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REGULATORY
STRATEGY
EMEA

Climate change and insurance

How boards can respond to emerging supervisory expectations

Contents

1. Foreword – who is this report for, and what does it set out to do?

Climate change is a key concern across all sectors of the economy. Financial services regulators worldwide are moving to ensure that banks, insurers and asset managers identify risk exposures from climate change and establish strategies and adjust business models to manage them.

Insurers, with their often longer term time horizons, hold a unique position in the climate change debate because, unlike any other sector, climate change risk affects both the asset and liability sides of the insurance balance sheet. Moreover, insurers have amassed decades' of expertise in extreme risk pooling and management. Insurers are, therefore, simultaneously both more exposed to financial risks from climate change than many other financial institutions, and uniquely positioned to manage and mitigate the catastrophic effects that climate change could have on the economy and society.

Regulators will expect insurance Boards to pose robust challenge and provide effective oversight of climate change risks, drawing on external expertise, but guarding against over-reliance on it. Accordingly, this report analyses regulatory climate change expectations in the areas of risk identification and risk appetite, strategy and business model, capital modelling and stress testing, asset transition risk, governance and culture and conduct. It explores, at a practical and non-technical level, the various ways in which climate change risk may affect life and non-life insurers, and how, in that light, regulators expect Board members, in particular non-executive directors (NEDs), to challenge and oversee their firm's identification and management of climate change risk.

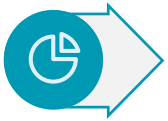
The report provides example challenge questions in each of these areas, and examples of positive and negative indicators that we think regulators are likely to use in assessing whether an insurer is responding adequately to its climate change risk profile.

This report's intention is to help insurers step up to this leadership role, in a manner that meets regulatory expectations.

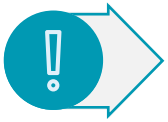
This report is specifically targeted at insurance company boards, recognising the profound challenges they face in both meeting developing regulatory expectations and mitigating and responding to rapidly developing climate change risks.

2. Executive summary

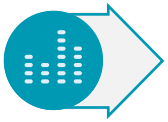
Despite being some of the biggest investors in the economy with deep expertise in risk pooling, many insurers still have some way to go in getting to grips with how climate change will affect their business models in the medium to long term. This makes it all the more important that insurance Boards challenge their firms comprehensively on climate change risk, particularly in the areas we discuss in this report.



Climate change risk is present in all core insurance company functions. As these risks could crystallise suddenly, unpredictably, and in a non-linear fashion, it is vital that insurers are clear on their exposures and manage these appropriately. This is particularly important given the increasing focus on firms' accountability, transparency and disclosure when it comes to climate change risks. Individual executives and members of senior management will be held accountable if these are not appropriately managed.



There is a clear risk that asset and liability risks are managed in silos, creating "cognitive dissonance" or even conflicts of interest as well as inconsistent risk management strategies and approaches. *(A recent striking example of this "silo" challenge is pandemic risk which, in our experience, has featured in many firms' ORSA analyses but in relatively few business continuity plans.)*



The insurance industry is heavily reliant on external expertise and data in understanding and predicting potential future paths of climate change risk factors. This reliance is particularly marked in the area of climate change modelling but extends to other areas such as climate change stress testing and sustainable investment management. This reliance accentuates the risk of group-think and "herding" in firms' approach to climate change risk management and is therefore an issue on which firms' governance, and in particular NED challenge, should be strongly focussed.

Insurers are exposed to reputational risks and opportunities in how they respond and contribute to the climate change debate. Insurers are strongly positioned to influence the pace and nature of the transition to a low-carbon economy and take advantage of the commercial opportunities from climate change, through products, risk pooling expertise, investment, shareholder governance and proactive fair treatment of consumers, including for example through the appropriate disclosure of climate change risk and the offering of green products.

The fact that the regulatory framework is still developing should not stop insurers developing medium- to long-term strategies fit for their unique exposures and business models. Regulators will be wary of stoking bubbles or triggering transition risks through their policies, regulations and practical supervisory approach. But they are already actively looking for evidence of how the industry is adapting and responding to climate change risks and will factor that into their overall risk assessments of firms' governance and culture.

3. Summary of key findings

Section	Key findings	
Risk identification and risk appetite	Insurers have potentially large unknown asset and liability exposures.	Supervisors will focus on key areas of uncertainty including scope and coverage (for liability business in particular), second-order effects of physical risks and perils, and the effect of physical risks on investment risk.
	Once exposures have been determined, supervisors will look to insurers' risk appetites.	Supervisors will look at how insurers set climate risk appetite and capital allocation, as a key indicator that climate change risk exposures are measured and managed in line with the insurer's business strategy and risk appetite.
Strategy and business model	The strategic implications of failing to address risks may be severe.	Climate change is a strategic risk to insurers from both a balance sheet and reputational perspective, and should be addressed through a comprehensive strategy. Supervisors will, in particular, focus on inconsistencies between the management of assets and liabilities, resulting in a "cognitive dissonance".
	Insurers have a unique ability to address climate change risk strategically	Supervisors, and public opinion more widely, expect insurers to contribute meaningfully to the climate change debate and response given their expertise in catastrophe management and their importance as investors. How insurers respond could create potential reputational risks and/or benefits for insurers.
	Increased demand and changes to underlying risks will affect the price of insurance	Pricing and reserve adequacy are key concerns for supervisors, and are heightened by climate change risks. Primary areas of concern will include the potential for some risks to become uninsurable, the effect of climate change risks on pricing and product mix, and robust oversight where advanced analytics are deployed.
	Climate change may change the dynamics of reinsurance and risk transfers	The dynamics of traditional reinsurance and risk transfers may change in ways that are difficult to predict. Supervisors will scrutinise, in particular, increasing concentration and credit risk exposures to reinsurers, and uncertainty as to how reinsurance will respond to climate change related events.

	Section	Key findings	
	**Capital modelling and stress testing**	Defining plausible but severe stresses and scenarios is difficult but necessary	Supervisors will focus on stress testing to understand insurers' resilience to climate change risks. Areas of supervisory focus will likely be the severity and robustness of scenarios, how these compare to and build on industry-wide stress tests, and how comprehensively they cover insurers' unique risk exposures.
		Climate change could lead to significantly increased model risk	Given its non-linear nature, climate change could challenge established model methods, assumptions and calibrations and materially increase model risk. Particular areas of supervisory concern could include correlation and diversification, data adequacy, and over-reliance on third party vendor models and external expertise.
	**Asset transition risk**	Transitioning to a greener investment portfolio may not be straightforward	Insurers will need to take strategic decisions in some uncertain areas if they are to transition to "greener" investment portfolios and avoid being left with stranded carbon-intensive assets. Particular challenges include defining what is sustainable/green in the circumstances of the individual insurer and ensuring sufficient portfolio yields to avoid policyholder detriment.
	**Governance and culture**	Supervisors see governance as key to successful management of climate change risks	Supervisors expect climate change to be "mainstreamed" into risk management and internal controls. They will look for a clear escalation and decision making framework for climate change risks, including tangible evidence that risks are assessed, monitored, managed and reported at all appropriate levels.
		Overall culture and "tone from the top" are important to regulators	Supervisors expect a board-led culture that encourages serious consideration of climate change issues across the organisation. Supervisors will focus on the "tone from the top", and in time can be expected to test understanding of, and attitudes towards, climate change risk issues at different levels of the firm.
	**Conduct**	Climate change may lead to a surge in conduct-related issues for insurers	Climate change could increase conduct risks in ways that are currently relatively unexplored. While the current supervisory focus is on disclosures and the availability of "green" products and services, future focus areas may include the effect of transition risk on consumers, and effective stewardship.
		Greenwashing is likely to be an area of particular concern	Firms should anticipate supervisory action on risks that non-sustainable products, activities or services are "green-washed[1]". Supervisory attention will likely fall on marketing and distribution to consumers.

4. How are insurers exposed to climate change risk?

Importantly, while some insurance exposures to climate change risk are relatively established and recognised, insurers may also have exposures that are less obvious, and therefore more difficult to identify and manage. For example, on the liability side, insurers may experience a rise in claims costs across several different types of insurance products as extreme weather events become more frequent and severe. This includes more traditional catastrophe-type risk insurance products but also general liability-type insurance covers. On the asset side, insurers as major investors in the wider economy may experience losses in value of certain types of investments, and in some cases may be left with de-valued, stranded or illiquid carbon-intensive assets.

Insurers are thus the only type of financial institution exposed to all three of the different risk factors commonly discussed by regulators (physical, transition, and liability risk[2]).

