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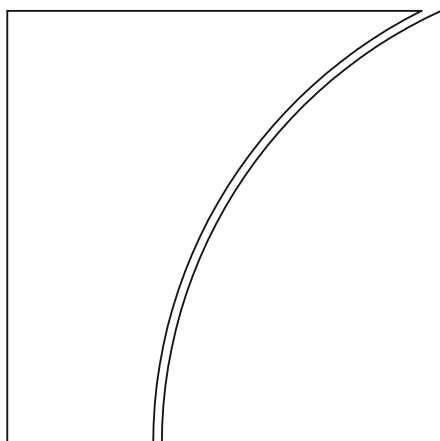
The rising tide of climate finance – scope to adjust prudential treatment

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Abstract

The interconnection between the climate change crisis and environmental degradation presents an urgent need for economies and businesses to transition towards more sustainable practices. This transition is essential not only to mitigate climate change but also to slow or reverse environmental degradation. For this shift to take place, substantial climate finance is required. A significant portion of this financing will need to come from the private sector, particularly from financial institutions such as banks, asset managers and investors.

As the demand for climate finance grows, a transformation in the financial sector is expected. Financial institutions' engagement in this transition will largely depend on their financial soundness as well as on the availability of resources and the incentives in place to make such involvement worthwhile. Arguably, institutions' solvency, resources and incentives are all dependent on the policy framework. Consequently, a key question arises: how can policymakers and regulators develop frameworks and policy measures that support financial institutions' involvement in climate finance while still addressing the risks posed by those activities on their safety and soundness?

Within their mandates, central banks and supervisors have a variety of policy options at their disposal to discharge their traditional financial stability and safety and soundness mandate, anticipating the increased exposure of financial institutions to climate-related financial risks. They may even adopt a more proactive stance, directly supporting a smooth transition process on grounds that transition risks can threaten the safety and soundness of financial institutions and the financial system. Those actions require the review of the existing regulatory and prudential toolbox, which may not capture the specificities of climate-related risks and opportunities.

It is crucial that financial regulations remain adaptable and fit for purpose as financial institutions' risk profiles evolve. As financial institutions engage more deeply in climate transition finance, their exposure to risks associated with climate change will change. Regulatory frameworks must be designed to accommodate these shifting risk profiles. This will facilitate a smooth transition that both supports financial stability and mitigates the pressing climate and environmental challenges.

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The rising tide of climate finance – scope to adjust prudential treatment

Section 1 – Introduction

Over the past centuries, global prosperity as measured by GDP growth has increased for all regions of the world. There have been unprecedented increases in the standard of living. The steam engine, the lightbulb, automobiles and the internet all contributed to this progress. Private enterprise and the financial sector accompanied these discoveries. Thomas Edison was backed by J P Morgan and members of the Vanderbilt family, for example.¹ Access to capital and a financial sector willing and able to take risks have fuelled global development.

Growth was accompanied by large emissions of carbon dioxide (CO₂) and other greenhouse gases (GHGs) as a result of the industrialisation which helped feed and provided power to rising populations.² Since the 1990s, global CO₂ emissions have increased by more than 60%.³ Methane traps more heat in the atmosphere per molecule than CO₂, making it 80 times more harmful than CO₂ for 20 years after it is released.⁴ It is responsible for more than 25% of current global warming. The largest sources of methane are agriculture, fossil fuels and decomposition of landfill waste.

Increased emissions are slowing GDP growth. By some estimates, 1°C of atmospheric warming reduces world GDP by 12%.⁵ The impacts of climate change on the environment are growing exponentially. Since records have existed (174 years), 2023 was the warmest year on record. Countries, businesses and the financial sector are deploying more resources to respond to catastrophic events which are being exacerbated by climate change. Gallagher (2024) estimates that in 2023, the total economic costs of direct physical damage and from business interruption due to global natural catastrophes was \$357 billion, of which \$123 billion was insured. The damage caused was comprehensive, involving properties, job and wage losses, crops, infrastructure, interruption of the supply chain, port closures and flight delays or cancellations.

