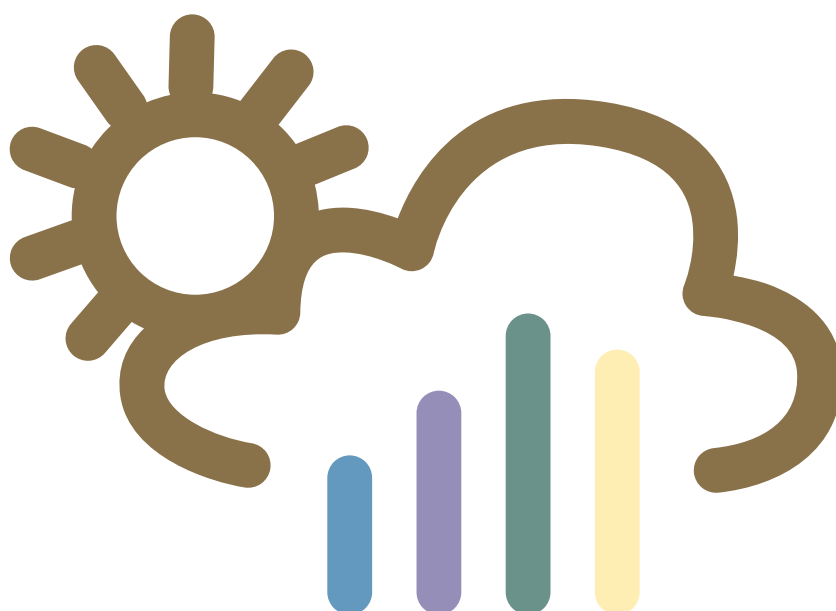


Insurer Climate Risk Disclosure Survey: 2012 FINDINGS & RECOMMENDATIONS

March 2013



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ABOUT CERES

Ceres is a nonprofit organization advocating for sustainability leadership. It mobilizes a powerful network of investors, companies and public interest groups to accelerate and expand the adoption of sustainable business practices and solutions to build a healthy global economy. Ceres also directs the Investor Network on Climate Risk (INCR), a network of 100 institutional investors with collective assets totaling more than \$11 trillion.

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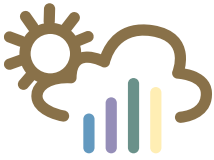
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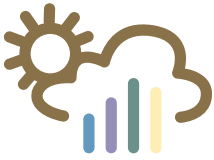
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Contents

FOREWORD	4
EXECUTIVE SUMMARY	6
CHAPTER 1: CONTEXT	12
1.1 A Changing Business Environment	
1.2 Investment Performance	
1.3 Regulatory Uncertainty and Mounting Liability Potential	
1.4 History of Insurance Climate Disclosure	
CHAPTER 2: OVERVIEW OF THE ASSESSMENT	17
2.1 Report Methodology	
2.2 Insurer Profiles	
2.3 Overall Insurer Performance	
CHAPTER 3: CLIMATE CHANGE RISK MANAGEMENT	21
CHAPTER 4: ACTION DRIVERS ON CLIMATE CHANGE	24
4.1 Overview	
4.2 Review of Internal Drivers	
4.3 Review of External Drivers	
CHAPTER 5: CORE FUNCTIONS	41
5.1 Property & Casualty Insurer Core Functions	
5.2 Life and Annuity Insurer Core Functions	
5.3 Health Insurer Core Functions	
CHAPTER 6: ENGAGEMENT	53
6.1 Stakeholders	
6.2 Public Policy	
CHAPTER 7: REPORTING	58
CHAPTER 8: RECOMMENDATIONS	60
8.1 For Insurers	
8.2 For Insurance Regulators	
APPENDICES	62
A1 Climate Risk Disclosure Survey	
A2 Scoring Methodology	
A3 Insurer Respondents	



Is the Insurance Industry Prepared?

By Mindy Lubber

President of Ceres and director of the Investor Network on Climate Risk

2012 was the warmest year on record in the Lower 48 states and the second most extreme weather year in U.S. history. This is not a coincidence. Extreme weather—stronger, more damaging storms, unprecedented drought and heat in some regions and unprecedented rainfall and flooding in others—are the predictable consequences of rising global temperatures.

Eleven extreme weather events each caused at least a billion dollars in losses last year in the United States. A *single event*, Hurricane Sandy, caused *more than \$50 billion* in economic losses. Insurance companies are on the hook for tens of billions of dollars in claims as a result of Sandy and other severe weather events. And American taxpayers are on the hook for tens of billions of dollars themselves, thanks to losses sustained by the National Flood Insurance Program as well as disaster relief spending.

Sandy's impact was especially severe because of a record-breaking storm surge. With rising sea levels and increasingly powerful storms, there are more Sandys in our future. In the United States alone, more than 2.6 million homes are less than four feet above mean high tide. Hundreds of billions, perhaps trillions, in taxable real estate lies less than three feet above average high tide. On the coasts, power plants, mass transit systems, wastewater treatment plants, and airports sit at or near sea level. In short, the potential liability for insurers is astronomical.

At first blush it might appear that only property and casualty insurers have reason to be concerned about claims related to climate change. In fact, every segment of the insurance industry has climate risks. Life insurers, for example, own hundreds of billions of dollars worth of real estate in coastal areas.

This raises a fundamental question: Is the insurance industry prepared? Have insurers analyzed and measured their climate-related risk? Are they planning for life in a warmer world? These should be essential questions for insurance regulators in all 50 states to be asking, and some are.

In 2012 insurance regulators in California, New York and Washington State required insurers that write in excess of \$300 million in direct written premiums doing business in their states to disclose their climate-related risks. Because virtually every large American insurer operates

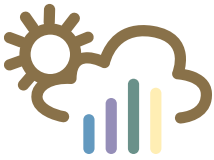
If climate change undermines the financial viability of the insurance industry, it will have a devastating impact on the economy, as well.

in at least one of those states, the survey responses give us a good picture of how well prepared the industry is, as a whole, for the new risks associated with climate change.

The answer, unfortunately, has not changed since our first report analyzing the insurance industry's readiness in September 2011 concluded: "not very." The implications are profound, for the insurance industry is a key driver of the national and global economies. If climate change undermines the financial viability of the insurance industry, it will have a devastating impact on the economy, as well.

In my foreword to the September 2011 report I wrote that 2011 was shaping up to be one of the costliest years in history for natural disasters. Then 2012 made 2011 look tame by comparison. This has to be a wake-up call to an industry with so much to lose from climate change.

It's a cliché, but it's true: information is power. That's why mandatory, annual, publicly available climate disclosure information—information like that contained in the surveys analyzed in this report—is so critical to, regulators, shareholders, consumers and policy makers. By requiring insurers to disclose information about whether and how they are integrating climate risk into their operations, they must reckon with important new forces buffeting the industry and become stronger and more resilient in the process.



Executive Summary

THE OBJECTIVE

This report summarizes responses from insurance companies to a survey on climate risk developed by the National Association of Insurance Commissioners (NAIC). In 2012 insurance regulators in California, New York and Washington required insurers that write in excess of \$300 million in direct written premiums, and are licensed to operate in any of the three states, to disclose their climate-related risks using this survey. The aim of the survey and Ceres' analysis of the responses is to provide regulators with substantive information about the risks to insurers posed by climate change, as well as steps insurers are taking in response to their understanding of climate change risks. Because virtually every large American insurer operates in at least one of those states, this effectively opens a window into the entire industry. While the responses to the survey are public and can be viewed by any interested party*, Ceres felt that all stakeholders would benefit from an analysis that distilled key findings and trends from the large volume of data, and recommended steps insurers and regulators could take to manage climate risks.

THE ANALYSIS

The survey generated 184 distinct responses (see full list of respondents in Appendix 3) after duplicates were removed. Ceres developed a framework to assess the responses, analyzing four domains: 1) how the companies manage climate change issues; 2) what drivers shape their strategies; 3) what actions they take in their core functions or operations and; 4) how they interact with external stakeholders. These four broad domains were subdivided into a total of 37 indicators, outlined in Appendix 2. To aid in our assessment, Ceres developed a scoring methodology (described in Appendix 2) that enabled comparison between segments of the industry, company size and other characteristics. Company scores will not be made public, but will be provided to regulators and companies upon request.

KEY FINDINGS

In general, almost all companies responding to the survey show significant weakness in their preparedness to address the effects climate change may have on their business. However, a small subset of industry leaders are evolving their business strategies to remain competitive as the impacts of climate change unfold. Given the strong scientific consensus on climate change, the rest of the industry would be well advised to follow the lead of these innovative companies.

* Survey responses are available at <http://www.insurance.ca.gov/0250-insurers/0300-insurers/0100-applications/financial-filing-notice-forms/annualnotices/ClimateSurvey.cfm>

While there is significant variability between companies in their approach to identifying and managing climate risks, clear trends emerged from the survey results:

- ➔ Smaller companies tend to be far less prepared than larger companies.
- ➔ Property and Casualty (P&C) insurers (including multiline) demonstrate far more advanced understanding of the theoretical risks that climate change poses to their business. P&C insurers also tend to be at a further stage of development in implementing the tools needed to manage climate change risks, when compared to the Life and Annuity and Health segments of the industry, irrespective of the size of the company.
- ➔ Only 23 companies, mainly large and foreign-owned, have a specific, comprehensive strategy to cope with climate change. At best, most insurers view climate change as a risk that will inherently be captured in their Enterprise Risk Management strategies, and at worst as an environmental issue immaterial to their business.

KEY FINDINGS BY CHAPTER

Climate Change Risk Management

- ➔ Only 23 of the 184 companies have comprehensive climate change strategies¹: of those 13 are foreign-owned, and 8 are P&C companies. Yet even among those companies with comprehensive climate strategies, the view of climate science is remarkably diverse. For example, companies such as ACE are funding primary climate change research, Swiss Re and others lend their brand actively to efforts at the Intergovernmental Panel on Climate Change (IPCC, a global cooperative to synthesize the state of climate change science), while companies including Allstate and Travelers express strong ambivalence about the state of the science—specifically, the existence of climate change and what is causing it.
- ➔ While most insurers in the P&C segment have policies in place to manage climate variability, the annual and decadal variance inherent to the global climate system, few have explicit policies to identify or manage the trends of global climate change. Some insurers do not seem to understand the difference between climate variability and climate change.
- ➔ Especially within the Health and L&A segments, but even among some P&C insurers, many companies view climate change as an environmental issue immaterial to their business. Most of the remaining companies regard climate change as a risk that will inherently be captured in their Enterprise Risk Management strategies.

Action Drivers on Climate Change

The survey reveals five main motivators of action on climate change, including:

- ➔ *Cost efficiencies*, primarily energy savings. The most common action driver (116 of 184 companies) was reducing company energy use to cut costs. Far fewer companies (39 out of 184) cited carbon reduction targets as a motivator.
- ➔ *Security*, the exposure of the company's operations, revenue and profitability, is a motivator for 110 out of 184 companies, although this is primarily due to concern for current extreme weather events, rather than climate change per se. Business continuity and claims processing from extreme events that affect insurers' own operations are the most-cited exposure nodes (72 out of 184). Companies cite reinsurance, loss modeling and business continuity planning as approaches to managing their own performance, while carrying surplus capital is rarely mentioned. However, risk management approaches

¹ Others have strategies to deal with climate variability, but not the trend in climate, nor the associated social issues (e.g. regulation, liability, reputation, client behavior).

are frequently described generally in terms of catastrophe risk management rather than as approaches specifically to address climate change. There is little discussion of the potential for correlation between client risk and asset risk.

- ➔ *Emergent risks* from future climate trends—88 out of 184 companies viewed climate change as a potential future loss driver, even though scientific assessments such as the recent IPCC Extreme Events report and draft National Climate Assessment emphasize that climate change is already amplifying extreme events that lead to insured losses. As a far-off risk factor, climate change was seen as a potential risk to companies' underwriting and investment returns, even for insurers in segments such as dental insurance.
- ➔ *Sustainability* and related reputational benefits. This driver is relevant for all segments, but especially so for health insurers. While only 9 companies include the reputational benefits of acting on climate change, a far higher number highlight correlations between sustainability programs and reputational benefits (77 firms, or over 40% of the survey).
- ➔ *Client exposure* to climate change was cited by 72 out of 184 companies, with concerns including clients' exposure to carbon regulation, extreme weather damage to clients' physical operations or assets and damage to clients' investments.

The motivators for climate action differ depending on industry segment. P&C insurers' top concerns are security, closely followed by cost efficiency. They view climate change as a future but uncertain, emergent risk, rather than one that already affects clients through hazards such as more damaging hurricanes and extreme heat events. Life & Annuity insurers are especially motivated by cost efficiency, followed closely by security. There is less concern over potential or current changes in the climate and minimal concern over hurricanes or other weather extremes. Health insurers' main driver is sustainability, which they link to concern for the well being of their clients.

Core Functions

By far, the industry segment with the most climate risk management activities underway is property and casualty—unsurprising as weather events are a major driver of losses to these companies. In general, the current view of Life & Annuity companies is an absence of current risk exposure to climate change on their underwriting business, but nearly a quarter describe some active management of invested assets to manage climate change risks. Despite predictions of more pronounced heat waves, expansion of insect-borne disease and poorer air and water quality, few health companies describe climate change as a factor relevant to their risk assessment.

As may be expected, many insurers discuss climate change in terms of specific perils or types of extreme weather events. The most common of those perils, as reflected in the findings of Ceres' 2010 review of insurer disclosure, is hurricanes (32 of 184 companies, all P&C). As for the scientific community, there is no consensus yet on how hurricane risk will evolve in a warmer climate—while leading experts disagree on whether increasing atmospheric and oceanic temperatures will lead to more or fewer hurricanes developing, there is widespread agreement that those hurricanes that do form will be more intense and destructive, in part due to higher sea levels and resulting higher storm surges.

Other perils, including wildfires (15 out of 184) and convective storms that produce tornadoes, thunderstorms and hailstorms were also highlighted by insurers. The state of science for these weather events is very uneven: more damaging wildfires are demonstrably trending upward as predicted by climatological assessments, yet insurers describe loss experience as departing dramatically from their own historical underwriting experience.

Common strategies for risk management include catastrophe modeling, reinsurance, higher deductibles or broader exclusions in risk-prone areas (particularly coastal zones), and a careful control of aggregate exposure, including rebalancing property with other lines of business. The most frequent challenge to risk management cited by insurers is regulatory pricing controls in which prices are not permitted to rise as quickly to higher risk levels in regulated markets.

This finding, namely that insurers view their investments as minimally susceptible to climate risks, was also reported in Ceres' 2010 review of insurer disclosures. However, nearly a quarter of life insurers and a number of P&C companies describe strategies for reducing their investment exposure to businesses or regions that are viewed as most vulnerable to climate change impacts. Of great interest is the tendency of insurers across business segments—life and property alike—to prioritize physical risk management over carbon regulation risk management in their investments. While companies recognize the potential for investment losses in carbon-intensive industries under future carbon regulatory regimes, no insurers describe screening out carbon-intensive businesses. Yet several insurers describe screening out securities or real assets from coastal regions (particularly Florida) and arid regions with perceived water scarcity such as the Southwest. Particularly following the spate of destructive storm and drought activity in 2012, these investment screening practices should be noted by real asset owners and bond issuers.

Engagement

Few insurers describe efforts to engage stakeholders such as regulators, policymakers, customers, employees, asset managers or vendors on climate change. The dearth of external engagements limits the potential influence of insurers in shaping a public view of climate change risks and policy actions that are needed to enhance climate resiliency and climate mitigation. Because insurers have uneven resources to assess their own climate risk, the inward-facing approach of much of the industry also suggests that smaller companies may be disproportionately unprepared for climate change.

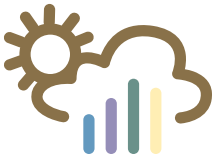
- ➔ Smaller insurers rely upon external parties for critical services such as catastrophe modeling, reinsurance strategies and asset management, yet the survey findings suggest that these insurers often do not understand whether their advisors and suppliers are factoring climate change into their decisions.
- ➔ Many insurers have adopted products designed to support low-carbon activities. About half of large and medium-sized property insurers offer insurance products designed for low-carbon activities such as green buildings or renewable energy projects. Some of the large Life & Annuity companies offer investment products allocated to low-carbon technologies. However, since most product development has been undertaken by multinational companies headquartered overseas, most products tend to be developed for an international market and are of limited relevance in the United States market.

