Green Finance and Investment

# OECD Review on Aligning Finance with Climate Goals 2026

## Different Policy Playbooks, Untapped Investment Opportunities

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## DIFFERENT POLICY PLAYBOOKS, UNTAPPED INVESTMENT OPPORTUNITIES

OECD
BETTER POLICIES FOR BETTER LIVES

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# Foreword

Aligning finance with climate policy goals is crucial for-achieving net-zero greenhouse gas emissions and resilience to-climate change, as called for by Article 2.1c of the Paris Agreement. It can further reduce exposure to climate-related risks, increase economic resilience, foster innovation and enhance energy security. Evidence-based policymaking and-investment decisions towards such alignment need to be informed by robust assessments. To support such efforts, this second edition of the OECD Review on Aligning Finance with Climate Goals brings together best available evidence in three core areas: the implementation of climate-related financial sector policy playbooks, the tracking of the climate alignment of financial flows and stocks, and developments in climate metrics used in the financial sector. This second edition updates trends from the first edition, addresses evidence gaps and displays further geographical granularity to highlight differences in approaches and opportunities. It identifies 14 actions policymakers can take to better assess and drive the climate alignment of finance and capture untapped transition investment opportunities.

This work was conducted under the OECD Working Party on Finance and Investment for Environmental Goals (WPFIEG) as part of the Finance and Investment for Environmental Goals output of the Programme of Work and Budget of the OECD Environment Policy Committee (EPOC). The analysis results from and contributes to a multi-year body of work designed to advance and share knowledge for assessing the consistency and alignment of finance with climate goals, including to inform finance-related information needs and discussions under the United Nations Framework Convention on Climate Change (UNFCCC).

The report was prepared by the Finance, Investment, and Global Relations Division within the OECD Environment Directorate. This publication was co-ordinated and co-authored by Jolien Noels, Economist/Policy Analyst, together with and under the supervision of Raphaël Jachnik, Finance for Climate Action Team Lead, with contributions from Giulio Mazzone (OECD Environment Directorate), as well as Angela Zha and Paola D'Orazio (independent consultants). Dominique Haleva (OECD Environment Directorate) provided editorial support.

The OECD Secretariat is thankful to delegates to the WPFIEG for comments on earlier versions of this report, and to delegates who participated in the Informal Reflection Group on Aligning Finance with Climate Goals and provided further feedback and suggestions in this context. This report also benefitted from comments and inputs from OECD and IEA colleagues at various stages of advancement.

Finally, the OECD Secretariat would like to thank OECD member countries providing funding to support this body and area of work (Australia, Austria, Canada, the European Union, Germany, Italy, Norway, Sweden, Switzerland) and in particular the German Federal Ministry for Economic Affairs and Climate Action (BMWK), which provided the bulk of the funding for the preparation of the report.

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# Abbreviations and acronyms

| | |
|---|---|
| AEs | Advanced economies |
| AEC | Absolute emissions contraction |
| AUM | Assets under management |
| BIS | Bank of International Settlements |
| BPF | Brown penalising factor |
| CCS | Carbon capture and storage |
| CDP | Carbon Disclosure Project |
| $CO_2$ | Carbon dioxide |
| CPI | Climate Policy Institute |
| CCUS | Carbon Capture, Utilisation and Storage |
| DGI | Data Gaps Initiative |
| EIC | Economic intensity contraction |
| EMDEs | Emerging market and developing economies |
| ESG | Environmental, social, and governance |
| GDP | Gross domestic product |
| GHGs | Greenhouse gas emissions |
| GFCF | Gross fixed capital formation |
| GSF | Green supporting factor |
| IEA | International Energy Agency |
| IFCMA | Inclusive Forum on Carbon Mitigation Approaches |
| IFRS ISSB | International Finance Reporting Standards Foundation's International Sustainability Standards Board |
| IMF | International Monetary Fund |
| IOSCO | International Organization of Securities Commissions |
| IPCC | Intergovernmental Panel on Climate Change |
| ITR | Implied temperature rise |
| LAC | Latin American and the Caribbean |
| LLM | Large language models |
| NAP | National adaptation plan |
| NDCs | Nationally Determined Contributions |
| NGFS | Network for Greening the Financial System |
| NLP | Natural language processing |
| OECD | Organisation for Economic Co-operation and Development |
| SDA | Sectoral decarbonisation approach |
| SMEs | Small to medium enterprises |
| SNA | System of National Accounts |
| TCFD | Task Force on Climate-related Financial Disclosures |
| UN | United Nations |
| UNEP FI | United Stations Environment Programme Finance Initiative |
| UNFCCC SCF | United Nations Framework Convention on Climate Change Standing Committee on Finance |
| WFE | World Federation of Exchanges |

# Executive Summary

**Aligning finance with net-zero emissions and climate resilience supports reaching climate policy goals, increases economic resilience, fosters innovation and enhances energy security.** Climate change puts societies, economies, and the financial system at risk. Finance plays a crucial role in achieving low greenhouse gas emissions and climate-resilient development, as acknowledged in Article 2.1c of the Paris Agreement. On the one hand, finance towards climate solutions needs to be scaled up. On the other hand, investments and financing are needed for the climate transition of emissions-intensive sectors, along with reducing exposure and vulnerability to physical climate risks in all sectors, thereby strengthening economic and social resilience.

**Robust evidence on progress and opportunities is needed to inform policymakers and investors across economies who are committed to aligning finance with climate goals**. As shown in the first edition of the OECD Review on Aligning Finance with Climate Goals, large data gaps remain to assess the alignment of finance with climate goals. This second edition brings together best available evidence in three areas that can inform policymaking and investment decisions towards aligning finance with climate goals: the evolving mix of climate-related financial sector policies, the tracking of the degree of climate alignment of financial flows and stocks, and the landscape of climate metrics used in the financial sector.

**Policymakers across continents are pursuing different policy playbooks to unlock large, untapped opportunities to transition financial flows**. Policymakers globally have continued to expand the number and mix of climate-related financial sector policies, continuing trends observed in the first edition of this review. In doing so, countries across geographies adopt different policy playbooks, relying more on mandatory transparency measures, voluntary frameworks, or risk management and supervision tools. Owing to their novelty, empirical evidence on the effectiveness of these policies remains scarce. To incentivise climate-aligned investments, real-economy policies (such as fiscal instruments and regulatory standards), remain core levers, which climate-related financial sector policies build upon but cannot substitute. Since the previous edition, climate alignment has advanced for some financial flows but large opportunities to transition financial flows remain untapped. While real-economy investments in clean energy are on the rise, fossil fuel financing across most financial asset classes continues to outpace low-carbon financing. Climate-alignment trends of corporate debt instruments are diverging, with growth in green-labelled syndicated loans but shrinking momentum in the greening of bond markets since 2022. Data and metrics to track the climate alignment of finance are increasingly available, but gaps remain in identifying transition opportunities and tracking more opaque financial asset classes.

**Policymakers can take a range of actions tailored to national contexts to drive the climate alignment of finance and capture untapped investment opportunities stemming from the climate transition.** The 14 actions identified in this report for governments, financial supervisors and central banks can be grouped in three categories: prioritise widening policy mixes based on peer learning, develop co-ordinated data frameworks, and strengthen the evaluation of the effects of policies. As policymakers follow different policy approaches based on their national circumstances, different starting points and mandates, these actions need to be tailored to those contexts, including by complementing the global analysis presented in this report with jurisdiction-level case studies.

# 1 Key insights on the evolving climate alignment of finance

This chapter introduces the rationale for why robust evidence on progress and opportunities is needed to inform policymakers and investors across economies, who are committed to aligning finance with climate goals. It then summarises key findings across the three core areas covered by the report: the implementation of climate-related financial sector policy playbooks, the tracking of the climate alignment of financial flows and stocks, and developments in climate metrics used in the financial sector. The chapter outlines 14 actions for policy authorities, including environmental and financial ministries, central banks and financial supervisors, to drive the climate alignment of finance and capture untapped investment opportunities.

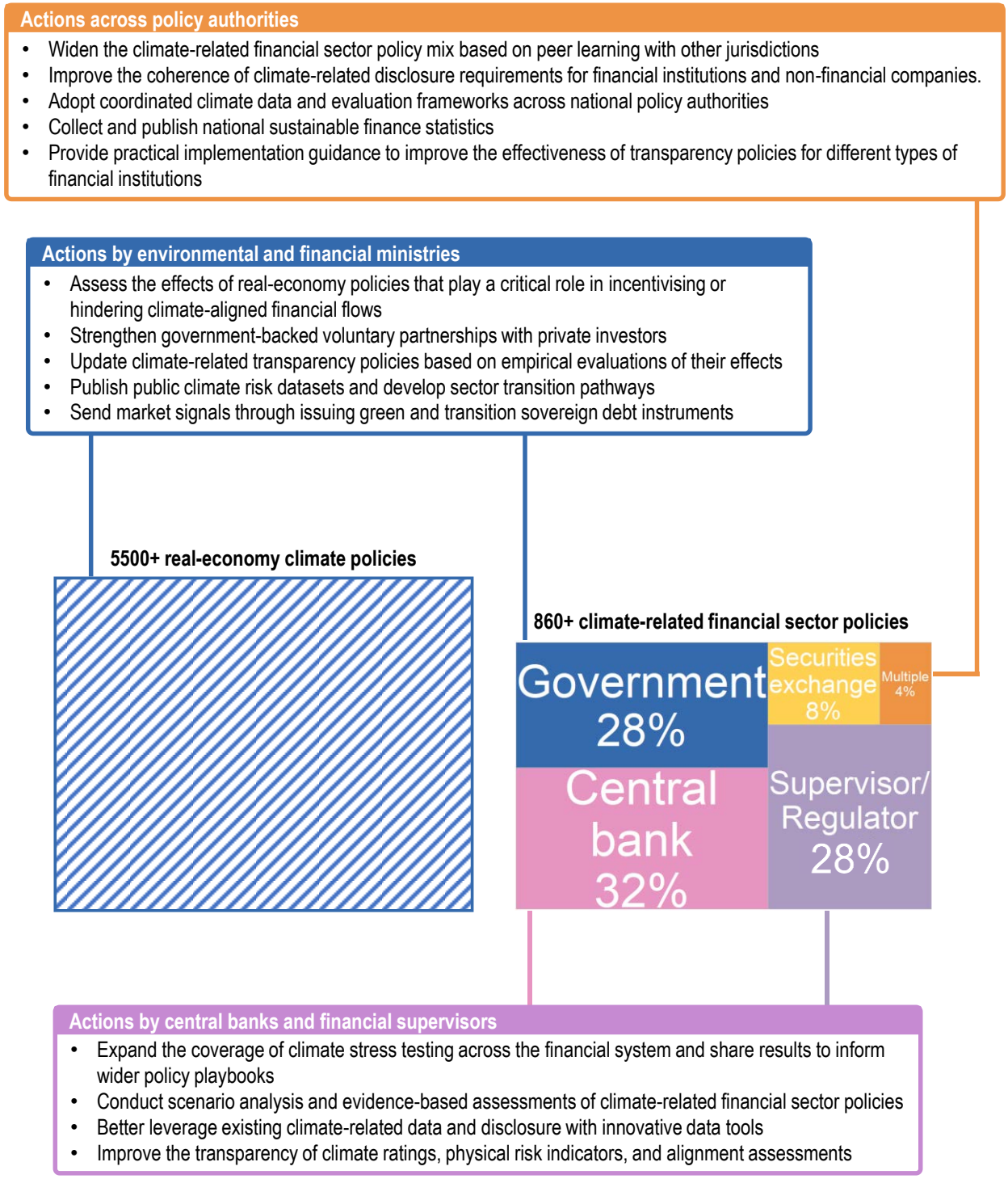
**Aligning finance with net-zero emissions and climate resilience supports reaching climate policy goals, increases economic resilience, fosters innovation and enhances energy security**. Climate change puts societies, economies, and the financial system at risk. Finance plays a crucial role in achieving low greenhouse gas (GHG) emissions and climate-resilient development, as acknowledged in Article 2.1c of the Paris Agreement (UNFCCC, 2015[1]). On the one hand, finance towards climate solutions needs to be scaled up. On the other hand, investments and financing are needed for the climate transition of high-GHG sectors, along with reducing exposure and vulnerability to physical climate risks in all sectors, thereby strengthening economic and social resilience.

**Robust evidence on progress and opportunities is needed to inform policymakers and investors across economies, who are committed to aligning finance with climate goals**. As shown in the first edition of the OECD Review on Aligning Finance with Climate Goals (2024[2]), large data gaps remain to assess the alignment of finance with climate goals. This second edition brings together the best available evidence in three areas that can inform policymaking and investment decisions towards aligning finance with climate goals, namely on the evolving mix of climate-related financial sector policies (Chapter 2), the tracking of the degree of climate alignment of financial flows and stocks (Chapter 3), and the landscape of climate metrics used in the financial sector (Chapter 4).

**Policymakers across continents are pursuing different policy playbooks to unlock large, untapped opportunities to transition financial flows**. Policymakers globally have continued to expand the number and mix of climate-related financial sector policies, reinforcing trends observed in the first edition of this review. In doing so, countries across geographies adopt different policy playbooks, relying more on mandatory transparency measures, voluntary frameworks, or risk management and supervision tools. Owing to their novelty, empirical evidence on the effectiveness of these policies remains scarce. To incentivise climate-aligned investments, real-economy policies (such as fiscal instruments and regulatory standards) remain core levers, which climate-related financial sector policies build upon but cannot substitute. Since the previous edition, climate alignment has advanced for some financial flows but large opportunities to transition financial flows remain untapped. While real-economy investments in clean energy are on the rise, fossil fuel financing across most financial asset classes continues to outpace low-carbon financing. Climate-alignment trends of corporate debt instruments are diverging, with growth in green-labelled syndicated loans but shrinking momentum in the greening of bond markets. Data and metrics to track the climate alignment of finance are increasingly available, but gaps remain in identifying transition opportunities and tracking more opaque financial asset classes.

**Policymakers can take a range of country-tailored actions to drive the climate alignment of finance and capture untapped investment opportunities stemming from the climate transition**. Governments, financial supervisors and central banks can prioritise widening policy mixes based on peer learning, developing co-ordinated data frameworks, and strengthening the evaluation of the effects of policies. Figure 1.1 lists 14 specific actions derived from data-driven evidence produced in this review. As policymakers follow different policy approaches based on their national circumstances, different starting points, and mandates, these actions need to be tailored to those contexts, including by complementing the global analysis presented in this report with jurisdiction-level case studies.

## Figure 1.1. Selected actions for policymakers to influence the climate alignment of finance



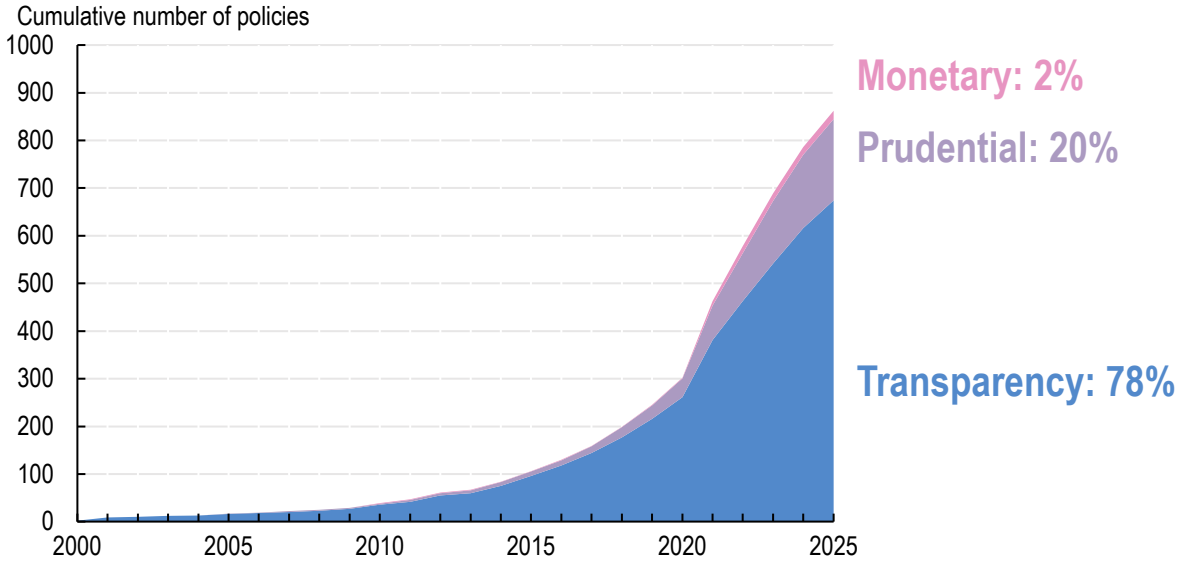

Source: Authors, including based on OECD data on Climate-Related Financial Sector Policies.

## POLICIES: Countries across geographies are expanding the number and mix of climate-related financial sector policies, adopting different policy playbooks

**Financial sector policies globally are increasingly integrating climate considerations with the primary aim of managing climate risks to financial stability and upholding market integrity**. Between 2000 and 2025, policymakers in 111 countries and EU institutions adopted over 860 climate-related financial sector policies. The potential for climate change to trigger systemic financial instability through concurrent, correlated asset devaluations across sectors and geographies is one motivation for these growing policy interventions. Climate-related financial sector policies pursue financial stability, price stability, market integrity and related objectives, depending on the policy area and authority mandate. While primarily designed to address climate transition and physical risks, such policies can also influence climate outcomes and the financial sector's capacity to steer capital toward climate innovation, transition opportunities and resilience.

**Between 2023 and 2025, policymakers continued to expand the number and mix of climate-related financial sector policies, with central banks taking a more prominent role**. Although some policies are being updated or paused, the number of climate-related financial sector policies still grew by over 25% between 2023 and 2025, after a peak in 2020 and 2021. Climate-related transparency policies remain dominant, representing 78% of all policies as of 2025. Prudential policies integrating climate considerations have been taking a growing share of the policy mix (20%), and a limited number of climate-related monetary policies have emerged (2%). Over the past 25 years, central banks adopted 32% of policies, financial supervisors and regulators 28%, and governments 28%. Governments and financial supervisors adopted most policies before the 2015 Paris Agreement, but central banks have since taken on a more prominent role. As policy playbooks expand, co-ordinated frameworks become more important to ensure coherence of policy updates across policy authorities.

### Figure 1.2. Climate-related financial sector policies adopted globally, 2000-25



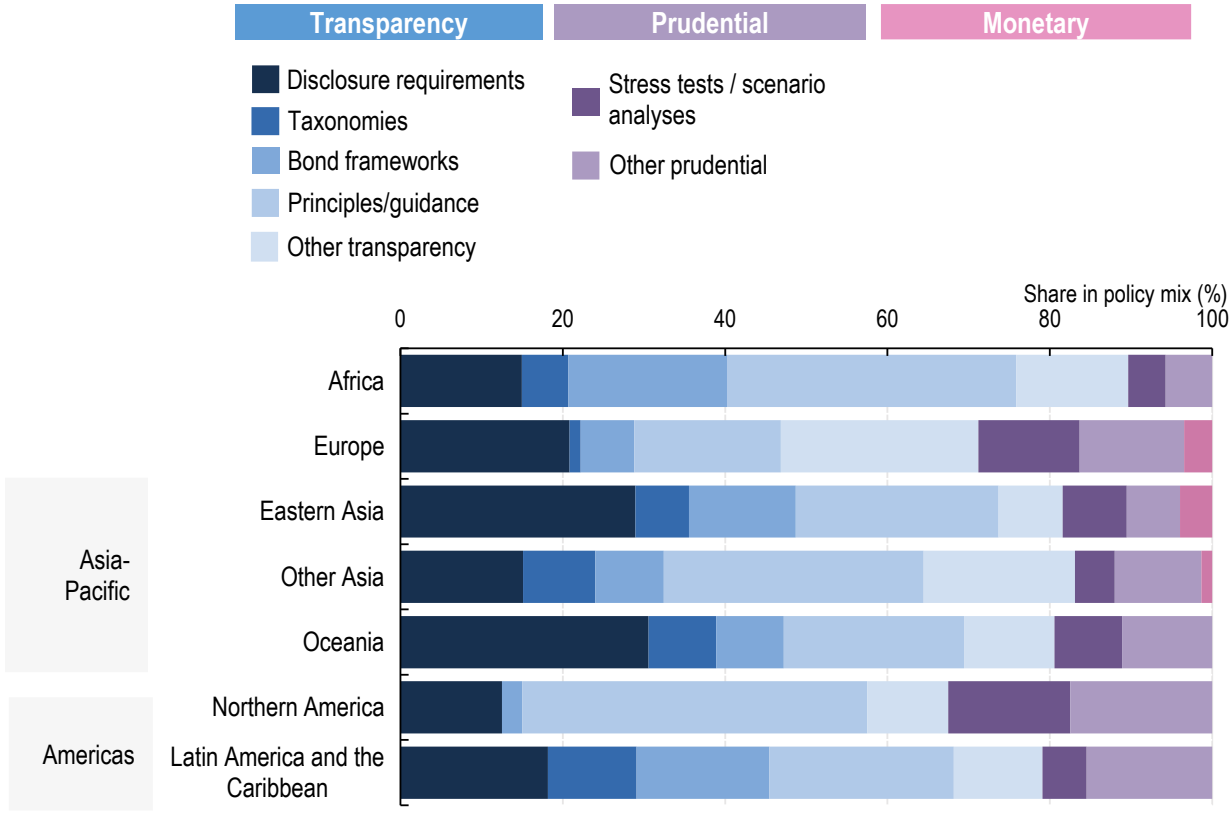

Source: OECD data on Climate-Related Financial Sector Policies.

**Countries across geographies adopt different policy playbooks, placing different weights on transparency measures, voluntary frameworks, risk management and supervision tools**. Policymakers in Africa and parts of Asia-Pacific continue to rely relatively more on transparency policies,

while shares of climate-related prudential policies are higher in Europe and North America. Within these broad policy patterns, disclosure requirements remain dominant in Europe and Asia-Pacific. North America has the highest share of voluntary frameworks. Africa and Latin America have a higher share of transparency frameworks for specific debt instruments. The use of climate stress tests has become prominent in Eastern Asia and Europe, while the Americas and other parts of Asia rely more on other risk management and supervision tools. A range of countries are widening their climate-related financial sector policy toolkits. Green taxonomies doubled between 2023 and 2025, driven primarily by adoption in emerging markets and developing economies (EMDEs). A handful of countries started implementing ESG scoring policies to improve market integrity and transparency across providers. Moreover, central banks in around 10 countries and the European Central Bank adopted climate-related monetary policies, mainly in Europe but also in Asia. Policymakers need to adapt climate-related financial sector policy mixes to national circumstances, but policy toolkits can still be broadened in many countries, including based on peer-learning with other jurisdictions.

**Mandatory disclosure requirements remain core climate-related transparency policies and are increasingly complemented by voluntary frameworks**. By 2025, policymakers in 110 countries and the EU had adopted over 670 climate-related transparency policies. Around 30% of these policies are mandatory, the majority of which are disclosure measures. While disclosure requirements represent a quarter of climate transparency policies, they are increasingly combined with voluntary tools, such as climate-related guidelines (33%), frameworks for different financial instruments (20%), and roadmaps (18%). To make these frameworks more effective, governments and financial supervisors need to ensure coherence between climate disclosure requirements for financial institutions and non-financial corporations, as well as collaborate with the private sector to strengthen the role of voluntary tools.

## Figure 1.3. Climate-related financial sector policy mixes across regions, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies.

**Climate-related transparency policies alone cannot directly reduce GHG emissions and increase climate resilience, but they help close information asymmetries and support capital allocation towards climate innovation and transition.** Growing empirical literature suggests that disclosure measures are improving information quality, influencing investor behaviour and steering capital allocation towards climate innovation and transition. Green taxonomies and bond frameworks may promote green financial innovation and attract inflows into funds using those labels, but their additionality is difficult to demonstrate as such policies may respond to investor demand as well as redirect finance from self-labelled funds. To strengthen the impact of such transparency tools, policymakers could pair them with tracking tools that can better distinguish new and additional investments from simple relabelling, as well as with dialogue platforms with private investors to understand their needs and motivations.

**Climate transparency policies provide a foundation for improving the effectiveness of other climate-related financial sector policies**. Transparency policies are frequently adopted alongside other policies or provide the information needed for further policy development. For example, voluntary guidelines are often adopted to strengthen the implementation of other transparency policies while disclosure requirements may support supervisory expectations or inform asset purchases by central banks. Data-driven evaluations of the effects and scope of existing transparency policies may therefore need to consider their interactions with other relevant policies across authorities. Policymakers could invest in shared data and cross-authority evaluation frameworks to assess how transparency measures interact with other policies and identify opportunities to improve policy packages over time.

**Climate supervision practices and stress tests drove the rise of climate-related prudential policies yet expanding their scope and bindingness would better address climate risks, especially in EMDEs**. By 2025, policymakers in 57 countries and the EU institutions had implemented around 200 climate-related prudential policies (including transparency-related prudential policies), with the aim of decreasing risks of financial instability. Most were adopted by central banks and apply to banks. Fewer policies target climate risks to insurers and investment funds. Most climate-related prudential policies have taken the form of climate stress tests or scenario analyses and other risk management and supervision tools. There remains much scope to adjust large exposure policies or adopt policies that adjust liquidity requirements to better reflect climate-related risks to banks' operations. While about a third of policies are mandatory for supervised financial institutions, many remain voluntary, providing general guidance or assessments to identify risks without specific next steps to address them in practice. Many EMDE countries have yet to assess climate risks to their financial system. Coverage of insurance companies and physical risks in climate-related stress tests can be improved.

**A growing literature continues to find potential trade-offs between core financial and climate policy objectives for several climate-related prudential policies**. Climate-related prudential policies are found to have mixed effects on steering finance towards low-GHG activities, while sometimes bringing trade-offs with financial stability, especially for policies related to the level and quality of capital and risk buffers to strengthen resilience to systemic risks. Limited conceptual research expects potential positive effects across policy objectives for some climate-related large exposure policies and risk management and supervision practices, although such effects may be small. For example, stress tests increase the awareness of financial institutions on the effects of climate risks, which in some jurisdictions has increased the likelihood that banks provide green loans to high-emitting companies. Given the mixed evidence on the effects of climate-related prudential policies, policymakers can seek to calibrate them carefully, test for unintended consequences and identify designs that strengthen risk management.

**As climate-related monetary policies begin to emerge, further scenario and policy analysis is needed to understand their potential effects and inform their design**. Climate-related monetary policies primarily aim to help manage the impacts of climate change on price stability. As only a small number of such policies have been adopted, the evidence base remains limited and relies largely on theoretical research and scenario analysis. Overall, findings are mixed and point to potential trade-offs

between climate and price stability objectives. Theoretical research on climate-adjusted asset purchases suggests limited effects on monetary policy effectiveness, while potentially increasing green finance flows. Analysis of climate-related credit operation policies points to potential trade-offs between monetary and climate policy objectives, and the importance of robust climate-related definitions.

**Effective real-economy climate policies remain fundamental levers for incentivising climate-aligned investments, which climate-related financial sector policies build upon**. Governments mostly rely on climate-related economic policies, such as taxes and subsidies, but other types of climate-related policies, including regulatory, government investment and consumption, voluntary approaches, and information, have increased more since the adoption of the Paris Agreement. Recent slowdown in the adoption of new policies may reflect recalibrations of policy mixes towards increased effectiveness. Real-economy climate policies are a prerequisite for enabling private finance, by setting standards, sending signals to investors and providing incentives for low-GHG investments. Instruments resulting in fiscal and financial incentives directly impact net present value and internal rate of return calculations. Consequently, remaining fiscal and financial incentives for fossil fuel production and consumption across jurisdictions continue to contribute to disincentivising climate-aligned investment decisions. Climate-related financial sector policies cannot substitute fiscal, industrial and infrastructure policy but can act as amplifiers. The effectiveness of climate-related financial sector policies, therefore, depends in part on the credibility, consistency and effectiveness of the broader policy environment.

## TRACKING: Climate alignment has advanced for some financial flows, but large opportunities to transition investments globally remain untapped

**The share of low-carbon energy investments in total real-economy investments has increased and significantly exceeds the share of fossil fuel energy investments.** In 2024, global investments in low-carbon energy accounted for 7% of gross fixed capital formation (GFCF), outpacing those in fossil fuels, which represented 4%. While more recent data on GFCF are not yet available, low-carbon energy investments exceeded fossil fuel energy investments in 2025 by the largest margin to date. At the same time, the climate alignment of over 85% of real-economy investments is not yet tracked at a global level, as the climate transition of many economic sectors remains difficult to accurately assess systematically. Closing this tracking gap is needed to determine whether rising low-carbon energy investments are being matched by broader progress in aligning the real economy with climate goals, including by fostering climate transition and innovation.

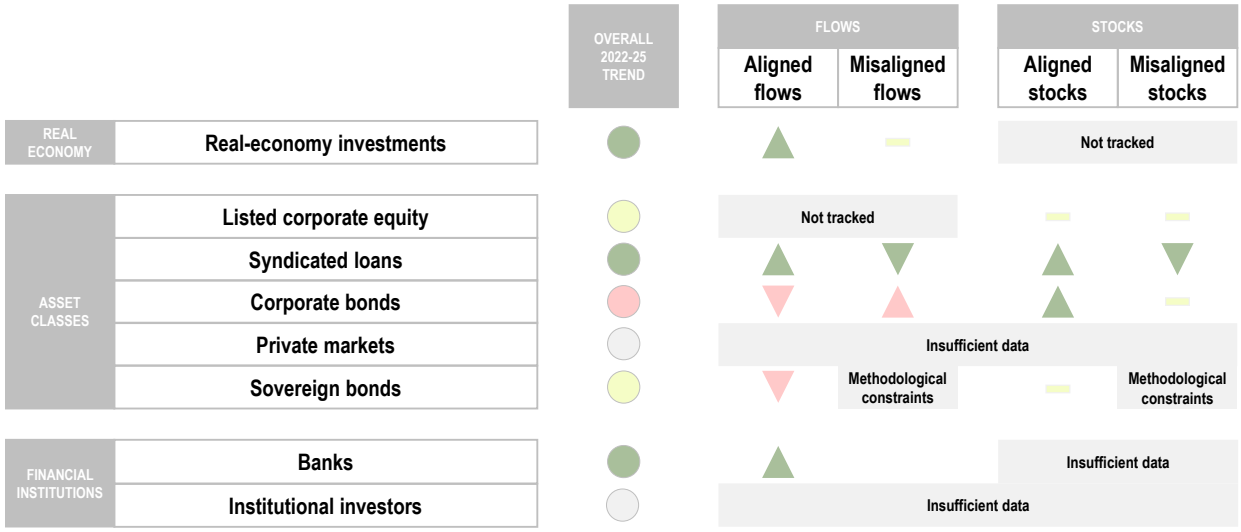
**The rising share of low-carbon energy investments is driven by significant absolute growth in Asia-Pacific, Europe and North America, especially from the private sector, combined with stagnating fossil-related investments**. Growth of low-carbon energy investments since 2020 drove their increasing share in total investments, while fossil-related investments remained relatively stable. At the global level, the private sector represents the majority of investments in low-carbon energy, whereas the public and private sectors are taking up a relatively even share of fossil fuel investments. In 2025 and over the 2021-2025 period, clean energy investments outpaced fossil investments in Asia-Pacific, Europe and North America, but the opposite was observed in all other regions. Lagging low-carbon investments in Africa, Eurasia, Latin America, and the Middle East suggest untapped investment opportunities.

**Greenfield foreign direct investment was a sizeable contribution to improved climate alignment of real economy investments in both advanced and emerging economies**. Greenfield foreign direct investment (FDI), which involves the construction of new operational facilities, is a significant channel through which cross-border capital influences the real economy in recipient countries over the medium and long term. Between 2016 and 2025, the climate alignment of global greenfield FDI improved. On the one hand, greenfield FDI in renewable energy more than doubled in volume and grew faster than total greenfield FDI, rising from less than 10% of the total to 15%. On the other hand, greenfield FDI in fossil

energy was volatile and did not keep pace with overall growth, declining from 14% of total greenfield FDI in 2016 to less than 4% in 2025. Greenfield FDI in renewable energy is no longer concentrated in advanced economies. Between 2021 and 2025, it outpaced greenfield FDI in fossil energy in all regions, although such improved alignment is taking place at different speeds and scales.

**Climate alignment has advanced for some parts of the financial system, but trends in the real economy and the financial system have yet to converge**. Financial flows and stocks across most asset classes play different roles in financing real-economy investments in climate innovation and transition. In contrast to real-economy investment trends, fossil fuel financing across asset classes continues to outpace low-carbon financing. Where climate-alignment trends of listed equity remained relatively stable since 2022, those of debt instruments fluctuated more. Besides fossil fuels, conventional financing to other GHG- and energy-intensive sectors is several multiples of that to low-carbon sectors, pointing to large, untapped opportunities to invest in the climate transition.

## Figure 1.4. Evolution of climate-(mis)alignment across layers of finance, 2022-25



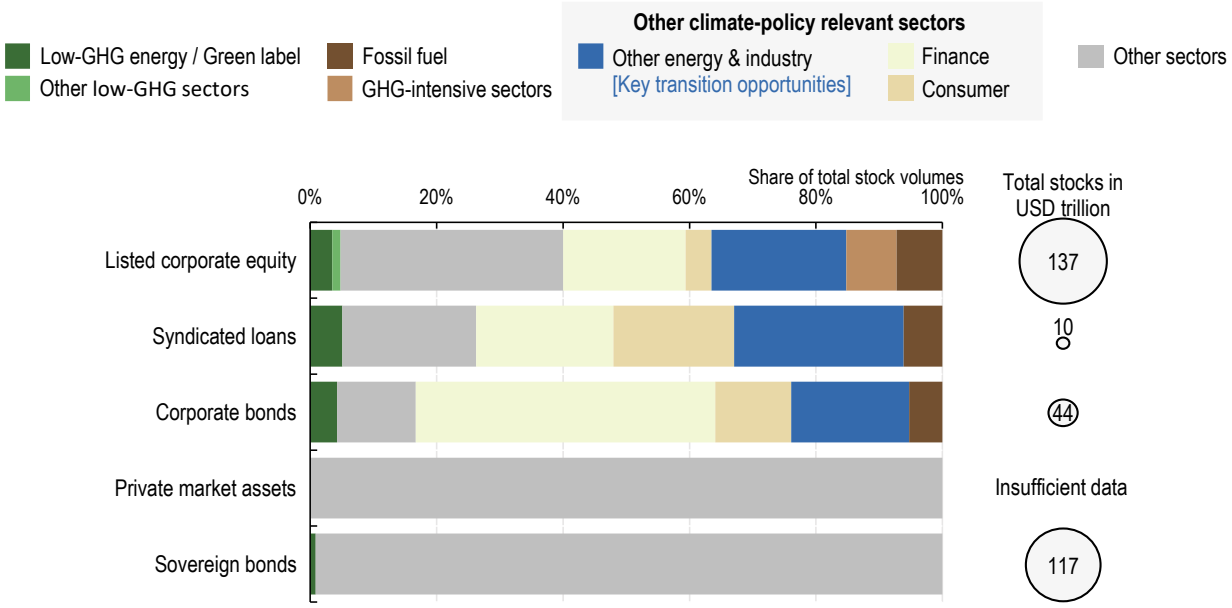

Note: This figure combines data from figures throughout Chapter 3. Methodological notes, especially in relation to low-carbon and carbon-intensive classifications can be found in their respective subsections.
Source: Authors, based on data retrieved from IEA, Bloomberg, BloombergNEF, LSEG.

**Listed corporate equity shares in low-carbon sectors are highest in regions with large stock markets, but considerable scope remains to transition stock markets globally**. At the end of 2025, global low-carbon listed equity accounted for one-third of carbon-intensive stocks and was around 5% of total listed equity. These shares have been stable between 2020 and 2025. Over 40% of listed corporate equity is in sectors that are not exclusively low-carbon or carbon-intensive but are particularly relevant for mitigating climate change. North America and Eastern Asia, which represent over 70% of global equity markets, have some of the highest shares (around 6%) of equities in low-carbon sectors. Accounting for only 3% of global markets, Africa, Oceania and Latin America have some of the highest proportions of listed corporate equity in GHG-intensive sectors (over 20%), reflecting the importance of extractive and energy-intensive industries in their economies.

**Low climate alignment of corporate bonds and syndicated loans points to the untapped potential of different corporate debt instruments to finance low-carbon solutions across sectors**. In 2025, green corporate bonds accounted for 4% of outstanding corporate bond stock, still below fossil fuel sector bonds at 5%. In terms of flows, issuance of green bonds slightly exceeded traditional bond issuance by fossil fuel sectors for the fourth year in a row, at 4.5% versus 4.2% of total corporate bond issuance. Green

syndicated loan flows reached higher levels, at 5% of total loan flows, while lending to fossil fuel sectors was at 6%. At the same time, just under 30% of corporate bond and syndicated loan issuance financed activities in the energy and industrial sectors that were neither green-labelled nor specifically targeted to fossil fuel supply. This points to potential opportunities to steer much larger volumes of corporate debt financing towards transitioning activities, including based on the emergence of transition-labelled bonds.

## Figure 1.5. Overview of climate-(mis)alignment estimates across asset classes in 2025

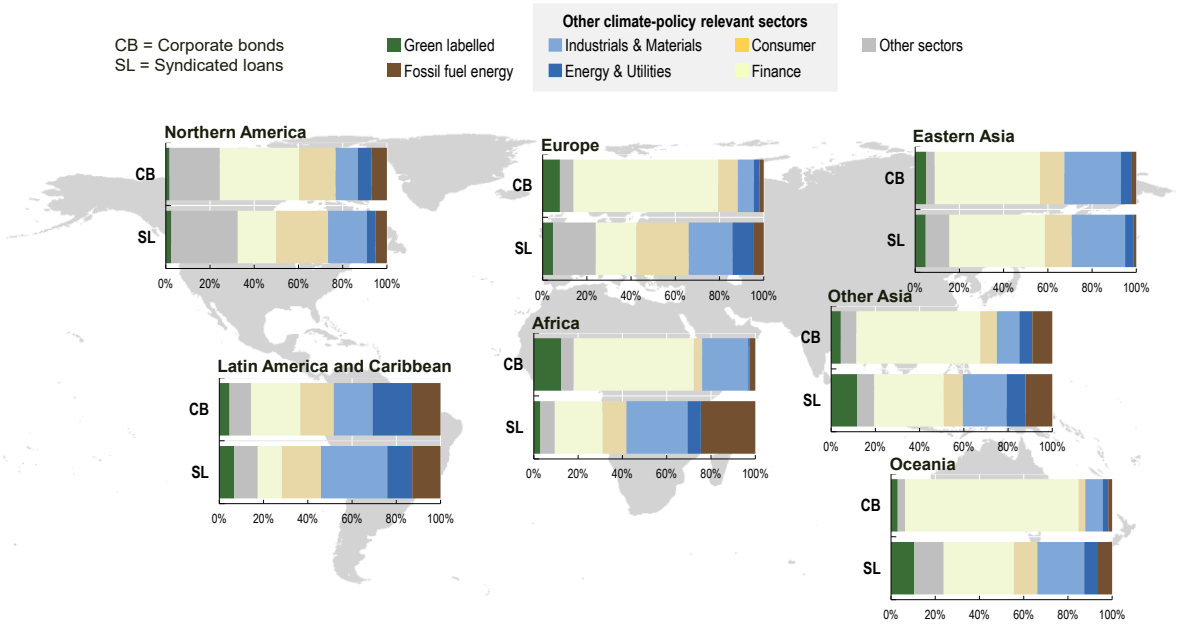



Note: This figure combines data from figures throughout Section 3.2. Methodological notes, especially in relation to low-carbon and carbon-intensive classifications can be found in their respective subsections. GHG refers to greenhouse gas. Other low-carbon sectors and GHG-intensive sectors are only identified for listed corporate equities. Greem labelled refers to low-carbon energy sectors in listed corporate equity and green-labelled instruments for other asset classes.
Source: Authors, based on data retrieved from Bloomberg, BloombergNEF, LSEG.

**Climate-alignment trends in corporate debt instruments are diverging, with growth in green-labelled syndicated loans but shrinking momentum in the greening of bond markets since 2022**. Global green corporate bond issuance plateaued after 2022 and did not keep pace with the growth of total issuance. Traditional bonds from fossil fuel sectors fell sharply in 2022 but have since rebounded to levels just below green bond issuance. By contrast, green syndicated loans rose markedly, reaching a record 5% of total loan flows, while syndicated loans to fossil fuel sectors fell to 6%. Still, syndicated loans continue to finance more fossil fuel than low-carbon activities by almost a factor of two.

**Regional differences in the climate alignment of corporate debt instruments persist, reflective of varied economic structures and different climate transition needs across sectors**. Some regions are capturing opportunities to finance their climate transition through green bonds more than others. Green-labelled corporate bond issuance in Africa, Europe and parts of Asia-Pacific exceeds traditional corporate bonds issued by fossil fuel companies, while the opposite remains true in some other parts of Asia and the Americas (Figure 1.6). Regions with the highest shares of green corporate bond issuance also have the lowest shares of traditional bond issuance by companies in fossil fuel sectors. Europe is the main driver of green bond volumes. Volumes of green-labelled syndicated loan issuance exceed traditional loan issuance in Eastern Asia and Oceania, while green-labelled syndicated loans represent less than 3% of issuance on average between 2021 and 2025 in North America and Africa. Africa, characterised by overall low volumes, has the highest share of carbon-intensive syndicated loan issuance.

## Figure 1.6. Regional issuance of corporate bonds and syndicated loans by label and sector, 2021-25 average




Source: Authors, based on data retrieved from Bloomberg, BloombergNEF, LSEG.

**Data and methodological constraints result in very limited evidence on the role of sovereign bonds and private markets in aligning finance with climate goals**. Overall data gaps for private equity and bilateral loans, which are typically not covered by disclosure requirements, prevent evaluations of their role in financing climate innovation and transition in the real economy. Besides fiscal revenues, the financing of national budgets heavily relies on sovereign bonds, for which data is widely available. However, green bonds only represented 1% to 5% of total sovereign issuance across regions between 2021 and 2025 and no common approach exists to assess the climate alignment of traditional unlabelled bonds.

**Banks still channel more financing to fossil fuels than low-carbon energy but evidence for other types of financial institutions is needed to understand the diverging climate alignment of real-economy and financial system flows**. Bank-facilitated financing to fossil fuels still exceeded low-carbon energy supply in 2024. However, the gap narrowed since 2021 as banks across all regions captured more green finance opportunities. The highest relative growth in low-carbon bank-facilitated financing was in Africa, but the largest volume increase occurred in Europe. Evidence on other types of financial institutions, including equity funds, pension funds, sovereign wealth funds, insurance companies and asset managers, remains very partial.

**Climate-alignment assessments at the level of financial jurisdictions help map untapped investment opportunities in climate solutions and transition**. National collaboration across policy authorities can progressively increase the coverage of climate assessments, notably for private markets and for all types of investors. Voluntary national commitments under the G20 Data Gaps Initiative are expected to yield the first official estimates of green debt securities and listed equities by 2027. Dedicated efforts remain needed to also identify and disclose data and information on finance exposed to high-GHG activities and physical climate risks.

## METRICS: Data to track the climate alignment of finance is increasingly available but gaps remain to identify transition opportunities and assess opaque assets

**The effectiveness of transparency policies and the credibility of alignment tracking exercises depend on robust metrics.** Since the 2015 Paris Agreement, a range of climate metrics have been developed. Data for such metrics have become increasingly available, including based on the growing adoption of climate-related transparency policies. Still, significant gaps to credibly measure climate transition and resilience across financial activities and institutions remain, including to identify opportunities.

**The landscape of climate metrics used in the financial sector is increasingly broadening beyond GHG metrics to better capture environmental integrity and economic credibility**. Information on portfolio composition, investments and engagements can contribute to assessments of progress towards GHG emissions reduction commitments. Such information also enables the identification of climate-related investment opportunities and tracking of transition planning.

**Quantitative metrics tailored to different actors, activities, asset classes and sectors would help inform more impactful investment decisions and effective policymaking**. This includes metrics that capture climate transition opportunities for different financial sector activities, such as lending, underwriting, asset owner or manager investing. Some metrics have emerged, such as volumes of investments and lending in climate solutions or green revenue shares of portfolio firms, but they need to be further developed.

**Transition metrics for corporate assets are the most established, but do not yet sufficiently identify shifting business models and opportunities**. For listed non-financial companies, addressing this gap requires a refinement of metrics on climate-relevant revenues, expenditures, and research and development, as well as sector-specific metrics including on real assets. For unlisted companies in private equity portfolios, metrics need to be adopted in response to larger data and disclosure gaps. Emerging, yet partial, metrics include the energy portfolios of private equity companies and energy supply investment ratios. These corporate metrics can complement climate-alignment assessments based on emissions (targets) and financial flows tracked based on labels and economic sectors.

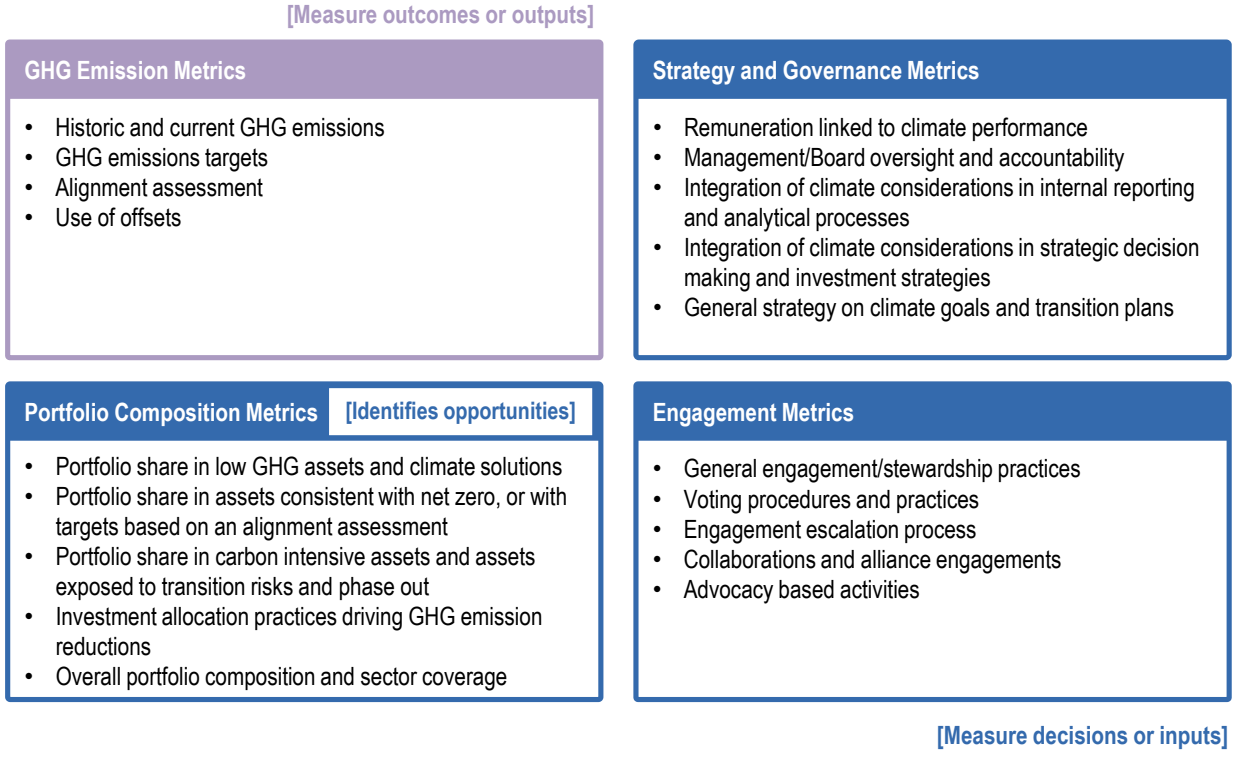
**A progressive integration of adaptation metrics in transition plans enables a more integrated approach to tracking climate performance**. Climate-related assessment and disclosure frameworks remain less comprehensive and consistent in addressing adaptation relative to mitigation. Corporate adaptation can be progressively tracked through three sets of metrics: physical risk baseline metrics that measure exposure and vulnerability to physical risks and estimate financial impacts; adaptation input metrics on actions and strategies to build resilience; and resilience outcome metrics that analyse the impact and effectiveness of adaptation actions.