The combined impact of climate change and environmental degradation is threatening lives and livelihoods across the globe. Coral reefs are bleaching, and Antarctica is warming, with the risk of causing significant sea level rises, flooding and massive damage to coastal and island populations.⁶ Humanity has crossed six of nine “planetary boundaries” – the safe limits for human pressure on the nine critical processes which together maintain a stable and resilient Earth.⁷ Wildlife populations have declined by 69% on average since the turn of the century.⁸ These climate and natural disasters are adversely affecting economies and financial systems in many jurisdictions.

¹ Morris (2019).

² Food Systems Economic Commission (2023).

³ Statista (2024).

⁴ See UNEP (2022).

⁵ See NBER (2024).

⁶ See UCAR Center for Science Education (2019).

⁷ www.stockholmresilience.org/research/planetary-boundaries.html.

⁸ See Bartels (2023).

Climate change poses threats to the safety and soundness of financial institutions and financial systems globally. International standard-setting bodies and major financial authorities⁹ have acknowledged that climate and nature-related risks are a source of financial risk. Some studies have placed the “climate value-at-risk” of global financial assets at 1.8% of total assets according to a business as usual hypothesis,¹⁰ amounting to \$2.5 trillion based on a representative estimate of global financial assets.

Significant resources are needed to address climate and environmental challenges. Economies and certain businesses must transition in order to slow or reverse climate change and environmental degradation – and for this to happen, they need financing. The IMF (2023) estimates that by 2030, the world needs \$5 trillion per year of climate mitigation investments in order to reach net zero by 2050 (a key target in order to meet the Paris Agreement temperature increase goals to avoid adverse climate change impacts). Financial sector regulators have been focusing on how climate-related financial risks can affect the safety and soundness of financial institutions. As financial institutions become more involved in supporting climate and nature financing, financial sector regulators are paying closer attention to the risks that such activities entail.

Climate finance¹¹ is a key pillar of the United Nations Framework Convention on Climate Change’s (UNFCCC) finance architecture. Climate finance is needed for mitigation, because large-scale investments are required to significantly reduce GHG emissions. Climate finance is equally important for adaptation, as significant financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate.¹² Climate transition finance, on the other hand, is any form of financial support that helps decarbonise high-emitting activities or enables the decarbonisation of other economic activities, as defined by UNFCCC. Transition finance includes funding and financial instruments designed to support industries, sectors and economies to lower their emissions or the emissions of their supply chains or customers, or emissions of the broader economy.

Most financial institutions break up their climate finance activities into three categories:

- Business as usual investments. These are activities for which banks do not measure any climate-related metrics and focus solely on the risk-adjusted rate of return of the investments. These activities still represent the majority of most financial institutions’ balance sheets.
- Investment activities that align with the Paris goals and measure certain climate-related outcomes. These are activities that aim to contribute to the goal of achieving net zero emissions by 2050. In practice, that means reallocating capital from activities that emit carbon and degrade the environment to zero-carbon alternatives. Any exposure to carbon-intensive companies must focus on those with credible, ambitious climate targets.
- Impact investments. These are investments that deliberately seek to influence climate outcomes. These investments generate benefits for society while at the same time delivering a financial return. Impact investment combines maximising financial returns with investors’ need to achieve specific social objectives such as increasing access to energy.

Understanding the nature of climate investments and the mix of related instruments deployed by banks is critical to protect banks’ safety and soundness. Climate-related investments seek financial

⁹ In a September 2023 [speech](#), ECB Executive Board Member Isabel Schnabel further emphasised that climate change, brings “significant financial risks” with it, and warrants “special supervisory attention”. See also Bolton et al (2020) and NGFS (2019).

¹⁰ See Dietz et al (2016).

¹¹ Despite the growing body of work on climate finance, no commonly agreed definition of the term currently exists. The common characteristic of climate finance is the ambition to align with the Paris goals while aiming for market rate risk-adjusted financial returns.

returns and constitute an element of exposure and risks to financial institutions. In some cases, investments are being made in assets which could become stranded if there is a shift in policy, while some investments in new technologies may never become fully profitable over time.

Financial institutions can play a critical role in supporting climate finance by funding the necessary transitions towards a more sustainable economy. Importantly, their climate finance activities must be underpinned by effective management of their climate-related financial risk exposures. Ensuring that financial institutions can support climate finance without compromising on their safety and soundness requires thoughtful policy frameworks. Policymakers can create an enabling environment that allows financial institutions to contribute to climate goals while safeguarding their financial soundness, thereby aligning the financial sector's objectives with broader sustainability imperatives.

