IIF Staff Paper: *Resetting the debate on the role of private finance in the net-zero transition*

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Key Messages for Policymakers

The global financial sector, non-financial firms, policymakers, regulators, and civil society broadly share a common objective of achieving a just transition towards a net-zero economy in line with science-based goals to limit global warming. However, the experience of recent years has shown the complexity of achieving climate goals, particularly when governments are faced with a polycrisis of interlinked economic stressors, including geopolitical, energy and other price shocks as well as record high global debt levels.[1]

Ambitious, consistent and credible policy measures are a fundamental pre-condition for a pro-growth net-zero transition to take shape, including for hard-to-abate sectors. The transition will be a journey, not a moment in time – and progress depends on economic prosperity, without which the journey will take longer, be harder and could generate social unrest. Policy measures are needed to provide incentives that improve the risk-return profile of transition technologies and innovations while addressing infrastructure needs and broader demand-side barriers. While economy-wide climate policy measures, such as pricing of greenhouse gas (GHG) emissions are critical levers in the policy toolkit, they remain under-deployed and insufficiently ambitious. As a result, many policymakers, regulators, and civil society actors have focused significantly on the role of the financial sector, and in particular, on regulated private financial institutions.

Decarbonizing the global economy will require significant investment across a wide range of sectors and markets around the world.[2] The financial industry can enable this investment, but capital will only move in support of net zero goals at scale when the economics make sense.[3] While the financial industry is strongly supportive of global climate goals, it is an enabler of the transition—not its sole driver. The success of financial sector efforts to support the real economy transition remains fundamentally contingent on real economy dynamics; private sector financial intermediation can only support economic transformation if the business case for transition investment is strong, demand for transition finance is evident, and market signals are clear. Consequently, a critical policy priority should be to create clear incentives for—and not obstruct—the transition of high-carbon sectors and firms towards lower-carbon trajectories, including in emerging market and developing economies (EMDEs). There should thus be a clear recognition of the need for ongoing financing to such industries and firms, and an understanding that this type of financing will, in the short term, adversely impact metrics such as financed emissions, which stakeholders often use to assess the financial industry's contribution to meeting climate goals.

However, these realities are often not reflected in common perceptions of the financial sector's role in the net-zero transition. Of particular concern is the increasingly prevalent view that financial institutions can and should *drive* action in the real economy, which ignores the fundamental importance of pre-conditions that make business model decarbonization economically viable for real economy firms, and overestimates the capacity of financial institutions to influence client, counterparty, and investee company decision-making. Not only is it not feasible for FIs to steer real economy decarbonization, it is also not appropriate. Governments should create policy to drive their jurisdiction-specific economic and climate-related objectives. That includes creating the right conditions to mobilize private capital.

The prevailing finance-centric "theory of change" for delivering the net-zero transition across the economy—which assumes that financial sector alignment with net zero goals will have a material impact on the decarbonization trajectory of the global economy—needs to be reassessed. Trillions of dollars in investment *need* do not equate to trillions in investment *opportunity.* Calls to increase private finance flows in support of climate goals will be ineffective if the economic fundamentals are not in place for corporates to transition.

Moreover, the development of regulatory and supervisory approaches based on a finance-centric theory of change may impede the financial sector's ability to support global transition. Regulation of the financial sector will not shift the economic fundamentals needed for real economy transition. Ideally, regulatory and supervisory approaches should focus on the prudential implications for financial institutions of the transition, while avoiding unintended consequences such as diminishing the flow of finance to sectors and countries in transition. Unfortunately, regulatory and supervisory approaches are becoming increasingly polarized and fragmented across jurisdictions. **We are particularly concerned about the following three trends:**

1. **Differences in approaches to transition finance,** including expectations on whether and how the financial sector should support the transition of carbon-intensive sectors across jurisdictions.
2. **Conflation of financial sector activities to support the net-zero transition** (e.g., transition plans) or net-zero alignment **with climate-related financial risk**.
3. **Overreliance on metrics based on financed emissions as risk indicators**, despite key conceptual and methodological challenges associated with such metrics particularly as a measure of transition risk (further discussed in section 3)**.**

It is time to reset the debate over what mix of policy, corporate, and financial sector action is needed to enable net zero-aligned—and aligning—business opportunities to develop and be financed. By so doing we can foster a better understanding of an appropriate role for the private financial sector, and the implications for the international regulatory framework.

The emphasis should be on scaling up transition activity and demand for transition finance across the real economy, alongside the development of new low-carbon technologies, sectors, and supply chains—and on improving the risk-return profiles of these investment

opportunities. The IIF proposes three key priorities for the way forward, which are further described in this paper:

1. ***Strengthening real economy policy frameworks and developing national-level transition strategies***
2. ***Ensuring that financial sector policy remains risk-based, and that it is not used as a substitute for broader net-zero policy measures***
3. ***Enhancing the international financial architecture in support of transition finance in EMDEs.***

1. Context: The urgent need for a value-creating, economy-wide approach to net-zero transition.

The global financial sector, real economy firms, policymakers and regulators, and civil society broadly share a common objective of achieving a just transition towards a net-zero economy; however, many indicators suggest that the world is not moving nearly fast enough to avert the risk of existentially threatening levels of global warming. While many private sector firms—financial and non-financial—are prioritizing climate goals and transition strategy, the global economy as a whole is still substantially misaligned with a net-zero pathway, and current policies in many jurisdictions do not appear to be sufficient to achieve the objectives of the Paris Agreement.[4] Some major jurisdictions have managed to partially decouple economic growth from increases in emissions in recent years (including the EU and the U.S.), and major emerging economies, including India and China, are beginning to follow suit.[5] However, global emissions continue to rise, and the rate of decarbonization needed to limit warming to 1.5°C appears increasingly unlikely to be achievable.[6] Increasingly severe and frequent physical climate impacts are set to weigh on global growth prospects and impact public balance sheets, which are already constrained in many countries.[7]

The current macroeconomic context – with lackluster global growth, political uncertainty, socio-economic tensions, and record high debt levels – presents serious challenges for policymakers wishing to quickly reorient economies towards a net-zero pathway. A more stable growth environment, with less volatile inflation and lower interest rates, can create more conducive conditions for the high-CapEx investments in new technologies and infrastructure needed to accelerate decarbonization. However, there is a non-negligible risk that rapid and uneven sectoral transition efforts may lead to potential "greenflation", lower employment in certain sectors, heightened inequality, and social tensions – which may reduce political willingness to deliver on climate goals.[8] Considering this, a key policy priority will be to create the enabling conditions for an economy-wide net-zero transition, in a manner which strengthens resilience, supports economic prosperity, and delivers equitable socio-economic outcomes.