4.1 Physical risk

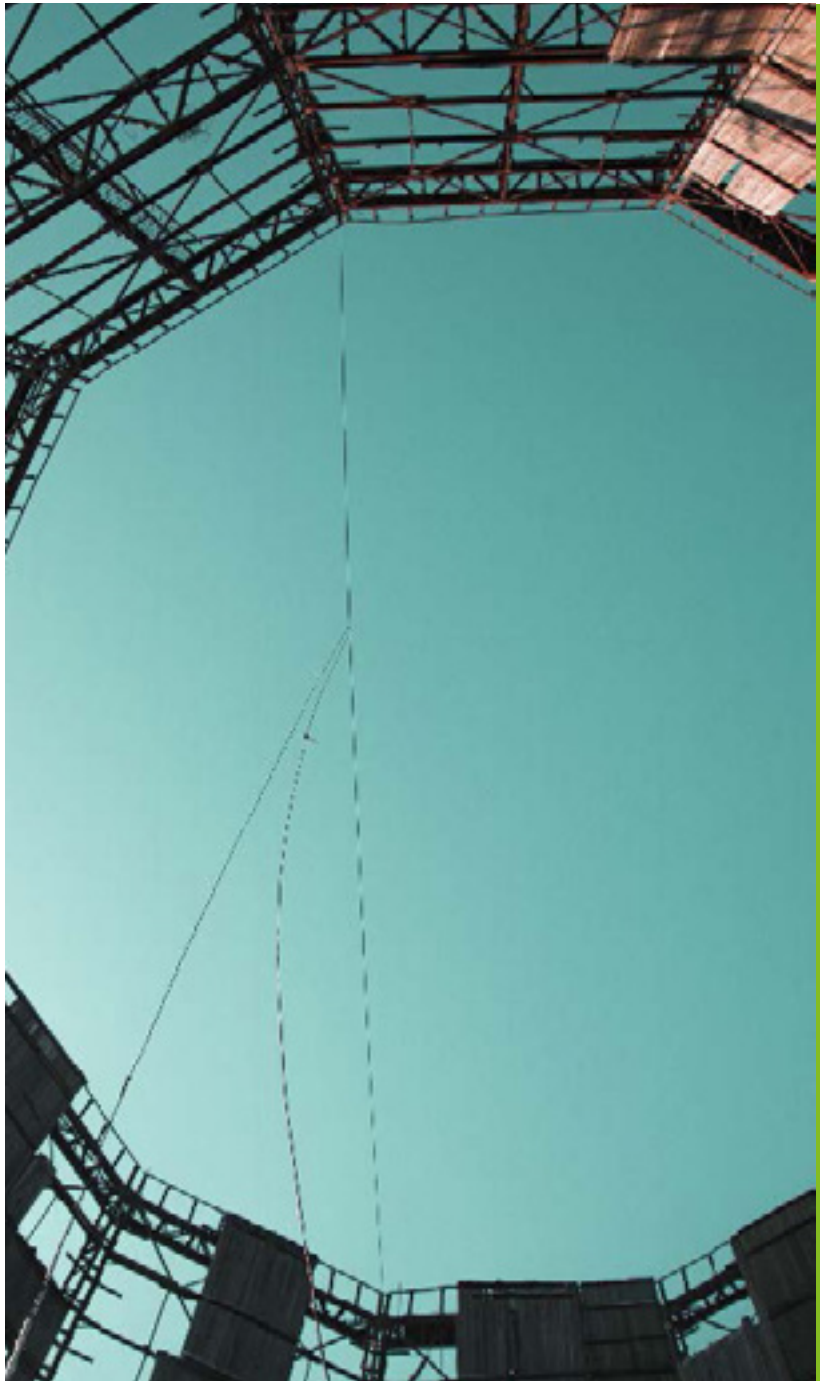
Definition

The "*first-order risks which arise from weather-related events, such as floods and storms. They comprise impacts directly resulting from such events, such as damage to property, and also those that may arise indirectly through subsequent events*"[3].

Illustrative example

- An international insurer has a diversified portfolio with exposure ranging from traditional Property and Casualty (P&C) business to more specialist classes such as agriculture, spread across a variety of geographical locations. The insurer insures a factory located in the United States. The insurance policy includes both physical damage and business interruption cover. A severe hurricane leads to severe flooding in the area, physically damaging core functions of the factory and also leads to interruptions up the factory's supply chain. The insurer also insures a field of crops in a nearby area, which has been materially damaged as a result of increased heavy rains from the hurricane, leading to flooding of farmlands. The premiums charged for both policies did not take into account changing climatic conditions including more frequent and severe flooding as a result of climate change, meaning claims are materially higher than anticipated: i.e. there is now a mismatch between the premiums charged and the underlying risks.
- The same insurer also has investments in international real estate and infrastructure. The real estate investments are coincidentally located in an area in the UK that is becoming increasingly prone to flooding. The investments therefore lose value as they suffer more frequent and severe damage, compounded by damage to rental prospects and the local economy as businesses shift away from the flood-prone area.

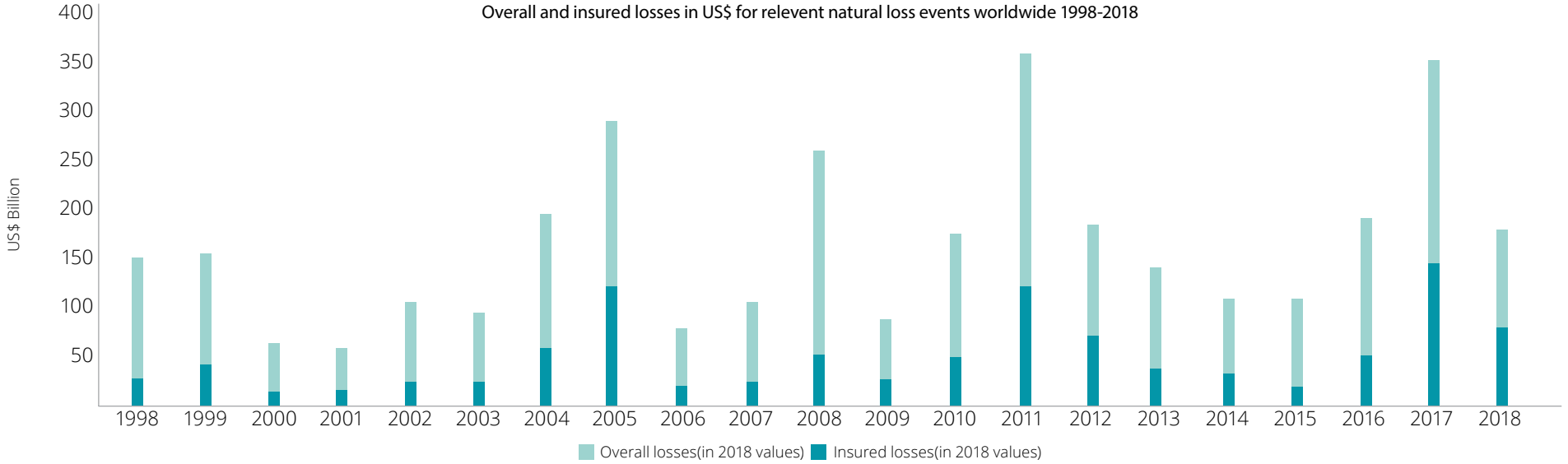
Physical risk is currently the best understood risk factor affecting insurance, given in particular non-life insurers' large exposures to natural catastrophe risks (mainly through property, but also energy and marine, aviation and transportation insurance).



Evidence suggests that natural catastrophes are increasing in severity and frequency, partly as a result of climate change. This is steadily increasing insurance claims for both more obvious primary physical risks and more-difficult-to-identify second-order physical risks. Second-order claims may arise in lines of business such as financial loss, agriculture and political risk[4]. In addition to higher claims costs, increased claims frequencies can also pose significant operational challenges for insurers and brokers, for example to meet increased demand for claims handling.

The graphs below detail the increase in the overall and on the next page insured loss amounts, and number of natural catastrophes over a 20 year period between 1998 and 2018. Notably, with only a few exceptions, overall losses from catastrophes are generally higher the last ten years compared to the previous decade, while the number of severe events has also trended upwards during the same time period.

While 2019 was more benign than previous years, natural catastrophes still accounted for USD133bn economic losses (and USD50bn of insured losses)[11].



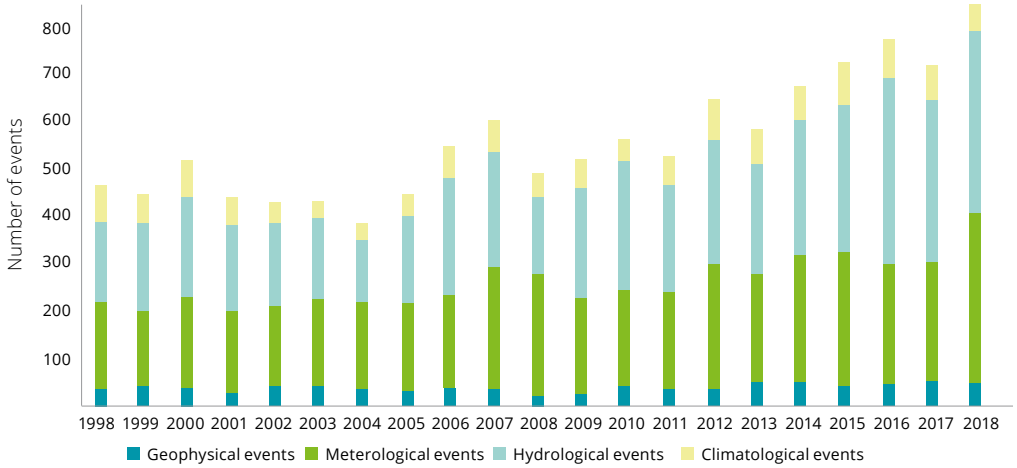
Statistics from Munich Re's NatCas Service[10]

The physical risk factor also affects life insurers. Long term health factors, for example from heatwaves, floods, droughts and fires, could lead to significant changes in longevity, morbidity and mortality. Climate change could also extend the transmission season and geographical range for many infectious diseases[5], so further increasing insurers' mortality risk (although potentially simultaneously decreasing their longevity risk). Secondary effects affecting life insurers' liabilities could include climate change-related developments such as migration, urbanisation, and access to clean water[6] as these could all lead to changes in, for example, life expectancy patterns.

