CLIMATE FINANCIAL RISK FORUM

CLIMATE FINANCIAL RISK FORUM GUIDE 2020

SUMMARY

June 2020

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The Climate Financial Risk Forum (CFRF) guide has been written by industry, for industry. The recommendations in this guide do not constitute financial or other professional advice and should not be relied upon as such. The PRA and FCA have convened and facilitated CFRF discussions but do not accept liability for the views expressed in this guide which do not necessarily represent the view of the regulators and in any case do not constitute regulatory guidance.

Foreword from co-chairs

We jointly established the Climate Financial Risk Forum (CFRF) because climate change is of paramount importance to the missions of both the Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA).

Firms increasingly face both 'physical' risks as the climate changes around us and 'transition' risks from the move to a net-zero carbon economy. If poorly managed, these risks could be the source of consumer harm and potentially a future financial crisis stemming from financial losses and sudden adjustments in asset values. Covid-19 has demonstrated more than ever the need for firms to be prepared for the rapid crystallisation of global risks. It has also demonstrated the value of working together to address fast-evolving risks that do not respect national boundaries.

The PRA and FCA have committed to the delivery of a programme of climate change and green finance initiatives. This includes: the PRA's Climate Biennial Exploratory Scenario, the world's first bottom-up system-wide climate stress test; and the FCA's proposed enhanced disclosure requirements for premium-listed issuers, which will be aligned with the recommendations of the Taskforce for Climate-related Financial Disclosures.

The guide produced by the CFRF complements our regulatory initiatives. It emphasises the importance of greater transparency and consistency around firms' disclosure of climate-related financial risks, the benefits of effective risk management and scenario analysis, and the opportunities for innovation in the interest of consumers. The guide is designed to be as practical and widely-accessible as possible in considering each of these topics, as climate change will impact a broad spectrum of financial institutions, potentially in different ways.

This is the beginning of a long journey and best practice will continue to evolve rapidly, but with this guide the CFRF has made significant strides in establishing current capabilities and sharing good practice with the financial services industry. The willingness of members to collaborate on this topic has been gratifying and we look forward to this ethos continuing while we work together to develop further the best ways to manage the financial risks stemming from the climate emergency.

We would like to thank everyone involved in the production of this guide, especially the Working Groups, their chairs and the secretariats and we look forward to continuing to work with industry. This is of great value to our objectives of ensuring the safety and soundness of firms, financial stability, the proper functioning of markets and the protection of consumers. We hope that firms find this a useful tool in better understanding these risks and in enhancing their responses.

Sarah Breeden
Executive Director of UK Deposit Takers Supervision, Prudential Regulation Authority and Executive Sponsor of climate work for the Bank of England

Sheldon Mills
Interim Executive Director of Strategy and Competition, Financial Conduct Authority

1 Introduction

Climate change is giving rise to risks that impact us all – as individuals, the businesses we work for and the markets we operate within. Whether those risks arise from more frequent and severe weather events or the necessary transition to a net-zero carbon economy, we should expect to see substantial impacts on asset values, the cost and availability of insurance and the creditworthiness of borrowers. The understanding of these risks is relatively immature and poses unique challenges, but the need to address them is pressing. Increasing awareness and understanding of the impacts of climate change is also affecting consumers' preferences, leading to growing demand for genuinely 'green' financial products and services.

This is therefore an area where combining the efforts of the many impacted parties is essential to facilitate an accelerated and shared approach to understanding and mitigating these risks, and appropriately responding to consumers' changing preferences.

Against this background, the FCA and PRA established the Climate Financial Risk Forum (CFRF). Its key purpose is to facilitate and accelerate a shared approach to the understanding and mitigation of the financial risks, and capture the opportunities, posed by climate change. The CFRF has brought together expertise from across industry and has been sharing good practice and analysis to advance thinking on how firms can better manage the risks posed by climate change and support the transition to a net-zero carbon economy.

This CFRF guide aims to help financial firms understand the risks and opportunities that arise from climate change, and provide support for how to integrate them into their risk, strategy and decision-making processes. As part of this, the guide considers how firms can plan for the impact of climate policies over different time horizons and assess their exposure to climate-related financial risks so that they can adapt their businesses in response.

