INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS

SUSTAINABLE INSURANCE FORUM

Public

Issues Paper on the Implementation of the Recommendations of the Task Force on Climate-related Financial Disclosures

February 2020

About the IAIS

The International Association of Insurance Supervisors (IAIS) is a voluntary membership organisation of insurance supervisors and regulators from more than 200 jurisdictions. The mission of the IAIS is to promote effective and globally consistent supervision of the insurance industry in order to develop and maintain fair, safe and stable insurance markets for the benefit and protection of policyholders and to contribute to global financial stability. Established in 1994, the IAIS is the international standard setting body responsible for developing principles, standards and other supporting material for the supervision of the insurance sector and assisting in their implementation. The IAIS also provides a forum for Members to share their experiences and understanding of insurance supervision and insurance markets. The IAIS coordinates its work with other international financial policymakers and associations of supervisors or regulators, and assists in shaping financial systems globally. In particular, the IAIS is a member of the Financial Stability Board (FSB), member of the Standards Advisory Council of the International Accounting Standards Board (IASB), and partner in the Access to Insurance Initiative (A2ii). In recognition of its collective expertise, the IAIS also is routinely called upon by the G20 leaders and other international standard setting bodies for input on insurance issues as well as on issues related to the regulation and supervision of the global financial sector.

About the Sustainable Insurance Forum

The Sustainable Insurance Forum (SIF) is a leadership group of insurance supervisors and regulators working together to strengthen their understanding of and responses to sustainability issues facing the insurance sector. The long-term vision of the SIF is a global insurance system where sustainability factors are effectively integrated into the regulation and supervision of insurance companies. This SIF is convened by the United Nations Environment Programme (UNEP), which serves as its Secretariat. The SIF works closely with the International Association of Insurance Supervisors (IAIS), delivering collaborative projects and research on climate change issues. As of November 2019, the SIF has 26 jurisdictions as members.

Issues Papers provide background on particular topics, describe current practices, actual examples or case studies pertaining to a particular topic and/or identify related regulatory and supervisory issues and challenges. Issues Papers are primarily descriptive and not meant to create expectations on how supervisors should implement supervisory material. Issues Papers often form part of the preparatory work for developing standards and may contain recommendations for future work by the IAIS.

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Acronyms

A2ii	Access to Insurance Initiative
ACPR	Autorité de Contrôle Prudentiel et de Résolution
APRA	Australian Prudential Regulation Authority
ASEAN	Association of Southeast Asian Nations
ASFI	Australian Sustainable Finance Initiative
ASIC	Australian Securities and Investment Commission
BES	Biennial Exploratory Scenarios
BIS	Bank for International Settlements
CDI	California Department of Insurance
CDP	Carbon Disclosure Project
CFRF	Climate Financial Risk Forum
DJSI	Dow Jones Sustainability Indices
EIOPA	European Insurance and Occupational Pensions Authority
ERM	Enterprise Risk Management
ESG	Environmental, Social and Governance
FCA	Financial Conduct Authority
FSA	Financial Services Agency
FSAP	Financial Sector Assessment Programme
FSB	Financial Stability Board
FSI	Financial Stability Institute
GHG	Greenhouse Gas
GIP	Green Investments Programme
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standards Board
IBIP	Investment-based Insurance Product
ICP	Insurance Core Principle
IPCC	Intergovernmental Panel on Climate Change
IST	Insurance Stress Test
IVASS	Istituto per la Vigilanza Sulle Assicurazioni
MAS	Monetary Authority of Singapore
NAIC	National Association of Insurance Commissioners
NBB	National Bank of Belgium

NGFS	Network for Greening the Financial System
OECD	Organisation for Economic Co-operation and Development
OIC	Office of the Insurance Commissioner
OSFI	Office of the Superintendent of Financial Institutions
PRA	Prudential Regulation Authority
PRI	Principles for Responsible Investment
ORSA	Own Risk and Solvency Assessment
RBA	Reserve Bank of Australia
SEADRIF	Southeast Asia Disaster Risk Insurance Facility
SIF	Sustainable Insurance Forum
SSB	Standard Setting Body
TCFD	Task Force on Climate-related Financial Disclosures
The Bank	The Bank of England
UN	United Nations
UNEP	United Nations Environment Programme

1 Introduction

1.1 Context

1. Climate change is creating a wide range of material emerging (and emerged) risks to the financial system and the global economy. Because of the dynamic, complex and global impacts of climate risk across the economy and society, it is likely that all insurance businesses will be directly or indirectly affected over the long-term – regardless of their size, business line, domicile or geographic reach. The risks are expected to materialise over an extended period, well beyond the normal planning horizon for insurers, but the development of these risks heavily depends on actions taken in the short-term. The wide-ranging and complex characteristics of climate change create an imperative for insurers[1] to strengthen their understanding and assessment of climate risks now and into the future, by assessing how physical, transition and liability risks[2] stemming from climate change may affect business resilience, market dynamics, profitability and solvency.

2. There is broad recognition of the relevance of climate risks to the mandates, objectives and strategies of supervisors.[3] Within the insurance supervisory community, the Sustainable Insurance Forum (SIF) has pioneered efforts to share knowledge on activities that can strengthen assessment of potential climate risks facing insurance markets and the oversight of such risks through supervisory practices. This work has included joint activities with the International Association of Insurance Supervisors (IAIS).

3. In 2017, a global voluntary framework for public disclosure of climate-related risks and opportunities in mainstream financial filings was developed by the Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures (TCFD).[4] The SIF has recognised the importance of the FSB TCFD Recommendations and Supplemental Guidance ("TCFD Framework"), and its relevance for the objectives of insurance supervisors.[5] Public disclosure of material information (which may include climate-related risks) is expected to enhance market discipline by providing meaningful and useful information to policyholders to make decisions on insuring risks with the insurer, to market participants to make decisions about providing resources to an insurer, and to facilitate comparisons between insurers.

1.2 SIF/IAIS action on climate risk

4. Since initiating a strategic partnership with the SIF in 2017, the IAIS has identified climate risk and sustainability as a strategic focus. In June 2018, the SIF and the IAIS released

[1] In this Paper, the term "insurer" means insurance legal entities and insurance groups, including insurance-led financial conglomerates and refers to the business of both insurers and reinsurers.
[2] See the 2018 SIF/IAIS Issues Paper on Climate Change Risks to the Insurance Sector for an elaboration on these risks.
[3] For the purposes of this paper, the term 'supervisors' refers to public authorities responsible for the regulation and the supervision of the financial sector.
[4] The FSB established the TCFD in December 2015 to develop recommendations for voluntary climate-related financial disclosures that are consistent, comparable, reliable, clear and efficient, and provide decision-useful information to lenders, insurers and investors. The Task Force is an industry-led initiative, comprised of representatives of market entities which are users and/or preparers of disclosures from across the G20's constituency, covering a broad range of economic sectors and financial markets. Further information on the FSB TCFD can be found at www.fsb-tcfd.org
[5] http://unepinquiry.org/wp-content/uploads/2017/07/SIF_TCFD_Statement_July_2017.pdf

a joint Issues Paper on Climate Change Risks to the Insurance Sector ("2018 Issues Paper").[6] As the first analysis of climate change risk by an international Standard Setting Body (SSB), the 2018 Issues Paper provided an overview of how climate change is currently affecting the insurance sector and how this may evolve in the future, confirmed how these risks and impacts may be of relevance for the supervision of the sector (including in regards to the IAIS Insurance Core Principles (ICPs)), and described a range of current and contemplated approaches for addressing climate risks through supervisory practices. The paper concluded that climate risks "warrant ongoing and intensifying scrutiny by supervisors".

5. Since the release of the 2018 Issues Paper, there has been a significant increase in action by supervisors[7], SSBs and other international organisations to examine climate risks in different ways – including efforts to increase transparency and incentivise public disclosure of climate risk (see also section 2.2).

1.3 Evolving supervisory interest in TCFD

6. Since its release in June 2017, the TCFD Framework has helped to inform market and policy practice relating to climate risk disclosure around the globe. Many major institutions, including insurers, have expressed their support for the TCFD Framework and initiated processes to develop TCFD-aligned disclosures. The number of financial institutions that have signed onto the TCFD has increased markedly since the introduction of the TCFD Framework. However, there has been no comprehensive assessment of climate risk awareness across the insurance sector as a whole, or of how the disclosure practices of insurers vary between insurance market segments.[8] In addition, there has been no analysis of whether the recommended disclosures in the TCFD Framework should be revised or enhanced to better address the insurance business or whether quality data to accomplish the proposed disclosures is available.

7. Looking across jurisdictions, an increasing number of supervisors have expressed that enhanced transparency on climate risks is a critical precondition for the effective pricing of such risks in financial markets and appropriate market discipline for robust risk management. There has been increasing debate regarding the role of supervisors in promoting adoption of the TCFD Recommendations and Supplemental Guidance. Speaking in February 2019, SIF Chairperson Geoff Summerhayes expressed that initiatives such as the TCFD may help close this "climate data deficit", recognising that some supervisors are questioning whether market-led action alone will deliver the necessary transformation.

1.4 Objectives of this paper

8. As a follow-up to the 2018 Issues Paper, and recognising the important role of the TCFD Recommendations[9] in establishing a framework for climate-related disclosures for the

[6] https://www.iaisweb.org/page/supervisory-material/issues-papers/file/76026/sif-iais-issues-paper-on-climate-changes-risk
[7] In this Paper, the term "supervisor" also refers to "regulator" and is used to refer collectively to those authorities within a jurisdiction with responsibility in relation to insurance supervision. The term "supervision" is used to refer to supervision and regulation.
[8] The TCFD Secretariat has conducted an assessment of disclosure practices in its annual status reports, however, these consider disclosures of a select group of firms, and are not representative of the entire insurance industry.
[9] The TCFD Recommendations consider the disclosure work of other groups such as the Climate Disclosure Standards Board and the Sustainability Accounting Standards Board.

insurance sector, the SIF and IAIS agreed to develop this second Issues Paper. This paper provides an overview of practices that supervisors have considered in the development of climate-related disclosure requirements within their markets. Considering the diversity of supervisory frameworks across jurisdictions, this paper focuses on practices that can be implemented with limited direct regulatory intervention. In the convention of IAIS Issues Papers, this document is primarily meant to be descriptive and is not intended to create supervisory expectations. However, the speed at which supervisory practices relating to climate risk are evolving, both within individual jurisdictions and through collective activities of supervisors, reflects the need to consider responses at the global level. In this context, the SIF and IAIS recognise the value of developing further materials to support supervisors in their efforts to assess climate risks, including in relation to the ICPs. This paper is a step towards this objective, and is intended to lay the groundwork for the development of future work, such as an IAIS Application Paper.

1.5 Inputs for this paper

9. This paper draws on the results of a SIF Survey on Implementation of the TCFD Recommendations and Supplemental Guidance, which was conducted during the first half of 2019. Case studies submitted by SIF members support the formulation of options for supervisors that are included in Annex 1. This paper also benefited from stakeholder input received during a workshop coordinated by the SIF and the IAIS, which took place in Zurich in September 2019, as well as from public consultation comments received between mid-December 2019 and early February 2020.

