

APOLLO GLOBAL MANAGEMENT

Credit market outlook: Recession fears fading? Spread between HY and IG narrowing

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Unless otherwise noted, information as of September 2022

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Five features of credit markets at the moment

1. HY issuance remains very low. IG issuance at normal levels.
2. IG spreads and HY spreads close to historical averages
3. Passive credit index investors are hit very hard by duration moves
4. Lower quality credits rallying and the spread between IG and HY is narrowing. Are recession fears fading?
5. IG index duration has declined, HY index duration has increased

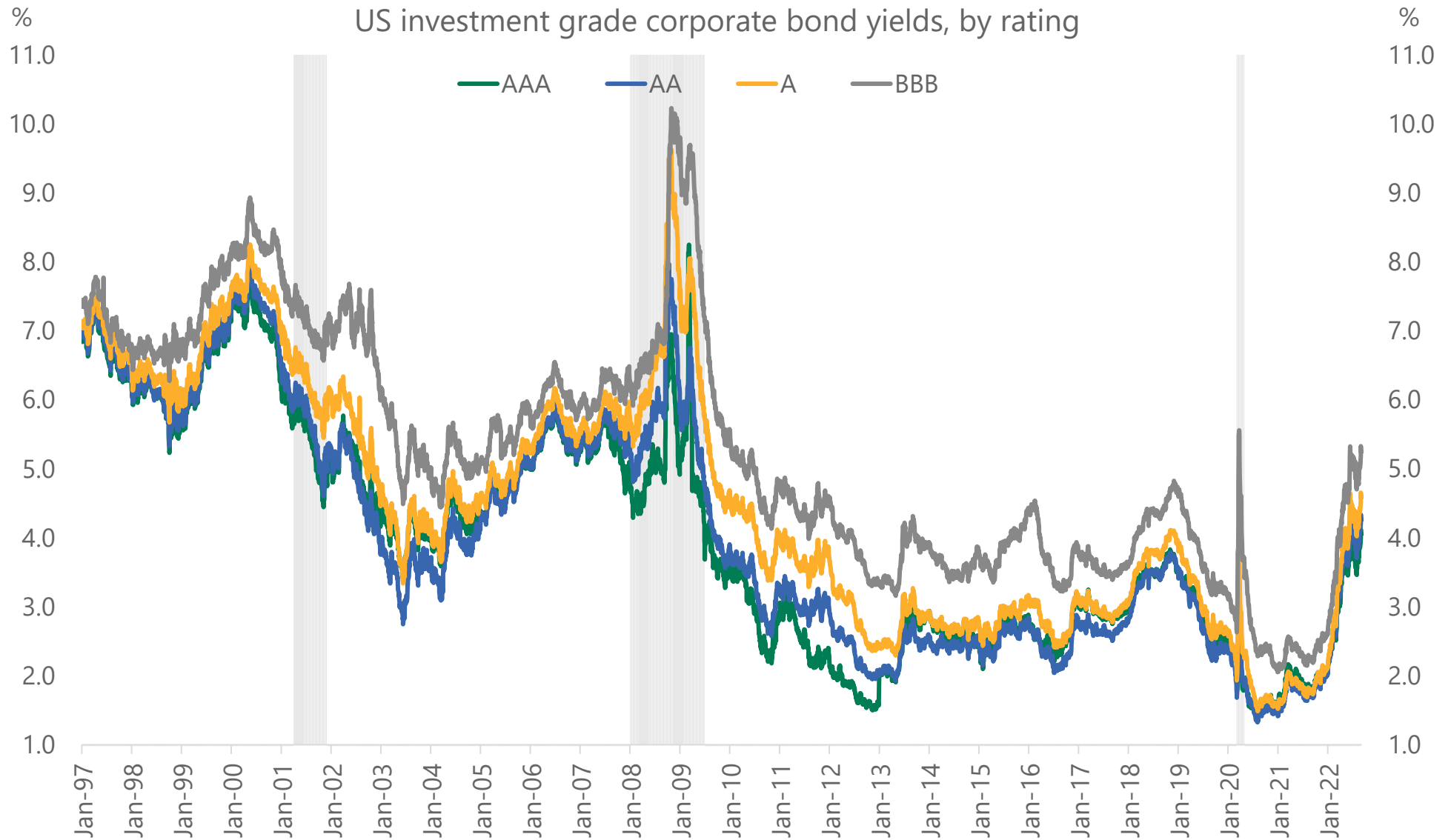
Yields

US IG and HY yield levels



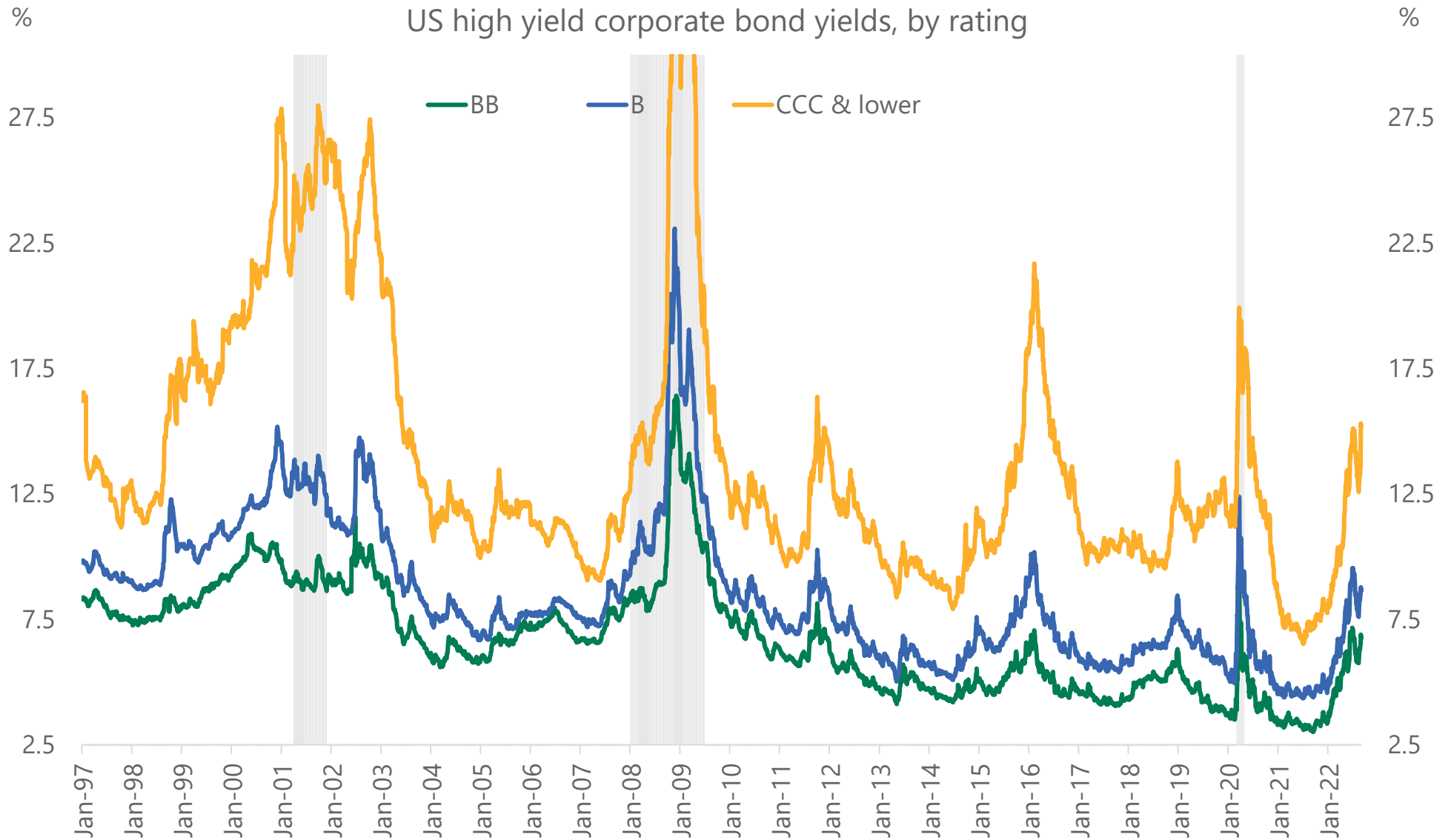
Source: ICE BofA, Haver Analytics, Apollo Chief Economist.

IG yield levels, by rating



Source: ICE BofA, Haver Analytics, Apollo Chief Economist

HY yield levels, by rating



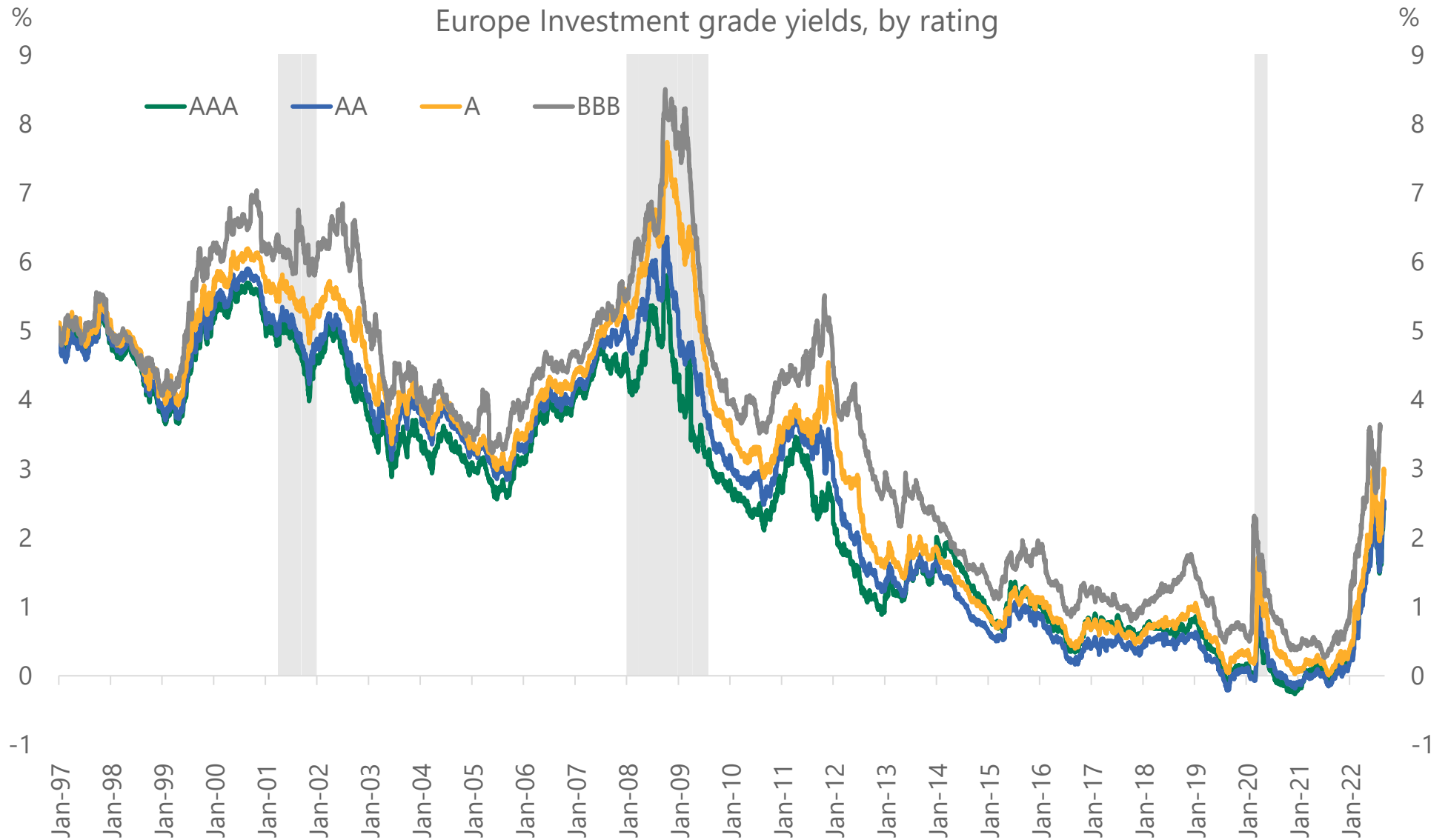
Source: ICE BofA, Haver Analytics, Apollo Chief Economist

Europe Corporate IG and HY yields



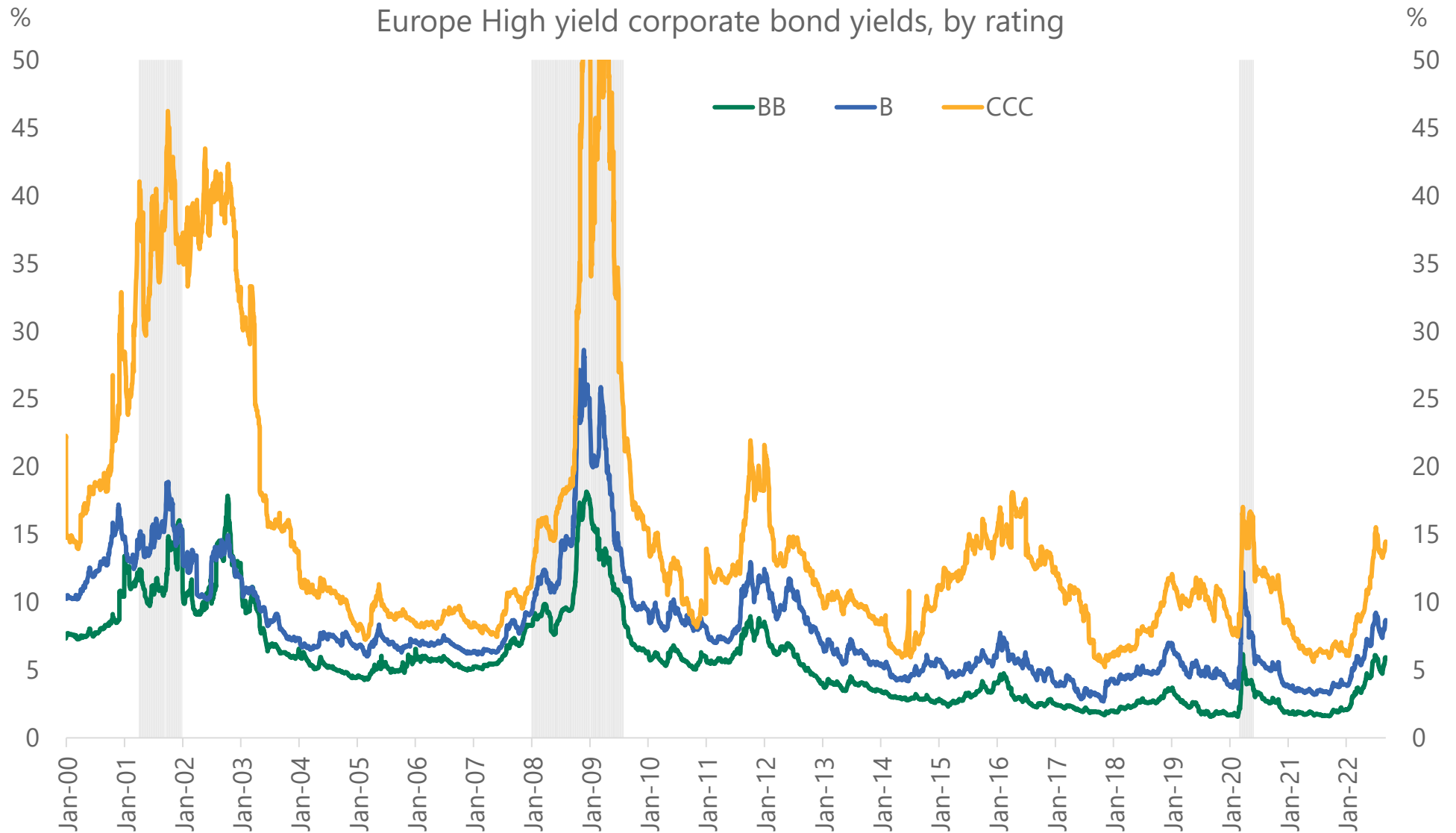
Source: ICE BofA, Bloomberg, Apollo Chief Economist

Europe IG yield levels, by rating



Source: ICE BofA, Bloomberg, Apollo Chief Economist

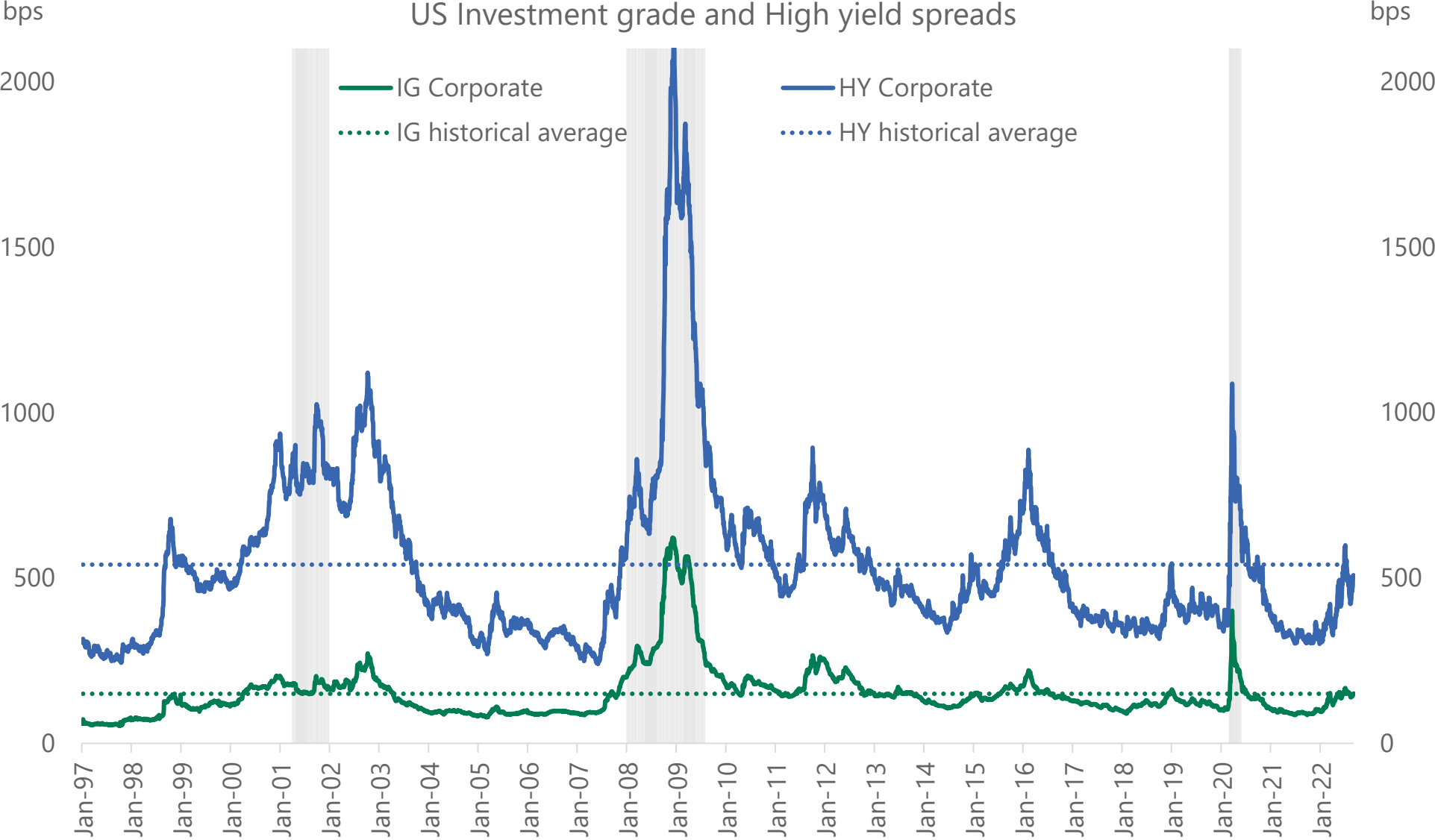
Europe HY yield levels, by rating



Source: ICE BofA, Bloomberg, Apollo Chief Economist

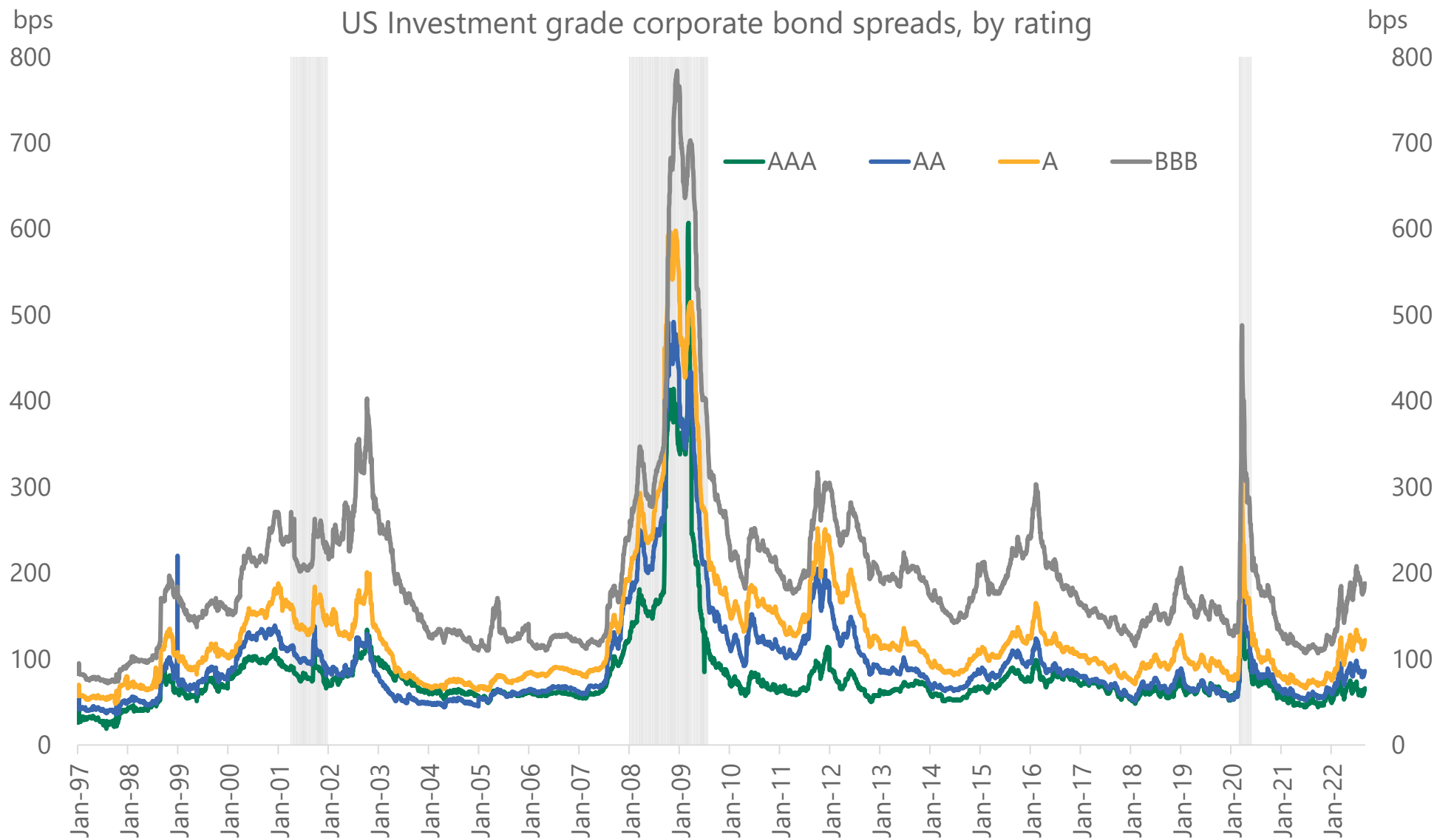
Spreads

Credit spreads near historical averages



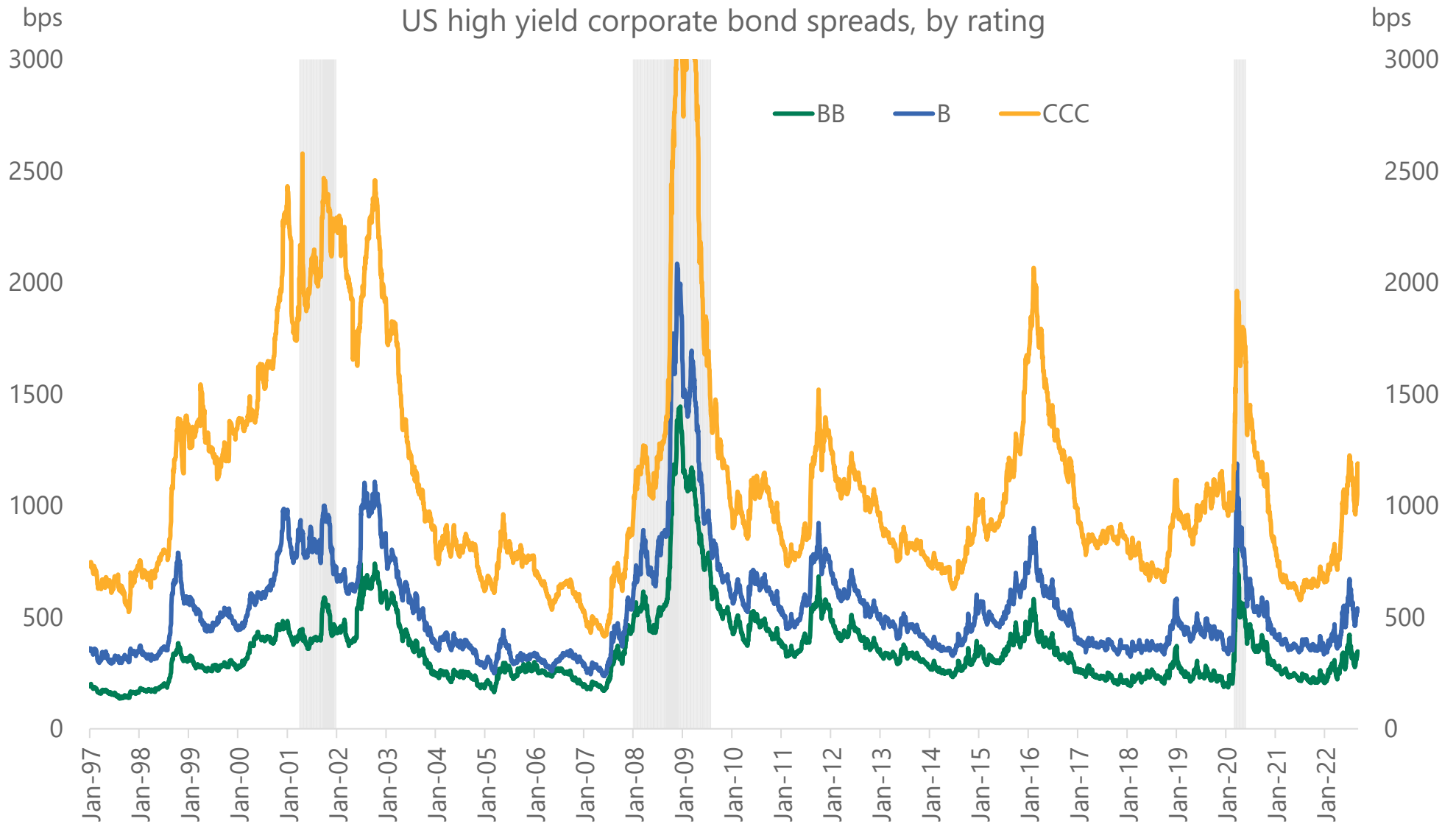
Source: ICE BofA, Bloomberg, Apollo Chief Economist

IG spreads by rating



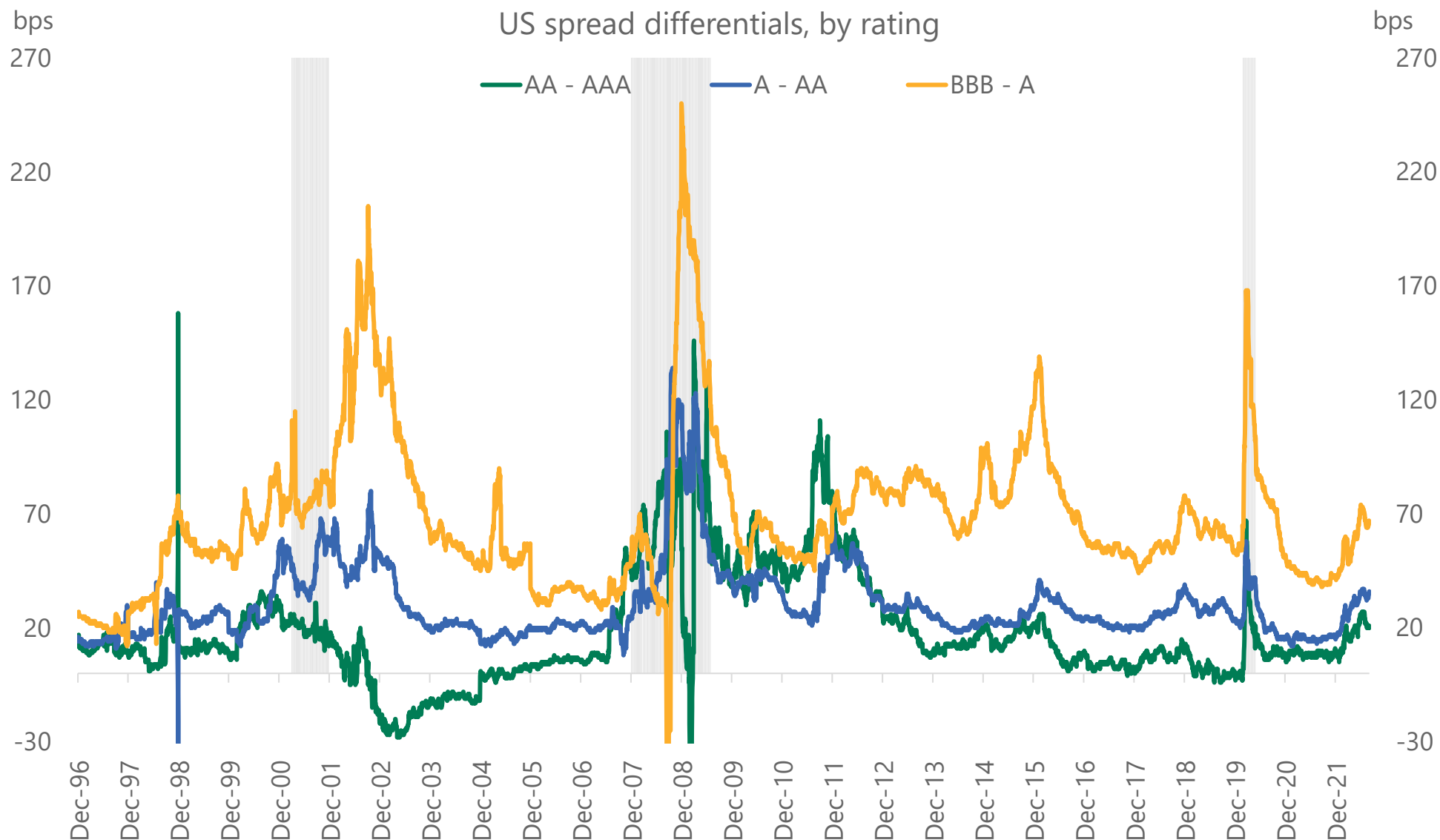
Source: ICE BofA, Bloomberg, Apollo Chief Economist

HY spreads by rating



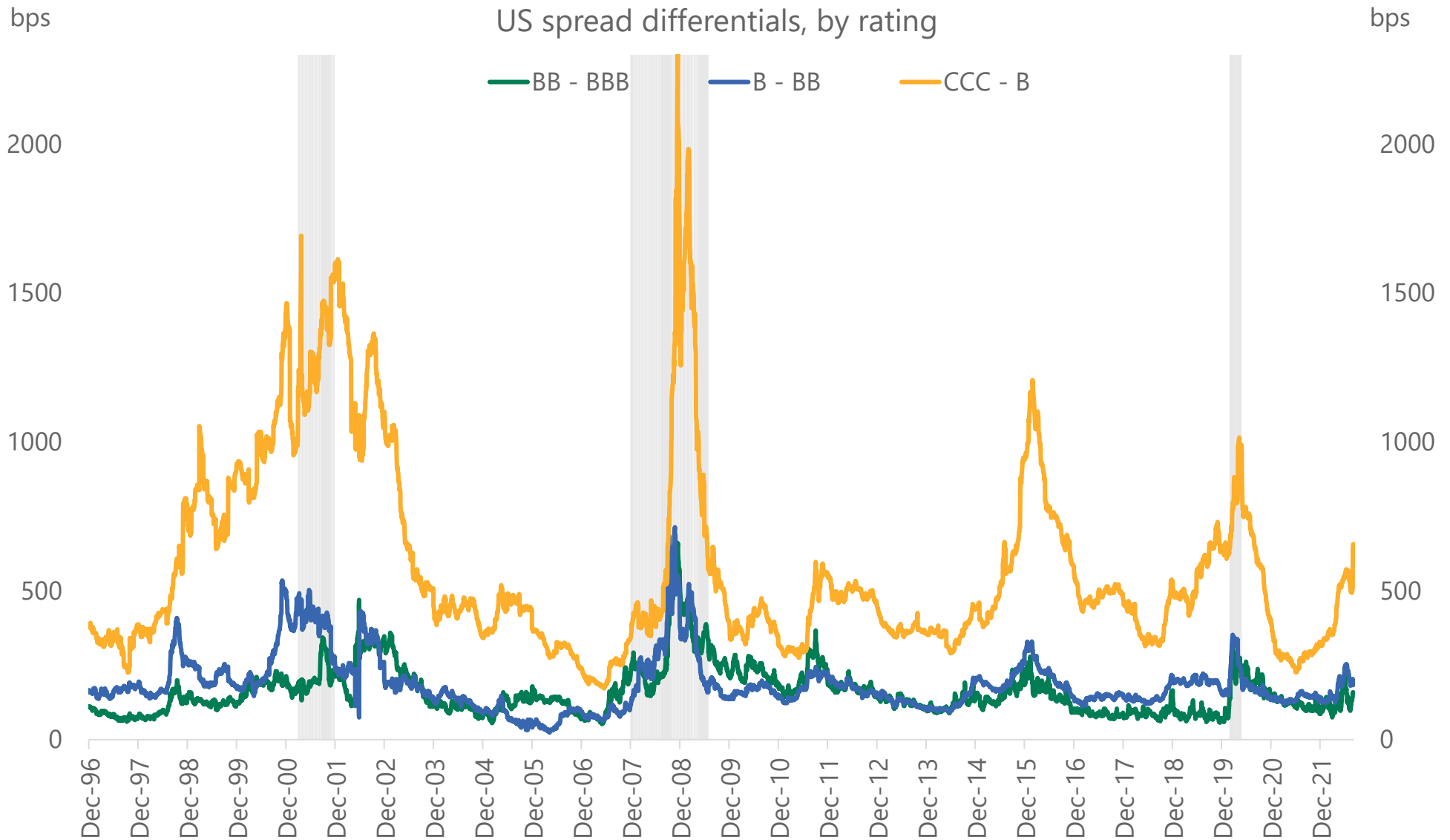
Source: ICE BofA, Bloomberg, Apollo Chief Economist

IG quality spreads, more differentiation between BBB and single-A



Source: ICE BofA, Bloomberg, Apollo Chief Economist

HY quality spreads, more differentiation between CCC and B



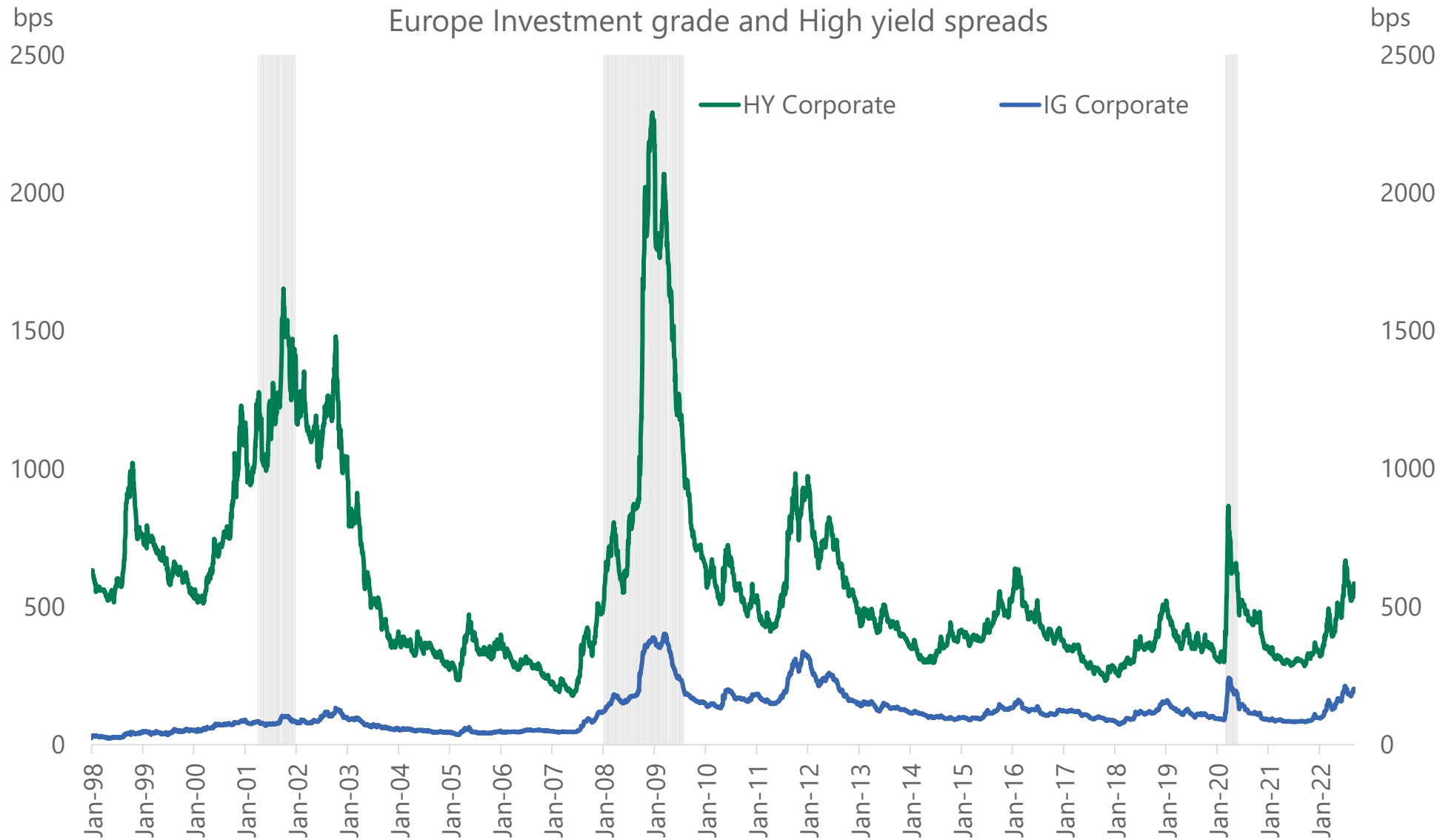
Source: ICE BofA, Bloomberg, Apollo Chief Economist

US HY spread minus IG spread



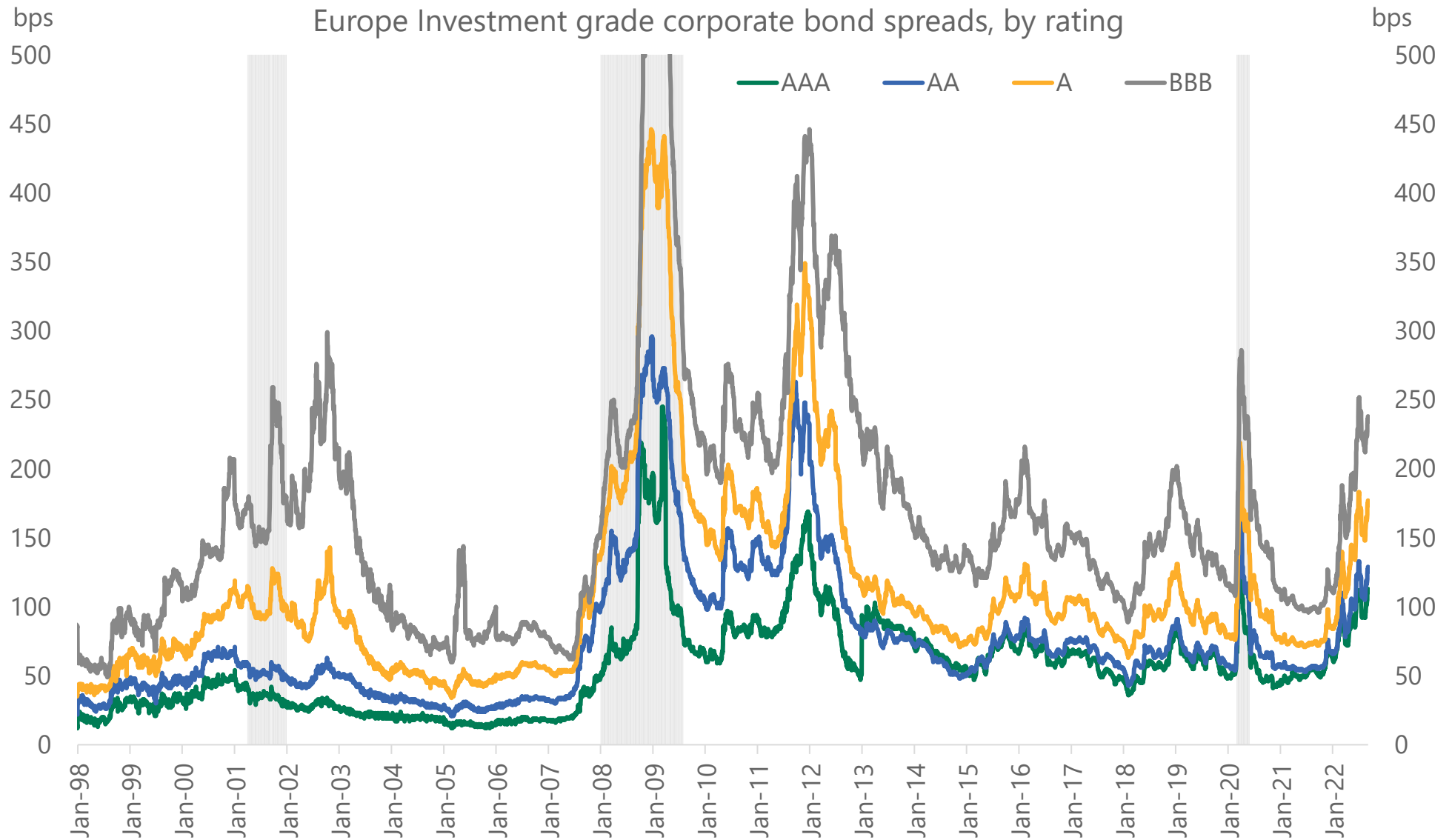
Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Bloomberg Index used COA0 Index and H0A0 Index

Europe spreads



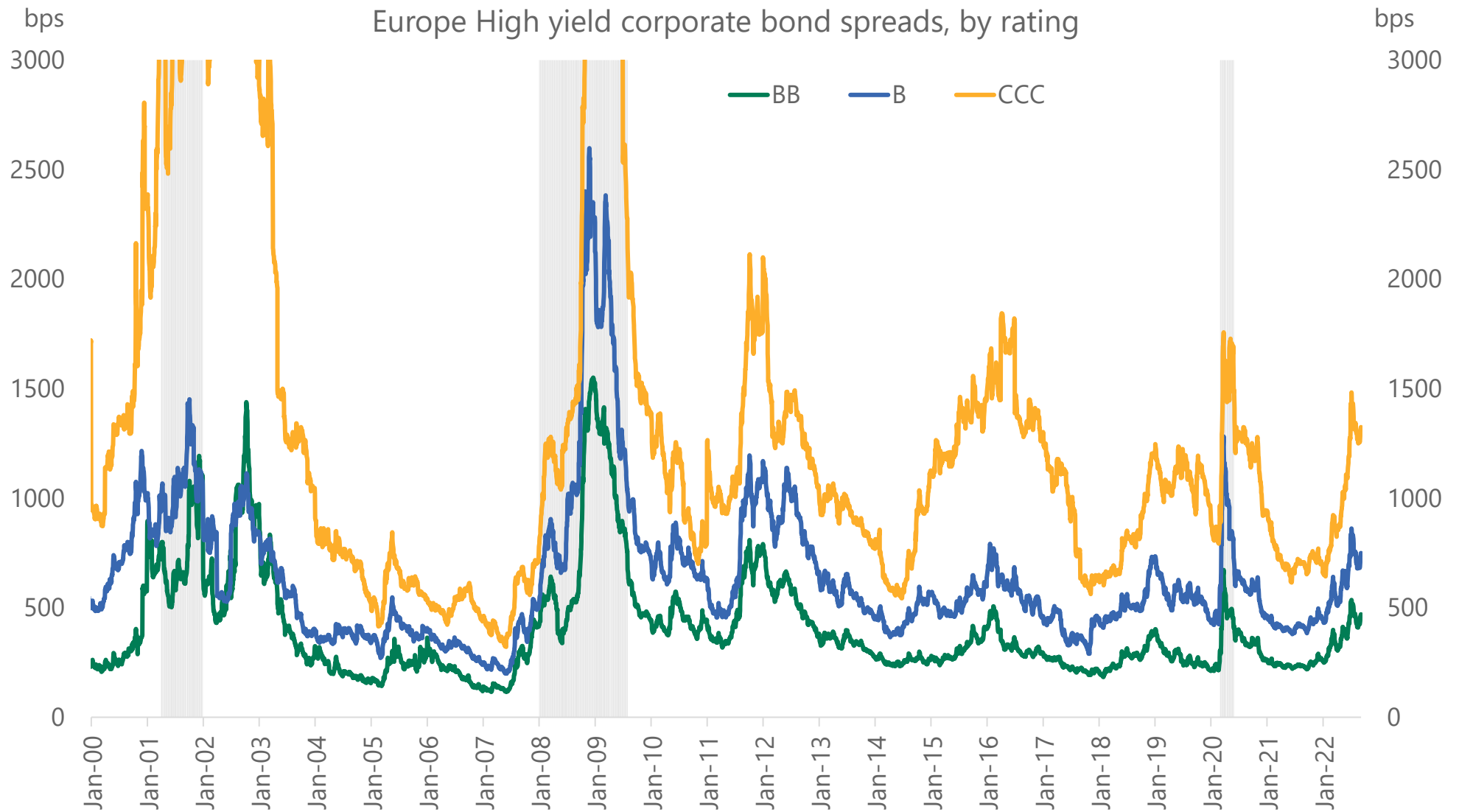
Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Ticker used HE00 Index and ER00 Index.