This paper describes how banks can support climate finance, the associated risks and how such risks can be addressed in prudential frameworks. As banks increase their climate finance activities, prudential regulators may need to assess how their risk profiles might evolve under possible future transition scenarios. Section 2 outlines how banks can be involved in climate finance and the key risks associated with such activities. Section 3 outlines the prudential treatment of such activities, and Section 4 proposes the possible regulatory objectives of such prudential treatment.

Section 2 – Banks' involvement in climate finance and risks arising

Most climate finance will need to come from private capital. Given the significance of the funding gap (the IMF estimates that funding needs to increase fourfold in emerging market and developing economies)¹³ and that current investments or funding from the financial sector are limited, more will be asked of the financial sector as transition activity accelerates across the globe. Global momentum is building to push and incentivise private capital to close the funding gap, including on the part of policymakers, governments, international financial institutions and even some central banks and financial regulators.

Financial institutions play a pivotal role in how climate finance is mobilised and deployed. In particular, they can provide funding for projects aimed at reducing climate change and preserving natural ecosystems, supporting countries and corporations with their transition. The financial sector is expected to be responsible for most of the financing required as 80% of GHG emissions emanate from G20 countries with active financial sectors. Brazil, China, India, Europe and the United States account for the largest share of emissions.¹⁴ In 2023, commercial financial institutions provided an estimated \$235 billion of climate finance.¹⁵ On the debt front, for example, the climate debt market was worth \$4.4 trillion in 2023.¹⁶ Financial institutions were the second largest issuer type, with a 28% share of aligned green volumes.¹⁷ Energy, buildings and transport remained the three largest use of proceeds categories, collectively contributing 75% of the green debt volume for the financial sector.

Parallel comparisons can be drawn between innovations in climate finance and innovations in the mortgage sector prior to the Great Financial Crisis – they can fuel unprecedented growth or deliver a crisis.

¹³ See Ananthakrishnan et al (2023).

¹⁴ See Friedrich J et al (2023).

¹⁵ See Climate Policy Initiative (2023).

¹⁶ See Climate Bond Initiative (2024).

¹⁷ See Climate Bond Initiative (2024) for definition of aligned green volumes.

The challenge for regulators is to find the right balance between making it possible to finance the climate transition at the speed and scale needed to protect the planet and deliver sustainable growth and protecting the financial system from a climate-induced crisis. While these innovations can mobilise vast amounts of capital towards sustainable projects that are crucial for mitigating climate change, there could be unintended consequences in terms of heightened risks for financial institutions.

The introduction of new financial instruments and products designed to support climate finance, such as green bonds and sustainability-linked loans, brings with it the risk of complexity and possible opacity. If not properly regulated and understood, these instruments could lead to mispricing of risk and the creation of financial bubbles, reminiscent of the subprime mortgage crisis. Another trade-off is the potential for financial instability that rapid and large-scale shifts in investment priorities might cause. For example, the reallocation of capital away from traditional industries towards green projects could lead to asset price volatility, stranded assets and increased credit risk. This could destabilise financial institutions that are heavily exposed to high-carbon sectors, potentially triggering a broader financial crisis.

On the other hand, there is significant alignment between funding the climate transition and preserving financial stability. Investing in sustainable projects can enhance long-term economic resilience by reducing the physical and transition risks associated with climate change. For instance, financing renewable energy projects can reduce dependency on fossil fuels, thereby mitigating the economic impact of volatile oil prices. Similarly, investments in climate-resilient infrastructure can protect communities and economies from the devastating effects of extreme climate-related weather events, reducing the potential for large-scale financial losses.

Prudential regulators need to understand how climate finance can expose banks to various risks. BCBS (2021) provides a framework that banking supervisors can use to identify risks faced by banks arising from their climate finance activities. It describes how banks and the banking system can be exposed to climate risk drivers through traditional risk categories. For example, transition risk drivers (government policy, technological change, consumer sentiment) can be transmitted through microeconomic channels (households, corporates, sovereign), leading to increased credit risks for banks (eg through their lending portfolios).

