

Private Sector - Capital Markets & Climate Change: a Global Perspective

Steve Waygood, Chief Responsible Investment Officer,

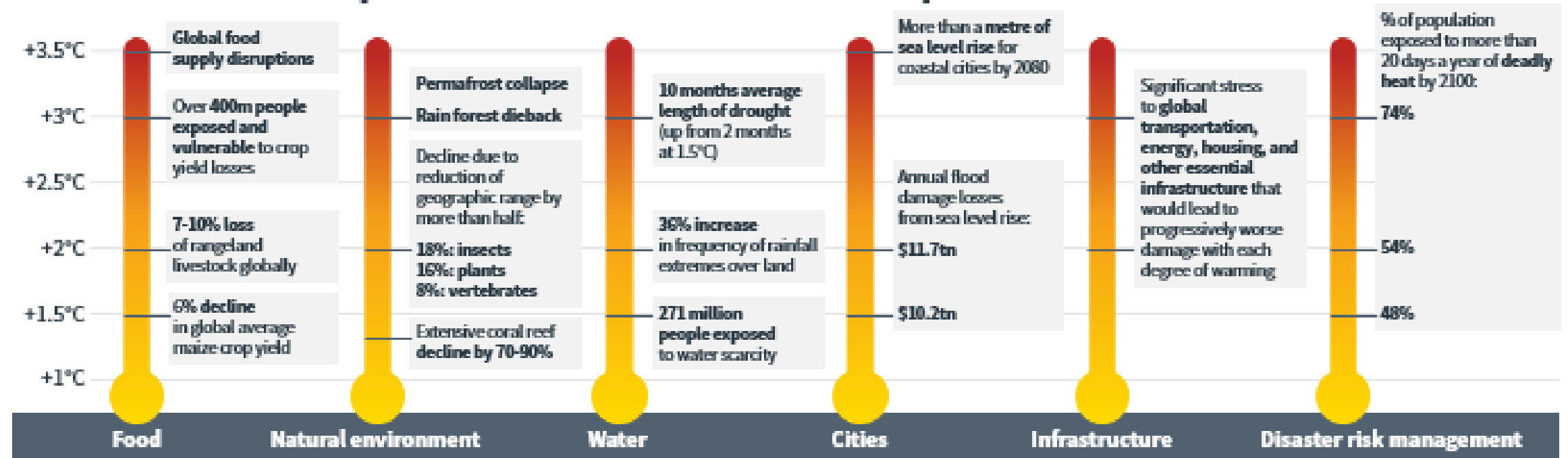
Aviva Investors – 12th June 2023

Agenda...

- The importance of understanding the capital market system in the context of climate change and the NCQG process and finance flows into developing countries.
- The interplay between Capital Markets and Climate Change Finance.
- The need for a collaborative approach between financial systems and international climate policy making.
- The role of policy and regulation in scaling climate finance and the overlap with other types of sustainable finance
- How capital markets may be relevant to supporting the delivery of climate finance to developing countries in reducing costs and in public private partnerships?

The urgency of acting on climate change

The risk of catastrophic events increases with temperature

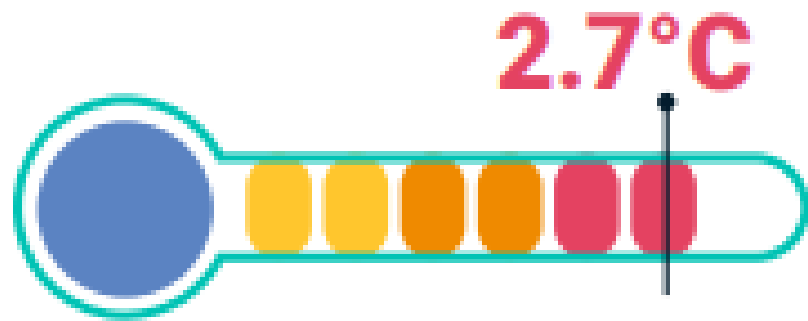


Investing \$1.8 trillion in these areas (2020-2030) could generate **\$7.1 trillion in total net benefits**

Source: World Resources Institute, adapted from the IPCC and others. Not cost/benefit analysis from Global commission on adaptation report: September 2019.

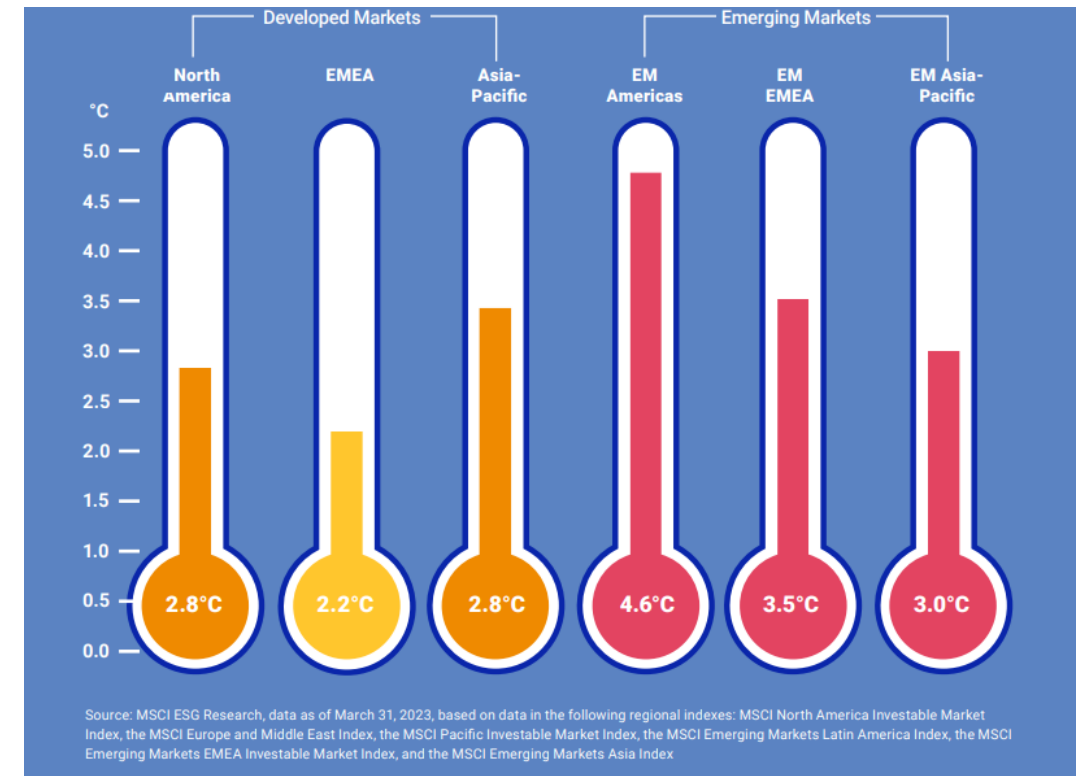
Financial markets fundamentally misaligned

The implied warming potential of global listed companies



Listed companies are on a path to warm the planet by 2.7° above preindustrial levels this century.

All regions warming potential in excess of Paris goals



Source: MSCI, 2023

To deliver a different outcome, we need a different system



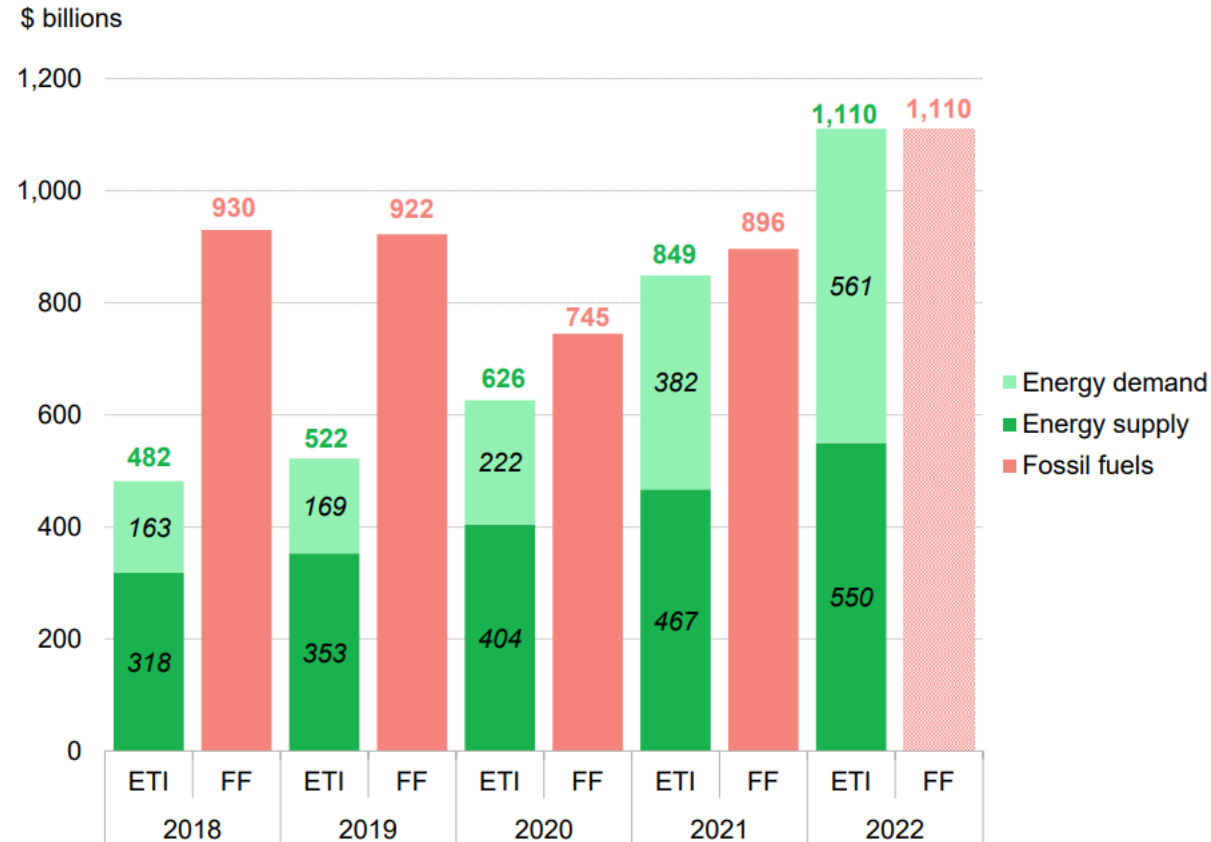
Article 2.1.c is the right goal...

...but to make the goal of making all financial flows consistent with pathways towards low greenhouse gas emissions and climate resilient development a reality we need:

- a **transition plan** to move from markets implying 2.7°C by the end of the century towards financial flows consistent with the goals of the Paris Agreement
- embedding consistency of financial flows within **NDCs**
- a **monitoring mechanism** and **annual reporting** by Parties with clear **KPIs**
- a body responsible for **technical assistance** and **capacity building for countries looking to raise capital from international markets**
- embedding a **supporting regulatory and supervisory environment** within the mandates and work programmes of the **international financial architecture**

Ramping up clean energy capital expenditure

Investment comparison: energy transition versus fossil fuels



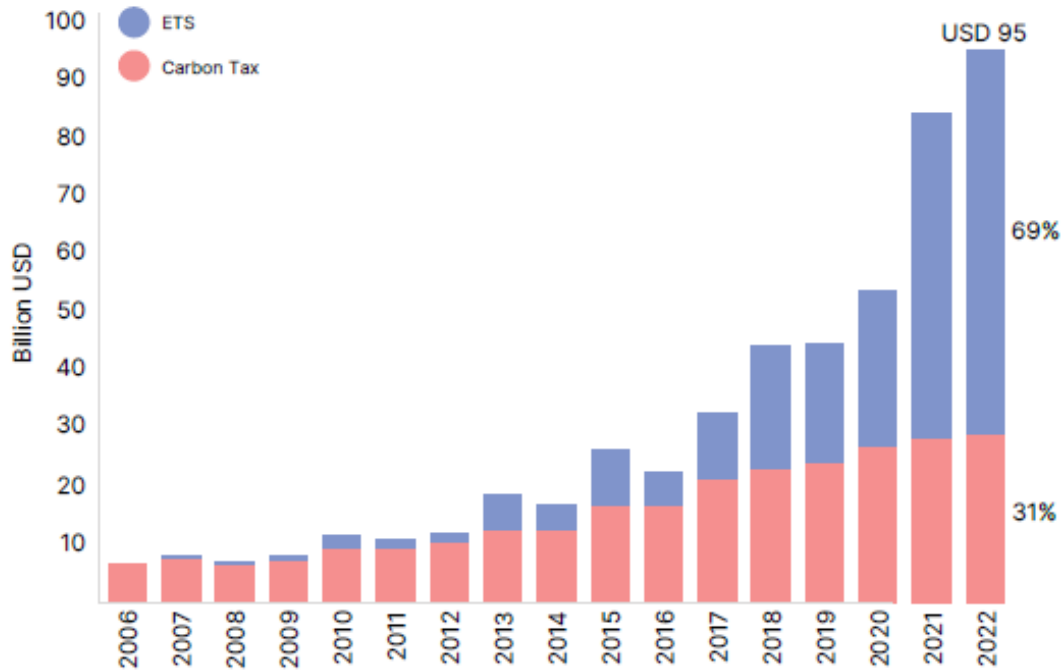
Source: BloombergNEF, IEA. Note: ETI stands for Energy transition investment. FF stands for Fossil fuels. 2018-21 FF values were derived from the IEA World Energy Investment 2022 report. 2022 fossil fuel investments are BNEF estimates, and include upstream, midstream, downstream sectors and unabated fossil power generation.