Europe IG spreads by rating



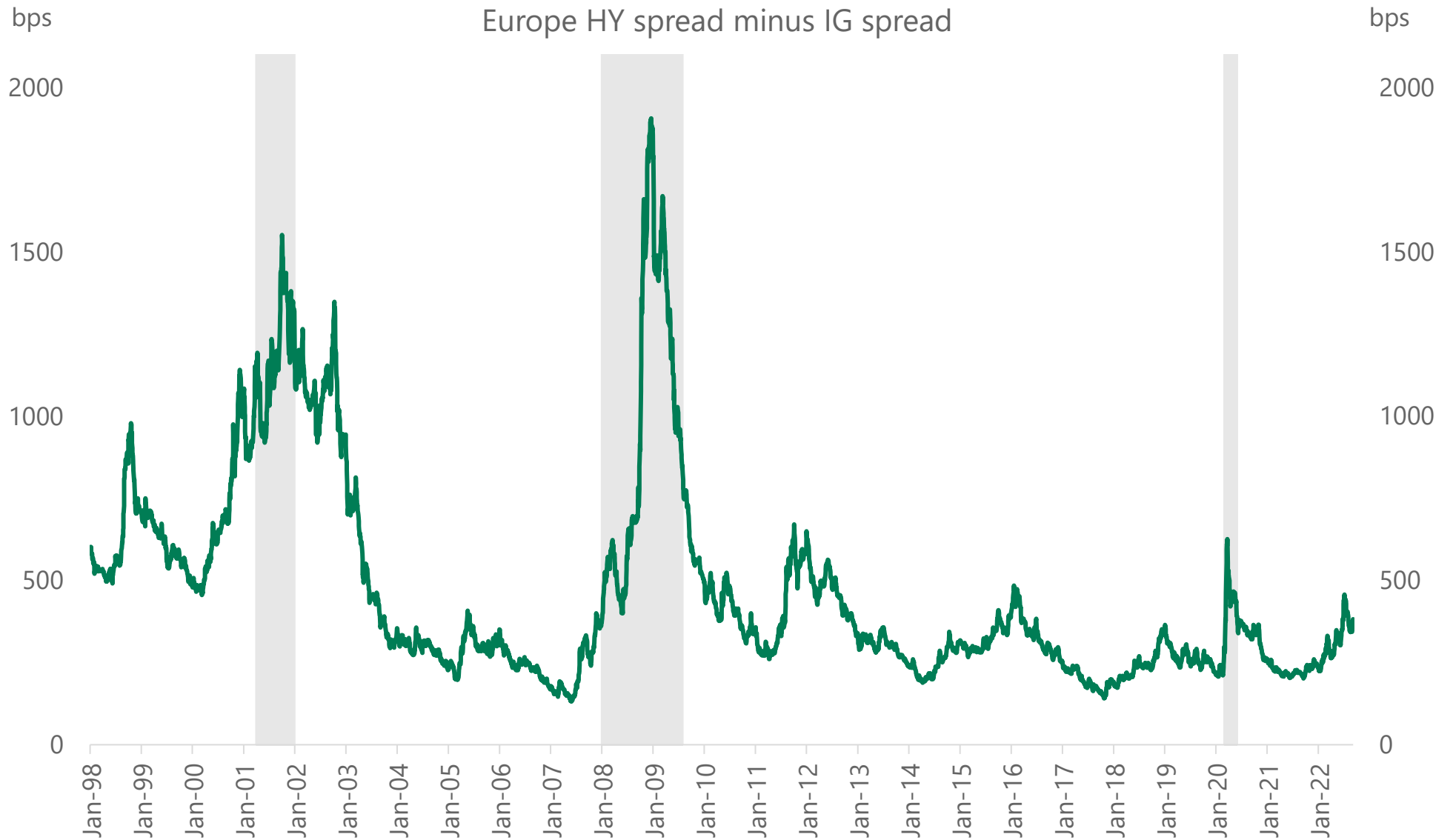
Source: ICE BofA, Bloomberg, Apollo Chief Economist.

Europe HY spreads by rating



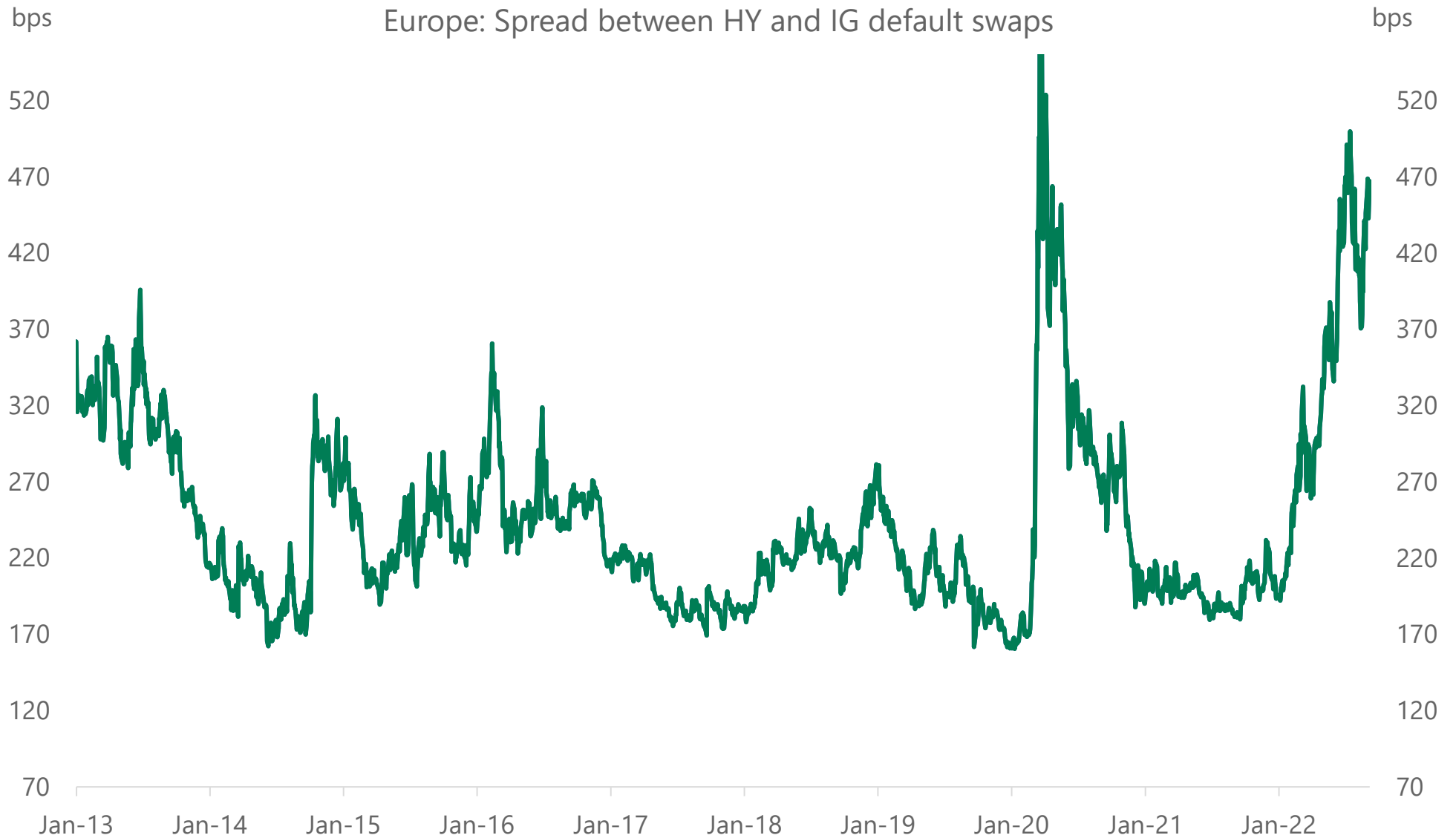
Source: ICE BofA, Bloomberg, Apollo Chief Economist.

Europe 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



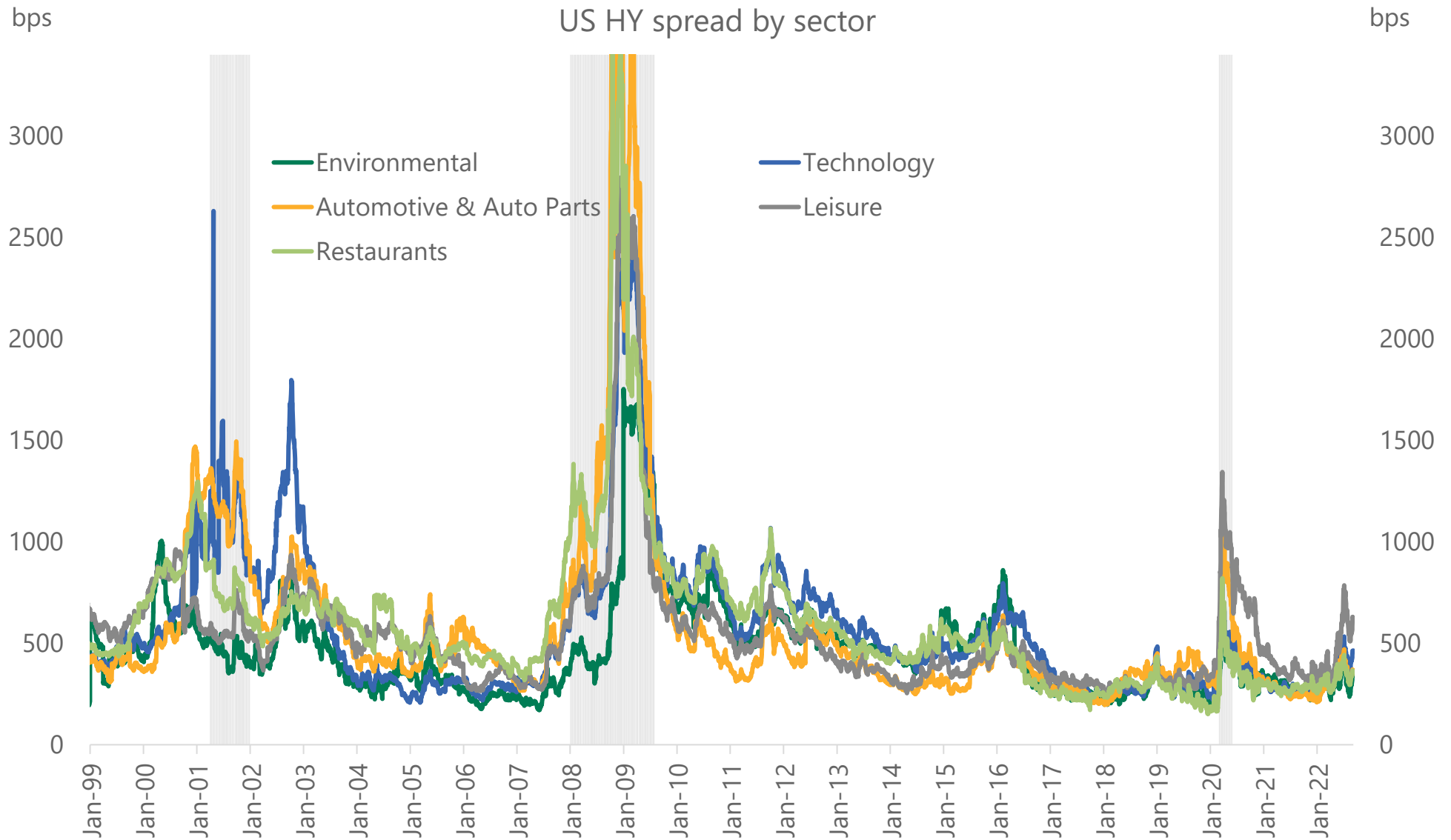
Source: Bloomberg, Apollo Chief Economist. Note: Tickers used ITRXEXE CBBT Curncy and ITRXEBE CBBT Curncy

Global HY spread minus IG spread



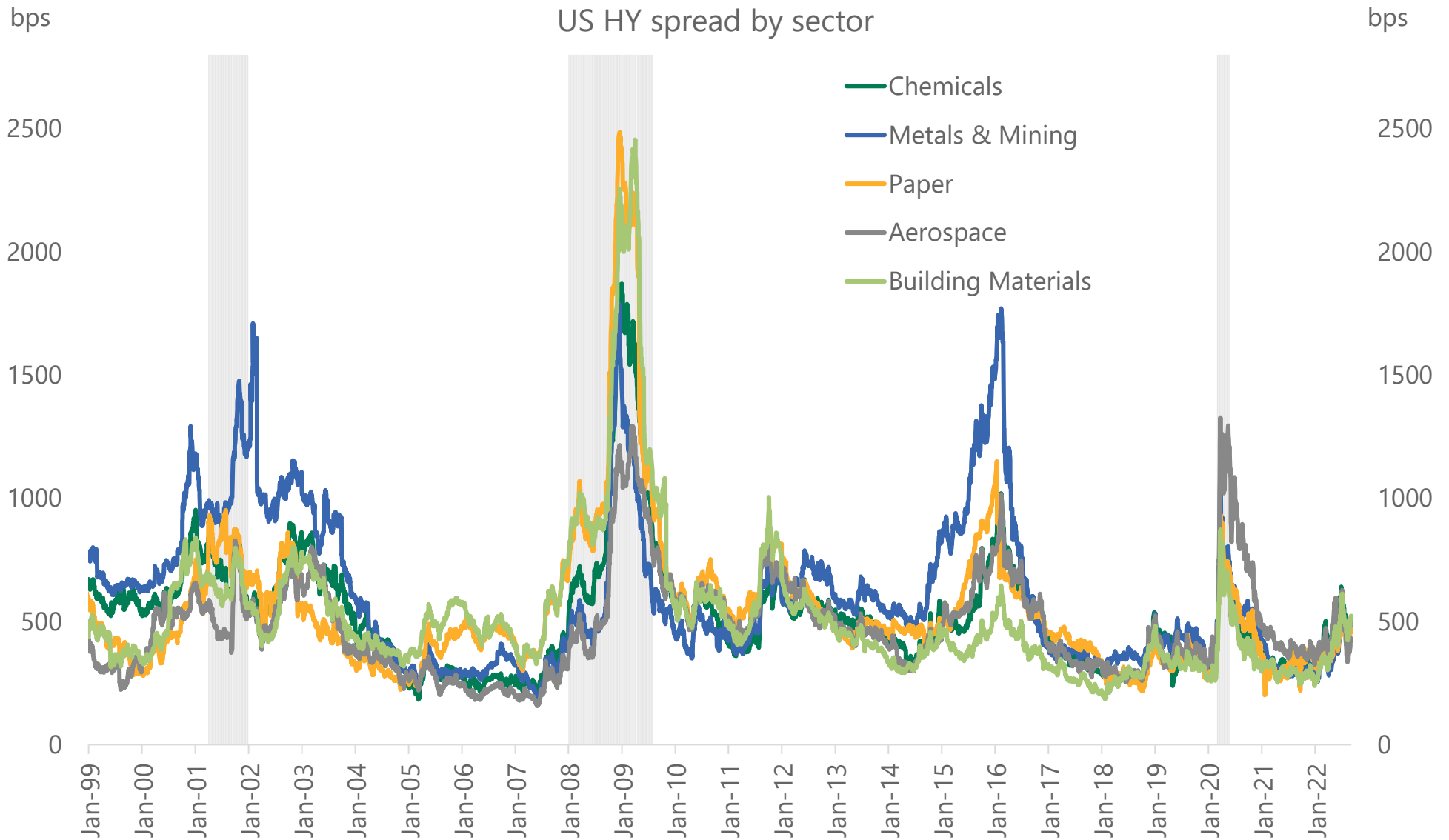
Source: Bloomberg, Apollo Chief Economist. Note: Bloomberg Index used BGLCTRUU index and LG50TRUU Index

HY spreads by sector



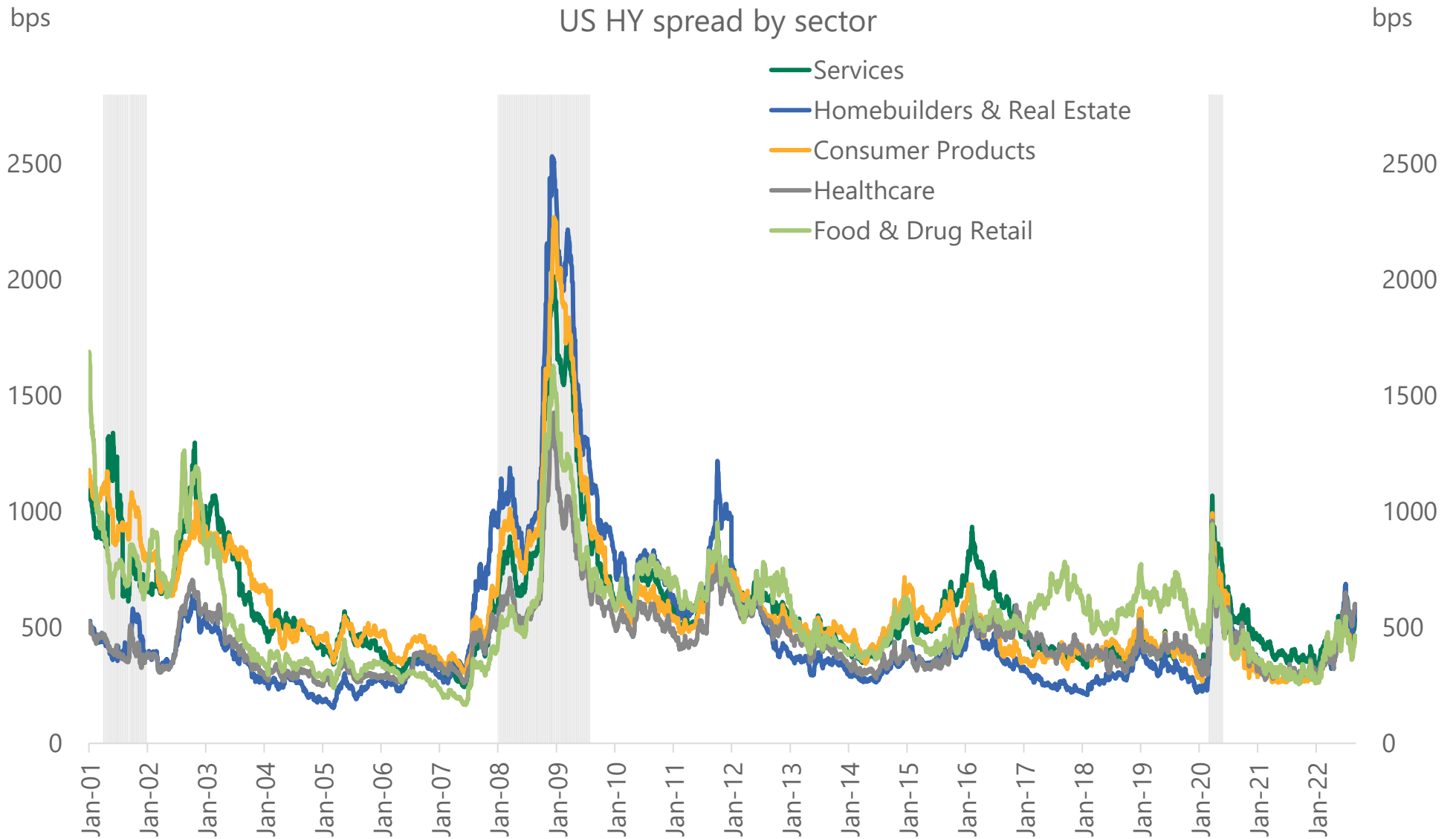
Source: ICE BofA, Bloomberg, Apollo Chief Economist

HY spreads by sector



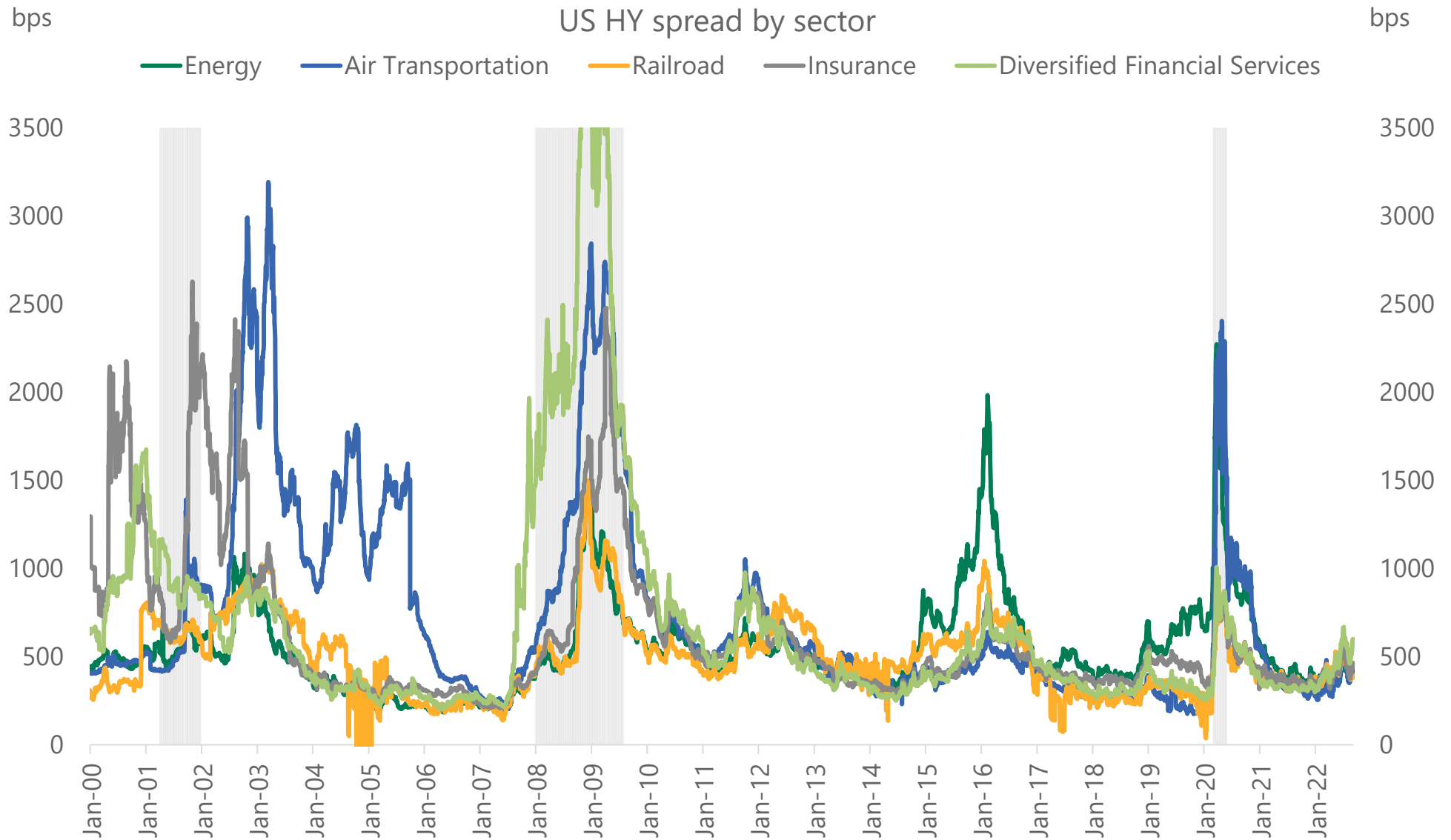
Source: ICE BofA, Bloomberg, Apollo Chief Economist

HY spreads by sector



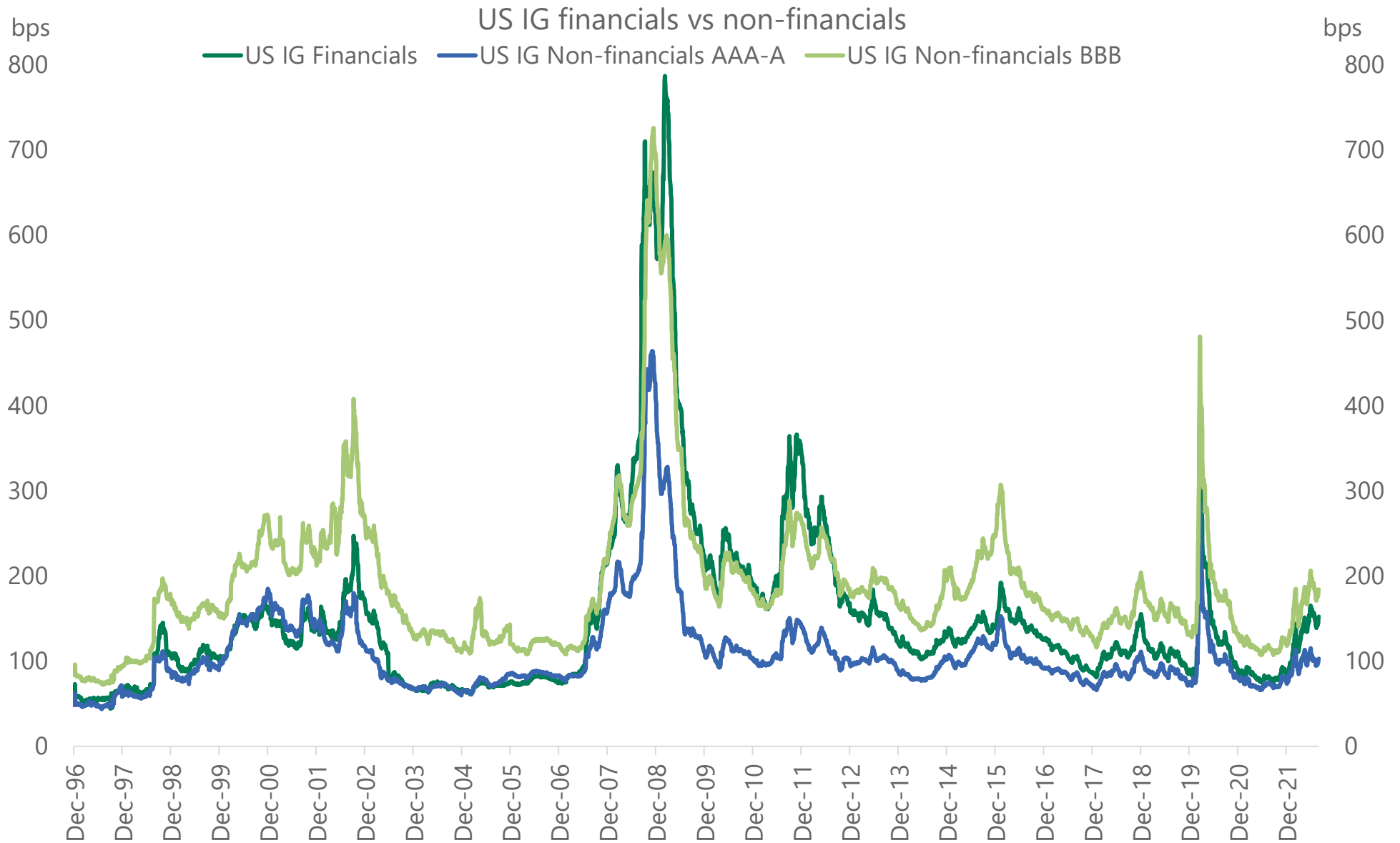
Source: ICE BofA, Bloomberg, Apollo Chief Economist

HY spreads by sector



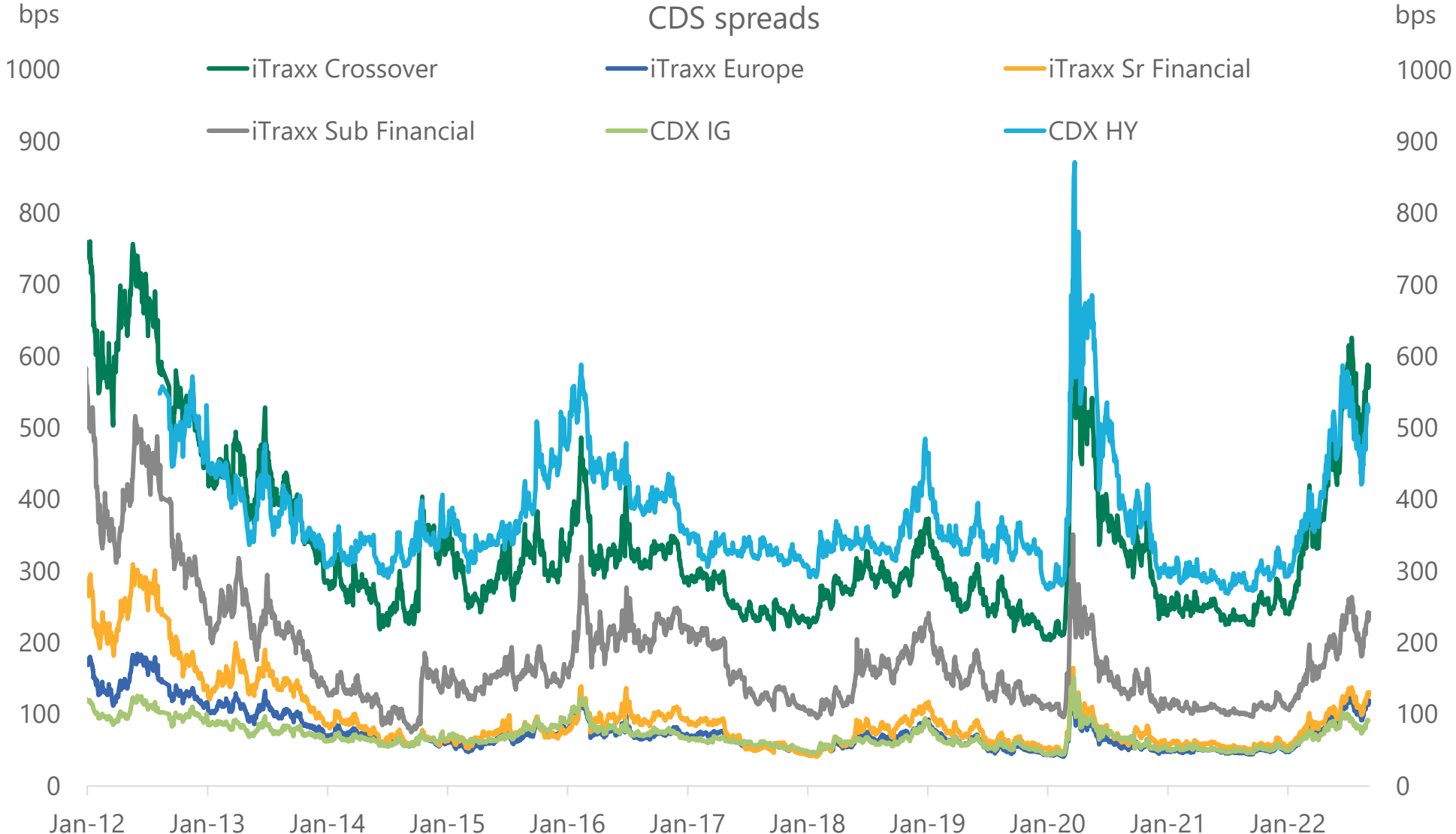
Source: ICE BofA, Bloomberg, Apollo Chief Economist

IG spreads for financials and non-financials



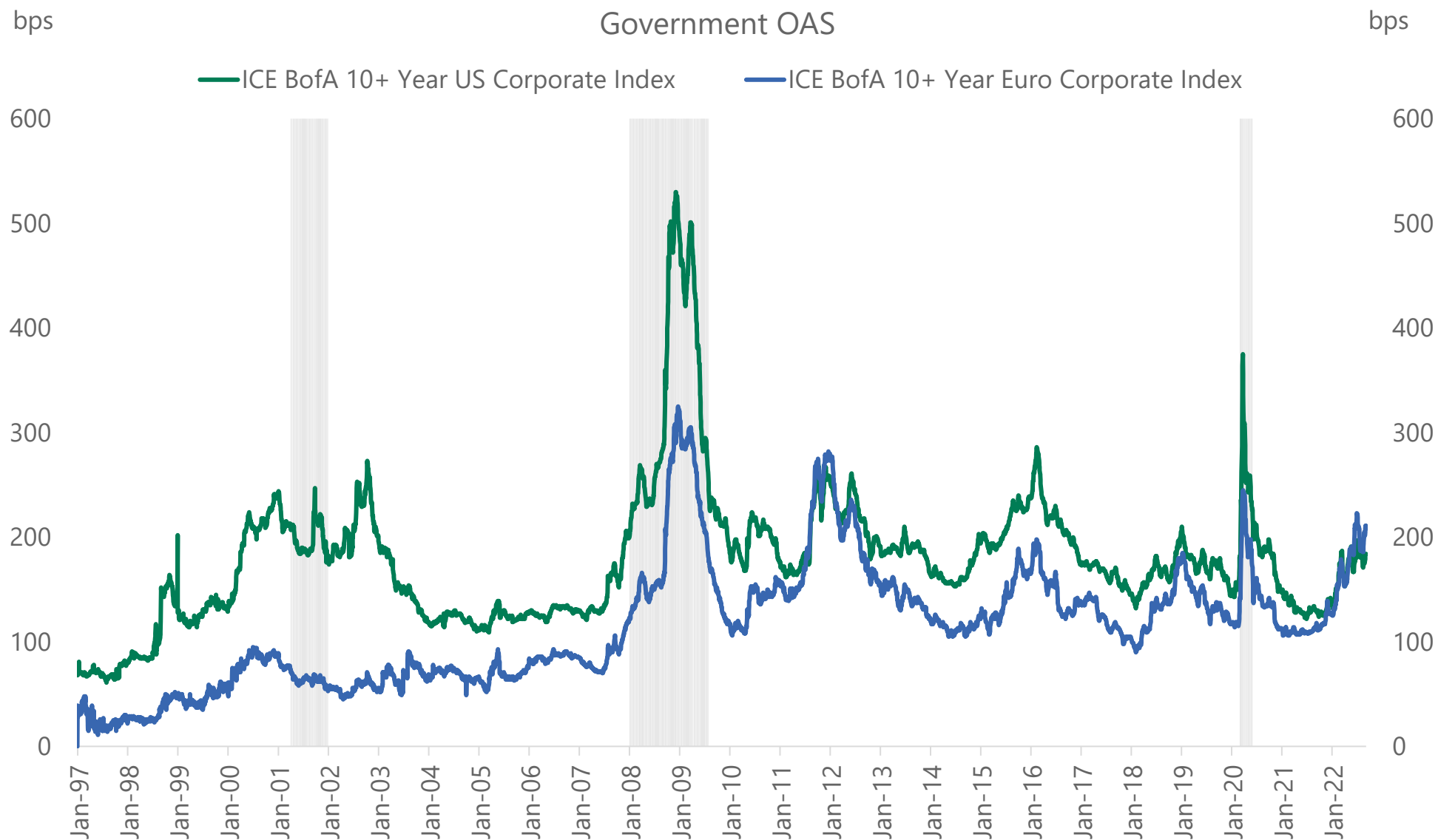
Source: ICE BofA, Bloomberg, Apollo Chief Economist

CDS spreads



Source: Markit, Bloomberg, Apollo Chief Economist

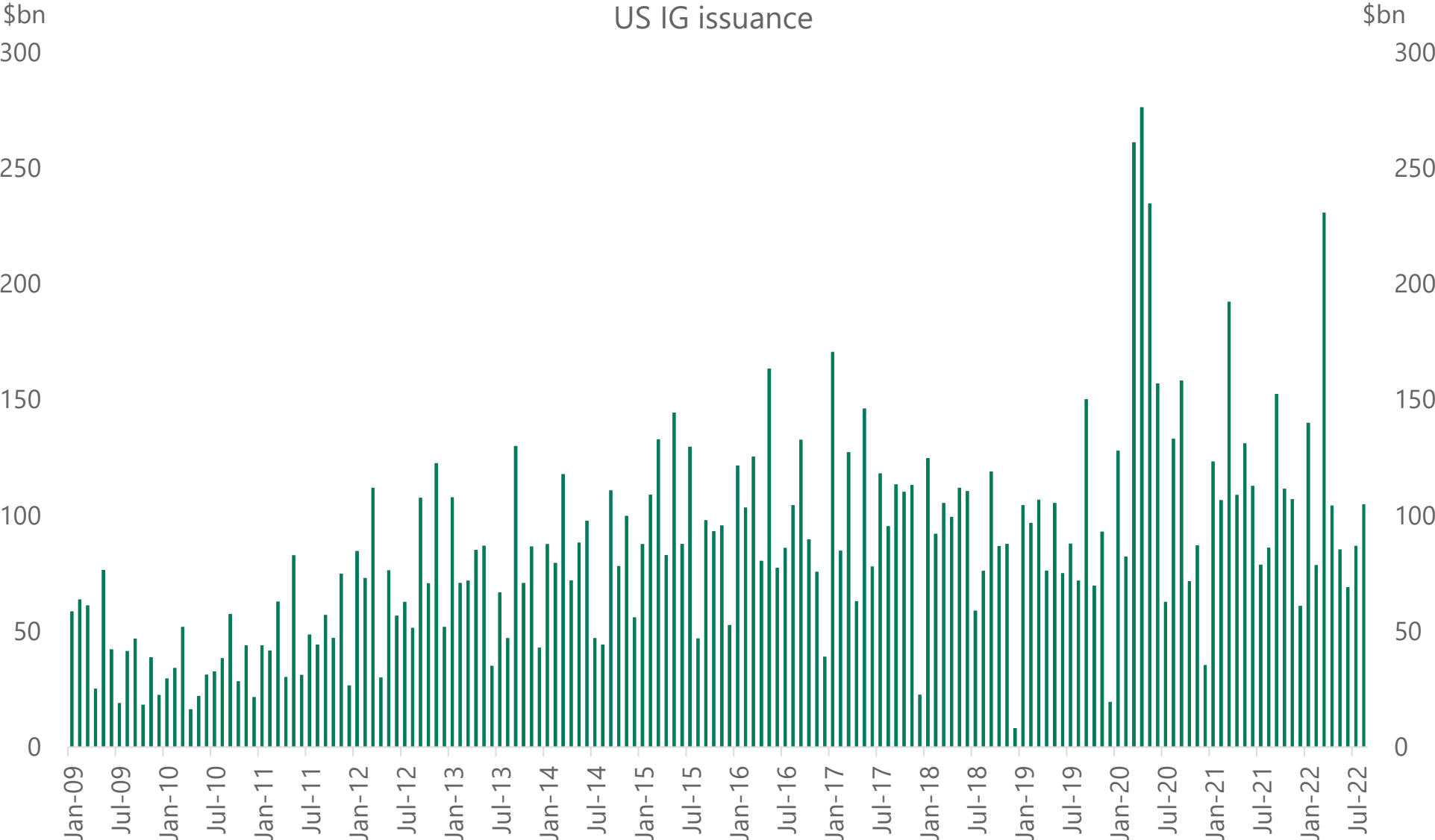
Long-duration IG spreads in US and Europe



Source: ICE BofA, Bloomberg, Apollo Chief Economist

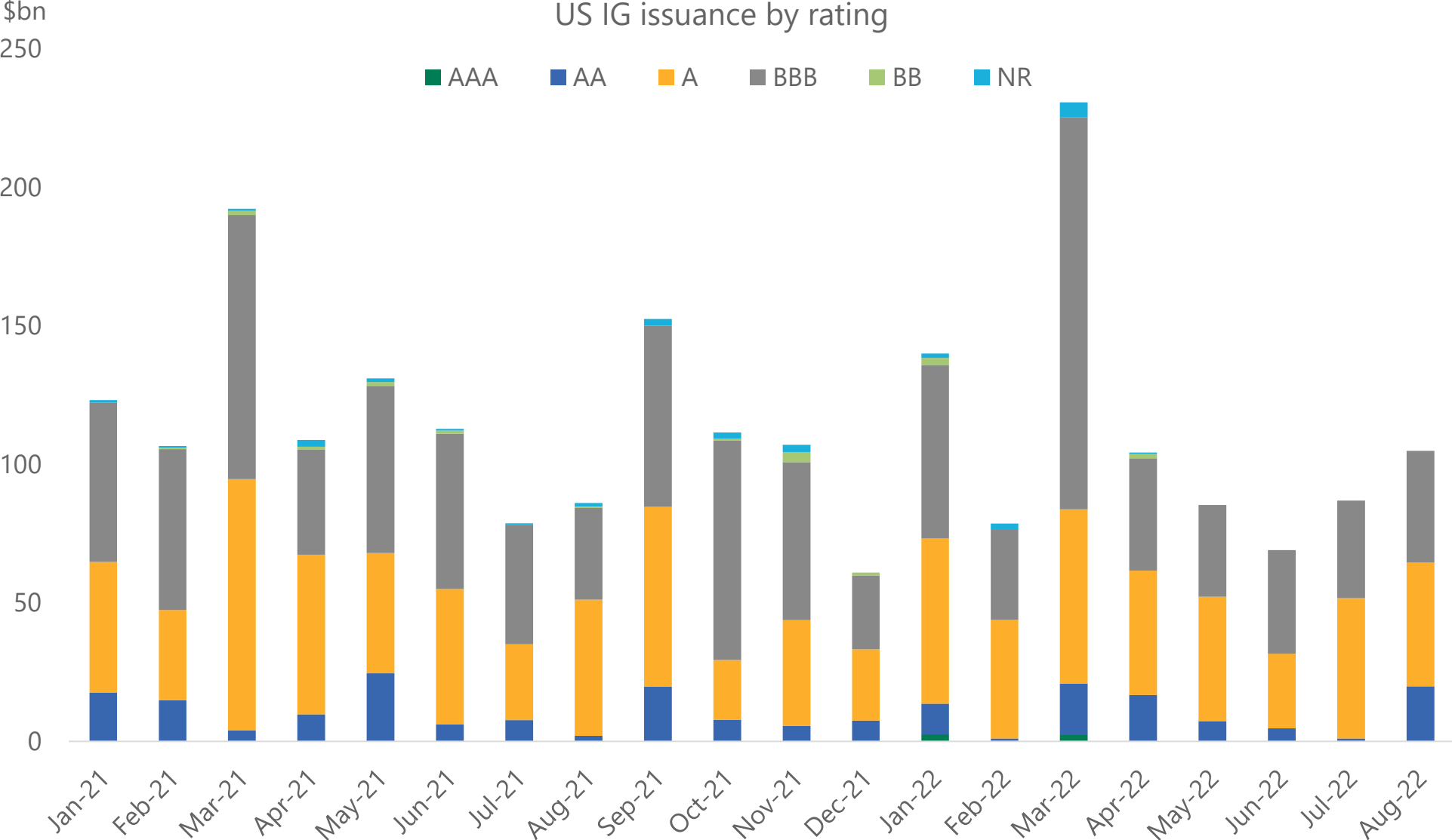
New issuance

US IG issuance



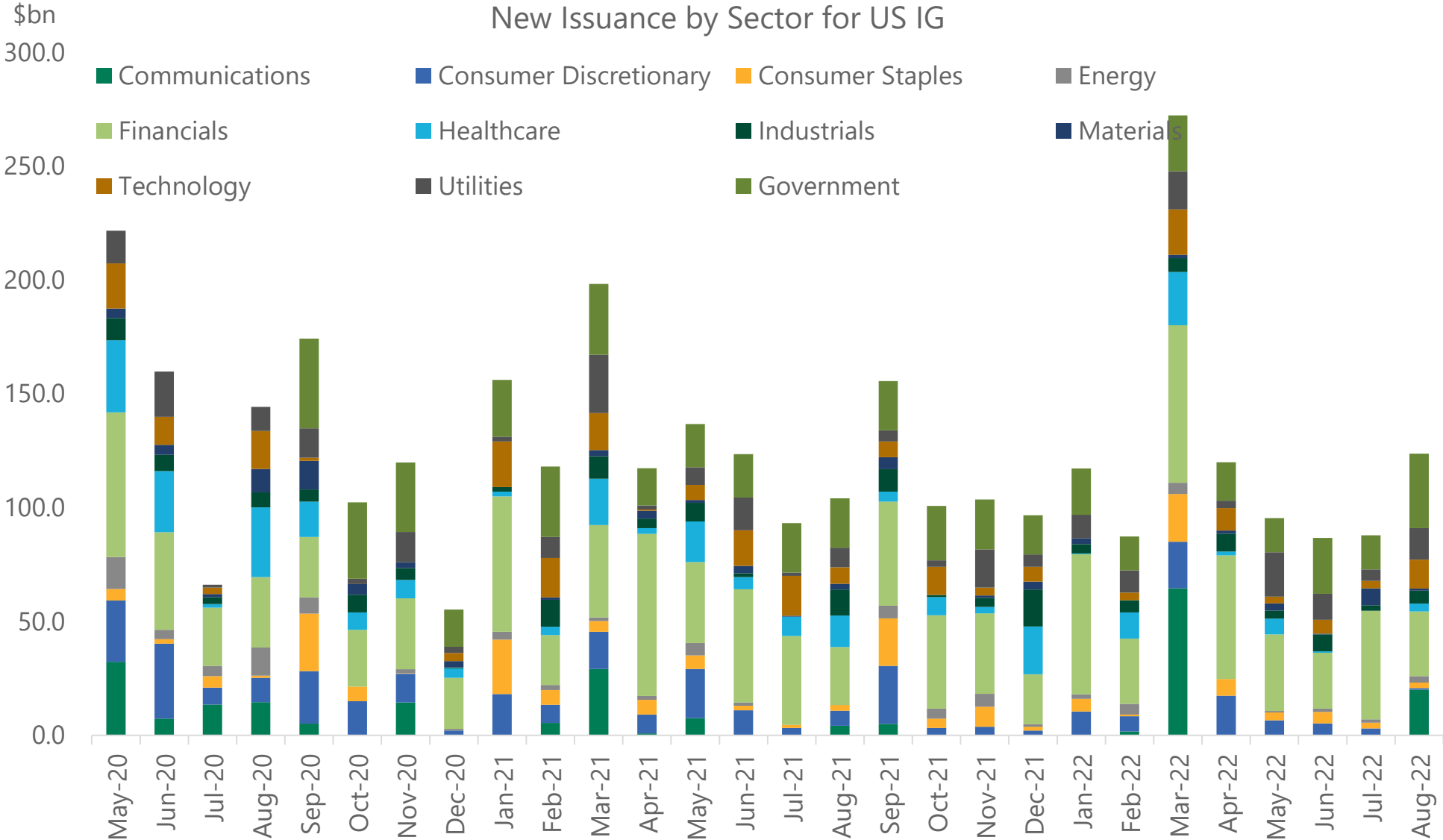
Source: S&P LCD, Apollo Chief Economist

IG issuance by rating



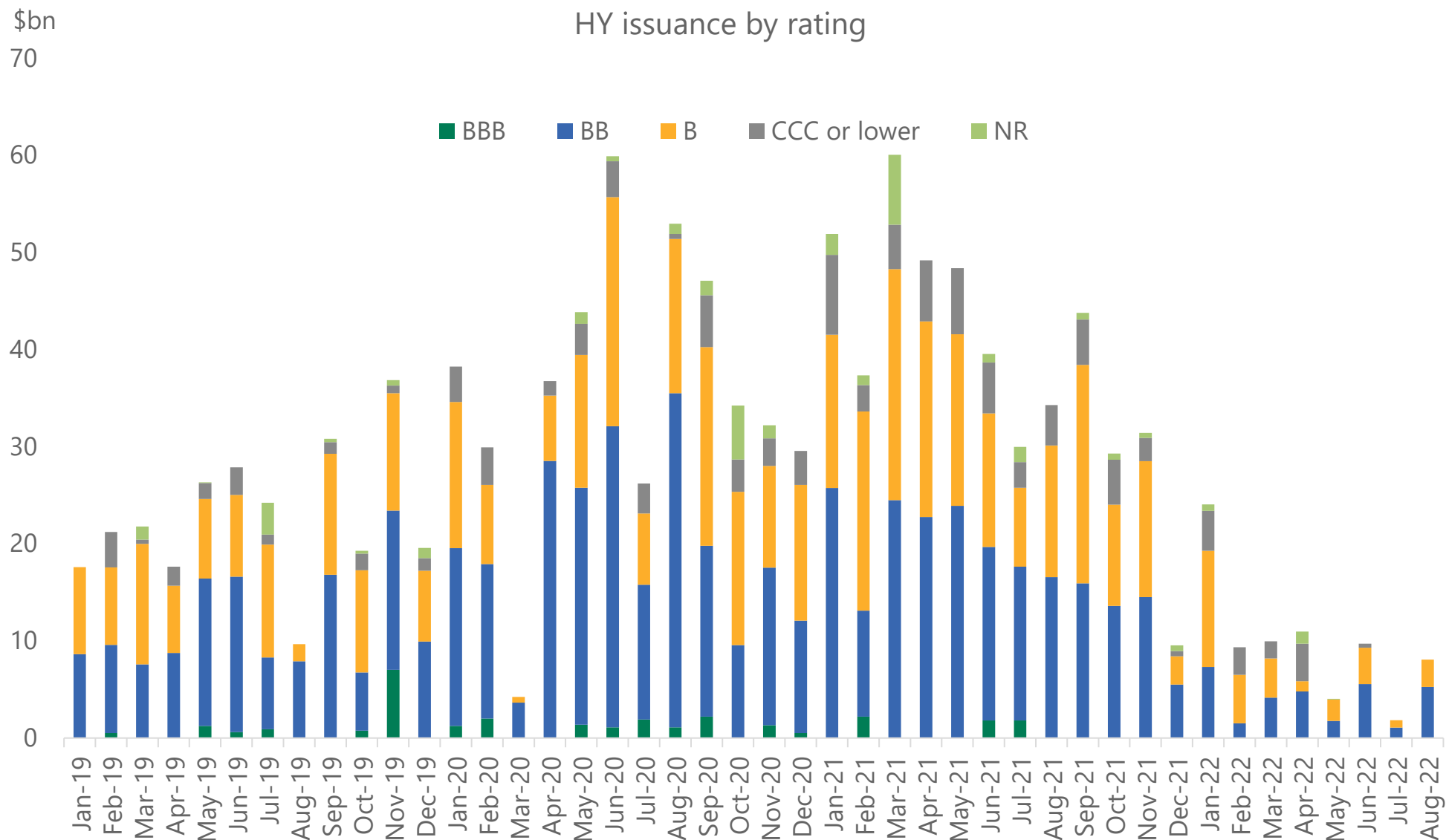
Source: S&P LCD, Apollo Chief Economist. Note: Data as of 30th April 2022

Sector distribution of new IG issuance



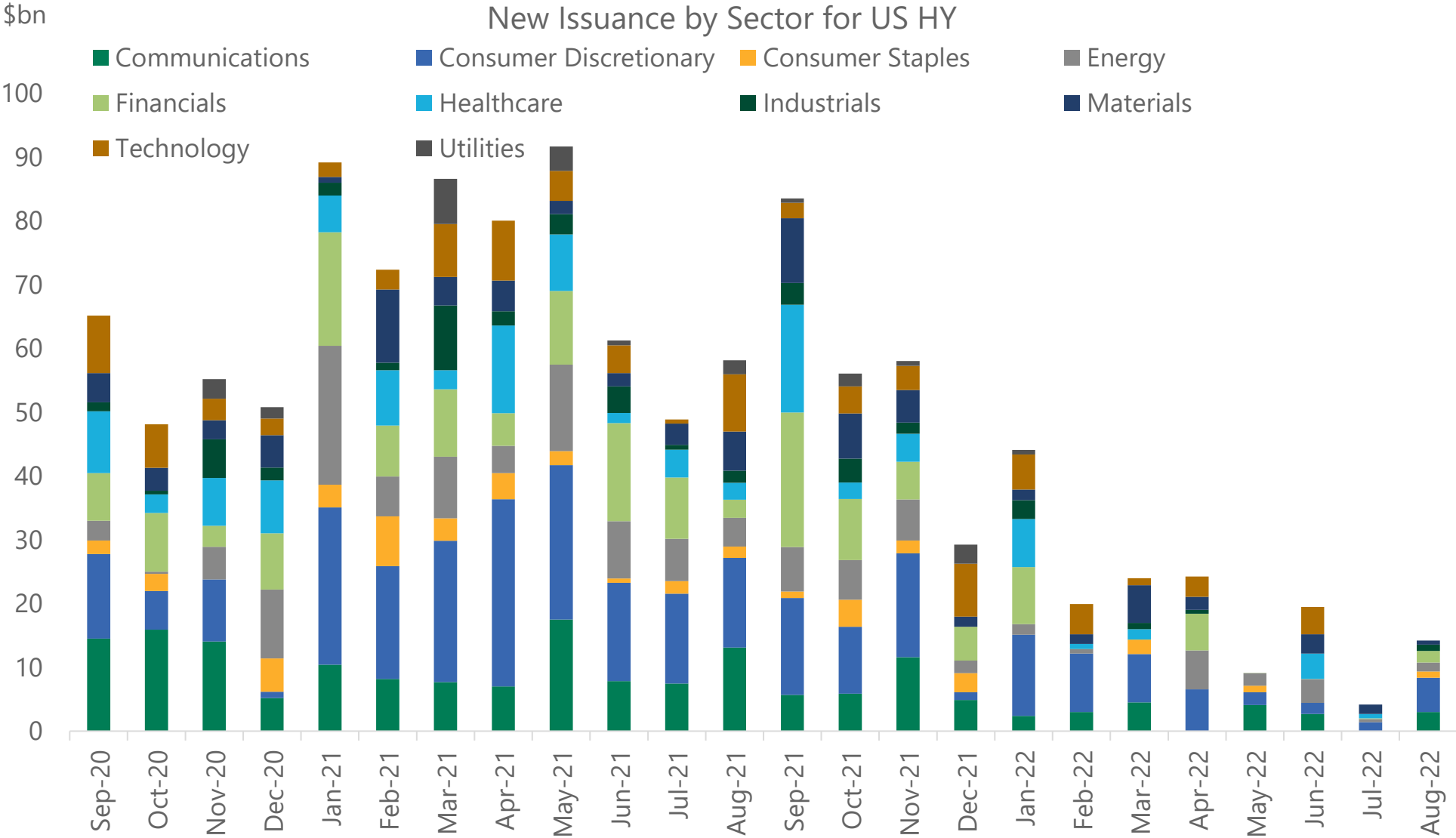
Source: Bloomberg, Apollo Chief Economist. Note: Issuance includes bonds, loans, leveraged loans, and preferred.

