Credit market outlook:
Lagged Fed hikes + elevated inflation + tighter lending standards = volatile markets

Torsten Slok, Jyoti Agarwal, and Rajvi Shah

tslok@apollo.com

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Yields
US IG yield around 5.2% and HY yield around 8.3%

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

US investment grade corporate bond yields 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

Source: Bloomberg, Apollo Chief Economist
Yield for the leveraged loan index at 9.4%
Spreads
Credit spreads wider, but not pricing in a recession

US investment grade and high yield spreads

Source: ICE BoFA, Bloomberg, Apollo Chief Economist
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, less differentiation between BBB and single-A

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

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

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Bloomberg Index used C0A0 Index and HDA0 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

Europe investment grade corporate bond spreads, by rating

Source: ICE BofA, 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.
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

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

Source: ICE BofA, Bloomberg, Apollo Chief Economist
New issuance
US IG issuance

Source: Pitchbook LCD, Apollo Chief Economist
IG issuance by rating

US IG issuance by rating

Source: Pitchbook LCD, Apollo Chief Economist.
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

New issuance by sector for US HY

$bn

Communications, Consumer Discretionary, Consumer Staples, Energy, Financials, Healthcare, Industrials, Materials, Technology, Utilities

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 31st March 2023.
HY new money primary mix

Source: Pitchbook LCD, Apollo Chief Economist. Note: Data as of 31st March 2023
Loans new money primary mix

Leveraged loans yearly new money primary mix

Source: Pitchbook LCD, Apollo Chief Economist. Note: 2022 YTD till 31st March 2023
High grade volume by proceeds

%  

High grade volume by proceeds

M&A/LBO  Refinancing  Buyback/Dividend (Recapitalization)  GCP/Other

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

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

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

Covenant lite loan issuance as % of total leveraged loans 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 31st March 2023.
Corporate bond issuance

Source: SIFMA, Apollo Chief Economist.
Corporate bond holdings
The biggest holder of US corporate bonds is foreigners

Holdings of corporate bonds (% of outstanding)

- Hedge funds and Households
- Banks
- Mutual Funds
- Foreigners
- Life Insurance Companies

Source: FRB, Haver Analytics, Apollo Chief Economist
ECB purchases of corporate bonds

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

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

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

Median credit metrics for US Leveraged loans universe

Ratio Median credit metrics for US Leveraged loans universe

Source: Pitchbook LCD, Apollo Chief Economist
Leveraged loans rating distribution, 2023Q1

US leveraged loan rating distribution

- BB: 21.50%
- BB/B: 9.03%
- B: 8.58%
- CCC or lower: 1.11%
- NR: 59.78%

Source: Pitchbook LCD, Apollo Chief Economist
Leveraged loans distribution, by industry, 2023Q1

US leveraged loan industry distribution

- Aerospace & Defense
- Automotive
- Building Materials
- Cable
- Chemicals
- Computers & Electronics
- Entertainment & Leisure
- Food & Beverage
- Forest Product
- Gaming & Hotel
- Healthcare
- Home Furnishings
- Insurance
- Manufacturing & Machinery
- Metals & Mining
- Not for Profit
- Oil & Gas
- Printing & Publishing
- Real Estate
- Restaurants
- Retail
- Retail Food & Drug
- Services & Leasing
- Telecom
- Textile & Apparel
- Transportation
- TV
- Utilities

Source: Pitchbook LCD, Apollo Chief Economist
Leveraged loan index default rates starting to rise

Source: Pitchbook LCD, Apollo Chief Economist
Bankruptcy filings rising from a low level

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.
US CLO total volume

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

US IG corporate bid-ask spread

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

US HY corporate bid-ask spread

Source: Bloomberg, Apollo Chief Economist. Note: The bid-ask spread is the weighted average of Bloomberg Barclays US HY Index
Dealer inventory of corporate bonds (IG+HY)

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

Yield vs. market value for US fixed income securities

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

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

Source: ICE BoF, Bloomberg, Apollo Chief Economist. Data as of 31st March 2023
Corporate bond market cap, by rating

US corporate bond market cap

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 31st March 2023
Quality composition of the IG Index

Quality breakdown of the IG Index

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Breakdown by market value. Data as of 31st March 2023
Quality composition of the HY Index