KEY RECOMMENDATIONS FOR INSURERS

- ➔ **Treat climate change as a corporate-wide strategic issue, affecting all functions, at all levels, and formalize this in a public corporate policy statement.** Climate change has the potential to impair value across the insurance enterprise—managing it demands a comparable scope of coordination.
- ➔ **Evaluate the potential for changes in future risk exposure due to climate change.** Insurers need to assess how a changing climate could alter extreme weather events, disease vectors, political risk and infrastructure resilience, and adapt accordingly.
 - **Support research on the influence of a warming climate on human systems, including forecasting future catastrophe trends, disease pathways, population migration, infrastructure failure and adaptive responses.** While there is strong scientific consensus on climate change, there is a particular need to advance our understanding of the likely impacts of warming temperatures on phenomena, including the frequency and severity of hurricanes and convective storms; the human health effects of more intense heat waves and expansion of insect-borne diseases; and the economic and political repercussions of failed infrastructure and inundation of developed lands.
 - **Develop catastrophe models that anticipate the probable effects of climate change on extreme weather events.** Insurers with deep scientific resources should partner directly with climate scientists to develop new, more granular modeling capabilities. For many carriers, with less scientific expertise, it is equally important that the impact of climate change on extreme inland and coastal weather events be a routine part of the conversation with catastrophe model vendors and reinsurance brokers.
 - **Engage with regulators about how to ensure that rates and loss reserves adequately reflect changes in loss trends due to climate change.** Insurers should also increase their efforts to offer preferential pricing that reflects climate-resilient behavior.
 - **Ensure that investment advisors and asset managers have established expertise on climate change risk assessment and management.** Climate change is already altering extreme event trends, with implications for equity, bond, infrastructure, real estate and commodities investors. Insurers investing in these asset classes are no less subject to climate-related losses than other institutional investors, and consequently it is imperative that insurers consider climate change expertise when selecting investment professionals.
- ➔ **Provide transparent, useful public disclosure.** Disclosure should reflect the company's best efforts to assess and manage climate change—it should therefore provide enough detail to assist regulators and investors in understanding why the company takes a certain view on climate change, including the assessments undertaken to arrive at that viewpoint. For global enterprises, disclosure should clearly differentiate activities being undertaken in the United States market from those being undertaken in Europe or other significant markets.
- ➔ **Inform Public Policy:** Promote the need for action to prevent climate change and work with policy makers at the federal, state and local levels to help them build and maintain an economy that is resilient to climate risk.

KEY RECOMMENDATIONS FOR INSURANCE REGULATORS

- ➔ **Continue to mandate annual, public disclosure to foster more active engagement by insurers on the issue of climate change.** Given the potentially significant impacts of climate change on insurance availability and affordability, as well as on insurer financial health, the importance of mandatory disclosure for regulators seeking to understand climate activities in the market cannot be understated. Information provided in mandatory, public disclosure can help other market actors identify market-wide failures in risk management and push for market corrections. In this respect, disclosure results should be used not only by regulators but also by reinsurers, primaries and brokers to understand the direction the market is moving with respect to a risk factor that will profoundly shape industry performance in the coming years.
- ➔ **Clarify disclosure expectations.** Regulators can do their part to improve insurer disclosure by putting forth guidance defining the important concepts and describing the expected substance of insurer responses to the climate risk disclosure survey. In addition, regulators should redesign the survey form to elicit more useful responses. Particular effort should be made to limit the opportunity for multiple questions to elicit the same responses, and to focus questions on risks to the core operations of insurers—underwriting, claims and investment.
- ➔ **Encourage active examination of climate risk during the financial oversight process.** In 2012, the NAIC added a number of climate change-related questions to the Financial Condition Examiners Handbook, a key document used every three to five years to evaluate an insurer's financial standing. Regulators should educate their examiners on the potential financial risks posed by climate change, and encourage examiners to utilize the climate-related questions during the exam process.
- ➔ **Create more shared resources to help insurers analyze and respond to climate-related risks and opportunities,** including investment risks and opportunities, correlated risks and loss modeling. Relatively few insurers have the ability to produce fundamental research on the ways that climate change may affect their business. Regulators should help to improve market-wide understanding of the ways climate can affect different areas of the insurance enterprise, and incorporate these trends into company examinations to protect market capacity. Insurers and regulators alike would benefit from more fundamental research in the following areas, which emerged as areas of weakness in the 2012 disclosure responses:
 - **Investment Risks and Opportunities.** Insurer portfolio exposure and climate-sensitive asset allocation strategies are a particular need.
 - **Correlated Risks.** An assessment of the potential for emergent correlated risks between investments and underwriting portfolios could inform future examination procedures.
 - **Loss Modeling.** Regulators and carriers would mutually benefit from clarification on how today's loss models incorporate climate parameters.
 - **Health and Life Loss Potential.** Fundamental research on the temperature sensitivity of morbidity/mortality statistics would likely be beneficial to insurers, regulators and public health professionals.
 - **Customer Resilience.** Regulators and insurers have a mutual interest in strengthening customers' resilience to extreme events, and identifying the most successful methods of driving resilience.
- ➔ **Engage with insurers, consumers and other policymakers to better understand the nature of climate change risks,** including how rates should adjust to reflect changing risks, and the steps insurers and regulators need to take to better incentivize consumers to reduce their vulnerability to these risks.



Context

1.1 A CHANGING BUSINESS ENVIRONMENT

The insurance industry is a powerful driver of the global economy. Without insurance, business activity would virtually cease: cargo would sit in ports, planes wouldn't fly, assembly lines would be idled and construction activity would grind to a halt. Every sector of the economy depends on insurance and, correspondingly, insurers are exposed to risk in every sector of the economy.

Insurance companies also exercise considerable influence over both public policy and private behavior. Through underwriting standards and premiums, insurers wield great power over everything from where and how buildings are built, to workplace health and safety standards, to how we drive our cars.

Yet the ability of insurers to accurately price risk and to serve the needs of their customers is challenged by climate change.²

In recent decades, insured losses in the United States have risen at several times the rate of economic growth, driven in part by the ever-increasing migration of populations and economic assets to risky areas.³ In coastal and non-coastal areas alike, U.S. insured losses triggered by volatile weather events, many of them influenced by climate change, are steadily rising.⁴ On the heels of extreme weather events that cost U.S. Property & Casualty insurers more than \$32 billion in losses in 2011⁵ came the historic drought of 2012, which drove losses high enough to penetrate the private reinsurance market⁶, and Hurricane Sandy, which wreaked an estimated \$100 billion in total economic damages⁷ and \$20-25 billion in insured losses.⁸ If nothing else, the last two years of more frequent and intense extreme weather events have demonstrated the profound challenges that insurer business models already face from climate change. Left unmanaged, deepening climate-related trends will compound these pressures on insurer business models and overall insurability.

If nothing else, the last two years of more frequent and intense extreme weather events have demonstrated the profound challenges that insurer business models already face from climate change.

- 2 Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). 2007. "Climate Change 2007: The Physical Science Basis." Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- 3 Mills, Evan. 2005. "Availability and Affordability of Insurance Under Climate Change: A Growing Challenge for the U.S." December, <http://216.235.201.250/netcommunity/Document.Doc?id=94>
- 4 Munich Re, "2011 Natural Catastrophe Year in Review," January 4, 2012. Retrieved online from <http://www.ctnow.com/media/acrobat/2012-01/67158951.pdf>.
- 5 ISO Property, "2011: A Year to Remember." Retrieved online from <http://www.isopropertyresources.com/Feature-Story/Articles/2011-A-Year-to-Remember.html>.
- 6 Artemis, "U.S. drought crop insurance losses to reach into billions, hit reinsurers." August 10, 2012. <http://www.artemis.bm/blog/2012/08/10/u-s-drought-crop-insurance-losses-to-reach-into-billions-hit-reinsurers/>
- 7 Andrew Freedman, "NOAA: 2012 to rank as second costliest US year since 1980" The Guardian, December 21, 2012. <http://www.guardian.co.uk/environment/2012/dec/21/climate-change-natural-disasters>
- 8 Ulrike Dauer, "Sandy's Insurance Bill Estimated at \$25 Billion for Industry," *The Wall Street Journal*, January 3, 2013. <http://online.wsj.com/article/SB10001424127887323374504578219293555274084.html>

Some of the world's largest insurers have concluded that climate change is already driving extreme events to diverge significantly from historic trends.

The worldwide impacts of climate change are clearly discernible. Global temperature averages have increased, as have ocean temperatures.⁹ Worldwide, the hottest days are now hotter,¹⁰ and extremely hot summers are now 40 times more frequent.¹¹ There have also been regional increases in more pronounced heat waves and heavy precipitation events, all of which exceed the levels expected from standard climate variability.¹²

Within the United States, average temperatures have risen over the past half-century, while extreme weather events, including heat waves, droughts and floods, have become more frequent and intense. 2012 was the hottest year on record in the continental U.S., with more than 30,000 new record high temperatures being recorded across the country.¹³ These changes are already causing deepening economic damages in the form of crop losses, wildfire losses, supply chain disruptions and critical infrastructure outages.

This changing climate will profoundly alter insurers' business landscape, affecting the industry's ability to price physical perils, creating potentially vast new liabilities and threatening the performance of insurers' far-reaching investment portfolios.

Some of the world's largest insurers have concluded that climate change is already driving extreme events to diverge significantly from historic trends. Among them is Munich Re, which includes climate change among the set of factors amplifying decadal weather-related losses in North America, particularly for heat waves, droughts and thunderstorms.¹⁴ The increasing unpredictability of extreme events, and the potential for climate change to undermine the industry's diversification models, threatens the industry's long-term financial viability along with the very concept of insurability itself in some parts of the world.¹⁵

More extreme weather will likely pose pricing challenges to the life and health insurance segments as well. Rising atmospheric carbon concentrations have been shown to increase pollination and allergen production, which contribute to allergic responses and asthma.¹⁶ Higher temperatures enable territory expansion for disease vectors such as ticks and mosquitoes, and also contribute to longer and more frequent heat waves with the potential to trigger more heat stress disorders.¹⁷ This may be an especially pernicious problem in urban areas. Chicago, for example, could see average annual morbidity from heat waves double before the end of the century.¹⁸

9 NOAA Satellite and Information Services, May 2012. Retrieved online from <http://www.ncdc.noaa.gov/sotc/global/>.

10 America's Climate Choices: Panel on Advancing the Science of Climate Change; National Research Council, "Advancing the Science of Climate Change," 2010. Retrieved online from http://www.nap.edu/catalog.php?record_id=12782.

11 J. Hansen, M. Sato, and R. Ruedy, "Public perception of climate change and the new climate dice," Accepted for publication July 2012. *Proceedings of the National Academies of Science*.

12 IPCC, "2012: Summary for Policymakers," *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, NY, USA

13 NOAA National Climatic Data Center. Retrieved online from <http://www.ncdc.noaa.gov/extremes/records>.

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15 Trevor Maynard. 2008. "Climate Change: Impacts on Insurers and How They Can Help with Adaptation and Mitigation." The International Association for the Study of Insurance Economics 1018-5895.

16 United States Environmental Protection Agency. 2008. "Review of the Impacts of Climate Variability and Change on Aeroallergens and Their Associated Effects."

17 Paul Epstein and Dan Ferber. 2011. "Changing Planet, Changing Health: How the Climate Crisis Threatens Our Health and What We Can Do about It." University of California Press

18 Katharine Hayhoe, Scott Sheridan, Laurence Kalkstein and Scott Greene. 2010. "Climate change, heat waves, and mortality projections for Chicago." *Journal of Great Lakes Research* 36, pp. 65–73.

1.2 INVESTMENT PERFORMANCE

American insurers control nearly \$5 trillion in invested capital, making it one of the world's largest investors.¹⁹ A substantial proportion of the revenue generated by insurers is derived from investment returns. Just as climate change may substantially increase insured losses, it may also adversely affect the investment performance that insurers rely on to meet their liabilities.

Investment advisor Mercer calls climate change a systemic risk, estimating that it could introduce as much as 10 percent portfolio risk for institutional investors, including those with diversified holdings in sovereign fixed income, equity, credit and agricultural assets.²⁰ Mercer suggests that traditional asset allocation strategies will not be enough for investors to manage climate risk, and recommends that investors develop a dedicated asset allocation approach that reflects the sensitivity of different assets along with the adoption of an "early warning system" in their risk management process. Mercer's 2011 analysis excludes potential risk contributions of climate change's physical effects, citing disagreement among climate models' near-term projections. Yet it also notes that recent experience with extreme events should caution investors not to discount the potential for significant risk from physical climate changes.

Warming temperatures are already playing a significant role in the rising number of extreme weather events that contribute significantly to global economic and market volatility. From 2010-2012, droughts and floods ravaged agricultural lands across Asia, Europe, Australia and North America, dislocating agricultural commodity prices and touching off civil unrest that helped spark the Arab Spring. Massive floods in Thailand, a critical hub for semiconductor and auto manufacturing, also drove massive losses in those sectors.

As a growing number of institutional investors build climate change into their investment strategies, insurers with significant asset management businesses will also have to develop this expertise to remain competitive.

The extreme floods and droughts responsible for destroying basic food crops can be expected to occur more regularly as temperatures rise. The increased volatility of a changing climate is expected to exacerbate fundamental tensions between rapidly growing demand for commodities from developing countries and slack gains in productivity across essential commodities.²¹

A growing number of institutional investors outside the insurance industry are already taking affirmative steps to manage climate-related risks in their portfolios. For example, the California Public Employees' Retirement System (CalPERS), the largest public pension fund in the United States, now requires these risks to be built into portfolio construction decisions across all asset classes. Others, such as the California State Teachers' Retirement System (CalSTRS), are taking similar steps to engage their external asset managers on these trends.²²

As a growing number of institutional investors build climate change into their investment strategies, insurers with significant asset management businesses will also have to develop this expertise to remain competitive.

The role of insurers in driving the global economy makes it especially critical that they integrate climate risks into their investment decisions. Failure to do so could have far-reaching consequences should climate change have a major adverse impact on their financial stability. The industry is also an important determinant of the ability of the global markets to hedge climate risks. If the industry fails to appropriately price risk or adjust its own capital decisions to reflect climate risk in its underwriting, the physical risks of climate change could have a more precipitous effect on the global economy to which institutional investors, including insurers, are exposed.

19 Insurance Information Institute. http://www.iii.org/facts_statistics/investments.html

20 Mercer. 2011. "Climate Change Scenarios—Implications for Strategic Asset Allocation"

21 Jeremy Grantham. 2011. "Time to Wake Up: Days of Abundant Resources and Falling Prices Are Over Forever." *GMO Quarterly Letter*, April

22 Robert Kropp. 2011. "CalSTRS to Include ESG in Discussions with Asset Managers." *Social Funds*, May 21. <http://www.socialfunds.com/news/article.cgi?sfArticleId=3223>

Yet climate change also presents vast investment opportunities, with estimates of low-carbon technology investment projected upwards of \$5 trillion by 2030.²³

1.3 REGULATORY UNCERTAINTY AND MOUNTING LIABILITY POTENTIAL

The past few years have seen unprecedented investment in low-carbon technologies across the United States, in part driven by the American Recovery and Reinvestment Act.²⁴ But climate regulatory uncertainty plagues the renewable energy market. As a result, states continue to be setting the pace for climate regulatory action, with California's carbon cap and trade market launched on January 1, 2013.²⁵ Against the worrisome backdrop of failed international climate treaty negotiations in Qatar, the absence of coherent US federal policy and the parade of extreme weather losses from coast to coast, the American insurance industry remains largely silent on the need for federal action on climate change.

The absence of a coherent policy framework and rising losses to critical infrastructure and valuable assets may be creating a perfect storm for corporate liability contracts. A number of tort cases are slowly marching through the courts.²⁶ These cases range from recovering costs of relocating communities away from land inundated by rising seas²⁷ to restitution for damages from extreme events intensified by greenhouse gas (GHG) emissions.²⁸

The absence of a coherent policy framework and rising losses to critical infrastructure and valuable assets creates the potential for corporate liability claims to exceed loss levels on which pricing of these contracts were based, a situation not unlike asbestos or tobacco claims in recent decades. The defense costs for such cases are so significant (along with the potential liability) that Steadfast Insurance, a subsidiary of global giant Zurich, filed suit against one of its clients, electric power producer AES, seeking relief of coverage obligations from a lawsuit against major energy producers.²⁹ That relief was granted by the Virginia Supreme Court in *Steadfast Insurance v. AES Corporation*, although uncertainty remains for insurers' duty to indemnify clients against climate change-related claims.³⁰

1.4 HISTORY OF INSURANCE CLIMATE DISCLOSURE

Despite rising concerns over the financial risks facing the insurance industry from climate change, climate risk disclosure efforts at the National Association of Insurance Commissioners (NAIC) have been almost as volatile as recent weather.