1.6 Structure of this paper

10. The paper begins with an overview of the relevance of the TCFD Framework to insurance supervision. It then summarises the results of different efforts to assess levels of TCFD awareness and implementation within the insurance sector, based on the SIF Survey mentioned above, as well as other sources of publicly available information. After this, the paper sets out a range of options for supervisory approaches, based on case studies describing supervisory practices in twelve jurisdictions, before concluding with a discussion on lessons learned through the Survey and suggestions for next steps.

2 Climate risk and insurance supervision: relevance of the TCFD Framework

11. The strategic responses of insurers to climate risks, and the implications of these actions on insurance markets, are of direct relevance to supervisors. The potential impacts of physical risks on insurance liabilities has been identified as one of the primary channels through which climate change may affect broader financial system stability.[10] Also, the transition risk to insurers of investments held to support long-term insurance liabilities is of interest to insurance supervisors. In addition to the two main types of risks above, certain insurers, public authorities and other stakeholders have suggested that liability risks may originate from climate change. As explained in the 2018 Issues Paper, this includes the risk of climate-related claims under liability policies, as well as direct claims against insurers for failing to manage climate risks. Considering the critical importance of insurance as an enabler of

[10] https://www.ecb.europa.eu/pub/financial-stability/fsr/special/html/ecb.fsrart201905_1~47cf778cc1.en.html

economic activity and financial transactions, developments within insurance markets relating to climate risks – such as the insurability of property – may be of importance to broader fiscal and economic policymaking.

2.1 Climate risks and responses in the insurance sector

2.1.1 Recent developments in climate science

12. The 2018 Issues Paper provided an initial analysis of the climate risk landscape and how different types of climate-related risks may be relevant for the global insurance sector. Going forward, future climate-related risks and their physical and economic impacts will depend on the rate and ultimate level of warming, and how these changes manifest into environmental impacts. A climate pathway of roughly two degrees is likely to result in significant impacts on human livelihoods, economic function, and social and political stability. Above two degrees of warming, extreme heat waves could render some of the world's largest urban areas uninhabitable, while flooding, storm surges and sea level rise could lead to certain major cities being partially submerged.[11]

13. In September 2019, the United Nations (UN) released their Global Outlook Report summarising the results of several specialised studies on the impacts of climate change on environmental systems.[12] The findings of the report confirm that climate change is advancing faster and more severely than the scientific community had previously predicted in the run-up to the Paris climate negotiations. The report notes that temperatures are already up about 1.0°C from pre-industrial times and the last four years were the warmest on record – including July 2019, which was the hottest month of all. Recent analysis by the Intergovernmental Panel on Climate Change (IPCC) predicts that global temperatures are likely to increase 1.5°C between 2030-2052 if continuing at current rates.[13]

2.1.2 Industry responses

14. In its capacity as a risk manager, risk carrier and investor, the insurance sector plays a critical role in the management of physical and transition climate risks. Through its core actuarial function, the insurance sector is perhaps the most well versed part of the financial sector in understanding the pricing of climate risks. However, there are significant differences in awareness of climate risk (and views on materiality) across the insurance sector.

15. Insurers are responding to climate risks through changes to underwriting and investment practices, which may pose implications for affordability and availability of insurance in high-risk areas. A climate-driven event has been a contributing factor in at least one insurer insolvency[14] and this could potentially increase in the future.

2.2 Recent supervisory developments

16. According to the Network for Greening the Financial System (NGFS), climate change poses material risks to the financial sector and it is, therefore, within the mandate of

[11] Science Advisory Group to UN Climate Action Summit 2019 (November 2019), United in Science
[12] https://www.undp.org/content/undp/en/home/librarypage/environment-energy/climate_change/ndc-global-outlook-report-2019.html
[13] https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Headline-statements.pdf
[14] For example, the insolvency of California-based Merced Property & Casualty Co after massive wildfires in 2018.

supervisors to ensure that the financial system is resilient to climate risks.[15] Since 2015, there has been a significant increase in the number of policy and regulatory measures relating to green and sustainable finance implemented around the world. Analysis by the United Nations Environment Programme (UNEP) has found that approximately 25% of these measures relate to disclosure, including voluntary guidelines, reporting frameworks and requirements relating to environmental, social and governance (ESG) factors, sustainability issues and climate-related risks.

17. In the past two years, many supervisors, SSBs and other international organisations implemented new measures relating to climate risks in the insurance sector (and institutional investment more broadly) including regulatory requirements, guidance for disclosures and statements clarifying expectations relating to self-assessment.

18. Supervisors are collectively developing guidance to support the integration of climate risks into supervisory practices. The SIF has developed tools and materials to support supervisors in considering climate risks as part of their day-to-day supervision – including a Question Bank on climate change risks, scheduled to be released publicly in the first half of 2020. The Question Bank provides a framework, example questions for use in supervisory engagements and activities, and response guidance to help evaluate the strength of responses from firms. These materials can be applied across a range of on- and off-site supervisory engagements.

19. The NGFS is developing a guide for banking and insurance supervisors on how to integrate climate and environmental risks into supervision. Based on a stock-take amongst NGFS members, the guide aims to provide an overview of current practices for climate-risk identification and assessment for prudential supervisors, related to setting supervisory expectations and the supervisory and regulatory toolbox to address climate-related risks . The guide is planned for publication in April 2020.

20. The IAIS' Strategic Plan 2020-2024 calls for enhancing support to Members on responding to emerging(ed) risks, trends and developments, including climate risk. Under this new plan, the IAIS will start development in 2020 of an Application Paper for supervisors on climate risks, to provide guidance for supervisors on how to examine topics such as Enterprise Risk Management (ERM), investment, governance and disclosures by insurers in light of climate risk trends and developments. The IAIS will also develop in 2020-2021 an Issues Paper on how insurers are adapting to emerg(ing)ed risks from a corporate governance and risk management perspective.

21. This Issues Paper aims to set the building blocks for such further work by identifying practices of supervisors to encourage and/or require insurers to utilise the disclosures in the TCFD. In addition, the IAIS joined the NGFS as an observer in June 2019 to further its climate risk and resilience objectives. The work of the IAIS, both undertaken independently and in partnership with the SIF, can also help support the objectives of the NGFS.

22. Other international organisations are also beginning to assess the relationship of climate risks to standards and instruments:

- In September 2019, the International Monetary Fund (IMF) released a paper describing financial and monetary policy instruments that can be used to support

[15] https://www.banque-france.fr/sites/default/files/media/2019/04/17/ngfs_first_comprehensive_report_-_17042019_0.pdf

climate mitigation goals, including supervisory tools such as disclosure requirements and stress tests.[16] The IMF has indicated that it may consider climate change risks within the Financial Sector Assessment Programme (FSAP) process.

- In November 2019, the Financial Stability Institute (FSI) of the BIS, jointly with the SIF, released an FSI Insights paper exploring climate risk assessment within the insurance sector and approaches to assess climate risks through supervisory stress testing.[17] The paper describes the range of regulatory approaches that specify how insurers are expected to assess their climate risk exposures and techniques that supervisors can use to conduct their own assessment of climate risks.

2.3 Relevance of the TCFD to IAIS supervisory material

23. The IAIS has issued the ICPs, which are comprised of Principle Statements, Standards and Guidance, as a globally accepted framework for insurance supervision. As indicated in the Introduction to the ICPs, "the ICPs seek to encourage the maintenance of consistently high supervisory standards in IAIS member jurisdictions. A sound supervisory system is necessary for the protection of policyholders and promoting the stability of the financial system and should address the broad set of risks within, and posed by, the insurance sector".

24. As indicated in the 2018 Issues Paper, the TCFD Recommendations provide a framework for the consideration of climate-related risks. Although climate risk is not mentioned specifically within the ICPs, relevant ICPs cover many aspects of the TCFD Framework, such as governance, supervisory review and enterprise risk management (see Annex 2 for a cross reference of the ICPs to the TFCD thematic areas).

25. In addition, ICP 20 (Public Disclosure) requires disclosure of "relevant and comprehensive information on a timely basis in order to give policyholders and market participants a clear view of their business activities, risk, performance and financial position." The Principle Statement and Standards within ICP 20 require insurers to provide information on material risks faced by the company, such as insurance and investment risks, and their management. This includes climate-related risks, if material[18]. Physical risks may, for instance, materially impact the nature or scale of risks arising from insurance contracts or an insurer's assumptions in models used for underwriting processes. Transition risks, on the other hand, may materially impact an insurer's investment risk exposures and its management.

26. ICP 20 also introduces the concepts of relevance and reliability. The concept of reliability is key for insurers when considering what information on climate risk should be disclosed and whether the disclosures should be quantitative or qualitative in nature.

27. While the TCFD Recommendations on climate-related disclosures are voluntary, supervisors may refer to the more general, but comprehensive, requirements on public disclosures in ICP 20 to encourage insurers to make climate risk disclosures. As ICP 20 allows supervisors to meet the standard through public general-purpose financial reports, supervisors may want to consider encouraging insurers to augment those disclosures with relevant climate-related information, if applicable, rather than requiring duplicative disclosures for

[16] https://www.imf.org/en/Publications/WP/Issues/2019/09/04/Macroeconomic-and-Financial-Policies-for-Climate-Change-Mitigation-A-Review-of-the-Literature-48612
[17] https://www.bis.org/fsi/publ/insights20.pdf
[18] The TCFD Recommendations relating to governance and risk management apply even when climate risks are deemed immaterial to a given firm.

regulatory purposes. Supervisors may also use the TCFD Recommendations, its supplemental guidance for insurers and supporting material (including the special report on scenario analysis) when designing best practises or as input for setting their own supervisory objectives.

3 Assessing TCFD implementation and climate risk disclosure in the insurance sector

28. Starting as early as 2015, assessments of insurance sector responses to climate risks, undertaken by SIF member supervisors, have confirmed the need for supervisory action to strengthen risk assessment, management and disclosure, including through supervisory engagement and application of international instruments, such as the TCFD Recommendations.[19]

29. In July 2017, the SIF released a statement endorsing the TCFD Recommendations. At that time, members of the SIF concluded that insurance supervisors can play an important role in promoting widespread adoption of the recommendations and set out four areas through which this could be done. Since then, members of the SIF have undertaken a range of actions to encourage TCFD implementation, alongside other efforts to strengthen the consideration of climate risks within insurer business practices (see Annex 1).

30. In the two years since the TCFD Recommendations were released, there has been a steady increase in uptake across financial and corporate sectors. As of December 1st 2019, the TCFD had over 900 private sector entities as supporting institutions, including 45 insurers. Together, these insurers represent a significant amount of the insurance sector in terms of premium volume and total assets – but are a fraction of the total number of insurers. In addition, the figures above are not a clear indicator of implementation and release of TCFD-aligned disclosures by supporting firms, nor the quality or characteristics of these disclosures.[20] To explore the completeness of implementation further, the SIF conducted a survey to gather a representative view of insurer's awareness, understanding, levels of uptake and implementation of the TCFD Recommendations across jurisdictions.

3.1 Results of the SIF Survey on TCFD Implementation

31. Conducted in the first half of 2019, the SIF Survey on TCFD Implementation was completed by SIF Members in 15 jurisdictions.[21] Data was collected from 1,170 individual insurers within those jurisdictions and aggregated at jurisdictional levels for the purpose of this Paper. Results below are based on information from all 15 jurisdictions, taking a weighted average across jurisdictions on the basis of sample size, unless stated otherwise.