On the asset side, insurers' property investments may lose value due to physical damage by for example floods, or property becoming too expensive to rent or buy given the additional cost of insurance involved. Properties may also lose value due to potential future effects of climate change, including for example through proximity to flood plains or coastal erosion. In the extreme scenario, certain properties may even become 'uninsurable' due to the increased underlying present or future risks, and therefore impossible to rent or buy. Additionally, there may be changes in wider economic sentiment following an extreme weather event[7], which could affect the value of certain investments including property. Due to the uncertain weather patterns and correlations brought about by climate change, investments previously deemed "safe", such as the credit rating of sovereign/municipal bonds[8], may lose value. Insurers may also experience second-order effects on the asset side that are less immediately obvious. For example, climate change could affect the performance of loans and credit to households and Small to Medium Enterprises (SMEs) or firms' changing credit risk profiles[9]. Insurers may also experience significant counterparty risks from issuers of financial instruments being exposed to both physical and transition risks.

The 2011 Thai floods resulted in USD12bn of insurance payments including claims arising from second-order effects such as supply chain interruption of global manufacturing firms[12].

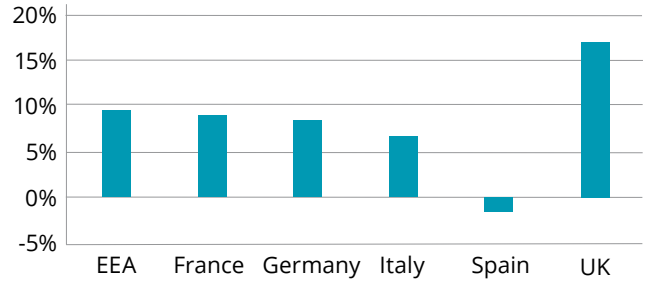
Number of relevent natural loss events worldwide 1998-2018



Statistics from Munich Re's NatCas Service[13]

The graph below shows that insurers' overall investment portfolio allocation to real estate has increased over a three-year period in the EEA as a whole but particularly in the UK. This means that insurers are potentially quite significantly exposed to physical asset risk from climate change.

% Change in insurer exposure ratio to real estate assets: 201704 to 201903



Deloitte graph, with data from EIOPA[14]

4.2 Transition risk

Definition

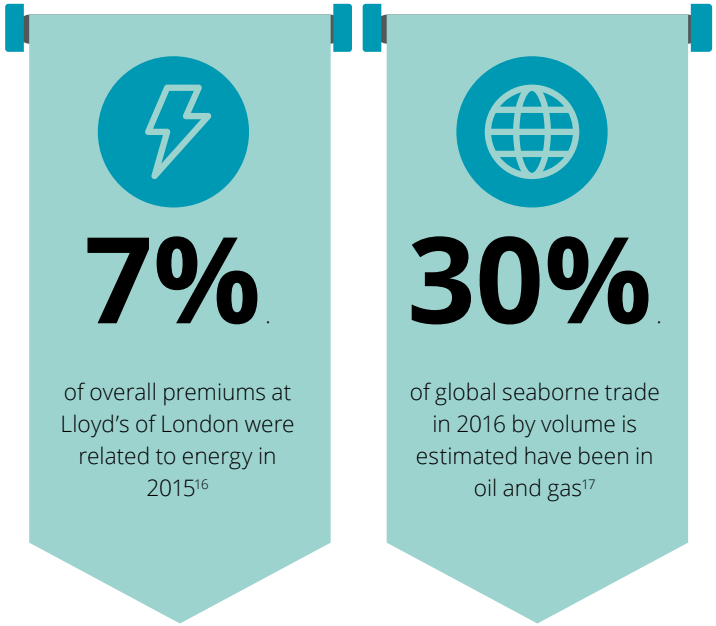
The "*financial risks which could arise for insurance firms from the transition to a lower-carbon economy*"[15].

Illustrative example

- An insurer is a specialist underwriter providing different types of energy insurance covers for onshore and offshore oil and gas companies. As investors and consumers change their preferences, reflecting greater awareness of climate and environmental issues, this traditional, carbon-intensive part of the energy industry is dwindling and becoming smaller in size. The insurer faces a situation where it may lose business due to its direct connection with the oil and gas sector.
- The same insurer also invests part of its investment portfolio in carbon-intensive energy sectors. These investments decline in value and become less marketable as investors move increasingly away from carbon-intensive investments. As a result, the insurer faces the options of either maintaining the carbon-intensive holdings which yield a lower return than previously, or pay the additional cost to re-allocate (transition) these to another sector.

While less well-understood than physical risk, transition risk is evolving as a key focus for regulators across EMEA. Transition risk might be triggered by, for example, policy and technological change, making it difficult for insurers to predict and manage given that triggers are external and political and may thus be inherently unpredictable.

Transition risk may particularly affect specialist insurers in sectors such as energy, shipping and other carbon-intensive industries. These sectors could shrink significantly as the world transitions to a low-carbon economy, which could in turn lead to reduced premium income for general insurers heavily exposed to these industries. For example, firms providing cargo insurance for oil companies could end up suffering from



a reduction in oil trade as a result of climate change.

Insurers may also hold investments in or affected by the carbon-economy, for example in traditional carbon-intensive energy sectors and infrastructure. Although a majority of insurers have recently pulled out of coal investments, many remain exposed to other energy sectors such as utilities and oil. Coal is only the first of many carbon-intensive sectors to experience the shift, other sectors such as transportation are likely to follow. Given the absolute size of insurers' investment portfolios, carbon-exposures represent a significant amount of holdings that are potentially at risk of being stranded due to transition risk, or looking to be re-allocated at a cost.

Insurers' overall investment portfolios, often hypothecated in large part to long term liabilities, may also be sensitive to sudden changes in investor sentiment or market expectations, and may force them to sell before maturity.

4.3 Liability risk

Definition

The "*risks that could arise for insurance firms from parties who have suffered loss and damage from climate change, and then seek to recover losses from others who they believe may have been responsible*"[18].

Illustrative example

- An insurer provides Directors' and Officers' ("D&O") liability insurance to the directors of a large, well-known bank. The directors are successfully sued by the bank's shareholders for having failed to disclose appropriately certain aspects of its climate change exposures and policies. This in turn sets a precedent for other similar cases to be brought against other banks insured by the insurer.

Liability risk is probably the climate change risk factor that has featured least prominently in market and regulatory discussion so far. It affects principally insurers exposed to general liability lines of business (such as D&O, public liability, errors & omissions and employer's liability insurance). History has shown that new emerging general liability-type claims "can be more disruptive to the insurance industry than losses caused by individual extreme weather events"[19]. This was for example the case with the surge in asbestos- and pollution- related claims during the 1980s and 1990s which eventually led to total unexpected losses of over USD85bn[20].

Climate change-related litigation is however increasing, particularly in the US but also increasingly elsewhere, with varying legal outcomes. Most defendants are governments, but lawsuits also increasingly target the highest greenhouse-gas-emitting companies[21]. This could lead to a surge in liability-type claims, in particular from D&O insurance policies which cover insureds for losses as a result of legal action from alleged wrongful acts.

In 2018, New York City sued some of the world's largest publically-listed oil companies for contributing to climate change. This case was dismissed on the grounds that climate change must be addressed through federal regulation and foreign policy. It does, nevertheless, illustrate a trend of using climate change litigation as a tool to influence policy outcomes and corporate behaviour as well as to gain financial compensation.

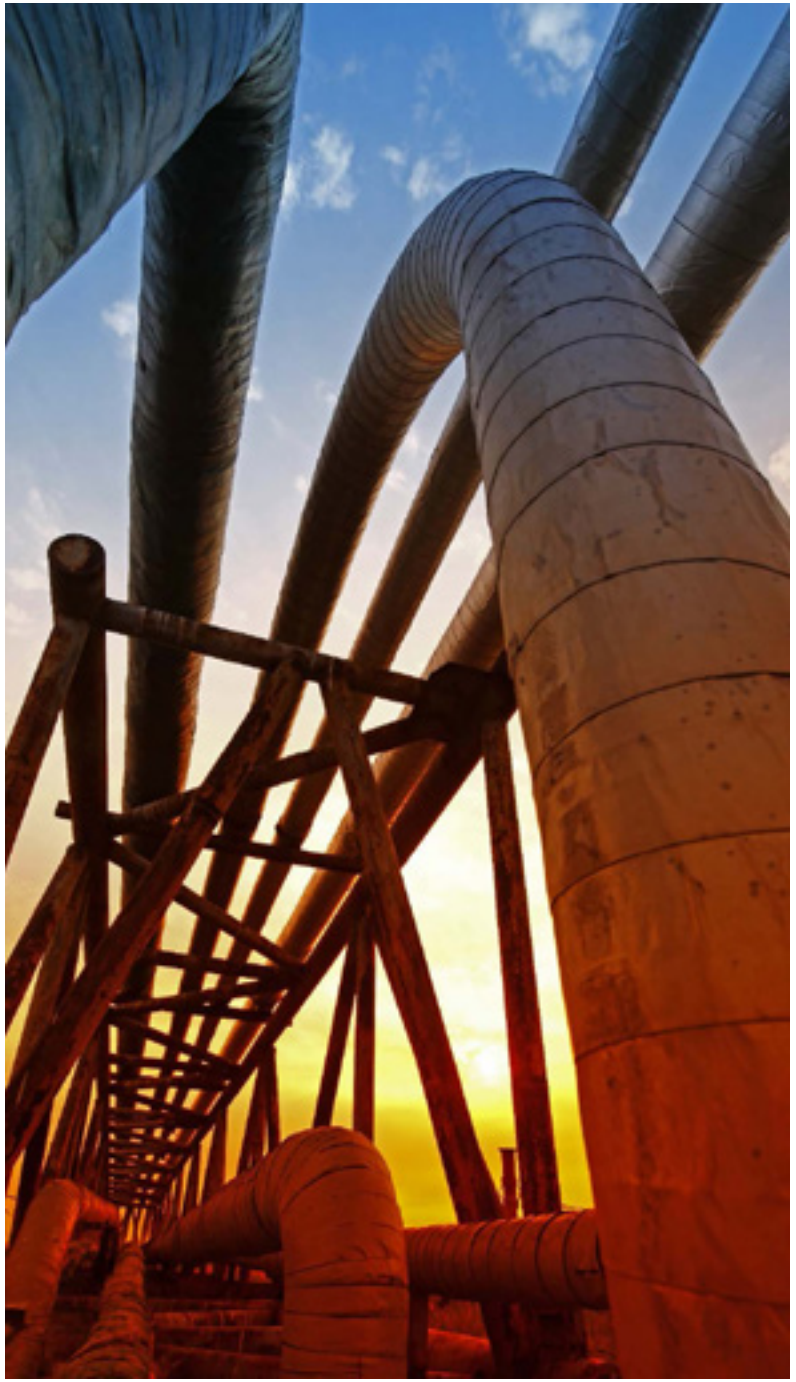
5. Risk identification and risk appetite

