SUSTAINABLE FINANCE LAB

CLOSING THE GAP

Integrating climate transition plans in EU prudential banking supervision

In this paper

Misalignment with climate objectives, exposes the EU banking sector to rising transition risk that threatens financial stability.

New EBA guidelines on the prudential use of transition plans are an opportunity to strengthen the climate risk management toolkit.

An active supervisory approach enables effective implementation of these plans and avoids that they become mere paper exercises.

Gerdie Knijp and Hesse McKechnie

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POLICY PAPER

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The Sustainable Finance Lab (SFL) is an academic think tank whose members are mostly professors from different universities in the Netherlands. The aim of the SFL is a stable and robust financial sector that contributes to an economy that serves humanity without depleting its environment. To this end the SFL develops ideas and provides a platform to discuss them, thus bridging science and practice. This Policy Paper was co-authored and a joint effort between Gerdie Knijp and Hesse McKechnie. It reflects a shared intellectual contribution. Gerdie (g.knijp@uu.nl) is project manager at Sustainable Finance Lab. Hesse is fellow at the Erasmus Platform for Sustainable Value Creation and associate at the Sustainable Finance Lab.

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Policy Paper

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EXECUTIVE SUMMARY

The banking sector and the real economy which it finances fall short in aligning with the EU climate objectives. This increases transition risk and consequently poses risk for the stability of the banking sector.

Transition plans lay out organisations' targets and actions to support the transition to a sustainable economy. As such they are a significant opportunity to improve climate-related financial risk management. New European Banking Authority (EBA) guidelines introduce requirements for European banks to adopt such a transition plan. They can enhance the risk management toolkit by adding a long-term, strategic lens suited to the unique characteristics of climate risk: deep uncertainty, non-linearity, and systemic spillovers.

If implemented well, transition plans can complement scenario analyses and stress testing. They provide information on the current and future deviation of a banks' portfolio with regard to climate goals, referred to as 'misalignment'. Banks with misaligned portfolios are more exposed to transition risk, principally in the form of credit risk; but also market risk, legal risk and reputational risk. Analysing misalignment helps banks to evaluate the risks of being unprepared for the transition to a sustainable economy, and to set risk mitigation actions accordingly.

Yet banks will face challenges in the application of transition plans as a risk management tool. The projected emissions pathway of the real economy is not on track to achieve the EU Climate Law net zero 2050 objective. Banks have little incentive to get ahead of their clients for fear of losing short term market share and profit. Although banks may feel pressure from stakeholders to set bold targets, they are likely to want to do little to meet them. The risk is that transition plans become mere paper exercises, obfuscating this lack of action.

European supervisors cannot change these fundamentals. They are policy-takers, who like banks, must deal with the gap which exists between climate objectives and the policy measures put in place to achieve these objectives. Their supervisory responsibility is anchored around their mandate to maintain the stability of the financial system under a range of scenarios. They should take the net zero objective as given, thereby enabling policy makers to implement their legally binding objectives.

Fortunately, stress tests like the Fit-for-55 exercise conducted by the European Central Bank (ECB) and the European Supervisory Authorities (ESAs) conclude that the EU still has an opportunity to achieve net zero without a threat to financial stability. However, transition risk increases each year that banks continue to finance new misaligned assets, and the real economy falls behind on net zero objectives. The financial system will soon be at a point where a delayed transition will cause financial instability. Meanwhile, system-wide physical risk continues to increase.

This raises the question of whether and how transition plans can be used for climate risk supervision. Robust transition planning is necessary, as it will improve the understanding of risk, but is not by itself sufficient manage the risk. Structural disincentives to internalise transition risk need to be overcome through other supervisory actions.

Moving the financial sector towards an orderly transition requires supervisors to take an active role and to significantly scale up their own climate risk assessment capabilities. It will require supervisors to develop new tools and approaches. This may feel uncomfortable. However, the alternative is worse. A misaligned banking sector is inherently unstable. There is a window of opportunity, but it is closing in on us. The future is here already.

Overview of recommendations

Robustness of the planning process

A. Supervise the robustness of the transition plan process by assessing current and future misalignment.
B. Continuously evaluate the progress of successfully achieved or missed targets over time.

Broader microprudential supervision

C. Challenge banks to demonstrate their business model sustainability in both net zero as well as delayed transition scenarios.
D. Use capital charges, even when relatively small, to help prevent the build-up of transition risk.

Macroprudential and other supervisory actions

E. Aggregate the understanding gained from banks' risk mitigation strategies to understand system-wide risk and contagion.
F. Use the data provided through transition plans to calibrate macroprudential tools.
G. Evaluate whether publicly disclosed actions and targets are aligned with prudential transition plans and signal potential inadequacies.
H. Provide policy makers a realistic assessment of the time-window remaining in which the objectives of net zero can be achieved within the boundary of financial instability.

CONTENT

1. INTRODUCTION

New EBA guidelines introduce the prudential use of transition plans and require banks to manage transition risk by assessing their deviation from EU climate goals.

A climate transition plan outlines the targets and actions a company or financial institution is taking to support the transition to a low-carbon economy.[1] There is a distinction between the transition planning process and the transition plan. The transition planning process is the internal process through which a transition plan is developed. A plan is the documented output of that process (NGFS, 2023b).

Transition planning now also serves multiple complementary purposes ranging from internal management processes, external disclosures and prudential supervision.[2] To date, bank transition plans have mostly aimed to increase transparency around banks' strategies for achieving climate objectives. Most banks publish a transition plan, often in response to voluntary initiatives such as the Net Zero Banking Alliance (NZBA), national commitments (e.g., the Dutch Climate Commitment), or in anticipation of European regulations such as the Corporate Sustainability Reporting Directive (CSRD).[3]

[1] In this paper referred to as 'transition plan'. There are a number of definitions for 'transition plan'. The European Sustainability Reporting Standards (ESRS) refers to it as: "An aspect of the undertaking's strategy that lays out its targets and actions to support the transition to a sustainable economy, aligned with the limiting of global warming to 1.5°C, in line with the Paris Agreement".

[2] The transition planning process refers to the process that serves all these purposes. This process has multiple outputs. Transition plans are usually a reference to the publicly disclosed documents, such as the sections of annual reports which meet CSRD requirements. Prudential transition plans are references to outputs that banks will use to demonstrate to their supervisors their compliance with EBA guideline requirements. Given the integration of ESG risk management into other core risk management and supervisory processes, information about the transition planning process will likely be scattered across a number of documents.

[3] The CSRD and the Corporate Sustainability Due Diligence Directive (CSDDD) require in-scope companies to disclose and adopt, respectively, a climate transition plan. These plans must demonstrate that business models are compatible with a transition to a low-carbon economy in line with the Paris Agreement and the EU's 2050 climate neutrality target. The European sustainable finance regulation is now under discussion following the Omnibus. This might result in changes to the requirements around transition plans in the CSRD and CSDDD.

The revised Capital Requirements Directive (CRD) and the European Banking Authority (EBA) guidelines introduce a new requirement and guidelines for banks to adopt a transition plan for risk management purposes from 2026 onwards (EBA, 2025c).[4] One of the objectives is to use transition plans to manage the financial risk associated with the real economy's transition to a low-carbon future (transition risk). According to the guidelines, banks must measure and monitor their deviation from climate goals (i.e. misalignment) and use that information as input for managing transition risk.[5] These plans are not publicly disclosed, but shared only with the supervisor. The European Central Bank (ECB) and National Competent Authorities (NCAs) will supervise these plans as part of the Supervisory Review and Evaluation Process (SREP).

This requirement introduces a prudential dimension to the current use of transition plans. In line with the guidelines, banks are expected to have one integrated transition planning process that serves multiple purposes. The guidelines require banks to enhance risk management and strategic responses and submit additional analyses to the supervisor. As a result, the guidelines have implications not only for risk management but also for strategic actions.

While the guidelines focus broadly on the management of environmental, social and governance (ESG) risks[6], including transition risk, physical risk and nature-related risk, this report focuses specifically on the micro- and macroprudential use of banks' climate transition plans. It particularly focuses on the transition risk resulting from misalignment of bank portfolios with relevant EU climate objectives towards a sustainable economy. It provides guidance for supervisors to implement climate transition plans in their supervision. This approach could be further extended to other environmental risks as acknowledged by the growing literature on nature transition plans (NGFS, 2024b; SFL, 2024; TNFD, 2024).

Note that at time of writing, some requirements around sustainability due diligence and disclosure are being revised by the European Commission's Omnibus proposals. The revisions will likely result in banks getting less data, especially from their smaller counterparties. This increases uncertainty and complicates risk management, making it more important that banks and their supervisors achieve a shared understanding of the most important microprudential and system-wide transition risks.

[4] In this paper the EBA Guidelines on the management of ESG risks are referred to as 'the guidelines'.
[5] Transition risk assessment often requires a combination of different metrics such as scenario analysis and stress testing and more qualitative analyses. Transition plans and misalignment metrics are therefore part of the holistic assessment of transition risks.
[6] The guidelines and the ECB guide on climate-related and environmental risks provide guidance and supervisory expectations for the broader assessment of climate risk, including physical risks, and other tools like stress testing and scenario analysis (ECB, 2020). From a risk management perspective, banks need to analyse a variety of climate scenarios.

