

ESG Flows and Markets:

We are pleased to share the latest edition of our new quarterly chartbook, designed to monitor sustainable flows (to ESG funds, climate finance flows, and climate finance to emerging markets), ESG market development, the electric vehicle industry, and the evolution of the voluntary carbon market. The chartbook also includes our regular ESG Country Scorecard—a useful indicator of progress in areas including carbon efficiency as well as broader environmental and social issues in emerging and frontier markets. We welcome your comments!

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Highlights: ESG Flows and Markets (1/2)

- **Global climate flows are on track to surpass \$900 billion in 2022**—up from some \$815 billion in 2021. Investment in renewable energy and EV sectors remain strong.
- The launch of the new “[Loss and Damage](#)” fund at COP27 should help catalyze **blended finance** for climate action in developing countries. Since 2015, blended finance has mobilized nearly \$85 billion in private finance for climate action in emerging markets (ex-China).
- However, the **climate finance gap** remains massive: over 60% of annual climate mitigation needs—and 40% of climate adaptation needs—remain unmet.
- In a turbulent and volatile market environment, **flows to [ESG funds](#) have seen a sharp retrenchment** year to date. However, they are still in positive territory—in sharp contrast to large outflows from non-ESG funds.
- In a challenging landscape for emerging markets, **EM ESG fund flows remain subdued**, amounting to an estimated \$7 billion in 2022 vs. \$25 billion in 2021.

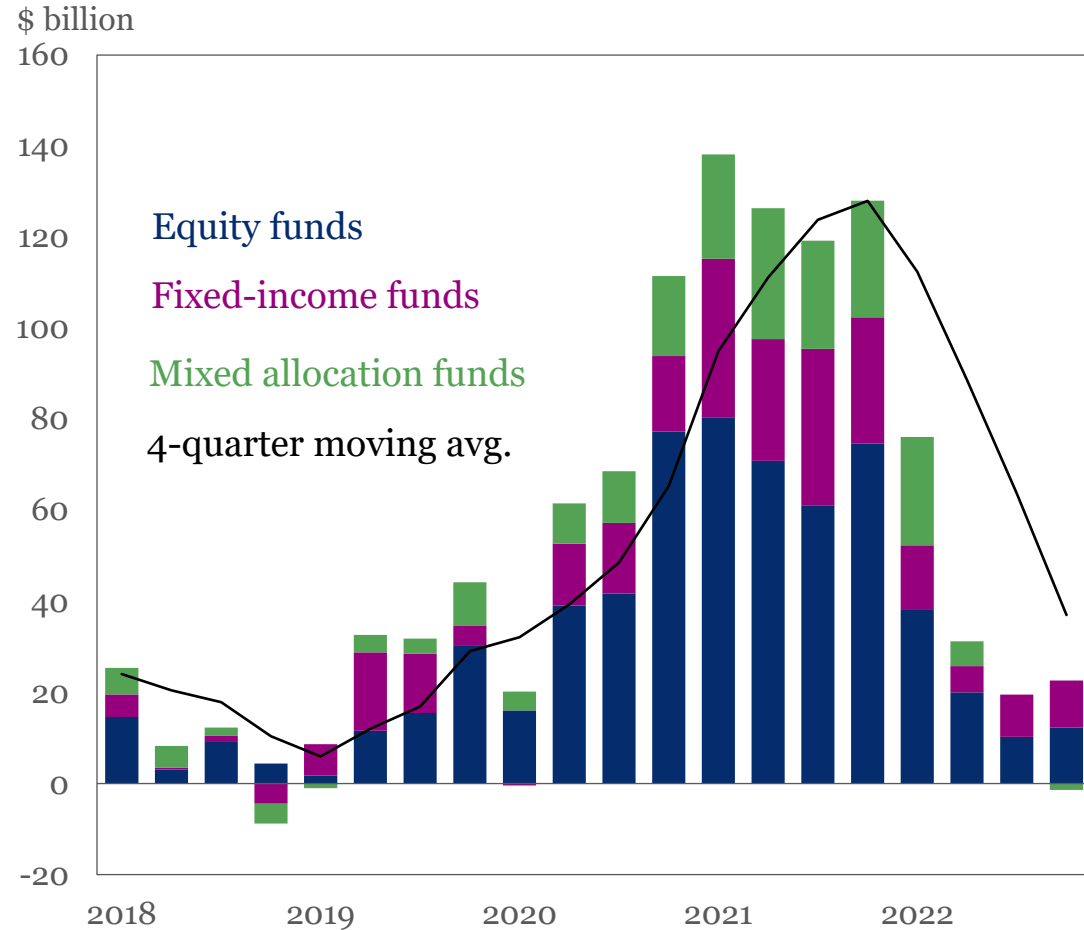
Highlights: ESG Flows and Markets (2/2)

- **Global [sustainable/ESG debt issuance](#)** amounted to some \$950 billion in the first three quarters of 2022 and **is on track to reach \$1.3 trillion by the end of 2022**—a bit softer than the \$1.5 trillion seen in 2021, but resilient compared to non-ESG debt issuance. Sustainability-linked loans have been the fastest growing segment this year.
- The **supply of [voluntary carbon credits](#) has grown exponentially in recent years** but has slowed in 2022. With excess supply still weighing on carbon prices, voluntary carbon credit prices vary significantly by location, project type and trading platform, ranging from \$1 to \$9 per ton—much lower than seen in compliance markets (ranging from \$10 to \$150 per ton).
- In a weak market for overall global car sales (on track to hit the lowest level since 2011, given rising rates and high energy prices), [electric vehicle \(EV\) sales](#) continue to grow rapidly. The **U.S. Inflation Reduction Act** has helped accelerate U.S. EV sales.
- **Romania, Ethiopia, and Costa Rica have the top [ESG country scores](#)** in our sample of emerging and frontier market economies, reflecting their strong performance on carbon efficiency and environmental factors.

1. Sustainable Finance Flows

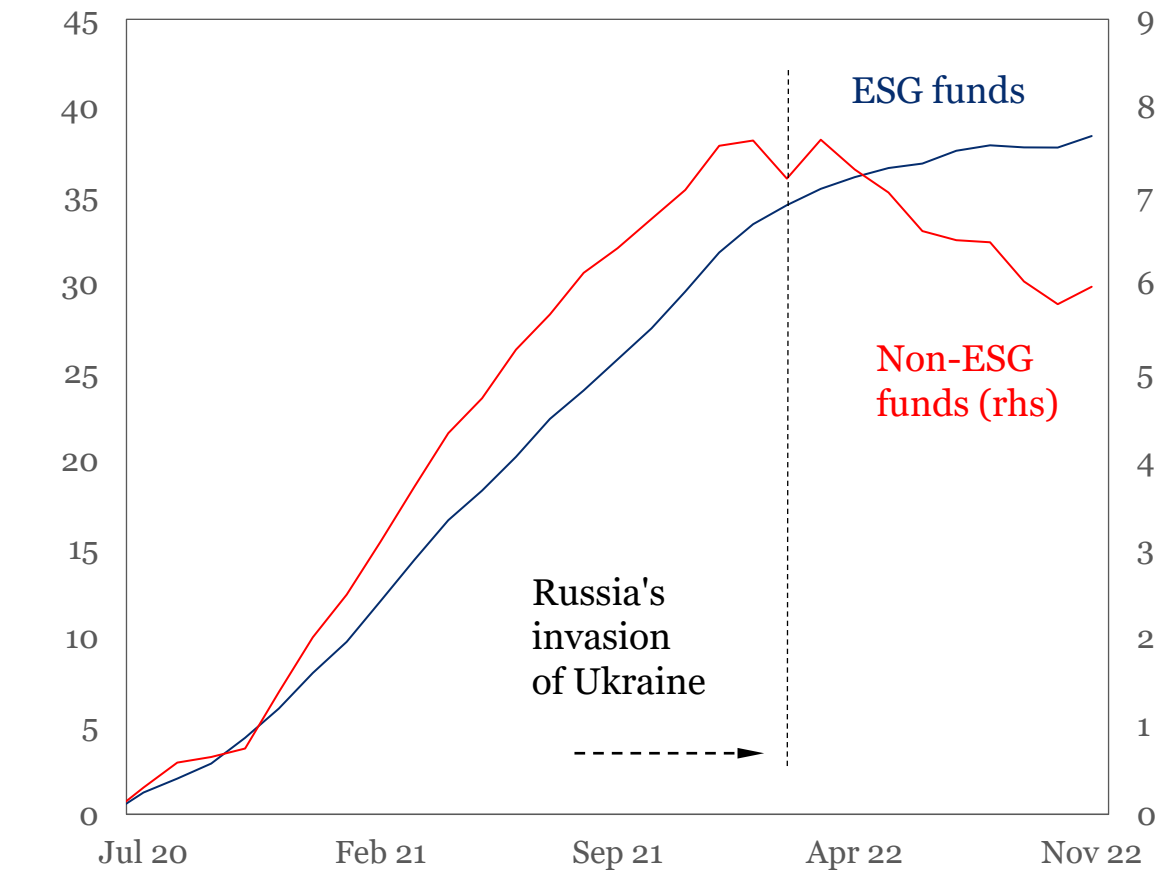
Following a sharp slowdown in H1 2022 due to tightening monetary policy and geopolitical instability, flows to ESG funds remained stable in H2 2022

After falling sharply in H1, ESG fund flows have stabilized in H2 2022



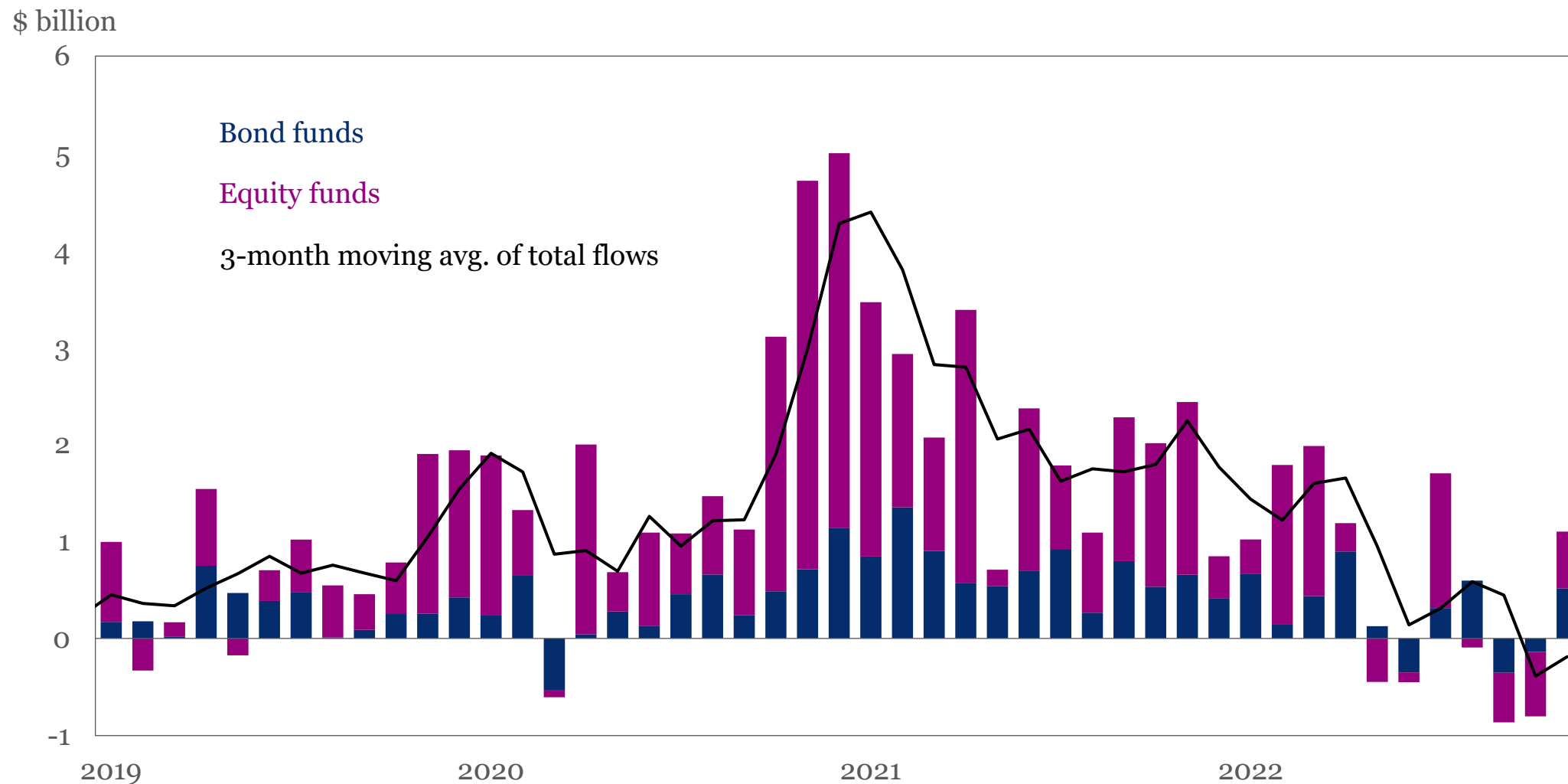
Source: Morningstar, IIF

ESG funds have maintained steady inflows in contrast to the large outflows in non-ESG funds