This overarching summary document sets out:

- Why it is important for financial services firms to consider climate change
- Background on the CFRF
- Information about the CFRF guide, how it can be used and summaries of the four chapters
- Next steps for the CFRF

This CFRF guide has been written by industry, for industry. The recommendations in this guide do not constitute financial or other professional advice and should not be relied upon as such. The PRA and FCA have convened and facilitated CFRF discussions but do not accept liability for the views expressed in this guide which do not necessarily represent the view of the regulators and in any case do not constitute regulatory guidance.

2 Why is climate change important for financial services?

Climate change will have a significant impact on the financial services sector and will increasingly influence consumer decision-making. For example, it could substantially affect the values of all types of financial assets and how investment managers deliver long-term sustainable value to their clients. It could increase the cost of insurance for some consumers and reduce the availability of insurance for others, which may alter the distribution of risk across the system over time. Borrowers' and counterparties' exposure to climate-related financial risks and opportunities, and how they manage them, could also make them more or less creditworthy. It is against this fast-evolving backdrop that firms need to quickly build up their understanding of climate risks.

The financial risks from climate change are typically classified as physical or transition risks, as defined in the PRA's Supervisory Statement 3/19 (SS3/19) and FCA's Feedback Statement on Climate Change and Green Finance (FS19/6).

Physical risks from climate change arise from a number of factors, and relate to specific weather events (such as heatwaves, floods, wildfires and storms) and longer-term shifts in the climate (such as changes in precipitation, extreme weather variability, sea level rise, and rising mean temperatures). Some examples of physical risks crystallising include:

- increasing frequency, severity or volatility of extreme weather events leading to increased business disruption and losses, as well as potentially impacting the availability and cost of property and casualty insurance. This may lead to the value of investors' portfolios fluctuating substantially and insurance customers paying higher premiums or choosing not to take out coverage, leaving them or their lenders more exposed to potential future losses; and
- increasing frequency and severity of flooding leading to physical damage to assets held as collateral by asset owners and banks, such as residential and commercial property. This may lead to increased credit risks, particularly for banks, or to underwriting risks for liability insurers if there are greater than anticipated insurance or legal claims to recover financial losses.

Transition risks may arise from the process of adjustment towards a net-zero carbon economy. The UK Government has set a target of achieving net zero greenhouse gas emissions by 2050 to respond to the challenge climate change poses.

A range of factors influence this adjustment, including: climate-related developments in policy and regulation, the emergence of disruptive technology or business models, shifting sentiment and societal preferences, or evolving evidence, frameworks and legal interpretations. Some examples include:

- tightening minimum energy efficiency standards for domestic and commercial buildings impacting the risk in banks' mortgage, buy-to-let and commercial real estate lending portfolios;
- changes in relative pricing of alternatives arising from rapid technological change, such as the development of electric vehicles or renewable energy technology, affecting the value of financial assets in the automotive or energy sector;
- decreases in the value of certain investments that result from policy changes leading to the creation of stranded assets (i.e. assets that become worthless or uninsurable due to their exposure to physical climate change risks, such as high-carbon intensity resources that are complex to extract); and
- companies in the wider economy that fail to mitigate, adapt, or disclose the financial risks from climate change being exposed to climate-related litigation. This could impact their market value, affecting asset owners and managers and the consumers they represent or lead to higher claims for insurers that provide liability cover to those companies.

The PRA and FCA have been taking steps to address barriers to the effective management of climate-related financial risk and have highlighted the significance of climate change for regulated firms.

The PRA has published several reports on climate-related financial risks, stressing the importance of embedding climate risk within firms. In April 2019, the PRA became the first regulator to publish supervisory expectations (SS3/19) on how banks and insurers should develop and embed their approach to managing the financial risks from climate change. These expectations have been structured around four key areas where change is considered to be most important: governance; risk management; scenario analysis; and disclosures. The PRA will issue follow-on observations on these expectations in the summer of 2020. Furthermore, the output of the CFRF has been structured to support firms in enhancing their climate risk capabilities to meet these expectations.