**Credible assessments of the climate alignment of bonds face different challenges for corporate and sovereign issuers**. Green labelling of corporate bonds contributes to market transparency, but empirical evidence highlights a need for careful evaluation of impact and additionality. Assessment of the environmental integrity of corporate green bonds can be strengthened by insights from metrics on broader corporate activities being developed in the context of transition plans and for assessing transition and general-purpose corporate bonds. For sovereign issuers, while the additionality of green bonds is also being questioned, the critical challenge relates to broadening climate assessments to general-purpose bonds. Such broadening is needed to strengthen the role of public debt in supporting the climate transition. Metrics on sovereign transition planning, sector-specific decarbonisation pathways, and investable national climate plans for both climate change mitigation and adaptation could help close this gap, while reflecting national circumstances.

**Investors and policymakers need to tap into innovative data solutions as disclosure by corporates and official bodies alone cannot fill all gaps**. Corporate disclosure has significantly improved data

availability, yet gaps remain. Innovative data approaches, such as natural language processing (NLP) and geospatial data techniques are increasingly being used by investors, analysts and financial sector policymakers. NLP approaches can extract corporate and publicly available climate data at scale and help construct new metrics to assess climate disclosure quality and greenwashing on that basis. Geospatial approaches can contribute to filling data gaps, improving data comparability across geographies, producing estimates for opaque asset classes and validate reported climate data.

### Figure 1.7. Climate mitigation information points and metrics proposed by voluntary frameworks




## ACTIONS: What can policymakers do?

**Building on the data-driven findings presented in this report and recognising different national contexts and institutional mandates, policymakers can take a range of co-ordinated and individual actions** to build coherent policy playbooks influencing the climate alignment of finance and to better capture untapped transition investment opportunities.

**Actions across policy authorities**:

- **Widen the climate-related financial sector policy mix**: Drawing on peer learning with other jurisdictions, identify additional transparency, prudential and monetary policy measures used in other jurisdictions that can fit and be tailored to domestic contexts, considering respective policy objectives and mandates of national authorities.
- **Improve the coherence of climate-related disclosure requirements for financial institutions and non-financial companies**: Co-ordinate scopes and timelines, including proportionate transparency requirements for more opaque asset classes, such as private equity firms. Encouraging comparable quantitative data on both climate transition and resilience, including metrics that enable the identification of climate transition opportunities. Where possible, develop

common digital reporting portals and machine-readable templates to reduce reporting costs and improve data comparability.

- **Adopt co-ordinated climate data and evaluation frameworks across national policy authorities**: Through defining common indicators and data collaboration arrangements, expand capacities to improve the coverage, quality and policy relevance of data to more consistently track the climate alignment of financial flows and stocks. Develop pilot national assessments of the climate alignment of finance, using indicators that are internationally comparable, to identify policy gaps and untapped opportunities to invest in climate transition and innovation.
- **Collect and publish national sustainable finance statistics**. Under the leadership of statistical agencies, develop data collection approaches to progressively report statistics on green debt securities, loans, equity and investment fund shares, as part of the National Accounts. Explore options to publish statistics and indicators on both climate-aligned and -misaligned financial flows and stocks, including estimates for more opaque asset classes.
- **Provide practical implementation guidance to improve the effectiveness of transparency policies for different types of financial institutions**: Implementation guidance can help clarify expectations relating to transparency policies, especially if tailored to different types of financial institutions and the metrics most relevant to their activities. The development of such guidance can be informed by assessments of how transparency measures such as taxonomies and disclosure requirements interact with other policies and whether such policy packages allow to distinguish new and additional investments from relabelling.

**Actions by environmental and financial ministries**:

- **Assess the effects of real-economy policies that play a critical role in incentivising or hindering climate-aligned financial flows**: Assess whether real-economy policies create credible pipelines of climate-aligned investment opportunities. Identify critical policies that disincentivise investments in climate transition and innovation. Assess how these policies affect the business case for climate-aligned investments and the effectiveness of climate-related financial sector policies in greening the financial system.
- **Strengthen government-backed voluntary partnerships with private investors**: Establish or strengthen partnerships with financial sector actors through voluntary initiatives, backed by central governments, to enhance data availability including in more opaque asset classes, strengthen the role of voluntary frameworks, support policy implementation and help build capacity on green finance practices. Use these partnerships to test credible climate metrics, identify investable transition opportunities, track transition plans and inform policy updates.
- **Update climate-related transparency policies based on empirical evaluations of their effects**: Assess at a regular interval whether climate-related transparency policies decrease information asymmetries, enhance investor decision-making and contribute to increasing investments in climate solutions. Rely on results of such data-driven assessments to update disclosure scopes, metrics and bindingness.
- **Publish public climate risk datasets and develop sector transition pathways**: Make climate risk datasets publicly available, in collaboration with meteorological and statistical agencies, and develop sector-level transition pathways that can inform investor actions and feed into supervisory stress testing.
- **Send market signals through issuing green and transition sovereign debt instruments:** Anchor such issuance in robust frameworks and lead by example through annual allocation and impact reporting. Where possible, link green and transition labels to national climate plans and sector-specific pathways.

**Actions by central banks and financial supervisors**:

- **Expand the coverage of climate stress testing across the financial system and share results to inform wider policy playbooks**: Conduct both top-down and bottom-up stress tests for climate transition and physical risks. Cover banks, insurers, pension funds and investment funds. Share relevant results with governments, including to inform adaptation and resilience policies, while protecting supervisory confidentiality and central bank independence.
- **Conduct scenario analysis and evidence-based assessments of climate-related financial sector policies**: Conduct *ex ante* scenario analysis and *ex post* empirical evaluations to assess the potential and observed effects of integrating climate considerations into prudential and monetary policies. Test for unintended consequences, identify where trade-offs exist between climate goals and financial stability, and identify designs that strengthen risk management and market integrity.
- **Better leverage existing climate-related data and disclosure with innovative data tools**: Use geospatial data to complement data reported based on disclosures as well as machine learning approaches to assess the consistency of public climate-related data and claims, which can help identify potential integrity concerns.
- **Improve the transparency of climate ratings, physical risk indicators and alignment assessments**: Request or encourage ESG rating providers to disclose information on their methodologies, data sources and assumptions to improve the transparency and comparability of climate assessments of financial assets and activities.

## References

OECD (2024), *OECD Review on Aligning Finance with Climate Goals: Assessing Progress to Net Zero and Preventing Greenwashing*, Green Finance and Investment, OECD Publishing, Paris, https://doi.org/10.1787/b9b7ce49-en. [2]

UNFCCC (2015), *The Paris Agreement*, https://unfccc.int/process-and-meetings/the-paris-agreement. [1]

# 2 Policies

This chapter presents an overview of public policies that may influence the climate alignment of finance. It first provides a brief snapshot of relevant real-economy policies, before diving into financial sector policies that integrate climate considerations. It takes stock of trends, characteristics, and effects of such policies. The chapter provides examples across jurisdictions, thereby highlighting different approaches taken across geographical, economic and vulnerability contexts. In doing so, it offers insights to policymakers on current practices and options for further climate-related financial sector policy work.

## Key insights

- **In pursuit of their primary financial and price stability as well as market integrity objectives, financial sector policies increasingly integrate climate considerations.** While tailored to address climate risks, such policies can also influence climate outcomes and the financial sector's capacity to build resilience and capture opportunities from climate transition. Between 2000 and 2025, policymakers in 111 countries and EU institutions adopted over 860 climate-related financial sector policies. Over the past 25 years, central banks adopted 32% of policies, financial supervisors and regulators 28%, and governments 28%.
- **Countries across geographies continue to expand the number and mix of climate-related financial sector policies, adopting different policy playbooks.** Between 2023 and 2025, the number of climate-related financial sector policies grew by over 25%, demonstrating continued efforts globally although some countries are revising policy efforts. By 2025, 78% of climate-related financial sector policies were transparency policies, 20% prudential policies, and 2% monetary policies. Policymakers in Africa and Asia-Pacific continue to rely relatively more on transparency policies, while shares of climate-related prudential policies are higher in Europe and North America.
- **As mandatory disclosure requirements remain core to climate transparency policies and are increasingly combined with voluntary frameworks, data-driven evaluations of their effects and scope need to inform policy updates.** By 2025, policymakers in 110 countries and EU institutions adopted over 670 climate-related transparency policies, a nearly 25% increase from 2023. Around 30% of these are mandatory, the majority of which are disclosure measures. These policies alone cannot reduce emissions directly, but they help close information asymmetries, support capital allocation towards climate innovation and transition, and provide a foundation for other policies. Europe and Asia-Pacific have the highest share of disclosure requirements within their policy mix, while North America relies more on voluntary frameworks. Green taxonomies doubled between 2023 and 2025 to around 50, driven primarily by adoption in EMDEs. A handful of countries also started implementing ESG scoring policies.
- **Climate supervision practices and stress tests drove the rise of climate-related prudential policies, yet expanding their scope and bindingness would better address climate risks, especially in EMDEs.** By 2025, policymakers in 57 countries and EU institutions implemented around 200 climate-related prudential policies, a 30% increase from 2023. Most were adopted by central banks and apply to banks. Fewer policies target climate risks to insurers and investment funds. Eastern Asia and Europe have the highest shares of climate stress tests within their policy mix, while the Americas and other parts of Asia rely more on other risk management and supervision policies. The number of climate stress tests doubled since 2022, covering over 50 countries by 2025, but many EMDE countries have yet to assess climate risks to their financial system. Coverage of insurance companies and physical risks in stress tests can be improved.
- **As climate-related monetary policies begin to emerge, further scenario and policy analysis is needed to understand their potential effects and inform their design.** By 2025, around 10 jurisdictions adopted such policies, mainly in Europe but also some in Asia. Most were adopted between 2021 and 2023. Evidence on their effects remains scarce.
- **Effective real-economy climate policies remain fundamental levers for incentivising climate-aligned investments, which climate-related financial sector policies build upon.** Climate-related financial sector policies cannot substitute for fiscal, industrial and infrastructure policy. Their effectiveness, therefore, depends, in part, on real-economy climate policies and the removal of policy barriers to climate-aligned investments.

As introduced in the first edition of the OECD Review on Aligning Finance with Climate Goals (OECD, 2024[1]), policymakers use a range of policy tools and approaches both to capture the opportunities from climate transitions, as well as to manage climate risks to their economies and financial systems (Box 2.1). This chapter dives deeper into financial sector policies that integrate climate considerations (Section 2.1) and then provides a snapshot of real-economy policies adopted to drive the climate transition (Section 2.2).

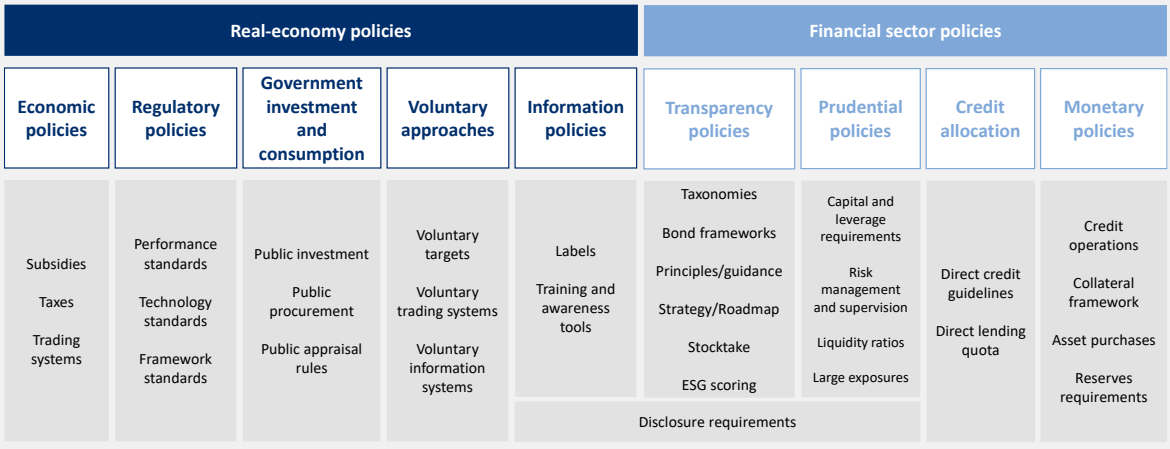
## Box 2.1. Typology of public policies influencing the climate alignment of finance

Public policies that influence the climate alignment of finance can relate to the real economy or the financial sector. A wide variety of policy measures and interventions can be tailored to include climate-related considerations, which are broadly summarised in Figure 2.1.

Governments can use a range of real-economy policies that influence the alignment of real-economy investments and financing with climate goals. Real-economy policies influencing climate change outcomes can be grouped into five major categories: (1) economic policies, (2) regulatory policies, (3) government investment and consumption, (4) voluntary approaches, and (5) information policies (OECD, 2024[2]). These different types of policies impact economic agents in different ways: economic instruments aim to incentivise changes in behaviours (including investment decisions), regulatory instruments mandate, while the latter three categories tend to enable and guide (OECD, 2024[2]).

Climate-related financial sector policies, the focus of this chapter, integrate climate considerations into financial sector policies, which typically pursue financial stability, price stability, market integrity or related objectives, depending on the policy area and institutional mandate. While there are different ways to group such policies, and some may fulfil multiple purposes, they can be grouped in four common policy areas that underpinned the first edition of the OECD Review on Aligning Finance with Climate Goals (OECD, 2024[1]): (1) transparency, (2) prudential, (3) credit allocation, and (4) monetary policies (OECD, 2024[1]). This edition of the OECD Review expands data on climate-related financial sector policies including through covering a wider range of transparency policies and tracking monetary policies for the first time. Credit allocation policies are not covered in this edition.

### Figure 2.1. Public policies that may influence climate alignment of finance




Source: (OECD, 2024[1]; OECD, 2024[2])

## 2.1. Financial sector policies influencing climate alignment

**The potential for climate change to generate systemic financial instability, through concurrent, correlated asset devaluations across sectors and geographies, provides a core rationale for public policy intervention in financial markets** (Battiston et al., 2017; Bolton et al., 2020; de Bandt et al., 2023). Financial sector policies pursue financial stability, price stability, market integrity and related objectives, depending on the policy area and authority mandate, but they can also influence climate outcomes (OECD, 2024[1]). Such influence can result from existing core financial sector policies or, depending on the mandates of relevant authorities, from financial sector policies that explicitly integrate climate considerations. The core official entities implementing these policies are central banks, supervisory and regulatory authorities, and ministries (finance in particular). The exact mandates of these policymakers differ across jurisdictions.

**Financial sector policies that integrate climate considerations are primarily designed to address climate risks** (OECD, 2024[1]). Depending on their mandates, policymakers can also encourage the greening of financial markets to seize climate opportunities. While these policies can be categorised in different ways and may, for some, fulfil multiple purposes, they can be grouped in four common policy areas, namely transparency, prudential, monetary and credit allocation policies. The latter are not assessed in this report.

**Climate-related financial sector policies have continued to increase over the past years, including a notable increase in prudential policies** (Figure 2.2). Policymakers in 111 countries and the EU adopted over 860 climate-related financial sector policies between 2000 and 2025. Of those, 78% were transparency policies and 20% prudential policies. At around 2%, a very limited number of monetary policies integrate climate considerations. At least one climate-related financial sector policy was adopted by 51 advanced economies (AEs) and 60 emerging and developing economies (EMDEs), including 34 out of 38 OECD member countries and all G20 jurisdictions. Between 2023 and 2025, the number of climate-related financial sector policies grew by over 25%, after a peak in 2020 and 2021. This demonstrates continued efforts globally although some countries are revising policy efforts.

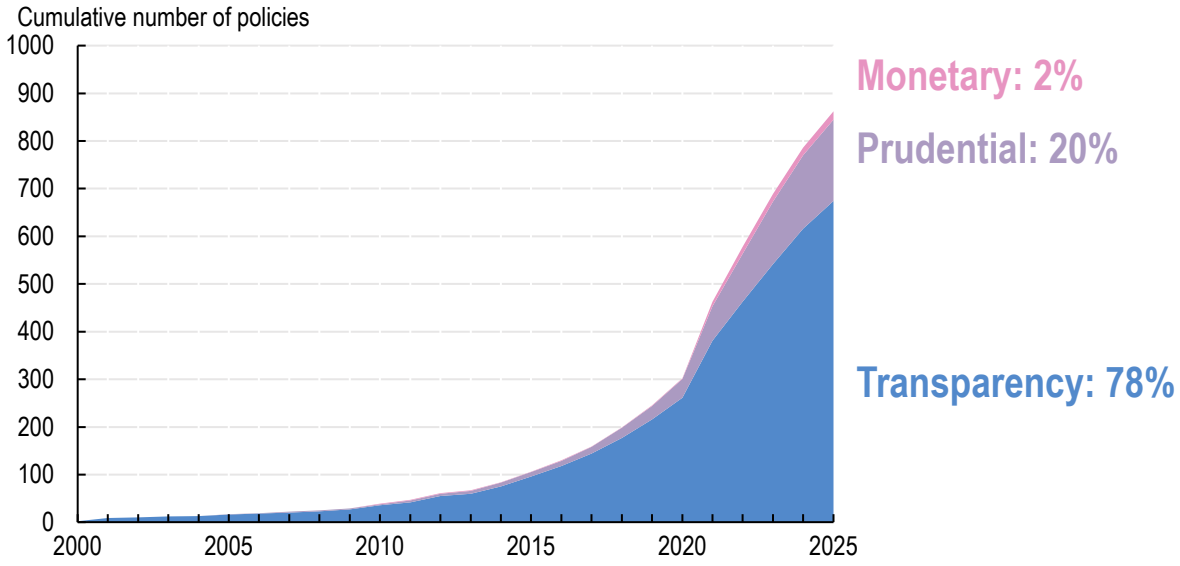
**While governments and financial supervisors or regulators implemented most of the initial climate-related financial sector policies, central banks have taken a more active role since the adoption of the Paris Agreement**. Governments and financial supervisors adopted most policies before the 2015 Paris Agreement, but central banks have taken a more prominent role since. By 2025, central banks adopted 32% of policies, financial supervisors and regulators 28%, governments 28% and securities exchanges or a collaboration of authorities the remainder (Figure 2.3). The share of policies adopted by central banks has been steadily increasing from 24% between 2011 and 2015, 30% between 2016 and 2020, to 35% between 2021 and 2025. Securities exchanges have established disclosure guidance and requirements around 2020 to 2022, but slowed down the adoption of new policies afterwards.

**As policymakers have expanded the number and mix of types of climate-related financial sector policies over the years, they have increasingly combined mandatory policies with voluntary tools and updated policies**. Before the Paris Agreement, most climate-related financial sector policies were mandatory. Since then, jurisdictions have implemented a wider range of tools, including strategies and guidelines with a lower degree of bindingness. As a result, the share of mandatory policies was significantly lower between 2020 and 2025 than between 2015 and 2020. In addition, around 10% of policies adopted before 2020 have since been updated.

**Countries across geographies are adopting a diverse mix of policies that follow different approaches to drive the integration of climate considerations in the financial sector**. North America and Europe have adopted a higher share of climate-related prudential policies in their mix of clmimate-related financial sector policies (Figure 2.4 and Figure 2.5). In contrast, Africa, Oceania, and parts of Asia

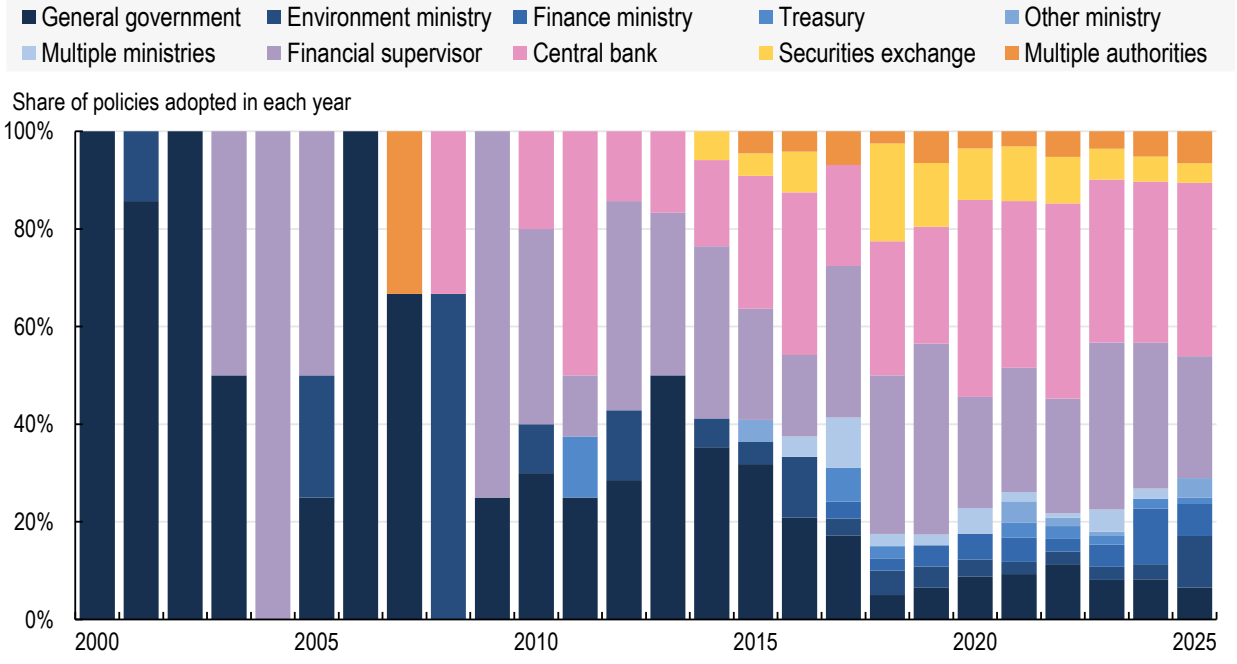
still rely more on transparency policies. Some European and Eastern Asian countries have started to integrate climate considerations in monetary policies.

### Figure 2.2. Climate-related financial sector policies adopted globally by policy area, 2000-25



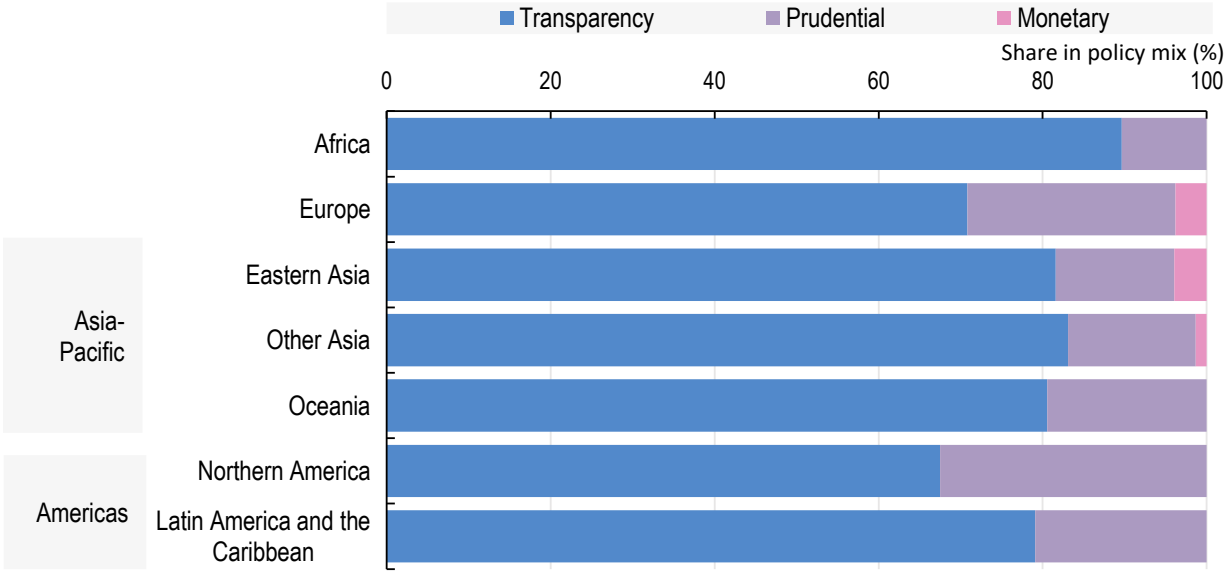

Note: Some climate-related disclosure requirements for financial institutions can be both transparency and prudential policies. They are counted under transparency policies in the aggregate figures but disentangled in the dedicated transparency and prudential policy sections.
Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

### Figure 2.3. Climate-related financial sector policies adopted globally by policymaker, 2000-25



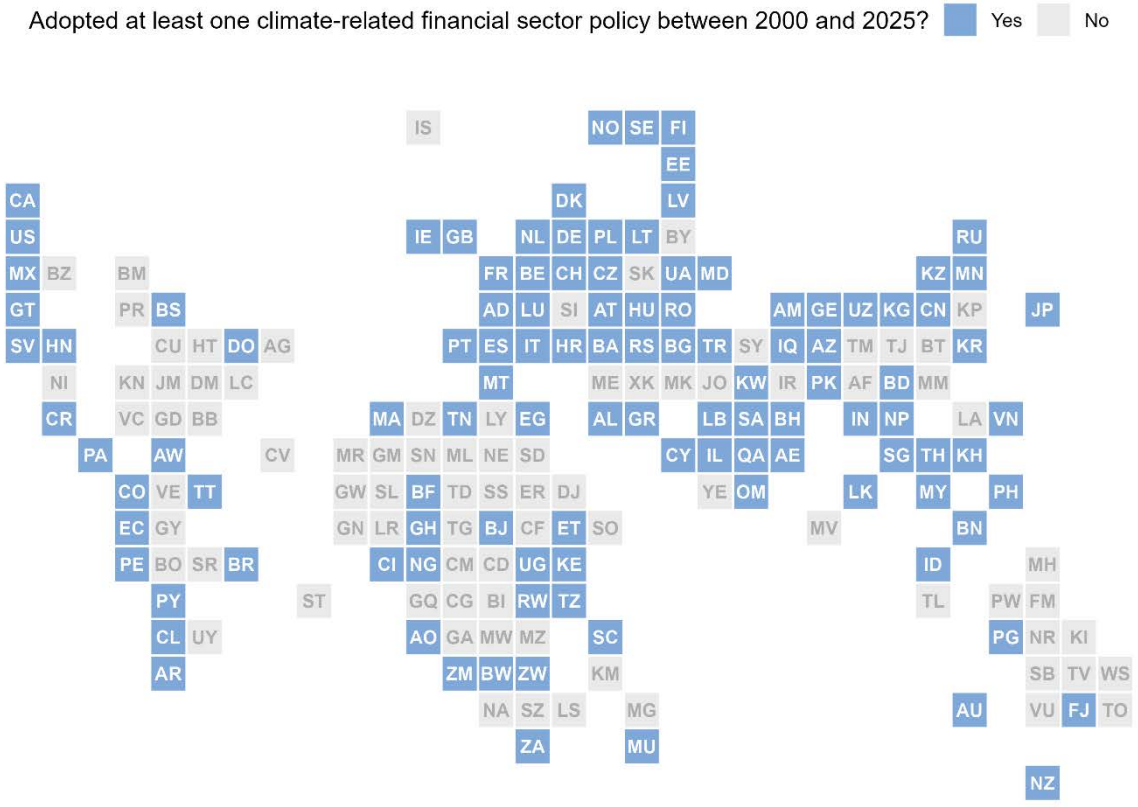

Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

## Figure 2.4. Climate-related financial sector policies adopted by policy area and geography, 2000-25




Note: Some climate-related disclosure requirements for financial institutions can be both transparency and prudential policies. They are counted under transparency policies in the aggregate figures but disentangled in the dedicated transparency and prudential policy sections.
Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

## Figure 2.5. National climate-related financial sector policies adopted across countries, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

**A shared understanding of the effects of climate-related financial sector policies remains a work in progress, but a growing number of empirical analyses and country case studies help identify patterns of policy effectiveness**. Dissecting the effect of individual policies is challenging, as they are often part of policy packages. This attribution challenge is illustrated by evidence showing that growth in climate-related financial policies in G20 countries is associated with lower national emissions (D'Orazio and Dirks, 2021[4]). The adoption of climate-related financial sector policies in those countries went hand in hand with the development of the financial sector and the economy, which are also generally associated with declining emissions. Further, owing to the lack of necessary historic data and the difficulty of isolating the effects of individual policies, limited theoretical and empirical analysis is currently available on the effects of climate-related financial sector policies on financial and climate policy objectives. Where available, expected effects based on conceptual analysis are not always confirmed by theoretical and empirical research, as explained in more detail in the subsections covering the different policy areas.

### *2.1.1. Climate-related transparency policies*

**Climate-related transparency policies aim to contribute to the identification of climate risks and opportunities, reduce information asymmetries and increase comparability** (OECD, 2024[1]). These policies can serve multiple purposes and often provide a foundation for other climate-related financial sector policies and practices. Transparency policies within the financial sector policy domain can also support the efficient functioning of the financial system. This section first provides an overview of their implementation before focusing on three specific policy instruments.

**Governments and financial supervisors and regulators are the main policymakers adopting climate-related transparency policies**. These two types of actors represent nearly two-thirds of policies adopted by 2025. Central banks adopted around a quarter of policies and have become more active in recent years (Figure 2.7). As different policymakers have different mandates, the purpose of these policies may differ. Some transparency policies set by financial supervisors and central banks also inform market supervision, supporting the stability of the financial system. Broader policies related to prudential supervision are discussed in Section 2.1.2.

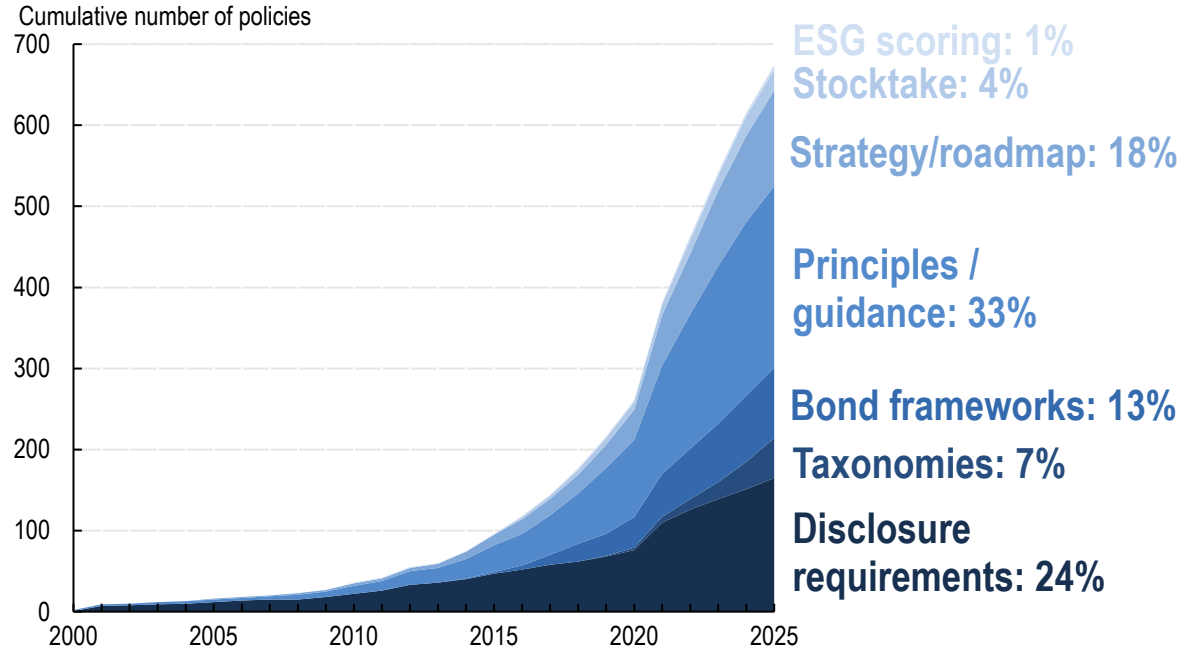
**The number of climate-related transparency policies have continued to increase significantly over the past years, mainly in the form of principles or guidance** (Figure 2.6). By 2025, policymakers in 110 countries and the EU integrated over 670 climate-related transparency policies. This encompasses 51 AEs and 59 EMDEs, including 34 OECD member countries and all G20 jurisdictions. One-fifth of these policies were implemented in the last two years, demonstrating continued efforts globally although some countries are revising policy efforts (Box 2.2). One-third of climate-related transparency policies come in the form of guidelines or principles, followed by just over nearly a quarter as disclosure requirements, 18% as strategy or roadmap policy documents, and 7% as taxonomies.

**Mandatory disclosure requirements remain a cornerstone of climate-related transparency policies, increasingly combined with voluntary tools**. The latter includes voluntary guidance, frameworks for different financial instruments, and roadmaps or strategies to influence climate-aligned finance. Around 30% of climate-related transparency policies are mandatory. A large share of those are core disclosure measures, taxonomies, or green bond frameworks, which are further discussed in the next few pages.

**Climate-related finance guidelines or principles provide implementation frameworks or recommendations to integrate climate consideration into financial practices** (OECD, 2024[1]). Such policies are primarily voluntary and often support the implementation of mandatory transparency or prudential policies. By 2025, 82 countries had adopted at least one such policy. This encompasses 39 AEs and 43 EMDEs, including 27 out of 38 OECD member countries and all G20 jurisdictions. Financial supervisors, central banks, and governments are all nearly equally contributing to these policies. These policies can cover a wide range of topics. One example is the Danish Guidelines on Responsible

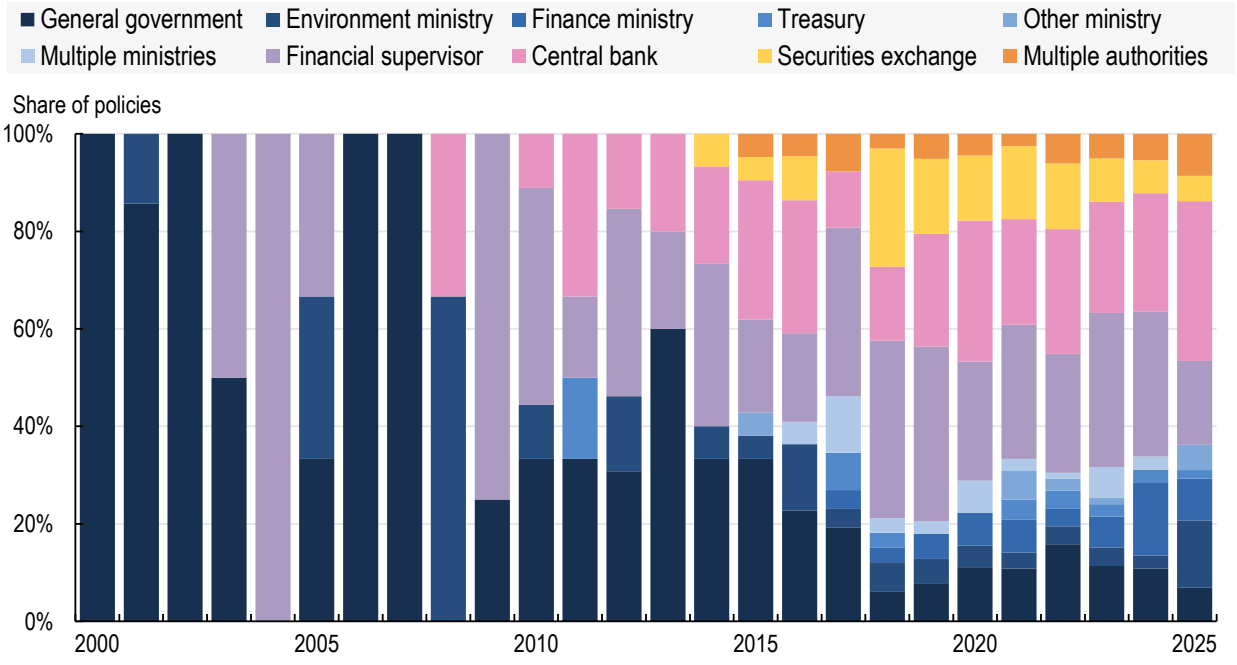
Investment, set by the Danish Business Authority, which clarify the expectations as to how Danish institutional investors should act in the context of responsible investment.

### Figure 2.6. Climate-related transparency policies adopted globally by policy measure, 2000-25



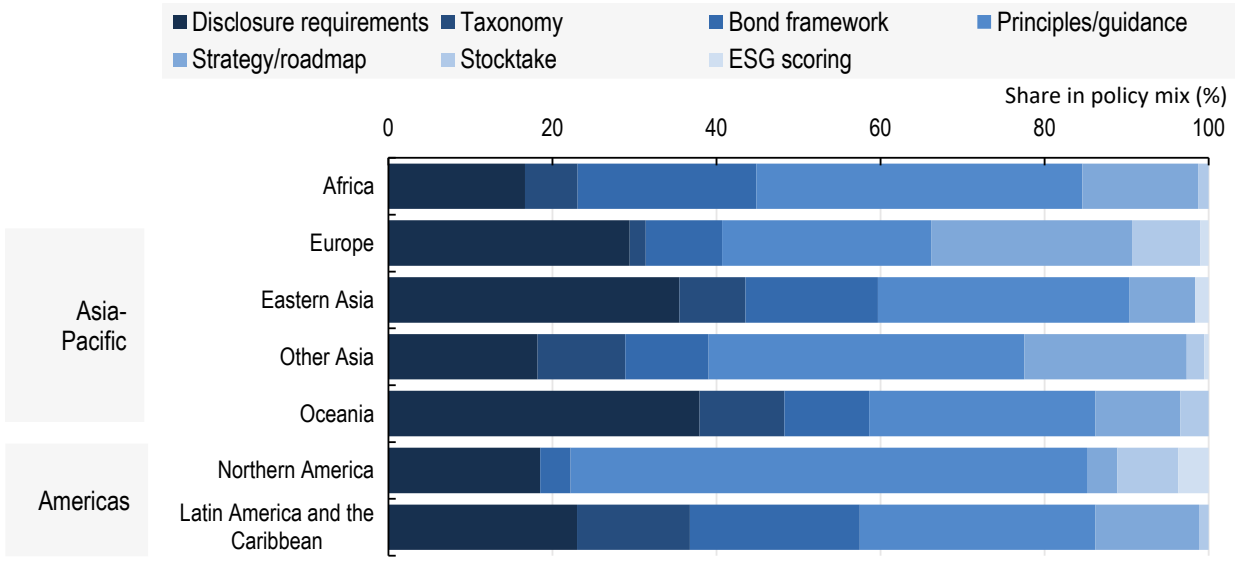

Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3])..

### Figure 2.7. Climate-related transparency policies adopted globally by policymaker, 2000-25



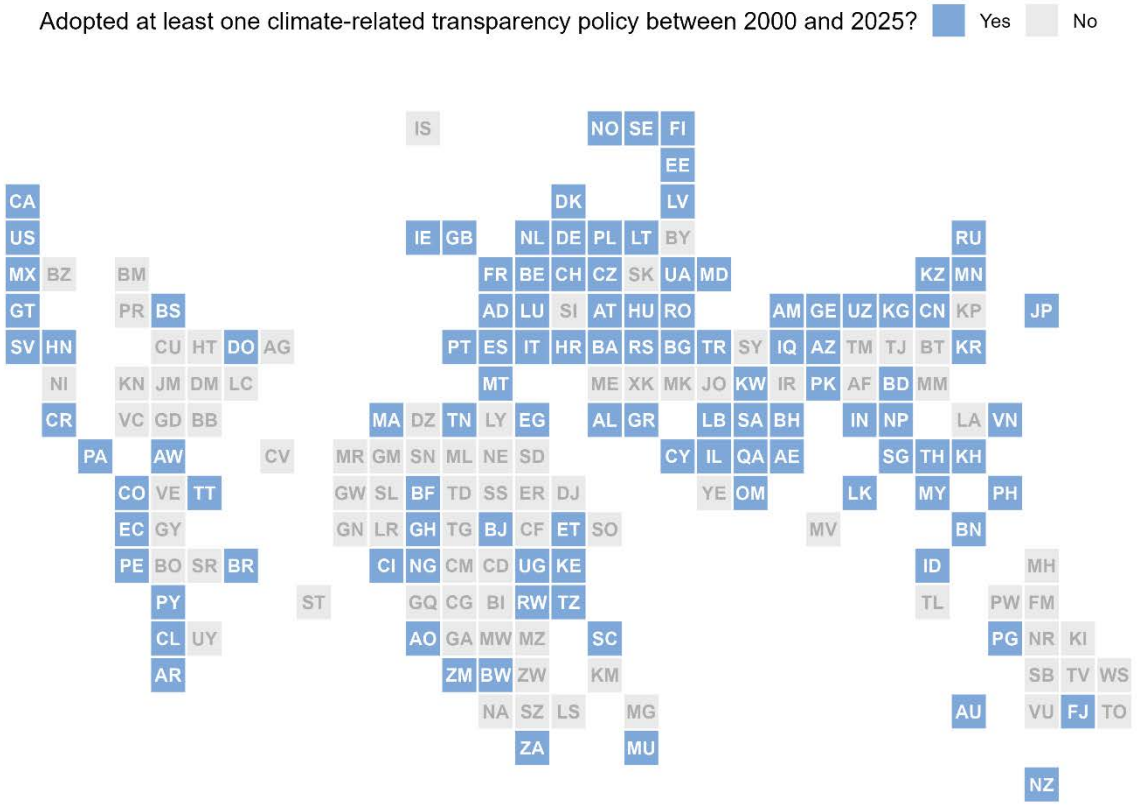

Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

## Figure 2.8. Climate-related transparency policies adopted by policy area and geography, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

## Figure 2.9. National climate-related transparency policies adopted across countries, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

**Many countries adopted roadmaps and strategies after the Paris Agreement, sometimes supported by stocktakes that helped establish a baseline and inform subsequent updates**. By 2025, 67 countries had adopted at least one roadmap or strategy to capture sustainable finance opportunities and address climate risks to their financial sector. This encompasses 29 AEs and 38 EMDEs, including 24 OECD member countries and 16 G20 jurisdictions. Governments have been the most prolific issuers of climate roadmaps and strategies, followed by central banks. Examples include the Green Finance Strategy by the UK government or the National Sustainable Finance Roadmap of Azerbaijan by its central bank (UK Government, 2019[5]; Central Bank of the Republic of Azerbaijan, 2023[6]). Climate-related finance stocktakes also emerged after the adoption of the Paris Agreement. These can be understood as diagnostic reviews or inventories of domestic climate-related financial policies, market practices and supervisory developments. Over 20 countries have published such stocktakes. For example, Belgium assessed climate transition plans in Belgian banks in 2025 (Belgian Government, 2025[7]).

**ESG scoring policies are an emerging policy area aimed at strengthening the reliability and comparability of ratings, including to address greenwashing concerns**. Only a handful such policies had been adopted by 2025, including the Austrian Eco-label (Austrian Government, 2024[8]). Other ESG scoring policies can establish guidelines for external verification and rating providers. Initiatives to regulate or oversee ESG rating providers are under development, for example, in India and the EU.

**The full range of climate-related transparency policies has been implemented in Europe and Asia.** Europe and Asia-Pacific have the highest share of disclosure requirement policies within their policy mix (Figure 2.8). North America relies more on guidance and principles. Africa and Latin-America have the highest share of transparency frameworks for debt-specific instruments. Taxonomies and ESG scoring policies have not yet been adopted in all regions. Africa and LAC rely more on green bond frameworks. Examples from individual countries in Africa illustrate a highly uneven policy landscape within continents. Countries such as South Africa, Kenya, Morocco and Egypt have more developed frameworks, while many other jurisdictions continue to rely primarily on voluntary measures and face capacity and co-ordination constraints (D'Orazio, 2025[9]).

**By reducing information gaps and tightening accountability, transparency policies can indirectly contribute to reducing climate risks and capturing climate opportunities**. Growing empirical literature on climate-related disclosure requirements, taxonomies, and green bond frameworks finds that these policies are associated with green innovation, financial benefits and greater inflows into funds labelled as sustainable (Becker, Martin and Walter, 2022[10]; Scherer and Hasaj, 2023[11]). These policies are further discussed in their respective subsections. However, identifying and tracing the impact channels of transparency policies can be challenging. Climate-related finance principles and guidance are often broad in scope, and they may frame, or be adopted alongside, other policies. This makes it difficult to isolate their individual effects on emissions (D'Orazio and Dirks, 2021[4]). The additionality of transparency policies is also difficult to demonstrate, as such policies may respond to investor demand and redirect finance from self-labelled funds to funds labelled according to the policy. While climate-related taxonomies and green bond frameworks may increase flows to funds using such labels, there is currently limited evidence on how they contribute to emissions reductions.

### Box 2.2. Changes in existing or planned climate-related transparency policies

As highlighted in Figure 2.6, climate-related transparency policies started being adopted around the year 2000 and grew significantly over the past 10 years, reaching a total of over 600 by 2025. As with any public policy area, updates to existing climate-related transparency policies are being made, which can relate to one or multiple characteristics including institutional and thematic scope, level of bindingness, and timing of implementation.

Tracking updates to existing climate-related transparency policies remains a work in progress and thus cannot be systematically reflected in the present analysis. However, a few recent developments in existing and planned climate-related disclosure requirements can illustrate the dynamic nature of this policy area in finding a balance between avoiding unnecessary reporting burdens for economic actors concerned, and establishing requirements that are both decision useful and based on robust metrics (as further discussed in the Metrics chapter).