Ambitious, clear, credible, and consistent government policy support is a fundamental pre-condition for a country's net-zero transition to take shape, including in hard-to-abate sectors. Such support is critical for corporates to be able to develop credible and coherent transition strategies, and for private investment and capital to be mobilised at pace. Without greater policy ambition, reflected in updated nationally determined contributions (NDCs) and national-level transition strategies, corporates will not have the right environment to plan significant and long-term investment.

The transition will be a journey, not a moment in time–successful progress depends on economic prosperity, without which the transition will take longer and risks being unstable and creating social unrest. Therefore, efforts to accelerate the transition need to start by creating the incentives and implementing the policy interventions needed to ensure a viable transition, through complementary supply and demand-side actions. Policy support is needed to provide incentives that improve the risk-return profile of transition-relevant technologies and innovations, while also addressing infrastructure needs (e.g., electricity grid modernization, provision of EV charging stations, etc.)[9] and addressing demand-side barriers. Beyond incentives, it is also critical to reduce administrative burden and simplify processes for the implementation of new technologies. As an illustration of the impact policy conditions can have, in 2023 the International Energy Association (IEA) recorded that the ratio of investment in clean energy to fossil fuels was around 1.7:1 in 2023, up from 1:1 five years earlier. The IEA attributed this to, among other factors, *"… enhanced policy support through instruments like the US Inflation Reduction Act and new initiatives in Europe, Japan, … China and elsewhere; a strong alignment of climate and energy security goals, especially in import-dependent economies; and a focus on industrial strategy…"*[10]

However, despite general recognition of the fundamental importance of appropriate policy support[11], a significant focus of policymakers, regulators, and civil society in the net-zero transition debate continues to be on the role of the financial sector – and particularly the role of regulated private financial institutions (or "FIs", both terms are used interchangeably in this paper). Decarbonizing the global economy will require significant investment across a wide range of sectors and markets around the world[12]—but capital will only move in support of net zero goals at scale when justified by economic fundamentals.[13]

Yet while our industry is strongly supportive of global climate goals, private sector financial intermediation can only support economic transformation if: (i) there is sufficient demand for transition finance[14] from businesses, households, and governments; and (ii) these projects are commercially viable and profitable. The number of FIs setting public targets to support the net-zero transition is growing, with many institutions developing plans and strategies to articulate climate goals and translate them into practical actions with accountability mechanisms. However, the success of FIs' efforts to align their portfolios and business models with net zero goals remains fundamentally contingent on real economy dynamics – including market demand from clients and counterparties for finance to support their transition goals. The investments in question must also be commercially viable, with risk-return trade-offs that are aligned with the appetite and strategies of different types of financial sector business models.

Despite these realities, the last 12 months have indicated that there is growing misalignment of expectations across the private sector, policymakers, regulators and NGOs/civil society for how financial institutions should support the net-zero transition. In particular, views diverge significantly on whether it is feasible or desirable for the financial sector to 'drive' real economy transition by 'front-running' the pace of decarbonization in key sectors of the economy. Recent debate suggests that many stakeholders are significantly overestimating the capacity of banks, insurers, and investors to either directly or indirectly influence the strategies and actions of clients, counterparties, and investees in regulated financial markets; capacity which is limited by the underlying economic viability of an activity, the dynamics of market competition and boundaries of commercial relationships.[15]

Considering the critical importance of achieving net zero for all economic actors and society at large, it is a key moment to reset the debate over what mix of policy, corporate, and financial sector action is

needed for net zero growth opportunities to develop and be financed – and to foster a better understanding of an appropriate role for the private financial sector in enabling this. This paper re-examines what we observe to be the prevailing "theory of change" guiding the debate on approaches to achievement of net zero goals and analyzes the key assumptions around the role of private financial institutions. We offer industry perspectives on the suitability of financial sector policy, supervisory, and regulatory approaches being advanced across jurisdictions, and we identify three broad policy options that could have the most meaningful impact on progress towards net-zero transition.

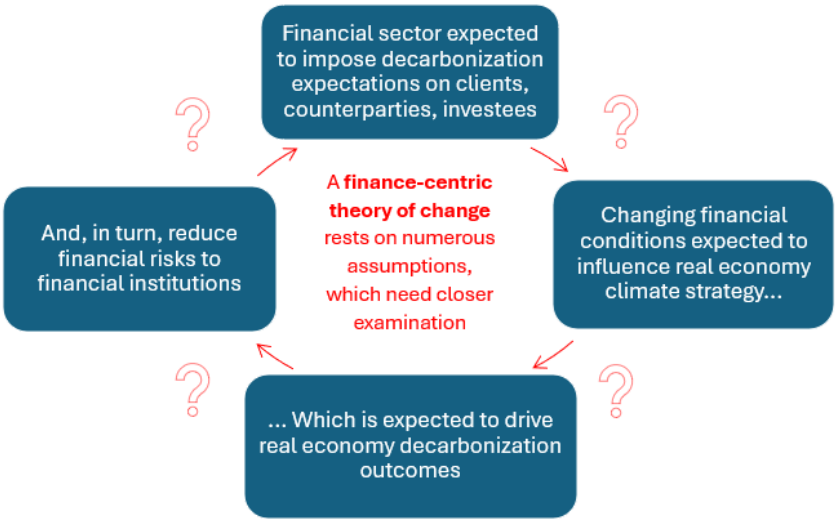
2. The prevailing finance-centric "theory of change" for achieving net-zero alignment across the economy needs to be reassessed.

A first step towards finding common ground is to assess the core theory of change and assumptions which appear to underlie the multitude of market-based and official sector efforts seeking to align the financial system with net-zero goals in order to mitigate climate change. At a conceptual level, this thinking appears to stem from the hypothesis that fully aligning financial sector activities and capital flows with sectoral transition pathways oriented to 1.5°C will significantly influence real economy decarbonization outcomes. Stemming from Article 2.1(c) of the Paris Agreement,[16] and subsequent reports on the need to achieve net-zero emissions by 2050, the focus on financial institutions' net-zero alignment has advanced organically through voluntary industry action, official sector engagement, and stakeholder advocacy, reflecting two key beliefs:

- Market-based action to encourage FIs to focus on the emissions of real economy companies they invest in, finance, and insure could serve as a parallel lever to motivate real economy decarbonization, even in the absence of adequate public policies – irrespective of the fact that private-sector action depends on the policy frameworks in place.
- Voluntary private-sector leadership within the financial system would positively influence the likelihood that ambitious public policies would be implemented and not divert focus from the need for such policies.

Since the development of the Paris Agreement, the methodological toolkit relating to net-zero alignment has broadened in scope and deepened in granularity, and a finance-centric theory of change has taken hold among many stakeholders. A stylized view of the thinking underlying the expectations for how the private financial sector could drive global real economy decarbonization is summarized in **Figure 1**.