2021 fossil fuel subsidies over 8 times greater than carbon pricing revenues

Global revenues from carbon pricing 2021
- **US\$84 billion**

Total fossil fuel subsidies from 51 countries monitored
by the OECD/IEA: **\$697.2 billion**

EVOLUTION OF GLOBAL REVENUES FROM CARBON TAXES AND ETSs OVER TIME (NOMINAL)

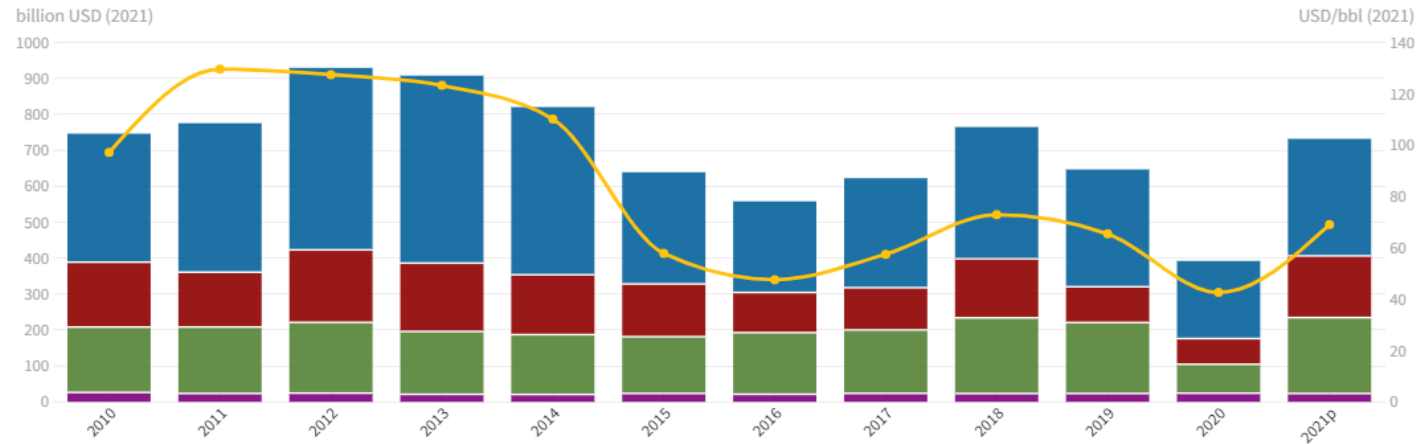


Source: World Bank, OECD, IEA

Fossil fuel support by energy product

OECD-IEA combined estimates (82 economies)

Price of oil Coal Electricity Natural Gas Petroleum

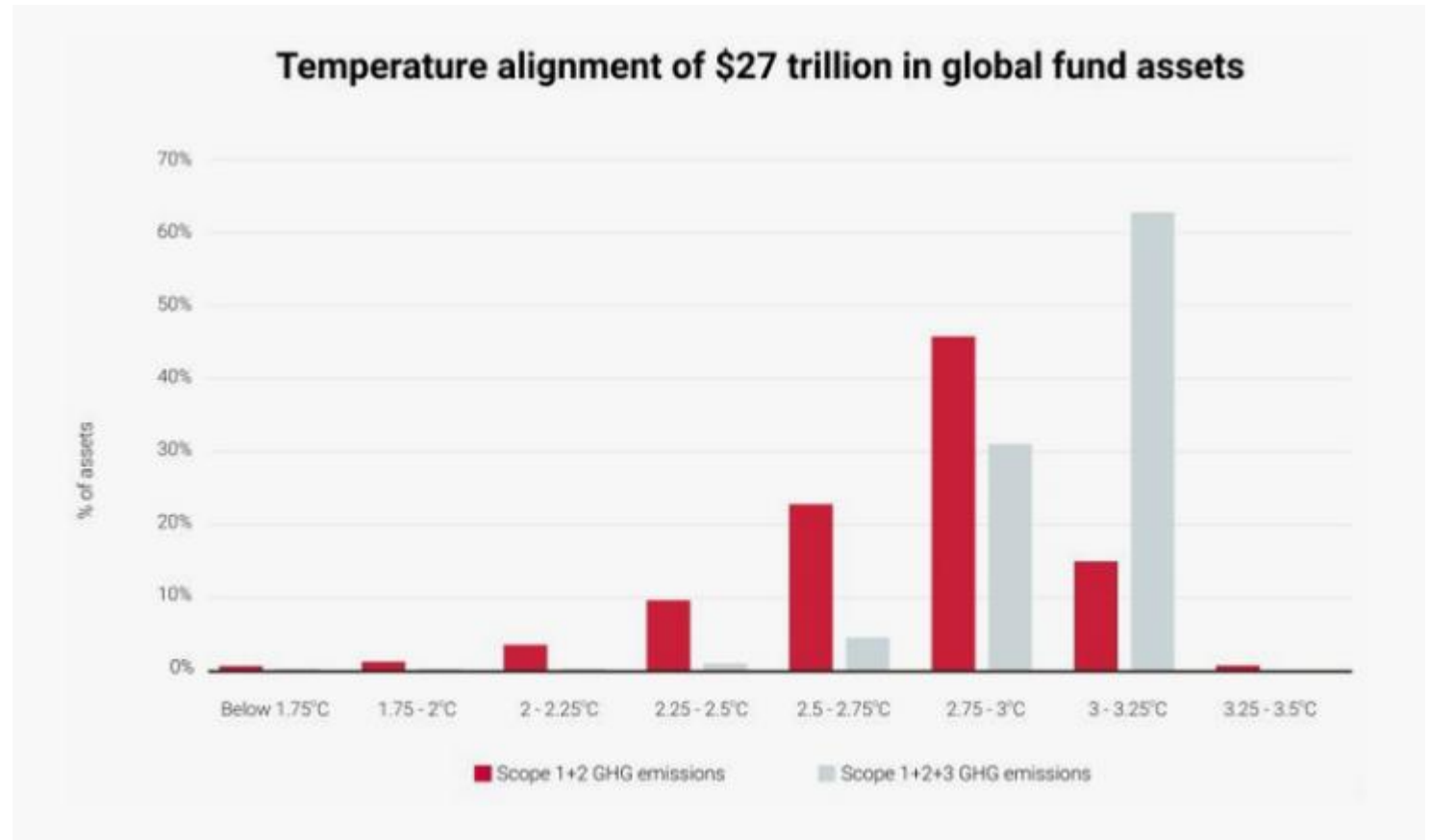


Note: The OECD-IEA combined estimates covers 82 economies, representing the total resulting from merging IEA price-gap estimates and OECD Inventory estimates from OECD, G20 and Eastern Partnership (EaP) countries. Data are expressed in constant 2021 US dollars. Data for 2021 are on a preliminary basis. Economies covered are: Australia, Austria, Belgium, Brazil, Canada, Chile, the People's Republic of China, Colombia, Costa Rica, Czech Republic, Germany, Denmark, Estonia, Finland, France, Greece, Hungary, Indonesia, India, Ireland, Iceland, Israel, Italy, Japan, Korea, Luxembourg, Latvia, Lithuania, Mexico, Netherlands, Norway, New Zealand, Poland, Portugal, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Republic of Türkiye, United Kingdom, United States, South Africa, Armenia, Belarus, Georgia, Moldova, Algeria, Angola, Argentina, Azerbaijan, Bahrain, Bangladesh, Bolivia, Brunei Darussalam, Ecuador, Egypt, El Salvador, Gabon, Ghana, Iraq, Iran, Kazakhstan, Kuwait, Libya, Malaysia, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Chinese Taipei, Thailand, Trinidad and Tobago, Turkmenistan, Ukraine, United Arab Emirates, Uzbekistan, Venezuela, and Viet Nam.

Source: OECD Inventory of support measures for fossil fuels and IEA analysis.

Global assets not aligned with Paris Goals

- CDP analysis ahead of COP26 of 16,500 investment funds with total assets of \$27 trillion (one third of the global fund industry found only **158 funds, worth only 0.5% of the total assets** assessed, had a temperature pathway in line with **well below 2° C**
- Green, Social, Sustainability, Sustainability-linked and transition bond (GSS+) reached collective volumes of **USD863.4bn in 2022**. Despite falling volumes of all bonds in 2022 in a difficult macroeconomic climate, GSS+ volumes held their **5% share of the global bond market**.

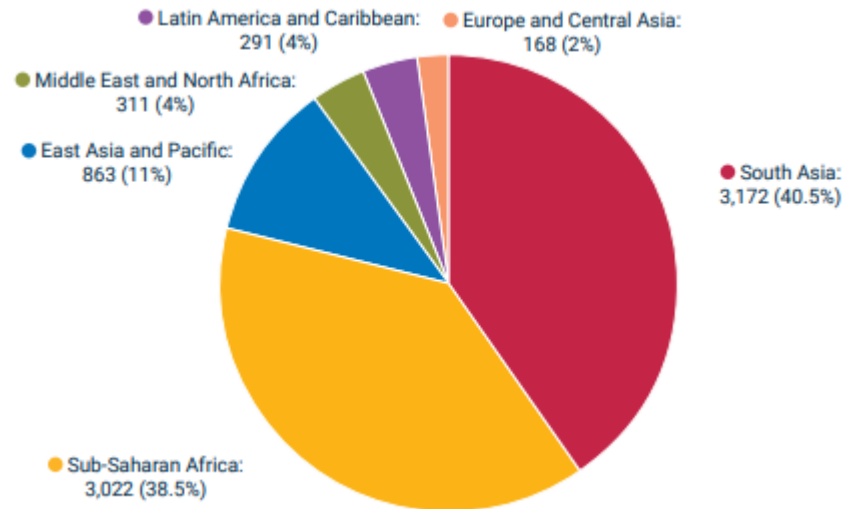


Implied investment need of DC NDCs and barriers to capital raising plans



<https://tinyurl.com/mv2sk7bx>

Total climate finance needs identified (of the 126 developing country NDC assessed) by region (US\$ billions)