For many years, voluntary reporting mechanisms were the sole source of information for regulators and investors to view and evaluate insurers' climate risk management practices. One significant source of voluntary disclosure is the Carbon Disclosure Project (CDP), a yearly survey of the world's largest global companies requested on behalf of 655 institutional investors, holding \$78 trillion in assets under management.³¹

23 Mercer. 2011. "Climate Change Scenarios—Implications for Strategic Asset Allocation"

24 Joseph E. Aldy. 2012. Resources for the Future. "A Preliminary Review of the American Recovery and Reinvestment Act's Clean Energy Package." <http://www.rff.org/RFF/Documents/RFF-DP-12-03.pdf>

25 California Department of Environmental Protection Air Resources Board. January 15. <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>

26 Michael B. Gerrard and J. Cullen Howe. December 2012. "Climate Change Litigation in the US." <http://www.climatecasechart.com/>

27 See *Village of Kivalina v. ExxonMobil Corp.*, 08CV1138 (N.D. Cal. Feb. 2008).

28 See *Comer v. Murphy Oil USA, Inc.*, No. 1:05CV436 (S.D. Miss. 2006), dismissed and vacated, 607 F.3d 1049 (5th Cir. 2010).

29 Lawrence Hurley. 2011. "Va. Supreme Court to rule on insurance coverage of warming claims." May 19. <http://www.nytimes.com/cwire/2011/05/19/19climatewire-va-supreme-court-to-rule-on-insurance-coverage-90214.html>

30 McGuireWoods. "Is Negligence Still Insurable in Virginia? AES Corp. v. Steadfast Insurance Co." April 30, 2012 <http://www.mcguirewoods.com/Client-Resources/Alerts/2012/4/IsNegligenceStillInsurableinVirginia.aspx>

31 <https://www.cdproject.net/en-US/WhatWeDo/Pages/overview.aspx>

Recognizing the gap between risk potential and disclosure, state insurance regulators at the NAIC issued a white paper in 2008 identifying mandatory disclosure as a primary mechanism for driving improved climate risk management within the American insurance industry.

While CDP provides an important picture of how the largest global insurers view and manage climate risk, the majority of the American market is not included in the survey. Additionally, some of the largest American insurers surveyed by the CDP choose not to respond. For example, Berkshire Hathaway, which owns the third largest reinsurer in the world and which significantly shapes pricing and capacity in the American market, has consistently declined to respond to the CDP.

Recognizing the gap between risk potential and disclosure, state insurance regulators at the NAIC issued a white paper in 2008 identifying mandatory disclosure as a primary mechanism for driving improved climate risk management within the American insurance industry. The NAIC was seen as an optimal forum for implementing climate risk disclosure, and indeed preferable to the Securities and Exchange Commission (SEC), which was seen as “at best a blunt instrument for climate risk disclosure,” as the ongoing regulator-insurer relationship could more effectively translate disclosure into improved practice.³²

As articulated in its white paper, the NAIC viewed an effective disclosure tool as one that would address the following questions:

- ➔ Are insurers adequately including climate risk and climate risk changes in their internal risk assessment process? This set of questions should include information about issues of data collection, use of computer models as advancements occur related to climate change modeling, and policy formation by the insurer.
- ➔ Are insurers adequately informing and incentivizing policyholders as to their risks? This set of questions should include issues related to policy coverage (including flood, wind/water etc.), methods of mitigation (in terms of disaster resilience and GHG reductions), and pricing. An informed policyholder can be a great asset to the insurer.
- ➔ Are the insurers’ governance structures sufficient to keep their board members informed about climate risks? This set of questions should include issues related to board member education, internal transparency and ultimately coverage for liability of directors and officers (D&O).
- ➔ Are insurers taking adequate steps to mitigate their own risks and to foster policyholder mitigation? This set of questions should include issues regarding policyholder relations, market conduct, and policyholder education.³³

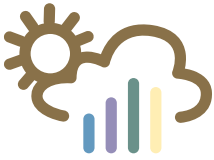
In March 2009, after extensive negotiations, the NAIC unanimously approved a mandatory disclosure standard. The NAIC’s Insurer Climate Risk Disclosure Survey was to be annually implemented by all state insurance commissioners for companies domiciled in their states writing more than \$500 million in premiums, with a gradual expansion to include all companies writing more than \$300 million in premiums. The survey results were to be made publicly available for use by consumers and other stakeholders.

Yet despite its unanimous adoption, the NAIC’s mandatory disclosure standard was put to an unprecedented re-vote, which significantly weakened the landmark disclosure requirement by making the survey voluntary and the results confidential.

This reversal, and a continued lack of progress within the NAIC itself, led the regulators of three states—California, Washington and New York—to announce that in reporting year 2011, all insurers writing more than \$300 million in premiums in their states would be required to submit responses to the Climate Risk Disclosure Survey. This expanded disclosure requirement has effectively captured the majority of the American insurance market, providing important insight into climate risk management practices in the largest insurance market in the world.

32 The SEC released its own interpretive guidance on the duty of publicly traded companies to disclose material climate risks in 2010. For a review of climate risk in insurer 10-K filings, see Jim Coburn et al. 2011. “Disclosing Climate Risks: A Guide for Corporate Executives, Attorneys & Directors.” Ceres, February. http://www.ceres.org/resources/reports/disclosingclimate-risks-2011/at_download/file

33 National Association of Insurance Commissioners, 2008, “The Potential Impact of Climate Change on Insurance Regulation,” White Paper



Overview of the Assessment

2.1 REPORT METHODOLOGY

The analysis in this report is based on 184 filings submitted by insurance companies in California, New York and Washington, which mandated responses to the Climate Risk Disclosure Survey (Appendix 1) in May 2012 for all companies operating in their states that wrote more than \$300 million in premiums for reporting year 2011.³⁴ To assess these responses, Ceres developed a framework for analyzing the submissions across four areas:

- ➔ how the companies manage climate change issues;
- ➔ what drivers shape their strategies;
- ➔ what actions they take in their core functions or operations; and
- ➔ how they interact with stakeholders, including their involvement in public policy.

In turn, these four areas were split into criteria, and below that, indicators³⁵ to give the necessary granularity for this review.

In order to assist regulators, companies and other stakeholders wishing to assess the quality of disclosure across the industry and the ways that market segment and size may influence insurers' climate risk perception and management, Ceres decided to score insurer responses. A total of 50 points was allocated over the indicators, and each insurer's response to the climate risk survey was scored out of a possible total of 50 points. Full details of the scoring methodology are outlined in Appendix 2.

Although we have elected to keep individual company scores private, Ceres will make the complete scores available to regulators, and individual insurers may request their own company-specific scores. The decision to keep scores private was motivated by the awareness that it is the overall trends that are important for regulators and other industry stakeholders to address, not the performance of any particular company.

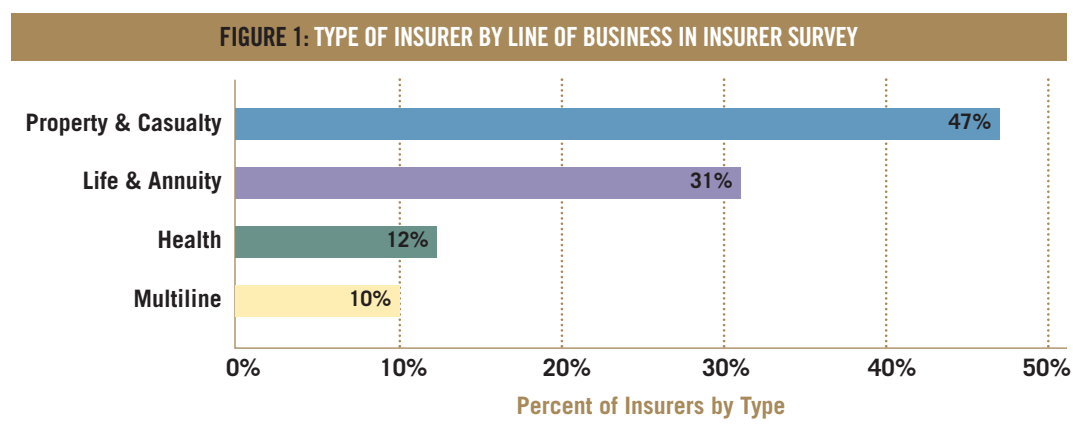
³⁴ Many duplicate responses were filed from subsidiaries within a group. The total number of filings was over 400.

³⁵ There are 37 indicators in most cases; the exact number depends on the lines of business transacted.

2.2 PROFILE OF THE INSURERS

Market Segment

Of the 184 unique filings, nearly half (47%) of the insurers were Property & Casualty (P&C), a third were Life & Annuities (L&A) (31%), one in eight were Health only (12%), and 10% were large Multiline groups, including reinsurers (see Figure 1).



Company Size

For the purpose of this report, companies were categorized by size: small—between \$300 million and \$1 billion annual premiums³⁶; medium—between \$1 and \$5 billion annual premiums; and large—over \$5 billion. This produced three substantial sub-samples: 45% small, 34% medium and 21% large.

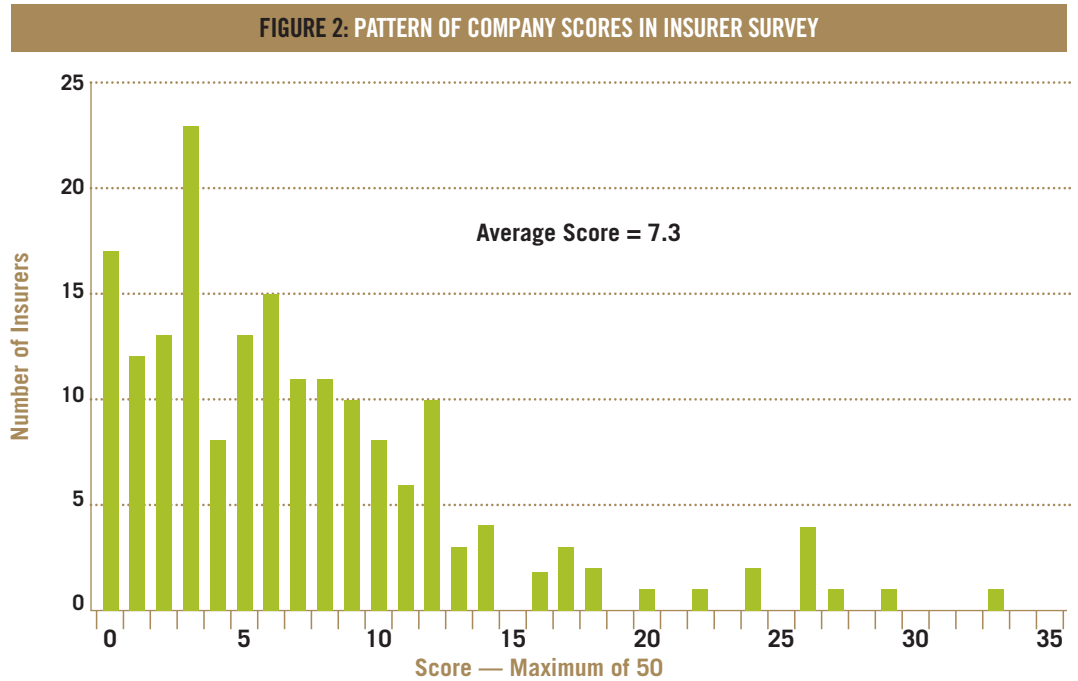
Company Ownership

The majority of insurers (close to 75%) reporting were publicly traded companies, with the second largest category (26%) non-profit companies such as mutual insurers and health providers. A very few respondents were privately held.

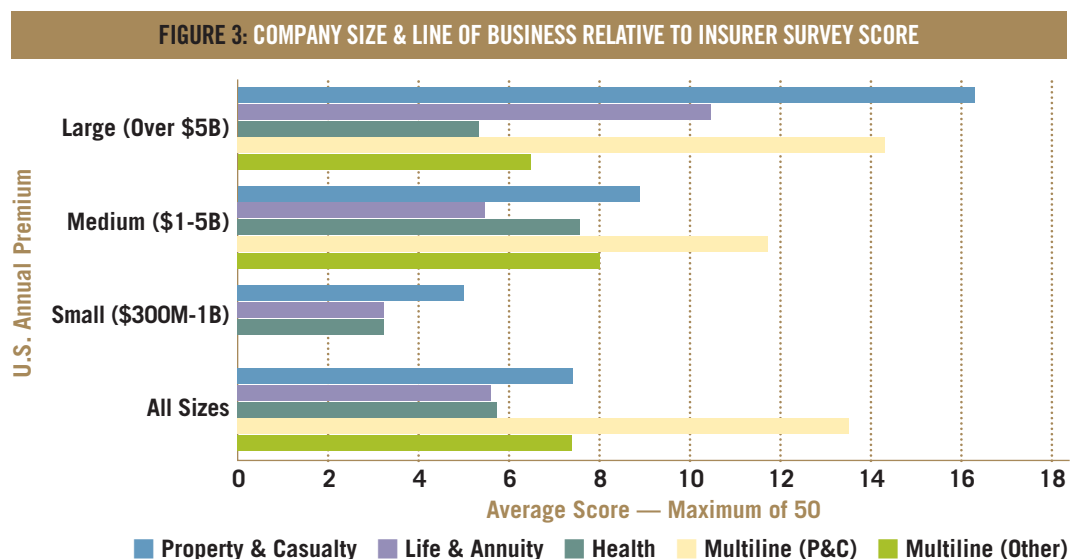
³⁶ Note that very small companies (under 300 million USD annual premium) are exempt from the NAIC survey.

2.3 OVERALL INSURER PERFORMANCE

In general, the standard of disclosure performance exhibited by insurers in the survey is low as judged by score distribution: the average score is 7.3 out of 50. Figure 2 shows the spread of scores, which ranges from a low of zero for seventeen companies to a high of 33 for one company.



The quality of insurer disclosure is strongly influenced by size and market segment, as Figure 3 shows. For market segment, the statistics are split into Property & Casualty, Life and Annuities, Health, Multiline writing P&C, and Other Multiline.



The Influence of Size

There is a clear positive correlation between company size and the quality of insurer disclosure.

Once size is controlled for, it is clear that firms that underwrite P&C business (whether they are pure P&C or multiline) score higher than other companies of the same size.

Large companies' superior scores may be attributable to the greater resources available to those companies to undertake risk analysis, stakeholder outreach and reporting. Diversification of the portfolio of business that accompanies size may also be an explanatory factor for the higher quality of disclosure of larger companies, as exposure to a broader geography of risks itself may drive greater attention to changing trends that could be less visible in more concentrated geographies or lines of business.

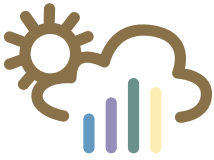
Size does not appear to be a driving factor in quality of disclosure in health, though the reasons why are unclear.

The Influence of Market Segment

Large companies' superior scores may be attributable to the greater resources available to those companies to undertake risk analysis, stakeholder outreach and reporting.

On average, multiline insurers writing P&C business scored higher than any other segment, but this is because there are no small firms of that type in the survey. Once size is controlled for, it is clear that firms that underwrite P&C business (whether they are pure P&C or multiline) score higher than other companies of the same size. This outcome is not terribly surprising, as much of the research and industry dialogue on climate change has focused on the potential impacts of extreme weather events on property losses.

Despite the historical focus of the P&C segment on extreme weather events, life and health insurers are by no means immune to other impacts of climate change. Changes in climate can affect morbidity and mortality trends, through factors such as a greater likelihood of heat waves or insect-borne diseases, and can also alter returns on investments, through impacts, such as credit rating downgrades on sovereign, state or municipal bonds or real estate valuation impairment in regions affected by climate change.



Climate Change Risk Management

Only 23 of the 184 companies have comprehensive climate change strategies.