Figure 1: Stylized depiction of how some stakeholders expect the private financial sector can drive real economy decarbonization globally



These expectations rest on a series of assumptions about financial institutions' and non-financial corporates' decision making, including the ways in which the financial sector can influence decision making in real economy firms. However, some of these assumptions do not fully withstand analytical scrutiny, and many require further research or reconsideration. Table 1 summarizes some key assumptions with an assessment of their validity based on financial sector practices, market data and academic research.

While this discussion is with reference to the financial sector at large, it is important to recognize that the levers through which FIs may be able to influence clients, counterparties, and investees vary depending on the business model of the FI and the terms of its commercial relationships with clients (e.g., via lending, equity investment, insurance underwriting, etc.).[17] As such, a bank's interactions with its clients (e.g., facilitating general-purpose financing and labelled instruments) are different to those of an asset manager's interactions with its investee companies (e.g., shareholder engagement), or an insurer's interactions with its counterparties (e.g., terms or pricing of underwriting).

Table 1: A closer look at the assumptions about how the financial sector could drive the net-zero transition

Common expectations and underlying assumptions	On closer examination…
Expectation: *The financial sector can and should steer real economy decarbonization by imposing decarbonization expectations on clients, counterparties, and investee companies.* ***Assumption:*** *Conditioning access to capital from FIs on meeting decarbonization expectations will incentivize real economy firms to accelerate decarbonization activities.*	**FIs have varying degrees of market influence, but the underlying economic fundamentals needed for clients, counterparties, and investees to transition are largely subject to external factors outside of an FI's control.** • Real economy demand for finance and investment to fund the net-zero transition is dependent on whether real economy firms have economically viable opportunities to decarbonize their businesses. This may be affected by economy-wide policies, sectoral incentives, supply and demand dynamics, infrastructure, technological breakthroughs, consumer demand, and connectivity across value chains—all of which are external factors outside the control of the financial sector. • Alternative sources of capital available for high-carbon activities from non-net-zero aligned sources (e.g., private lending, private equity, some state-owned enterprises) are substantial, further limiting the influence of regulated firms with net-zero alignment goals over their client with regard to demand for financing. Moreover, the profitability of high-carbon energy firms limits the need for external capital raising from regulated firms with net-zero alignment goals, as reflected by consolidations and share buybacks, which further still inhibits the influence of regulated financial firms on those firms' transition.[18] **The financial sector should not be expected to drive energy and industrial policy in the broader economy.** • Not only is it not feasible for FIs to steer real economy decarbonization – it is not appropriate. Governments can, and should, create policy to drive their jurisdiction-specific economic and climate-related objectives. That includes creating the right conditions to mobilize private capital. FIs have a constructive role to play in addressing the challenge at hand, but it is the role of governments, not the financial sector, to assess and manage the economy-wide trade-offs associated with energy, industrial, and climate policies. • Moreover, international FIs operate across jurisdictions with differing approaches to energy, industrial, and climate policy. Across the global landscape, governments have different views on technologies (e.g., nuclear) and differing approaches to drive their desired outcome (e.g., carbon taxes and/or subsidies). Given these divergent approaches, FIs must have the flexibility to support localized transition pathways and should not be expected to drive economic activity in conflict with existing public policy goals.

Common expectations and underlying assumptions	On closer examination…
Expectation: *Financial sector net-zero alignment activities will reduce risk to financial firms, and the broader economy.* ***Assumption:*** *Near-term action to align portfolios with transition pathways and allocate capital away from high-carbon sectors will reduce financial risks (e.g., credit risk, market risk) to FIs, and over time, support broader de-risking of the global economy by reducing exposure to climate risk factors. Moreover, a lack of action to align portfolios with net-zero pathways would increase risks to FIs.*	**Low-carbon activity does not necessarily have a better risk-return profile than high-carbon activity over the tenor of a financial institution's exposure.** • There is mixed evidence on whether low-carbon sectors are inherently higher performing than high-carbon sectors, with most analysis focusing on equity market returns. There is little evidence to suggest a generalized link between the "greenness" of companies and enhanced risk/return profiles for lenders or investors.[19] As one example, recent years have seen relatively poor investment performance of clean energy funds due to high fossil fuel prices and rising global rates[20]. A review of the academic research regarding links between sustainability and financial performance is provided in the Annex. **Currently, links between net-zero alignment activities and financial risks are weak.** • At present, in many countries across the world, the real economy is far from alignment with a net-zero transition pathway. This is reflected in European banking sector analysis by the ECB which found that *"if a bank were to invest an equal amount in each corporation with physical assets in the euro area, it would end up with a net alignment rate of -20%."*[21] Indeed, many of the eurozone banks assessed in the same ECB analysis had current portfolio alignment rates around -20%.[22] • As such, expecting banks collectively to rapidly reallocate their portfolios may not be compatible with maintaining a profitable, diversified business model.[23] It also neglects the reality of a bank's commercial relationships, considering that banks cannot force clients or counterparties to take finance for certain activities. • Further, financial risks could build for FIs if they do not reflect economic fundamentals in their business and risk decisions. Nevertheless, FIs are developing forward-looking risk identification and monitoring tools to remain alert to transition (and physical) risk drivers.

Considering the challenges raised in Table 1, it should not be taken for granted that financial sector net-zero alignment activities will directly result in real economy decarbonization in the absence of broader policy interventions. Nor should it be taken for granted that there is a direct link between net-zero alignment activities and financial risk exposure.

Ensuring that market, policy, and civil society actors have a clear understanding of the impact of financial sector alignment and the factors that may affect real economy outcomes is not only critical for climate action, but also for other sustainability goals. The rapidly evolving debate on nature-related risk is a case in point. At the global level, an alignment-focused approach is referenced in the Global Biodiversity Framework (Kunming-Montreal GBF Target 14).[24] Frameworks are being proposed for 'nature-positive' finance in a manner which is analogous to net zero; and a host of initiatives are proposing approaches on topics such as target setting, scenario analysis, disclosure, and other themes. Resetting the debate on the role of the financial sector in the net-zero transition would hopefully benefit the newer debate on nature,

both in terms of policymaking, as well as focusing on the most impactful levers through which FIs may be able to support positive nature-related economic outcomes.

3. The development of regulatory and supervisory approaches based on a finance-centric theory of change may pose significant challenges for the financial sector's ability to support global transition.