Chapter 2 outlines the potential of transition plans for climate risk management. Chapter 3 discusses why misalignment numbers are important since transition risk increases over time. Chapter 4 provides suggestions for supervisors for integrating transition plans into supervision. Chapter 5 concludes.

2. THE POTENTIAL OF TRANSITION PLANNING FOR CLIMATE RISK MANAGEMENT

Transition plans have potential for improved climate risk supervision as they add a forward-looking perspective.

The scope and use of transition plans and planning has been evolving. In terms of prudential supervision, transition plans add to other ESG risk management requirements by adding an inherently forward-looking and longer-term perspective.

Current use of transition plans

It is not yet possible to assess banks' preparedness for the transition based on the plans that have been developed to date.

To date, the transition plans that banks have disclosed have focussed primarily on the reduction of negative climate impacts, setting targets and defining actions for achieving climate objectives. These plans generally show significant room for improvement (Jahn et al., 2024; Reclaim Finance, 2025; World Research Institute, 2024).

First, there are issues with the emission reduction targets themselves. They often do not cover all sectors and activities. The methodologies and reference scenarios banks use are not always robust. Some are outdated, not science-based, or rely on unrealistic assumptions (Maio et al., 2023; Monasterolo et al., 2023). The lack of standardisation of methodologies also makes them difficult to compare.

Moreover, banks' transition plans are based on evaluations of the transition plans of banks' corporate clients which themselves lack robustness. This raises questions about the reliability of the information banks use as input to shape their own transition plans. For example, some energy companies make public net zero commitments whilst their financial disclosures still show that they plan to

depreciate their fossil fuel assets beyond 2050 (de Arriba-Sellier, 2024). It is unclear to what extent banks have taken the existence of the inconsistencies between their clients' transition plans and their financial planning and reporting into account when developing their own transition plans.

Second, voluntary climate commitments are often aspirational, but it is unclear whether the plans are actually being implemented. Actions to reduce emissions often lack concreteness. Engagement with clients often lacks effectiveness due to limited influence, or the absence of an exit strategy. Banks continue to finance new activities not in line with decarbonisation pathways. For instance, banks still finance fossil fuel expansion, despite the International Energy Agency (IEA) stating that no new oil and gas fields or coal mines are compatible with a 1.5°C pathway (Banking on Climate Chaos, 2025).

Unsurprisingly, a 2024 ECB study found that the European banking sector as a whole is substantially misaligned with the transition: 90% of European banks that were analysed are not aligned with climate goals (ECB, 2024a). Banks' own external disclosures however often appear much more optimistic. It is difficult to reconcile banks' own bottom-up conclusions with supervisors' top-down research.

At present, no supervisory authority challenges the robustness of banks' transition plans. External auditors only check CSRD disclosures but do not check the validity of the implementation plan. Oversight of future CSDDD requirements differs by jurisdiction. Without robust, comparable transition plans, it is difficult to assess banks' preparedness for the transition and difficult to manage the resulting risk.

The new EBA guidelines and their relevance

The new guidelines expect banks to implement a comprehensive transition planning process with the aim of improving the quality of strategy and risk management outputs.

In January 2025, the EBA issued new guidelines on the integration of ESG risks, including transition plans (EBA, 2025c). These guidelines apply from January 2026 onwards.[7]

The guidelines also include requirements for managing these risks through prudential transition plans which consist of five core components: strategic objectives, governance, targets and metrics, implementation strategy and engagement strategy. This is in line with IFRS guidance for public disclosures

[7] This holds for large institutions. To ensure proportionality, a one year phase-in is provided for small and non-complex institutions (i.e. application at the latest from January 2027) (EBA, 2025c).

(TPT, 2023).[8] They also provide examples of qualitative and quantitative outputs with references to Pillar 3 and CSRD disclosures.

Banks are required to analyse the (mis)alignment of their portfolio with relevant EU objectives (such as the 2030 and 2050 objectives embedded in the European Climate Law). Both the guidelines and the European Sustainability Reporting Standards (ESRS) require organisations to have metrics for (mis)alignment to climate-related pathways, across different sectors (Delegated Regulation (EU) 2023/2772, 2023).[9] Banks need to assess the transition risk associated with such misalignment, over a long-term time horizon of at least ten years. The guidelines mandate banks to perform a quantitative assessment of this risk.[10] Banks are also expected to manage transition risk; to assess the impact of transition risk on their business models and define appropriate strategic responses, including targets for risk mitigation.

The EBA underscores the need for consistency between different uses of transition plans, promoting alignment between the guidelines and other regulatory and disclosure frameworks, such as the CSRD, CSDDD and Pillar III requirements. The EBA expects banks to implement a single, comprehensive strategic planning process covering all these regulatory requirements. The bank's strategy and risk management must therefore be consistent. The guidelines, although prudential, therefore also have the potential to address some of the shortcomings of the publicly disclosed strategic plans.

Current supervision of transition risk

To date, climate risk has not been sufficiently managed and prudential transition plans are an opportunity to enhance supervisory processes.

The ECB Guide on climate and environmental risk defines supervisory expectations for banks to integrate climate (and other environmental risk) into business processes (ECB, 2020). These expectations are integrated into the Pillar II process. Unlike Pillar I, which is more prescriptive, Pillar II offers a longer-term and more flexible approach.11 SREP is the annual review conducted by the supervisor under Pillar II to assess the risks banks face and check banks' risk management processes. Supervisors can impose additional capital requirements, penalties or qualitative measures on banks which are not sufficiently managing the risk they

[8] The five core components of the guidelines are the same as those in earlier guidance from the Transition Plan Taskforce (TPT), now part of the IFRS Foundation.
[9] In the guidelines, Annex 1 provides a list of quantitative metrics for alignment which reference to ESRS E1-1 Climate change directly.
[10] Exceptions are SNCIs and other non-large institutions, for which a high-level qualitative assessment is the minimum requirement (EBA Guidelines, Section 4.1 Materiality Assessment, Paragraph 15).
[11] Pillar I of the Basel framework sets minimum capital requirements for credit, market, and operational risks using standardised and internal models. Pillar II requires banks to assess their overall capital adequacy relative to their risk profile and allows supervisors to impose additional requirements through the supervisory review process. Integrating climate risk in the Pillar I models introduces challenges as the framework is short-term focused and relies on historical data (Gruenewald et al., 2024). This historical data is by definition not a good predictor of future losses as climate change is accelerating.

are exposed to. Capital add-ons are still rare, although the ECB has warned banks that failure to meet climate risk expectations could lead to more severe supervisory measures (Elderson, 2023).

A key component of Pillar II is the Internal Capital Adequacy Assessment Process (ICAAP). The ICAAP entails banks' own risk identification and capital adequacy assessments. The ECB already expects banks to integrate climate risk in the ICAAP process (ECB, 2020; Elderson, 2024). As part of risk identification, most banks also develop quantitative methods to quantify transition risk at client level.

A key element of the ICAAP is internal stress testing, examining the potential impact of certain risks under altered macroeconomic and financial conditions based on predefined scenarios (Auzepy & Bannier, 2025). These exercises, typically covering a horizon of less than five years, can use either internal or external scenarios such as those from the NGFS.

In addition to internal stress tests, banks participate in top-down climate supervisory stress tests conducted by the EBA and ECB, where banks are required to submit estimated impacts under predefined scenarios. These mainly inform the supervisory dialogue, and so far have not directly fed into capital requirements.

Supervisors also conduct economy-wide stress tests to gain a better picture of the risk in the system. A recent example is the Fit-for-55 stress tests, a one-off exercise spanning eight years (between 2023 and 2030), aimed at evaluating the financial sector's resilience under the EU's climate policy package (ECB & ESAs, 2024). Although this stress test comes with limitations, it estimates a loss of €345 billion across the banking sector resulting from an orderly scenario where the Fit-for-55 policies were implemented. Currently it is unlikely that individual banks internalise a share of this loss in their capital planning.

Climate risk is in general difficult to manage due to their long-time horizon and the limited effectiveness of current, mostly backward-looking risk management approaches, even in the Pillar II framework. There are also issues related to data availability (Dikau et al., 2022). The ECB has indicated not all banks have sufficiently integrated climate risk in their business processes (Elderson, 2024).

The 'radical uncertainty' around climate risk makes the quantification for individual institutions difficult (Bolton et al., 2020; Chenet et al., 2021). It is well known that climate scenario analysis and risk models have limitations, and risk is often underestimated (Battiston & Monasterolo, 2024; Finance Watch, 2025).

Effective transition risk management requires a shift to forward-looking scenario-based approaches. The guidelines offer an opportunity to enhance climate risk

supervision. Misalignment metrics can enrich existing methodologies. It complements current methodologies with a forward-looking and longer-term perspective, namely the future emission pathway a bank intends to follow. Harmonised metrics and methodologies improve comparability across institutions. This offers a promising alternative to current methodologies for assessing climate risk (Dikau et al., 2024).

Misalignment and transition risk

Banks with misaligned portfolios are more exposed to transition risk.

