Gaps in Financing Highlight the Challenges Facing the Net Zero Transition

How the net zero transition plays out—and the speed at which it occurs—will have major implications for corporate capex, commodities, and economies and markets more broadly. One lens into how this transition is unfolding is the state of bank-to-corporate green financing, which is not happening at a rate consistent with global net zero goals.

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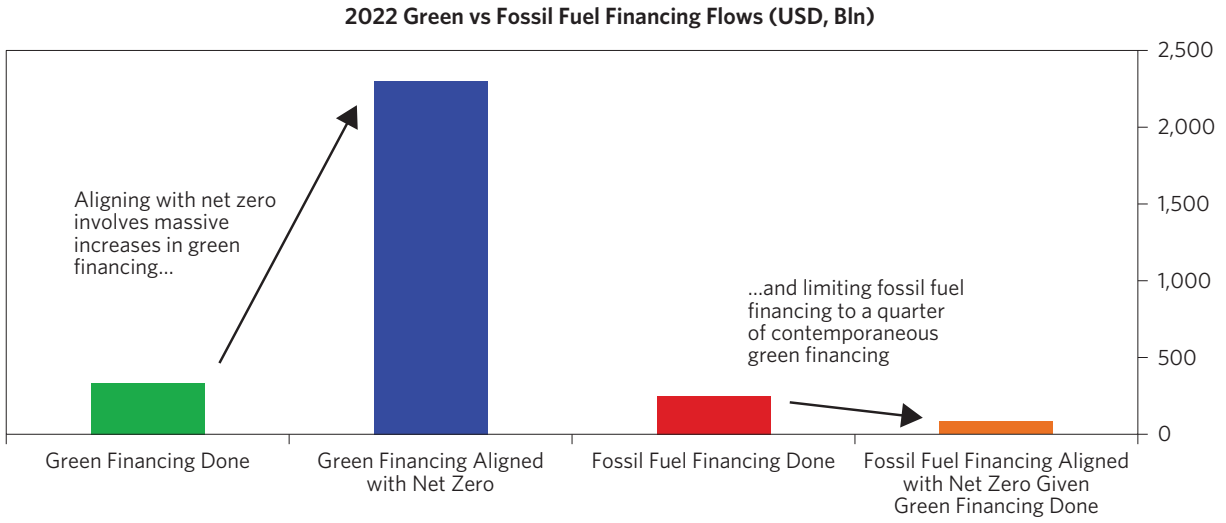
In previous reports, we have looked at how global emissions are distributed across sectors, the role that investors and governments play in reducing them, and how an accelerated transition may affect investor portfolios. In this report, we turn our attention to another important piece of the puzzle—**how the climate transition will be financed**. Reaching net zero by 2050, to which countries collectively contributing 88% of global emissions have committed, will require a rapid scaling up of renewable energy, as well as the phasing out of the dirtiest sources of energy, such as coal. In addition, industrial processes will need to be overhauled massively, and new technologies such as carbon capture will need to be developed. Seeing what activities are being financed can be a window into questions such as how the capex cycle is playing out across sectors and geographies, how climate policy is flowing through to actual investment, and how commodity demand and the energy mix are likely to shift in the years ahead.

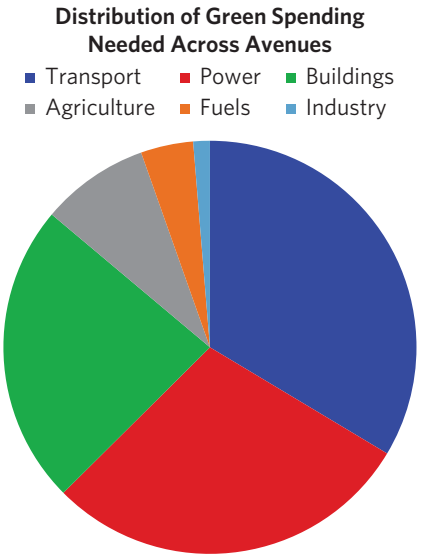
To align with global net zero goals, the world will require massive investments in low-carbon technologies. Estimates from the Glasgow Financial Alliance for Net Zero and McKinsey point to at least $125 trillion of cumulative spending from now to 2050, with around $30-55 trillion of this coming within the next decade. On an annual basis, this amounts to ~$6 trillion from a variety of public and private sector players, such as governments, banks, and households. Banks are expected to make up a large share of this, at ~$2 trillion annually across lending and underwriting. As a result, **bank-to-corporate green financing flows are an important lens into how the global climate transition is unfolding**, and they give us insight into financing channels that are economically and technologically viable today (compared to areas of the transition that are still earlier in their maturity). While these estimates are not meant to be precise, they convey the scale of the capital investment required to finance the climate transition.