Quality breakdown of the HY Index

Source: ICE BoA, Bloomberg, Apollo Chief Economist. Note: Breakdown by market value. Data as of 31st March 2023
Quality composition of the leveraged loans index

Leveraged loans index quality breakdown

Source: Pitchbook LCD, Apollo Chief Economist
IG market is seven times bigger than HY and seven times bigger than the loan market.
HY sector rating distributions

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

US corporate rating distribution

Source: S&P, Apollo Chief Economist
Global default rates remain low

Defaults by regions since 2013

Sources: S&P Global Ratings Research and S&P Global Market Intelligence's CreditPro®, Apollo Chief Economist.
Global default rates remain low

Year-to-date defaults by region

Count
30
25
20
15
10
5
0

Sources: S&P Global Ratings Research and S&P Global Market Intelligence’s CreditPro®, Apollo Chief Economist. Note: Data as of 28th February 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
Debt-to-equity ratio is very low for corporate America

Source: FRB, Haver Analytics, Apollo Chief Economist.
More leveraged loans are held by banks

Source: Pitchbook LCD, 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.
EU IG index: Bigger weight to financials, lower weight to energy, healthcare and tech

Source: Bloomberg Barclays, Bloomberg, Apollo Chief Economist. Data as of 31st March 2022
EU HY index: Bigger weight to financials and industrials. Lower weight to energy, healthcare, and tech
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

Put volumes trending down for IG and HY ETF

High yield and investment grade ETF put volume

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

Source: FINRA Trace, Bloomberg, Apollo Chief Economist
IG index drawdown

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

- Global negative yielding debt's share in global debt
- Global negative yielding corporate debt’s share in global corporate debt

Source: Bloomberg, Apollo Chief Economist
The total value of negative yielding debt in the world
All corporate bonds now have positive yields

Source: Bloomberg, Apollo Chief Economist
Fed hiking and credit spreads widening

Source: Bloomberg, Apollo Chief Economist
US: Floating rate bonds outstanding, April 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

HIGH RISK ASSETS
HY, S&P500, EM

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

Dual class IPOs (% total)

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

Median age of IPOs in the US

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

Source: Bloomberg, Apollo Chief Economist. Note: Ticker used is MAATUS Index
Declining share of fallen angels in the HY index

Source: ICE BoA, Bloomberg, Apollo Chief Economist. Note: Tickers used HDA0 Index and HOFIA Index
IG leverage down after the pandemic

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Index used C0A0 Index
Big differences between weights in S&P500 and IG index

Note: Data as of 31st March 2023. Source: Bloomberg, Apollo Chief Economist
Big differences between weights in S&P500 and HY index

S&P 500 index weight by market cap

- Information Technology: 25%
- Consumer Discretionary: 13%
- Communication Services: 12%
- Healthcare: 8%
- Financials: 8%
- Consumer Staples: 8%
- Energy: 4%
- Materials: 3%
- Real Estate: 2%

Bloomberg Barclays HY index weights by mkt cap

- Consumer Discretionary: 28%
- Financials: 15%
- Communications: 12%
- Materials: 11%
- Technology: 10%
- Consumer Staples: 8%
- Energy: 7%
- Health Care: 6%

