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Network for Greening the Financial System  
Technical document

# Sustainable Finance Market Dynamics: an overview

March 2021

# NGFS

# Technical document

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This document was prepared by the “Scaling up Green Finance” workstream of the NGFS, chaired by Dr Sabine Mauderer from the Deutsche Bundesbank.

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## Executive summary

This brief **report** presents an overview of the market dynamics for mobilizing sustainable finance. It identifies three main channels through which financial markets can help steer the necessary transformation of the real economy towards **higher** levels of sustainability:<sup>1</sup> disclosure, **risk** management, and the mobilization of capital. The **report** also provides examples of policies, regulations, and guidance addressed to market participants on these three topics. Lastly, it contains a set of key takeaways for further consideration by policymakers and market participants alike.

**Disclosure:** Appropriate sustainability disclosures by financial and non-financial institutions help to **identify** exposures to climate, environmental and social risks. Market participants are becoming increasingly aware of how sustainability risks and opportunities can impact on the long-term value of assets and are therefore calling for better sustainability disclosures. Various sustainable finance **reporting** frameworks, standards, and principles have emerged in recent years to meet this demand. However, there is still a need to improve the quality, comparability, and reliability of sustainability disclosures and **reporting** on the one hand, and to reduce their cost on the other. Leading global standard setters have therefore started to collaborate with a view to establishing a single, coherent, global sustainability **disclosure** standard, aligned with the TCFD recommendations.<sup>2</sup> Beyond that, sustainability risks also need to be embedded in global accounting frameworks. In light of this, the development of a global set of sustainability **reporting** standards, as proposed by the IFRS Foundation Trustees, is encouraging.

**Risk management:** Financial institutions are increasingly incorporating climate and sustainability factors into their **risk assessment** methodologies and decision-making processes. The **identification** of climate and sustainability risks reinforces the view that these risks are a source of financial risks and facilitates the adequate pricing of assets. This incentivizes long term changes in the strategic

orientation of firms and a more efficient allocation of resources. Asset managers, for example, increasingly agree that material sustainability risks are part of their fiduciary duty. Financial institutions, in turn, are incorporating climate and sustainability factors into their decision-making processes. They are building internal sustainability capacities and calling on third parties to provide sustainability ratings and scores. Furthermore, banks and institutional investors have started evaluating physical and transition risks using climate scenario analyses with support from international organizations. Until such capacities are fully developed and become mainstream in financial institutions, the riskiness of polluting assets will not be fully understood or incorporated into **risk** and valuation processes. To address this gap, private data providers are increasingly offering sustainability data and scores for firms and sovereigns. Moreover, credit rating agencies are beginning to incorporate sustainability risks into their credit ratings and provide specialized sustainability ratings. However, both ESG data/ratings providers and credit rating agencies still lack transparency as to how these risks are fed into their methodologies.

**Mobilization of capital:** Mobilization of capital towards environmentally friendly activities and technologies is supported by **disclosure** and **reporting** initiatives, improved **risk** management practices, increased demand for green assets, and opportunities in the low-carbon space becoming more visible. Evidence that “value investments” do not necessarily carry **lower** returns and may even deliver additional yields is also supporting demand. More and more investors are seeing sustainability indices perform just as well as conventional indices and sometimes even outperform them. In response, the supply of sustainability indices and ETFs tracking these indices has grown at a brisker pace of late. Market growth in green/sustainable bonds and loans, on the other hand, has been further underpinned by principles and **reporting** standards. These aim to address investor concerns about greenwashing and facilitate comparability. Although green/sustainable

1 For the purposes of this **report**, sustainability is a concept intimately related with climate-related and environmental considerations but that also includes social and **governance** aspects commonly referred to as ESG.

2 The Task Force on Climate-related Financial Disclosures (TCFD) has developed recommendations applicable to organizations across sectors and jurisdictions for the voluntary **disclosure** of climate-related financial risks.

bond and loan markets are still relatively small in size, these instruments can play a transformative role by raising awareness and boosting **accountability** and transparency.

**Key takeaways:** The market developments presented in this **report** need to be supported by society, regulators, and international organizations in order to catalyze the transition to a low-carbon/sustainable economy. The **report** therefore provides key takeaways for further consideration by policymakers and market participants:

1. There is a need for financial authorities to support:  
(i) global **disclosure** frameworks and efforts to establish a comprehensive corporate **disclosure** standard aligned with the TCFD recommendations; and (ii) the development of a global set of sustainability **reporting** standards.
2. There is a need for multinational financial institutions to adopt and promote global voluntary sustainability

standards and **disclosure** frameworks in the different jurisdictions in which they operate.

3. There is a need for credit as well as ESG rating providers to enhance transparency surrounding their methodologies, disclosing the criteria they use to **assess** the materiality of climate and sustainability factors, the manner in which these are measured and incorporated into ratings, and the weights they assign to them.
4. There is a need for regulators to require financial institutions to consider material climate and sustainability factors as financial factors. Financially material climate and sustainability factors should be part of the fiduciary duty of asset managers.
5. There is a need for national and multilateral development banks to strengthen their support to mobilize capital towards green investment projects, particularly in developing and emerging markets.

# 1. Introduction

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This report presents an overview of the market dynamics for mobilizing green and sustainable finance. It comes at a time of growing international recognition and action on the risks and opportunities related to climate change and environmental degradation and of heightened demand for green assets. Almost all the top ten economies have committed to net zero emissions by mid-century. This report highlights the main drivers and challenges for such mobilization and scale-up, while providing a set of key takeaways for further consideration by policymakers and market participants. It focuses on analyzing what progress has been made to date on greening key market segments of the financial system – mainly banking, institutional investment, and capital markets.

The report identifies three main channels that can impact the real economy. First, consistent, comparable, and reliable climate and environmentally related disclosure and reporting nurture higher levels of awareness among reporting firms, investors, sovereigns and other stakeholders such as employees, consumers, and society at large. Disclosure and reporting initiatives supported by banks, investors and capital markets can shed light on good and bad environmental, social and governance (ESG) practices and

incentivize long term changes in firms. Second, forward looking risk assessment methodologies, such as scenario analysis, enable the integration of climate-related risks into financial decision-making, leading to less distorted asset prices and a more efficient allocation of resources. Third, mobilization of capital towards environmentally friendly activities and technologies is supported by disclosure and reporting initiatives, improved risk management practices, increased demand for green assets, and opportunities in the low-carbon space becoming more visible by green taxonomies. The three channels will be covered in each section of the report.

The report acknowledges the issues arising from the heterogeneity of green and sustainable finance definitions and the wide variety of ESG approaches taken by many investors and financial institutions. In line with previous NGFS publications, the report specifically addresses market developments regarding climate-related issues, while acknowledging that sustainability developments go beyond climate-related topics. Indeed, some market participants/initiatives specifically address climate-related issues, but many others take a broader sustainability approach.

## 2. Climate/sustainability-related disclosure and reporting

Awareness that climate and sustainability factors can materially impact the financial performance of investments has spurred demand for data and disclosure associated with these risks. The private data provider industry is responding to this mounting demand and leveraging new technologies to step up the supply of ESG data and ratings for firms and sovereigns. Voluntary reporting frameworks tailored to different stakeholder needs have also proliferated. Recent efforts to achieve further alignment among frameworks and an emerging consensus among standard setters on the need for a globally accepted framework are promising.

### 2.1. Markets for data provision

As investors and other stakeholders recognize the financial materiality of some ESG factors and the effect that managing sustainability risks can have on the long-term value of assets, there has been an increase in interest for climate-related or ESG disclosures. This uptick in demand for climate and sustainability data has seen a large private market emerge to support investors and financial institutions. According to Environmental Finance (2019), there are some 150 ESG data providers, although the market has been consolidating and is dominated by a handful of players. Products offered include climate data, analytics, advisory services, corporate and country ESG research and scores, alternative data on controversies, ESG portfolio monitoring, second opinions on compliance with bond principles, third-party assurance, certification and verification, and proxy-voting advisory services. According to some estimates (Opimas, 2020), annual spending on ESG data has grown at double-digit rates since 2016 and is expected to reach US\$1 billion in 2021. At the same time, multilateral and international organizations are also helping to make more ESG data publicly available.<sup>3</sup>

Climate-related and ESG data providers are benefiting from the use of technological innovations. Many collect, analyze and verify environmental data using state-of-the-art digital technologies such as artificial intelligence, distributed ledger technology and natural language processing-based machine learning techniques. Furthermore, data are also collected from remote sensing devices and satellites.