Misalignment refers to the deviation of a bank's portfolio from climate objectives. A bank's portfolio is aligned with the climate objectives at a point in time if the financed emissions are below a science-based reference scenario (i.e. the required net zero pathway), such as those determined by the IEA (IEA, 2023). There is also a forward-looking component to misalignment, i.e. the projected future deviation from climate goals.[12] Transition plans give this information as they include the forward-looking pathway that banks are intending to follow through the actions they define.

Misalignment with a net zero trajectory is not itself a transition risk, it does not directly reflect estimated losses. It is however an indication of transition risk. The link between misalignment and transition risk is complex and not always properly understood. The 'double materiality' concept makes a clear distinction between impact and risk. By financing misaligned activities, a bank makes a negative impact on the world by accelerating climate change. This increases physical risk in the system but is not a source of transition risk *per se*. Banks are impacted by transition risk because of the technological, political and societal uncertainties which lead to potential financial losses.

The guidelines specifically note that the negative impacts the bank has on climate (inside-out perspective) must be considered to the extent they can drive financial risk (EBA, 2025c). The question then is by what transmission channel does misalignment become a transition risk.

Misalignment impacts a number of traditional risk categories, mostly credit risk, legal risk and reputational risk (EBA, 2021; ECB, 2024a). Bank counterparties that are misaligned are more vulnerable to climate policies (such as carbon taxes or carbon pricing through the EU Emission Trade System (ETS)) compared to peers which are aligned. They will face higher operational costs or may face higher

[12] The best point in time and forward-looking definitions of alignment are given by TCFD and GFANZ. The TCFD Portfolio Alignment Team (PAT) proposes: "Portfolio alignment refers to the action of assessing the net zero transition progress of the individual counterparties that make up a given financial portfolio, and determining whether or not, at an aggregate level, that group of counterparties are collectively Paris aligned" (Portfolio Alignment Team, 2021). Moreover GFANZ adds a forward-looking dimension: "Forward-looking methodologies and/or metrics used to measure the alignment of investment, lending, and underwriting activities with the goal of net zero" (GFANZ, 2022).

capital expenditure to retrofit plant and machinery. This increases default risk and affects the underlying collateral as assets may become 'stranded'.

Transition risk can also emerge from other developments such as shifting customer preferences and emerging new technologies which could disrupt the viability of corporates with misaligned business models. Banks which are dependent on revenue from these corporates face their own business model risk, as sources of revenue could fall away leading to deteriorating cost/income ratios.

Banks that have committed to the Paris Agreement but remain misaligned are also subject to legal or reputational risks (ECB, 2024a).[13] NGOs are increasingly using the courts to try to force banks to increase their climate commitments (NGFS, 2023a; Smoleńska et al., 2025).

The EU Climate Law sets a legally binding goal of climate neutrality by 2050 (European Climate Law, 2021). Whereas reasonable progress is being made towards 2030 targets, the current policy measures are not on track to meet the 2050 target.[14] As banks finance the real economy, most banks' portfolios are misaligned, currently and into the future.

The gap between the policy objectives set out in the EU Climate Law and the policy measures in place to achieve these objectives results in policy uncertainty about when and how the transition will happen. This uncertainty is a key source of future transition risk for banks. The absence of current measures does not invalidate the policy objective, which means that banks need to grapple with the potential impact of any future policies which may suddenly materialise. So, although banks are not responsible for the lack of policy measures, they do need to manage the risk thereof.

If governments were to implement stable policies to steer the transition (such as a carbon tax), banks would be able to better manage the resulting transition risk.[15] There would still be transition risk in the current portfolio, but for new business banks can anticipate these policies by pricing in the risk and profit from opportunities to finance greening sectors of the real economy.

[13] The study from the ECB on misalignment finds that 70% of the banks in the sample are subject to elevated litigation or reputational risks.
[14] The European Environmental Agency (EEA) data projects that the EU, with current policy measures, will have 2,022 Mt CO2 equivalent in 2050. This is a reduction of 35% compared with 3,112 Mt CO2 equivalent in 2025 (EEA, 2024). The European Commission recently released a statement they are on track to meet the 2030 target of a 55% emission reduction (European Commission, 2025).
[15] The revised ETS system is a promising policy measure to steer the transition. It will be interesting to see how this will be reflected in the current policy scenario of the EEA and others.

There are many transmission channels and feedback loops between misalignment and financial risk. Acting on misalignment directly, rather than on quantified transition risk resulting from misalignment, is a useful simplification which can bring about a more meaningful discussion of transition risk. This approach aligns with the precautionary principle, as acting on misalignment is better than not acting on transition risk.

Misalignment metrics

Financed emissions are a useful metric for misalignment as they are comprehensive and comparable. An additional focus on activities that are by definition misaligned, such as expansion of oil and gas, can enrich the understanding of misalignment.

Financed emissions are a metric used to assess misalignment in transition plans. They can be used to assess sector performance against reference scenarios, such as the IEA net zero scenario.[16] Both the guidelines and the ESRS require that banks use meaningful sector breakdowns for this purpose. Moreover, financed emissions can also be easily linked to scenarios and stress tests with policy measures such as a carbon price.

Financed emissions can be expressed as both absolute and intensity metrics. Absolute emissions are measured in terms of tons of CO2 financed.[17] Achieving net zero ultimately depends on reduction in real-world absolute emissions. Absolute financed emissions are easy to aggregate and necessary to monitor the progress towards net zero. Absolute metrics also allow for comparison across sectors.

Intensity metrics are sector-specific and measure financed emissions relative to a specific metric such as volume or production amounts (e.g. emissions per square metre in commercial real estate, emissions per tonne of steel produced) or economic (e.g. revenue of the financed company). Most targets in banks' transition plans are based on intensity metrics. Intensity metrics allow for comparisons of companies or banks' portfolios within sectors.

A bank can be aligned on an intensity basis while still increasing its absolute emissions, for instance by growing market share. Additionally, alignment with intensity metrics does not always correspond with real-world emission reductions. Emission efficiency improvements in certain sectors can be offset by increased output, undermining real-world progress. Intensity metrics must therefore be

[16] The IEA defines net zero decarbonisation pathways across different sector and geographies.
[17] There is a number of industry-led standards, such as the Partnership for Carbon Accounting Financials (PCAF). Their standards on financed emissions present how the portion of a borrower emissions are allocated to the bank. This is done using an 'attribution factor', calculated by dividing the outstanding loan amount of the bank by the total equity and debt of the borrower.

based on credible and regularly updated reference scenarios to reflect real-world changes.

Therefore, to understand a bank's alignment with climate targets, both absolute and intensity financed emissions metrics are needed. However, at any point in time, financed emissions reflect credit decisions made on average nine years ago. This is the average remaining loan maturity of EU banks (Buch, 2024). Transition plans will help to address this limitation as they are forward-looking; the future emissions pathway a bank intends to follow. Other limitations, such as the data availability and issues with the risk of double counting, can be overcome.

Alternative metrics, such as company-specific (e.g. climate transition value-at-risk metrics) or sector-specific (e.g. energy labels for real estate) can also inform the risk assessments. However, these metrics cannot substitute for the insights that financed emissions provide and also come with complexity and data challenges (IIF, 2023).

There are also production capacity metrics to measure misalignment, for example used by PACTA. They measure a company's or asset's potential to produce a certain amount of a product or service in the future. They provide a forward-looking view of whether a portfolio is shifting toward low-carbon technologies or remains committed to high-emissions production. These metrics are available for emissions-intensive sectors (e.g. power generation, steel, cement, oil & gas). These methods are particularly useful for risk management and strategic decision-making purposes. They however do not easily allow for the tracking of targets over time as the baseline gets continuously restated.

Some financed activities are by definition misaligned. Within the narrative of the net zero reference scenario, the IEA has stated that no new oil and gas fields should be developed (IEA, 2023). Activities that contribute to the expansion of fossil fuels need to be monitored and reported on. Given the critical role of the energy sector to meet climate targets, fossil fuel financing should be monitored more broadly as a complementary measure to financed emissions. The guidelines refer to the Energy Supply Banking Ratio (ESBR), an indicator monitoring financial flows toward sustainable activities relative to those allocated to fossil-based ones (Voisin et al., 2025). This can help with monitoring fossil fuel financing. Note also that with current geopolitical uncertainty, independence on fossil fuels also improves Europe's energy security.

Transition risk mitigating actions

Banks can choose to mitigate transition risk either by decreasing or by accepting misalignment.

The guidelines require banks to identify, measure, manage and monitor transition risk. The guidelines do not prescribe a specific business strategy or enforce divestment from high-emission sectors.[18] Instead, they aim to ensure that banks assess transition risk and develop a strategic response based on the degree of portfolio misalignment.

It is therefore useful to distinguish between risk management actions that result in closer alignment with EU climate objectives, and actions which do not. This is summarised in Table 1.