In terms of adjustments to existing reporting requirements, the EU's Omnibus I package of simplification measures provides a well-documented example. Proposed by the European Commission in February 2025, the package aims to simplify sustainability reporting and due diligence rules for corporates through updates to two corresponding directives (EU Parliament, 2025[12]). Another example is the extension by the Singaporean Accounting and Corporate Regulatory Authority and Singapore Exchange Regulation of the timelines for implementing climate reporting external assurance requirements (Singapore ACRA, 2025[13]). From the perspective of tracking the implementation of policies, these climate-related disclosure policies remain active and thus reflected in the overview presented in this report although their updated characteristics may not be fully captured, including where changes extend beyond the dimensions tracked. Understanding the effects of such changes (e.g. in terms of impacts on the disclosure and availability of climate-related data) would in any case require a more granular jurisdiction-level analysis.

While the database of Climate-Related Financial Sector Policies that underpins the report does not record policies in the making or intended for future implementation, there have been recent examples of changes in policy plans that may be indicative of a possible forthcoming slowdown in the implementation of climate-related transparency policies. For instance, in 2025, the Canadian Securities Administrators (CSA) paused work to develop new mandatory climate-related disclosure rules in light of increased uncertainty and rising competitiveness concerns (Canada CSA, 2025[14]). Similarly, the United Kingdom announced that it would not proceed with the development of a green taxonomy and would instead pursue alternative approaches (UK Government, 2025[15]).

*Climate-related disclosure policies*

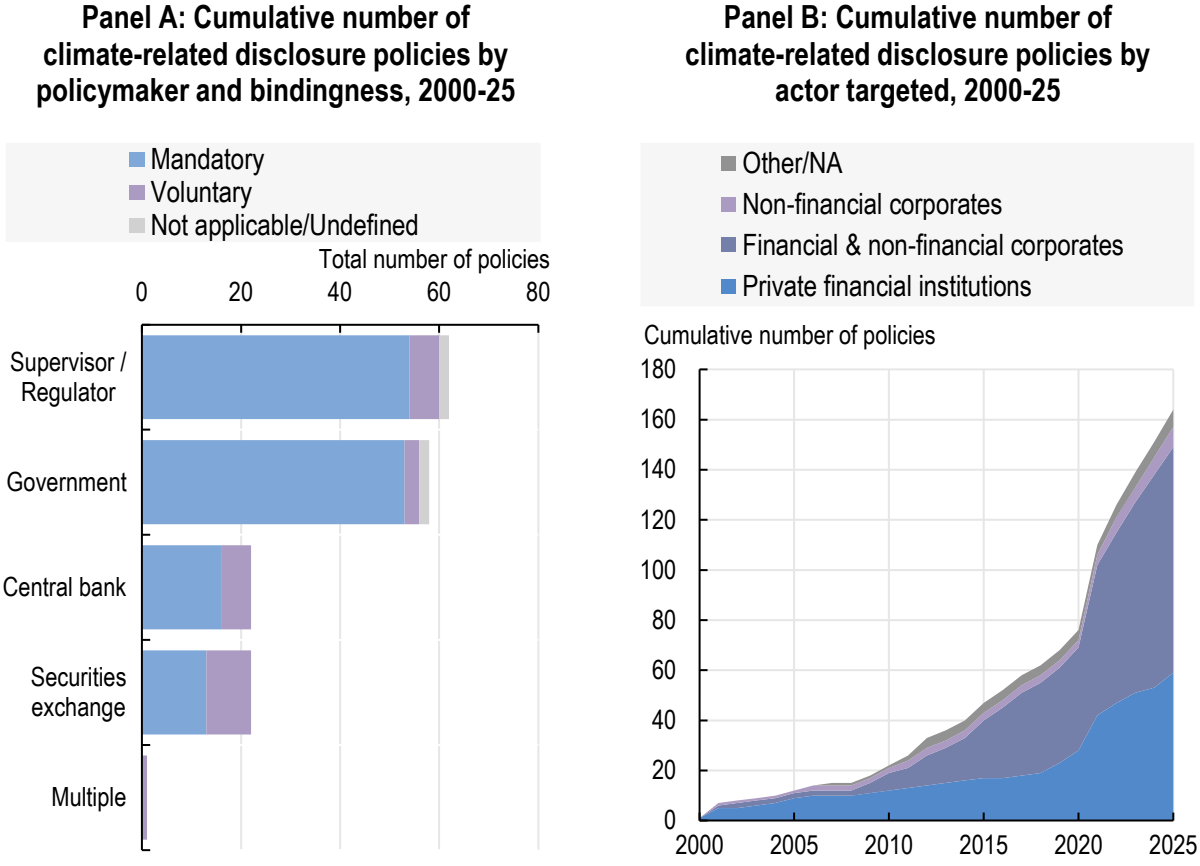
**Disclosure requirements aim to enhance transparency, support market efficiency and address information asymmetries or risks of greenwashing** (OECD, 2024[1]). Existing climate-related disclosure requirements may request information across a range of metrics and information points, including GHG emissions, physical risks, climate-(mis)aligned investments and activities, climate-related engagement, governance, strategy and other areas (see Chapter 4 on Metrics). Such information can help inform the design of other policies (such as prudential policies) and directly support investment decisions, capital allocation and other actions taken by investors. At the international level, this expansion has increasingly been shaped by the transition from TCFD-based approaches towards ISSB-aligned disclosure regimes, alongside efforts to improve interoperability across jurisdiction-level frameworks.

**Climate-related disclosure policies have continued to increase significantly, with most active requirements remaining primarily mandatory**. By 2025, policymakers in 54 countries and the EU

adopted more than 160 climate-related disclosure policies (Figure 2.10 and Figure 2.11). This encompasses 30 AEs and 24 EMDEs. It includes 26 OECD member countries and 18 G20 jurisdictions. Different jurisdictions may require different types of disclosure from corporations, but there are several international initiatives to support interoperability between jurisdiction-level disclosure policies. The number of jurisdiction-level disclosure measures more than doubled since 2020. At the same time, there are some recent indications the pace of new policy adoption may slow down over the coming years as policymakers are updating existing frameworks or revising implementation plans (Box 2.2). Around 85% of active disclosure policies remain mandatory. For financial institutions, disclosures are also increasingly linked to prudential reporting and supervisory frameworks, including to promote more consistent climate-related risk disclosure by internationally active banks (FSB, 2025[16]).

**Governments and financial supervisors and regulators are the main policymakers adopting climate-related disclosure policies.** By 2025, governments and financial supervisors and regulators had each adopted over one-third of these policies (Figure 2.10 Panel A). Securities exchanges and central banks each accounted for a smaller share of the total stock of disclosure policies.

## Figure 2.10. Climate-related disclosure policies adopted globally by bindingness and actor, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

**A partial disconnect can be observed between climate-related disclosure requirements for financial institutions and those for non-financial corporates**. Around one-third of climate-related disclosure policies target financial institutions exclusively (Figure 2.10 Panel B). About one-fifth of these financial-sector-specific policies exclusively target banks and typically relate to prudential supervision practices discussed in Subsection 2.1.2. Other policies apply to insurers, asset managers, pension funds,

other financial institutions or a mix of financial actors. Over half of disclosure measures apply to both financial and non-financial corporates simultaneously, of which about over half focus on listed companies. As a result, disclosure measures have limited coverage of unlisted and smaller companies. Only 6% of disclosure measures target non-financial corporates exclusively.

**Many jurisdictions have moved towards mandatory disclosure requirements, increasingly aligning domestic frameworks with international standards to improve transparency and comparability.** For example, Egypt's 2021 FRA Resolutions made ESG reporting mandatory for listed companies and large non-bank financial institutions, while requiring the largest firms to provide climate-related financial disclosures aligned with the TCFD framework (SSE, 2021[17]). New Zealand was among the first jurisdictions to mandate climate-related financial reporting for large financial institutions and listed issuers in 2021, with reporting based on TCFD-aligned climate standards, which were expanded in 2023 to include emissions-related elements (New Zealand Government, 2020[18]). Starting in 2026, large, listed companies in South Korea are expected to be required to disclose climate-related and ESG information, aligned with ISSB standards, with the aim to enhance transparency and investor decision-making (Korea Sustainability Standards Board, 2024[19]).

**Jurisdiction-level disclosure policy developments increasingly reflect international developments, with some jurisdictions moving from voluntary TCFD recommendations toward mandatory adoption of, or alignment with, ISSB Standards.** This shift was reinforced in 2023 when the International Organization of Securities Commissions (IOSCO) called on its members to consider ways to adopt, apply, or otherwise be informed by the ISSB Standards within their jurisdictions. The TCFD established the widely used four-pillar framework of governance, strategy, risk management, and metrics and targets, which has strongly influenced subsequent national and regional climate disclosure regimes (TCFD, 2017). After the TCFD completed its work, the International Sustainability Standards Board published IFRS S2 in 2023, creating a global baseline for climate-related disclosure that incorporates and builds upon TCFD recommendations (ISSB/IFRS Foundation, 2023).

**As the coverage of disclosure requirements has expanded significantly since the Paris Agreement, policymakers have paid increasing attention to the quality, reliability and comparability of disclosures.** As further discussed in Chapter 4 on metrics, there remain gaps in the comprehensiveness and reliability of climate disclosure. Several countries are increasing their focus on reliability and comparability as they reflect ISSB standards in domestic disclosure policies. For example, Australia's 2025 Sustainability Reporting Standard introduced mandatory climate-related disclosures based on IFRS S2, emphasising comparable, verifiable, and timely information (Australian Government, 2025[20]). Brazil's CVM Resolution 193 similarly moved toward mandatory ISSB-based sustainability reporting for publicly held companies, requiring assurance to improve reliability (Brazilian Government, 2023[21]). Beyond ISSB-aligned disclosure requirements, policymakers in some jurisdictions are linking disclosures with tracking tools, which can further support data integrity. In the context of Japan's environmental reporting guidelines, for example, a government-hosted disclosure platform was established to improve environmental data transparency and facilitate stakeholder dialogue.

## Figure 2.11. National climate-related disclosure policies adopted across countries, 2000-25


Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

**While climate-related disclosure requirements alone cannot reduce emissions and increase climate resilience, they have been associated with reduced emissions, increased capital allocation towards climate innovation and transition, and capital market benefits for non-financial corporates.** Setting and disclosing clear targets can motivate companies to reduce their emissions (ECB, 2021[22]). In the context of transition planning, these can be aligned with broader business strategies and risk management frameworks (NGFS, 2024[23]). Empirical analysis of Chinese firms finds firms with enhanced climate disclosure also have lower GHG emissions (Wang et al., 2024[24]). These effects are stronger when executive environmental experience, investor attention, and government supervision are higher. Better environmental disclosures have also been linked to greater resilience to climate risks (Arian and Sands, 2023[25]). Further, empirical case studies have linked mandatory climate disclosure with increased green innovation outcomes and quality (Bratten, Cheng and Kleppe, 2024[26]; Mbanyele et al., 2022[27]; Gupta, 2025[28]), as well as financial benefits such as a lower cost of capital. Other studies have linked mandatory climate disclosure with improved market valuations and liquidity, and, in some cases, a lower cost of capital (Kreuger et al., 2024[29]; Christensen, Hail and Leuz, 2021[30]; Maji and Kalita, 2022[31]; Megeid, 2024[32]).

**Corporate climate disclosure requirements are closing information asymmetries and can affect costs of capital differently depending on the risk disclosed.** They may raise financing costs when they reveal significant climate transition risks, while physical risks. Disclosure has been found to be positively associated with firm performance and value, but their effect on firm value can turn negative when attention to climate change intensifies for the firm (Vestrelli, Fronzetti Colladon and Pisello, 2024[33]). This is likely because transparency can raise risk premia by revealing transition risk. Higher credit spreads are associated with transition risk disclosure, while physical risk disclosure is associated with lower spreads through uncertainty reduction (Costola and Vozian, 2025[34]; Imerman, Ye and Zhao, 2025[35]). Furthermore, the cost of debt is significantly associated with carbon risk for firms that do not participate in

voluntary disclosure initiatives such as the CDP (Carbon Disclosure Project), consistent with the fact that markets penalise opacity in environmental information (Mirza et al., 2024[36]).

**Climate-related disclosure requirements influence investor behaviour and enable financial decision makers to capture climate opportunities and redirect finance to climate-aligned activities**. Empirical analysis on mandatory disclosure requirements in New Zealand find they reduce information gaps and asymmetries that can otherwise prevent efficient capital reallocation (Gehricke et al., 2025[37]). Other empirical studies find that improved disclosure quality reduces information asymmetry and weakens systemic risk measures, improving resilience for financial institutions (Hu and Borjigin, 2025[38]; Shifa and Khan, 2025[39]). Moreover, some evidence indicates that financial institutions subject to mandatory climate disclosure can redirect capital towards climate-aligned activities. For instance, a case study found that investors lowered fossil fuel-energy financing by 40% after mandatory disclosure requirements (Mésonnier and Nguyen, 2021[40]).

**Simplicity and usability of disclosure requirements are crucial for effective implementation**. Analysis of the EU's Sustainable Finance Disclosure Regulation (SFDR) finds that it had little effect on mutual fund flows and portfolio sustainability (Allcott et al., 2026[41]). This was in part because the disclosure requirements added little new or clear information beyond what investors could already infer from fund names and mandates. Making the information more intuitive could improve the regulation's effectiveness. Moreover, this type of data-driven evaluation of policy effectiveness, investor use and coverage should inform future revisions to the scope and design of disclosure policies.

**Climate-related disclosure policies provide a foundation for informing other climate-related financial sector policies and improving the effectiveness of broader policy packages.** Disclosure policies are frequently adopted alongside other policies or provide the information needed for later policies (Edwards et al., 2020[42]). For example, disclosure requirements may support supervisory expectations or inform asset purchases by central banks (D'Orazio, 2025). Policymakers could invest in shared data and cross-authority evaluation frameworks that assess how transparency measures interact with other policies, how policy sequencing affects outcomes, and where policy packages can be improved over time.

### *Climate-related taxonomies*

**Climate-related taxonomies classify activities, for example, as green, transition relevant, or supporting adaptation** (Tandon, 2021[43]). Taxonomies relate to disclosure requirements when disclosed information is an input to the classification process or when the disclosure of taxonomy alignment is required for labelling financial products (OECD, 2024[1]). Such information and data are often the basis of currently available evidence of finance going to activities that support climate goals, notably bonds (see Chapter 3 on tracking).

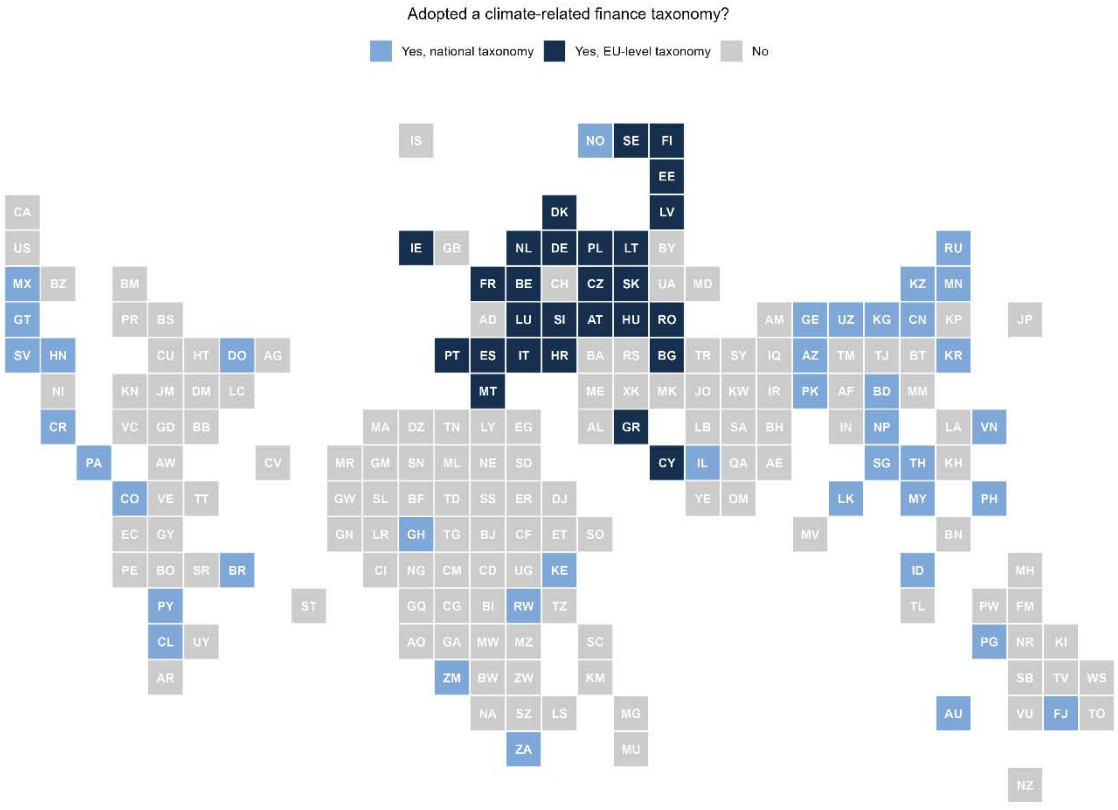
**Adoption of climate-related taxonomies rose very rapidly after 2020, especially in EMDEs.** The number of taxonomies doubled over the past two years. By 2025, around 50 national sustainable or green taxonomies had been adopted by around 40 countries, including 30 EMDEs and 8 AEs (Figure 2.12). The EU Taxonomy for Sustainable Activities, which has been a template for others, increased the coverage to 35 AEs. Other regional taxonomies covering a group of countries include the ASEAN Taxonomy for Sustainable Finance and the AMF-UMOA Taxonomy for the West African regional capital market.

**The development and implementation of taxonomies typically involve collaboration between multiple official bodies, led by governments and central banks.** Together, they led the development of over two-thirds of taxonomies adopted worldwide. Governments typically involve both finance and environment ministries. Collaboration can also involve international financial institutions, such as the World Bank or Inter-American Development Bank.

**Most taxonomies cover multiple environmental objectives, including climate mitigation and often adaptation as well, but mostly remain voluntary**. Only about one in five taxonomies is currently

mandatory. Still, even where official taxonomies are voluntary, they may have binding effects in practice when linked to disclosure requirements, product labels or green bond standards (European Commission Platform on Sustainable Finance, 2025). About one in five taxonomies do not yet integrate adaptation goals along with mitigation. From the perspective of climate change mitigation, taxonomies typically define climate-aligned activities. More recent taxonomy developments have also placed greater emphasis on transition finance, reflecting the need to classify activities that are not yet fully green but are credibly aligned with decarbonisation pathways (ASEAN Taxonomy Board, 2024). A range of these taxonomies also cover other environmental topics, such as biodiversity, and social challenges.

## Figure 2.12. National climate-related taxonomies adopted across countries, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

**In many jurisdictions, taxonomies have been co-designed across policy authorities and, in some cases, developed with international organisations or co-ordinated with financial institutions.** For example, Panama's taxonomy was developed by the country's Superintendency of Banks, the Superintendency of the Securities Market, the Superintendency of Insurance and Reinsurance, and co-ordinated with the government (UNEP FI, 2024[44]). Discussions were also held with the Ministry of Environment and the Ministry of Economy and Finance. International partners have helped develop taxonomies in countries such as Panama and Uzbekistan. Panama received technical support from UNEP FI and financial support from the EU and Green Climate Fund, while Uzbekistan's taxonomy guidance was prepared with World Bank support and later taken forward by domestic authorities. In some cases, financial institutions were closely involved in implementation and testing. For example, Kenya's Green Finance Taxonomy was piloted with commercial banks and developed through close engagement between the

central bank, industry, and external technical experts, while Singapore's Transition Taxonomy was informed by multiple rounds of public consultation with their Green Finance Industry Taskforce.

**More empirical analysis is needed to inform updates on the design or scope of taxonomies, while acknowledging that direct emissions-reduction effects of taxonomies are difficult to trace causally.** Green taxonomies may encourage inflows into funds using those labels, but their additionality is difficult to demonstrate as such policies may respond to investor demand as well as redirect finance from self-labelled funds. Empirical analysis mostly examined the effects of the EU Taxonomy. Such analysis found that companies with higher taxonomy-aligned revenues benefit from better financing terms, yet this advantage is more pronounced among larger firms, potentially widening the investment gap across different business sizes (Brabec and Macháč, 2025[45]). A key determinant of taxonomy effectiveness is the introduction of clear definitions and unambiguous sector specifications, especially as firms might find it more challenging to comply with new reporting processes (Hummel and Bauernhofer, 2022[46]). If implemented effectively, a taxonomy can nudge corporates into sustainable investments, with a positive effect on climate finance volumes (Lucarelli et al., 2023[47]). To strengthen impact analysis of such transparency tools, policymakers could pair them with tracking tools that can better distinguish new and additional investments from simple relabelling, as well as with dialogue platforms with private investors to understand their needs and motivations.

### *Green bond frameworks*

**Green or sustainable bond frameworks can be established independently from taxonomies or build on them or other disclosure requirements** (OECD, 2024[1]). Some frameworks focus on bond instruments, but many also cover other debt securities. While green bond frameworks initially focussed on mitigation, nearly all those implemented since 2022 covered both mitigation and adaptation, as well as other sustainability topics. Where green bond frameworks are linked to taxonomies, they can strengthen comparability and reduce ambiguity around eligible activities. In practice, many frameworks continue to operate through process-based disclosure and review requirements rather than strict taxonomy alignment.

**National green bond frameworks have become widespread since the adoption of the Paris Agreement across regions and countries, including EMDEs.** These policies grew by 21% between 2023 and 2025. By 2025, more than 50 countries had developed over 70 national green bond frameworks, including 22 AEs and 34 EMDEs (Figure 2.13). The EU Green Bond Standards, through its coverage of 27 EU member countries, further increases to number of AEs with a corporate or sovereign green bond framework to 39.

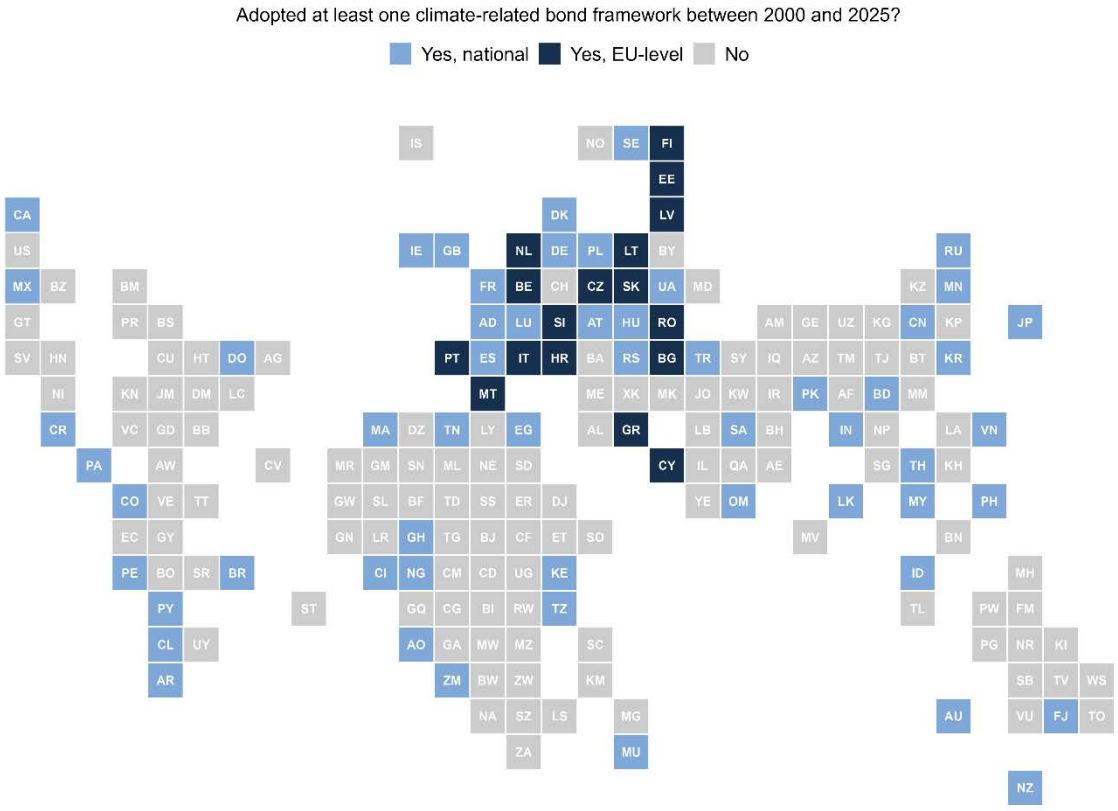
**There is a balance across countries in the scope of existing green bond frameworks between sovereign and corporate bonds.** Frameworks targeting sovereign bonds and corporate bonds each account for 45% of green bond frameworks as of 2025, while the remainder cover both. Within each region's policy mix, Africa has the highest proportion of frameworks that target corporate and sovereign green bonds simultaneously, Europe, Latin America and Oceania have focussed more on sovereign green bonds, while parts of Asia have focussed more on green corporate bond frameworks.

**Sovereign green bond frameworks can be a core dimension of national climate finance strategies and support the development of domestic sustainable finance markets, although green-labelled sovereign debt issuance has lost momentum globally.** For example, Austria's Green Bond Framework is embedded in its broader Green Finance Agenda (Austrian Treasury, 2022[48]). Fiji's framework directs a higher share of capital toward adaptation priorities that reflect the country's high vulnerability to climate change (Fiji's Ministry of Economy, 2019[49]). Sovereign green bond frameworks can also play a market-development role by signalling policy commitment and helping to establish issuance benchmarks, while corporate frameworks more often structure issuer-level project selection, reporting and external verification practices (OECD, 2025[50]). At the same time, although countries have continued to adopt green bond frameworks, green-labelled sovereign debt issuance has lost momentum, as discussed in Chapter 3

on tracking (Section 3.2.3). Policymakers can send further market signals by issuing new sovereign debt through green- and transition-labelled instruments instead of conventional instruments (also discussed in the Metrics chapter, Section 4.5).

**Experiences by several jurisdictions demonstrate that transparent reporting and external verification can strengthen sovereign green bond frameworks**. For example, Poland's updated 2025 framework similarly includes external pre-issuance verification by Sustainalytics, annual allocation and impact reporting, and post-issuance external verification of proceeds. Chile's Green and Sustainable Bond Frameworks were accompanied by an external review from Vigeo Eiris, while annual reports by the Ministry of Finance and Ministry of the Environment disclose both allocation and impact information (Chile's Ministry of Finance, 2020[51]). Zambia's Green Bond Guidelines likewise require issuers to contract an independent reviewer before issuance and report annually on compliance and use of proceeds.

## Figure 2.13. National climate-related bond framework adopted across countries, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

**Similar to taxonomies, collaborative government-led efforts across a range of official bodies have driven the development and implementation of green bond frameworks**. The development of over half of taxonomies was led by governments, another nearly 30% by financial regulators and supervisors, and the remainder by central banks, securities exchanges or a combination of policy authorities. Among government actors, finance ministries most often lead the development of the frameworks, followed by environmental ministries and treasuries. Sustainable bond frameworks have often been developed through cross-policymaker co-ordination. For example, Poland's updated sovereign green bond framework relies on an interministerial green finance working group led by the Ministry of Finance. In emerging and smaller

markets, international organisations have played a particularly important role. For example, Fiji's sovereign green bond framework benefited from World Bank and IFC support.

### *2.1.2. Climate-related prudential policies*

**Prudential policies mainly aim to maintain financial stability.** This is understood as the capacity of a financial system to absorb severe shocks and maintain the provision of stable financial services (OECD, 2024[1]). Microprudential regulation focusses on the financial health of individual financial institutions, while macroprudential regulation addresses aggregate risks to financial stability arising from the combined effects of financial institutions' behaviour. Overall, prudential policies seek to ensure that banks, insurers, pension funds, and other financial institutions do not take excessive risks that could cause them to fail and trigger a financial crisis.

**Climate-related prudential policies integrate climate risks into existing prudential policy frameworks.** Climate change can affect the value of physical and financial assets in ways that may threaten financial stability. At the micro level, climate risks affect individual financial institutions. At the macro level, the impacts of climate change and related policies can affect the overall stability of financial and economic systems. Prudential policies integrating climate considerations can be adopted by a range of policymakers, including central banks, prudential regulators or supervisors, and governments, depending on how jurisdictions have organised their prudential frameworks.

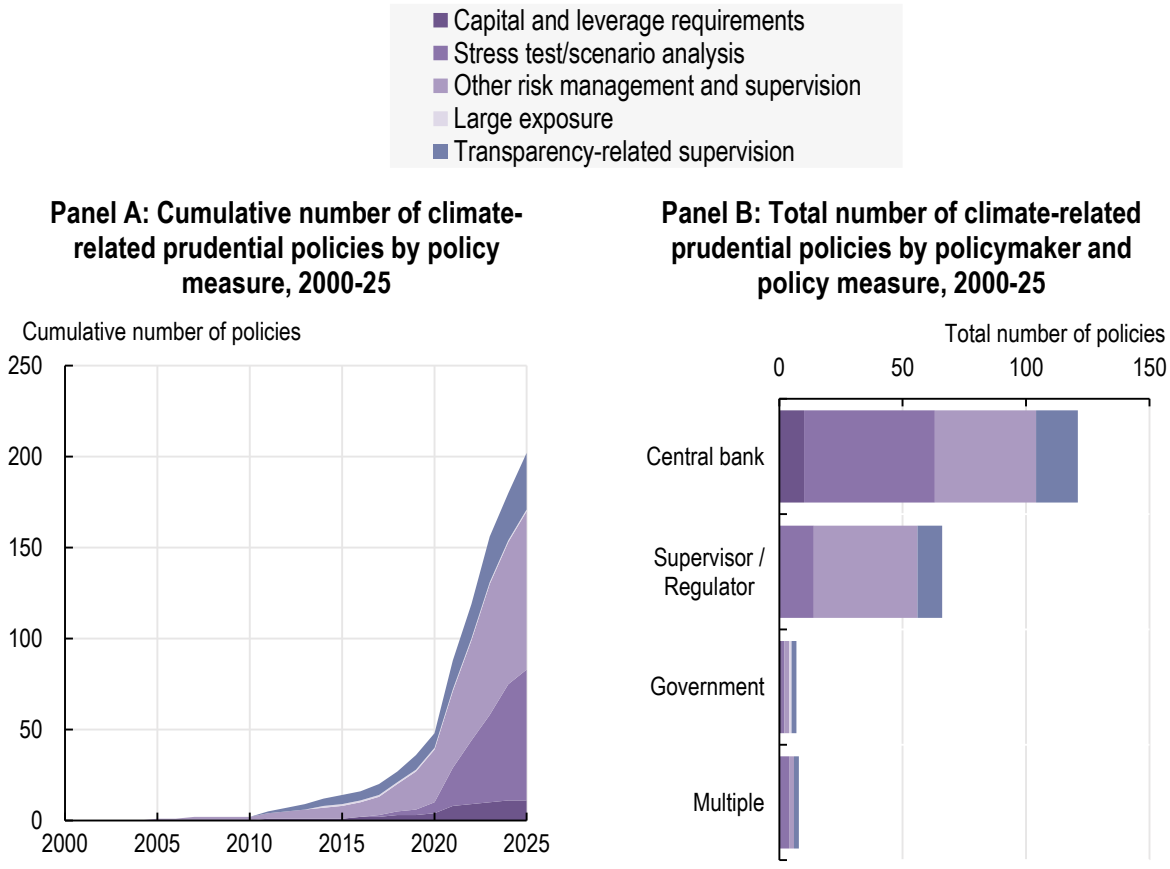
**Climate-related supervision practices and stress tests are driving the rise in climate-related prudential policies** (Figure 2.14). Climate-related prudential policies include measures that relate to capital, liquidity or large exposures. Capital-related prudential measures specifically can include capital regulations, risk management and supervision tools, and climate-related prudential reporting and disclosure requirements. Within those policy subcategories, capital regulations can include capital requirements, leverage requirements, risk weights and capital buffers, while risk management and supervision tools include climate scenario analysis and stress-testing exercises, supervisory guidance, governance requirements, and ICAAP. As of 2025, climate stress tests or scenario analysis accounted for around one-third of climate-related prudential policies Figure 2.14 Panel A). Over 40% of climate-related prudential policies adopted by 2025 consisted of a range of other risk management and supervision tools, expectations and guidance. 15% of policies relate to prudential transparency measures that were already discussed in Section 2.1.1. By contrast, climate-related capital and leverage requirements, large exposures, and liquidity policies remained largely unexplored.

**While all regions have adopted climate-related prudential policies, different regions have prioritised different measures.** By 2025, just over 200 climate-related prudential policies had been adopted by prudential policymakers in 57 countries and at European institutional, including 30 AEs and 27 EMDEs (Figure 2.16). This encompasses 27 OECD member countries and 18 G20 jurisdictions. These policies increased by 30% between 2023 and 2025. Around 30 of them were transparency policies discussed in Section 2.1.1. Eastern Asia and Europe have the highest share of climate stress test exercises (Figure 2.15). The Americas and other parts of Asia-Pacific rely more on other risk management and supervision policies. Internationally, recent prudential developments have increasingly been shaped by the Basel Committee's principles for the effective management and supervision of climate-related financial risks and by subsequent work on the role of climate scenario analysis in supervisory practice (BCBS, 2022; BCBS, 2024).

**To better address climate risks, the thematic scope, institutional coverage, and level bindingness of climate-related prudential policies can be expanded**. The majority of climate-related prudential policies are adopted by central banks (Figure 2.14, Panel B). Most of these policies apply to banks specifically and only few target insurers and investment funds. Overall, current prudential practice remains bank-centred, although recent international work has increasingly highlighted the relevance of climate-related vulnerabilities, transition planning and litigation risks for insurers and for broader

financial-system resilience (FSB, 2025; NGFS, 2023; NGFS, 2024). While about a third of policies are mandatory for the supervised financial institutions, many remain voluntary, providing general guidance or assessments to identify risks without concrete or specific next steps to address them in practice. Moreover, the thematic scope can be broadened, as transition risks are more widely addressed than physical risks.

### Figure 2.14. Climate-related prudential policies adopted globally by type and policymaker, 2000-25



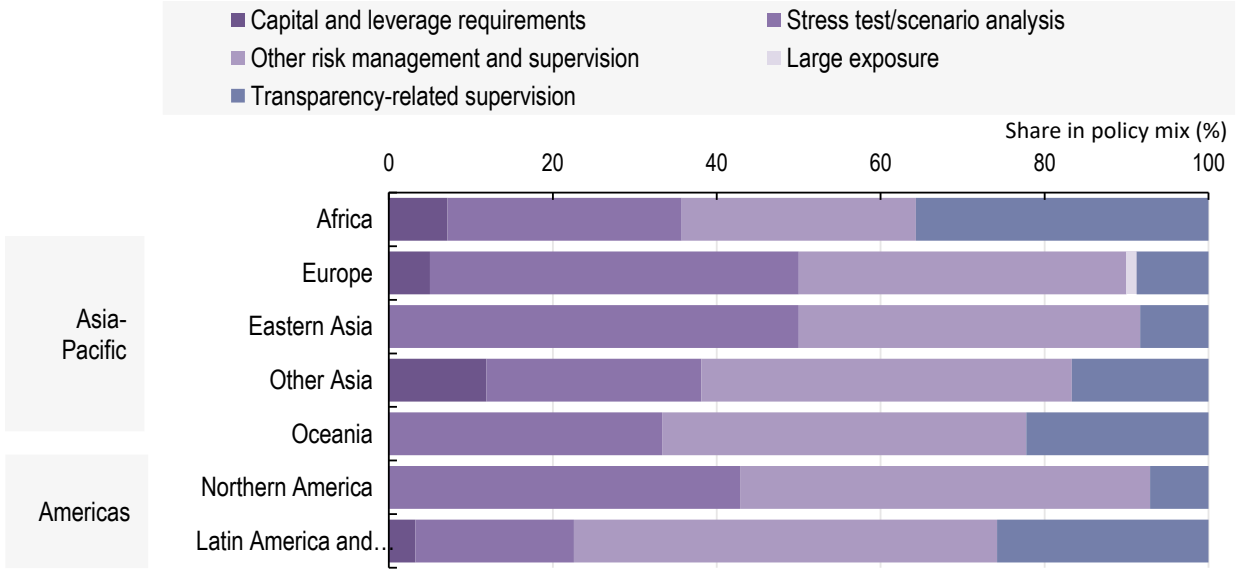

Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

**Nearly all climate-related prudential policies relate to the capital-related pillars under the Basel III framework, which includes stress tests and other risk management practices**. Capital-related prudential policies are defined by the Basel III framework as relating to capital and leverage requirements (Pillar 1), risk management and supervision (Pillar 2), and market discipline (Pillar 3) (BIS, n.d.[52]). Climate-related disclosure policies that fall under Pillar 2 have been discussed under Subsection 2.1.1 as they serve both transparency and prudential purposes. The integration of climate considerations in prudential (Pillar 1 and 2) policies is further discussed in the next three subsections that address policies relating respectively to the level and quality of capital, to risk management and supervision (notably stress tests), and to liquidity and exposure.

**Based on existing analyses across conceptual, theoretical, and empirical research, climate-related prudential policies appear to have mixed effects on financing towards low-GHG activities, while bringing potential trade-offs with financial stability** (Table 2.1). Conceptual, theoretical, and empirical analyses do not always come to the same conclusions in terms of direction and magnitude of effects. Conceptual research currently expects potential positive effects across policy objectives for climate-related

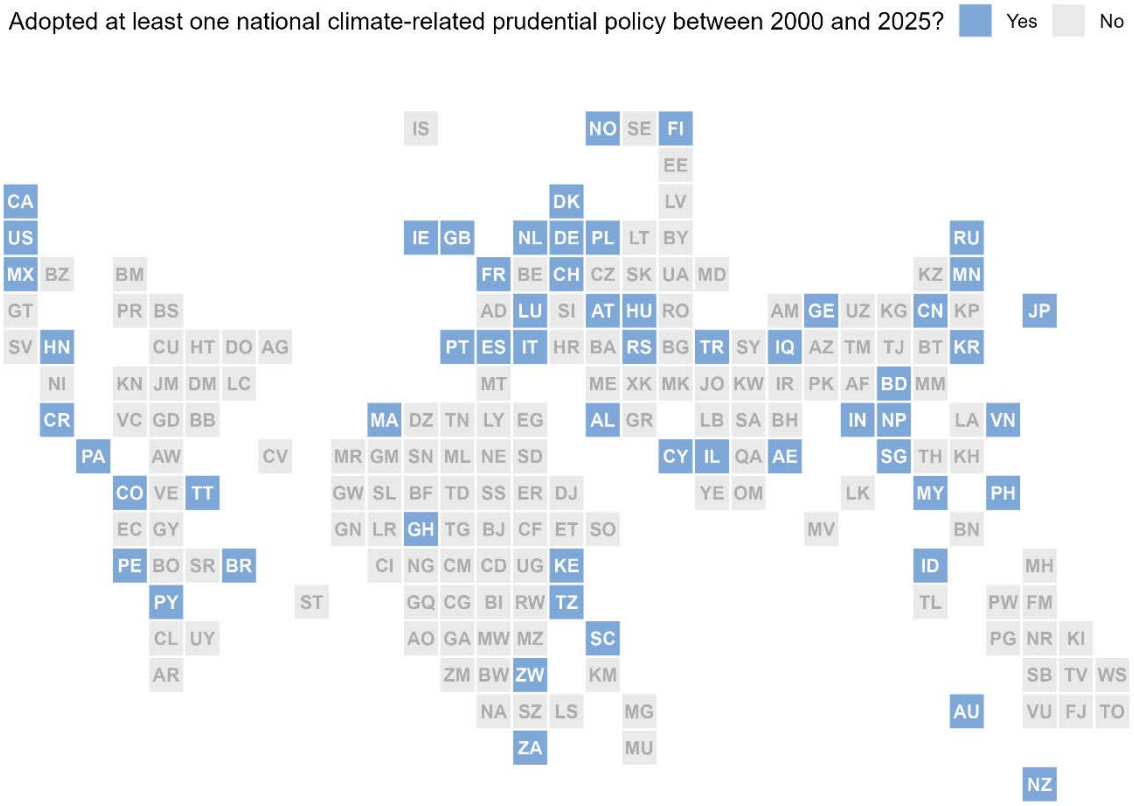
large exposure policies, as well as for some leverage and risk management and supervision policies, although effects may be small.

## Figure 2.15. Climate-related prudential policies adopted by policy area and geography, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

## Figure 2.16. National climate-related prudential policies adopted across countries, 2000-25




Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

## Table 2.1. Summary of literature on potential effects of climate-related prudential policies

Positive effect | No/minimal effect | Negative effect | Mixed evidence | No evidence

C = Conceptual analysis T = Theoretical analysis E = Empirical analysis

| Dimension | | Measure | Potential effect on the objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Financial stability effects | | | Reduction of climate-related financial risks | | | Increases in climate-related finance volumes | | |
| | | | C | T | E | C | T | E | C | T | E |
| Capital | Level and quality of capital | Capital adequacy ratio with a green supporting factor | | | | | | | | | |
| | | Capital adequacy ratio with a brown penalising factor | | | | | | | | | |
| | | Sectoral capital requirements | | | | | | | | | |
| | | Counter-cyclical risk buffer | | | | | | | | | |
| | | Systemic risk buffer | | | | | | | | | |
| | Leverage | Sectoral leverage ratios | | | | | | | | | |
| | Risk management & supervision | Climate stress tests | | | | | | | | | |
| | | Internal capital adequacy assessment | | | | | | | | | |
| | | Green asset ratio | | | | | | | | | |
| | Market discipline | Climate-related disclosure requirements | | | | | | | | | |
| Liquidity | | Climate-related liquidity coverage ratio | | | | | | | | | |
| | | Climate-related net stable funding ratio | | | | | | | | | |
| Large exposure | | Climate-related lending limits/credit ceilings | | | | | | | | | |
| | | Climate-related concentration charge | | | | | | | | | |

Note: Colouring is based on the available literature and follows the majority view where findings differ. Literature was classified as conceptual where it provided a structured argument, preferably supported by calculations; as theoretical where it included models or simulations; and as empirical where it relied on empirical data.
Source: Authors, based on academic, grey and central bank literature.

### *Policies relating to the level and quality of capital*

**Theoretically, climate-related capital policies adjust minimum capital-related prudential requirements to better reflect financial institutions' exposure and vulnerability to climate risks.** Policy measures can adjust capital adequacy ratios with green supporting factors, which lower capital requirements for exposures considered environmentally sustainable or less exposed to climate-related risks, or brown penalising factors, which increase capital requirements for exposures considered more vulnerable to transition or physical risks (OECD, 2024[1]). They can also adjust capital requirements for specific sectors highly exposed to climate-related risks or that can benefit from the climate transition, as well as adjust counter-cyclical and systemic risk buffers, which were originally introduced to mitigate the effects of system-wide economic and financial shocks.

**In practice, by 2025, only a handful of central banks had adopted climate-related policies that adjust minimum capital and leverage requirements**. These policies have been put in place by jurisdictions in Asia, Europe, and Latin America. As of 2023, only one country had adopted a capital adequacy requirement with a green supporting factor. Hungary's central bank introduced green preferential capital

requirements in 2020, focusing on projects with energy savings and renewable energy components (Magyar Nemzeti Bank, 2022[53]). As of 2025, no country has adopted capital adequacy requirements with a brown penalising factor aimed at increasing capital requirements for investments in high-emitting activities (Krogstrup and Oman, 2019[54]).

**Conceptual and theoretical research suggests that adjusting capital adequacy ratios through green supporting or brown penalising factors may involve trade-offs between financial stability and climate policy objectives** (Table 2.1):

- **Conceptual and theoretical research expects that a capital adequacy ratio with a green supporting factor (GSF) would bring challenges to financial stability, without clear positive effects on limiting climate risks and increasing climate-related finance volumes.** Such a factor lowers the amount of capital banks must hold against loans or assets classified as green. Conceptual and theoretical research highlights that this would make green lending cheaper and encourage banks to finance more climate-aligned projects. However, the literature suggests that the effects would be modest, especially if the policy is not supported by real-economy climate policies and would depend on bank business models and the availability of credible green projects (D'Orazio and Dirks, 2021[4]; Oehmke and Opp, 2022[55]; Dankert et al., 2018[56]; Dafermos and Nikolaidi, 2021[57]; Benmir and Roman, 2020[58]; Lamperti et al., 2021[59]; Janke and Weiss, 2024[60]; Carattini, Heutel and Melkadze, 2023[61]). The main concern is that reducing capital requirements without evidence of lower underlying financial risk would weaken banks' ability to absorb losses, encourage excessive leverage, and create mispricing or green asset bubbles, especially if green classifications are unclear or vulnerable to greenwashing (D'Orazio and Popoyan, 2019[62]). This could, in turn, have a negative effect on financial stability (Castren and Russo, 2024[63]; Noera, 2024[64]). Empirical evidence is also limited, as most studies focus on implementation and calibration rather than proving causal effects (Thomä and Gibhardt, 2019[65]). Overall, a GSF may help support the green transition, but it is not a strong or risk-free policy on its own and requires robust taxonomies, reliable risk evidence, and careful regulatory design (Baer, Campiglio and Deyris, 2021[66]; Berenguer, Cardona and Evain, 2020[67]).
- **Conceptual and theoretical research suggests that a capital adequacy ratio with a brown penalising factor (BPF) may be more effective than a GSF at reducing climate-related financial risks and raise fewer prudential concerns when properly calibrated.** Such a factor raises the amount of capital banks must hold against loans or assets linked to carbon-intensive activities. Conceptual research highlights that this could make brown lending more expensive, reduce banks' exposure to high-carbon sectors, and create larger buffers against transition-related losses that may not yet be fully captured in traditional risk models (Noera, 2024[64]; Le Quang and Scialom, 2022[68]; D'Orazio and Popoyan, 2019[62]). Theoretical and emerging empirical studies suggest that a BPF provides a clearer incentive than a GSF to reduce brown exposures and reallocate lending (Punzi, 2024[69]). However, the literature also suggests that the effects depend strongly on calibration and timing. If introduced too suddenly or set too aggressively, a BPF could trigger disorderly portfolio adjustments, reduce credit to carbon-intensive firms, lower aggregate credit, increase defaults, and weaken financial stability in the short term (Thakor and Song, 2023[70]; Oehmke and Opp, 2022[55]; Coelho and Restoy, 2022[71]; Baer, Campiglio and Deyris, 2021[66]; D'Orazio, 2021[72]; Dafermos and Nikolaidi, 2021[57]). Overall, a BPF may be more directly aligned with reducing climate-related financial risks than a GSF, but it is not risk-free and would require gradual implementation, careful calibration, complementary climate policies, and transition-finance instruments to avoid excessive credit contraction and financial instability (Carattini, Heutel and Melkadze, 2023[61]).