[19] For a review of initial work in this area, please refer to SIF (2017) Sustainable Insurance: The emerging Agenda for Supervisors and Regulators, available at: https://www.sustainableinsuranceforum.org/publications

[20] Assessment by the TCFD Secretariat (see section 3.3) has found that while certain disclosures within the insurance sector may be increasing, quality and usefulness of such disclosures are not improving at the same rate.

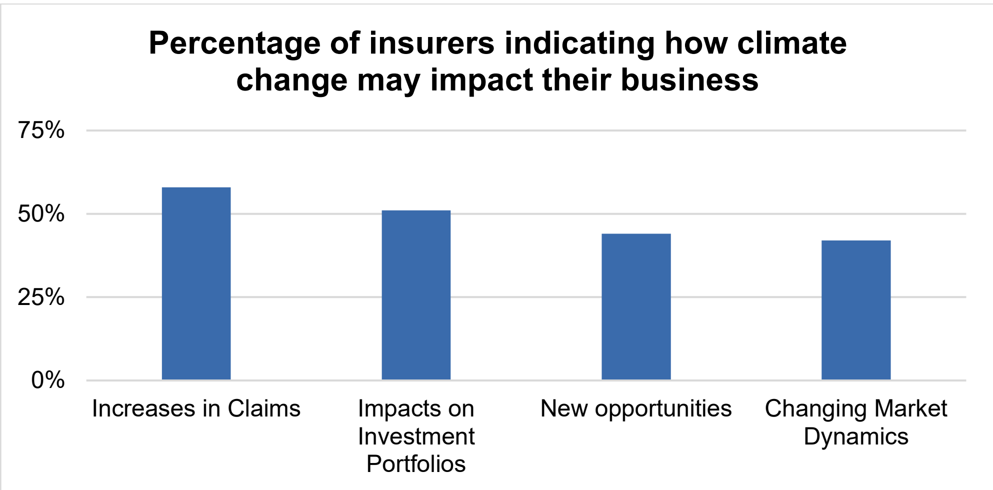
[21] Australia, Belgium, Brazil, Canada, Finland, Germany, Italy, Japan, Netherlands, New Zealand, Singapore, South Africa, United Arab Emirates, United Kingdom, United States (joint submission from California and Washington State on the basis of NAIC materials).

3.1.1 *Understanding climate change*

32. Almost three-quarters of insurers that responded to the survey (73%) expect that climate change will affect their business. The most commonly cited areas in which climate change is expected to impact insurers (see Figure 1) include:

- **Significant increases in claims**, primarily insured losses from damage to property and assets arising from climate-related natural catastrophe events. In addition, some insurers report expectations of increasing claims arising from impacts of climate-related trends on vulnerable sectors, including agriculture, trade credit and industrial activities with high reliance on natural capital inputs (eg water use);
- **Impacts on investment portfolios**, including potential devaluation of equity and debt holdings in carbon-intensive industries arising from the manifestation of transition risks;
- **Creation of new opportunities**, including the development of new insurance products to enable the scale-up of low-carbon technologies and service solutions, as well as growth in demand for cover for physical climate impacts in general insurance portfolios; and
- **Changing insurance market dynamics**, including persistently soft market conditions for certain business lines, reductions in underwriting in certain sectors, which may be vulnerable to transition risks (eg marine), or changes in consumer preferences and consumption patterns affecting demand (or lack thereof) for certain types of retail insurance products (eg automotive). In addition, some insurers report concerns relating to the availability and cost of risk transfer options (eg reinsurance or cat bonds), as well as concerns relating to potential instability in the global insurance market and broader financial system.

Figure 1: Expected impacts of climate change on insurers



Source: SIF Survey, 2019

33. In addition to the high-level impacts listed above, insurers identified a range of specific issues arising from climate change that may affect their business, such as:

- **Operational issues,** including business continuity challenges (eg damage to physical assets or interrupted service) resulting from physical climate impacts. Many firms expect that both climate events and trends (eg extreme heat) may impact day-to-day activities, such as timely claims management and processing. More broadly, claims management challenges may arise from unpredictability in the incidence of physical climate events, and difficulty in prediction of the number of claims arising from a given event (or set of interlinked events);

- **Strategic issues,** including challenges in developing clear positions and contingency plans in response to the range of market, regulatory, reputational and potential liability risks that are already manifesting for insurers. Some insurers expect that increasing regulatory requirements relating to climate-related issues (such as disclosure) will necessitate higher resource commitments; and
- **Business resilience issues**, including the potential for earnings to be impacted if risk-based prices rise beyond consumer willingness to pay. Some firms expect that the combined impacts of heightened exposures, increased modelling capacity/granularity, and continued increase in physical climate risk profiles will render home insurance unaffordable in certain geographies in which they operate. These perspectives support the view that recurring attritional losses may have a significant impact on long-term business resilience, in addition to an increasing frequency and severity of catastrophe events, which may be amplified or exacerbated by climate change.

34. Among the insurers surveyed, the majority that expect to be affected by climate change were non-life insurers, whose primary concern is with risks to underwriting liabilities. Those life insurers that expect to be affected were primarily concerned with investment activities. Insurers that reported that they do not expect to be affected by climate change in any respect were predominately life insurers.

3.1.2 TCFD awareness and implementation

35. Looking at current disclosures, the majority of insurers surveyed (76%) reported that they already disclose some type of information relevant to climate change and its impacts. However, significant differences exist between jurisdictions in the percentage of insurers that currently disclose "climate-relevant" information. These differences may stem from differences in regulatory requirements relating to climate change risk disclosure.

36. There are also major differences between insurers with respect to the scope of information that may be considered "climate-relevant", reflecting differences in insurance business areas, investments, and the range of climate risks that may be material. Insurers use a range of channels to disclose climate-related information, including:

- Annual financial reports;
- Sustainability reports and consolidated non-financial statements;
- Position statements and policies (eg statements of investment policies);
- Other external communications, including investor presentations;
- Reporting to data vehicles (eg CDP, or Carbon Disclosure Project), indices (eg Dow Jones Sustainability Indices (DJSI)) or coalitions (eg Principles for Responsible Investment (PRI), ClimateWise), which may or may not be public; and
- Non-public channels, such as supervisory reporting.

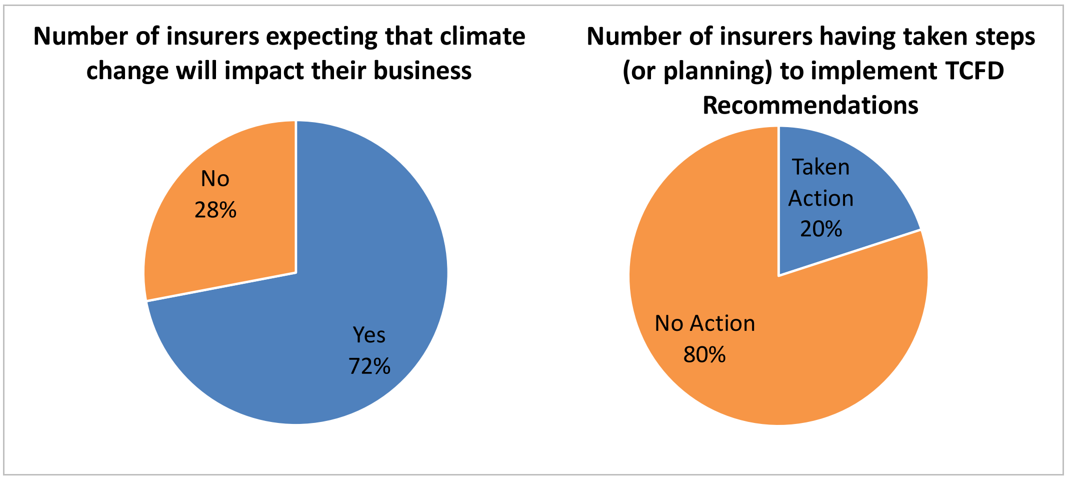
37. The TCFD Recommendations can help address these inconsistencies in how climate-related information is communicated to the market, by setting a framework for identifying "climate-relevant" information, providing recommendations on how such information may be organised, and specifying channels for how this information can be communicated (eg as a component of, or integrated within, mainstream financial disclosures such as annual reports).

Insurance sector stakeholders have expressed the view that supplementary guidance for insurance firms within the TCFD Framework may need to be refined in order to reflect the specifics of the insurance business model (eg consideration of how annual contract repricing may mitigate direct financial exposures to climate risks, yet create challenges for longer-term business viability).

38. In contrast to the relatively high levels of awareness of climate change risks, survey results suggest that awareness and understanding of the TCFD Recommendations within the insurance sector remain comparatively low and vary significantly across jurisdictions. Awareness of the TCFD Recommendations is generally higher in insurance markets in developed economies, and is highest in those jurisdictions where supervisors have made clear references to the TCFD Recommendations in public statements (such as reports or speeches).

39. While awareness of climate change as a risk to the insurance sector is fairly high, the transition from awareness to action – specifically, action to better understand how climate risks may affect a firm, including through implementation of the TCFD Recommendations – is limited (see Figure 2). Survey results indicate that levels of current and planned implementation of the TCFD Recommendations by insurers is comparatively low: only around 15-20% of insurers have made plans to, or are already taking steps to, implement the TCFD Recommendations and to deliver TCFD-aligned disclosures.

Figure 2: Comparing climate risk awareness with TCFD implementation



Source: SIF Survey, 2019

40. From the perspective of size, it is evident that action on the TCFD Recommendations in the insurance sector is being driven by the world's largest insurers, with some medium-sized insurers also taking action. The large majority of smaller insurers have not yet taken action. Insurers representing 60% of the total premium volume of respondents (equating to over USD 720bn in total premiums) report current and/or planned action to implement the TCFD Recommendations.

41. This disparity between large and small insurers is understandable, considering the resource requirements associated with assessing climate risk in a robust manner. However, the impacts of climate risk on smaller insurers are also of importance for insurance supervisors if healthy markets are to be maintained.

42. Survey results furthermore indicate a range of internal, external and market-based factors that may constrain TCFD implementation, including:

- **Low levels of awareness**. Several supervisors reported that significant shares of respondents were unaware of the TCFD Recommendations before receiving the SIF/IAIS TCFD survey. This is especially prevalent in large emerging economy insurance markets, where over one-third of respondents indicated that they were not previously aware of the TCFD Recommendations;
- **View that existing disclosures are adequate**. Many respondents indicated that they are already disclosing certain climate-related information in other public reports (eg exposure to natural catastrophe risks) and, therefore, did not consider it necessary to adopt the TCFD Recommendations;
- **View that TCFD was not applicable**. Some respondents indicated that the TCFD Recommendations, and climate issues more broadly, were not applicable to them. Qualitative responses gathered from the survey suggest that a majority of the insurers expressing these views were life and health insurers; and
- **Capacity and resource limitations**. Some respondents indicated that they did not have available capacity or resources to undertake processes necessary to deliver TCFD-aligned disclosures, and therefore did not plan to take action.

3.2 Identifying good practices

43. From a supervisory perspective, TCFD-aligned disclosures can be useful to inform assessment of risk exposures and to serve as a tool to help evaluate the strategic response of a given firm, complementing other sources of supervisory reporting used to benchmark supervised entities.