Table 1: Transition risk mitigation action types and examples

Type of action	Examples[19]
Actions to mitigate transition risk by decreasing misalignment	• Engage with misaligned counterparties • Finance more sustainable or transition assets (e.g. by offering favourable pricing for aligned assets, or real estate renovation efforts) • Have exclusion policies on misaligned assets (e.g. coal fired power plants or new fossil fuel exploration, residential loans with poor energy labels)
Actions that mitigate transition risk by accepting misalignment	• Hold more capital against misaligned loans to manage the increased credit risk of these loans • Have policies for more stringent loan conditions for misaligned assets (e.g. shorter loan maturities) • Transfer risk through insurance

The guidelines are not explicit about what risk management actions are sufficient for dealing with the risk of misalignment. Banks may well have a different risk appetite with regards to misalignment. Actions which intend to bring bank

[18] This is a point of potential confusion. The guidelines require institutions to develop a single, comprehensive strategic planning process that covers all regulatory requirements stemming from applicable legislation beyond the strictly prudential, i.e. including CSRD, CSDDD. The CSRD does require the disclosure of targets that achieve EU objectives, including climate neutrality by 2050. However, misalignment is only a prudential issue insofar as it results in a financial risk for the bank.
[19] The guidelines helpfully do provide suggestions for qualitative and quantitative outputs in Annex 1.

portfolios into alignment are clear risk mitigation strategies and if well implemented, should be deemed sufficient.

If banks choose a risk management strategy of accepting misalignment, then the question arises how they can demonstrate that the strategic response they have developed is sufficient. For reasons that will be explored in Chapter 3, this will be increasingly hard to do as transition risk increases over time. This also potentially introduces an inconsistency with publicly disclosed transition plans which the guidelines try to avoid.

It is worth noting that some risk mitigation strategies may be effective from a bank perspective but have downside impacts on the real economy. There are several examples of downside impacts:

Decarbonisation on paper: Banks could decrease financed emissions through exclusion policies and by selling-off misaligned assets. Such exclusion actions are referred to as "decarbonising on paper" which do not lead to real-world emission reductions. This reduces transition risk for the individual bank but does not contribute to the reduction of system-wide risk (Breeden, 2022). The guidelines have made it explicit that the goal of the transition plans is not to exit or divest, but rather to stimulate the transition.

Social exclusion: Risk mitigating actions could have negative social effects. For example, in the mortgages sector, houses with lower energy labels carry greater transition risk but are also generally owned or rented by lower income groups. If banks start to price-in these transition risks, these groups will be disproportionately affected. Moreover, the extra cost incurred will make it harder for them to make their property more sustainable, triggering a vicious cycle. The guidelines do cover broader ESG considerations, but negative social impacts may not be material from a purely risk management perspective.

Risk contagion: Once built, high emitting assets are often hard to retrofit, and transition risk exists for a long time. Real economy assets like factories often depreciate over a period of 20 years (The Economist, 2025). Some argue that the time horizon of climate risk 'by far' exceeds the average maturity of bank loans (Demekas & Grippa, 2024). Indeed, commercial loans in Europe have an average remaining maturity of five years (EBA, 2025b).[20] There is already some evidence that banks are shortening loan maturities to reduce transition risk exposure (Ivanov et al., 2024). However, when banks discontinue rolling over loans or shorten loan maturities, transition risk does not go away. It shifts from debt holders to equity holders. Equity holders are risk takers and in isolation this should not be an issue. However, if the banking sector implements such actions at scale, or in haste, there

[20] The average loan maturity including retail loans is nine years (Buch, 2024).

will be macroeconomic implications which have secondary effects on the banking sector.

In sum, the aim of the guidelines is to manage risk, but doing so effectively cannot be done in isolation of the considerations around negative impacts and system-wide consequences.

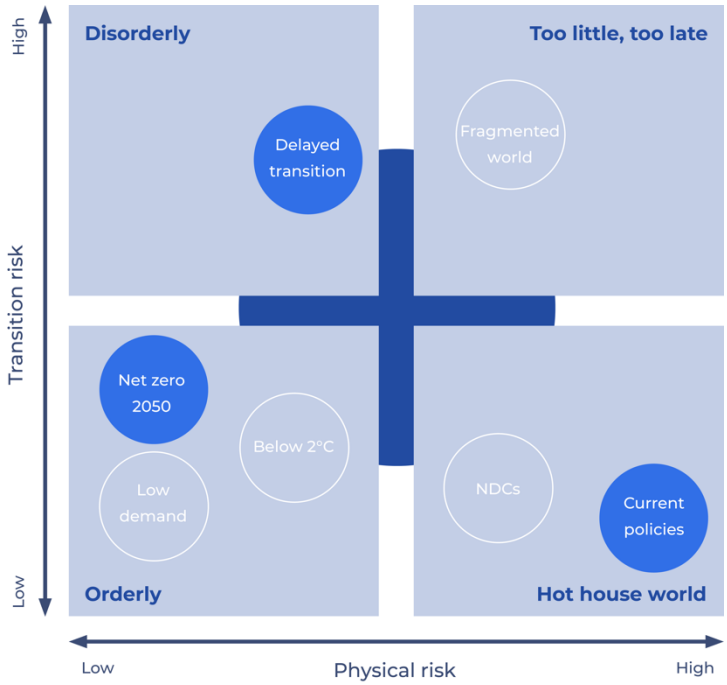
Misalignment and (system-wide) physical risk

Significant misalignment in the banking sector contributes to system-wide physical risk. Considering both transition and physical risk, an orderly transition is the best outcome for financial stability.

When banks finance emission-intensive activities, they contribute to global temperature rise, thereby increasing the likelihood of extreme climate events (Boissinot et al., 2022). However, individual banks themselves, or indeed the EU banking sector as a whole, cannot prevent global warming. But banks can still significantly contribute to it. The misalignment metrics that EU banks will report can give a forward-looking perspective into their contribution to system-wide physical risks.

In general, banks need to manage their resilience against a range of climate scenarios (EBA, 2025c). These climate scenarios, such as the NGFS scenarios, illustrate different future pathways of how the structure of the economy could evolve, conditioned to the remaining carbon budget, climate policy ambition, technological development and feasibility. These scenarios correspond to different levels of transition risk and physical risk for banks. The main scenarios' narratives are summarised in Figure 1.

Figure 1: Illustration of the NGFS scenarios



Source: NGFS, 2025a

Physical risks are highest in a scenario without ambitious or timely climate policies ('hot house world scenario', or 'too little too late'). They are mostly determined by the world's temperature increase and associated increases in the frequency and/or severity of extreme weather events (the higher the temperature increase the higher the physical risks). In this scenario there is a serious risk of the uninsurability against physical risk (Howden Climate Risk & Resilience, 2025). Physical risks are lowest in a scenario where the transition is happening early and in a predictable way (orderly scenario).

The level of transition risk is determined by whether and how steady the world's transition goes: an orderly (smooth) transition corresponds to lower levels of transition risk and a disorderly transition, requiring abrupt government action and rapid corporate adjustments, to higher levels of transition risk. It is generally accepted that a steady implementation of climate policies have lower short-term costs than an abrupt implementation (Carney, 2016; Emambakhsh et al., 2023; NGFS, 2025a; Schoenmaker & McKechnie, 2024). For example, the latest NGFS short-term scenarios project that a steady transition to Paris corresponds to 0.4% global GDP loss. A 'sudden wake-up call' where climate policies are delayed by three years reduces global GDP by 1.3% by 2030 (NGFS, 2025b).

Many studies demonstrate that the short-term economic costs of limiting climate change are less than the longer-term costs of living with climate change. There is growing consensus that an orderly transition offers the best outcome in economy

and financial stability terms (Emambakhsh et al., 2023; NGFS, 2025b, 2025a). A financial system that remains misaligned with climate goals may delay the transition, forcing abrupt policy changes later, amplifying transition risk. Physical risks are also higher because of inaction until the transition takes place.

The NGFS conceptually apportions relatively low levels of transition risk to a 'current policies' scenario. Globally speaking this may well be true, but in the EU, and other jurisdictions which have net zero commitments enshrined in law, this is not necessarily the case. The next chapter will elaborate on why and how transition risk increases over time.

3. TRANSITION RISK INCREASES OVER TIME

With time closing in on the EU Climate Law's 2050 net zero objective, the transition risk associated with meeting that objective increases.

There is currently a perception that transition risk will pose only a limited threat to the banking sector. This view is reinforced by, for example, the results of the Fit-for-55 climate stress test that concludes that "transition risks alone are unlikely to threaten financial stability" (ECB & ESAs, 2024).[21] However, this is only true if the transition is timely and orderly. As long as the EU Climate Law remains in force and the economy and banking sector are not on the pathway to achieve that objective, transition risk and the potential impact on financial stability, will continue to increase over time.