These technologies offer investors and corporations additional data and contribute to further transparency but require additional investments and knowhow. An upcoming NGFS report by the workstream Bridging the Data Gaps will analyze the use of new data tools and analytics, to facilitate data collection and make it more transparent.

### 2.2. Alignment of disclosure standards and frameworks

The resulting rise in the availability of climate and sustainability-related data from third-party data providers can incentivize firms and sovereigns to increase their own disclosures, given that it offers them an opportunity to provide their own narrative when engaging investors and other stakeholders. If they did not, investors would assess non-reporting issuers purely on the basis of information provided by third parties.

The disclosure of “decision useful” ESG information by firms and other issuers offers many benefits. It is a way to signal to investors and other stakeholders that they are aware of climate and sustainability risks and opportunities and take them seriously. Decision useful disclosures enable financial markets to understand the environmental footprint and trajectory of firms, sovereigns and assets. Investors can then allocate resources accordingly, based on their preferences and risk tolerance. However, in the absence of consistent, comparable and reliable disclosures, it is difficult for financial institutions to make such assessments.

#### Takeaway 1

*There is a need for financial authorities to support:*

- (i) global disclosure frameworks and efforts to establish a comprehensive corporate disclosure standard aligned with the TCFD recommendations;
- (ii) the development of a global set of sustainability reporting standards.

The last few years have seen various green and sustainable finance reporting frameworks, standards, and principles emerge to cater for different stakeholders. These have

<sup>3</sup> For instance, the World Bank recently launched its Sovereign ESG Framework and Sovereign ESG Data Portal (<https://datatopics.worldbank.org/esg/>).

been advanced by private and public entities at a global, regional, and national level. The average number of such new initiatives has increased more than fivefold over the last decade (compared to the previous one), according to analysis from the FC4S Network (UNEP Inquiry and FC4S, 2020).

The private sector-led Task Force on Climate-related Financial Disclosures (TCFD) framework is emerging as the preeminent framework for climate-related disclosures. Its recommendations on scenario analysis and emphasis on financial materiality are having a significant impact on financial institutions and regulators (NGFS, 2020a). The number of financial institutions supporting the TCFD framework continues to increase, representing US\$150 trillion in assets as of September 2020 (TCFD, 2020). However, actual disclosure of the potential financial impact of climate and sustainability risks on firms' activities remains low and of varying quality. A small proportion of the recommended TCFD disclosures are made public and the information is difficult to compare and verify.<sup>4</sup> The need to accelerate TCFD disclosure is likely to be a leading topic for discussion at the COP26 meetings in 2021.

The large number of standards and disclosure frameworks for corporate sustainability and climate-related issues, as well as different definitions and taxonomies for green assets, makes it difficult to compare the climate-related, green and sustainability information available to market participants. This multiplicity of reporting frameworks and standards can be taxing for firms, some of which end up reporting under different frameworks. When firms make information public, they often do so across different reports (annual reports, sustainability reports and corporate social responsibility reports), making it difficult to locate.

Leading global voluntary reporting frameworks and standard setters are increasingly collaborating with the goal of establishing a single, coherent, global ESG disclosure and reporting standard, aligned with the TCFD recommendations. This promising development would, among other benefits, help firms collect information once, while providing it to different users. The reporting frameworks and standard setters that are collaborating include CDP, the Climate Disclosure Standards Board (CDSB),

the Global Reporting Initiative (GRI), the International Integrated Reporting Council (IIRC) and the Sustainability Accounting Standards Board (SASB).<sup>5</sup> They recently published a TCFD based sustainability reporting prototype (CDP et al., 2021).

## Takeaway 2

*There is a need for multinational financial institutions to adopt and promote global voluntary sustainability standards and disclosure frameworks in the different jurisdictions in which they operate.*

The growing importance of sustainability is also coming to the attention of accounting standard setting bodies. The initiative launched by the International Financial Reporting Standards (IFRS) Foundation to set out a Sustainability Standards Board is encouraging. The IFRS released a consultation paper in October 2020 to assess demand for a global sustainability standard setting board and explore mechanisms to contribute to the development of such standards to improve transparency and accountability (IFRS, 2020). The IFRS has concluded that there is a growing and urgent demand to improve the global consistency and comparability in sustainability reporting, as well as the necessity for the IFRS Foundation to play a role in this (IFRS, 2021). If the IFRS Foundation trustees propose sustainability-related financial reporting standards, these will be distinct from, but conceptually integrated with the accounting standards developed by the International Accounting Standards Board (IASB). The International Federation of Accountants (IFAC, 2020) and International Organization of Securities Commissions (IOSCO) are backing this initiative. IOSCO is committed to working with the IFRS Foundation trustees as they develop a plan for the establishment of a Sustainability Standards Board (IOSCO, 2021).

It is important to extend efforts to implement common and comparable global standards to emerging markets. By assessing and reporting on risks and opportunities at the subsidiary level in emerging and less developed markets, international financial institutions and real

4 The low level of disclosure of climate and sustainability risks by firms is not confined to the TCFD.

5 In November 2020, IIRC and SASB announced they are merging into the "Value Reporting Foundation" (International Integrated Reporting Council, 2020).



economy firms have an opportunity to help accelerate the adoption of global voluntary standards through their own local reporting.

There are no standards for sovereigns to report on climate and environmental considerations, so investors develop their own bespoke frameworks for engaging with sovereigns on these issues. A sovereign reporting framework based on lessons learned from the voluntary standards and disclosure frameworks mentioned above could help align the interests of investors and sovereign issuers and improve transparency. The World Bank is developing a 'TCFD for Sovereigns' framework and guidance set to be published later this year (World Bank, 2021).

## 2.3. Impact management frameworks

On a related note, groups of investors are developing instruments to help identify sector-specific environmental and climate performance metrics which could guide investors'

portfolio decisions to have an impact on the real economy (University of Cambridge Institute for Sustainability Leadership, 2019). Some of these instruments are focused on measuring the alignment of portfolios with the Paris Agreement and the UN Sustainable Development Goals (SDGs). Examples include work done by the members of the Impact Management Project founded in 2016, UNDP's SDG impact standards for bond issuers, private equity funds and enterprises of 2020, and the Operating Principles for Impact Management of the International Finance Corporation (IFC, 2019). Also, several tools have been developed to assess the impact of business operations on biodiversity (Berger et al., 2018).

In response to investor demand for impact measurement tools, the International Organization for Standardization (ISO) is developing a standard for assessing and reporting the climate-related impact of financing activities. This standard addresses how climate change affects the value of a firm, and how firms' activities have an impact on the climate (double materiality) (2° Investing Initiative, 2017). ISO/FDIS 14097 is due to enter into effect in 2021.

### Box 1

#### Examples of policies, regulations, and guidance on disclosure and reporting

The number of green and sustainable finance reporting and disclosure measures increased from 76 (60 mandatory and 16 non-mandatory) in 2016 to 98 (77 mandatory and 21 non-mandatory) in 2019 (Green Finance Platform, n.d.). The most measures were in developed countries and more prevalent in institutional investment and capital markets than in banking. Examples include the following:

- the Sustainable Stock Exchanges (SSE) report that as of March 2021, 56 of the 106-member stock exchanges had published ESG reporting guidance for their listed companies. These stock exchanges cover 40,155 listed companies with US\$56.45 trillion in market capitalization (SSE, n.d.);
- the European Union implemented disclosure requirements covering large non-financial firms as well as a range of financial institutions, including investment funds, pension funds, individual portfolio management and investment advice (European Commission, 2020a, 2020b, 2020c);

- the Investor Advisory Committee of the US Securities and Exchange Commission (SEC) recommends that the SEC promulgate ESG-specific disclosure policies and incorporate them into the integrated disclosure regime (SEC, 2020). At a state level, the State of Illinois issued a Sustainable Investing Act which requires public funds to implement sustainable investment policies (Illinois General Assembly, n.d.);
- the UK Financial Conduct Authority (FCA) requires commercial firms with a UK premium listing to make climate-related disclosures, in line with the TCFD framework, on a "comply or explain" basis, starting in January 2021. Firms are required to guide investors on where they can find these disclosures in their annual reports. The UK government has also targeted a gradual mandatory adoption of TCFD-aligned disclosures across the UK economy by 2025 (HM Treasury, 2020);

.../...