44. Insurers can take a range of steps to ensure that disclosures are relevant for different user groups. Many insurance-specific industry entities and associations are currently undertaking efforts to identify and promulgate best practices relating to implementation of the TCFD Recommendations and climate risk assessment more broadly, including the UN Principles for Sustainable Insurance (PSI). In addition, a wide range of non-governmental organisations (NGOs) and other research entities are developing open-source materials designed to support insurers (as underwriters and asset managers) in undertaking climate-related risk assessment and scenario analysis, as well as evaluating and commenting on current practices of industry participants. While such efforts and resources may be useful, it is beyond the scope of this paper to review the breadth of materials being developed, or for the SIF or the IAIS to formally identify or endorse specific industry-developed materials.

45. Considering that TCFD-aligned disclosures are most immediately relevant for market participants (which includes existing and potential investors, lenders and other creditors), consistency and comparability are often considered paramount. The rapid proliferation of different best practice guidance could present challenges for insurers and for supervisors if inconsistencies arise. For example, industry stakeholders have observed that the landscape of physical and transition climate risk modelling is evolving rapidly but remains fragmented. On the basis of the survey and the workshop with industry stakeholders some high-level insights can be gleaned on ways to undertake the TCFD implementation process in a resource-efficient and robust manner:

- **Clarifying governance processes to support implementation:** Most insurers that have developed TCFD-aligned reports have begun by focusing on the qualitative aspects of the TCFD Recommendations – specifically Governance and Strategy. Insurers report that it is necessary to have established governance processes relating to climate risks, and TCFD implementation specifically, before taking steps towards more complex climate risk assessment and disclosure efforts (eg pertaining to risk management, metrics and targets and scenario analysis), for which common methodologies are still under development.
- **Engaging across the insurance value chain:** Insurers report that there is an increasing awareness of climate risks within different stakeholder groups – including policyholders, cedants and brokers. Certain insurers report that stakeholders are asking to leverage modelling expertise to explore the exposure of capital investments to climate risks. Firms seeking to strengthen their TCFD-aligned disclosures can use their power to influence better disclosures from investee firms and policyholders. Insurers report a range of different types of disclosures from investee entities as particularly useful, including:
    - Robust emissions data, provided in readily comparable metrics for carbon intensity;
    - Geographic data on physical assets, to assess concentrations of risk in vulnerable areas (eg low lying coastal areas); and
    - Adaptability to changing policy, technological, market or social conditions.
- **Strengthening climate risk assessment capacities:** While certain insurers have developed sophisticated models to assess certain types of physical climate-related hazards (eg natural catastrophes), methodologies to quantitatively assess how both physical and transition-related climate risks may affect business resilience are at an early stage. If insurers are unable to effectively quantify their climate risk exposures, it may be challenging for them to disclose robust information relating to potential future impacts. While the availability and sophistication of methodologies in this space is developing rapidly, major technical gaps remain.[22] Insurers can work with third-party service providers to explore options to utilise existing resources (such as catastrophe models that capture climate scenarios) to inform the development of risk insights relevant for TCFD-aligned disclosures, recognising proportionality and the resource requirements associated with investing in internal modelling capacity. Insurers report that action to integrate climate factors into mainstream risk models can often be more impactful than employing specialised physical or transition risk scenario analysis tools, which may be difficult to integrate into core risk management systems. An appropriate balance should be struck between insurers working with third-party service providers and developing their own internal capacities, which may take time.

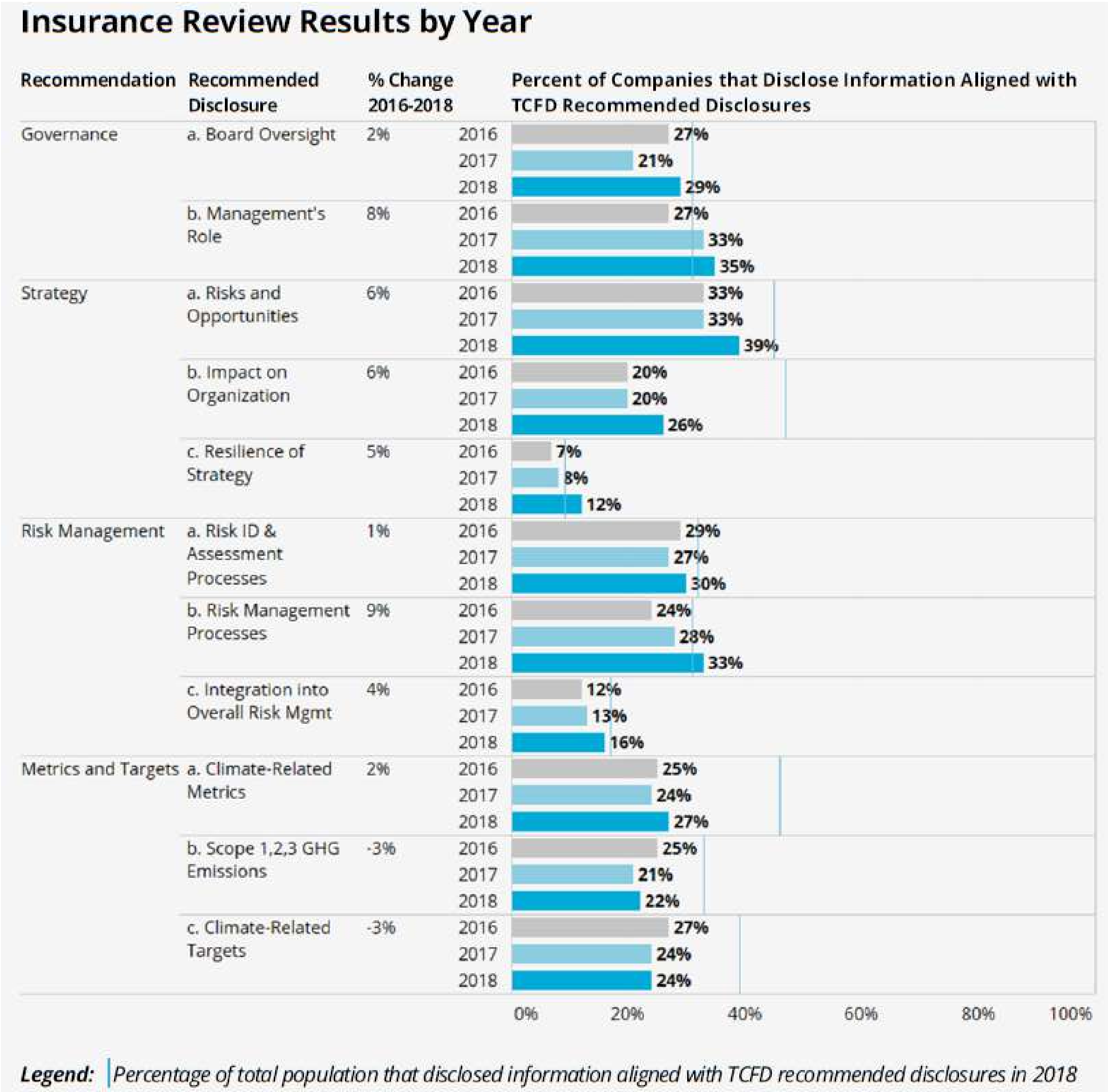
3.3 Findings of the TCFD Secretariat report

46. The TCFD Secretariat published its second status report on adoption of the TCFD Recommendations in June 2019. Out of 147 insurers reviewed, the percentage that disclosed information aligned with the TCFD recommended disclosures in 2018 varied between 12% and 39%, depending on the recommendation. This represents a small improvement compared

[22] For a more detailed discussion of climate risk assessment methodologies in the insurance sector, please refer to FSI (2019) Turning up the heat, available at: https://www.bis.org/fsi/publ/insights20.pdf

to 2016/2017, at which time disclosed information varied between 7% and 33%, depending on the recommendation (see Figure 3).[23] The insurance sector exhibited some of the smallest improvements in disclosure practices when compared to other financial sectors (such as banking) or corporate sectors.

Figure 3: Summary of Insurance sector TCFD Disclosure, 2016-2018



Source: TCFD Secretariat, 2019

4 The role of supervisors

47. Insurance supervisors are following different strategies to encourage climate risk disclosure by insurers. The activities and experiences of SIF member supervisors illustrate that the TCFD Framework provides an important foundation on which supervisory guidance

[23] https://www.fsb.org/wp-content/uploads/P050619.pdf

for insurer disclosures can be developed, as described in the set of case studies provided in Annex 1 of this document.

48. On the basis of current and contemplated practices used by insurance supervisors, there are several approaches that supervisors are exploring to strengthen disclosure of climate-related risks and opportunities in line with the TCFD Recommendations, as well as to leverage the TCFD Framework to support broader supervisory objectives relating to climate risk assessment.

4.1 Ensuring climate risks are considered by all insurers

49. In most jurisdictions, supervisors have tools in place to enable oversight of "all material risks" that may affect an insurer. Across the supervisory community, the critical change of mind-set influencing action on climate change is a recognition that climate change may pose material risks to insurers. Therefore, existing tools are relevant and appropriate for the assessment of climate risks, including those described in IAIS ICPs relevant to enterprise risk management, such as the Own Risk and Solvency Assessment (ORSA). IAIS supervisory and supporting material provides examples of how supervisory tools can be applied so that material risks are considered by insurers.

4.2 Clarifying the relevance of the TCFD Framework for supervisory objectives

50. Supervisors may consider clarifying how the TCFD Framework can support insurers in meeting supervisory objectives relating to climate change. For instance, in the Bank of England's Supervisory Statement on Climate Change, the Prudential Regulation Authority (PRA) specifically notes that they expect "firms to consider engaging with the TCFD Framework and other initiatives in developing their approach to climate-related financial disclosures".[24]

4.3 Setting expectations to encourage TCFD-relevant practices

51. Supervisors can consider setting expectations to influence how insurers develop strategic responses to climate risks, taking the TCFD Framework as an example. For instance, certain supervisors have communicated expectations on how Boards and Senior Management should implement clear responsibilities and lines of accountability for climate change risks and associated procedures to ensure climate risks are appropriately considered within the development of business strategy, risk management, operations and public disclosure.

4.4 Checking for coherence with other disclosure requirements

52. Supervisors seeking to encourage uptake of the TCFD Recommendations by insurers may wish to consider whether any potential conflicts may arise from disclosure of climate risk information with broader public disclosure rules, including requirements on timely release of information. A detailed analysis of potential conflicts has not yet been undertaken.

4.5 Assessing coherence in climate risk disclosures within groups

53. Analysis of the SIF Survey responses suggest that there are inconsistencies in the ways in which the head of a group interacts with legal entities within the group on climate risk issues. While awareness and engagement on climate risks may be higher in legal entities

[24] https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2019/ss319.pdf?la=en&hash=7BA9824BAC5FB313F42C00889D4E3A6104881C44

within groups that are TCFD signatories, this is not always the case. This variation in the level of awareness can create challenges for supervisors in developing robust assessments of climate risk exposures of large insurance groups that are active across multiple jurisdictions. Group-wide supervisors may wish to encourage the head of a group to consider the TCFD Recommendations at a group-wide level. Where relevant, group-wide supervisors may consider ways to integrate climate risks more routinely into group supervisory processes, including supervisory colleges. Additionally, insurance groups that support the TCFD Recommendations may consider enhancing the capacity of legal entities within the group to deliver TCFD-aligned disclosures, in particular by strengthening understanding of TCFD disclosure requirements, internal processes and data collection mechanisms.