Key Findings:

- ✓ Only 23 of the 184 companies have comprehensive climate change strategies³⁷: of those 13 are foreign-owned, and 8 are P&C companies. Yet even among those companies with comprehensive climate strategies, the view of climate science is remarkably diverse: companies like ACE are funding primary climate change research, Swiss Re and others participate actively in efforts at the Intergovernmental Panel on Climate Change (a global cooperative to synthesize the state of climate change science), while companies including Allstate and Travelers express strong ambivalence about the state of the science.
- ✓ While most insurers in the P&C segment have policies in place to manage climate variability, defined as the annual and decadal variance inherent to the global climate system, few have explicit policies to identify or manage the trends of global climate change. Some insurers do not seem to understand (or refuse to acknowledge) the difference between climate variability and climate change.
- ✓ Especially within Health and L&A, but even among some P&C insurers, many companies view climate change as an environmental issue immaterial to their business. Only one health insurer, Kaiser Permanente, has a strong climate position. With the exception of Prudential Financial, virtually all L&A firms have little or no focus on climate change.
- ✓ Most insurers, regardless of segment, regard climate change as a risk that will inherently be captured in their Enterprise Risk Management (ERM) strategies, and many responses seem to imply that simply having an ERM framework is sufficient to identify and manage climate change risks. While integrating climate change into an ERM framework has many benefits, it must be explicitly built into such a framework.

The NAIC's Insurer Climate Risk Survey asks companies to describe how they account for climate change in their risk management—in particular, whether they have a climate change policy to guide how climate change is integrated into insurance risk management and investment management. The presence of a climate change policy is an indication of how well a company's business units, management and board are aligned on climate change. It is a good indicator of a company's ability to identify and manage emerging climate trends.

³⁷ Others have strategies to deal with climate variability, but not the trend in climate, nor the associated social issues (e.g. regulation, liability, reputation, client behavior).

Another measure of a company's resilience to emerging climate risks is the presence of a defined climate risk management structure. Having an enterprise-wide structure dedicated to climate risk can position the company to incorporate the best available science and industry opinions into pricing, exposure management, product development and investments in a consistent and effective way.

Of the 184 companies that responded to the survey, only 23 demonstrated a comprehensive corporate strategy oriented towards coping with climate change.³⁸ Their profile was unusual. Nearly half of them were foreign-owned (13 out of 23), which is consistent with the corporate stance on climate change in other developed economies, especially Europe. More than half were large (15 out of 23), compared to 5 medium-sized and only 3 small companies. Only 8 out of 23 P&C companies had a distinct climate policy, which is lower than might be expected, since nearly half the insurers in the NAIC survey are P&C. This may reflect the fact that many P&C insurers approach climate change as if it were a simple progression from customary climatic variability, rather than a phenomenon with the potential for nonlinear, rapid changes from historical experience and which is dependent on public policy for remedy.

An example of a well-coordinated approach comes from QBE: "Every six months, each division conducts a review of climate change initiatives undertaken within the area and a nominated senior manager provides a report to the Group Chief Actuarial Officer as input to a paper presented to the QBE Group board. The divisional reports address a range of initiatives undertaken during the year specific to the countries in that area including:

- ➔ Operational cost initiatives undertaken to reduce carbon emissions.
- ➔ Underwriting risk management projects to mitigate future insurance risks from climate change as well as opportunities for product innovation.
- ➔ Response to surveys on climate change and engagement with industry bodies.
- ➔ Participation in risk reduction forums and research in the area of natural hazard modeling and management."

Only one health company, Kaiser Permanente, had a very strong position. In 2008 it declared that "If greenhouse gas emissions continue to increase, climate change will cause health effects that will directly impact Kaiser Permanente's ability to fulfill our promise of quality affordable care. Global climate instability will increase the demand for health care. The costs of energy and water are likely to increase while supplies are diminished. Threats to biodiversity could also threaten the availability of potential cures for diseases." In response, Kaiser adopted a climate change strategy with five principles: to understand climate change; assess and avoid climate-related impacts; commit to continuous improvement; support industry standards; and inform public policies.

An insurance company's board of directors, which has responsibility for overseeing the long-term strategic direction of the company, has a clear role to play on this issue. A good example of this is offered by L&A insurer Prudential Financial: "Prudential's Environmental Commitment, adopted in 2009, recognizes the emerging risks of global climate change, and the impact it could have on our industry and our customers around the world...In 2012, a committee of Prudential's Board of Directors—the Governance and Business Ethics Committee—added environment and sustainability to their charter. Board members are now assessed for their experience in these areas as part of the overall skills, experience, and qualifications that are evaluated in the nomination process."

38 Others have strategies to deal with climate variability, but not the trend in climate, nor the associated societal issues (e.g regulation, liability, reputation, client behaviour).

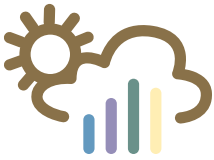
While a number of insurers disclosed strong plans for managing climate risk, a more common attitude was that climate change was not material, or that it was an environmental issue, but not an insurance concern. For example, Athene Life stated, “At this time, we do not believe climate change poses a significant enough risk to warrant special risk management considerations.” This position was not uncommon for L&A companies; in fact, 12 of the 17 insurers that scored zero in the survey were from this industry segment.

A further reason given for inaction was insufficient evidence. For instance, Kemper Independence Insurance Company said: “We are awaiting more research on the impacts of climate change before establishing formal policies on this topic. The Company does not have a formal plan to assess, reduce or mitigate its emissions.” Even large P&C companies with relatively strong strategies were ambivalent about acknowledging the scientific reality of climate change. For example, Travelers qualified its reply by saying: “ This survey, and its responses contained herein, do not endorse, reject or otherwise express an opinion on the existence or absence of, or causes of, climate change.” Allstate took a similar position, stating: “ Allstate is not endorsing, rejecting or expressing any opinion with respect to any particular scientific pronouncement about climate change/global warming.”

Underlying this lack of a comprehensive strategy is the reality that most insurers still treat climate change as catastrophe risk, which is erratic, but familiar.

Often insurers argue that they issue annual policies, and as a result are protected from climate risks because they view climate change as a trend that will evolve gradually, allowing them time to adapt. This is a problematic argument, for several reasons. First, it is the extreme weather events that matter most to the industry, and while data suggest that their probability is changing due to climate change, the infrequency of these events means that this phenomenon is largely unseen by insurers who only look out one year at a time. Secondly, there may not be freedom of underwriting action, due to regulatory restrictions. Thirdly, social factors that create insurance risk may move faster than the climate itself, so for example climate-related litigation may impose significant costs on insurers indemnifying historic carbon emitters.

Many insurers describe climate change as one of many risks that would be considered through the process of enterprise risk management. Nationwide Mutual describes such an approach: “While Nationwide does not have an official climate change policy with respect to risk management and investment management, we do account for climate change in our risk management and investment management processes.” Incorporating climate change into an enterprise risk management strategy has the benefits of sharing insights between functions, and identifying correlations between climate risks, for example, regulatory risk and weather risk to clients in the energy sector, or the possibility that an event might affect invested assets like real estate as well as clients, or that a corporate client might be involved in a climate-related liability claim, and at the same time the insurer might hold bonds or stock in that company. It should be noted, however, that many responses seem to imply that simply having an ERM framework is sufficient to identify and manage climate change risks. While integrating climate change into an ERM framework has many benefits, it must be explicitly built into such a framework.



Action Drivers on Climate Change

Key Findings:

The survey reveals five main motivators of action on climate change, including:

- ✓ *Cost efficiencies*, primarily energy savings. The most common action driver (116 of 184 companies) was reducing company energy use to cut costs. Far fewer companies (39 out of 184) cited carbon reduction targets as a motivator.
- ✓ *Security*, the exposure of the company's operations, revenue and profitability, is a motivator for 110 out of 184 companies, although this is primarily due to concern for current extreme events, rather than climate change per se. Business continuity and claims processing from extreme events that affect insurers' own operations are the most-cited exposure nodes (72 out of 184). Companies cite reinsurance, loss modeling and business continuity planning as approaches to managing their own performance, while carrying surplus capital is rarely mentioned. However, risk management approaches are frequently described generally in terms of catastrophe risk management rather than as approaches specifically to address climate change. There is little discussion of the potential for correlation between client risk and asset risk.
- ✓ *Emergent risks* from future climate trends—88 out of 184 companies viewed climate change as a potential future loss driver, even though scientific assessments such as the IPCC Extreme Events report and federal draft National Climate Assessment emphasize that climate change is already amplifying extreme events that lead to insured losses. As a far-off risk factor, climate change was seen as a potential risk to companies' underwriting and investment returns, even for insurers in segments such as dental insurance.
- ✓ *Sustainability* and related reputational benefits. This driver is relevant for all segments, especially so for health insurers. While only 9 companies include the reputational benefits of acting on climate change, a far higher number highlight correlations between sustainability programs and reputational benefits (77 firms, or over 40% of the survey).
- ✓ *Client exposure* to climate change was cited by 72 out of 184 companies, with concerns including clients' exposure to carbon regulation, extreme weather damage to clients' physical operations or assets and damage to clients' investments.

➤ *The motivators for climate action differ depending on industry segment. P&C insurers' top concerns are security, closely followed by cost efficiency. They view climate change as a future but uncertain, emergent risk, rather than one that already affects clients through hazards such as hurricanes. Life & Annuity insurers are especially motivated by cost efficiency, followed closely by security. There is less concern over potential or current changes in the climate and minimal concern over hurricanes or other weather extremes. Health insurers' main driver is sustainability, which they link to concern for the well being of their clients.*

This chapter analyzes key drivers behind positive insurer actions on climate change. We identified 12 factors, or *indicators*, in this regard. These fell naturally into six internal, enterprise-focused concerns, and six external, client-focused concerns, as Table 1 shows.

TABLE 1: DRIVERS OF POSITIVE ACTION BY INSURERS ON CLIMATE CHANGE		
Internal (direct effect)	Emergent Risk	Climate change poses a potential future issue
	Reputation	A positive stance on climate change is important
	Sustainability	Eco-efficiency entails dealing with climate issues
	Security	Ensuring business continuity
	Cost Efficiency	Reducing energy use to save money
	Carbon Footprint	Attention to in-house emissions
External (indirect effect via clients or clients' assets)	Hurricane	Client exposure to this peril in particular
	Other Extremes	Client exposure to specific perils
	Other Impacts	Climate change seen as a general risk to clients
	Liability	Possibility of liability claims against clients
	GHG Regulations	GHG-related regulations may affect clients/assets
	Behavior Change	Carbon intensity of activities may mitigate or elevate risks

Internal Drivers

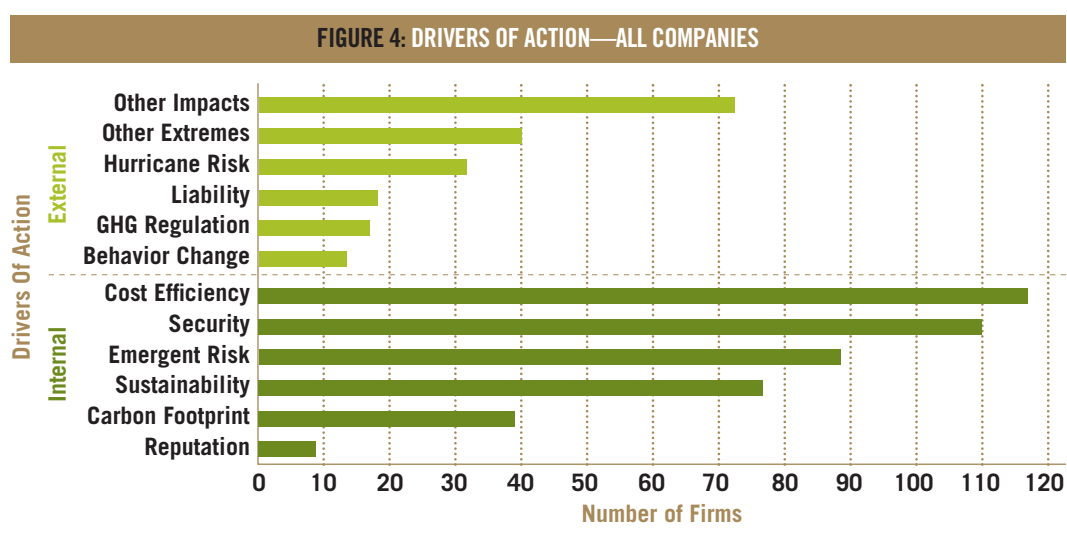
- **Emergent Risk.** The company believes there is a potential material threat at some future date, but has not yet been able to quantify the effect on itself or its clients, e.g. current products might result in higher claims than anticipated, as happened with asbestos.
- **Reputation.** The insurer considers that publicly accepting the existence of climate change and having a proactive strategy for it is important for its market position.
- **Sustainability.** The firm has adopted the principle of conserving natural resources, such as water and energy, which is aligned with a proactive strategy on climate change.
- **Security.** The company has business continuity strategies to cope with climatic events, e.g. disaster recovery plans, risk diversification, and (re)insurance of its own risks and assets.
- **Cost Efficiency.** The respondent has taken action on major energy uses—own premises, transport and office work processes—to save money.
- **Carbon Footprint.** The insurer is managing its greenhouse gas emissions, not simply seeking to be energy-efficient.

External Drivers

- ➔ **Hurricane Risk.** The impact of this hazard on clients is reviewed knowledgeably.
- ➔ **Other Weather Extremes.** At least one non-hurricane hazard is reviewed knowledgeably.
- ➔ **Other Impacts.** The insurer is aware that the new climate may affect clients somehow.
- ➔ **Liability.** The insurer considers the issue of responsibility for causing climate change.
- ➔ **GHG Regulations.** Knowledgeable review of how GHG emissions-related regulations may affect clients and assets.
- ➔ **Behavior Change.** The company thinks that there will be important behavioral and economic changes involving clients, regulators etc, arising from climate change.

4.1 OVERVIEW

We explored general trends in the motivators driving insurers' views and actions on climate change, and how these motivators differ among industry segments. Figure 4 presents an overview of insurers' motivation. Figures 5 to 7 then analyze this by broad line of business.



The Influence of Company Size

Responses tend to vary proportionately with company size. There are twelve drivers in total. Small insurers typically cited a single driver for attending to climate change risk (many mentioned none); medium companies somewhere between 1-2 drivers, and large firms typically mention 3 or more drivers. Large insurers were most likely to set emissions targets and to be motivated by concern for sustainability. Nearly half the large insurers have emission targets and over two-thirds are concerned about sustainability. By contrast, less than one in 10 small insurers have targets for emissions, and only 22% (18 out of 82) mention sustainability.

Maintaining reputation was cited by nearly 40% of large insurers (15 out of 39), but hardly ever by small or medium insurers. Finally the indirect effects of climate change (liability, emissions regulations, and behavior change) was mentioned 25 times by the 39 large insurers, but only by one in nine of the small insurers (9 out of 82).

The Influence of Ownership

Ownership status was not a major influence on motivation. The most pronounced differences are that over half of the non-profit insurers are concerned about sustainability, as compared to just over one-third of stockholder companies.

The Influence of Market Segment

There are marked differences in the motivation between different sectors of the insurance industry, as Figures 5-7 show.

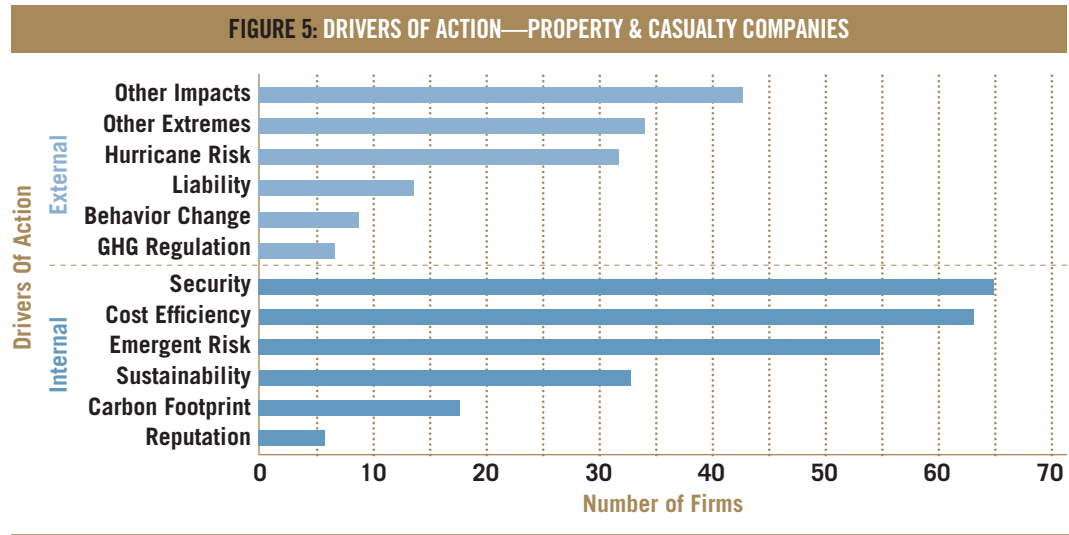


Figure 5 shows that P&C insurers' concern for internal factors is relatively high, especially for cost efficiency and security (i.e. business continuity). They view climate change as an emergent risk, which will materialize in a future uncertain manner, rather than a factor that already affects clients through hazards such as hurricanes and other extreme weather risks.

