Climate Solutions – Global

Transition Risk and Opportunities for Banks: Temperature alignment data supplements banks’ risk management and engagement strategies

Summary

The shift to a low-carbon economy will lead to significant changes for many industries, presenting new risks, known as transition risks, as well as opportunities. In our previous report, Transition Risk and Opportunities for Banks: Greenhouse gas emissions and related disclosures lay the foundation for understanding financed emissions, we explain the pathways through which the transition presents financial risks to banks, and also highlight how greenhouse gas (GHG) emissions provide a starting point for identifying related risks and opportunities.

Banks face not only direct impacts financially from transition risk but are also exposed to reputational, policy and technological risk directly correlated with the transition to a low-carbon economy. Alongside managing the financial risks and associated regulation, comes increasing pressure to contribute to the transition to low-carbon economy. However, this dynamic also brings new business opportunities.

Initiatives like the Science Based Targets initiative (SBTi) provide guidance for companies to disclose clear, credible transition plans, which also help simplify due diligence for banks. Understanding companies’ temperature targets and their plans for reaching them allows banks to develop their own temperature alignment strategies and also manage their risk.

Temperature alignment datasets, associating companies’ published emissions reductions targets with global temperature trajectories, provide more detailed information for banks. In our universe of companies assessed on temperature alignment goals, only 2% of companies are aligned to a 1.5°C scenario by 2100.

In some regions, the discrepancy between average implied temperature rise of only those companies who have disclosed targets compared to the average considering all companies, is significant. In China for example, this is driven by a lack of disclosure, where 91% of companies have not disclosed emissions reductions targets, skewing the country average to the business as usual temperature alignments of those companies without targets. Likewise, in Latin America, sectors such as Mining & Metals do not have companies with quantifiable targets in our database, which emphasizes the need for both improved target setting and detailed disclosure.
Forward-looking datasets complement GHG data to provide a fuller picture of risk and opportunity

The shift to a low-carbon economy will lead to significant changes for many industries, presenting new risks, known as transition risks, as well as opportunities. In our previous report, Transition Risk and Opportunities for Banks: Greenhouse gas emissions and related disclosures lay the foundation for understanding financed emissions, we explain the pathways through which the transition presents financial risks, and also highlight how greenhouse gas (GHG) emissions provide a starting point for identifying related risks and opportunities for banks. There is often a correlation between high GHG emissions and a company's exposure to the regulatory, market and technological impacts of the transition. Accordingly, related techniques can be used to both understand potential downside (or upside) from a financial point of view for certain companies related to the transition, and to proactively align banks' lending portfolios with the transition for other purposes, such as fulfilling stated climate commitments.

Banks are primarily exposed to transition risk and associated opportunities through their portfolios, which means there are layers of complexity when it comes to both assessing their transition risk and opportunities and implementing strategies to address them. There is growing focus on accurately accounting for banks' financed emissions which fall under Scope 3 category 15 emissions for banks as defined by the GHG Protocol and require both a comprehensive understanding of portfolio companies' emissions as well as detailed information on the bank's contribution to emissions through its financing. The Partnership for Carbon Accounting Financials (PCAF) is one of many industry-led initiatives to develop best practices for accounting and reporting of financed emissions, responding to the demand for standardization and transparency in financed emissions. At the same time, banks also need to understand how those companies they are financing may face risks due to the transition, which may affect the viability of their loans.

Historical GHG emissions are important to assess financed emissions and to understand trends to date but banks also need forward-looking metrics to provide insight on the gap between historical and future company performance which informs both their own long-term risk management strategy as well as their alignment strategy with certain climate goals. Such data includes indicators that project how a company's emissions may change over time and how its business model may fare in the transition. To truly understand how a company's GHG emissions may influence its transition risk and contribution to climate change, it is essential to understand the trajectory of those emissions and how the company is (or is not) reducing them. Forward-looking metrics take many forms, but are based on detailed corporate disclosure of plans and targets which can inform analysis on how companies' plans may align to certain global temperature trajectories and how their own business models may be affected. This report explores the use of forward-looking metrics, and their impact on banks' transition risks and opportunities as well as their efforts to align with the Paris Agreement through their own net zero commitments.