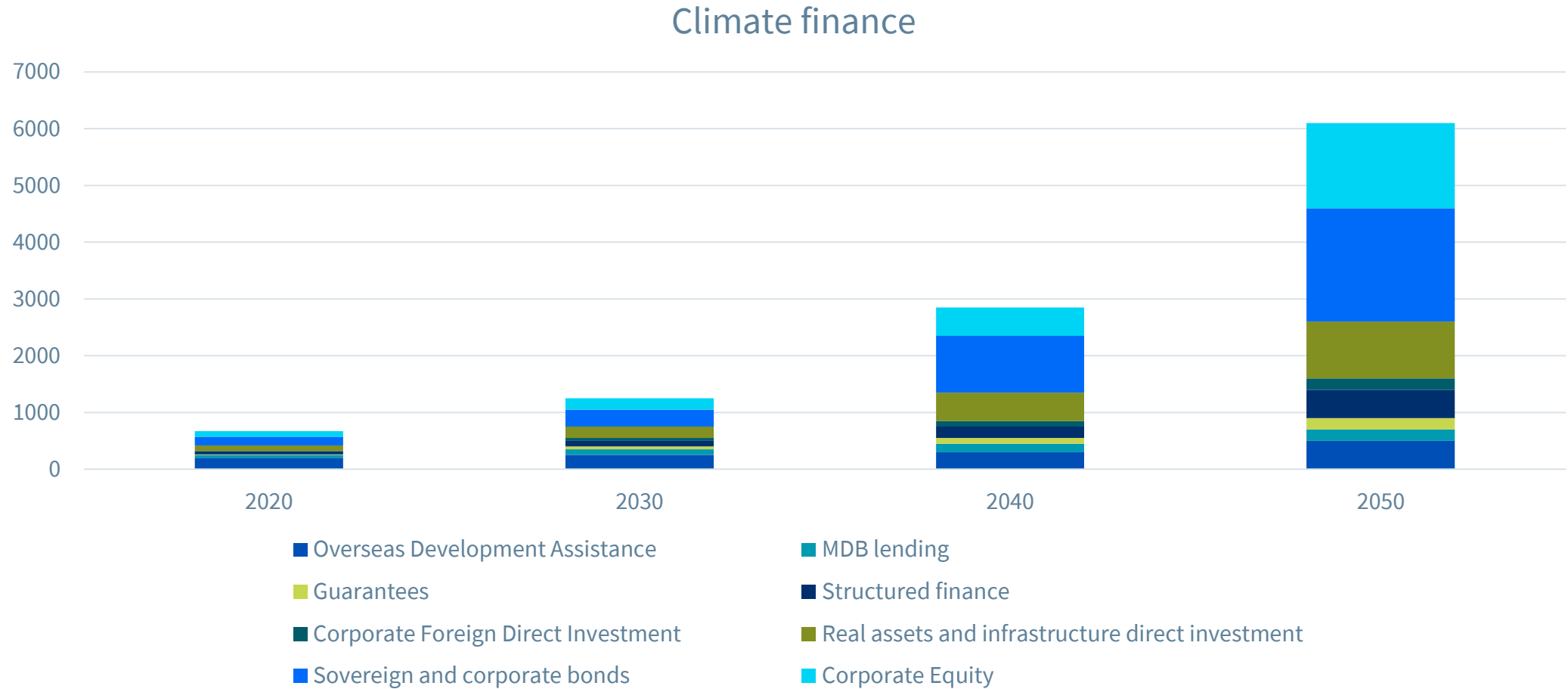


Total: **US\$ 7,827 billion by 2030**

Institutional and political barriers identified in interviews

- Structural government impediments to developing NDC financing plans
- Changing political circumstances and reorganisation of entity responsible for NDC
- **Lack of technical assistance**
- Lack of **coordination** across government
- Access to information
- **Lack of centralised data**

Building a capital stack for \$6 trillion of annual flows...?



NB This is a mock-up of the concept. It is not based on a comprehensive mapping.

We have the right goals (but only if “*finance*” = money overall)

Paris Agreement, Article 2.1.c

Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Finance

[fī-'nan(t)s]

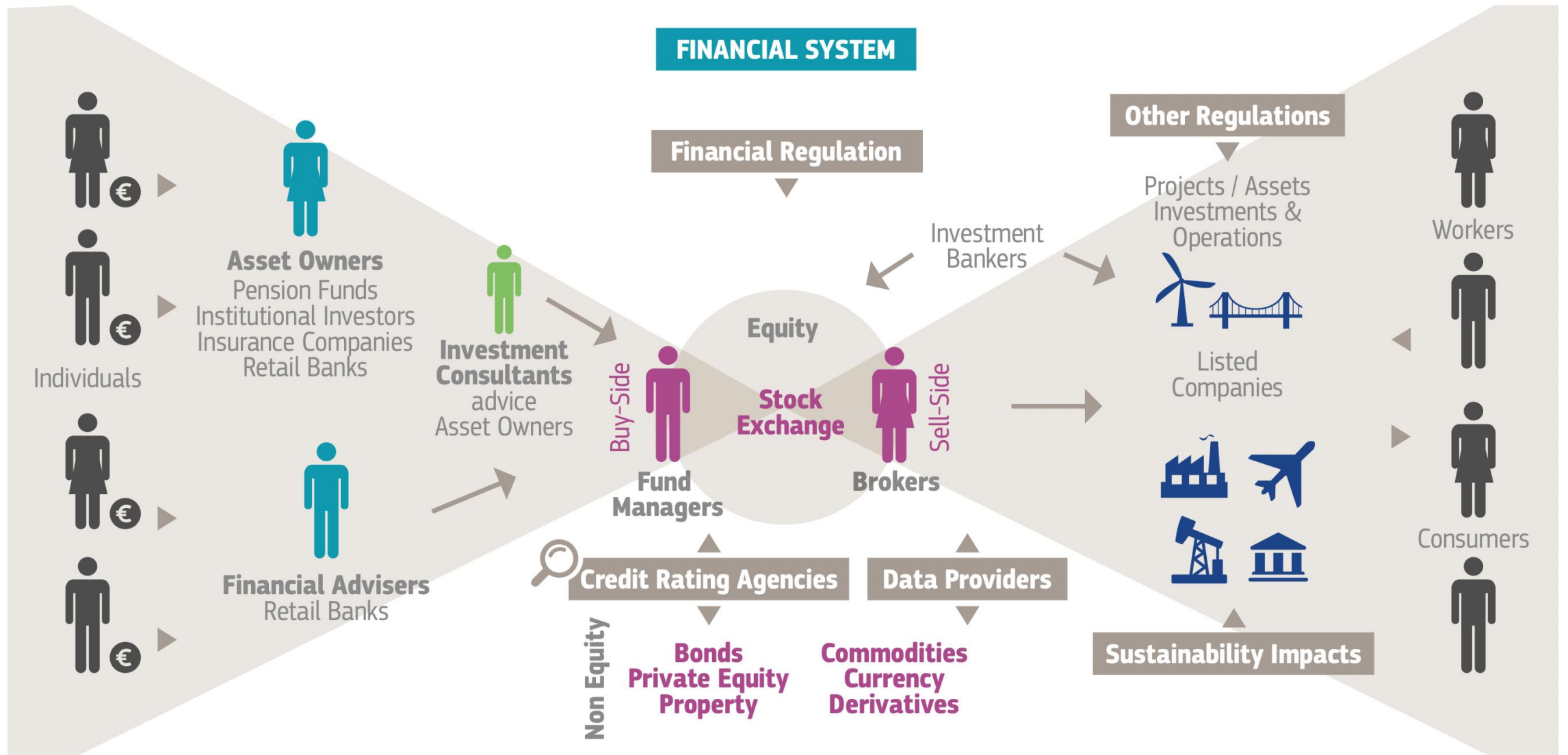
The system or study of creating, circulating, and managing money.

Source: Investopedia

Sharm el-Sheikh Implementation Plan

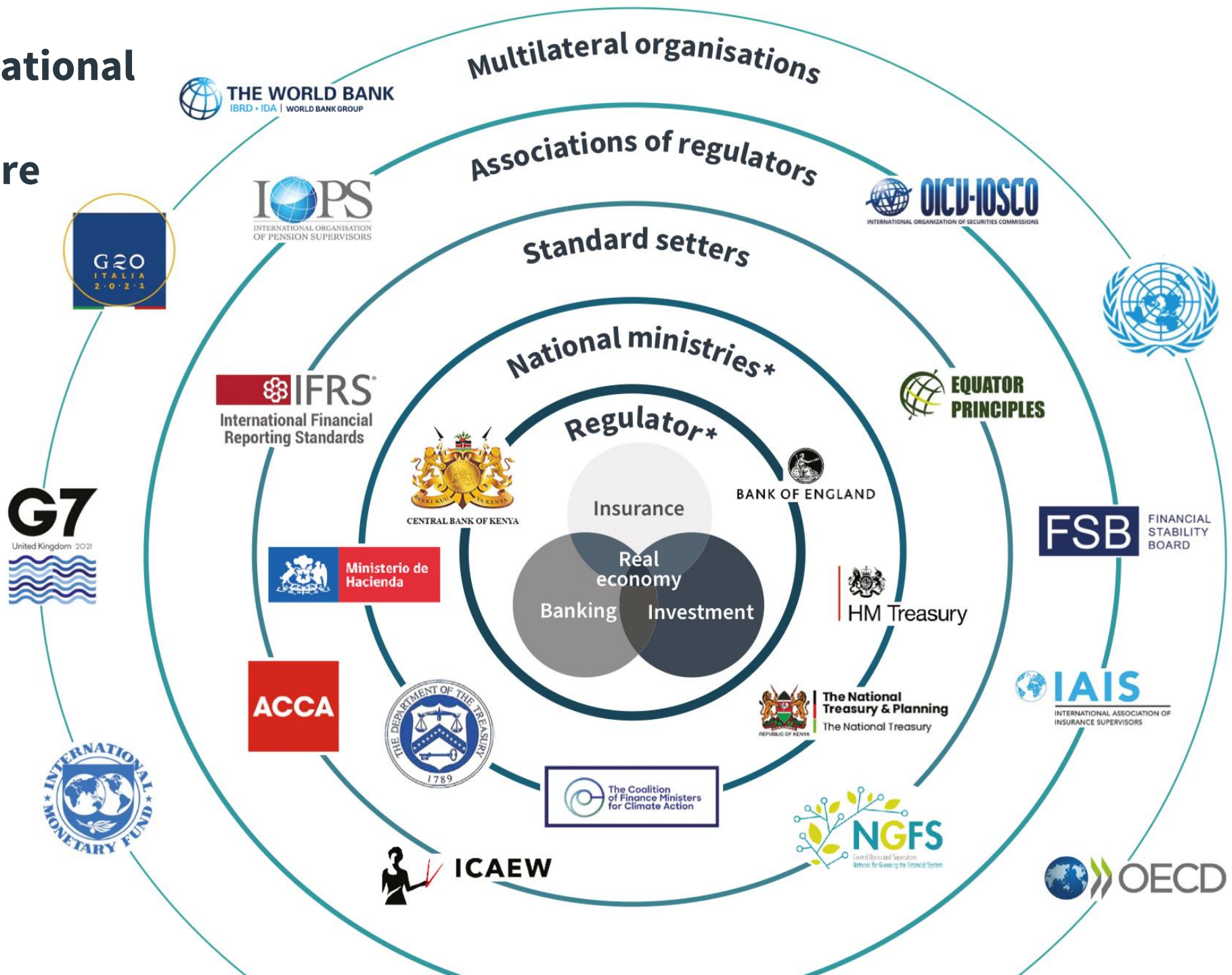
...a global transformation to a low-carbon economy is expected to require investment of at least USD 4–6 trillion per year...delivering such funding will require a transformation of the financial system and its structures and processes, engaging governments, central banks, commercial banks, institutional investors and other financial actors.

How capital markets put money to work



Source: Aviva Investors, European Political Strategy Centre

The International Financial Architecture



Integrity matters...