[P&C companies] view climate change as an emergent risk, which will materialize in a future uncertain manner, rather than a factor that already affects clients through hazards such as hurricanes and other extreme weather risks.

Frankenmuth Mutual gave a comprehensive reply on security: "Frankenmuth Insurance purchases reinsurance to minimize the impact of catastrophic losses that could potentially be attributed to climate change. Computer modelling is employed by our company through work done in conjunction with our catastrophe reinsurance partners, in addition to underwriting guidelines that have been refined to ensure the risks posed by potential catastrophe exposures are adequately assessed and mitigated. Frankenmuth Insurance continues to mitigate risk through geographic diversification, risk selection and well-defined underwriting guidelines.

For the company itself, in the event of a natural catastrophe attributable to climate change, a potential business interruption risk exists. To mitigate this risk, we have developed a business resumption plan to expedite a return to normal business operations."

A number of other insurers provided useful information on the matter of security. For example, "By using...exposure simulation models, as well as historical loss trend data, Liberty Mutual is able to estimate losses for natural catastrophe events of various magnitudes and probabilities. This information is incorporated into strategic planning, pricing, and reinsurance purchasing decisions." Another good example is Progressive Insurance, which explicitly considers climate risk in its planning for business continuity, reinsurance and financial capital. At the other end of the spectrum is GMAC Insurance, which replied simply "Not applicable" or "No" to every question.

FIGURE 6: DRIVERS OF ACTION—LIFE & ANNUITY COMPANIES

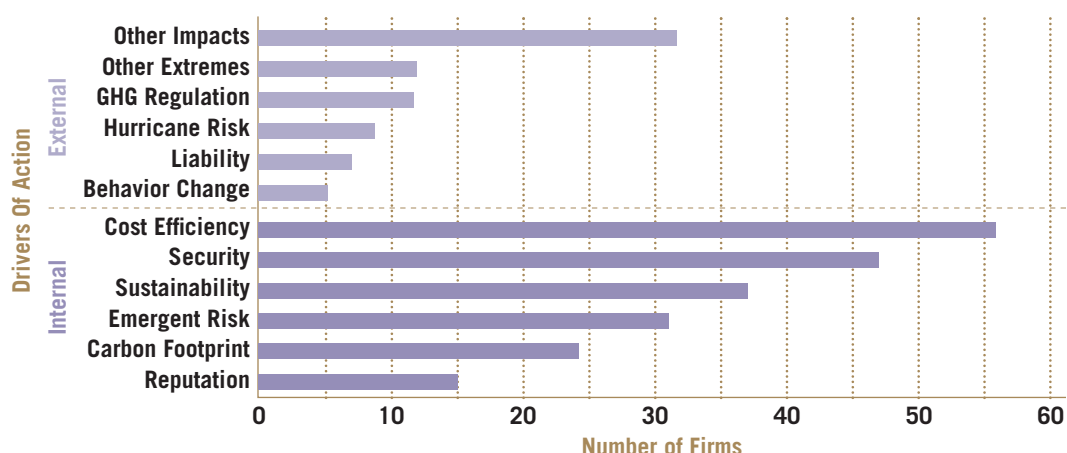


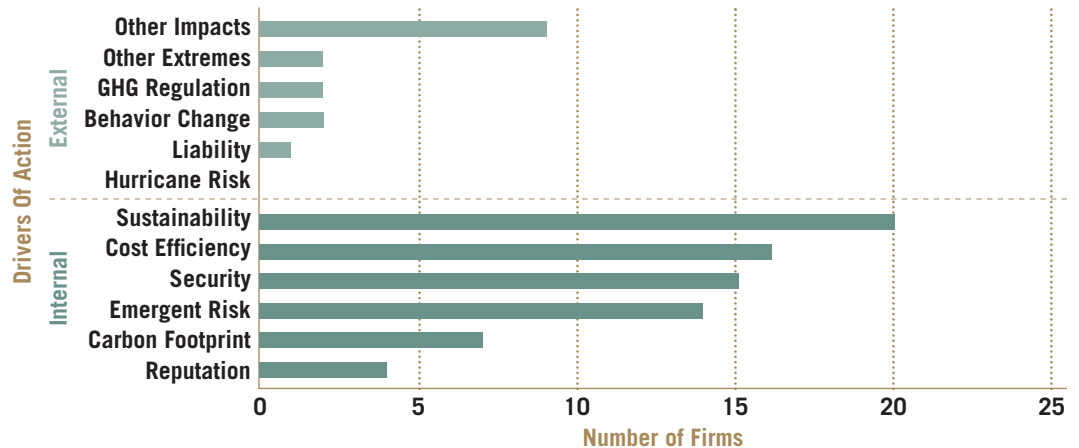
Figure 6 shows that Life & Annuity insurers are especially motivated by cost efficiency, followed closely by security and sustainability. There is less concern over potential or current changes in the climate and minimal concern over hurricanes or other weather extremes.

Though L&A companies see little or no risk to their policyholders, many believe that reducing energy use is an obvious strategy for cost efficiency and security reasons. For example, The Guardian Life Insurance Company states: “The number of days a year with higher than normal temperatures have increased and is expected to continue. This could mean greater demand for energy to cool buildings and therefore, increasing costs.” The company also sees water supply as a security risk: “Without action to improve water resources, there could be major supply shortages in some parts of the country. Guardian has improved our facilities to be more resilient to such challenges (e.g., the manner in which we cool our data centers and workspaces to reduce reliance on water).”

John Hancock (part of Manulife Group) typifies the conventional approach that most L&A insurers believe is appropriate: “The Company looks for ways to mitigate risks by maintaining its geographic diversification and dispersion. The financial risks of environmental impacts are further minimized through insurance and reinsurance.”

However, a significant minority were rather dismissive of climate change, and gave little attention to the NAIC survey e.g. Athene Annuity & Life Assurance states: “We do not believe climate change poses a risk to our company,” seemingly ignoring many issues related to asset management which other L&A firms have identified (see Chapter 5).

FIGURE 7: DRIVERS OF ACTION—HEALTH COMPANIES



Health insurers are somewhat different to other insurers, as Figure 7 indicates. Their main driver is sustainability, which they link to concern for the well being of their clients. Business continuity and the future potential risk of climate are also important, but concern about cost efficiency rates second place for Health insurers.

Two examples show the central motivation of Health insurers. First from Aetna: “Aetna is dedicated to helping people achieve health and financial security, and we believe fostering a healthy environment is an important part of this mission.” Secondly, Cambia Group: “Cambia does have a formal sustainability program that seeks to incorporate the triple bottom line framework (economic growth, environmental stewardship and social equity) into its planning, decision-making and operations. The sustainability program includes efforts to incorporate greater environmental stewardship into company operations.”

Anthem Blue Cross’s response gives a typical window onto energy saving: “We have identified opportunities to improve our business performance while reducing our carbon footprint. For example, we are implementing a computer power policy that will save \$1 million annually and reduce our carbon footprint associated with the energy utilized by our computers by 47 percent.”

The only example in the whole survey of concern for employees’ health (apart from extreme events) is provided by a Unum Health Group: “Change in mean (average) temperature. This risk could cause an increased expense for utility consumption required for employee comfort in any of Unum’s office buildings. For example, in the Southeast, increases in temperatures caused by emissions will require additional cooling resulting in higher energy consumption to provide employee comfort while working.”

4.2 REVIEW OF INTERNAL DRIVERS

The most common action driver—cited by 116 of 184 companies—was reducing company energy use to cut costs (energy efficiency). Far fewer (39 out of 184) progress beyond that to set targets for reducing their carbon footprint.

Key Findings:

- ✓ The most common action driver—cited by 116 of 184 companies—was reducing company energy use to cut costs (energy efficiency). Far fewer (39 out of 184) progress beyond that to set targets for reducing their carbon footprint.
- ✓ One hundred ten companies highlight business security as a factor, although this is primarily due to concern for current extreme events, rather than climate change per se. The main techniques used were business continuity planning, reinsurance, and risk modeling. There was little explicit mention of risk diversification, or risk selection in this context, nor of the possibility of correlation between client risk and asset risk. Carrying surplus capital is rarely mentioned.
- ✓ Eighty-eight of the 184 companies (48%) identify climate change as an emergent risk.
- ✓ While only 9 companies include the reputational benefits of acting on climate change, a far higher number highlight correlations between sustainability programs and reputational benefits (77 firms, or over 40% of the survey).

This section covers the six factors with internal focus—issues relating to the insurer as a whole, not to clients' own risks: emergent risks; reputation; sustainability; security; cost efficiency and carbon footprint.

Emergent Risks

Emergent risks are risks that have not yet been validated, but are recognized as long-term potential risks. Eighty-eight of the 184 insurers (48%) viewed climate change in this way.

Some firms (mainly large ones and reinsurers) describe efforts to fund or undertake active research, for example XL Group: "Global warming / climate change emerging risk reports have been produced following significant interaction with management across operations (underwriting, claims, legal, risk engineering, risk management and product management) to identify and assess climate change related risks on a global basis. These risks were also evaluated based on the potential exposure to XL based on the insurance products we provide to our customers, and also whether these risks presented operational exposures to XL itself."

The motivation for undertaking action related to emergent risk is succinctly described by Axis Reinsurance: "We cannot afford to wait until the impacts are certain before we act."

Even companies outside of the P&C segment expressed concerns about emergent risk impacts on revenues and investments, for example Delta Dental Insurance Company: "If actual climate change has a significant adverse impact on the general economy, on specific regions where we have large numbers of groups/ enrollees, or on businesses in which we hold investments, then it could ultimately result in losses in dental plan revenues and investment yields."

Mutual of Omaha Insurance Company expresses a similar outlook on emergent risks: "Potential climate change risks that could potentially impact our business are increased deaths and morbidity costs from the emergence of insect-born diseases in new geographic areas, impact

of higher heat levels on policyholders, and other risks of acts of extreme weather. From an asset perspective, potential risks include the impact of rising water levels on coastal real estate, and the impact on financial strength of companies that are more exposed to real estate liabilities.”

However, most insurers are adopting a “wait and see” approach to managing emergent risks, believing they will have time to respond later, and therefore devote their resources to more urgent issues. One such company is Auto Owners Insurance: “There are too many unknowns to justify action on a perceived but unproven risk.”

Most insurers are adopting a “wait and see” approach to managing emergent risks, believing they will have time to respond later, and therefore devote their resources to more urgent issues.

Some insurers believe climate change could potentially affect the availability and cost of risk transfer options (for example, reinsurance, catastrophe bonds, and catastrophe swaps). For instance, Progressive Insurance Group says: “Extreme global weather volatility could increase risk financing costs. Risk financing is the process by which a company secures the appropriate funds to cover unexpected financial losses arising from a risk that the company has deliberately retained. Both capacity in the reinsurance market and availability of capital from the catastrophe bond market could, theoretically, become constrained after the occurrence of extreme weather events.”

However, some insurers believe their risk transfer markets would not be affected by climate change, among them Chicago Title Insurance Company: “Climate change would have no significant affect (sic) on the limits, cost and terms of catastrophe reinsurance, including reinstatement provisions.”

Reputation

Just twenty-one of the 184 insurers state that acceptance of, and taking action, on climate change is important for the brand.³⁹ The illustrations below indicate that some leading insurers see their policy on climate change as vital to their position in the market, whether for recruitment, retail sales, business-to-business activity, or raising capital.

One such company is The Hartford Insurance Group: “We believe that companies that themselves demonstrate a strong, comprehensive and sustained approach to environmental stewardship and offer appropriate products at the appropriate price can build a green insurance brand. Also, in the war for talent, companies that can demonstrate to their employees that they have a serious commitment to environmental stewardship will be better positioned to attract and engage talented employees.”

Another such company is Sun Life Assurance Companies: “The Company’s reputation and ability to build our business and brand may be adversely affected if major multinational clients, shareholder groups, or other key stakeholders deem that the Company’s climate change risk management is inadequate... We may be disqualified from bidding on business opportunities as a result of failure to comply with a potential client’s supply chain climate change or GHG emission management requirements. We may also experience possible reduced access to capital markets should various sustainability indices find that our practices fall short of their criteria and de-list us as an index constituent.”

Sustainability

Seventy-six of the 184 companies highlighted sustainability—a general concern for resource efficiency and environmental quality—as a motivator for responding to climate change, because of the common factor of care for the environment. Many insurers highlighted this factor in describing their actions on energy efficiency and pollution reduction. The following examples

³⁹ However, there is a stronger response to sustainability actions and linkages to “reputation.”

are typical of the frequent references to programs such as Green Teams, Go Green programs, Earth-Day events, subsidized travel, paperless office, ridesharing, virtual meetings and recycling.

Allstate describes its “cross-functional Environmental Leadership Team, composed of officers and senior staff from all areas of the enterprise. This team helps guide environmental efforts from an enterprise wide perspective, build alignment and create momentum for Allstate’s heightened sustainability efforts and identify opportunities associated with environmental responsibility and climate.”

Aflac offers a more attenuated example: “From the materials we use in our daily operations to the construction and renovation of facilities, we carefully consider the environmental impact our actions will have.”

Fidelity Investments Life Insurance Company is another company that associates eco-efficiency programs with energy (and by implication, climate efforts): “Compared to 2007, paper use across our operations has decreased by 38%. Compared to 2010, paper use decreased by 7%. Customer-elected e-delivery rose from 25% in 2008 to 40% in 2011. Our goal is to increase this suppression rate to 50% by 2015. Electronic delivery saves the document paper itself, the energy and ink involved in printing, and the energy used to ship the material to customers.”

Security

This driver looks at what measures the company uses to protect itself against climatic risk. Of the 184 respondents, 110 insurers mention this factor. The need for it is well expressed by Travelers: “Catastrophe losses could materially and adversely affect our results of operations, our financial position and/or liquidity, and could adversely impact our ratings, our ability to raise capital and the availability and cost of reinsurance.”

Life and some Health insurers also note the threat of extreme weather to real estate assets, and of heat waves to power supply for office work.

The survey responses for this driver were wide-ranging but often referred to catastrophe risk management, rather than climate change directly. As might be expected, there are many core strategies, not specific to climate change, that an insurer can use for managing catastrophic risk and capital adequacy—its business continuity plan, its reinsurance program, and insurance of its assets among them.

Seventy-two insurers mentioned their business continuity plans, to deal with physical risk to their own facilities, or compromising service to clients. Typically references include back-up facilities, alternative work arrangements, and special claims-handling teams, especially in relation to particular hazards, such as hurricanes, flooding, tornadoes or heat waves. Every type of insurer mentioned this. For instance, Aviva (a life insurer based in Iowa) said: “Iowa is located in Tornado Alley. In 2011, the company conducted a Tornado war gaming scenario.” Unum Health Group reported that “in Columbia, SC, which is vulnerable to hurricane-related weather, it has hardened its data center and print and distribution facilities” to withstand the impacts of such storms.

Reinsurance was mentioned in 43 responses. Often reinsurance programs are quite complex, but only a few insurers gave some insight into their detail: several mentioned the use of catastrophe bonds and capital market instruments to complement the conventional reinsurance; one ensured that there was provision for reinstatement of the program after a catastrophe; one mentioned complementing the portfolio coverage with ‘facultative’ or individualized reinsurance for single large exposures; and one mentioned reviewing the claims-paying strength of their reinsurers.⁴⁰

40 Often insurers assume it is sufficient to look at the reinsurers’ credit ratings, but credit rating agencies have had some failures forecasting risk in the wider financial arena.

Only one referred to the practice of ‘aggregate loss’ cover, whereby the insurer protects itself against an accumulation of small losses, not simply covering against catastrophes.

Risk modeling was specified by 40 insurers as an important technique, in order to explore their capital adequacy, using realistic disaster scenarios and catastrophe models in the case of P&C insurers, or ‘stress testing’ for L&A insurers. A typical response comes from Mutual of Omaha Insurance Company: “We evaluate a wide variety of stress scenarios in the context of these appetite statements. Severe mortality, morbidity, and credit risk events are captured in these stress tests, and although not specifically associated with climate change, are believed to represent an adequately severe test comparable to or more severe than the climate change impact to our life and health insurance businesses.” P&C insurers tended to use more than one cat model for greater confidence.