In December 2019, the Bank of England (the Bank) published a discussion paper, which set out its proposed framework for the 2021 biennial exploratory scenario (BES) exercise - the world's first bottom-up system-wide climate stress test, including both banks and insurers. The objective of the BES is to test the resilience of the largest banks and insurers to the physical and transition risks associated with different possible climate scenarios, and the financial system's exposure more broadly to climate-related risk. The framework and scenarios utilised for this exercise will have similarities to the internal exercises that firms will be undertaking, and where the CFRF documents provide some guidance.

The Bank has also been keen to promote greater knowledge sharing between central banks and supervisors internationally. This includes working with other central banks within the Network for Greening the Financial System, through which guides on key issues such as supervision and scenario analysis have been published. The Bank will also assist the Government with its preparations for COP26, the United Nations Climate Change Conference which will take place in Glasgow in November 2021, and continue its focus on embedding climate disclosure across the financial system, including through the Bank's own disclosures.

The FCA is also taking action in this area, to ensure that market participants are able to effectively identify, manage and disclose climate-related financial risks, and can take opportunities to benefit consumers. The FCA also seeks to ensure that consumers can make well-informed decisions and have the appropriate information to do so, including on how firms are dealing with climate-related risk. To help move towards these outcomes, in its Feedback Statement on Climate Change and Green Finance (FS19/6) the FCA set out three initial priorities in this area:

- enhancing issuers' climate-related financial disclosures, including by consulting on new TCFD-aligned disclosure rules for premium listed issuers (CP20/3). The International Organization of Securities Commissions (IOSCO) also recently established a Board-level Taskforce on Sustainable Finance, with the aim of coordinating global efforts to advance the market for sustainable finance. One particular area of focus is issuers' sustainability-related disclosures and the FCA is co-chairing a workstream in this area;
- ensuring that regulated firms integrate consideration of material climate-related risks and opportunities into their business, risk and investment decisions, including through continuing work to build a regulatory framework for effective investor stewardship (FS19/7); and
- ensuring that consumers have access to genuinely green financial products and services, including by undertaking exploratory policy work into the design and disclosure of sustainable retail investment products. We will be using these insights from this research to inform ongoing work with HM Treasury in line with the UK Government's commitment in the Green Finance Strategy to match the ambition of the objectives of the EU Sustainable Finance Action Plan (SFAP).

3 About the CFRF

Established by the PRA and FCA in early 2019, the CFRF is an industry-led forum, bringing together senior representatives from across the financial sector to produce practical tools and recommendations for firms in responding to climate-related financial risks and capturing the opportunities arising from climate change. The Forum brings together industry participants and regulators to advance thinking and share good practice about how firms can improve their response and overcome barriers to dealing with climate-related financial risks.

Membership of the Forum is drawn widely from across the sector and includes banks, insurers and asset managers, with trade bodies observing and feeding in the views of a broader range of firms. Membership of the Forum during its first year is detailed below; this will be reviewed on an ongoing basis to bring in a wide range of viewpoints and experience.

Banks	Insurers	Asset managers	Other
BNP Paribas HSBC JP Morgan RBS Yorkshire Building Society	Aviva Legal & General Lloyd's of London RSA Insurance Group Zurich Insurance Group	BlackRock Invesco Schroders Standard Life Aberdeen The international business of Federated Hermes	Green Finance Institute London Stock Exchange Group

The Forum is currently co-chaired by Sarah Breeden (Executive Director of UK Deposit Takers Supervision, PRA and Executive Sponsor of the Bank of England's work on climate change) and Sheldon Mills (Interim Executive Director of Strategy and Competition, FCA). The Forum focusses on a number of priority issues where cross-sectoral input is most valued. These areas will be kept under review and will evolve as the agenda develops. In the first round of the Forum, there have been four Working Groups established, each chaired by a Forum member as set out below.

Working Group	Chair
Risk management	Daniel Klier, Chief of Staff to the CEO of Global Banking & Markets and Global Head of Sustainable Finance, HSBC
Scenario analysis	Angela Darlington, CEO of UK Life, Aviva
Disclosures	Saker Nusseibeh, CEO, The international business of Federated Hermes
Innovation	Nigel Wilson, Group CEO, Legal & General

A full list of organisations contributing to each of the Working Groups is available in Annex 2.