Transition plans from the central banks and the institutions within the international financial architecture should reflect the same levels of integrity being embedded in the private sector

The principles of the UN HLEG on net zero commitments of non-state actors should be mirrored by IFA transition plans:

- Long term goal aligned with Paris Agreement as a whole and Article 2.1.c in particular
- Short- and medium-term interim commitments to align markets with the goals of Paris
- Applies to whole of organisation
- Progress reported annually
- Built into leadership incentives
- Should include advocacy with governments for the policy corrections needed to align markets and financial flows with Paris



Five Principles

1. Ambition which delivers significant near- and medium-term emissions reductions on a path to global net zero carbon dioxide emissions by 2050 and net zero greenhouse gas emissions soon after
2. Demonstrated integrity by aligning commitments with actions and investments
3. Radical transparency in sharing relevant, non-competitive, comparable data on plans and progress
4. Established credibility through plans based in science and third-party accountability
5. Demonstrable commitment to both equity and justice in all actions

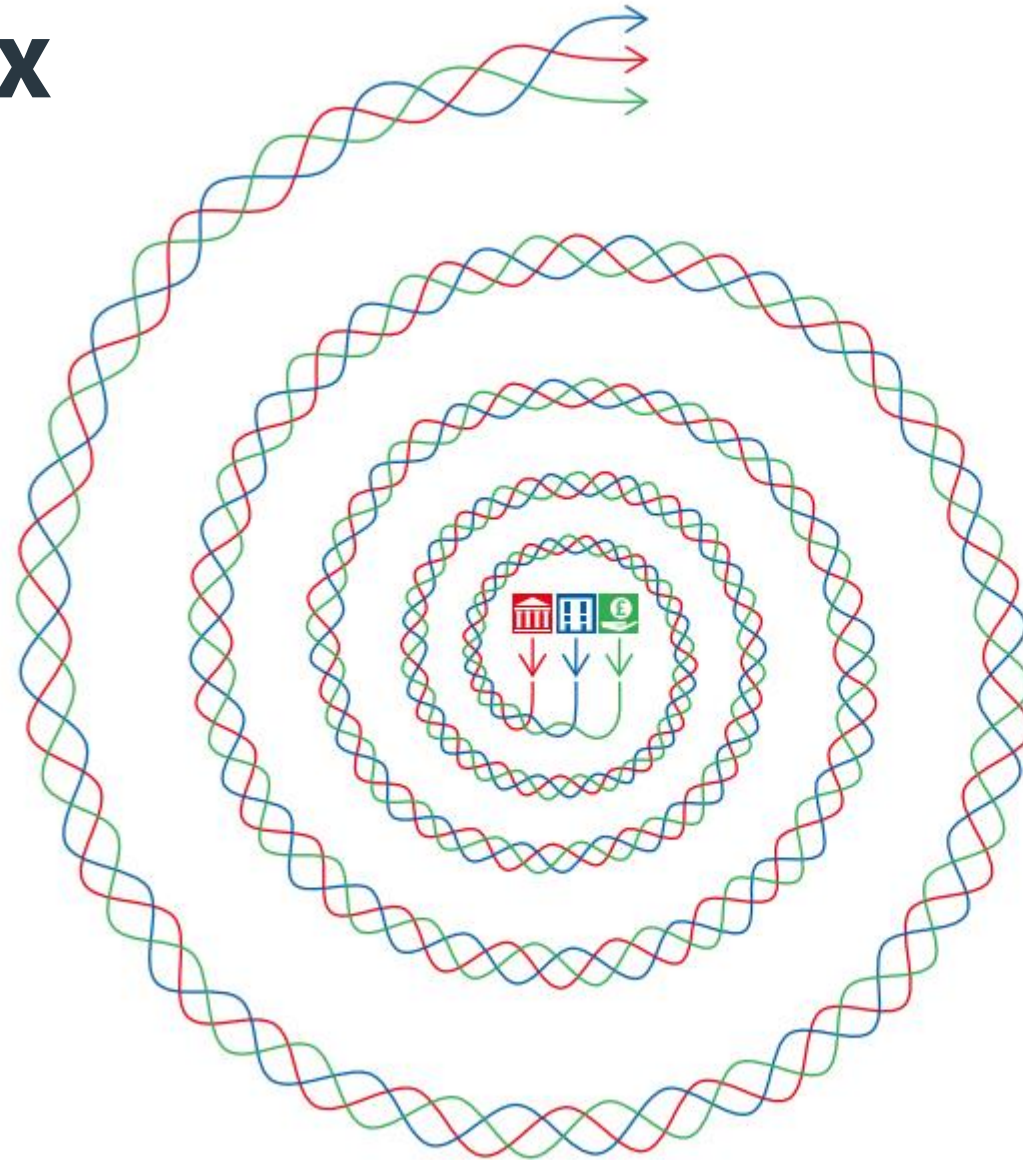
A triple helix

Would UNFCCC benefit from a private finance HLEG on Sustainable International Financial Architecture?

EU HIGH-LEVEL EXPERT GROUP ON SUSTAINABLE FINANCE



Final Report 2018
by the High-Level Expert Group on Sustainable Finance
Secretariat provided by the European Commission



Companies

- Ambitious targets and public reporting on progress to meet the opportunity created by the policy environment
- Delivery against commitments creates space for governments to do more and increase ambition as well as attracting investment from finance, rewarding innovation and ambition

Government policy

- Clear, ambitious, predictable policy sending long-term signals to support investment in and commitment to transition
- Responding to the progress of corporates and finance by filling the space with an ever-increasing regulatory bar to reward leaders
- Public finance utilised to de-risk investment, finance breakthrough innovations and crowd in private investment

Finance

- Setting clear targets for own activity and investment, lending and underwriting; using stewardship and engagement to encourage ambition and delivery from corporates
- Engagement with governments to create enabling environment to deliver on own ambition and pushing corporates to meet ever increasing expectations and policy environment
- Finance mobilisation to leaders and breakthroughs creates more space for public and private sector action and delivery

Source: The Ambition Loop, Aviva Investors, September 2022.

New Collective Quantified Goal(s..?)

1. Create International Platform for Climate Finance a body responsible for **technical assistance** and **capacity building for countries looking to raise capital from international markets (with G20 SFWG & G20 IFA WG)**
2. Transition Governance : % of corporate, investor, national and international **transition plans**
3. **Implied Temperature Change** of National and Global Markets
4. Ratio of **renewable energy to fossil fuel Capital Expenditure**
5. Ratio of **Green Bonds to conventional bonds**
6. Assets Under Management with **Paris Aligned investment benchmarks**
7. % of Asset Owners and Asset Managers with **SBTi** and **GFANZ** membership
8. Average **Global Carbon Price** and % Economic Coverage + future pathway
9. % of Paris Signatory **Countries** that are members of **Network for Greening the Financial System** and **Coalition of Finance Ministers for Climate Action** & clear mandate reviews
10. Quantum of climate finance within **Overseas Development Assistance and Development Bank assistance**

Act Now



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Whitepaper | October 2022

Act now

A climate emergency roadmap for the international financial architecture

Dr Steve Waygood and Thomas Tayler



It takes Aviva Investors



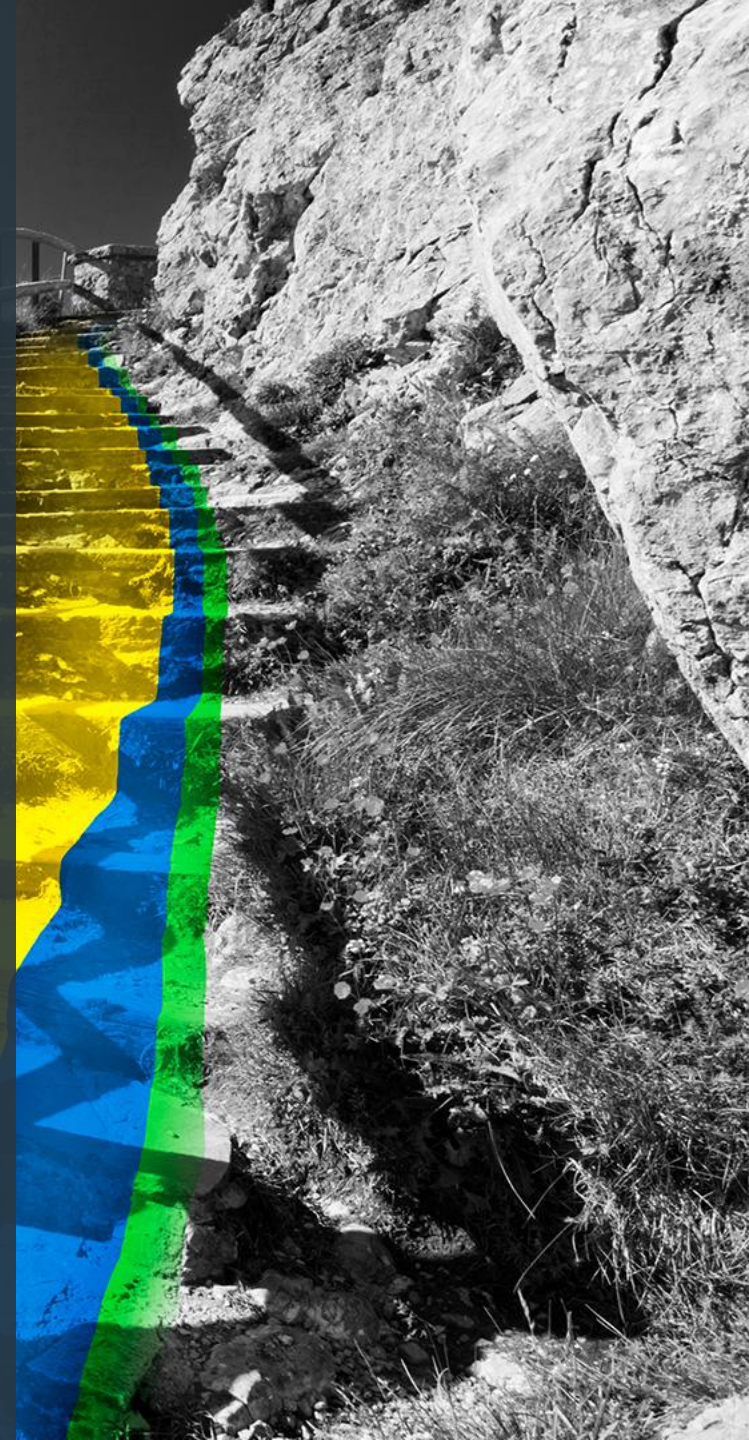
<https://www.avivainvestors.com/en-gb/views/aiq-investment-thinking/2022/11/climate-emergency/>