Note: Data as of 31st March 2023. Source: Bloomberg, Apollo Chief Economist
<table>
<thead>
<tr>
<th>Rank</th>
<th>Top 50 Investment Grade corporate bond issuers</th>
<th>Top 50 High Yield corporate bond issuers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bank of America Corporation</td>
<td>Ford Motor Credit Company LLC</td>
</tr>
<tr>
<td>2</td>
<td>JPMorgan Chase &amp; Co.</td>
<td>CCO Holdings LLC/CCO Holdings Capital Corp.</td>
</tr>
<tr>
<td>3</td>
<td>Morgan Stanley</td>
<td>Occidental Petroleum Corporation</td>
</tr>
<tr>
<td>4</td>
<td>Citigroup Inc</td>
<td>Tenet Healthcare Corporation</td>
</tr>
<tr>
<td>5</td>
<td>Goldman Sachs Group Inc.</td>
<td>TransDigm Inc.</td>
</tr>
<tr>
<td>6</td>
<td>Wells Fargo &amp; Company</td>
<td>Carnival Corporation</td>
</tr>
<tr>
<td>7</td>
<td>HSBC Holdings PLC</td>
<td>Ford Motor Company</td>
</tr>
<tr>
<td>8</td>
<td>Apple Inc</td>
<td>Royal Caribbean Group</td>
</tr>
<tr>
<td>9</td>
<td>AT&amp;T Inc</td>
<td>CSC Holdings LLC</td>
</tr>
<tr>
<td>10</td>
<td>Telzio Communications Inc.</td>
<td>Community Health Systems Incorporated</td>
</tr>
<tr>
<td>11</td>
<td>Oracle Corporation</td>
<td>DISH DBS Corporation</td>
</tr>
<tr>
<td>12</td>
<td>Comcast Corporation</td>
<td>Caesars Entertainment Inc New</td>
</tr>
<tr>
<td>13</td>
<td>Amazon.com Inc</td>
<td>Bausch Health Companies Inc</td>
</tr>
<tr>
<td>14</td>
<td>UnitedHealth Group Inc.</td>
<td>Sirius XM Radio Inc</td>
</tr>
<tr>
<td>15</td>
<td>Amgen Inc</td>
<td>Afflule S.A.</td>
</tr>
<tr>
<td>16</td>
<td>T-Mobile USA Inc</td>
<td>AAdvantage Loyalty IP Ltd/ American Airlines Inc</td>
</tr>
<tr>
<td>17</td>
<td>AbbVie Inc</td>
<td>Albertsons Cos Inc / Safeway Inc / New Albertsons LP / Albertsons LLC / (Albertsons Safeway LLC)</td>
</tr>
<tr>
<td>18</td>
<td>CVS Health Corp</td>
<td>Nissan Motor Co Ltd</td>
</tr>
<tr>
<td>19</td>
<td>Mitsubishi UFJ Financial Group Inc.</td>
<td>Mozaic Debt Merger Subordinated Inc.</td>
</tr>
<tr>
<td>20</td>
<td>Intel Corporation</td>
<td>1011778 B.C. Unlimited Liability Company / New Red Finance Inc.</td>
</tr>
<tr>
<td>21</td>
<td>The Boeing Company</td>
<td>Squartris Midstream Corporation</td>
</tr>
<tr>
<td>22</td>
<td>Sumitomo Mitsui Financial Group Inc</td>
<td>OneMain Financial Corporation</td>
</tr>
<tr>
<td>23</td>
<td>Microsoft Corporation</td>
<td>Iron Mountain Incorporated</td>
</tr>
<tr>
<td>24</td>
<td>Barclays PLC</td>
<td>T-Mobile US Inc</td>
</tr>
<tr>
<td>25</td>
<td>Walt Disney Company</td>
<td>Bombardier Inc.</td>
</tr>
<tr>
<td>26</td>
<td>Home Depot Inc</td>
<td>Sprint Capital Corporation</td>
</tr>
<tr>
<td>27</td>
<td>Charter Communications Operating LLC/ Charter Communications Operating Capital Corp</td>
<td>(Liberty Enterprises LP / (Liberty Enterprises Finance Corporation)</td>
</tr>
<tr>
<td>28</td>
<td>Anheuser-Busch InBev Worldwide Inc.</td>
<td>Heineken Domestic Operating Co Inc.</td>
</tr>
<tr>
<td>29</td>
<td>International Business Machines Corporation</td>
<td>Calpine Corporation</td>
</tr>
<tr>
<td>30</td>
<td>Broadcom Inc</td>
<td>Post Holdings Inc.</td>
</tr>
<tr>
<td>31</td>
<td>Energy Transfer LP</td>
<td>United Rentals (North America) Inc.</td>
</tr>
<tr>
<td>32</td>
<td>BNP Paribas SA</td>
<td>FirstEnergy Corp.</td>
</tr>
<tr>
<td>33</td>
<td>Bristol-Myers Squibb Company</td>
<td>Unvission Communications Inc.</td>
</tr>
<tr>
<td>34</td>
<td>Raytheon Technologies Corporation</td>
<td>Vistra Operations Co LLC</td>
</tr>
<tr>
<td>35</td>
<td>Lowe's Companies Inc.</td>
<td>The Goodyear Tire &amp; Rubber Company</td>
</tr>
<tr>
<td>36</td>
<td>Walmart Inc</td>
<td>Bath &amp; Body Works Inc</td>
</tr>
<tr>
<td>37</td>
<td>Pacific Gas and Electric Company</td>
<td>Intesa Sanpaolo S.p.A</td>
</tr>
<tr>
<td>38</td>
<td>Shell International Finance B.V.</td>
<td>Venture Global Callasies Pass LLC</td>
</tr>
<tr>
<td>39</td>
<td>HCA Inc.</td>
<td>Ball Corporation</td>
</tr>
<tr>
<td>40</td>
<td>General Motors Financial Company Inc.</td>
<td>Newell Brands Inc.</td>
</tr>
<tr>
<td>41</td>
<td>Toyota Motor Credit Corp.</td>
<td>Service Properties Trust</td>
</tr>
<tr>
<td>42</td>
<td>The Toronto-Dominion Bank</td>
<td>GFL Environmental Inc.</td>
</tr>
<tr>
<td>43</td>
<td>Royal Bank of Canada</td>
<td>YUM Brands Inc</td>
</tr>
<tr>
<td>44</td>
<td>Exxon Mobil Corporation</td>
<td>Prime Securities Services Borrower LLC and Prime Finance Inc.</td>
</tr>
<tr>
<td>45</td>
<td>PepsiCo Inc</td>
<td>Uber Technologies Inc</td>
</tr>
<tr>
<td>46</td>
<td>The Coca Group</td>
<td>Transocean Inc.</td>
</tr>
<tr>
<td>47</td>
<td>Societe Generale S.A.</td>
<td>FMG Resources (August 2006) Pty Ltd.</td>
</tr>
<tr>
<td>48</td>
<td>Union Pacific Corporation</td>
<td>Uniti Group LP/Uniti Fiber Holdings Inc/Uniti Group Finance 2019 Inc/CSL Capital LLC</td>
</tr>
<tr>
<td>49</td>
<td>Enterprise Products Operating LLC</td>
<td>Mauser Packaging Solutions Holding Company</td>
</tr>
<tr>
<td>50</td>
<td>WarnerMedia Holdings Inc</td>
<td>Standard Buildings Solutions Inc.</td>
</tr>
</tbody>
</table>