Risk modeling was specified by 40 insurers as an important technique, in order to explore their capital adequacy, using realistic disaster scenarios and catastrophe models in the case of P&C insurers, or ‘stress testing’ for L&A insurers.

Twenty (mainly P&C) underwriters mentioned accumulation control, whereby the insurer limits the amount of risk it will accept in high-hazard regions. For example, Mercury Casualty stated: “Because of the predicted increase in hurricane frequency, Mercury is taking numerous steps to monitor, control or even reduce exposure to catastrophic losses caused by hurricanes. Mercury is also exiting the homeowners insurance market in Florida.” A second insurer, Great American, went further: “The company in the past has chosen to reduce exposure to catastrophic property risks including the effects of climate change.”

Surprisingly, only eleven insurers mentioned the value of risk diversification (for example, having a spread of risk across lines of business and geographies) for reducing vulnerability to climatic risks. Many insurers said that they routinely practice diversification in their asset management, but only three specifically said they were diversified as regards climatic risks, the others simply assuming that they were.

Having a healthy surplus, i.e. capital, was mentioned by only eleven insurers. This may reflect the pressure on public companies not to have “idle capital,” but instead to use reinsurance and run with less capital. For example, Cambia Health stated: “It is in fact the unknown future costs, impacts, and needs which along with the effect of climate change risk, whether related to underwriting or other factors, represent another reason to maintain strong surplus levels to ensure ability to continue meeting the needs of our members.”

Only seven P&C writers explicitly mentioned risk selection (“prudent underwriting”) as a technique, although many do vary their terms and conditions according to the individual risk (see Chapter 5).

The possibility of risk correlation between liabilities (products issued to clients) and assets (investments) was not really discussed by any insurer—while that type of correlated risk assessment may happen in practice as part of their Enterprise Risk Management process, we cannot assume that it does.

Cost Efficiency

This driver covers actions by insurers on major internal energy uses in their own premises, transport and office work, and is mentioned by 118 insurers out of 184. This is the highest activity of any indicator, and may reflect the fact that the first question in the survey relates to energy usage. A common theme here is that energy efficiency means lower emissions, and also better customer service. The three cases below illustrate best practice:

California State Auto Group: *“In recognition of our own corporate responsibilities, we have converted our entire insurance vehicle fleet to hybrids. According to Automotive Fleet, this is the highest percentage of hybrids in any major private U.S. commercial fleet.”*

MVP Health Care: *“MVP Health Care has an extensive list of 30 Go Green Initiatives designed to achieve energy conservation measures... climate change could result in energy or resource scarcity, which in turn could create higher energy costs.”*

Munich Re provided a long list of actions under this driver, along with citation of several awards received for these actions, including a 2.5MW solar canopy system awarded Energy Project of the Year by World Energy Congress.

Carbon Footprint

Thirty-nine insurers out of 184 report on a clear greenhouse gas emissions reduction target, frequently as a result of potential regulations or stakeholder engagement. There is wide variance in greenhouse gas emissions reductions targets set by companies, and the extent to which reductions targets are pursued via in-house efforts, purchase of offsetting credits or through invested assets, as the following examples show.

ING: *“Since 2007, ING has made significant improvement in our U.S. operations by reducing its U.S. energy consumption by 23 percent.”*

United Health Group: *“UHG has been reporting to the Carbon Disclosure Project (CDP) since 2007. Through 2011, UHG has reduced its carbon emissions by 19.2% from the 2008 baseline.”*

FM Global set a much more modest goal. *“FM Global has analyzed its carbon footprint and defined ways to reduce it by as much as seven percent over the next few years.”*

Travelers Group: *“Between the start of 2006 and the end of 2011 we achieved a 7.5% reduction in emissions, exceeding our original goal. Reductions were primarily achieved through reductions in our operations generated carbon levels and the purchase of a block of Renewable Energy Credits”*

Aetna: *“Given the evolving regulatory environment, variability in energy costs, the evolution of our business and the countries in which we operate, our company has not articulated specific numerical emissions targets.”*

4.3 REVIEW OF EXTERNAL DRIVERS

The gap between the state of the science and insurers' view of changing hurricane risk is already creating tension between insurers and rating agencies, who wish to take a cautious view in pricing for increased risk potential, and some regulators who are focused on maintaining affordability of windstorm coverage.

Key Findings:

- ✓ Thirty-two insurers, all P&C writers, identified hurricane risk as an issue. However, there is considerable debate on the way this risk will evolve under climate change. As for the scientific community, there is no consensus yet on how hurricane risk will evolve in a warmer climate—while leading experts disagree on whether a warmer atmosphere and oceans will lead to more or less hurricanes developing, there is widespread agreement that those hurricanes that do form will be more intense and destructive. The gap between the state of the science and insurers' view of hurricane risk is creating tension between insurers and rating agencies, who wish to take a cautious view in pricing for increased risk potential, and some regulators who are focused on maintaining affordability of windstorm coverage.
- ✓ Common strategies for hurricane risk management include catastrophe modeling, reinsurance, higher deductibles in coastal areas, and careful control of aggregate exposure, including balancing property with other lines of business.
- ✓ Similar strategies are used for other weather extremes, which were mentioned by 40 insurers. There is concern about exposure to convective storms, for example tornadoes, but again there is no consensus on how this risk will evolve. Wildfire risk was highlighted by 15 insurers, and here the risk is seen as trending upwards.
- ✓ Thirty-nine percent of insurers (72 out of 184) voiced general concern about the effect of climate change on clients or invested assets. A great number of insurers referred regulators to their filings with the Securities and Exchange Commission for further detail, though these filings generally tend to describe natural disasters without any specific mention of climate change. Most insurers who cite climate change as possibly impacting their clients or invested assets tend to describe climate change as a gradual process that will allow for adaptation over time.
- ✓ Liability exposure to claims against clients or companies in insurers' asset portfolios alleging responsibility for climate change was mentioned by 18 out of 184 insurers. 17 out of 184 insurers discussed the effect of GHG regulations on their clients. Most companies felt that these regulations pose a risk, due to the additional costs that the corporate sector and real estate would incur, and due to the creation of regulatory uncertainty.

This section considers the six external drivers of insurers' action on global warming under the risks of new weather patterns and societal change which could impact their clients and their invested assets.

Hurricane Risk

Unsurprisingly, given the historic loss record, hurricane hazard was the most deeply explored physical risk related to climate change. Thirty-two insurers out of 184 discussed hurricanes, all of them P&C writers. Amica Mutual represents a common view: "The most immediate threat posed by climate impact is an increase in weather related losses. Amica has concentrations of business in the Northeast, Atlantic and Gulf Coasts that are exposed to Hurricane risk."

Risk assessment relies on catastrophe models. These are highly complex, and many smaller insurers rely heavily on their brokers or reinsurers for advice. The intricacies are illustrated by the following two examples:

Amica Mutual Group: *“The foundation of our CAT management program is our attention to detail in the data we collect on each property risk we write. Extremely high quality data is then used in various programs to identify exposure location which in turn allows computer modeling to analyze average annual losses and Probable Maximum Losses.”*

Alfa Mutual: *“First, we measure and analyze historical data (worldwide, industry and company-specific trends). We upgrade to the current catastrophe models as they are updated, typically this is annually. The result of these upgrades, in recent years, has been to model significantly higher probable maximum losses relative to the underlying changes in exposure. Additionally, we utilize internal modeling activities to adjust national models to be more reflective of regional experience within our property books. Lastly, we apply a DFA⁴¹ model to 200,000 separate simulations of potential risk scenarios the higher loss ratios created from storm related events is having a negative effect on operating performance entity-wide.”*

It is generally regarded as prudent to include the use of warm sea surface temperature scenarios, and loss amplification⁴² when projecting loss potential, as reported by Employers’ Mutual Casualty Company: “For the hurricane peril, EMC has modeled increased frequency with the near-term five year frequency outlook with full loss amplification and storm surge for review in EMC’s underwriting and reinsurance analysis.” Two insurers (Harleysville and Travelers Group) commented that they had seen greater inland losses from hurricanes in recent years. Yet, as several insurers noted (e.g. Allianz and Continental Western), there is no consensus yet on future hurricane climatology and these approaches may not be permitted by regulators, which means that insurers cannot make the corresponding product adjustments. For example, Farmers reports: “Recent model updates by RMS and AIR have increased the severity and frequency of losses from Hurricane. However, most departments of insurance are reluctant to allow us to incorporate these additional expected losses into our rate making.”

Hartford Insurance Group pointed out the tensions that this creates because of the divergent interests of rating agencies versus insurance regulators: “Certain new catastrophe models assume an increase in frequency and severity of certain weather events, whether as a result of potential global warming or otherwise, and financial strength rating agencies are placing increased emphasis on capital and reinsurance adequacy for insurers with certain geographic concentrations of risk. These factors may result in insurers seeking to diversify their geographic exposure, which could result in increased regulatory restrictions in those markets.” The company also voiced concern about residual risk facilities in a cross-reference to its 10K filing: “Recent significant increases and expected further increases in the number of participants or insureds in state-sponsored reinsurance pools, FAIR Plans or other residual market mechanisms, particularly in the states of Louisiana, Massachusetts and Florida, combined with regulatory restrictions on the ability to adequately price, underwrite, or non-renew business, as well as new legislation, or changes in existing litigation, could expose us to significant exposures and risks of increased assessments from these residual market mechanisms. There could also be significant adverse impact as a result of losses incurred in those states due to hurricane exposure, as well as the declining number of carriers providing coverage in those regions.”

⁴¹ DFA, or Dynamic Financial Analysis, is studying the effectiveness of decisions over a prolonged period by using computer models to simulate many years of activity.

⁴² For example, the fact that major storms result in disproportionate damage due to factors such as increased construction costs, criminal damage and looting of vacant properties, and pollution from escaped chemicals and sewage.

Common strategies for risk management include reinsurance, higher hurricane wind deductibles on homeowners' insurance policies in coastal areas, and careful control of aggregate exposure, including balancing property with other lines of business. For example, Automobile Club Insurance Association reported: "Property and auto business in Florida is sold with the intent to minimize risk of loss to coastal property by diversifying the book of business into the central parts of the state. In addition, the policies directly written by the Auto Club Group Insurance entities in Florida are an auto only policy or a packaged auto and home policy. No homeowners only business is directly written in Florida."

While the main interest came from P&C insurers, one credit insurer also noted concern. Assured Guaranty said "As part of their underwriting process, AGC and AGM take into consideration an obligor's potential exposure to various risks, including natural catastrophes such as windstorm or flooding, and how those risks might affect the obligor's ability to repay the insured debt."

Other Extremes

Many other extreme weather risks are cited within insurer disclosures, though with far less specificity and technical detail than hurricane risk. Forty insurers out of 184 mention extreme weather events, 39 of them within P&C or multiline business. Common themes in managing this issue include monitoring trends in risk development, use of catastrophe model outputs and control of risk aggregations.

Twenty-one of the insurers specifically mentioned convective storms (tornadoes or hailstorms). Opinions seem divided on whether the risk will be worse. On the one hand, Continental Western cites: "The National Oceanic and Atmospheric Administration (NOAA) has data on strong to violent tornado frequency from 1950 onward, and this shows no evidence of any trend in the incidence of these damaging tornadoes over this 60 year period." However, Travelers notes: "Changing climate conditions have created additional uncertainty as to future trends and exposures. Both the frequency and severity of tornadoes and hail storms have increased, especially in 2011." Munich Re observed the steep increase in thunderstorm losses in the USA, and it has subsequently attributed this increase partially to climate change.

Other common hazards mentioned were wildfires (15 insurers) and flooding (8 insurers).

Other Impacts

This driver represents more general statements by insurers on the relationship between climate change and hazards. Thirty-nine percent of the respondents (72 insurers out of 184) took this approach, across the whole spectrum of size and line of business. For example, Berkshire Hathaway states: "General Reinsurance Company believes that its commercial, residential, and marine property classes may be at risk because of climate change. Unanticipated and adverse changes in the frequency or severity of natural catastrophes likely means that actual losses will exceed pricing assumptions." In many instances, insurers based their reply on their 10K filing with the Securities and Exchange Commission, where the tendency is to describe natural disasters and pandemics without any specific mention of climate change and its relationship to these scenarios. Insurers with this 'generic' attitude tend to see climate change as a gradual process, which would allow them to adapt to the new situation. However, as we discuss later under the driver 'Behavior Change,' other insurers do not share this gradualist view.

A typical view comes from a medium-sized P&C underwriter, Liberty Mutual: “Increases in property catastrophe risk associated with climate change will manifest themselves gradually over a period of many years (decades), while policies are of one-year duration. This allows Liberty Mutual the opportunity to adjust rates, coverages and underwriting guidelines as required in response to trends that demonstrate an increase in the frequency and/or severity of natural catastrophe events. The Company will continue to closely monitor trends in catastrophe loss frequency and severity, and to employ the latest generation of computer modeling tools to estimate exposures to natural catastrophe events, adjust pricing and underwriting guidelines as necessary.”

This perspective is paralleled by a small health insurer, Delta Dental Insurance: “To the limited extent that climate change were impacting the general morbidity and dental health of the Company’s enrollees, that impact would likely be long term in nature, as one of several factors influencing inflation in healthcare costs. As such, any impact of climate change on enrollee general morbidity and dental health would implicitly be considered in the Company’s normal rating & underwriting process, without there being any need to explicitly identify climate change as the root cause of any such changes. We believe that climate change is implicitly addressed within our normal risk management process.”

Life and annuity providers were more concerned about the effect on assets. The following extract from the TIAA Group response gives a representative broad perspective, since it looks at the agricultural sector, as well as real estate: “Extreme weather events can directly impact timberland portfolio (e.g. physical storm damage, or increasing susceptibility to pathogens after a period of drought). Over time, changes in weather patterns could affect the ability of certain tree species to be grown in a particular range and thus impact revenue potential.⁴³ The impact on real estate portfolios would depend on the location. For example, coastal property may be impacted by rising sea levels; drought-prone areas may see a reduction in economic growth or population, and thus demand for real estate rentals. Extreme weather may impact the health of farmland and timberland, reducing the productivity of the land and the value of the asset. Climate change may reduce global agricultural productivity. Timberland and Farmland that is sustainably managed to provide optimal yields over the long term may be more valuable as a result. Our long term approach to managing farmland can help us to ensure that we are well positioned to manage these opportunities.”

Liability

In addition to client exposure to climate liability, insurers also cited potential asset exposure to corporate liability claims against bond- and stock-issuers sued for alleged damage from historical greenhouse gas emissions.

Berkshire Hathaway explains this risk: “Casualty classes may be at risk due to ‘parameter’ risk, for example, unanticipated changes in litigation trends or exposures, such as liability claims from persons or groups allegedly harmed by climate change and the potentially responsible parties responsible for that change.” In addition to client exposure to climate liability, insurers also cited potential asset exposure to corporate liability claims against bond- and stock-issuers sued for alleged damage from historical greenhouse gas emissions. Yet despite insurers’ unique exposure to that litigation via their insurance contracts and invested assets, liability exposure was mentioned by only 18 out of 184 insurers, mainly involved in P&C.

There are signs that the fluid state of the legal climate is causing considerable unease among those insurers who are paying attention. For example, AIG noted: “Property and casualty insurance policies typically exclude or significantly limit coverage for pollution and related environmental damage. While these pollution exclusions have sustained judicial scrutiny and have not been overturned by judicial decisions, there can be no assurance that future court

⁴³ TIAA estimated the probability of extreme weather affecting forestry as very likely.

decisions will uphold prior case law precedents.” This concern is shared by other insurers, and reinsurers such as Swiss Re and XL Group monitor developments closely in this evolving area of jurisprudence.

Greenhouse Gas Regulations

The repercussions of regulatory initiatives to limit clients’ emissions or the emissions embedded in investment portfolios are mentioned by 17 out of 184 insurers, primarily within L&A or Health⁴⁴. Generally the perception is of risk driven by additional costs for the corporate sector and real estate and by regulatory uncertainty, which could restrict growth of particular sectors. However, two insurers (TIAA Group and The Hartford) also mention the upside, with the possibility of insurers gaining a competitive advantage due to innovation or expert knowledge. One company, Lincoln Financial, noted that: “limited disclosure hampers the scope of analysis” which they can conduct on client and investment impacts.

The first two cases below show the downside perspective, the next two focus on the upside.