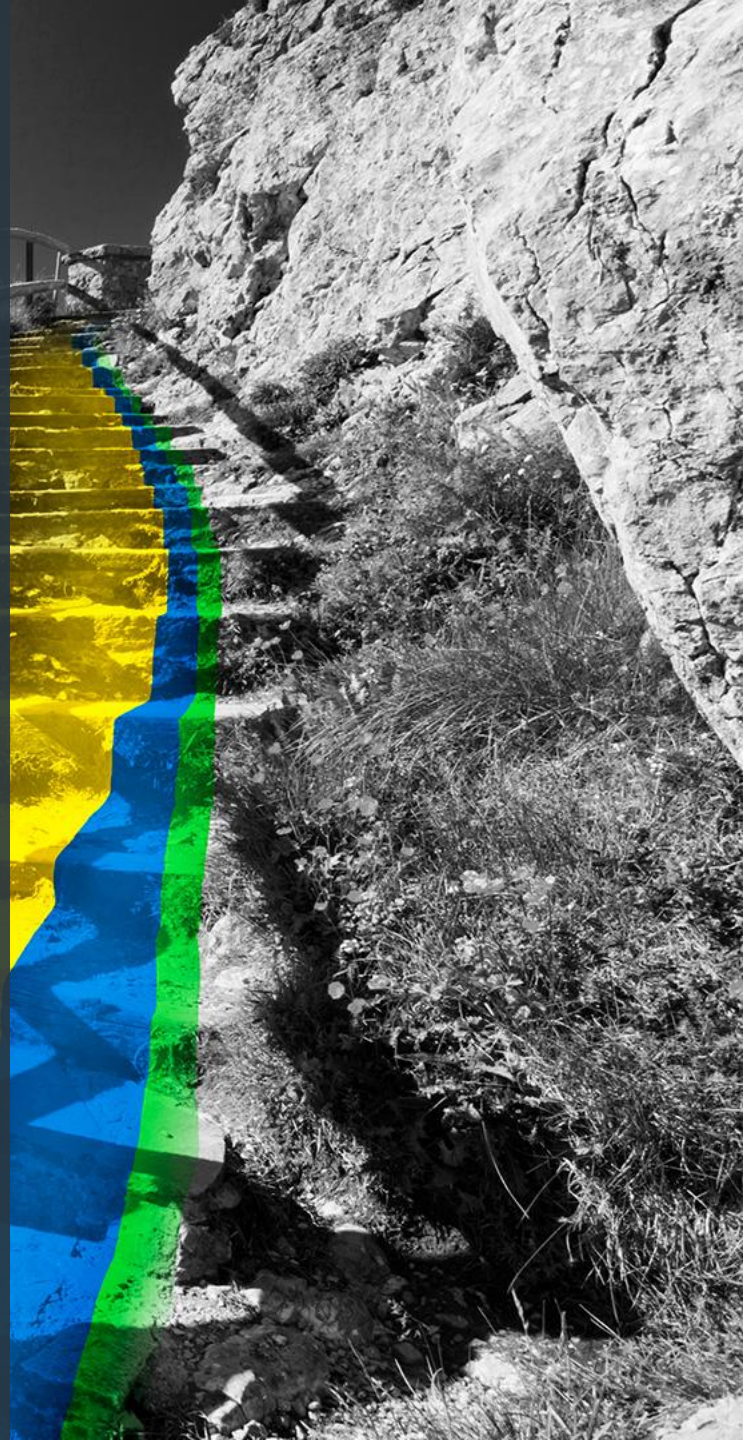
Thank you



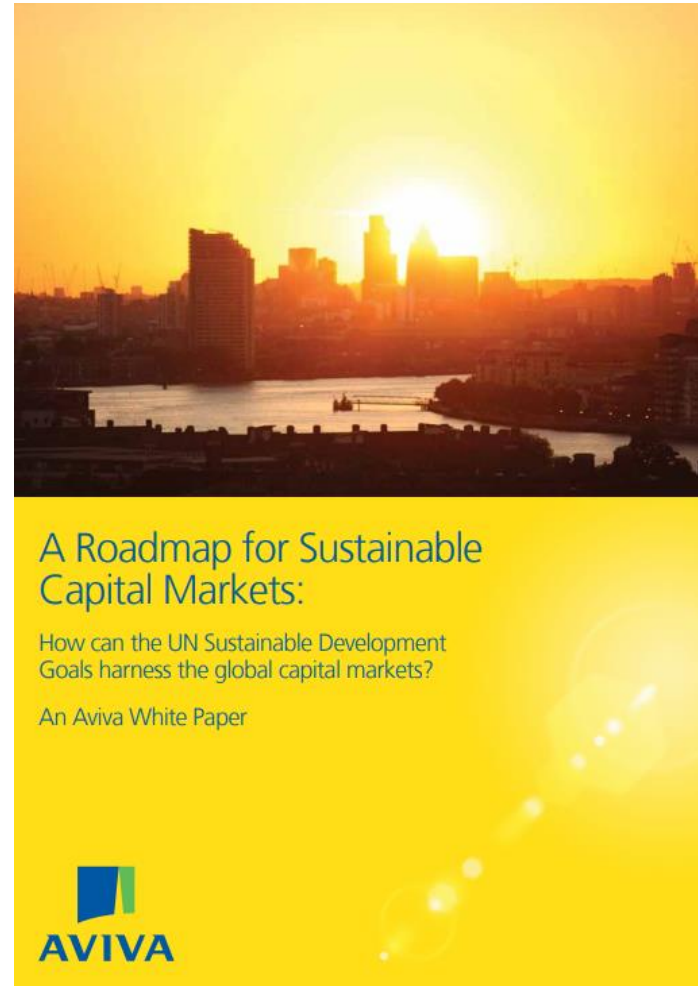
@stevewaygood



Appendix

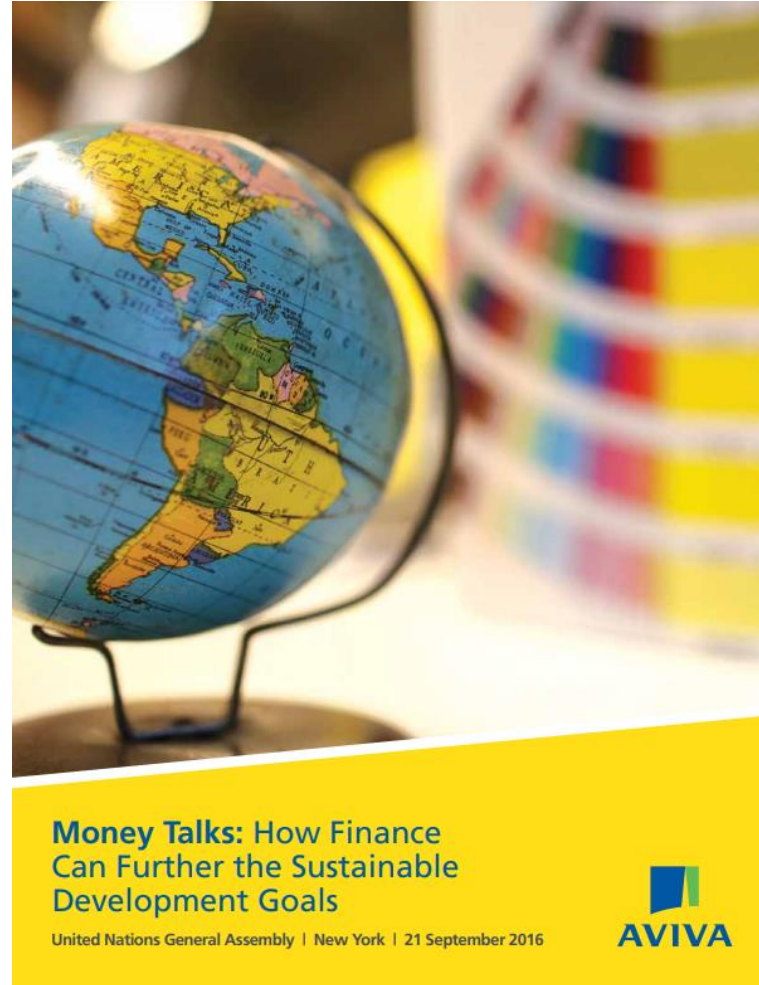


Roadmap for Sustainable Capital Markets



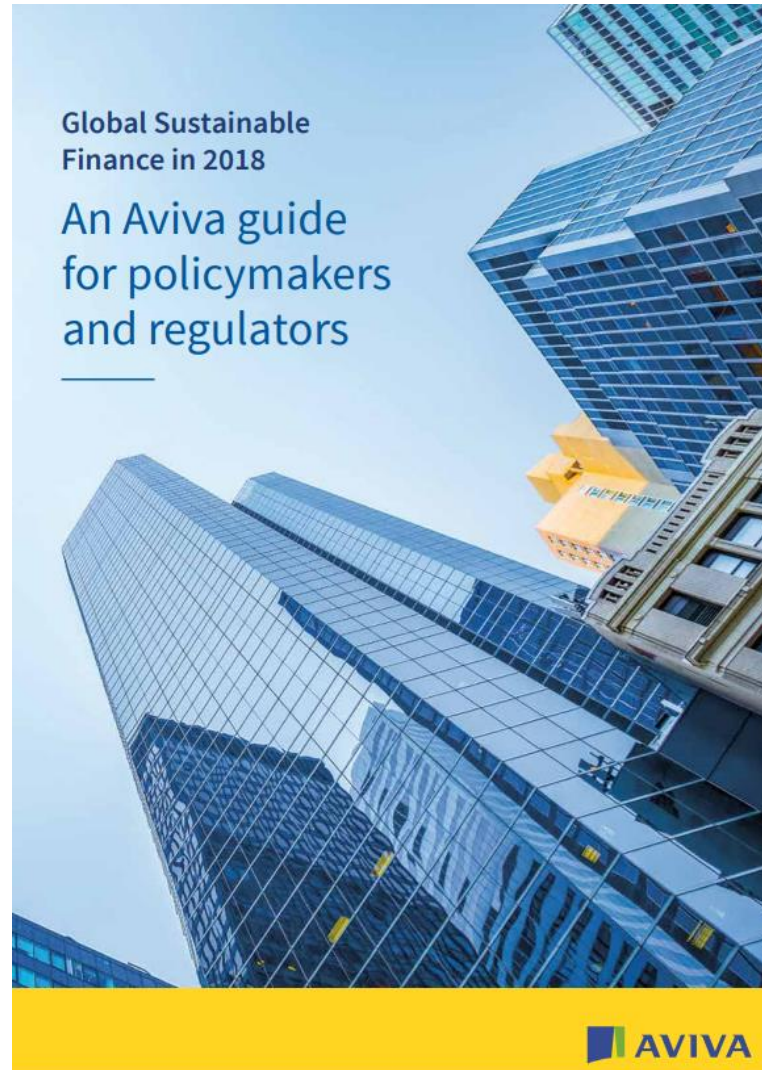
<https://static.aviva.io/content/dam/aviva-corporate/documents/socialpurpose/pdfs/Aviva-Roadmap-to-Sustainable-Capital-Markets-updated.pdf>

Money Talks: How Finance Can Further the Sustainable Development Goals



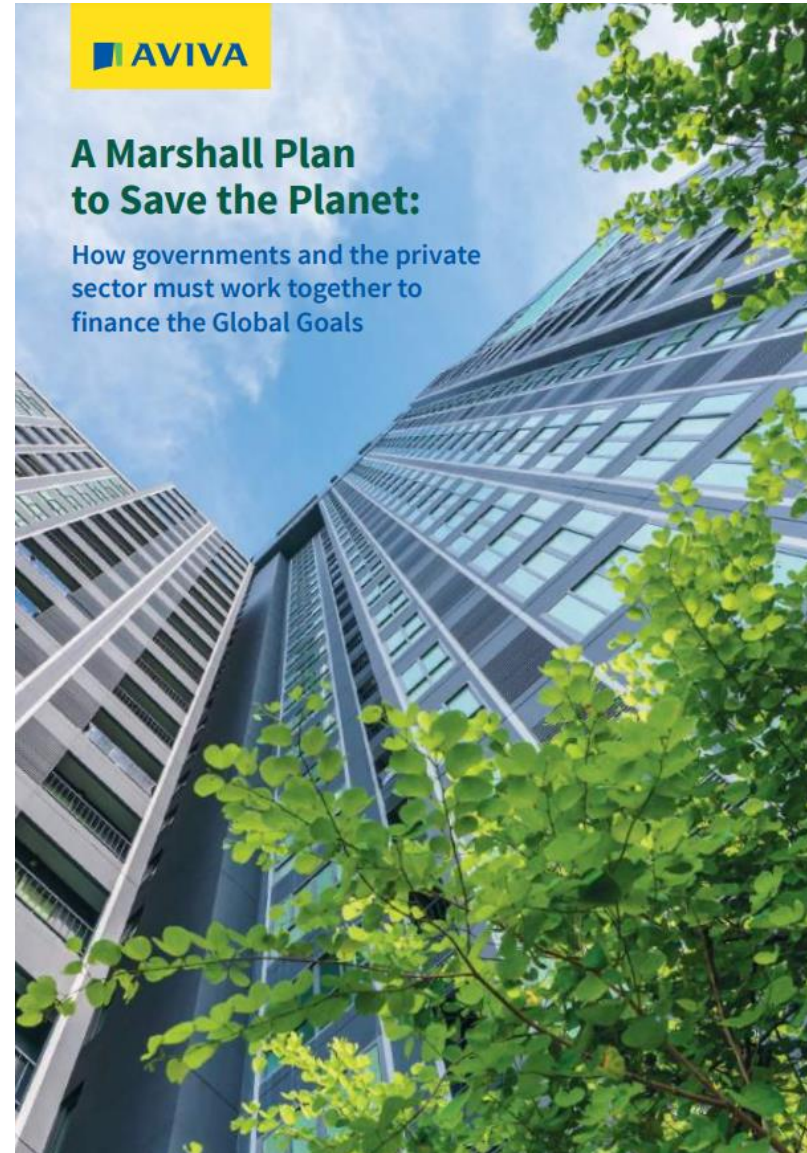
<https://static.aviva.io/content/dam/aviva-corporate/documents/socialpurpose/pdfs/Money Talks - How Finance Can Further the Sustainable Development Goals.pdf>

An Aviva guide for policymakers and regulators



<https://static.aviva.io/content/dam/aviva-corporate/documents/socialpurpose/pdfs/aviva-2018-sf-policy-guide.pdf>

A Marshall Plan to Save the Planet



<https://static.aviva.io/content/dam/aviva-corporate/documents/socialpurpose/pdfs/marshall-plan-for-the-planet.pdf>

Harnessing the International Financial Architecture for a Smooth and Just Transition

 **AVIVA**
INVESTORS

For today's investor

WHITEPAPER

Harnessing the international financial architecture to deliver a smooth and just transition