Figure 2 illustrate different pathways to achieve net zero. At the moment, both the global economy and the financial sector are misaligned with the transition, as represented by the 'current trajectory' (NGFS, 2025b).[22] According to the European Environment Agency (EEA), EU emissions have declined by approximately 2.1 percentage points annually in the decade since the 2015 Paris Agreement.[23] Moreover it projects that, under current policies, emissions will further decrease by 2.3 percentage points annually over the next decade (EEA, 2024).[24]

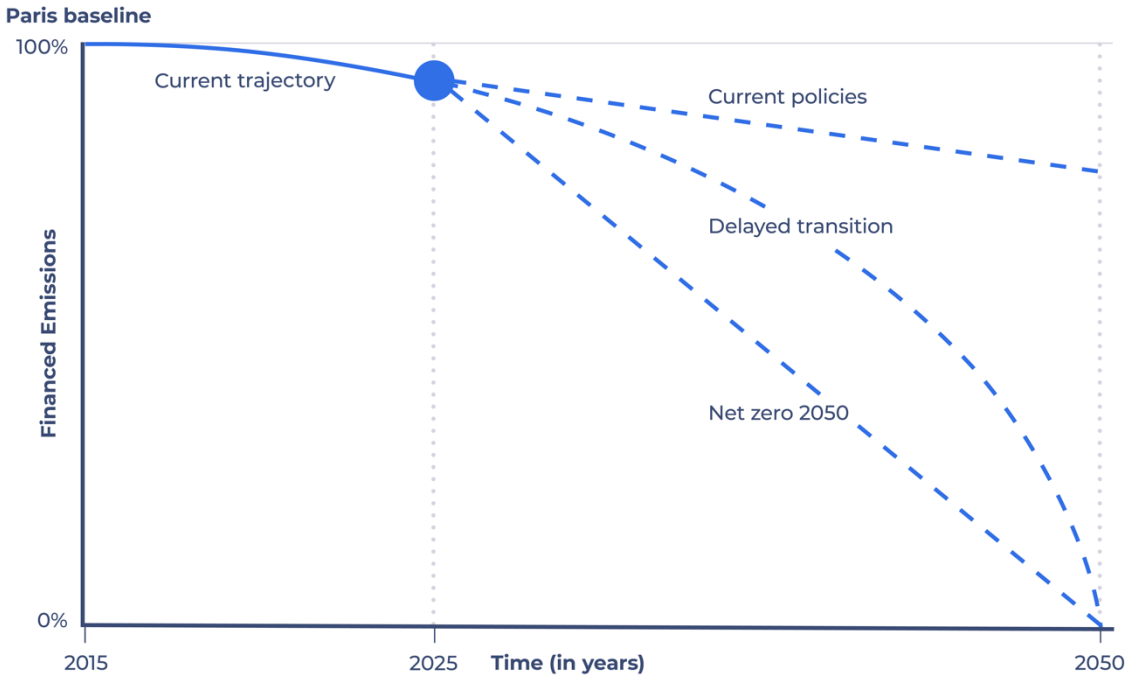
[21] In 2024, the ECB and the European Supervisory Authorities (ESAs) conducted a 'Fit-for-55' stress test focused on transition risks. The results showed €343 billion of in-scope 'first round' system-wide losses to the banking sector, representing 5.8% of in-scope bank exposures, in a scenario where the Fit-for-55 package is implemented.

[22] This is also supported by the results of the following short-term NGFS scenarios: disasters and policy stagnation scenario (the baseline scenario including only legislated policies but no additional policy measures to achieve net zero) and the diverging realities scenarios (only advanced economies pursue the net zero transition, resulting in global emissions reductions that fall short of net zero targets).

[23] The European Environment Agency reports that emissions in the EU have decreased from 3,606 Mt CO2 in 2015 to 2,987 Mt CO2 in 2022. Note that that there is no equivalent data set for financed emissions which are likely to be higher as a result of high-emissions lending by European banks outside of the EU.

[24] In 2026, the EEA projects emissions based on existing measures of 3,027 MtCO2e. In 2036, the EEA projects emissions based on existing measures of 2,330 MtCO2e. The difference is an annual 2.3% percentage point reduction over the next 10 years.

Figure 2: Financed emission pathways, a simplified illustration referring to the different NGFS scenarios



Source: Sustainable Finance Lab adapted from Schoenmaker & McKechnie, 2024

Other things being equal, a steady transition path is the one that minimises financial disruption.[25] Put simply, emissions would need to decline by 4 percentage points annually[26], nearly double the rate based on current policy measures (Schoenmaker & McKechnie, 2024).

Schematically, the real economy is following Pathway 1 ('current policies') in Figure 2, which is not aligned with achieving net zero by 2050. Meeting this objective would require banks to finance a real economy following a different pathway. Pathway 2 ('delayed transition') comes with higher transition risk.[27] The longer banks' portfolios remain misaligned with the net zero objective, the more abrupt and destabilising the eventual adjustment (from a 'current policies' to a 'delayed transition' scenario) becomes.[28]

[25] Other things being equal, the speed of transition is inversely correlated with financial stability. An abrupt reallocation of assets from high-carbon to low-carbon assets would leave the real economy less time for adaptation and the financial sector with more stranded assets. As Carney (2016) put it, "too rapid a movement towards a low-carbon economy could materially damage financial stability". This will be just as true in 2049 as it is now.
[26] This percentage point decrease is calculated simply by taking the present baseline as 100% and dividing it by 25 time periods until 2050.
[27] The delayed transition pathway is shown as an abstraction. The NGFS 'delayed transition' scenario models current levels until 2030, followed by a stringent climate of policies thereafter.
[28] The longer banks remain misaligned, the higher the system-wide physical risk as well. In fact, the larger the area under the curve in Figure 2, the greater the physical risk.

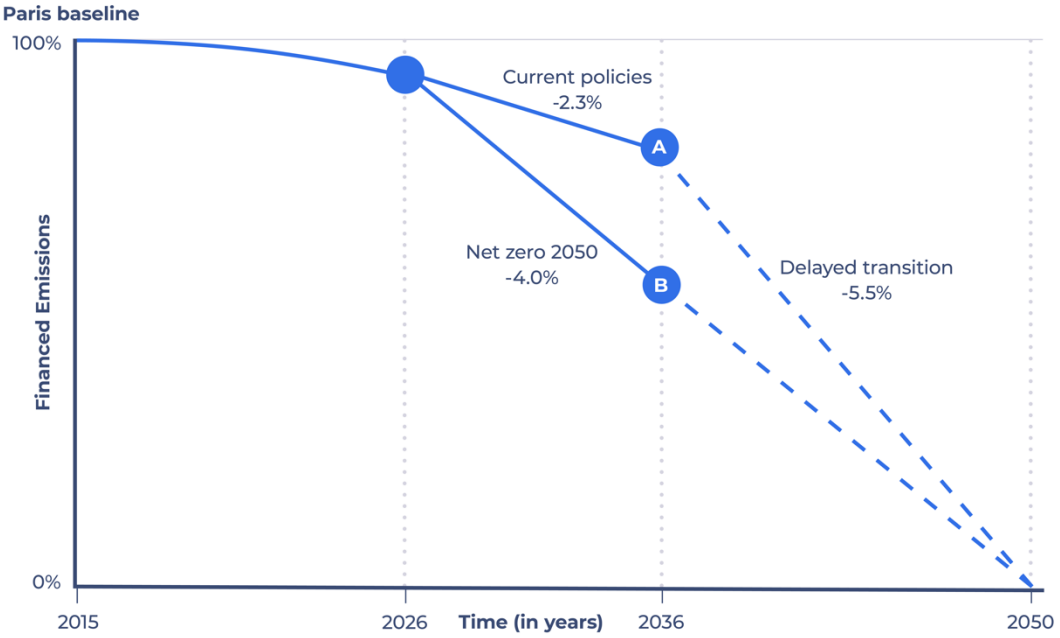
This point can be further illustrated through a simple exercise, highlighting the incentives and dilemmas faced by banks and their supervisors. Imagine banks' transition pathways in 2026 and 2041.

Transition plans in 2026

Banks have incentives to set ambitious targets but do little to achieve them.

In 2026, banks will submit their first transition plans to supervisors, including targets for financed emissions to mitigate transition risk. Figure 3 outlines two potential trajectories of these plans across a ten-year time horizon: Pathways A and B. For both, the figure infers the annual percentage point emission reductions required to achieve net zero by 2050.[29]

Figure 3: Illustration of different financed emissions pathways of banks across a horizon of ten years as of 2026



Banks face competing pressures. Banks setting targets along Pathway A follow the real economy's forecasted -2.3 percentage points annual emissions reduction, assuming no additional policy measures. This means that in a delayed implementation scenario after 2036, emissions reductions would have to increase to -5.5 percentage points to achieve net zero 2050 objectives.

[29] Percentage points taking 2026 as a baseline.

Most EU banks have publicly committed to net zero. They make use of benchmarks, like the net zero scenario from the IEA, which are roughly in line with Pathway B. This pathway is aligned with EU objectives and consistent with what most banks report in their transition plans following voluntary initiatives or CSRD requirements. Moreover, following this trajectory reduces vulnerability to a sudden implementation of measures to achieve the climate law objectives. It would however require banks to push their clients to decarbonise more quickly than their clients will be planning, based on current policies. With the exception of a few sustainability-minded banks, most banks will be fearful to do this.