- Hong Kong's Green and Sustainable Finance Cross-Agency Steering **Group** has announced mandatory TCFD-aligned **disclosure** across relevant sectors in Hong Kong by 2025 (HKMA, 2020a);
- China has mandated the **reporting** of green loan data and mandatory provisions on **reporting** and **disclosure** of information related to the use of proceeds of green bonds (Zhang, 2020);
- the Financial Services Authority of Indonesia (OJK) regulation on sustainable finance requires large and foreign banks to **report** annual action plans implementing the sustainable finance initiative (SBN, 2019); and
- South Africa's King **Report** on Corporate **Governance** recommended that companies' reports be in line with the International Framework <IR> of the IIRC (Institute of Directors, Southern Africa, 2016).

### 3. Integrating climate/sustainability considerations into financial decision-making

Financial institutions, responding to the recognition that some climate-related and sustainability factors are material and to the demand from stakeholders, are incorporating these factors into their decision-making processes. This is reflected by the increase of ESG specialists at global asset managers. One estimate (Opimas, 2020) shows that the number of ESG specialists has grown on average by close to 230% between 2017 and 2020 among the top 30 global asset managers. Nonetheless, it is likely that investors will continue to **rely** on external ESG rating providers. This is due to the unavailability of consistent, comparable, and reliable data, and because collecting and interpreting such data requires increasingly specific expertise, capacity, and significant time. An upcoming NGFS **report** by the workstream Bridging the Data Gaps will analyze the availability of comparable and reliable climate-related data in more depth and propose solutions.

#### 3.1. ESG scores and ratings

In this fast-moving space, there were already more than 600 ESG ratings (data products) on offer in 2018 (SustainAbility Institute, 2020). Coverage at major ESG rating providers ranges between roughly 4,000 and 22,000 firms (Escrig-Olmedo et al., 2019). However, ESG and sustainability ratings still lack transparency and face methodological challenges. Lack of consistent, comparable, and reliable data, and differences in methodologies among providers, including the relative importance assigned to the 'E', 'S', and 'G' **categories** of the total ESG ratings assigned to firms, has led to dispersion and **low** correlation of corporate ESG ratings (OECD, 2020).

Responding to the growing demand for ESG data and ratings, big data providers and credit rating agencies have entered these markets, mostly through acquisitions of existing specialized players. Credit rating agencies have also started to integrate climate-related and ESG risks into their ratings. However, there is still little clarity about how these risks are being embedded in the ratings (Climate-Related Market **Risk** Subcommittee, 2020). The European Securities and Markets Authority (ESMA) published guidelines to provide greater clarity, calling on credit rating agencies issuing a credit

rating or rating outlook to disclose whether ESG factors were considered key driving factors and to explain why these ESG factors were material to the credit rating (ESMA, 2019).

#### Takeaway 3

*There is a need for credit as well as ESG rating providers to enhance transparency surrounding their methodologies, disclosing the criteria they use to **assess** the materiality of climate and sustainability factors, the manner in which these are measured and incorporated into ratings, and the weights they assign to them.*

In the case of sovereign ESG scores, research by the World Bank shows that there is a **high** correlation among scores generated by major providers, except for the 'E' category (World Bank, 2020). World Bank research also highlights that one key driver of greater convergence among sovereign ESG scores versus corporate ESG scores is a strong and statistically significant relationship between sovereign ESG scores and a country's level of wealth. This same research cautions that, without adjusting data for wealth, the integration of these scores into investment decision-making may have the perverse incentives of driving capital away from lower-income countries and towards wealthier countries, widening SDG funding gaps (Gratcheva and Emery, 2021).

#### 3.2. Climate **risk** integration

Several banks are integrating environmental and social **risk** management systems (ESRMS) into their mainstream credit processes. These systems entail a set of ESG **risk** analysis procedures, **policies** and manuals, including the categorization of projects according to **risk** exposure, the use of exclusion lists, and the use specific tools provided by third parties. Adoption of the Equator Principles for project finance by 116 banks in 37 countries is a sign of progress (Equator Principles, n.d.). A recent update to the principles requires an assessment of risks related to physical and transition impacts of climate change for projects with significant adverse environmental risk. All projects that exceed carbon

emissions thresholds need to assess transition risks (Equator Principles, 2020).

Going forward, it is important for risk managers at banks and institutional investors to have a clear grasp of how climate-related risks can impact cash flows and financial results. To this effect, and in line with the Strategy Pillar of the TCFD recommendations, risk managers at financial institutions have started applying forward-looking scenario analysis.<sup>6</sup> Since 2018, the United Nations Environment Programme Finance Initiative (UNEP-FI) has developed a series of TCFD pilot projects for banks, investors, and insurers to develop practical approaches to evaluating physical and transition risks using climate scenario analyses. Pilots have been supported by climate modellers and risk experts. However, this is not yet a common practice. In the absence of internal capacities, financial institutions mostly rely on advisory services. Until such capacities have been developed and become mainstream at financial institutions, the riskiness of polluting assets will not be properly understood or incorporated into risk and valuation calculations used to underwrite debt and equity. They may even be underestimated in highly exposed industries, leaving balance sheets impaired and at risk.

There is a growing consensus that the financial materiality of climate-related and sustainability risks is part of the fiduciary duty of asset managers. That is the position taken in the Final Report on Fiduciary Duty in the 21<sup>st</sup> Century (UNEP-FI, 2019a) and the International Corporate Governance Network Global Stewardship Principles (ICGN, 2016). Regulators in countries such as Canada, South Africa, Sweden, and the UK, support these views and have indicated that non-consideration of financially material environmental and climate-related risk

factors in investment decision-making could be a violation of fiduciary duty (PRI, 2017).

#### Takeaway 4

*There is a need for regulators to require financial institutions to consider material climate and sustainability factors as financial factors. Financially material climate and sustainability factors should be part of the fiduciary duty of asset managers.*

About 40% of the members of the Basel Committee on Banking Supervision have issued, or are in the process of issuing, more principle-based supervisory guidance regarding climate-related financial risks (BIS, 2020a).<sup>7</sup> Within central banks, reputational risk and a desire to set a good example are key motivations for adopting Sustainable and Responsible Investment considerations in their portfolio management (NGFS, 2020b).

The International Organization of Pension Supervisors (IOPS) has published non-binding supervisory guidelines on the integration of ESG factors into the investment and risk management of pension funds (IOPS, 2019). In a recent survey of securities regulators by IOSCO, 41% of the members believed they should get involved in defining ESG-related risks as financial risks in addition to providing transparency and avoiding greenwashing (IOSCO, 2020). The International Association of Insurance Supervisors (IAIS) recommends that insurance supervisors address the risks that arise from climate change holistically and consider physical and transition risks in addition to reputational risks (IAIS, 2020).

<sup>6</sup> The market has also seen the development of some tools that focus on risks associated with transition to a Paris-aligned scenario. These include scenario analysis by 2DII, the Transition Pathway Initiative (TPI) tool, Carbon Tracker's 2 Degrees of Separation framework, and GeoAsset (Eccles and Klimenko, 2019).

<sup>7</sup> Responses to the stocktake came from 27 members and observers in total, including the European Central Bank (ECB) and the European Banking Authority (EBA).

## Box 2

### Examples of policies and regulations on risk management

The number of green and sustainable finance-related measures by authorities in risk management increased from 17 (7 mandatory and 10 non-mandatory) in 2016 to 40 (11 mandatory and 29 non-mandatory) in 2019 (Green Finance Platform, n.d.). While there is a growing consensus that these measures should focus on financial and environmental materiality, many of the regulatory initiatives addressing risk management are still at a relatively early stage of development. Examples include the following:

- the European Central Bank (ECB) in 2020 published a guide on climate-related and environmental risks for banks. The guide explains how the ECB expects banks to prudently manage and transparently disclose such risks under current prudential rules (ECB, 2020);
- the Insurance Commissioner of California in 2016 issued a call to insurance companies to divest from coal and required insurance firms with US\$100 million in annual premiums to disclose investments in fossil fuels (Business Insurance, 2017);
- the United States Commodity Futures Trading Commission (CFTC) has urged all relevant federal financial regulatory agencies and the Financial Stability Oversight Council (FSOC) to incorporate climate-related risks into their mandates and oversight functions and to develop a strategy for integrating these risks in their work (CFTC, 2020);
- the UK Prudential Regulation Authority (PRA) issued a supervisory statement for banks and insurers in 2019 regarding their consideration of climate risk across four areas: governance arrangements, risk management, stress testing and scenario analysis, and disclosure (PRA, 2019);
- the German Federal Financial Supervisory Authority (BaFin) issued a supervisory guidance notice focused on the management of sustainability risks for financial institutions (BaFin, 2020); and
- the Hong Kong Monetary Authority (HKMA) in 2020 issued guiding principles for banks on climate-related issues, including governance, strategy, risk management, and disclosure, and it will conduct pilot climate risk stress testing for banks to assess the climate resilience of the sector (HKMA, 2020b).