HY issuance by rating



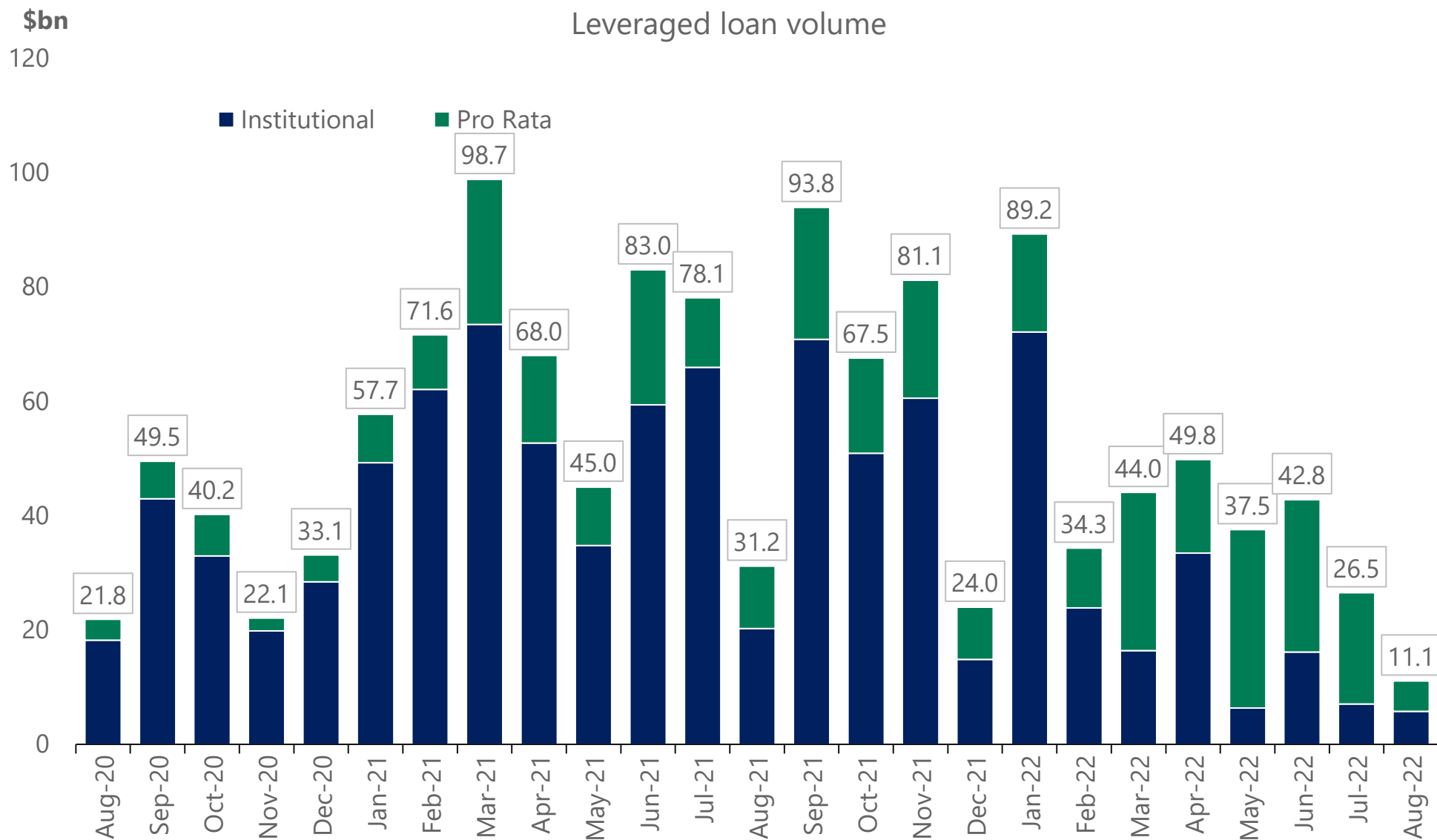
Source: S&P LCD, Apollo Chief Economist. Note: Data as of 30th April 2022

Sector distribution of new HY issuance



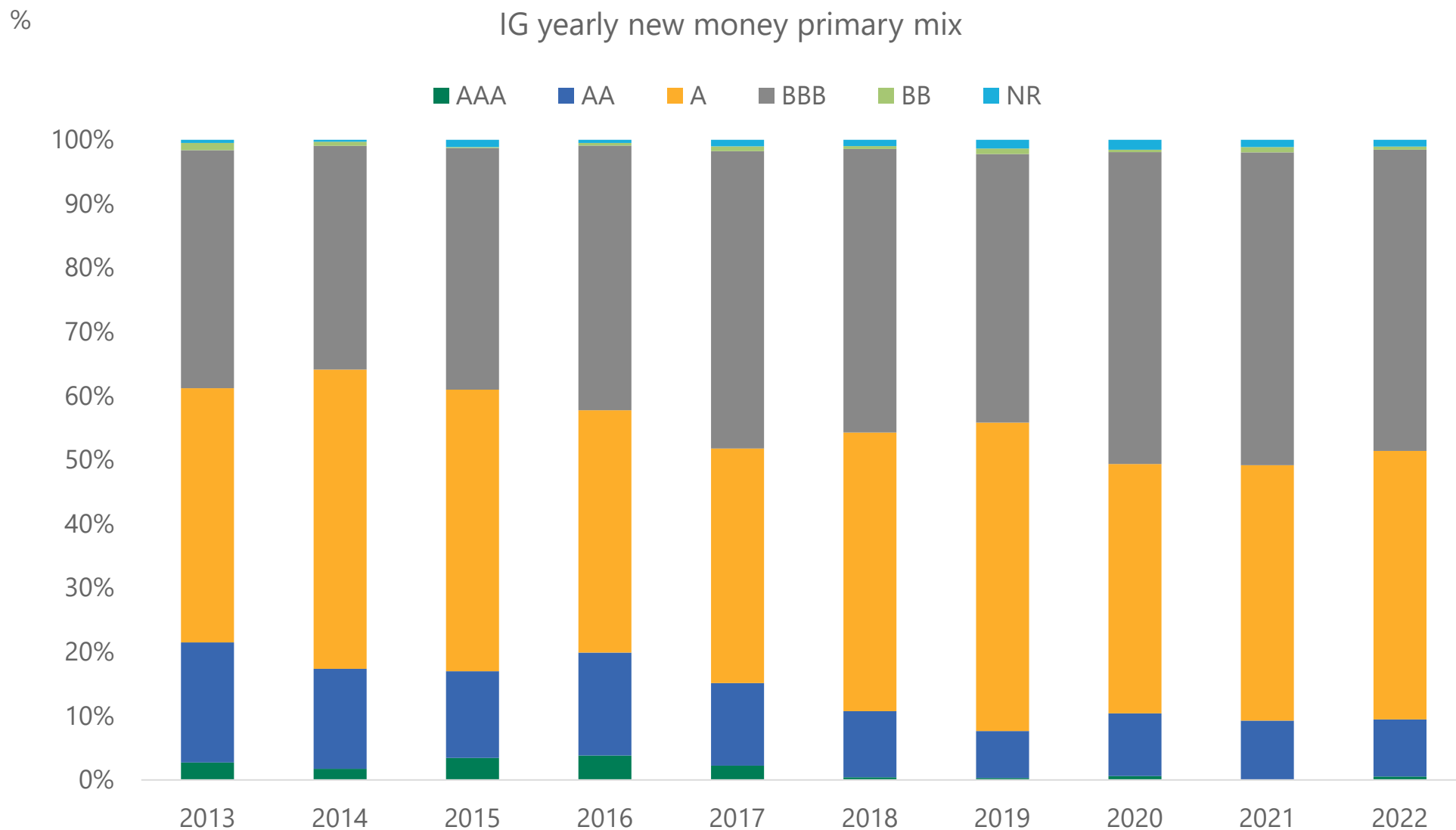
Source: Bloomberg, apollo Chief Economist. Note: Issuance includes bonds, loans, leveraged loans and preferred.

Leveraged loan volume



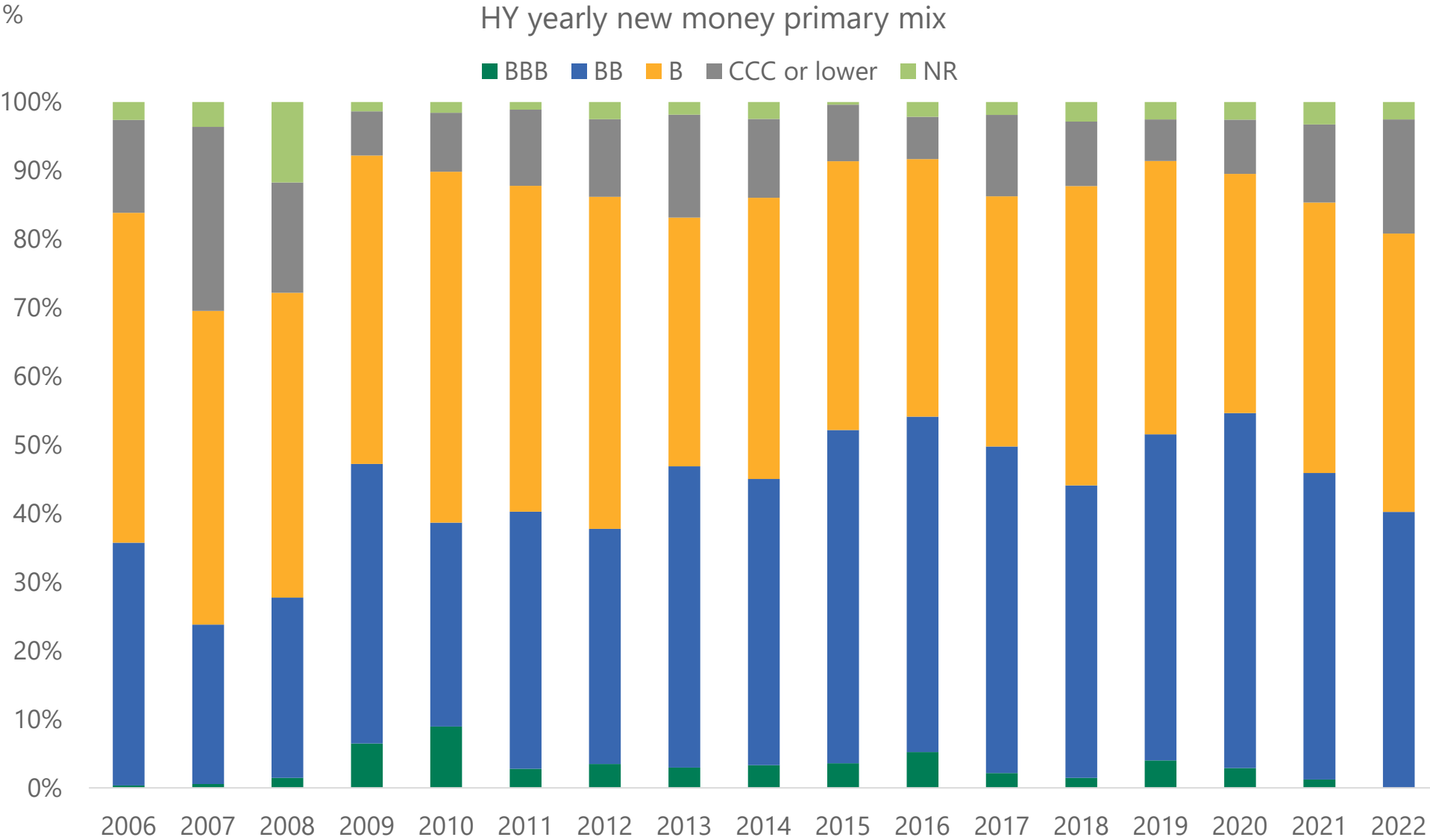
Source: S&P LCD, Apollo Chief Economist.

IG new money primary mix



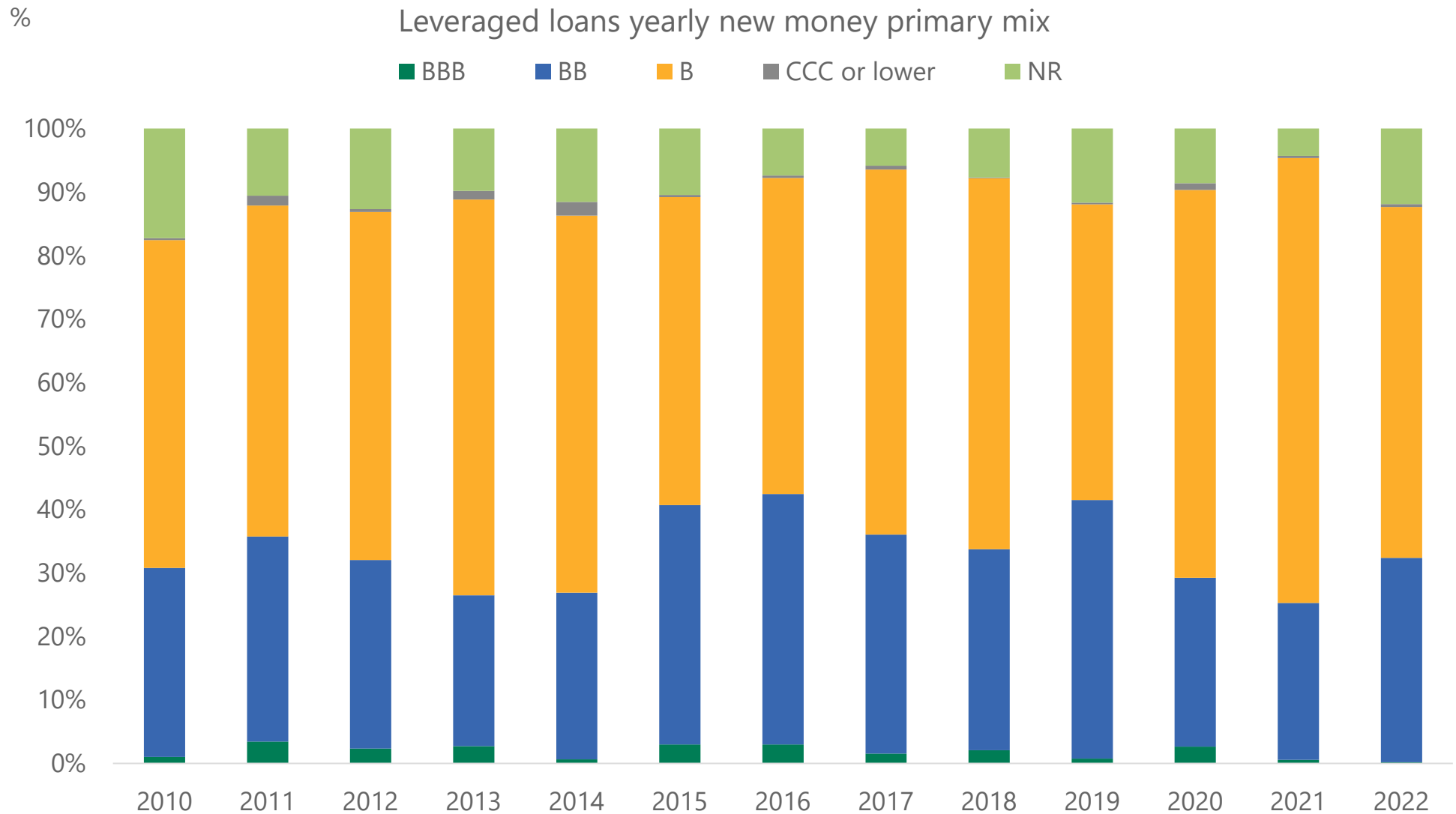
Source: S&P LCD, Apollo Chief Economist. Note: Data as of 31st August 2022

HY new money primary mix



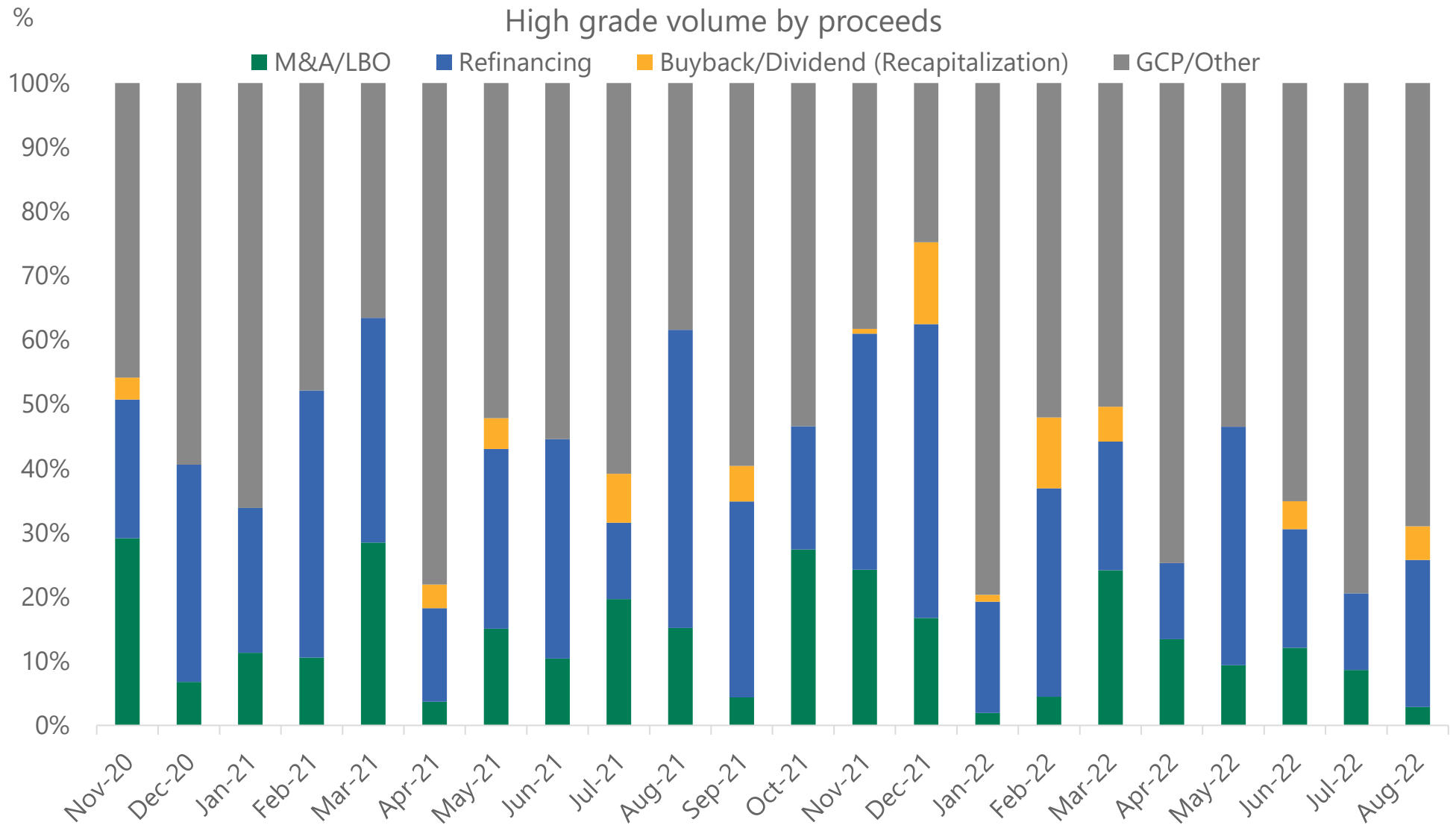
Source: S&P LCD, Apollo Chief Economist. Note: Data as of 31st August 2022

Loans new money primary mix



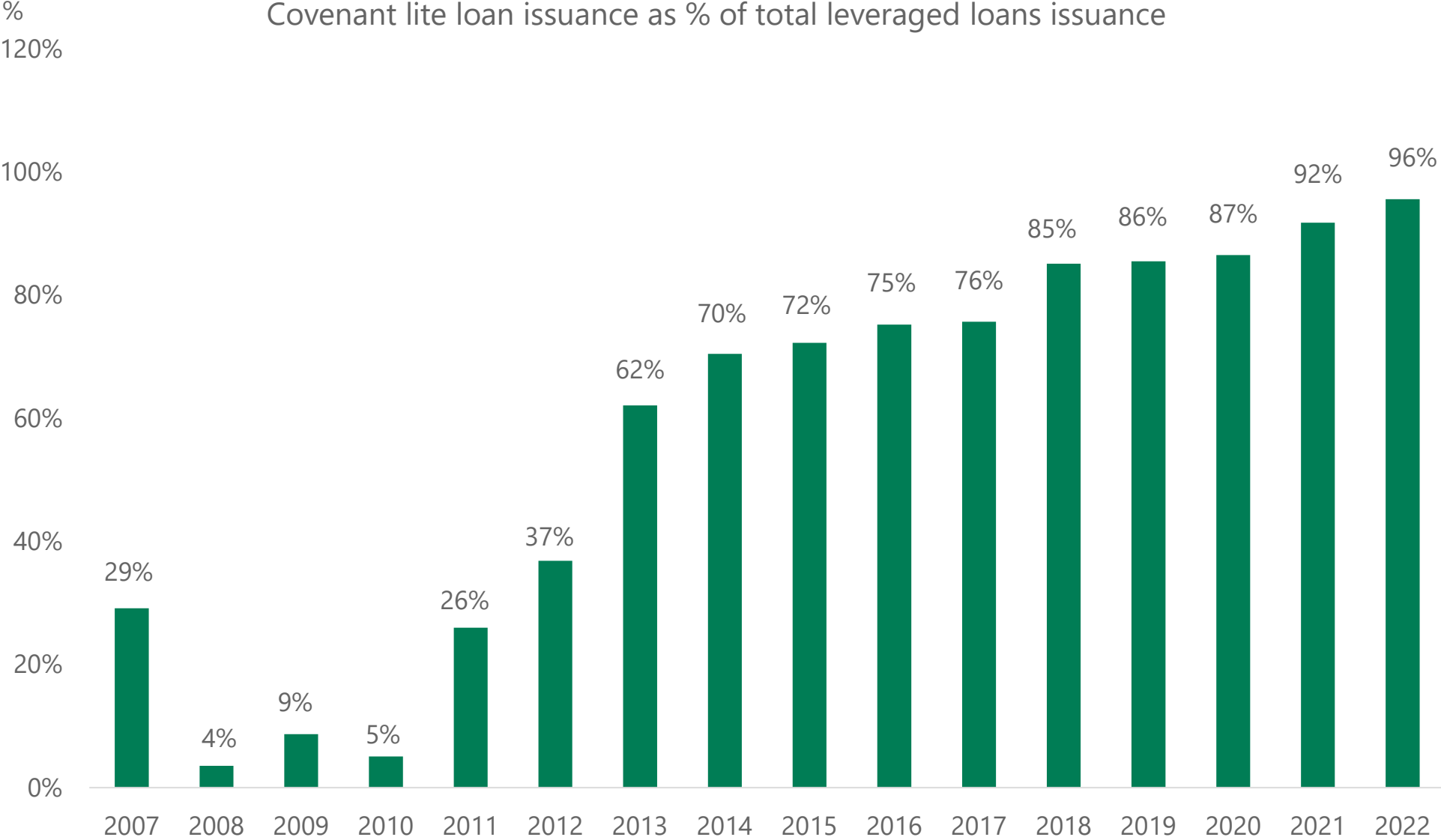
Source: S&P LCD, Apollo Chief Economist. Note: 2022 YTD till 31st August 2022

High grade volume by proceeds



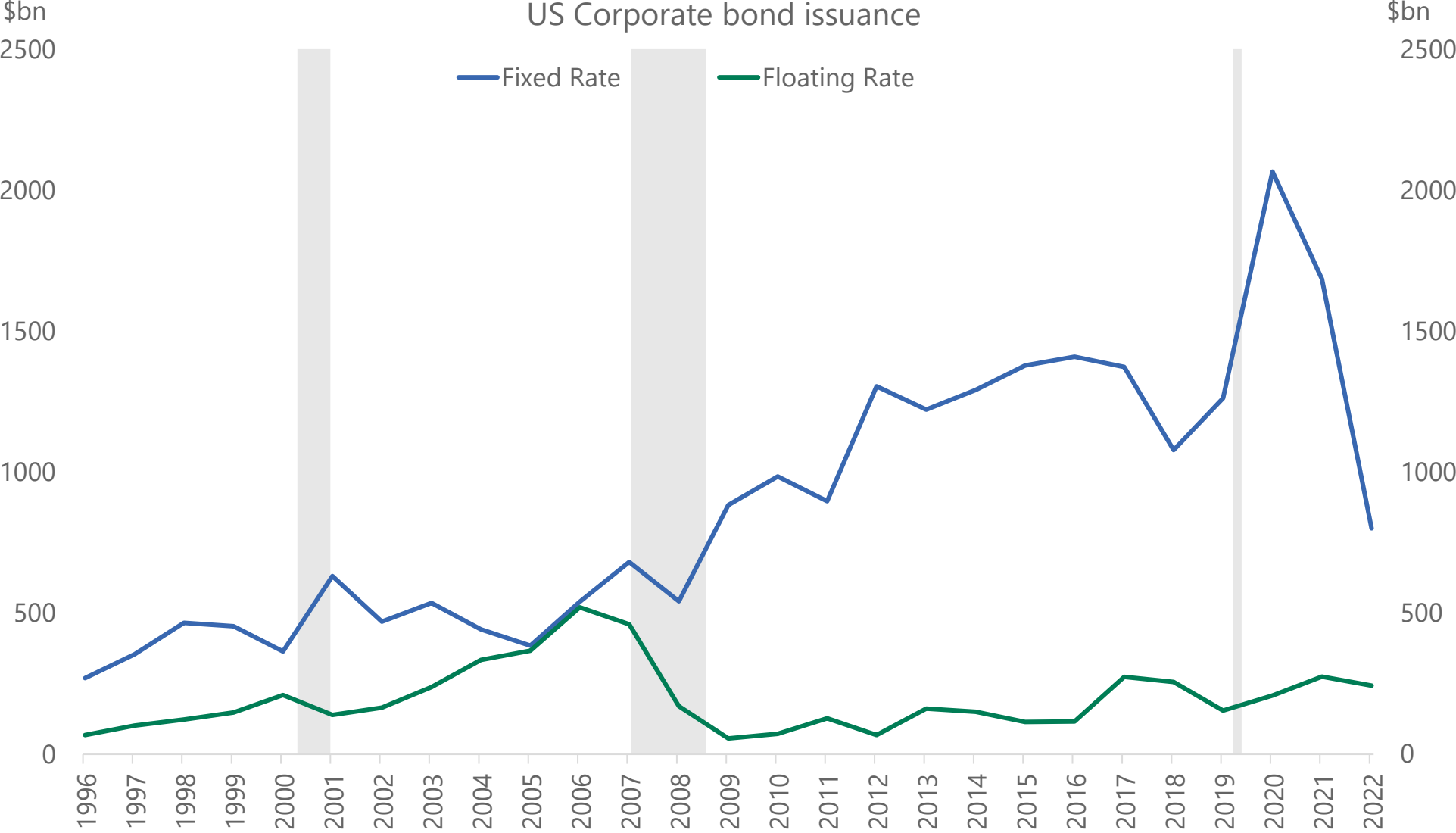
Source: S&P LCD, Apollo Chief Economist

Covenant lite loan issuance



Source: S&P 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 August 2022

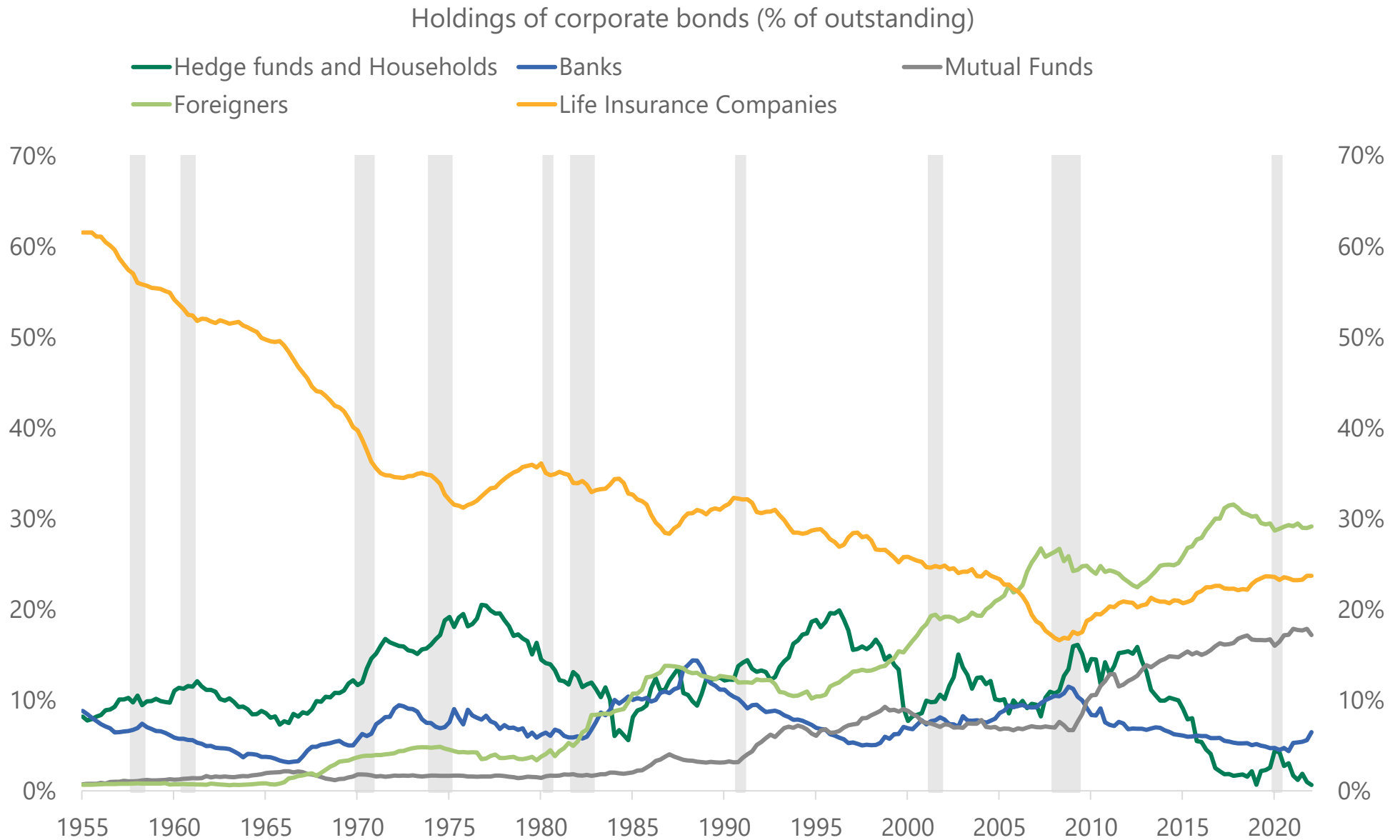
Corporate bond issuance



Source: SIFMA, Apollo Chief Economist. Note: 2022 YTD till 31st August 2022

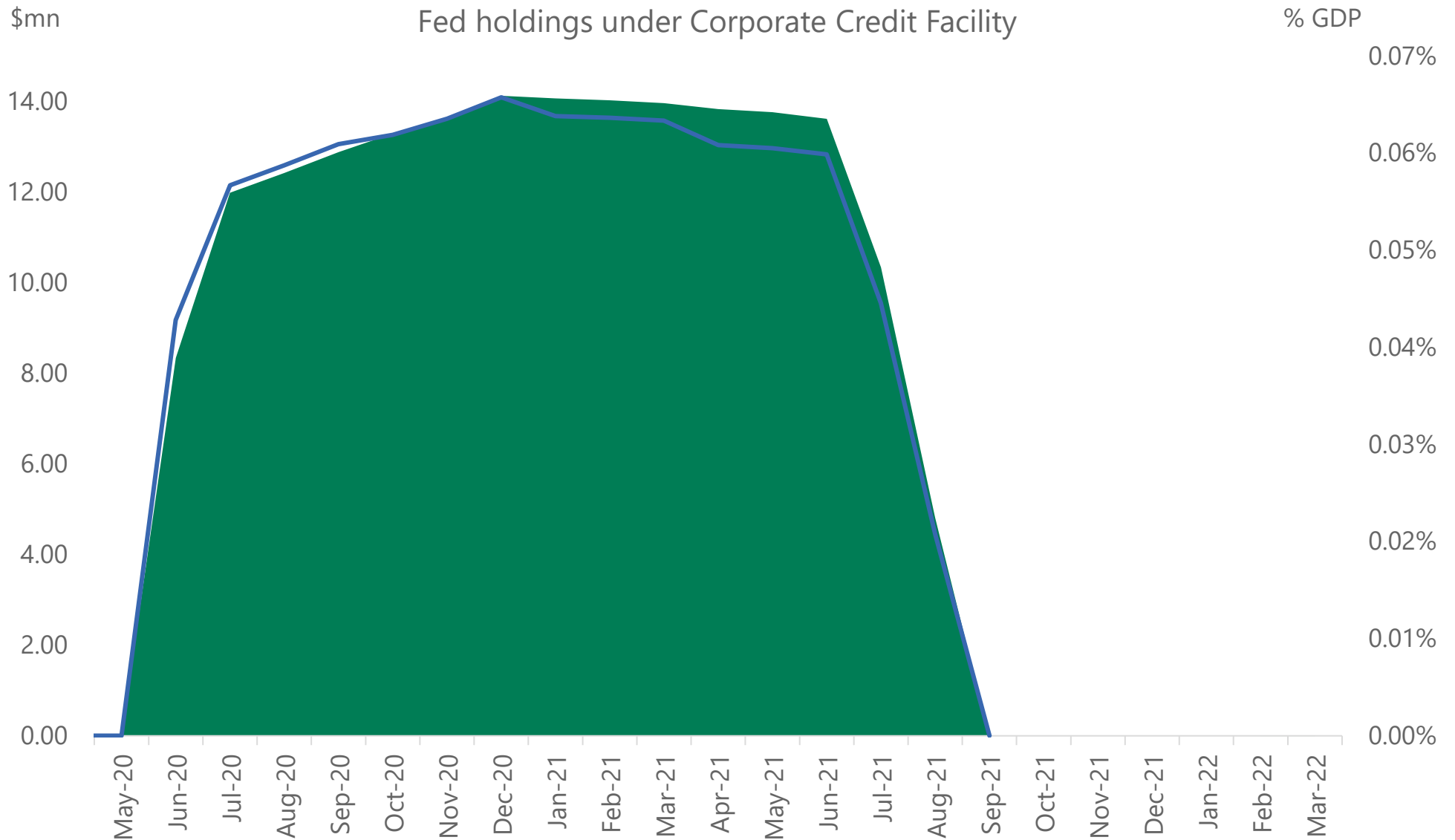
Corporate bond holdings

The biggest holder of US corporate bonds is foreigners



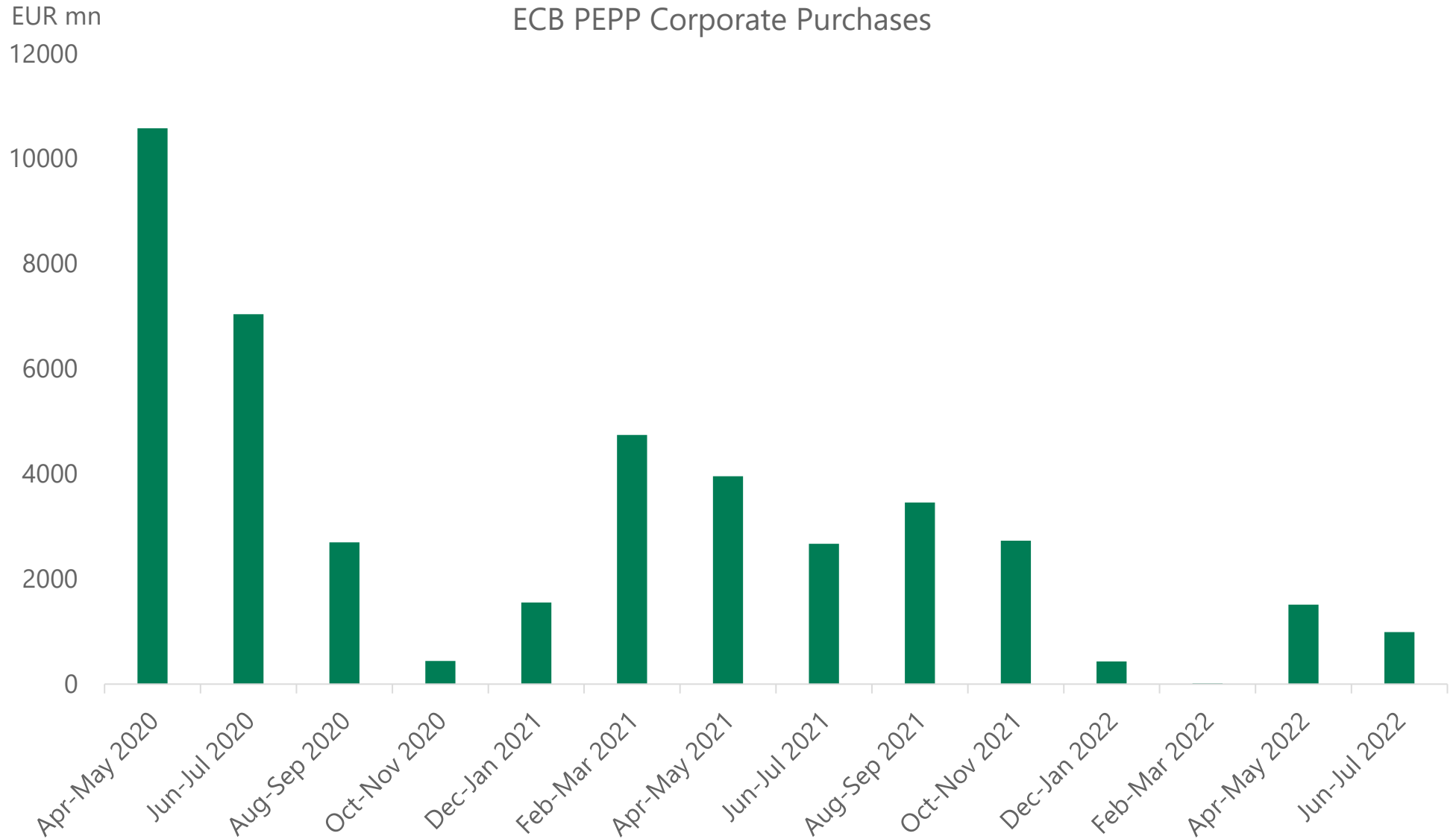
Source: FRB, Haver Analytics, Apollo Chief Economist