Source: Bloomberg, Apollo Chief Economist. Note: Top 50 issuers for COA0 and HOA0 Index
Synchronized sell-off in credit so far. Little differentiation between credits compared with 2008 and March 2020 episodes.
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

Source: Bloomberg, Apollo Chief Economist
84% of the US IG market trading below par

Source: Bloomberg, Apollo Chief Economist. Note: Data used for members in the LBSTRUU Index as of 5th April 2023
Banks tightening credit conditions, HY spread should be trading wider

Source: FRB, Haver Analytics, Bloomberg, Apollo Chief Economist
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

Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 31st March 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

US HY corporate 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)
Loans: Institutional spread relative to bespoke loans

Source: Pitchbook LCD, Apollo Chief Economist
Convergence between EU equity vol and EU HY spreads

Source: Bloomberg, Apollo Chief Economist. Note: Tickers used are V2X Index and LP01OAS Index
12% of bonds in the world trading at less than 2% yield

Source: Bloomberg, Apollo Chief Economist
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.)
Percentage 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
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

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.
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.
### 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>Other Financial Organizations (incl. BHCs)</th>
<th>Mutual Fund</th>
<th>Nonfinancial Organizations (incl. household)</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>
</tr>
<tr>
<td>Senior Notes</td>
<td>26%</td>
<td>19%</td>
<td>28%</td>
<td>10%</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Mezzanine and Junior Notes</td>
<td>54%</td>
<td>13%</td>
<td>9%</td>
<td>7%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Equity Notes</td>
<td>4%</td>
<td>29%</td>
<td>2%</td>
<td>17%</td>
<td>27%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: TIC, Moody’s data, Fed, Apollo Chief Economist
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.
29% of the loans in the Morningstar LSTA Leveraged Loan Index are rated B-.
The yield on China HY has declined significantly, now at 16%
Little contagion from China HY to US and EU credit markets

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

Source: Bloomberg, Apollo Chief Economist
Default rates for auto loans and credit cards are moving higher
Maturity profile for US fixed income

Source: ICE, Bloomberg, Pitchbook LCD, Mortgage Bankers Association, Apollo Chief Economist. Data as of March 2023
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.

Torsten Slok, Ph.D.
Chief Economist
Apollo Global Management
tslok@apollo.com