## 4. Capital mobilization

Several factors are contributing to mobilize capital towards climate-related and social friendly activities and technologies: improved disclosure and reporting practices; consideration in decision making of ESG material factors and forward-looking risk management practices; greater visibility of sustainable opportunities provided by green taxonomies; and also important, demand for green assets.

Demand for environmental and sustainable investments is large and on the increase. Long-term-oriented pension funds, institutional investors, and retail investors, particularly millennials, are showing an increasing interest in these investments. Demand is also being driven by growing evidence and acknowledgement that “value investments” do not carry lower returns and may even yield additional returns when coupled with certain ESG strategies. The supply of green or sustainable financial products is rising but still insufficient to meet investor demand. In some countries in particular, there seems to be a shortage of sustainable investment opportunities. The supply of sustainable investment opportunities is likely to pick up once the under-pricing of carbon emissions, short-term bias in policies, and underestimation of the risk of high-carbon assets have been corrected.

### 4.1. Investor/bank-led initiatives

Institutional investors are playing a key role in the mobilization of green capital. Individually and through associations, they are increasingly using their influence to accelerate transition to low carbon corporate business practices. As of February 2021, over 3,300 asset owners and investment managers were signatories to the Principles for Responsible Investment (PRI) initiative and their collective assets under management (AUM) represented US\$100 trillion (PRI, 2021). PRI supports its global network of investor signatories in incorporating ESG factors into their investment and ownership decisions. At a regional level, the European Institutional Investors Group on Climate Change (IIGCC) is a platform for investor collaboration on climate change with 250 members and €33 trillion in AUM.

Banks are also participating via other initiatives focusing on green/sustainable capital mobilization. After acknowledging that the needs and demands of their clients and stakeholders had shifted, nearly 200 banks joined the Principles for Responsible Banking (PRB) with a view to aligning portfolios with the SDGs.<sup>8</sup>

There are several multi-stakeholder initiatives to decarbonize portfolios, including: (i) the Net-Zero Asset Owner Alliance, a group of institutional investors representing nearly US\$5 trillion in AUM that are committed to transitioning their investment portfolios to net zero greenhouse gas emissions by 2050 (UNEP-FI, 2019b); (ii) the Portfolio Decarbonization Coalition (n.d.) of 32 investors representing over US\$800 billion, which have committed to gradually decarbonize their portfolios; (iii) the Science Based Targets Initiative, which supports financial institutions in setting science-based targets and aligning their lending and investment activities with the Paris Agreement (Science Based Targets Initiative, n.d.); (iv) the IIGCC's Net Zero Investment Framework launched in December 2020, which provides recommended methodologies for investors to assess and implement alignment of their portfolios towards net zero, in order to maximize their contribution to decarbonizing the real economy (IIGCC, n.d.).

Institutional investors have been shifting their shareholding and engagement approach to green investments. They are moving from recommending that the firms they invest in adopt specific action or policies such as disclosure and risk oversight to striking up a broader discussion on the impact of environmental and social risks on a company's long-term value. Examples of investor-led organizations focusing on active ownership include the Climate Action 100+ initiative, set up by 450 investors with over US\$40 trillion in AUM. Signatories of this initiative have committed to engaging target companies to strengthen climate-related financial disclosures, improve governance and curb emissions. The PRI, through its Active Ownership 2.0 initiative,

<sup>8</sup> Eighteen months after signing, banks must report on their impact, how they are implementing the principles, the targets they have set, and the progress they have made. They are held to account against their commitments through an annual review of their individual progress (UNEP-FI, n.d.).



supports results-driven investor engagement with firms.<sup>9</sup> Announcements<sup>10</sup> by some of the biggest asset managers to take active ownership on ESG issues and climate-related risks will likely drive stronger climate-related commitments by investee companies. Despite their promising impact, these investors led initiatives are mostly reaching large firms, and therefore their impact on small and medium-sized entities is limited.

Active ownership is also taking place through the use of shareholder rights as ESG proxy voting trends show. According to Morningstar (2020), from 2005 to 2019 the average support for resolutions addressing environmental and social issues increased from 10% to nearly 30%.

## 4.2. Developments in sustainable bonds and loans

Growth in green/sustainable bonds and loans has been underpinned by principles and frameworks. Bond frameworks issued by the International Capital Market Association (ICMA) include the Green Bond Principles in 2014, updated in 2018 (ICMA, 2018a); the 2018 Sustainable Bond Guidelines (ICMA, 2018b); and the Sustainability-Linked Bond Principles (ICMA, 2020). ICMA's Green Bond Principles are complemented by the Climate Bond Standards of the Climate Bonds Initiative, which provide assurance to bondholders. Together, these address investor concerns about greenwashing and provide comparability for compliant bonds. Use of external reviews (second party opinions) has become a market practice that provides credibility and value to the label. However, green and sustainable bonds are also perceived as having high transaction costs associated with verification and compliance with principles. As to global loan frameworks, the Loan Syndications and Trading Association issued the Green Loan Principles in 2018 (LSTA, 2021) and the Sustainability Linked Loan Principles in 2019 (LSTA, 2020).

Additionally, there are initiatives for regional and national green bonds and also to establish green loan principles, including from developing countries.<sup>11</sup>

As of September 2020, the total value of outstanding green bonds (US\$1.06 trillion), sustainability (US\$0.12 trillion) and sustainability-linked bonds (US\$0.01 trillion) was equivalent to 1% of the total bonds outstanding (BloombergNEF, 2020). In 2019, listings were concentrated in Europe (46%), North America (26%) and Asia (20%). Developing and emerging countries have also been increasingly active in green/sustainable bond markets.<sup>12</sup> In the context of COVID-19-related volatility, issuance of green/sustainable bonds rose in the first nine months of 2020. In the case of sustainability/sustainability-linked bonds, growth rates reached triple digits, albeit from a low level. Given the relatively small size of green bond markets and the perceived lack of liquidity in this instrument, solutions that offer investors the possibility of swapping green bonds for conventional government bonds provide liquidity and could help a term structure emerge for green bonds. One example of this are Germany's sovereign twin bonds (German Federal Ministry of Finance, 2019).

Related bond products such as catastrophe bonds (cat bonds), while not new, could also contribute to green capital mobilization. Cat bonds can transfer the physical risk of extreme climate events from an issuer to capital markets. Mexico has issued sovereign cat bonds to cover earthquake and hurricane risks. Cumulative issuance of this type of instrument reached US\$135 billion in 2020 (Artemis, 2021). More recent innovative products include nature performance bonds, created by the Finance for Biodiversity Initiative in September 2020, which aim at encouraging developing countries to protect ecosystems and biodiversity (Finance for Biodiversity, 2020).

It should be noted that a share of green and sustainable bonds issuance can sometimes result from vanilla bonds

9 The Transition Pathway Initiative tool is a global initiative in partnership with PRI. It is an open access platform that assesses companies' preparedness for transitioning to a low-carbon economy, and can be used as a basis for decision-making and engagement with companies on their progress towards specific targets (TPI, n.d.).

10 Such as those made by BlackRock (2020), State Street (2020), Vanguard (2019), Amundi (n.d.) and GPIF (2020).

11 Examples include the EU Green Bond Standard (TEG, 2019), Egypt's Financial Regulatory Authority Green Bond Guidelines 2018 (Financial Regulatory Authority, n.d.); Japan's Green Bond Guidelines 2020, Green Loan Guidelines 2020, and Sustainability Linked Loan Guidelines 2020 (Ministry of the Environment, 2020) and Mexico's Green Bonds Principles 2018 (Climate Finance Advisory Group, 2018).

12 For example, Bangladesh, Brazil, Colombia, Kenya, Mexico, Mongolia, Morocco, Nigeria, South Africa, and Vietnam have introduced sovereign green bond frameworks and have engaged in capacity building in financial institutions (SBN, 2019 and IFC, 2019).

that satisfy green bond principles and can therefore be relabeled as green bonds. While relabeling like this does not mobilize additional green investment per se (BIS, 2020b), it can help meet the increasing market demand for green assets and be beneficial through a lower cost of funding when refinancing takes place. More generally, although the size of green/sustainable bond markets is still small compared to the overall market, these instruments can play a transformative role by generating greater accountability and transparency of their intended impact.