When we analyze thousands of individual loans and debt/equity underwriting activities from the 200 largest global banks, we have seen a surge in bank-to-corporate green financing flows over the last few years (more than double since 2018). But on the whole, **these flows are not happening at a rate that is consistent with global net zero goals**. Of the ~$2 trillion of annual bank-to-corporate green financing flows that we reference above, less than a quarter, or ~$400 billion, occurred in 2022, due to factors such as limited (but growing) demand for green credit from corporates and uncertainties around government policy and the profitability of emerging climate technologies. And while the absolute level of "brown" financing to fossil fuels has been stable over the last few years, the corresponding demand for green financing has not risen quickly enough to reach the 4:1 green-to-brown energy supply financing ratio that BloombergNEF estimates to be compatible with net zero. Looking ahead, concerted action from multiple players (e.g., governments, companies), as well as the continued development and commercialization of new climate technologies, will be needed to meaningfully shift the world's energy infrastructure and support the net zero transition.



Achieving the Climate Transition Will Necessitate Huge Financial Flows from Multiple Players

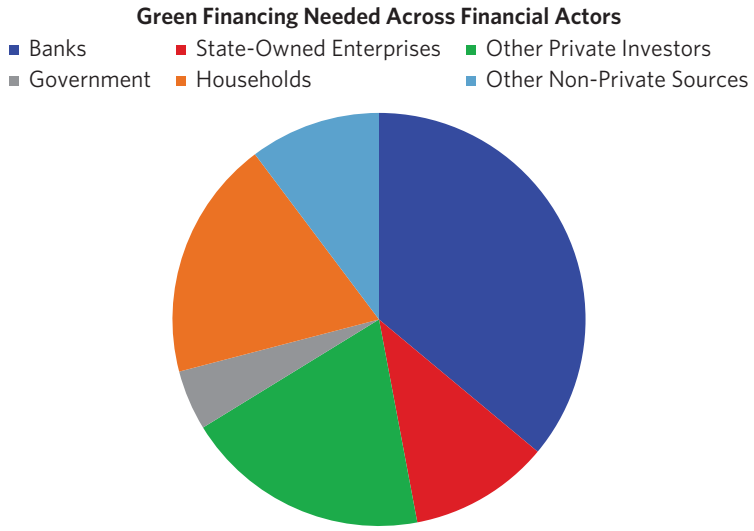
As we have shared in a previous report achieving the climate transition will involve at least a cumulative $125 trillion of investment into low-carbon technologies by 2050, with at least $30-55 trillion coming within the next decade, spread across multiple sectors and uses such as building new renewable energy infrastructure to replace fossil fuels, electrifying transportation, improving energy efficiency, and developing new industrial processes such as green cement or green hydrogen.