Source: Morningstar, IIF

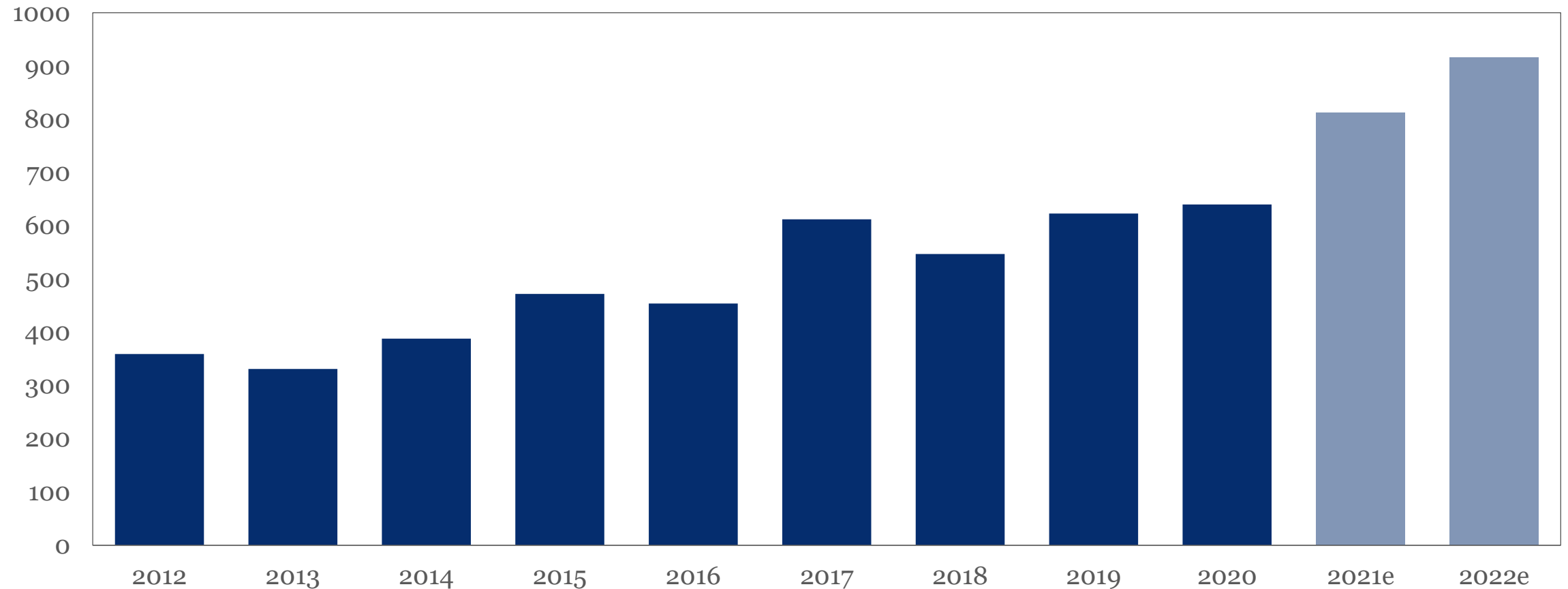
ESG fund flows to emerging market securities turned positive in late 2022



Source: Morningstar, IIF estimates

Global climate finance flows are on track to surpass \$900 billion this year, but remain well short of what will be needed to keep global warming to under 1.5C and/or to achieve net-zero emissions

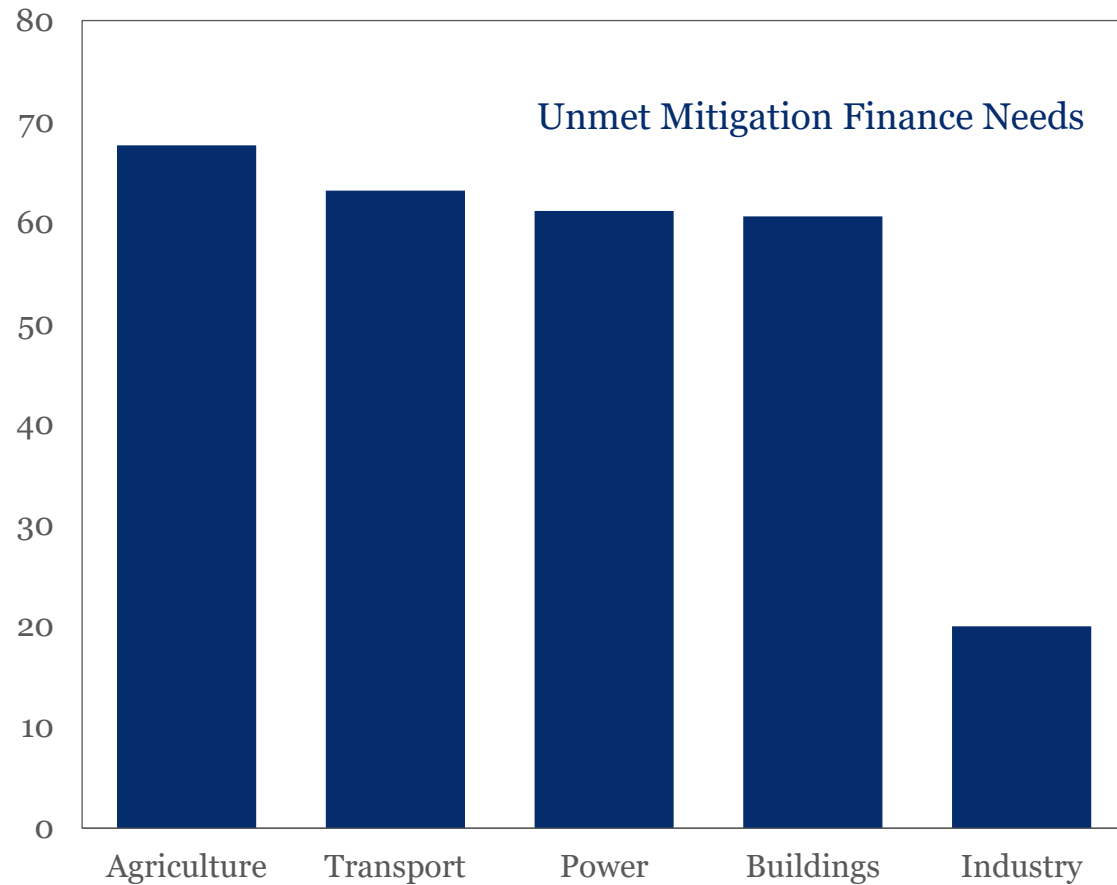
\$ billion, climate finance investment flows



Source: CPI, IIF estimates; *Based on the CPI's definition on climate flows, mainly tracking project level investment that aims to reduce carbon emissions and increase energy efficiency

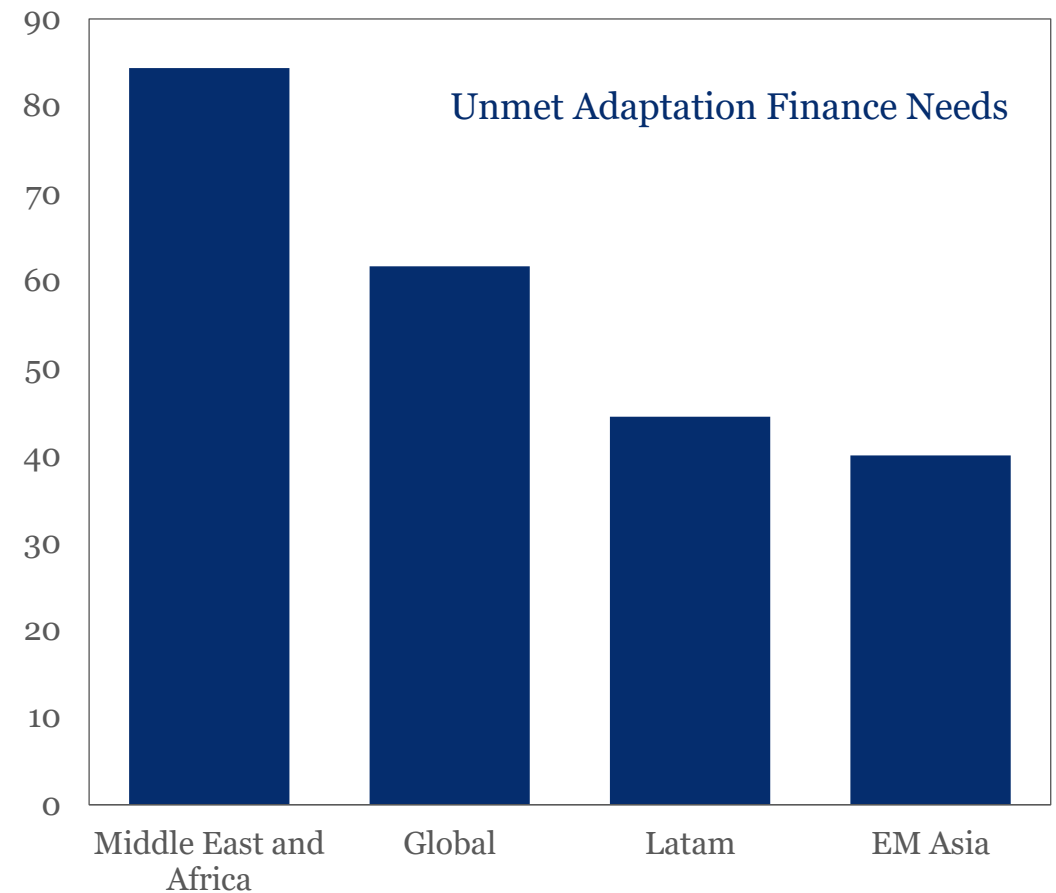
Although there is no consensus how to measure climate finance flows, all estimates point to large investment gaps across sectors and regions

Over 60% of annual mitigation finance needs remain unmet
percent of annual climate financing needs for climate change mitigation



Source: Boston Consulting Group, IIF

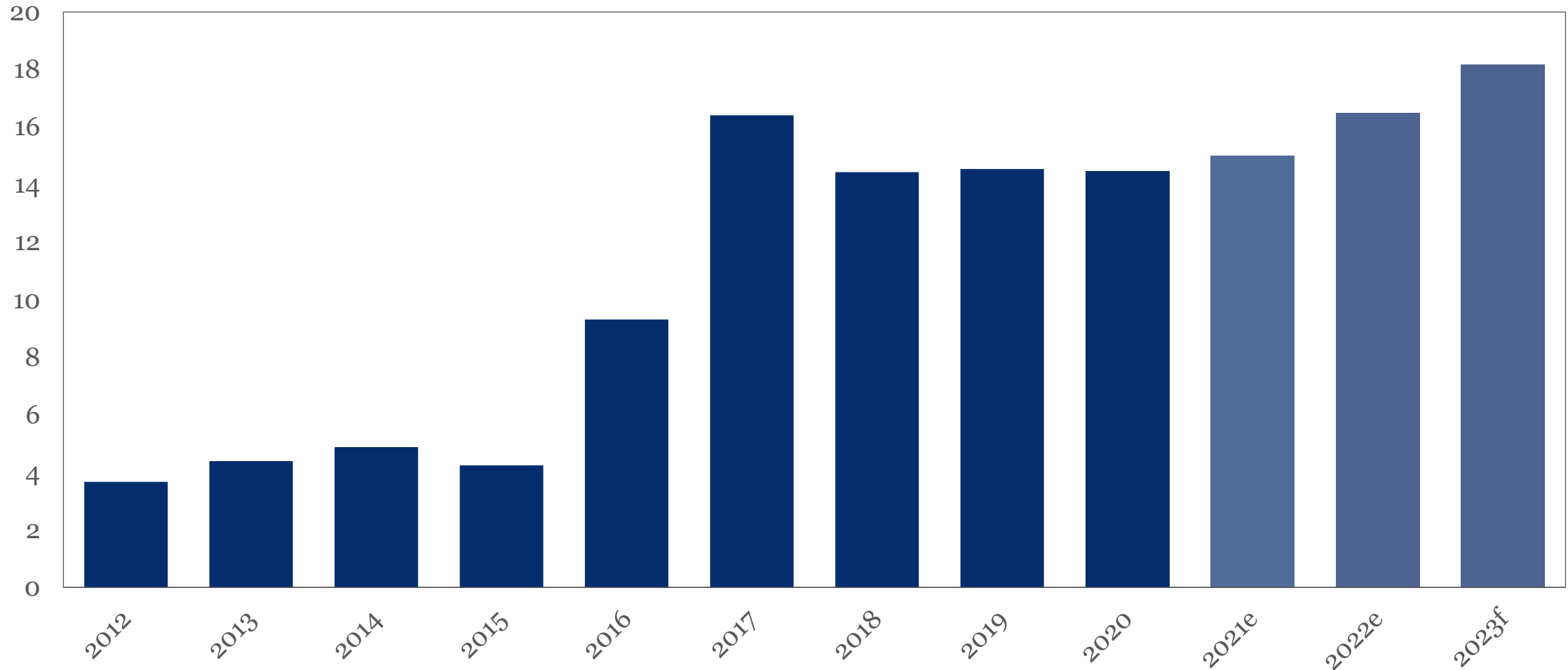
Over 40% of annual adaptation finance needs remain unmet
percent of annual climate financing needs for climate change adaptation



Source: Boston Consulting Group, IIF

Private climate finance flows to emerging markets via blended finance, while still small, are expected to surpass \$16 billion in 2022. The new [Loss and Damage Fund](#) should help to catalyze private flows to climate-vulnerable countries.