5.1 Insurers have potentially large unknown asset and liability exposures

Overview

Insurers are potentially significantly exposed to climate change risks from both an asset and liability perspective. Supervisors are likely to focus on the following key areas of uncertainty when assessing how firms have identified their climate change exposures:

- The determination of scope of cover for existing and future insurance policies, i.e. whether and how these will and should respond to future claims due to climate change. Supervisors will likely be interested in general liability-type policies in particular, given statistics and history suggest that liability claims can be more disruptive to the insurance industry over time than individual extreme loss events[22], as demonstrated by the asbestosis-related liability claims that led to significant challenges for the Lloyd's market in the 1990s.
- The considerable uncertainty as to how second-order effects of physical risks and perils might impact assets and liabilities. For example, regulators will want assurance that firms understand to what extent severe weather events could lead to business interruption claims in supply chains, or could affect urbanisation and migration patterns that influence disease patterns for life insurers. On the asset side, they will want firms to assess how severe weather events could impact the performance of for example household loans.
- How physical risk factors may lead to investments currently thought "safe" becoming more risky as a result of climate change. Supervisors will likely want firms to examine how changing weather patterns may lead to for example changes in the credit ratings of sovereign or municipal bonds[23].



Positive supervisory indicators

- The insurer has performed a ground-up assessment of the full nature and extent of potential asset and liability exposures to climate change risk.
- Material areas of uncertainty have been identified and documented.
- The firm has conducted deep dive reviews of some of its most material climate change risk exposures.
- A process has been established to re-visit material risk exposures periodically or in light of new developments.
- The scope of insurance cover on existing policies potentially exposed to climate change-linked events is regularly reviewed and challenged.
- Where insurers have general liability exposures, there is regular monitoring of worldwide litigation developments that may set precedent for climate change-related liability disputes.
- Climate change-related accumulation risk in the investment portfolio is regularly tracked according to a set of key metrics.
- Climate change considerations are incorporated into all relevant processes such as supplier due diligence and business planning.

Negative supervisory indicators

- Existing assumptions about asset and liability exposures are not challenged.
- The Board adopts a "wait and see" approach to climate change risk.
- Underwriting/reserving/claims departments work in silos to identify risk exposures.
- There are no defined metrics to track transition and physical climate change risk exposures in the investment portfolio in line with agreed investment risk appetite.

Questions for Boards

How do we know we have looked widely enough for potential climate change risk exposures and mapped these against different scenarios?

Are we too reliant on our usual processes and sources of risk identification and expertise?

What hitherto unidentified exposures have we actually identified? Do those give us any indication of where/how we might look for others?

When is it necessary for us to take action in order to mitigate potential adverse impacts of climate change that have not yet materialised?

What would our underwriters be worried about if they were insuring us?

What is our level of confidence in the exposures we have identified, and what is the margin of uncertainty?

Are there any areas of the business that we think will not be affected by climate change? Why? Have we challenged these assumptions sufficiently?

What lessons about our risk exposures can we learn from class actions?

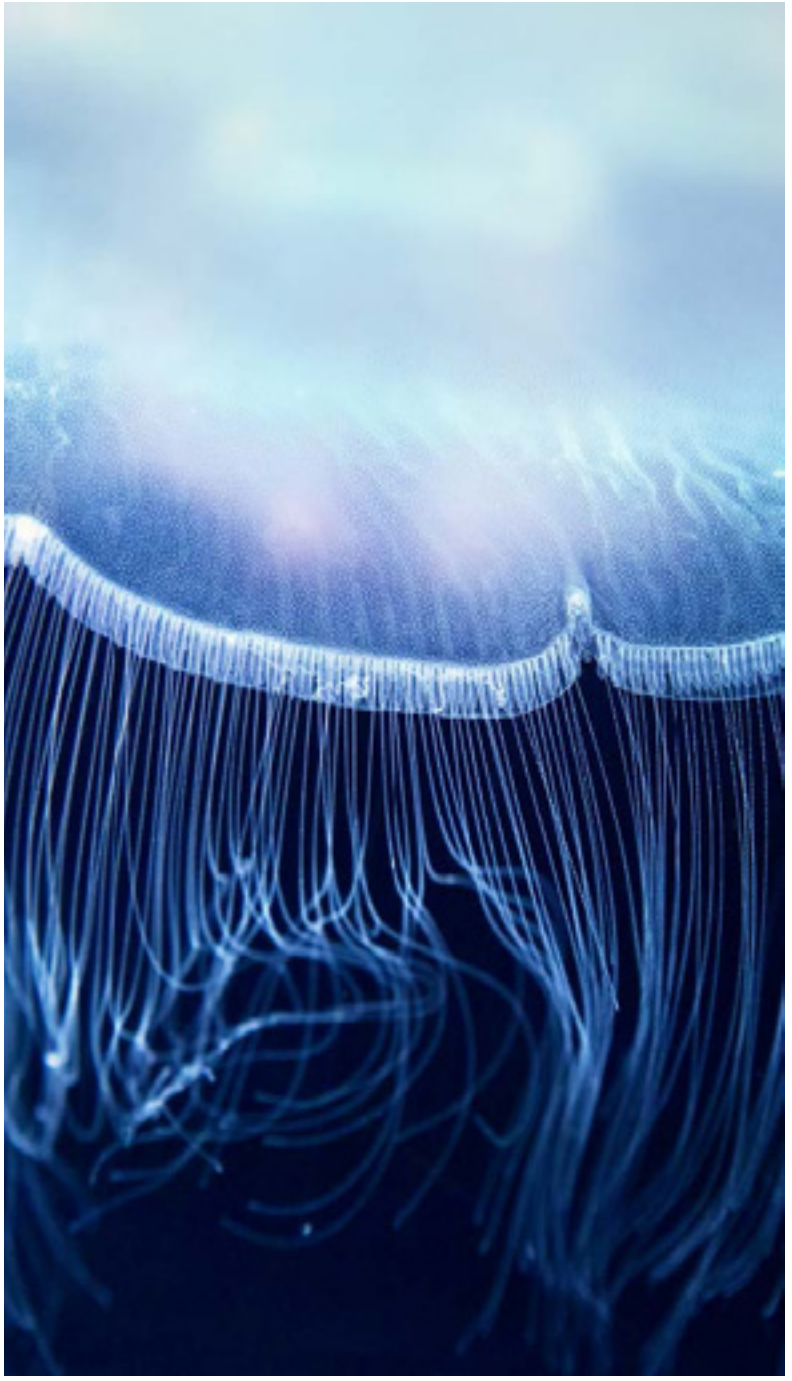
Do we need to buy reinsurance against any of the new risks we have identified?

5.2 Once exposures have been determined, supervisors will look to insurers' risk appetites

Overview

Supervisors will examine how insurers have incorporated climate change into their risk appetite frameworks, as a first step in understanding how identified exposures are managed.

- Risk appetite statements are key to regulators as they go to the heart of how firms manage their risk exposures. For example, in its July 2020 Dear CEO letter[24], the PRA in the UK clarified that by the end of 2021, firms should be able to demonstrate how they have embedded climate risk management within their frameworks to identify, measure, monitor, manage and report on their exposure to climate risks against a well-defined risk appetite that considers the current balance sheet and business model risk.
- The PRA has also published its minimum expectations with regards to the content of firms' risk appetite statements in the context of climate change risk. For example, the PRA expects firms' risk appetites to include the risk exposure limits and thresholds for the financial risks that the firm is willing to bear, and should take into account factors such as the long-term financial interests of the firm, and how decisions today affect future financial risks[25]. Firms should also take into account the results of stress and scenario testing, considering both longer and shorter time horizons, when setting the risk appetite. The PRA will also want to see evidence that Boards address and oversee climate change in line with its business strategy and overall risk appetite.
- Firms should also consider a longer than usual time horizon when establishing a climate change risk appetite. The Climate Financial Risk Forum (CFRF), for example, specifies that while risk appetite statements generally tend to 3-5 years, in the context of climate change, "[a] mature risk appetite should (...) consider the impacts over a longer period, e.g. a 30-year timeframe with interim milestones that will evolve as more knowledge is gained"[26].