The mixed findings from various studies call for a cautious approach to generalise risk assessment of specific climate finance activities. Empirical studies show mixed results in terms of whether climate finance can benefit banks or expose them to more risks. Neagu et al (2024) cited empirical studies that showed positive impact of green lending on banks' financial performance and credit risk. Nevertheless, their study of the Romanian green loan market concluded that there is no definitive evidence that green loans have lower risks than non-green ones.

Climate finance can expose banks to heightened financial risks through several transmission channels. The nature of risks depends on the type of climate finance – GFANZ (2022)'s classification of the different types of climate finance can be used to identify how banks can be exposed to financial risks arising from their climate finance activities, as summarised in Table 1:

Examples of how different types of climate finance can expose banks to financial risks

Table 1

Climate finance type	Description	Example of risk exposure to banks
Climate solutions	Financing or enabling entities and activities that develop and scale climate solutions	The financed new green technology may not be successful. There could be new risks from such technology that were not reflected in the financing conditions.
Aligned	Financing or enabling entities that are already aligned with a 1.5°C pathway	Companies may face operational and financial challenges, including increased costs for compliance, technological upgrades or shifts in market demand. This can affect their profitability and, consequently, their ability to repay loans, increasing the risk of default.
Aligning	Financing or enabling entities committed to transitioning in line with 1.5°C	Companies that fail to transition effectively or quickly enough might face reputational damage or legal challenges, especially in industries where stakeholders demand swift action on climate change. This can lead to reduced creditworthiness or even default, affecting banks portfolios.
Managed phase-out	Financing or enabling the accelerated managed phase-out (eg via early retirement) of high-emitting physical assets	The high-emitting physical assets lose value faster than anticipated, potentially leading to stranded assets. If these assets are used as collateral, their devaluation could result in credit losses for banks.

Greenwashing risk arising from climate finance activities of banks is another major prudential concern. NGFS (2023) highlights that litigation related to greenwashing is one of the most common forms of climate-related litigation against financial institutions and that its upward trend can be expected to continue, especially due to increasing regulatory oversight of firms' climate-related disclosures. EBA (2023a) observes a clear trend of increasing allegations of potential greenwashing against banks. Banks can be exposed to greenwashing risk by making misleading statements about the sustainability characteristics of their climate finance activities, or the sustainability results or real-world impact of those activities or their future sustainability commitments. A concrete example is providing "green retail loans" that are not used to finance activities that qualify as being "green" according to any recognised taxonomy. A global framework of interoperable taxonomies is essential to provide certainty and consistency in investment and financing, supporting the harmonisation of prudential standards and enhancing risk management in the financial sector.¹⁸

The nature of banks' climate finance risk exposures may vary depending on possible future growth paths. There are at least three possible future scenarios that can be considered, each of which can expose banks to different prudential risks:

Scenario 1: Green Winter

In the Green Winter scenario, governments pursuing accelerated growth renege on their commitments to climate transition, effectively giving up on net zero policies. This results in a significant impairment of climate finance as green assets such as climate solutions, aligned and aligning finance instruments fall out of favour and are replaced by brown assets. Consequently, green loans, and climate finance more broadly, begin to underperform, leading to losses for banks and other investors. On the other hand, managed

¹⁸ See G20 (2024).

phase-out financing would not suffer losses. The extent to which this scenario poses a risk to financial stability largely depends on the size and concentration of these climate finance exposures. In the short term, the impact might be relatively manageable. However, in the longer term the failure to transition increases climate-related physical risks, potentially leading to more severe financial consequences.

Scenario 2: Green Acceleration

The Green Acceleration scenario envisions a situation in which governments rapidly advance their climate transition efforts, but at a pace that outstrips the growth of green investments. In this scenario, brown assets and managed phase-out finance become stranded, and investments in these assets are impaired, due to eg imposition of punitive carbon taxes by governments. Meanwhile, climate finance, including climate solutions, aligned and aligning finance instruments, yields healthy returns as the demand for green investments rises. However, the swift transition outpaces the development of green infrastructure – such as clean energy – resulting in energy shortages and price volatility. A precursor to this scenario was observed during the early stages of the Ukraine conflict. Although climate finance benefits from this accelerated transition, the overall outcome for economic growth is negative due to the associated energy shortages and market instability.