4.6 Supporting TCFD-related scenario analysis

54. Certain aspects of the TCFD Framework – including Recommendations and Supplemental Guidance relating to scenario analysis – have necessitated the development of new analytical approaches, tools and data sets. Supervisors are at an early stage in efforts to conduct climate-related scenario analysis, as detailed in recent analysis by the FSI.[25] Supervisors may want to work with experts, both within and outside the industry, to provide guidance on how appropriate scenarios can be developed along with the associated impacts to an insurer's business under those scenarios.

55. There are divergent perspectives on how supervisors can best engage with industry to encourage the development of robust approaches for climate-related scenario analysis. Certain industry stakeholders have expressed a desire for standardisation in underlying assumptions and parameters of scenarios in order to ensure consistency and comparability of information. Other industry stakeholders have expressed the view that standardisation of scenarios may constrain the internal benefits that an insurer may accrue by undertaking some processes independently. There may be benefits for supervisors in coming to a shared view on the core elements of scenario analysis, such as clear expectations and guidance on how to consider climate risk impacts across different types of insurance business areas and financial assets (eg equity, debt and real estate), as well as insurance-specific guidance on the parameters associated with scenarios to be applied across the broader financial sector (eg stress tests applied to banks and insurers). Looking forward, finding ways to harmonise views on the climate sensitivity of a given level of greenhouse gas (GHG) emissions, the expected impacts associated with a given level of temperature rise and the role of other earth-system processes, among other issues, could help alleviate some aspects of uncertainty. Consideration of the veracity of the scenarios and the associated impacts will be needed, since results of such analysis could influence business strategy, and potentially affect product pricing and availability.

4.7 Exploring new engagement models to support voluntary practice development

56. Alongside all of the above options, supervisors can establish new platforms to engage with industry on climate risk disclosure in order to raise awareness and encourage development of voluntary practices. Several supervisory authorities have established such processes to share information on best practices, such as Japan, Malaysia, the Netherlands, Singapore and the UK.

[25] FSI Insights on Policy Implementation No. 20, Turning up the heat – climate risk assessment in the insurance sector: https://www.bis.org/fsi/publ/insights20.htm.

4.8 Referencing TCFD as a component of mandatory climate risk disclosures

57. Members of the SIF have expressed a range of views on whether or not climate-related disclosure should be made mandatory or remain voluntary in nature, recognising trade-offs with respect to disclosure quality, consistency, market maturity and proportionality. Some SIF members have implemented requirements for disclosure of climate-related information by insurers, or supervise compliance with legislation implemented by other government agencies that specify such requirements. For example, in the case of the United States, the California Department of Insurance and the Washington State Office of the Insurance Commissioner are working with other state-level regulators to reference the TCFD Recommendations within the National Association of Insurance Commissioners (NAIC) Climate Risk Disclosure Survey, which is applied as a mandatory instrument in several states.

58. Over the course of 2019, certain supervisors[26] and governments[27] have expressed that climate risk disclosure may need to transition to mandatory regimes over time in order for climate-related risks to be effectively priced within the financial system, and broader real economy. Speaking in June 2019, Bank of England Governor Mark Carney noted that "In the future, to achieve a carbon-neutral economy, disclosure must become mandatory," suggesting that an iterative process of disclosure, reaction and adjustment is necessary for market standards to be comparable, efficient and decision-useful.[28] An increasing share of industry stakeholders have also expressed positive views on the implementation of mandatory disclosure, reflecting a phased approach to allow for practices to develop. However, some stakeholders have suggested that a mandatory approach could discourage innovation in voluntary practices and, therefore, some degree of flexibility is necessary to allow practices to evolve.

59. Supervisors who are considering the introduction of mandatory climate risk reporting requirements may wish to consider a range of approaches, recognising the iterative nature of disclosure processes and early stages of certain aspects of climate risk assessment methodologies. Examples of such practices from SIF members include phased compliance periods, a step-by-step approach to ratcheting up the quality of disclosures, prioritisation of qualitative aspects of disclosures (eg governance dimensions), and setting clear expectations on desired focus areas (eg governance, strategy, risk management or scenario analysis). In jurisdictions where disclosure of climate risk information is already mandatory, supervisors may wish to consider aligning or updating requirements in alignment with the TCFD Recommendations.

[26] See, for example: https://www.banque-france.fr/en/intervention/climate-risk-call-action https://www.bankofengland.co.uk/-/media/boe/files/speech/2019/remarks-given-during-the-un-secretary-generals-climate-actions-summit-2019-mark-carney.pdf.

[27] The UK has already announced in its Green Finance Strategy published in July 2019 that it expects all listed companies and large asset owners to report climate risks by 2022. A joint taskforce with UK regulators is considering the most appropriate path to mandatory disclosure.

[28] https://www.bankofengland.co.uk/-/media/boe/files/speech/2019/enable-empower-ensure-a-new-finance-for-the-new-economy-speech-by-mark-carney

5 Conclusion

60. Since its release in June 2017, the TCFD Recommendations have helped inform market and supervisory practice related to climate risk disclosures. Various major insurers have expressed their support for the TCFD and have indicated they are in the initial or early stages of developing TCFD-aligned disclosures. These voluntary efforts by insurers to strengthen their understanding, assessment and disclosure of climate-related risks and opportunities are welcomed by supervisors, policyholders and other stakeholders, including market participants.

61. The SIF Survey suggests that a vast majority of insurers that participated in the survey do expect that climate change will affect their business. In contrast to this relatively high level of awareness of possible general impacts on risks and opportunities, the survey, however, also shows that awareness and understanding of the TCFD Recommendations amongst the surveyed insurers remain comparatively low. Finally, only a small number of the surveyed insurers have made plans to, or are already taking steps to, actually implement the TCFD Recommendations and to deliver TCFD-aligned disclosures.

62. As the survey results indicate, there is a wide dispersion on climate-related disclosure between insurers, as well as a high level of recognition of climate risk and a low level of disclosure. Given this wide dispersion, a purely voluntary pathway – without supervisory support or intervention towards adoption of TCFD Recommendations – may not yield disclosures of the quality and scope necessary to inform decisions by insurers (as users of this information), or enable market participants and other users of information to make decisions about how insurers are taking action on climate risks and opportunities.

63. Supervisors considering different approaches to strengthen TCFD disclosure implementation will have to evaluate trade-offs – for instance, between consistency (eg widespread adoption through mandatory requirements), quality (eg avoiding that disclosure becomes a tick-box exercise whereby firms do not share information of relevance for market participants or supervisors), comparability (eg the degree of standardisation of disclosures) and reliability (eg market participants will be able to use the disclosures to perform relatively accurate valuations).

64. Going forward, supervisors may seek to consider a range of broader issues stemming from increased climate risk which may be relevant for supervisory objectives, including:

- **The potential for increasing climate risk to affect insurance pricing for vulnerable consumers:** supervisors could consider how to use TCFD-aligned disclosures as a springboard to explore how insurance sector climate risk intelligence can be used to strengthen government and consumer awareness, incentivise mitigation actions and ultimately reduce exposures;
- **Implications of climate risks for long-term business model resilience:** strengthening climate risk transparency, including forward-looking scenario analysis, could illuminate the ways in which climate risks may impact insurance business model viability over the long-term – including by exploring the potential for increasing attritional losses, inability to charge appropriate premiums for the risk and loss in revenue; and
- **Interactions between micro- and macroprudential objective**s: in the case of integrated supervisory authorities (eg prudential authorities working across sectors, or central banks), strengthening climate risk transparency may have implications for a

range of institutional objectives. Integrated frameworks, linking firm-level disclosures to system-level assessments, could help strengthen understanding of the impacts of climate risks on individual firms, as well as the impacts of the sector as a whole on climate risk resilience within the financial system and broader economy.

65. To support supervisors' efforts to assess the impact of climate risks to the insurance sector and help resolve challenges, including around public disclosure, the SIF and IAIS recognise the value of developing further supporting material. Therefore, as a next step, the SIF and IAIS will develop an Application Paper on Climate Risk in the Insurance Sector.[29] This paper is expected to include a section on disclosures.

[29] IAIS Application Papers provide additional material related to one or more ICPs and/or ComFrame to help practical application of supervisory material. Application Papers can provide further advice, illustrations, recommendations or examples of good practice to supervisors on how supervisory material may be implemented.

Annex 1: The role of supervisors: Case studies

SIF/IAIS Members are taking a range of actions to strengthen climate risk disclosure by regulated entities in their jurisdictions, including in reference to the TCFD Recommendations. This section provides case studies of supervisory action on climate risk disclosure (and climate risk issues more broadly), in the following jurisdictions:

- Australia: Australian Prudential Regulation Authority (APRA)
- European Union (EU)
- Belgium: National Bank of Belgium (NBB)
- Canada: Office of the Superintendent of Financial Institutions (OSFI)
- France: Autorité de Contrôle Prudentiel et de Résolution (ACPR)
- Germany : Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)
- Italy: Istituto per la Vigilanza Sulle Assicurazioni (IVASS)
- Japan: Financial Services Agency (FSA)
- Malaysia: Bank Negara Malaysia
- Singapore: Monetary Authority of Singapore (MAS)
- South Africa: Prudential Authority
- United Kingdom: Bank of England Prudential Regulation Authority (PRA)
- United States: Joint Submission from the California Department of Insurance (CDI) and the Washington State Office of the Insurance Commissioner (OIC).

Australia: Australian Prudential Regulation Authority (APRA)

Over recent years, APRA has highlighted the financial nature of climate change risks. APRA has advised that these risks are material, foreseeable and actionable now. APRA continues to conduct engagement on climate risk issues through speeches, attendance on industry panels, and interaction with peer agencies through Australia's Council of Financial Regulators. A coordinated effort by APRA, the Australian Securities and Investment Commission (ASIC), the Reserve Bank of Australia (RBA) and the Australian Treasury has resulted in consistent messaging across the financial system regarding expectations for industry responses to climate risks.

In 2018, in order to assess the awareness and understanding of climate risks promoted by APRA's recent period of education, APRA undertook a survey of 38 large entities from all supervised industries. This survey confirmed APRA's actions had led to an increased awareness and understanding of climate risks. APRA-regulated entities were shown to have a general understanding of climate change as financial risks, and perceived them as material now or in the short-term; focussing on the opportunities as well as the risks presented by climate change and upskilling to respond to the challenges. However, entities' modelling, stress testing and scenario analysis – and the disclosure of these activities – was shown to require improvement.

The thematic results of this survey – as well as an overview of recent developments in relation to climate change risks both domestically and internationally – were published in APRA's Information Paper: *Climate change: Awareness to action.*[30]

Building from the basis of awareness that was evidenced in this paper, APRA has embarked on a period of enhanced supervisory action. Supervisors of the 38 entities surveyed by APRA

[30] https://www.apra.gov.au/sites/default/files/climate_change_awareness_to_action_march_2019.pdf

– as well as any other entities for which climate change is considered a material risk – are now assessing their supervised entities' responses to climate change, in line with the framework set out by the TCFD Recommendations.

APRA has developed tools to assist supervisors with the assessment of these risks. These tools include the production of industry-specific internal guidance and the implementation of the SIF Question Bank, designed to facilitate supervisory discussions.