Positive supervisory indicators

- Climate change risk exposure limits and thresholds are incorporated into the firm's wider risk appetite.
- Factors such as long-term financial interests of the firm and results of stress and scenario testing have been taken into account when integrating climate change into risk appetite.
- The Board has challenged, discussed and approved the climate change risk appetite and reviews it regularly in light of new risk exposures.
- The Board monitors actual exposures against risk appetite thresholds, and this is evidenced in relevant Board management information and meeting minutes.

Negative supervisory indicators

- Climate change is mentioned only superficially in the insurer's risk appetite.
- No clear definition of the firm's actual tolerance for specific climate change risks. Exposure limits or capital allocations have not changed as a result of a changed climate change risk appetite.
- Absence of evidence of independent discussion and challenge of climate change risk appetite by the Board.
- Lack of measurable key metrics to monitor how climate change risk is managed against overall risk appetite.
- Climate change risk appetite reflects broad sentiments and trends, rather than being based on a thorough process of evaluation.

Questions for Boards

How do the changes to our risk appetite and risk exposure limits map to the climate change risks we have identified and how they affect our existing risk universe and risk profile?

How have changes to risk appetite affected our capital management plan? If there is no capital impact, how is that justified?

What management actions have we identified to manage climate change risks, and what triggers do we monitor?

How objective and robust are the metrics that we use to monitor climate change risk exposures against risk appetite?

Do we review our climate change risk appetite sufficiently frequently?

What management information do we have to understand where we sit against our climate risk appetite(s)?

6. Strategy and business model

6.1 The strategic implications of failing to address risks may be severe

Overview

Failure to address climate change risks and respond to changing market demand risks harming an insurer's financial performance, competitiveness and market share. In this context, regulators are likely to probe some key strategic concerns:

- The "cognitive dissonance" in how insurers manage underwriting versus investment activities. Supervisors will want to see comprehensive, long-term strategies that consider all the different aspects of climate change risk, and a consistent approach to climate change risk that takes into account available insight on both the asset and liability sides of the business. Supervisors will be wary of firms' core business functions dealing with climate change in silos, and will look for inconsistencies in the treatment of climate change risk across different work streams. A recent example of this type of inconsistency relates to pandemic risk, which, in our experience, has been featured in several firms' ORSA analyses but not always in their business continuity plans. Firms should ensure that all types of risks, including climate change risk, are consistently covered and analysed across all parts of the organisation.
- The potential conflicts of interest between physical risks on the asset side versus the liability side of the balance sheet. For example, withdrawal of insurance in certain areas because of changing physical risks could lead to reduced mortgage lending, causing a reduction in property values and eventually some properties being abandoned altogether[27], as well as potential material conduct risks. Supervisors will expect firms to be aware of conflicts of interest and have a strategy in place to manage the risks they pose to both prudential and conduct regulatory concerns.

"The PRA is increasingly focused on cognitive dissonance in some insurers whose careful management of climate change risks on the liability side of their balance sheet is not always matched by similar considerations on the asset side[28]"

Mark Carney
former Governor of the Bank of England

Positive supervisory indicators

- Business planning and strategy documents evidence that climate change risk has been taken into account across all core areas of the business.
- Management and staff participate in cross-functional working groups or secondments between core areas of the business to encourage collaboration.
- Feedback loops share ideas and insight between different areas of the business.

Negative supervisory indicators

- Absence of climate change strategy, or climate change strategy exists as a separate document that is not linked to wider firm strategy, for example it only covers underwriting.
- Lack of collaboration on climate change risks across the business.
- All relevant expertise on climate change sits in one function, such as underwriting or risk management.

Questions for Boards

Are our valuation assumptions for assets and liabilities consistent, to the extent they are affected by climate change risk?

Is our strategy being 'led' by external policy, our competitors, or market expectations?

Are we contributing to or at risk from a valuation bubble?

Are we taking strategic decisions without understanding what they imply for other parts of our business, such as our investment or underwriting strategies?

6.2 Insurers have a unique ability to address climate change risk strategically

Overview

Several regulators have pointed out that insurers' expertise in risk pooling and catastrophe management, as well as their ability to address climate risk from both sides of the balance sheet, place them in a unique position to contribute meaningfully to the climate change debate and response.

- Insurers can usefully play a role in closing both the low carbon investment and the climate protection gaps, as they are large enough investors to shift the market, and can contribute to innovative measures to pool climate change risk (e.g. through Public-Private Partnerships). Supervisors therefore expect insurers to play a key role in the management and mitigation of climate change.
- Insurers should also factor in reputational benefits and/or risks, given the topic's importance in the media and among consumers. There is growing evidence to suggest that consumers are willing to pay more for products and services that are sustainable, creating a potential advantage to being seen as a 'leader' on climate and sustainability issues. Leading the charge will be critical for insurers' continuing social licence to operate. Climate change also presents new commercial opportunities for insurers, which they should take advantage of, including for example underwriting opportunities for renewable energy sources, or climate parametric products.

Positive supervisory indicators

- The Board has debated and adopted a defined position within the climate change debate, for example on its sustainability objectives and approach to achieving them.
- Internal and external communications and marketing materials explain the insurer's position and strategy on climate change and sustainability and comply with disclosure regulations and market expectations.

Negative supervisory indicators

- Ill-defined external position with regards to climate change, causing confusion both internally and among customers as to the firm's position and strategy.

Questions for Boards

Are we doing the right thing?

Do any of our carbon exposures put our reputation at risk, or expose us to legal or class action risk?

How could we be clearer about our strategy?

What is the most impactful thing we could do to tackle climate change risk, given all the options and resources available to us?

What are firms in other sectors doing about this? What can we learn, and where do we have opportunities to do things differently?

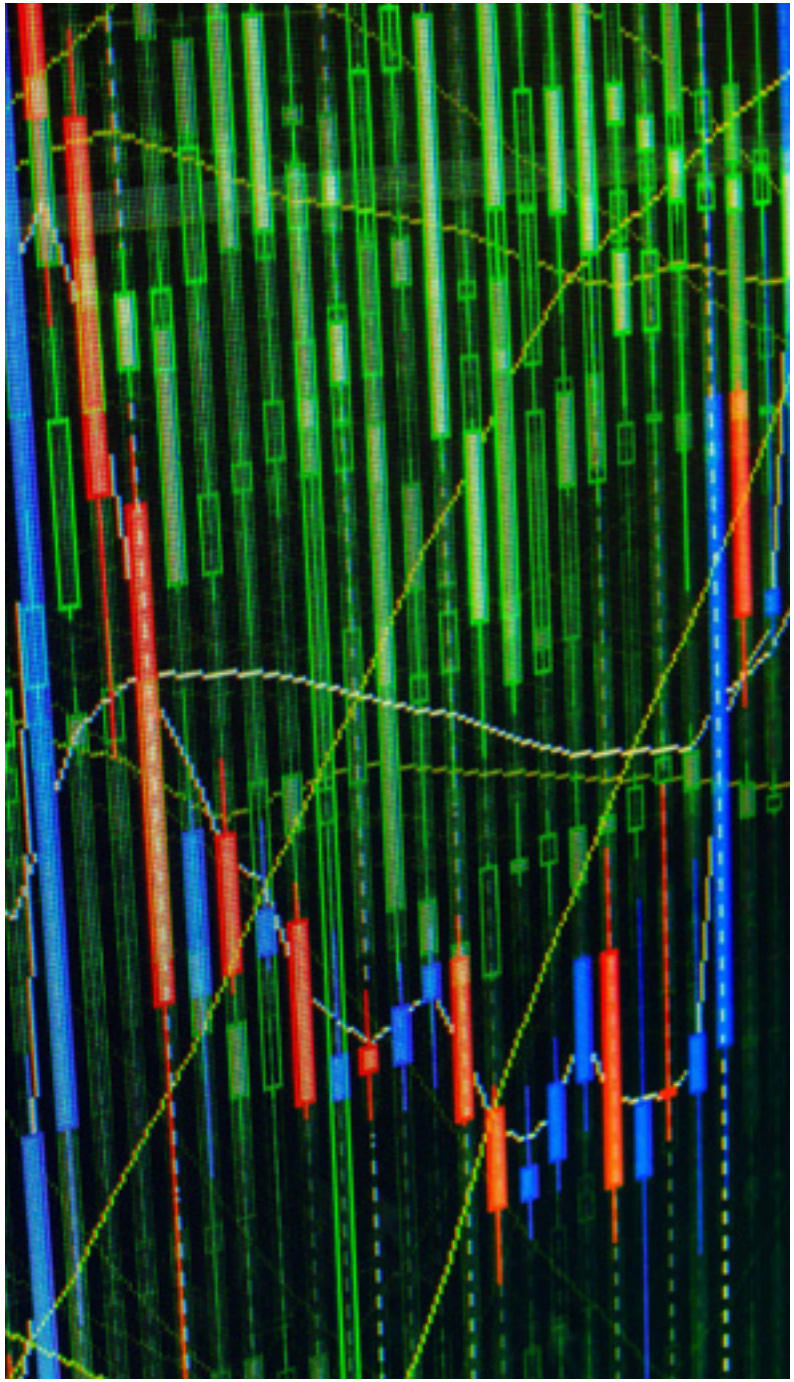
Do our climate change disclosures meet the market's and our regulator's expectations for a firm of our size and type?