Market preference, regulation and technology drive banks to unpack net zero pledges

In recent years, efforts by the financial sector to contribute to the transition to a low-carbon economy and to manage relevant risks have coalesced around net zero commitments such as the Glasgow Financial Alliance for Net Zero (GFANZ), including the Net-Zero Banking Alliance (NZBA). Banks in the alliance are setting emissions reduction targets for 2030 and 2050, with intermediary 5-year targets. While banks committing to reaching net zero with their lending portfolios do not eliminate their transition risks, implementing and working toward net zero commitments does provide one route to minimize the risk by proactively preparing for shifting regulatory landscapes, technological transformations and consumer demand. This also improves banks’ reputation, helping them be seen as contributing to the shift to a low carbon economy.

Beyond direct impacts to their balance sheets, banks are exposed to reputational risks as market preferences shift, particularly if their current lending operations do not align with their public emissions reduction commitments. The average tenor of a bank’s lending portfolio may be short-term, not stretching to the end of counterparties’ emission reduction targets such as 2050. However, through their financing banks can play a pivotal role in helping the real economy reduce emissions and work toward the goal of limiting global temperature rise to 1.5°C by 2100. As the market places increasing pressure on banks to use their positions to help finance the transition, and produce real reductions in GHG emissions, they increasingly need to consider the robustness of their counterparties’ emission reduction strategy. A recent report by the World Resource Institute (WRI) found that a key tenet of Paris-aligned net zero plans for banks is active engagement with clients, which underscores the importance of developing

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1 For more information on PCAF please see the first report in this series, Transition Risk and Opportunities for Banks: Greenhouse gas emissions and related disclosures lay the foundation for understanding financed emissions.
meaningful engagement strategies. Active engagement strategies are one pathway that banks can utilize in lieu of narrowing their focus on financed emissions which may redirect necessary capital away from reducing real economy emissions.

In addition to meeting market pressure to contribute to the transition, banks are increasingly asked to manage their climate-related risk. Banking regulators in various jurisdictions are in the early days of rolling out climate-risk management rules. For example, the Basel Committee on Banking Supervision (BCBS) published principles for the effective management and supervision of climate-related financial risks. This is part of the committee’s approach to holistically address climate-related financial risks to the global banking system. The UK’s Bank of England Prudential Regulation Authority (PRA) also has published supervisory expectations for banks to integrate climate risks to ensure financial resilience and wrote a follow-up letter for banks’ CEOs to take a “…forward-looking, strategic and ambitious approach to managing climate-related financial risks.” The European Central Bank concluded its climate risk stress test with 104 participating banks at the beginning of July 2022 showing that 60% of the banks do not yet have climate risk stress-testing frameworks. Further, a second report in late July by the ECB shows that transition-related climate shocks, such as spikes in carbon prices, can have cascading downstream effects such as corporate defaults within the European financial system which can in turn pile losses on to banks. These regulatory bodies observe that climate-related financial risks require banks to better integrate data and tools required to manage these risks across their organization.

As regulators and wider market pressures drive banks to engage with their clients, technology is rapidly evolving to enable high emitting sectors to transition to low-carbon alternatives. The rapid technological shift provides a business opportunity for banks’ investment while also reducing GHG emissions in the real economy. Such investment can be utilized to finance projects like renewable energy infrastructure grids, or development of best-in-class steel production processes that reduces GHG emissions. These types of investments can also provide a business opportunity for banks to create products such as green bonds, green loans, or other sustainability-linked instruments that encourage reduction of company GHG emissions over a predetermined length of time.

The market pressure, financial risks and business opportunities of the transition for banks are clear, and forward-looking data on counterparties provides an important tool, both for unpacking the potential trajectories of counterparties’ business plans, as well as for creating and publicizing the banks’ own meaningful transition plans.