Sustainable finance proposals for the G7 & G20

April 2021

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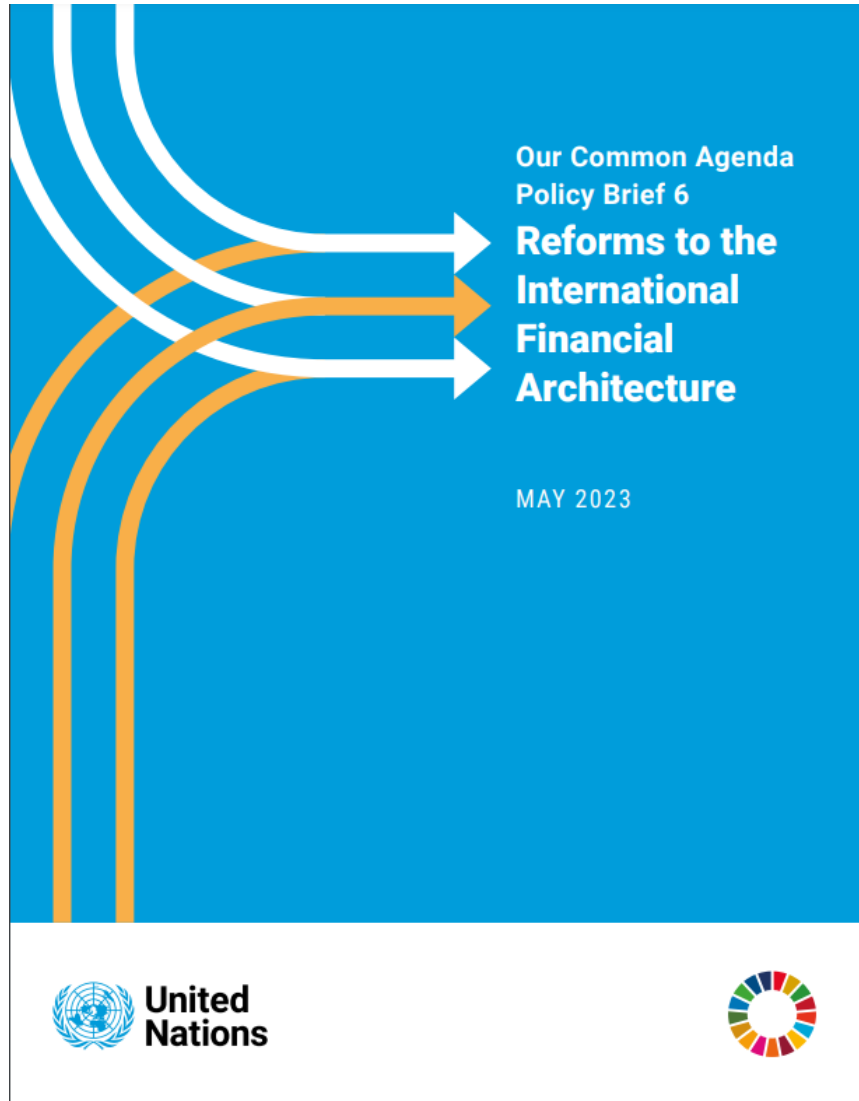
<https://static.aviva.io/content/dam/aviva-investors/main/assets/about/responsible-investment/our-approach-to-climate/downloads/sustainable-finance-proposals-global-en.pdf>

Importance of macro stewardship for systems change



<https://www.avivainvestors.com/en-gb/views/aiq-macro-stewardship/>

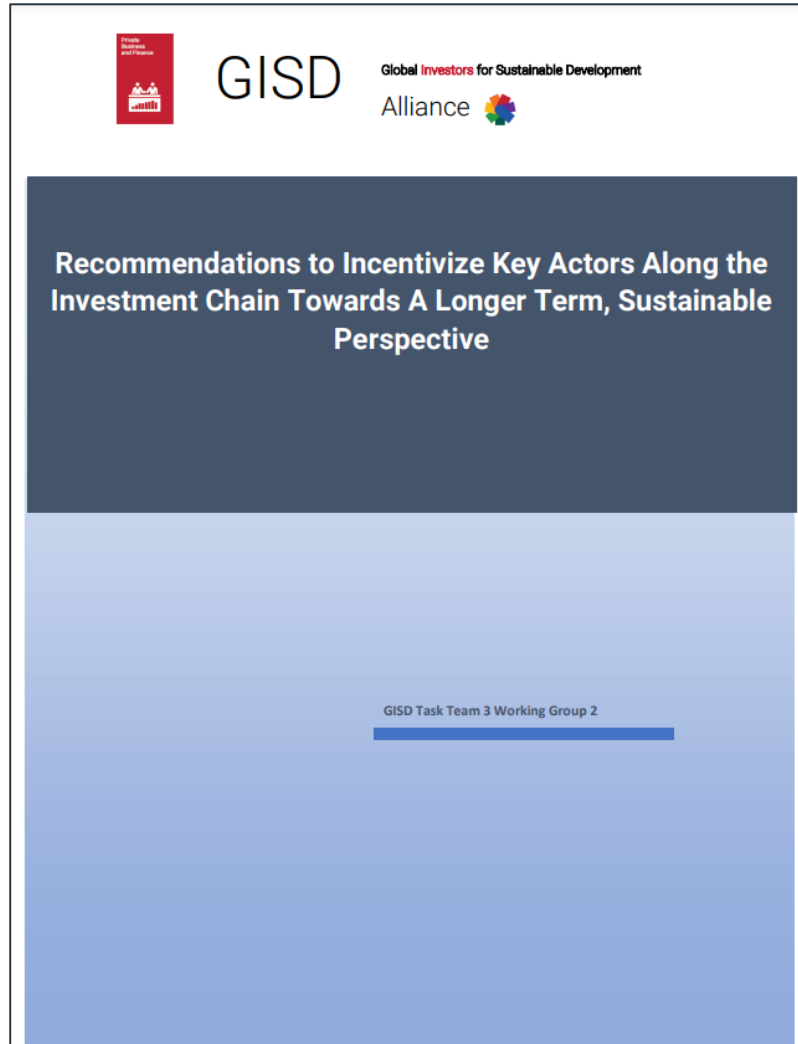
UN policy brief on International Financial Architecture



- Update market regulations, standards and practices to place the Sustainable Development Goals, and especially climate action, at the heart of the operation of markets and economies.
- Require clear Sustainable Development Goal-oriented transition plans from each institution within the international financial architecture.
- Design policy and regulatory frameworks to create and enforce direct links between profitability and sustainability.

<https://www.un.org/sites/un2.un.org/files/our-common-agenda-policy-brief-international-finance-architecture-en.pdf>

UN Secretary General's Global Investors for Sustainable Development Alliance

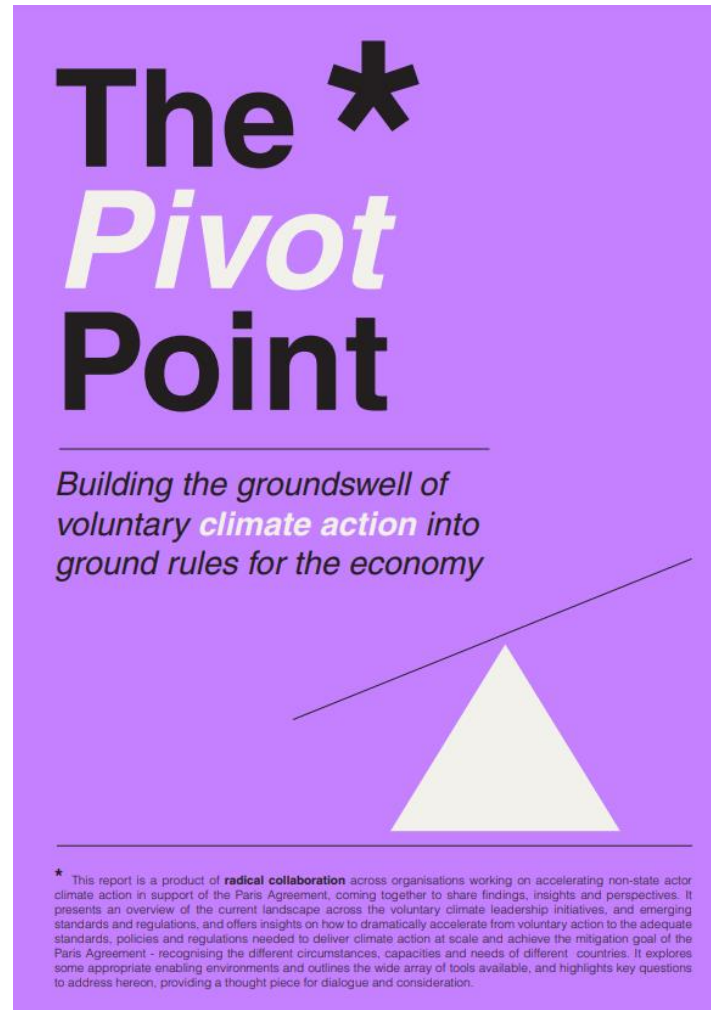


Engaged stewardship by investors has the potential of providing impetus for the achievement of the SDG goals.¹ Investors should adopt a system-level lens in their stewardship approach so that, as well as the traditional focus on the risk and return of individual holdings, they conduct “systemic stewardship” or “macro stewardship” – stewardship that relates to the financial system itself and includes engagement with regulators and policymakers to address systemic issues and market failures, such as climate change and economic inequality. Addressing such issues is a prerequisite to long-term returns, healthy economies and the achievement of the SDGs. This will require investors to use a wider range of levers in their stewardship approach, such as engaging with policymakers and greater collaboration with fellow investors.

<https://www.gisdalliance.org/sites/default/files/2022-08/Report%20on%20Incentives%20-%20TT3%20WG2.pdf>

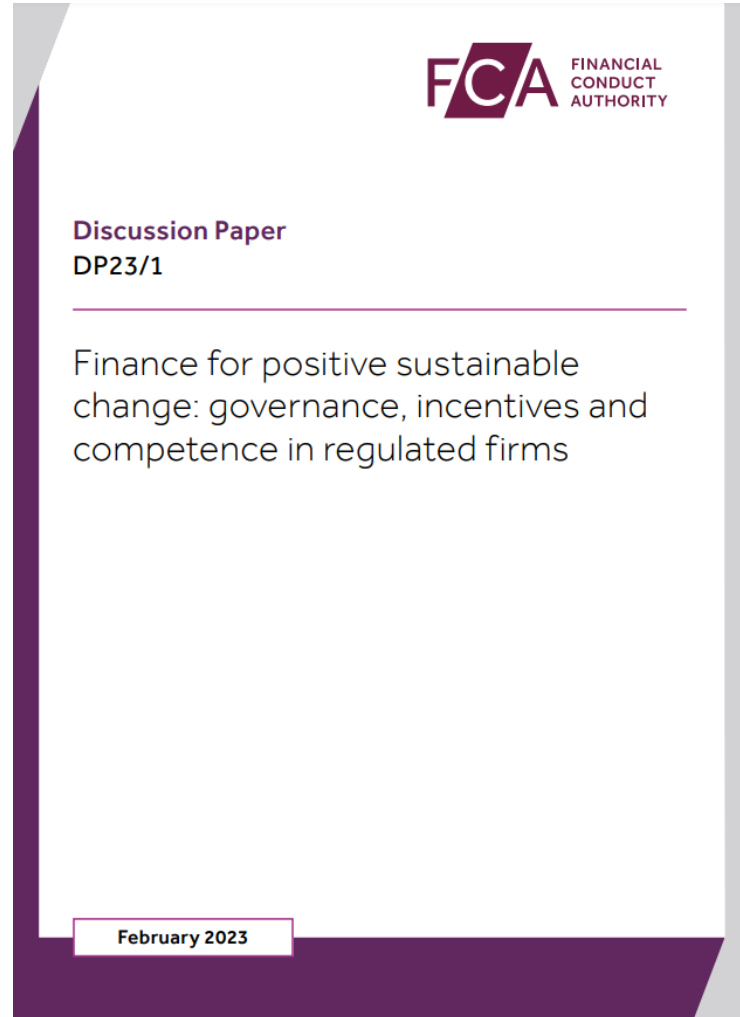
Need for a pivot

“We cannot rely on voluntary action alone to achieve the goals of the Paris Agreement. We need to reimagine a positive cooperation and collaboration between governments, regulators and the private sector to correct market failures and provide enabling regulatory environments to unlock this opportunity and incentivise a dramatically accelerated transformation to a 1.5C-aligned economy”



<https://climatechampions.unfccc.int/wp-content/uploads/2022/09/R2Z-Pivot-Point-Report.pdf>

Regulators beginning to recognise the importance of macro stewardship by marker participants