6.3 Increased demand and changes to underlying risks will affect the price of insurance

Overview

In the absence of other factors, more extreme, frequent and volatile severe weather events would be expected to lead to heightened insurable risks, and therefore an increase in insurance premiums over time. Insurers will need to price and reserve for changing risks without harming their competitiveness by overpricing, and will need to consider how changing demand and pricing may affect their overall strategic business mixes in the short to medium term. Pricing and reserve adequacy are perennial concerns for supervisors, which have already been heightened by climate change risk. In particular, supervisors are likely to focus on the following areas of pricing and reserving risk:

- Extreme climate change scenarios could make some risks uninsurable, which may also turn insurance price increases into a social issue[29]. Insurers should challenge their business models to understand the factors that may drive technical prices to non-viable levels, and the implications of this for their business models and reputations.
- How transition risk affects the pricing of traditional energy insurance (e.g. oil and gas). Second-order risks may include whether underwriters have relevant expertise to diversify into other classes of business, for example renewables, if this is the insurer's strategy.
- Risks that may be created by the use of advanced analytics to improve risk selection and pricing[30]. As an increasing number of firms deploy advanced analytics tools in their pricing, supervisors are likely to focus on the oversight of these tools and the new risks they may create.



Positive supervisory indicators

- Relevant climate change-related risk factors are factored into pricing when policies renew. This could include offering incentives for risk reduction, e.g. through loss preventive measures[31].
- Management encourages underwriting discipline and rate adequacy by regularly challenging underwriting processes, controls, key judgments and assumptions.
- Material exposures to traditional energy lines of business are clearly identified and analysed.
- Management test the firm's resilience to liability transition risk through regular stress and scenario testing.
- Regular checks are performed to examine consistency with overall market pricing.
- Climate change considerations are explicitly considered when undertaking class of business reviews.

Negative supervisory indicators

- Pricing audit trail provides no documented evidence that climate change risk has been considered in pricing and underwriting.
- Board meeting minutes evidence no challenge to underwriting on climate change risks.
- The board does not consider the impact of climate change risks on its overall product mix as part of the business planning process.
- Pricing models have no clear feedback loops for climate change risk factors for affected classes of business or at the level of individual policies.

Questions for Boards

What trends have we seen in technical pricing, and how do these correlate to changes in climate change risk factors?

Is our pricing consistent with the market, and if so to what extent is that justified?

Are there lines of business in which we are gaining or losing market share? Why is this?

Are there lines of business that we should plan to leave or enter?

Do our pricing models for relevant classes of business contain explicit feedback loops for climate change considerations?

6.4 Climate change may change the dynamics of reinsurance and risk transfers

Overview

Climate change may change the dynamics of insurance risk transfers in ways that are difficult to predict. Supervisors are likely to be most concerned about, and therefore scrutinise firms' strategies in relation to:

- Increased concentration risk and credit risk exposure to major reinsurers as they take on more climate change-related risk, leading potentially to heightened earnings and capital volatility. Insurers will need to consider to what extent these risks offset reductions to insurance risk capital. A slowdown in growth in the ILS market could increase dependence on traditional reinsurance markets further.
- Uncertainty as to how traditional reinsurance will respond to climate change related events of different severities. For example, while catastrophe losses in 2017 and 2018 were over USD240bn, a large share of losses were retained by primary insurers due to larger retentions coupled with smaller individual catastrophe events[32]. Supervisors will look for insurers to capture potential uncertainties arising from their reinsurance programmes in stress testing.

Positive supervisory indicators

- Regular review of the adequacy of current reinsurance and alternative capital arrangements takes climate change risks into account.
- The overall dependency on reinsurance arrangements and/or specific reinsurers' credit ratings is included in stress tests.
- The insurer explores new ways to manage tail risks, for example if the cost of reinsurance increases.
- Risk mitigation tools are diversified to avoid excessive risk accumulation.

Negative supervisory indicators

- Over-reliance on a single reinsurer or alternative capital provider to mitigate extreme tail risk.
- Reliance on existing risk mitigation strategies is not stress tested, and no management actions are identified.

Questions for Boards

Would our current reinsurance strategy continue to work if global temperatures rise 2 degrees, or 3 degrees? What scenario testing have we carried out to validate this?

What alternative sources of reinsurance or risk transfer are available if our credit risk exposure to our reinsurance programme provider exceeds our credit risk appetite?

What reinsurance protection do we have against significantly increased attritional/non-catastrophe losses? Are there other contractual arrangements that may prevent our risk mitigation being effective in certain circumstances?

Do we have potential significant new areas of risk exposure as a result of climate change which aren't covered by our existing reinsurance programme?

What would be the effect on capital if we had to bring reinsured risk back onto the balance sheet?

7. Capital modelling and stress testing

7.1 Defining plausible but severe stresses and scenarios is difficult but necessary

Overview

Regulators are increasingly focused across financial services on climate stress and scenario testing. As firms continue to build their stress testing capabilities, supervisors are likely to explore the following areas in more detail:

- How firms develop suitable and sufficiently-encompassing stresses and scenarios. Industry-wide stress tests (for example, the Bank of England's Biennial Exploratory Scenario ("BES")[33]) and other available external information are likely to provide useful starting points (or benchmarks) for firms stressing physical and transition risks. The PRA in its July 2020 Dear CEO letter[34] on managing climate-related financial risk, for example, suggests that firms may wish to use these standard, reference scenarios or tailor scenarios to their own unique circumstances.
- Liability risks that may, accordingly, be harder for many firms to stress, as these have usually been excluded from industry-wide stress tests so far. Supervisors will want to see firms use tools and expertise at their disposal to produce stress and scenario tests that reflect their unique exposures.
- Whether the applied scenarios are sufficiently severe while also realistic. Climate change risks are continually evolving and may develop in non-linear ways, making it difficult to determine time horizons and the return periods for certain events. Supervisors will scrutinise firms' assumptions carefully in order to ensure robustness of climate stress testing.

Positive supervisory indicators

- Stress testing builds on industry-wide stress tests to reflect the insurer's unique exposures to climate change risk.
- Management regularly explore different kinds of stress and scenario tests, including reverse stress tests.
- Stress tests are performed over both longer and shorter time horizons and stress a number of different variables simultaneously.
- The ORSA discusses key dependencies, assumptions and relevant management actions.

Negative supervisory indicators

- Climate change stress test results show very little or no impact on the firm's capital or financial performance.
- Climate change stress testing is conducted in isolation, without considering external information available.
- Stress testing does not include different variables or take into account aggregation of multiple risks.

Questions for Boards

What are the risks that could affect us the most that are not captured by our stress testing?

In what circumstances could second order risks become material?

What assumptions are our capital and results most sensitive to? Could they develop in ways we haven't anticipated?

Are we clear about the assumptions and expert judgements we are making in carrying out or stress and scenario testing?

How could we make our scenarios more comprehensive?

Does our management action plan constitute an adequate response to the risks identified by our stress and scenario testing?

Are there changes we should make today to prevent the build-up of risks that could be significant in the future?

What improvements would we expect to make to modelling climate risks as we gain more experience and access to data improves?

7.2 Climate change could lead to significantly increased model risk

Overview

While insurers have modelled risk exposures for decades, climate change puts into question existing modelling methods and assumptions given the possibility for non-linear increases in frequency and severity of extreme weather events. Supervisors will likely focus on the following areas with regards to firms' modelling of climate change risk:

- The impact of climate change on correlations and diversification between different risk and capital components. Material understatement of capital requirements is likely to be a significant concern for supervisors.
- Inaccurate or incomplete data, given catastrophe data is likely to be based on past events and hence does not reflect future non-linear weather patterns. Insurers may also lack granular geographical data on investments and loans sufficient to estimate exposures to physical risks[35]. Supervisors will want to understand how firms mitigate the risk of incomplete and inaccurate data on both the asset and liability side of the business.
- The risks of over-reliance on third-party model vendors and external expertise. Third party models and expertise are valuable inputs for many insurers. However, over-reliance could create concentration risks or risks of "group think", and third-party models may not cover less established perils or geographical areas[36], both key areas of concern for supervisors.
- Potential model risks arising from firms' use of advanced analytics. The most advanced insurers are already partnering with fintech and weather analytics firms in order to model their exposures to climate change risk. Advanced modelling techniques may be more difficult for non-specialists to understand, and can lead to some non-traditional model risks (for example, where models use dynamic calibration), which supervisors are likely to scrutinise.

Positive supervisory indicators

- The firm has identified models sensitive to climate change risk across its model inventory.
- Modelling assumptions and methodologies sensitive to climate change risk are regularly challenged.
- The firm consults with industry experts, risk modelling firms, academia and other key stakeholders and experts on climate change risk.
- Model developers are incentivised to capture risks accurately, including those from climate change risk.
- Climate change insights are shared and reflected in all relevant models.
- The model validation function has sufficient access to expertise on climate change and climate change risk modelling.
- The firm has a strategy to address identified data limitations, and applies model loadings in the meantime.

Negative supervisory indicators

- The firm relies without challenge on a small number of modelling tools and sources of information on climate change risk.
- Climate change risk is modelled in isolation, without considering external information, expertise and research.
- Climate change risk factors are taken into account inconsistently across the firm's different models.
- The firm lacks relevant expertise to challenge and independently validate climate change risk.
- Model developers are incentivised to ignore or down-play climate change risk.

Questions for Boards

How have we identified which of our models use assumptions or methodologies sensitive to climate change risk?

By how much would key risk factors need to shift before we could no longer rely on critical models?

In what ways are we dependent on external expertise or expert judgment? How have we challenged those judgments?

What would need to change in order to bring our correlation assumptions and methodology into question? How sensitive are model results to correlation and diversification assumptions?

Are we updating for climate change risk consistently across our portfolio of models?

Does model validation have access to sufficient climate change expertise to validate our models effectively?

Where are our biggest data risks and limitations? What allowances have we made for data limitations within model calibrations?

What incentives are there for model developers to attempt to capture climate change risk? How might climate change risks affect the remuneration and bonuses we pay to model developers and users?