Fed holdings of corporate bonds



Source: Bloomberg, Apollo Chief Economist

ECB purchases of corporate bonds

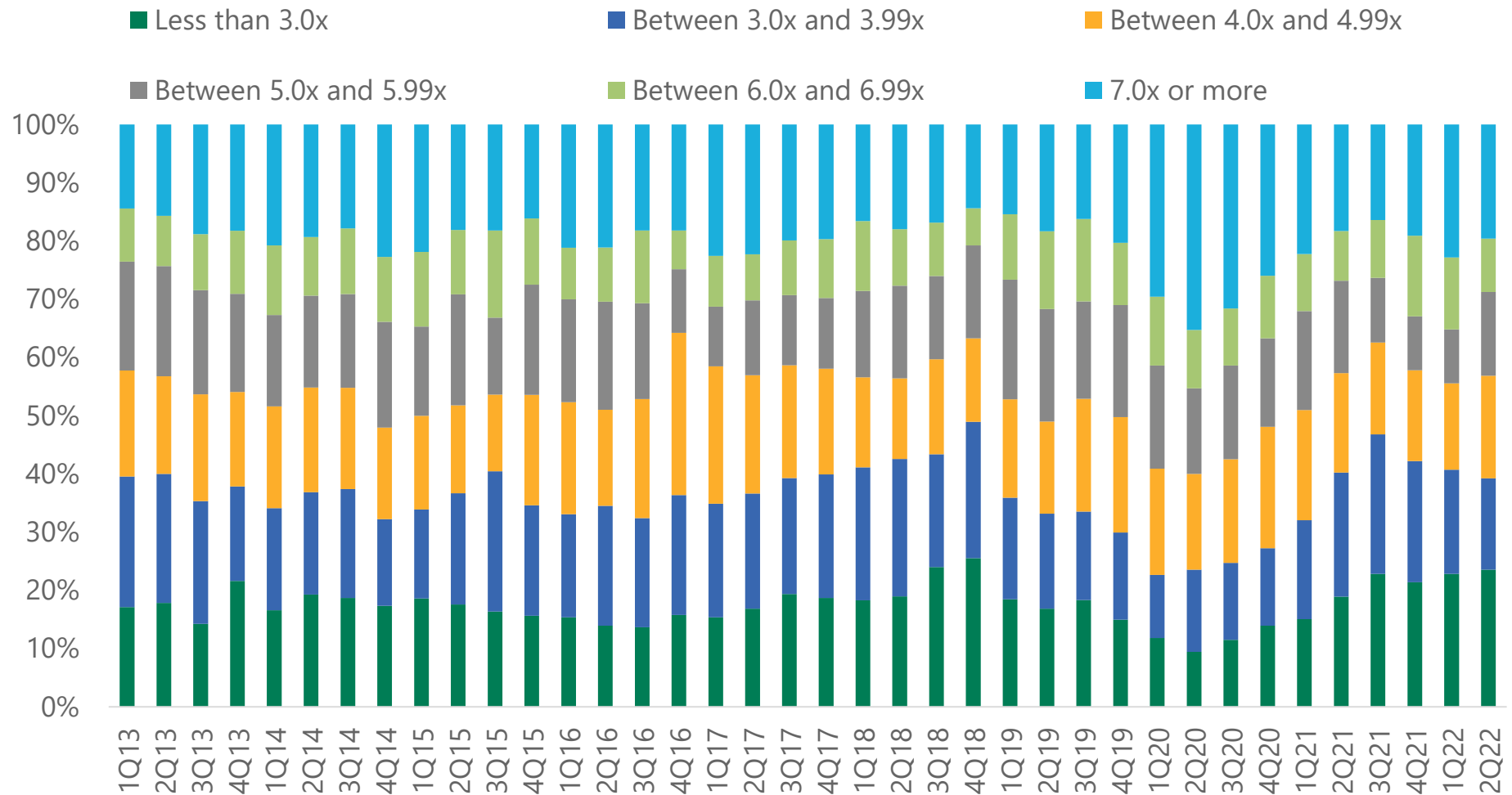


Source: ECB, Bloomberg, Apollo Chief Economist

Loans

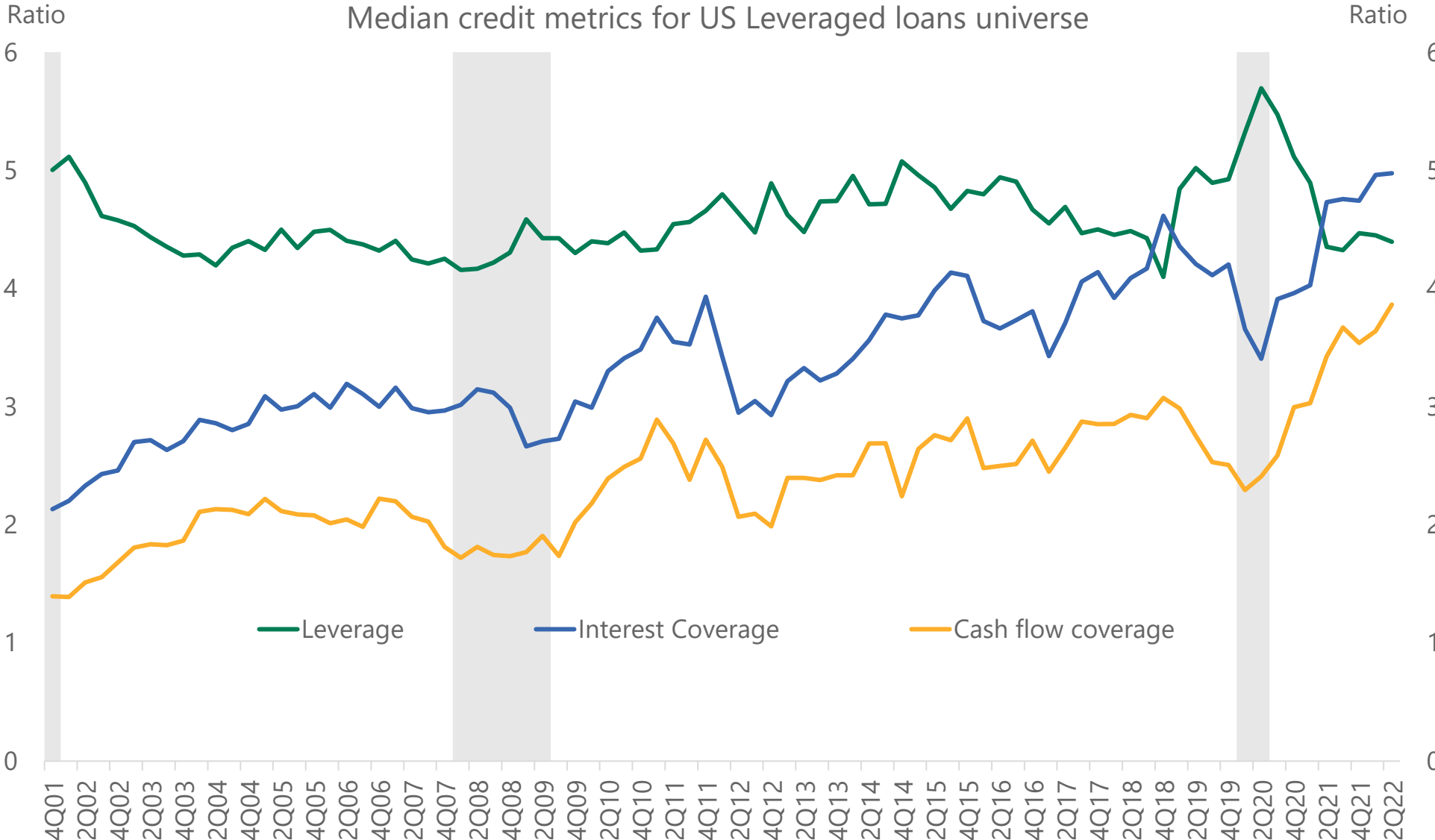
Leveraged loan deals, by multiple

Share of leveraged deals



Source: S&P LCD, Apollo Chief Economist

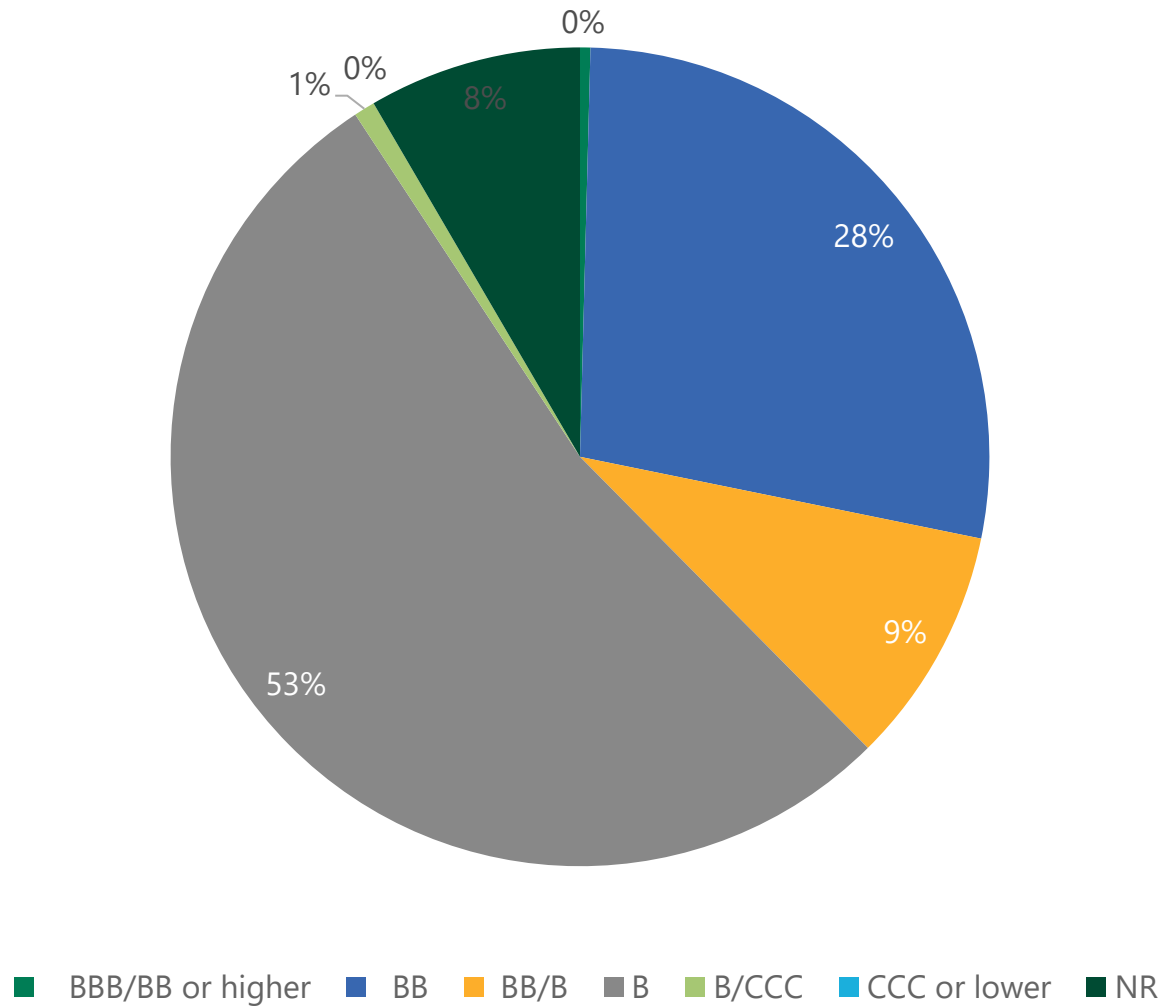
Credit metrics for leveraged loan deals



Source: S&P LCD, Apollo Chief Economist

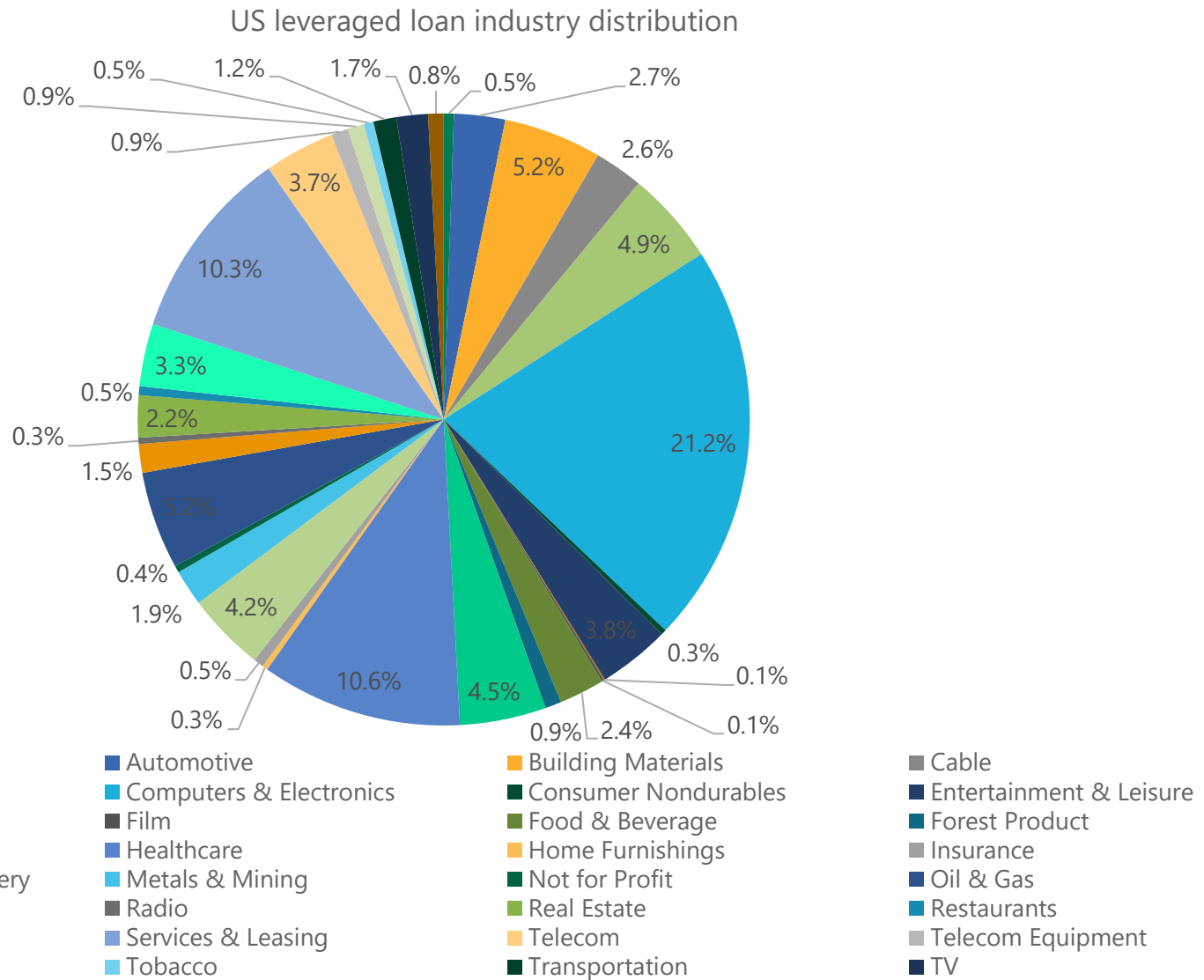
Leveraged loans rating distribution, 2022Q2

US leveraged loan rating distribution



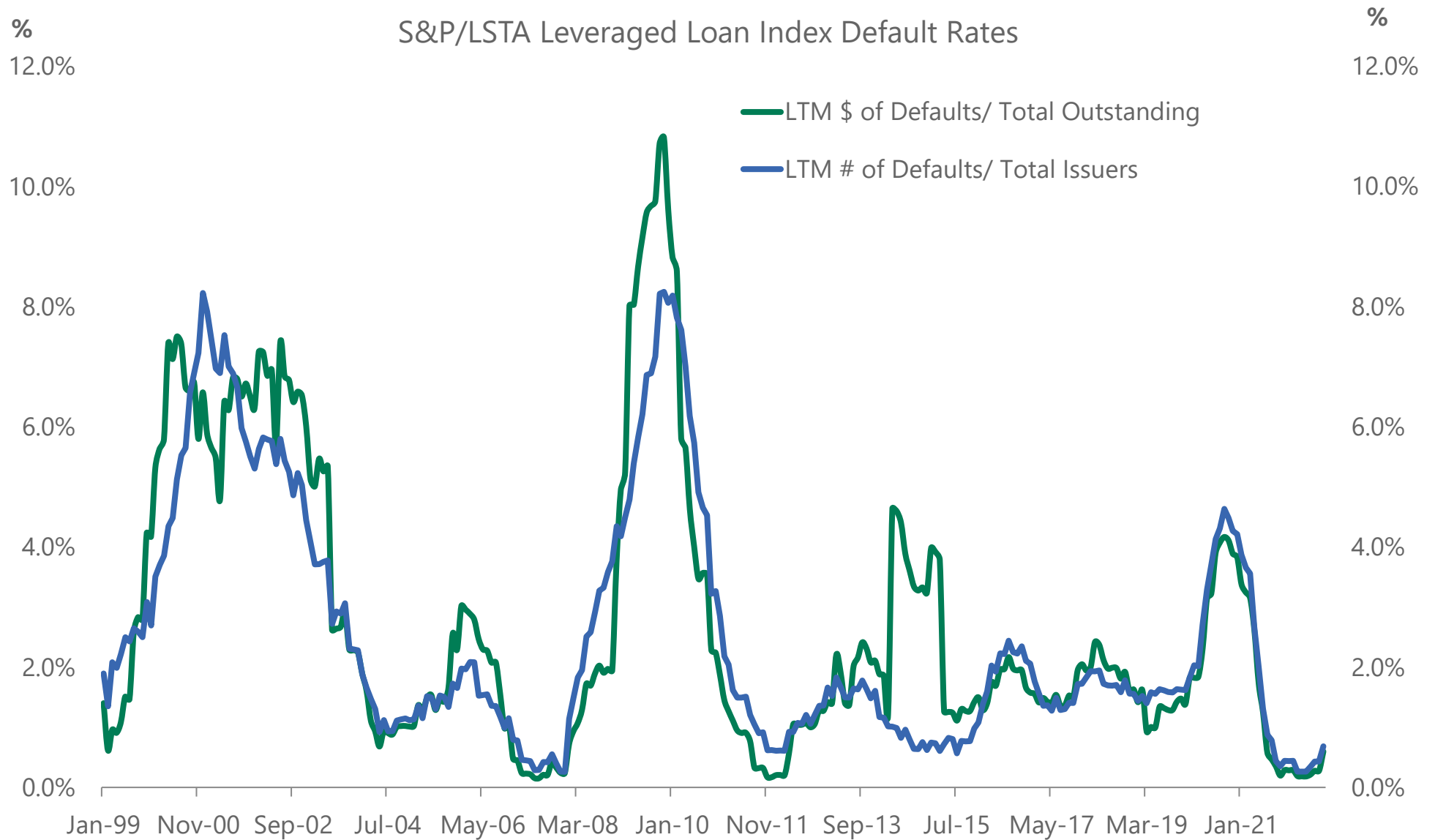
Source: S&P LCD, Apollo Chief Economist

Leveraged loans distribution, by industry, 2022Q2



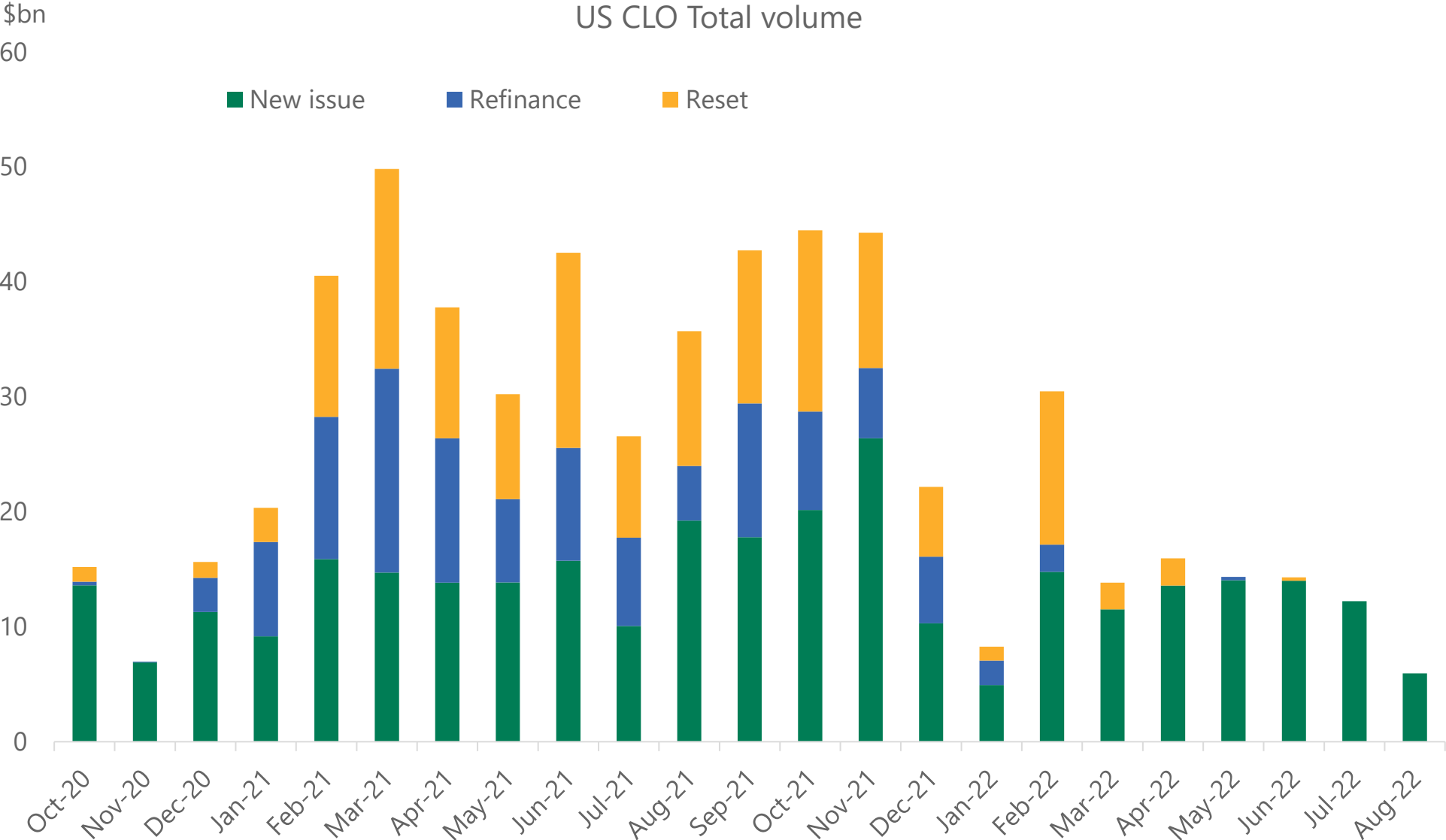
Source: S&P LCD, Apollo Chief Economist

Leveraged loan index default rates starting to rise



Source: S&P LCD, Apollo Chief Economist

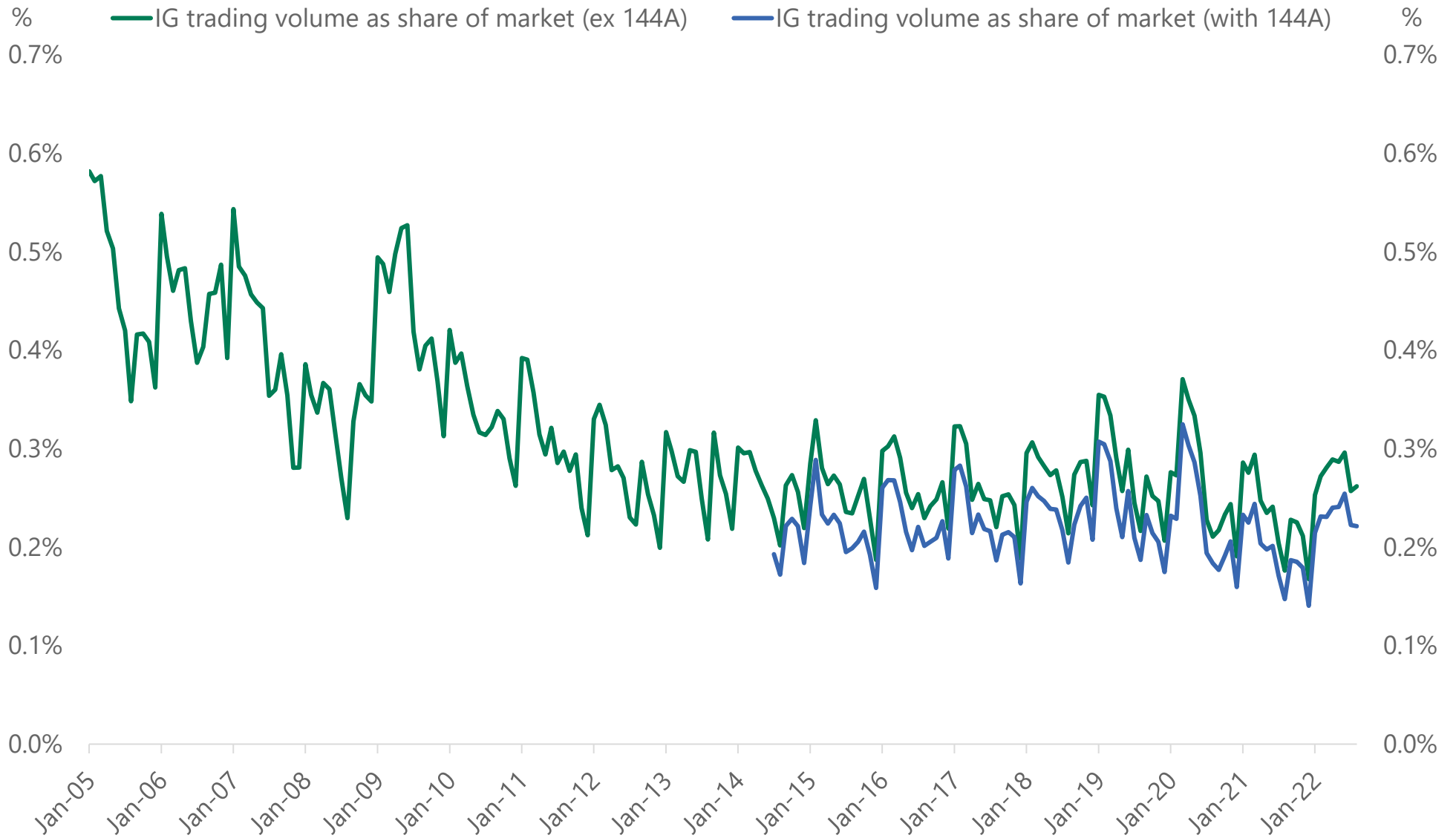
US CLO total volume



Source: S&P LCD, Apollo Chief Economist.

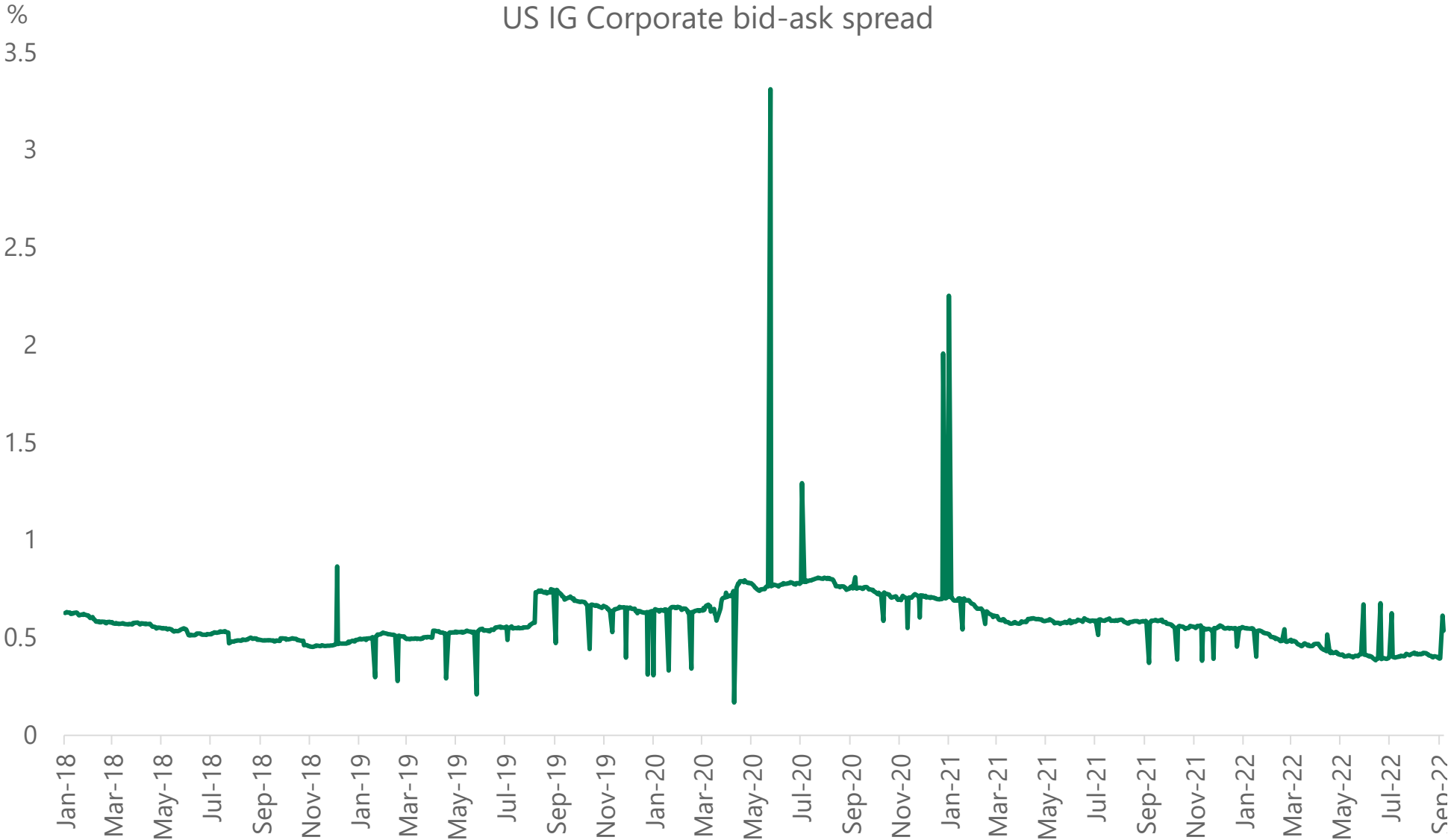
Liquidity in US credit markets

IG trading liquidity



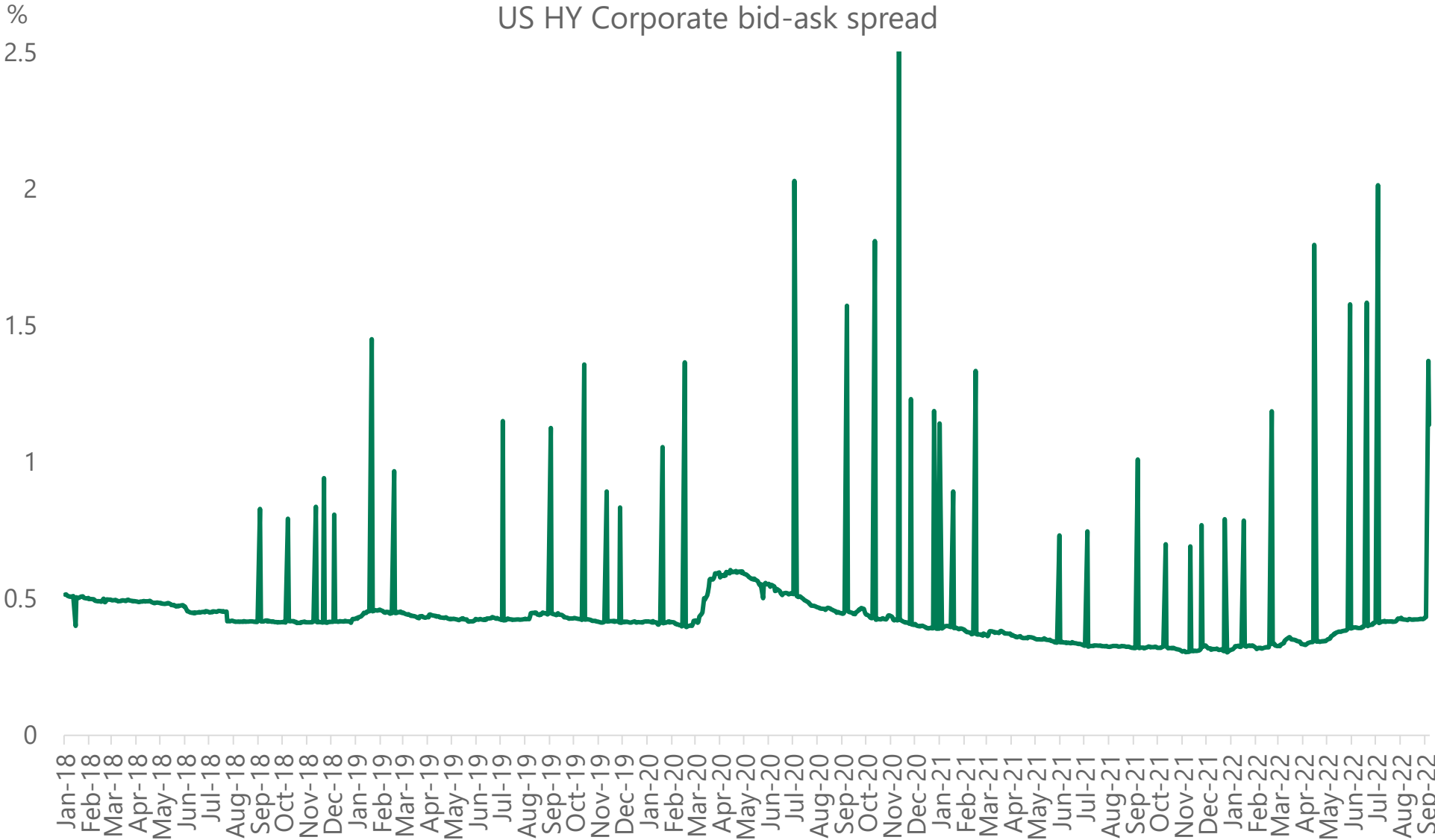
Source: ICE BofA, FINRA TRACE, Haver Analytics, Apollo Chief Economist

Bid-ask spread for US IG



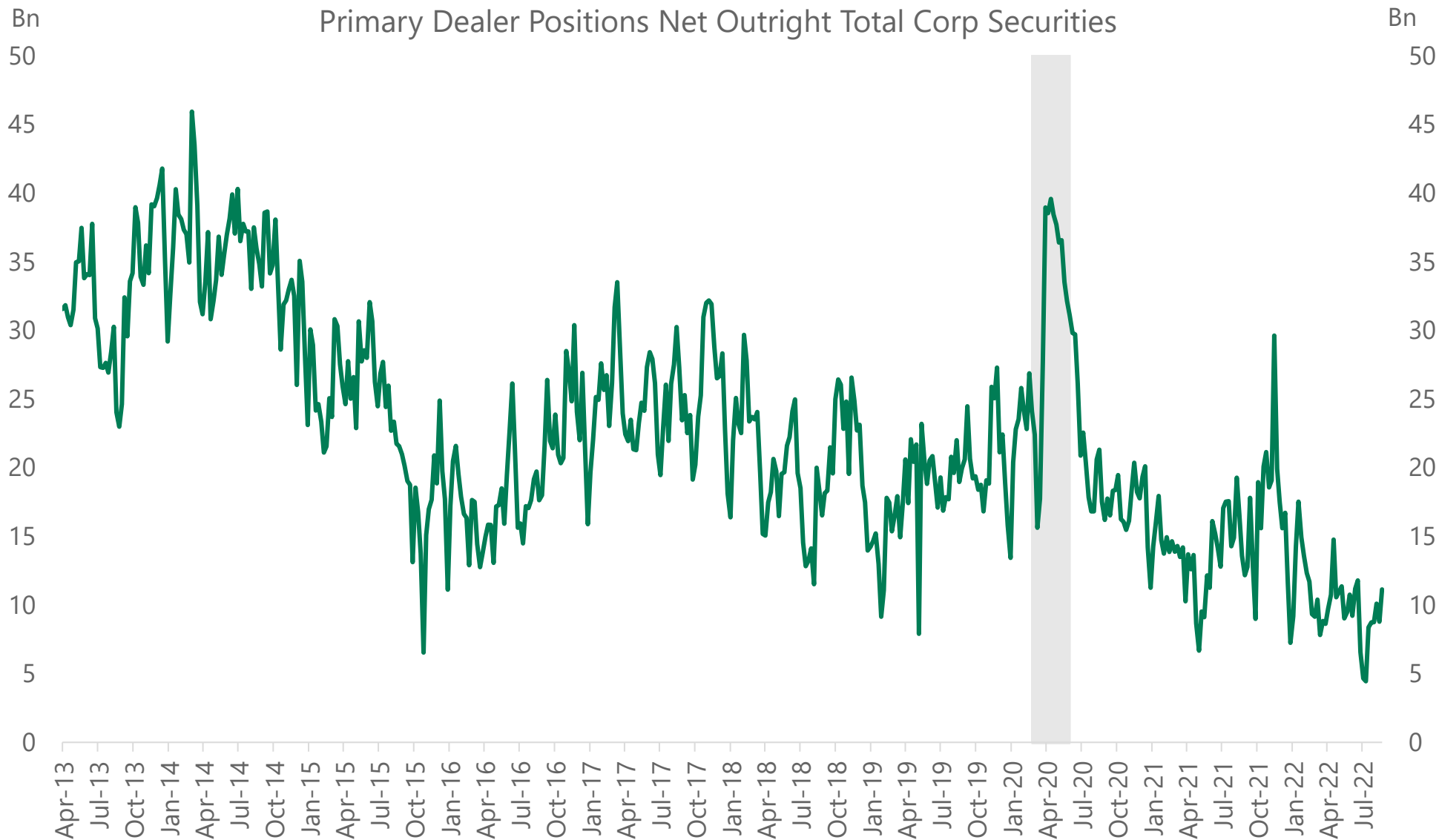
Source: Bloomberg, Apollo Chief Economist. Note: The bid-ask spread is the weighted average of Bloomberg Barclays US IG Index

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

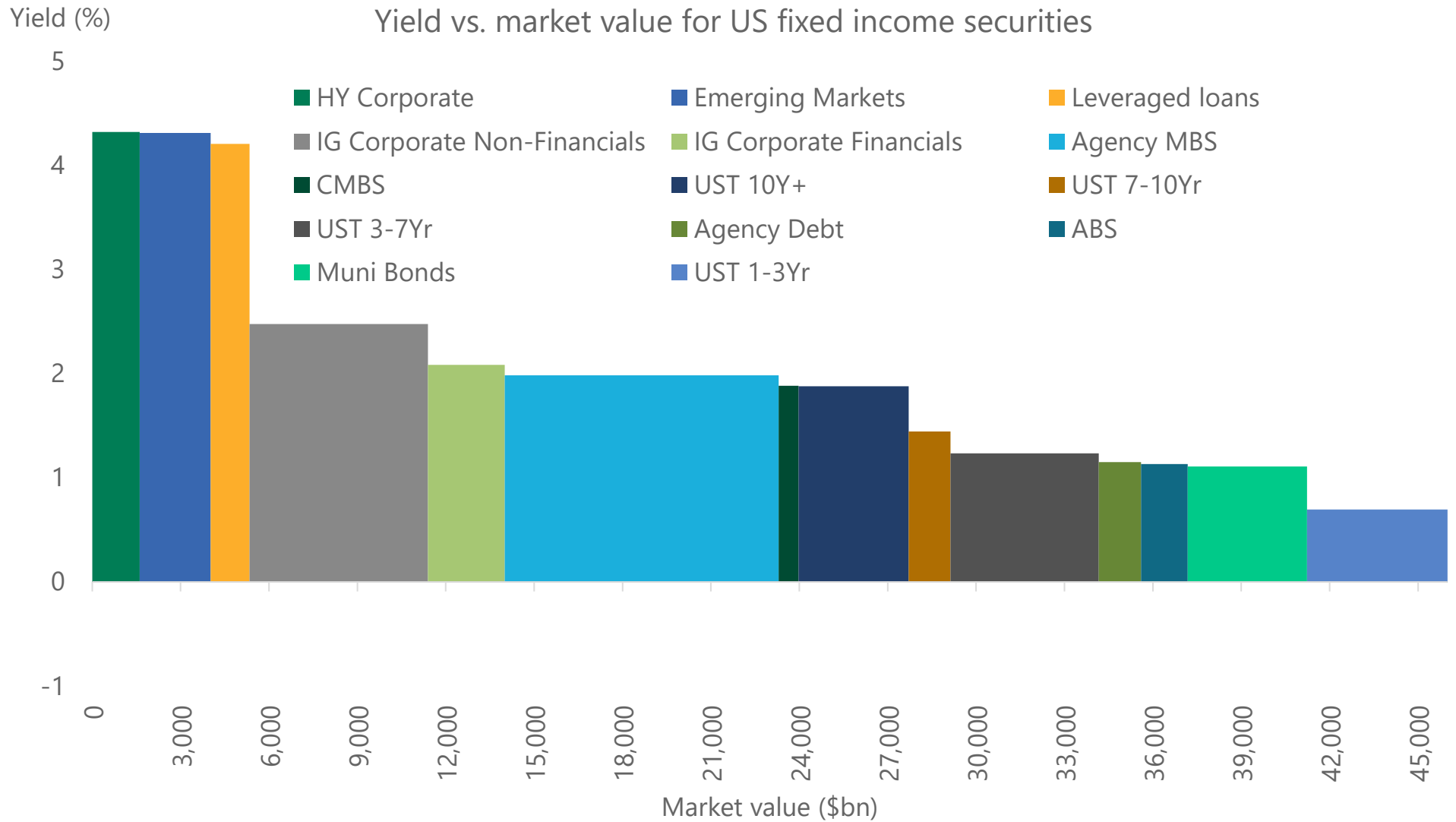
Very low dealer inventory of corporate bonds (IG+HY)



Source: Bloomberg, Apollo Chief Economist

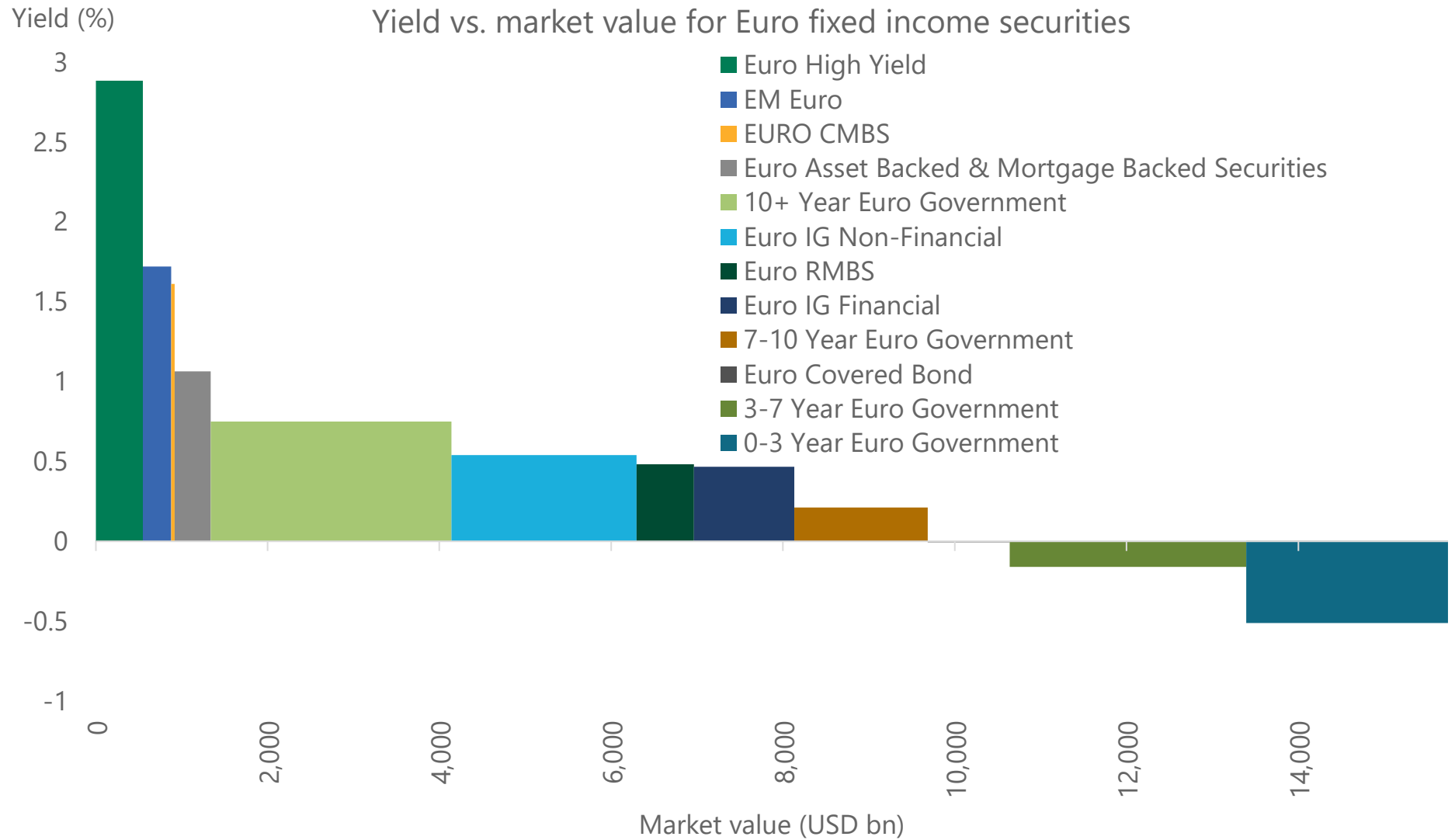
Credit markets in a broader perspective

US fixed income markets by yield and size



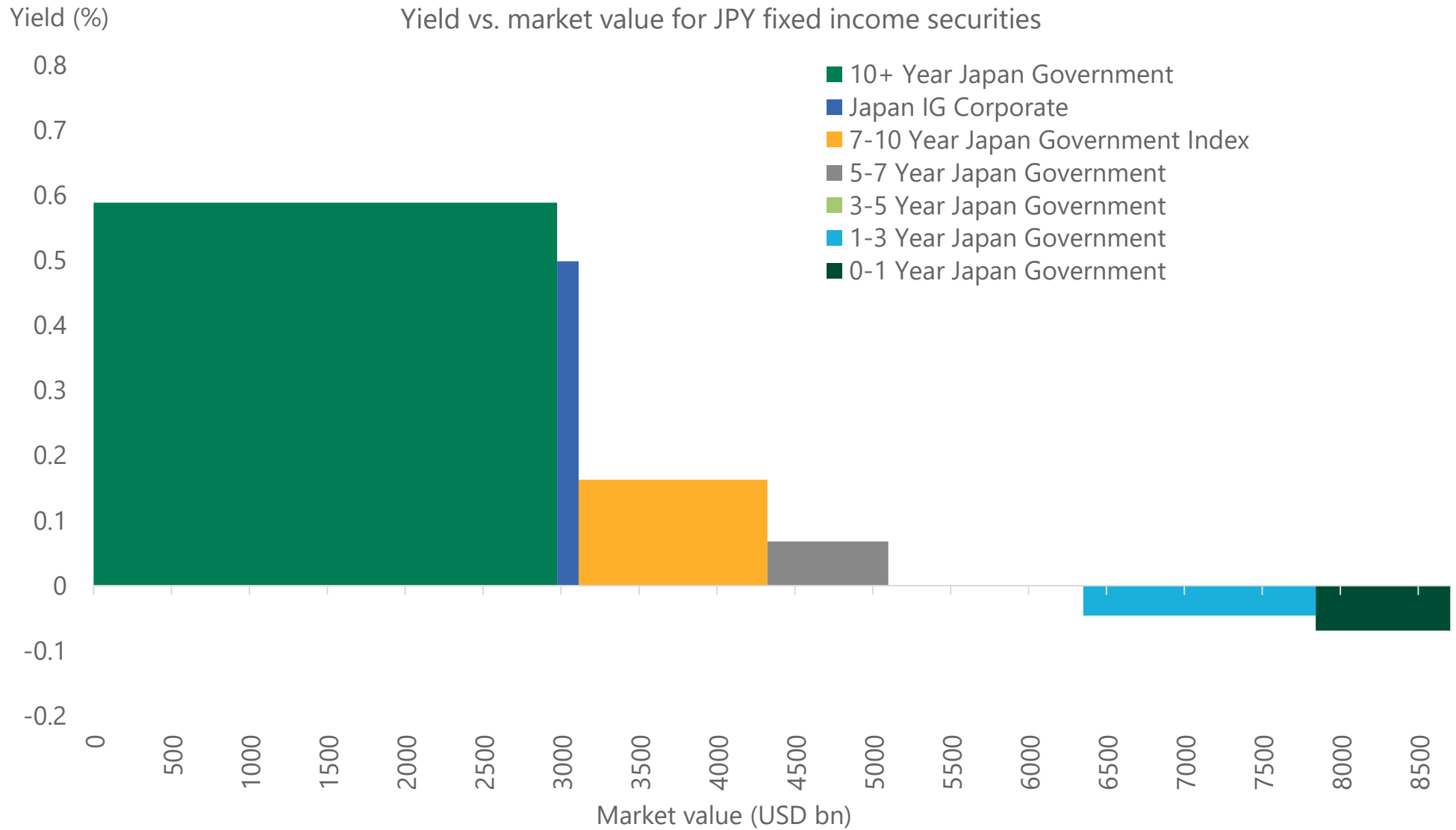
Source: Bloomberg Barclays, SIFMA, ICE BofA, S&P LCD, Bloomberg, Apollo Chief Economist. Note: data as of 4Q21

European fixed income markets by yield and size



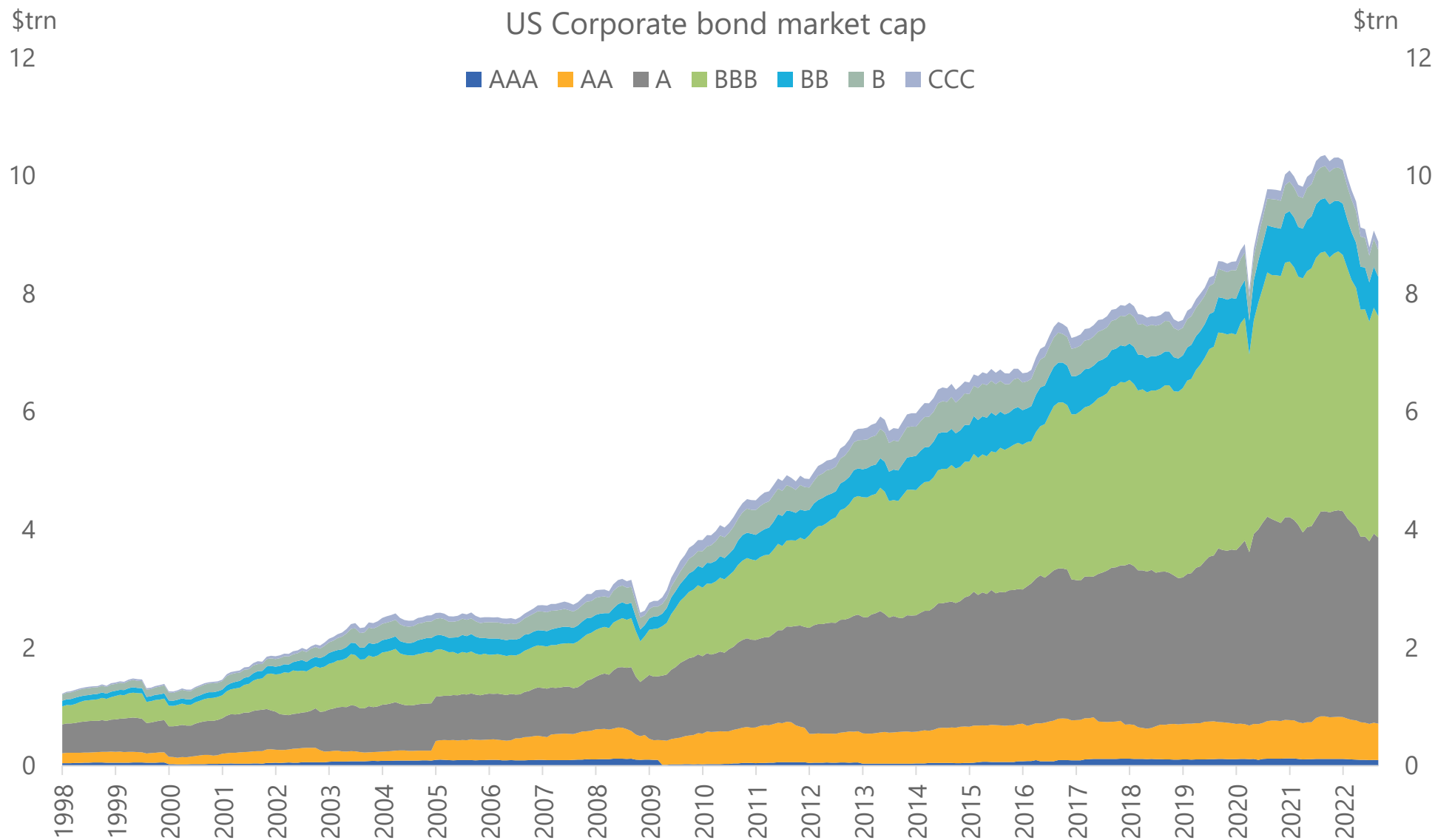
Source: Bloomberg Barclays, AFME, ICE BofA, S&P LCD, Bloomberg, Apollo Chief Economist. Note: data as of 4Q21