> "Leadership and cultural change are critical to deliver the climate risk agenda. Every decision maker at every level of the organisation must understand the importance of reacting to climate risks."

Daniel Klier (Chief of Staff to the CEO of Global Banking & Markets and Global Head of Sustainable Finance, HSBC and CFRF Risk Management Working Group Chair)

4 About the guide

At its inaugural meeting, the Forum established four Working Groups on the topics of: Risk Management; Scenario Analysis; Disclosures; and Innovation. These topics were agreed as the key priorities in enabling firms to develop an effective and robust approach to responding to climate-related financial risks and opportunities.

- **Risk management:** By appropriately embedding climate-related financial risk into its governance and risk management processes, a firm can make informed business decisions and improve its resilience.
- **Scenario analysis:** By appropriately modelling and considering a range of potential futures, a firm can better understand and manage future risks today, whilst capturing opportunities to support the transition to a net-zero carbon economy.
- **Disclosures:** By making effective climate-related financial disclosures, a firm can improve transparency regarding the impact of material financial risks from climate change on their business, thereby helping the market appropriately assess the true future value of assets.
- **Innovation:** By developing novel products, services, policies and approaches, a firm can adapt its business to respond to the potential impacts of climate change, benefit consumers and deliver the change required to meet climate goals.

Each Working Group was tasked with producing a chapter on their topic to form this guide. The intention of these chapters is to help financial services firms to understand how they can approach these topics, where they could start and to highlight gaps and barriers. The guide provides practical tools, experience, knowledge and case studies developed ‘by industry, for industry’, which firms can learn from as they develop their strategies, processes and approaches.

Summaries of the four chapters are set out below, with links provided to the full chapters.

Using the guide

The guide recognises that there are distinct interests, priorities and issues for different classes of financial institutions and highlights key points for the various sectors, including where different approaches are appropriate (i.e. recommendations are either general or financial sector-specific).

The chapters are designed to be complementary to existing frameworks and initiatives, such as the UN-supported Principles for Responsible Investment, Banking and Insurance and the Taskforce on Climate-related Financial Disclosures (TCFD).

The guide recognises that firms of different sizes, or of differing levels of expertise and experience in considering climate-related financial risks, may take different approaches. For example, larger firms with greater resources, which have been actively considering climate-related financial risks, may take more advanced and comprehensive approaches than smaller firms, which may be new to these topics. However, it is important to note that the approaches taken by firms will be proportionate to the climate-related risks they face. For example, a small firm with large exposure to climate risk due to geographic or sectoral concentration may have to implement a more sophisticated climate risk approach then a much larger firm with less exposure. The chapters provide advice on how to take proportionate approaches to help tackle these challenges.

The guide is written with the view of current good practice. Not all practices will be appropriate for all firms at all times; practitioners will judge what a proportionate application of the guide's recommendations means for their firm. The Working Groups recognise that embedding climate risk management is a multi-year endeavour and the chapters indicate where firms can make a start and then develop their approach over subsequent years.

Annex 1 provides a glossary of frequently used terms throughout the guide. The following section sets out the topics covered by the four chapters.

Risk Management

What is covered?

A practical guide to climate risk management, providing real-world examples of good practice and case studies to illustrate how to embed climate change within existing risk management processes. The expectations and practices around climate financial risk are quickly evolving so the information and examples in this chapter should be considered alongside current developments.

This chapter should be read in conjunction with SS3/19, the FCA's requirements for solo-regulated firms including consideration of how external factors can impact on strategy and viability as discussed in CP19/20 and the Scenario Analysis and Disclosure chapters.

What is included?

- Risk Governance
- Risk Management Frameworks
- Risk Appetite
- Risk Assessment
- Data and Tools
- Training and Culture
- Key Challenges

Key messages

This chapter outlines recommendations from the Working Group, including how firms can approach designing and implementing a governance approach for climate risks akin to that used for established financial risks, while addressing climate risk-specific nuances. It discusses how firms can decide whether to treat climate risk as a standalone or as a cross-cutting risk and then integrate climate risk into existing risk management frameworks, recognising how the linkages between climate risk and established risk types may be identified and understood.