Corporate green bond markets are still dominated by high-carbon or polluting companies. Thus, investors should understand how the green projects being funded by a green bond fit into the companies' overall transition strategies to low carbon. To preserve credibility of green bond markets and ESG investments, it is important that robust standards are being implemented. Retail investors should take note that some institutional investors' climate/sustainability narratives are not always backed up by the data, and that some banks' lending to high-carbon/polluting activities has increased, as evidenced by transparency reports from stakeholder groups (BankTrack, 2020).

Global volumes of green and sustainability-linked loans increased from US\$38 billion in 2016 to US\$232 billion in 2019. In 2019, loan issuance was concentrated in Europe (64%) and Asia (20%), with Canada and USA ranking in third place (15%). Loan issuance took place predominantly in the corporate sector (86% of the total) (BloombergNEF, 2020). Green securitization can further mobilize green/sustainable capital. As the U.S. Commodity Futures Trading Commission notes, "by isolating and allocating climate risk to investors willing to accept it, [securitization] may prove to be critically important for financing the transition" to a low-carbon economy (Climate-Related Market Risk Subcommittee, 2020).<sup>13</sup> According to the Association for Financial Markets in Europe (AFME), "green securitization" should be reserved exclusively for transactions collateralized by green assets, based on established taxonomies (AFME, 2019). Also, banks with deep experience in trading and derivatives products could support the development of carbon credit and trading

tools to help clients and countries meet their net zero commitments.<sup>14</sup>

### Takeaway 5

*There is a need for national and multilateral development banks to strengthen their support to mobilize capital towards green investment projects, particularly in developing and emerging markets.*

Aligning public development banks' strategies, investments, and operations with climate objectives could be a powerful way of redirecting finance flows (Finance in Common, 2020). Particularly in developing and emerging markets, mobilization towards climate/sustainable investments is still constrained. This is mainly due to a lack of projects, insufficient information related to their environmental and social impacts, as well as the potential underestimation of the riskiness of high-carbon investments. Given the limited capacity and shorter-term focus of commercial banks, national and multilateral development banks are well suited to raise support to mobilize sustainable investment projects (ODI 2020). Many already have the capacity to analyze sustainable investment opportunities, provide technical assistance, offer blended capital market vehicles, and de-risk financing in the form of risk guarantees. In addition, development banks can support green securitization as a way of reusing existing bank capital and unlocking new private green/sustainable loans.

## 4.3. Developments in ESG indices and exchange traded funds (ETFs)

Large index providers have been offering ESG equity indices since 1990 and ESG fixed-income indices since 2013. Investors have increasingly noted that ETFs tracking these indices are performing well and sometimes even better than conventional indices. The resulting rise in demand for ETFs that benchmark these indices is a major reason for the growing variety of ESG indices on offer. These include

<sup>13</sup> In addition to traditional asset classes, new asset classes suitable for green securitization could include leases from solar and wind assets, loans for energy efficiency upgrades, and loans for battery and storage projects (Climate Bonds Initiative, 2017).

<sup>14</sup> The development of voluntary carbon markets has been taken up by the Task Force on Scaling Voluntary Carbon Markets, which recently released a consultation document for scaling voluntary carbon markets (IIF, 2020).



green and sustainable bond, equity, and transition indices, as well as indices based on sustainability criteria, and more recently climate change indices as well. The number of ESG

indices rose globally by 40.2% from September 2019 to September 2020, following a 13.9% increase over a similar period one year earlier (IIA, 2020).

### Box 3

## Examples of policies and regulations on capital mobilization

Green and sustainable finance-related measures in the field of capital mobilization include, among others, supervisory guidance on green lending, roadmaps and protocols for sustainable finance, and regulations on ESG factors. These increased from 58 (19 mandatory and 39 non-mandatory) in 2016 to 106 (30 mandatory and 76 non-mandatory) in 2019 (Green Finance Platform, n.d.). Some specific examples include the following:

- the EU in 2019 published a regulation on EU climate transition benchmarks, EU Paris-aligned benchmarks, and sustainability-related disclosures for benchmarks (European Commission, 2019);
- the Bank for International Settlements in 2019 launched an open-ended fund for central bank investments in green bonds, thereby helping them to integrate environmental sustainability objectives into their reserve management (BIS, 2019);
- the Reserve Bank of India in 2019 revised its guidelines on priority sector lending. These guidelines define the renewable energy sector as a priority lending sector (Reserve Bank of India, 2019);
- the Monetary Authority of Singapore in 2019 launched a US\$2 billion green investments program to invest in public market investment strategies with a strong green focus. This is part of MAS' Green Finance Action Plan to broaden green financing solutions and markets (MAS, 2019);
- Luxembourg in 2018 established a legal framework for green covered bonds to finance renewable energy generation (Journal Officiel du Grand-Duché de Luxembourg, 2020); and
- Bank Negara Malaysia, together with the financial industry, in 2020 introduced an ESG impact assessment framework for renewable energy, energy efficiency and palm oil sectors to facilitate financial flows (Bank Negara Malaysia, 2020).

Investors that choose ESG ETFs respond to different drivers: general strategies to mitigate risks and enhance returns, identify the best performing companies or leaders in a specific industry, or focus on particular sustainability themes (i.e. low carbon). ESG ETFs are quickly becoming a mainstream investment product. Investment in ETFs grew by 157% from 2018 to 2019 (from US\$22.1 billion to US\$56.8 billion) (Indexology Blog, 2020). Increased transparency surrounding ESG index methodologies, data that are comparable, consistent, and reliable, as well as robust support from independent ESG index providers are conditions for a massive uptake of this asset class.

This chapter has described promising financial developments that contribute to the mobilization of sustainable capital. These developments, however, are not sufficient to mobilize capital at the scale needed. In the absence of a price of carbon that reflects its social cost, some polluting assets will continue to be utilized even where it is economically efficient to switch towards greener assets. The insufficient substitution of inefficient polluting assets limits the supply of green investment opportunities and could also explain the mismatch between the supply and demand for green investments.

## 5. Concluding remarks

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This report examines key financial market developments that can help transition the real economy in line with the net zero emission targets that are increasingly being adopted by countries. The structural transformation of economies needed to meet these ambitious targets represents a massive investment opportunity for the global financial system.

This report identified three developments in financial markets that are critical to support this transformation.

First, environmental and climate-related disclosure by financial and non-financial institutions is increasing at pace. This development is being driven by both voluntary and mandatory standards and disclosure frameworks. The emergence of impact measurement frameworks and tools to measure and align portfolios with the Paris Agreement is helping to identify environmental and climate-related performance metrics and the impact of investments on the real economy.

Second, financial institutions are incorporating climate-related and sustainability factors into their decision-making processes. This comes in response to the increasing relevance of climate-related risks, new forward-looking risk methodologies, voluntary and mandatory environmental risk disclosures, and calls from retail investors, shareholders, employees, and other stakeholders. This trend is being supported by large ESG data and rating providers. Credit rating agencies have also begun to embed climate-related risks in their rating methods.

Third, financial institutions are moving to support the transition to low-carbon corporate business practices. Institutional investors, individually and through associations, are playing a key role in the mobilization of green capital, increasingly using their influence. Attractive sustainable investment opportunities and a better understanding of the risks of polluting investments are supporting mobilization. Central banks and supervisors can reinforce these developments by endorsing climate-related/ESG reporting and accounting standards while continuing to promote tools and methodologies for risk assessment.

While climate-related/ESG developments in information reporting, risk management and products innovation are promising, much needs to be done. Initiatives such as the COP26 Private Finance Initiative can play an important role in accelerating these developments. The UK and Italian governments, in setting up this initiative, have identified a number of priority areas, most of which are addressed in this report: reporting, risk management, returns, and mobilization (Carney, 2020).

Going forward, carbon emissions need to reflect their true costs to society. This will enable financial markets to mobilize resources at a scale that is needed to achieve net zero emissions by mid-century. Otherwise, forward-looking transition risks as well as physical risks could be underestimated, delaying even further the required replacement of inefficient polluting assets by greener efficient assets. Ultimately, the goal of society, regulators, and international organizations should be for financial markets to foster the transformation of the global economy towards net zero emissions.

## 6. References

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### 2° Investing Initiative (2017)

ISO Standard for Investment, Financing and Climate Change (ISO 14097) – Working **Group** Scoping Document.

[http://degreesilz.cluster023.hosting.ovh.net/wp-content/uploads/2018/01/iso14097\\_scoping\\_report\\_v0.pdf](http://degreesilz.cluster023.hosting.ovh.net/wp-content/uploads/2018/01/iso14097_scoping_report_v0.pdf)

### AFME (2019)

AFME says potential for green securitisation is huge.