\$ billion, private investment flows to EMs for climate action via blended finance (ex-China)

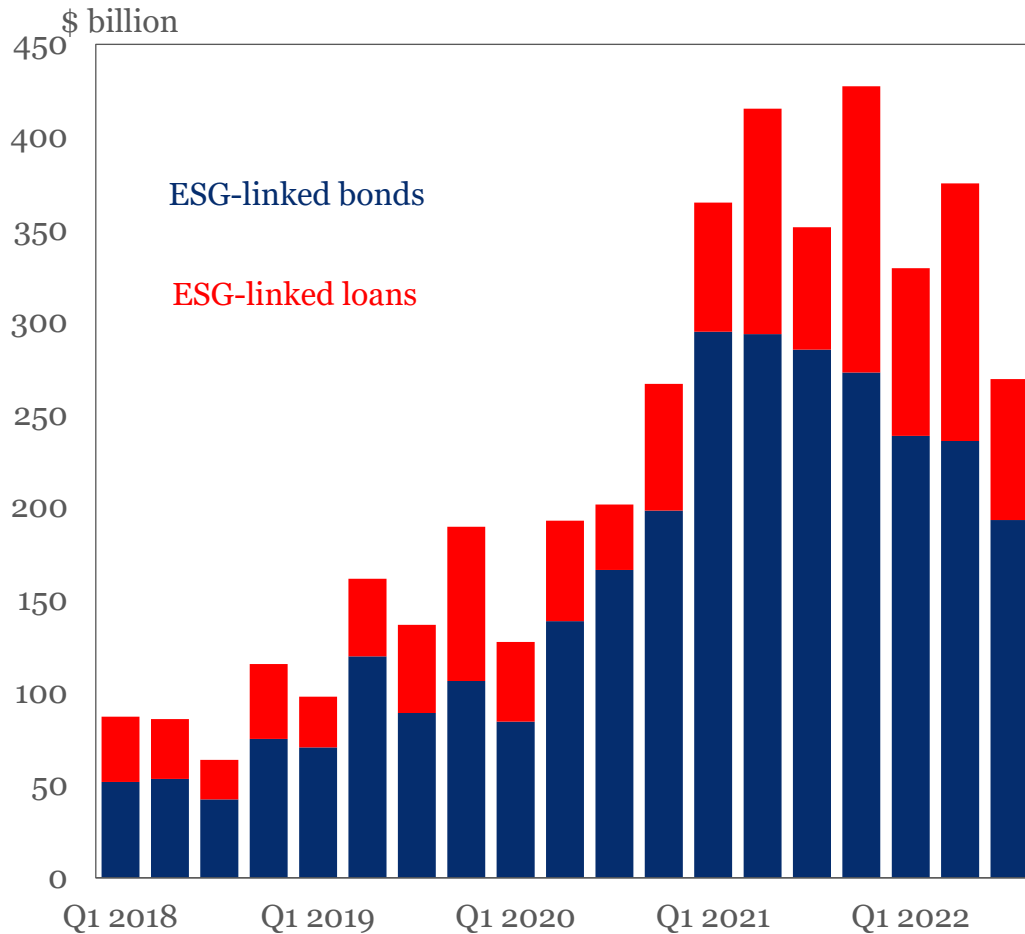


Source: OECD, IIF estimates; see OECD series on the mobilization of private investment for climate change, includes equity and debt investment

2. ESG Debt Issuance

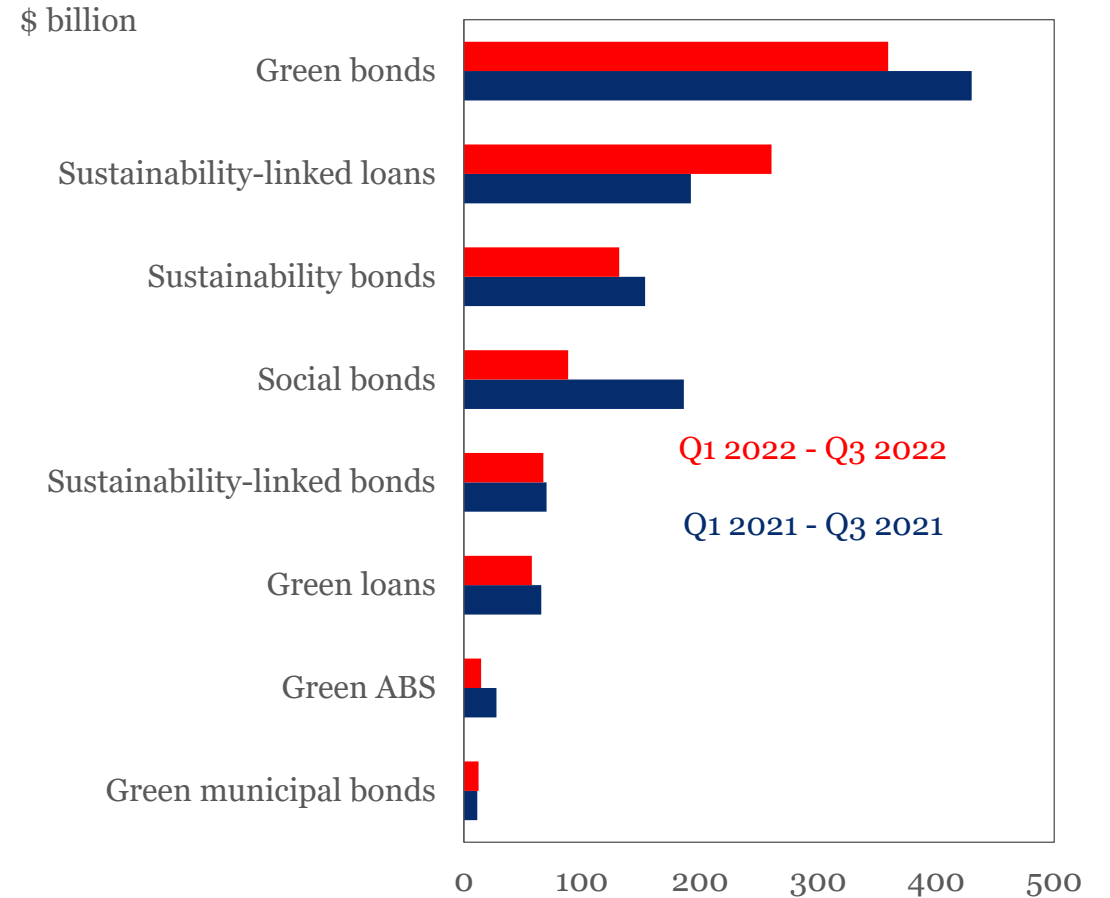
Despite subdued overall ESG debt issuance in Q3 2022, sustainability-linked loan volumes have risen significantly this year

ESG-labelled Debt Issuance



Source: Bloomberg, IIF

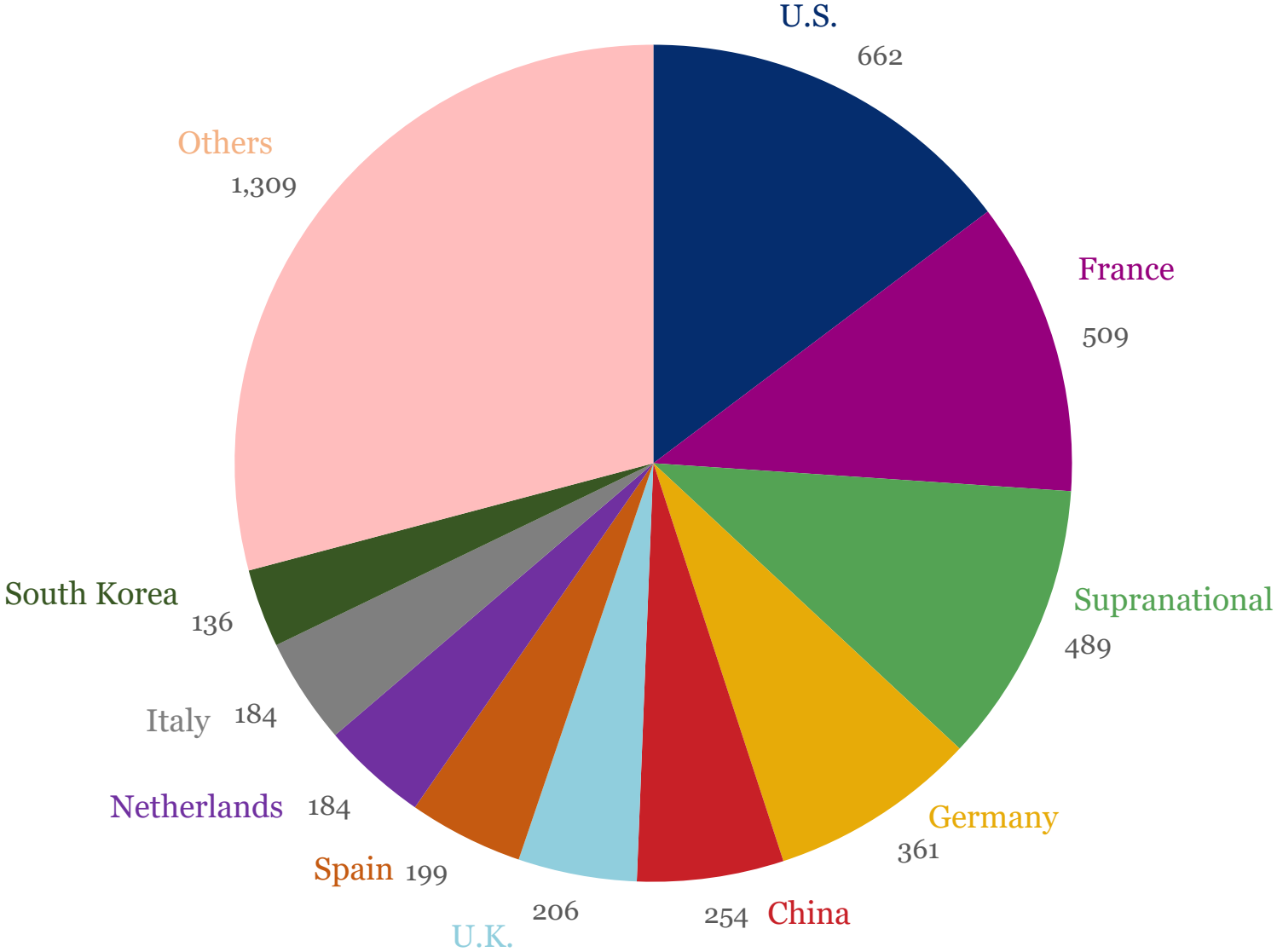
Hot spot: sustainability-linked loan volumes have risen significantly in 2022



Source: Bloomberg, IIF

The U.S. has the world's largest ESG debt market, followed by France

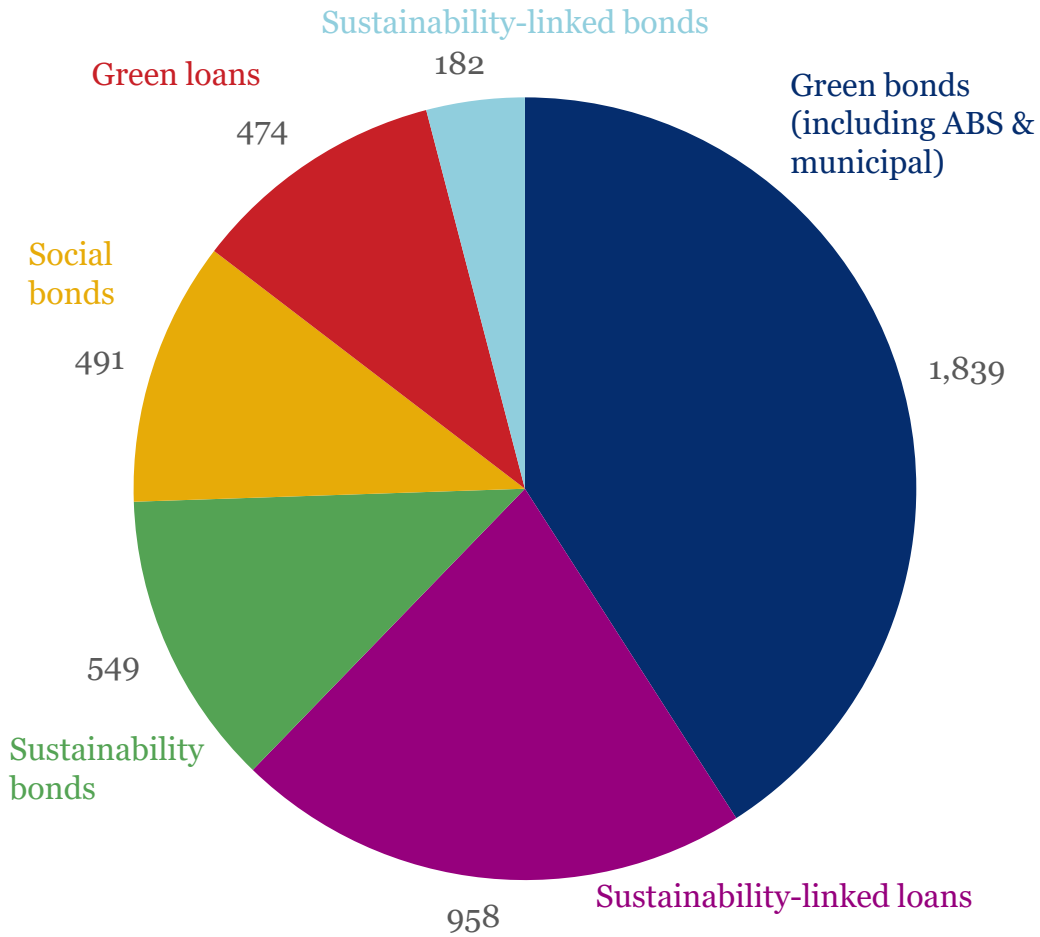
\$ billion, Q3 2022



Source: Bloomberg, IIF

ESG-labelled bonds make up 70% of the sustainable debt universe

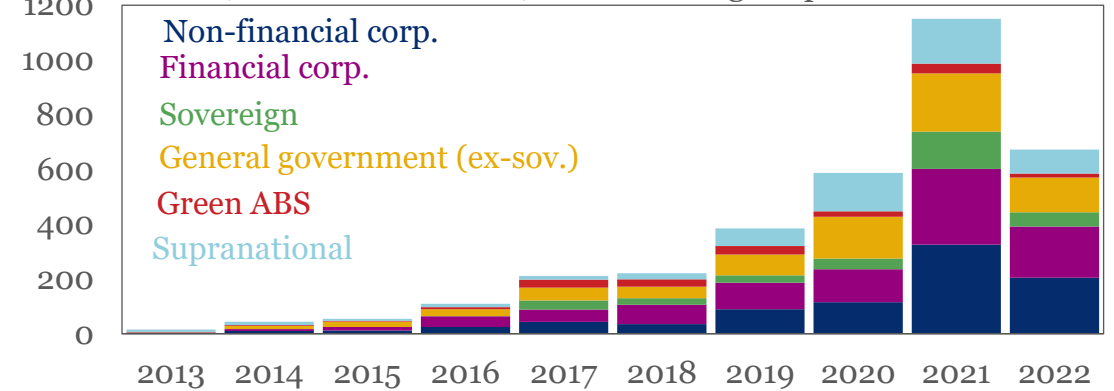
\$ billion, Q3 2022



Source: Bloomberg, IIF

ESG-labelled bond issuance, by sector

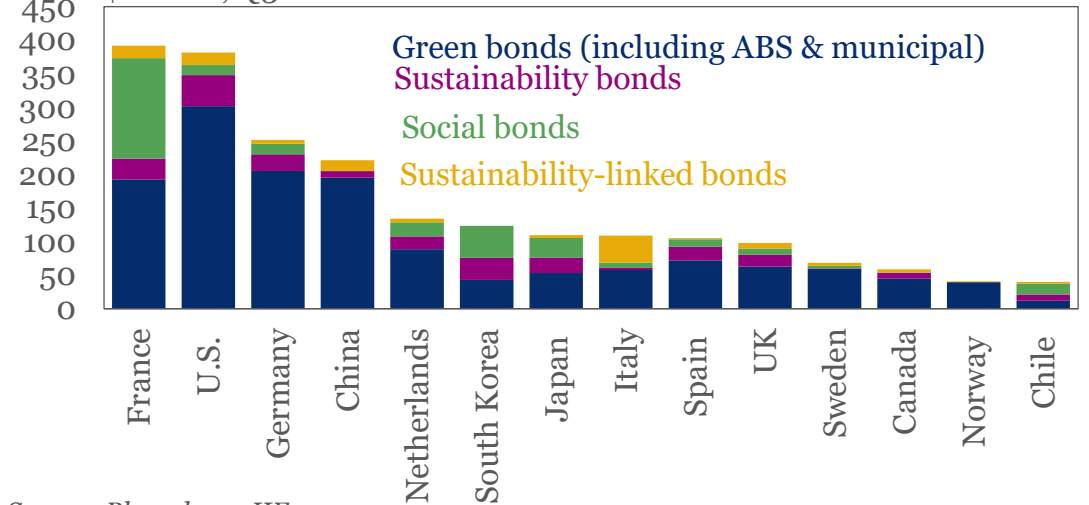
\$ billion, ESG-labelled bonds, 2022 is through Sept. '22