The chapter notes that, in addition to the standard planning cycle, climate change impacts should be considered over a longer period e.g. 30 years, with interim milestones. It recommends that a mature risk appetite considers scenario analysis and impact assessments or trend analysis.

The Working Group demonstrates that risk assessment of financial and non-financial risks is essential to identify, measure, monitor and mitigate the risk within an institution's appetite. Detail is provided on the most material and applicable risk types relating to climate across the financial sector, namely insurance underwriting, credit, operational and financial market risks.

> "It is important that financial institutions fully integrate climate risk into their existing risk management framework. Failure to do so means that firms will be unable to understand and respond to the true dangers it poses to their business models."

Daniel Klier (Chief of Staff to the CEO of Global Banking & Markets and Global Head of Sustainable Finance, HSBC and CFRF Risk Management Working Group Chair)

Access the full chapter here

Scenario Analysis

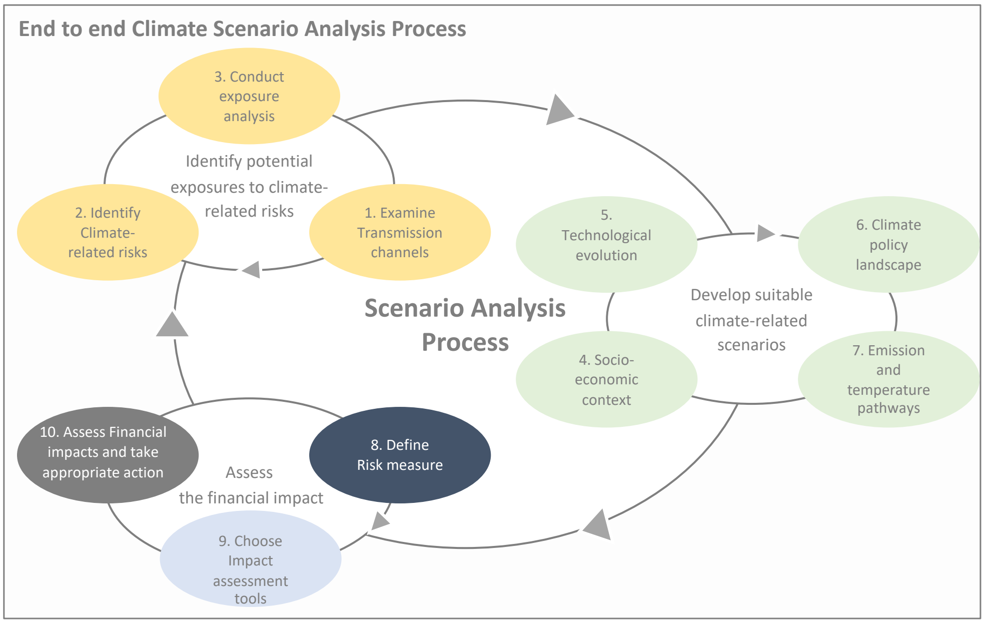
What is covered?

A practical guide outlining leading practice and case studies on how to use scenario analysis to assess climate-related financial risks to inform firms' strategy, risk management and business decisions. The expectations and practices around climate financial risk are quickly evolving so the information and examples in this chapter should be considered alongside current developments.

This chapter should be read in conjunction with SS3/19, and with outputs of the PRA's 2021 Biennial Exploratory Scenario (BES), the FCA's requirements for solo-regulated firms including CP19/20 and requirements around scenario analysis in the Prudential sourcebook for investment firms (IFPRU), and the Network for Greening the Financial System (NGFS)'s publication on scenario analysis and reference scenarios.

What is included?

- Scenario Analysis
- Scenario Identification and Development
- Scenario Assessment
- Challenges and Barriers



Key messages

The end to end climate scenario analysis process is iterative. The results from identifying potential exposures should inform the scenario development process, which in turn should determine the key assumptions used in the assessment of the financial impact of that scenario. Insights gained from that financial impact analysis should in turn feed back into the refinement and identification of new risks and potential exposures and inform the on-going development of existing scenarios as well as supporting identification of potential new scenarios to be analysed. This cycle is illustrated by the figure above.

The Working Group recognises there are many challenges and barriers to overcome in performing scenario analysis in particular the breadth and magnitude of the effects of climate change, the extended time horizons, uncertainty and lack of recent historic precedents.