Scenario 3: Green Goldilocks

The Green Goldilocks scenario represents a low-risk, ideal outcome where climate finance is extended at a rate that perfectly aligns with government transition policies. In this scenario, the transition proceeds smoothly, similar to projections in central bank climate scenarios. Brown assets are gradually phased out, managed phase-out finance does well and climate finance (climate solutions, aligned and aligning finance instruments) in aggregate proves to be profitable. As a result, climate risks are effectively mitigated, leading to a positive outcome for both the environment and the economy. However, achieving this scenario would require firm and coordinated commitments by governments to the net zero transition, instilling sufficient confidence in investors to extend just the right amount of climate finance. Despite its appeal, this scenario is considered the least likely due to the high level of coordination and commitment required.

In all likelihood, the future will probably oscillate between the two extremes, combining elements of both the Green Winter and Green Acceleration scenarios. In this combined scenario, governments intermittently drive the climate transition forward, akin to the post-COP26 period when advanced economies made significant strides towards net zero targets and initiatives like the Glasgow Financial Alliance for Net Zero (GFANZ) were formed. However, due to the short-term nature of political cycles and the fragility of commitments, climate finance struggles to keep pace with the rapid changes. As energy shortages and price volatility emerge, governments shift their focus towards avoiding economic recessions, leading to a partial or complete reversal of net zero pledges. This shift results in a reversion to brown energy sources, similar to what occurred in Europe in 2022. Over time, as new leaders are elected and public pressure mounts for renewed progress on climate goals, the cycle repeats, swinging back to an accelerated transition effort. In this oscillating pattern, the world experiences periods of heightened net zero commitments followed by setbacks, with climate finance continuously playing catchup. The cyclical nature of this scenario presents significant challenges for maintaining a stable and consistent approach to climate finance and the broader economic transition.

Section 3 – Prudential treatment of climate finance

Currently, climate finance instruments receive the same treatment under international prudential regulatory framework as any other financial instrument. International standards on banking supervision¹⁹ require financial institutions to hold capital in order to absorb losses, with the size of such requirements reflecting the relative risk of different instruments. One of the main reasons for the lack of differentiation in prudential capital requirements is the lack of evidence that climate finance instruments have a lower risk profile, as well as difficulties in calibrating regulatory capital requirements due to data and methodological challenges.²⁰ Box 1 describes practical challenges in using GHG emissions as a metric to measure transition risks.

Nevertheless, some jurisdictions have introduced differentiated regulatory capital requirements for such climate finance. For example, Magyar Nemzeti Bank (2020) introduced Pillar 2 preferential capital requirement treatment for energy-efficient mortgages and personal loans. The central bank acknowledged that, while it does not have a primary environmental goal, its mandate in terms of promoting safe, stable and fair operation of financial market actors justifies its action in supporting the green direction of the financial system.²¹ This is because it considers that environmentally irresponsible lending will eventually lead to credit, reputational and other business risks. In 2021,²² it expanded its Pillar 2 preferential capital requirements for green corporate and municipal financing. The objective of this policy is to encourage banks to increase their green or environmentally sustainable investment holdings in order to mitigate exposure to transition risk.

Some financial authorities have considered – but not enacted – lower regulatory capital requirements for climate finance instruments in order to explicitly support climate finance. In the EU, surveyed banks in EBA (2023b) thought that lowering capital requirements was one of the most important incentives to encourage origination of green loans. Nevertheless, there are opposing views on the extent to which regulatory capital requirements can – or should- be used to expand banks' climate finance activities in lieu of environmental objectives. Even absent regulatory incentives, other factors such as strong investor demand, government incentives and the financial potential from new technologies can push banks to intensify their climate finance activities. Banks' transition plans can provide useful supervisory information on their climate finance activities.²³

Another view is that capital rules for climate finance should remain faithful to risk-based prudential objectives. For instance, on banks' investments in green bonds, a lower capital requirement for credit risk can be justified if there are data to show that the default risk of green bonds is lower than other bonds. Similarly, for green loss-absorbing instruments issued by banks that are intended to support climate objectives,²⁴ the recognition of such instruments as regulatory capital can be made if there is sufficient data or evidence to show that such instruments are able to absorb banks' future losses.

¹⁹ See Core Principle 16 in BCBS (2024).