Japan fixed income markets by yield and size



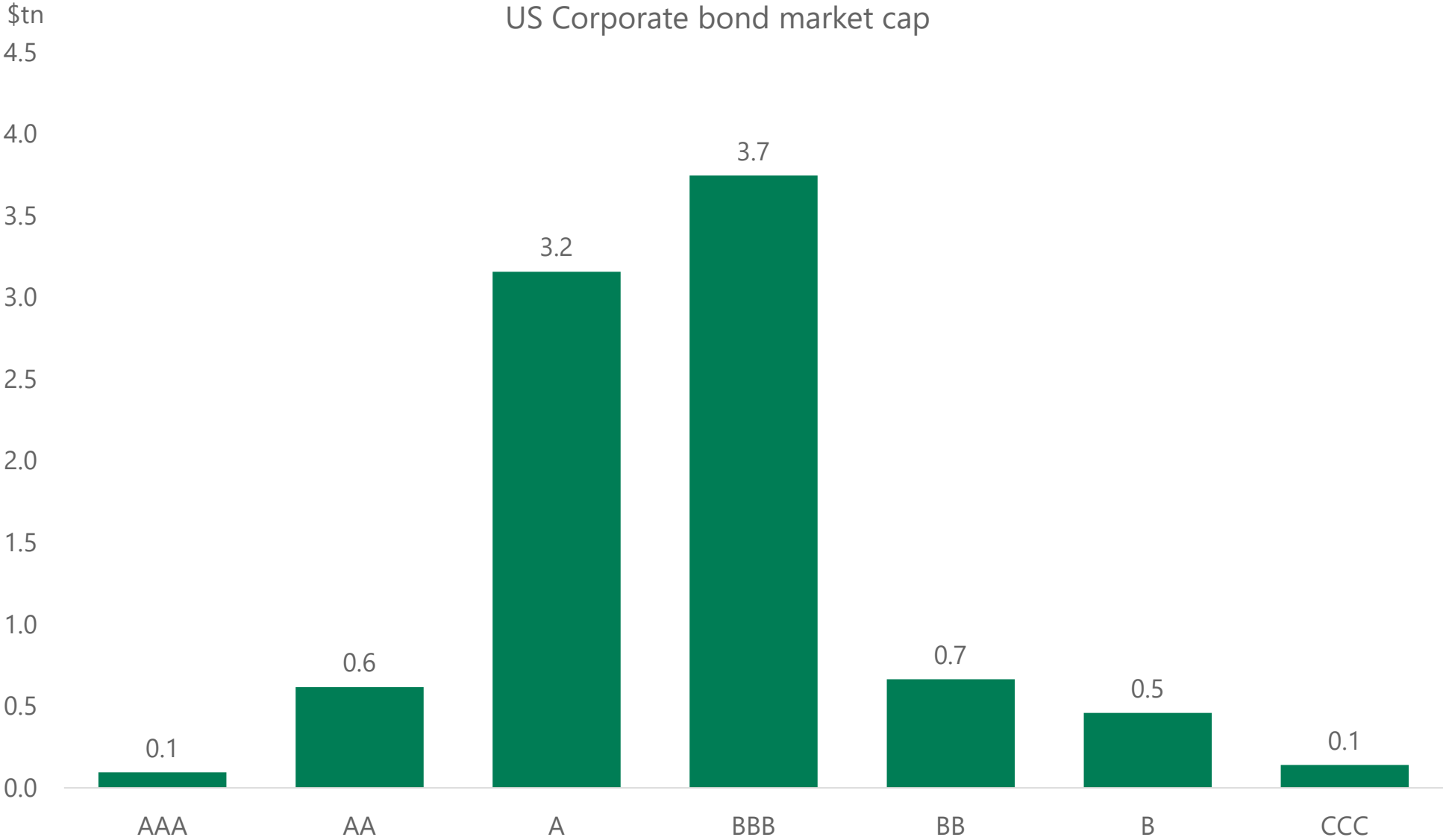
Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 1Q22

Market cap of US credit markets



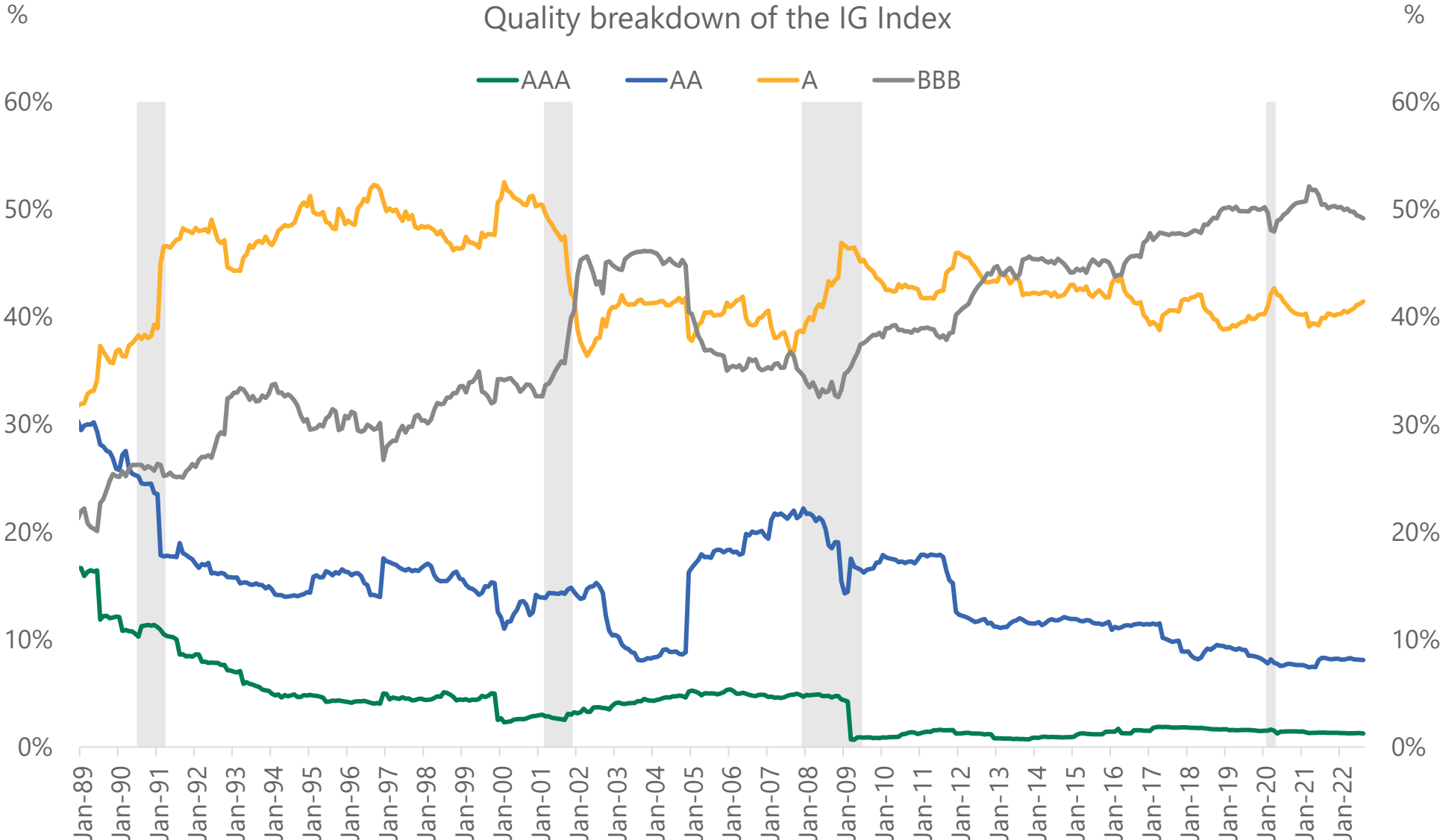
Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 31st August 2022

Corporate bond market cap, by rating



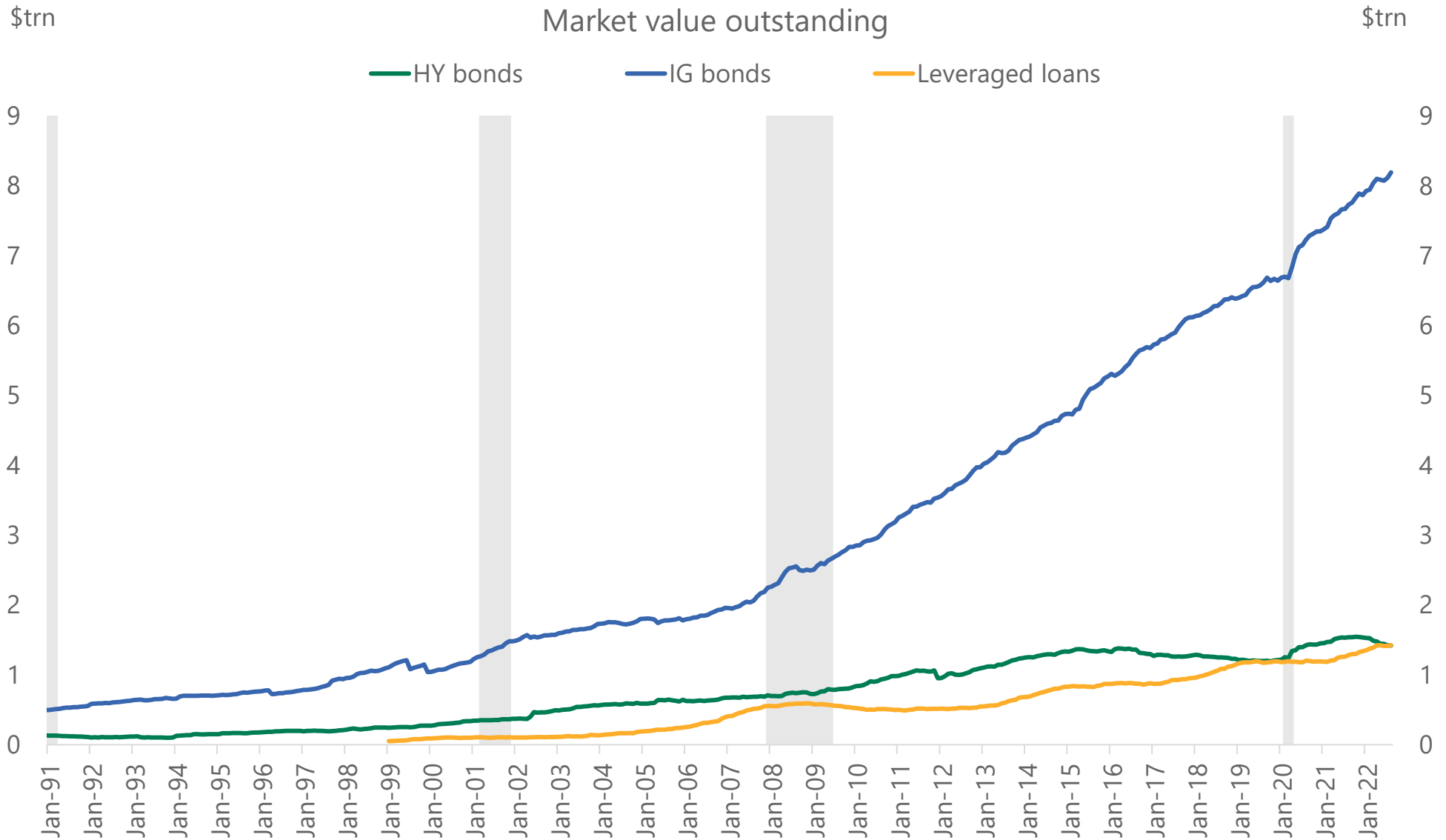
Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 31st August 2022

Quality breakdown of the IG Index



Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Breakdown by market value. Data as of 31st August 2022

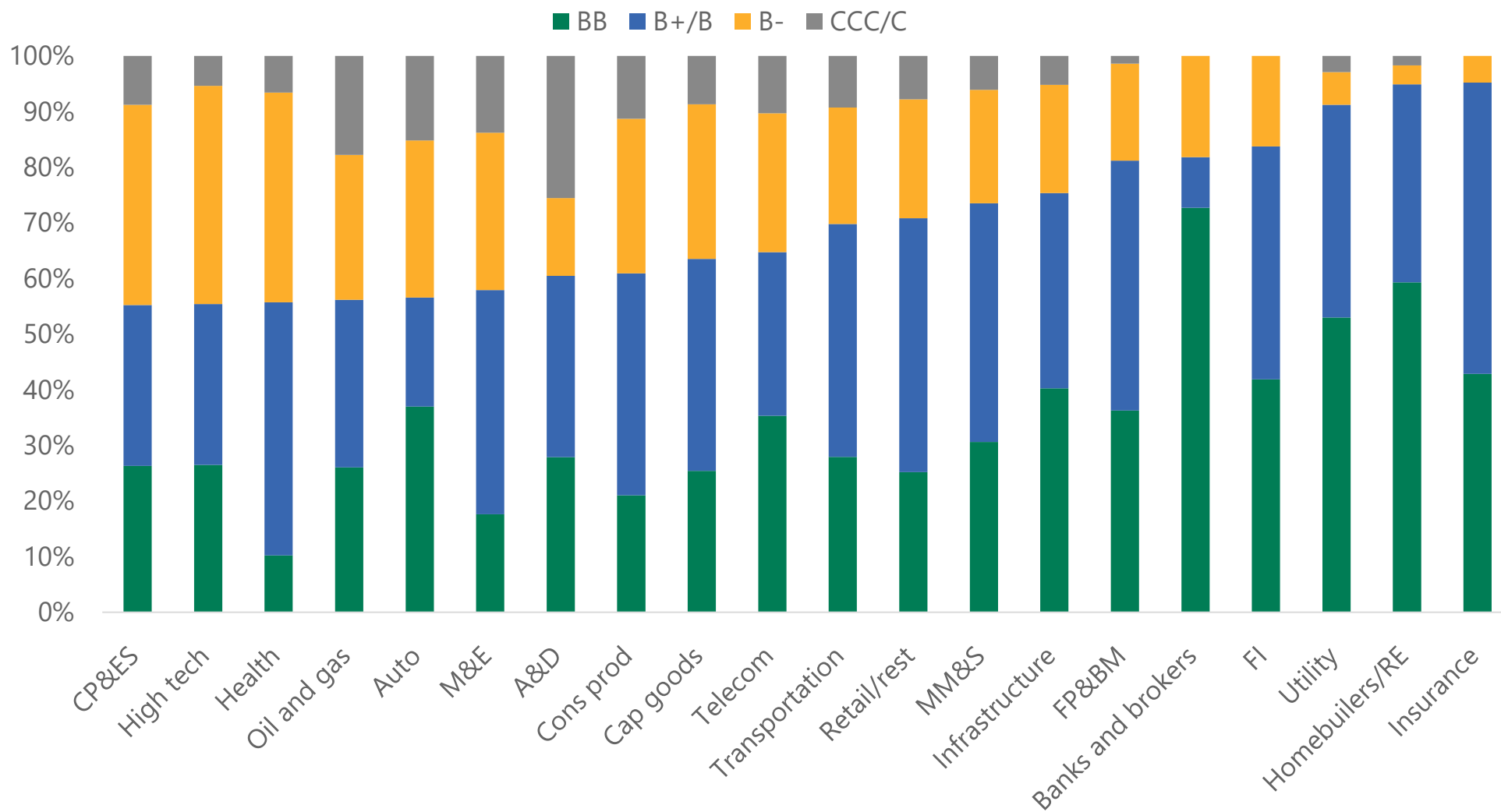
IG market is five times bigger than HY and five times bigger than the loan market



Source: ICE BofA, Bloomberg, S&P 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.

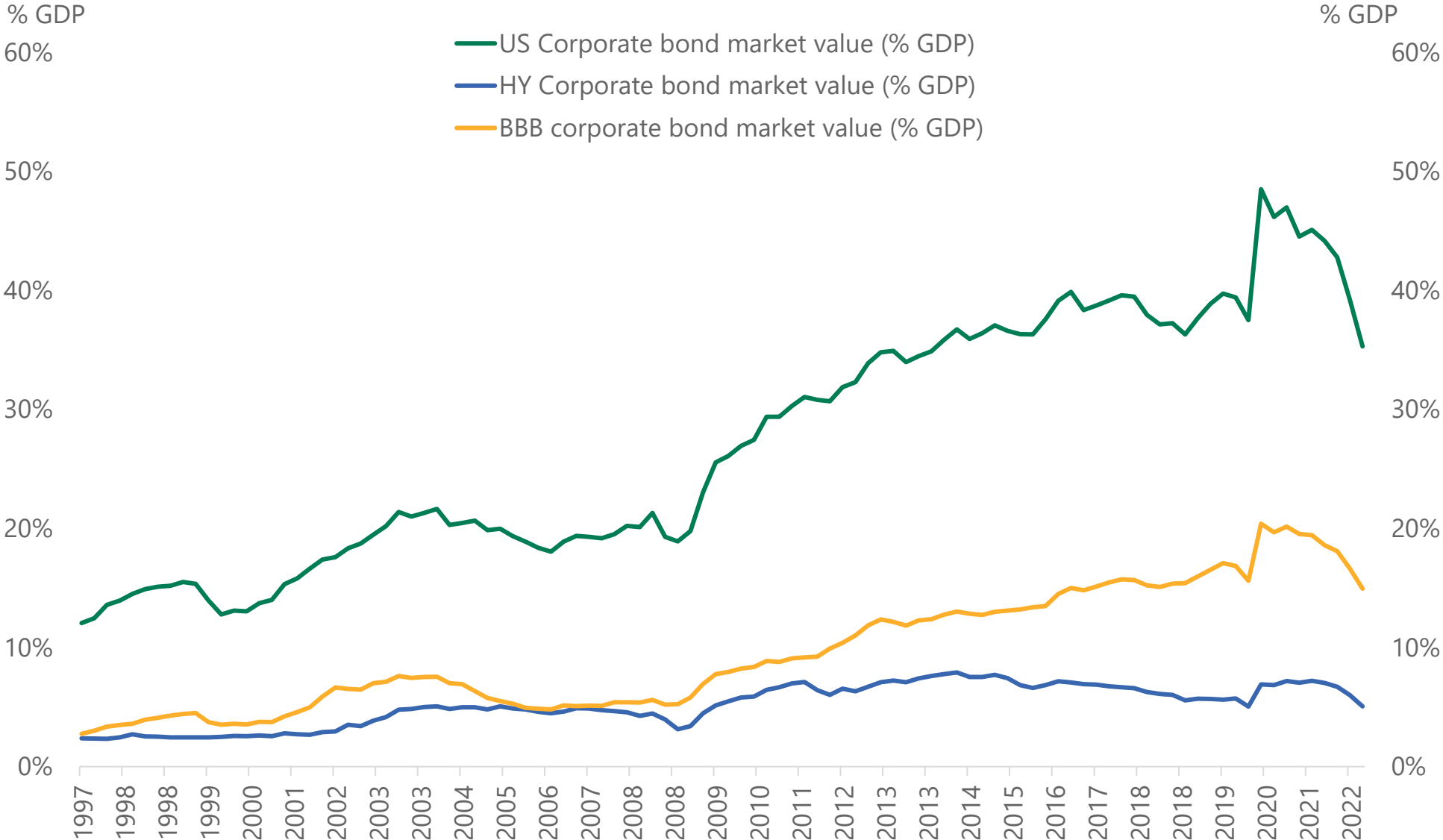
HY sector rating distributions

Sector rating distributions as of Dec 31, 2021



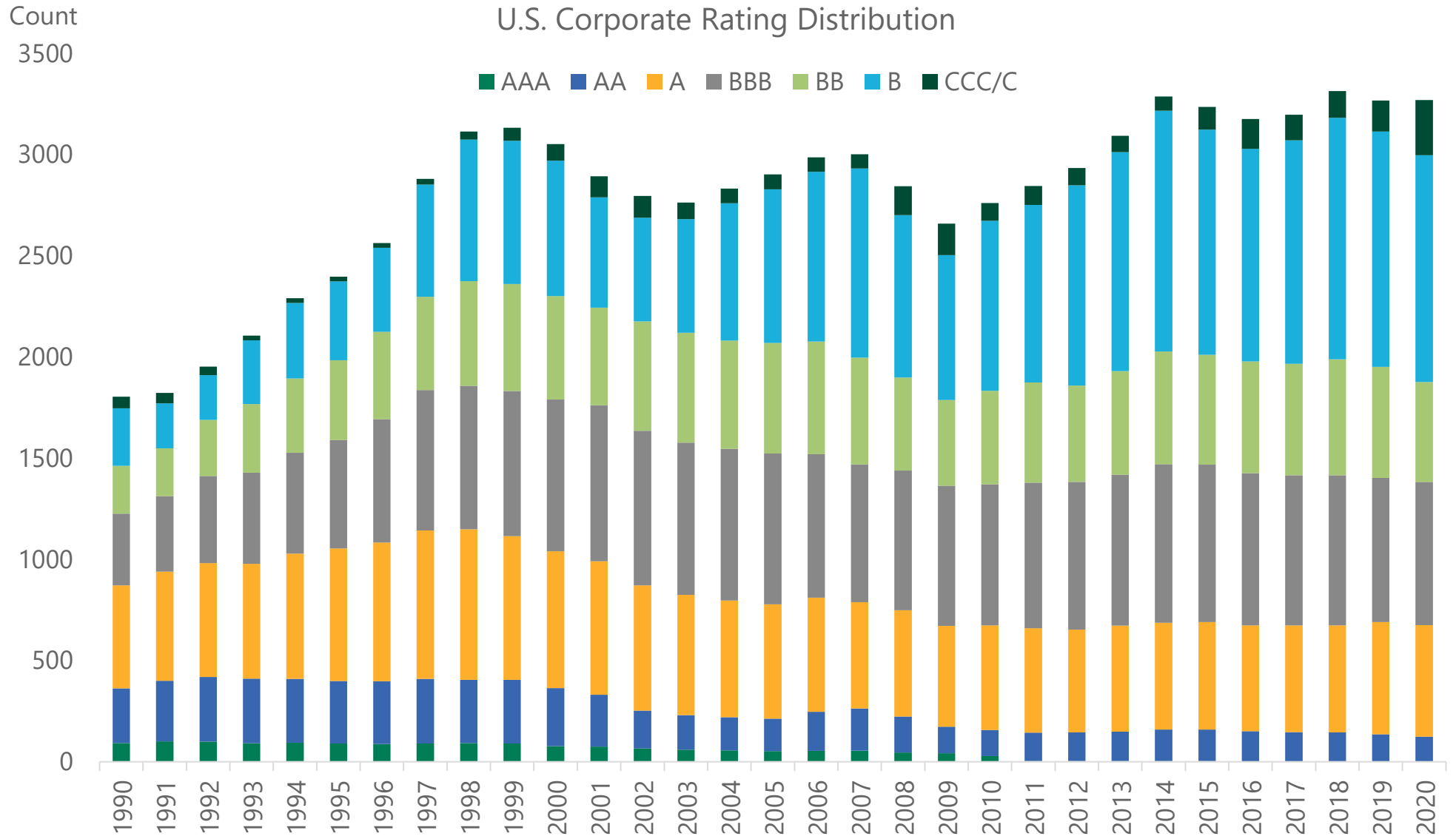
Source: S&P Global Ratings Research and S&P Global Market Intelligence's CreditPro®, Apollo Chief Economist. Note: Numbers in parentheses represent overall sector's proportion of the speculative-grade population. CP&ES--Chemicals, packaging, and environmental services. FP&BM--Forest products and building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

US corporate bond markets as a share of GDP



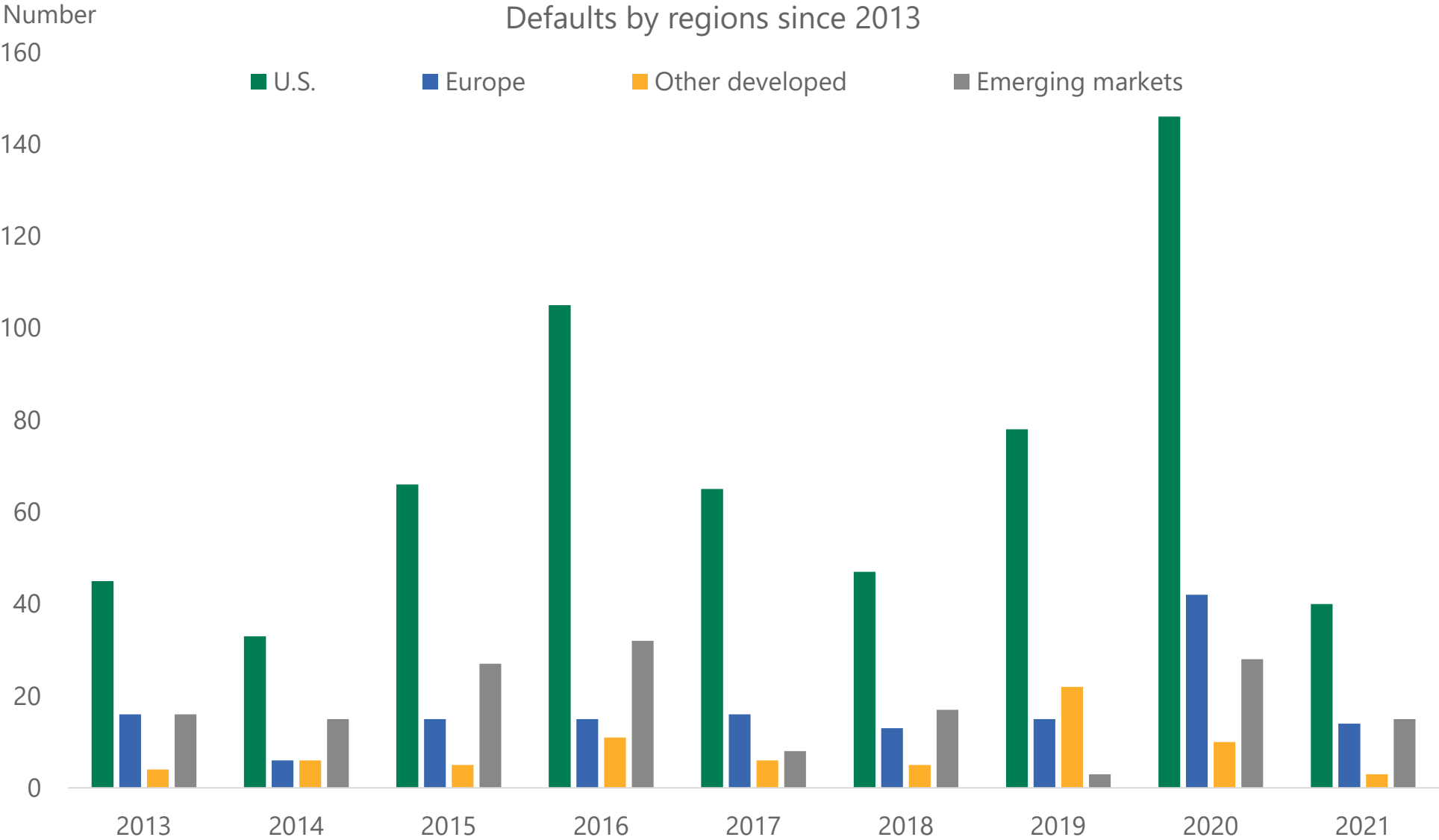
Source: ICE BofA, BEA, Haver Analytics, Bloomberg, Apollo Chief Economist

Distribution of corporate credit ratings



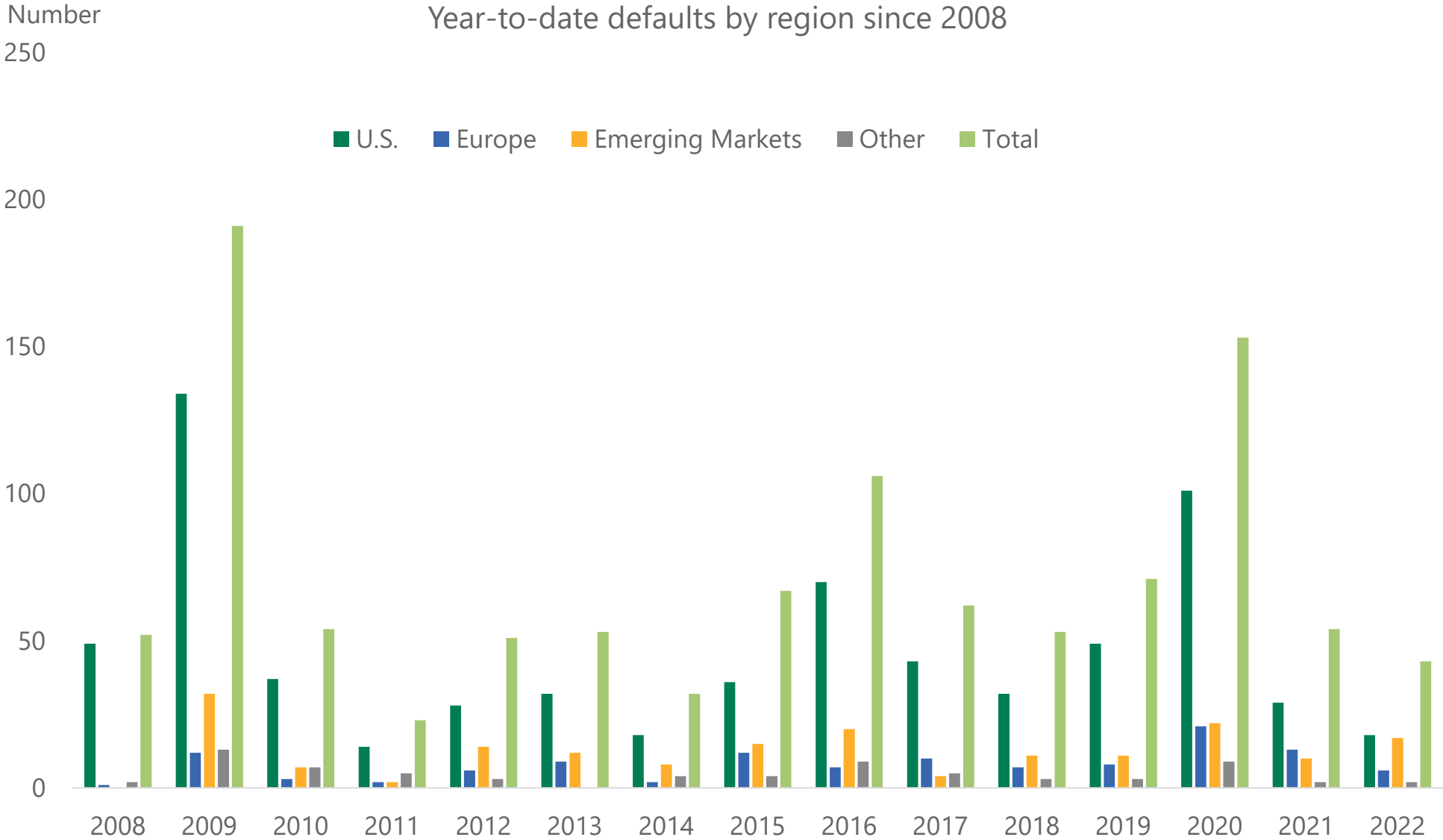
Source: S&P, Apollo Chief Economist

Global default rates remain low



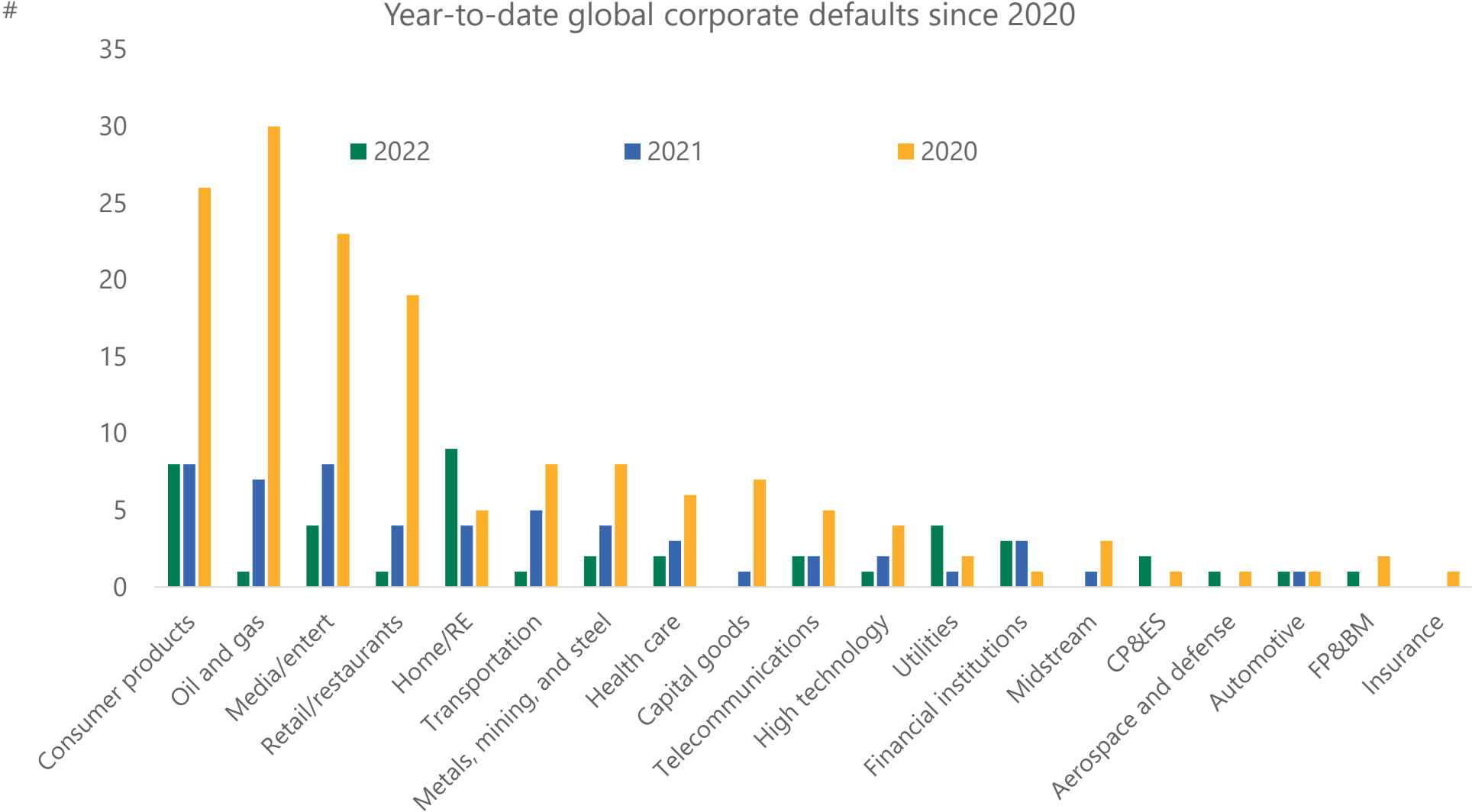
Sources: S&P Global Ratings Research and S&P Global Market Intelligence's CreditPro®, Apollo Chief Economist. Note: Data as of 5th January 2022

Global default rates remain very low



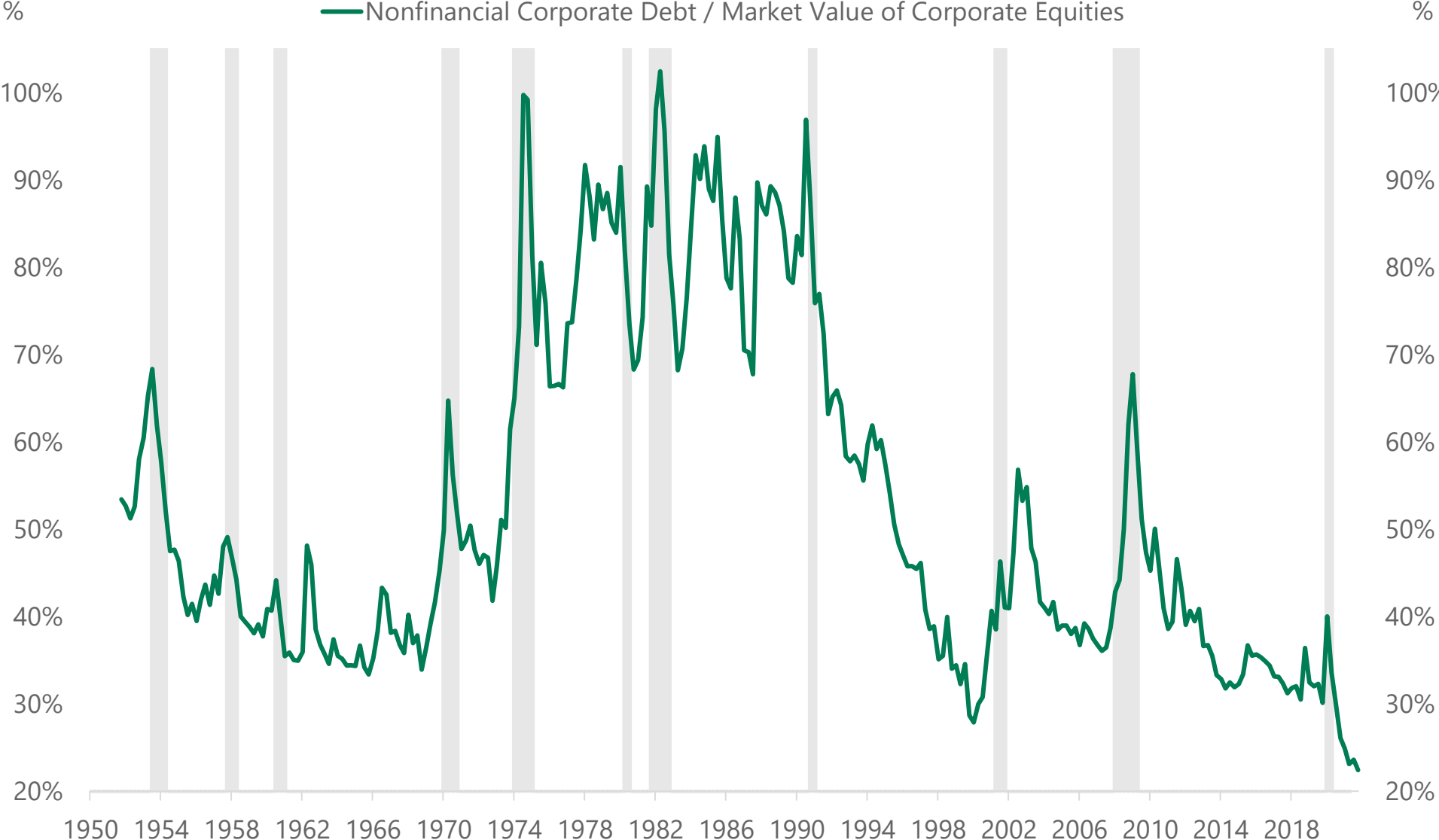
Sources: S&P Global Ratings Research and S&P Global Market Intelligence's CreditPro®, Apollo Chief Economist. Note: Data as of 31st July 2022

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 25th May 2022

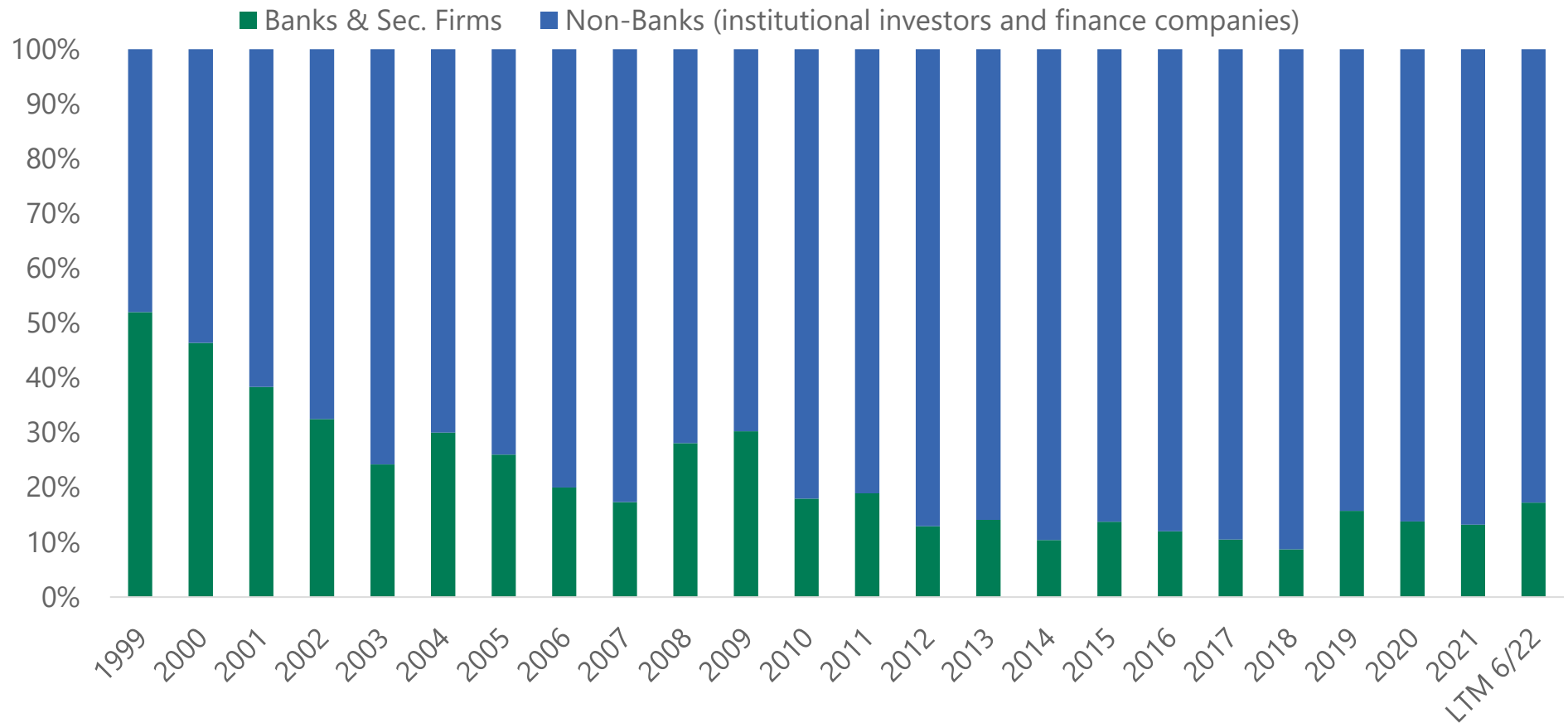
Record-low debt-to-equity ratio for corporate America



Source: FRB, Haver Analytics, Apollo Chief Economist.