Recent statements and policy approaches by some authorities illustrate how aspects of a finance-centric approach to the transition are being integrated into regulatory and supervisory frameworks and expectations in some jurisdictions.[25] However, views differ significantly across jurisdictions depending on factors such as the broader policy context and attitudes. At the global level, this is leading to a divergence in regulatory and supervisory approaches. Three concerning trends have emerged:

- **Differences in approaches to transition finance, including expectations on whether and how the financial sector should support the transition of carbon-intensive sectors across jurisdictions.** Authorities in some jurisdictions—such as the EU—appear to take the view that the financial sector can and should drive progress towards climate goals in parallel to, or even in advance of, policies for economy-wide decarbonization, including by divesting from carbon-intensive sectors or pursuing other measures to reduce capital available to such sectors. In contrast, authorities in some other jurisdictions, including the U.S., view such actions as discriminatory or even in violation of anti-trust legislation.[26] It is challenging to expect cross-border FIs to adjudicate between these competing perspectives, considering the need to adhere to legal requirements and regulatory priorities across jurisdictions in which they are active. Nevertheless, there is growing recognition that the financial sector will need to continue providing transition finance to carbon-intensive sectors to enable their decarbonization, ensure that the economy can function smoothly, and limit disruptions and distributional impacts as the transition advances.[27] However, there is little global consensus on whether and how transition finance should be defined, whether there should be expectations on how FIs provide transition finance, and what any expectations should look like.[28]

- **Conflation of financial sector activities to support the net-zero transition (e.g., transition plans) or net-zero alignment with climate-related financial risk.** Some policy proposals and statements from regulators have linked transition-supporting strategies and activities encapsulated in transition plans to microprudential risk management goals[29] - an approach which risks mischaracterizing financial firms' strategic business efforts to support real economy transition as efforts to manage climate-related financial risk. Similarly, transition planning has been conflated with climate risk management in a macroprudential context, e.g., in analysis suggesting that significant risks may arise from a lack of immediate alignment of financial portfolios with economic transition pathways.[30]

- **Strong reliance on metrics based on financed emissions as risk indicators, despite key conceptual and methodological challenges associated with such metrics –particularly as a measure of transition risk.**[31] In general, there is not yet agreement among authorities across the world on the most suitable metrics for measuring transition risk or on how to capture the impact of transition risks in core financial risk metrics.[32] Many banks are setting science-based sectoral targets in alignment with market-based frameworks (including NZBA guidelines) and using a suite

of metrics to describe their climate strategies and assess potential climate-related financial risks. Industry efforts are considering different metrics which may be informative about the progress of the net-zero transition and their firm's role in it (such as an Energy Supply Ratio of finance to low-carbon vs. high-carbon sources).[33] It would be valuable for regulators and standard setters to continue to engage with FIs to explore the most appropriate metrics and other information for different use cases, including disclosure and supervisory reporting.

These trends are raising important questions about how microprudential and macroprudential authorities can most effectively and proportionately engage on the topic of climate-related risks—including those that may originate from the net-zero transition—while enabling industry to support the transition effectively at a global level. While climate change can clearly represent a major risk to the economy with potentially systemic implications, misalignment of the current allocation of financial portfolios with long-term government policy goals (as assessed via alignment-based metrics, e.g., financed emissions or Implied Temperature Rise) does not necessarily represent a source of near-term microprudential risks, which would warrant supervisory or regulatory intervention on a prudential risk basis. Financial institutions across the world are increasingly reflecting climate-related risk factors in their risk management processes, including through use of climate scenario analysis. Such analysis accounts for the range of factors which influence a counterparty's risk characteristics and is predicated on the most probable evolution of these risk factors (including the impact of relevant government policies). The actual pace of the economic transition will determine changes in credit or market risk associated with a given exposure.[34] While there are potential reputational and litigation risks with an FI not meeting its public climate-related goals or targets, this relates to the firm's own policies and action against those policies rather than long-term government policy goals *per se*.

It is important that policy and regulatory expectations do not unduly constrain the ability of the financial sector to support the transition at a global level, for example by being overly prescriptive or extraterritorial in nature. This is especially important considering that the highest impacts on global decarbonization can be achieved by supporting the decarbonization of high-emitting sectors, particularly in EMDEs, many of which are projected to reach net-zero emissions later than many advanced economies.[35] In 2023, the IEA reported that "structural issues and a limited pool of investable assets are preventing capital from flowing" into clean energy in EMDE markets, which presents challenges for achieving net-zero emissions in those regions.[36] To reach global emissions reduction goals, capital will need to be facilitated across jurisdictions with very different economic development needs, energy mixes, and policy approaches – all with different starting points and end goals for their transitions.

News of supervisors moving towards increasingly punitive approaches to supervising banks' climate and net-zero transition-related activities, such as the use of penalty fines on banks which have not yet met compliance deadlines, is particularly concerning in this regard. Depending on how they are administered, such responses may create additional disincentives for FIs to scale up finance for the transition of high-emitting sectors on the basis of the *perceived* riskiness of these commercial relationships. This issue is especially acute for FIs in developed markets with advanced sustainability policy frameworks, such as the EU. A lack of a clear distinction in regulatory approaches between exposures in different jurisdictions can effectively require FIs to evaluate transition investment opportunities in other markets (including EMDEs) as they would in their home jurisdiction. This can exacerbate issues relating to access to finance for corporates in countries with different transition pathways and needs.

4. Priorities for the way forward—key policy options

Considering the critical importance of achieving global net zero goals, it is essential that both market-based and official-sector initiatives are focused on answering the right 'exam question' when it comes to net-zero transition: *How can we ensure effective collaboration across public and private sectors, NGOs and other stakeholders to decarbonize the global economy and strengthen resilience to climate change impacts?*

Instead of a narrow focus on how to scale the flow of capital from the regulated private financial sector, the emphasis should be on scaling up transition activity and demand for transition finance across the real economy, alongside the development of new low-carbon technologies, sectors, and supply chains—and on improving the risk-return profiles of these investment opportunities.

Achieving this will require public-private cooperation on a much larger scale than currently seen. We highlight three priorities below.

1. Strengthening real economy policy frameworks and developing national-level transition strategies

To unlock the additional private finance needed to achieve net zero, governments need to implement clear sectoral policies and incentives that shift the global growth path towards a lower-carbon trajectory. These approaches should be jurisdiction- and sector-specific and informed by national-level transition strategies. Market actors, from large corporates to households, need clear and stable policies that provide support for the transition of key sectors, as well as incentive structures that support and enable investment in transition. Importantly, the emphasis needs to be on hard-to-abate sectors in which firms need to materially shift their business models to decarbonize.[37] It should not be assumed that market actors will take strategic decisions or allocate capital to support national or global climate policy goals in the absence of a clear business case, or purely for reputational reasons.