**Limited research indicates that other climate-related prudential instruments related to the capital requirements and macroprudential buffers may also imply trade-offs between policy objectives** (Table 2.1):

- **Conceptual and theoretical research suggests that sectoral capital requirements may undermine financial stability if applied too broadly.** Sectoral capital requirements require banks to hold extra capital when they lend to certain sectors, such as fossil fuels or energy-intensive industries. Conceptual and theoretical work shows that this can help protect banks from transition risks, particularly when paired with real-economy climate policies (D'Orazio, 2021[72]; Coelho and Restoy, 2022[71]). However, this policy measure may not contribute to decreasing emissions and may increase financial instability by depressing credit and investment when there is no carbon pricing policy (García-Villegas and Martorell, 2024[73]). Moreover, it may be difficult to apply in practice and could have unintended consequences as energy-intensive sectors need capital to transition.
- **Conceptual research on countercyclical risk buffers suggests that they can help banks become more resilient to climate-related financial risks but highlights that they are difficult to design and could create new instability if implemented poorly.** Countercyclical risk buffers build resilience during periods of carbon-intensive credit build-up or other climate-vulnerable exposures (D'Orazio and Popoyan, 2019[62]; Coelho and Restoy, 2022[71]). However, varying risk buffers are especially difficult to calibrate and may lead to more disruptions than other instruments when suddenly introduced (Coelho and Restoy, 2022[71]). In a conceptual macroprudential framework focused on carbon-intensive credit booms, a countercyclical risk buffer is argued to contain ex ante growth in carbon-intensive exposures and to build buffers to absorb ex post stranded asset shocks, thereby smoothing the green transition (D'Orazio and Popoyan, 2019[62]).
- **Conceptual research identifies the potential of systemic risk buffers to reduce climate-related financial risks.** A climate-related systemic risk buffer applies a structural macroprudential buffer to address systemic losses from climate transition and physical risks. It can be adjusted individually to reflect geographic and sectoral differences in exposure (Monnin, 2021[74]; Grunewald, 2023[75]; Busies et al., 2024[76]). Dedicated capital buffers could build resilience against unexpected and unaccounted-for systemic climate losses (ECB/ESRB, 2023[77]). However, the such tools should be gradual, targeted and scalable, because broad or poorly calibrated buffers could restrict credit, including to high-emitting firms that need financing for transition investment. Granular definitions of risk exposures, including sectoral, geographic and forward-looking transition information are, therefore, important to improve efficiency and limit unintended consequences on transition and adaptation finance.

### *Risk management and supervision policies*

**Risk management and supervision policies aim to ensure that financial institutions manage risks effectively to avoid excessive risk-taking that could threaten their own soundness or the stability of the financial system** (OECD, 2024[1]). Climate-related risk management and supervision measures focus on the identification, assessment, management and monitoring of climate-related risks. Where supervisors identify material unmanaged risks, these measures may inform further prudential responses, including capital add-ons, lending restrictions or enhanced supervisory scrutiny.

**Climate-related risk management and supervision measures are most often adopted by central banks followed by prudential supervisors.** As of 2025, about 60% of these measures were adopted by central banks with prudential supervision mandates and mainly targeted credit institutions. About one-third were adopted by prudential supervisors and regulators, which include insurance supervisors, financial market authorities, and banking regulators. This, in part, reflects that the responsibility for financial system risk management and supervision differ across jurisdictions globally.

**A range of climate-related risk management and supervision measures are being adopted, but there is a particular focus on climate stress tests and scenario analysis.** By 2025, around 160 climate-related risk management and supervision policies (including climate stress tests) were adopted by

policymakers in over 55 countries and at the EU institutional level. This includes 29 AEs and 26 EMDEs and encompasses 19 OECD member countries and 18 G20 jurisdictions. As of 2025, climate stress tests and scenarios analyses accounted for around 45% of adopted measures (Figure 2.14). Other adopted measures include risk management guidance and supervisory expectations (around one-fifth), supervisory reviews, governance and internal control requirements.

**Prudential supervisors have often shaped climate risk management through guidance and supervisory expectations rather than binding prudential rules.** Two examples from Switzerland and Zimbabwe illustrate that such guidance builds on international standards. The Swiss Financial Market Supervisory Authority adopted guidance on the management of climate risks, which sets out supervisory expectations for banks and insurers on how to identify, manage and monitor climate-related physical and transition risks (FINMA, 2023[78]). Although non-binding, the guidance influences institutions through the supervisory review process and encourages alignment with international standards from bodies such as the Basel Committee on Banking Supervision and the International Association of Insurance Supervisors. In Zimbabwe, the Reserve Bank of Zimbabwe issued in 2023 a bank supervision guideline as a voluntary climate-risk management tool to help regulated institutions strengthen their resilience to physical and transition climate risks. Definitions used for climate terminology closely follow those developed by the Basel Committee on Banking Supervision and the NGFS.

**Policies requiring banks to integrate climate considerations into asset-quality assessments have been adopted in several countries.** An early example is Indonesia's regulation on asset quality rating for commercial banks, which required commercial banks to consider a debtor's environmental conservation efforts when assessing asset quality and business prospects (Bank Indonesia, 2005[79]). The rule aimed to reduce transition-related credit risks by embedding environmental factors into credit assessment for lending, interbank exposures and assets linked to securities. While legally binding, implementation allowed some flexibility for small businesses and regions targeted for local economic development. As one of Indonesia's first climate-related financial-sector policies, it marked an important shift toward environmental risk management in banking operations.

**Climate scenario analysis and stress tests assess the vulnerability of financial institutions and financial systems to climate change transition and/or physical risks.** Climate transition related assessments rely on different scenarios with different temperature outcomes and assumptions about the speed and depth of the transition in different sectors. Assessments relating to climate-related physical risks also rely on a range of scenarios modelling the expected scale of climate impacts across geographies and sectors. The results of these assessments can inform other prudential policies. Climate scenario analysis provides the broader forward-looking framework, while supervisory stress testing is one application of that framework used to assess resilience at the firm or system level (NGFS, 2025; BCBS, 2022).

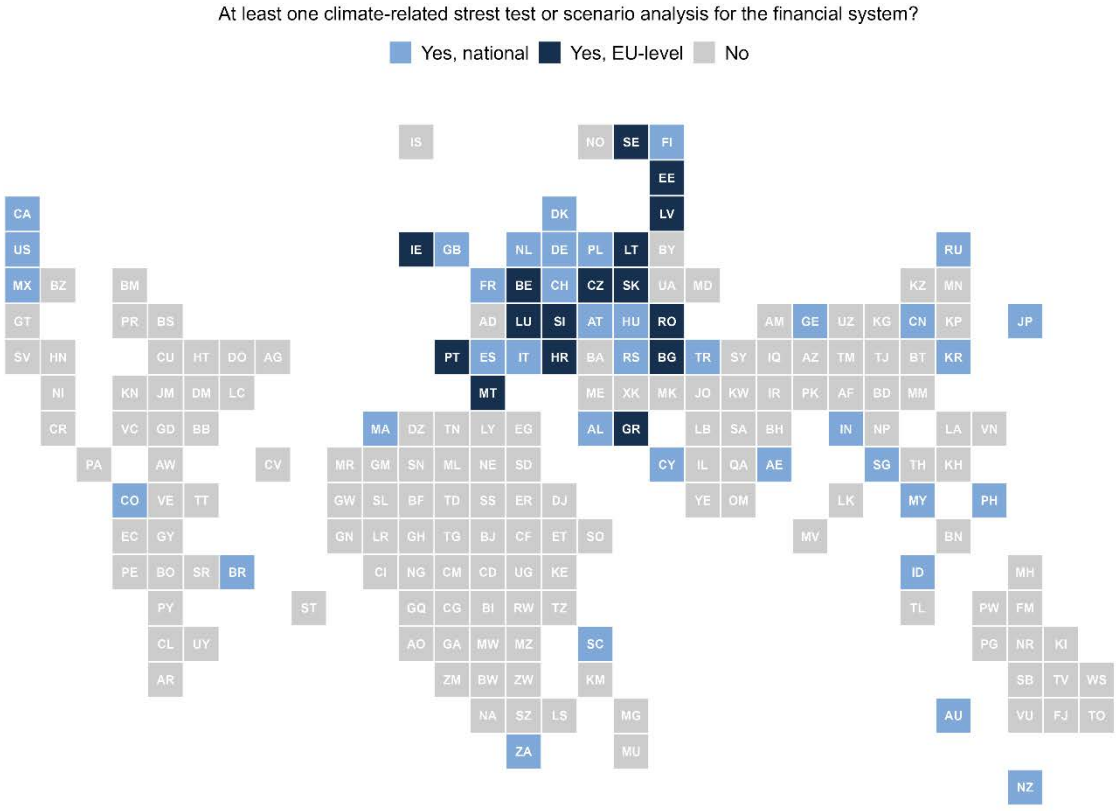
**Jurisdiction-level climate-related stress testing took off after 2020, but as of 2025, many countries had still not assessed climate risks to their financial system.** The number of climate stress tests has doubled since 2022. By 2025, 37 countries conducted national climate stress tests or scenario analyses, as well as all 27 EU member states under the European climate stress tests or scenario analyses exercises (Figure 2.17), with more on the way. However, only 14 EMDEs have conducted a stress test. While more AEs than EMDEs have conducted climate stress tests, uptake remains uneven, as nearly half of OECD countries have yet to undertake a first one.

**Climate stress tests and scenario analyses remain primarily non-binding supervisory exercises, while only a few jurisdictions have implemented both micro- and macro-level approaches.** Less than one-fifth of climate stress tests were mandatory. Climate stress tests have so far been used primarily to assess exposures, strengthen data and modelling capabilities, and inform supervisory dialogue, rather than to mechanically determine capital requirements (ECB, 2022). Over half of climate stress tests and scenario analyses followed a top-down approach. Less than 15 countries have done both a top-down and bottom-up assessment. Both are needed to assess climate risks to the financial system. Bottom-up

approaches focus on detailed financial exposure and vulnerability, while top-down approaches provide macro-level insights into systemic risk (NGFS, 2025[80]).

**Climate stress tests by insurance supervisors and dedicated assessments of physical risks remain limited across jurisdictions, especially compared to those ran by central banks for lending institutions**. Climate stress tests and scenario analysis are mainly developed by central banks, but also financial supervisors and in some cases governments. They typically target credit institutions, but such assessments can also cover other types of financial institutions. Only eight countries so far have included insurance companies in their stress tests. As banks, insurers, and other financial institutions face different risk channels, climate stress testing should eventually move beyond banks and cover insurers, pension funds, asset managers, and other parts of the financial system.

## Figure 2.17. National climate stress tests and scenario analysis adopted across countries, 2000-25




Note: EU countries have been subject to climate stress tests led by EU institutions. Some EU countries develop additional national stress tests or analysis. Only published stress tests are included.
Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3])..

**A phased approach has helped scale and deepen scenario analysis in several jurisdictions, regularly supported by collaboration between supervisors and financial institutions**. Several jurisdictions moved gradually from narrower exercises to broader and more sophisticated assessments. Australia began with banks and later expanded to insurers and the wider financial system (APRA, 2022[81]). The ECB moved from broad top-down exercises to more refined tests incorporating new models, short-term risks, and cross-sector financial linkages (ECB, 2022[82]; Abbondanza et al., 2025[83]; EBA, EIOPA, ESMA & ECB, 2024[84]). Canadian supervisors conducted an exploratory climate transition scenario analysis covering Canada's largest banks and insurers in 2021 (BoC-OSFI, 2022[85]). Building on this pilot, Canada's Superintendent of Financial Institutions rolled out a standardised supervisory climate scenario

analysis in 2023-24, in collaboration with Quebec's Autorité des Marchés financiers (AMF), to build sector-wide capacity to assess both physical and transition risks (OSFI, 2025[86]). These experiences illustrate that policymakers do not need to wait for perfect data or modelling capacity to begin. They can start with exploratory exercises, then develop methodologies and data over time.

**Climate stress-testing experiences in several jurisdictions demonstrate that they can serve as important capacity-building tools for both supervisors and financial institutions**. In Australia, APRA's exercises improved risk awareness among participating banks and insurers and encouraged institutions to reassess their risk appetites in light of potentially higher climate-related lending losses (APRA, 2022[81]). Similarly, Canada's pilot scenario analysis helped banks and insurers identify data gaps and strengthen internal climate-risk assessment capabilities (BoC-OSFI, 2022[85]). Colombia's stress test created a foundation for more detailed future climate-risk assessments by improving transparency and encouraging dialogue between public authorities and private financial institutions (World Bank, 2021[87]). In South Africa, the climate-risk stress test allowed the South African Reserve Bank to assess banks' internal climate-risk management frameworks and stress-testing capabilities, while also highlighting areas where further collaboration and data improvements are needed (SARB, 2025[88]). Together, these examples show that stress tests are valuable not only for estimating potential losses, but also for developing institutional expertise, improving data practices, and embedding climate risks into financial supervision and risk management.

**Although many climate stress tests are still exploratory and not yet strongly linked to regulatory consequences, they help translate climate-risk data into information that supervisors and financial institutions can act upon.** Conceptual analyses emphasise that stress tests provide a bridge between information and action. For example, indicators used to assess system-wide financial risks can help shape stress-test scenarios, while the results of stress tests can show how climate risks may affect banks' capital and liquidity positions (Coelho and Restoy, 2022[71]; D'Orazio, 2021[72]). These findings can then inform the calibration of capital buffers and other prudential tools, making stress tests a key input for embedding climate considerations into supervision measures (Baer, Campiglio and Deyris, 2021[66]). However, the benefits of climate stress testing are not yet fully realised, partly because many exercises remain exploratory and lack a strong link to supervisory impacts (DeMenno, 2022[89]).

**Evidence on the real-world effects of climate stress tests is still limited, but early findings suggest they influence bank behaviour and how they allocate lending.** Interview-based and anecdotal evidence suggests that climate stress tests can improve internal co-ordination of risk and raise management attention, although they currently play a limited role in financing the transition (Calipel and Fidel, 2023[90]). An empirical study using the French climate pilot exercise finds that participating banks increased lending volumes to high-carbon emitters by 38% while simultaneously charging higher spreads as compensation (Fuchs et al., 2023[91]). The banks also became more likely to provide green loans to those emitters. This pattern may reflect a combination of risk repricing, transition-finance support and portfolio rebalancing triggered by supervisory scrutiny.

### *Liquidity and large exposure policies*

**Policies that adjust liquidity requirements to better reflect climate-related risks to asset liquidity, funding stability and financial institutions' resilience are not yet used.** Liquidity-related policies are designed to ensure that financial institutions maintain sufficient liquid assets to meet their short-term obligations and continue operating during periods of stress (OECD, 2024[1]). A climate-related liquidity coverage ratio (LCR) modifies short-term liquidity requirements to reflect transition risk-driven liquidity stress and to discourage holdings of assets that may become illiquid under abrupt policy or market shifts. Analogously, a climate-related net stable funding ratio (NSFR) modifies structural funding requirements to account for the relative funding stability of green versus brown assets in the short-term. No such policies were identified as of 2025.

**Scarce conceptual literature on liquidity-related instruments expects positive to neutral effects on financial stability, mixed or uncertain effects on the reduction of climate-related risks and increases in climate-related financial flows.** Conceptual literature emphasises that such adjustments could be implemented without major changes to existing frameworks, but that effective application requires a clear taxonomy, a credible mapping from climate risk to liquidity characteristics, and time variation to reflect evolving transition dynamics (D'Orazio and Dirks, 2021[4]). A related conceptual paper highlights that LCRs and NSFRs are short- and medium-term tools that improve banks' liquidity risk profiles, but that the management of long-term climate risks may require other policy frameworks (Baranović et al., 2021[92]).

**Climate-related large exposure policies aim to limit financial institutions' concentration of exposure to counterparties, sectors or assets that are particularly vulnerable to climate risks.** Generally, large exposure measures aim to reduce concentration risk by preventing financial institutions from becoming excessively exposed to a single counterparty or group of connected counterparties (OECD, 2024[1]). Related climate-relevant exposure-control tools can include lending limits, or credit ceilings, as well as concentration charges. Climate-related lending limits and credit ceilings place quantitative constraints on banks' exposures to climate-vulnerable or carbon-intensive sectors. A climate-related concentration charge applies additional prudential costs when banks' exposures to climate-relevant sectors exceed thresholds, aiming to discourage correlated concentrations that amplify systemic stress.

**No bank prudential large exposure rules have yet been adopted but some countries have applied climate-relevant exclusion criteria to reduce excessive exposure to counterparties and sectors with high climate risk.** For example, the Norwegian Ministry of Finance published guidelines for the exclusion of certain companies, including companies with high GHG emissions, from the Government Pension Fund Global (Government of Norway, 2014[93]). Such norm-based exclusion frameworks can indirectly limit climate-related exposures. This policy has been periodically recalibrated and was temporarily paused at the end of 2025 for a review of the guidelines to ensure a balanced investment approach (Norges Bank, 2025[94]).

**Conceptual analysis on climate-related considerations for large exposure policies currently suggests positive effects across policy objectives, depending on their design and sequencing with other macroprudential policies.** Lending limits and concentration charges restrict financial institutions from holding large exposures to specifically defined sectors and thus limit their exposure to risks in those sectors. However, their restrictive nature means that narrow targeting, robust reporting, and careful sequencing are essential to avoid unintended macro-financial consequences.

- **Conceptual studies suggest that lending limits on carbon-intensive firms can help reduce banks' exposure to large potential losses but could limit transition financing if not designed and sequenced correctly.** By restricting how much banks can lend to highly polluting or climate-vulnerable counterparties, these measures can complement risk-based capital requirements and other supervisory tools (D'Orazio, 2021[72]; Baranović et al., 2021[92]; Miller and Dikau, 2022[95]; Schoenmaker and Van Tilburg, 2016[96]). They may also help smooth adjustment during a sudden low-carbon transition shock. At the same time, these measures are more restrictive than tools that influence lending through prices or capital costs and directly limit banks' allocation of credit (Hiebert, 2024[97]). If applied too broadly or too early, they could limit firms' ability to finance their transition, encourage similar portfolio shifts across banks, and reduce overall economic activity (Coelho and Restoy, 2022[71]; Baer, Campiglio and Deyris, 2021[66]; Le Quang and Scialom, 2022[68]).
- **Conceptual analysis expects that concentration charges can directly limit banks' exposure to climate risks without necessarily increasing overall capital requirements.** When they are part of a broader prudential toolkit, they help contain aggregate and concentration risks, and protect against transition risk by limiting correlated losses (Hiebert, 2024[97]; Le Quang and Scialom, 2022[68]). However, the policy design must balance prudential benefits with impacts on credit availability (Le Quang and Scialom, 2022[68]). Moreover, they require detailed reporting and can be

complex in operational and legal terms (Baranović et al., 2021[92]). At the same time, if poorly calibrated, these measures could restrict transition finance for carbon-intensive firms and amplify shocks through common portfolio adjustments, implying that narrow targeting and careful sequencing are important for systemic-risk reduction (Coelho and Restoy, 2022[71]).

### *2.1.3. Climate-related monetary policies*

**The primary policy objective of monetary policy is usually to maintain price stability, although some central banks also have broader economic stability mandates.** It is usually the realm of central banks, sometimes of specific monetary authorities**,** and involves the use of tools such as interest rates and central bank asset holdings. The individual interpretations of stability differ, and several central banks also have additional aims in their policy objective, such as exchange rate stability, economic growth, and job creation (Dikau and Volz, 2021[98]).

**Climate-related monetary policies primarily aim to integrate climate-related risks and considerations into monetary policy operations, where consistent with central bank mandates** (OECD, 2024[1]). They integrate climate risks into monetary policy operations to preserve price stability, support effective transmission of monetary policy, and manage risks to central-bank balance sheets. While most climate-related monetary policies have a risk management perspective, depending on central bank mandates, some may also support an orderly climate transition and resilience. Monetary policies include both asset-side adjustments, linked to credit operations, collateral framework, and asset purchases, as well as liability-side measures related to liquidity management (NGFS, 2026[99]). The use of monetary instruments reflects complex trade-offs and national contexts.

**Climate-related monetary policies remain limited and have not yet spread across all regions.** By 2025, only around 10 countries and the EU had adopted such policies, mainly on the European continent, but also in LAC and Asia (Figure 2.18). A first such policy was adopted in 2010 by the central bank of Lebanon, but most have been established after 2020.

**Research on the existing or potential effects of climate-related monetary policies remains scarce and points to mixed effects on price stability objectives.** As only a small number of policies have been adopted, evidence remains limited and relies largely on theoretical research and scenario analysis. Conceptual and some theoretical research identifies potential trade-offs between climate and price stability goals. Across monetary policy measures, research generally expects positive effects on climate-related finance volumes and climate-related risk reduction, but effects on price stability are more mixed and depend on the policy measure and design. Expanded and more systematic scenario and policy analysis can help understand potential effects and inform their design.

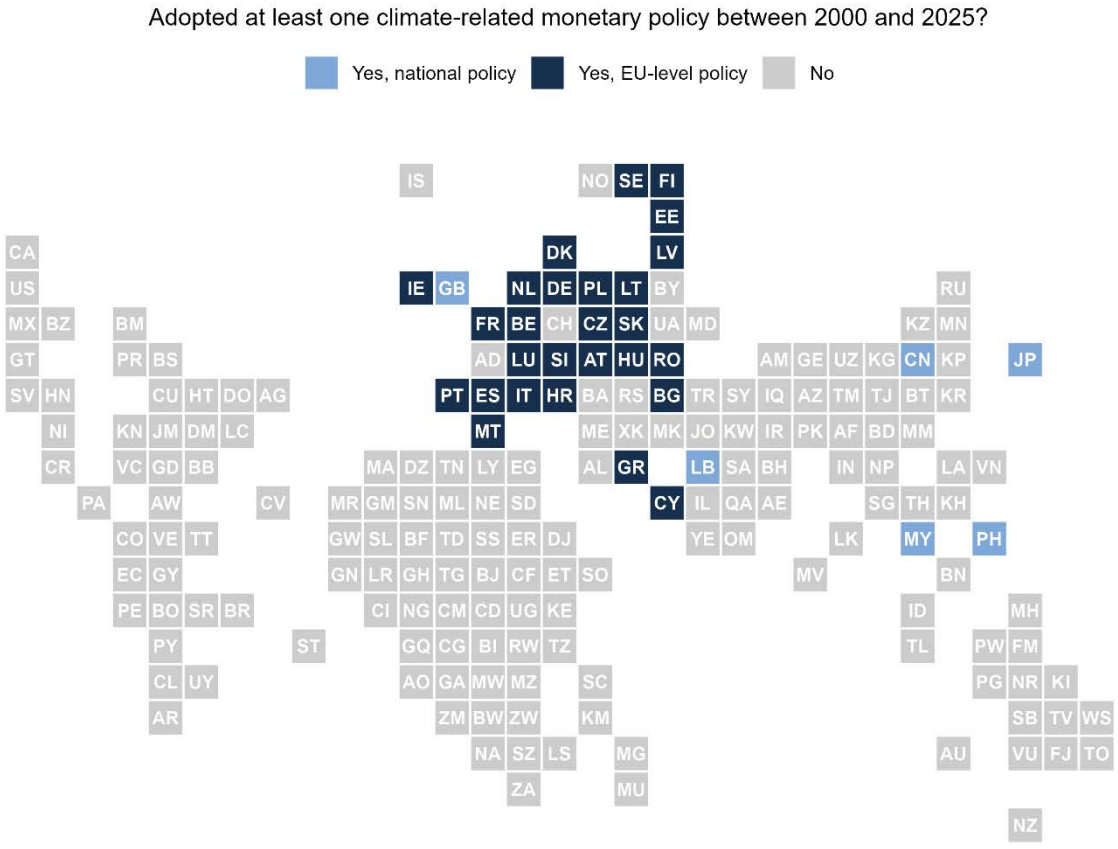
**Central bank approaches to integrate climate considerations into monetary policy operations are still emerging, but asset purchase measures were the most common by 2025.** Relevant monetary policy instruments include central banks' credit operations, collateral frameworks, asset purchases, and liquidity management (NGFS, 2024[100]; NGFS, 2026[99]). The latter includes reserve requirement policies. Few had explored adjusting collateral policies and integrating climate considerations into reserve requirements for banks.

**Climate-related considerations in asset purchases may involve increasing exposure to green bonds or other securities that finance projects relevant to the climate transition and resilience, while reducing exposure to assets exposed to climate risks** (OECD, 2024[1]). Asset purchases and holdings may involve central banks purchasing or holding securities, typically to influence money-market conditions, longer-term interest rates, spreads or market liquidity. There are two general approaches to integrating climate considerations into asset purchase tilting or screening (NGFS, 2021[101]).

**Less than 10 central banks, mainly in Europe, have integrated climate considerations into asset purchases, through green tilting and screening.** Green tilting adjusts the composition of asset portfolios

toward lower-carbon issuers or green securities. In 2021, the Bank of England and Swedish central bank published information on how they intended to integrate environmental considerations in their corporate bond purchase schemes. The Bank of England introduced climate-related eligibility criteria, climate tilting and a 2025 portfolio-emissions target (BoE, 2025[102]). The Swedish central bank applied norm-based negative screening to corporate-bond purchases (Sveriges Riksbank, 2021[103]). As of October 2022, the ECB adopted a policy to adjust corporate bond holdings in the Eurosystem under its Corporate Sector Purchase Programme by tilting them towards issuers with better climate performance, based on emissions, climate targets, and disclosure practices. Key choices of climate metrics to inform climate-adjusted asset purchases include emissions intensity, climate scores, or a green taxonomy.

## Figure 2.18. Climate-related monetary policies adopted across countries, 2000-25




Note: EU countries are subject to climate-related monetary policy by the ECB, which is highlighted through the blue lines around EU countries.
Source: OECD data on Climate-Related Financial Sector Policies, based on updates and expansions of (D'Orazio, 2023[3]).

**Existing research on the effects of climate-adjusted asset purchases suggests that they may have limited effects on monetary policy effectiveness, while potentially helping to reduce climate-related risks and increase finance for activities relevant to climate mitigation**. Such research remains mostly conceptual and theoretical:

- **Research on green tilting suggests that it could reduce climate risks, increase green finance volumes, and be designed in a way that it does not impair monetary policy effectiveness**. Some conceptual analysis suggests that it would not impede other monetary policy objectives (Tamez, Weenink and Yoshinaga, 2024[104]; Vestergaard, 2024[105]), while others suggest that it could undermine price stability to some degree (Baer, Campiglio and Deyris, 2021[66]). In contrast, modelling exercises find green tilting can be designed so as not to materially impair monetary

transmission (Nakov and Thomas, 2023[106]; Papoutsi, Piazzesi and Schneider, 2022[107]; Diluiso et al., 2021[108]). Some findings suggest that this may depend on complementary macroprudential policy (Benmir and Roman, 2020[58]). While green tilting may reduce climate risks and support the growth of green finance, effects on emissions are difficult to identify, and its effectiveness depends on programme design and broader policy co-ordination (Aloui et al., 2023[109]; Ferrari and Landi, 2023[110]). Some theoretical research suggests that green quantitative easing reduces the cost of capital for low-carbon firms, incentivising firm investment in green technologies and green asset issuance (Bacchiocchi, Ille and Giombini, 2024[111]; Papoutsi, Piazzesi and Schneider, 2022[107]; Schoenmaker, 2021[112]). However, these effects are very modest compared to those of a carbon tax (Abiry et al., 2022[113]), and hence cannot replace the absence of real-economy climate policies (see Section 2.2 below). Analysis of the Bank of England's green tilting found that it increased the probability of a bond being purchased if it had a higher climate score, but it did not influence its market prices (BoE, 2025[102]).

- **Evidence on negative screening remains very limited**. While there are some concerns about its consistency with price stability objectives, existing literature suggests it could help mitigate climate risks, improve green asset liquidity, and support the growth of green and climate finance (Le Quang and Scialom, 2022[68]; NGFS, 2021[101]).

### Table 2.2. Summary of literature on potential effect of climate-related monetary policies

Positive effect | No/minimal effect | Negative effect | Mixed evidence | No evidence

C = Conceptual analysis | T = Theoretical analysis | E = Empirical analysis

| | | Potential effect on the objective | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Effect on monetary policy effectiveness | | | Reduction of climate-related financial risks | | | Increases in climate-related finance volumes | | |
| Dimension | Measure | C | T | E | C | T | E | C | T | E |
| Asset purchases | Tilting | | | | | | | | | |
| | Screening | | | | | | | | | |
| Credit operations | Adjusting pricing to lending benchmark | | | | | | | | | |
| | Adjusting pricing to collateral | | | | | | | | | |
| | Adjusting counterparties' eligibility | | | | | | | | | |
| Collateral framework | Haircut adjustment | | | | | | | | | |
| | Negative screening | | | | | | | | | |
| | Positive screening | | | | | | | | | |
| | Aligning collateral pools | | | | | | | | | |
| Liquidity management | Reserve requirements | | | | | | | | | |
| | Central bank securities | | | | | | | | | |

Note: Colouring is based on the available literature and follows the majority view where findings differ. Literature was classified as conceptual where it provided a structured argument, preferably supported by calculations; as theoretical where it included models or simulations; and as empirical where it relied on empirical data.
Source: Authors, based on academic, grey and central bank literature.

**Explicit integration of climate-related considerations into central bank credit operations remains very limited across jurisdictions.** Credit operations are central banks' lending activities or refinancing operations to financial institutions, usually through loans or liquidity provisions, that provide liquidity to eligible counterparties and help implement the monetary-policy stance (NGFS, 2021[101]). Depending on their design and mandates, climate-adjusted credit operations can link the pricing, amount or eligibility of

central-bank lending to counterparties' climate-related lending, the climate characteristics of pledged collateral, or counterparties' climate profiles and transition plans (NGFS, 2021[101]). Examples include the Bank of Japan's climate-response fund-supplying operations, Hungary's Green Home Programme, Malaysia's Low Carbon Transition Facility, and the People's Bank of China's Carbon Emission Reduction Facility.

**Existing research on the effects of climate-related credit operations points to potential trade-offs between monetary and climate policy objectives, and to the importance of robust climate-related definitions of eligible activities**. Conceptual and theoretical research currently mostly focuses on pricing adjustments and eligibility criteria:

- **Most conceptual work expects that well-designed pricing adjustments would not undermine price or financial stability** (NGFS, 2021[101]; Monnet and van 't Klooster, 2023[114]; Vestergaard, 2024[105]). However, this conclusion is conditional on robust taxonomies, operational simplicity and legal feasibility, as differentiated refinancing or preferential funding schemes can create tensions with monetary transmission, balance-sheet risk management and perceptions of mandate overreach (NGFS, 2021[101]; NGFS, 2026[99]). Moreover, theoretical analysis suggests that dual or differentiated interest rate policies involve trade-offs with inflation and financial stability (Chan, Punzi and Zhao, 2024[115]; Tan, Tsomocos and Wang, 2025[116]). Existing studies find that such measures could reduce climate-related financial risks, stimulate green credit and reallocate lending away from carbon-intensive sectors (Jourdan et al., 2024[117]; Senni, Pagliari and van 't Klooster, 2024[118]; Vestergaard, 2024[105]; Kedward, Gabor and Ryan-Collins, 2022[119]; Böser and Colesanti Senni, 2023[120]; Lamperti et al., 2021[59]). Some explorations of climate-related credit operation policies point to the importance of robust definitions and classifications of eligible 'green activities' to make such policies effective (NGFS, 2024[100]).
- **Conceptual analysis expects that adjusting counterparty eligibility has a negative impact on maintaining price stability and positive impacts on directly climate-related finance flows as well as mitigating climate risks** (NGFS, 2021[101]; Lane, 2024[121]). Similarly, theoretical work expects that while there are costs in terms of maintaining price stability and welfare, such policies improve environmental outcomes in terms of both risk management and financial flows (Lamperti et al., 2021[59]).

**Climate-related considerations in collateral frameworks can be integrated by adjusting the eligibility or valuation of collateral based on the climate-related characteristics of underlying assets** (OECD, 2024[1]). Collateral frameworks (or collateral policies) define the range of assets that commercial banks can pledge to secure central bank credit operations, as well as the risk control measures that apply to them. Collateral frameworks can consider climate through four potential adjustments: (1) adjusting collateral haircuts or valuation margins, (2) adapting eligibility criteria with negative screening to exclude certain assets, (3) adopting eligibility criteria with positive screening to favour certain assets, (4) aligning collateral pools of counterparties with climate-related objectives (NGFS, 2021[101]).

**The policy area of climate-related adjustments in collateral frameworks is in its infancy**. Only three central banks have adopted such a policy so far. A notable example is the preferential haircut policy for green securities in the collateral management system of the central bank of Hungary, introduced in 2021. In 2025, the ECB published plans to adapt its collateral framework to address climate related risks by including a "climate factor" when assessing eligible assets pledged as collateral.

**Existing research on the potential effects of climate-adjusted collateral frameworks suggests potentially limited trade-offs between monetary and climate policy objectives, but more economic theoretical analysis is needed**. Most existing research has focussed on haircut adjustments, and analysis on screening and aligning collateral pools is scarce:

- **Analysis on haircut adjustments suggests positive or limited effects across policy objectives.** Conceptual and theoretical studies find that green-tilted collateral policies can mitigate climate change, reduce central bank exposure to climate-related risks, and reallocate investment away from carbon-intensive activities, without undermining monetary policy objectives (Vestergaard, 2024[105]; Lane, 2024[121]; Giovanardi et al., 2023[122]; McConnell, Yanovski and Lessmann, 2021[123]; Schoenmaker, 2021[112]). However, outcomes are sensitive to model calibration, and overly aggressive green credit expansion may raise leverage and default risks (Giovanardi et al., 2023[122]).
- **Conceptual studies suggest that collateral-based positive and negative screening can be effective green monetary policy tools** that support welfare objectives, improve transition-risk management, and reallocate financial flows, though concerns remain regarding definitions and cliff effects (Tamez, Weenink and Yoshinaga, 2024[104]; Vestergaard, 2024[105]; Monnet and van 't Klooster, 2023[114]; NGFS, 2021[101]).

**Climate-related considerations in reserve requirements may involve reducing or exempting reserve requirements for deposits or funding linked to eligible green assets, or differentiating the remuneration of reserves according to banks' green lending or deposit activity.** Reserve requirements are liability-side monetary-policy instruments through which central banks require banks to hold a share of selected liabilities as reserves at the central bank, directly influencing the money supply (NGFS, 2026[99]). Depending on the monetary framework in jurisdictions, they are used to manage system-wide liquidity, absorbing excess reserves, and support monetary-policy transmission and financial stability. Increasing reserve requirements generally absorbs liquidity, while lowering them can increase liquidity and lending capacity. The degree to which climate considerations can be integrated into reserve requirements depends on central banks' mandates.

**As of 2025, two central banks have reduced reserve requirements to encourage lending that supports climate transition and resilience.** In Lebanon, the central bank allows banks to reduce mandatory reserve requirements by an amount equivalent to between 100% and 150% of the qualifying loan value when financing energy projects under the National Energy Efficiency and Renewable Energy Action (NEEREA) scheme, or non-energy projects relating to sectors such as pollution abatement and recycling (Lebanese Ministry of Environment, 2024[124]). In the Philippines, the central bank similarly lowered reserve requirements for sustainable bonds issued by banks and separately increased the Single Borrower's Limit for loans, credit, and guarantees (Bangko Sentral ng Pilipinas, 2023[125]). These measures can encourage banks to expand sustainable finance, but their design needs to remain consistent with central-bank mandates and avoid disrupting monetary-policy effectiveness or weakening banks' liquidity resilience (NGFS, 2026[99]). Differentiated reserve requirement policies remain particularly uncommon and experimental, as their consistency with monetary policy transmission depends heavily on domestic banking-system structure, reserve regimes and implementation design (NGFS, 2026). As a result, this review did not identify conceptual, theoretical, or empirical research on the potential or observed effects of climate-related reserve requirements.

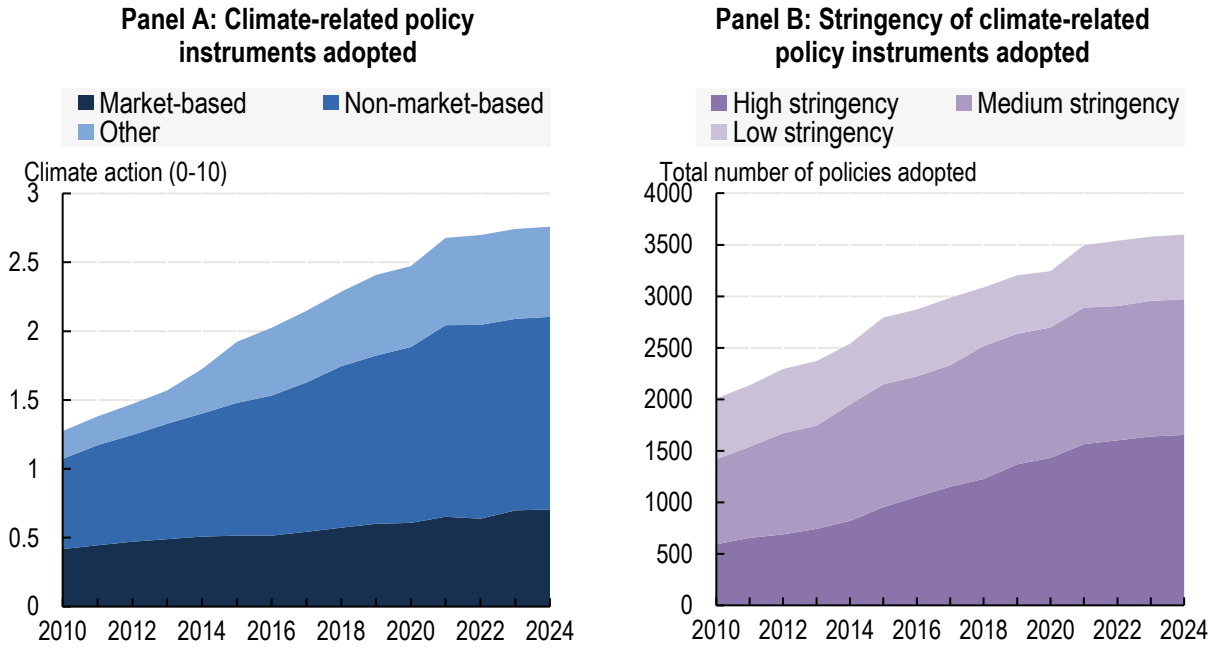
## 2.2. Overview of real-economy policies influencing climate alignment in finance

**Governments use a range of real-economy climate policies to incentivise, enable or require climate-aligned actions by the private sector.** These policies can influence the climate alignment of real-economy investments by companies and households, as well as the financing that supports them, by changing incentives, expected returns, costs and risks. As discussed in Section 2.1, climate-related financial sector policies primarily serve financial policy objectives. Real-economy climate policies more directly aim to influence climate outcomes in the real economy. Depending on the policy measure and their

design, these policies can also pursue other policy objectives, such as industrial development, competitiveness, energy security, affordability or distributional goals.

**The adoption of climate mitigation policies, as tracked for 50 OECD, G20 and OECD accession countries, plateaued since 2021, after a decade of rapid growth**. Policy tracking based on the OECD Climate Actions and Policies Measurement Framework (CAPMF) highlights that climate policy action across market-based, non-market based on other policies (see Box 2.1), only increased by 1% to 2% annually between 2022 and 2024. The average annual increase between 2010 and 2021 was 10%. The trend in the level of stringency of implemented policies is similar, with a recent stabilisation after a period of significant growth (Figure 2.19). While the level of climate policy action varies widely between different countries, this plateauing can be observed across both OECD member and non-member countries (OECD, 2025[126]). Such slowdown may be an indication of widening implementation gaps but can also reflect recalibrations of policy mixes towards increased effectiveness. The effectiveness of climate policy depends not only on the number and stringency of adopted measures, but also on their design, sequencing and interaction within broader policy packages (OECD, 2025[127]; OECD, 2025[128]). On the other hand, climate policy uncertainty, due to recalibrations of policies or other reasons, is associated with decreases in investments, including in pollution-intensive sectors most exposed to climate policies, and among capital-intensive companies (Berestycki et al., 2022[129]).

## Figure 2.19. Climate mitigation policies in OECD, G20 and OECD accession countries

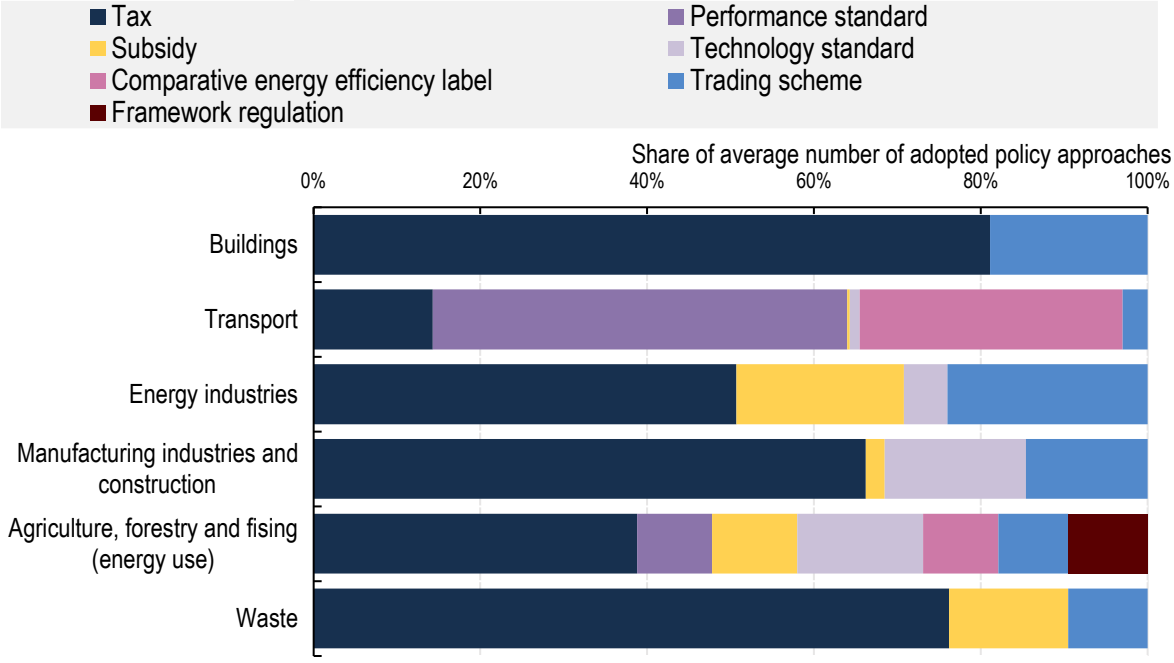



Note: Based on the methodology of (Nachtigall et al., 2022[130]) for 50 OECD, G20 and OECD accession countries covered by the Climate Actions and Policies Measurement Framework (CAPMF). In Panel A, other instruments include targets, governance, climate data.
Source: OECD Climate Actions and Policies Measurement Framework Database and (OECD, 2025[126]).

**Data for 38 countries indicate a high share of tax instruments in climate mitigation policy mixes across sectors, alongside a notable role of subsidies and trading schemes for energy and of performance standards for buildings**. Different policy approaches target different sectors but the development of a comprehensive global database of climate policies remains work in progress. In the current scope of the Inclusive Forum on Carbon Mitigation Approaches (IFCMA) database, which covers validated data for 38 countries, taxes are the most widespread policy measure group overall, representing

more than a third of all adopted approaches across sectors, and over two thirds for agriculture, manufacturing and waste (Figure 2.20). In the buildings sector, however, performance standards are most common. In the energy sector, which is central to the decarbonisation of other sectors, subsidies and trading schemes each represent over 20% of policies adopted, while the transport sector is characterised by the most diverse policy mix. This diversity of policy approaches is consistent with evidence that different market failures and sectoral barriers require different combinations of carbon pricing, standards, subsidies, public investment and enabling regulations (IMF, 2023[131]).

## Figure 2.20. Climate mitigation policy mix by group and by sector as of 2024 for 38 countries




Note: As of June 2026, the OECD Inclusive Forum on Carbon Mitigation Approaches (IFCMA) Climate Policy Database includes around 5 500 data entries on more than 1 600 policy instruments and thousands of policy sub-schemes, within the 43 policy approaches in the scope of the database, for validated data for 38 out of 60 IFCMA member countries.
Source: OECD Inclusive Forum on Carbon Mitigation Approaches (IFCMA) Climate Policy Database.

**Effective real-economy climate policies, especially fiscal and financial incentives, remain fundamental levers for incentivising climate-aligned investments.** Within the mix of policies influencing investment decisions, instruments resulting in fiscal and financial incentives directly impact net present value and internal rate of return calculations. Mobilising and aligning finance with climate goals requires enabling policy frameworks conducive to investment in general (OECD, 2015[132]), as well as specific policies for low-carbon investments (OECD, 2015[133]) and climate-resilient investments (OECD, 2024[134]). Policy instruments that positively or negatively affect expected cash-flows over the lifespan of an investment have a direct impact on the calculations and metrics that inform investment decisions of companies, households and financial institutions. This is notably the case of tax incentives and of financial incentives (grants, subsidies, loans), which respectively 97% and 86% of OECD member countries rely on to attract investors in specific sectors (OECD, 2024[135]).

**Feed-in tariffs providing subsidies to produce energy from renewable sources have largely been phased out as many investments in solar and wind became profitable without direct support**. Feed-in tariffs provide a guaranteed fixed rate per unit of energy produced for a defined period, thereby ensuring price stability and reducing investment risk. They have been instrumental for the deployment of

renewable energy power production capacities across regions and underlying rise of underlying real-economy investments (see Chapter 3 on tracking). Their progressive phasing out reflects the maturation and improved cost-competitiveness of these technologies and underlines the need for adaptive policy mixes to advance the climate transition across sectors (OECD, 2025[136]).

**Environmental taxes represent decreasing shares of GDP and total tax revenues, but fiscal incentives remain critical to accelerate investments in climate innovation and solutions**. Environmentally related taxes can be a cost-effective instrument to achieve environmental goals. However, in 2023, they accounted for only 4.3% of total tax revenue on average across OECD member countries, down from 5.4% in 2015 and 5.9% in 2000. Their share of GDP-equivalent also decreased over the period (OECD, 2025[136]). These trends tend to limit the effectiveness of fiscal policy in addressing environmental externalities, including in incentivising investments for activities contributing to the climate transition.

**Fiscal support and subsidies for fossil fuels have decreased since a 2022 peak, yet they continue to provide strong incentives for investments and financing in GHG-intensive**. The OECD-IEA combined estimates covering 82 countries show that the global cost of support measures for fossil fuels fell from about USD 1 trillion in 2023 to around USD 0.9 trillion in 2024, following a USD 1.6 trillion peak in 2022 that resulted from support measures to offset high energy prices (OECD, 2025[137]). However, many measures that support the production and consumption of fossil fuels remain in place, which contribute to explain stable related investments (see Chapter 3 on tracking).