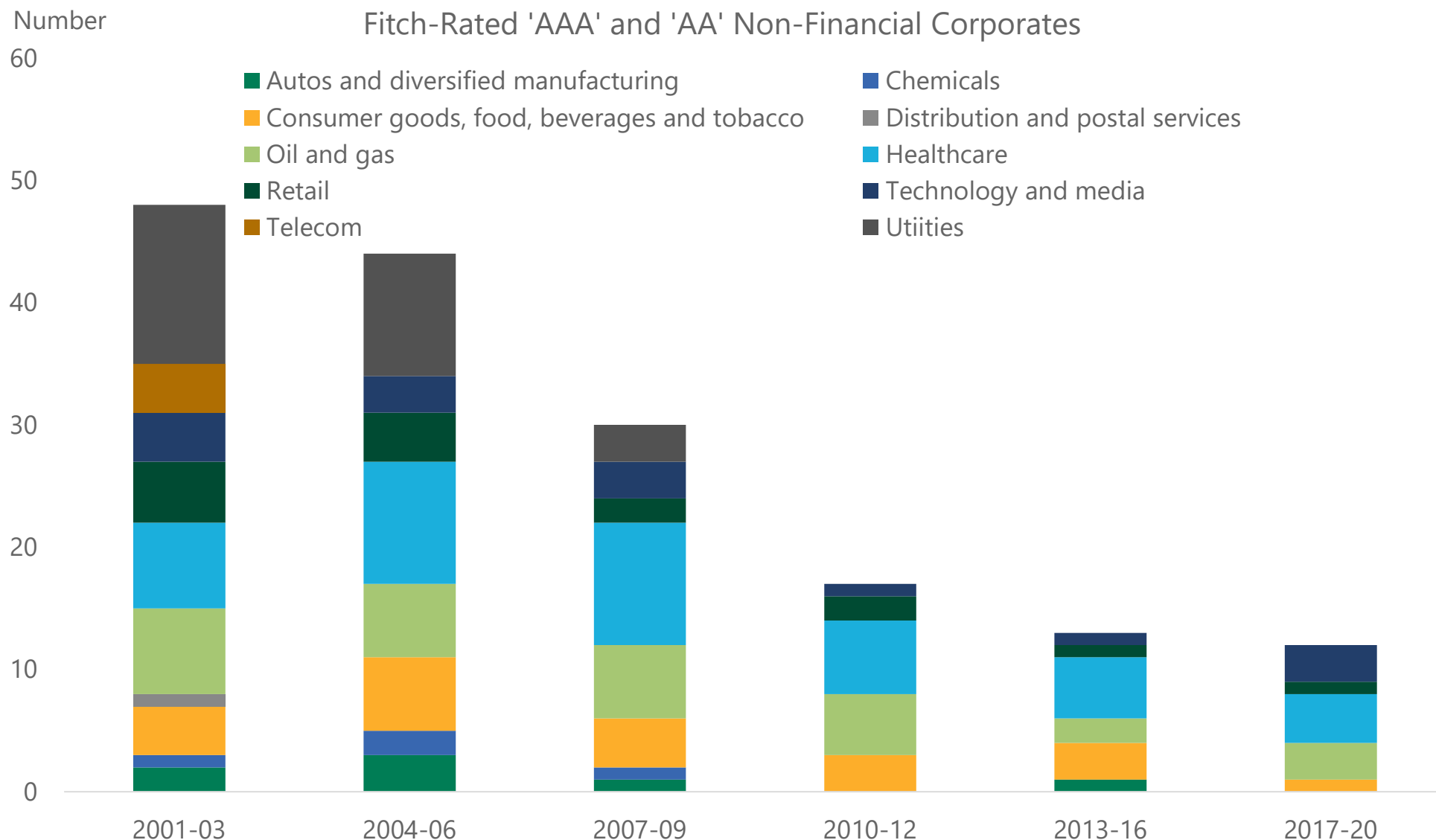
More leveraged loans are bought by banks

Primary Investor Market: Leveraged Loans



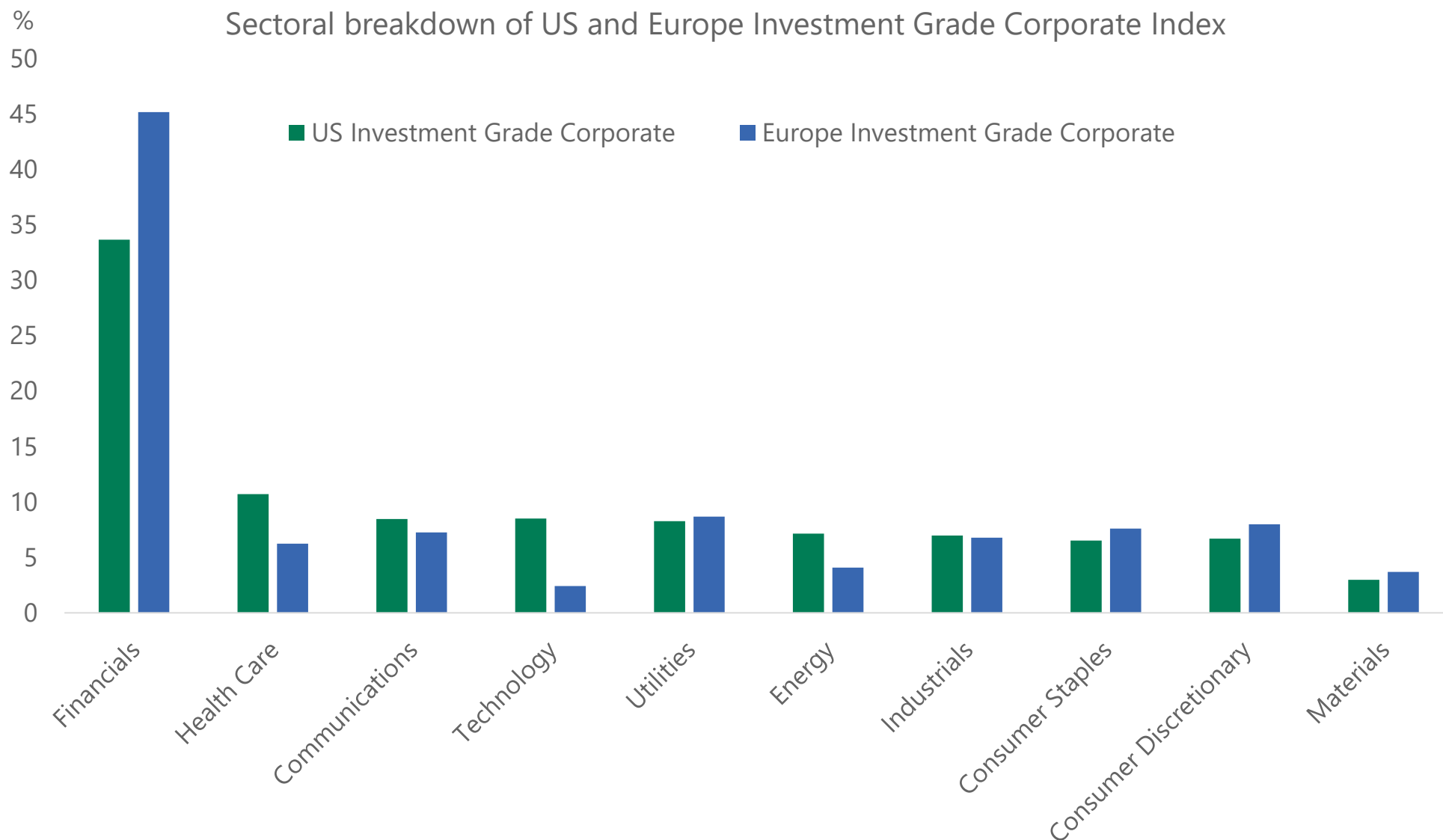
Source: S&P LCD, Apollo Chief Economist

Fewer and fewer corporate bonds are rated AAA and AA



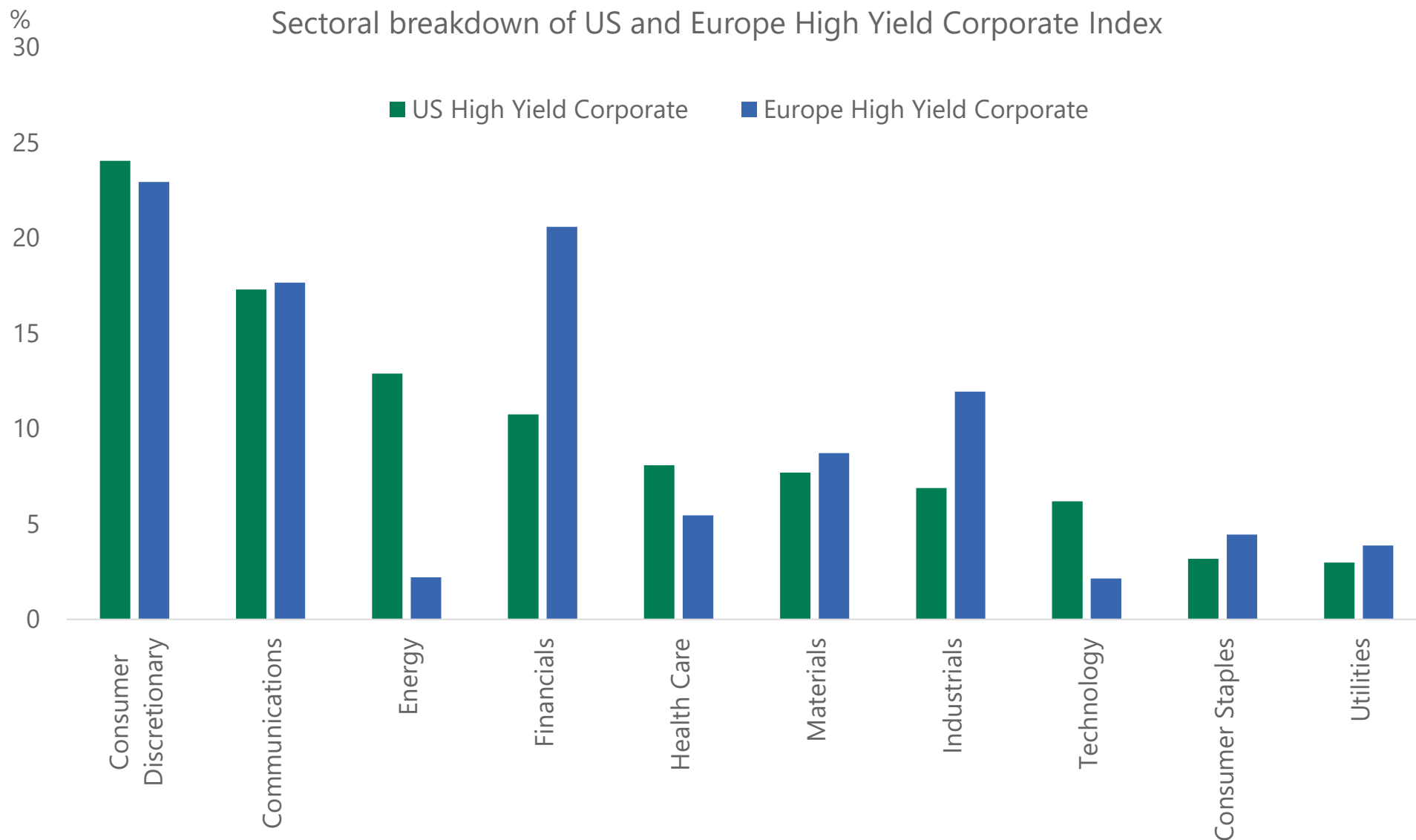
Source: Fitch Ratings, Apollo Chief Economist. Note: Including state-linked issuers with Standalone Credit Profiles in the 'AA' category. Data cover issuers that have been rated for at least six years or at end-2020.

EU IG index: Bigger weight to financials, lower weight to energy, healthcare and tech



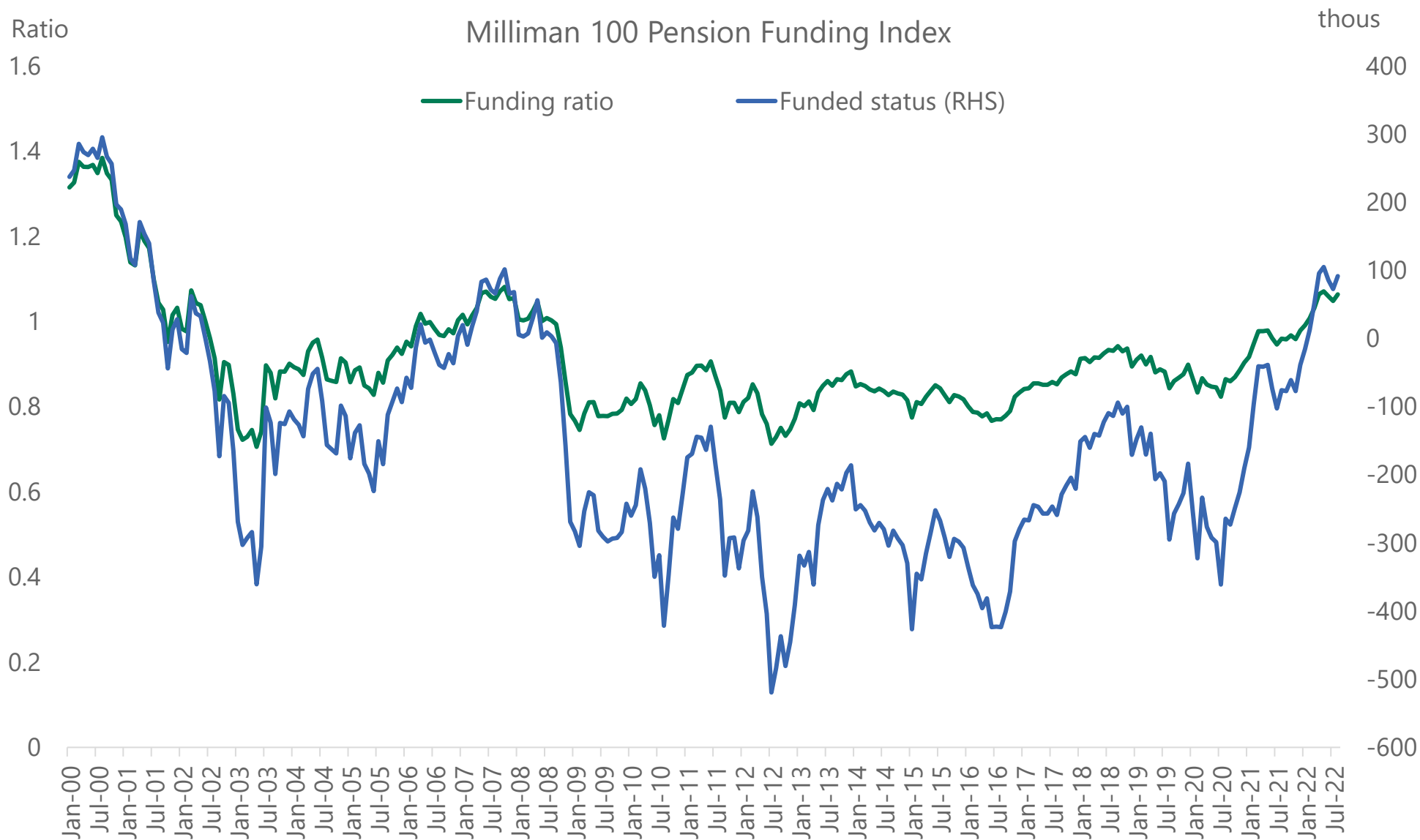
Source: Bloomberg Barclays, Bloomberg, Apollo Chief Economist. Data as of 30th June 2022

EU HY index: Bigger weight to financials and industrials. Lower weight to energy, healthcare, and tech



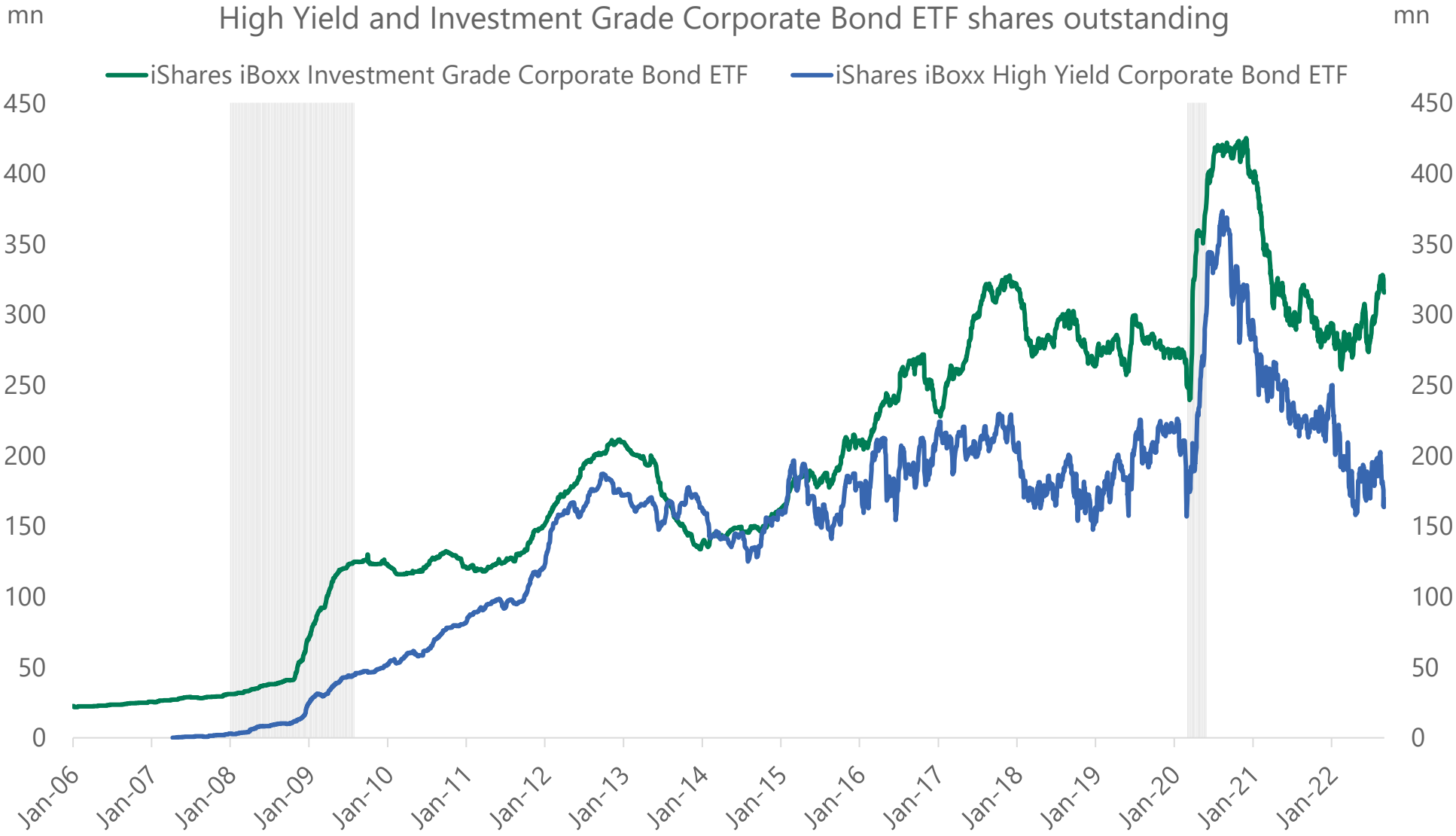
Source: Bloomberg Barclays, Bloomberg, Apollo Chief Economist Data as of 30th June 2022

Pension funding status has improved



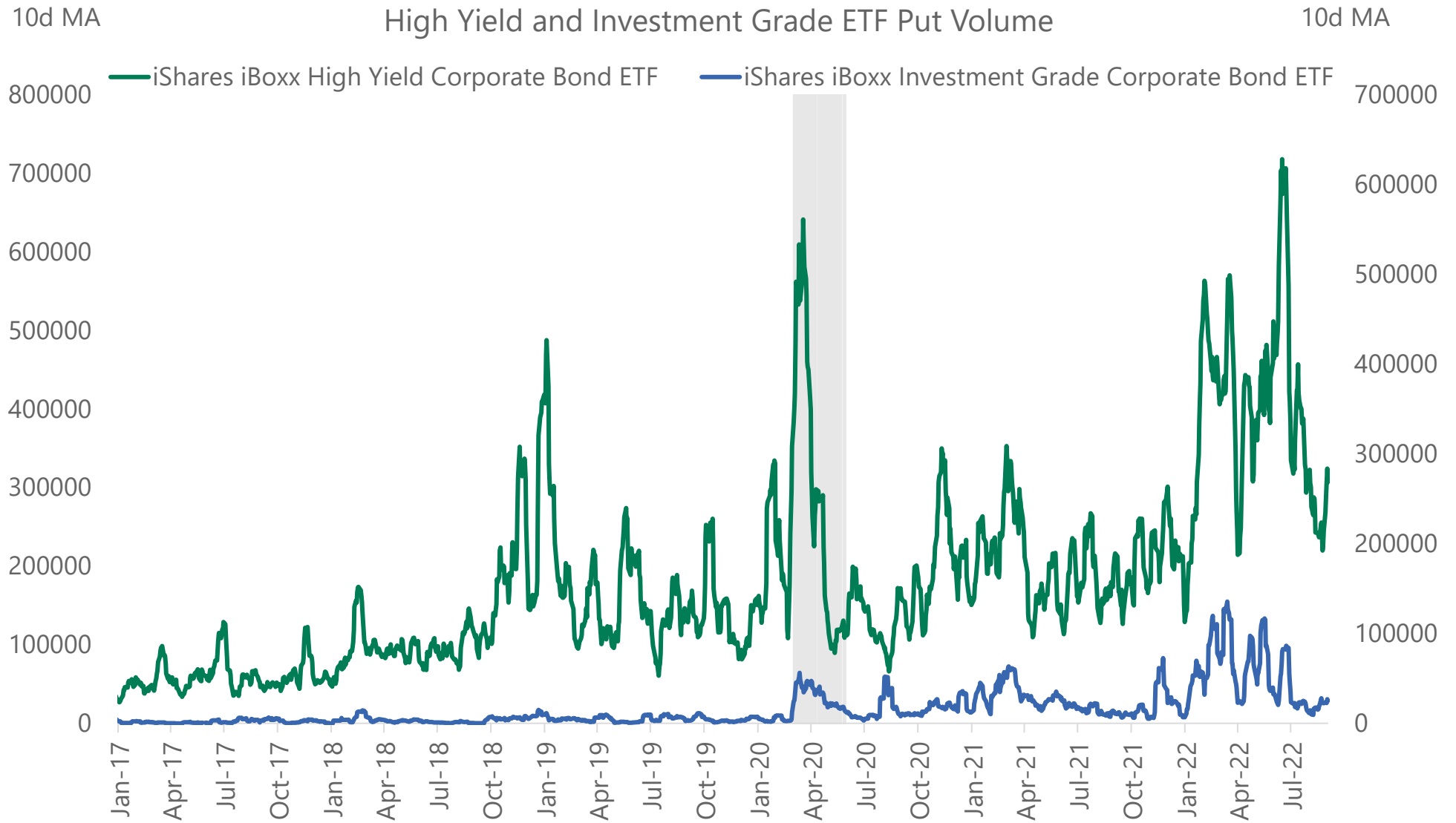
Source: Milliman, Bloomberg, Apollo Chief Economist

Retail investors putting money into IG and taking money out of HY



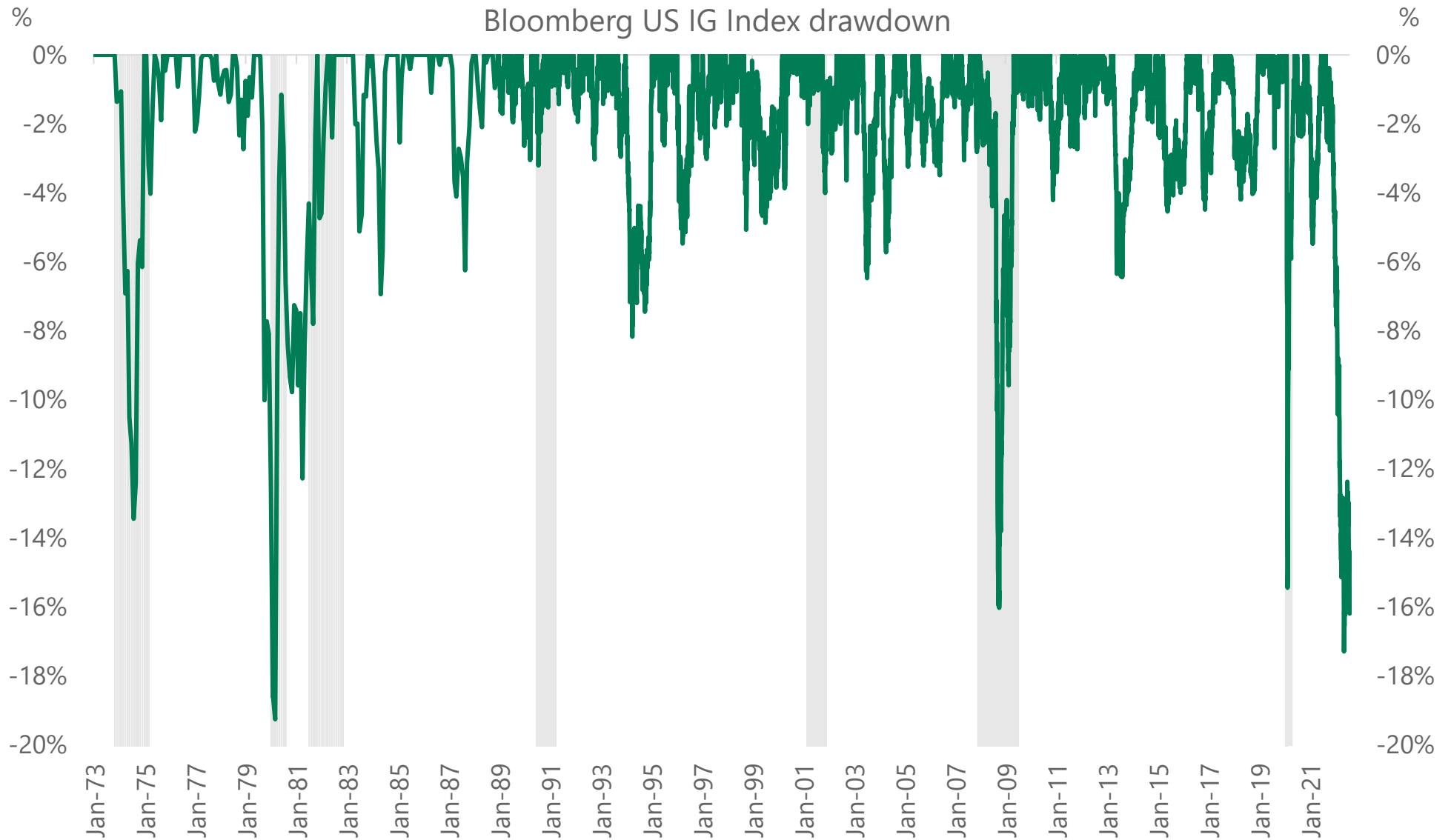
Source: Bloomberg, Apollo Chief Economist. Note: Ticker used HYG US Equity and LQD US Equity

Put volumes for IG ETF and HY ETF



Source: Bloomberg, Apollo Chief Economist

Passive IG investors down 16% from peak



Source: Bloomberg, Apollo Chief Economist. Note: Index used LUACTRUU Index

Bonds outstanding trading at negative interest rates



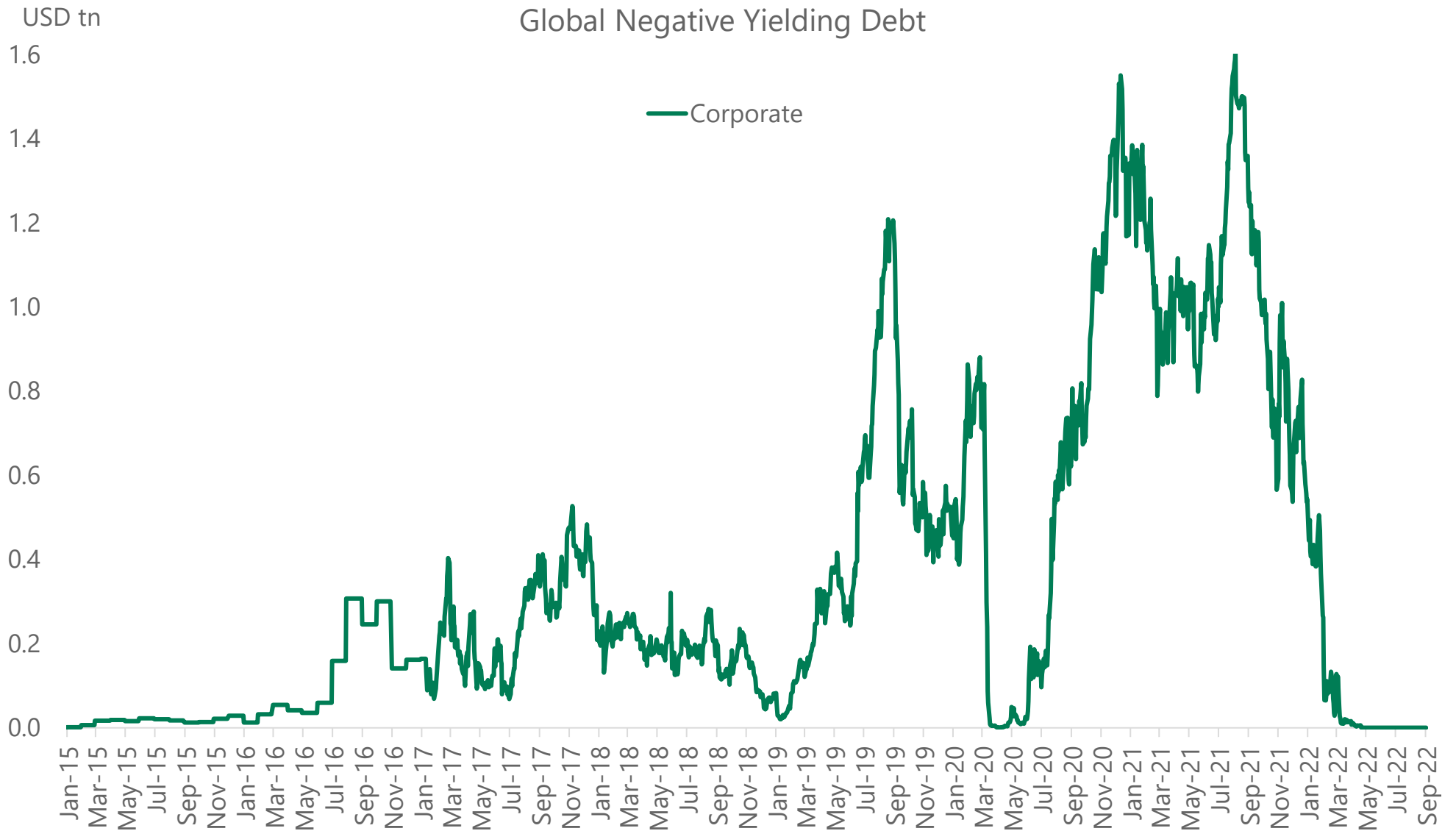
Source: Bloomberg, Apollo Chief Economist

The total value of negative yielding debt in the world: \$2trn



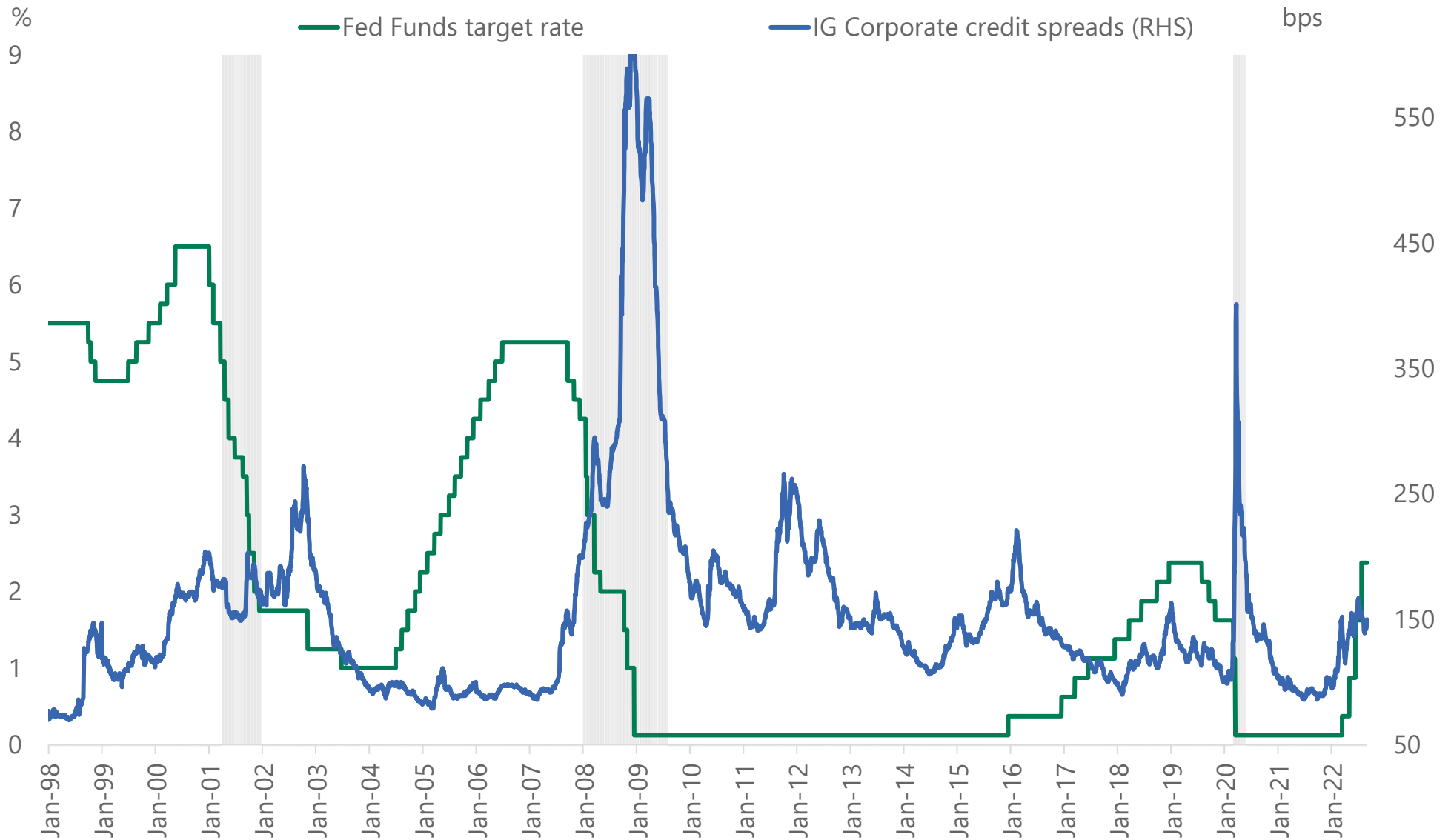
Source: Bloomberg, Apollo Chief Economist

All corporate bonds now have positive yields



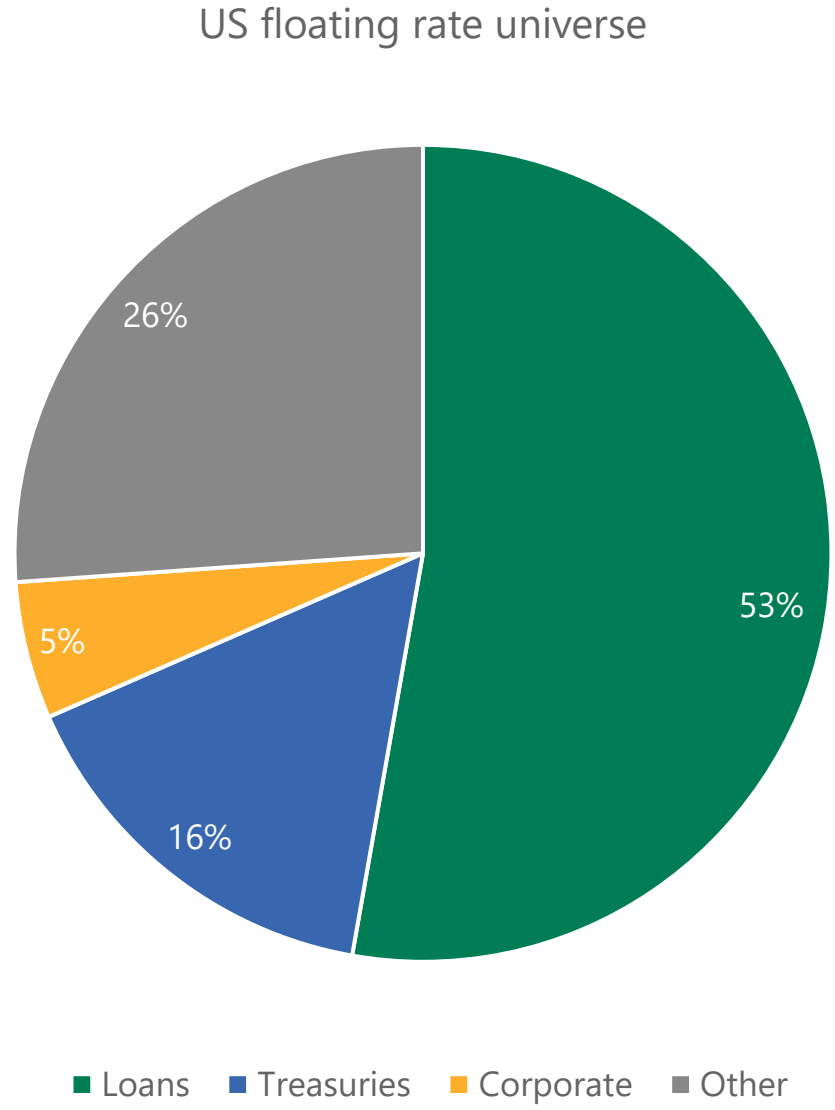
Source: Bloomberg, Apollo Chief Economist

Fed hiking and spreads widening



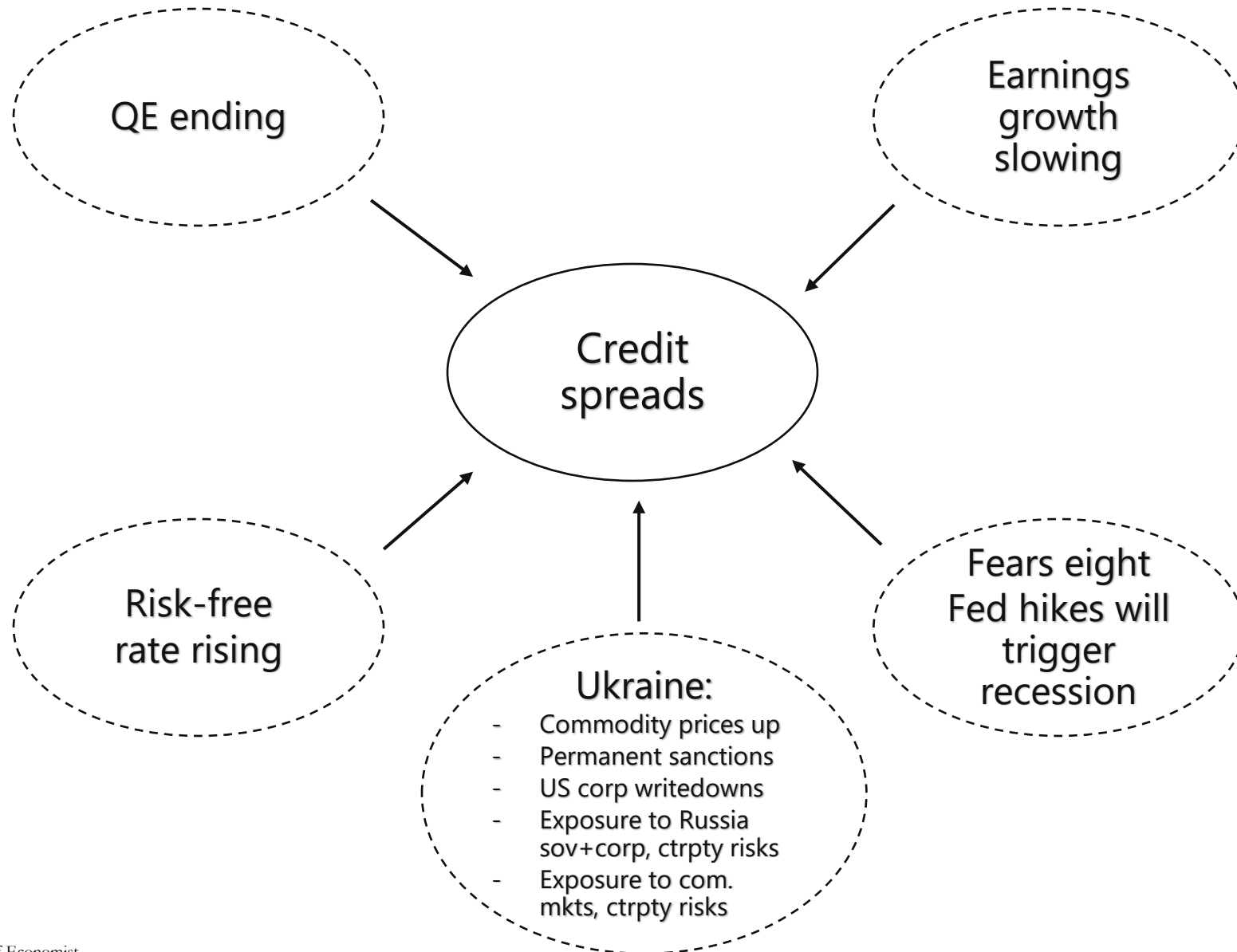
Source: Bloomberg, Apollo Chief Economist

US: Floating rate bonds outstanding, August 2022



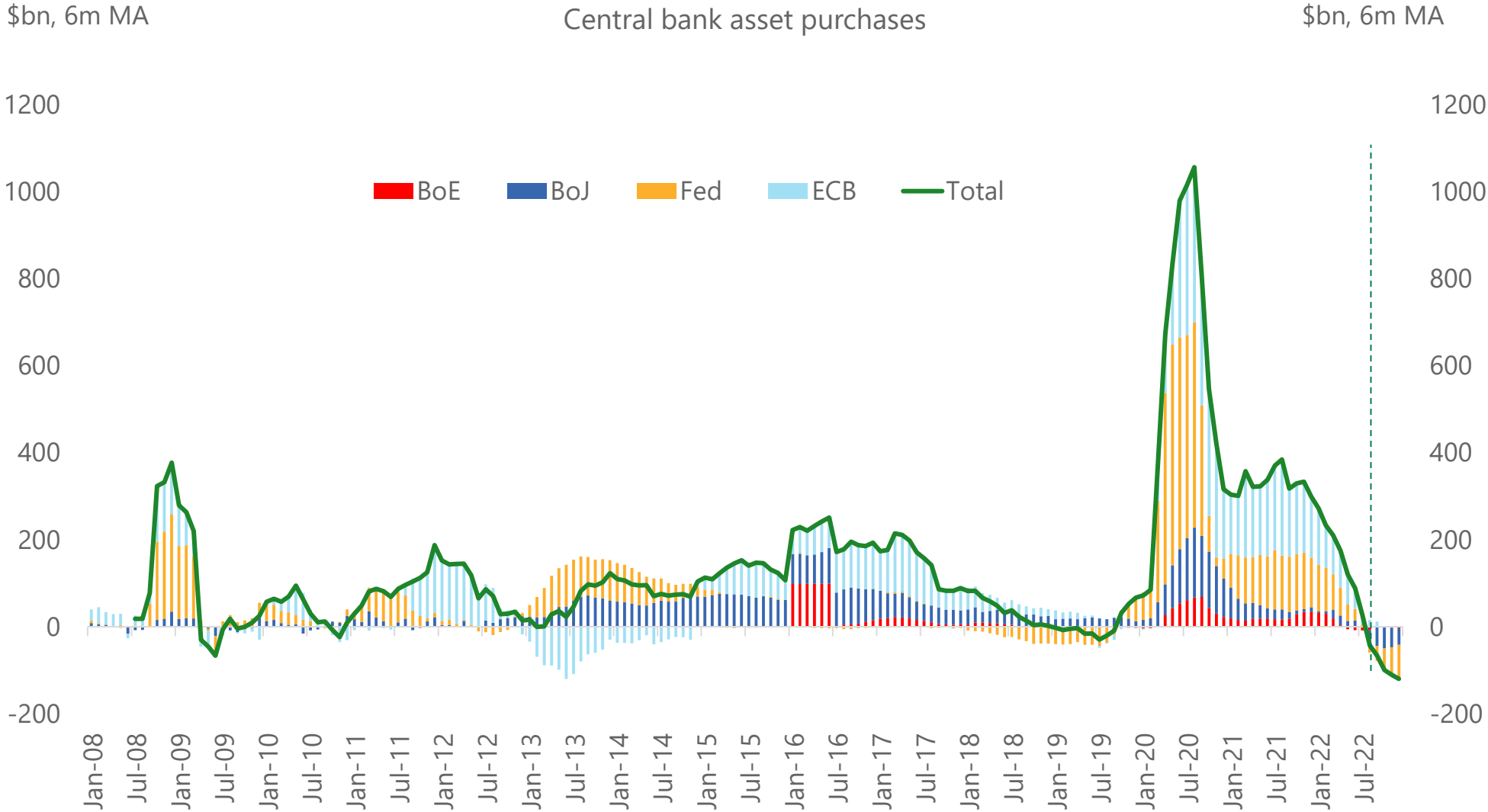
Source: Bloomberg, Apollo Chief Economist. Note: Other includes Munis, Agency and Securitized. The chart filters floating rate securities for all asset class from the fixed income SRCH <GO> screen on Bloomberg.

Turbulence in credit markets continues



Source: Apollo Chief Economist

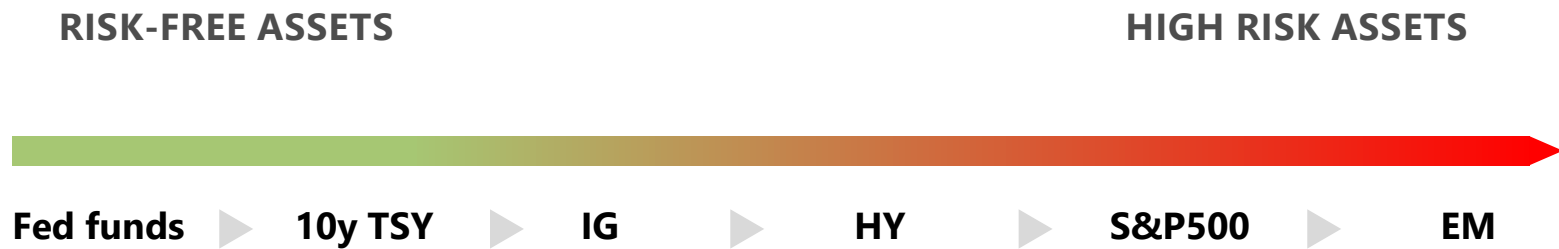
Global QE is coming to an end



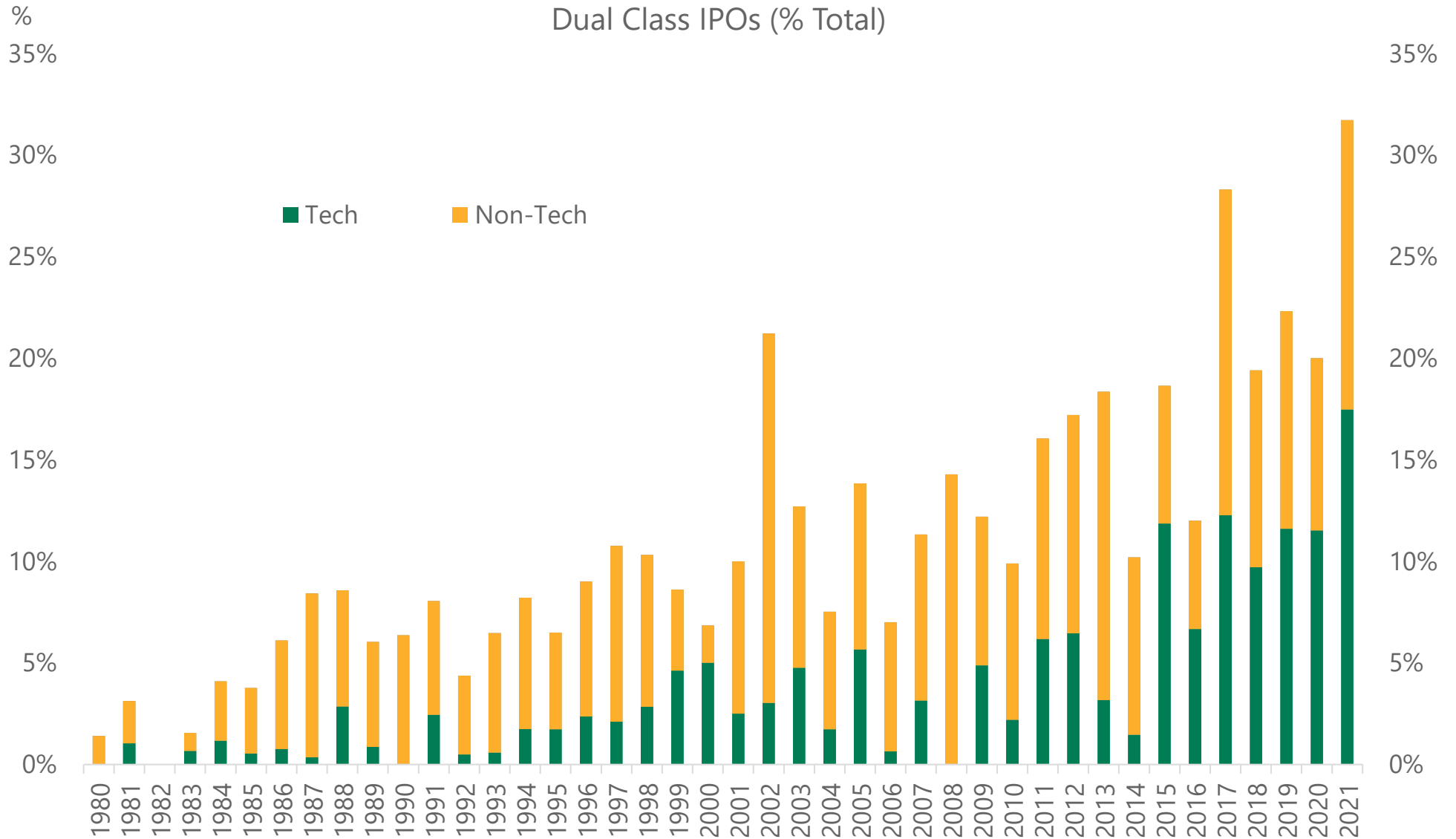
Source: Bloomberg, Apollo Chief Economist. Pace of purchases for 2021: BOE: £3.4bn per week till mid December 2021, FED: USD120bn per month with wind down from December with purchases ending in March 2022, ECB: Euro 90bn per month (20 bn APP + 60 bn PEPP), PEPP till March 2022, Euro 40bn in April, Euro 30bn in May and Euro 20bn in June, and only redemptions reinvested from August. BOJ:: USD 70bn 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 GBP10 bn per quarter