> "The whole Financial Services Industry needs to step up. We all have a huge responsibility to support the transition to a low carbon economy and the Paris Agreement goals."

Angela Darlington (CEO of UK Life, Aviva and CFRF Scenario Analysis Working Group Chair)

Access the full chapter here

Disclosures

What is covered?

Practical recommendations for financial institutions wishing to meet good practice expectations for public climate-related financial disclosures.

It draws on good practice examples from industry as well as guidelines set by relevant and respected industry bodies, including the recommendations of the Taskforce for Climate-related Financial Disclosures (TCFD).

What is included?

- Key messages for approaching good practice climate-related financial disclosures
- Disclosures on governance and strategy
- Disclosures by asset managers
- Disclosures by banks
- Disclosures by insurers
- Suggested timeline to implementation
- Gaps and barriers

Key messages

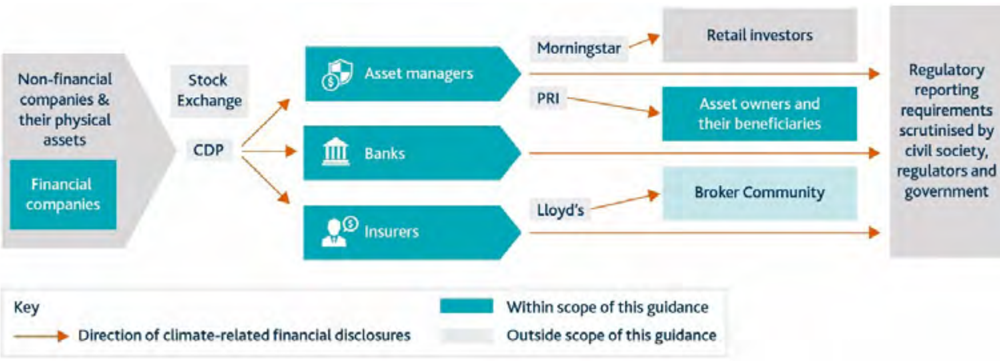
The recommendations in the chapter are based on the seven principles for effective climate-related financial disclosures set out in the TCFD recommendations, namely that disclosures should:

- Represent relevant information;
- Be specific and complete;
- Be clear, balanced, and understandable;
- Be consistent over time;
- Be comparable among companies within a sector, industry, or portfolio;
- Be reliable, verifiable and objective; and
- Be provided on a timely basis.

> "2019 was the second hottest year on record, the need for concerted action on climate change has never been greater."

Saker Nusseibeh CBE (CEO, The international business of Federated Hermes and CFRF Disclosures Working Group Chair)

The disclosure ecosystem: a high-level overview



Access the full chapter here

Innovation

What is covered?

Recommendations for how financial institutions and other stakeholders (e.g. regulators) can start to deliver a step change in aligning private sector financial flows with climate goals, drawing on examples of good industry practices.

What is included?

- Possible approaches to match the sources of finance and pools of capital against potentially investable assets and technologies, to identify and enable pathways for investment.
- The role of data innovation to improve the quality and availability of information that facilitates the effective allocation of capital.
- Practical measures that financial institutions can take to address this mobilisation of finance to tackle climate targets.

Key messages

There are growing opportunities for pools of private capital to align with climate solutions and help to tackle some of the key issues facing the global economy in transitioning to a net-zero carbon economy. Some opportunities support global action, other opportunities may be domestic, such as improving the energy efficiency of the housing stock.

The chapter outlines a number of recommendations, for example:

- Developing new investment vehicles and products (e.g. transition bonds and emerging market green infrastructure funds) to enable deployment of assets into developing and emerging transition and net-zero markets.
- Building local partnerships between finance institutions, local authorities and other public sector bodies to support development of investable, net-zero carbon projects, building on clear national policy frameworks for net-zero ambitions.
- Improving the quality and consistency of climate-related data to enable markets to better quantify the risks and opportunities, and then act on them. For example, by developing common principles and good practice for sector-wide data sharing, building on those for open banking and open finance.

> "This is the biggest task we face as a generation. Positive, constructive collaboration between finance, government and regulators will help us achieve this crucial shift."