APRA is also supporting industry-led innovations in response to climate change. APRA is an observer member of the steering committee of the Australian Sustainable Finance Initiative (ASFI), an industry group representing members of the finance sector in Australia developing a sustainable finance roadmap in Australia. This roadmap will recommend pathways, policies and frameworks to enable the financial services sector to contribute more systematically to the transition to a more resilient and sustainable economy, consistent with global goals such as the UN Sustainable Development Goals and the Paris Agreement on climate change.[31]

At the same time, APRA has continued its international engagement on climate issues, including by taking a leadership role on sustainability issues within the SIF and IAIS. Recently, APRA has supported a project from the FSI, comparing risk quantification requirements that insurance regulators impose in relation to climate risks and how insurance supervisors quantify such risks themselves. APRA also maintains observer status of the NGFS. APRA's supervisory activity within Australia is reflective of its leadership and collaboration with international as well as domestic regulatory peers.

European Union (EU)

In the European Union, Regulation (EU) 2019/2088 on sustainability-related disclosures in the financial services sector will require the transparency of end-investors on the integration of sustainability risks in their investments, on the consideration of adverse sustainability impacts of investment decisions, on sustainable investment objectives, or on the promotion of environmental or social characteristics in investment decision-making and in advisory processes. It applies to financial market participants, including insurers that offer investment-based insurance products (IBIPs), as well as pension product providers and financial advisers, including insurance intermediaries that provide insurance advice with regard to IBIPs. The Regulation will become directly applicable in all EU Member States from 10 March 2021.

The EU Taxonomy Regulation, which establishes the criteria for determining whether an economic activity is environmentally sustainable for the purpose of determining the degree of environmental sustainability of an investment, complements these transparency requirements in order to ensure alignment of the disclosure on the sustainability of products and investments with the taxonomy objectives and criteria. A first set of requirements will apply from 31 December 2021, focusing on climate change mitigation and adaptation.

Furthermore, the EU Non-Financial Reporting Directive (Directive 2014/95/EU) currently requires large public interest entities to disclose material information on key ESG aspects in their financial accounts. In June 2017, the European Commission published non-binding guidelines to help companies disclose the non-financial information required by the Directive, with new guidelines being issued in 2019 on reporting climate-related information, with specific sector-guidance for banks and insurance companies. The new guidelines integrate the TCFD

[31] https://www.sustainablefinance.org.au/

Recommendations. The European Commission has very recently launched a consultation on the review of the Non-Financial Reporting Directive, to strengthen reliable, comparable and relevant information on sustainability risks, opportunities and impacts.[32]

Belgium: National Bank of Belgium (NBB)

As climate-related risks and the transition to a more sustainable economy can constitute significant financial risks, the NBB is working on improving the measurement, management and mitigation of these risks.

The NBB has set three priorities in its action plan to address climate-related risks within the financial sector. The first is to develop its own expertise regarding climate-related risks (close the knowledge gap), the second is to gather sufficiently granular information to refine climate-related risk assessment (close the quantitative data gap) and the third is to raise awareness and encourage financial institutions to include climate-related risks in their risk management.

In 2019, the NBB dedicated a thematic article in its Financial Stability Report[33] on climate-related risks and sustainable finance, which also presents the results and conclusions from a sector-wide survey.

Surveyed institutions indicated they are disclosing information on environmental matters as part of their non-financial reporting. This is the result of the Belgian Law of 3 September 2017, implementing Directive 2014/95/EU (EU Non-Financial Reporting Directive). Moreover, almost all institutions were aware of the TCFD Recommendations and supplemental guidance, and most insurers participating in the survey planned on implementing these TCFD Recommendations. In addition, financial institutions indicated they already disclose or are planning to disclose information regarding environmental issues or climate-related risks by other means (eg sustainability reporting in line with the Global Reporting Initiative or reporting prepared in cooperation with external partners). However, the type of disclosures varies widely. While some institutions provide some information about the carbon footprint of some of their exposures, quantitative information remains scarce, and most information is of a qualitative nature.

The survey demonstrated that financial institutions' awareness of climate-related risks is still at the early stage and that there is a lack of available data to adequately assess the exposure of Belgian institutions to climate-related risks. The absence of a common taxonomy and disclosure framework obviously hampers the identification of climate-related risks and of truly sustainable investments. But even in the absence of such a taxonomy and disclosure framework, financial institutions can increase their efforts to capture their exposures to climate-related risks and contribute to mitigating these risks.

The thematic article includes recommendations aimed at encouraging financial institutions to improve the measurement, management and disclosure of climate-related risks, to take part in discussions with supervisors to jointly improve the data and methods to best capture and mitigate these risks, and to support the financing of more sustainable investments.

Specifically, the NBB encourages financial institutions to disclose information on climate-related risks, in line with TCFD Recommendations and, going forward, the upcoming guidelines on climate-related non-financial reporting. Although there is already widespread

[32] https://ec.europa.eu/info/files/2020-non-financial-reporting-directive-consultation-document_en
[33] https://www.nbb.be/doc/ts/publications/fsr/fsr_2019.pdf

support for TCFD Recommendations on climate-related financial disclosures, the TCFD status report, published in September 2018, revealed that the quality of such reporting can still be improved, especially in terms of quantitative, financial implications.

Canada: Office of the Superintendent of Financial Institutions (OSFI)

Canada has begun articulating expectations and raising awareness for alignment with the TCFD Recommendations. In the March 2019 Federal budget,[34] the government expressed support for the TCFD Recommendations as voluntary international disclosure standards and a phased approach to adopting them by major Canadian companies, as appropriate. The Government will also encourage adoption by federal Crown corporations, where appropriate and relevant to the business activities. In June 2019, the Expert Panel on Sustainable Finance,[35] commissioned jointly by the Minister of Environment and Climate Change and the Minister of Finance, released their final report entitled *Mobilizing Finance for Sustainable Growth*. In it, the Panel made several recommendations to the government, pertaining to the implementation of a Canadian approach to TCFD implementation.

The Panel endorsed a phased approach under a mandatory "comply-or-explain" regime. Phase 1 will focus on wider-known aspects of the TCFD that many companies already disclose such as qualitative descriptions of governance, strategy and risk management. Phase 2 will cover aspects of the TCFD that will likely require better information accessibility and enhanced analytic capacity, such as climate metrics, targets and scenario analysis. The Panel recommends that larger companies and financial institutions be given a five-year implementation timeline to allow sufficient time to develop internal controls and capacity, and that small and medium-sized companies be allotted an additional two years, to allow time for clearer precedents, more reliable and affordable information and more established professional support. The Panel is also recommending that provincial insurance regulators and Canadian Insurance Services Regulatory Organisations, the Canadian Securities Administrators, and the Canadian Association of Pension Supervisory Authorities harmonise provincial regulatory approaches in line with the TCFD implementation approach.

OSFI undertook two surveys in 2019 related to climate change and disclosure:

- The first survey collected information on the climate change risk assessment and risk management practices at the larger deposit taking institutions and insurers. This survey showed that for most Canadian insurers, awareness of the potential impact of climate change on their business models is high, and most are in early stages of trying to calculate the impact. The larger insurers in the sample have established systems and processes to embed climate-related financial risks into their enterprise risk management frameworks, and have governance structures to address climate-related risks.
- The second survey focused on 44 Canadian-domiciled insurers and collected data to assess the level of awareness, uptake and implementation of the TCFD Recommendations. The results showed that 56% of insurers surveyed are making plans to, or have already taken steps to implement TCFD-aligned disclosures on climate-related risks. Although alignment with the TCFD Framework may not be fully mature, there is evidence of climate risk impacts embedded in ESG reporting to

[34] https://www.budget.gc.ca/2019/docs/plan/anx-04-en.html
[35] https://www.canada.ca/en/environment-climate-change/services/climate-change/expert-panel-sustainable-finance.html

external stakeholders in annual reports, sustainability reports, external presentations and investor presentations. The biggest challenge facing insurers in implementing the TCFD Recommendations centred on the lack of standard industry specific scenarios, assumptions and output requirements that would assist with stress-testing analysis. There is also a challenge with the time horizon mismatch between financial planning periods of 1-5 years and climate risk's horizon that stretches beyond 10-20 years. They also cited the complex interrelations of political, regulatory, economic and socio-economic effects making climate change impacts difficult to predict and quantify.

OSFI will use the results of the two surveys to assess generally how insurers are incorporating climate change in their risk management practices, and specifically how they are considering disclosure requirements. OSFI has also created a working group tasked with developing a plan to incorporate climate-related risks into supervisory guidance and activities. The working group is also tasked with the quantification of exposures to financial institutions and continued assessment of current practices with respect to identification, analysis and risk management of climate risk exposures.

France: Autorité de Contrôle Prudentiel et de Résolution (ACPR)

Financial institutions are required to disclose the way they take into account ESG criteria in their investment decisions, according to Article 173 of the French law on ecological transition and green growth, passed in August 2015. In 2018, the ACPR reviewed the reports of 17 insurance groups, which represent 88% of the market. The application decree of Article 173 was voluntarily not prescriptive in order to give some leeway to initiatives and innovative approaches from the industry. The main conclusions of this review are presented below.

First, the publication requirement was respected: 76% of the sample issued a dedicated report, whereas the rest included this information in a pre-existing report, such as the annual report. All insurance groups described their consideration of ESG criteria and a description of labels they use, in accordance with Article 173. Almost all undertakings implemented an exclusion or divestment policy, mostly on the basis of environmental criteria (for instance, divestment from coal mining) and have an investment policy in green bonds. The measure of carbon intensity of assets is the most widespread metric for these investment decisions. Other metrics used come from credit rating agencies or public institutions (Organisation for Economic Co-operation and Development (OECD), UN).

However, the level of detail regarding the investment policy varies between groups, and generally does not meet the level of expectation of Article 173:

- Two thirds of the sample assessed the contribution of their action to the international objective of limiting global warming, but the objectives set by insurance groups are not always clearly described, especially in terms of deadlines;
- Only half of the sample specified whether the climate-related risks to their business are physical or transition risks, whereas Article 173 requires financial institutions to report on their exposure to climate risks, especially the greenhouse gas emissions of the assets they own (transition risks); and
- Lastly, little information is published on how ESG risks are managed. Some groups indicated they use stewardship to influence ecological transition of undertakings they invest in. Some groups also set up a team dedicated to social responsible investment.

The content of reports published in 2017 and 2018 did not substantially evolve: groups generally do not describe the implementation of their long-term objectives nor the progress made over this period to achieve them. Yet, progress was made with a better implication of governance bodies and a consideration of ESG risks beyond mere corporate social responsibility (CSR) aspects. The main findings of this review were published in April 2019 with the view to call upon insurers to better take into account and manage ESG risks, primarily by developing a prospective approach and making use of appropriate scenarios.

While numerous comments were made by observers (mainly NGOs), further work is needed to increase awareness of the reports among the general public.

On Regulation (EU) 2019/2088 that will be directly applicable from 10.03.2021, please refer to the EU case study above. The information published according to this regulation will replace the French law Article 173 reports.