**Fiscal and financial incentives can also help align finance with climate resilience goals but improved tracking of the implementation of adaptation policies would provide stronger evidence**. While countries are increasingly defining adaptation objectives, measuring progress remains challenging as policy objectives often lack timeframes, baselines and specificity (OECD, 2024[138]; Noels et al., 2024[139]). Exposure and vulnerability to climate change as well as corresponding policy responses are context specific, which explains the lack of global and comprehensive data on adaptation policies. However, available evidence highlights the relevance of fiscal incentives to trigger investment in adaptation, for instance in the retrofitting of existing assets to improve their resilience to climate hazards (OECD, 2025[140]).

**Climate-related financial sector policies cannot substitute fiscal, industrial and infrastructure policy but can act as amplifiers.** The effectiveness of climate-related financial sector policies, therefore, depends in part on the credibility, consistency and effectiveness of the broader policy environment. However, empirical evidence on the interaction between real-economy climate policies and climate-related financial sector policies remains limited. Further analysis on their interactions, including at the country level, is needed to understand the effectiveness of climate-related policy playbooks of both real-economy and financial sector policies across geographies.

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# 3 Tracking

This chapter analyses best-available estimates of finance directed towards climate solutions and opportunities as well as finance exposed to greenhouse gas intensive activities. The chapter places those estimates in the context of total financial flows and stocks, while acknowledging remaining gaps in data and approaches to comprehensively reflect the state of the climate transition. The analysis covers trends in real-economy investments, financial assets issued or held, and private financial institutions. Regional and sectoral estimates are provided where possible. The analysis helps identify opportunities for decision and policymakers to drive finance towards opportunities stemming from the climate transition.

## Key insights

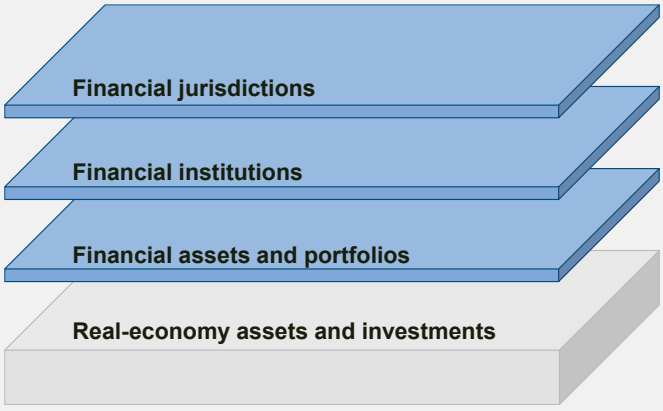
- **Global low-carbon energy investments account for a growing share of total real-economy investments, increasingly exceeding those in fossil fuel energy.** Global investments in low-carbon energy accounted for 7% of gross fixed capital formation in 2024 and those in fossil fuels represented 4%. Low-carbon energy investments grew, notably in Asia-Pacific, Europe, and North America, while fossil fuel investments stagnated. Greenfield foreign direct investment contributed to these trends. Low-carbon investments in Africa, Eurasia, Latin America, and the Middle East lag, indicating untapped opportunities to invest in climate transition and innovation.
- **Climate-alignment trends in the real economy and major parts of the financial system have yet to converge.** In contrast to real-economy investments, fossil fuel financing continues to outpace low-carbon financing across most asset classes. Conventional financing to other GHG-intensive industrial and energy sectors is also several multiples, pointing to large, untapped opportunities to invest in the climate transition. Alignment of finance and investments with climate adaptation and resilience remains, however, difficult to track.
- **Listed corporate equity shares in low-carbon sectors are highest in regions with large stock markets, but considerable scope remains to transition stock markets globally.** At the end of 2025, global low-carbon listed equity accounted for one-third of carbon-intensive stocks and 5% of total listed equity. Low-carbon shares are highest in North America and Eastern Asia, which represent over 70% of global markets. Africa, Oceania and Latin America have over 20% of listed equity in GHG-intensive sectors but account for only 3% of global markets.
- **Low climate alignment of corporate bonds and syndicated loans points to untapped potential of different financial instruments to finance low-carbon solutions.** Global green corporate bond issuance plateaued after 2022 and did not keep up with growth of total issuance, while the share of traditional bonds from fossil fuel sectors slightly fell between 2022 and 2025. Green syndicated loans rose while syndicated loans to fossil fuel sectors fell. Regional differences persist. Green-labelled only exceeded traditional issuance in Africa, Europe and parts of Asia-Pacific for corporate bonds and in Eastern Asia and Oceania for syndicated loans.
- **Data and methodological constraints limit evidence on the role of sovereign bonds and private markets in aligning finance with climate goals.** Data gaps in private equity and bilateral loans prevent evaluations of their role in financing climate innovation and transition in the real economy. Public authorities rely on sovereign bonds but green bonds remain a very small share of total issuance and no common approach exists to assess unlabelled bonds.
- **Banks still channel more financing to fossil fuels than low-carbon energy but better evidence for other types of financial institutions is needed to understand the diverging climate alignment of real-economy and financial system flows.** Bank-facilitated financing to fossil fuels still exceeded low-carbon energy supply in 2024. However, the gap narrowed since 2021 as banks across all regions captured more green finance opportunities. The highest relative growth in low-carbon bank-facilitated financing was in Africa, but the largest volume increase was in Europe. Evidence on other types of financial institutions remains very partial.
- **Climate-alignment assessments at the level of financial jurisdictions help map untapped investment opportunities in climate solutions and transition.** National collaboration across policy authorities can improve the coverage of climate assessments. Voluntary national commitments under the G20 Data Gaps Initiative are expected to yield first official estimates of green debt securities and listed equities. Dedicated efforts remain needed to assess finance exposed to high-GHG activities and physical climate risks.

Consistent with the systematic approach that underpinned the first OECD Review on Aligning Finance with Climate Goals (see (OECD, 2024[1]) and Box 3.1), this chapter on tracking analyses the climate alignment across layers of finance. It summarises trends in real-economy investments in low-carbon energy and fossil fuel supply (Section 3.1), brings together different estimates across asset classes (Section 3.2), takes stock of emerging analysis on the portfolios of financial institutions (Section 3.3), and reflects on how data across the previous three sections can be combined to assess the climate alignment of financial jurisdictions (Section 3.4). With the aim to address the broader Article 2.1c goal to make all finance consistent with climate goals, the chapter places available figures in the context of total investments and financing flows and stocks, while acknowledging ongoing methodological and data developments towards more comprehensive metrics and assessments, as further discussed in Chapter 4 on metrics.

### Box 3.1. Analytical dimensions to track the climate alignment of finance

Assessing the climate alignment of finance requires considering all layers of the real economy and financial system. To do so, the approach that underpins recurring OECD Reviews on Aligning Finance with Climate Goals considers four layers: real-economy assets and investments, financial assets and portfolios, financial institutions, and financial jurisdictions (Figure 3.1). Within each of these layers, both financial stocks and flows need to be tracked, providing complementary yet interrelated insights. This edition extends the analysis by introducing time trends, unpacking previously "unclassified" segments, and providing regional insights.

#### Figure 3.1. Different layers of finance for tracking climate alignment




Source: (OECD, 2024[1]).

There are two main challenges in estimating the alignment of finance with climate goals across these layers, namely data gaps and varying definitions. Data and estimates come from different sources, which may identify and classify activities that contribute to or undermine climate goals in a way that is not fully consistent. Further, estimates of finance for activities that contribute to or undermine climate objectives may be partial. Such gaps are even more acute for climate change adaptation than for climate change mitigation (as further discussed in Chapter 4 on Metrics), which explains why only a few examples relating to resilience to climate change are included in the present chapter. More generally, estimates of finance to activities that contribute to or undermine climate objectives tend to be less comprehensive for developing countries and unlisted companies (World Bank Group, IMF and OECD, 2023[2]), as well as for asset classes not traded on financial markets.

## 3.1. Estimates of real-economy investments

**Comprehensive climate-alignment assessments of real-economy investments are critical to assess climate policy effectiveness in capturing climate-related economic opportunities**. Existing official taxonomies (discussed in Chapter 2 on policies) are both too partial and not specific enough to provide definitions and criteria across all economic sectors and subsectors. In this context, the evidence presented here remains focused on estimates of clean energy investments and fossil fuel-related investments. These are compared to total real-economy investments, for which gross fixed capital formation (GFCF), an official statistical indicator pertaining to the System of National Accounts, can serve as an approximate benchmark (Jachnik, Mirabile and Dobrinevski, 2019[3]).

### *3.1.1. Global and regional investment trends*

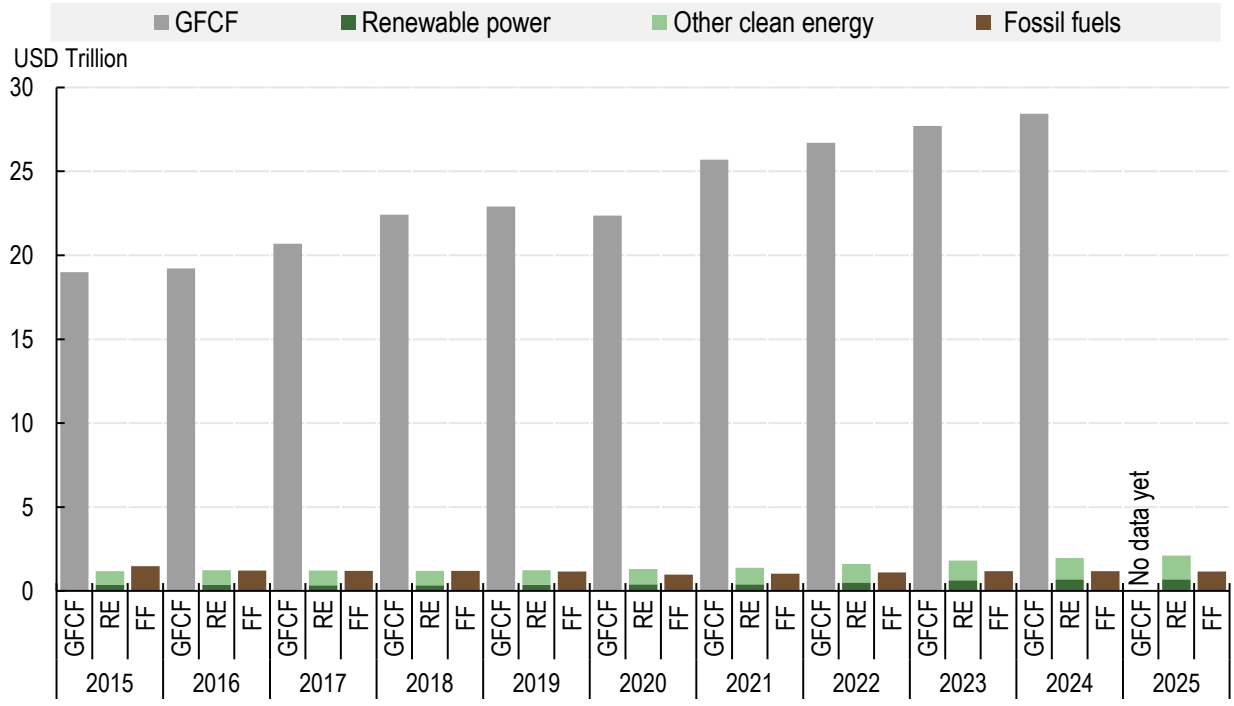
**The share of low-carbon energy investments in total global real-economy investments has increased and significantly exceeds the share of fossil fuel investments**. Investments in renewable power and other clean energy, such as electricity networks, storage, electrification of end use, and energy efficiency, accounted for 6.9% of gross fixed capital formation in 2024 (Figure 3.2). Meanwhile, investments relating to fossil fuels represented 4.1%. While more recent data on gross fixed capital formation is not yet available, 2025 estimates of clean and fossil fuel energy investments are on the same trend. In 2025, low-carbon energy investments exceeded fossil fuel energy investments by the largest margin yet. The overall alignment of real-economy investment with climate-mitigation goals remains limited but progress observed in the energy sector is critical to the climate transition in other economic sectors.

**Significant growth of low-carbon energy investments since 2020 drives their increasing share in total investments, while fossil-related investments remained relatively stable**. Between 2020 and 2025, global clean energy investments increased significantly, rising from USD 1.3 trillion to USD 2.1 trillion, reaching an all-time high (Figure 3.2). This reflects both sustained growth in renewable power investment and increasing investments in other clean energy (such as grid infrastructure investments), which added up to USD 0.9 trillion and USD 1.4 trillion respectively in 2025. With just under USD 1.2 trillion investments relating to fossil fuels in 2025, the latter neither increased not faltered.

**Less than 12% of total real-economy investments can currently be tracked for climate alignment, as the climate transition of many sectors remains difficult to accurately assess**. The climate transition of many economic sectors, representing over 85% of real-economy investments. remains difficult to accurately assess systematically. Consistency with low-GHG emissions pathways requires shifting investments across all economic sectors including but not limited to energy. Although not yet tracked systematically, investments in solutions to support the transition of heavy industries, buildings, transportation, and agriculture exist. Improved tracking efforts at national levels could significantly contribute to filling this data gap.

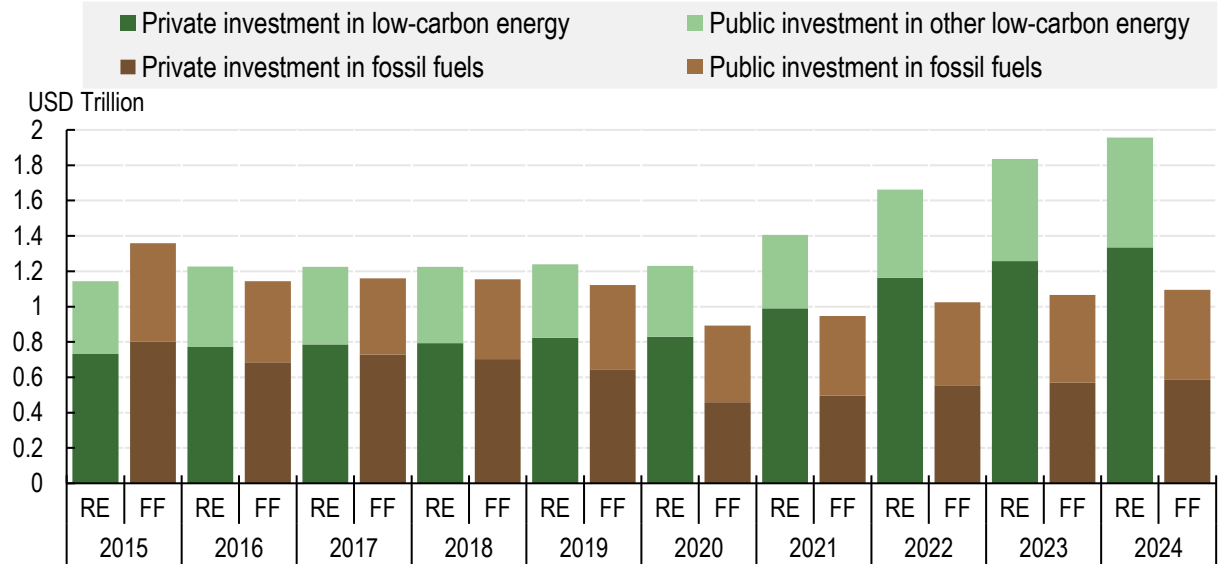
**At the global level, private sector represents the majority of investments in low carbon energy, while the public and private sectors are taking relatively even shares of fossil fuel investments**. Real-economy investments are made by both public (e.g. governments, national development banks, multilateral development banks) and private actors (e.g. companies, institutional investors, households). GFCF and the other estimates presented in this section cover real-economy investments by private and public actors. In 2024, the private sector represented over two thirds of clean energy investments, while public and sectors each accounted for about half of fossil fuel investments (Figure 3.3). Public investments in GFCF can represent anywhere from 10% to 50% depending on the country (OECD, 2024[1]).

## Figure 3.2. Global estimates of the low-carbon and fossil fuel real-economy investments, 2015-25




Note: GFCF is gross fixed capital formation. Renewable power relates to investments in power generation from renewables. Other clean energy refers to investments in energy efficiency and other end uses, electricity networks, storage, nuclear power generation, and clean fuels. Fossil fuels relate to investments in fossil fuel supply and power generation from coal, oil, and natural gas.
Source: Authors, based on data retrieved from (World Bank, n.d.[4]; IEA, 2026[5]).

## Figure 3.3. Low-carbon and fossil fuel investments by private and public actors, 2015-24

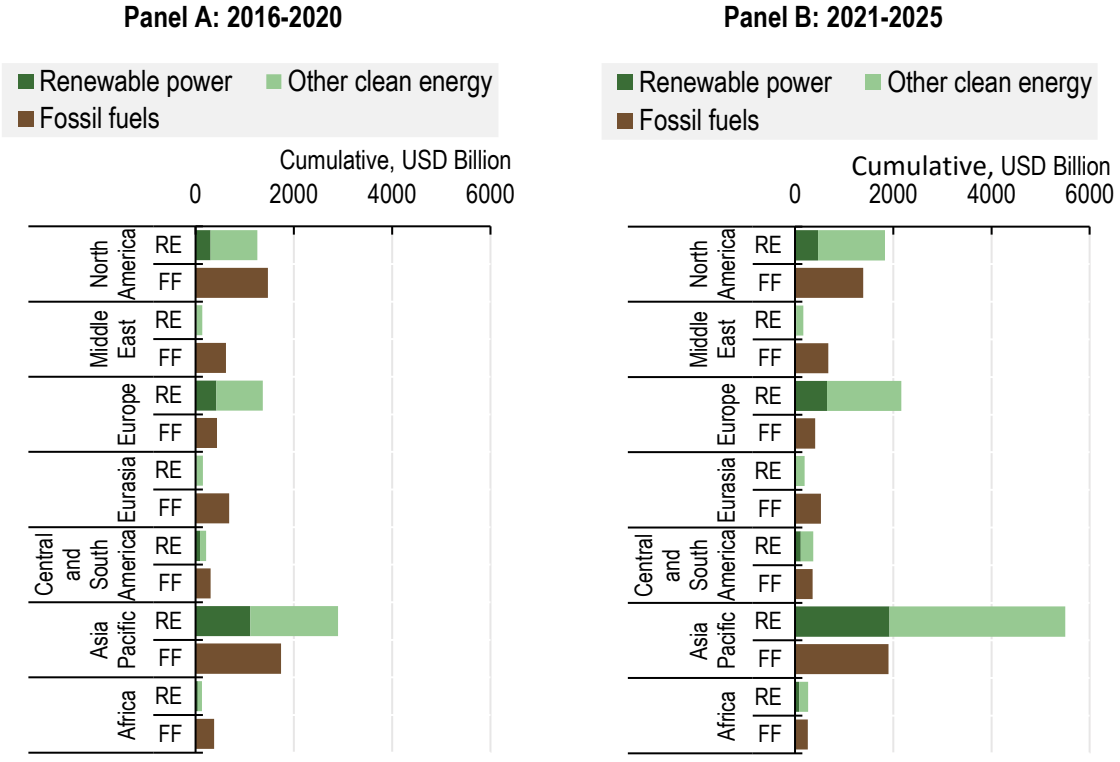



Note: Other clean energy refers to investments in energy efficiency and other end uses, electricity networks, storage, nuclear power generation, and clean fuels. Fossil fuels relate to investments in fossil fuel supply and power generation from coal, oil, and natural gas.
Source: (OECD, 2025[6]) via (IEA, 2025[7]).

**Over 2021-2025, low-carbon energy investments outpaced fossil investments in Asia-Pacific, Europe, and North America**. In all three regions, clean energy investments between 2021 and 2025 were significantly higher than between 2016 and 2020, while fossil fuel-related investments stagnated (Asia-Pacific) or slightly decreased (North America and Europe) between the two periods (Figure 3.4). In the Middle East, fossil fuel investments remain multiple times larger than clean energy investments.

**Trends in Latin America, Eurasia and Africa illustrate remaining challenges to invest in the energy transition in emerging and developing countries**. Clean energy investment over 2021-2025 increased in all three regions compared to the previous five years (Figure 3.4), highlighting regional progress despite diverse country contexts, economic structures, and transition pathways (IEA, 2025[7]). However, across the three regions, fossil investments remain higher than clean energy investments, and most notably in Eurasia (a fossil fuel exporting region). In Africa, total energy investments remain particularly low in absolute terms compared to the size of the continent and needs, underscoring the persistent financing gap for developing economies (IEA, 2025[7]).

## Figure 3.4. Investments in fossil fuel and clean energy across regions in 2016-2020 and 2021-2025

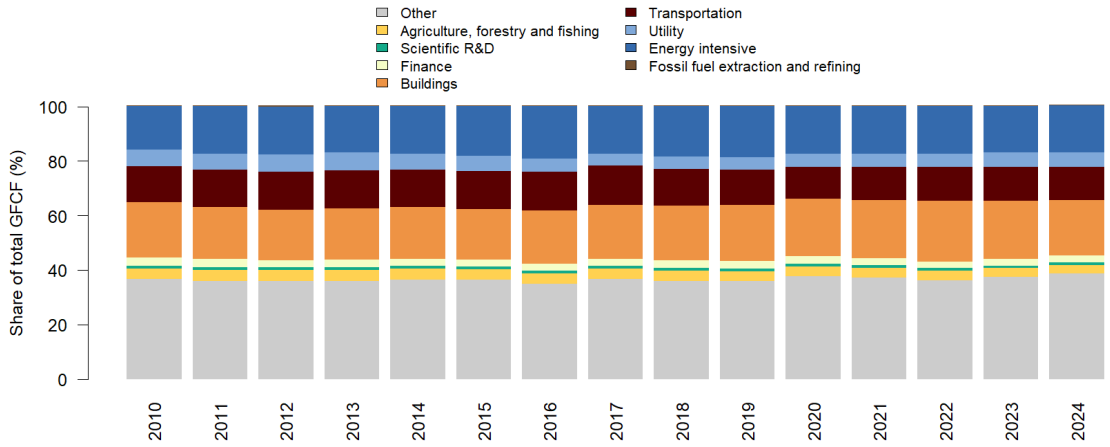



Note: Renewable power relates to investments in power generation from renewables. Other clean energy refers to investments in energy efficiency and other end uses, electricity networks, storage, nuclear power generation, and clean fuels. Fossil fuels relate to investments in fossil fuel supply and power generation from coal, oil, and natural gas.
Source: Authors, based on data retrieved from (IEA, 2025[8]).

**Large shares of real-economy investments beyond low-carbon and fossil energy pertain to economic sectors of direct relevance to the climate transition**. Current global-level data on total GFCF, as presented in Figure 3.2, does not lend itself to a sectoral analysis across countries. This limitation prevents tracking investment volumes going to climate-relevant sectors such as transportation, heavy industries, buildings. However, such sectors can account for more than half of total real-economy investments, as is the case for European countries within the OECD membership (Figure 3.5) and thus

represent significant opportunities for green and transition finance across financial asset classes tracked in Section 3.2 of this chapter. As discussed in Section 3.4, jurisdiction-level analyses based on national granular data can go further in such assessments, linking to national economic structures and policy priorities.

### Figure 3.5. Distribution of GFCF in European OECD countries across climate-relevant sectors



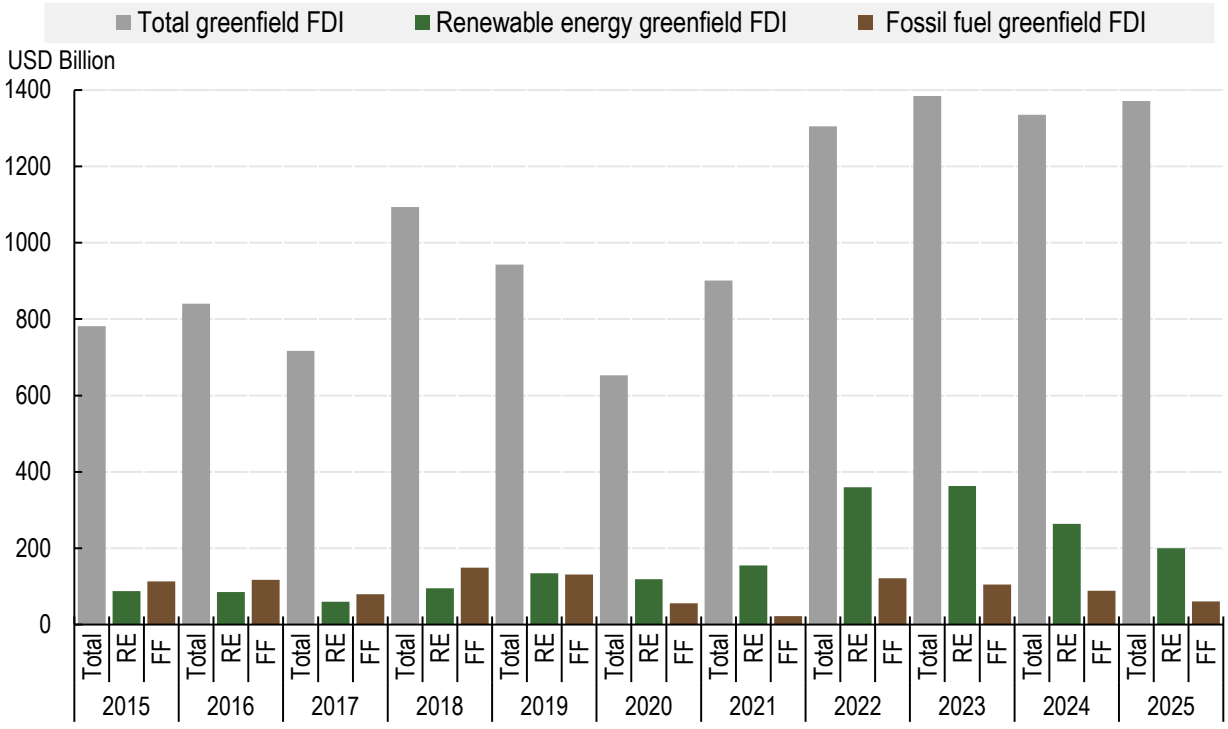

Note: Categorisation in climate policy-relevant sectors, following the approach proposed by Battiston et al (2022[9]).

### *3.1.2. Role and trends of greenfield foreign direct investment*

**Foreign direct investment (FDI) represents a significant channel through which cross-border capital influences the real economy over the medium and long term.** Greenfield FDI, although a relatively small proportion of total FDI (the majority of which consists of investments in existing companies including mergers and acquisitions) is particularly relevant to climate alignment as it establishes new productive capacity in recipient economies. The sectoral orientation of such investment, notably within the energy sector, contributes to shaping the long-term emission profile of economies and can either contribute to or limit progress toward climate goals (OECD, 2022[10]). Aligning FDI patterns with climate objectives requires a combination of policies that strengthen incentives for low-carbon investment, improve transparency on the climate implications of investment projects, and ensure that structural capital formation is consistent with net-zero pathways (OECD, 2022[10]).

**Available evidence shows that between 2016 and 2025, the climate alignment of global greenfield FDI improved significantly.** The OECD FDI Qualities (FDIQ) indicators highlight that that greenfield investment in renewable energy more than doubled, going from less than USD 90 billion in 2016 to around USD 200 billion in 2025. The expansion of renewable energy investment was significant in absolute terms and relative to total greenfield FDI. The share of renewable energy in total greenfield FDI more than doubled, rising from 10% in 2016 to around 25% between 2022 and 2024, before dropping to 15%% in 2025. In contrast, greenfield FDI in fossil energy remained volatile and did not keep pace with overall growth, declining from about USD 120 billion in 2016 (14% of total greenfield FDI) to less than USD 70 billion in 2024 (4% of total greenfield FDI) (OECD, 2024[11]).

## Figure 3.6. Global greenfield FDI in renewable and fossil energy compared to total, 2015-25



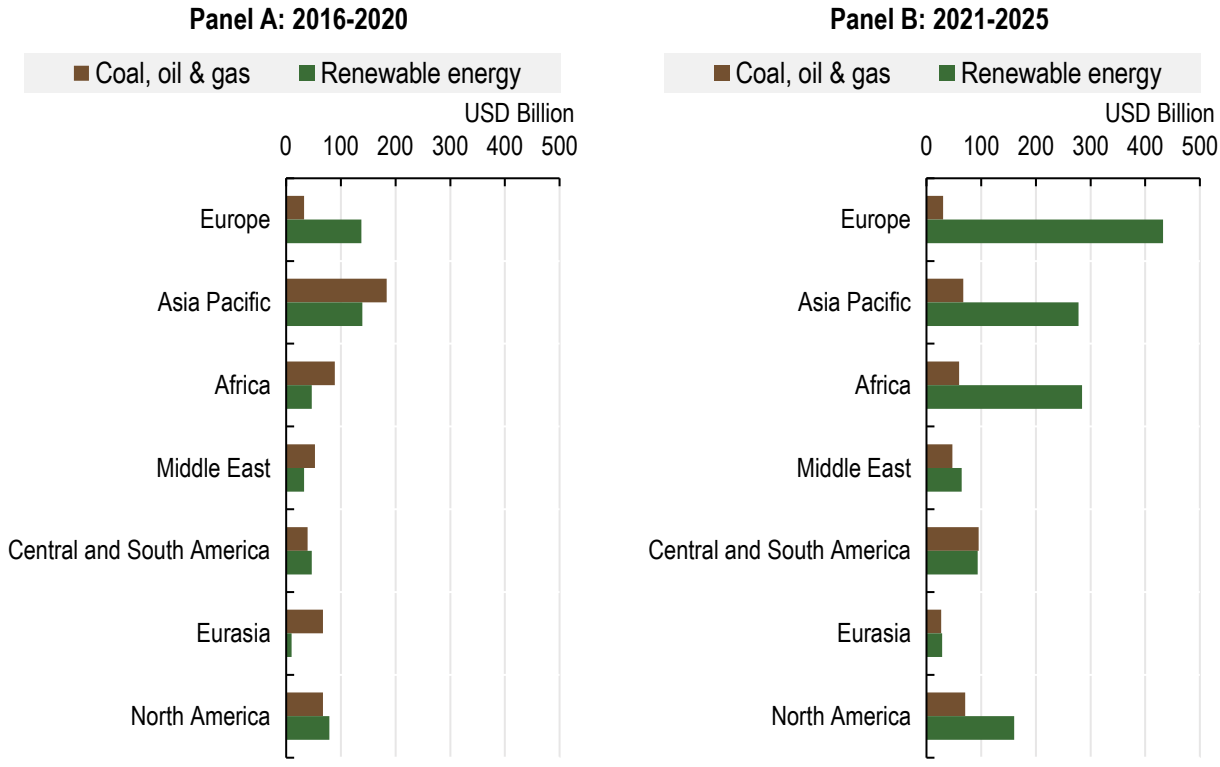

Note: FDI refers to foreign direct investment, RE is renewable energy greenfield FDI, FF is fossil fuel greenfield FDI.
Source: (OECD, 2024[11]; Financial Times, 2024[12])

**Greenfield FDI in renewable energy is no longer concentrated in advanced economies as it outpaces greenfield FDI in fossil fuel energy in all regions.** The share of advanced economies as beneficiaries of greenfield FDI in renewable energy fell from 57% in 2016-2020 to 54% in 2021-2025, while EMDEs rose to 46%. As a result, renewable energy now accounts for a broadly comparable share of total greenfield FDI across both groups, suggesting a potential convergence in investment priorities. By contrast, fossil fuel greenfield FDI has declined everywhere but remains far more prominent in EMDEs, which received around 70% of the global fossil total in 2021–2025.

**The estimated share of greenfield FDI in total investments in renewable energy is significant and has grown strongly over the past decade in both advanced economies and EMDEs**. During 2016-2021, greenfield FDI represented about just under a third of total renewable energy investments (as tracked by the IEA) in advanced economies and just under a fifth in EMDEs. During the 2021-2025 period, these shares grew to about half for advanced economies and about a third for EMDEs. While the scope of the different datasets that underpin these estimated shares are not fully comparable, such findings confirm that the growing technological maturity and economic attractiveness of the renewable energy sector across countries.

**Climate alignment of energy-related greenfield FDI improved across regions but at different speeds and scales**. Over 2016-2025, renewable energy FDI increased across all regions, whereas investment in fossil energy generally declined, with North America as an exception. There, however, remains notable regional differences (Figure 3.7). In 20121-2025 more than one-third of global renewable energy greenfield FDI was directed to Europe (32%), followed by Africa (21%) and the Asia-Pacific (21%). By contrast, fossil energy-related greenfield FDI remained more concentrated in Central and South America and the Caribbean (24%), the Asia-Pacific (17%) and North America (18%).

### Figure 3.7. Greenfield FDI in renewable and fossil energy by region in 2016-2020 and 2021-2025




Source: (OECD, 2024[11]; Financial Times, 2024[12])

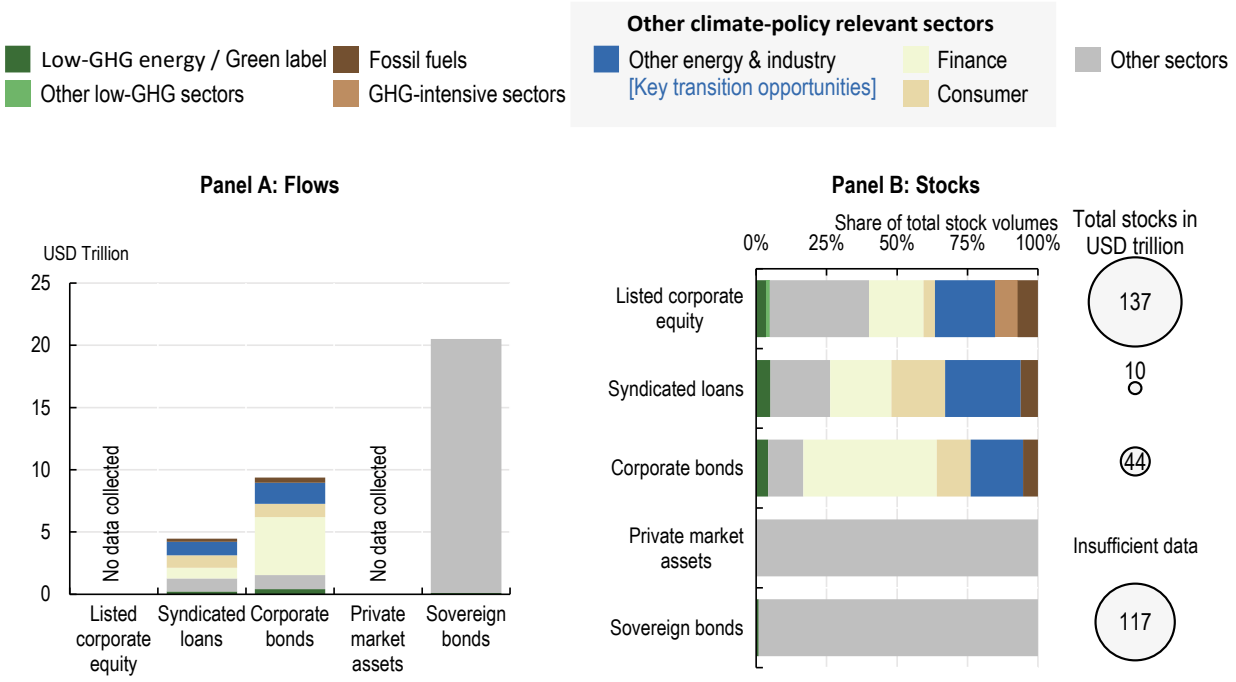
## 3.2. Estimates across financial asset classes

**Financial flows and stocks across asset classes play different roles in financing real-economy investments in climate innovation and transition.** For example, primary equity markets enable early-stage and growth companies to capitalise on future growth of climate solutions, while debt provides most financing for established companies, including in traditionally GHG-intensive sectors (Wilson and Caldecott, 2023[13]). Each asset class carries distinct time horizons, risk profiles, disclosure practices, and channels of influence on real-economy investment decisions. Flows and stocks of financial assets are several times larger than flows and stocks of tangible fixed assets, which can be explained by the fact that significant volumes of financial intermediation and secondary financial market activity are linked, on average, to each tangible fixed asset or real economy entity.

**Climate-alignment trends in the real economy and major parts of the financial system have yet to converge.** In contrast to real-economy investments, global fossil fuel financing continues to outpace low-carbon financing across most asset classes with comparable data, both in new flows and outstanding stocks (Figure 3.8, Panels A and B respectively). In 2025, green-labelled syndicated loans accounted for 5% of issuance, compared with 6% for lending to fossil fuel sectors. Low-carbon and fossil fuel corporate bonds each represented around 4% of total flows, pointing to higher alignment than in syndicated loan markets albeit in an asset class with a smaller overall size. Green-labelled sovereign bonds accounted for only 1% of issuance, with no estimate available for fossil fuel-related issuance. Resulting stocks of green-labelled or low-carbon corporate debt, sovereign bonds and listed equities were under 6% of total volumes, while fossil fuel-related stocks accounted for 5% to 7% where measured. Other GHG- or energy-intensive

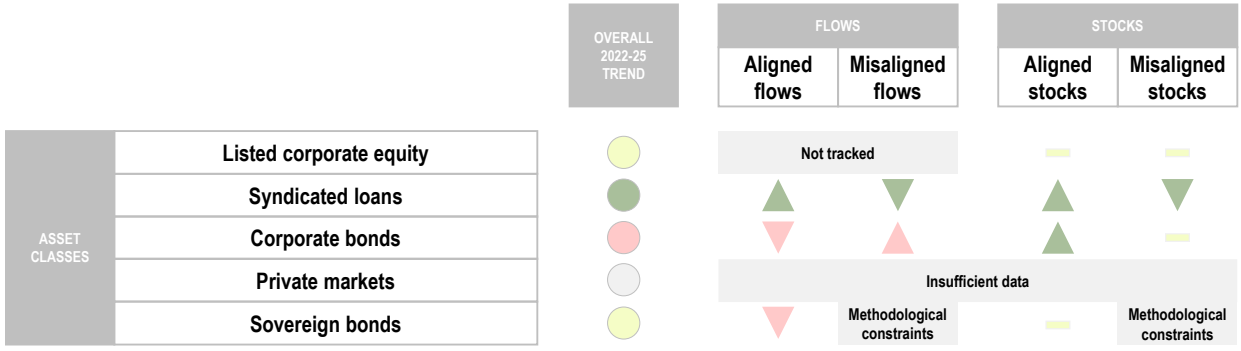
sectors for another 20% to 30%. This adds up to several multiples of shares of financing to low-carbon sectors, pointing to large, untapped opportunities to invest in the climate transition.

## Figure 3.8. Overview of climate-(mis)alignment estimates across asset classes in 2025




Note: This figure combines data from figures throughout Section 2.2. Methodological notes, especially in relation to low-carbon and carbon-intensive classifications can be found in their respective subsections. GHG refers to greenhouse gas. Other low-carbon sectors and GHG-intensive sectors are only identified for listed corporate equities. Greem labelled refers to low-carbon energy sectors in listed corporate equity and green-labelled instruments for other asset classes.
Source: Authors, based on data retrieved from Bloomberg, BloombergNEF, LSEG.

## Figure 3.9. Evolution of climate alignment of finance across financial asset classes, 2022-25




Note: This chart shows the evolution of flows and stocks in low-GHG (green arrows) and fossil fuel (brown arrows) sectors across asset classes.
Source: Authors, based on data retrieved from Bloomberg, BloombergNEF, LSEG.

**Climate alignment advanced in parts of the financial system but the greening of bond markets lost momentum since 2022.** Since the first edition of the OECD Review (2024[1]), which mainly tracked data until 2022, alignment in syndicated loans progressed, stood mostly still in listed equity and sovereign

bonds, and lost momentum for corporate bonds (Figure 3.9). Flows of green-labelled corporate bonds increased but did not keep up with overall growth in bond issuance, resulting in a decreasing share.

**Large opportunities to transition investments globally remain untapped across financial asset classes.** Low climate alignment of syndicated loan and corporate bond issuance points to untapped potential in using different financial debt instruments to finance low-carbon solutions (Figure 3.8). Traditional bond and loan issuances in energy and industrial sectors remain larger than green-labelled and fossil fuel-related issuances by a factor of two or more. Green- and transition-labelled instruments have the potential to be further scaled up significantly in these sectors to finance climate transition and innovation. Many financial sector policies, as discussed in Chapter 2 on policies, are targeting the transparency and comparability of these instruments to make them more attractive to investors. However, more barriers need to be overcome to scale them.

**Climate-alignment assessments of the financial sector are most credible at the asset class level, acknowledging different approaches in alignment classifications.** Sectoral classifications for listed equity are more detailed than for debt instruments allowing more policy-relevant insights of the climate alignment of finance. Data and methodological constraints limit evidence on the role of sovereign bonds and private markets in aligning finance with climate goals. Mortgages and real estate are not yet fully captured in this report, but information on buildings across asset classes provides initial insights on these financial assets. The different aspects, which are further discussed in Chapter 4 on metrics, highlight the importance of assessing climate alignment separately for different asset classes, as done in the following subsections.

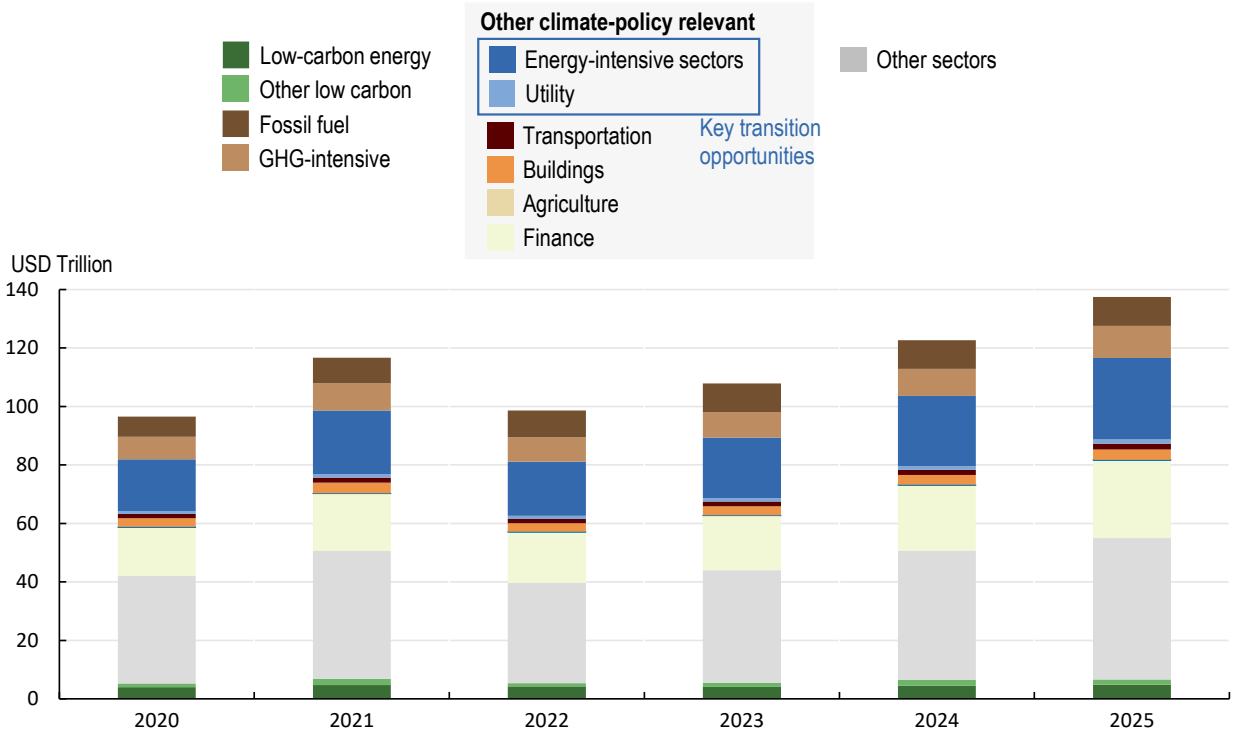
### *3.2.1. Listed corporate equity*

**Listed corporate equity is the largest asset class in terms of stocks, can be tracked most comprehensively, and has the most detailed information available to assess climate alignment.** Total market capitalisation of global listed equities grew to nearly USD 140 trillion in 2025. Apart from initial public offerings and capital increases, equity markets do not usually finance new investment in the same direct way than new debt issuance, but they affect firms' ability to raise capital, expand, acquire assets and sustain long-term investment plans (OECD, 2021[14]). In this context, the composition of listed equity companies in low-GHG, high-GHG and climate-relevant sectors is a useful indicator to assess how financial markets are transitioning. However, other metrics can be used to assess climate alignment of listed equities, which are further explored and explained in Chapter 4 on metrics.

**Listed corporate equity in low-carbon sectors represent a third of those in GHG-intensive sectors and only a small share of total stocks.** The market capitalisation of listed companies in low-carbon sectors was estimated at USD 6.6 trillion in 2025, representing 5% of total listed equity (Figure 3.10). In contrast, listed equity in fossil fuel energy supply was estimated at around USD 10 trillion in 2025 with an additional USD 11 trillion in other GHG-intensive sectors, together accounting for over 15%. This suggests that the climate alignment of listed equity remains low, with low-carbon sectors still representing a much smaller share of market value than fossil fuel and other GHG-intensive sectors.

**With over two thirds of listed corporate equity in climate-relevant sectors other than exclusively low-GHG or GHG-intensive sectors, large transition opportunities remain untapped**. In 2025, USD 62 trillion of global listed equity corresponded to companies whose activities are mixed, downstream, or cannot be classified by a specific low-carbon or fossil fuel activity or segment but are climate relevant according to the methodology by Battiston et al (2022[9]) (Figure 3.10). This includes listed equity in companies that operate in energy-intensive industries, utilities, buildings, transport, and finance sectors, which adds up to over 40% of listed corporate equity stock. Financing the decarbonisation pathways of these companies is essential for meeting national and global climate mitigation goals while stimulating low-carbon innovation. Taken together with low market shares in low-carbon sectors, this points to large opportunities to transition global equity markets.