<https://www.afme.eu/Portals/0/globalassets/downloads/press-releases/2019/20190911%20Press%20release%20AFME%20says%20potential%20for%20green%20securitisation%20is%20huge.pdf?ver=2019-09-11-143624-120>

### Amundi (n.d.)

ESG: Amundi's action plan for 2021. Accessed on 26 February 2021.

<https://www.amundi.com/int/ESG/ESG-Amundi-s-action-plan-for-2021>

### Artemis (2021)

Catastrophe bonds and ILS cumulative issuance by year. Accessed on 01 March 2021.

<https://www.artemis.bm/dashboard/cat-bonds-ils-cumulative-issuance/>

### BaFin (2020)

Guidance Notice on Dealing with Sustainability Risks. Accessed on 01 March 2021.

[https://www.bafin.de/SharedDocs/Downloads/EN/Merkblatt/dl\\_mb\\_Nachhaltigkeitsrisiken\\_en.html](https://www.bafin.de/SharedDocs/Downloads/EN/Merkblatt/dl_mb_Nachhaltigkeitsrisiken_en.html)

### Bank Negara Malaysia (2019)

Value-based Intermediation Financing and Investment Impact Assessment Framework – Guidance Document.

[https://www.bnm.gov.my/documents/20124/761679/VBIAF\\_Final+guidance+1.11.2019.pdf](https://www.bnm.gov.my/documents/20124/761679/VBIAF_Final+guidance+1.11.2019.pdf)

### BankTrack (2020)

Banking on Climate Change – Fossil Fuel Finance **Report** 2020. [www.banktrack.org/download/banking\\_on\\_climate\\_change\\_fossil\\_fuel\\_finance\\_report\\_2020/banking\\_on\\_climate\\_change\\_\\_2020\\_vf\\_2.pdf](http://www.banktrack.org/download/banking_on_climate_change_fossil_fuel_finance_report_2020/banking_on_climate_change__2020_vf_2.pdf)

### Berger, J., MJ Goedkoop, W. Broer, R. Nozeman, CD Grosscurt, M. Bertram, and F. Cachia (2018)

Common ground in biodiversity footprint methodologies for the financial sector. Accessed on 01 March 2021.

<https://www.asnbank.nl/over-asn-bank/duurzaamheid/biodiversiteit/biodiversity-in-2030.html>

### BIS (2019)

BIS launches green bond fund for central banks. Accessed on 01 March 2021.

<https://www.bis.org/press/p190926.htm>

### BIS (2020a)

Basel Committee on Banking Supervision. Climate-related financial risks: a survey on current initiatives.

<https://www.bis.org/bcbs/publ/d502.pdf>

### BIS (2020b)

Green bonds and carbon emissions: exploring the case for a rating system at the firm level. Accessed on 01 March 2021.

[https://www.bis.org/publ/qtrpdf/r\\_qt2009c.htm](https://www.bis.org/publ/qtrpdf/r_qt2009c.htm)

### BlackRock (2020)

A Fundamental Reshaping of Finance. Accessed on 01 March 2021.

<https://www.blackrock.com/us/individual/larry-fink-ceo-letter>

### BloombergNEF (2020)

<https://about.bnef.com/>

### Business Insurance (2017)

California takes stand on insurer fossil fuel investments. Accessed on 01 March 2021.

<https://www.businessinsurance.com/article/00010101/NEWS06/912314036/California-takes-stand-on-insurer-fossil-fuel-investments>

### Carney, M. (2020)

Building a Private Finance System for Net Zero – Priorities for private finance for COP26.

[https://ukcop26.org/wp-content/uploads/2020/11/COP26-Private-Finance-Hub-Strategy\\_Nov-2020v4.1.pdf](https://ukcop26.org/wp-content/uploads/2020/11/COP26-Private-Finance-Hub-Strategy_Nov-2020v4.1.pdf)

### Climate Bonds Initiative (2017)

Green Securitisation: unlocking finance for small-scale **low** carbon projects.

[https://www.climatebonds.net/files/files/March17\\_CBI\\_Briefing\\_Green\\_Securisation.pdf](https://www.climatebonds.net/files/files/March17_CBI_Briefing_Green_Securisation.pdf)

### Climate Finance Advisory Group (2018)

Green Bonds Principles MX.

[https://www.bmv.com.mx/docs-pub/MI\\_EMPRESA\\_EN\\_BOLSA/CTEN\\_MINGE/GREEN\\_BONDS\\_PRIN\\_MX2.pdf](https://www.bmv.com.mx/docs-pub/MI_EMPRESA_EN_BOLSA/CTEN_MINGE/GREEN_BONDS_PRIN_MX2.pdf)

### CDP, CDSB, GRI, IIRC and SASB DP (2020)

**Reporting** on enterprise value illustrated with a prototype climate-related financial **disclosure** standard. Accessed on 04 March 2021.

[https://29kjb3armds2g3gi4lq2sx1-wpengine.netdna-ssl.com/wp-content/uploads/Reporting-on-enterprise-value\\_climate-prototype\\_Dec20.pdf](https://29kjb3armds2g3gi4lq2sx1-wpengine.netdna-ssl.com/wp-content/uploads/Reporting-on-enterprise-value_climate-prototype_Dec20.pdf)

### Climate-Related Market Risk Subcommittee (2020)

Managing Climate **Risk** in the U.S. Financial System. Washington, D.C.: Market **Risk** Advisory Committee of the U.S. Commodity Futures Trading Commission.

<https://www.cftc.gov/sites/default/files/2020-09/9-9-20%20Report%20of%20the%20Subcommittee%20on%20Climate-Related%20Market%20Risk%20-%20Managing%20Climate%20Risk%20in%20the%20U.S.%20Financial%20System%20for%20posting.pdf>

### European Commission (2019)

EU climate benchmarks and benchmarks' ESG disclosures. Accessed on 01 March 2021.

[https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-climate-benchmarks-and-benchmarks-esg-disclosures\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-climate-benchmarks-and-benchmarks-esg-disclosures_en)

### European Commission (2020a)

EU taxonomy for sustainable activities. Accessed on 01 March 2021.

[https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en)

### European Commission (2020b)

Non-financial reporting. Accessed on 01 March 2021.

[https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting\\_en](https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en)

### European Commission (2020c)

Sustainability-related **disclosure** in the financial services sector. Accessed on 01 March 2021.

[https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/sustainability-related-disclosure-financial-services-sector\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/sustainability-related-disclosure-financial-services-sector_en)

### ECB (2020)

ECB publishes final guide on climate-related and environmental risks for banks. Accessed on 01 March 2021.

<https://www.bankingsupervision.europa.eu/press/pr/date/2020/html/ssm.pr201127~5642b6e68d.en.html>

### Eccles, R. G. and S. Klimenko (2019)

The Investor Revolution. The Harvard Business Review. Accessed on 01 March 2021.

<https://hbr.org/2019/05/the-investor-revolution>

### Gratcheva, E., and T. Emery. Forthcoming (2021)

Demystifying Sovereign ESG. Manuscript in preparation. World Bank, Washington DC. Manuscript in preparation.

### Environmental Finance (2019)

The ESG data files – introduction. Accessed on 01 March 2021.

<https://www.environmental-finance.com/content/analysis/the-esg-data-files-part-one-introduction.html>

### Equator Principles (2020)

The Equator Principles – July 2020.

<https://equator-principles.com/wp-content/uploads/2020/05/The-Equator-Principles-July-2020-v2.pdf>

### Equator Principles (n.d.)

EP Association Members & Reporting.

Accessed on 01 March 2021.

<https://equator-principles.com/members-reporting/>

### Escrig-Olmedo, E., M. Á. Fernández-Izquierdo, I. Ferrero-Ferrero, J. M. Rivera-Lirio, and M. J. Muñoz-Torre (2019)

Rating the Raters: Evaluating how ESG Rating Agencies Integrate Sustainability Principles. Sustainability. Accessed on 01 March 2021.

[https://www.researchgate.net/publication/331036441\\_Rating\\_the\\_Raters\\_Evaluating\\_how\\_ESG\\_Rating\\_Agencies\\_Integrate\\_Sustainability\\_Principles](https://www.researchgate.net/publication/331036441_Rating_the_Raters_Evaluating_how_ESG_Rating_Agencies_Integrate_Sustainability_Principles)

### ESMA (2019)

Final Report – Guidelines on Disclosure Requirements Applicable to Credit Ratings.