Source: Bloomberg, IIF

ESG-labelled bond market size, by country

\$ billion, Q3 2022

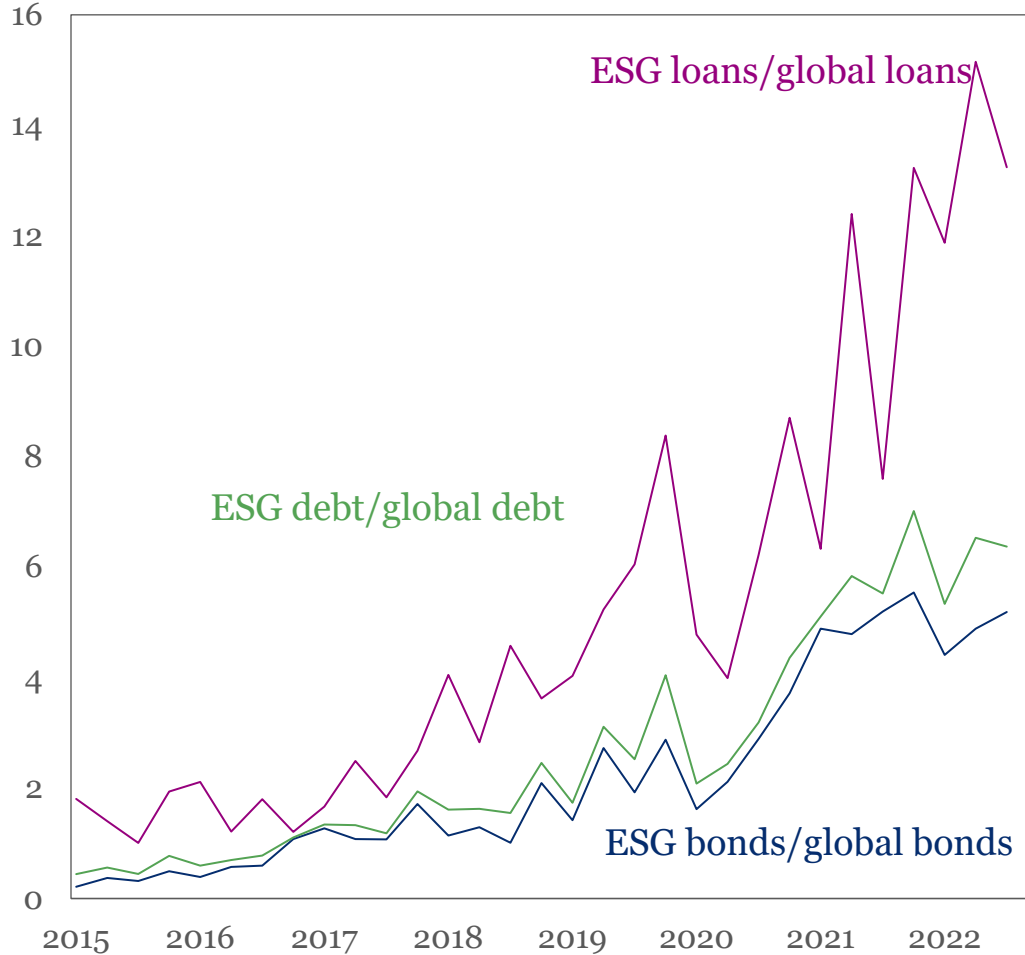


Source: Bloomberg, IIF

ESG integration in global bond markets, while still limited, is growing rapidly: ESG issuance was >6% of global issuance in Q3 22

ESG debt issuance was over 6% of global debt issuance in Q3 2022

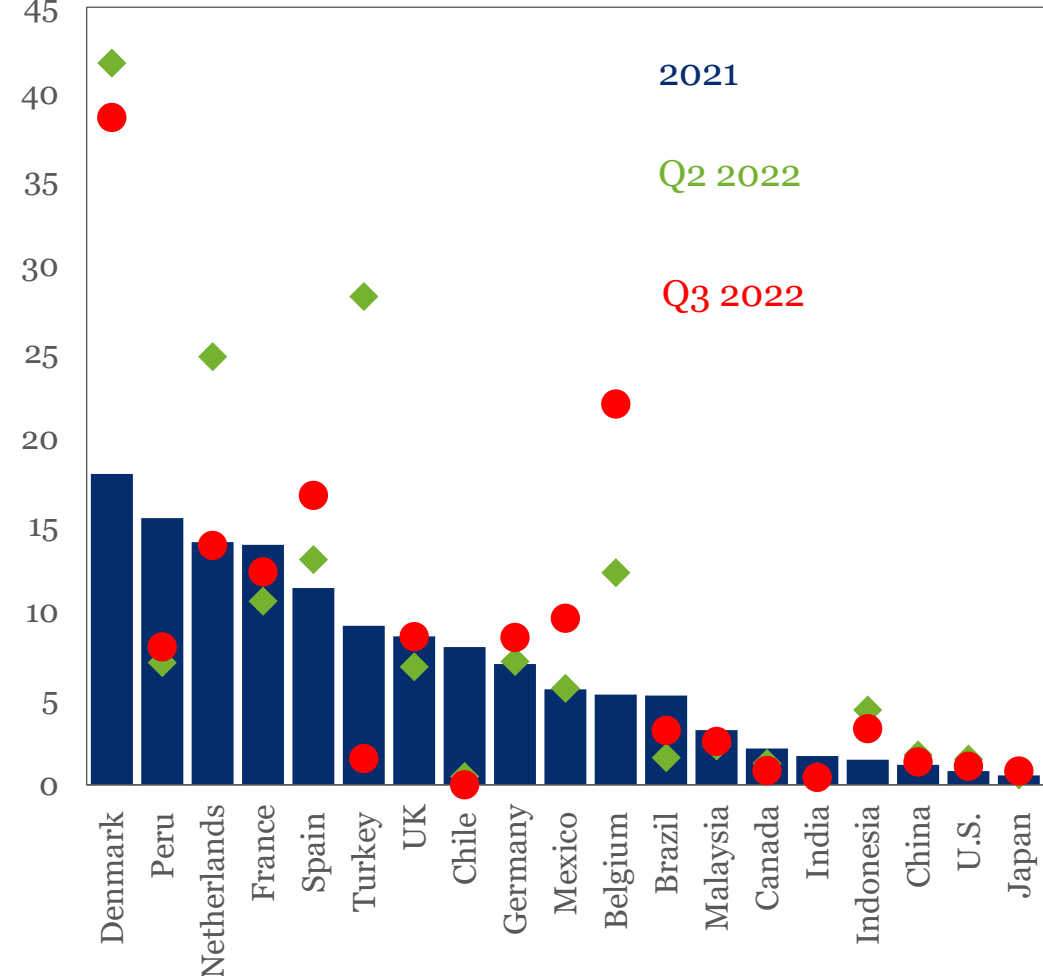
percent, based on quarterly values, Q3 2022 is latest



Source: Bloomberg, IIF; includes tenor > 1

The share of ESG debt issuance in total debt issuance remains limited

percent, share of ESG debt issuance/total debt issuance



Source: Bloomberg, IIF; includes short-term and long-term securities

IN DEPTH: ESG integration in global debt markets

ESG debt issuance by country*

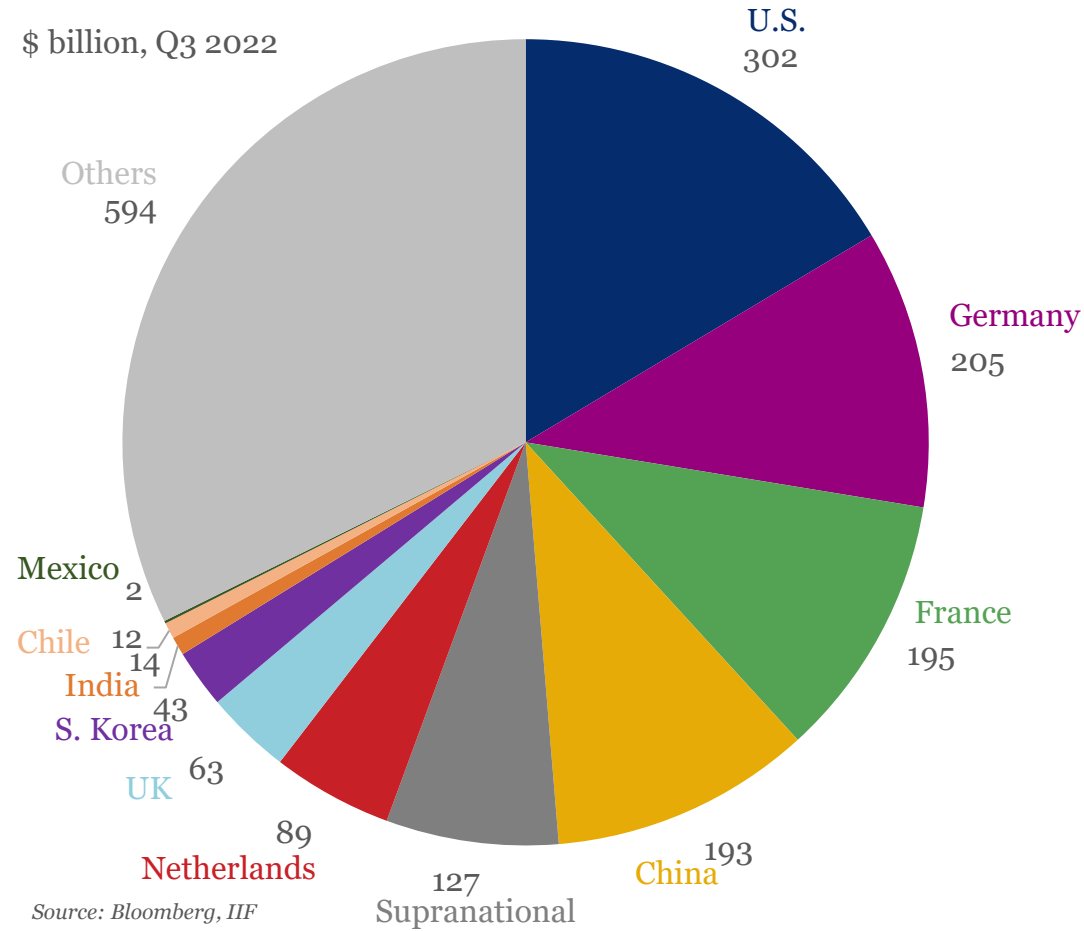
	ESG 2020	2020 share	ESG 2021	2021 share	ESG Q1 '22	Q1 share	ESG Q2 '22	Q2 share	ESG Q3 '22	Q3 share
	\$ billion	% of total debt issuance	\$ billion	% of total debt issuance	\$ billion	% of total debt issuance	\$ billion	% of total debt issuance	\$ billion	% of total debt issuance
U.S.	121.1	0.4	224.4	0.8	37.0	0.7	71.8	1.5	40.0	1.1
China	22.0	0.2	114.4	1.2	33.7	1.3	45.3	1.7	28.6	1.3
France	99.3	7.3	173.5	13.9	30.9	9.0	31.8	10.6	26.9	12.3
Germany	74.8	3.8	124.0	7.0	23.1	4.9	24.5	7.1	25.7	8.5
Italy	18.0	1.9	58.4	7.2	11.3	7.3	17.1	9.9	22.3	20.2
Netherlands	22.6	4.5	47.8	14.0	14.0	10.7	18.4	24.8	5.5	13.8
Japan	23.5	0.3	39.5	0.5	13.4	0.8	8.8	0.6	11.5	0.8
United Kingdom	26.6	2.2	81.6	8.6	13.8	8.5	11.2	6.8	8.5	8.6
South Korea	24.8	3.4	64.2	8.6	12.5	7.0	12.8	8.0	7.9	5.4
Spain	36.0	5.3	55.7	11.4	13.5	9.4	10.3	13.0	9.2	16.8
Australia	9.2	1.8	37.5	10.3	10.8	10.4	7.8	7.0	2.6	3.9
Sweden	24.8	10.3	37.1	14.1	7.7	16.6	8.8	16.6	4.4	11.8
Canada	14.3	1.1	26.7	2.1	8.4	2.6	3.5	1.2	1.8	0.8
Denmark	6.8	8.3	17.7	18.0	4.4	28.9	5.4	41.8	3.7	38.6
Norway	9.9	6.3	19.2	11.3	4.8	10.9	3.7	12.6	4.5	20.7
Belgium	8.3	4.4	6.9	5.2	3.3	5.2	2.2	12.3	5.2	22.0
Turkey	3.6	2.6	11.3	9.2	3.4	12.5	6.9	28.3	0.2	1.5
Austria	1.9	0.8	7.8	4.7	0.5	1.5	7.5	27.1	1.8	8.2
Mexico	4.8	1.9	14.2	5.5	2.8	3.5	2.9	5.6	3.6	9.6
Switzerland	6.7	2.1	17.3	6.3	4.1	6.6	2.8	4.3	1.7	3.1
Chile	6.4	2.3	24.6	8.0	6.7	15.6	0.5	0.5	0.0	0.0
Luxembourg	5.5	5.6	15.4	11.3	4.3	16.2	1.1	5.3	1.8	11.7
Finland	7.6	6.1	12.7	11.4	2.5	6.6	4.1	10.6	0.3	0.9
Portugal	4.2	6.8	5.1	13.9	1.6	11.7	0.5	5.1	3.8	62.3
Brazil	2.9	1.1	10.4	5.2	2.2	2.1	1.2	1.6	1.9	3.1
India	5.1	0.6	13.8	1.7	2.2	1.3	0.9	0.5	1.1	0.4
Ireland	1.8	2.4	7.2	4.6	0.6	4.4	1.1	9.3	2.4	30.8
Indonesia	2.3	1.2	3.4	1.5	0.2	0.4	2.1	4.3	1.5	3.2