Northwestern Mutual Group says: *“the Company perceives the greatest climate change risks to the life insurance industry arising from the broad economic and financial shifts that are likely to occur in anticipation of or reaction to the regulation of greenhouse gas emissions.”*

Assured Guaranty sees this a current risk: *“In their credit and underwriting process, AGC and AGM take into account the potential impact of regulatory or other changes that could affect the debtor’s ability to repay the insured obligation. For example, AGC and AGM take into consideration the potential impact of regulatory changes mandating that electric utilities reduce carbon emissions or increase their use of alternative energy sources when assessing the profitability and viability of investor-owned and municipal electric utilities.”*

The TIAA Family of Companies speculates: *“maybe climate policy offers us an opportunity—because of our expertise in seeking cost-effective energy efficiency opportunities, and fuel taxes could increase demand for biofuels, raising the value of farmland and creating opportunities for our timberland portfolios.”*

Similarly, **The Hartford Group** cites development of a range of green insurance products *“to respond to our customers’ interest in reducing their greenhouse gas emissions by offering products that meet that need”* (see Chapter 5.1 for more detail).

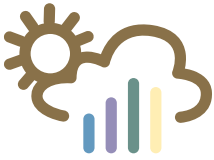
Behavior Change

The final driver relates to the way that society may react to measures intended to deal with climate change. For example, regulators may intervene when insurers try to respond to new weather patterns, or clients may alter their consumption patterns or reduce their insurance budgets because of energy costs. For example, Munich Re says: “Unless preventive measures are taken, Climate Change could restrict our business in the long term. While premiums commensurate with the risk are essential in insurance, demand for insurance begins to decline when prices exceed a certain threshold.” However, The Hartford Group observes that regulation could also be a positive force: “Regulation could on the other hand encourage green insurance markets and improve resilience to weather damage/reduce exposure, which would improve insurability.” The potential behavioral effect of climate action is a driver for just a few insurers, 13 out of 184, primarily of large or medium size.

⁴⁴ Insurers generally believe their own in-house emissions are relatively small compared to other industrial sectors, and do not see such regulations as a material concern for themselves.

ACE Group makes the point about regulatory intervention succinctly: “to continue to offer coverage under climate change conditions, pricing must always be set at sound actuarial rates that cover loss costs, expenses and risk margins on exposed capital. Thus, pricing must be flexible over time and by geography. Unfortunately, many regulatory regimes impose the functional equivalent of price controls, which are not built to respond to developments in risk assessment and signal the wrong incentives to consumers who are encouraged to increase exposures.” This is echoed by other major groups, such as Farmers, Chubb, and Liberty Mutual. Travelers adds: “...following catastrophes, there are sometimes legislative and administrative initiatives and court decisions that seek to expand insurance coverage for catastrophe claims beyond the original intent of the policies or seek to prevent the application of deductibles.”

The insurers that mention the economic ripple-effect of increased costs on customers ranged from Washington Dental Service: “Employer groups dropping dental benefits to save costs as a result of negative effects of climate change could be a risk,” to Progressive Group, which cites concern about changes in driving habits, to Travelers Group, which says: “ Insureds faced with carbon management regulatory requirements may have less available capital for investment in loss prevention and safety features which may, over time, increase loss exposures. Also, increased regulation may result in reduced economic activity, which would decrease the amount of insurable assets and businesses.”



Core Functions

In this Chapter, we consider what actions insurers take to address climate change in their core functions or operations:

- ➔ **Products.** There are three crucial elements: risk assessment for products that accept climate risk; loss reduction activities associated with them; and, for P&C insurers, providing 'green' products to assist clients with emissions reduction.
- ➔ **Claims Handling.** We identified two indicators here: ensuring good service and reducing the carbon intensity of the whole claims process.
- ➔ **Investment.** There are two aspects to consider, first managing assets to cope with climate impacts, and second, taking account of emissions regulations.
- ➔ **Innovation.** We give special recognition to insurers who are leading the way with creative ideas within the three areas above.

Allowing for the differences between lines of business, there are 8 indicators for Property & Casualty Operations, 5 for Life & Annuity, and 6 for Health.

5.1 PROPERTY & CASUALTY INSURER CORE FUNCTIONS

Key Findings:

- ✓ To assess climate risk, P&C insurers make intensive use of catastrophe models, particularly for assessing hurricane risk. Many insurers now model using warm sea surface temperature assumptions, consistent with current decadal warming cycles and with higher mean atmospheric and ocean temperatures driven by carbon forcing.
- ✓ Insurers make extensive use of defensive underwriting, a practice that ranges from re-pricing contracts or applying higher deductibles, to expanding exclusions and even withdrawing from high-hazard areas (the most commonly cited being the state of Florida). Underwriters often mention the problem of regulatory risk, in that prices are not permitted to respond quickly to higher risk levels in regulated markets.
- ✓ About half of the insurers surveyed mention loss reduction, and support this strategy through research and advocacy such as information leaflets to customers, product features such as discounts for storm shutters, and services like wildfire suppression and onsite risk inspections.
- ✓ About half of the large and medium size insurers support GHG emissions reduction through innovative or modified insurance products, such as post-loss upgrades to eco-friendly construction and discounts for low-carbon vehicles, but small companies rarely do. It is unclear what uptake of introduced products has been.

- ✓ Insurers say very little on the subject of claims service, and no companies note the potential to reduce the carbon intensity of the claims process.
- ✓ P&C insurers do routinely consider exposure of invested assets to catastrophic risk (though not necessarily climate risk). While regulators may be able to influence the risk transfer markets in their states, they cannot compel insurers to place investment capital in their communities. Already, divestiture from coastal counties and municipalities is a reality, according to insurer disclosures. However, many P&C insurers appear to ignore the fact that global warming can affect investments through changes in emissions regulations.

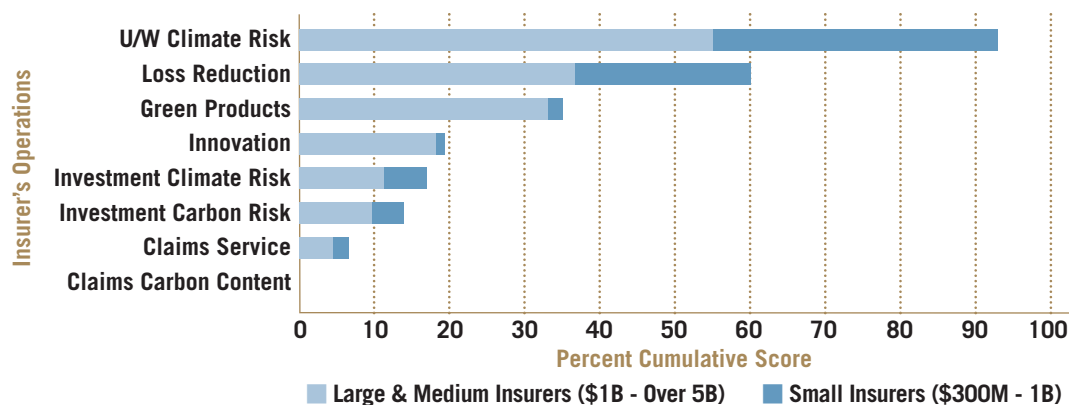
By far the industry segment with the most climate risk management activities underway is property and casualty—unsurprising, as weather events are a major driver of loss to these companies. As may be expected, many insurers discuss climate change in terms of specific perils or types of extreme weather events (see Chapter 4 for more detail).

By far the industry segment with the most climate risk management activities underway is Property & Casualty—unsurprising, as weather events are a major driver of loss to these companies.

In the spectrum of enterprise risk and opportunity which climate change poses to property and casualty insurers, few companies look beyond underwriting exposure. This is clearly illustrated in Figure 8, a snapshot of climate actions undertaken by the 101 P&C writers surveyed. The bars in the chart show the total number of points that insurers scored in the assessment under each aspect of their core operations. The scores are divided into points scored by small insurers (premium under \$1 billion per year) versus medium and large.

Forty-eight percent of the P&C writers are small. Many of them take active steps to assess climate risk, but as shown in Figure 8, small insurers do not pay heed to carbon risk in products or investment matters, nor are they the source of innovation on climate change risk.

FIGURE 8: PROPERTY & CASUALTY INSURERS ACTIONS ON CLIMATE CHANGE IN CORE OPERATIONS



Products

Before they accept climate risk, P&C insurers make intensive use of **catastrophe models** to assess the risk, particularly for hurricanes. Depending on the size of the company, they may contract exclusively with proprietary vendors or accompany those outputs with analysis or modelling by in-house experts. Many insurers now model using warm sea surface temperature (WSST) assumptions, consistent with global warming, which is seen as a cautious risk assessment approach given the potential for warmer ocean temperatures to fuel more destructive windstorms. Factory Mutual points out the benefit of acquiring risk-specific data from on-site risk inspections. Harleysville Mutual reports that it has expanded the suite of models to give individual underwriters more analytical power.

Amica Mutual: *“Computerized catastrophe models are included in our review of risk. We take great care to understand the models, especially when it comes to their limitations. Models are used as a tool to help understand aggregation of exposures and to give us range of outcomes based on potential scenarios. CAT models are used in pricing products to help ensure price to risk matching.”*

Continental Western Insurance Company: *“We rely on a number of sources of information including: our own loss history; industry loss data collated by PCS; catastrophe modeling based on two different vendor computer models. Catastrophe modeling is used for hurricane and for severe convective storm (including tornadoes and hail storms). However we do not use the cat models ‘out of the box’ without an extensive review process. In addition to our own review, we solicit expert opinion from the catastrophe modeling departments of two major reinsurance brokers.”*

Factory Mutual Group (FM): *“Natural hazard modeling is substantially improved because FM Global engineers obtain accurate geo-coding as well as peril specific information (for example: roof construction details in wind zones and floor elevation in flood zones) while visiting policyholder locations.”*

Harleysville Mutual Insurance: *“Two other recently-added desk top tools utilized at the underwriting level are one which grades each commercial lines risk at the time of underwriting for its relative potential exposure to weather related events and one which helps to gauge distance to coast and appropriate pricing relative to natural catastrophic events. These tools all reflect the very latest in weather based technology in terms of evolving climate change.”*

Insurers make extensive use of **defensive underwriting**, a practice that ranges from re-pricing contracts, to applying high deductibles, or expanding exclusions, or withdrawing from high-hazard areas such as the state of Florida, as illustrated by this response from **Travelers**:

“We believe that insurance rates and policy terms that accurately reflect risk may serve to encourage implementation of risk mitigation practices by policyholders and may also influence decisions regarding development in locations vulnerable to severe weather events. To this end, where permitted by regulators, we have implemented the following underwriting, coverage and pricing strategies which may contribute to a reduction in climate related losses to policyholders.

- *Ongoing application of risk-based rates that contemplate climate trends, catastrophic losses and reinsurance costs.*
- *Continued refinement of underwriting requirements to address the correlation of risks related to construction, occupancy and protection in geographical areas susceptible to significant climate related losses.*

- *Appropriate structuring of policy terms and conditions to adequately reflect underlying risks associated with the impact of climate trends.*
- *Encouraging efforts to improve building resiliency by providing pricing incentives for properties identified as having favorable risk characteristics relative to mitigation of climate related losses e.g., Institute for Business and Home Safety (IBHS) Fortified standards.”*

Regulatory risk is frequently mentioned by insurers, related to circumstances in which prices in regulated markets are not permitted to rise when risk levels increase. When insurers are unable to adopt risk-based rates due to price controls or regulatory lags, and cannot make an adequate return on capital, they may withdraw from the market.

A typical approach is expressed by **Alfa Mutual**: *“With respect to underwriting decisions, we have taken aggressive steps to limit our property exposure, including: expanding to other states and other product lines to improve diversification; reducing property exposure in coastal areas; shifting to percentage-based deductibles; and renewing coastal property without wind.”*

About half of the insurers mention **loss reduction**, and support it through research, advocacy such as information leaflets, product features such as discounts for storm shutters, and services like wildfire suppression and onsite risk inspections.

For example, as described by **California State Auto Group**: *“Through the AAA membership magazine, homeowner insureds regularly receive information and loss-prevention tips regarding:*

- *How to help reduce the risk of loss from wildfires, which many believe may be affected by climate change in terms of increased frequency and severity.*
- *The availability of flood coverage through the National Flood Insurance Program. This does not prevent loss, but it does help prevent uninsured losses.*

“Certain of our homeowner insurance policies provide coverage for building code upgrades, which means that, following a loss, a property may be repaired or rebuilt to more exacting and more loss-resistant standards.

“Home inspections on new homeowner business can identify hazards of the property that could lead to or increase the magnitude of loss. In many cases, applicants can be made aware of property improvements that would make the property both insurable and less prone to future loss from weather-related events.”

Chubb offers several products and services. For example, Chubb Personal Insurance offers Wildfire Defense Services to customers in 14 western, wildfire-prone states. These services include education on the dynamics and risks of wildfire, individual property assessments where specific actions to reduce wildfire exposure are recommended, and referrals to wildfire mitigation specialists who can complete the recommended actions. If necessary, when a wildfire threatens an insured home, the Corporation deploys professional wildland firefighters, operating federally certified firefighting equipment, to provide pre-suppression services to customers who enroll in this offering. Chubb also offers premium credits in a number of catastrophe-prone jurisdictions to homeowners who install mitigation devices or utilize storm resistant construction techniques, for example, window shutters in Florida.

About half of the large and medium size insurers support GHG emissions reduction through innovative or modified **green insurance products**, such as post-loss upgrades to eco-friendly construction and discounts for low-carbon vehicles, but small ones rarely do. For example, The Erie offers ‘Green Upgrade Coverage’ which “defracts the costs of replacing damaged equipment with more eco-friendly alternatives, such as motion-activated lights, automatic faucets, and non-toxic or ENERGY STAR compliant building materials.” For auto insurance,

Regulatory risk is frequently mentioned by insurers, related to circumstances in which prices in regulated markets are not permitted to rise when risk levels increase. When insurers are unable to adopt risk-based rates due to price controls or regulatory lags, and cannot make an adequate return on capital, they may withdraw from the market.

California State Auto says: “Encouraging automobile drivers to reduce their emissions is one way to help reduce the accumulation of greenhouse gases that may contribute to climate change. Our automobile insureds can utilize:

- Tips and videos on how to make all vehicles more fuel efficient.
- Automobile insurance savings designed to encourage the purchase and use of hybrid and alternative-fuel vehicles.
- New insurance programs that are usage-based, which encourage people to drive less.
- Discounts on carbon offset purchases through TerraPass and other Green Show Your Card and Save Partners.”

Claims

Surprisingly, insurers say very little on the subject of claims service, and no companies note the potential to reduce carbon emissions in the claims process, a subject of great interest to insurers in two other insurance industry initiatives, ClimateWise and United Nations Environmental Protection Finance Initiative (UNEPFI).

The following three examples show how insurers proactively assist their customers before, during and after extreme events.

Cincinnati Insurance Co: *“Models are used to identify areas that may have been impacted by severe weather so we can serve our policyholders faster and better.”*

Progressive Insurance Group: *“We may use any or all of the following to encourage our customers to protect themselves against losses:*

- *Produce Public Service Announcements about how to file claims for local radio stations*
- *Send e-mails to customers and agents with claims reporting information and safety tips*
- *Use social media tools (i.e., Facebook, Twitter, etc.) to reach broader audiences with claims reporting information and safety tips*
- *Provide payment leniency in some severe situations to customers who need it*
- *Deploy catastrophe response teams to affected areas to assist with claims*
- *Inform employees about how they can assist with relief efforts.”*

Travelers Group: *“On the Travelers website, our Claims Services group provides post-event mitigation tips for customers such as risk mitigation measures to secure their personal safety and mitigate property damage. In addition, there is ongoing communication with agents and customers during major climate-influenced events to remind them of claim reporting procedures, the presence of disaster relief and the location of claims offices or mobile service vehicles.”*

Investment

It is a natural step for underwriters to consider whether extreme weather might affect their investments, as well as their policyholders. In fact, it is common practice to consider exposure to catastrophic risk already, as illustrated by Travelers: “Since we assume catastrophe risks in our capacity as an insurer, we also seek to manage our portfolio’s credit risk to such events by assessing our investment exposures in impacted geographic areas.”

However, not many take the next step to consider how it might evolve under climate change. The response from Assured Guaranty is typical: “[Our] investment philosophy is to maintain a high quality, liquid fixed income investment portfolio. The investment portfolios are diversified

by sector, issuer and geography. The average duration of each portfolio is less than 6 years. We will continue to follow developments related to climate change but do not believe that any changes in our investment strategy are required at this time.”

Already, divestiture from coastal counties and municipalities is a reality.