Source: McKinsey

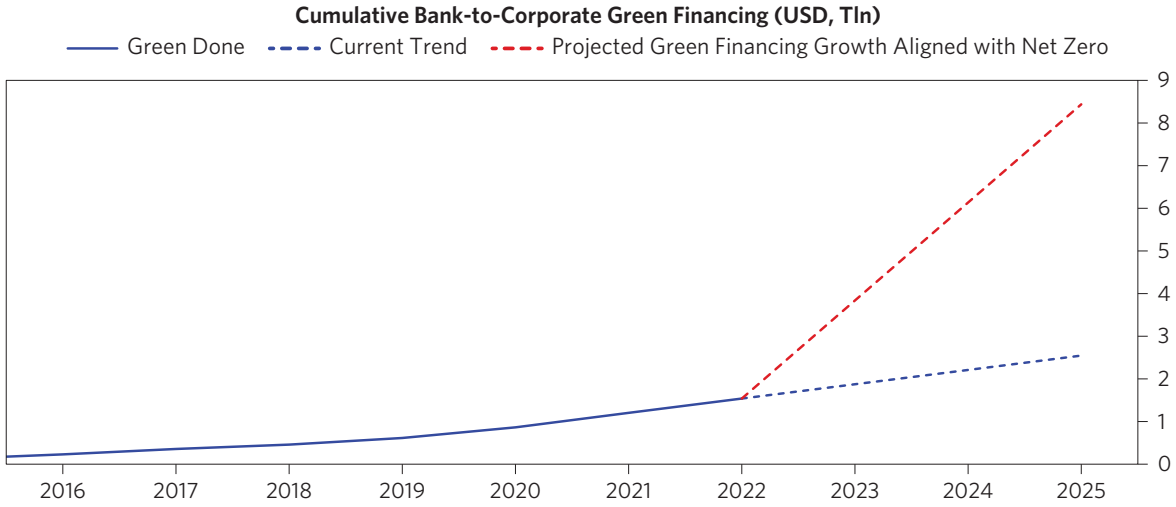
Sector	Examples of Key Technologies
Transport	Electric vehicles, hydrogen ships and planes
Power	Renewable energy (e.g., solar, wind), grid-scale energy storage
Buildings	Energy-efficient insulation and ventilation
Agriculture	Afforestation, efficient livestock and manure management
Fuels	Green hydrogen, biofuels
Industry	Green cement, green steel

This financing is likely to come from a variety of private and public economic actors, each with their own sets of incentives and roles to play. For example, governments and multilateral development banks could support renewable energy projects through loans and grants (while reducing the trillions of dollars in fossil fuel subsidies awarded in 2022); venture capital investors could support early-stage research into emerging technologies like hydrogen fuels; and companies could take out bank loans to fund climate solutions and to reduce their operational emissions intensity.



Source: McKinsey

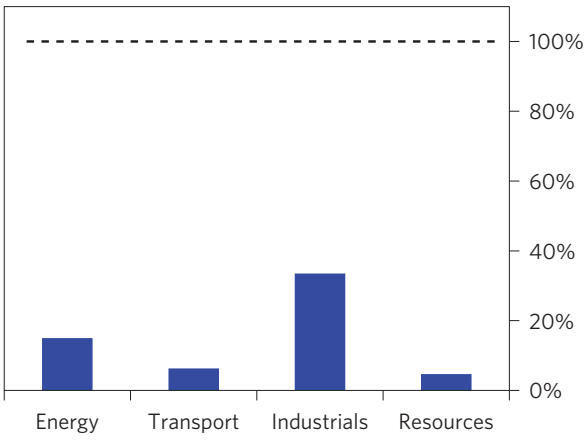
The largest share of this pie (about one-third) is likely to come from **bank-to-corporate financing**, comprising both lending and debt/equity underwriting activities, which we focus on in this piece as a window into the broader climate transition. According to estimates from McKinsey, a successful net zero transition will require ~$2 trillion of green financing from banks to corporates each year. For public market investors, these flows are also interesting because they represent the set of technologies that are already economically and technologically viable. Overall, while cumulative green financing facilitated by banks has increased steadily, this rate is still not compatible with the massive overhaul of global energy systems that the net zero transition will involve: only about $400 billion in bank-to-corporate green financing occurred in 2022, less than a quarter of what is required.



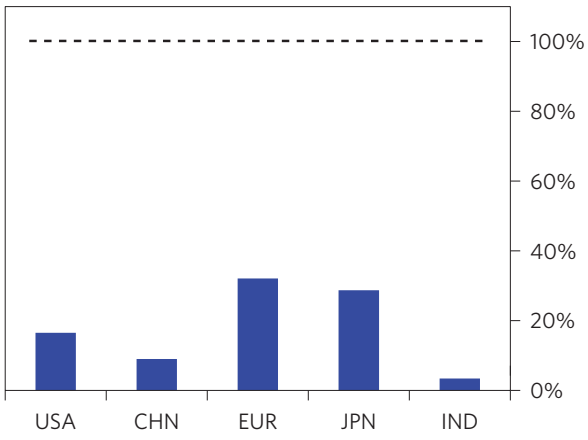
This green financing gap exists across almost every sector and geography:

- While significant carbon reductions are already commercially and technologically feasible in sectors like **energy** and **industrials**, because of the sheer scale of the transition and huge funding involved, there is a lot of room to further scale up solutions such as renewables, energy-efficient industrial processes, and grid-scale energy storage.
- By contrast, sectors such as **resources** or certain segments of **transportation** (e.g., airlines) are inherently difficult to decarbonize because they require new technological breakthroughs, which tend to be riskier with payouts further in the future and are less scalable or in their earlier stages, e.g., carbon capture, sustainable aviation fuels. Here, the funding gap is even larger.
- Looking across geographies, the green financing gap exists everywhere, but it is largest in **emerging markets** compared to geographies with significant climate policy such as REPowerEU in **Europe** and the Inflation Reduction Act in the **United States**, which can increase incentives for corporates to engage in green activities.

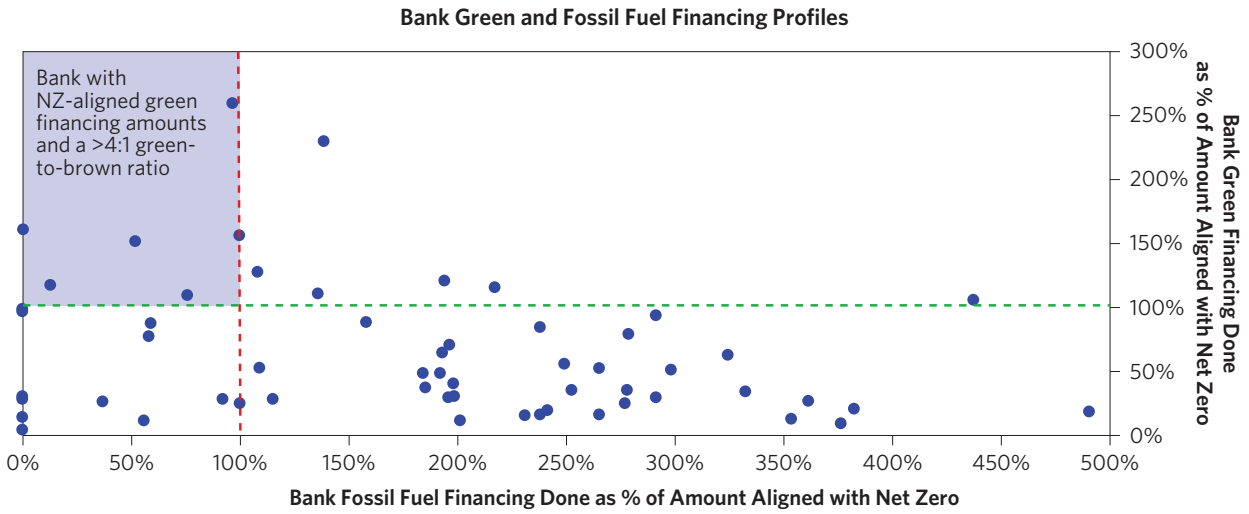
Financing Done by Decarbonization Avenue Relative to Amounts Aligned with Net Zero