Germany: Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin)

Sustainable finance is one of the key priorities of BaFin. BaFin is looking closely at the methods available to insurers – eg for the quantification of physical and transition risks in their investments. Climate stress tests can be used by insurers to better identify, assess, monitor, manage and control their environmental risks. As the insurers are responsible for their own risk management, they are obliged to examine whether the company-specific stress tests appropriately model the key sustainability risks. They need to independently improve methods and tools to ensure that these can model the sustainability risks in the long-term. Many insurers use analysis tools from external providers or combine their own tools with external ones.

Given the increasing importance of climate stress tests and scenario analysis, BaFin contacts insurers and, during on-site supervisory interviews, obtains an understanding of the importance of stress tests and scenario analysis in insurers' investments. In addition, BaFin held workshops with the industry with a particular focus on governance issues and scenario analyses and stress tests. The outputs of these activities will influence the design of future supervisory practice and BaFin's risk-based supervisory approach. BaFin plans to continue this practise to build up expertise.

As a supporter of the TCFD Recommendations published in June 2017, Germany participated in the SIF Survey on the status of TCFD Recommendation implementation in 2019. It was discovered that entities reporting on climate change do so via several channels, first and foremost as part of entities' annual sustainability reports, but also via annual consolidated non-financial statements.

The 2014/95/EU Directive was implemented in the German Commercial Code by introducing a duty on the non-financial declaration in the (group) management report. The additional reporting was required for the first time for the financial year 2017.

In 2019, BaFin published its Guidance Notice on Dealing with Sustainability Risks, which focuses also on key topics relevant within the scope of the TCFD Recommendations. BaFin intends this Guidance Notice to serve as a compendium of non-binding procedures (good practice principles) to be applied, with regards for the principle of proportionality, by supervised entities in the area of sustainability risks to implement the legal requirements for a proper business organisation and an appropriate risk management system. The Guidance Notice considers details of strategies, responsible governance and business organisation. BaFin recommends a strategic assessment of sustainability risks. The central focus of the Guidance Notice is risk management. It considers risk identification, management and control processes together with traditional methods and procedures, with specific reference to sustainability risks. In addition, the Guidance Notice considers issues regarding stress tests including scenario analyses, particularly with regard to entity-specific tests, and considers transition and impact scenarios. External stress tests are not covered.

In 2020, BaFin will develop a concept and strategy for the supervision of the management of sustainability risks.

As of 2021, BaFin will systematically record and address sustainability risks through existing supervisory instruments.

BaFin also participates in the NGFS with a focus on the development of a handbook for supervisory authorities and the development of climate-related scenarios and corresponding application policies.

Italy: Istituto per la Vigilanza Sulle Assicurazioni (IVASS)

In July 2018, IVASS issued Regulation No. 38/2018 on the system of governance of insurance undertakings and groups, in accordance with the provisions of the Solvency II Directive, Delegated Regulation 2015/35 and EIOPA Guidelines. The new Regulation rationalises the existing regulatory framework, while at the same time introducing new provisions that underline the importance of social and environmental factors in the definition of the strategic plan and of the activities of insurance undertakings. In particular, article 4 (2) of the Regulation lays out that the controls relating to the corporate governance system shall cover each type of corporate risk, including those of an environmental and social nature, “generated or borne”. These risks shall be adequately taken into account and shall be defined and assessed by the corporate functions, each according to its specific competencies (Risk manager, Asset manager, Human resources, Compliance, etc.). Article 47 (2, b) of the Regulation also lays down that undertakings may introduce remuneration systems, for the variable component, based on non-financial indicators such as, for example, criteria based on social and/or environmental performances or the management of customer service.

Between September 2018 and March 2019, IVASS has conducted confidential requests for information at national and European level. In particular, IVASS collected from a representative sample of groups and undertakings (life and non-life business):

- qualitative information on investments and underwriting practices;
- quantitative data on natural catastrophe claims settlements; and
- incentives or disincentives for considering sustainability in Solvency II, in particular in the market risk and natural catastrophe module for the standard formula and internal models.

The questions were specifically aimed to collect evidence on investment and underwriting practices from non-life (re)insurers with regard to climate risks. Main obstacles cited by insurers in investing in sustainable assets related to climate change are “market obstacles”, such as the lack of data and information on performance as well as the impossibility to monitor climate change risks. Participants consider that the impact of climate change on investments would mostly arise from climate migration, flooding more generally and the environmental impact on biodiversity, and more specifically on human health. Further obstacles cited are the lack of a theoretical framework and lack of clarity on what are sustainable investments (related to taxonomy and benchmarks). Some national large players consider assets issued by certain companies as bearing a higher risk, in particular those involved in the coal sector or in sectors with potential severe environmental damages. More than 70% of the entities selected have implemented or plan to implement specific processes aimed at identifying and evaluating issuers with a higher exposure to ESG issues (eg exclusion lists).

At the European level, insurers indicated that physical risks arising from longer-term shifts in climate (such as increases in sea level, changes in the intensity and/or frequency of storms and flooding), besides natural disasters (heatwaves, floods and wildfires) would most directly have an impact on real estate portfolios. Indirect impacts of these events are expected on sovereign bond exposures (eg where tourism is affected) or on global supply chains (risk of supply chain disruption) and availability of resources (risk of resources scarcity). From the evidence available, some participants noted their exposures are currently mostly located in the Eurozone/Europe.

Lastly, in July 2019, IVASS contributed to the EIOPA Consultation Paper entitled “Opinion on sustainability within Solvency II” both in terms of providing data and also by participating in the drafting process for the section relating to investments.

Japan: Financial Services Agency (JFSA)

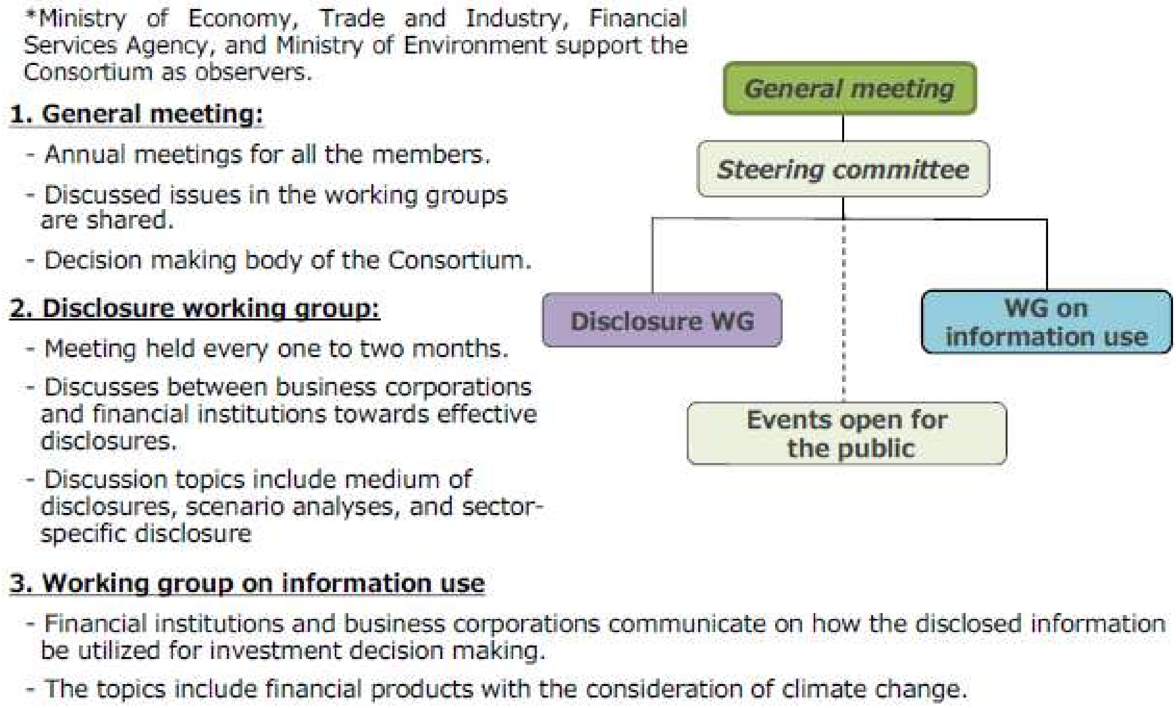
In Japan, there has been significant progress in implementing the TCFD Recommendations. TCFD supporters have grown to 201 entities, including 12 insurance companies and associations at the end of October 2019. In transforming climate risks into climate opportunities to realise a virtuous cycle of environment and economic growth, the disclosure based on TCFD Recommendations plays a key role in Japan. Activities by the JFSA to support TCFD implementation include:

- Hosting symposiums on: "TCFD – The Power of the TCFD Framework in Company-Investor Dialogue" on 12 February, 2019 and “Dialogue between companies and investors on TCFD” on 20 December, 2019 which were co-hosted by the Japan Exchange Group, Inc.; and
- Strongly supporting the TCFD Consortium of Japan[36], which was led by the industry and launched in May 2019[37] to serve as a platform for constructive dialogue on climate-related financial disclosures as recommended by the TCFD. All the TCFD supporters can join the Consortium. Its structure is described as below in Figure 4. On 8 October 2019, the Consortium hosted the world’s first TCFD Summit[38] and released the Guidance for Utilizing Climate-related Information to Promote Green Investment (the so called “Green Investment Guidance”)[39] which provides investors and other stakeholders with viewpoints and good practices for understanding the information disclosed based on the TCFD Recommendations.

Strengthening engagement in sustainable finance within and across borders, the JFSA appointed its first Chief Sustainable Finance Officer in March 2019. In addition, the JFSA is an active member of the NGFS.

[36] https://tcfd-consortium.jp/
[37] https://www.fsa.go.jp/en/news/2019/20190521.html
[38] https://tcfd-summit.org/indexEn.html
[39] https://tcfd-consortium.jp/en/news_detail/19100802

Figure 4: The Structure of TCFD Consortium of Japan:



Source: Japan Financial Services Agency (2019)

Malaysia: Bank Negara Malaysia

As climate-related information is new to the financial sector, Bank Negara Malaysia concurs that a new engagement platform between the supervisor and financial industry can accelerate industry responses towards ensuring a smooth and orderly transition to a low-carbon economy, including managing exposures to climate risks and facilitating businesses to transition towards sustainable practices.

In view of this, Bank Negara Malaysia established a Joint Committee on Climate Change (JC3) in September 2019, to pursue collaborative actions for building climate resilience within the Malaysian financial sector, guided by three key mandates:

- building capacity through sharing of knowledge, expertise and best practices in assessing and managing climate-related risks;
- identifying issues, challenges and priorities facing the financial sector in managing the transition towards a low-carbon economy; and
- facilitating collaboration between stakeholders in advancing coordinated solutions to address arising challenges and issues.

The JC3 comprises four sub-committees focusing on risk management; governance and disclosure; product and innovation as well as engagement and capacity building. The Sub-Committee on Governance and Disclosure will develop disclosure-related best practices and explore potential adoption of existing standards including TCFD Recommendations.

Singapore: Monetary Authority of Singapore (MAS)

MAS recognises that environmental risks, including climate change, not only pose a reputational concern, but can also result in physical and transition risks that can have a negative impact on regulated financial institutions. MAS has been actively engaging financial institutions within its jurisdiction on the issue of environmental risks, including climate change.