²⁰ See NGFS (2022).

²¹ See Magyar Nemzeti Bank (2019).

²² See Magyar Nemzeti Bank (2021).

²³ See INSPIRE (2023).

²⁴ See eg BBVA (2024).

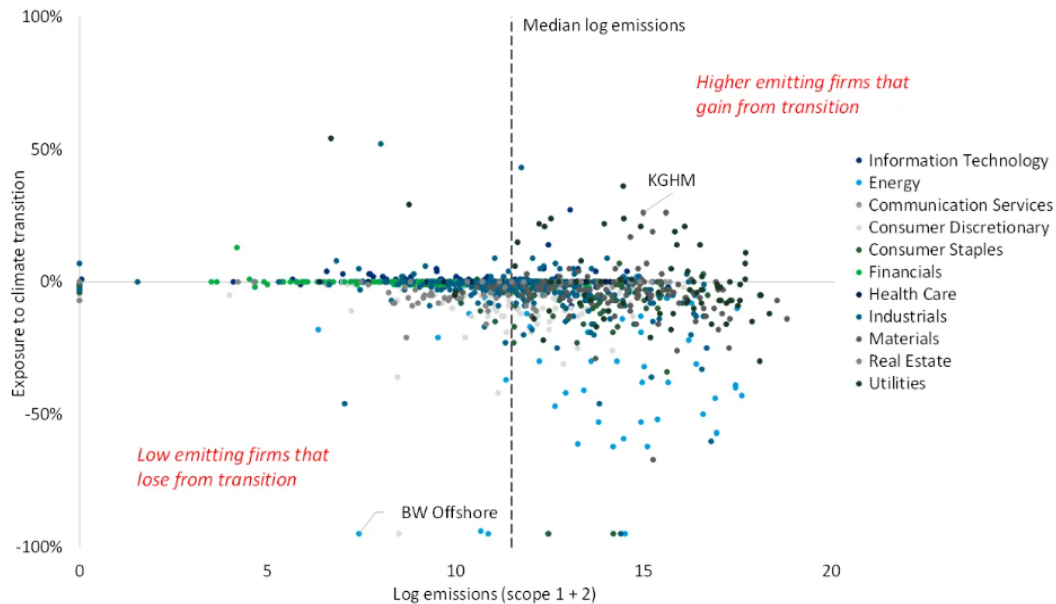
Limitations of GHG emissions as a metric to measure climate transition risk

GHG emission is a metric that measures an entity's contribution to climate change. Yet firms' GHG emissions do not provide a comprehensive indicator of banks' exposure to risk or opportunity as a result of the net zero transition, nor how they may contribute to this transition in the wider economy. This is for several reasons:^①

- First, the reporting of GHG emissions is subject to systematic gaps. For example, a software company serving firms in the oil and gas industry might report only very limited emissions, but to the extent that demand for its services is likely to reduce under a climate transition scenario, it might be exposed to substantial climate transition risk. Even Scope 3 emissions – which seek to reflect emissions arising from the entirety of firms' value chains – struggle to capture emissions arising from activities of firms that use a product or service, and are subject to various data gaps.
- Second, current and historical GHG emissions – whatever their scope – are backward-looking and give only limited insight into future changes in firms' business models. Future changes in firms' emissions can be a crucial determinant of the transition risk to which they are exposed. For example, a manufacturing firm that is currently heavily reliant on energy from fossil fuels might be planning to switch to using renewable energy.
- Third, even if the above measurement issues were resolved, firms' current (or future) emissions do not correlate with their exposure to transition risk. This is partly because some firms might experience a large increase in the cost of emissions, say as a result of the imposition of a carbon tax, but nonetheless still see continued (or increasing) demand for their products (price inelasticity of demand), or otherwise be able to pass through increased costs without affecting profitability. For example, higher-emitting firms in less competitive industries with few ready alternatives to their products might face relatively small reductions in their profit margins as a result of the transition. Consumers are likely, for example, to continue to use long-haul air travel to some degree, even in the face of a substantial tax levied on the associated emissions, due to the lack of low-emissions alternatives to long-haul air travel (at least in the short to medium term).