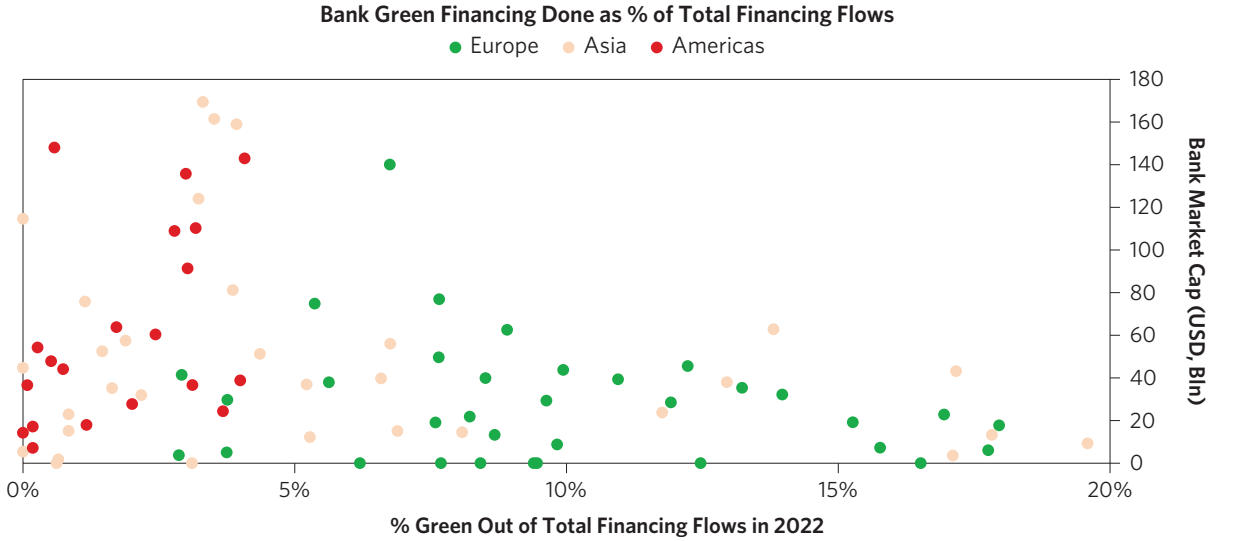
Financing Done by Country Relative to Amounts Aligned with Net Zero



These findings are based on our systematic sustainability assessment process, which aggregates thousands of individual bank loans and debt/equity underwriting activities that are tagged as "green" or "brown" based on their specific use of proceeds. Overall, our process covers more than 200 large global banks comprising 70% of global bank market cap and 75% of global bank financing transactions. Below, we show how each bank's financing activities compare with top-down estimates under global net zero scenarios, based on their relative size. Each bank is different and each facilitates different complexions of green versus fossil fuel activities, based on its financing opportunities and client base. The median global bank facilitates ~$1.30 of green financing per $1.00 of fossil fuel financing, but a subset of the banks below do currently finance above the 4:1 green-to-brown energy supply ratio that BloombergNEF estimates will help the world achieve its net zero goals. Of course, these outcomes are influenced heavily by the demand that banks find in the marketplace as well as the profitability of these deals: companies need to ask for loans or debt/equity financing, and early-stage projects may not yet be commercially feasible without government or policy support.

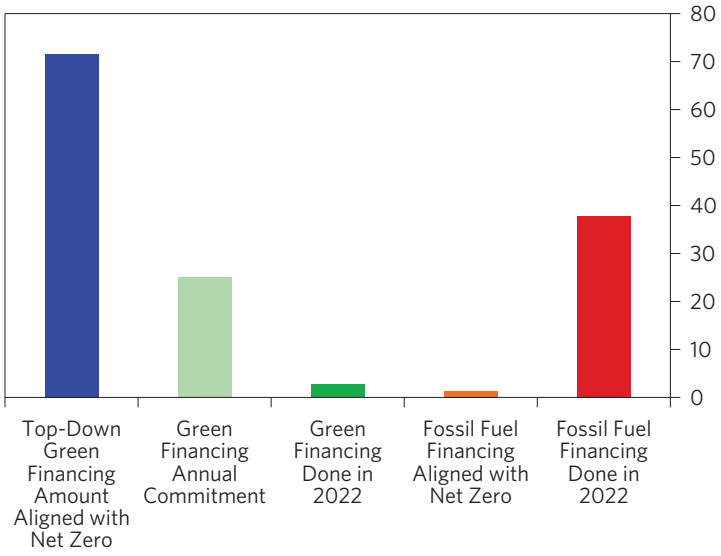


Looking at the individual bank level, banks with significant green financing activity tend to be those that can orient their lending or underwriting activities toward specific green sectors rather than serving the broader market, e.g., smaller cap banks operating in regions with a longer track record of climate policy, such as Europe. By contrast, larger banks are likely to have a more diversified pool of business relationships—including historically carbon-intensive sectors such as fossil fuels—particularly those that operate in geographies with a higher concentration of resource companies, such as North America.