Science-based targets provide a baseline for banks’ due diligence

The development of intermediate commitments and detailed plans is essential for quantifying banks’ counterparties’ progress on meeting their net zero targets. One way for counterparties to set meaningful targets that banks can easily interpret is setting a science-based target, which is a “…set of goals developed by an organization to provide it with a clear route to reduce GHG emissions.” The defining attribute of a science-based target is one in which GHG emissions reduction targets are robust enough to be Paris Agreement-aligned, which is well below 2.0°C and preferably 1.5°C. In 2018 the UN IPCC released a report saying “[l]imiting global warming to 1.5°C compared with 2°C would reduce challenging impacts on ecosystems, human health and well-being…” adjusting ambition to 1.5°C in lieu of 2.0°C. The two most commonly used methodologies to set science-based targets are the Absolute Contraction Approach (ACA) and the Sectoral Decarbonization Approach (SDA) created in 2015 by the Science-Based Targets Initiative (SBTi). SBTi is a partnership between CDP, UN Global Compact, the WRI and the WWF with methodological support from a global expertise technical advisory group.

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2 The Absolute Contraction Approach is a “…one-size-fits-all method that ensures that companies setting targets deliver absolute emissions reductions in line with global decarbonization pathways. This the approach the vast majority of companies setting science-based targets choose.” Please see Science-Based Targets Initiative, February 2021.
3 The Sectoral Decarbonization Approach (SDA) is “used to assess those companies in relatively homogenous, carbon-intensive sectors for which technological and emission projections are available. Intensity-based, using sector-specific units of activity.” Please see Corporate emissions targets failing to keep pace with 1.5°C trajectory, Moody’s ESG Solutions, December 2021.
Figure 1 shows that an increasing number of companies are setting emissions reductions targets and getting them approved by SBTi. Initiatives like SBTi help the companies themselves to set clear goals, and eases lenders’ interpretation of what a company’s goal may mean. A company can get its targets approved by SBTi by following specific criteria, submitting targets for validation and publishing the approved target on its own website. The required criteria include committing to setting targets to be approved within 24 months of an organization’s commitment, a historical inventory of Scope 1, 2 and 3 emissions based on sector considerations and forward-looking annual reduction plans with length between 5 and 10 years from the submission date. However, the target may also include long term targets greater than 10 years which require a separate set of considerations. Targets from all companies must include Scope 1 and Scope 2 GHG emissions, while Scope 3 inclusion is based on share of emissions for near-term targets. If Scope 3 emissions are less than 40% of overall emissions, then near-term targets are not required for SBTi validation. When Scope 3 emissions are 40% or more of overall emissions companies must set one, or more, near-term emission reduction target in conjunction with supplier or customer engagement targets covering at least 67% of Scope 3 emissions. Ambition of targets for Scope 1 and Scope 2 emissions should be consistent with the warming scenario of 1.5°C trajectory and offsets cannot be counted as emissions reduction toward the science-based targets. Scope 3 targets must be aligned with well-below 2.0°C pathways.

The creation of science-based targets helps companies identify a concrete process for decarbonizing their value chain and presenting related projects to banks to solicit financing, as the large-scale investments needed for companies to explore lifecycle emission reduction processes such as recycling and biodegradability technologies to meet net zero targets will require financing from banks.

Another type of forward-looking metric that complements science-based targets setting, is the practice of associating a company, or portfolio of companies, with a particular climate pathway or implied global warming outcome – referred to as temperature alignment. Such metrics provide additional nuance, such as showing if a company’s implied temperature rise (ITR) is between 1.5°C and 2.0°C or above 2.0°C, rather than just showing if the company is in line with 1.5°C or showing if a company has quantifiable emission reduction targets outside of certifying organizations like SBTi. This helps provide a more meaningful view of the long-term trajectory of a company based on its current commitments and performance.

Leveraging information on whether or not companies have made certain commitments, alongside the implied temperature rise of such commitments, enables a bank to determine how companies in its lending portfolio may affect the bank’s own ability to meet 1.5°C alignment or another target it may have. Banks are able to set their own science based targets, using the SBTi framework specifically for financial institutions, as done by American bank Amalgamated Bank. Amalgamated Bank received approval of its net zero targets from SBTi in March 2022, while also setting full portfolio targets under the guidelines of the NZBA with 49% reductions by 2030 and net zero GHG emissions by 2045 in operations and financings without reliance on offsets. This type of approval from SBTi and validation of carbon emission reduction targets signifies a concrete pathway for banks to allocate capital, engage clients and develop new data and products, while allowing for clear external validation of their temperature targets.
However, implementing such a plan requires a detailed understanding of company emissions and trajectories and a robust framework to provide governance and strategy.