Emissions-based metrics also do not provide a direct measure of the degree to which a financial institution is facilitating longer-term transition in the wider economy. For example, firms involved in mining lithium or cobalt for batteries might give rise to high emissions in the near term. But, because the materials they extract are enabling reductions in emissions elsewhere in the economy – eg via the manufacture of batteries for electric vehicles – a financial institution's funding of such activities might both represent a profitable investment opportunity (rather than transition risk) and facilitate transition in the real economy.

Graph 1 below illustrates the lack of correlation between firms' emissions and climate transition risk. It compares the Scope 1 and 2 emissions of firms in the FTSE all-world equity index with climate transition value-at-risk – an estimate of the change in firms' enterprise value that would result from a universal belief by investors that the world is aligned to a scenario of well below 2°C temperature increase scenario for global warming. It is clear from the graph that there is little to no correlation between firms' emissions and transition risks. In particular, some firms are high-emitting, yet also likely to gain from transition (ie their enterprise value is estimated to increase in a well below 2°C scenario). This includes firms whose activities, though they are high-emitting, enable transition elsewhere in the economy – eg firms engaged in the mining of materials that are likely to play a critical role in enabling climate transition.



Source: Lastra et al (2004).

① For a fuller discussion of the difference between firms' emissions and climate-transition risks, see Noss (2022).

Section 4 – Possible objectives of prudential treatment of climate finance

Any possible change to the prudential regulatory framework must be carefully predicated on consideration of its objective; that is, what it aims to achieve in offering greater support to climate finance. Such objectives might include:

- increasing firms' resilience to transition risks (or conversely, recognising that climate finance instruments are less susceptible to such risks and so therefore deserve more lenient treatment).
- supporting provision of finance to firms that are lower-emitting.
- supporting finance that enables a reduction in emissions in the wider economy, even if the firm to which it is extended is currently high-emitting.

Crucially, these objectives – and the firms that would probably receive finance on more favourable terms under each – differ substantially. As discussed in Box 1, firms' GHG emissions bear little, if any, correlation to their transition risks, or the degree to which they support transition in the wider economy. Some firms, for example those engaged in the extraction of critical minerals, might be quite high-emitting. But to the extent that demand for such commodities is likely to increase under transition due to their use in emissions-reducing technologies such as electric vehicles, they might benefit from climate transition, rather than be at risk from it. Table 2 summarises the advantages and disadvantages of these three possible prudential objectives.

A summary of the advantages and disadvantages of a prudential treatment with different objectives

Table 2

Objective	Advantages of prudential treatment based on this objective	Disadvantages of prudential treatment based on this objective
(i) Ensuring resilience to transition risks	<ul style="list-style-type: none"> Objective aligned with that of existing regulatory frameworks, reflecting financial risk and opportunity 	<ul style="list-style-type: none"> Relatively hard to measure transition-related risks and opportunities, and few objective metrics through which to do so
(ii) Emissions reduction	<ul style="list-style-type: none"> Relatively simple to measure emissions (at least Scope 1 or 2) Closest to taxonomy-based approach 	<ul style="list-style-type: none"> Unlikely to accurately reflect financial risks and opportunities May disincentivise extension of climate finance to firms that enable transition in wider economy, yet are themselves higher-emitting
(iii) Facilitation of transition in real economy	<ul style="list-style-type: none"> Most aligned with the social aims of climate finance – to enable climate transition in the real economy 	<ul style="list-style-type: none"> Likely prone to gaming (hard to determine objectively the degree to which different firms facilitate transition elsewhere in the economy)

Taking these three objectives in turn, a regulatory objective that seeks to address financial institutions' resilience to transition risks is aligned to existing safety and soundness aims but may face implementation challenges. In particular, such an approach meets with disclosure and measurement difficulties. While there are some measures of firms' exposure to climate transition risks, these tend to be relatively complex – since they need to capture the myriad ways in which firms might gain or lose as a result of climate transition.²⁵ The measures typically also require a degree of judgment, making them less open to the sorts of external verification that might be required of a metric used in a prudential regulatory framework. Using standardised disclosure metrics and harmonising their interoperability across industries and reporting institutions could improve the relative measurement of risks and subsequent regulatory treatment.