The charts below show two examples of how banks operating in different geographies and market segments can differ in terms of their green financing outcomes. The first bank has a strong historical pipeline of fossil fuel financing (and is likely to see continued demand from companies in this area over the next few years), which has contributed to a more gradual timeline to reduce the emissions intensity of its financing portfolios. By contrast, the second bank is able to capitalize on strong demand for climate-aligned projects and supportive government policy in its specific market segments to scale up its green lending and underwriting activities.

Example 1: North American Large Cap Bank Financing Profile (USD, Bln)
Green-to-Brown Ratio is 0.1:1

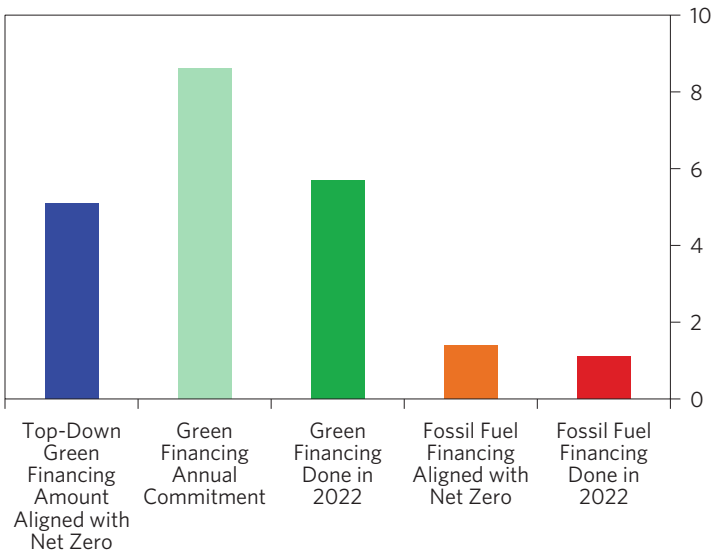


Examples of Actions Taken Toward Net Zero by This Bank:

Strong historical pipeline of fossil fuel financing (third-largest funder of fossil fuels since 2016); has made 2050 net zero commitment but has not ruled out continued financing of fossil fuels.

Oil and gas targets exclude "midstream" companies that build fossil fuel infrastructure.

Example 2: European Mid Cap Bank Financing Profile (USD, Bln)
Green-to-Brown Ratio is 5.2:1



Examples of Actions Taken Toward Net Zero by This Bank:

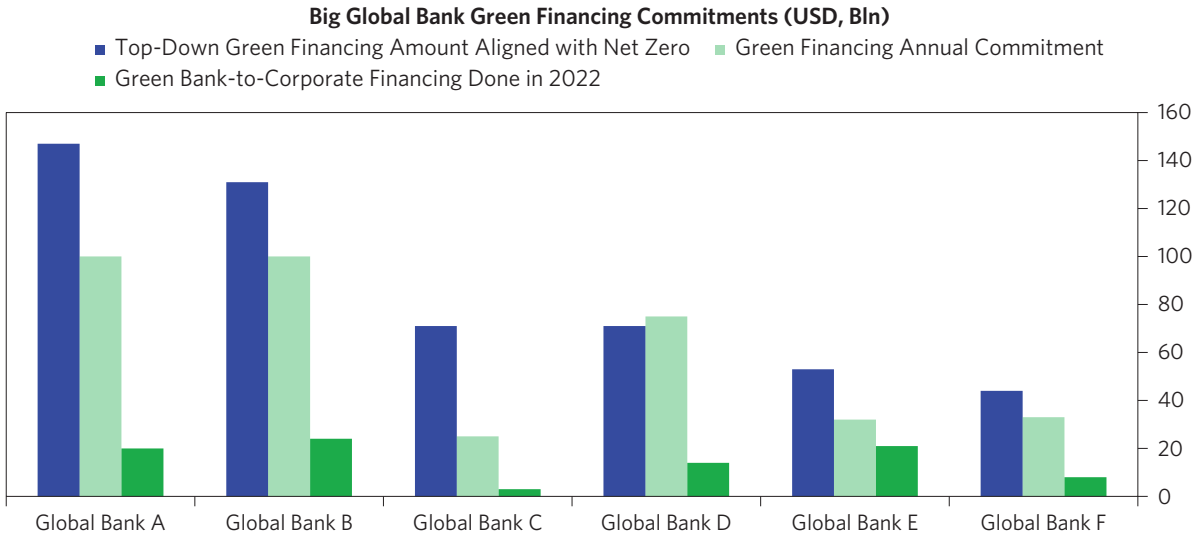
Works with large corporate clients to enact transition plans and provide low-cost funding.