Source: Bloomberg, IIF; ordered by the largest ESG debt issuers in 2022ytd

The U.S. has the largest green and sustainability bond markets

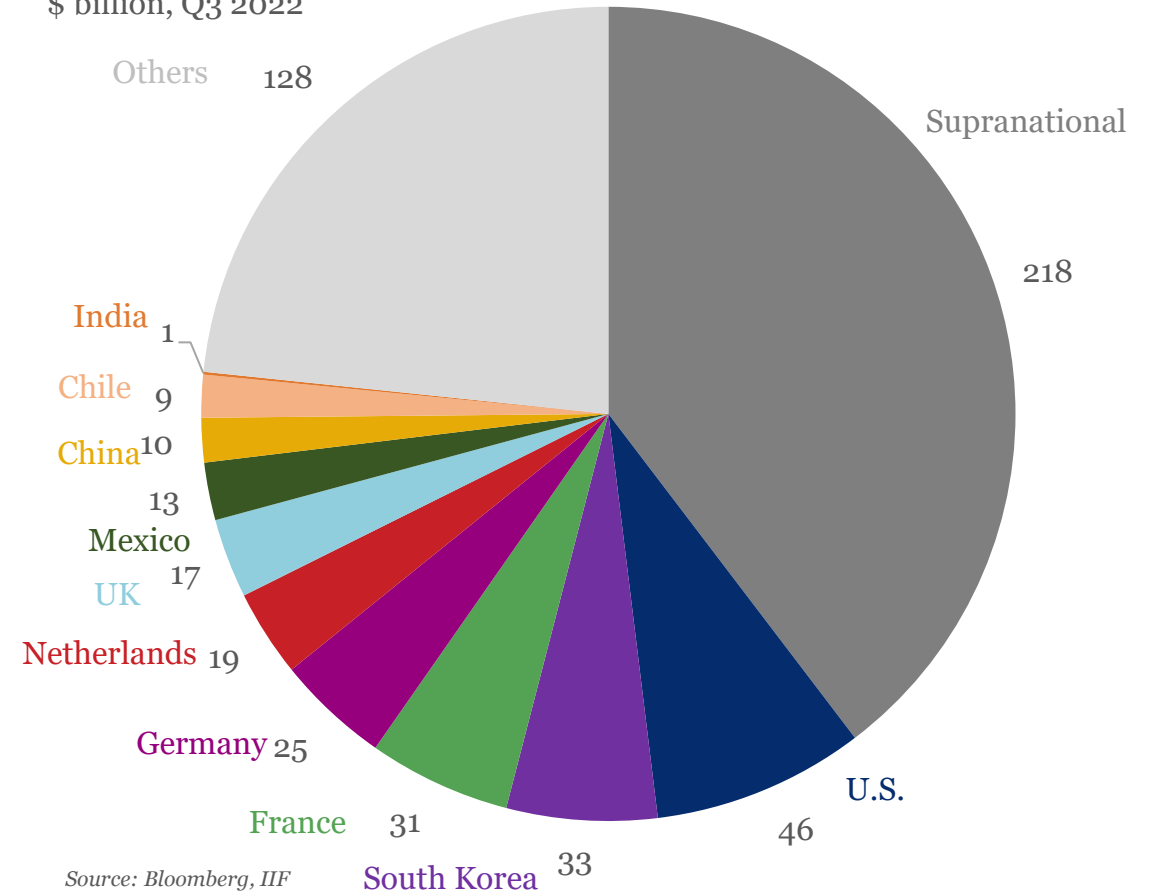
Green bond market size, by country

\$ billion, Q3 2022



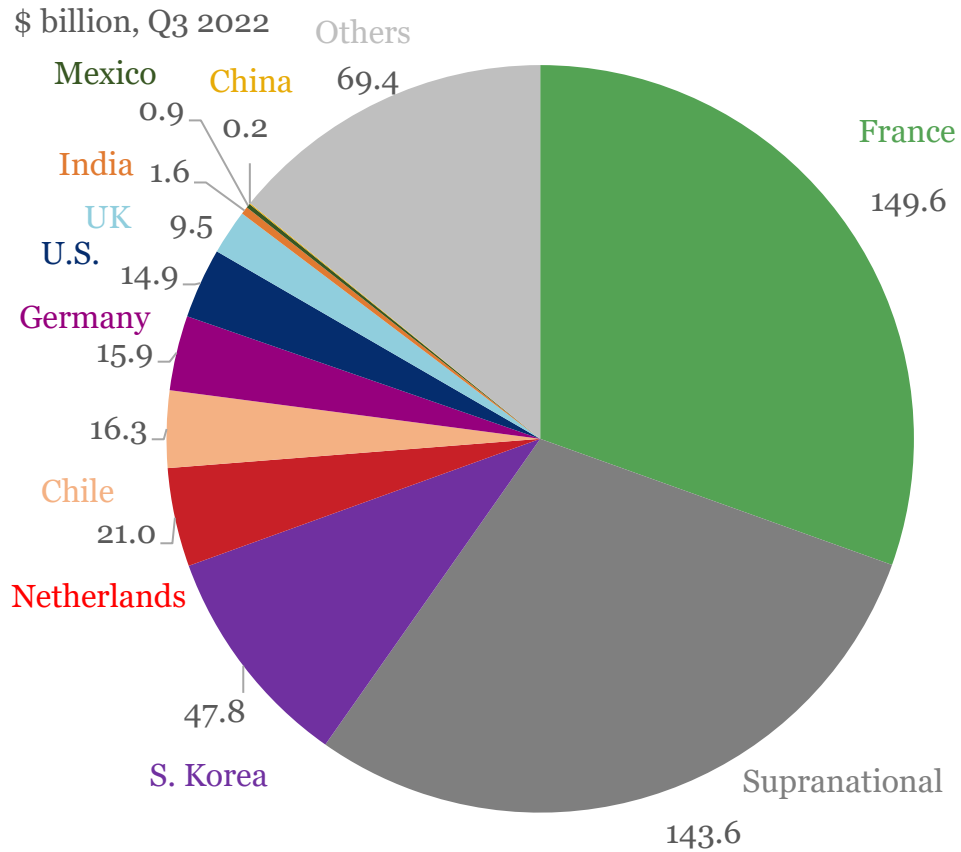
Sustainability bond market size, by country

\$ billion, Q3 2022



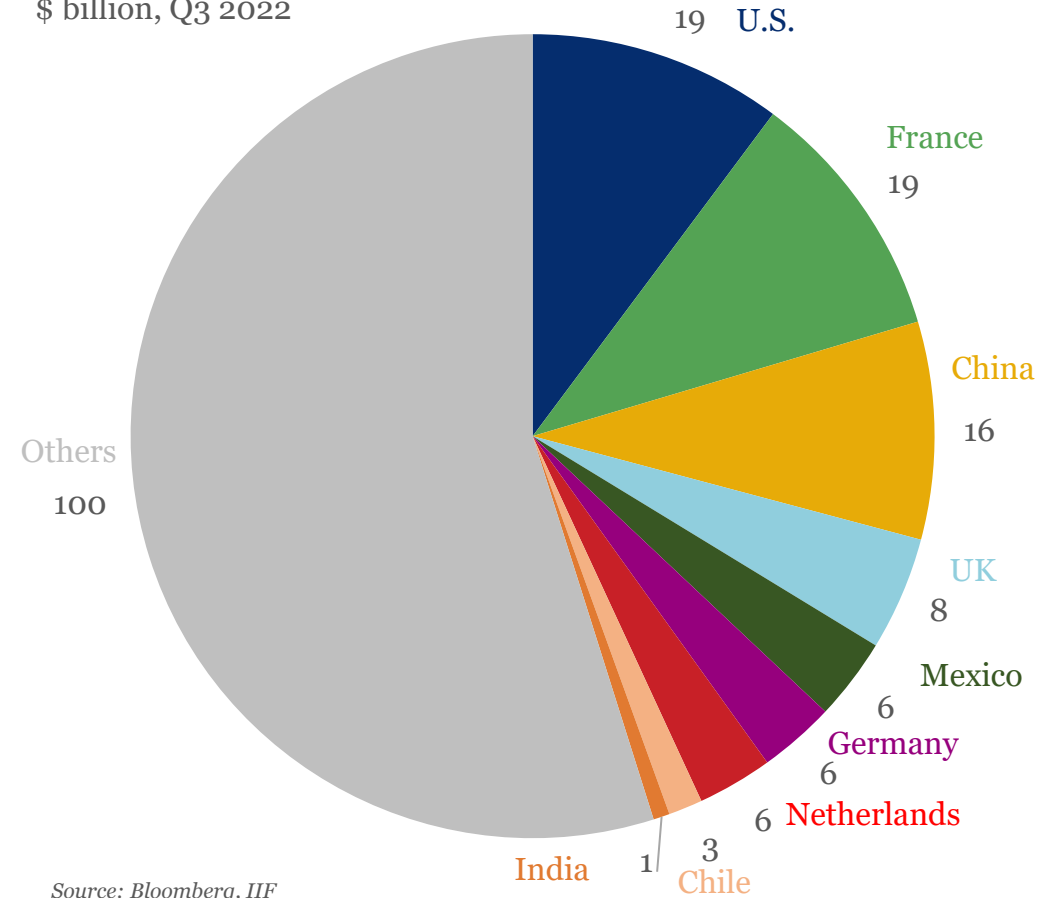
France and the U.S. have the largest social and sustainability-linked bond markets, respectively