## Figure 3.10. Global market capitalisation of listed equity in low- and high-GHG sectors, 2020-25

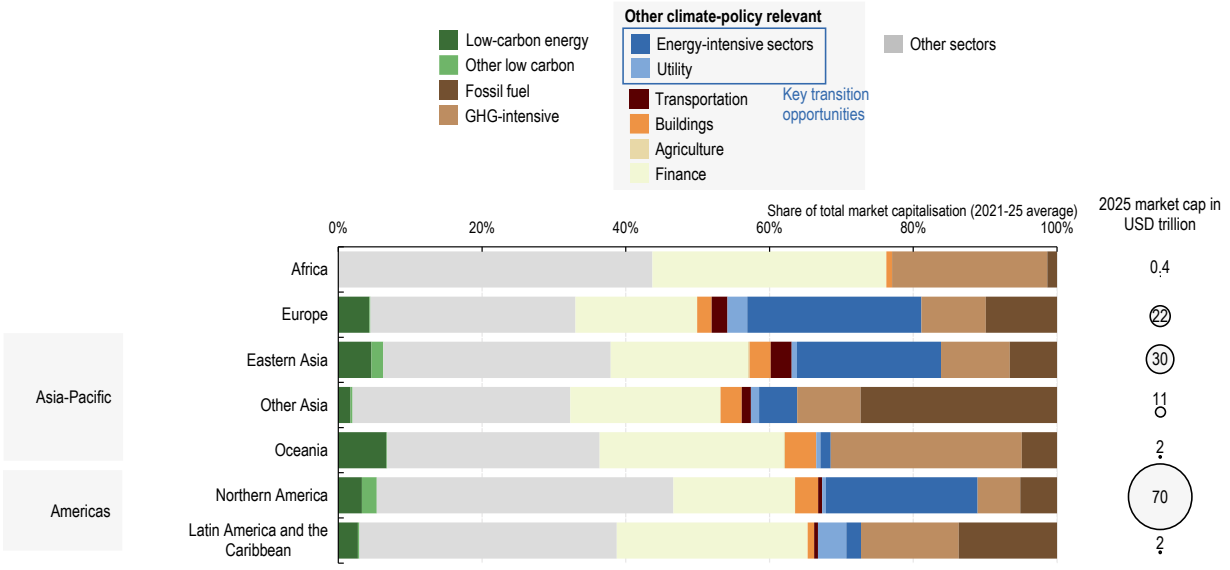



Note: Categorisation in low-carbon, fossil fuel, and climate policy-relevant sectors, following the approach proposed by Battiston et al (2022[9]).
Source: Authors, based on data retrieved from Bloomberg, 2025.

**Between 2020 and 2025, listed equity valuations in fossil fuels have always remained higher than those in low-carbon energy, with shares of both remaining stable.** The absolute market value of low-carbon firms has grown since 2020, from USD 5.3 trillion in 2020 to USD 6.6 trillion in 2025 (Figure 3.10). It continues to represent a small share of total listed equity holdings, underscoring the limited depth of publicly listed firms exclusively engaged in low-emissions activities. The share of listed equity in fossil fuel and carbon-intensive sectors have remained a stable multiple.

**Larger regional markets tend to have higher shares of listed equity stocks in low-carbon sectors**. North America and Eastern Asia, which represent over 70% of global listed corporate equity markets, have some of the highest shares listed in low-carbon sectors, at around 5% and 6% respectively (Figure 3.11). Oceania, which represented 1% of the stock market in 2025, slightly exceeds this at 7%. Fossil-fuel equities represent a larger share of listed markets in regions where extractive and energy-intensive industries play a greater economic role or where investments in clean technologies are low. Notably, Africa, Oceania and Latin America have over 20% of listed corporate equity in GHG-intensive sectors, but these regions together only add up to 3% of global markets. This is also the case for other Asian countries outside of Eastern Asia, which account for 8% of the global stock market.

## Figure 3.11. Regional distribution of listed equities in low- and high-GHG sectors, 2021-25 average




Note: Categorisation in low-carbon, fossil fuel, and climate policy-relevant sectors, following the approach proposed by Battiston et al (2022[9]).
Source: Authors, based on data retrieved from Bloomberg, 2025.

### *3.2.2. Corporate bonds and syndicated loans*

**Debt is a core source of financing for non-financial and financial corporates, including to invest in the climate transition.** As of 2024, based on national financial accounts statistics, the average corporate debt to equity ratio in most OECD member countries was above two, and between three and 10 in more than half (OECD, n.d.[15]). Companies in established sectors rely largely on debt (bonds and loans) to finance their green and climate-related investments (ICMA, 2025[16]; Cortina Lorente et al., 2025[17]; OECD, 2022[18]). Further, some forward-looking scenario analysis highlights the critical role that debt markets will play in financing the climate transition (OECD, 2025[19]).

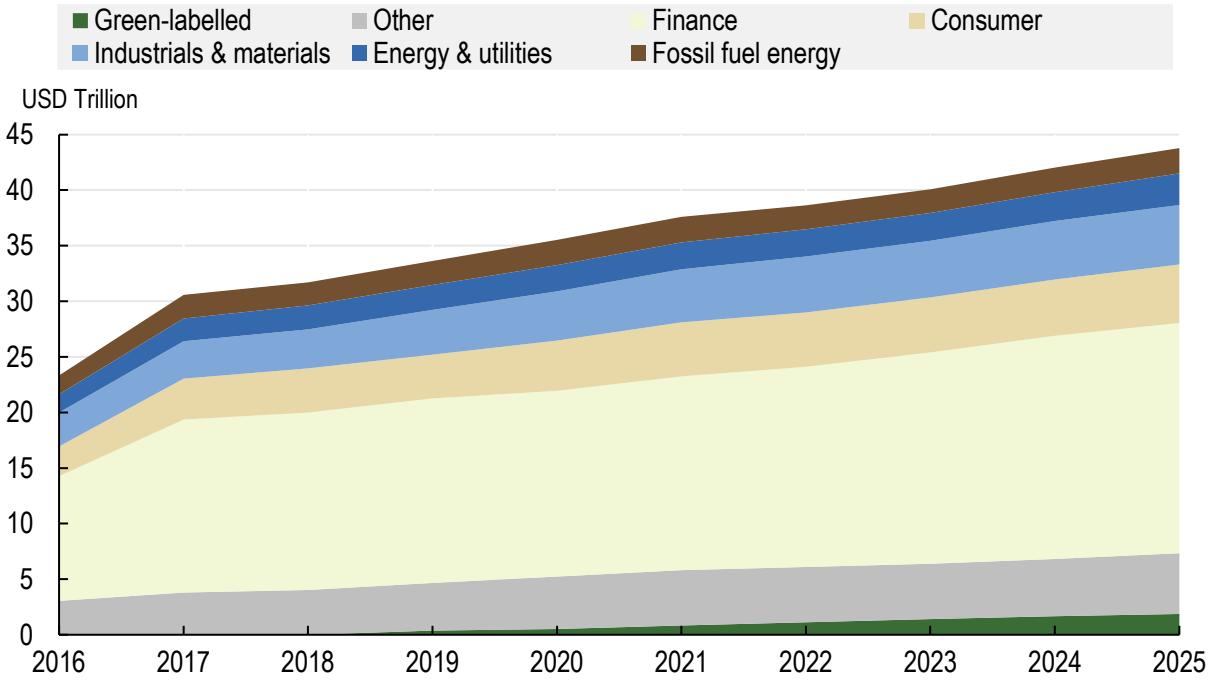
**Assessments of the climate alignment of bonds and loans currently rely on a mix of green labels and sectoral analysis.** Bonds and loans can be explicitly labelled as sustainability-, green-, or transition-related. These labels identify environmental objectives through use-of-proceeds commitments or performance-linked terms, drawing on jurisdiction-specific taxonomies and frameworks (analysed in Chapter 2 on policies, Section 2.1.1) or international frameworks, including the ICMA Green Bond Principles (ICMA, 2025[16]). While the additionality of green-labelled bonds has sometimes been questioned (as discussed in Chapter 4 on metrics), such labelling remains the most credible basis for tracking debt flowing to climate mitigation or adaptation objectives and environmental performance more broadly. In contrast, as no debt financing is earmarked for use in carbon-intensive activities, identifying climate-misaligned debt requires an analysis of the sectoral classification and activities of the borrower. A more comprehensive assessment of the climate alignment of debt financing requires better coverage of bilateral loans (no public data) and complementary metrics such as issuers' carbon intensity and firm-level transition trajectories (further discussed in Chapter 4 on metrics, Section 4.5).

#### *Corporate bonds*

**Outstanding amounts of green-labelled corporate bonds increased steadily since the Paris Agreement but still lag traditional bonds in fossil fuel sectors and remain a small share of overall stock**. Green-labelled corporate bond stocks grew from USD 0.5 trillion in 2020 to USD 1.9 trillion in 2025

(Figure 3.12). As outstanding corporate bonds grew to USD 44 trillion globally in 2025, green-labelled bonds thus accounted for 4% of total bond stocks. This is still below fossil fuel sector bonds, which account for 5% of total corporate bond stocks in 2025. Traditional bonds to other energy sectors, utilities and industry represented another 19% of total outstanding amounts. Although shares of green-labelled bonds increased and traditional bonds in energy- and emissions-intensive sectors decreased, the latter remains a multiple of the former.

### Figure 3.12. Global amount outstanding of corporate bonds by green label and sectors, 2016-25



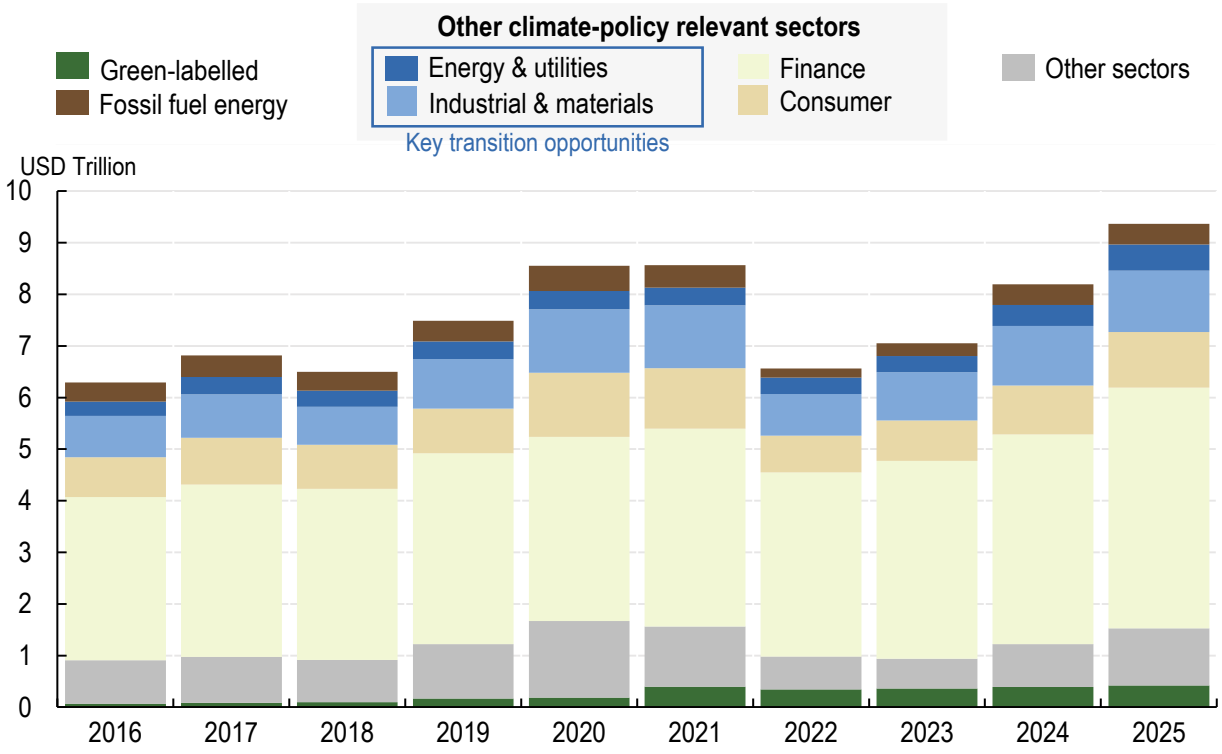

Note: Green-labelled bonds are bonds for which the issuer states that the net proceeds of the instrument include environmental projects or activities or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes. This can be issued by any sector. Non-labelled (traditional) bonds follow the Bloomberg Industry Classification Standard (BICS). Fossil fuel sectors include, at BICS Level 2: Coal Operations, Exploration & Production, Integrated Oils, Oil & Gas Services & Equipment. The dataset used to calculate the outstanding amount includes both active and inactive bonds, issued between 01/01/2000 and 31/12/2025, with a tenor at issuance greater than 1 year, and an issued amount greater than USD 1 million.
Source: Authors, based on data retrieved from BloombergAnywhere, 2025.

**Greening of corporate bond issuance has lost momentum since 2022.** Although global green bond issuance volumes have continued to rise, they did not keep pace with growth of total corporate bond issuance. Green-labelled corporate bond issuance grew from USD 0.1 trillion in 2016 to USD 0.4 trillion in 2025, but its share in total issuance peaked at 5.3% in 2022 before falling to 4.5% in 2025 (Figure 3.13). Most green-labelled corporate bonds are issued by companies active in low-carbon sectors and corresponding supply chains. Transition-labelled bonds were estimated at 0.1% of total corporate bond issuance in 2025, a still very small emerging labelled debt instrument. At the same time, traditional corporate bond issuance by fossil fuel companies, which declined from 6% to 3% of total issuance between 2016 and 2022, rose back to 4% in 2025. Issuance of green-labelled bonds exceeded traditional bond issuance by fossil fuel sectors four years in a row, but the gap is narrowing.

**Opportunities to rely more on corporate bond instruments to finance transition activities and climate innovation remain large.** Traditional corporate bonds to industrial and electricity sectors represented 18% of total corporate bond issuance in 2025 (Figure 3.13). These sectors need to undergo

large transformations to transition to net-zero GHG emissions. Green- and transition-labelled corporate bonds can be scaled up to finance these transitions. Another 61% of corporate bond issuance is in other climate-policy relevant sectors, that could gain financial returns from investing in climate solutions and transition. Corporate bonds issued by financial institutions represent a large part of this. Bank financing through bond issuance is critical to the ability of these institutions to extend debt financing to climate-relevant real economy sectors, but the climate performance is particularly complex and data intensive to track.

### Figure 3.13. Global issuance of corporate bonds by green label and sectors, 2016-25



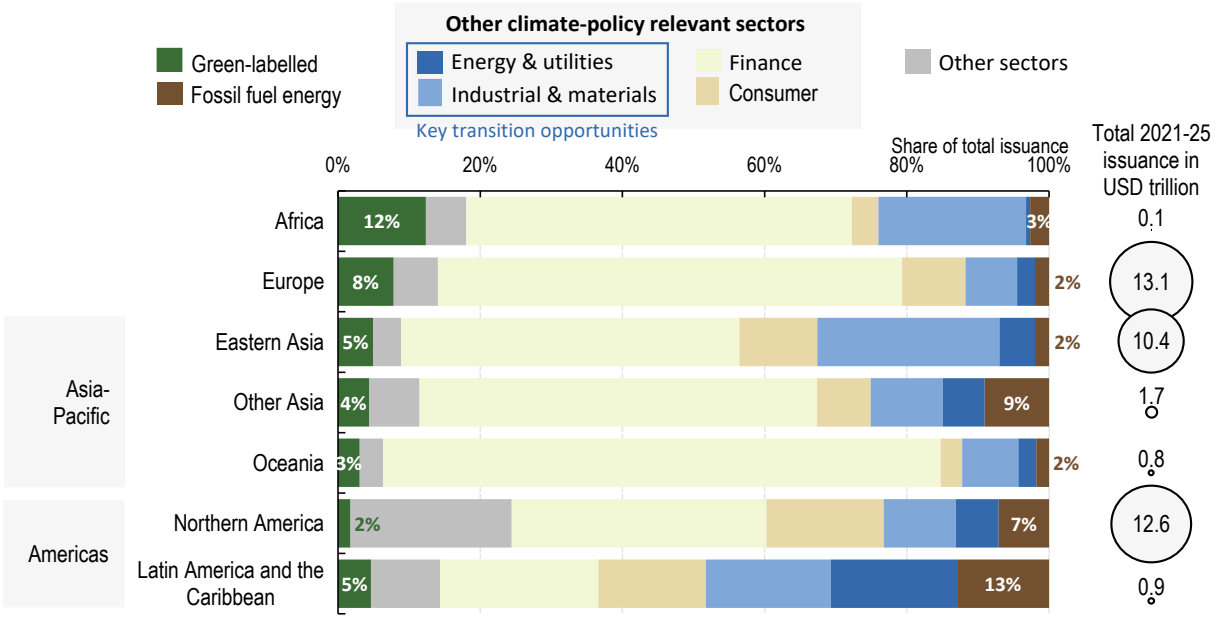

Note: Green-labelled bonds are bonds for which the issuer states that the net proceeds of the instrument include environmental projects or activities or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes. This can be issued by any sector. Non-labelled (traditional) bonds follow the Bloomberg Industry Classification Standard (BICS). Fossil fuel sectors include, at BICS Level 2: Coal Operations, Exploration & Production, Integrated Oils, Oil & Gas Services & Equipment. The dataset used to calculate the outstanding amount includes both active and inactive bonds, issued between 01/01/2000 and 31/12/2025, with a tenor at issuance greater than 1 year, and an issued amount greater than USD 1 million.
Source: Authors, based on data retrieved from BloombergAnywhere, 2025.

**Some regions are capturing opportunities of financing their climate transition through green bonds more than others.** Between 2021 and 2025, green bond issuance accounted for between 2% and 12% of total corporate bond issuance depending on the region (Figure 3.14). Europe and Africa recorded the highest relative shares (8% to 12%), while the Americas and Asia-Pacific exhibited lower proportions of green-labelled issuance (2% to 5%). Green-labelled corporate bond issuance in Africa, Europe and parts of Asia-Pacific exceeded traditional corporate bonds issued by fossil fuel companies, while the opposite remains true in parts of Asia and the Americas. Europe was also the main driver of green bond volumes, representing over half of green bond issuance between 2021 and 2025.

**Regions with the highest shares of green bond issuance, also have some of the lowest shares of traditional bond issuance by fossil fuel companies**. Green-labelled corporate bond issuance in Europe

and Africa outpaced traditional corporate bonds issued by fossil fuel companies in those regions by a factor of two to four. Green-labelled also exceeded traditional issuance in parts of Asia-Pacific. On the other hand, traditional corporate bonds issued by fossil fuel sectors were still higher than green-labelled issuance in parts of Asia (including the Middle East) and the Americas. These regional differences in the climate alignment of corporate debt instruments are reflective of varied economic structures and different climate transition needs across sectors.

## Figure 3.14. Regional distribution of corporate bond issuance by label and sector, 2021-25 average




Note: Green-labelled bonds are bonds for which the issuer states that the net proceeds of the instrument include environmental projects or activities or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes. This can be issued by any sector. Non-labelled (traditional) bonds follow the Bloomberg Industry Classification Standard (BICS). Fossil fuel sectors include, at BICS Level 2: Coal Operations, Exploration & Production, Integrated Oils, Oil & Gas Services & Equipment. The dataset used to calculate the outstanding amount includes both active and inactive bonds, issued between 01/01/2000 and 31/12/2025, with a tenor at issuance greater than 1 year, and an issued amount greater than USD 1 million.
Source: Authors, based on data retrieved from BloombergAnywhere, 2025.

### *Syndicated loans*

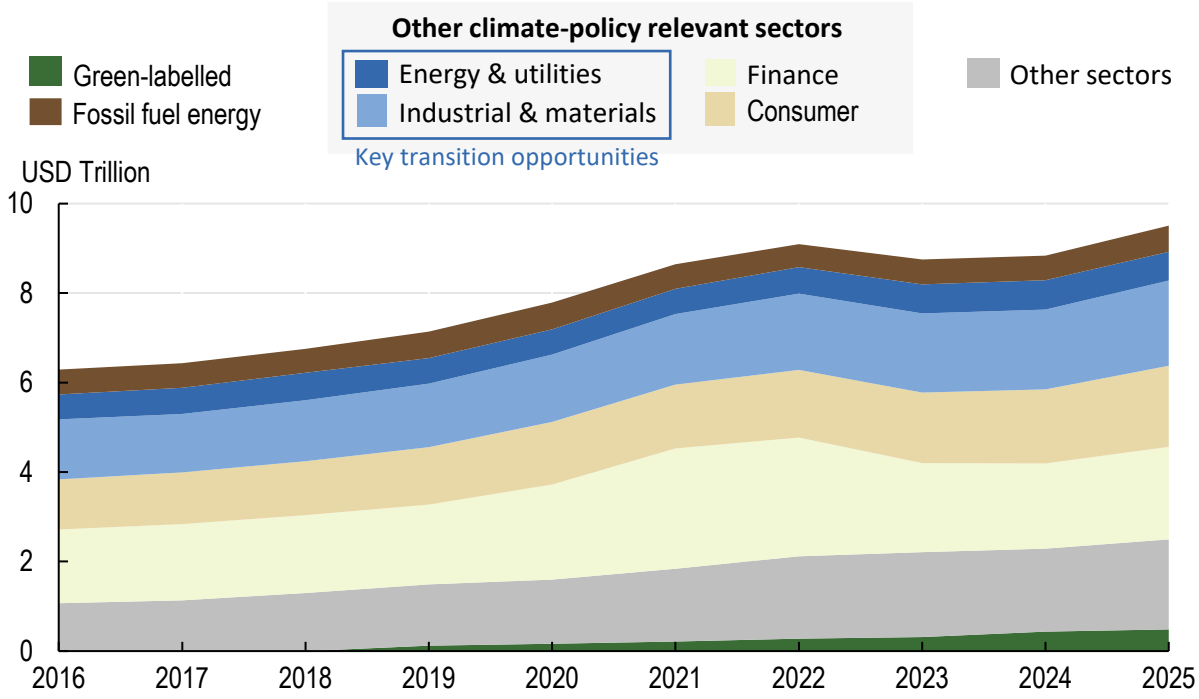
**Syndicated loans allow participating banks to share credit risk, a feature of relevance to financing solutions and innovation for the climate transition**. Syndicated loans combine features of bilateral lending and publicly traded debt. While originated by banks, they have evolved to share some features of bonds in key respects. They are often syndicated to non-bank institutional investors, structured off banks' balance sheets, tranched by risk, and traded in secondary markets (Cortina Lorente et al., 2025[17]). Syndicated loans are a much smaller asset class compared to corporate bonds, and only a fraction of all lending. Lending more broadly also includes private lending to corporates and households (partly captured in Section 3.2.4), such as mortgages, which cannot similarly be tracked due to the confidential nature of the data and absence of disclosures.

**The volume and share of green syndicated loans have been growing steadily since the Paris Agreement but remain lower than for fossil fuel activities**. This trend can be observed for both stock and flows. In contrast to lost moment in corporate bond markets, green-labelled syndicated loans have

been growing steadily. At the global level, green-labelled outstanding syndicated loan stock and new tranched loan flows reached 5% of in 2025 (Figure 3.15 and Figure 3.16). At the same time, traditional syndicated loans to fossil fuel sectors fell to 6% of total volumes in 2025. Hence, although the climate alignment of syndicated loans is advancing, traditional loans to fossil fuel sectors still exceed green-labelled loans as of 2025.

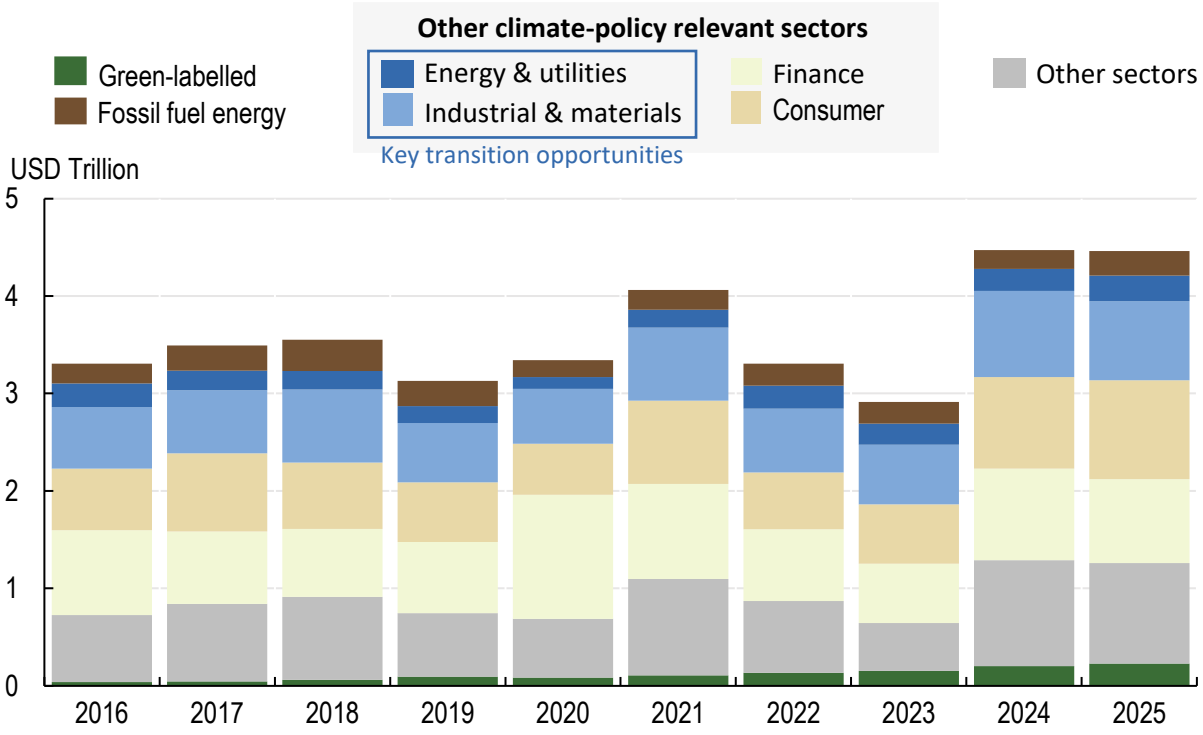
**As is the case for other asset classes, climate-relevant sectors other than purely low-GHG or fossil fuel activities represent large volumes of syndicated loan flows and stocks**. Conventional syndicated loans to non-fossil fuel energy and industry sectors represented 27% of total loan issuance in 2025 (Figure 3.16). Another 41% was in other climate-policy relevant sectors, such as transport, buildings and finance. These large shares point to untapped opportunities for syndicated loans to contribute to financing the climate transition at a larger scale.

## Figure 3.15. Global outstanding amount of syndicated loans by green label and sectors, 2016-25




Note: Green-labelled loans are loans for which the issuer states that the net proceeds of the instrument include environmental projects or activities, or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes. Non-labelled (traditional) loans follow the Bloomberg Industry Classification Standard (BICS). Fossil fuel sectors include, at BICS Level 2: Coal Operations, Exploration & Production, Integrated Oils, Oil & Gas Services & Equipment. The dataset includes both active and inactive loans, issued between 1/01/2015 and 30/06/2025, with a tenor at issuance greater than 1 year.
Source: Authors, based on data retrieved from BloombergAnywhere, 2025.

## Figure 3.16. Global issuance of syndicated loans by green label and sectors, 2016-25

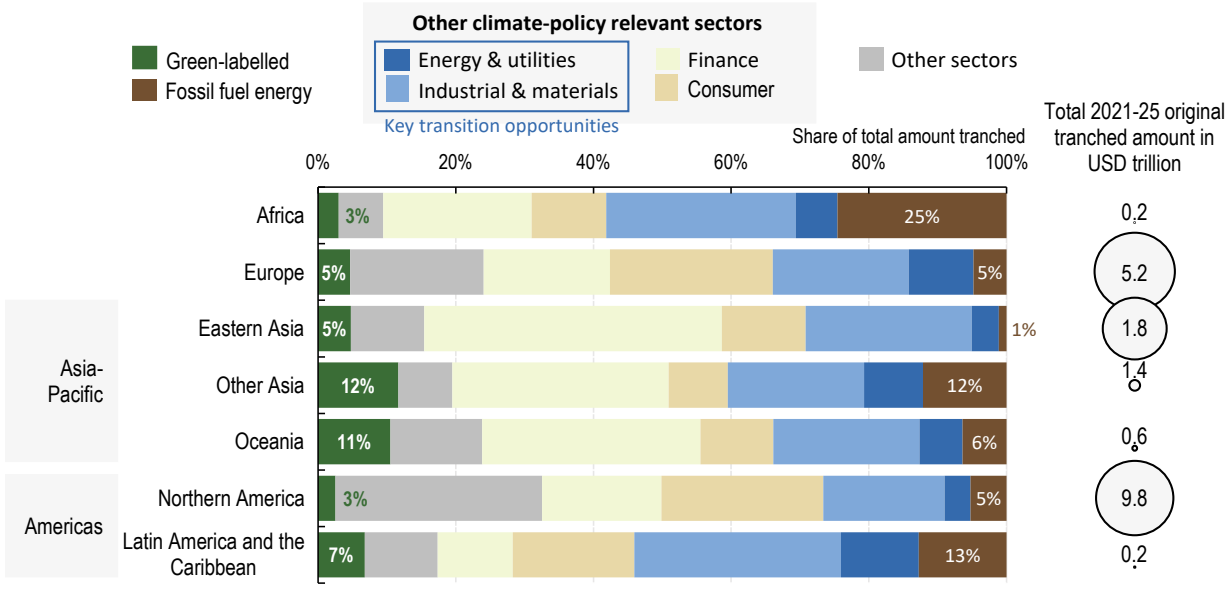



Note: Green-labelled loans are loans for which the issuer states that the net proceeds of the instrument include environmental projects or activities or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes. Non-labelled (traditional) loans follow the Bloomberg Industry Classification Standard (BICS). Fossil fuel sectors include, at BICS Level 2: Coal Operations, Exploration & Production, Integrated Oils, Oil & Gas Services & Equipment. For Panel B, industry classification follows the Bloomberg Industry Classification. The dataset includes both active and inactive loans, issued between 1/01/2015 and 30/06/2025, with a tenor at issuance greater than 1 year.
Source: Authors, based on data retrieved from Bloomberg Anywhere, 2025.

**Volumes of green-labelled syndicated loan issuance exceed traditional loan issuance to fossil fuel sectors in Eastern Asia and Oceania**. In those regions green-labelled loan issuance was nearly 2 to 5 times unlabelled loan issuance to fossil fuel sectors between 2021 and 2025 (Figure 3.17). By contrast, Africa and Latin America have much higher shares of unlabelled loans allocated to fossil fuel sectors than green-labelled loan issuance across all sectors, although these regions represent a very small share of syndicated loan markets. North America also had a small share of syndicated loans as green labelled on average between 2021 and 2025, at around 3% while traditional loans to fossil fuel sectors accounted for 5%. As North America accounted for over half of loan issuance between 2021 and 2025, it drove down global average green loan issuance. Europe, which represents over a quarter of global loan markets, had similar volumes of green-labelled loan issuance and unlabelled issuance to fossil fuel sectors, each accounting for around 5% of European loan issuance total volumes.

**Regional climate-alignment trends of corporate bonds and syndicated loans move in different directions.** While Africa captured green finance opportunities through higher shares of green bonds, it retained the highest share of loan issuance towards GHG-intensive activities (Figure 3.14 and Figure 3.17). Europe, who drives over 50% of global green corporate bond issuance, has seen green corporate bond shares exceed traditional bonds to fossil fuel sectors, but this is not yet the case for syndicated loans.

## Figure 3.17. Regional issuance of syndicated loans by green label and sectors, 2021-25 average



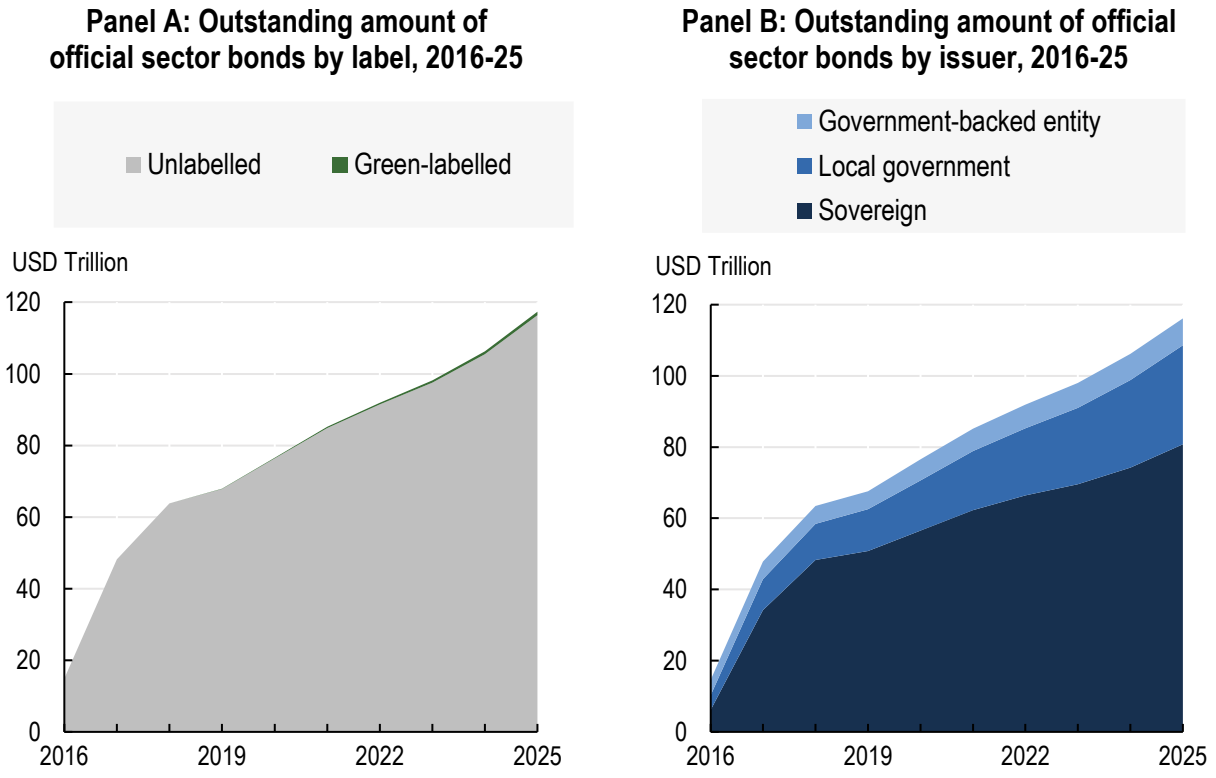

Note: Green-labelled loans are loans for which the issuer states that the net proceeds of the instrument include environmental projects or activities or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes. Non-labelled (traditional) loans follow the Bloomberg Industry Classification Standard (BICS). Fossil fuel sectors include, at BICS Level 2: Coal Operations, Exploration & Production, Integrated Oils, Oil & Gas Services & Equipment. For Panel B, industry classification follows the Bloomberg Industry Classification. The dataset includes both active and inactive loans, issued between 1/01/2015 and 30/06/2025, with a tenor at issuance greater than 1 year.
Source: Authors, based on data retrieved from Bloomberg Anywhere, 2025.

### *3.2.3. Sovereign bonds*

**Sovereign bonds is a large asset class and major financing instrument for national governments to invest in and support the climate transition, within the limits of debt sustainability**. Global outstanding sovereign bonds are estimated at close to USD 120 trillion in 2025, more than double the size of the corporate-bond market (OECD, 2025[19]). Sovereign bonds' interest rates vary depending on many factors notably relating to inflation levels and other economic conditions as well as to the trust that financial market players have in the country's ability to service its debt. Such rate can be very low for many AEs but often reach two digits for many EMDEs. The impacts and costs of climate change can contribute to degrading the sustainability of sovereign debt, defined as the ability to meet all current and future payment obligations without exceptional financial assistance or going into default (IMF, 2020[20]).

**Bonds explicitly aimed at financing climate action remain a very small and recently stagnating share of total official-sector bond issuance and stocks globally**. As of 2025, outstanding volumes of green bonds (about USD 1 trillion) remained less than 1% of total outstanding official-sector bonds (over USD 117 trillion (Figure 3.18 Panel A). Between 2016 and 2021, green bond issuance by official-sector entities (sovereigns, sub-sovereigns, and government-backed entities as shown in Figure 3.18 Panel B) increased steadily in absolute terms but then stabilised around USD 250–300 billion per year over 2022-2025, as also observed in analyses dedicated to bond markets (OECD, 2025[21]). Since 2016, green bonds never exceeded 1.5% of total annual issuance (Figure 3.19). It is, however, not possible to put these shares in perspective of the share of unlabelled sovereign bonds, for which the use of proceeds goes to GHG-intensive activities.

## Figure 3.18. Global outstanding amount of sovereign bonds by green label and sectors, 2016-2025

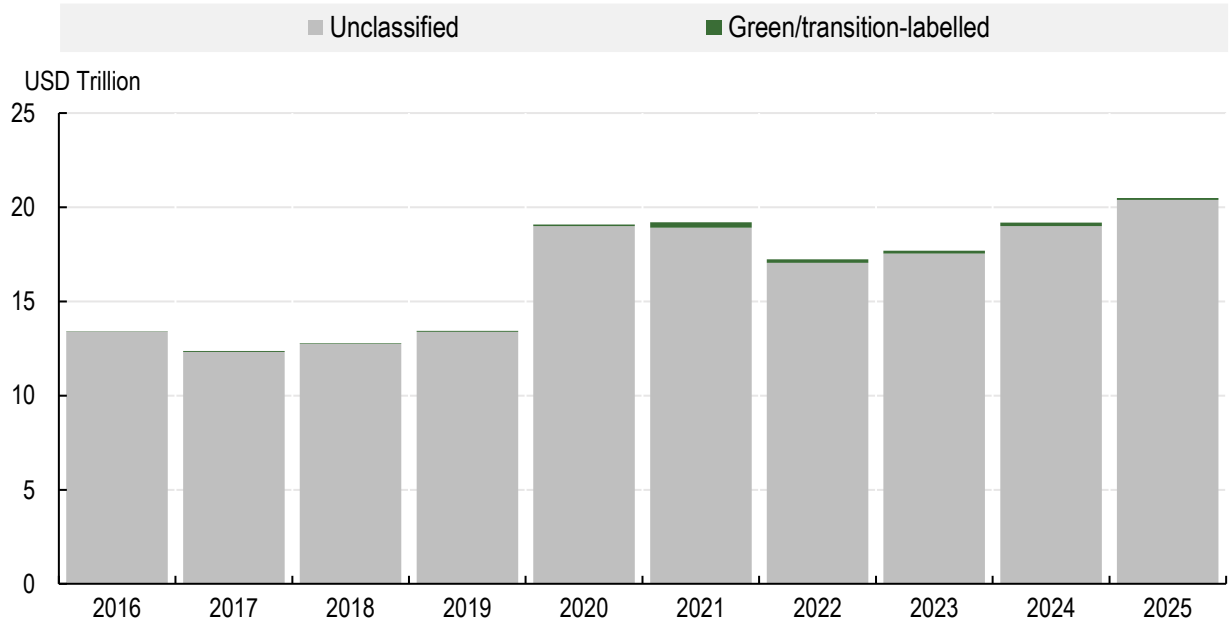



Note: Green-labelled bonds are bonds for which the issuer states that the net proceeds of the instrument include environmental projects or activities or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes.
Source: Authors, based on data retrieved from BloombergAnywhere, 2025.

**Green bonds were a very small share of total bond issuance in most regions between 2021 and 2025, except for Europe and Oceania**. Between 2021 and 2025, European countries were the most active issuers of official green bonds, accounting for about two-thirds of the global sovereign green bond market. Consequently, green-labelled sovereign bonds represented around 5% of total issuance in Europe, followed by 4% in Oceania (Figure 3.20). During this same period, the share of green to total bond issuance was below 1% in Africa, the Americas and Asia. Governments could send more green debt market signals to corporates by raising capital through green and transition sovereign debt instruments.

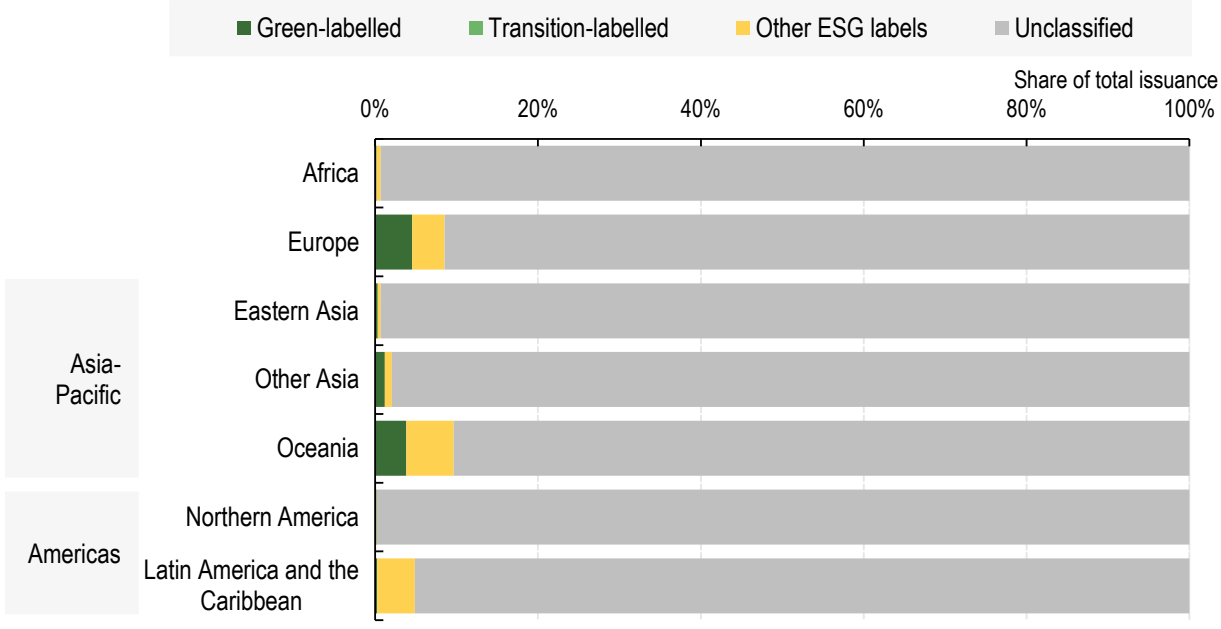
**The stagnation of green sovereign bond issuance indicates that official entities only partly rely on this instrument to finance their spending for the climate transition.** Besides fiscal revenues, governments and local authorities' climate action can also rely on funds raised through the issuance of general-purpose bonds. In such cases, there can be multiple explanations of the choice not to issue green bonds. It could relate to the current absence of a corresponding official green bond framework or label in a given jurisdiction (see Chapter 2 on policies, Section 2.1.1). It could also be explained by the possible absence of a lower borrowing cost for a green rather than a traditional bond issuance (OECD, 2025[21]).

## Figure 3.19. Global issuance of official sector bonds, 2016-2025




Note: Green-labelled bonds are bonds for which the issuer states that the net proceeds of the instrument include environmental projects or activities or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes.
Source: Authors, based on data retrieved from BloombergAnywhere, 2025.

## Figure 3.20. Regional issuance of corporate loans by green label and sectors, 2021-25 average




Note: Green-labelled bonds are bonds for which the issuer states that the net proceeds of the instrument include environmental projects or activities or the issuer has self-reported that some instrument proceeds will finance projects or activities that have environmental purposes.
Source: Authors, based on data retrieved from Bloomberg Anywhere, 2025.

**Methodological challenges limit the evidence base on the role of sovereign in aligning finance with climate goals.** Broadening climate assessments of sovereign bonds beyond green-labelled bonds is challenging but critical to strengthening the role of public debt in supporting the climate transition. Assessing the overall climate alignment of sovereign portfolios requires an approach to evaluate national climate objectives, sectoral spending patterns, and transition plans. As further discussed in Chapter 4 on metrics, there are opportunities to link sovereign bond frameworks to relevant climate-related goals and processes, such as Nationally Determined Contributions (NDCs) and green-budgeting practices. Such developments can broaden and strengthen the ability to infer the extent to which sovereign borrowing can be considered as contributing to low-GHG climate-resilient development, thereby responding to growing policy interest in strengthening the role of public debt markets in supporting climate transition (OECD, 2025[19]).

### *3.2.4. Private markets*

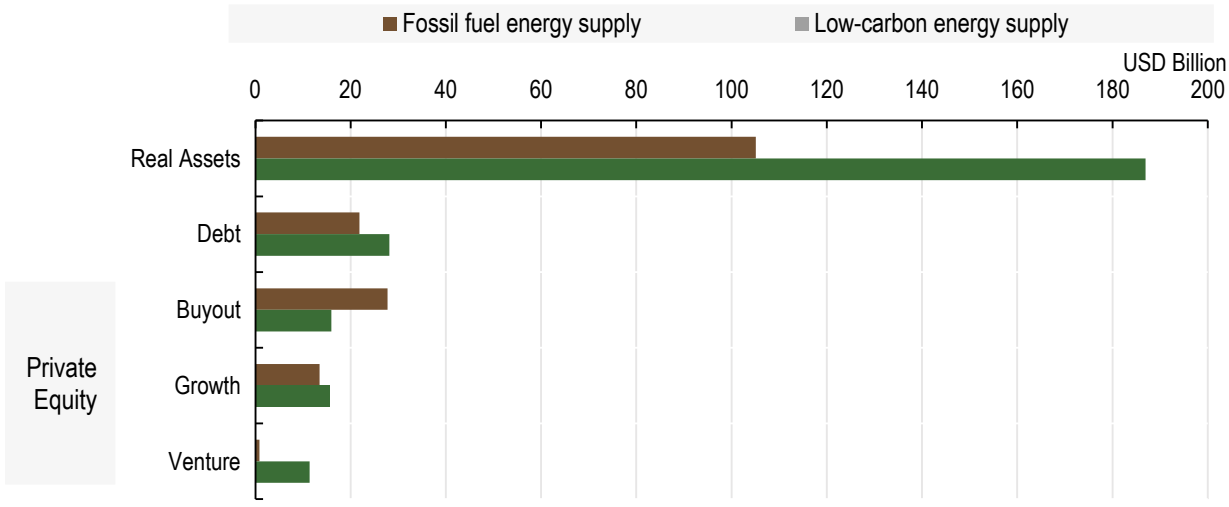
**Available estimates of private markets point to their important role in financing real-economy assets and entities, but it remains very challenging to draw overall conclusions on their state of climate alignment**. While publicly traded bonds and equity represent by far the largest portions of the global investable market, private markets play a significant role for the real economy, notably for real estate and the building sector more generally, private companies and, to a lesser extent, infrastructure assets (MSCI, 2024[22]). As highlighted in Chapter 2 on policies, existing disclosure requirements focus on listed non-financial and financial companies. Data on private markets remains extremely scarce and fragmented (Noels and Jachnik, 2025[23]).

**Investors in equity of entities not traded on stock exchanges can play an important role in financing real-economy sectors and supply chains relevant to the climate transition**. Private companies represent a significant portion of economic activity in many sectors and geographies, taking the form of entrepreneurial start-ups, small and medium sized enterprises (SMEs) or established companies. Investors active in this asset class along the company growth curve include venture capitalists, growth equity investors, and private equity funds including leveraged buyout firms. The private company asset class can provide additional avenues to investors to seize opportunities from the climate transition through investments in companies providing climate solutions or enabling transition.