Rigorous green bond framework to ensure proceeds go to climate-aligned projects.

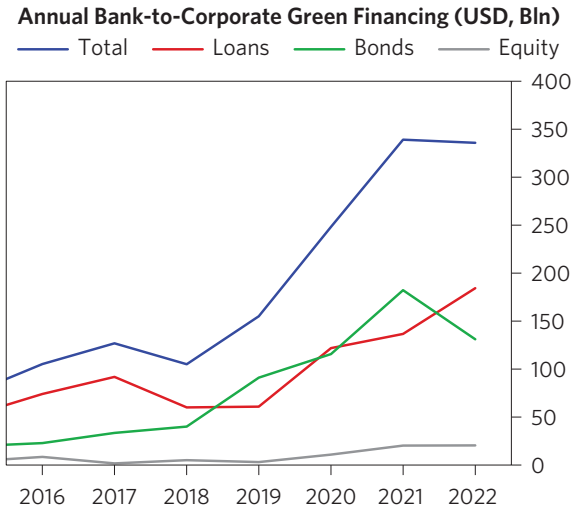
Clear, transparent methodology for calculating scope 3 emissions, with 50% target by 2030.

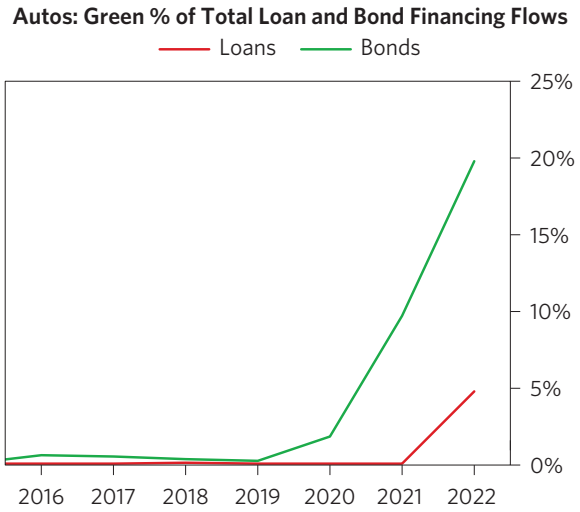
Has phased out 70% of fossil fuel loans since 2020.

Looking ahead, most of the largest global banks have announced significant commitments to increase the amounts of green financing they are doing (represented below in light green), which is in part a reflection of increased policy support from governments for green projects, as well as concrete actions from corporates to achieve their emissions-reduction goals. Although these commitments in most cases still represent a shortfall relative to certain net zero scenarios (represented in blue), they are nonetheless very ambitious and represent a significant increase over today's corporate financing levels (represented in dark green).