What can reverse the hunt for yield? Inflation/higher rates

Risk Spectrum

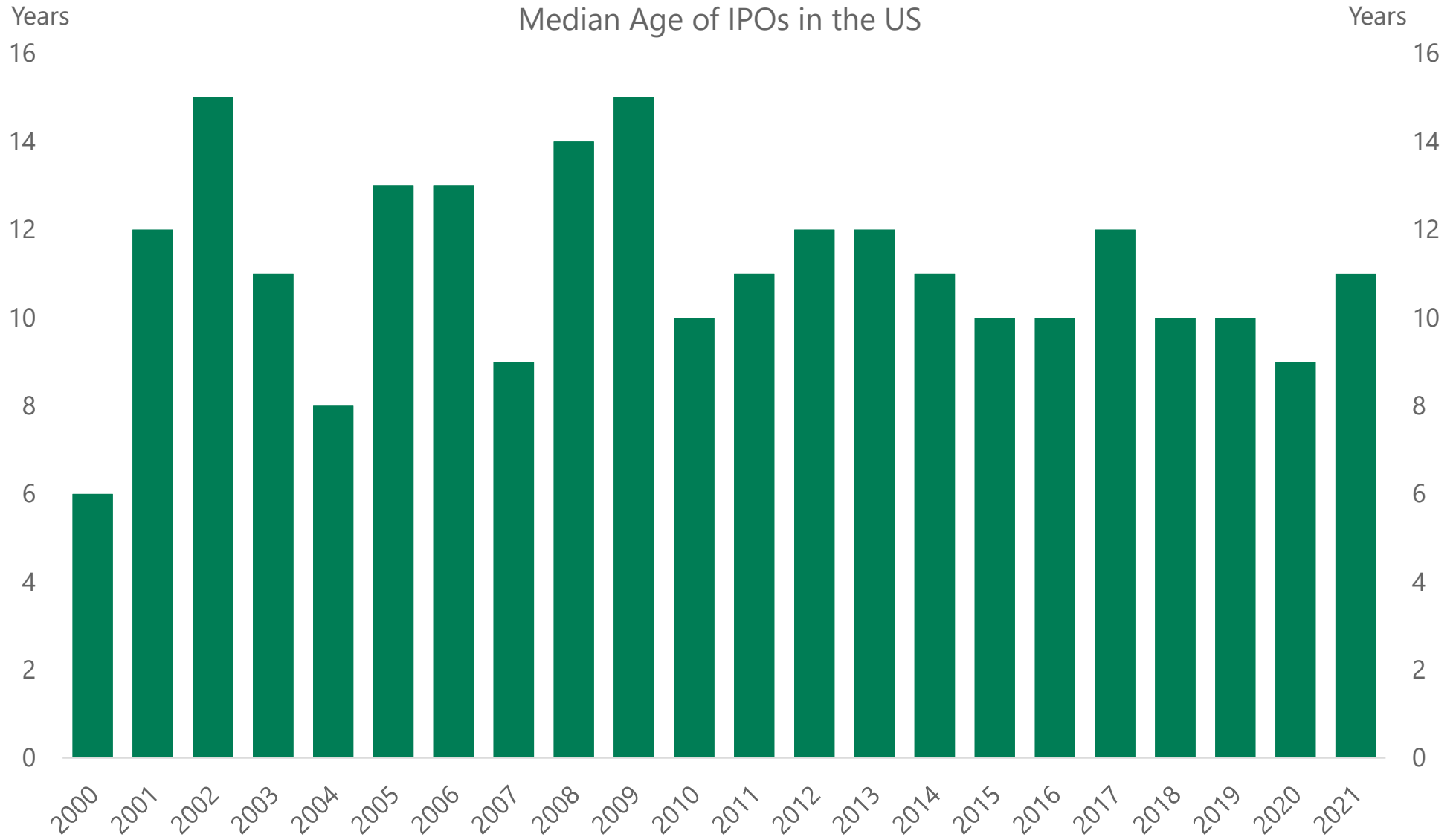


More dual class IPOs, driven by tech



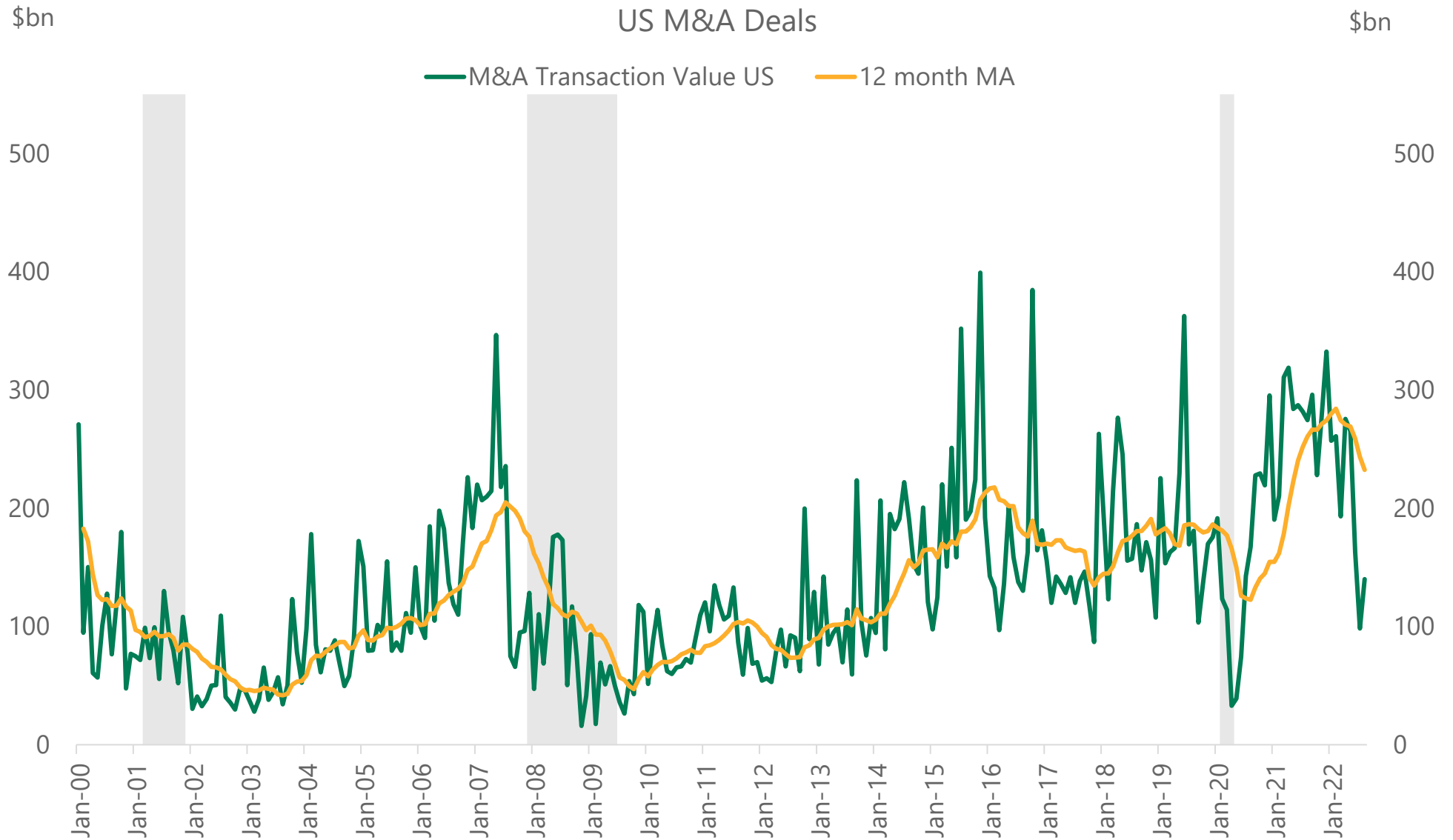
Source: Jay Ritter, Apollo Chief Economist

Median age of IPOs



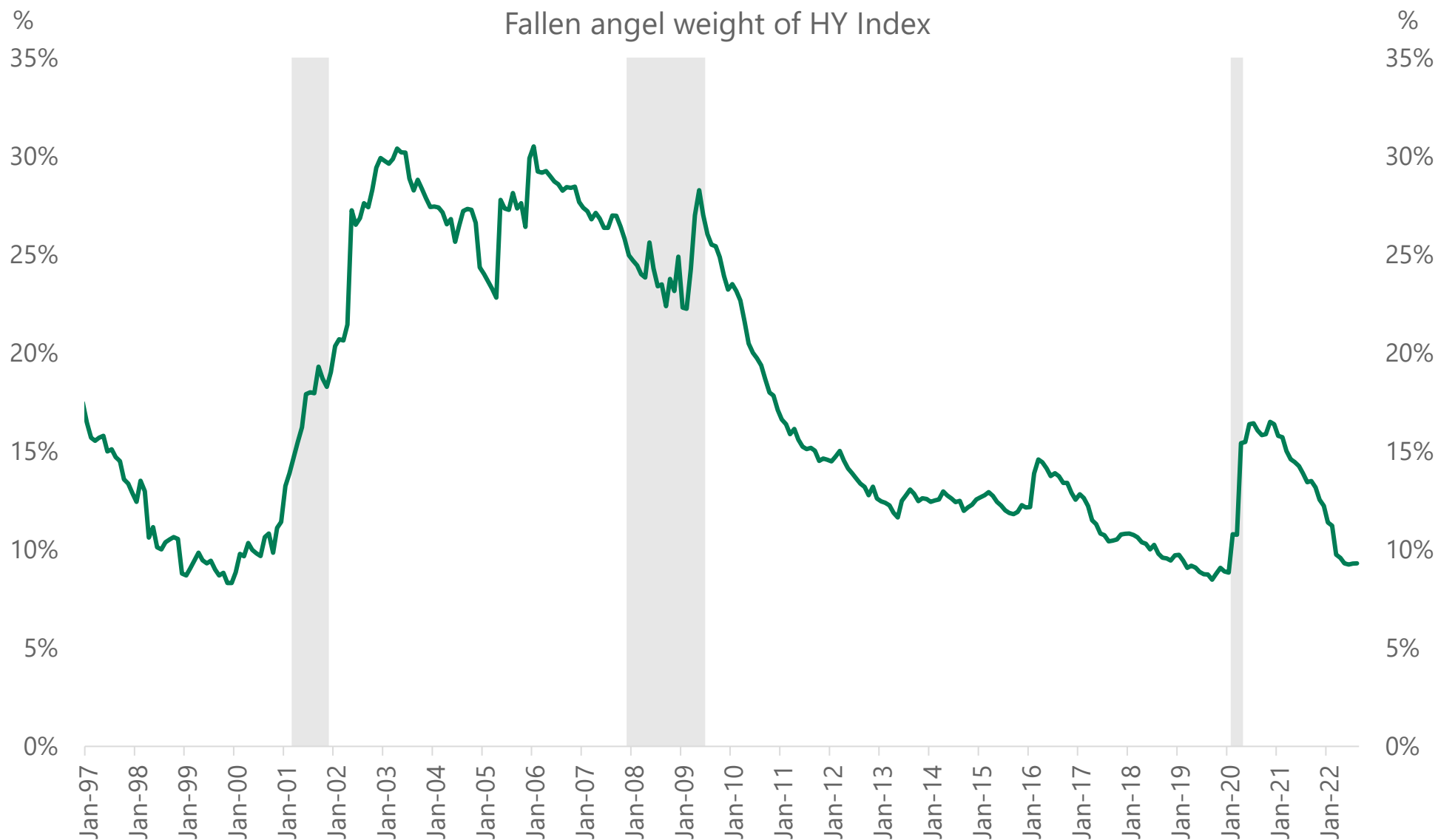
Source: Jay Ritter, Apollo Chief Economist

M&A deals



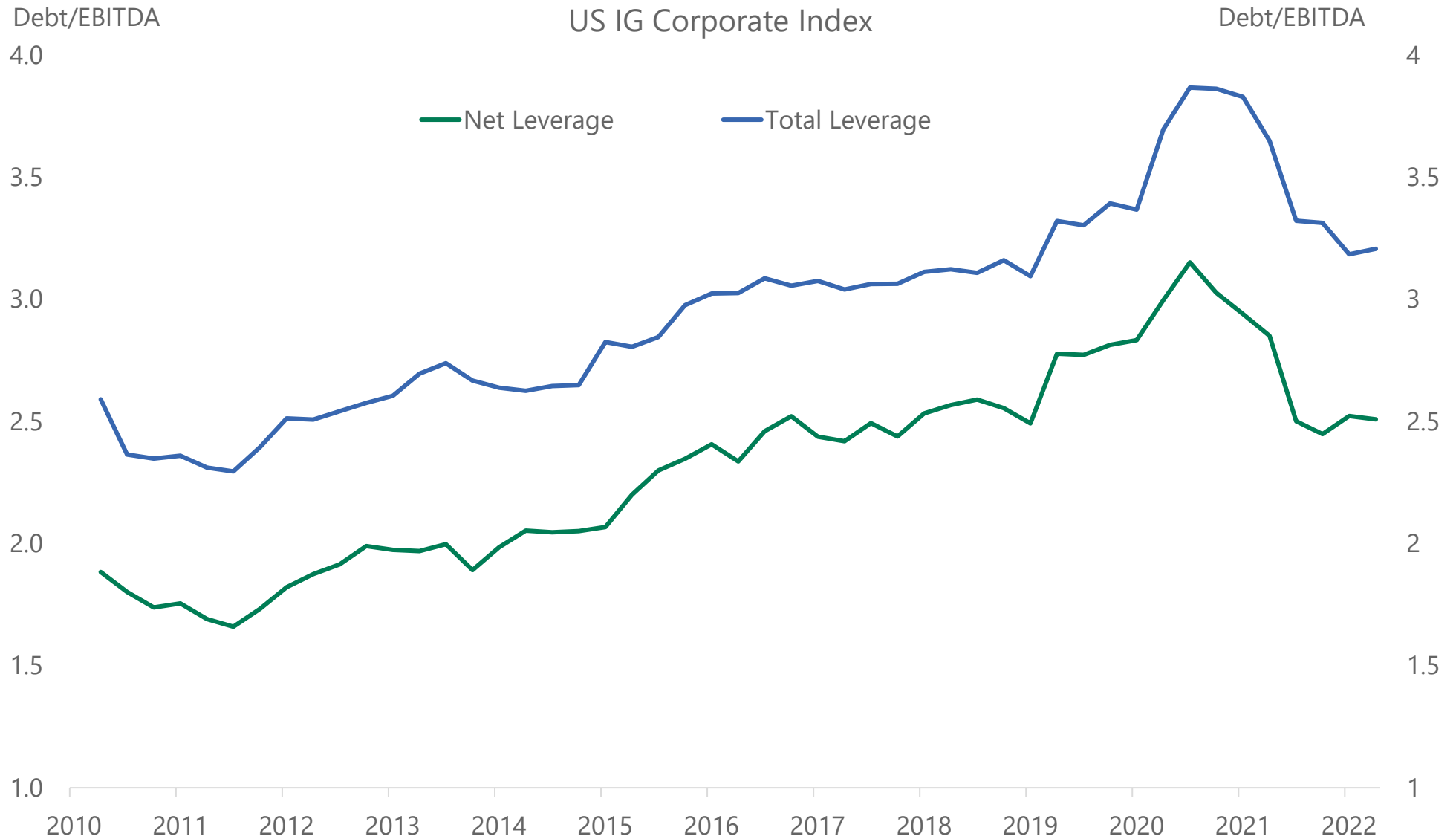
Source: Bloomberg, Apollo Chief Economist. Note: Ticker used is MAATUS Index

Declining share of fallen angels in the HY index



Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Tickers used H0A0 Index and H0FA Index

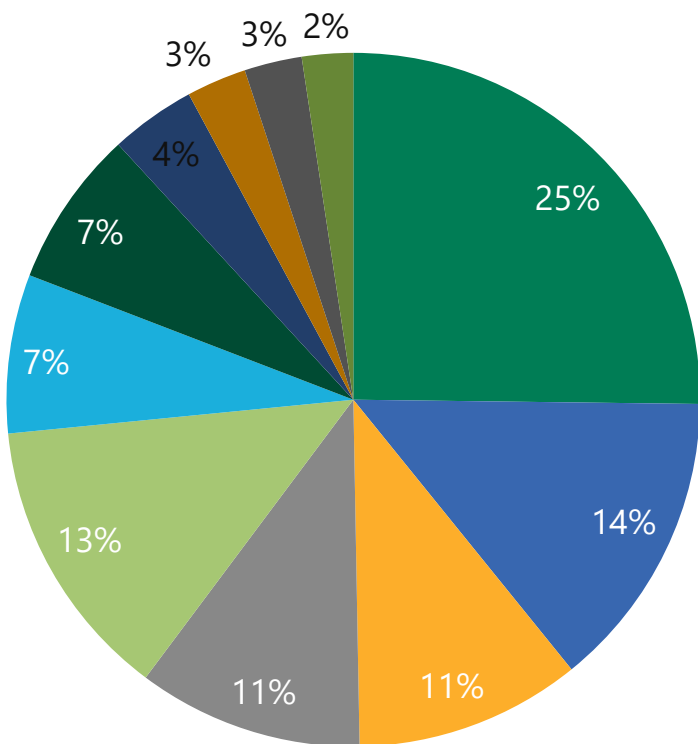
IG leverage down a bit during the pandemic



Source: ICE BofA, Bloomberg, Apollo Chief Economist. Note: Index used COA0 Index

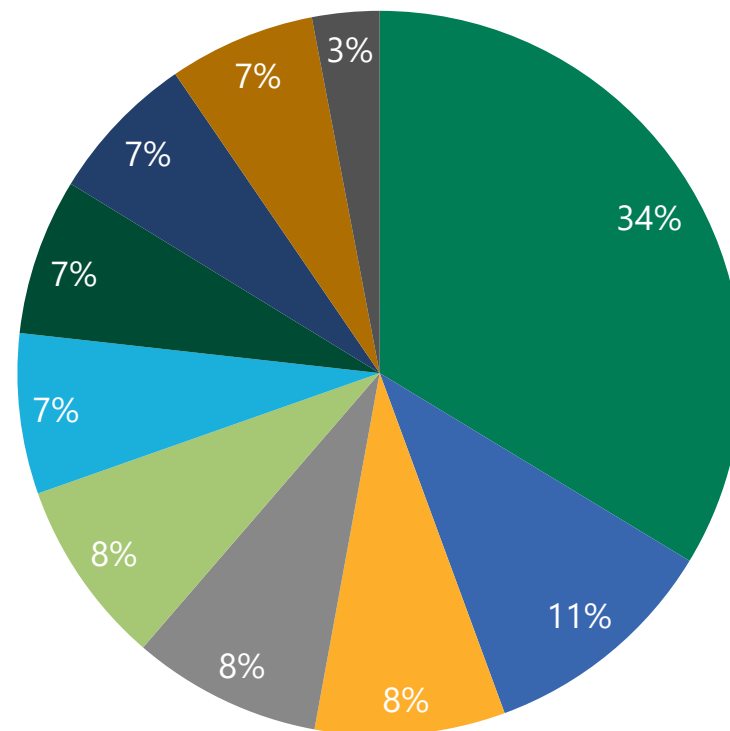
Big differences between weights in S&P500 and IG index

S&P 500 Index weight by market cap



- Information Technology
- Consumer Discretionary
- Communication Services
- Consumer Staples
- Real Estate
- Utilities
- Healthcare
- Financials
- Industrials
- Energy
- Materials

Barclays Corporate IG Index weights by market cap

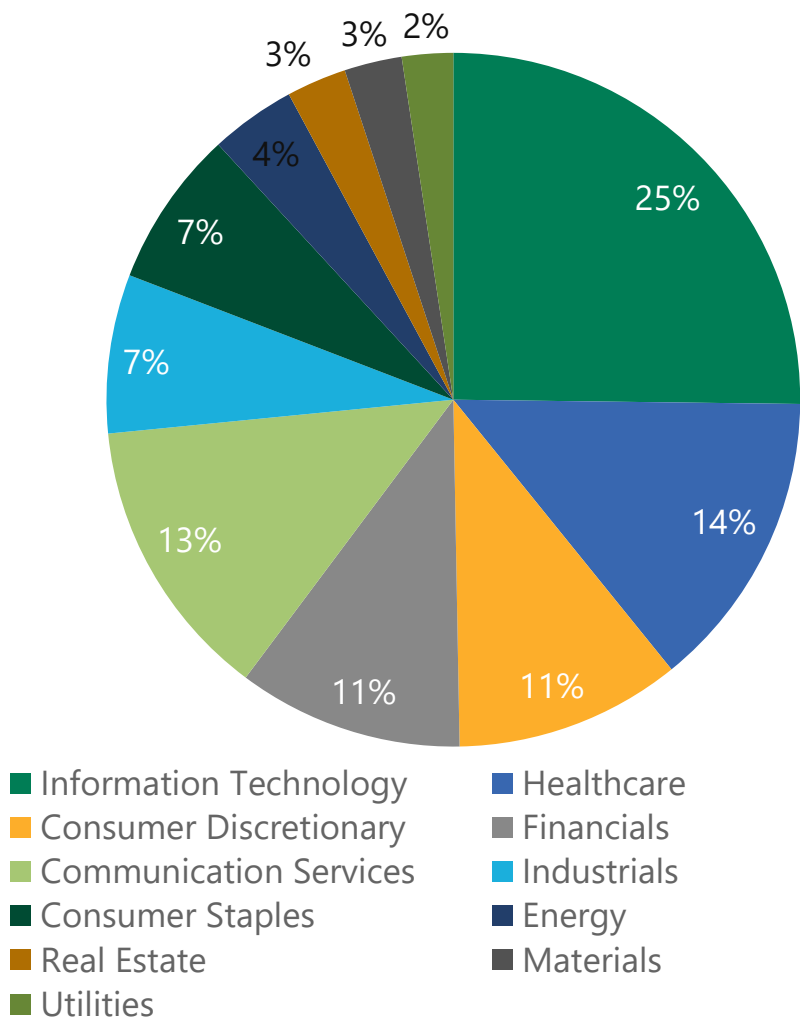


- Financials
- Communications
- Utilities
- Industrials
- Consumer Staples
- Health Care
- Technology
- Energy
- Consumer Discretionary
- Materials

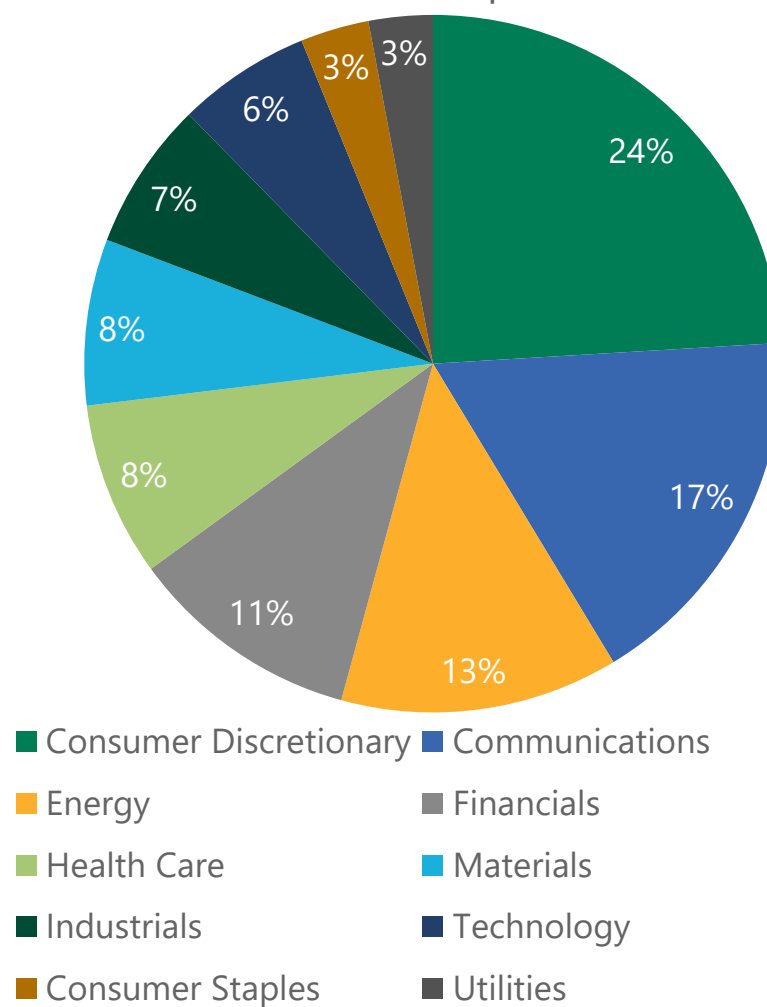
Note: Data as of 30th June 2022. Source: Bloomberg, Apollo Chief Economist

Big differences between weights in S&P500 and HY index

S&P 500 Index weight by market cap



Bloomberg Barclays HY index weights by market cap



Note: Data as of 30th June 2022. Source: Bloomberg, Apollo Chief Economist

Top 50 Investment Grade corporate bond issuers

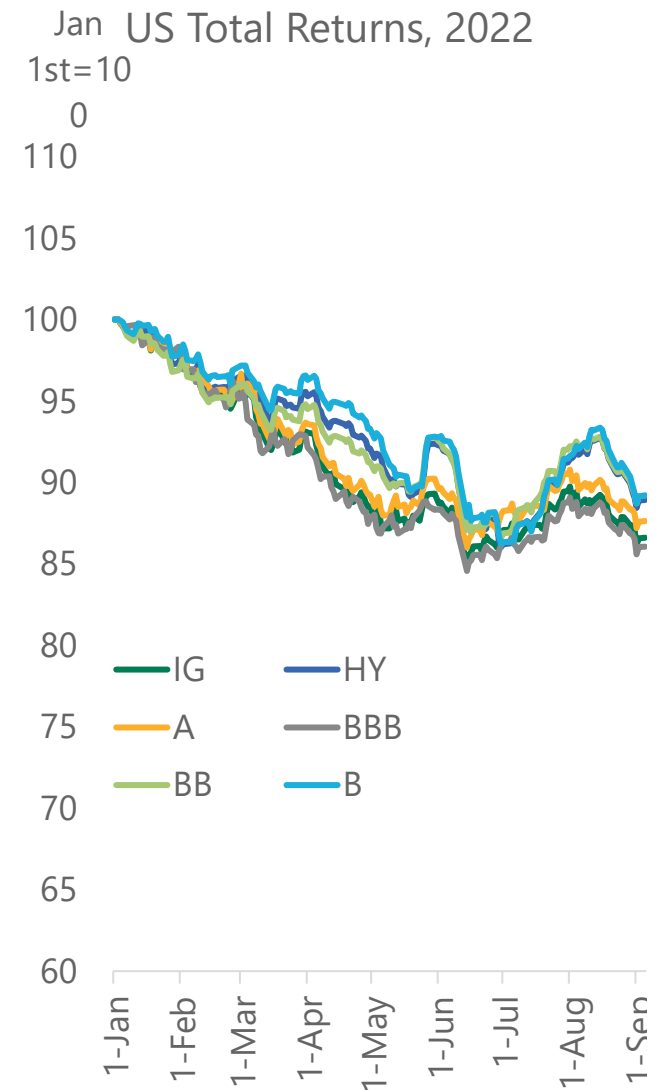
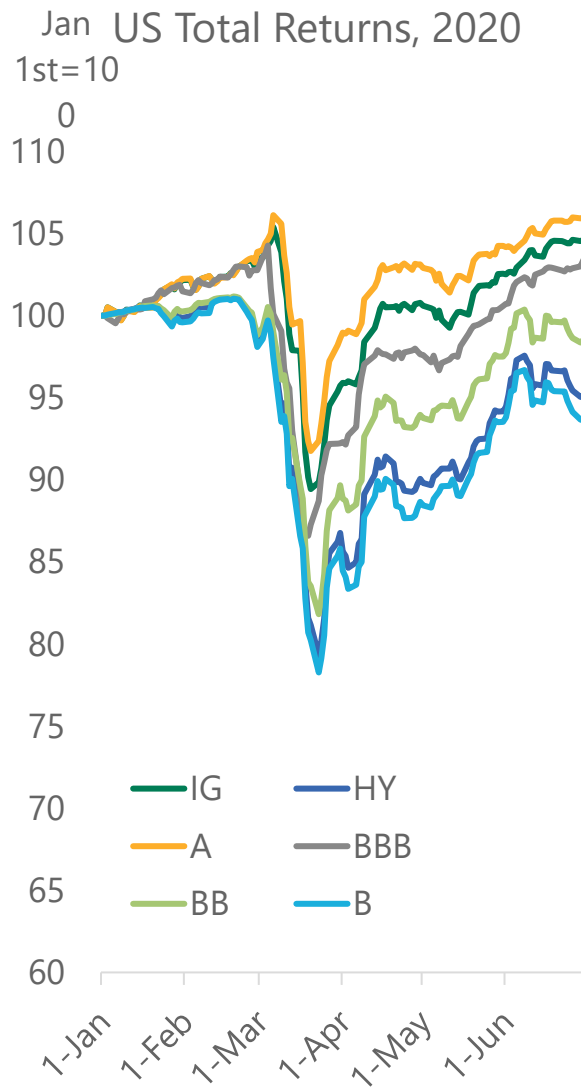
1	Bank of America Corporation
2	JPMorgan Chase & Co.
3	Goldman Sachs Group Inc.
4	Citigroup Inc.
5	Morgan Stanley
6	AT&T Inc
7	Wells Fargo & Company
8	Apple Inc.
9	Verizon Communications Inc.
10	Comcast Corporation
11	HSBC Holdings PLC
12	Oracle Corporation
13	The Boeing Company
14	AbbVie Inc.
15	Microsoft Corporation
16	CVS Health Corp
17	Amazon.com Inc.
18	Charter Communications Operating LLC/Charter Communications Operating Capital Corp.
19	United Health Group Incorporated
20	Walt Disney Company
21	The Home Depot Inc.
22	Mitsubishi UFJ Financial Group Inc.
23	Anheuser-Busch InBev Worldwide Inc.
24	Sumitomo Mitsui Financial Group Inc
25	Bristol-Myers Squibb Company
26	T-Mobile USA Inc.
27	Amgen Inc.
28	Broadcom Inc
29	BNP Paribas
30	Shell International Finance B.V.
31	Exxon Mobil Corporation
32	Barclays PLC
33	Energy Transfer LP
34	Intel Corporation
35	International Business Machines Corporation
36	Pacific Gas and Electric Company
37	Raytheon Technologies Corporation
38	Aercap Ireland Capital DAC
39	Walmart Inc
40	Magallanes Inc.
41	General Motors Financial Company Inc
42	Cigna Corporation
43	Union Pacific Corporation
44	Pfizer Inc.
45	Merck & Co. Inc
46	Lowe's Companies Inc.
47	Enterprise Products Operating LLC
48	Johnson & Johnson
49	Pepsico Inc
50	Toyota Motor Credit Corporation

Top 50 High Yield corporate bond issuers

Ford Motor Credit Company LLC
Occidental Petroleum Corporation
CCO Holdings LLC/ CCO Holdings Capital Corp.
Bausch Health Companies Inc
Centene Corporation
Tenet Healthcare Corporation
CSC Holdings LLC
HCA Inc.
Community Health Systems Incorporated
TransDigm Inc.
DISH DBS Corporation
T-Mobile USA Inc.
Carnival Corporation
Ford Motor Company
T-Mobile US Inc
Lumen Technologies Inc
OneMain Financial Corporation
Royal Caribbean Group
Sirius Xm Radio Inc
Altice France S.A
Bombardier Inc.
FirstEnergy Corp.
Deutsche Bank AG New York Branch
Caesars Entertainment Inc New
AAdvantage Loyalty IP Ltd/ American Airlines Inc
Equitrans Midstream Corporation
Mozart Debt Merger Subordinated Incorporated
Western Midstream Operating LP
Iron Mountain Incorporated
1011778 B.C. Unlimited Liability Company / New Red Finance Inc.
Post Holdings Inc.
Sprint Capital Corporation
Albertsons Cos Inc / Safeway Inc / New Albertsons LP / Albertsons LLC
YUM Brands Inc
Service Properties Trust
Icahn Enterprises L.P. / Icahn Enterprises Finance Corporation
Level 3 Financing Inc.
Hilton Domestic Operating Co Inc.
Calpine Corporation
Navient Corporation
United Rentals (North America) Inc.
Intesa Sanpaolo S.p.A.
Bath & Body Works Inc
Vistra Operations Co LLC
Ball Corporation
The Goodyear Tire & Rubber Company
Newell Brands Inc.
Vici Properties Inc
Uniti Group LP
Univision Communications Inc.

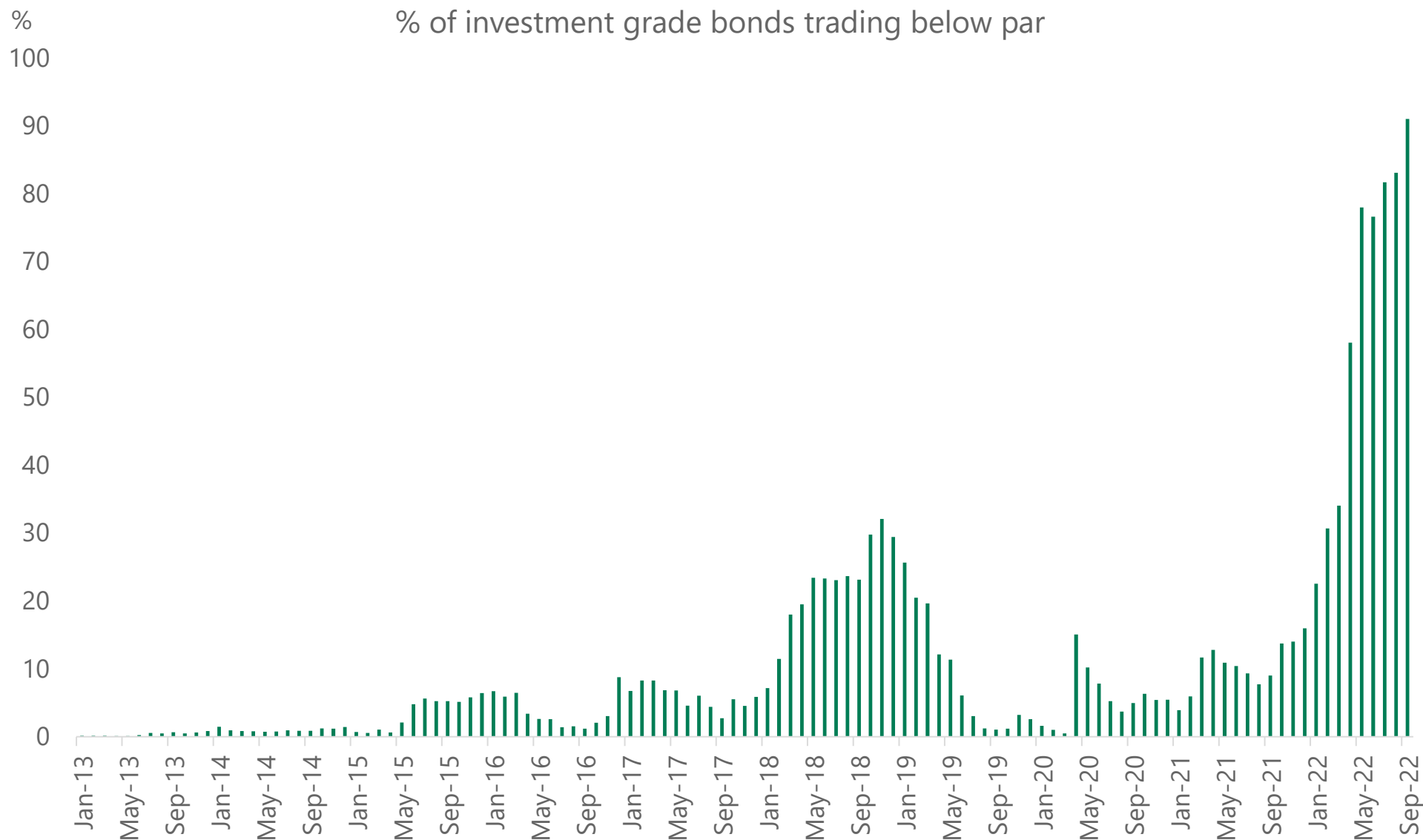
Source: Bloomberg, Apollo Chief Economist. Note: Top 50 issuers for COA0 and HOA0 Index

Synchronized sell-off in credit so far. Little differentiation between credits compared with 2008 and March 2020 episodes.



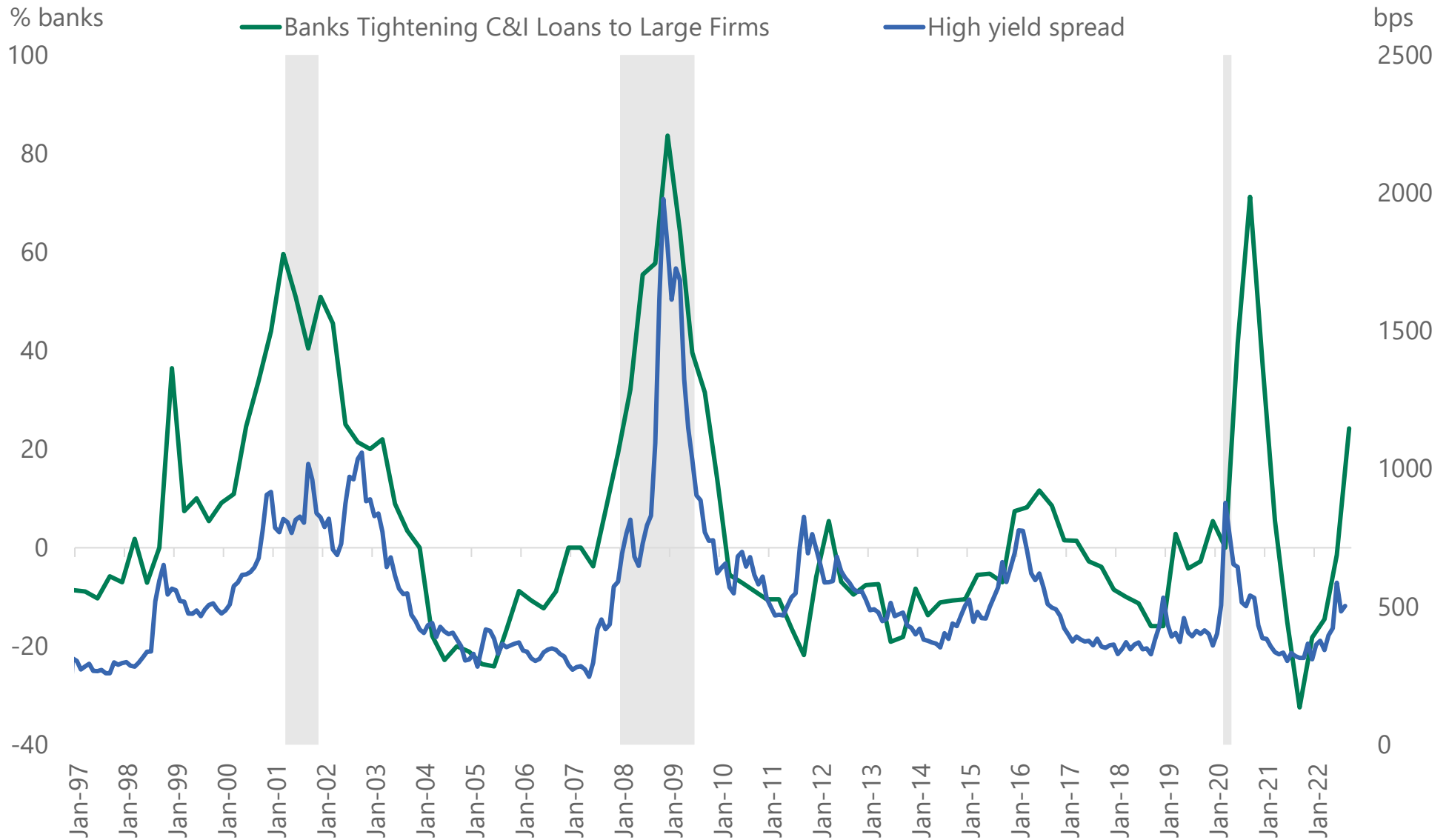
Source: Bloomberg, Apollo Chief Economist

91% of the US IG market trading below par



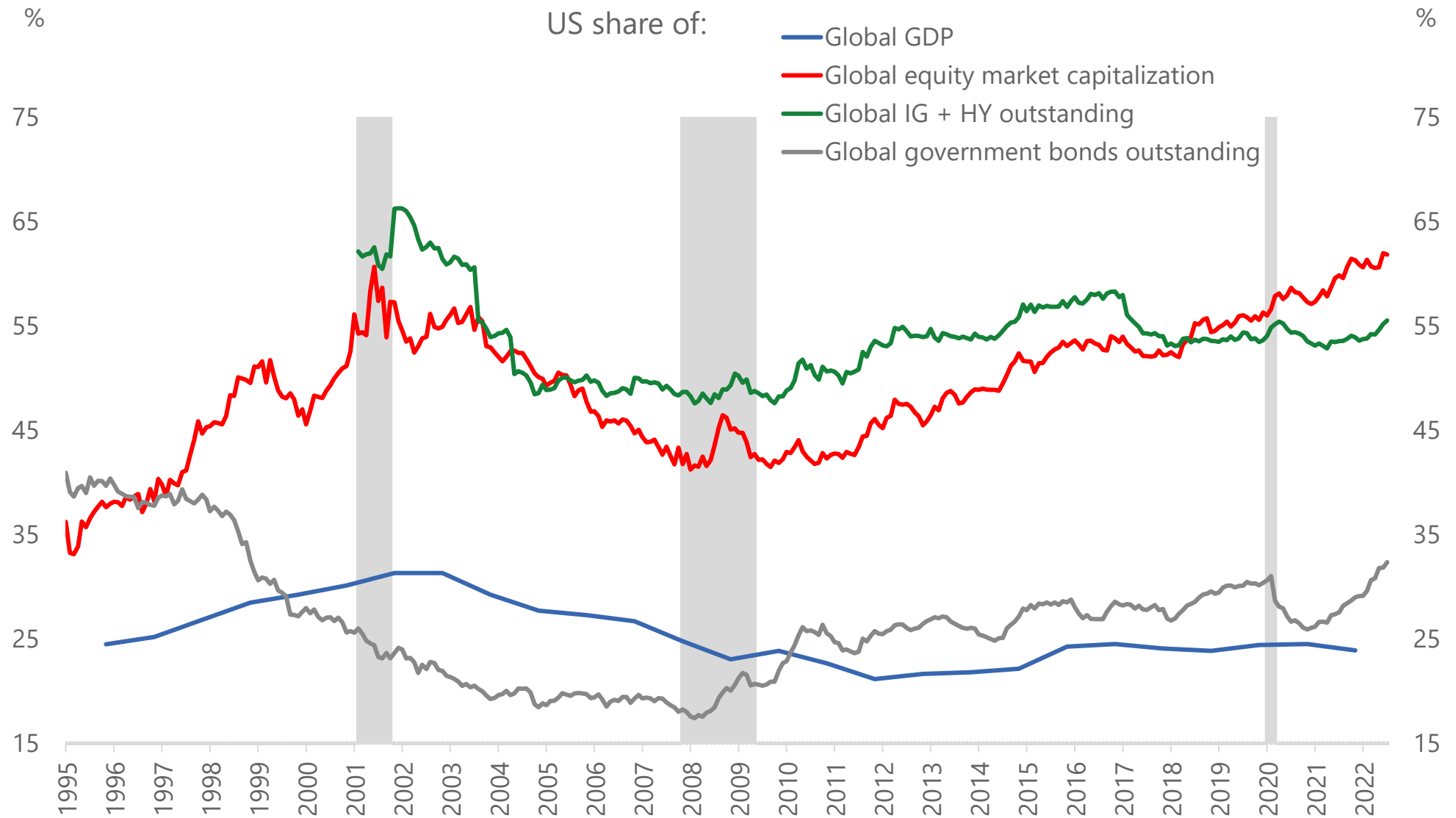
Source: Bloomberg, Apollo Chief Economist. Note: Data used for members in the LBUSTRUU Index as of 5th September 2022

Banks starting to tighten credit conditions, HY spread should be trading wider



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

Percent of world market cap



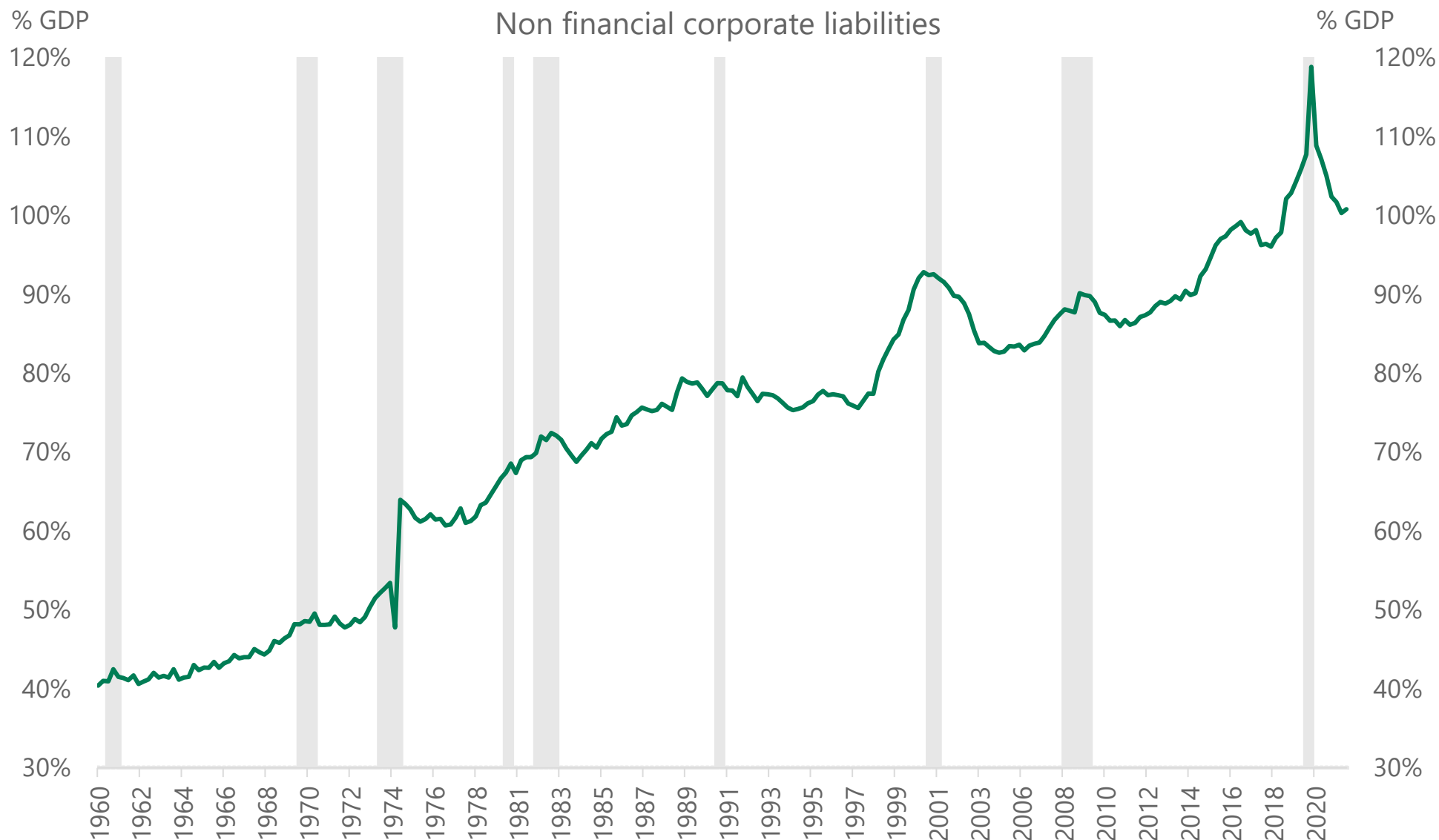
Source: Bloomberg, Haver, Apollo Chief Economist (Note: Bloomberg tickers: MXUS Index, MXWD Index, LUATTRUU Index, BTSYTRUU Index, LF98TRUU Index, LG30TRUU index, LUACTRUU Index, I09805US index)

Credit markets have never been more vulnerable to rising rates.