**Initial and very partial estimates indicate that private equity investments in low-carbon activities caught up with fossil fuels**. Private equity assets under management grew from USD 2.3 trillion in 2015 to around USD 9 trillion in 2024 (McKinsey & Company, 2025[24]; McKinsey & Company, 2024[25]). In that period, private equity invested capital in fossil fuel energy supply added up to USD 0.04 trillion, and a more or less equal USD 0.04 trillion was invested in low-carbon energy supply (Figure 3.21). Available estimates on venture capital point to significantly higher investments in low-carbon energy supply (USD 11 billion) than fossil fuel energy supply (USD 1 billion) for investments in start-up companies, a positive signal for the pipeline of future climate solutions. The low carbon to fossil fuel investment ratio is also estimated to have become mildly positive for private equity funds in growth companies.

**Available data on infrastructure funds shows they invest the largest amount in low-carbon energy supply in private markets.** Between 2015 and 2024, USD 187 billion was invested in low-carbon energy supply, compared to USD 105 billion in fossil fuels (Figure 3.21). This trend mirrors real-economy investment trends (presented in Section 3.1). Infrastructure funds invest in real assets (e.g. buildings and infrastructure) that typically provide public services, generate a steady cash flow-based return profile and are capital intensive, meaning they may be key for unlocking climate transition investments (BloombergNEF, 2025[26]).

### Figure 3.21. Private market funds' holdings in fossil fuel and low-carbon energy supply, 2015-24




Note: BloombergNEF analysis for private market funds active between 2015 and 2024.
Source: BloombergNEF.

**Bilateral loans extended by credit institutions to corporates and households continue to represent a major blind spot for international level climate-alignment assessments**. In contrast to publicly traded bonds and syndicated loans, for which transaction-level data make it possible to run climate-related assessments (Section 3.2.2), regular loans extended by commercial banks to their customers are not publicly recorded. Given the importance of such type of financing for investments by companies across sectors and households (e.g. real estate (mortgages) and transportation vehicles), filling this data and evidence gaps is a priority for more comprehensive and policy-relevant climate assessments of finance. While evidence available from analyses of banks' portfolios based on commercial data (Section 3.3.1) faces similar limitations, data and assessment by financial supervision authorities in individual jurisdictions can play a significant role moving forward (Section 3.4).

## 3.3. Estimates for different categories of investors and financial institutions

**Robust climate assessments of financial institutions still face significant data limitations as they need to cover their portfolios across asset classes**. The extent to which financial institutions are capturing climate opportunities and reducing their exposure to climate misaligned activities, and contributing to climate action in the real economy is complex to assess. This is due to diversified portfolio structures across asset classes, including but not limited to the ones for which estimates are presented in Section 3.2. Analysing such structures requires access to detailed, often proprietary data, as well as requires methodological assumptions to aggregate results across business lines and assets. This leads to less robust results where large parts of portfolios cannot be included in the analysis and as estimates at the level of institutions can obscure diverging trends for different underlying segments of the portfolio (OECD, 2024[1]; Noels and Jachnik, 2022[27]).

**The climate alignment of financial institutions is best tracked separately for different types of institutions.** Various types of financial actors are involved in different financial activities on financial markets and in the real economy (as discussed in Chapter 4 on metrics). Multiple way of classifying financial institutions exist. At a minimum, banks and institutional investors need dedicated analysis, as set out by the first edition of the OECD Review (OECD, 2024[1]). Banks notably provide debt financing for

real-economy investments (discussed in Section 3.1). Institutional investors invest, depending on their mandates, in primary and secondary public and private markets.

### *3.3.1. Banks*

**Continued limitations in granular and standardised global data on banks' holdings and new investments prevent a comprehensive climate assessment of their portfolios**. In terms of holdings (stocks), total assets of commercial banks worldwide were estimated to add up to USD 191 trillion in 2024 (FSB, 2025[28]), growing by nearly USD 9 trillion compared to 2023. Looking at new investment and financing flows, best-available data enables tracking the climate-alignment of around USD 2 trillion of bank-facilitated financing towards energy supply of nearly 1 400 large banks (BloombergNEF, 2025[29]). This includes recourse debt, public equity, project finance, and tax equity. Jurisdiction-level analysis of the climate alignment of banks can provide complementary insights based on more comprehensive national-level data sources held by central banks and financial supervisors (see Section 3.4).

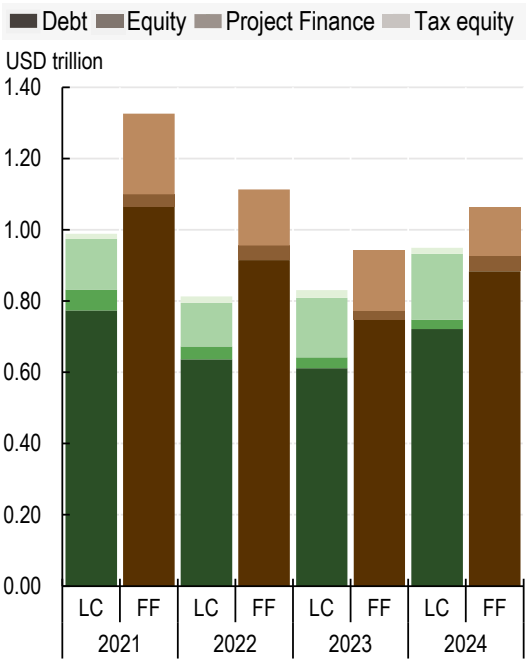
**Bank-facilitated financing flowing towards fossil fuels continues to outpace that flowing to low-carbon energy supply, but the gap decreased between 2021 and 2024**. Available data for close to 1 400 large banks indicates that they financed almost USD 1.1 trillion to fossil fuel energy supply in 2024, while just under USD 1 trillion went to low-carbon energy supply (Figure 3.22, Panel A). Bank-facilitated financing to low-carbon energy supply decreased after 2021, from USD 1 trillion in 2021 to USD 0.8 in 2022. Low-carbon flows rose again since then but have not yet surpassed 2021 levels. On the other hand, annual fossil fuel financing by banks decreased since from USD 1.3 trillion in 2021 to just over USD 1 trillion in 2024, despite a slight rebound between 2023 and 2024. As a result, the gap between low-carbon and fossil fuel bank-facilitated financing is decreasing. The ratio of low carbon to fossil fuel financing, which was around 0.7 in 2021, advanced to 0.9 in 2023 and 2024.

**Among a sample of 1 400 large banks, only institutions headquartered in Europe and Latin America finance more in low carbon than fossil fuel energy supply sectors**. Bank-facilitated financing to low-carbon energy is concentrated in Europe, North America, and Asia-Pacific. In 2024. banks headquartered in Europe accounted for USD 0.34 trillion of financing to low-carbon energy, followed by USD 0.30 trillion in Asia Pacific and USD 0.26 trillion in North America (Figure 3.22, Panel B). While banks in these regions also have the highest amounts of financing towards fossil fuel energy supply, European banks finance low-carbon activities by 60% more than fossil fuel activities, just behind Latin American banks where it is 80% more.

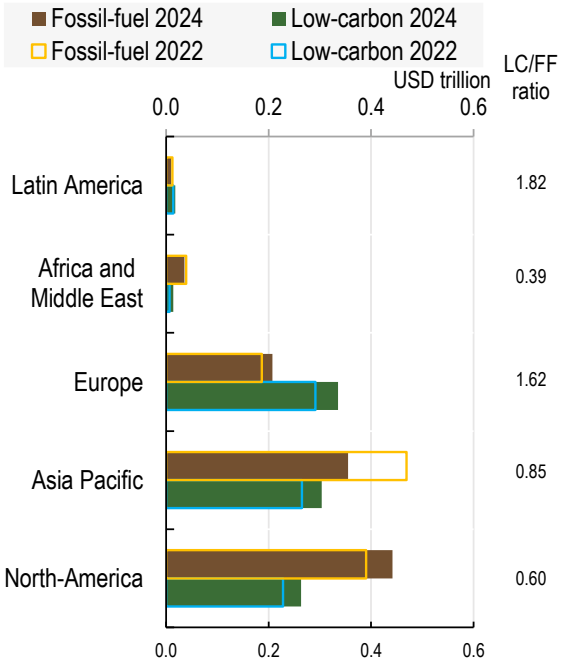
**Banks captured more green finance opportunities in 2024 than in 2022 across regions, with the highest growth in Africa and the Middle East, and the largest volume increase in Europe**. Between 2022 and 2024, annual low-carbon financing by European banks grew by USD 0.04 trillion to reach USD 0.35 trillion (Figure 3.22, Panel B). Although, financing to low-carbon energy by banks headquartered in Latin America and Africa and the Middle East remains very limited in size, it grew by 30% and 112% respectively between 2022 and 2024, the highest growth across regions. On the other hand, bank-facilitated financing to fossil fuel supply increased from 2022 levels in Europe and North America, adding up to USD 0.21 trillion and USD 0.44 trillion in 2024 respectively. It decreased only in Asia Pacific, by 25%, and was relatively stable in Latin America as well as in Africa and the Middle East.

## Figure 3.22 Estimates of banks financing fossil fuels and green projects

**Panel A: Bank-facilited financing to low-carbon (LC) and fossil fuel (FF) energy, 2021-24**




**Panel B: Bank-facilited financing to low-carbon and fossil fuel energy across regions, 2022 vs 2024**




Note: Both panels include financing through recourse debt, public equity, project finance, and tax equity by around 1 400 large banks. In Panel B, the location of the capital raising entities is defined by the bank headquarters. In Panel B, LC is short for low-carbon energy supply financing, and FF for fossil fuel energy supply financing by banks. Low-carbon energy supply includes financing related to low-carbon sources of energy production (including renewables, storage, biofuels and nuclear) and the development of plants/facilities manufacturing low-carbon energy equipment (including equipment and services, such as modules, turbines, and components). Fossil fuel energy supply includes financing related to fossil-fuel-based sources of energy production (including coal, oil and gas, and utilities' fossil-fuel power generation for electricity and heating/cooling, as well as transportation and refining businesses) and the equipment used to support power generation from fossil-fuel-based sources (including equipment, parts and services, such as generators and boilers).
Source: BloombergrNEF, IJGlobal, RAN, Urgewald.

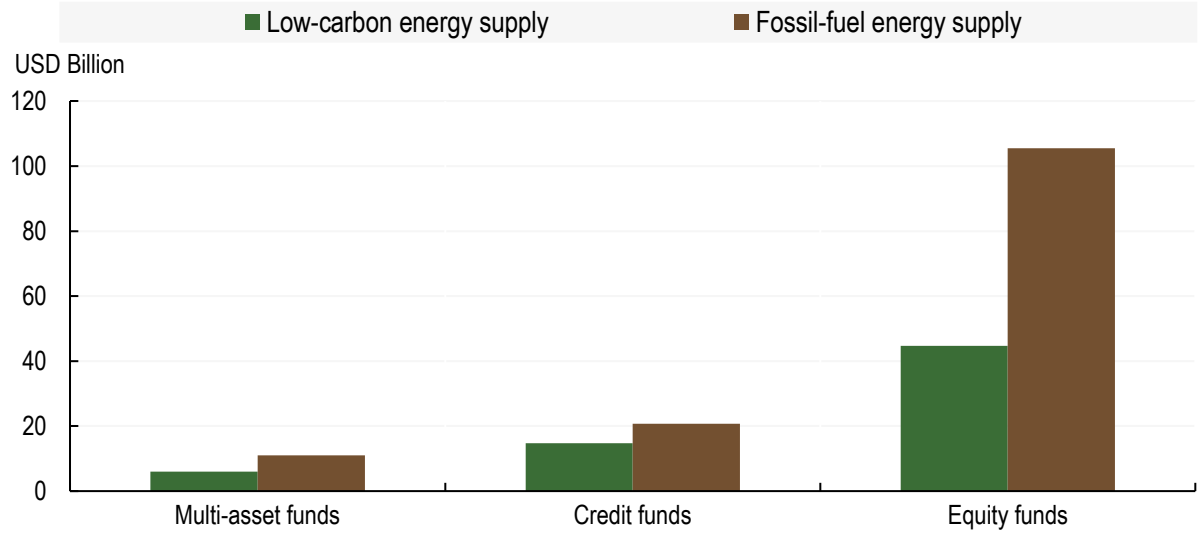
### *3.3.2. Institutional investors*

**Evidence on the climate alignment of institutional investors remains very scarce, partial, and fragmented.** Institutional investors are a diverse set of financial sector actors, including pension funds, sovereign wealth funds, insurance companies, asset managers, endowments among others. Different tracking exercises may focus on different actors or the range of different assets they hold. Currently, only partial or anecdotal estimates are available across some actors. This may be in part due to less extensive disclosure requirements for institutional investors than for banks across geographies, as highlighted in Chapter 2 on policies.

**Considering investment funds, they enabled on average twice as many fossil fuel than low-carbon energy capital expenditures in 2024** (Figure 3.23). This ratio has remained relatively stable since 2021. While there are some data gaps to track fund-enabled capital expenditures, investment funds pooled about a tenth of total energy supply capital expenditures in 2024 (BloombergNEF, 2025[26]). Equity funds enable more energy supply capital expenditure but also see a larger margin between low-carbon and fossil fuel energy investments, adding up to USD 45 billion and USD 106 billion respectively**.** The margin was smaller for credit funds where USD 15 billion and USD 21 billion goes to low-carbon and fossil fuel capital expenditures respectively. Older OECD work also showed that only a very limited share of their total equity

and bond investments in investment funds' holdings goes to companies involved in climate transition and innovation (OECD, 2023[30]).

### Figure 3.23. Global fund-enabled capex by fund asset class focus




Note: 2024 June data.
Source: BloombergrNEF.

**Taking the example of pension funds, fragmented evidence indicates they also enable more fossil fuel than low-carbon energy investments**. Pension funds tend to have a longer- term horizon than other institutional investors as they have a fiduciary duty to address long-term systemic risks. A recent study of 96 pension funds in OECD countries with USD 310 billion in energy investments finds that under 40% was allocated to low-carbon energy companies (CPI, 2025[31]). Two-thirds of funds had adopted climate targets. Pension funds that adopted targets, implementation measures and transition plans tended to hold higher shares of low-carbon energy. Several earlier studies highlighted historically significant holdings in fossil fuel sectors (OECD, 2022[32]; ShareAction, 2018[33]; Battiston et al., 2017[34]).

**Evidence on the climate performance of different types of financial institutions can be strengthened through government-backed voluntary partnerships and dialogue with private investors.** Significant gaps still need to be filled to understand the evolution of the climate alignment of financial institutions globally. Central governments can establish or strengthen partnerships with financial sector actors through voluntary initiatives to enhance data availability and strengthen the role of voluntary frameworks (discussed in Chapter 2 on policies).

## 3.4. Insights at the level of financial jurisdictions

**Climate assessment at the level of financial jurisdictions can help improve data coverage, better reflect national-level frameworks and improve evidence on effects of implemented policies**. The sections above have highlighted available and missing international-level data for real-economy investments, different asset classes and types of financial institutions. At the level of individual jurisdictions, national datasets and evidence typically exist that can help more comprehensively and accurately estimate both total financial flows and stocks based on data collected by offices of national statistics, central banks and financial supervision authorities. Further, the identification of the portions of these totals that can be

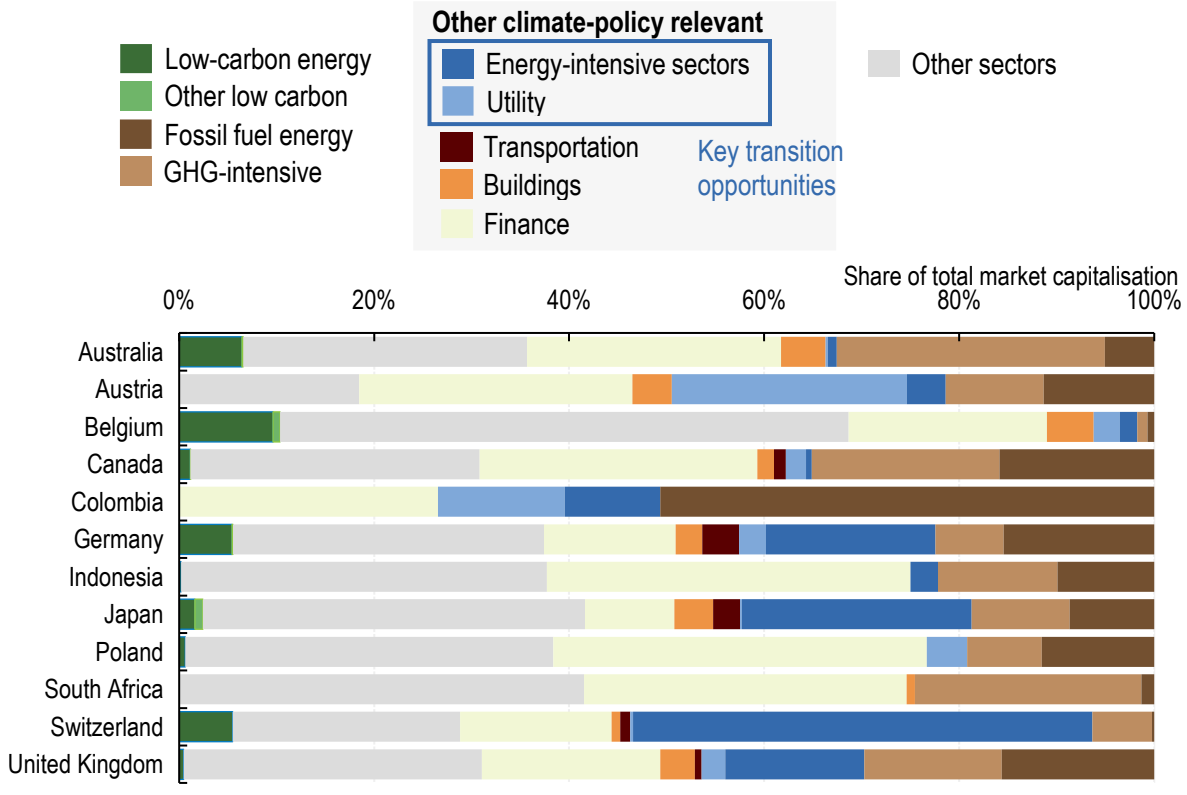
considered as aligned or misaligned with climate goals can be informed by labels, definitions and frameworks in place, both mandatory and voluntary, which in turn can provide insights relating to the effectiveness of existing and potential policies to increase climate alignment and reduce climate risks.

**When interpreting data and evidence at the level of individual countries or jurisdictions, differences in both economic structures as well as geographical coverage of financial flows and stocks need to be considered**. Tracking real-economy assets and corresponding investments can be contained within national boundaries. However, financial portfolios of financial institutions typically involve a mix of domestic and cross-border financial flows and stocks. For instance, bonds issued by domestic actors can be purchased by international investors, while investors and banks headquartered in a given country can invest and hold assets in both that country and other jurisdictions depending on their scope and strategy.

### *3.4.1. Country-level results for selected asset classes*

**Country-level assessments reveal much heterogeneity in the distribution of listed equity stocks across low-carbon and fossil-fuel sectors.** The share of listed equity associated with fossil-fuel activities is present in many countries but varies widely, ranging from relatively low levels to more than one quarter and, in some cases, over one third of total market capitalisation (Figure 3.24). In contrast, low-carbon equities remain a very small share of listed markets across many countries, typically below 2%, reflecting both the limited scale of publicly listed clean-energy firms and differences in economic structures and financial market listing practices.

**Figure 3.24. Listed equity in low- and high-GHG and climate-relevant sectors for selected countries, 2020-25**

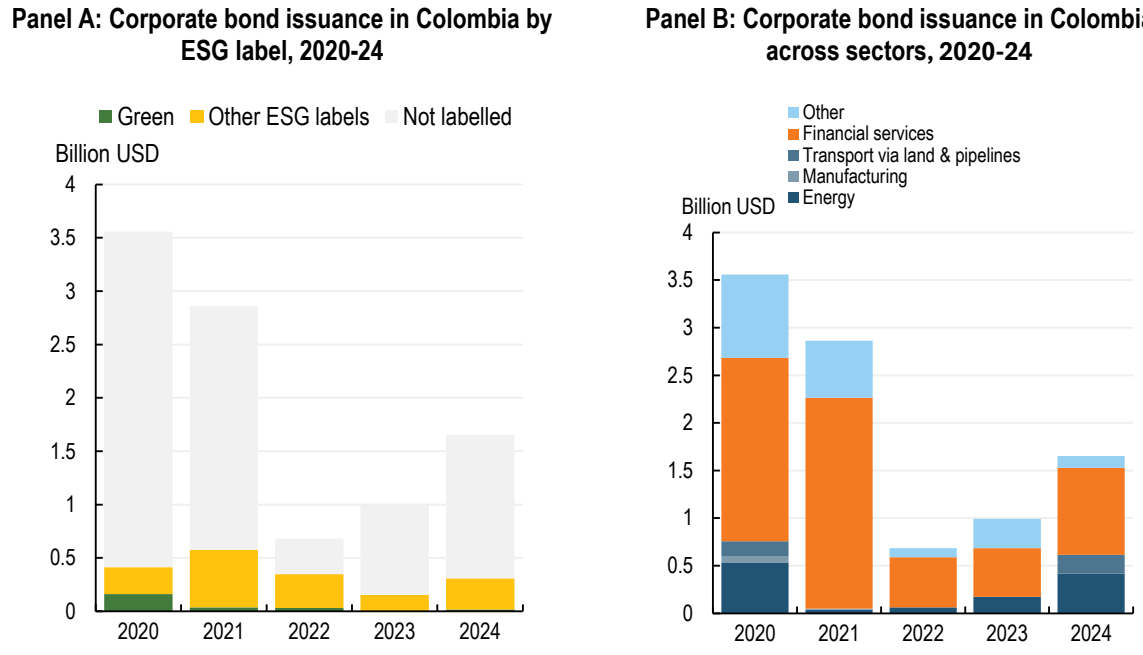



Note: Categorisation in low-carbon, fossil fuel, and climate policy-relevant sectors, following the approach proposed by Battiston et al (2022[9]).
Source: Authors, based on data retrieved from Bloomberg, 2025.

**Differences between countries in shares of listed equity in various climate-policy relevant sectors underscore the need for country-level assessments linking to national policy frameworks.** For example, some countries have larger shares in utilities and energy-intensive industries on top of their carbon-intensive industrial bases. The differences imply that alignment risks and transition opportunities embedded in listed-equity portfolios are highly country-specific and cannot be inferred solely from aggregate low-carbon or fossil-fuel shares. At the same time, some transition or low-carbon activities are not captured by the sectoral classification approach. For example, a green index in Indonesia is not fully reflected in Figure 3.24. This reinforces the need for more granular, jurisdiction-specific data and metrics to assess whether equity markets are consistent with national climate targets and global mitigation pathways.

**Debt security data from national official sources capture green-labelled securities more comprehensively, especially for relatively smaller countries, and help identify GHG-intensive securities.** Carbon-intensive bonds and loans cannot yet be fully captured. One approach is to consider debt going to carbon-intensive sectors such as energy, manufacturing and transport. For example, this represented just under 40% of corporate bond issuance in Colombia (Figure 3.25, Panel B). Green-labelled bonds added up to about USD 20 million in Colombia, representing only around 1% of its total corporate bond issuance in 2024 (Figure 3.25, Panel A).

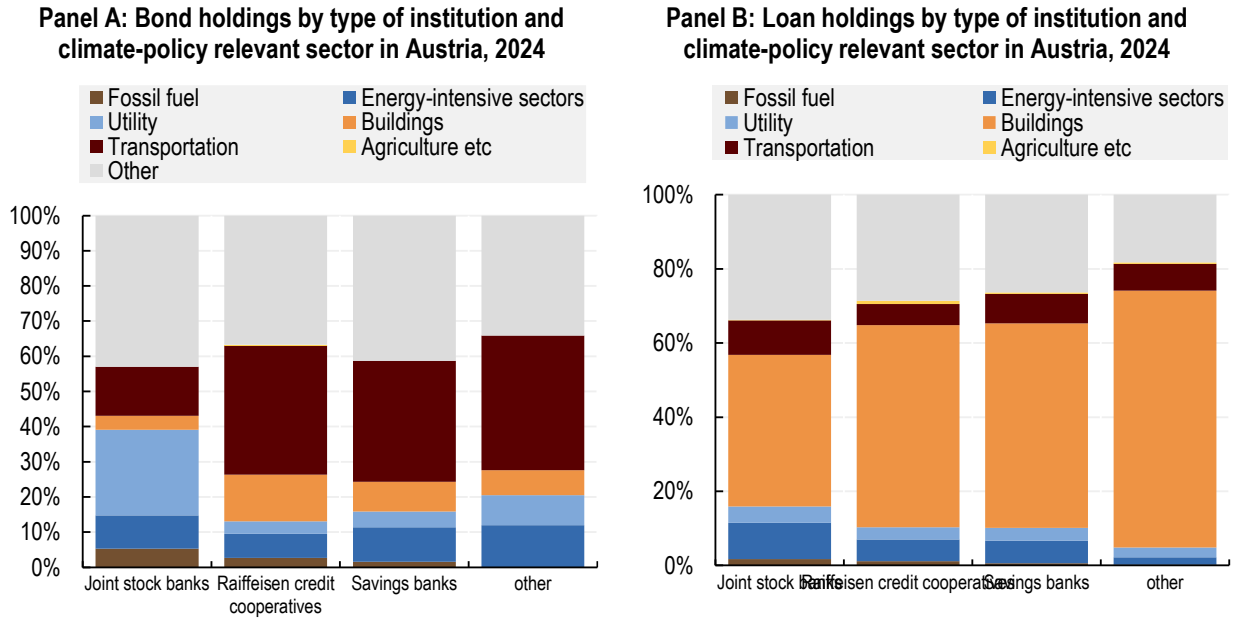
## Figure 3.25. Estimates of corporate bond issuance in Colombia




Note: Analysis conducted as part of and included in the OECD Environmental Performance Review of Colombia (OECD, 2026[35])
Source: Authors, based on data from Superintendencia Financiera de Colombia.

**Bank asset-level data by central banks and supervisors reveal larger climate-relevant financial flows and stocks, than can currently be tracked based on international data sources.** For example, while green-labelled and fossil fuels only represent a few percentage points of total bank bond and loan holdings in Austria, climate-relevant sectors represent over 50% across types of banks in 2024 (Figure 3.26). Data for 2024 also shows that Austrian bank holdings have about 5% of bond holdings in green-labelled instruments. A 2020 study (OeNB, 2020[36]) finds that the assets of Austrian banks are in high-emissions sectors for about 5% of bonds, 30% of loans, and 18% for other asset classes.

## Figure 3.26. Estimates of low- and high-carbon portfolio shares in Austria




Note: Analysis conducted as part of and included in the OECD Environmental Performance Review of Austria (forthcoming). Outstanding nominal amounts are end-of-period stocks; net flows are the net financial transactions over the whole period. Only counterpart sector S11 (NFCs) is contained. The banking sector "other" contains Volksbank credit co-operatives, state mortgage banks, building and loan associations, special purpose banks, and branches of euro area credit institutions.
Source: Authors, based on data from the Central Bank of Austria (OEnB).

### *3.4.2. Looking ahead*

**International statistical developments can, over time, contribute to improve the availability of data and evidence to assess the growth of green finance within national financial sectors**. National financial accounts and balance sheets recorded under the System of National Accounts (SNA) provide estimates for financial instruments including debt securities, loans, equity, and investment fund shares (UN, EC, OECD, IMF & World Bank, 2009). As such, they cover most of the asset classes discussed in Section 3.2. Among other changes, the 2025 SNA update introduced lines under each of these to allow future reporting on transactions contributing to green and climate outcomes, notably the transition to low-carbon economies. Under the leadership of statistical agencies, countries can better develop data collection approaches to progressively report statistics on green debt securities, loans, equity and investment fund shares, as part of the National Accounts.

**Self-commitments by countries under the G20 Data Gaps Initiative are expected to yield first official national estimates for green debt securities and listed shares by end of 2026 or 2027**. The G20 Data Gaps Initiative, initially launched in 2009, put forward a recommendation for improved data on investments and sources of finance for green projects and activities that can mitigate climate change and help countries adapt to its implications (G20 DGI, n.d.). As of March 2025, all but three countries participating in the third phase of the initiative submitted self-commitments to produce estimates on: green debt securities issuances (nineteen countries and the EU) and holdings (eleven countries and the EU), and green listed shares issuances and holdings (six countries and the EU) (G20 DG13, 2025[37]). As per the October 2025 DGI-3 progress report, these commitments are estimated to cover more than 20 000 new time series by end-2026 or end-2027 for debt securities, and by end-2027 for listed shares (G20 DG13, 2025[37]). Besides contributing to progress assessments in greening financial systems, the data can also inform discussions on credibility and interoperability of underlying definitions and taxonomies used by countries to report.

**Options to collect and publish national statistics on both climate-aligned and -misaligned financial flows and stocks, including estimates for more opaque asset classes, need to be further explored.** In addition to emerging estimates of green finance, national authorities can also contribute to improved data and evidence on finance exposed to GHG-intensive and climate vulnerable assets. The increasing implementation of climate-related stress testing by central banks and supervisory authorities (as analysed in Chapter 2 on Policies) represents opportunities for synergies with climate alignment assessments as most data and part of the analysis are common.

**Comprehensive and credible data on finance contributing to or undermining the climate transition across financial asset classes and institutions requires institutional collaboration at national levels**. Adopting co-ordinated climate data and evaluation frameworks across national policy authorities expands capacities to improve the coverage, quality and policy relevance of data to more consistently track the climate alignment of financial flows and stocks. Pursuing inter-ministry and cross-authority collaboration, including data sharing and protection agreements, is critical to ensure that policy- and decision-useful but currently scattered evidence is used for timely identification of policy gaps and untapped opportunities to invest in climate transition and innovation. Building on the analytical framework used in the present report, jurisdiction-level pilot studies can contribute to improvements in the availability of data and further building the evidence base to inform policymaking and investment decisions.

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# 4 Metrics

This chapter provides an overview of developments in approaches to assess progress towards aligning finance with climate goals. It discusses the complementarity and credibility of key metrics for financial institutions and different financial asset classes. It places emphasis on metrics that expand assessments beyond finance identified as already aligned, helping to identify not only finance exposed to high-greenhouse gas activities or to physical climate risks but also related investment opportunities. On that basis, the chapter highlights where gaps need to be addressed to improve the coverage and policy relevance of tracking efforts ("Tracking" chapter) and informing improved policy design and implementation ("Policies" chapter).

## Key insights

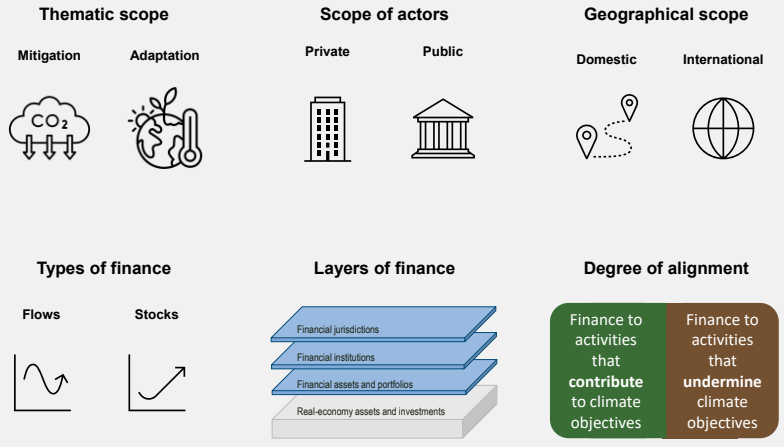
- The effectiveness of transparency policies discussed in the Policy chapter and credibility of alignment assessments developed in the Tracking chapter depend on robust metrics. Since the Paris Agreement, a range of climate metrics have been developed. Data to track the climate alignment of finance have become increasingly available. Still, gaps to credibly measure transition and resilience across financial asset classes remain, including to identify opportunities.
- The landscape of climate metrics used in the financial sector is increasingly broadening beyond GHG-metrics to better capture environmental and economic credibility. Information on portfolio composition, investments, and engagements can strengthen the credibility of emissions reduction commitments. Such information also enables the identification of climate-related investment opportunities and tracking of transition planning.
- Quantitative metrics tailored to different actors, activities, asset classes, and sectors would help inform more impactful investment decisions and effective policymaking. This includes metrics that capture climate transition opportunities across financial sector activities. Some metrics have emerged, such as volumes of investments and lending in climate solutions or green revenue shares of portfolio firms, but they need to be further developed.
- Transition metrics for corporate assets are the most established, but do not yet sufficiently identify shifting business models and opportunities. For listed non-financial companies, addressing this gap calls for further refinement of metrics on climate-relevant research and development, expenditures, and revenues, as well as sector specific metrics including on real assets. For unlisted companies in private equity portfolios, metrics need to be adopted in response to larger data and disclosure gaps. Emerging, yet partial, metrics include the energy portfolios of private equity companies and energy supply investment ratios. These corporate metrics can complement climate-alignment assessments based on emissions (targets) and financial flows classified by sector as in the Tracking chapter.
- A progressive integration of adaptation metrics in transition plans enables a more integrated approach to tracking climate performance. Climate-related assessment and disclosure frameworks remain less comprehensive and consistent in addressing adaptation relative to mitigation. Corporate adaptation can be progressively tracked through three sets of metrics: physical risk baseline metrics that measure exposure and vulnerability to physical risks and estimate financial impacts; adaptation input metrics on actions and strategies to build resilience; and resilience outcome metrics that analyse the impact and effectiveness of adaptation actions.
- **Credible assessments of the climate alignment of bonds face different challenges for corporate and sovereign issuers**. Broadening climate assessments beyond green labelled bonds is challenging but critical to assess the role of debt in supporting the climate transition. Metrics on corporate and sovereign transition planning, sector-specific decarbonisation pathways, and investable national climate plans could help close this gap.
- Investors and policymakers need to tap into innovative data solutions as disclosure by corporates and official bodies alone cannot fill all gaps. Corporate disclosure has significantly improved data availability, yet gaps remain. Innovative data approaches, such as natural language processing (NLP) and geospatial data techniques are contributing to filling these gaps, improve comparability, and create new indicators. NLP approaches can extract corporate climate data at scale and help construct new metrics to assess climate disclosure quality, greenwashing, and selective reporting. Geospatial approaches can help create new data across geographies and for opaque asset classes as well as cross-validate reported data.

This chapter provides an overview of developments in approaches and metrics to track climate performance, opportunities, and risks in the financial sector, based on the analytical dimensions defined in (OECD, 2024[1]) and summarised in Box 4.1. It addresses selected dimensions identified as particularly pertinent to address assessment gaps in ongoing tracking efforts (Chapter 3) and to inform the further development of policy frameworks and disclosure requirements (Chapter 2). This chapter first dives into climate alignment and transition metrics for financial institutions (Section 4.1) and corporates, both listed (Section 4.2) and private (Section 4.3). It then discusses how to integrate dimensions relating to resilience to climate change in corporate climate assessments (Section 4.4). The chapter also zooms on approaches to assess sovereign bonds beyond those labelled as green (Section 4.5). Finally, the chapter reflects on using innovative solutions to fill data gaps across layers of the financial sector (Section 4.6).

### Box 4.1. Analytical dimensions of assessing climate alignment of finance

Article 2.1c of the Paris Agreement refers to aligning all finance with both a pathway towards low greenhouse gas emissions and climate-resilient development. As per Chapter 3 on tracking, assessments of progress towards these outcomes can be considered as an all-encompassing scope in terms, requiring analyses in relation to both climate change mitigation and adaptation, across all layers of finance (including real-economy investments, financial assets, financial institutions, and financial jurisdictions), and covering any economic transaction by private and public actors, both domestically and internationally (Figure 4.1).

#### Figure 4.1. Scope and aspects of finance covered in climate-alignment assessments



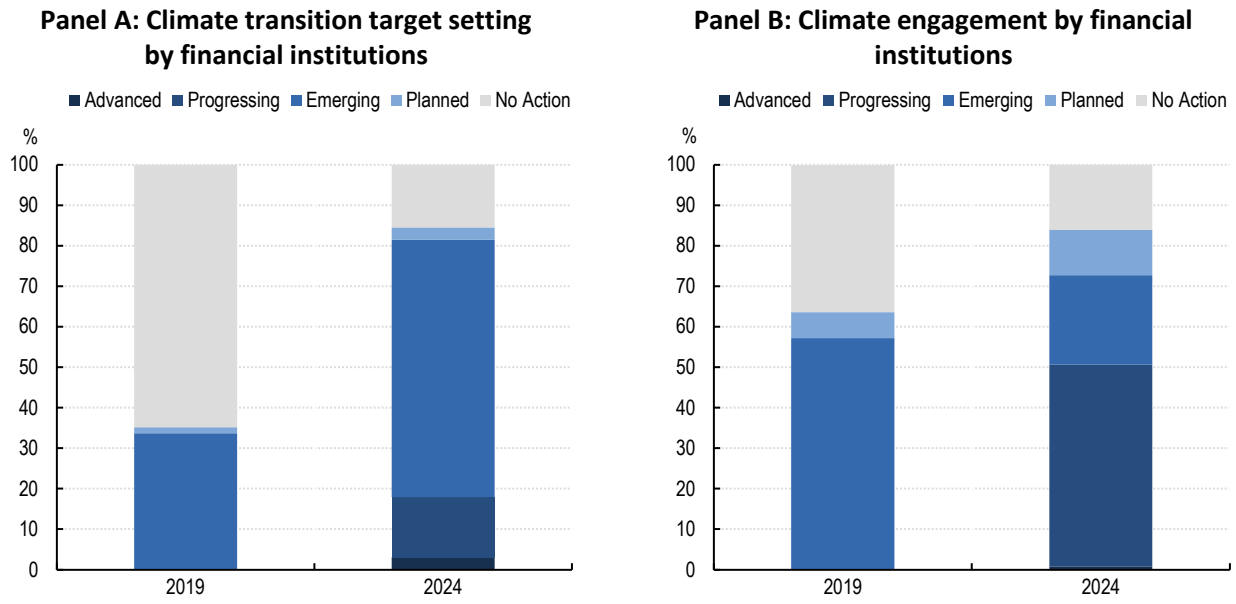

Source: (OECD, 2024[1]).

There is no internationally agreed approach or set of criteria for defining the climate alignment of finance. At a conceptual level, financial flows and stocks could be considered aligned (or misaligned) with the Paris Agreement mitigation and resilience climate policy goals if they contribute to socio economic systems that are consistent (or inconsistent) with low greenhouse gas and climate resilient development pathways. In practice, alignment is assessed by comparing against one or more reference point(s) reflecting climate policy goals or by relying on activity classifications, such as those provided by some taxonomies as analysed in Chapter 2 on policies.

## 4.1. Climate transition metrics for financial institutions

**Existing metrics have provided the foundation for climate target setting and engagement**. Evidence highlights that banks still channel more financing to fossil fuels than low-carbon energy (see Chapter 3 on tracking). Moreover, over 80% of financial institutions globally have set some type of climate target and over 70% have engaged with clients and stakeholders on climate as of 2024 (Figure 4.2). These shares increased from 57% and 34% respectively in 2019. Such targets and engagements build on the increasing availability of emissions data. As of 2024, 23% of financial institutions disclose Scope 1 and 2 emissions and 19% Scope 3 emissions (OECD, 2026[2]).

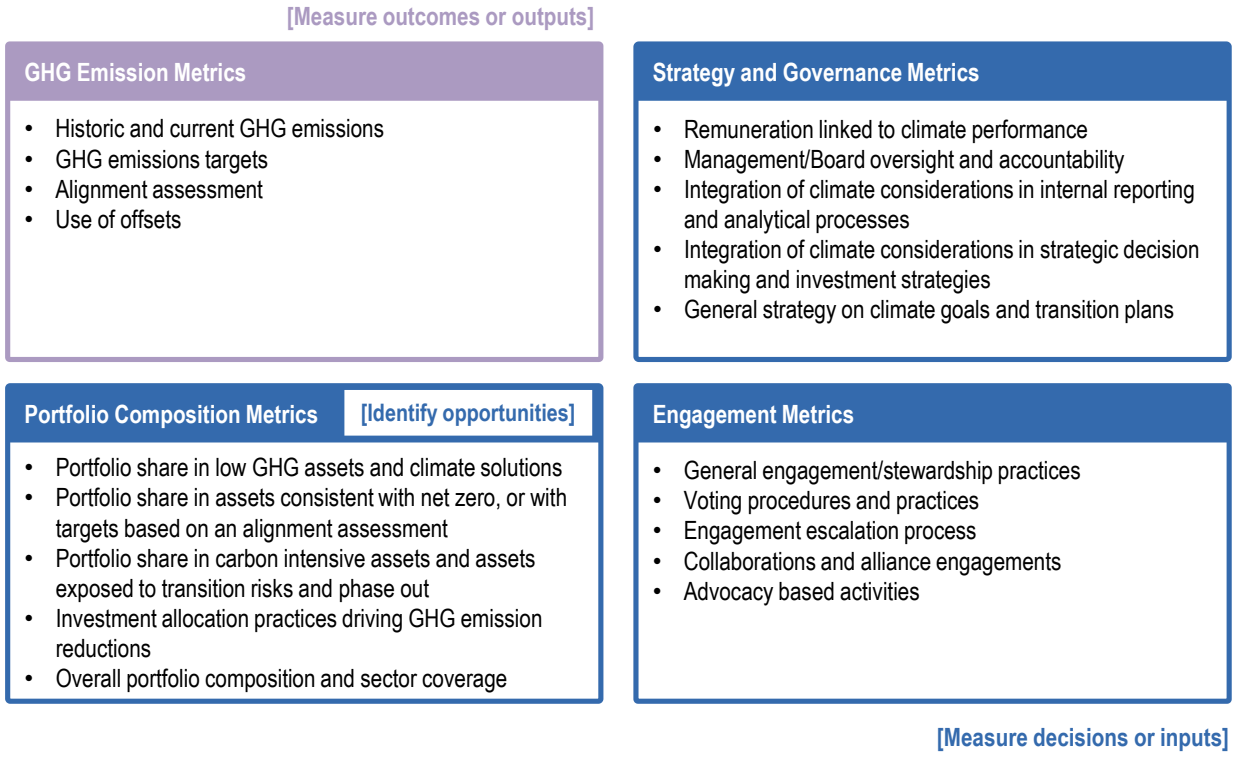
### Figure 4.2. Target setting and engagement by financial institutions, 2019-2024




Note: The data covers 1,500 financial institutions with the largest assets owned or under management. Panel A describes whether organisations have set clear and comprehensive targets for climate action. Panel B measures whether the organisation commits to engaging shareholders or clients on climate action and whether there is evidence of the organisation taking concrete steps towards portfolio companies by mandating climate reporting requirements or through active ownership. Advanced refers to organisations with high ambition and clear commitment (Panel A) and demonstrating proactive steps (Panel B). Progressing refers to organisations showing solid progress and meaningful actions, but with room for improvement. Emerging refers to organisations taking initial or exploratory actions. Planned refers to organisations providing evidence limited to plans to act. No action means no evidence of action or plans. (CPI, 2025[3]) provides the full methodology.
Source: (CPI, n.d.[4]).

**Recent developments highlight a shift to rebalance tracking efforts beyond GHG-metrics to better support environmental and economic credibility**. Aside from emissions-related information, voluntary metric frameworks and mandatory disclosure requirements also request information on portfolio composition, engagement, and strategy and governance (OECD, 2024[1]; OECD, 2023[5]). Financed emissions and other emissions-based metrics are necessary but insufficient as they can fail to accurately reflect real-economy change. Robust tracking efforts require complementary core metrics, transparent assumptions, reliable comparable data, and credible benchmarks. The incentive effects of broad classifications and binary alignment can push capital to divest from large emitters rather than supporting transition plans and capital expenditure shifts. Such decisions result in portfolio decarbonisation but emissions impacts in the real economy are uncertain. While metrics on GHG emissions capture outcomes or outputs, information points on portfolio composition, engagement and on strategy capture decisions, inputs, and actions (Figure 4.3).

## Figure 4.3. Climate mitigation information points and metrics proposed by voluntary frameworks




Source: (OECD, 2023[5]), based on public reports from GFANZ, (2022[6]), Recommendations and Guidance on Financial Institution Net-zero Transition Plans; IFRS ISSB, (2023[7]), Sustainability Disclosure Standard: Climate-related Disclosures; IIGCC, (2021[8]), Net Zero Investment Framework, Institutional Investors Group on Climate Change; NZAOA, (2021[9]), Target Setting Protocol: Third Edition; TCFD, (2021[10]), Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures.

**Information on changes in input metrics relating to portfolio composition and engagement strengthens the credibility of GHG emissions reduction targets**. While climate awareness and target setting in the financial sector increased, some research finds that financial institutions with net-zero emissions targets do not scale up green lending more than financial institutions without targets (Sastry, Verner and Ibanez, 2024[11]). Some evidence shows that banks that signed Principles of Responsible Investment (PRI) temporarily shortened the maturity of loans extended to borrowers in emissions-intensive sectors, but banks with voluntary climate commitments did not contribute to syndicated loan reallocation away from those sectors (University of California, Santa Cruz/Columbia University/Federal Reserve Bank of San Francisco, 2024[12]). While PRI signatories maintain lower portfolio carbon footprints in their holdings, they are not characterised by significant reductions in carbon footprint over time. However, the impact varies based on institutions' investment approaches (Allahdadi, 2025[13]), suggesting practical frameworks with measurable decision inputs could strengthen information signals.

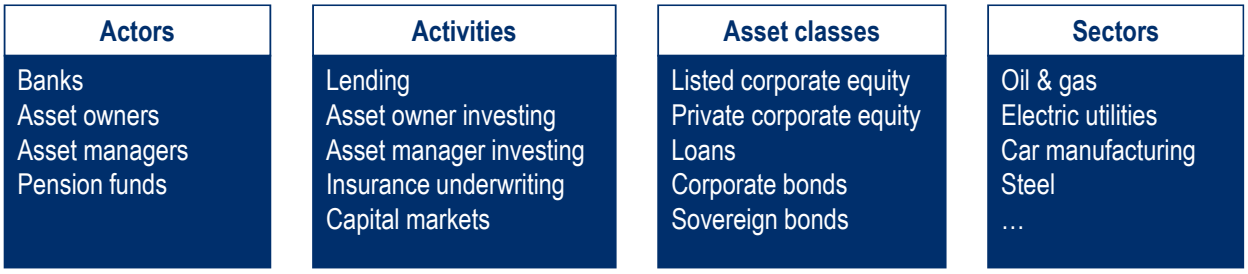
**The emergence of transition planning contributed to the demand for and the development of action-oriented metrics.** Transition plans set out an entity's strategic response to risks and opportunities that emerge from the impacts of climate change and the transition to a low-emission economy (NGFS, 2024[14]). Frameworks such as the Transition Plan Taskforce Disclosure Framework, which cover both financial and non-financial institutions, apply three guiding principles of ambition, action, and accountability (Transition Plan Taskforce, 2023[15]). Compared to initial climate-alignment frameworks primarily focused on measuring progress towards targets, this more holistic approach places greater emphasis on actions, for example in relation to business operations, products and services, and financial planning. Such actions

are captured by portfolio composition metrics for financial institutions (Figure 4.3), and composition of activities and related investments for listed corporates (Figure 4.5).

