>
<tr>
<td>Royal Bank of Canada</td>
<td>Canvare Co</td>
</tr>
<tr>
<td>Kristo-Mays Squibb Company</td>
<td>Transocean Inc</td>
</tr>
<tr>
<td>Raytheon Technologies Corporation</td>
<td>Venture Global Calcasieu Pass LLC</td>
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<td>International Business Machines Corporation</td>
<td>HUM Brands Inc</td>
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<td>Merck &amp; Co. Inc.</td>
<td>Newell Brands Inc.</td>
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<tr>
<td>Toyota Motor Credit Corp.</td>
<td>SFL Environmental Inc.</td>
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<td>Shell International Finance B.V.</td>
<td>Uber Technologies Inc</td>
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<td>Philip Morris International Inc.</td>
<td>Navient Corporation</td>
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<td>J.S. Bancorp.</td>
<td>NCL Corporation Ltd.</td>
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<tr>
<td>Lowe's Model Corporation</td>
<td>Mauser Packaging Solutions Holding Company</td>
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<tr>
<td>Pepsico Inc</td>
<td>Vodafone Group PLC</td>
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Source: Bloomberg, Apollo Chief Economist. Note: Top 50 issuers for COA0 and HOA0 Index
Torsten Slok joined Apollo in August 2020 as Chief Economist and he leads Apollo's macroeconomic and market analysis across the platform.

Prior to joining, Mr. Slok worked for 15 years as Chief Economist at Deutsche Bank where his team was top ranked in the annual Institutional Investor survey for a decade. Prior to joining Deutsche Bank Mr. Slok worked at the IMF in Washington, DC and at the OECD in Paris.

Mr. Slok has a Ph.D in Economics and has studied at the University of Copenhagen and Princeton University.