Social bond market size, by country



Source: Bloomberg, IIF

Sustainability-linked bond market size, by country
\$ billion, Q3 2022

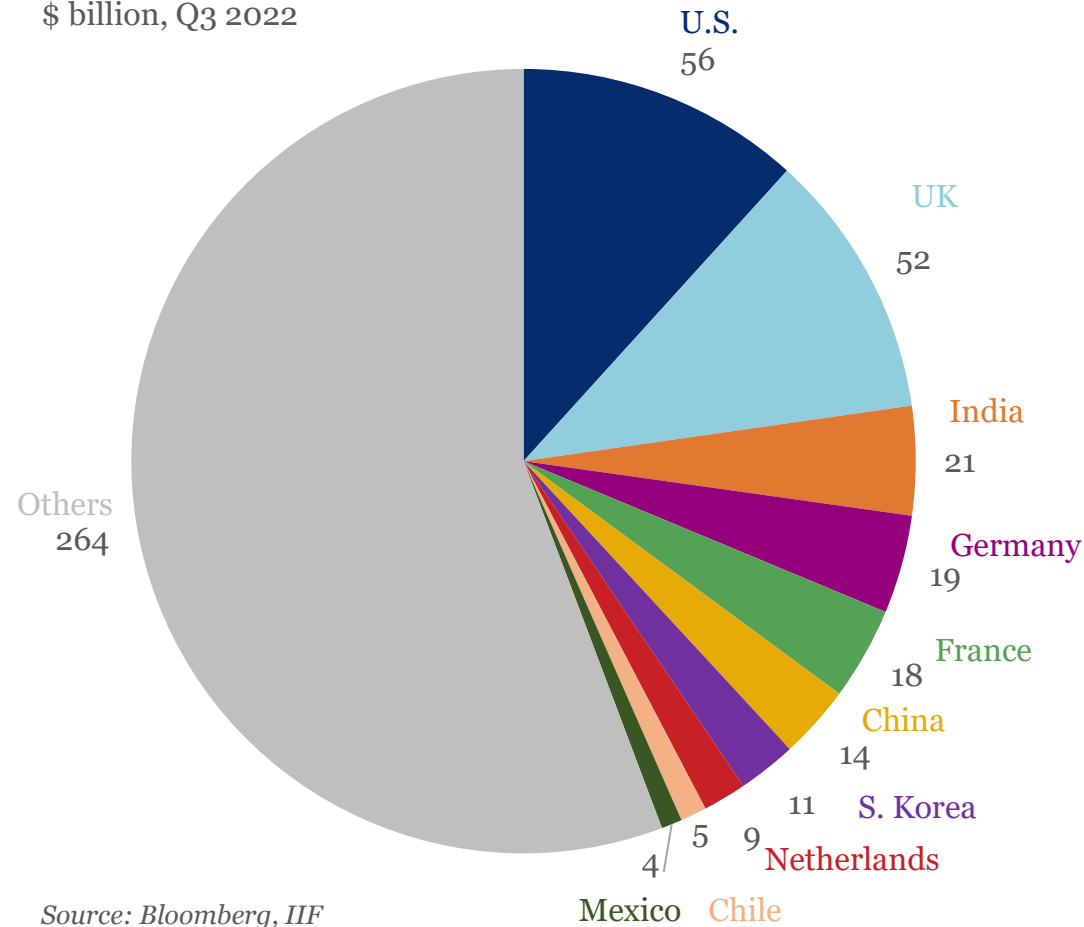


Source: Bloomberg, IIF

The U.S., the UK and France dominate the ESG-linked loan markets

Green loan market size, by country

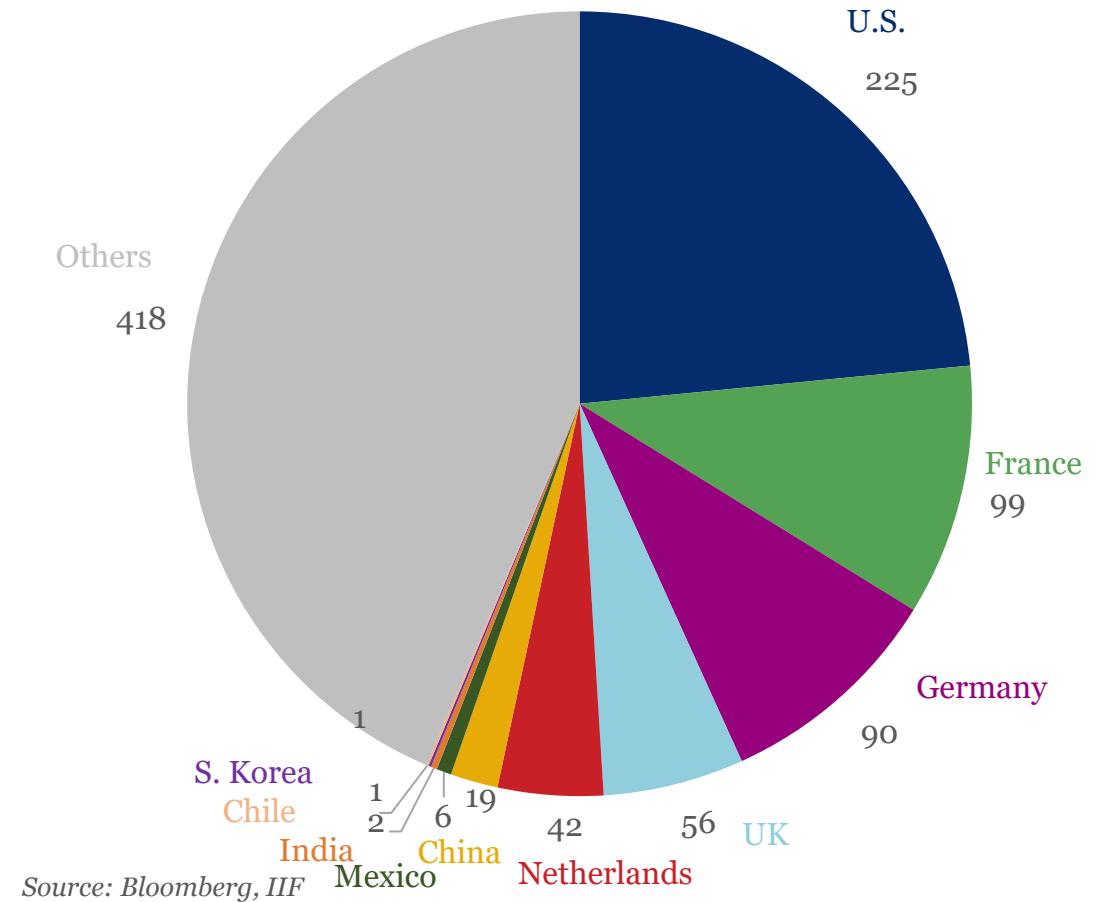
\$ billion, Q3 2022



Source: Bloomberg, IIF

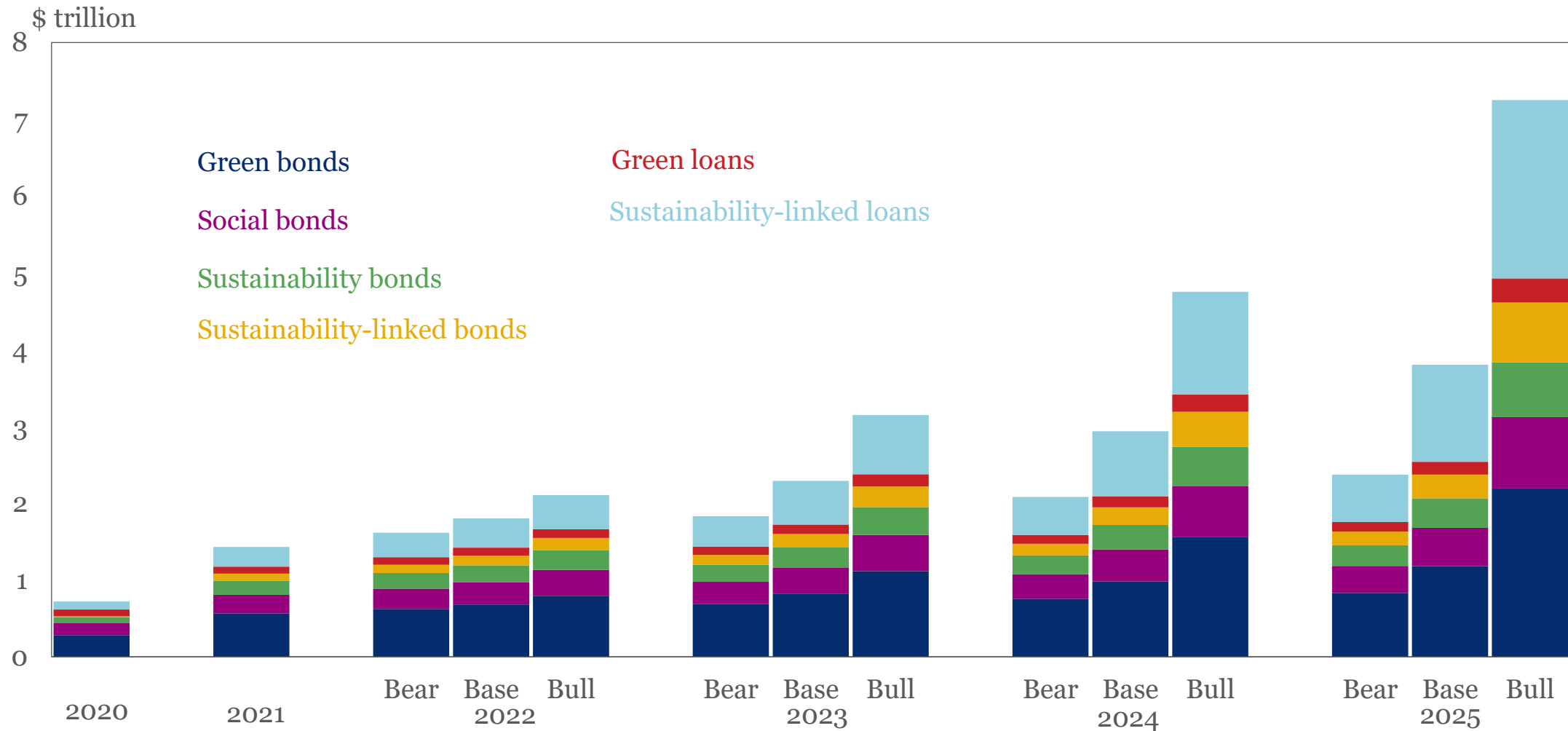
Sustainability-linked loan market size, by country

\$ billion, Q3 2022



Source: Bloomberg, IIF

Under favorable market conditions, total ESG debt issuance could reach an annual pace of over \$7 trillion by 2025

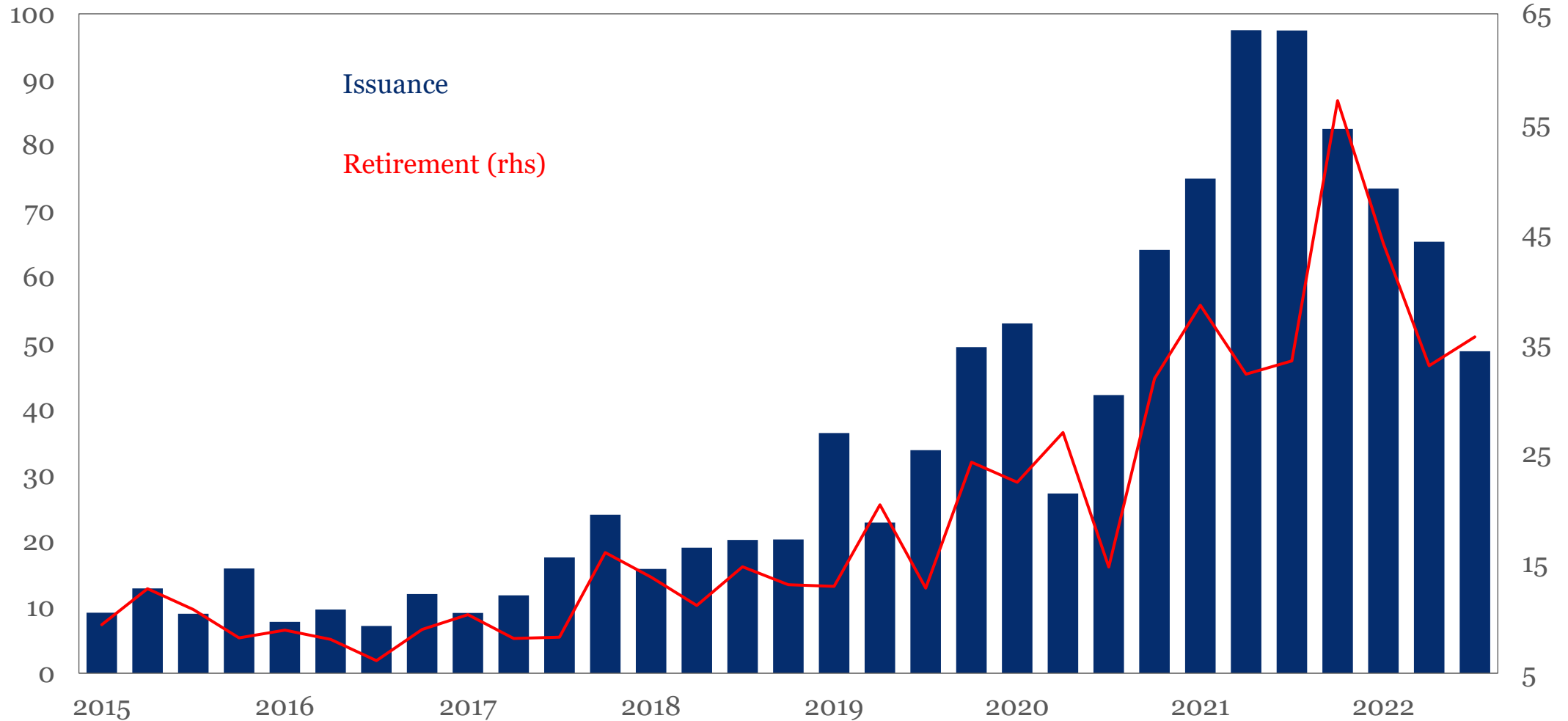


Source: Bloomberg, IIF estimates as of December 2021

3. Voluntary Carbon Markets

With excess supply at present, year to date issuance of voluntary carbon offsets is over 40% lower than the same period in 2021 (but still >2020).

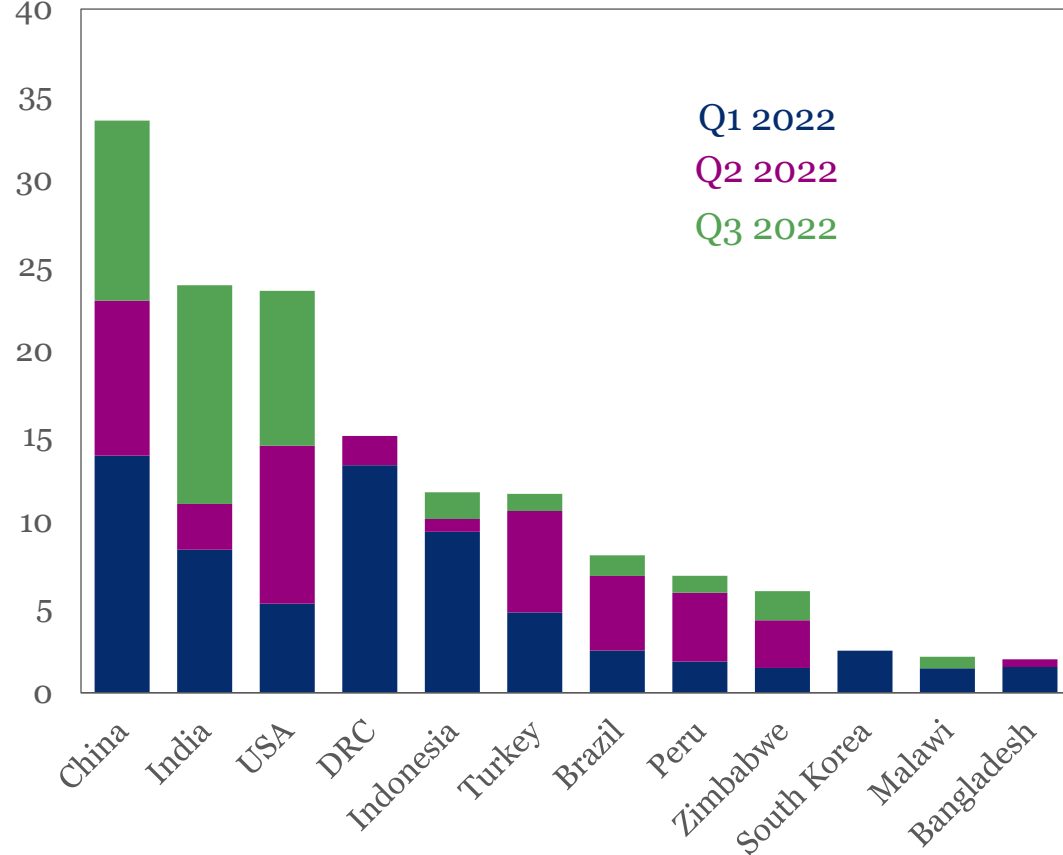
MtCO₂e (million tonnes of carbon dioxide equivalent, both scales)