Three reasons:

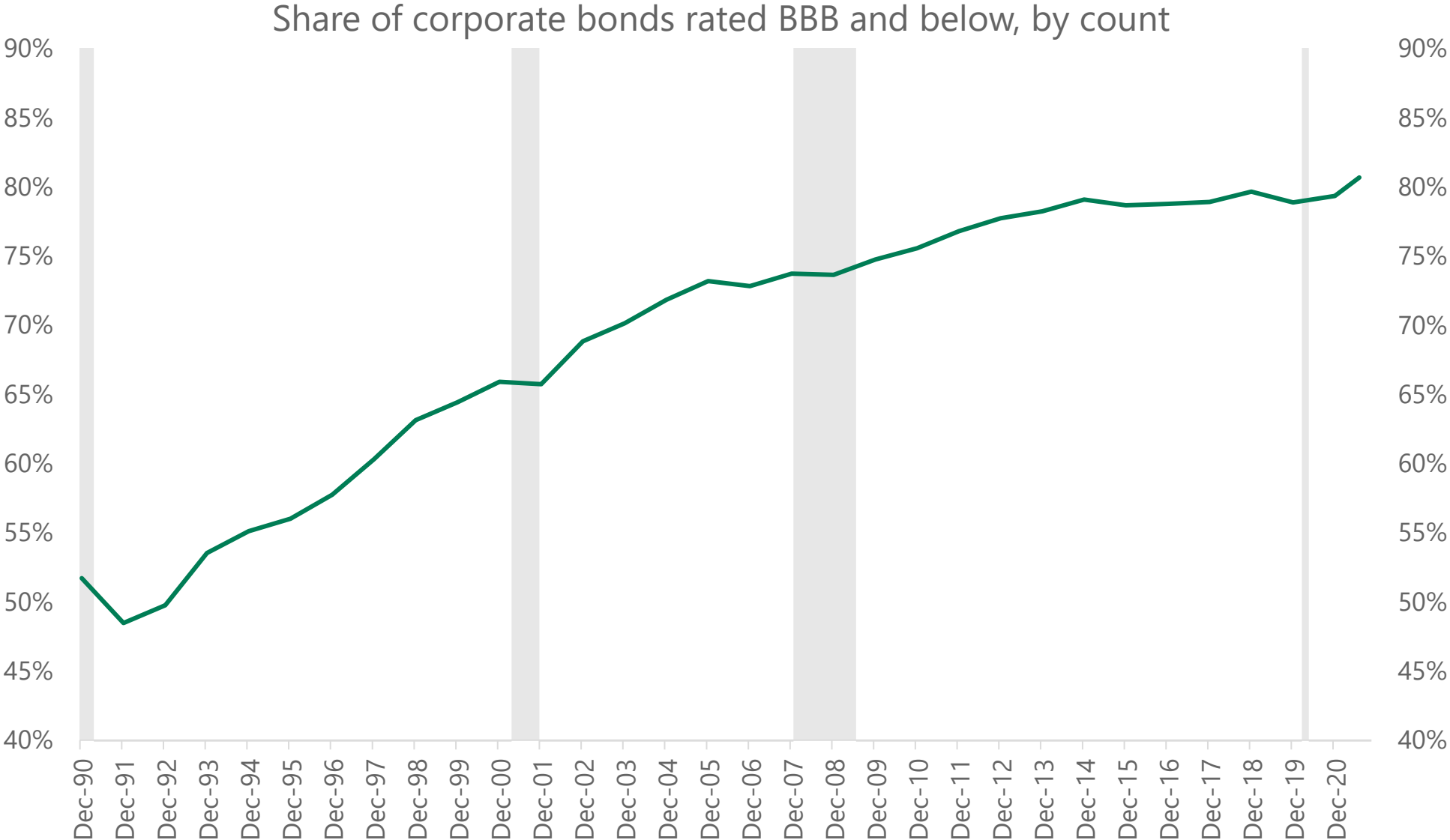
- 1) Very high leverage in the corporate sector
- 2) Lower-rated firms make up big share of all debt outstanding
- 3) Very high duration for the IG index and the HY index

High debt level in the corporate sector means more vulnerability to rising rates



Source: FRB, Haver Analytics, Apollo Chief Economist

Lower-rated firms are by definition more vulnerable to rising interest rates



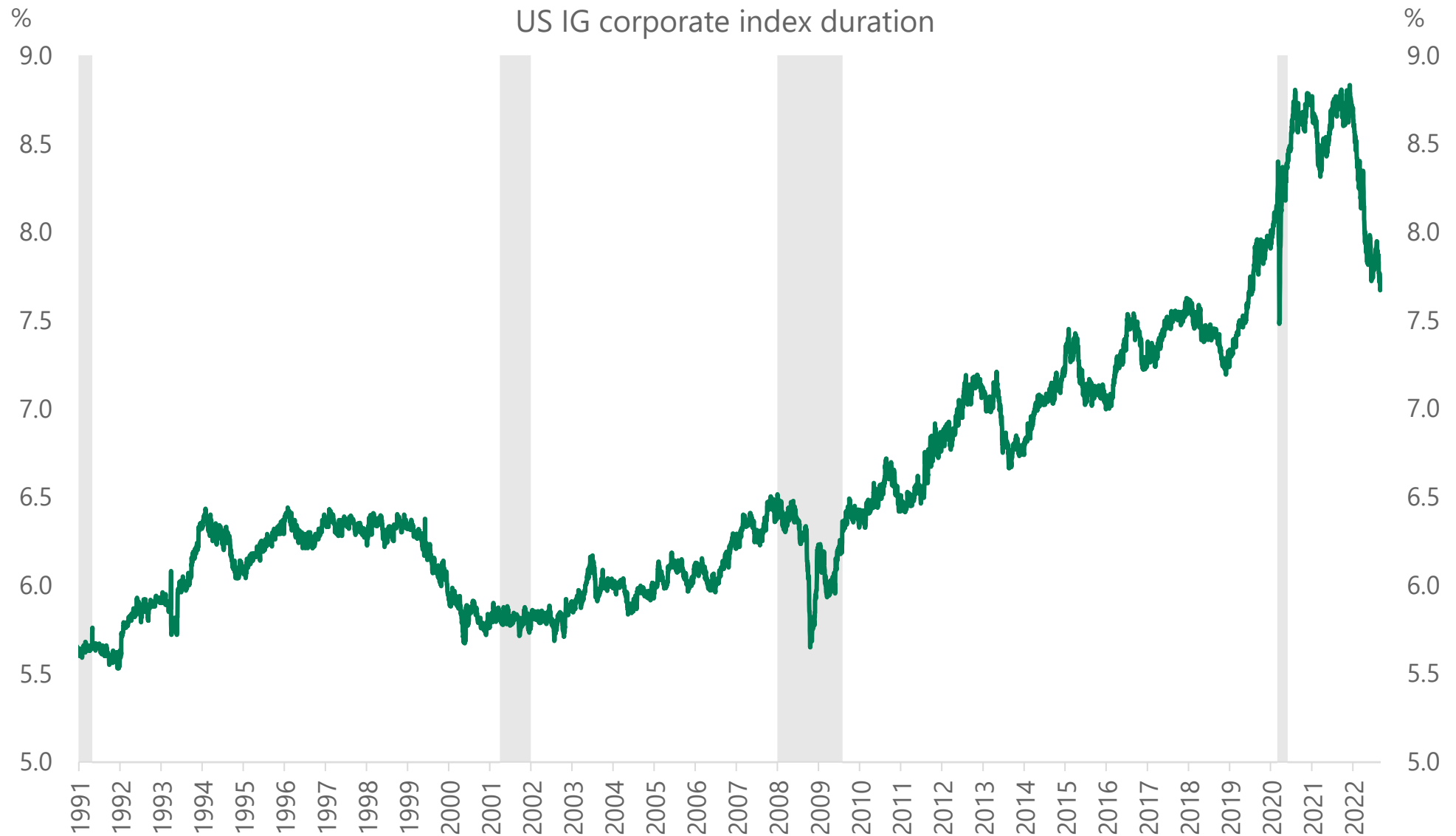
Source: S&P, Apollo Chief Economist

Share of corporate bond market value outstanding rated BBB and below



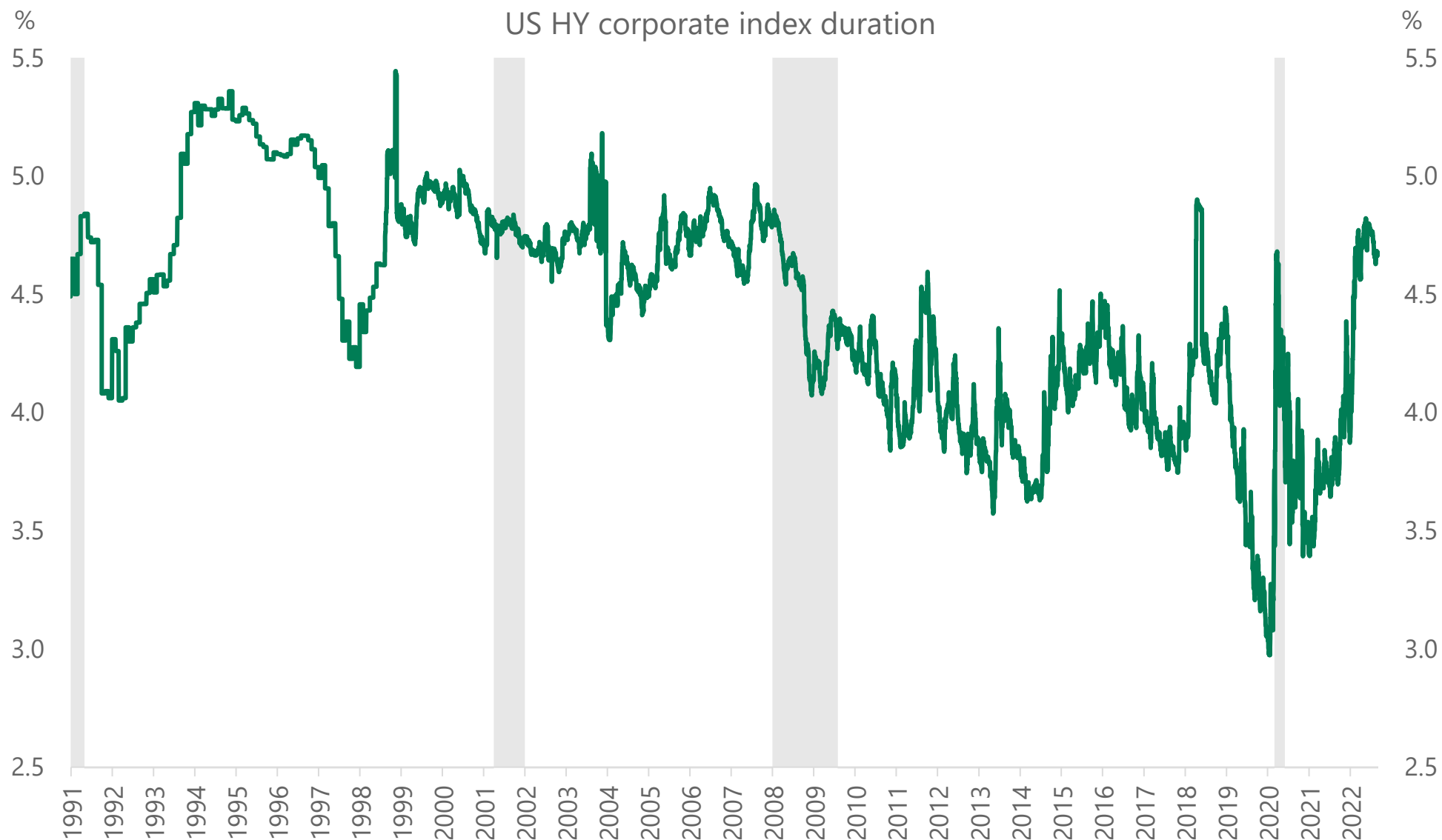
Source: ICE BofA, Bloomberg, Apollo Chief Economist. Data as of 31st August 2022

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 increasing



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

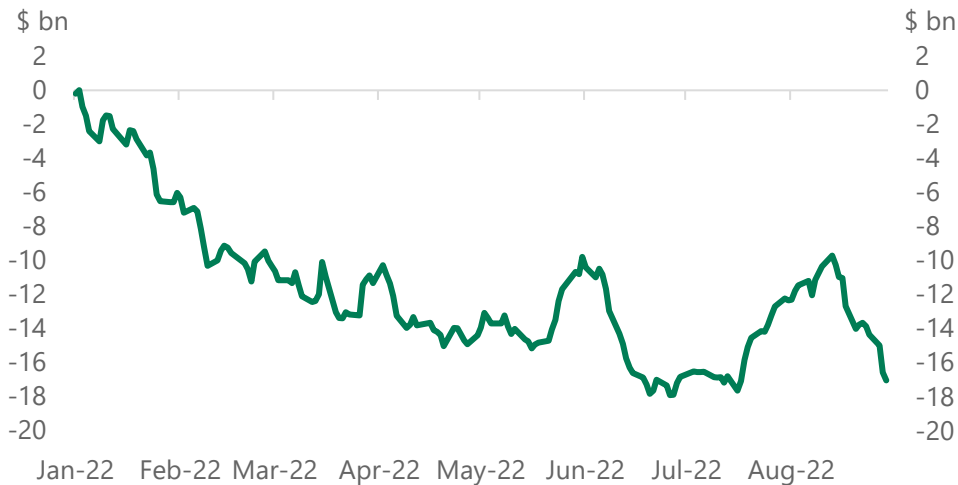
CRYPTO ETF flows



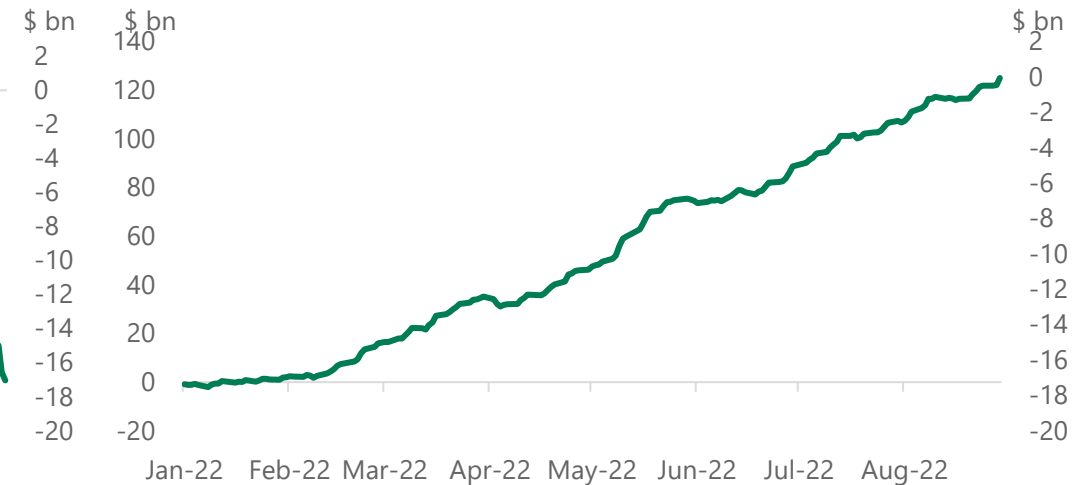
US bank loans ETF flows



HY ETF Flows

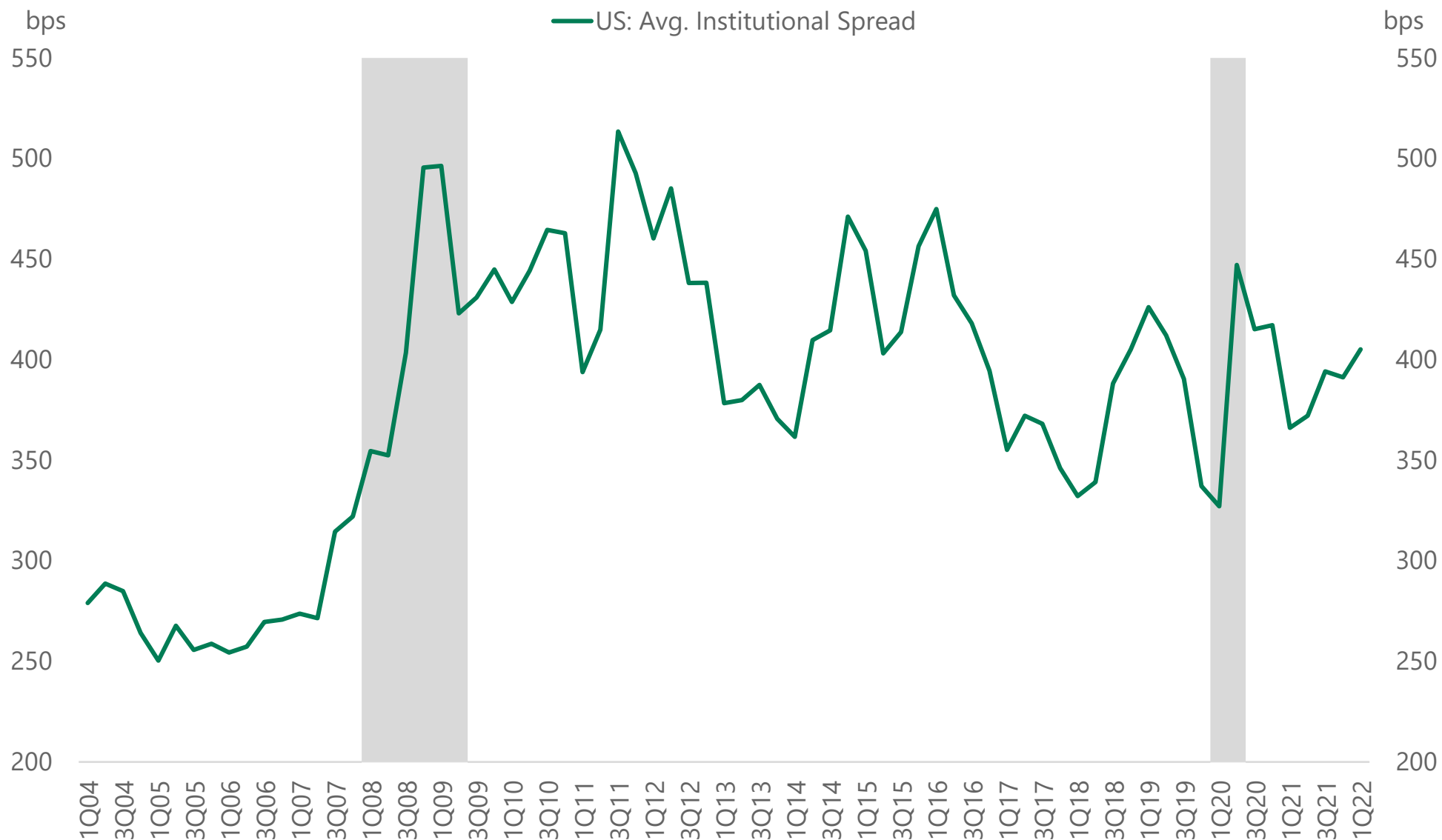


IG ETF flows



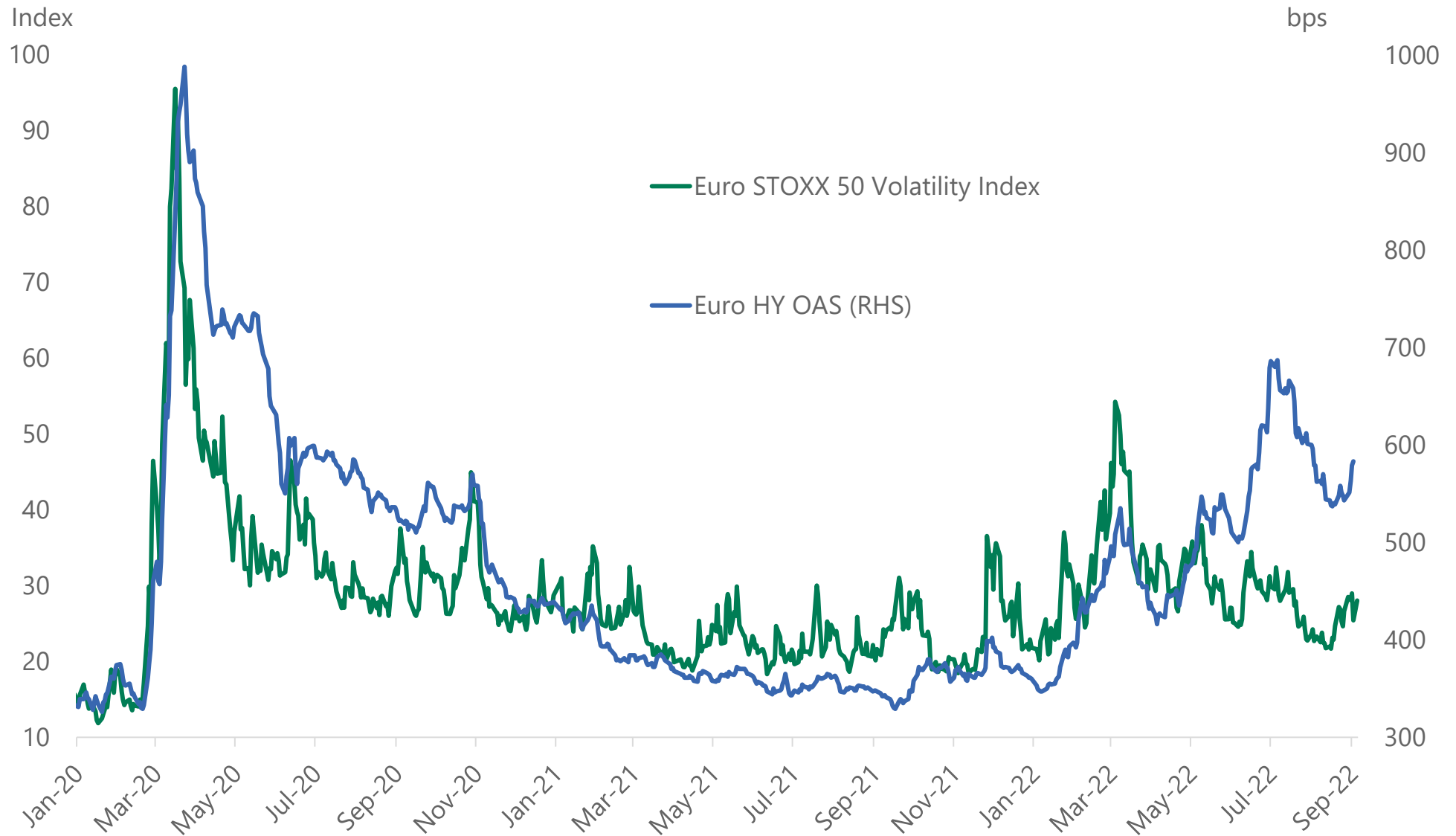
Source: Bloomberg, Apollo Chief Economist (Note: bito US equity: Crypto ETF flows, BFFUEBK Index: US Bank loans ETF flows, BFFUEHY Index: HY ETF flows; BFFUEIG Index: US IG ETF flows)

Loans: Institutional spread relative to bespoke loans



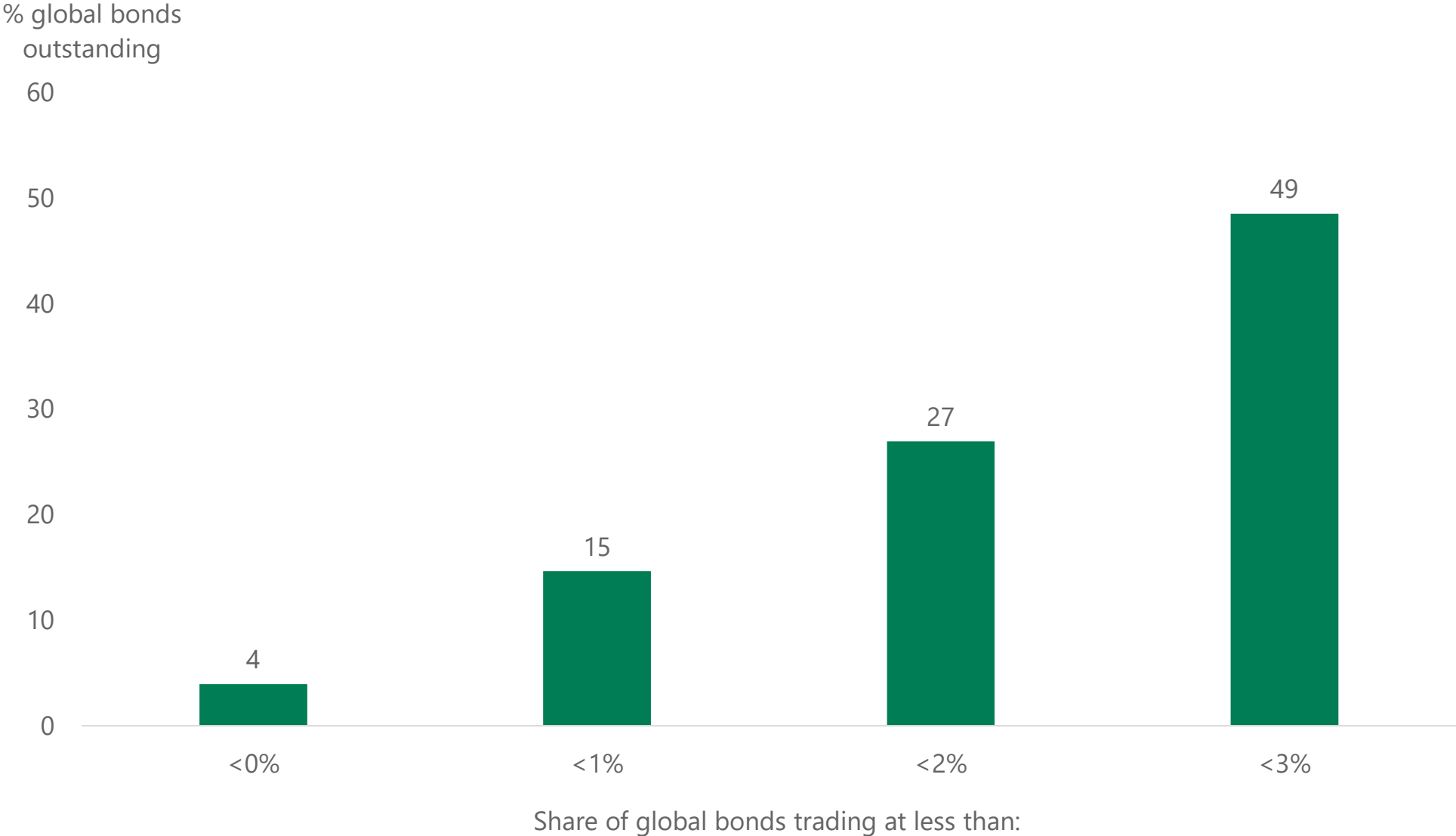
Source: S&P, Apollo Chief Economist

Disconnect between EU equity vol and EU HY spreads



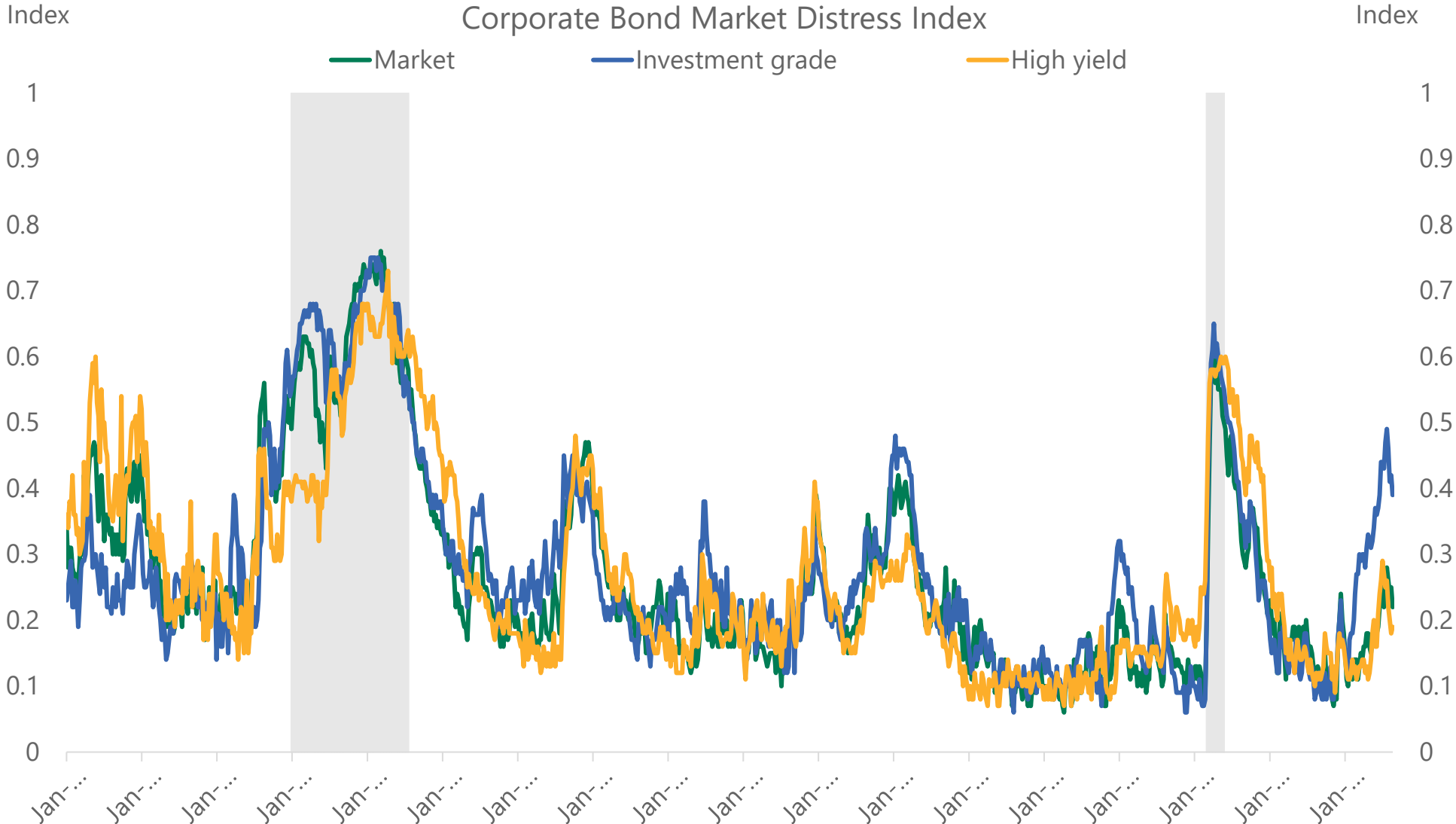
Source: Bloomberg, Apollo Chief Economist. Note: Tickers used are V2X Index and LP01OAS Index

27% of bonds in the world trading at less than 2%



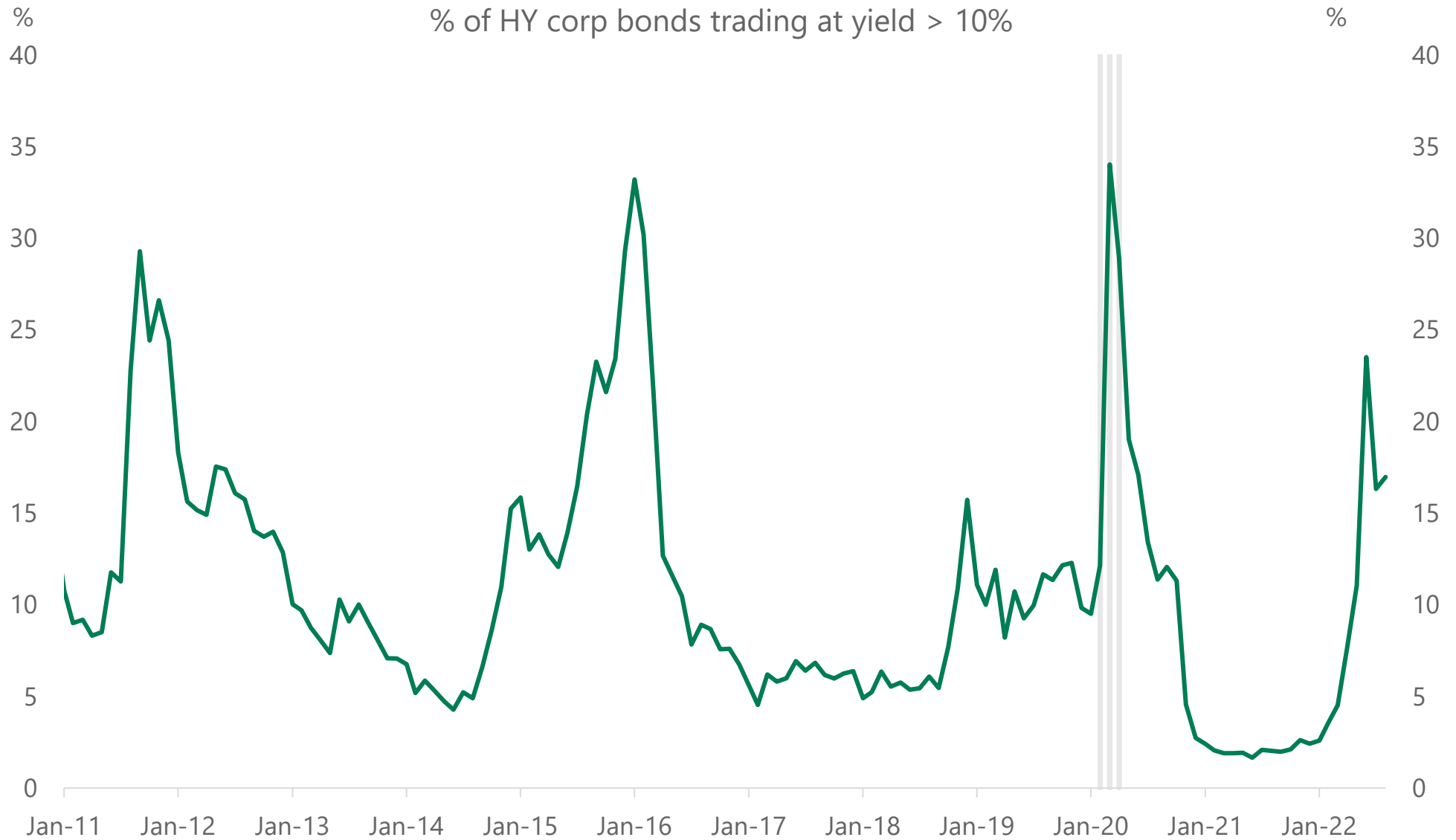
Source: Bloomberg, Apollo Chief Economist

NY Fed measure of corporate bond market functioning shows more 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.

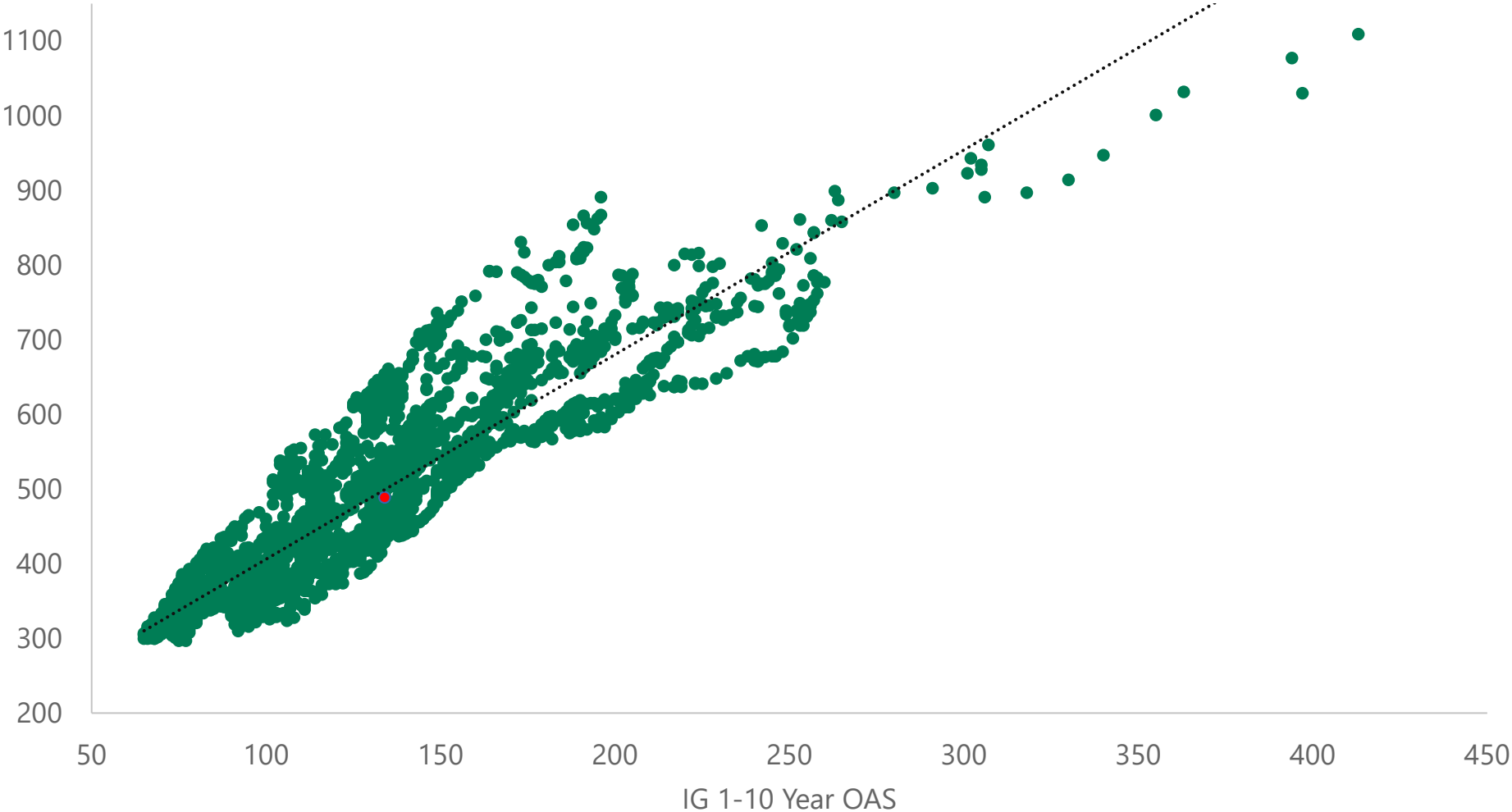
Percentage of HY bonds trading with yield higher than 10%



Source: Bloomberg, Apollo Chief Economist. Note: HY bond universe is H0A0 Index

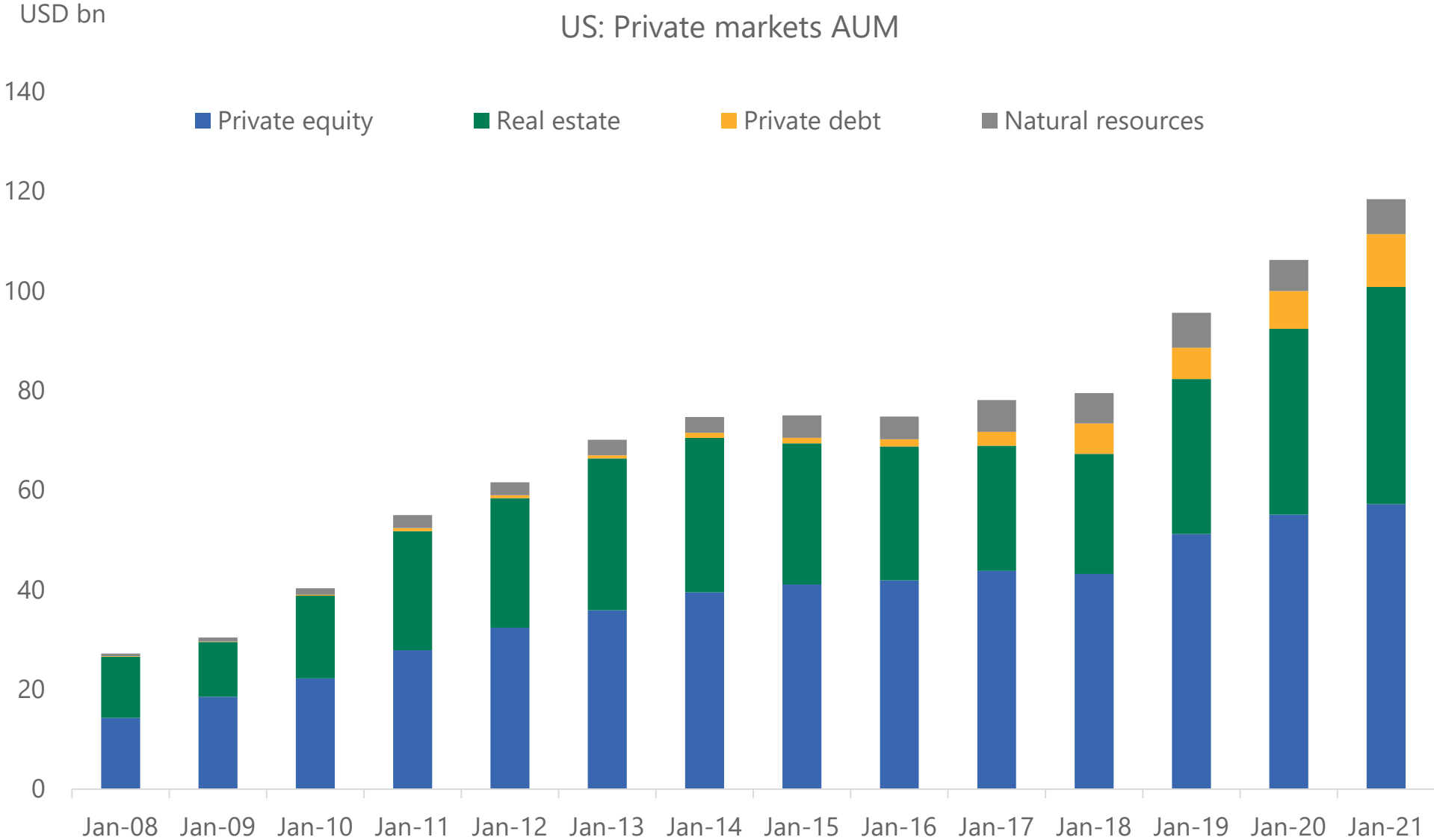
Correlation between same-duration HY and IG

HY 1-10 Year OAS



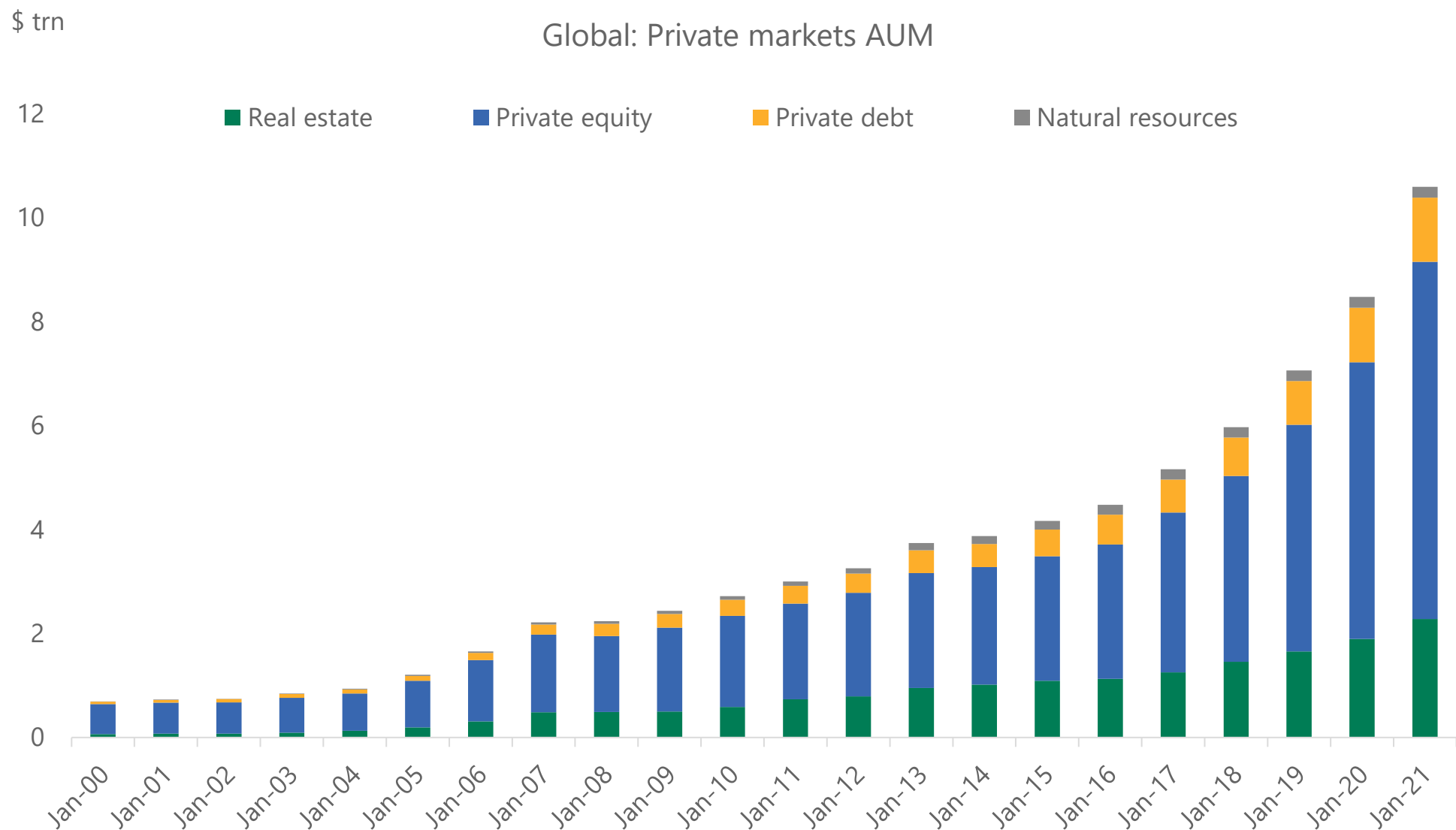
Source: Bloomberg, ICE BofA, Apollo Chief Economist. Note: Red dot indicates data as of 2nd September 2022

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)

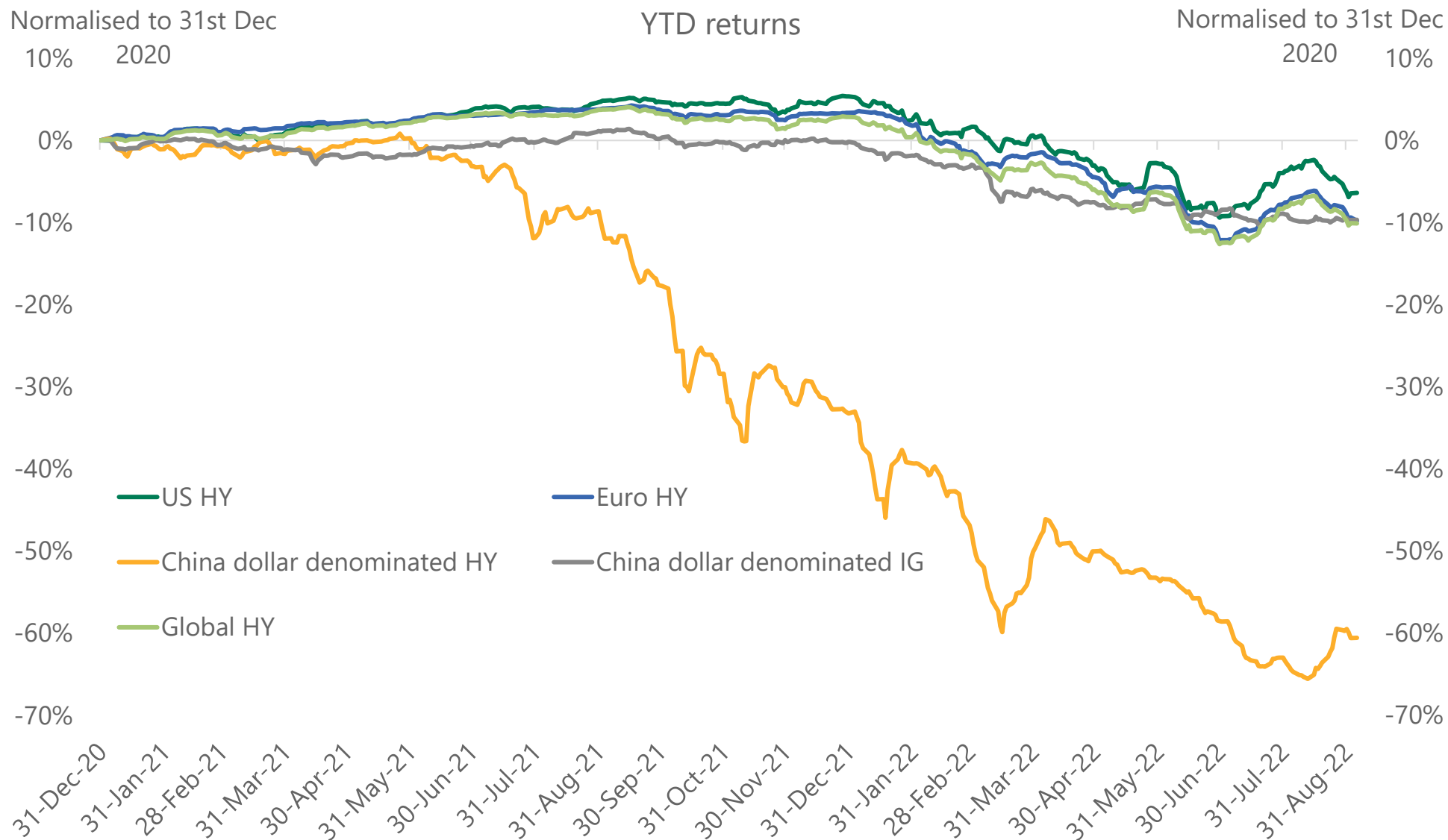
China HY

The yield on China HY above 20%



Source: Bloomberg Barclays, Bloomberg H29381US Index, Apollo Chief Economist

Little contagion from China HY to US and EU credit markets



Source: ICE BofA, Bloomberg, Apollo Chief Economist,

Biography



Torsten Slok, Ph.D.

Chief Economist

Apollo Global Management

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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, including #1 in 2019. 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.