An emissions-based regulatory focus – which supports climate finance that reduces firms' actual or financed emissions – would, in many ways, be the easiest to implement. There are relatively well developed metrics of firms' (at least Scope 1 and 2) emissions. A prudential treatment could therefore be designed to capture the emissions to which financial firms are exposed, including their exposure through climate finance. That said, such an emissions-based prudential objective for climate finance would be a departure from the objectives of existing regulatory frameworks, which mainly focuses on firms' risk exposures. In addition, such a regulatory objective might disincentivise climate finance being extended to firms that make a positive contribution to reducing emissions in the wider economy, yet are themselves relatively high-emitting.

A regulatory objective that focuses on facilitating transition in the real economy seems most aligned with the social aims of climate finance: to enable transition to lower emissions in the wider economy. While such an objective would be a departure from the risk-based focus of existing regulation, it would avoid the pitfalls of too narrow a focus on firms' emissions. That said, such an objective would also suffer from measurement issues. Measurement of the degree to which a firm – or its products or investments – enables transition in the wider economy is likely to be quite complex, and necessitate a degree of judgment. Such a measure might also be open to gaming by financial firms. For example, in all but the most radical of transition scenarios, it is likely that the global economy will require some higher-

²⁵ See Rismanchi et al (2023).

emitting products and energy for some years, even despite transition to lower emissions. Financial firms might therefore have incentives to claim that even investments that would generally be regarded as not in keeping with climate transition – such as those in higher-emitting sources of energy – were playing some role in enabling transition in the wider economy. Such incentives, combined with a lack of objectivity, might make such an objective hard to enforce from a prudential perspective.

As such, regulators need to carefully bear in mind the objectives of any change to the prudential regulation of climate finance in order to avoid unintended consequences– both for individual firms’ risk management, and for broader climate transition. If a more lenient (stringent) capital treatment were applied to lower- (higher-) emitting entities, this might incentivise financial firms to reduce their exposure to higher-emitting industries, even where such investments might be profitable during transition. In addition, this might risk slowing transition in the real economy, or making it less orderly – at least to the extent that certain activities which are high-emitting can play a valuable role in enabling lower emissions elsewhere, or are in hard-to-abate sectors which will be necessary during the transition.²⁶

Section 5 – Conclusions

There is an increasingly intricate relationship between global economic growth and environmental sustainability. Over the past century, significant economic growth came with the unaccounted cost of rising GHG emissions, which are now posing substantial threats to the global economy and the environment. The pervasive impacts of climate change across all nations and the growing financial instability in certain sectors highlight the urgent need for coordinated action in both climate mitigation and adaptation efforts.

A major transformative change in the financial sector is likely to take place, with financial institutions becoming heavily involved in supporting climate finance. As potential primary funders of climate transition, financial institutions are at the forefront of the global effort to mitigate climate change and drive the transition to a sustainable economy. Nevertheless, their involvement exposes them to significant risks, which are complex and multifaceted depending on possible future potential transition scenarios.

As climate finance innovation takes off, there is a need to review regulatory frameworks to ensure they are flexible enough to capture new risks and to avoid unintended consequences. Potential new risks may emerge from climate finance innovation, such as the trading of carbon credit derivatives. The 2007–09 Great Financial Crisis offers a crucial lesson in this regard, as financial innovation such as complex mortgage derivatives played a significant role in precipitating the crisis. As climate finance innovation evolves, there is a risk that without proactive regulation, these innovations could give rise to new risks that are not well reflected in existing regulatory frameworks. Forward-looking regulation is essential to identify, assess and mitigate these risks before they can materialise, ensuring that the pursuit of climate finance does not inadvertently lead to another financial crisis.

In response to the potentially transformative change in the financial sector, policymakers, financial authorities and standard-setting bodies are well advised to be prepared. Central to this is to understand how the risk profiles of financial institution might change as a result of their involvement in climate finance under the different possible future transition scenarios. Any regulatory adjustments must be carefully calibrated to avoid unintended consequences, such as a departure from the risk sensitivity of capital requirements or disincentivising investments in sectors that are critical to the transition but may currently have higher emissions.

²⁶ The trade-offs are discussed in Coelho and Restoy (2023).

Ultimately, the successful integration of climate finance into the global financial system requires a delicate balance. Financial institutions should remain resilient to climate-related risks while also supporting climate finance in order to contribute to broader goals of sustainability and climate transition.

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