[https://www.esma.europa.eu/sites/default/files/library/esma33-9-320\\_final\\_report\\_guidelines\\_on\\_disclosure\\_requirements\\_applicable\\_to\\_credit\\_rating\\_agencies.pdf](https://www.esma.europa.eu/sites/default/files/library/esma33-9-320_final_report_guidelines_on_disclosure_requirements_applicable_to_credit_rating_agencies.pdf)

### Finance for Biodiversity (2020)

Recapitalising Sovereign Debt.

[https://a1be08a4-d8fb-4c22-9e4a-2b2f4cb7e41d.filesusr.com/ugd/643e85\\_422bbded7a034d86ab4074fdaa4fe86b.pdf](https://a1be08a4-d8fb-4c22-9e4a-2b2f4cb7e41d.filesusr.com/ugd/643e85_422bbded7a034d86ab4074fdaa4fe86b.pdf)

### Finance in Common (2020)

Joint Declaration of all public development banks in the world.

[https://financeincommon.org/sites/default/files/2021-01/FiCS%20-%20Joint%20declaration%20of%20all%20Public%20Development%20Banks\\_0.pdf](https://financeincommon.org/sites/default/files/2021-01/FiCS%20-%20Joint%20declaration%20of%20all%20Public%20Development%20Banks_0.pdf)

### Financial Regulatory Authority (n.d.)

Concept paper – green bonds guidelines.

[https://www.fra.gov.eg/content/efsa\\_ar/pool\\_extra\\_efsa/UG43029UG43030.pdf](https://www.fra.gov.eg/content/efsa_ar/pool_extra_efsa/UG43029UG43030.pdf)

### Green Finance Platform (n.d.)

Green Finance Measures Database. Accessed on 01 March 2021.

<https://greenfinanceplatform.org/financial-measures/browse>

### German Federal Ministry of Finance (2019)

Green bonds: the Bund's new eco-friendly twin. Accessed on 01 March 2021.

<https://www.bundesfinanzministerium.de/Content/EN/Standardartikel/Topics/Priority-Issues/Climate-Action/2019-10-30-green-bonds.html>

### GPIF (2020)

Our Partnership for Sustainable Capital Markets. Accessed on 01 March 2021.

[https://www.gpif.go.jp/en/investment/Our\\_Partnership\\_for\\_Sustainable\\_Capital\\_Markets.pdf](https://www.gpif.go.jp/en/investment/Our_Partnership_for_Sustainable_Capital_Markets.pdf)

### HKMA (2020a)

Cross-Agency Steering Group Launches its Strategic Plan to Strengthen Hong Kong's Financial Ecosystem to Support a Greener and More Sustainable Future. Accessed on 01 March 2021.

<https://www.hkma.gov.hk/eng/news-and-media/press-releases/2020/12/20201217-4/>

### HKMA (2020b)

White Paper on Green and Sustainable Banking.

<https://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2020/20200630e1a1.pdf>

### HM Treasury (2020)

A Roadmap towards mandatory climate-related disclosures.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/933783/FINAL\\_TCFD\\_ROADMAP.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/933783/FINAL_TCFD_ROADMAP.pdf)

### IAIS (2020)

Application Paper on the Supervision of Climate-related Risks in the Insurance Sector. Accessed on 01 March 2021.

<https://www.iaisweb.org/page/consultations/closed-consultations/2021/application-paper-on-the-supervision-of-climate-related-risks-in-the-insurance-sector>

### ICGN (2016)

ICGN Global Stewardship Principles.

<https://www.icgn.org/sites/default/files/ICGNGlobalStewardshipPrinciples.pdf>

### ICMA (2018a)

Green Bond Principles – Voluntary Process Guidelines for Issuing Green Bonds.

<https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Green-Bonds-Principles-June-2018-270520.pdf>

### ICMA (2018b)

Sustainability Bond Guidelines.

<https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Sustainability-Bonds-Guidelines-June-2018-270520.pdf>

### ICMA (2020)

Sustainability-Linked Bond Principles – Voluntary Process Guidelines.

<https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2020/Sustainability-Linked-Bond-PrinciplesJune-2020-100620.pdf>

### IFAC (2020)

IFAC Calls for Creation of an International Sustainability Standards Board Alongside the International Accounting Standards Board (IASB). Accessed on 01 March 2021.

<https://www.ifac.org/news-events/2020-09/ifac-calls-creation-international-sustainability-standards-board-alongside-international-accounting>



### IFC (2019)

Investing for Impact: Operating Principles for Impact Management.

[https://www.impactprinciples.org/sites/default/files/2019-06/Impact%20Investing\\_Principles\\_FINAL\\_4-25-19\\_footnote%20change\\_web.pdf](https://www.impactprinciples.org/sites/default/files/2019-06/Impact%20Investing_Principles_FINAL_4-25-19_footnote%20change_web.pdf)

### IFRS (2020)

IFRS Foundation Trustees consult on global approach to sustainability reporting and on possible Foundation role. Accessed on 01 March 2021.

<https://www.ifrs.org/news-and-events/2020/09/ifrs-foundation-trustees-consult-on-global-approach-to-sustainability-reporting/>

### IIA (2020)

Fourth Annual IIA Benchmark Survey Reveals Significant Growth in ESG, Continued Multi-Asset Innovation & Heightened Competition. Accessed on 01 March 2021.

<http://www.indexindustry.org/2020/10/28/fourth-annual-iaa-benchmark-survey-reveals-significant-growth-in-esg-amid-continued-multi-asset-innovation-heightened-competition/>

### IIF (2020)

Taskforce on Scaling Voluntary Carbon Markets Publishes Initial Recommendations, Calls for Feedback from Stakeholders. Accessed on 01 March 2021.

<https://www.iif.com/Press/View/ID/4165/Taskforce-on-Scaling-Voluntary-Carbon-Markets-Publishes-Initial->

### IIGCC (n.d.)

Paris aligned investment initiative: Net Zero Investment Framework for Consultation. Accessed on 01 March 2021.

<https://www.iigcc.org/download/net-zero-investment-framework-consultation/?wpdmdl=3602&refresh=5f97a97cc9521603775127>

### Illinois General Assembly (n.d.)

Illinois Sustainable Investing Act. Accessed on 01 March 2021.

<https://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=4027&ChapterID=7>

### Indexology Blog (2020)

Through the Turbulence, a New Breed of ESG Indices Delivers. Accessed on 01 March 2021.

<https://www.indexologyblog.com/2020/03/24/through-the-turbulence-a-new-breed-of-esg-indices-delivers/>

### Institute of Directors, Southern Africa (2016)

KING IV Report on Corporate Governance for South Africa  
<https://www.adams.africa/wp-content/uploads/2016/11/King-IV-Report.pdf>

### International Integrated Reporting Council (2020)

IIRC and SASB announce intent to merge in major step towards simplifying the corporate reporting system. Accessed on 01 March 2021.

<https://integratedreporting.org/news/iirc-and-sasb-announce-intent-to-merge-in-major-step-towards-simplifying-the-corporate-reporting-system/>

### IOPS (2019)

IOPS Supervisory Guidelines on the Integration of ESG Factors in the Investment and Risk Management of Pension Funds. Accessed on 01 March 2021.

<http://www.iopsweb.org/iops-supervisory-guidelines-esg-factors.htm>

### IOSCO (2020)

Sustainable Finance and the Role of Securities Regulators and IOSCO – Final Report.

<https://www.iosco.org/library/pubdocs/pdf/IOSCOPD652.pdf>

### IOSCO (2021)

IOSCO sees an urgent need for globally consistent, comparable, and reliable sustainability disclosure standards and announces its priorities and vision for a Sustainability Standards Board under the IFRS Foundation. Accessed on 04 March 2021.

<https://www.iosco.org/news/pdf/IOSCONEWS594.pdf>

### Journal officiel du Grand-Duché de Luxembourg (2020)

Loi du 22 juin 2018 portant modification de la loi modifiée du 5 avril 1993 relative au secteur financier en vue de l'introduction de lettres de gage portant sur les énergies renouvelables. Accessed on 01 March 2021.

<http://legilux.public.lu/eli/etat/leg/loi/2018/06/22/a521/jo>

### LSTA (2020)

Sustainability Linked Loan Principles (SLLP). Accessed on 01 March 2021.