Source: IIF, Verra, GS, ACR, CAR; excludes ARB eligible issuance

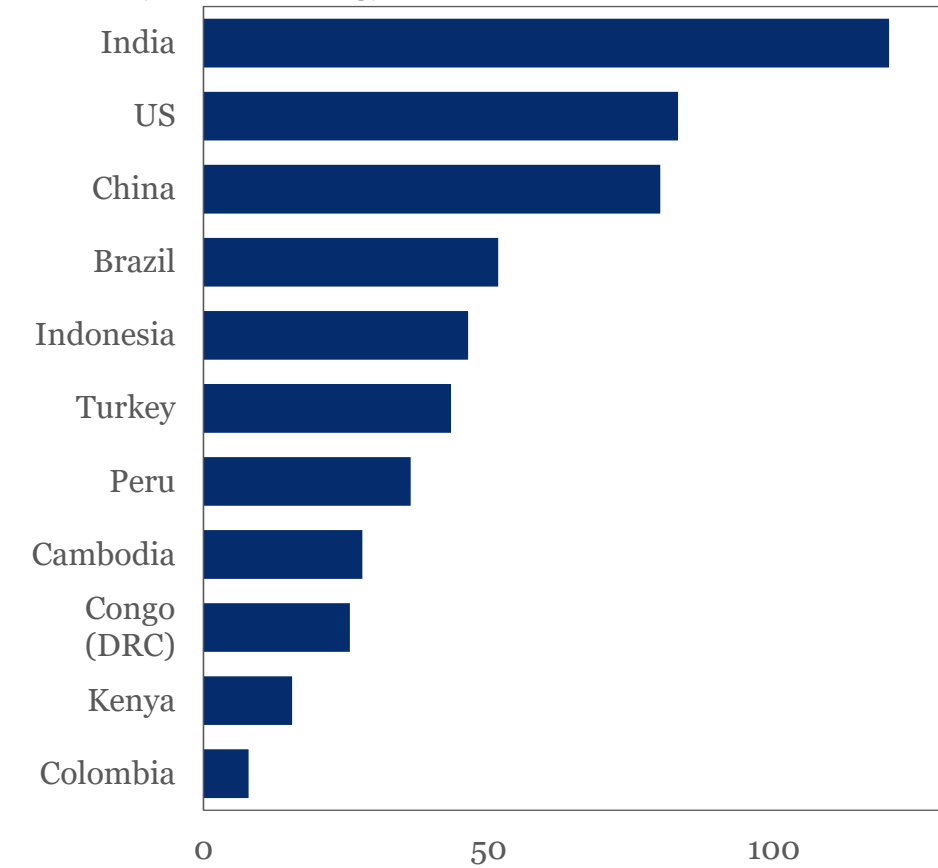
Most carbon offsets come from EMs and the U.S.; non-retired volumes have risen steadily this year—this suggests countries may be stockpiling to meet Nationally Determined Contributions (NDCs), and anticipating future demand.

The majority of carbon offsets come from EMs and the U.S.
MtCO₂e, Q1 - Q3 2022 issuance



Source: IIF, VCS, GS, CAR, ACR; MtCO₂e = million tonnes of carbon dioxide equivalent

Non-retired offset volumes by host country
MtCO₂e, as of October 3, 2022

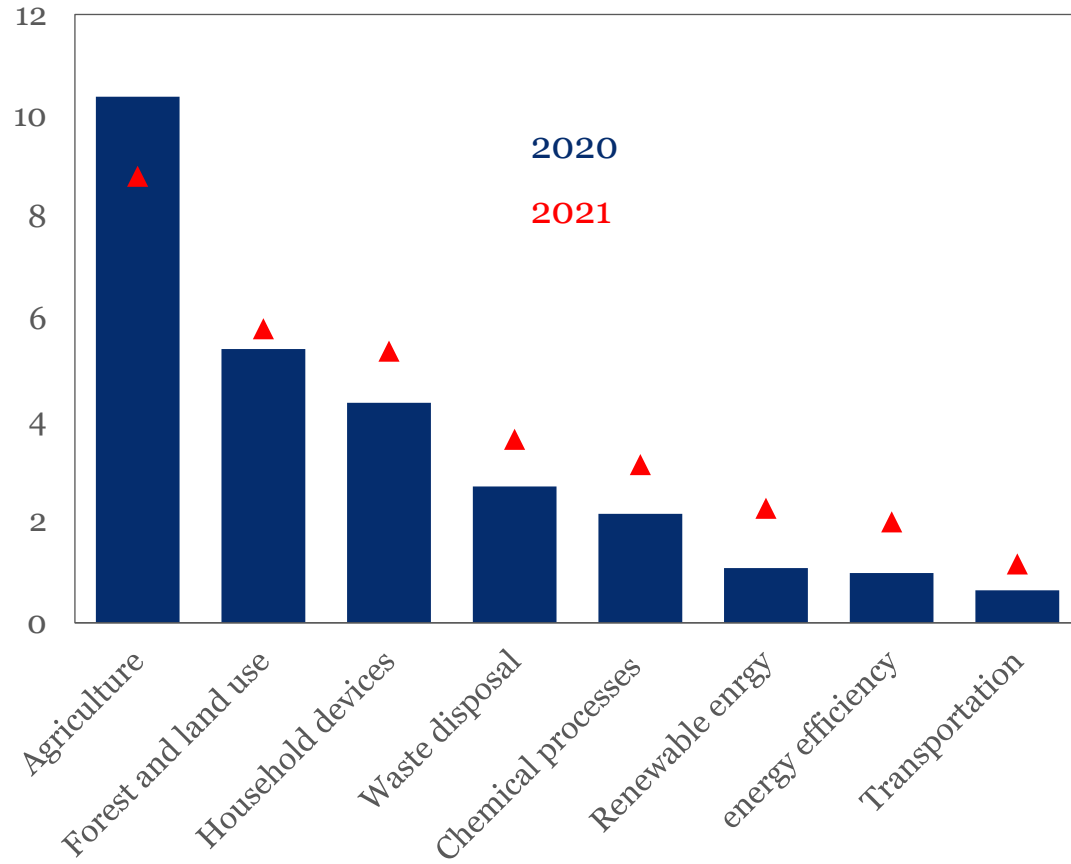


Source: Climate Focus, IIF

*Nationally Determined Contributions

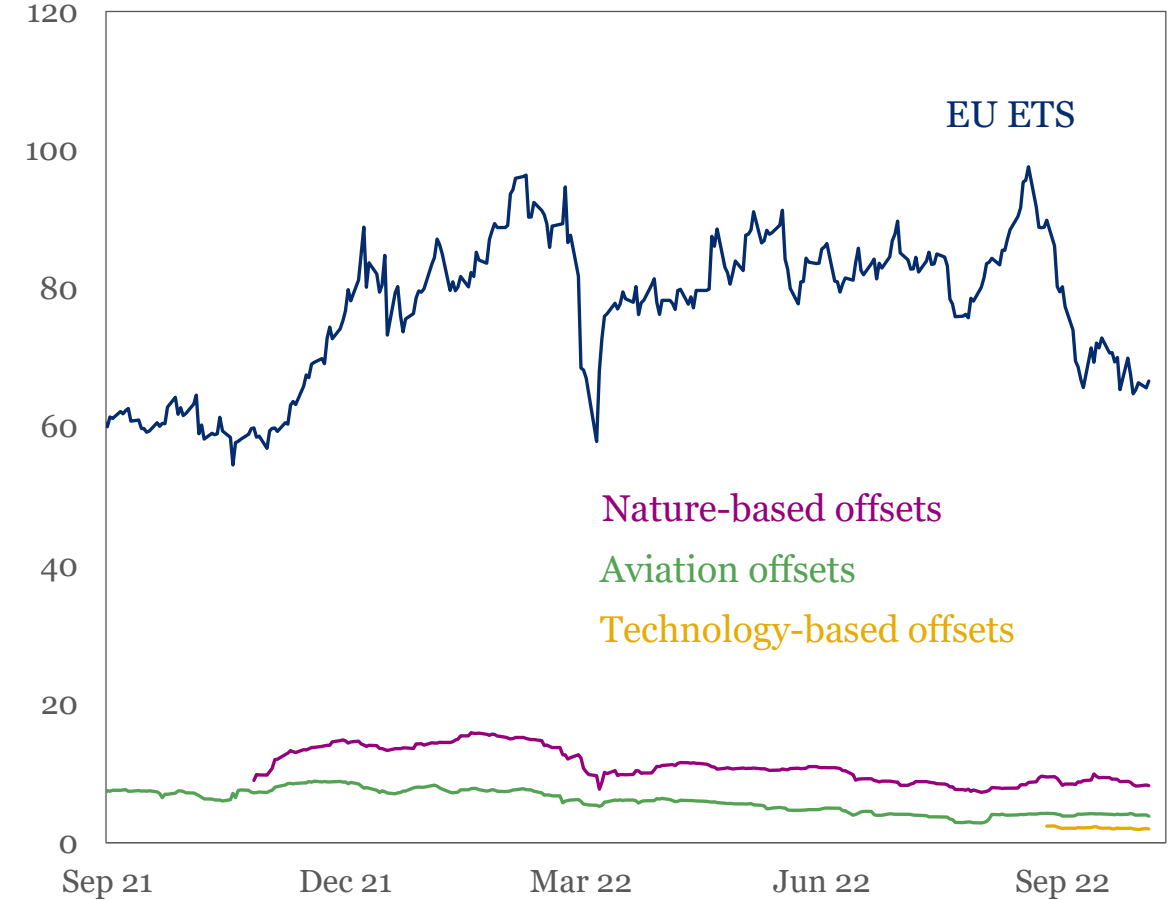
Voluntary carbon credit prices vary significantly by project type and remain well below those in compliance markets; price transparency remains very low

\$ per ton, voluntary carbon offset prices



Source: Ecosystem Marketplace, IIF

\$, carbon offset future prices

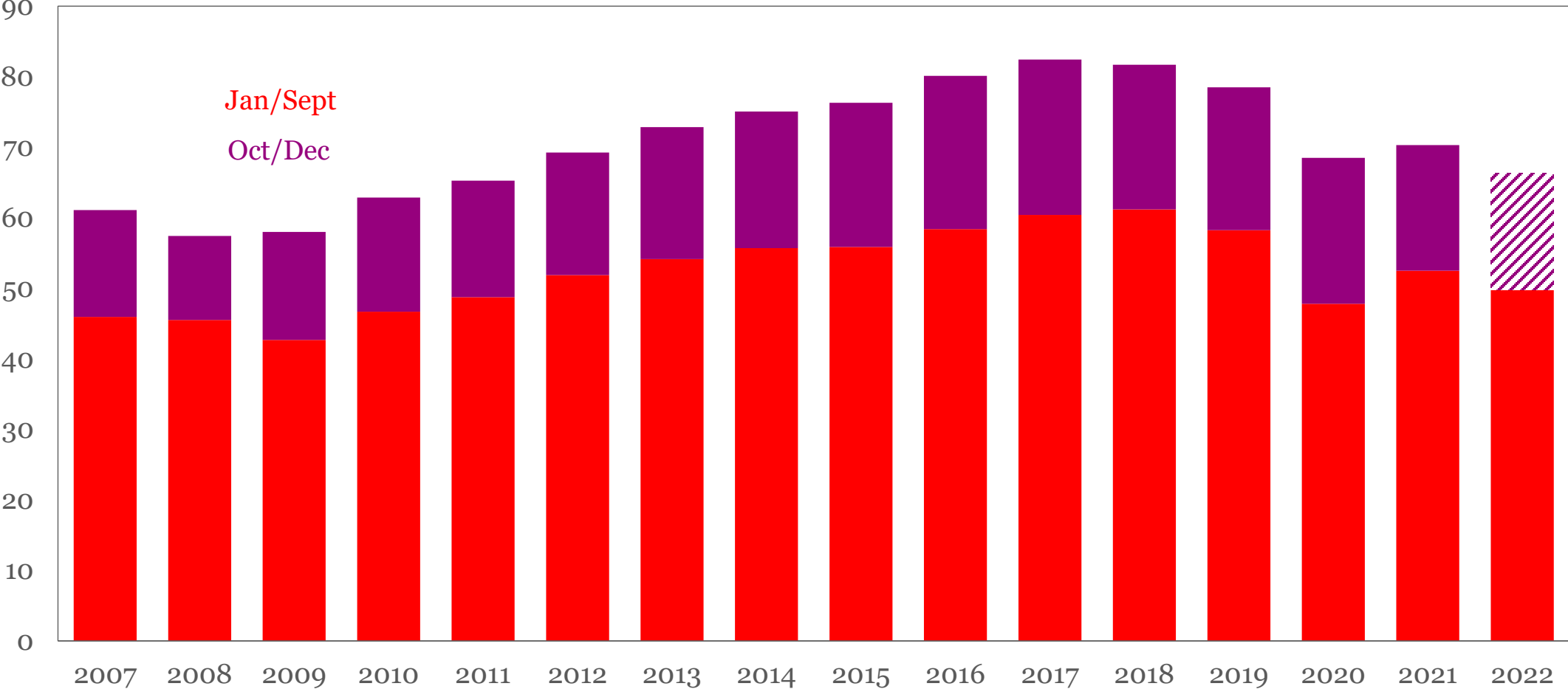


Source: Bloomberg, IIF

4. Electric Vehicle Markets

Despite modest recovery in 2021, new vehicle purchases contracted in 2022 as higher gas prices and interest rates weighed on demand