In the context of clearer real economy policy frameworks, authorities can work with the financial sector to analyse and co-develop economic frameworks which drive the low-carbon energy transition. Despite widespread recognition of the need to price negative externalities so that climate-related risks and opportunities are appropriately reflected in decision-making, deployment of the associated policy frameworks (such as carbon pricing regimes[38]) remain far below what is needed. Financial institutions can help provide insights into the barriers preventing real economy actors from transitioning, and potential solutions conducive to more effective economic frameworks. This will ultimately strengthen the business case for sustainable and transition finance.

Government policies should reflect the dynamics of the transition across different sectors, value chains, and client groups. Toward this end, care should be taken to understand key drivers of transition investment across sectors and supply chains, including the role of incentives. In some cases—for instance, residential energy efficiency retrofitting—only clear mandates from government will overcome cost-based barriers and issues associated with a lack of clear incentives for consumers to change behaviour. Experience to date suggests that simply introducing transition-relevant financial products (such as green mortgages) will not have a consistent impact on client decision-making outcomes in the absence of specific and targeted requirements that generate demand for such products. In other cases, some of the

fundamental market failures could be addressed through greater disclosure and market discipline, for example through market-wide measures such as the implementation of national requirements in line with evolving global disclosure standards.

2. Ensuring that financial sector policy remains risk-based, and that it is not used as a substitute for broader net-zero policy measures

Financial sector policymakers, supervisors and central banks have critical roles to play as the net-zero transition advances. However, these roles—while reflecting core institutional mandates—should recognize the comparative advantage of different sectoral and economy-wide policy instruments. In other words, if adequate economy-wide policy frameworks and market mechanisms are in place to drive transition across the economy, supervisors and regulators can focus on what is most relevant to their mandates. This could include the financial stability risks that could arise as the transition advances (such as market bubbles or downward revaluation of assets) and microprudential risks for firms in their jurisdictions. Importantly, at a macroeconomic level, central bank analysis of the transition needs to be holistic in the consideration of risks including accounting for risks from an unmanaged shift in the provision of goods and services, such as energy price volatility.

Sustainable finance policy frameworks should reflect the realities of how financial institutions can support the transition, given different institutional mandates, fiduciary obligations and responsibilities to their shareholders, and the dynamics of competitive markets. Taking an indirect approach by trying to employ the regulated financial sector to effect behavioral change in the real economy, would be distinctly suboptimal and risk unintended consequences.

It is essential that prudential regulation remain truly risk-based and informed by appropriate evidence of the potential risks to firms' safety and soundness or financial stability, including from climate scenario analysis exercises and supervisory dialogue to understand an institution's risk assessment and risk management approaches. To allow markets to function efficiently and support the flow of transition finance, climate-related financial regulation should not be overly prescriptive. A principles-based approach is more appropriate given the highly dynamic and uncertain nature of the net-zero transition and the importance of allowing FIs and markets to explore different tools and approaches along the way. A sequential approach could also be beneficial, considering that both financial institutions and non-financial corporates are involved in a learning, development, and implementation process, including developing internal capabilities, and testing new data and models. Recognizing this, it may be useful for authorities to step back and critically assess what interventions are needed at each juncture.

3. Enhancing the international financial architecture in support of transition finance to EMDEs

Emerging and developing economies (EMDEs) require significant capital inflows to achieve their transition goals, which has fuelled a global debate on how to scale private capital for transition finance in these vulnerable countries.[39] According to the IEA, it is necessary to scale up clean energy investments from $770 billion to $2.8 trillion a year.[40] A key challenge is that EMDEs typically have very carbon-intensive growth-oriented economic models, often with elevated levels of debt, political and currency risk. Thus, for lenders and investors, there is **already a high bar in terms of pricing any type of finance to EMDEs,** helping explain why overall capital flows to emerging markets have declined sharply over the past 15 years, from about 6% of EMDE GDP to around 2% at present.[41]

Climate and transition finance add yet another layer of risk to EMDE investment, and current pricing in sovereign debt markets does not fully reflect climate-related risks or opportunities.[42] This can present a major obstacle to scaling up financing for EMDE transition, further reinforcing debt sustainability risks. The hunt for solutions has prompted a whole range of initiatives and innovative financing structures to address the massive transition finance gap for developing economies. Many of these initiatives are aimed at **improving the investment environment in EMDEs**, e.g., by promoting better governance, debt and fiscal transparency, robust legal and regulatory frameworks, good investor relations, etc.[43] A new Climate Task Force has been established under the Brazilian G20 Presidency, with a focus on credibility in national transition planning.[44] Across all these initiatives, the private financial sector can play an important role in capacity building in EMDEs, providing more clarity to borrowing countries on investor needs for the deployment of transition finance at scale.

New and retooled financial instruments that can support transition finance include debt-for-nature and debt-for-climate swaps, blue as well as green bonds, sustainability-linked bonds and loans, climate-resilient debt instruments and voluntary carbon credits. Many of these structures include de-risking elements such as guarantees and credit enhancements, falling into the broad category of **blended finance**, which brings together public and private sector funding, often with philanthropic capital. The push to scale blended finance has highlighted a range of challenges including the need for more standardization, a pipeline of viable projects, and better climate information architecture.[45] Here the work of the Glasgow Financial Alliance for Net Zero (GFANZ) on mobilizing capital and on the Just Energy Transition Partnerships (JETPs) offers valuable thought leadership and convening.

The challenges of ensuring stable flows of capital to support sustainable development and the net-zero transition in EMDEs are also the focus of ongoing efforts at **reform of the international financial architecture**, including the G20-IMF-World Bank led Global Sovereign Debt Roundtable (where the IIF is representing private creditors), the Marrakech Declaration of collaboration among multilateral development banks to expand financing capacity and boost joint action on climate, and the Bridgetown Initiative championed by Barbados PM Mia Mottley.

The private financial sector has been actively supporting these initiatives to scale transition finance for EMDEs, as well as efforts to reform the international financial architecture. As policymakers, supervisors, and regulators in developed economies focus on transition planning and finance—alongside ongoing regulatory initiatives around climate-related disclosure and risk management—it is essential that their efforts do not impede the flow of transition finance, in particular to EMDEs. In this context, the G20 Sustainable Finance Working Group and the Financial Stability Board's Transition Plan Working Group should seek to build international consensus on high-level principles, encourage interoperability, and enable scale in cross-border flows of transition finance. To foster public-private sector collaboration in support of these global efforts, the IIF is pleased to offer a multi-stakeholder platform for debate and discussion, including alongside the Spring and Annual Meetings of the World Bank and IMF, at international gatherings including COP, and in small-group gatherings including the IIF Transition Finance Workshops, which have now been held in over 20 global financial capitals over the past few years.

Annex: Brief review of relevant economic literature

A. Empirical evidence regarding the links between the sustainability profiles of companies and their profitability and valuation has largely focused on equity market performance. There is mixed evidence on whether low-carbon sectors are inherently higher performing than high-carbon sectors.