8. Asset transition risk

8.1 Transitioning to a greener investment portfolio may not be straightforward

Overview

As many as two thirds of insurers are already incorporating sustainability considerations in some shape or form in their investment decisions[38]. However, the concept of transitioning to a "greener" investment portfolio poses significant challenges and requires insurers to take strategic decisions in some uncertain areas. In our view, the following represent some of the most significant areas of difficulty, on which we would expect supervisors and insurers to be most focused initially:

- Outliers aside, it is challenging to determine what constitutes a "green" or "sustainable" investment. The EU taxonomy should provide some clarity in terms of formal definitions, but may also trigger transition risk if it encourages firms to prioritise certain sets of investments. In our view, it is important for insurers to develop comprehensive investment strategies that capture their individual potential for correlations and conflicts of interest between asset and liability risks, notwithstanding the important potential role of the taxonomy. When developing these strategies, insurers will also have to bear in mind the different shades of investments between "green" and "brown".
- Insurers may find that there are insufficient green investments paying adequate returns in order to meet investment objectives in the short term. This problem could potentially be compounded if regulators introduce "green-supporting" and/or "brown-penalising" factors, as is under consideration by the European Commission[39], which could risk creating bubbles in certain asset classes.
- Supervisors will expect investment decisions to avoid the risk of detriment to policyholders, e.g. investments should still yield a return sufficient to meet the insurers' liabilities, and should not expose policyholders unduly to capital risks.
- Certain investments, such as infrastructure investments, could be more materially affected by transition risk than others, for example through disruption, interruption, or extra costs required to make the infrastructure "greener". Life insurers applying the Matching Adjustment (MA) may be particularly exposed to these types of investments, given their potential suitability, at face value, to match long term liabilities. Supervisors will expect insurers to stress test these investments, and to develop viable strategies to manage these potential risks.

A survey of the world's 80 largest insurers with assets under management (AUM) of USD15trn found that on average only 1% of total AUM are allocated to low-carbon investments[37].

Positive supervisory indicators

- The Board has made an informed decision as to the integration of sustainability/ESG criteria into its investment framework.
- The sustainability/ESG strategy is reflected in the insurer's investment risk appetite.
- The insurer has considered to what extent its investment strategies might need to reflect the ESG expectations of different groups of policyholders.
- The insurer has clearly communicated its ESG investment approach to policyholders.
- Metrics to monitor key investment exposures to climate change risk have been established.
- There is regular monitoring of the 5 transition triggers as defined by the PRA[40] and frequent re-assessment of whether investment strategy should change as a result.
- Investment managers consider the outputs of climate change-related disclosures of relevant key financial counterparties.

Negative supervisory indicators

- There is no strategy in place to mitigate potential transition risks to carbon-intensive assets.
- A lack of an in-house view on what investments should be considered "sustainable" for the purposes of investment strategy.
- Investment appetite and guidelines are unclear with respect to ESG/sustainable investing.
- Absence of appropriate monitoring metrics with regards to investment appetite and transition triggers.

Questions for Boards

Do we have enough data and expertise to make informed investment decisions with regards to climate change risk?

What is the track record of the sustainable investments and green technologies that we are building exposure to?

What risks does a green investment portfolio expose us to over the long term, for example to asset obsolescence, or uncertainty around length of economic life for green technologies? How do these risks compare to the risks of a "traditional" investment portfolio?

What premium are we paying for green investments, and is it justified?

Are we being caught up in a "green bubble" or being pushed into taking action?

How will our sustainable investment strategy affect our approach to asset/liability matching?

Does our investment strategy expose us to reputational risks?

How do we use climate change-related disclosures of key counterparties in our decision making?

9. Governance and culture

9.1 Supervisors see governance as key to successful management of climate change risks

Overview

The challenges posed by climate change need to be addressed at all relevant levels within a firm through appropriate governance arrangements. Supervisors have suggested that climate change needs to be "mainstreamed", i.e. firms need to integrate climate risks across mainstream risk management functions and internal controls[41]. This could be achieved for example by firms aligning remuneration with climate change by incentivising and rewarding individuals and teams who engage in regular debate and discussion on climate change. Supervisors will look for tangible evidence that climate change risks are assessed, monitored, managed and reported at all appropriate levels. In particular, supervisors will expect that:

- The Board has the appropriate competency to regularly challenge and act upon information on climate change risks, and digs deeper on specific areas of climate change where there is less engagement. Akin to the "use test" supervisors apply when approving internal models, supervisors will expect climate change-related information to influence decisions, for example on risk appetite, economic capital and strategy.
- The Board allocates responsibility for oversight of climate change risk to relevant senior individual(s). For example, the UK PRA has requested Boards to allocate responsibility for identifying and managing financial risks from climate change to the most appropriate Senior Management Function (SMF). In jurisdictions where this is not a formal requirement, supervisors will nonetheless look for appropriate ownership and accountability of climate change risk.

Positive supervisory indicators

- The Board is systematically informed about climate change risk impact across the organisation, and challenges and investigates areas of uncertainty.
- The climate change risk strategy is reflected consistently in organisational arrangements.
- The insurer has established mechanisms for effective cross-collaboration of teams on climate change risk.
- There is clear accountability with regards to climate change risk.
- Responsibility for oversight of climate change risk has been allocated to a relevant member of senior management, who regularly reports to the Board.
- The Board has agreed an approach to integrate sustainability into decision-making for the "non-financial" part of remuneration assessments.
- Negative and positive behaviours in the context of the overall climate change strategy influence remuneration outcomes.

Negative supervisory indicators

- The Board does not challenge, or constantly defers to a single individual with regards to climate change issues.
- There is no clear accountability for climate change risk issues.
- Discussion of climate change at Board-level is narrowly focused, for example by considering only one particular aspect of climate change risk (e.g. underwriting or investment strategy).
- The Board does not take clear decisions on climate change risk issues.
- Climate change strategy is not driven by the Board, but rather emerges and is implemented in a 'bottom-up' fashion in various departments.
- Climate change strategy is not understood or implemented consistently across the organisation.

Questions for Boards

Do we discuss climate change enough?

Do we consider climate change throughout our decision making?

Are there important decisions on how we manage climate change risk that we are not taking?

Do we need more skills on the Board in order to challenge climate change issues effectively?

Do we really understand what our management teams and departments are doing in relation to climate change risk?

Do our performance assessment and bonus processes encourage staff to manage climate change risk over the long term?

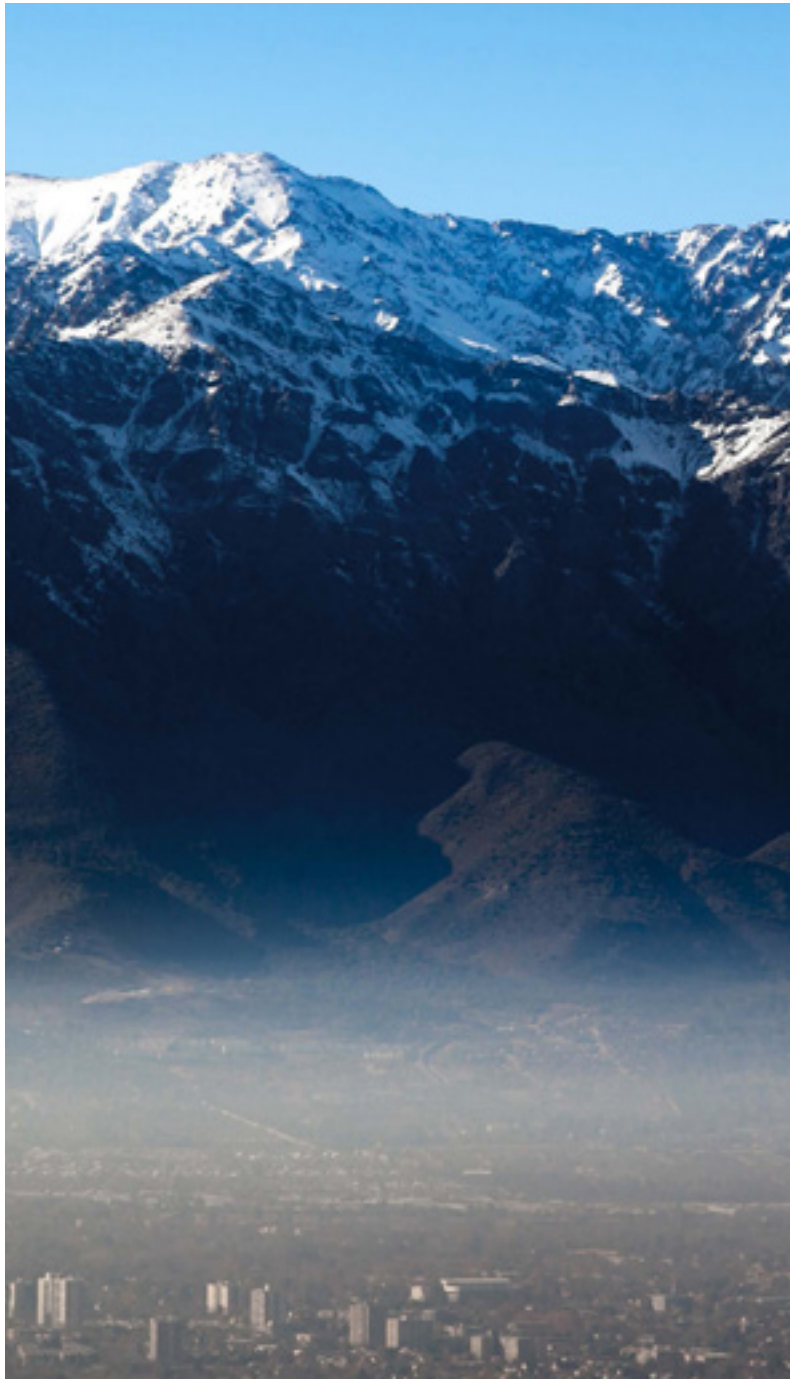
How does our Board effectiveness review assess how effective we are in tackling climate change risks?