Nigel Wilson (Group CEO, Legal & General and CFRF Innovation Working Group Chair)

Access the full chapter here

5 Next steps for the CFRF

These chapters represent the output from the CFRF's first year. We recognise that thinking continues to evolve around these topics and capability and capacity will develop rapidly in the coming years.

The CFRF will maintain relevance and leverage industry learnings by continuing to deliver new material on topics that progress the management of climate-related financial risks and opportunities. The Forum will continue to reach out to get wider views on the issues that firms face and areas where the recommendations could be adapted to make them more practical and usable. These insights will feed into the ongoing work of the CFRF.

The Forum is currently planning the agenda for its second year. This will leverage opportunities to coordinate or complement wider work in finance on climate change at national and international levels. The Forum can also act as a point of contact for other, related national and international industry initiatives, and ensure that efforts progress capability industry-wide, avoiding duplication of effort.

An update on the Forum's forward-looking work and future outputs will be provided later in 2020.

Annex 1: Glossary of frequently used terms across the CFRF guide

Term	Meaning in the context of these reports
Brown assets	Assets that contribute to climate change through the emission of greenhouse gasses.
Carbon intensity	Greenhouse gas emissions per unit of revenue earned.
Credit risk	Credit risk reflects the potential financial loss that may arise due to diminished creditworthiness or default of counterparties.
Climate risk	Financial risks arising from climate change through two primary channels: Physical Risk and Transition Risk.
Climate VaR	A forward-looking and return-based quantitative assessment to measure climate-related risks and opportunities with a focus on how climate change could affect company valuations.
ESG	Environmental, Social and Governance factors.
Financial market risk	The risk arising from adverse movements in market variables, such as interest rates, foreign exchange rates, equity and commodity prices, an issuer's creditworthiness or asset prices (for example, real estate prices).
GHG	Greenhouse gas - a gas that absorbs and emits radiant energy within the thermal infrared range. Greenhouse gases cause the greenhouse effect on planets. The primary GHGs in the Earth's atmosphere are water vapour, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and ozone.
Green assets	Assets with sustainable or renewable aspects.
Green finance	A broad term that can refer to financial investments that provide environmental benefits in the broader context of environmentally sustainable development. These environmental benefits may include, for example, reductions in air, water and land pollution, reductions in greenhouse gas (GHG) emissions, improved energy efficiency, as well as mitigation of and adaptation to climate change.
Greenwashing	Greenwashing is the act of making of false claims about the environmental benefits of a financial product or investment opportunity.

Insurance underwriting risk	Underwriting risk is the risk of the premiums paid by policyholders not being sufficient to cover claims that the insurance company is liable to pay in the event that the event or contingency insured against takes place. This risk could include the underestimated liabilities arising from unpaid business written in previous years, i.e. expired policies, or this could even include under-priced policies in current use.
Management Information	Information collected by firms during a period of business activity that enables management to make decisions.
$MtCO_2e$	Million tonnes of carbon dioxide equivalent. This metric indicates the global warming potential for emissions consisting of a mix of greenhouse gases that have different radiative forcing. It standardises to the effect of CO_2.
ND-GAIN Country Index	Notre Dame University's Notre Dame Global Adaption Index which summarises a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. It aims to help governments, businesses and communities better prioritise investments for a more efficient response to the immediate global challenges ahead.
Network for Greening the Financial System, NGFS	A voluntary coalition of central banks and supervisory authorities formed in December 2017. The Network's purpose is to help strengthen the global response required to meet the goals of the Paris agreement and to enhance the role of the financial system to manage risks and to mobilise capital for green and low-carbon investments in the broader context of environmentally sustainable development.
Net zero carbon	Carbon neutrality or net zero carbon refers to achieving net zero carbon emissions by balancing carbon emissions with carbon sequestration (removal) or eliminating carbon emissions altogether.
Operational risk	Operational risk represents the potential economic, reputational or compliance impact of inadequate or failed internal processes, people and systems or from external events, including legal risk and the risk of a material misstatement in financial reporting.
Paris Agreement	An agreement reached at COP21 (2015) in Paris, aiming to keep global temperature increases to well below 2 degrees Celsius above pre-industrial levels and ideally to no more than 1.5 degrees Celsius.
Physical Risk	Physical risks from climate change arise from a number of factors, and relate to specific weather events (such as heatwaves, floods, wildfires and storms) and longer-term shifts in the climate (such as changes in precipitation, extreme weather variability, sea level rise, and rising mean temperatures).