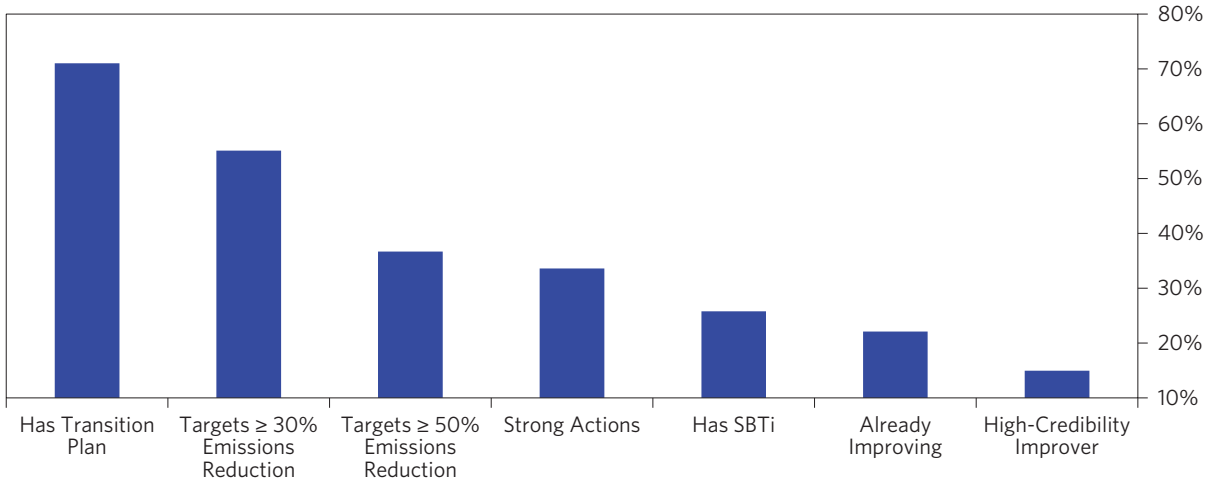
The trajectory of bank-to-corporate green financing over the last few years has also been positive: flows have increased significantly on aggregate, and in sectors that are critical to the climate transition, such as autos, the amount of green loans and green bonds now makes up a significant share of financing in the sector. This trend is reflective of companies—in this case, car manufacturers—actually shifting their business models toward sustainable activities such as producing EVs and using the banking system to finance these business plans.





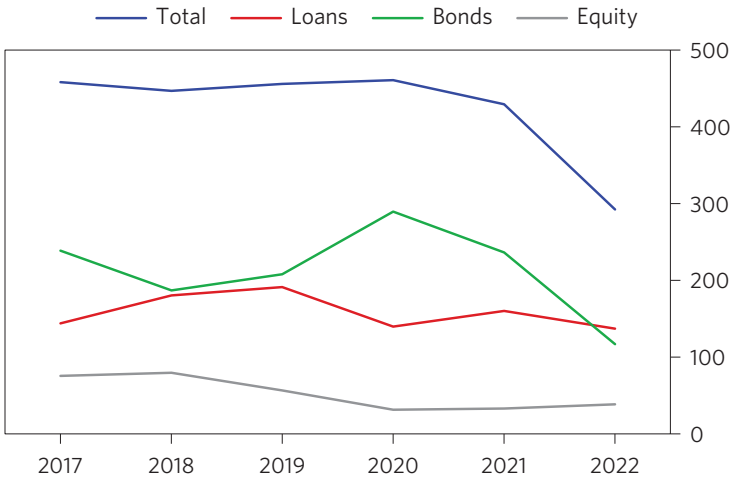
On this dimension, there is still a lot of potential for business demand for bank-to-corporate green financing to increase further. While many global companies have set forth plans to reduce their emissions, a much smaller subset of this is backed up by strong actions, external verifications, or track records that are aligned with global net zero goals. As more "improvers" shift from general plans to action, their demand for green financing to spend on emissions-reducing processes will rise. Government policy is likely to be another catalyst, such as with regulations to phase out internal-combustion-engine vehicles or the introduction of taxes on operational carbon emissions.

Global Market Cap by Improvement Criteria



On the fossil fuel side, we see many large global banks committing to reducing the carbon intensity of their portfolios by cutting their exposure to the dirtiest forms of energy, such as coal. Fossil fuel financing is declining, but it will require concerted action from other players to align with net zero, such as oil majors cutting back on new fossil fuel exploration activities, governments reducing fossil fuel subsidies and establishing clear targets to phase out coal, and companies continuing to research new technologies such as green hydrogen and sustainable fuels (particularly in sectors with hard-to-abate emissions like airlines or shipping).

Annual Bank-to-Corporate Non-Green Fossil Fuel Financing (USD, Bln)



Examples of Actions Taken Toward Net Zero by Four Big Global Banks:

North American Large Cap:
Cut absolute emissions from thermal coal by 90% by 2030.

North American Large Cap:
Cut emissions intensity from energy by ~30% by 2030, and ~60% from power.

European Mid Cap:
Prohibit financing to companies with more than 5% of revenues from coal.

European Small Cap:
Prohibit financing to oil and gas companies without planned emissions reductions.

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