Analysis by Bauer et al. (2022) on publicly listed firms across G7 economies over the 2010-2021 period found that climate-friendly ("green") stocks had higher average returns compared to less climate-friendly ("brown") stocks. However, the authors also highlight a reversal that led to higher brown stocks returns than green ones in 2022 across G7 economies.[46] They argue that the sudden shift in trends was caused by increased demand for the output of few high-emitting sectors, including non-renewable energy production and the defense industry. Importantly, they also suggest that investor preferences for green assets may have declined over the same period, compatible with the claim that socially responsible investing may at times exhibit the traits of economic "luxury goods" which underperform in times of crisis. A similar argument is made by Bansal et al. (2021) who perform portfolio regression and event studies on publicly listed U.S. companies. They find evidence of a time-varying performance gap whereby socially responsible companies outperform their competitors during expansionary periods but underperform their low social responsibility counterparts during economic recessions.[47] This result is consistent with wealth-dependent investor preferences with regard to socially responsible firms. Once the overall performance is considered without conditioning on the state of the economy, the performance of more and less socially responsible firms is not measurably different.[48]

Revisiting a previous work by Delmas et al (2015), which suggested that reducing carbon emissions may negatively impact financial performance in the short-term but prove beneficial in the long-run, Bush et al (2020) find contrasting evidence of higher carbon emissions being associated with better performance for publicly listed U.S. and European companies both in the short- and long-term, at least over the sample period considered in their study (2005-2014). They conclude that in the absence of policy incentives, a trade-off may exist for investors between environmental and financial goals.[49]

Ardia et al. (2022) rely on S&P500 data from 2010 to 2018 to assess whether green firms outperformed brown firms. They find that when concerns about climate change increase unexpectedly, as measured by an index of media content on climate change, investors tend to penalize brown firms and to reward green firms. However, they also find a positive correlation between higher emissions and higher returns, consistent with investors demanding compensation in the form of additional returns for carbon risk. Thus, according to their study, brown firms exhibit, on average, higher returns compared to green firms, while green firms outperform brown ones only when unexpected increases in climate change concerns arise.[50]

Gasparini et al. (2024) use European Banking Authority data to estimate that under current regulations, if 59 of the largest banks in the EU were to divest from high-carbon sectors and reinvest in other activities, they would record, on average, losses equivalent to about 15% of their previous 5 years' profits.[51] The authors show that the result is driven by the increase in loan loss provisions required to cover the higher estimated risk of low-carbon-intensity activities, compared with high-carbon-intensity activities. Specifically, the average credit risk, expressed in terms of the ratio between loan loss reserves and outstanding loans, of the sample of EU banks' high carbon-intensive activities was almost half that of low-carbon activities (1.8% vs. to 3.4%, respectively).

B. To date, presumably because net-zero alignment efforts by FIs are relatively new, there is limited empirical analysis on the links from FIs' alignment goals and strategies to real economy decarbonization outcomes. What exists suggests that engagement strategies by FIs may be more influential than divestment, but it is too early to evaluate the trickle-down effect of banks' own net zero commitments on their clients' decarbonization efforts.

Rempel and Gupta (2020) examine investments in the fossil fuel industry made by pension funds across OECD member states and argue that divestment is unlikely to directly influence fossil fuel production in a way that mitigates GHG emissions. Moreover, divestment may inadvertently transfer assets to "neutral investors" who are disinterested in sustainability concerns and develop new vested interests in the fossil fuel sector.[52] The authors also suggest that a reallocation of social and economic risk may take place as a result of divestment due to stranded assets being written off in the global North and transferred to the global South. This in turn has the potential to cause significant damage both to the environment and to the long-term developmental prospects of emerging economies.

In a similar analysis focusing on public pension funds in the U.S., Kahn et al. (2023) investigate whether green investors can influence corporate greenhouse gas emissions through capital markets and, if so, whether they have a bigger effect by divesting their stock and limiting polluters' access to capital or by acquiring polluters' stock and engaging with management. The authors find that most companies' GHG emissions decreased in response to increased stock ownership by green funds, while no emissions variation was recorded as a result of higher or lower stakes in the companies' equities by non-green funds.[53] Based on these results, the authors suggest that divestment of polluting companies may be counterproductive and lead to greater emissions, while green investors can influence companies to adopt greener policies through stock ownership.[54]

Zhou and Tang (2022) analyze high-emitting companies in China and find that financing constraints have a significant impact on the emissions of companies operating in highly polluting industries with limited access to capital thus leading to higher emissions. Moreover, bank loans are found to be more effective in motivating emissions reductions by high-carbon companies compared with internal financing, and access to bank loans is found to generate significant reductions in pollution levels particularly for firms in high-polluting industries.[55]

The ECB Working Paper "Business as usual: bank climate commitments, lending, and engagement" assesses the effects of voluntary climate commitments made by members of the Net Zero Banking Alliance (NZBA) on European banks' lending activity since 2018. The authors observe a selection trend into green initiatives, whereby the largest banks and those with the most lending exposures to high-polluting economic sectors are more likely to join the NZBA. With respect to NZBA members' portfolio-level and emissions objectives, the research finds an overall reduction of 20% in lending to targeted sectors. However, once their track record is compared with non-NZBA aligned banks, the authors did not find evidence of a significant difference in divestment or sectoral differences in lending patterns. Moreover, the analysis does not find that clients of climate-aligned banks are more likely to set their own decarbonization targets, which the authors interpret as a weak engagement channel of influence. The paper therefore suggests that voluntary net zero commitment have achieved limited results with respect to divestment and engagement so far, while acknowledging that the NZBA alliance remains at an early stage and trends might shift over the coming years.

Endnotes

[1] In the post-Covid era, energy and commodity price volatility (including due to the impacts of Russia's war in Ukraine on markets), has affected the strategic positioning of many countries with respect to climate and the net-zero transition – with changes to energy, industrial, and transport policies and subsidies that are likely to affect climate ambitions. Analysis by the IIF has found that in recent years, governments in several jurisdictions have altered their positions on key policies relevant to their net-zero transition trajectories, including: i) delays, deferrals, and cancellation of decarbonization policies in energy, transport, housing and other sectors; ii) re-orientation of energy policies towards security of supply – including through domestic scale-up of fossil fuel production; iii) inconsistent or inadequate updating of policies in line with targets encapsulated in NDCs; and iv) lack of action to address regulatory and infrastructure-related barriers to clean technology implementation. For further information, see IIF, "Sustainable Finance Monitor – April 2024," April 2024.

