

#2

Climate Change: An Insurance Perspective

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INTRODUCTION

As controversial as politicians may make it seem, climate change is, to the scientific community, a clear-cut reality. Industrial pollution over the past century has dramatically warmed the earth by releasing greenhouse gases like carbon dioxide into the air. These gases trap heat energy in earth's atmosphere, causing wildly fluctuating weather patterns and more severe natural disasters that profoundly affect ocean and land biomes.

The impacts of climate change are not limited to the natural world, however. More unpredictable and serious natural disasters alone would be catastrophic to human society. The insurance industry in particular has much to lose, as these natural disasters would directly lead to increased claims and ultimate losses in the future. Thus, responding to the danger of climate change is crucial for MGAs—indeed, loss prevention should be a priority of insurers across all industries.

At the same time, climate change presents a unique opportunity for insurance companies to highlight their dedication to sustainability. Climate change is a global issue, and the insurance industry, as the largest industry in the world, can play a key role in advancing climate research and potential “green tech” solutions. Acting as a global leader in this respect will not only help MGAs maintain their reputation as socially responsible actors but also encourage sustainable behavior globally.

CLIMATE CHANGE: THE REAL DEAL

The UN's Intergovernmental Panel on Climate Change (IPCC) has boldly proclaimed time and time again that “warming of the climate system is unequivocal” (“Climate Change,” 2). This candid statement can be confirmed by a host of climate data collected by independent research institutions, as shown in figure 1 below.

Figure 1 displays temperature anomalies, i.e. the difference between observed data and long-term global averages, over the past 140 years. As the graph shows, each of the past three decades has been warmer than the last, and scientists are reasonably certain that these past three decades have been the warmest 30-year period in the past 1400 years (“Climate Change” 2). In fact, independently produced datasets have concluded that global average temperatures have risen between 0.65 and 1.06 °C since 1880 (“Climate Change” 2). This increase may not seem like a lot, but a 2 °C increase is enough to create a “new climate regime in terms of heat extremes globally” (Schleussner et al. 2473).

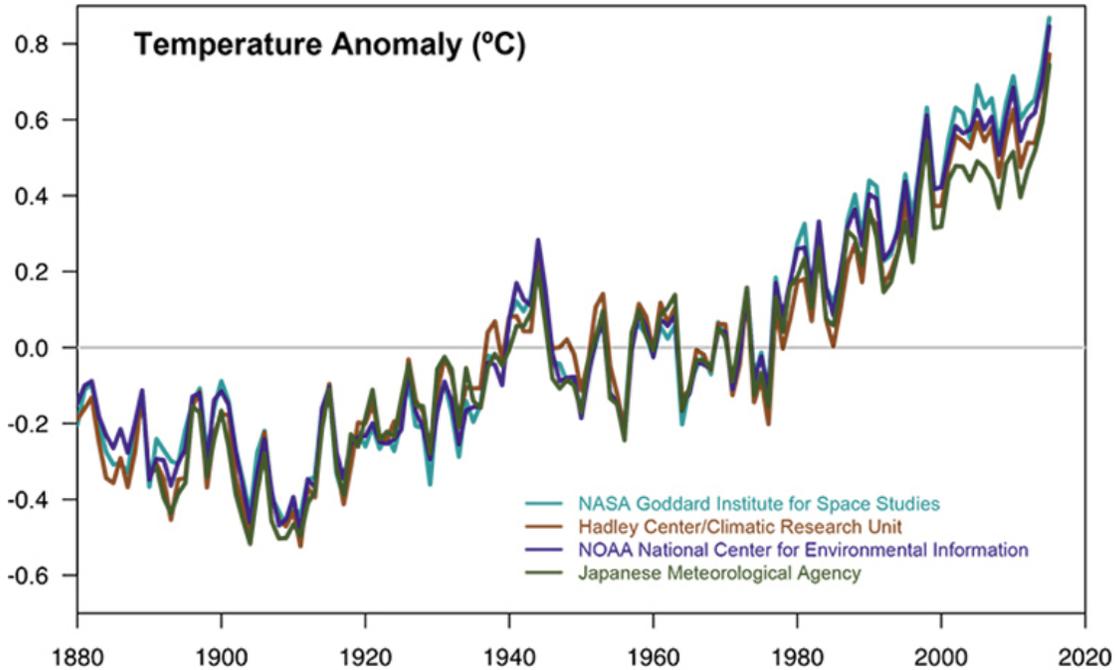


Fig. 1. Temperature data collected by four science institutions. Image from NASA website.