MAS issued new guidance in July 2017, requiring insurers to consider emerging risks such as environmental risks (including climate change) in their ORSA. Considerations of environmental risks in the ORSA help to improve the quality of disclosure on the quantitative and qualitative efforts of the insurer around the ORSA. MAS had also, in its 2018 industry wide stress testing exercise, incorporated a climate variability scenario to assess the impact of extensive floods (eg arising from extreme rainfall) on insurers' property and casualty exposures as well as on solvency levels. Future industry stress tests will include transition risk exposures and other climate change-related physical perils.

MAS announced its Green Finance Action Plan in November 2019. Under the Plan's auspices, a new USD 2 billion (S$2.7 billion) Green Investments Programme (GIP) was launched. The GIP will invest in public market investment strategies that have a strong green focus. This will help support the Singapore financial centre in promoting sustainable projects and mitigating climate change risks in Singapore and the region.

To improve understanding and analysis of climate-related risks and opportunities, good quality data and information are required to support informed investment and insurance underwriting decisions. Better information will also help investors engage with companies on the resilience of their strategies and capital spending, which could help promote a smooth (rather than abrupt) transition to a lower-carbon economy. Hence, quality disclosure is key. The TCFD Recommendations can provide a standardised framework for climate disclosures given their comprehensive coverage, focus on financial impact and strong industry support.

MAS will look to set supervisory expectations on governance, risk analysis and disclosure of environmental risks through the issuance of environmental risk management guidelines for financial institutions. The guidelines will encourage the adoption of the TCFD Recommendations to help financial institutions in fulfilling the disclosure expectations.

South Africa: Prudential Authority

The Prudential Authority became a member of SIF in 2017. South Africa's inclusion as a member of a network of insurance supervisors and regulators from around the world affords the country valuable insights into global insurance initiatives, critical in an emerging market and developing economy like South Africa. The learnings since assuming membership in SIF have significantly assisted South Africa as it continues to refine and enhance its insurance regulatory framework.

The increasing risk that climate change presents to the insurance sector has been a consistent and topical discussion at the SIF over a number of years. South Africa, like many other countries in Southern Africa, has seen an increase in natural catastrophes (droughts, floods and hailstorms) over the past few years. Apart from the increase in physical climate risk, there is also an increasing risk associated with the transition to a low-carbon economy. Both physical climate risk and transition risk will affect the insurance industry. The insurance industry represented by both life and non-life actors plays a critical role in the formal economy, operating in multiple roles as risk transferees, risk mitigants and institutional investors. The risks posed by climate change and transition require acute focus in order for regulators and supervisors to understand the complex linkages to the financial soundness of their supervised institutions and the stability of the financial system as a whole.

South Africa's socio-economic challenges may be compounded by the transition to a low-carbon economy. The ancillary industries tethered to our high-carbon dependency are employment drivers in a society that already sees high levels of unemployment. The urgency to transition to low-carbon economies must be aligned to balanced growth and development that steers clear from shocks to the current socio economic framework.

As an emerging market, supervisory objectives include (either explicitly or implicitly) a focus on closing the protection gap, a gap which at the same time is being widened by climate change. To this end, the Prudential Authority seeks to include varied stakeholders from government and the private sector as part of a multi-pronged intervention strategy.

Although the Prudential Authority has not formalised and explicitly included climate risk in all parts of its legislative and supervisory frameworks, it has made significant progress in terms of understanding this risk. Initiatives that assisted the Prudential Authority in its understanding of climate risk, together with progress in this regard, are listed below:

- Climate risk has been highlighted to the Financial Stability Committee of the Central Bank as an emerging risk. Creating awareness at the highest levels of the organisation is important to drive initiatives forward.
- A risk-based regulatory framework was legislated and became effective on 1 July 2018. This framework allows for all material risks to be identified and assessed even if not explicitly modelled (eg climate risk). Physical climate risk is dealt with more explicitly by requiring insurers to calculate capital requirements for natural catastrophe risk (although it is currently only calibrated for certain types of catastrophes). The framework deals further with both physical risk and transition risk implicitly by requiring insurers to have a documented risk management strategy. Apart from other aspects, the risk management strategy must describe each current material risk and emerging risk, and the insurer's approach to managing those risks. Operationally, an insurer's suite of risk management procedures and tools must, at a minimum, include a process for identifying and assessing new and emerging risks. An ORSA report containing this information needs to be submitted to the Prudential Authority at least annually. The following enhancements, relating to climate risk (ie physical and transition risk) to this framework are under consideration:
    - Provide training to supervisors and create supervisory guidance on how to supervise this risk. For example, types of questions that can be posed to senior executives and board members in order to obtain more information from on-site visits;
    - Enhance Pillar I requirements to quantify the risk more appropriately (ie as part of the on-going assessment of appropriateness of the standard formula).
    - Possibly creating Pillar II guidance on the risk management and governance requirements (ie those relating to the investment policy) that allows for climate risk to be explicitly considered; and
    - Enhance Pillar III requirements in order for important information on climate risks to be reported consistently.

- During the first half of 2019, the Prudential Authority surveyed the insurance sector in South Africa in order to assess its maturity in terms of climate risk reporting and, more specifically, the adoption of TCFD Recommendations. Despite the voluntary nature of the survey, a response/completion rate of 66% of all insurers in South Africa was observed. 79% of respondents surveyed believe that climate change will affect their business but only 37% already report on information relevant to climate change impacts. The survey served not only as an information gathering exercise that helped the Prudential Authority understand the maturity of climate risk reporting by insurers in South Africa, it also raised awareness and signalled the importance of considering climate-related risks as part of an insurer's risk management framework.
- Another key contributor to the Prudential Authority's progress in this regard was the attendance of and participation in insurance seminars, conferences and workshops (local and internationally) where climate-related topics were discussed and debated. The Prudential Authority is also closely involved in industry initiatives where innovative products are considered to mitigate the effects of climate risks (eg weather-based index insurance).

Climate risk reporting is a crucial step in understanding the impact both from a physical and transitional perspective. The aforementioned initiatives have started the journey for the Prudential Authority but a lot more needs to be done to have a more robust and consistent framework for the assessment and reporting of climate risk.

United Kingdom: Bank of England Prudential Regulation Authority (PRA)

In 2015, Mark Carney, in his capacity as chair of the FSB, established the TCFD. The Bank of England ("the Bank") and Mark Carney, in his capacity as its Governor, has promoted (via speeches and guidance) the importance of clear and reliable climate disclosures to regulated firms.

In 2019, the Bank strengthened its support for climate-related financial disclosures by setting out expectations in a supervisory statement that PRA-regulated firms "develop an approach to disclosure on the financial risks from climate change". This asked firms to:

- Consider whether further disclosures (beyond existing requirements) are necessary to enhance transparency on their approach to managing the financial risks from climate change;
- Develop and maintain an appropriate approach to disclosure of financial risks from climate change; and
- Engage with wider initiatives on climate-related financial disclosures, such as TCFD, and to take into account the benefits of disclosures that are comparable across firms.

The supervisory statement also signals to firms that there is an increased possibility that disclosure will be mandated in more jurisdictions and, hence, they should prepare accordingly.

To help inform the Bank's view of best practice, beyond what it has stated in the 2019 supervisory statement, the PRA has established the Climate Financial Risk Forum (CFRF) jointly with the Financial Conduct Authority (FCA). The objective of this industry forum is to build capacity and share best practices to advance financial sector responses to the financial risks from climate change. The forum has set up four technical working groups to produce practical tools and guidance; one of the four working groups is focused on disclosure. The working group on disclosure intends to publish final outputs by the end of Q1 2020.

The Bank has included climate scenarios in the 2019 Insurance Stress Test (IST) and will be testing the financial sector's resilience to climate change via the 2021 Biennial Exploratory Scenarios (BES), which complements the annual cyclical stress tests set by the Bank. The inclusion of climate scenarios will support firms to produce quantified financial impacts of climate-related risks, which in turn will support firms to disclose climate-related financial risks. The 2019 IST includes three climate scenarios that impact both assets and liabilities from physical and transition impacts (orderly and disorderly transitions, as well as a high physical risk scenario). The 2021 BES will contain multiple scenarios in order to test "severe but plausible" transition and physical risks and will ask firms to model shocks over decades rather than years. Both the 2019 IST and 2021 BES should support firms in their climate risk management; encourage them to take a strategic, long-term view to addressing climate risks; and, crucially from a disclosure perspective, will highlight data gaps that need to be filled for effective disclosure.

The Bank is also mindful of the UK Government's Green Finance Strategy, which sets an expectation for publicly listed and large asset owners to disclose in line with the TCFD Recommendations by 2022. To help operationalise this expectation, the Bank is a member of a joint taskforce of UK regulators, chaired by the Government, which is examining the most effective way to approach disclosure, including exploring the appropriateness of mandatory reporting.

Finally, in April 2019, the Governor announced that the Bank will be undertaking its own TCFD disclosure in its annual reporting, with the first disclosure taking place in 2020. Given that the Bank expects regulated firms to disclose their approach to managing climate-related financial risks, the Bank is keen to hold itself to similarly high standards.

United States: Joint submission from the California Department of Insurance (CDI) and the Washington State Office of the Insurance Commissioner (OIC)

Consistent with each year of the past decade, in July 2019 the annual NAIC Climate Risk Disclosure Survey was sent out to the more than 1,000 insurance companies. Six states participate in the annual survey, including California, Connecticut, Minnesota, New Mexico, New York and Washington. These six states are able to survey more than 70% of the United States insurance market, and the survey results are maintained on the California Department of Insurance website.

In 2019, the covering letter from the insurance commissioners included a message to insurers, encouraging them to refer to the TCFD Recommendations when filling out the survey and noting the overlap between the annual survey and these recommendations. This action was announced at the Climate Risk and Resilience Working Group of the NAIC in New York City in August 2019. The announcement noted that the IAIS and the SIF have endorsed the idea of insurers using these recommendations to report on climate change.

Annex 2 – TCFD thematic areas with links to ICPs

TCFD Thematic Areas	Recommended Disclosures	Link to IAIS ICPs
Governance: The organisation's governance around climate-related risks and opportunities	a) Describe the board's oversight of climate-related risks and opportunities. b) Describe management's role in assessing and managing climate-related risks and opportunities.	ICP 7 – Corporate Governance *7.3 – Structure and governance of the Board* *7.10 – Duties of Senior Management* ICP 20 – Public Disclosure
Strategy: The actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long-term. b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning. c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	ICP 7 – Corporate Governance *7.2 – Corporate culture, business objectives and strategies* ICP 20 – Public Disclosure
Risk Management: The processes used by the organisation to identify, assess, and manage climate-related risks	a) Describe the organisation's processes for identifying and assessing climate-related risks. b) Describe the organisation's processes for managing climate-related risks. c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	ICP 8 – Risk Management and Internal Controls *8.1 – Systems for risk management and internal controls* *8.4 – Risk Management Function* ICP 16 – Enterprise Risk Management for Solvency Purposes *(Provisions relevant to stress testing and scenario analysis)* ICP 20 – Public Disclosure
Metrics and Targets: The metrics and targets used to assess and manage relevant climate-related risks and opportunities	a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	ICP 8 – Risk Management and Internal Controls *8.5 – Actuarial Function* ICP 9 – Supervisory Review and Reporting *9.1 – Supervisory Powers* ICP 16 – Enterprise Risk Management for Solvency Purposes *(Provisions relevant to stress testing and scenario analysis)* ICP 20 – Public Disclosure

Source: IAIS/SIF 2018 Issues Paper