Short-term financial incentives therefore incentivise banks not to exceed the emission reduction ambitions of the real economy. Banks face a "first-mover disadvantage": those that price in transition risk may lose market share to less proactive peers (Schoenmaker & McKechnie, 2024).[30] This creates a classic prisoner's dilemma. Unless banks believe that their competitors will also act in line with the net zero pathway, they are unlikely to follow through themselves. As a result, it is likely most banks will follow Pathway A. Some might even seek short-term profits by acquiring high-emitting assets divested by more climate-conscious peers, further increasing misalignment.[31]

Banks may present transition plans consistent with Pathway A as a realistic reflection of their intentions. However, this also carries risk: these projections could attract enhanced supervisory scrutiny, especially if they contradict voluntary commitments.

All things considered, banks have a strong incentive to defer action: to set ambitious net zero targets but without action to follow through. In 2026, supervisors will face the challenge of assessing whether transition plans are robust and backed up with strong actions and internal management. Over time, however, progress should become more visible as banks are encouraged to report on milestones achieved over time.[32]

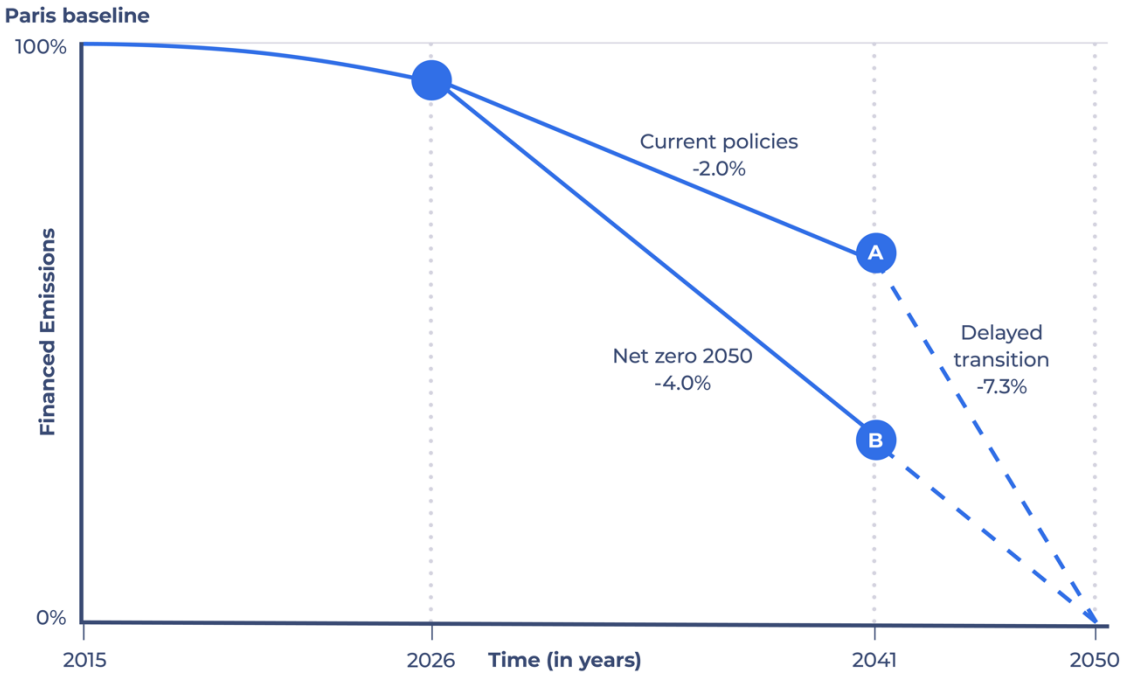
[30] Although in future market discipline may allow for accurate pricing of climate risk, this is not currently the case (Elderson, 2025).
[31] More positively, a few banks may decarbonise faster than the real economy. For example, La Banque Postale in France has a net zero ambition of 2040. These banks evade the prisoner's dilemma because they make sustainability an ethical commitment and thus manage to attract capital from ethically minded customers.
[32] EBA Guidelines, Annex 1 'a. Strategic objectives and roadmap of the plan', page 48.

Transition risk in 2041

Banks may second-guess that the EU will abandon its climate goals when confronted with the risk of financial instability and will consequently underprice transition risk.

Now, consider a likely scenario in 2041, where the EU Climate Law remains in force but no significant new policies or supervisory interventions have been introduced. The year 2041 is chosen for this extrapolation because the average loan maturity in the European banking sector is nine years (Buch, 2024).[33] From this point onwards, banks can no longer finance misaligned assets without impeding the net zero objective.[34] Figure 4 illustrates such an updated 'delayed transition' pathway.

Figure 4: Illustration of different financed emissions pathways of banks towards 2041 without additional policy or supervisory intervention[35]



Bank A, which followed the real economy's slow emission decline until 2041 would now have to decrease their financed emissions by -7.3% percentage points annually to reach net zero. [36] The impact of a delayed transition on banks on

[33] The nine years' average maturity contains much variance across portfolios, e.g. corporate loans have a shorter maturity than mortgages. Their average loan maturity is five years (EBA, 2025b).
[34] Strictly speaking the net zero objective could still be achieved, but bank business models would have to be adapted in a significant way. For example through carbon offsetting or by reducing the loan maturity to less than nine years.
[35] Note that the average decarbonisation rate of the current policies scenario differs in Europe over a 10 year (-2.3%) and a 15 year (-2.0%) time period. This is the result of the decreasing rate of decarbonisation over time.
[36] Percentage points of the 2026 portfolio.

Pathway A is significant, both in terms of the impact of their business models as well as in terms of their capital positions.

In contrast, banks that have followed Pathway B are far less exposed to transition risk. In theory, they now enjoy a competitive advantage. But in practice, this advantage may not materialise. By 2041, policy makers will find themselves unable to implement climate policies without risking an economic and financial crisis. Banks on Pathway A, that failed to account for transition risk, may be deemed 'too big to fail', and ultimately rewarded for inaction.

Thus, we are faced with a situation of moral hazard. Banks may discount the likelihood of climate policy enforcement and underprice transition risk. This misalignment becomes self-reinforcing: if banks do not believe policy targets will be met, those targets become increasingly unachievable.

From today's perspective, the extreme transition risk caused by such a 'delayed transition' scenario may seem unrealistic. Political attention is currently focused on competitiveness and geopolitics. Amending the EU Climate Law, e.g. by pushing the net zero target back to 2060, may seem like an easy measure to reduce transition risk. Doing so would likely result in a 'hot-house-world' scenario which comes with higher physical risk and is deemed to be a worst-case scenario. However, policy priorities can also shift. A major climate event, such as catastrophic wildfires or flooding for example, could trigger a need for abrupt climate action from policy makers.

Without supervisory action, a misaligned banking sector will likely result in financial instability, either from a delayed transition or because of a lack of policy measures resulting in increased system-wide physical risks.

4. INTEGRATING TRANSITION PLANS IN SUPERVISION

Prudential transition plans have the potential to meet supervisory objectives if robust and embedded into microprudential and macropudential supervision.

The guidelines set a clear standard for European banks. Properly implemented, transition plans give supervisors a powerful tool to strengthen climate-risk oversight. They can support the supervisory objective to reduce climate risk for individual financial institutions, as well as the system as a whole. These plans also foster dialogue between banks and supervisors, helping supervisors better understand individual institutions' business models and risk profiles.

From a prudential perspective, transition plans could at the least contribute to (FBF & CETEx, 2025):

1. Banks' internal governance and transition risk management.
2. Improved data quality available to banks, supervisors and policy makers to improve the understanding of and manage system-wide physical and transition risk.

To achieve these goals transition planning processes must be robust. This is not only important for supervisors but also for market participants relying on publicly disclosed transition plans.[37] Robust transition plans increase the understanding of system-wide misalignment and the associated transition risk.

The management of transition risk is a broader question that extends beyond the supervision transition plans into other core supervisory processes. Supervisors have the mandate to maintain the stability of the financial system under a range of

[37] Noting here that the prudential transition plans are not publicly disclosed themselves, but are required to be consistent with publicly disclosed plans.

scenarios. This includes ensuring a bank's business model viability and capital adequacy in a delayed transition scenario.

Supervisors cannot steer the transition itself. Banks are free to make their own assumptions about how fast the transition will happen or not. Supervisors however should support policy makers to achieve the legally binding objective in a way that does not compromise financial stability. The ECB is also legally bound to respect EU legislation (Solana, 2019).

To effectively achieve these broader goals, the understanding of risk gained through transition plans must be embedded into microprudential and macro-pudential supervision.

Robustness of transition plans

Supervisors can play a role in challenging the robustness of the transition plans and planning process and monitoring progress.

The guidelines state that supervisors should assess robustness of the plans as part of the SREP.[38] The term 'robustness' is however not explicitly defined. It should mean that plans are internally consistent, coherent and complete. [39] This includes assessing both current and future misalignment levels, such as whether the proposed actions for decarbonisation and risk mitigation are robust. This is particularly important given the issues that current transition plans have (Chapter 2) and incentives they have to set ambitious targets but define few actions to meet them (Chapter 3).

Challenging misalignment levels (ex-ante assessment)

> **Recommendation A:** Supervise the robustness of the transition plan process by assessing current and future misalignment.