**Temperature alignment datasets create a common language for banks to keep 1.5°C alive**

Temperature alignment datasets offer a relatively simple way to boil a complex set of variables down to a single metric that intuitively describes the degree of warming that a given company would be consistent with if it implements stated targets or continues business as usual. The use of temperature alignment data is instrumental in providing a comparable view of carbon intensive and non-carbon intensive sectors on their path to net zero by 2050. These datasets are not without limitations; for example, there is no single set pathway to a particular climate outcome, and any single emissions pathway will have a probabilistic range of different potential associated temperature outcomes rather than one certain level of warming. It is essential to understand the underlying assumptions of any temperature alignment methodology as this will inform a bank’s findings.

Below we explore Moody’s Temperature Alignment dataset to provide examples of how banks can use this type of data to inform their lending decisions. This dataset is based on the ambition of companies’ stated emissions reductions targets and their current performance if publicly disclosed. It provides temperature alignment estimates for companies with targets that are quantifiable in terms of the levels of GHG reduction and provides two estimates for each company – one based on the period extending to 2030 (if the company’s target extends that far) and one based on the specific period covered by each company’s target, which may be shorter or longer than 2030. **Companies that haven’t set a target are given a default temperature alignment of 3.1°C, as this is assumed to be broadly representative of a ‘current policies’ world where there is no further action on climate.**

It is important to note while this dataset currently focuses on large, publicly listed companies, transition risks also affect small to medium-sized enterprises (SMEs) that appear on many banks’ balance sheets. Current market pressures and regulatory action are primarily focused on larger companies. However, climate risk disclosure by smaller companies will help improve the accuracy of disclosure from larger companies across their value chain. Banks can engage with smaller counterparties on specific disclosure requests or targeted questions on emissions-reductions plans which may help catalyze broader disclosure of climate risk and transition plans across the value chain.

Overall, 9% of the over 7,000 companies in our assessment universe have set targets that can be quantified using our framework and which run to 2030 or beyond. This demonstrates that despite the **increase in pressure to set net zero commitments, there is still a significant gap** in quantitative disclosure by companies on their plans to implement such commitments and the overall impact of the targets on companies’ emissions. Therefore, the average implied temperature outcome of the overall universe is heavily weighted towards the business-as-usual behavior of those companies that haven’t set targets.

**Figure 2** Distribution of company alignment with key climate pathways

![Figure 2](image-url)
Globally, just 2% of companies in our assessed universe are aligned with 1.5°C warming, or a future of net zero by 2050, with a further 3% above this level but still at 2°C or below. Even among those companies that have set quantifiable targets, the average implied temperature rise is 2.04°C, while among all assessed companies it is 2.97°C, based on a simple average. This indicates the need for increased ambition in net zero pledges, as well as an increase in companies setting targets. Diving into trends by sector and region enables banks to unpack what’s driving these average and to develop more targeted engagement strategies.

Progress hinges on the need for increased disclosure in some regions and increased ambition in others

In our assessed universe, over 1,700 companies have publicly disclosed emission reduction plans that span between now and 2030, while only 26% of those companies’ plans are quantifiable in terms of actual GHG emission reductions. With companies not disclosing quantifiable plans to reach stated emission reduction goals by 2030 it becomes challenging to assess whether or not global warming can be kept to 1.5°C, since the IPCC has noted that 2030 is a key year by which to reach significant emissions reductions.

Given that certain sectors need to set more stringent decarbonization strategies to meet 1.5°C we examined five sectors with high transition risk (see Figure 3): The top five sectors with the highest Scope 1 and 2 GHG emissions in our database are Building Materials, Chemicals, Electric & Gas Utilities, Energy and Mining & Metals. These sectors that are hard-to-abate will likely require significant financing for investment in emission reduction technologies and transitioning their business plans to match a low-carbon economy. Thus, they present financing opportunities for banks. However, in a bank’s portfolio these sectors may also increase the portfolio’s average temperature alignment and associated transition risk, and require further due diligence for banks aiming to reach certain targets or minimize their risk over time.