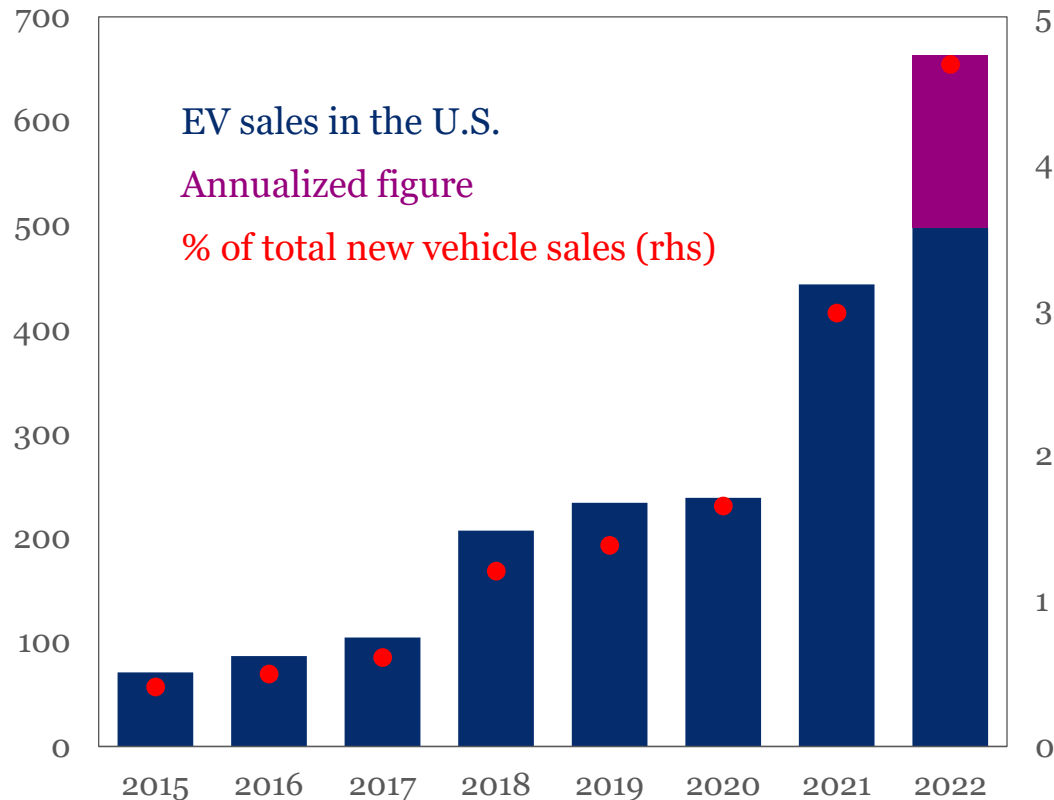
million, global car sales (2022 annualized)



Source: IIF, Bloomberg

Rising EV sales in both the U.S. and China highlight the resilience of EV markets to economic fluctuations—helped by sustained policy support to increase EV adoption in many countries

U.S. EV sales have picked up amid Inflation Reduction Act
thousands, excl. hybrid vehicles, as of Q3 2022



Source: IIF, ACEA

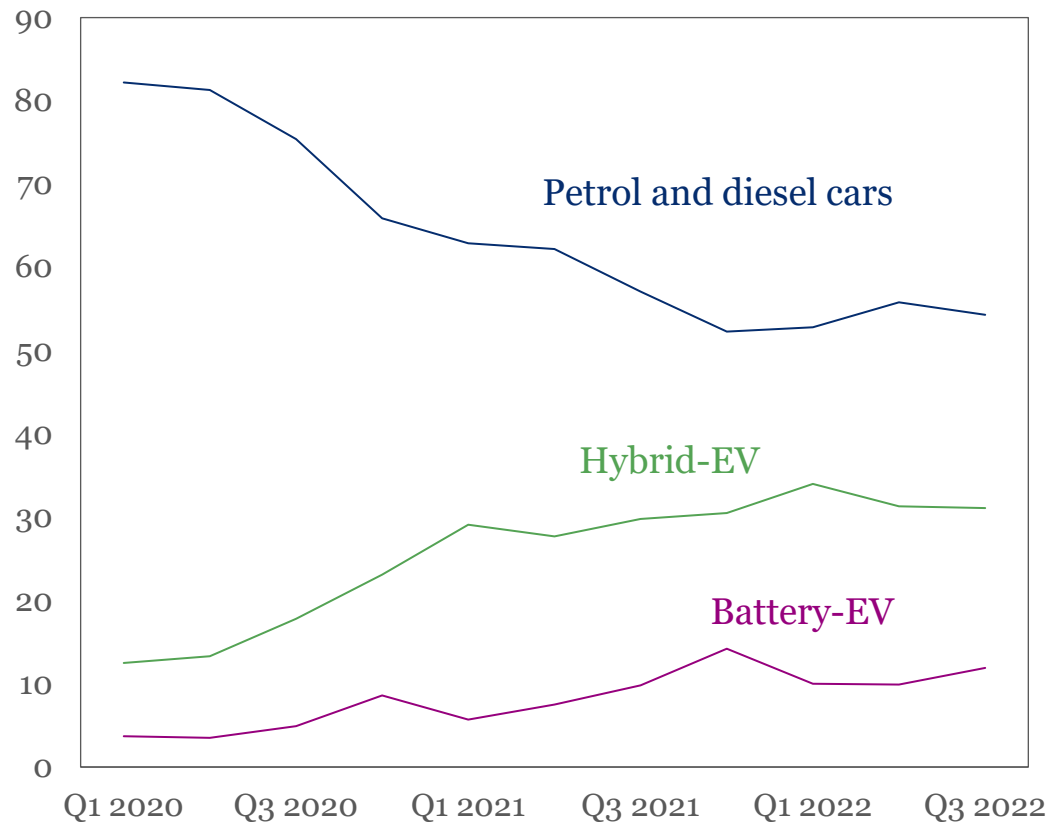
The share of EV sales in China has more than doubled over the past two years—surpassing 20%



Source: IIF, CAAM

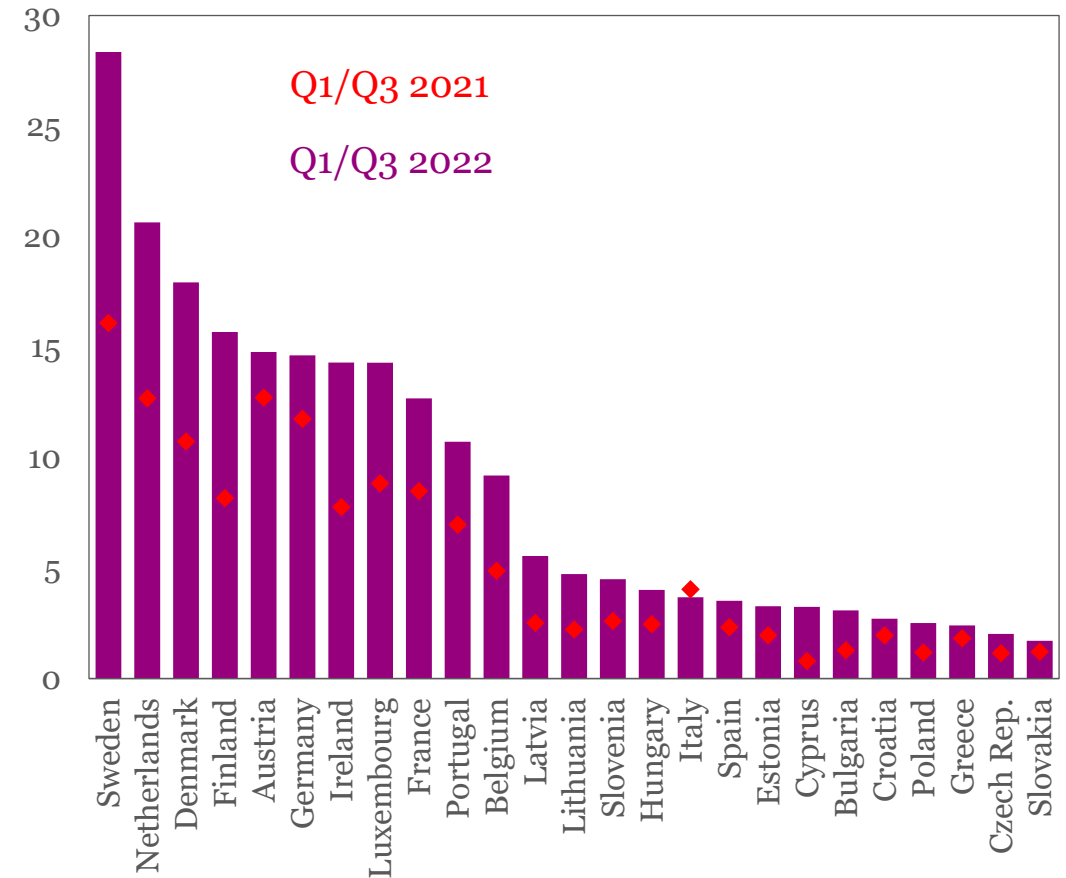
Sales of hybrid vehicles have driven the pickup of EV sales in Europe, but EV adoption rates in Europe remain well below those seen in China and vary sharply across countries.

Sales of hybrid vehicles largely outstrip EV sales in Europe
percent of total sales in EU (passenger cars)



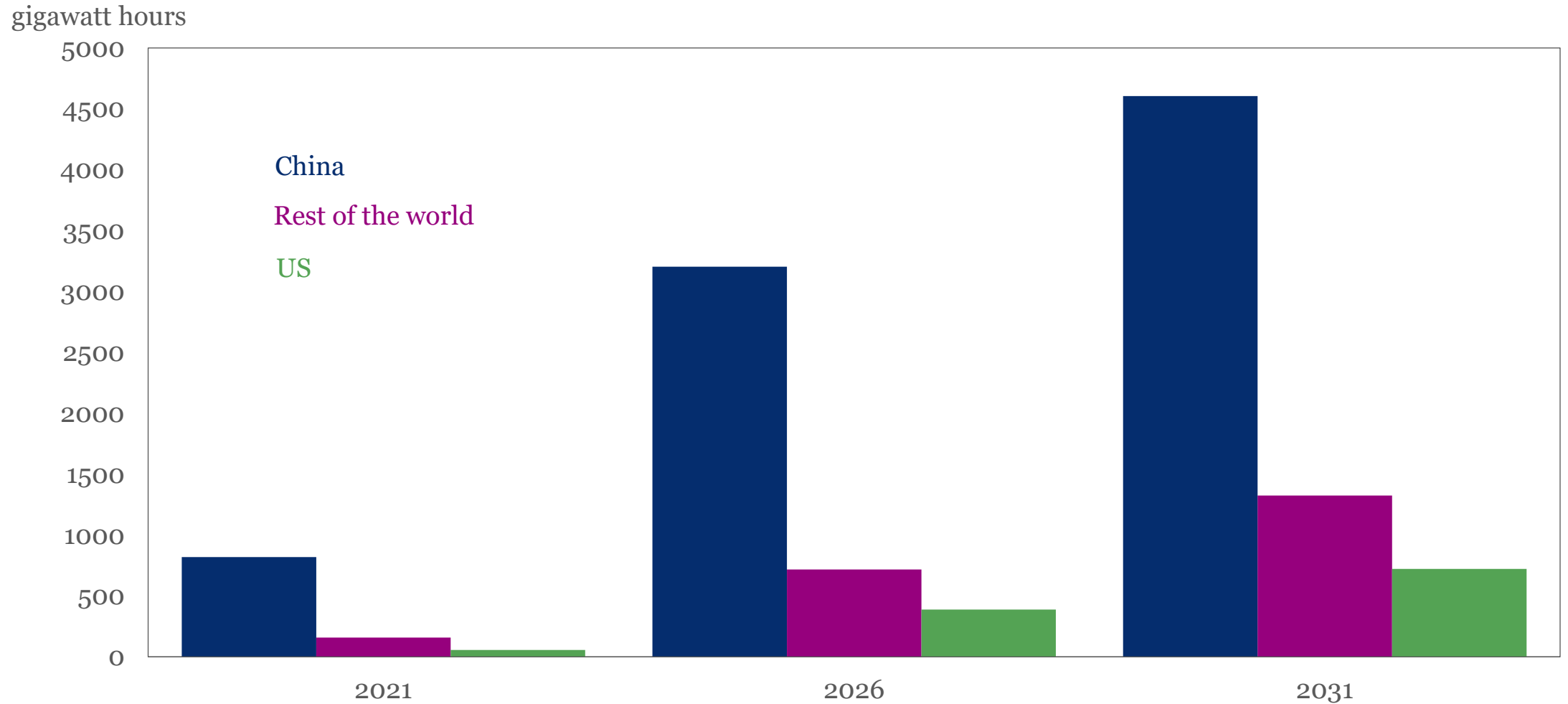
Source: IIF, ACEA

EV adoption rates vary widely across European countries
percent of new passenger car sales (excluding hybrids)



Source: IIF, ACEA

Amid increasing demand for EVs, lithium-ion battery capacity is projected to rise exponentially; over 80% of this capacity is in China



Source: Benchmark Mineral Intelligence, Federal Reserve Bank of Dallas

5. ESG Scorecard for EMs & FMs

Among emerging and frontier markets in our ESG scorecard, Romania, Ethiopia, Costa Rica score highest; India Mongolia, South Africa score lowest

Index, from highest ESG score (100) to lowest ESG score (-100)



Our ESG Scorecard examines how countries rank relative to peers on 1) carbon efficiency, 2) environmental protection and 3) social factors; see the appendix.

Appendix

Related research notes and links:

- [Bonds that build back better: the pivotal role of fixed-income markets in the ESG revolution](#) (January 2022)
- [The Integrity Council for the Voluntary Carbon Markets \(IC-VCM\)](#)
- [2022 PCG Report on the Implementation of the Principles](#) (October 2022)
- [IIF Sustainable Finance Monitor](#) (November 2022)

Sustainable Debt Monitor series

- [Market turmoil weighs on ESG debt markets](#) (April 2022)
- [Sustainable Debt Universe Tops Record \\$4 trillion](#) (July 2022)
- [Financing the Transition](#) (November 2022)

Green Weekly Insight series

- [Scaling Voluntary Carbon Markets](#) (June 2022)
- [Are Rising Energy Prices Affecting EV sales?](#) (June 2022)
- [Carbon Footprinting for Emerging Markets](#) (June 2022)
- [ESG Scorecard for Frontier Markets](#) (August 2022)
- [Sustainable Finance in Emerging Markets](#) (September 2022)
- [ESG Loans – New Tool for Climate Finance](#) (September 2022)
- [Voluntary Carbon Markets Update Q3 2022](#) (November 2022)