A first step is to assess banks' portfolios current levels of misalignment, including a check of whether all sectors and activities are covered, and whether reference scenarios are scienced-based. With this information supervisors could challenge banks' awareness of the limitations of their methodologies. Given the diversity of

[38] The NGFS stresses that these plans must be reliable and credible to be relevant for supervisors. At the same time, they recognise that supervisors may not be best placed to technically assess the credibility of transition plans (NGFS, 2024a). Indeed, supervisors generally lack the technical expertise to determine whether the financing of particular technologies will lead to sectoral decarbonisation.

[39] There is already substantial guidance on what constitutes a credible (strategy-based) transition plan. The NGFS has summarised this and the United Nations High-Level Expert Group on Net Zero has published relevant guidelines (NGFS, 2023b; UN High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities, 2022). In addition, researchers have identified "red-flag" indicators that can help assess the integrity and consistency of transition plans, track progress, and identify risks of greenwashing (Bingler et al., 2023). The guidelines outline qualitative and quantitative metrics, including cross-reference to other frameworks such as Pillar 3 and the CSRD/ESRS (EBA, 2025c).

approaches and assumptions, supervisors can use their own benchmark to challenge banks.[40] Production-based metrics such as used in the ECB study on misalignment using the PACTA methodology (ECB, 2024a) are already available and can be used, at least initially for some high-intensity sectors.[41]

Since misalignment involves both an assessment of the current situation and the plan to achieving climate targets, it is important that supervisors also evaluate the proposed risk mitigating and decarbonisation actions. The evaluation should include examining whether the financial and human resources mobilised are adequate to achieve targets. The guidelines provide substantial guidance on implementation and engagement strategies. While the effectiveness of proposed actions cannot be determined up front, supervisors can evaluate whether plans are comprehensive and whether actions are consistently defined.

Specifically, supervisors could assess banks' exposure to the fossil fuel sector, and whether proposed actions preclude expansion in that sector. Resources such as Urgewald's Global Oil & Gas Exit List (GOGEL) can support this analysis.[42] Other examples of useful data sources are Climate Action 100+ or the Transition Pathway Initiative (TPI).

Banks should also demonstrate the consistency between their own targets and actions and those of their larger clients. This includes verifying the robustness of client transition plans, for example the consistency between climate commitments and financial planning. Banks should also demonstrate consistency between their own climate commitments and financial planning.

Banks need to be transparent about external dependencies and assumptions (e.g. around policy measures and market developments) on which their targets rely (EBA, 2025c). Supervisors, however, could check that these dependencies are not so far-fetched that they undermine the robustness of the plan. The significance of dependencies should not prevent banks from acting (Rose et al., 2024). As Sarah Breeden of the Bank of England noted: "Uncertainty over climate policy cannot be an excuse for inaction by the real economy or financial sector" (Breeden, 2022).

[40] Many banks use the PACTA methodology in their transition plans as well. However, it is difficult to reconcile the plans of individual banks with this supervisory assessment. Many banks report they are well on track, whereas this independent benchmark shows a different picture, namely that EU banks are significantly misaligned with the transition. There might be differences in the methodologies, the scope, and the way how reference scenarios are baselined.
[41] There are some limitations. It only includes a limited scope of sectors, only includes EU exposures, considers a five-year horizon and focusses on credit risk only.
[42] See About | gogel

Continuous evaluation (ex-post assessment)

> **Recommendation B:** Continuously evaluate the progress of successfully achieved or missed targets over time.

When banks submit new transition plans, these should be comparable with past plans, and the banks should be transparent about progress. The guidelines encourage banks to track the share of targets achieved. This provides supervisors with useful data which allows for comparison between projected and actual decarbonisation outcomes.

With continuous evaluation, supervisors will get insight into the quality of the actions previously proposed. In case targets are missed, banks may have technical explanations (e.g. net congestion limiting expanse of renewable energy production). However, failure without good explanation, should result in additional actions to remain (or get back) on track. In doing so, supervisors can focus first on the institutions lagging the most, those banks that are reducing financed emissions more slowly than the real economy (e.g. above Pathway A 'current policies').

Broader integration in microprudential policy

Supervisors will need to address the disincentives that banks have to underprice transition risk. Additional supervisory action is needed.

Misalignment is a measure of transition risk for individual banks and must therefore be reflected in microprudential policy. The concept of misalignment can be used within the wider climate risk framework, where banks need to assess and act upon climate risk based on a wide range of scenarios. Transition risk resulting from misalignment can be incorporated into the supervisory framework via Pillar II of the Basel framework. Misalignment can, for example, be integrated into the capital adequacy assessment as part of the ICAAP process and in scoring methods used for transition risk.

As part of the SREP, supervisors can challenge banks' scenario choices, particularly to ensure inclusion of plausible scenarios involving both orderly and disorderly transitions aligned with the EU Climate Law.

Supervisors can impose penalties or qualitative measures where transition plans are not robust. The ECB has already demonstrated its readiness to do so for banks that fail to meet climate risk expectations (Elderson, 2023). The ECB Guide on climate and environmental risks could also be updated to better account for misalignment specifically.

Business model sustainability

> **Recommendation C:** Challenge banks to demonstrate their business model sustainability in both net zero as well as delayed transition scenarios.

As discussed in Chapter 3, the financial system will soon be at a point where a delayed transition is likely and will cause financial instability. Supervisors therefore particularly need to challenge bank business model sustainability under such a delayed transition scenario, where EU Climate Law is implemented.

Business model viability refers to a bank's ability to generate acceptable returns from a supervisory perspective over the next 12 months. Business model sustainability takes a longer-term view, assessing the bank's ability to remain viable over the full economic cycle (ECB, 2024b).

Following the EBA consultation on scenario analysis, banks should assess the impact of certain climate scenarios covering a longer-term horizon, linking this specifically to client transition plans (EBA, 2025a). The goal of this exercise is to assess compatibility with a net zero scenario and to check the robustness of the business model. However, EBA also recognises there is still a long journey ahead.

For now, a straightforward approach could require banks to demonstrate that their business model remains viable in both a net zero, and a delayed transition scenario, over a ten-year horizon. Banks with misaligned portfolios, those along and above Pathway A, in particular face higher transition risk. These banks should demonstrate the ability to reduce its financed emissions to an average of -5.5% percentage points annually from 2036 onwards. From this demonstration, it will likely become clear that the strategy of the bank to accept misalignment is impossible to attain, the required financed emission reduction to meet net zero increases the longer the bank follows the current policy pathway.

For an individual bank, feasibility would depend on factors such as average loan maturity, cost/income structure, specific concentrations in carbon-intensive sectors, and sources of new business volume. The guidelines require banks to report this data.[43] Through the SREP process, supervisors can challenge banks with misaligned portfolios to demonstrate their confidence in their business models across net zero and delayed transition scenarios.

Assessing robustness and integrating misalignment in microprudential policies will improve the supervision of transition risk. However, supervisors have limited capacity and need to choose areas to focus on. Moreover, robust transition plans do

[43] Annex 1 provides examples of qualitative and quantitative outputs and their potential supporting metrics.

not necessarily move bank portfolios into alignment. Nor do they consider second-round effects of the implications of risk transfer actions from banks to other actors in the real economy.

Use of capital charges

> **Recommendation D:** Use capital charges, even when relatively small, to help prevent the build-up of transition risk.

In general, capital buffers serve to prevent the build-up of risk and to cover for unexpected losses. In essence, riskier assets should receive a higher risk weight so that capital increases with risk weight (Holscher et al., 2022). Banks with misaligned portfolios in particular, face risks they are potentially not managing.

However, banks have an incentive to underprice transition risk. This represents a market failure, which justifies regulatory intervention. To overcome this distortion, supervisors could implement capital-based measures to better reflect the transition risk of misaligned assets. Misaligned activities could receive higher capital charges through top-down measures. Banks would then be encouraged to make risk-differentiated decisions between aligned and misaligned activities. The result is a more level playing field. This approach aligns with the precautionary principle and supports the broader public policy objective of a timely and orderly transition.

It is often thought that higher capital requirements restrict the bank lending needed to finance the transition. This belief is based on basic economic theory: by increasing the cost of financing, the quantity of financing must come down. However, there is limited evidence that increased capital in support of financial stability hampers the flow of credit to the real economy. Higher capital ratios raise the cost of bank equity but lower the borrowing costs. These two effects partially offset each other. Moreover, only well-capitalised banks can continue to finance the economy in times of uncertainty or setbacks (Berg et al., 2025).

The best way to incentivise banks would be to set capital charges for misaligned activities based on the forward-looking component of transition plans. Banks that are currently misaligned but have robust plans to become aligned face lower transition risk and positively contribute to the transition. This also avoids any unintended negative consequences, such as diverting finance away from transition activities. Consider, for example, a bank financing transition activities for clients in high-intensity sectors.

The use of forward-looking misalignment metrics derived from transition plans requires two preconditions to be in place. First, a more formulaic definition of misalignment for supervisory purposes needs to be developed. This definition would need to be determined by sector and based on agreed reference scenarios. Second, transition plans need to be robust.

If the latter precondition is not in place, charges could be set based on current misalignment levels. These charges would have to be higher. Banks are then encouraged to develop robust transition plans and are incentivised to follow through on them.