9.2 Overall culture and "tone from the top" are important to regulators

Overview

Supervisors will be keen to see the Board encourage a culture that takes seriously the financial risks from climate change. In particular:

- Supervisors are likely to examine how the Board sets a "tone from the top" which facilitates and encourages climate change discussions.
- Supervisors will expect the Board to communicate to the entire business the importance of climate risk, as well as playing a pivotal role in setting the firm's strategy and response to it.
- In time, supervisors can be expected to test the understanding and embeddedness of climate risk considerations at all levels of the firm, across all three lines of defence, and will be alert to any evidence of mindsets and behaviours that treat climate risk initiatives as "tick box" exercises.



Positive supervisory indicators

- The Board has consciously set out to provide a "tone from the top" which demonstrates strong leadership and related action in relation to climate risk.
- The Board role-models the behaviours it expects from other parts of the organisation.
- The Board and senior management frequently discuss culture and receive regular culture management Information (MI).
- The importance of climate risk, and the firm's strategy for addressing it, are communicated to staff at all levels of the firm through, for example, internal communications and townhall meetings.
- Firm-wide surveys are regularly used to explore staff's understanding of firm culture in the context of climate change, and produce recommendations for improvements where deficient.

Negative supervisory indicators

- Climate change is not included in Board MI or discussed at some or any levels within the insurer.
- Board members and/or staff are unsure about how climate change will impact the business and its customers.
- No effort has been made to on-board and train departmental heads on the firm's climate change strategy.
- Staff are reluctant to deliver "bad news" relating to climate change risks (e.g. in terms of exposure management).

Questions for Boards

What objective evidence do we have (e.g. from MI or surveys) of our staff's attitude to climate change risks?

Is the message we receive from management and staff on climate change issues better or worse than we would expect?

Are there material climate issues that we would expect to have been escalated to us that have not been?

Are our views and approach on climate change issues sufficiently visible to the rest of the organisation?

10. Conduct

10.1 Climate change may lead to a surge in conduct-related issues for insurers

Overview

The implications of climate change for conduct risk are still relatively unexplored. However, going forward, we expect supervisors to pay increasing attention to climate change risk issues in the context of firm conduct, including in the following areas:

- The conduct implications of transition risk for certain consumers. For example, policyholders may suffer from de-valuations of stranded carbon-intensive assets backing savings and pensions business.[42] Transition risk could also lead to consumers not previously affected by climate change suddenly being at material risk, for example as certain properties previously thought to be located in low-risk areas suddenly experience physical damage from flooding. Insurers may see conflicts of interest arise between underwriting and prudential considerations and conduct concerns. For example, withdrawing insurance from certain areas materially affected by changing weather patterns may be prudent from an underwriting perspective, but could lead to significant detriment for customers who may find themselves unable to obtain or renew insurance.
- The effective disclosure and oversight of sustainability/ESG factors with regards to investments. For example, work is underway at EU level to mandate firms, including insurers, to include questions about their clients' ESG preferences in questionnaires and suitability assessments, to act in accordance with those preferences and to disclose to their clients how those preferences will be fulfilled[43]. The ESAs are currently consulting on proposed draft RTSs on sustainability-related disclosures[44], while ESMA's guidelines on disclosure requirements under the Prospectus Regulation[45], which apply when firms issue securities to the public or are admitted for trading, require firms to provide disclosure on relevant ESG matters. Though the focus so far has mostly been on asset-side related disclosures, it will also become increasingly important for insurers to consider how climate change-related risks to both side of the balance sheet may compound each other[46].
- The FCA is also working to establish a framework for effective stewardship (involving asset owners and managers "making informed decisions about where to invest, and proactive oversight of assets once invested"[47]), which will be relevant for large insurance companies with outsourced investment managers.

The Financial Conduct Authority (FCA) in the UK has outlined three specific broad key outcomes that it wants financial services firms to achieve. These are relevant to insurers as they not only supply insurance-linked investment and pension products to the market, but also as they carry significant investment:

- Issuers providing markets with reliable information about material exposures to climate change;
- Firms integrating consideration of material climate change risk into their business, risk and investment decisions; and
- Consumers having access to green finance products and services and receive the appropriate information with regards to their investments[48]

Positive supervisory indicators

- The insurer has identified where new risks to consumers might arise and where these might pose conduct risks, and has developed a plan to deal proactively with those risks.
- The insurer has identified conduct-related risks that might pose reputational risks, and has an agreed plan to deal with these risks.
- The insurer models potential implications of climate change risk for policyholders, particularly how these vary according to product and customer profile.
- A stewardship strategy has been established in line with the long-term interest of policyholders, and is subject to robust oversight.

Negative supervisory indicators

- Lack of overall understanding of where conduct risk might arise in the context of climate change.
- Lack of specific action and/or management action planning to manage climate change conduct risks.
- Lack of oversight of climate change-related conduct risks posed by outsourced activities, in particular asset management.

Questions for Boards

In what ways are customer outcomes from our products most affected by transition risk?

How have we informed our customers about our sustainable investment strategy and how it might affect their investment return over time?

Can we be confident that all of our customer communications on climate change are adequately clear and transparent?

How confident are we that our customers are satisfied with our approach to sustainability?

Do the policies we've sold remain appropriate for our target customers given climate change risks? What steps have we taken to make sure our policyholders understand this?

In what areas are we most reliant on third parties/outsourcers to prevent harm to our customers?

10.2"Greenwashing" is likely to be an area of particular concern

Overview

The rise of popularity of ESG investing has led to a focus by conduct supervisors on "greenwashing.

- "Greenwashing" is defined by the UK FCA as "marketing that portrays an organisation's products, activities or policies as producing positive environmental outcomes when this is not the case"[49]. Emerging European-wide disclosure requirements, along with the EU taxonomy regulation, are intended in part to help prevent the risks of greenwashing. At EU level, the Ecolabelling initiative[50] under the European Commission's Sustainable Finance Action Plan is also intended to make it easier to know whether a product is environmentally friendly, and is being developed for application to retail financial products.
- The FCA is currently carrying out further policy analysis on greenwashing and has indicated it will take action to address concerns as appropriate[51], for example in the form of formal guidance. As conduct regulators develop their thinking in these areas, relevant firms can expect further scrutiny and potentially regulatory intervention.

Positive supervisory indicators

- The insurer has implemented a framework for how to market and sell green products throughout the supply chain.
- Marketing materials are regularly reviewed in order to avoid products being presented in a way that could be misconstrued.

Negative supervisory indicators

- There is ambiguity in the insurer's own definition of what constitutes "green" assets.
- Lack of in-house guidelines with regards to marketing of green products.

Questions for Boards

Are we describing the ESG outcomes, methodologies and impacts that our products deliver clearly and fairly?

Is our process for determining if a product is "green" sufficiently robust?

How do our "green" products benchmark against others in the market?

How do we demonstrate the sustainable credentials and performance of our products?

Does our sustainability assessment take account of second order effects, for example non-sustainable practices by those who administer, distribute and use our products?

Endnotes

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35 https://www.iaisweb.org/page/consultations/closed-consultations/2018/draft-issues-paper-on-climate-change-risks-to-the-insurance-sector//file/73565/sif-iais-issues-paper-on-climate-risk-to-the-insurance-sector-clean

36 https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/publication/impact-of-climate-change-on-the-uk-insurance-sector.pdf

37 https://www.iaisweb.org/page/consultations/closed-consultations/2018/draft-issues-paper-on-climate-change-risks-to-the-insurance-sector//file/73565/sif-iais-issues-paper-on-climate-risk-to-the-insurance-sector-clean

38 https://www.blackrock.com/institutions/en-gb/literature/whitepaper/global-insurance-report-2019.pdf

39 https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en

40 These are defined by the BoE as policy and regulation, technological developments, changing investor preferences, occurrence of physical events and developments of climate science (https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/publication/impact-of-climate-change-on-the-uk-insurance-sector.pdf).

41 https://www.iaisweb.org/page/consultations/closed-consultations/2018/draft-issues-paper-on-climate-change-risks-to-the-insurance-sector//file/73565/sif-iais-issues-paper-on-climate-risk-to-the-insurance-sector-clean

42 As a point of comparison, EIOPA reports that the IORP sector has a high carbon footprint in equity investments (https://www.eiopa.europa.eu/occupational-pensions-stress-test-2019)

43 https://www.fca.org.uk/publication/feedback/fs19-6.pdf

44 https://www.esma.europa.eu/sites/default/files/jc_2020_16_-_joint_consultation_paper_on_esg_disclosures.pdf

45 https://www.esma.europa.eu/sites/default/files/library/esma31-62-1426_final_report_on_guidelines_on_prospectus_disclosure_requirements.pdf

46 https://www.fca.org.uk/publication/corporate/climate-financial-risk-forum-guide-2020-disclosures-chapter.pdf

47 https://www.fca.org.uk/publication/feedback/fs19-6.pdf

48 https://www.fca.org.uk/publication/feedback/fs19-6.pdf

49 https://www.fca.org.uk/publication/feedback/fs19-6.pdf

50 https://ec.europa.eu/environment/ecolabel/eu-ecolabel-for-consumers.html

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