Scope 1/2/3 emissions	Scope 1: All direct emissions from the activities of an organisation that are under their control, including fuel combustion on site such as gas boilers, fleet vehicles and air-conditioning leaks. Scope 2: Indirect emissions from electricity purchased and used by the organisation. Scope 3: All other indirect emissions from activities of the organisation, occurring from sources that they do not own or control. These include emissions associated with business travel, procurement, waste and water. Scope 3 emissions are usually the greatest share of the carbon footprint for financial institutions as they include the emissions that the institution finances.
Sustainable Insurance Forum, SIF	An international network of insurance supervisors and regulators with around 30 jurisdictions as members seeking to strengthen their understanding of and responses to sustainability issues for the business of insurance. It is a global platform for knowledge sharing, research and collective action.
SMF	Senior Management Function defined under the FCA and PRA's Senior Managers and Certification Regime.
Sustainability	Sustainability refers to the ability to meet the needs of the present without compromising the ability of future generations to meet their needs. Sustainable finance refers to any form of financial service integrating environmental, social and governance (ESG) criteria into the business or investment decisions for the lasting benefit of both clients and society at large.
Taxonomy	An industrial classification system, in this context, for categorising economic activity based on sustainability criteria. For example, whether the goods, products or services defined by an activity address or adapt climate change or greenhouse gas emissions.
Transition Risk	Transition risks can arise from the process of adjustment towards a low-carbon economy. A range of factors influence this adjustment, including: climate-related developments in policy and regulation, the emergence of disruptive technology or business models, shifting sentiment and societal preferences, or evolving evidence, frameworks and legal interpretations.
UNEP Finance Initiative	A global sustainability framework and initiative of the United Nations Environment Programme Finance Initiative. It is a global partnership established between the United Nations Environment Program and the financial sector.
VaR	Value at Risk

Annex 2: Contributors to the CFRF guide

Forum members

Banks	Insurers	Asset managers	Other
BNP Paribas HSBC JP Morgan RBS Yorkshire Building Society	Aviva Legal & General Lloyd's of London RSA Insurance Group Zurich Insurance Group	BlackRock Invesco Schroders Standard Life Aberdeen The international business of Federated Hermes	Green Finance Institute London Stock Exchange Group

Working Group members

Working Group	Chair	Member institutions	External Secretariat
Risk management (RM)	Chief of Staff to the CEO of Global Banking & Markets and Global Head of Sustainable Finance, HSBC	ABI Aviva BNP Paribas HSBC Invesco Lloyds Banking Group Lloyd's of London M&G Standard Chartered Swiss Re Yorkshire Building Society	Global Association of Risk Professionals (GARP)
Scenario analysis (SA)	CEO of UK Life, Aviva	ABI AIG Aviva BNP Paribas DWS HSBC Investment Association JP Morgan PIMCO RSA Insurance Group Santander UK Standard Life Aberdeen	Global Association of Risk Professionals (GARP)

Disclosure	CEO, The international business of Federated Hermes	ABI BlackRock BNP Paribas Cambridge Institute for Sustainability Leadership Climate Disclosure Standards Board Credit Suisse Impax Asset Management Linklaters Lloyd's of London M&G Investments Schroders The international business of Federated Hermes USS Zurich Insurance Group	UN PRI
Innovation	Group CEO, Legal & General	Aviva Barclays BlackRock Citigroup Client Earth Committee on Climate Change Dgen E3G Green Finance Institute ICMIF London Stock Exchange Group RBS Schroders	Climate-KIC

Observers

The following trade associations have observed the meetings: the Association of British Insurers (ABI); the Association of Foreign Banks (AFB); Investment Association (IA); Institutional Investors Group on Climate Change (IIGCC); The Investment and Savings Alliance (TISA); UK Finance.

Other contributors

Thanks to attendees of the industry outreach event on 5 February 2020, where attendees provided feedback on the draft guide.

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