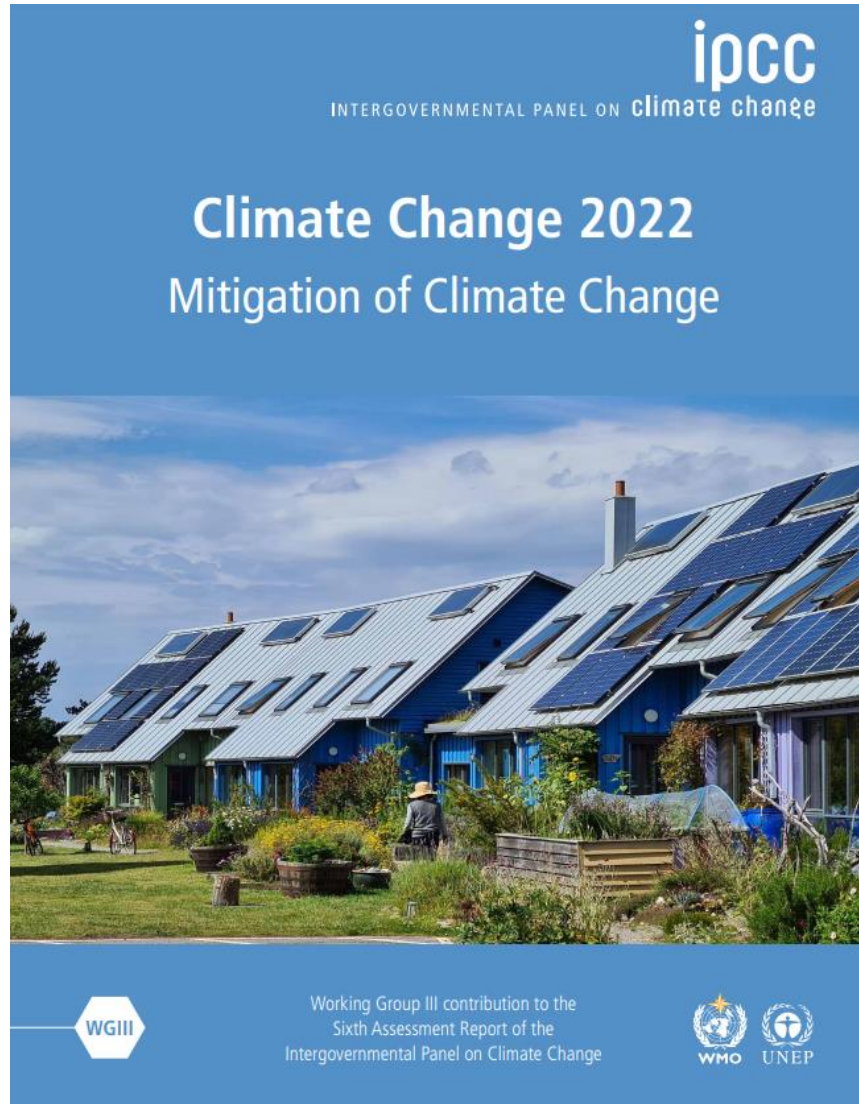
Market-wide and systemic risks

Stewardship has its origins in shaping the governance and performance of individual issuers of listed equity. In recent years, the focus of stewardship has extended to a wider range of asset classes, as well as to influencing the functioning of financial markets (so-called macro or systemic stewardship).

This is increasingly important as asset allocation to non-listed equity grows, and as asset ownership becomes increasingly fragmented and intermediated. Furthermore, market-wide and systemic risks are non-diversifiable and therefore have an important impact on returns. This is particularly important for universal owners that are exposed to the whole market.

https://www.fca.org.uk/publication/discussion/dp23-1_updated.pdf

IPCC highlight issues slowing down the transition



“Obstacles include both entrenched power relations dominated by vested interests that control and benefit from existing technologies, and governance structures that continue to reproduce unsustainable patterns of production and consumption”
IPCC AR6 WGIII

https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_FullReport.pdf

Current flows insufficient

LANDSCAPE OF CLIMATE FINANCE IN 2019/2020

Global climate finance flows along their life cycle in 2019 and 2020. Values are average of two years' data, in USD billions.

653 BN USD ANNUAL AVERAGE



SOURCES AND INTERMEDIARIES

Which type of organizations are sources or intermediaries of capital for climate finance?

PUBLIC **PRIVATE**

INSTRUMENTS

What mix of financial instruments are used?

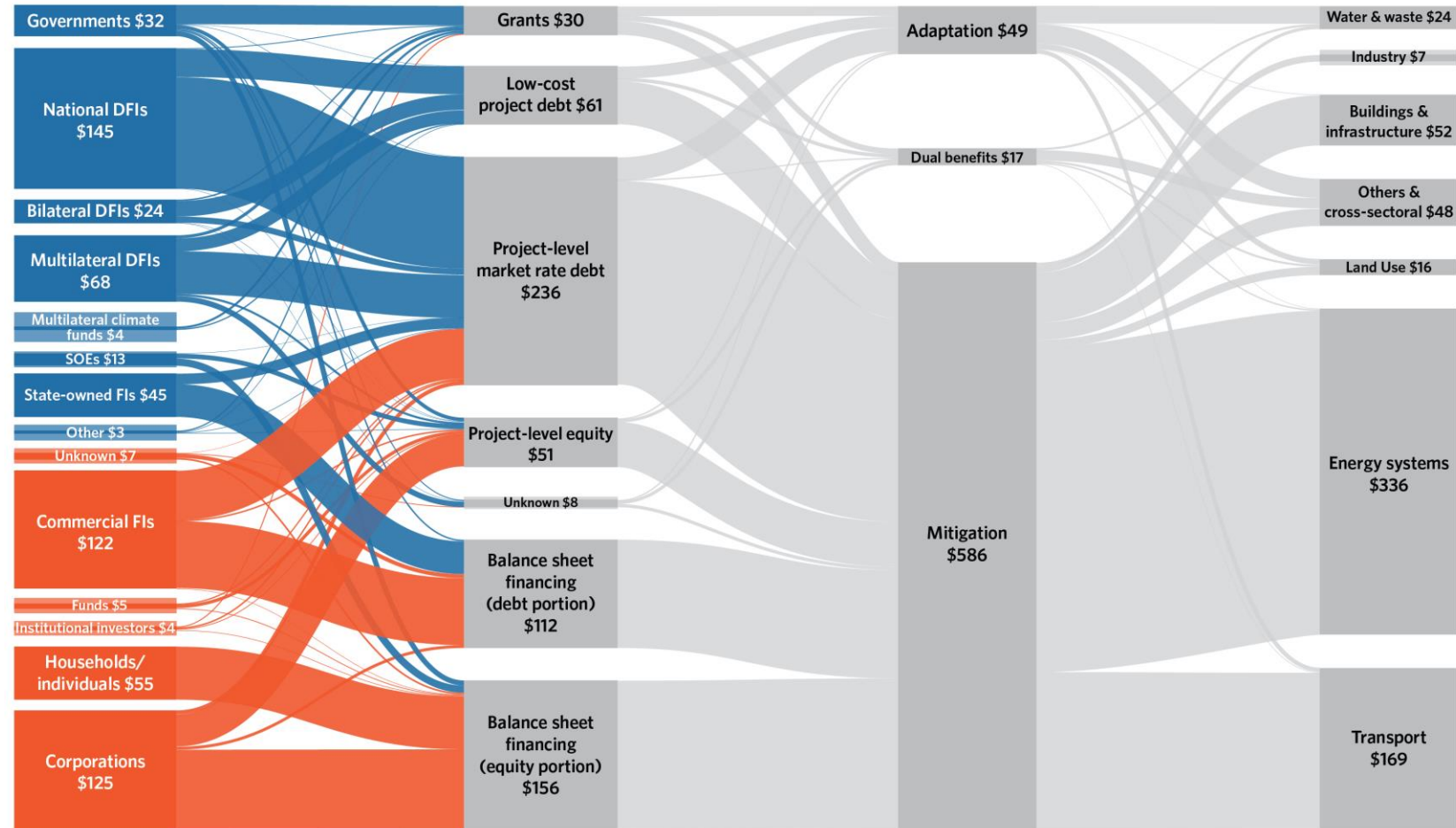
Government funds to other public sources are not estimated

USES

What types of activities are financed?

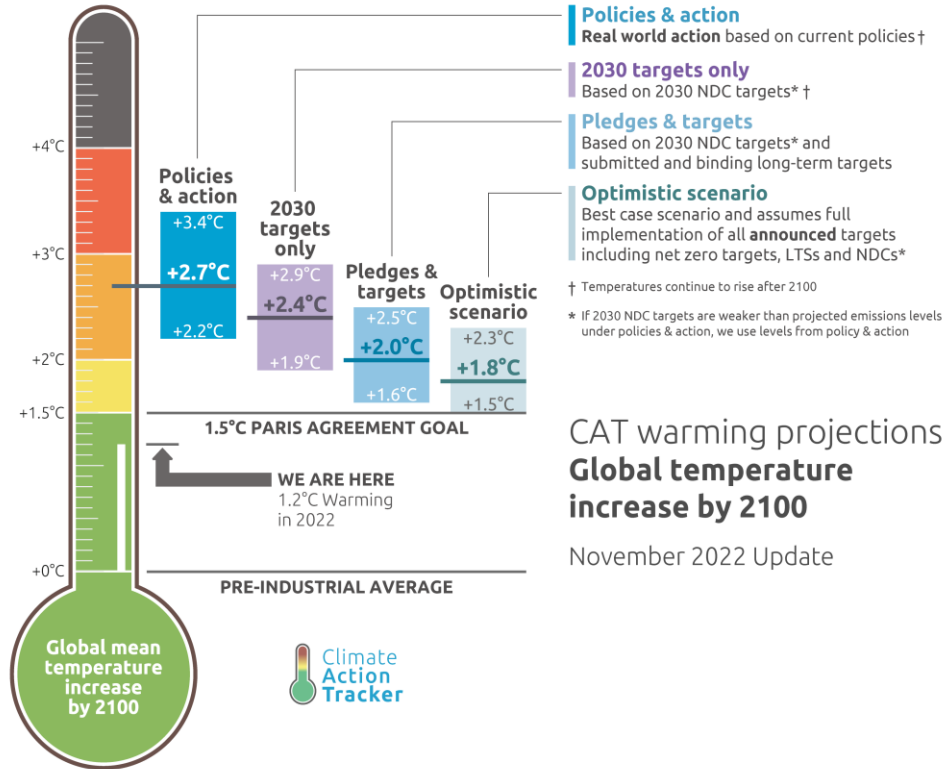
SECTORS

What is the finance used for?