Unsurprisingly, given the clear evidence of a positive trend, roughly 97% of scientists (a number calculated from a survey of over 11,000 scientific articles) believe not only that the earth is warming but also that much of this warming stems from human causes (Cook et al., par. 1). Industrial pollution in the form of gases like carbon dioxide, methane, and nitrous oxide is often cited as the most prominent causes; these “greenhouse gases” trap and retain heat energy in earth’s atmosphere, slowly but steadily increasing overall temperatures in a “greenhouse effect” (Stern 3-4).

THE EFFECTS OF CLIMATE CHANGE

Colloquially, the terms “climate change” and “global warming” are often used interchangeably, but a key distinction must be made: global warming, while important, is only one element of climate change. The overall warming of the earth is accompanied by extreme temperature swings, which together cause ecological changes like:

- Melting of the polar ice caps, which can cause drought in some areas and floods in others,
- Gradually rising sea levels, which would displace people in coastal towns and islands,
- Growing ocean acidity, which affects all of the ocean biome, and
- More extreme natural disasters. (“Global Warming”)

Thus, though some areas are more vulnerable than others, climate change is ultimately a global phenomenon that affects everyone—and businesses are no different.

Economist Nicholas Stern, in his influential review of the economics of climate change, conservatively estimates that global per capita GDP could fall between 5.3% and 13.8%

#2

by 2200 as a result of the phenomenon (155). If non-market (i.e. health and environmental) impacts are considered, losses jump to about 35.2% (156). Furthermore, “only a small portion of the cost of climate change between now and 2050 can be realistically avoided, because of inertia in the climate system” (156). Businesses can no longer justify inaction with financial concerns; the long term economic impacts of climate change are substantially worse.

The property and casualty industry is particularly susceptible to the effects of climate change (though health and life are also affected), because more extreme weather conditions and natural disasters will only magnify the amount of losses incurred by insurance companies. Researcher Evan Mills estimates that future losses could exceed present day levels by “a factor of two or three” depending on the severity of environmental changes (325). Accounting for these future losses will be a complex process because climate change does not manifest homogeneously; insurance companies must develop a thorough understanding of climate change as a regional phenomenon before they can evaluate how best to mitigate their losses. Thus, in this respect, climate change represents a very real and immediate risk to the world of insurance.

Example: Managing Flood Risk

Given the magnitude of its impacts, it is unsurprising that many property and casualty companies consider climate change to be one of their top priorities. As a result, a number of studies have been conducted to measure the long-term implications of climate change on insurance specifically. These case studies present valuable information about the different climate-related risks faced insurance companies in various regions of the world.

Take, for example, a Dutch examination of flood risk insurance in the Netherlands. After stochastically projecting flood damage data to simulate climate change effects, the authors estimated that flood risk could increase by as much as 14 times the current levels under current warming trajectories (Paudel et al. 1724). Corresponding premiums would rise to compensate for the greater risk, and would increase by 400% in the best-case scenario (and 3200% at worst) (1722-1724). Eventually, insurance premiums “may reach the point where flood insurance becomes unaffordable for the majority of homeowners” (1727). Wholesale insurance companies would be especially impacted by this rise in flood risk. Because “standard [. . .] insurance policies in the Netherlands exclude coverage for damage caused by flooding,” flood insurance is relegated to excess and surplus companies or government-sponsored programs (Surminski et al. 1461).

Though this study examined only one type of insurance in the Netherlands, the same ideas can be applied to climate change and the insurance industry as a whole. A world with fluctuating temperatures and increasingly unstable weather patterns would experience more powerful natural disasters that would raise risks for insurers around the globe. Premiums would rise simultaneously to offset anticipated higher losses, and

#2

risk-averse insurers may choose to abandon certain segments altogether. Thus, as the ones responsible for writing policies for more volatile industries, MGAs are particularly susceptible to the threat of climate change.

Loss Prevention is Key

To lessen these risks, promoting loss prevention is key for MGAs. Risk segregation is one potential solution. By “segregating” risk, i.e. separating clients into different risk categories and charging different premiums to each, companies can reduce risk as well as incentivize loss-reducing behavior among clients (Botzen and Bergh 417). For example, a business located in an area that is prone to flooding might choose to relocate to lower their premiums. Both the insurer and the business-owner would then benefit in this situation.

MGAs can also take a more proactive approach by informing their clients about potential “damage-reducing measures” like flood-resistant building materials, especially if the client in question has already experienced flood damage (418). This kind of physical risk management is helpful because it encourages the parties that are most vulnerable to exposures to adapt to the effects of climate change.