We observe that the Energy and Mining & Metals sectors globally breach an average temperature alignment of 3.0°C, both Building Materials & Chemicals meet an average temperature alignment of 2.9°C and Electric & Gas Utilities has a 2.4°C average temperature alignment. None of these sectors are positioned to meet 1.5°C by 2100. When analyzing only companies with quantifiable transition plans, each of the five sectors are still above 2.0°C when looking at average temperature alignment. The Electric & Gas Utilities sector has the highest-level ambition of these sectors, with an average temperature alignment of 1.9°C when only including companies with quantifiable emission reduction targets. It’s important for banks to note that there are renewable utility companies in this analysis which can drive down the sector’s average temperature alignment due to being assigned a default company temperature alignment of 1.5°C. The Energy sector on the other hand has the highest average temperature alignment of 2.7°C for companies that have set quantifiable targets. Energy companies are likely to operate using fossil fuels generating electricity to be used by others, generating high Scope 1 and 2 GHG emissions but also making it more complex to transition the business model away from fossil fuels. Banks can leverage this data to make informed decisions on either how to assist companies in financing transition investments to change business models away from deriving value solely from fossil fuels, or choose to invest in companies that engage in renewable energy and have a low temperature alignment.

4 Please note throughout the report aggregate figures are based on a simple average.
5 Please note that all average temperature alignment figures throughout the section do not include companies with emission reduction targets and/or strategies that do not include enough detail to quantify using our methodology, as we do not assign a temperature alignment to those companies.
6 Moody’s Temperature Alignment methodology “pure play” companies that have businesses entirely focused on green technology, a standard temperature alignment of 1.5°C
Figure 3  Average temperature alignment of the sectors with the highest Scope 1 and 2 GHG emissions (tonnes CO₂-eq) globally

The average temperature alignment does not include those companies that may have set targets, but whose targets have insufficient detail to quantify, as those companies are not given an aligned temperature.

Source: Moody’s Corporation

As banks begin to delve deeper into companies’ emission reduction strategies it’s important to note how regional differences such as economic activity or policy can also alter an average temperature alignment. For example the Asia Pacific region grew to nearly 37% of global GDP in 2021 with economies rapidly increasing economic productivity, as well as GHG emissions. The region encompasses two of the three largest GHG emitting countries and the largest share of emissions globally. On a regional average, the Asia Pacific region has approximately a quarter (25%) of their GDP in sectors that are high Scope 1 and 2 GHG emitting, including the Building Materials, Chemicals, Energy and Mining & Metals sectors. As banks analyze the average temperature alignment of their portfolios in this region, it is important to understand the context of the country’s source of GDP and in which sectors it originates, which may drive particular challenges in certain countries.

We analyzed the average temperature alignment of companies in the top five countries with the most assessed companies in the region to determine each country’s temperature alignment (see Figure 4). Almost all countries in the Asia Pacific region have an average over 3.0°C when including all companies, but that changes drastically when assessing only companies in the region that have set quantifiable targets.

Figure 4  Average temperature alignment of five Asia Pacific countries based on companies’ transition plans

The average temperature alignment does not include those companies that may have set targets, but whose targets have insufficient detail to quantify, as those companies are not given an aligned temperature.

Source: Moody’s Corporation

A carbon dioxide equivalent, or CO₂-eq, is “the amount of carbon dioxide (CO₂) emission that would cause the same integrated radiative forcing or temperature change, over a given time horizon, as an emitted amount of a greenhouse gas (GHG) or a mixture of GHGs. There are a number of ways to compute such equivalent emissions and choose appropriate time horizons. Most typically, the CO₂-equivalent emission is obtained by multiplying the emission of a GHG by its global warming potential (GWP) for a 100-year time horizon.” UN IPCC, 2018: Annex I Glossary.
China has the largest variation in average temperature alignment, from 3.1°C as the average to 1.5°C when excluding companies without targets. Taiwan also has a nearly full degree change in average temperature alignment, while Australia, Hong Kong, Japan and South Korea only have between 0.7-0.8°C average temperature change. The variation in average temperature alignment shows the difference between total assessed companies and those that have disclosed quantifiable emissions reduction targets. Of the 328 companies captured in China, 91% have not disclosed targets. When comparing this to companies in Australia (73%), Hong Kong (74%), Japan (56%), South Korea (71%) and Taiwan (54%) China is lagging in companies setting quantifiable emission reduction targets, even though they are making some progress on climate risk disclosure broadly. So while those that have published quantifiable targets show high ambition on average, this finding primarily demonstrates the need for more quantifiable disclosure by companies in the country before a claim can be made about their collective temperature alignment.