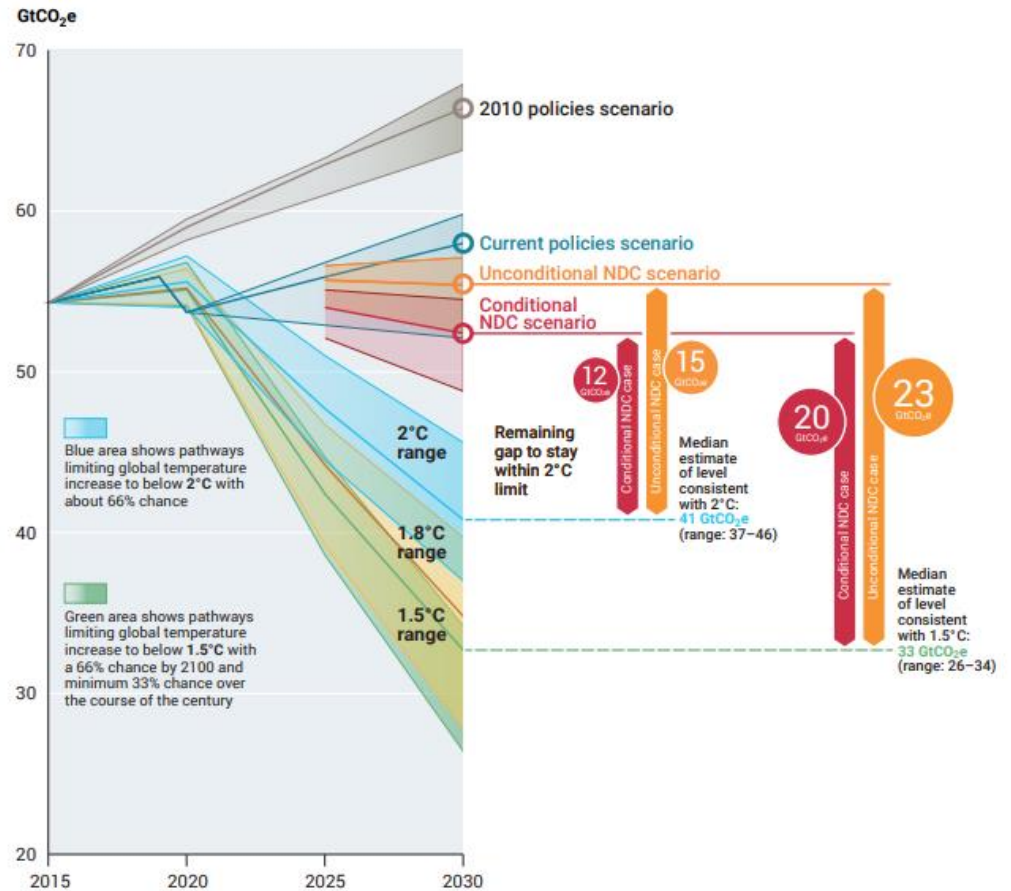
Source: CPI

Significantly off track with a closing window



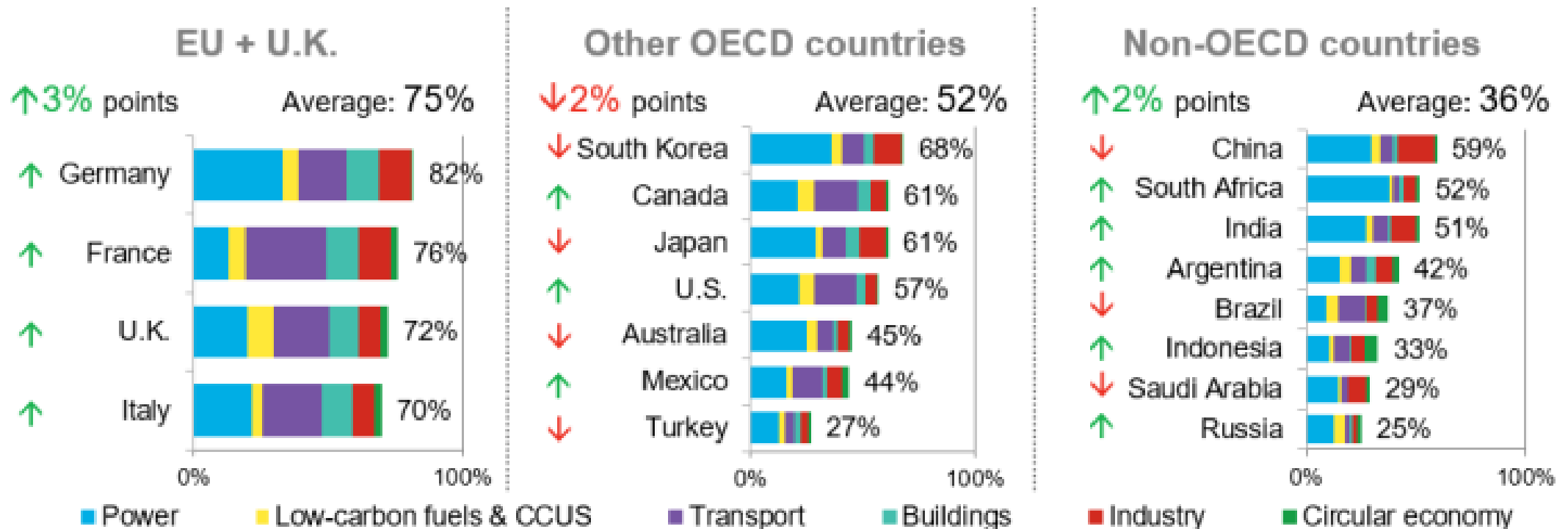
CAT warming projections
Global temperature increase by 2100
 November 2022 Update

Figure ES.3 Global GHG emissions under different scenarios and the emissions gap in 2030 (median estimate and tenth to ninetieth percentile range)



Monitoring - Country Scorecards

Total 2022 scores broken down into three categories

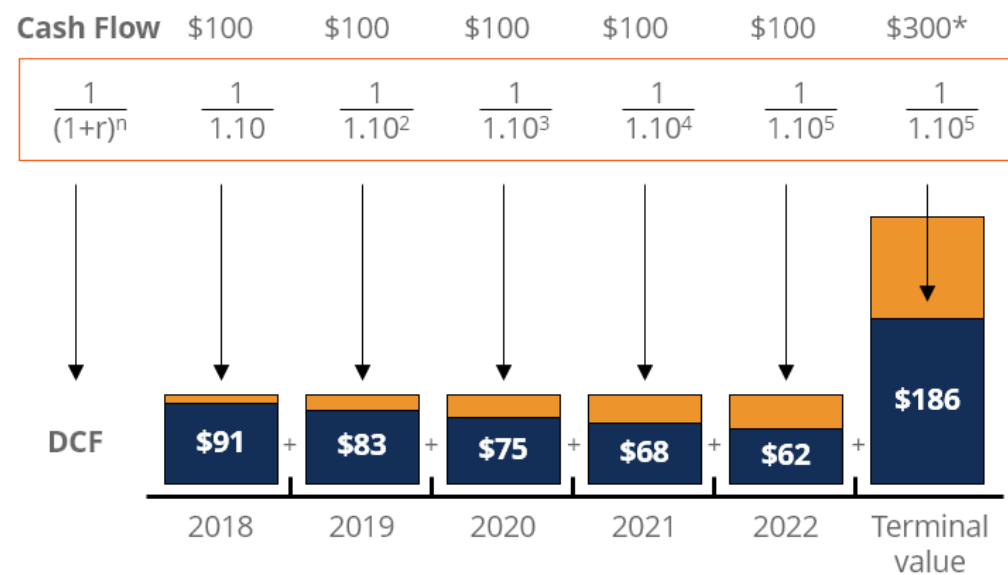


Source: BloombergNEF. Note: Each country's total score is weighted by each sector's share of national greenhouse-gas emissions.

Discounted Cash Flow Analysis

Discounting the future and assuming infinite growth on a finite planet

Discounted Cash Flow Formula



DCF Value = \$565 million

* Value of FCF beyond 2022

Coalition of Finance Ministers for Climate Action

88 of 195 Parties to the Paris Agreement are members of the Coalition

CFMCA



■ Members of Coalition ■ Non-Members of the Coalition

Finance ministries should report annually on actions taken to further the Helsinki Principles

The Helsinki Principles

The six Helsinki Principles guide the Coalition's commitment to #ClimateAction



HELSINKI PRINCIPLE 1: ALIGN POLICIES WITH THE PARIS AGREEMENT

Align our policies and practices with the Paris Agreement commitments



HELSINKI PRINCIPLE 2: SHARE EXPERIENCES & EXPERTISE

Share our experience and expertise with each other in order to provide mutual encouragement and promote collective understanding of policies and practices for climate action



HELSINKI PRINCIPLE 3: PROMOTE CARBON PRICING MEASURES

Work towards measures that result in effective carbon pricing



HELSINKI PRINCIPLE 4: MAINSTREAM CLIMATE IN ECONOMIC POLICIES

Take climate change into account in macroeconomic policy, fiscal planning, budgeting, public investment management, and procurement practices



HELSINKI PRINCIPLE 5: MOBILIZE CLIMATE FINANCE

Mobilize private sources of climate finance by facilitating investments and the development of a financial sector which supports climate mitigation and adaptation

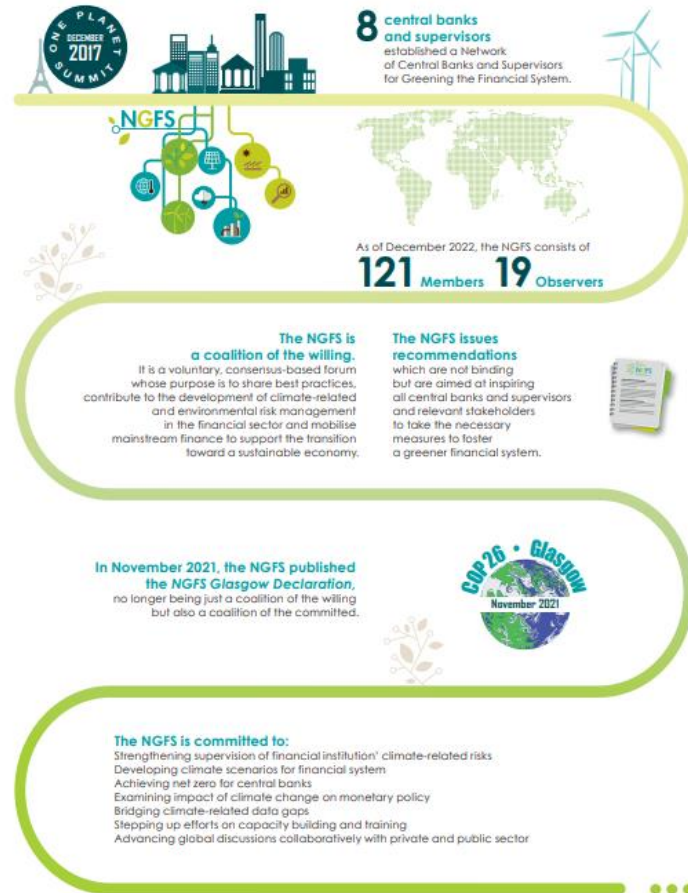


HELSINKI PRINCIPLE 6: ENGAGE IN NDC DEVELOPMENT

Engage actively in the domestic preparation and implementation of Nationally Determined Contributions (NDCs) submitted under the Paris Agreement

Network for Greening the Financial System

Origin of the NGFS



As of end-2022, the membership of the NGFS covers:

Supervision of **100%** of the global systemically important banks
 and **80%** of the Internationally Active Insurance Groups

Over **88%** of global greenhouse gas emissions

Task Force for Climate-Related Financial Disclosures



Growing disclosure, but still not a full picture of climate-related risks

- More than 3,800 companies now TCFD supporters
- 80% of companies surveyed by TCFD for the 2021 fiscal year included at least one of the 11 recommended disclosures, but only 4% disclosed in line with all 11
- Based on the TCFD survey, 90% of investors and other users incorporate climate-related financial disclosures in financial decision-making, and 66% of these indicated such disclosures factor into the way they price financial assets.
- Incomplete disclosure undermines accurate analysis and pricing of climate risk

Core elements of recommended climate-related disclosures



Governance

The organisation's governance around climate-related risks and opportunities

Strategy

The actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning

Risk management

The processes used by the organisation to identify, assess and manage climate-related risks

Metrics and targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities

Source: TCFD

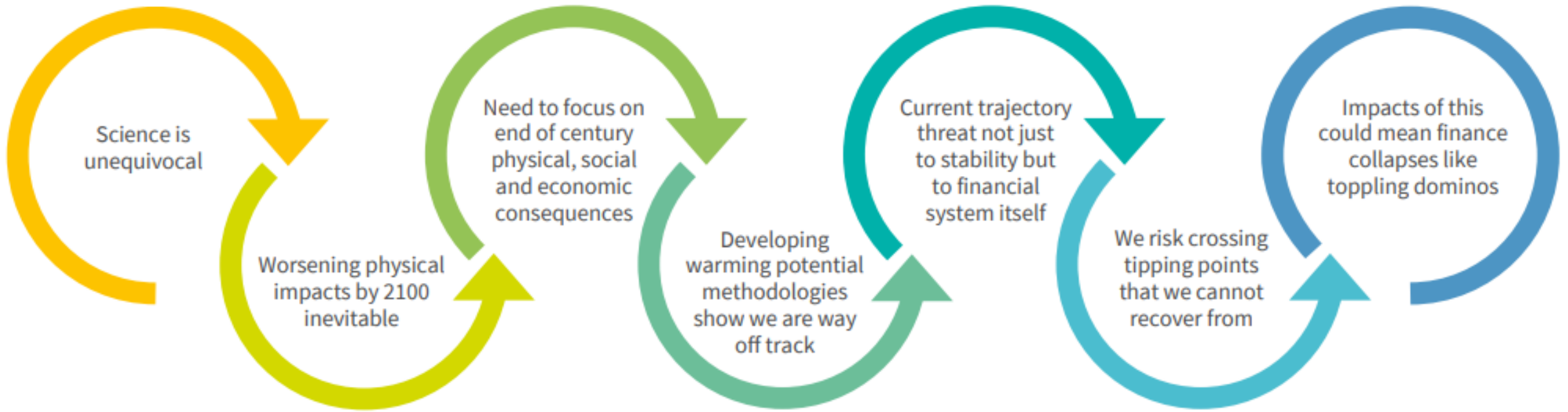
Science-based targets

SBTi companies now represent more than a third of the global economy in market cap equal to \$38 trillion



- ⁶ After introduction of the Net-Zero Standard, science-based targets are divided into near- and long-term. Throughout this report, for ease of reading, the term "science-based targets" is used to refer to near-term targets, meaning with a target year before 2030.
- ⁷ Global market capitalization estimated based on the MSCI ACWI Index retrieved from Bloomberg which equals to around \$110 trillion as of December 31 2021. Market capitalization data of SBTi companies was retrieved from Bloomberg with a date of December 31 2021 (data could be retrieved for 53% out of 2,253 companies).

Figure 1. The trajectory of a crisis



Source: Aviva Investors, October 2022.