[2] IIF analysis undertaken with the support McKinsey has found that achieving a net-zero transition by 2050 would require $275 trillion in investment in physical assets between 2021 and 2050 or about $9.2 trillion per year**.** That includes $6.4 trillion in low-emission green assets or assets transitioning to be less carbon-intensive but also crucially $2.8 trillion per year in critical high-emission assets that cannot be completely phased out, due to limitations on technology and the need to support economic development while accounting for differences in transition pathways between jurisdictions. See IIF/McKinsey, "Financing the Net-Zero Transition: From Planning to Practice." January 2023.

[3] Recent analysis from the IEA (2024) World Energy Investment Report indicates that clean energy investment in 2024 is expected to be twice that of fossil fuel investment spending for the first time. However, there are major imbalances in these investments across jurisdictions – with Emerging Market and Developing Economies (EMDE) outside China accounting for only around 15% of global clean energy spending.

[4] Analysis in December 2023 by Climate Action Tracker of national policies indicates that current policies presently in place around the world are projected to result in about 2.7°C warming above pre-industrial levels; full implementation of NDCs will limit warming to 2.5°C. If considering binding long-term or net zero targets, warming would be limited to about 2.1°C above pre-industrial levels.

[5] Analysis by the IEA (2024) illustrates this trend; China's economy has grown 14x since 1990 levels, with a 5x increase in emissions; in India, GDP growth has outpaced CO2 emissions growth by over 50%.

[6] The World Meteorological Organization has concluded that there is a 47% likelihood that the global temperature averaged over the entire five-year 2024-2028 period will exceed 1.5°C above the pre-industrial era, and that there is an 80% that the annual average global temperature will temporarily exceed 1.5°C above pre-industrial levels for at least one of the next five years.

[7] IIF, "Sustainable Debt Monitor: ESG Debt Surges as Governments Combat Climate Change." May 2024.

[8] IIF and Pictet Asset Management, "Climate crunch: a closer look at the transition risks of net zero." June 2024.

[9] See McKinsey, "The hard stuff: Navigating the physical realities of the energy transition," August 2024 for an assessment of the physical challenges which need to be overcome to transform the global energy system to meet net zero goals by 2050.

[10] IEA, "World Energy Investment 2023," page 12, May 2023.

[11] G20 leaders have repeatedly acknowledged the importance of allocating "an ambitious share of the financial resources to mitigating and adapting to climate change" and endorsed a "policy mix [that] should include investment in sustainable infrastructure and innovative technologies [...] and a wide range of fiscal, market and regulatory mechanisms" while also reaffirming "the significant role of public finance as an important enabler of climate actions". Likewise, the IMF encourages governments to complement private capital with public finance and adequate level of policy support, estimating a need for an additional 0.3% of global GDP per year in new green public investment. The IMF has argued that "carbon taxes are one of the most powerful and efficient tools" at governments' disposals to meet emissions reduction goals, incentivize investment in low-carbon technologies and raise revenue which could be reallocated during the transition. In addition, the IEA highlights the lack of sufficient policy support in the transition to renewable energy, seeking a doubling of current annual spending on clean energy projects. See: G20, "G20 Rome Leaders Declaration," pages 8-10, October 2021, G20, "G20 New Delhi Leaders' Declaration," page

18, September 2023; IMF, "Climate Crossroads: Fiscal Policies in a Warming World," page 10, October 2023; IMF, "Putting a price on pollution," December 2019; IEA, "World Energy Investment 2024," pages 22-23, June 2024.

[12] See Endnote 2.

[13] See Endnote 3.

[14] For the purposes of this paper, we consider transition finance to be capital allocated by financial institutions (and related markets activities, such as financial market underwriting) with the explicit aim of reducing the emissions of key sectors and economic activities that will be economically essential through the transition, even if they are high emitting today. However, we note that there are many different definitions for the set of labelled and unlabeled financial products, services, and strategies that may constitute "transition finance", including product standards (e.g., those provided by ICMA), official-sector policy frameworks (e.g., transition taxonomies), and higher-level guidance regarding financial sector strategies (e.g., GFANZ guidance). Criteria for delineating whether a given financial sector activity may be considered as transition finance vary, including product-level KPIs, sectoral and technological emissions thresholds linked to sectoral pathways, and in the case of general-purpose financing for corporates, criteria for evaluating the credibility and quality of a corporates' transition plan. The array of frameworks and definitions available in the market, and divergence of views on the key criteria that should be considered (either at the product level, or for evaluation of transition plans), is contributing to divergent views on financial institutions' activities, and debates regarding perceived greenwashing.

[15] For further information, see: IIF, "The role of the financial sector in the Net Zero Transition," October 2023.

[16] Which refers to "Making finance flows consistent with a pathway towards low greenhouse gas (GHG) emissions and climate-resilient development": https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

[17] For further detail on factors affecting how different financial institution business models may contribute to the net-zero transition, refer to Table B1.1 in IIF, "The role of the financial sector in the Net Zero Transition," October 2023.

[18] Taking the fossil fuel sector as an example, upstream oil and gas companies generated $2.4 trillion in net income in 2023, following a record $4 trillion in 2022, and share buybacks rose to historic highs (IEA, "World Energy Investment 2024", page 97, June 2024). In addition, private credit is another significant source of available finance to the fossil fuel sector: Between 2010 and 2024 YTD, Private equity firms completed company takeover deals in the oil, gas and coal industries for an estimated value of $285.54 billion (Bloomberg, "Bloomberg Private Equity Database for the years 2010 to 2024," July 2024). State-owned institutions also contribute a significant amount of finance to oil and gas, particularly in EMDEs (Ball et al., "Hot money: Illuminating the financing of high-carbon infrastructure in the developing world," November 2021).

[19] As explored in IIF/WTW, "Emissions Impossible: Quantifying financial risks associated with the net zero transition," May 2023. For example, see Figure 3 on the empirical relationship between operational emissions intensity and a scenario-based measure of climate transition risk. Nevertheless, as the IIF has long argued, the regulatory framework should remain risk-sensitive and evidence-driven so, if a significant empirical risk differential is found in future between high- and low-carbon exposures, this should be appropriately reflected.

[20] For example, see Morningstar (2024) "Clean Energy is the Future. So why have investors struggled?"

[21] ECB, "Risks from misalignment of banks' financing with the EU climate objectives," January 2024. The "net alignment rate of a bank's portfolio" is an ECB measure to provides "an aggregated perspective on the deviation of its financed production capacity from the decarbonisation pathway."

[22] ECB, "Risks from misalignment of banks' financing with the EU climate objectives," Chart 4.4 page 28, January 2024.

[23] According to recent estimates, if major financial institutions were to divest from high-carbon sectors and align their portfolios by reinvesting in low-carbon intensity activities, they would incur higher financial risks by conventional metrics. See for example: Gasparini et al., "Model-based financial regulation challenges for the net-zero transition" April 2024.

[24] https://www.cbd.int/article/cop15-final-text-kunming-montreal-gbf-221222.