As both regional companies and their countries with high exposure to transition risk and large populations begin to implement emission reduction strategies it becomes imperative that funding is available to enable such a transition. Banks can be this lever point in the value chain by lending to companies in regions with exposed economies. Banks are able to structure green products such as green or sustainability bonds or other green lending schemes aimed at funding green projects – such as technological updates to treat and reuse wastewater for manufacturing semiconductors or constructing renewable energy from solar farms. With the knowledge of companies’ temperature alignments based on the published targets, a bank is able to not only create a temperature aligned portfolio with companies from a region, but also invest in projects that will help to decarbonize a region with economies highly exposed to transition risk.

Latin America is another key set of economies that are transforming to meet low carbon ambitions. Latin American sustainable bond issuance has more than tripled from $13 billion dollars of issuance in 2020 to $46 billion of issuance in 2021 with $15 billion in H1 2022. This demonstrates the region’s efforts to integrate sustainable projects into their financing strategies. In Latin America, the five sectors with the highest GHG emissions globally have an average temperature alignment over 2.0°C (see Figure 5). This demonstrates that companies in Latin America need to increase ambition in setting emission reduction targets to support a transition plan. They can utilize sustainable financing as a tool to ensure performance matches ramped up ambition, especially if there are financial consequences such as an increase in cost of capital or loss line of credit.

Figure 5  Average temperature alignment by the top five highest Scope 1 and 2 GHG emissions (tonnes CO2-eq) in Latin America based on companies’ transition plans

The average temperature alignment does not include those companies that may have set targets, but whose targets have insufficient detail to quantify, as those companies are not given an aligned temperature.

Note: the 'Average' temperature alignment only includes sectors that have an average temperature alignment, therefore Mining & Metals is not included in the 'Average' temperature alignment for companies with quantifiable targets bar.

Source: Moody’s Corporation
The Electric & Gas Utilities sector has an average temperature alignment of 1.7°C when only looking at companies that have set quantifiable targets, and it’s the only sector in the region in which this average is below 2.0°C. The Mining & Metals sector in Latin America does not have any companies with quantifiable transition plans. This shows a high level of ambition in certain sectors and need for further disclosure and ambition, in others. Banks can therefore utilize this data to screen sectors based on their temperature alignment as a first step and use it to guide informed questions about specific industries and counterparties as a next step. Banks are able to observe how certain sectors in this region leverage renewable energy to reduce their temperature alignment, and by understanding the benefits of some companies’ transition plans can identify what to look for in other strategies and use this insight in targeted engagement. Temperature alignment datasets with findings like those we’ve assessed serve as useful tools to open conversation and screen initially, but also provide a wealth of detail and nuance that warrants deeper analysis, particularly when it comes to aggregating to the portfolio level and integrating into lending strategy.

**Conclusion**

The transition to a low-carbon economy presents banks with increasing reputational and financial risks, as well as opportunities both to identify new green products and to align their portfolios with climate goals. By embracing opportunities, banks not only create financing for their potential clients and new business for themselves, but also provide stability to the market by helping to finance the transition to a low-carbon economy. Banks have the opportunity to identify leaders in heavy emitting sectors such as Electric & Gas Utilities and determine if they have set net zero targets. Banks can then leverage datasets on implied temperature rise that are forward-looking to affirm alignment to a 1.5°C scenario. On the flipside, banks are also able to leverage temperature alignment datasets to engage with companies that are not staying on their trajectory to meet 1.5°C alignment targets and determine financing pathways for technology integration or transition business models to meet the 1.5°C ambition. The growing range of tools available for banks allows them to begin gradually integrating transition risks and opportunities into their existing strategies and over time leverage layered datasets to develop new climate-aligned lending strategies and risk management processes.
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