<https://www.lsta.org/content/sustainability-linked-loan-principles-sllp/>

### **LSTA (2021)**

Green Loan Principles. Accessed on 01 March 2021.  
<https://www.lsta.org/content/green-loan-principles/>

### **MAS (2019)**

New US\$2 billion Investments Programme to Support Growth of Green Finance in Singapore. Accessed on 01 March 2021.  
[https://www.mas.gov.sg/news/media-releases/2019/new-us\\$2-billion-investments-programme-to-support-growth-of-green-finance-in-singapore](https://www.mas.gov.sg/news/media-releases/2019/new-us$2-billion-investments-programme-to-support-growth-of-green-finance-in-singapore)

### **Ministry of the Environment (2020)**

Green Bond Guidelines – Green Loan and Sustainability Linked Loan Guidelines.  
[http://www.env.go.jp/policy/guidelines\\_set\\_version\\_with%20cover.pdf](http://www.env.go.jp/policy/guidelines_set_version_with%20cover.pdf)

### **Morningstar (2020)**

2019 ESG Proxy Voting Trends – More support for ESG issues, but the largest firms lag.  
[https://www.morningstar.com/content/dam/marketing/shared/pdfs/Research/Proxy\\_Voting\\_021320.pdf?utm\\_source=eloqua&utm\\_medium=email&utm\\_campaign=&utm\\_content=20694](https://www.morningstar.com/content/dam/marketing/shared/pdfs/Research/Proxy_Voting_021320.pdf?utm_source=eloqua&utm_medium=email&utm_campaign=&utm_content=20694)

### **NGFS (2020a)**

Guide to climate scenario analysis for central banks and supervisors.  
[https://www.ngfs.net/sites/default/files/medias/documents/ngfs\\_guide\\_scenario\\_analysis\\_final.pdf](https://www.ngfs.net/sites/default/files/medias/documents/ngfs_guide_scenario_analysis_final.pdf)

### **NGFS (2020b)**

Progress report on the implementation of sustainable and responsible investment practices in central banks' portfolio management.  
[https://www.ngfs.net/sites/default/files/medias/documents/sri\\_progress\\_report\\_2020.pdf](https://www.ngfs.net/sites/default/files/medias/documents/sri_progress_report_2020.pdf)

### **OECD (2020)**

ESG Investing: Environmental Pillar Scoring and Reporting.  
<https://www.oecd.org/finance/ESG-Investing-Environmental-Pillar-Scoring-Reporting.pdf>

### **ODI (2020)**

Securing climate finance through national development banks. Accessed on 01 March 2021.  
<https://odi.org/en/publications/securing-climate-finance-through-national-development-banks/>

### **Opimas (2020)**

ESG Data Market: No Stopping Its Rise Now. Accessed on 01 March 2021.  
<http://www.opimas.com/research/547/detail/>

### **Portfolio Decarbonization Coalition. n.d.**

Accessed on 01 March 2021  
<https://unepfi.org/pdc/>

### **PRA (2019)**

Enhancing banks' and insurers' approaches to managing the financial risks from climate change. Supervisory Statement SS3/19.  
<https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2019/ss319.pdf?la=en&hash=7BA9824BAC5FB313F42C00889D4E3A6104881C44>

### **PRI (2017)**

Fiduciary duty in the 21st century: South Africa roadmap. Accessed on 01 March 2021.  
<https://www.unpri.org/fiduciary-duty/fiduciary-duty-in-the-21st-century-south-africa-roadmap/263.article>

### **PRI (2021)**

News and press: The PRI and ELFA's Second Sector-Focused ESG Roundtable attracts over 100 market participants. Accessed on 08 March 2021.  
<https://www.unpri.org/news-and-press/the-pri-and-elfas-second-sector-focused-esg-roundtable-attracts-over-100-market-participants/7183.article>

### **Reserve Bank of India (2019)**

Priority Sector Lending – Lending by banks to NBFCs for On-Lending. Accessed on 01 March 2021.  
<https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=11659&Mode=0>

### **SBN (2019)**

Global Progress Report of the Sustainable Banking Network: Innovations in Policy and Industry Actions in Emerging Markets.  
[https://www.ifc.org/wps/wcm/connect/227d98d4-13ae-4742-ae94-fb248b84f0be/SBN%2BGlobal%2BProgress%2BReport\\_1010.pdf?MOD=AJPERES&CVID=mUhlWWP](https://www.ifc.org/wps/wcm/connect/227d98d4-13ae-4742-ae94-fb248b84f0be/SBN%2BGlobal%2BProgress%2BReport_1010.pdf?MOD=AJPERES&CVID=mUhlWWP)

### Science Based Targets Initiative (n.d.)

Sector Guidance for Financial Institutions. Accessed on 01 March 2021.  
<https://sciencebasedtargets.org/sectors/financial-institutions>

### SEC (2020)

Recommendation from the Investor-as-Owner Subcommittee of the SEC Investor Advisory Committee Relating to ESG Disclosure.  
<https://www.sec.gov/spotlight/investor-advisory-committee-2012/recommendation-of-the-investor-as-owner-subcommittee-on-esg-disclosure.pdf>

### SSE (n.d.)

Stock Exchange Database. Accessed on 01 March 2021.  
<https://sseinitiative.org/exchanges-filter-search/>

### State Street (2020)

State Street Global Advisors CEO's Letter on our 2020 Proxy Voting Agenda.  
[https://www.wlrk.com/docs/SSgA\\_CEO\\_Letter\\_on\\_our\\_2020\\_Proxy\\_Voting\\_Agenda.pdf](https://www.wlrk.com/docs/SSgA_CEO_Letter_on_our_2020_Proxy_Voting_Agenda.pdf)

### SustainAbility Institute (2020)

Rate the Raters 2020: Investor Survey and Interview Results.  
<https://www.sustainability.com/globalassets/sustainability.com/thinking/pdfs/sustainability-ratetheraters2020-report.pdf>

### TCFD (2020)

Task Force on Climate-related Financial Disclosures – 2020 Status Report.  
[https://assets.bbhub.io/company/sites/60/2020/09/2020-TCFD\\_Status-Report.pdf](https://assets.bbhub.io/company/sites/60/2020/09/2020-TCFD_Status-Report.pdf)

### TEG (2019)

TEG Report – Proposal for an EU Green Bond Standard.  
[https://ec.europa.eu/info/sites/info/files/business\\_economy\\_euro/banking\\_and\\_finance/documents/190618-sustainable-finance-teg-report-green-bond-standard\\_en.pdf](https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/190618-sustainable-finance-teg-report-green-bond-standard_en.pdf)

### TPI (n.d.)

FAQ. Accessed on 01 March 2021  
<https://www.transitionpathwayinitiative.org/faq>

### UNEP Inquiry and FC4S (2020)

Nudging the Financial System: A Network Analysis Approach.  
[https://unepinquiry.org/wp-content/uploads/2020/04/Nudging\\_the\\_Financial\\_System.pdf](https://unepinquiry.org/wp-content/uploads/2020/04/Nudging_the_Financial_System.pdf)

### UNEP-FI (2019a)

Fiduciary Duty in the 21<sup>st</sup> Century Final Report.  
<https://www.unepfi.org/publications/investment-publications/fiduciary-duty-in-the-21st-century-final-report/>

### UNEP-FI (2019b)

Institutional investors transitioning their portfolios to net zero GHG emissions by 2050. Accessed on 01 March 2021.  
<https://www.unepfi.org/climate-change/united-nations-convened-net-zero-asset-owner-alliance/>

### UNEP-FI (n.d.)

Principles for Responsible Banking.  
<https://www.unepfi.org/banking/bankingprinciples/>

### University of Cambridge Institute for Sustainability Leadership (CISL) (2019)

In search of impact: Measuring the full value of capital. Update: Sustainable Investment Framework, Cambridge, UK.  
<https://www.cisl.cam.ac.uk/resources/publication-pdfs/in-search-of-impact-report-2019.pdf>

### Vanguard (2019)

Investment Stewardship – 2019 Annual Report.  
[https://about.vanguard.com/investment-stewardship/perspectives-and-commentary/2019\\_investment\\_stewardship\\_annual\\_report.pdf](https://about.vanguard.com/investment-stewardship/perspectives-and-commentary/2019_investment_stewardship_annual_report.pdf)

### World Bank (2020)

Riding the Wave: Navigating the ESG Landscape for Sovereign Debt Managers.  
<http://documents1.worldbank.org/curated/en/186931603441706045/pdf/Riding-the-Wave-Navigating-the-ESG-Landscape-for-Sovereign-Debt-Managers.pdf>

### World Bank (2021)

TCFD for Sovereigns Framework and Guidance. Manuscript in preparation.

### Zhang, H. (2020)

Regulating Green Bonds in The People's Republic of China: Definitional Divergence and Implications for Policy Making. Asian Development Bank Institute, Working Paper Series No 1072, January.  
<https://www.adb.org/sites/default/files/publication/562076/adb-wp1072.pdf>



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