**Assessing how financial institutions are capturing climate transition opportunities can be based on a selection of granular metrics relating to their portfolios.** Assessing portfolio composition helps stakeholders track changes in a financial institution's investment or lending approach and can reveal whether capital is being redirected toward green businesses and climate solutions (OECD, 2023[5]). Greenwashing risks arise when granular data are over-aggregated, input assumptions (e.g. scenario choice) are opaque, or assessments are oversimplified to a single binary "aligned/not aligned" metric (Noels and Jachnik, 2022[16]). Aggregate transition metrics should be presented in dashboards that preserve some information on sectoral and activity break downs and on rates of change in metrics. Any headline figures should be paired with appropriate portfolio coverage and data quality indicators. Climate transition dashboards need to combine backward- and forward-looking metrics and qualitative evidence. However, a key challenge for aggregate metrics remains that much of the data available at asset level remains primarily qualitative.

**Financial institutions could benefit from more clearly defined metrics tailored to different actors, activities, asset classes, and sectors**. For example, the SBTi Financial Institutions Net-Zero Standard proposes five activity segments: lending, asset owner investing, asset management investing, insurance underwriting, and capital markets (SBTi, 2025[17]). Underlying decision contexts differ across financial actors, calling for tailored climate transition metrics. For instance, transition metrics for banking tend to be more anchored in sectoral approaches (UNEP FI, 2025[18]), while insurers place greater weight on climate risk concentrations (IAIS, 2025[19]).

### Figure 4.4. Financial sector segmentation to assess climate risks and opportunities




Note: Illustrative and not exhaustive.
Source: Authors.

**Metrics that capture climate transition opportunities, such as investments and lending in climate solutions, have emerged across financial sector activities but need to be further developed.** Existing frameworks demand that entities disclose information on climate-related risks and opportunities (OECD, 2023[5]). For example, investors can disclose amounts invested in green bonds for fixed income, and banks on volumes of lending and underwriting for climate solutions (Dai et al., 2023[20]; TPI, 2025[21]). However, some climate transition opportunity metrics are difficult to compare and others need to mature.

**Climate transition opportunity metrics for lending and capital markets can reflect shifting business models and how financing is being directed toward transition-enabling uses.** In lending activities, metrics on the amount or share of lending, commitments, project finance, trade finance, or loan-book exposure classified as transition finance could be considered. Other metrics include low-carbon-to-fossil financing ratios (BloombergNEF, 2025[22]; TPI, 2025[21]). For capital-markets activities, analogous metrics could track the amount or share of arranged or underwritten debt, equity, or syndicated-loan activity that qualifies as transition finance, the share directed to climate-solution issuers or use-of-proceeds instruments, and sustainable issuance volumes such as green, transition, or sustainability-linked

instruments (Net-Zero Banking Alliance, 2024[23]). Metrics can be linked to regional taxonomies (as discussed in Chapter 2 on policies). Green revenue metrics track how business models are changing. For example, lenders generated roughly USD 3.7 billion of revenue from climate-related loans and bond underwriting in 2025, compared with about USD 2.9 billion from oil, gas and coal (Bloomberg, 2026[24]).

**Climate transition metrics for asset owner and manager investing can capture green capital or revenue shares of portfolio companies.** For asset owners, metrics can capture the amount or share of assets under management (AUM) invested in climate solutions or transition sectors, of assets aligned or aligning with net-zero emissions, and of residual carbon-intensive exposures (IIGCC, 2024[25]; TPT, 2024[26]). For asset managers, the same logic extends to their mandate. For example, disclosing the AUM committed to be managed in line with net zero and setting a quantitative objective for scaling up climate-solutions investment, which supports metrics such as the share of managed assets to which climate metrics and targets apply and the share of AUM invested in transition-enabling products and funds (TPT, 2024[27]). A Weighted Average Green Revenue (WAGR) metric can be used to integrate climate solutions measurements into portfolio construction (Dai et al., 2023[20]).

**Gaps in metric interoperability of disclosure initiatives across jurisdictions remain a costly challenge.** Fragmentation of disclosure standards and taxonomies (as analysed in Chapter 2 on policies) raises costs, reduces comparability, and risks resulting in box-ticking exercises. For example, criteria in taxonomies as to what constitutes a climate solution, a climate enabling or a climate transition activity are not consistent across jurisdictions. Priorities for improving interoperability include greater mutual recognition between disclosure regimes, convergence on a core set of metrics, clear crosswalks between global guidance and regional taxonomies, and open-source methodologies. Further, interoperability and avoiding that disclosures are not repurposed inappropriately also requires clarifying the objective(s) that metrics are serving, including supporting an orderly transition, managing prudential risk, and/or climate policy alignment.

**Compliance with disclosure requirements for financial institutions hinges on decision-useful data for high-impact sectors and filling data gaps for more opaque financial asset classes.** Chapter 2 on policies indicates that financial institutions often face higher data demands than non-financial corporates. Improving data disclosure in the real economy is, however, critical, notably in relation to issuers' transition plans with interim targets and capital expenditure details (see Section 4.2). More efforts are also needed to develop proxies where primary data are unavailable, such as for SMEs, private assets, parts of real estate and infrastructure (see Section 4.6). However, to avoid being a sole compliance exercise, tracking and disclosure needs to focus on fit-for-purpose data and credible metrics to help set incentives to transition.

### Box 4.2. Good practices in climate-alignment assessments of financial flows and stocks

Public policy and private actions to contribute to aligning finance with climate policy goals and avoid misaligned new investments must be informed by robust assessments of progress towards such alignment. However, efforts to increase the climate alignment of finance are currently fragmented, in part due to the absence of a common framework to credibly assess progress. Such assessments need to rely on credible methodologies and best available evidence.

The inaugural OECD Review on Aligning Finance with Climate Goals pointed to five key good practices to ensure the environmental integrity and policy relevance of climate-alignment assessments:

- **Place best-available estimates of finance to activities contributing to or undermining climate goals in the context of total financial flows and stocks**. This needs to be done across all layers of finance, from real-economy investments to financial assets across asset classes, financial institutions, and financial jurisdictions.
- **Rely on a pertinent set of core yet complementary metrics.** Across layers of finance, different metrics highlight different aspects of climate performance. Due to the complexity of climate-alignment assessments, no silver-bullet metric can credibly and transparently capture all dimensions. Combining a set of key complementary metrics provides a more holistic and nuanced assessment of the degree of progress and actions towards climate alignment.
- **Transparently disclose underlying methodological assumptions and choices.** A range of complex methodological choices and assumptions influence the results of climate-alignment assessments of finance. Key climate performance metrics can follow different calculation approaches. Transparency on these approaches and assumptions facilitates the comparability of different assessments and analyses of their environmental integrity.
- **Assess the reliability and comparability of input data.** The credibility of climate-alignment assessments is highly dependent on the accuracy, granularity, and coverage of underlying input data, all of which differ depending on the source. Such data can be reported, based on mandatory or voluntary disclosure practices, or estimated. Moreover, different disclosure policies can propose different reporting approaches and scope. Increased transparency on data gaps and estimation methods in disclosures is needed.
- **Rely on best-available reference points against which to assess climate alignment, that reflect characteristics of assets and the ambition needed to reach climate policy goals.** Climate-alignment assessments require matching granular data on investment and financing with climate-related characteristics of underlying assets or actors and analysing the consistency of such characteristics with existing climate policy goals as reference points. Notably, climate change mitigation scenarios can provide a credible reference point for target setting and alignment assessments when the selected scenario can be considered as consistent with the Paris Agreement, matches the granularity of the financial asset or entity under consideration, and provides transparency on climate outcomes and underlying assumptions.

Source: (OECD, 2024[28]).

## 4.2. Climate transition metrics for listed non-financial companies

**Existing frameworks agree on categories of climate transition metrics for corporates but do not systematically refer to specific and quantitative metrics.** Climate assessments of corporate-related asset classes beyond those identified as already green based on labels for corporate bonds and sectoral analysis for equity (see Chapter 3 on tracking) require a range of metrics to characterise a given entity. Similar to broad categories for financial institutions identified in OECD work (OECD, 2023[5]), metrics for non-financial companies are proposed along four types: (1) GHG emissions, (2) composition of activities and related financing and investments, (3) engagement, and (4) strategy and governance (Figure 4.5). The greatest convergence among frameworks is on GHG emissions metrics. Only few quantitative engagement, strategy and governance metrics are proposed by frameworks. For composition-of-activities and related financing and investment metrics, there is some convergence on the need for quantitative expenditure-related and sector-specific metrics, but other metrics are still maturing.

**The decision usefulness of climate performance metrics depends on their use cases, characteristics, and ability to measure shifts and effects in the real economy.** No climate metric is decision-useful in the abstract. Its usefulness depends on whether its characteristics fit the use case and whether it captures real shifts and effects in the economy rather than only stated ambition (OECD, 2024[1]; UNEP FI, 2022[29]). Different metrics capture different dimensions of change in the real economy. They are decision-useful only insofar as they help users understand effects on business models, strategy, financial positions, and performance (IFRS, 2023[30]).

**Metrics on companies' activities and related investments indicate how they are capturing climate transition opportunities and adapting their business models.** As for financial institutions, climate transition metrics for non-financial corporates are increasingly focussing on "inputs" related to transition investments and corporate activities, in addition to GHG emissions outcomes. This trend is reinforced by action-oriented transition planning metrics in relation to business operations, products and services, and financial planning (Transition Plan Taskforce, 2023[15]). Information on changes in "input" metrics relating to corporate activities, investments and supply chain engagement can strengthen the credibility of GHG emissions reduction targets. Such complementary information supports robust tracking efforts (Box 3.1) and highlight how companies are capturing growth opportunities from the transition.

**Activity-composition metrics can include research and development, expenditures, real assets, energy use, products and services, revenues, sectoral or other financial indicators.** Research and development metrics include counts of green patents and green R&D investments over revenue (Figure 4.5). Expenditure metrics cover "green", taxonomy-aligned, or carbon-intensive capital and operational expenditures. Real-asset metrics can capture the share of physical assets, production capacity, or reserves that are low-carbon, transition-enabling, or carbon-intensive. Energy-use metrics track electricity consumption renewable energy sourcing, or energy intensity, helping to reveal operational progress in decarbonisation. Products-and-services metrics can measure the share of output, sales, or business lines linked to climate solutions, transition-enabling activities, or high-emitting activities. Revenue-based and other sector-specific indicators can complement these measures to show how current activity and future investments are distributed across climate-relevant activities.

**Different activity-composition metrics capture various dimensions of corporate climate transition and transformations** (Figure 4.5). For example, metrics on green research and development reflect corporate innovation efforts and transition potential. However, companies can transition without in-house innovation. Expenditure metrics can signal ongoing changes in business models and operational priorities. However, they can be volatile with technology costs and implementation uncertainties. Further, planned expenditure does not always translate into realised transition outcomes. Low-carbon and carbon-intensive real assets metrics connect emissions to core business activities and can reveal structural exposure in

firms' production systems. Low-carbon and carbon-intensive revenue shares also connect emissions to core business activities. However, revenue may be volatile with macroeconomic conditions.

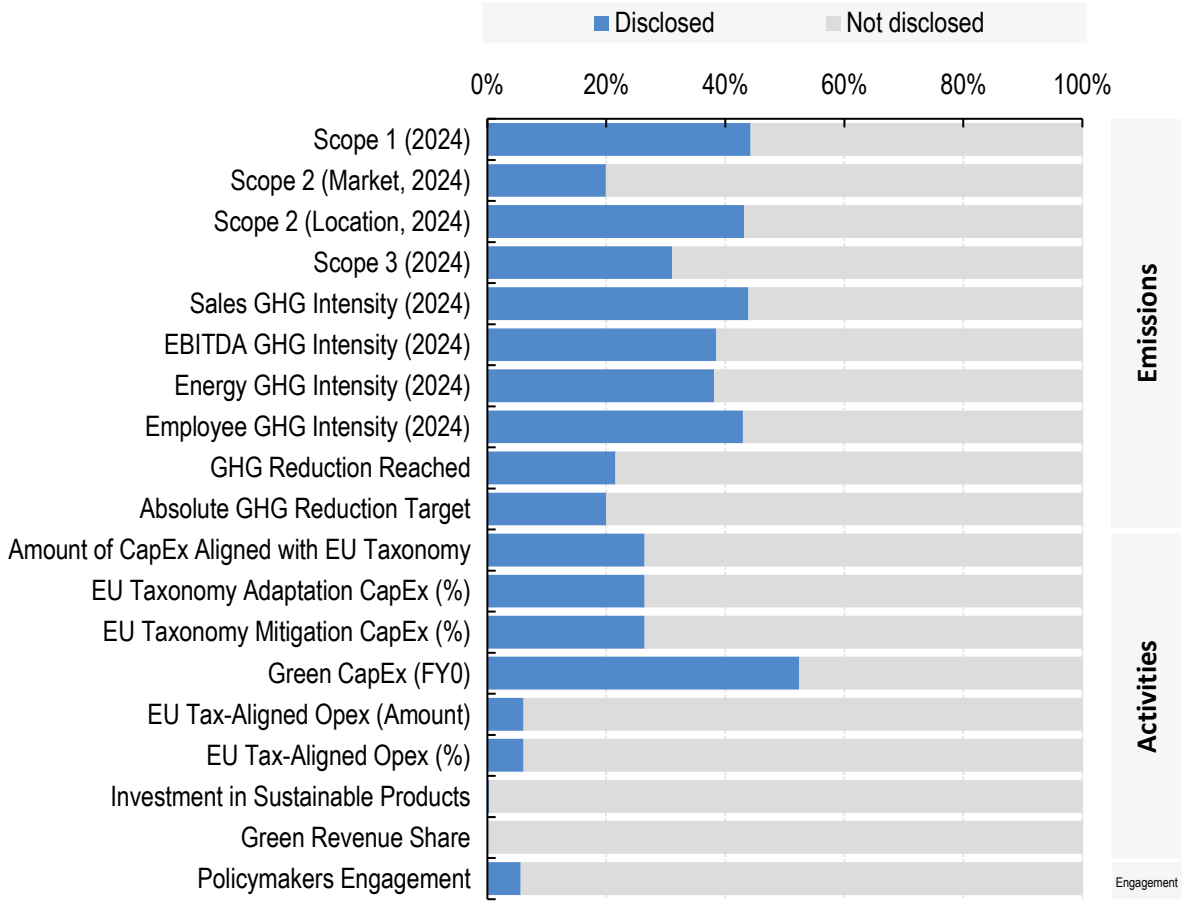
## Figure 4.5. Characteristics of climate mitigation performance metrics proposed by frameworks

| | | | |
|---|---|---|---|
| **EMISSIONS** | | | |
| GHG Emissions | | | |
| Use of credits and offsets | | | |
| Alignment assessment with a benchmark | | | |
| **COMPOSITION OF ACTIVITIES AND RELATED FINANCING AND INVESTMENT** | | | |
| **Research & development** | Green patents | Captures low-carbon/transition corporate innovation and early signal of a transitioning company | Companies can transition without own innovation, does not capture potential to scale the innovation |
| | Green R&D investments over revenue | | |
| | Low-carbon R&D Expenditures | | |
| **Expenditure** | Green/brown capital expenditure share | Captures larger transformations of business models and how companies are implementing transition plans in the short term | Can depend on sectoral classifications that may differ across jurisdictions, may be volatile with price factors investments may bott always result in profitable and complete transition |
| | Taxonomy-aligned capital expenditure | | |
| | Green/brown operational expenditure share | | |
| **Tangible assets** | Share of assets aligned with climate opportunities | Captures longer-term business models and transition risks (stranded assets) | Not relevant for all sectors and data intensive, ownership links and utilisation can be difficult to track |
| | Number of plants expected to use CCUS | | |
| | Share of physical assets covered by retrofit, phase-out, or conversion plans | | |
| | Fossil fuel reserves value | | |
| **Production mix** | Low-carbon production share | Captures whether the firm's commercial offer is shifting, useful for demand-side transition stories and opportunity capture | Can be volatile with market demand and conditions |
| | Green products sold share | | |
| | Amount of climate solutions produced | | |
| **Revenue** | Green/brown revenue share | Applicable to all sectors/asset classes, can capture more systemic transition profile of business model | Can be volatile with macroeconomic conditions |
| | Taxonomy-aligned revenue share | | |
| **Other sectoral indicators** | Steel: BF-BOF versus EAF/DRI-EAF production mix | Can be linked to sectoral transition pathways and policies | Limited cross-sector comparability and data-intensive |
| | Automobiles: share of ZEVs, hybrids, and plug-in hybrids sold | | |
| | Airlines: Average load factor | | |
| **ENGAGEMENT** | | | |
| Value chain engagement | | | |
| Policy engagement | | | |
| **STRATEGY AND GOVERNANCE** | | | |
| Strategic ambition & transition planning processes | | | |
| Leadership oversight and incentives | | | |
| Reporting governance | | | |

Note: Illustrative and not exhaustive.

**Available data to compute corporate climate transition metrics beyond GHG emissions remains sparse.** Corporate emissions data have become relatively widely available. Over 40% of listed non-financial companies globally disclosed emissions data in 2024 (Figure 4.6). This is the case for both Scope 1 and 2 emissions. Over 30% of companies also disclosed Scope 3 emissions data. Similar shares can be observed for emissions intensity data. On the other hand, corporate data on action-oriented metrics remains limited. For most activity-composition and investment metrics less than 10% of companies disclose quantitative information. One exception is green capital expenditure data, which is available for around 50% of listed companies. Information disclosed on engagement is difficult to summarise in comparable quantitative metrics.

### Figure 4.6. Climate transition metric data availability across listed equities globally




Note: All globally listed companies, except listed financial institutions, are included in this sample.
Source: Authors based on Bloomberg.

**Major data gaps hinder the comparability of climate-related financial metrics and limit the ability of financial investors and policymakers, to evaluate transitioning business models**. Globally, around half of listed companies provide some information on transition-related capital expenditures (Figure 4.6). Sectoral and graphical trends differ. For example, over 60% of Asian-Pacific listed companies do not provide information on climate-relevant capital expenditures. Data gaps are often bigger in high-impact sectors. Even in sectors where low-emissions investment opportunities are expanding (e.g. utilities, transport, manufacturing), green capital expenditures disclosure is far from universal. This indicates that, despite growing investor demand for forward-looking, investment-based alignment indicators, the

availability, comparability, and granularity of capital expenditures data remain insufficient to assess whether corporate investment plans are consistent with climate-mitigation pathways.

**More quantitative metrics are a priority for disclosure policies, especially to better track transition opportunities in emissions-intensive sectors and climate solutions**. While policymakers need to ensure disclosure requirements are not overly complex and resource-intensive, more quantitative information is needed (OECD, 2026[2]). Much disclosure initiatives remain too qualitative. Backtracking and simplification of existing requirements will result in a further reduction of quantitative information. Empirical work to identify critical quantitative metrics can support an effective simplification of disclosure requirements. Moreover, simplification of disclosure requirements needs to acknowledge that the transition is asymmetrical. More detailed metrics are needed for companies in a limited number of high-impact sectors, while fewer metrics can be enough for other sectors. Further, requirements must be cost-effective and proportional, notably for smaller institutions, especially in emerging markets and developing economies (OECD, 2024[31]).

**Gaps in metric interoperability of disclosure initiatives across jurisdictions remains a costly challenge.** Fragmentation across standards and taxonomies raises costs, reduces comparability, and risks resulting in box-ticking exercises. For example, criteria in taxonomies as to what constitutes a climate solution, green or transition activity on are not consistent across jurisdictions. Priorities for improving interoperability include greater mutual recognition between disclosure regimes, convergence on a core set of metrics, clear crosswalks between global guidance and regional taxonomies, and open-source methodologies and public data repositories. Further, interoperability and avoiding that disclosures are not repurposed inappropriately also requires clarifying the objective(s) that metrics are serving, including supporting an orderly transition, managing prudential risk, and/or climate policy alignment.

## 4.3. Emerging approaches to assess the climate performance of private equity

**A lack of transparency and disclosure requirements in private equity makes it difficult to understand the climate impact of private equity investment portfolios.** Private equity firms are well positioned to capture climate transition opportunities. As discussed in Chapter 3 on tracking, private equity investment in low-carbon activities is catching up with fossil fuels. However, the existing lack of transparency a critical barrier in more comprehensively and credibly assess the role private equity plays in the low-carbon solutions and transition opportunities.

**Initiatives have emerged that partly address the lack of climate transparency in private markets by assessing the energy portfolios of private equity firms.** Some metrics applicable to listed corporates can apply to private equity (Private Equity Task Force, 2024[32]). Emissions metrics and targets provide incentives to reduce climate impacts in the real economy. Most large private equity managers are disclosing Scope 1, 2, and 3 emissions as of 2025 (Unwritten, 2025[33]). Analyses based on this metric revealed that the energy portfolios of 21 leading private equity firms invested over a trillion dollars in energy investments between 2010 and 2024. Fossil fuel companies typically represent two-thirds of energy companies in their portfolios (Duong et al., 2024[34]), adding up to an estimated 1.17 gigatons of annual GHG emissions (Duong et al., 2024[34]). Such analyses, however, remain a resource-intensive process.

**A low carbon to fossil fuel energy supply investment ratio (ESIR) metric has emerged but remains data constrained.** Calculating this ratio for private equity comes with data and methodological challenges, including having complete and consistent data on (energy) holdings of private funds, attributing energy supply capital expenditure by companies to funds, and classifying activities as climate (mis)aligned. Initial analysis testing this metric for over 1,000 private markets funds and almost 70,000 securities-focused ETFs and mutual funds finds that they tend to invest more in low-carbon than fossil fuel energy supply (BloombergNEF, 2025[35]). Capital-intensive renewable energy assets are particularly suited to

infrastructure funds because of contracted revenues, high barriers to entry, and large physical assets. This demonstrates the role private equity could play in financing the transition.

**Disclosure and data to compute other metrics for assessing the climate performance of private funds remain elusive.** Consistent with metrics put forward by voluntary disclosure frameworks, these could include the disclosure of portfolio-wide emissions, science-based climate targets, transition plans metrics, and climate-relevant capital expenditure ratios. Considering a sample of large private funds, disclosure across these indicators is generally lacking (Duong et al., 2024[34]).

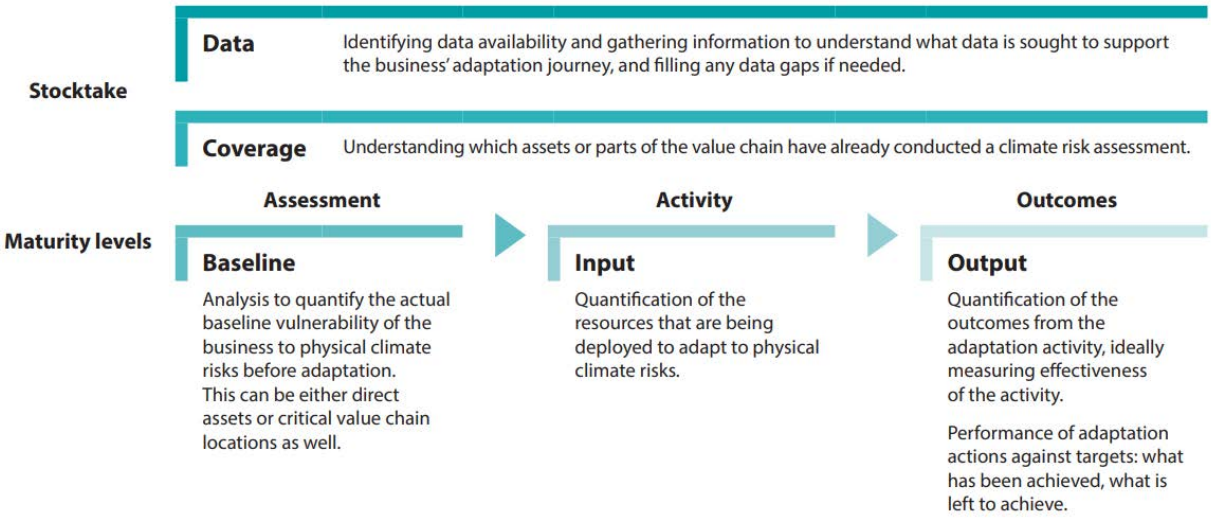
## 4.4. Integrating adaptation in corporate transition plans

**Efforts to increase climate resilience are gaining further momentum, yet existing climate-related frameworks remain less comprehensive and consistent in addressing adaptation than for climate mitigation** (OECD, 2024[36]). The lack of a common language and standardised categories for adaptation and resilience metrics hinders comparability and coherent tracking (OECD-NGFS, 2024[37]). Although some jurisdictions have incorporated adaptation and resilience considerations into sustainable finance taxonomies and disclosure requirements (see Chapter 2 on policies), there remain gaps in quantitative metrics for outcome-based progress measurement (Noels et al., 2024[38]). As companies and investors make decisions based on a financial business case, these gaps limit their effectiveness in driving adaptation finance (NGFS, 2025[39]). Pilot analyses of investment portfolios, however, illustrate opportunities for making the business case for resilience investments based on applying emerging physical climate risk assessments methods (IIGCC, 2025[40]; IIGCC, 2025[41]).

**Integrating adaptation to climate change in transition plans enables a holistic approach to climate resilience and transition-related investment planning.** Transition planning is a strategic process through which an entity plans actions towards both a low-carbon and climate-resilient economy (IFRS, 2025[42]). Unlike mitigation, which can be anchored to a single quantified goal such as net-zero emissions, adaptation has no equivalent global target. The NGFS framework therefore structures the integration of adaptation around two objectives: (1) managing exposure and vulnerability to physical risks and, (2) where relevant, seizing adaptation-related opportunities (NGFS, 2025[39]). Company disclosure on adaptation and resilience through transition plans can improve wider enabling environments for adaptation and lower corporate risk profiles and improve lending terms (TPT, 2024[43]). However, uncertainties around incorporating adaptation and resilience considerations into transition plans impedes the scaling up of adaptation finance (G20 SFWG, 2025[44]).

**Adaptation metrics can be progressively developed and integrated in transition plans as their design and robustness matures.** As adaptation-related data and metrics are still developing, approaches for identifying key metrics can take a step-by-step approach. The NGFS proposes a maturity model (Figure 4.7) that starts with a stocktake of data and coverage status to facilitate a baseline of adaptation metrics and targets. It then progresses step by step towards a meaningful set of metrics: from (1) baseline exposure and vulnerability to (2) inputs applied towards adaptation activities, to (3) output-led metrics that quantify the impact of adaptation activities and set these against a target (NGFS, 2025[39]). Similarly, OECD work identifies five main interrelated analytical dimensions for tracking adaptation and resilience alignment (Figure 4.8): (1) Measuring physical climate risks to physical assets, (2) Aggregating physical climate risks to real economy entities, financial flows and financial assets, (3) Analysing adaptation and resilience actions and strategies by real economy entities and financial institutions, (4) Identifying resilience related public policy goals and targets that can be used as reference points to assess alignment, (5) Evaluating progress towards aligning finance with these reference points (Noels et al., 2024[38]).

## Figure 4.7. NGFS maturity model for adaptation metrics




Source: (NGFS, 2025[39])

**Tracking corporate adaptation starts with physical risk baseline metrics that measure exposure and vulnerability to physical risks linked to estimated financial impacts.** Metrics for non-financial corporates include the share of assets exposed to 1-in-100 or 1-in-200 hazards and expected asset value at risk or lost revenue due to climate-related hazards (Figure 4.8). Metrics for financial institutions include the share of portfolio exposed to key physical risks by geography/sector and the number and value of mortgages in flood zones and expected losses under climate scenarios. With location- and portfolio-relevant data, institutions can assess (1) whether exposure to physical hazards exists, and if so, (2) whether this exposure could lead to financial impact (NGFS, 2025[39]). Understanding the inherent vulnerability of assets to physical risk is the first step towards then managing physical risks.

**Adaptation input metrics track actions and strategies to build resilience.** Metrics for non-financial corporates include amount of capital expenditure deployed towards climate adaptation, board oversight over adaptation measures, and calculations of the cost of measures required to build resilience to physical climate risks (Munday, Parker and Panichi, 2026[45]). Metrics for financial institutions include the amount of adaptation finance mobilised and people trained in resilience measures (Figure 4.8). Adaptation input metrics can capture both risk management and opportunity (NGFS, 2025[39]).

**Resilience outcome metrics analyse the impact and effectiveness of adaptation actions.** Simpler output measures can include hectares restored, assets strengthened, reduced downtime, or reduced repair costs (NGFS, 2025[39]). More advanced approaches could consider risk-based metrics, such as avoided losses, reduced value-at-risk from physical climate impacts, a lower share of asset value exposed to acute and chronic risks, or ensuring a given share of risk-exposed assets is protected to a specified hazard standard. For the most advanced institutions, output metrics would reflect risk appetite and be benchmarked against common risk thresholds as well as against targeted levels of resilience to climate hazards and impacts. Such levels can be institution specific as well be linked to national or regional adaptation and resilience policy goals and targets where these exist.

**Resilience-related metrics, whether relating to baselines, inputs, or outputs, are most decision-useful when paired with outcome-based and time-bound targets.** Effective targets reveal both the gap to a desired outcome and the timeframe to close it, thus anchoring adaptation planning and reinforcing the business case for investment (NGFS, 2025[39]). Practice still lags this principle: a survey of OECD member

countries found that only around 30% attach a timeframe to their adaptation objectives, and none systematically include a baseline (Noels et al., 2024[38]).

### Figure 4.8. Climate adaptation information points and metrics


| Physical risk baseline | Adaptation inputs | Resilience outcomes |
|---|---|---|
| *Non-financial corporates* | | |
| Incurred/expected asset value at risk or lost revenue due to climate-related hazards ($m losses)<br>Proportion of real assets exposed to 1:100 or 1:200 climate-related hazards (%)<br>… | Amount of CapEx deployed towards climate adaptation ($)<br>Board oversight over adaptation measures<br>… | Share of activities consistent with NAPs or adaptation as identified by taxonomies (%)<br>Number of assets produced, developed, improved, or strengthened to support resilience objectives<br>Reduction in the amount of time (hours/days) that a system or elements of a system are rendered inoperable due to acute climate risks<br>Area of ecosystems improved or protected through adaptation measure |
| *Financial corporates* | | |
| Portfolio share highly exposed to physical risks across climate-related hazards (%)<br>Number and value of mortgage loans in 100-year flood zones (# and $)<br>Credit risk exposure of portfolio in relation to key indicators of physical risk ($m risk) | Amount of adaptation finance mobilised ($)<br>… | AUM share in assets consistent with NAPs or contributing to adaptation as identified by taxonomies<br>Increase in % of property, infrastructure or other alternative asset portfolios with adaptation measures or insurance in areas subject to high physical risk<br>Impact of adaptation activity on frequency and magnitude of future natural catastrophe events |

Note: Illustrative and not exhaustive.
Source: Authors, based on (Noels et al., 2024[38]; NGFS, 2025[39]).

## 4.5. Developments for credible climate assessments of bonds

**Credible assessments of the climate alignment of bonds are faced with different challenges for corporate and sovereign issuers.** As highlighted in Chapter 3 on tracking, green-labelled sovereign bonds remain a very small and stagnating share of total sovereign bond issuance, while general purpose and unearmarked bonds issued by sovereigns cannot be easily linked to specific economic and climate-relevant sectors. In contrast, climate assessments of the corporate bond asset class can rely on sectoral analyses to identify companies dedicated to fossil fuel or high-GHG intensive sectors, in addition to the tracking of green-labelled corporate bonds.

**Green-labelled bonds are debt securities whose proceeds are allocated to environmental projects, with a commitment to transparency and impact measurement** (Flammer, 2025[46]). They are a financial mechanism designed to enable the mobilisation of capital for activities and projects with a positive environmental impact, while providing investors with visibility on the use of funds (Flottmann et al.,

2025[47]). Bonds can be labelled as green by complying with taxonomies and frameworks developed in specific countries and jurisdictions or referring to voluntary frameworks. Among the latter includes the Green Bond Principles of the International Capital Market Association (ICMA, 2025[48]).

**Green labelling of corporate bonds contributes to market transparency, but empirical evidence highlights a need for careful evaluation of impact and additionality**. On the one hand, there is evidence that increased issuance of green bonds has followed stricter emissions policies aimed at reducing country-level emissions, and that green bond can be a good indicator of reduced corporate emissions for firms in carbon-intensive sectors reductions (Demski et al., 2025[49]; Fatica and Panzica, 2021[50]; Lorente et al., 2025[51]). In this context, third party verification is found to be an important factor to strengthen the likelihood of positive impacts (Flammer, 2023[52]). On the other hand, the additionality of corporate green bonds has been questioned as they are often used to refinance existing corporate debt rather than to fund new green activities (Lam and Wurgler, 2024[53]).

**Robust climate transition bond frameworks, criteria and metrics can contribute to broadening the ability to assess and drive bond markets to finance decarbonisation across economic sectors**. Transition bonds are a relatively new financial instrument, thus not reflected yet in trends of issued and outstanding bonds analysed in Chapter 3 on tracking. Transition bonds typically fund activities that help high-emission sectors, such as energy, industries, transportation, transition to greener practices, rather than financing already low-carbon activities. Unlike green bonds, which require proceeds to be allocated to already green activities, climate transition bonds focus on enabling improvements to current practices and long-term decarbonisation. Their integrity, however, depends on being anchored in robust frameworks and credible metrics that ensure transparency, accountability, and measurable environmental impact (OECD, 2022[54]), including to avoid locking in GHG-intensive activities and emissions at levels and over timeframes inconsistent with long-term climate policy goals (OECD, 2023[55]).

**Assessment of the environmental integrity of corporate bonds can be strengthened and broadened to transition and general-purpose bonds based on metrics relating to corporate transition plans and activities**. Metrics building on quantitative and qualitative information included in corporate transition plans can help expand climate-related assessments beyond green-labelled bonds. As discussed above in Section 4.2, this is notably the case for data points relating to corporate capital expenditures and investment plans, which can allow to identify not only green and climate-aligned spending, but also assess the climate consistency of more, if not all, recent and forthcoming corporate investments. Such approach can be made sector-specific by linking to analyses of corporate bonds based on climate-relevant sectors as presented in Sections 3.2.1 and 3.2.2 of Chapter 3 on tracking.

**For sovereign issuers, the requirements for proceeds from sovereign debt and fiscal revenues to be fungible can prevent accurate evaluations of additionality**. Green-labelled sovereign bond frameworks require governments to earmark and provide transparency on the use of proceeds. However, sovereign green bonds may be integrated into existing debt management frameworks and thus finance activities that were budgeted in any case or even already implemented (Chesini, 2024[56]). However, sovereign green bond issuance is found to have quantitative and qualitative benefits for the development of private sustainable bond markets (Cheng, 2024[57]).

**Climate-related assessments of general-purpose sovereign bonds can, similar to corporate bonds, consider a range of metrics addressing ambition, progress, plans, and risks**. The categories of metrics considered by providers assessing the climate performance and alignment of countries has remained broadly consistent since the first edition of the OECD Review, typically spanning historic and forward-looking GHG emissions and energy-related metrics, as well as indicators relating to existing policies and plans (OECD, 2024[28]). The choice and relative priority placed on individual metrics, however, depend on the target audience and use case with, to date, a notable difference between assessments of the alignment of sovereign bond issuance and portfolios with climate policy goals on the one hand, and, on the other hand the integration of climate-related risks in sovereign credit rating assessments.

**Credible assessments of sovereigns' climate plans depend on robust data on the implementation and characteristics of climate-related real economy and financial sector policies**. Comprehensive and comparable information about all public policies implemented by governments is critical to evaluating the likelihood of sovereign issuers to both decarbonise their economies and to reduce their exposure and vulnerability to climate physical risks. As analysed and illustrated in Chapter 2 on policies, dimensions relevant to assessments include the scope, ambition, stringency, bindingness, predictability, and changes in policies. Similarly, other initiatives highlight the relevance of tracking the adoption and stringency of real economy climate policies towards assessing the climate performance of countries (OECD, 2025[58]). Efforts relating to climate budget tagging (World Bank, 2021[59]) and green budgeting (OECD, 2024[60]) have the potential to enhance the credibility of such assessments, but they have to date not resulted in increased data availability at scale.

**The increasing focus on making national climate plans investable places metrics relating to transition management, risks, and opportunities at the forefront.** Most climate change mitigation-related assessments of sovereigns have to date been primarily anchored in evaluations of whether each country's current and targeted contribution to global efforts can be considered as sufficient and equitable (OECD, 2024[1]; Noels and Jachnik, 2022[16]). However, considering the widening ambition and implementation gap to reach the Paris Agreement goals, assessment frameworks increasingly emphasise forward-looking elements. These elements can help increase the credibility of nationally determined contributions (NDCs) and national adaptation plans (NAPs) towards unlocking economy-wide investments (CBI, 2025[61]) and opportunities (TPI, 2025[62]). Examples notably include sector-specific decarbonisation pathways and policy action plans (OECD/UNDP, 2025[63]) as well as quantified investment needs and associated financing strategies to sign post investment opportunities (IIGCC, 2025[64]).

**The integration of physical climate risk in sovereign assessments remains primarily focused on exposure metrics that do not reflect adaptation efforts and opportunities**. Current and future climate impacts can challenge sovereign debt sustainability, especially in countries already experiencing debt distress, constrained fiscal space, and high cost of debt servicing. Geospatial data discussed in the following section are improving capacities to assess the exposure of territories to a range of climate hazards. Sovereign climate exposure varies widely across geographies but a significant share of countries is expected to face future climate-related credit rating downgrades (Fitch Ratings, 2025[65]). However, a range of proposed frameworks and illustrative analyses highlight the need to better incorporate into credit risk assessments variables and metrics that make it possible to better assess vulnerability and resilience (ECB, 2023[66]), including data points on existing or planned policies, measures, and investments to adapt and increase resilience (Climate Financial Risk Forum, 2025[67]).

## 4.6. Innovative solutions to fill data gaps

**Corporate disclosure has significantly improved data availability, yet large data gaps remain across asset classes.** In 2025, over 22 100 corporates, representing nearly two thirds of global market capitalisation, reported on climate change to CDP, an independent environmental disclosure system (CDP, 2026[68]). Considering sustainability disclosure more broadly, almost 12 900 companies representing 91% of listed companies by global market capitalisation disclosed sustainability-related information in 2024, up from 9 600 companies representing 86% of market capitalisation in 2022 (OECD, 2025[69]). Yet, Sections 4.2, 4.4 and 4.5 exemplify important gaps in measuring transition planning and adaptation actions for corporate and sovereign asset classes. Further, data for private markets and different types of financial institutions is lacking particularly, as show in Chapter 3 on tracking.

**Innovative data approaches, such as natural language processing and geospatial data techniques are being used to fill climate data gaps.** Technical innovation offers promising solutions to address some climate-related data gaps (Nefzi et al., 2025[70]; OECD-NGFA, 2026[71]). Examples of such solutions include

(i) text analysis and natural language processing of corporate reporting, (ii) large-scale extractions from sustainability reports and tables, (iii) satellite and other remote-sensing data, (iv) geospatial asset-level mapping, (v) firm-level emissions imputation with machine learning and accounting data, and (vi) supply-chain/network reconstruction (OECD, 2026[72]).

**Text analysis and natural language processing (NLP) are increasingly used for extracting corporate climate data at scale, which can improve consistency and comparability across companies.** Advances in machine learning have enabled the extraction of structured information from text in climate disclosures, sustainability reports, regulatory filings, and news reporting. Overall, such extraction relies on three main approaches:

- **Keyword searching** is a rule-based text analysis approach that can be effective for identifying relevant passages when terminology is consistent and standardised. For example. keyword searches have been used to identify climate risk-related language in corporate filings and consistency of climate reporting with TCFD recommendations (Doran and Quinn, 2009[73]; Moreno and Caminero, 2021[74]). This approach is transparent and reproducible, as any result can be traced directly back to the initial keyword glossary. However, developing a keyword glossary can be subjective (Loughran and McDonald, 2011[75]). Moreover, a predefined keyword list may be less effective in capturing sector-specific topics, linguistic nuance or context, and areas that use highly technical or heterogenous language.
- **Basic word vectorisation methods** convert text into numerical vectors so it can be analysed computationally. Common approaches include Bag-of-Words (BoW), Term Frequency–Inverse Document Frequency (TF-IDF), and Word2Vec. BoW represents a document by counting how often each word appears, while TF-IDF adjusts those counts by giving more weight to words that are frequent in one document but relatively rare across a broader corpus. Instead of counting words directly, Word2Vec learns vector representations from patterns of word co-occurrence in large corpora (Mikolov et al., 2013[76]). Such methods have been used to identify SDG-related language in corporate disclosures, construct sustainability vocabularies, and classify climate-related reporting content (Amel-Zadeh et al., 2021[77]; Acosta-Smith et al., 2023[78]). Although vectorisation itself can be unsupervised, many practical applications built on these representations still need labelled training data, which is often costly to create. BoW and TF-IDF also ignore much of the surrounding context, while Word2Vec gives each word only one fixed meaning, making it hard to handle ambiguity. As a result, these methods may be less effective for nuanced or longer disclosures.
- More sophisticated **natural language processing (NLP) approaches** rely on deep learning techniques, notably transformer-based architectures such as BERT and GPT, which are designed to capture the meaning of words in context rather than treating them as isolated terms (Vaswani et al., 2017[79]; Brown et al., 2020[80]). **Large language models** (LLMs) have been used to extract metrics from corporate reports, assess firms' alignment with climate reporting frameworks, and extract data on lobbying behaviour across corporate reports (Bingler et al., 2022[81]; Colesanti Senni et al., 2024[82]; Dave et al., 2024[83]; IFRS, 2024[84]; Kolli et al., 2025[85]). These models offer greater flexibility and scalability than earlier text-analysis methods due to their ability to interpret nuanced or domain-specific language with little or no extensive training (Vaswani et al., 2017[86]). However, these models can lack transparency as their internal decision processes are difficult to interpret. Moreover, prompt-based interactions with generative models may generate different results depending on how instructions are framed, creating challenges for robustness, consistency and reproducibility. Additionally, as LLMs can hallucinate by generating plausible but incorrect information, recent work has developed approaches to address this risk, such as through retrieval-augmented generation (RAG), which grounds model outputs in retrieved external documents and can improve accuracy, transparency and timeliness (Pisaneschi, 2025[87]).

**NLP approaches are being used not only to fill climate data gaps, but also to construct new metrics on climate disclosure quality, greenwashing, and selective reporting.** For example, the Cheap Talk Index developed by Bingler et al. (2022[88]) uses a BERT-based NLP model to rate the specificity of climate claims in annual reports, on the premise that vague, non-committal language may signal low credibility or a lack of concrete action. Related work examines the extent to which firms disclose favourable ESG and climate-related indicators while omitting negative climate information, thus producing metrics of "selective disclosure magnitude" (Lublóy, Keresztúri and Berlinger, 2025[89]; Marquis, Toffel and Bird, 2015[90]). Other approaches may track the disappearance of previously stated targets (GreenWatch, n.d.[91]). While these approaches are relatively scalable and data-efficient, they may measure disclosure behaviour or public-relations management rather than actual climate performance (OECD, 2025[92]).

**NLP approaches are also leveraging alternative data sources to construct climate-related metrics beyond those relating to corporate reporting.** Alternative data that are being used to develop climate metrics using NLPs include news and media sentiment data, real estate data, transcription data, supply chain and logistics data, and patent data among others (Pisaneschi, 2024[93]). For example, NLP techniques have been used to process news and media sources for possible corporate climate misconduct, by classifying and scoring controversy events related to issues such as GHG emissions, fossil fuel activities, or environmental misrepresentation (RepRisk, n.d.[94]; Hafez et al., 2022[95]).

**Geospatial data approaches are also relied upon to fill corporate disclosure data gaps, address more opaque financial asset classes, and cross-validate reported climate data.** Geospatial data can improve transparency, attribution and accountability by making it possible to connect localised environmental conditions to specific corporate entities and financial decision-making Geospatial approaches shift the unit of analysis from the legal entity to physical assets and operations, enabling a bottom-up analysis of a company, sector, or portfolio (Christiaen, 2023[96]). This is particularly relevant for asset classes and firms, for which reporting is sparse or opaque, notably private markets. Beyond filling disclosure gaps, geospatial data can also support due diligence, risk management, assessment of historic liabilities, monitoring of sustainability outcomes between reporting cycles, and the verification of company disclosures or statements by external stakeholders.

**Earth Observation satellite data is already being used to estimate companies' exposure to physical climate risk, GHG emissions, energy production, and land use impacts** (Alonso-Robisco et al., 2026[97]; Rapach et al., 2024[98]; Climate TRACE, 2025[99]). Earth observation satellite data can provide granular insights to assess climate-relevant developments and address shortcomings and inconsistencies in traditional and disclosed data. It can reduce information asymmetries across scattered data sources and limit the potential for greenwashing practices (Nefzi et al., 2025[70]; ESA, 2023[100]). While Earth observation systems can enhance data availability, accessibility remains a challenge, with barriers such as proprietary databases and high costs for newcomers needing to process raw data (Alonso-Robisco et al., 2026[97]). These methods do not eliminate the need for corporate disclosure, but they can provide an important independent layer of evidence, and a means of cross-checking reported information.

**Geospatial analysis for sustainable finance requires geolocating corporate facilities and linking them to ownership structures**. Geospatial data facilitates linking physical assets to parent companies, and in some cases to financial instruments. A growing body of data sources that combine asset location with ownership linkages, including public emissions-trading platforms, sector-specific geospatial asset databases, and open-source trackers such as Global Energy Monitor (Noels et al., 2024[38]). The location-ownership connection is essential as it allows geospatial insights to be attributed to firms and then to loans, bonds and equity holdings (Christiaen, 2023[96]).

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Green Finance and Investment

# OECD Review on Aligning Finance with Climate Goals 2026

## Different Policy Playbooks, Untapped Investment Opportunities

Aligning finance with net-zero emissions and climate resilience supports reaching climate policy goals, reduces exposure to climate-related risks, fosters innovation and enhances energy security. Robust evidence on progress is needed to inform effective policymaking and impactful investment decisions across economies. This second edition of the *OECD Review on Aligning Finance with Climate Goals* supports these efforts by addressing three core areas: the implementation of climate-related financial sector policy playbooks, the tracking of the climate alignment of financial flows and stocks, and developments in climate metrics used in the financial sector. It provides evidence on developments since the first edition, addresses evidence gaps and presents geographical trends. Based on this analysis, the report identifies actions for policymakers to better drive the climate alignment of finance and capture untapped investment opportunities.

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