These methods for dispersing risk are, of course, traditional ones that insurance companies regularly implement. More innovative techniques like alternative risk transfer (ALT) are also available to MGAs. ALT mechanisms involve financial instruments like catastrophe bonds and industry loss warrants, which allow insurers to transfer risks to the capital market (Banhami-Zakar et al. 33). Though these methods have been more expensive than commercial reinsurance premiums in the past, they have the potential to be a more cost-effective risk-sharing option that can be explored by MGAs (36).

CLIMATE CHANGE AS CORPORATE SOCIAL RESPONSIBILITY

The Netherlands case study, while sobering, does end on a more positive note. Paudel et al. explain that insurance companies “can also play an important role in providing incentives to homeowners to implement adaptive and risk-reducing measures” (1727). In short, insurers do not have to approach the problem of climate change in a reactive way; rather, in the words of scientist Evan Mills, “the insurance industry is uniquely positioned to further society’s understanding of climate change and advance creative solutions” (334).

Thus, climate change is both a very real threat and a singular opportunity for insurers to fulfill their role as global citizens in the world. Sustainable development is a hallmark of corporate social responsibility (CSR) that can no longer be put off—as the effects of climate change grow ever stronger, wholesale insurers have the chance to make a very real difference in the world. Mills lists a number of categories of actions that the insurance industry can take; the most important are listed below.

Research, Research, Research

First of all, the insurance industry can begin by focusing on what they do best: research and analysis. Climate change is a complex, data-oriented problem, and companies can devote time and resources to understanding the issue, gathering and analyzing the relevant data, and constructing models to predict changes. These projects can be considered as a type of catastrophe modeling that benefits the company directly by offering better information about future risks and losses.

Insurance companies can also contribute to the growing body of climate-related research by investing in scientists that are already studying the issue. This research would benefit not only society as a whole but the company in particular, because the data could be used to develop better algorithms for pricing and reserving.

Of course, this research is only beneficial if it is applied properly. Economist Surminski and her team recently observed that “investment decisions by insurers do not usually consider the climate risk knowledge gained on the underwriting side” (Surminski, Bower, and Linnerooth-Bayer 334). Incorporating information effectively is a crucial part of enterprise risk management, which in turn is necessary for any insurance company that is developing an approach to climate change.

Promote Innovative Products and Services

Insurers can also engage in proactive loss prevention methods by encouraging their clients to be more sustainable. Insurance companies could champion “green” technologies just as it does fire safety and building codes (perhaps by offering reduced premiums as an incentive or by engaging in physical risk management strategies, as described above). Again, the company stands to benefit directly: green tech is often less vulnerable to losses, which has been used justify lower premiums (Mills 339).

At the same time, the insurance industry can promote innovative climate change solutions like renewable energy and carbon capture and sequestration (CCS) by both insuring promising companies and directly investing in various initiatives. Green tech companies need insurance plans as much as any other business, and crafting innovative products and services for such companies would open up new markets for wholesale insurers while promoting sustainability. Of course, writing policies to such companies would expose the insurer to unique risks that also must be accounted for, but managing such risks would be well within the normal parameters of an insurance company.

Investment is also important because climate change poses a threat to financial markets, where many insurance companies make their money. Extreme natural disasters could affect global financial markets by jeopardizing communication channels and by making costs of capital more volatile (Stern 122). As a result, more and more companies are choosing to divest money to addressing climate change directly. Despite status quo activity, though, current investment “is a modest portion of all investment in

#2

this space and a vanishingly small part of insurers' own portfolios," which is why further actions are needed (Mills 343).

Together, these strategies could also help insurance companies build a reputation of sustainability. Society reacts to science, and more and more individuals now care about the environmental impacts of their actions. Australian researcher Michael Hawker explains that "the future reputation of the insurance industry will be dependent on how we manage this issue" (27).

Act as a Global Leader

Finally, insurance companies have the chance to lead by example by fully committing to sustainability in their own offices and supply chains. The global insurance industry directly emits about 12 million tons of carbon dioxide each year, a carbon footprint that is equivalent to that of 2.5 million US cars (Mills 344). Shifting to more rigorous in-house carbon management strategies could help insurance companies build credibility as they advance other sustainability advantages.

CONCLUSION

Climate change is no small issue: human-caused warming has the potential to exacerbate the effects of natural disasters and cause large-scale losses for insurers of all types. Compensating for these increased future risks is important for MGAs, but insurance companies cannot take a merely reactive role in this situation. Championing sustainability by contributing to climate research, promoting innovative products, and leading by example would be not only a good CSR approach but also beneficial to wholesale insurers directly. Thus, though recognizing and adapting to the impacts of climate change is important, abandoning the traditional "gloom-and-doom" outlook is crucial; the insurance industry must seize its chance to make a concrete difference in the world (Mills 351).

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#2

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