Capital charges can be imposed as a Pillar II add-on through the SREP process. When supervisors assess robustness of the transition planning process, they gain insights into current and future misalignment levels. These insights could be used to calibrate a capital add-on, provided the transition plans are robust. They could also use their own benchmarks, such as the ECB analysis performed using the PACTA methodology, as input for calibrating these capital requirements.

A more rigorous approach would be to implement an adjustment to risk weighted assets in Pillar I. To apply this, the classification of exposures based on relevant indicators, like sectors and counterparty-specific factors, is required. This introduces calibration challenges (EBA, 2023). To account for misaligned activities, the adjustment factor needs to be calibrated on a granular level so that it can distinguish between companies that are in line with the sector benchmark and those that are not.[44] The adjustment factor can be implemented for activities that are by definition misaligned and have limited potential to transition, such as fossil fuel activities. EIOPA, for example, recently proposed additional capital requirements for insurers' fossil fuel assets to cushion against transition risk (EIOPA, 2024).

Supervisors can gradually implement capital requirements. They could start with small capital charges first. Even small capital charges will encourage banks to make risk differentiated decisions and can help prevent the build-up of transition risk. Over time, these charges could be increased to a level that they improve banks' loss-absorption capacity line with their transition risk levels.

Another way to phase-in capital requirements is to start with high-risk sectors or activities first. Supervisors can then expand to other sectors over time as more evidence becomes available.

[44] At this stage, the EBA does not recommend introducing an adjustment factor. They however will reassess in the medium to long term if and how environmental-related adjustment factors could be taken into account as part of prudential treatment of individual exposures (EBA, 2023).

As we move toward 2050, with the required financed emission reduction to achieve net zero increasing, the required capital will also increase. From a bank perspective, this will effectively create an internal carbon price, regardless of whether policy makers implement the necessary carbon taxes. These prudential measures can therefore correct systemic imbalances and nudge the financial system towards alignment.

Macroprudential actions and other supervisory actions

The forward-looking insights gained from transition plans are an opportunity to improve the management of system-wide climate risk.

Macro-monitoring of the aggregated transition plans helps supervisors to identify the type of transition the economy is moving towards, and its potential system-wide risk to financial stability (FSB, 2025; Schoenmaker et al., 2015). From a macroprudential supervisory perspective, acting early to prevent the worst effects of climate change may be more prudent than trying to manage the consequences (Chenet et al., 2021).

Understanding system-wide risk and contagion

> **Recommendation E:** Aggregate the understanding gained from banks' risk mitigation strategies to understand systemwide risk and contagion.

Transition plans will give supervisors valuable insights into bank risk mitigation strategies. These strategies may include actions to transfer risk from debt to equity (see Chapter 2). While such strategies at the microprudential level may be effective, this transfer of risk could have significant macroeconomic consequences. Banks collectively deploying these strategies could force companies into liquidation. In other words, these strategies increase the probability that a 'delayed transition' scenario is compounded by adverse macroeconomic effects. Once properly understood, insights could feed into the calibration of macroprudential tools.

Calibrating macroprudential tools

> **Recommendation F:** Use the data provided through transition plans to calibrate macroprudential tools.

Despite the complexity of coordinating macroprudential tools across jurisdictions, several options exist to mitigate misalignment risk. One way to address this risk is systemic risk buffers (Bartsch et al., 2024; ECB & ESRB, 2023; Monnin, 2021). These represent extra absorption capacity demanded by the supervisor. As not all banks

are exposed to climate risk to the same extent, higher systemic risk buffers could be assigned to banks with larger exposures, to address risks where they are greatest (Monnin & Hiebert, 2023). At the same time, the buffers must not be too high, in order not to limit transition finance in presenting high-polluting companies with robust transition plans to lower emissions (Chaudhary, 2024; Ikeda & Monnin, 2024). Systemic risk buffers can also be calibrated to give incentives for banks to align with the transition and thus mitigate the build-up of climate risk for the system (Ikeda & Monnin, 2024).

Climate risks are also unevenly distributed among geographies and counterparties. Concentration limits for large exposures to polluting activities could address transition risk in the system. Capital charges, or even limits, could be placed on banks with such exposures (Monnin & Hiebert, 2023).

Supervisors could also consider introducing bank-specific limits for financed emissions. This tool could be understood as an absolute ceiling for financed emissions for a specific bank. This ceiling would then be reduced from a baseline year until 2050 in a step-wise manner, aligned with a pre-determined emissions trajectory (like IEA's Net Zero) (Schoenmaker & McKechnie, 2024).

Market conduct supervision

> **Recommendation G:** Evaluate whether publicly disclosed actions and targets are aligned with prudential transition plans and signal potential inadequacies.

The guidelines leave banks free to determine their own approaches towards the management of transition risk. Some risk mitigation actions will reduce misalignment, whereas others will not (see Chapter 2).

A market conduct issue could arise in the case of the latter. The guidelines require that banks develop one single comprehensive planning process that covers all regulatory requirements. Banks, under CSRD, have disclosed targets on how they intend to align with the transition to a sustainable economy, including attainment of net zero emissions by 2050.

There may be discrepancies between the various outputs of the transition planning process, namely the internal risk mitigation plans and the publicly disclosed alignment plans. Banks can choose a risk management strategy of accepting misalignment, whereas they publicly state they are steering towards alignment for their net zero strategy. The prudential supervisor will be the only authority to know this, as only they will see the prudential transition plans and supporting evidence.

There is no easy solution for this. It is not the role of the prudential supervisor to request changes to publicly disclosed plans. Prudential and market conduct supervisors would need to find a way to collaborate, whilst respecting Chinese walls that may exists between them. EU jurisdictions vary as to how prudential and conduct supervision is organised. So each jurisdiction may have to find a different solution to this problem.

Although these may initially manifest as a question of market conduct, there is a fundamental underlying question: can banks that plan to remain misaligned in their portfolios ever manage transition risk sufficiently? In practice there may be little leeway for them to do so.

Financial stability monitoring and policy advice

> **Recommendation H:** Provide policy makers a realistic assessment of the time-window remaining in which the objectives of net zero can be achieved within the boundary of financial instability.

Given the nature of transition risk and the degree to which it depends on the policy measures of EU policy makers, it is important that supervisors regularly provide quantitative insights into the financial implications of misalignment. The Fit-for-55 stress test was a first step (ECB & ESAs, 2024). This 'one-off' exercise could be repeated at more regular intervals to gain insights into the financial stability implications of a disorderly transition that is even further delayed.[45] Moreover, this analysis could be expanded to include an assessment of the time-window remaining where the switch from a 'current policies' to a 'delayed transition' scenario can still be made within the boundary of financial instability.

[45] The Fit-for-55 stress test uses the 'Nationally Determined Contributions' scenario of the NGFS, combined with the 2023 EU-wide stress test scenarios. It is not clear what the related emission reductions are, but from the NGFS scenarios it is expected to be somewhere between the current policy scenario and the net zero scenario. This pathway represents an annual emission reduction somewhere between -2.3 to -4% (shown in Figure 3). Applying this methodology to the delayed transition scenario as of 2041, reflecting a much steeper emission reduction pathway (-7.3% percentage points illustrated in Figure 4), would likely lead to higher losses.

5. CONCLUSION

To align or not to align? That is the question.

Misalignment with the EU's net zero objective exposes the banking sector to significant transition risk. With the EU Climate Law in place, this misalignment of banks' portfolios makes a delayed and disorderly transition scenario increasingly likely. The longer action is postponed, the larger the transition risk becomes, and the more banks contribute to rising system-wide physical risk.

Transition plans can be a powerful tool that add a forward-looking component to other climate risk management processes. There is a danger however that transition plans become a bottom-up, box-ticking exercise disconnected from the way banks actually make business decisions. This would increase the regulatory burden without meaningfully reducing transition risk.

A supervisory approach focussed on addressing misalignment can help avoid this pitfall. Without robust transition plans, supervisors will not have insights into banks' misalignment and associated risk. And without supervisory intervention, climate risk will continue to increase up to a point where it will inevitably result in financial instability.

Supervisors cannot directly force banks to align their portfolios, but they can assess robustness of the individual plans. This improves the transition plans as a risk management tool but will not overcome the disincentives and first mover disadvantages banks face. This classic market failure justifies regulatory intervention. Greater alignment requires top-down measures such as higher capital charges for misaligned activities.

This represents a significant shift in capability and thinking and may feel uncomfortable, especially when today's political agenda is dominated by concerns

around competitiveness and geopolitics. There is a school of thought that misalignment is a political construct best solved by politicians. Yes, appropriately calibrated carbon taxes and other measures taken by governments are often considered to be the most effective measures to steer the transition. But the reverse is not true. The absence of these policy measures does not negate the supervisory financial stability mandate. Thankfully, EU prudential supervisors are politically independent and mandated to do what they must.

The benefits are substantial. A steady transition not only reduces the likelihood of catastrophic climate outcomes, but also enhances Europe's energy independence and strengthens long-term economic competitiveness. Once economies have transitioned, both transition risks and costs fall away. Supervisors have the mandate and tools for closing the gap indeed.

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