[25] For example, see the following ECB analysis and blog post setting out views on financial institutions' net zero alignment activities: ECB, "Risks from misalignment of banks' financing with the EU climate objectives: Assessment

of the alignment of the European banking sector," January 2024; Frank Elderson blog post, "<<Failing to plan is planning to fail>> – why transition planning is essential for banks," January 2024.

[26] As of March 2023, at least seven US states had enacted laws or regulations seeking to prohibit public entities from considering ESG factors in investments, and at least eight states had enacted laws targeting companies doing business with states which restrict those firms from boycotting companies (such as fossil fuel companies) on the basis of ESG grounds. See Malone et al., "ESG Battlegrounds: How the States Are Shaping the Regulatory Landscape in the U.S.," March 2023.

[27] The Monetary Authority of Singapore (MAS) has explicitly acknowledged that financed or facilitated emissions may increase in the near-term if financial institutions extend finance to some firms to support longer-term decarbonization investments. See MAS, "MAS Guidelines for Financial Institutions on Transition Planning for a Net Zero Economy", October 2023. The Japanese Financial Services Authority (JFSA) also recognized this in an October 2023 report, "Addressing the Challenges of Financed Emissions," e.g., see pages 2-3.

[28] Multiple sets of definitions for transition finance exist, stemming from market-based frameworks for classification of financing (e.g. GFANZ), standards for financial instruments (e.g. ICMA), jurisdictional policy frameworks (e.g. MAS transition taxonomy), and sets of criteria and expectations set out by NGOs.

[29] For example, in the EU the revised Capital Requirements Directive (CRD), Article 76(2) introduced the concept of transition plans for prudential risk management and requires the European Banking Authority (EBA) to prepare guidelines for these plans. In Canada, the Office of the Superintendent of Financial Institutions (OSFI)'s March 2023 Climate Risk Management Guideline (B-15) requires FIs to "develop and implement a Climate Transition Plan" as part of risk management approach (although this was labeled a strategic action). In May 2023, the NGFS indicated that just over half of NGFS member supervisors surveyed considered transition plans as "either a combination of risk management and strategy/climate policy tool or a risk management tool for financial institutions." However, NGFS's most recent April 2024 package of reports on transition planning make a clearer distinction stating that *"While transition plans are primarily strategy focused, risk management is an integral part of transition planning."*

[30] For example, ECB, "Risks from misalignment of banks' financing with the EU climate objectives: Assessment of the alignment of the European banking sector," January 2024. The BCBS's November 2023 consultation proposal for Pillar 3 disclosure of climate-related financial risks includes references to a bank's transition planning as part of strategic risks.

[31] Financed emissions can be provide a useful reference for measuring and tracking performance of net zero portfolio alignment, however, there are key conceptual and methodological issues that affect their suitability as an indicator of transition risk. See: IIF/WTW "Emissions Impossible: Quantifying financial risks associated with the net zero transition," May 2023; BPI, *"How Should Banks Manage Climate Transition Risk?"* August 2024.

[32] Differences in approach to climate risk measurement can be seen via disclosure and supervisory expectations across the world. In January 2022, the EBA published extensive Pillar 3 disclosure standards for ESG risks. In Canada, OSFI expects FIs to publish climate-related disclosures from October 2024 for some institutions. In November 2023, the BCBS consulted on global bank Pillar 3 disclosure templates for climate-related financial risks, but are yet to finalize its standards. In February 2024, the Reserve Bank of India (RBI) published a Draft Disclosure Framework on Climate-related Financial Risks.

[33] The IIF expects to publish a *White Paper on an Energy Supply Ratio (ESR) for Bank Disclosures* in mid-September.

[34] For example, see discussion in Section 3.2 of IIF, "The Role of The Financial Sector in the Net Zero Transition," October 2023 and BPI, *"How Should Banks Manage Climate Transition Risk?,"* August 2024.

[35] Analysis by McKinsey suggests that EMDE's GHG emissions will peak later compared to most advanced economies, continuing to grow beyond 2027. Moreover, the IEA's World Energy Outlook reports that EMDEs will account for almost 80% of the global growth in electricity demand, with the decline in EMDEs' fossil fuel energy generation expected to deliver the bulk of future global emissions reductions. However, the IEA estimates that EMDEs would require a fivefold increase in clean energy spending by 2030 to bring their emissions in line with Net Zero goals.

[36] IEA, "World Energy Investment 2023," page 12, May 2023.

[37] For a discussion of the role of policy approaches to stimulate the scaling of net zero emissions technologies in hard to abate sectors see Colombia SIPA Center on Global Energy Policy, "Triggering Investment in First-of-a-Kind and Early Near-Zero Emissions Industrial Facilities," July 2024.
[38] World Bank, "State and Trends of Carbon Pricing 2024," May 2024.
[39] IIF, "ESG Flows and Markets: Clean Energy Investment Takes Off", June 2024; Sustainability-Linked Sovereign Debt Hub, "Unlocking Private Capital to Emerging Markets and Developing Countries in a time of crisis.," 2024.
[40] IEA, "Scaling Up Private Finance for Clean Energy in Emerging and Developing Economies.," 2023.
[41] IIF, "IIF Capital Flows: Sunshine Coming Out, But Bring Umbrella," May 2024.
[42] See IMF, "Fiscal Implications of Global Decarbonization," March 2024, on revenue sharing at global level to improve net fiscal impact of global decarbonization.
[43] IIF, "2024 IIF Investor Relations and Debt Transparency Report," July 2024.
[44] G20, "G20 Task Force on a Global Mobilization against Climate Change Issue Note", 2024.
[45] NGFS, "NGFS publishes a document on Scaling up Blended Finance in EMDEs," April 2023.
[46] Bauer et al., "The green and Brown performances of mutual fund portfolios," January 2023.
[47] Bansal et al., "Socially Responsible Investing in Good and Bad Times," June 2021.
[48] Ibid.
[49] Bush et al., "Corporate Carbon and Financial Performance Revisited," July 2020.
[50] Ardia et al., "Climate Change Concerns and the Performance of Green vs. Brown Stocks," December 2022.
[51] Gasparini et al., "Model-based financial regulations impair the transition to net-zero carbon emissions," April 2024.
[52] See: Rempel and Gupta, "Conflicting commitments? Examining pension funds, fossil fuel assets and climate policy in the organisation for economic co-operation and development (OECD)," November 2020.
[53] Kahn et al., "Divestment and Engagement: The Effect of Green Investors on Corporate Carbon Emissions," October 2023.
[54] Ibid
[55] Zhou and Tang, "Does financing constraints impact the Chinese companies' pollutants emissions? Evidence from a sample selection bias corrected model based on Chinese company-level panel data," February 2022.