While regulators may be able to influence risk transfer markets, they cannot compel insurers to place investment capital in their communities. Already, divestiture from coastal counties and municipalities is a reality. This ranges from simple embargos like that adopted by Hudson Insurance Company (“We have determined not to buy State of Florida bonds,”) to more general policies.

Travelers Group: *“Changing climate conditions could also impact the creditworthiness of issuers of securities in which the Company invests. For example, water supply adequacy could impact the creditworthiness of bond issuers in the Southwestern United States, and more frequent and/or severe hurricanes could impact the creditworthiness of issuers in the Southeastern United States. In the evaluation of real estate investment opportunities, environmental risks posed by current or contemplated use of property are a major consideration.”*

Nationwide Mutual Insurance Company: *“For municipal bond investments, the ability of the bond issuer (i.e. municipality) to repay debt is largely influenced by the health of its local economy and stability of its population (tax) base. Climate-change issues ranging from water scarcity in the Southwest to coastal migration in Florida are considered when evaluating potential investments.”*

The second way in which climate change can affect investments is through regulatory risk, primarily relating to greenhouse gas emissions. This is addressed by a substantial minority of P&C insurers, but with few small companies among them. One view is that the all-wise market will price the pluses and minuses of climate change into asset values—yet since market corrections tend to disadvantage passive investors this would only seem to indicate a need for active management of climate risks in the insurance asset portfolio.

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Some P&C insurers such as Allianz, AIG, and Employers’ Mutual do already take sustainability issues like climate change into account in their asset management. For these companies, climate change is described as fitting within a broader investment approach incorporating Environmental, Social & Governance (ESG) factors into investment decision making. For example, Employers’ Mutual Casualty Company describes its view: “Companies with unsustainable practices, including those ignoring climate change impacts, typically make poor long-term investments.” European companies in particular tend to describe their investment decisions as being in some way guided by ESG factors, though how the company makes use of ESG analysis—and how climate change fits within this analysis framework—is by no means standardized. Zurich’s filing demonstrates the learning process of ESG integration: “Zurich has recently formulated a high-level strategy for responsible investing and is currently engaged in a process to determine how best to account more explicitly for environmental, social and corporate governance factors in investment decisions.”

The **Hanover Group** is an example of a company that closely scrutinizes carbon risk:

“Climate change and the resultant potential for regulatory pressure on the utility industry continue to be an important factor in our analysis of the utility sector for at least the last 18 months. As an investor in electric and gas utility bonds, we are concerned about the potential for higher costs from regulatory efforts to combat global warming (i.e. the carbon tax, clean air standards, etc.) and the effects these would have on utility industry profitability. Our response has been to increase our assessment of these potential affects on utility credits we own or consider for purchase, with particular attention paid to plant mix (i.e. coal/nuclear/hydro).”⁴⁵

⁴⁵ However, the company is less specific in its SEC filings.

The following quote by Selective Insurance Group provides an example of good practice by a company that outsources its asset management: “Selective monitors its three third party investment firms’ climate change policies. At one firm, credit research analysts factor in issues such as environmentally unfriendly business practices, litigation risk, or loss of competitive position over time. Another firm has a very controlled risk framework that positions their portfolios well for an unstable capital market environment that would result if climate change were to impact the planet. For example, they avoid bonds issued by coastal credits as they could be impacted by unstable weather patterns during climate change. Finally, our other external investment firm is at the forefront of the global reallocation of capital towards industries that mitigate or adapt to climate change. They created a climate change mutual fund and were the first asset manager to do so in the US. They incorporate environmental and social governance aspects into their buy-side research and investment process.”

Innovation

Given the intense competition among standard insurance products, climate change offers an opportunity for market growth in a field that is less constrained by pricing competition. There are many interesting examples, as the following five companies show, including catastrophe bonds and ‘green’ insurance products, covering a wide range of property and casualty covers. However, there is very little information offered on market demand for such products.

Chubb Group: *“Green betterment coverage for personal homes. A client can choose the option to rebuild their home after a covered loss with environmentally friendly materials and energy efficient systems, in compliance with environmental rating programs like LEED for Homes, up to an additional 100% of the insured value of the home.*

Infrared camera scans of clients’ homes. The Corporation identifies areas for improved energy efficiency, such as missing insulation or leaky window units. Customers may be referred to specialists who can assist them in improving the energy efficiency of their home.

Water Leakage Avoidance. In 20 states, the Corporation offers coverage that can reimburse customers for the reasonable cost of labor (up to \$5,000) to install a water leak detection and water shut-off system during the repair from select types of covered losses.”

Progressive Insurance Group: *“Our latest usage-based product, Snapshot®, gives drivers a financial incentive to drive less and safer, as drivers can earn discounts based on their driving habits. Progressive’s own data, based on an analysis of nearly 3 billion driving miles, suggests that not only do safe drivers save money with Snapshot, but they’re 30 percent less likely to receive a ticket for a moving violation and 10 percent less likely to be in an accident.”*

The Hartford: *“The Hartford recognizes the growing opportunities for insurers to offer products and services that help our policyholders move to renewable energy and reduce their own greenhouse gas emissions, whether they are commercial enterprises or individuals. The launch in 2010 of The Hartford’s Renewable Energy Practice to insure the wind, solar and biomass industries is recognition that this is a growing opportunity. The Hartford has since 2009 introduced 10 separate insurance products that help our customers reduce their environmental impact, including GHG reduction. Stiffer GHG regulations would encourage the market for green insurance products.”*

Zurich US Insurance Pool: *“(1) directors & officers liability insurance extended for climate-related claims; (2) political and trade credit risk coverage for carbon credit projects; (3) green, efficient and resilient rebuild insurance, allowing for the rebuilding of damaged property with improvements to green, efficiency or weather-resilience standards; and (4) liability insurance and financial assurance products for Carbon Capture and Sequestration (CCS) facilities.”*

Allianz: “Allianz has been a leader in developing alternative models for our businesses and customers to transfer risk to the capital markets. Capital markets can play an important role in spreading risks from natural disasters among a large group of capital providers. Since 2007, Allianz has accessed the capital markets repeatedly sourcing protection against peak risks in the form of six Cat Bond transactions with a total volume of approximately \$900M, including U.S. hurricane risk. Cat Bonds are now a regular part of our risk management approach.”

5.2 LIFE AND ANNUITY INSURER CORE FUNCTIONS

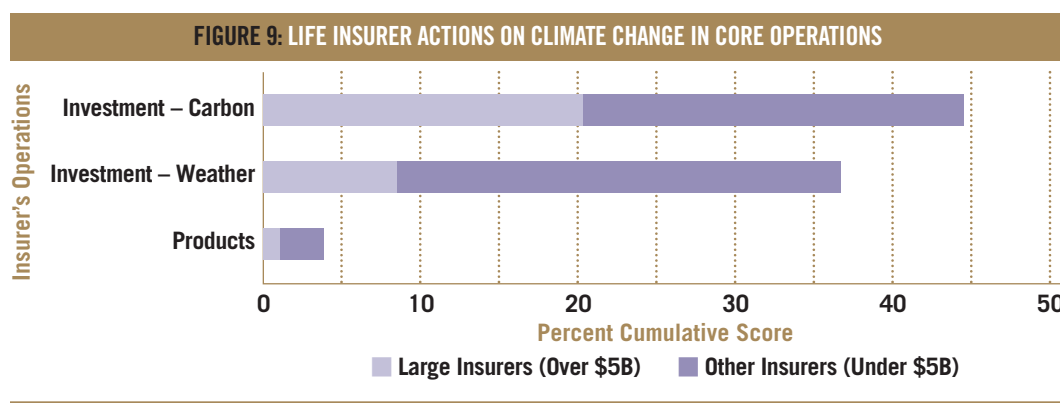
Key Findings:

- ✓ In general, the current view of Life & Annuity companies is an absence of current risk exposure to climate change on their underwriting business, but nearly a quarter describe some active management of invested assets to manage climate change risks.
- ✓ Around half of L&A insurers believe that standard practices related to asset diversification are sufficient to deal with climate change investment risks. While this may spread climate change-related losses, such a passive approach accepts losses that might have been avoidable. Often, L&A insurers depend on external asset managers, and are unclear about how those managers deal with climate change. Few L&A insurers mention extreme weather hazards for invested assets, whether real estate or municipal bonds. As for carbon regulatory risk, just a few L&A insurers mention potential regulatory risk, or general economic risk.
- ✓ There is some innovation among L&A insurers in the arena of investment. In particular, insurers are realizing the advantages of sustainable real estate. Some are considering the ‘carbon sink’ aspects of agri-forestry assets. A few are investing in catastrophe bonds.

Large L&A insurers (over \$5 billion annual premium) are more likely to be concerned over the regulatory risk (indirect impacts), while small-to-medium L&A firms are more concerned about direct risks, for example, damage to real estate.

Figure 9 summarizes the actions taken by the 75 L&A insurers in the survey. The bars display their cumulative score, split according to the size of firm. About half of them are taking action on their invested assets to contend with climate change. The type of actions described fall into two categories: managing direct impacts of an altered climate on invested assets, and managing indirect risk posed by carbon emissions controls.

Large L&A insurers (over \$5 billion annual premium) are more likely to be concerned over the regulatory risk (indirect impacts), while small-to-medium L&A firms are more concerned about direct risks, for example, damage to real estate. However, very few L&A insurers believe that life and annuities risk is affected by climate change, so there is very little reference to insurance products in this sector of the insurance market.



Products

The excerpts below show that the general view among L&A insurers is that there is no current insurance risk, and what risks emerge will be identified over time in altered mortality statistics. Companies do not seem to think that they should price for increased climate-driven risk until it has become well-established statistically, above the ‘noise’ of other factors affecting morbidity and mortality. It is also interesting that, based on the NAIC survey results, the implicit consensus among insurers in the United States is that mortality will be reduced by climate change, whereas in Northern Europe scientists believe that mortality may improve at least for the next two decades,⁴⁶ which would be a risk for annuities providers if they fail to appropriately adjust pricing or investments to match the liability.

Life and annuity insurers offer a range of detail on how climate change may affect their operating environment and core functions.

Massachusetts Mutual Life (in response to the question: Summarize the current or anticipated risks that climate change poses to your company): *“Not applicable.”*

National Integrity Life: *“Any attempt to measure the influence of climate change on mortality would be highly speculative and unlikely to be credible at this point. In light of this dynamic, the Company has not taken steps to ‘encourage policyholders to reduce the losses caused by climate change-influenced events.’”*

Homesteaders Life: *“We do not see a significant impact on our operations due to climate change until such time that increases in mortality due to climate change have escalated globally or regionally to the extent that they impact normal life underwriting and product pricing practices.”*

Client Investment

Around half of L&A insurers report that standard practices of asset diversification are sufficient to manage climate change investment risk. While this may spread climate change related losses, such a passive approach inherently accepts losses that could have been avoided through an active management approach.

Often L&A insurers depend on external asset managers, and are unclear about how those suppliers deal with climate change. Few L&A insurers mention extreme weather hazards for invested assets, whether real estate or municipal bonds. As for carbon regulatory risk, a few L&A insurers mention potential regulatory risk, or general economic risk. Among the few insurers who do try to analyze climate change risk, lack of disclosure is a barrier.

We provide below some examples of good practice.

Torchmark Group: *“In response to the potential for major catastrophe losses, the companies have not purchased investments such as Florida Windstorm bonds, Oil Casualty bonds, etc. We continuously monitor conditions in all sectors that are, or could be, affected by future climate developments.”*

CNO Group: *“Government policies to slow climate change (e.g., setting limits on carbon emissions) may have an impact on sectors such as utilities, transportation and manufacturing. The analysis of investments held in these sectors includes the possibility of additional regulation.”*

⁴⁶ Future Impacts of Climate Change Across Europe. CEPS Working Document No. 324/February 2010. A. Behrens, A. Georgiev and M. Carraro. Centre for European Policy Studies, Brussels.

MetLife: *“MetLife currently has over \$2.5 billion invested in renewable energy projects and evaluates opportunities to invest as advances in technology make these alternative energy sources attractive investments.”*

The TIAA Family of Companies: *“For our investments in public equities, our corporate governance group assesses climate change risk for certain portfolio companies on a case-by-case basis. We have an ongoing commitment to implementing cost effective energy efficiency improvements in our global real estate portfolio, including setting quantitative goals for energy efficiency.”*

Torchmark Group: *“Underwriting for industries such as coal generation electric utilities has materially changed. A significant amount of extra time is now required to fully analyze the impact on an investment resulting from existing and potential new compliance with climate rules, regulations and laws...The company recently spent several months researching the potential purchase of an infrastructure fund which primarily held wind and solar power generation assets.”*

Sentry Insurance Group: *“Because of Sentry’s sizable investment positions in ‘Green Technology’ companies, it has access to additional information resources provided by various constituencies within the ‘Green Technology’ industry.”*

Principal Life Insurance: *“We feel there are three primary benefits of green properties which offset any additional cost: 1. People benefits including higher productivity, lower absenteeism, increased job satisfaction, and higher retention. 2. Financial benefits include lower operating expenses, enhanced leasing activity and increased asset value. 3. Our natural environment also benefits because of a reduced environmental impact and greater environmental stewardship.”*

Lincoln Financial: *“We consider climate change where appropriate e.g. utilities, industrials regarding operational, regulatory, market, liability, policy risks. Limited disclosure hampers the scope of analysis.”*

Innovation

There is some innovation among L&A insurers in the arena of investment innovation, as the examples below show, particularly ‘green’ real estate. One insurer is considering the ‘carbon sink’ aspects of agri-forestry assets. A few are investing in catastrophe bonds.

Allianz Real Estate carried out research which showed Sustainable Buildings could yield savings of up to 23 percent in energy consumption and related carbon emissions with relatively small investments, and has now *“initiated a comprehensive sustainability program for all Allianz real estate investments.”*

Genworth Life Insurance: *“Genworth invests in ‘catastrophe bonds’. Genworth has strict limits on its overall investment in catastrophe bonds. Genworth currently uses conservative risk models that assume a warmer climate rather than other models that use average weather history over longer periods of time. Finally, Genworth has risk limits on type of exposure (geography and type of natural catastrophe).”*

John Hancock Group: *“As a result of global warming and national and industry objectives for GHG reduction in some jurisdictions, there are potential opportunities to trade carbon credits using timber and agricultural investments to report emission sinks from sequestered CO₂e.”*

5.3 HEALTH INSURER CORE FUNCTIONS

Key Findings:

- ✓ Despite predictions of heat waves, expansion of insect-borne disease and poorer air and water quality, few health companies describe climate change as a factor relevant to their risk assessment.
- ✓ Only a handful of health insurers discuss how they can reduce the effect of climate change on their customers.
- ✓ On the question of asset management, health insurers generally leave this to external, professional managers. They believe that the standard approach of diversification is sufficient, and do not cite any specific way in which portfolios have been modified in the light of climate change.

Despite predictions of heat waves, expansion of insect-borne disease and poorer air and water quality, few health companies describe climate change as a factor relevant to their risk assessment.

There are 27 insurers transacting health insurance as a main class of business among the respondents. Figure 10 shows their cumulative scores for their core operations of underwriting and investment. Only a minority of health insurers take action on climate change.

Products

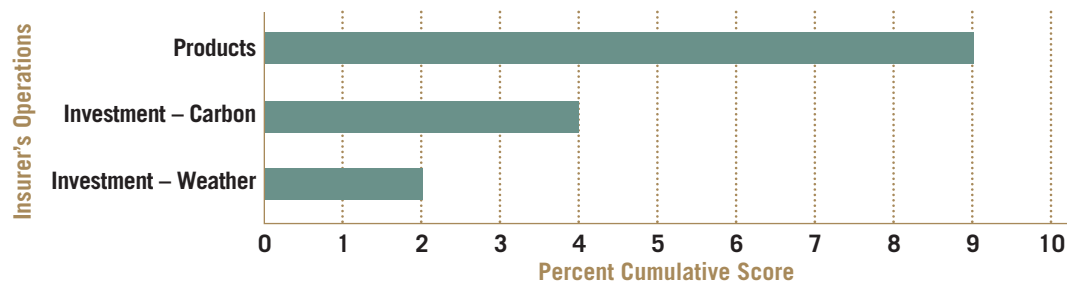
Despite predictions of heatwaves and poorer air and water quality, few health companies describe climate change as a factor relevant to their risk assessment.

Excellus states: “the Company is not aware of any conclusive data that there are health effects directly (or indirectly) related to climate change.”

Even when they recognize that extreme events are material, firms seem unaware of the ways that extreme events may change. As with life insurers, health insurers believe that it will be sufficient to react to the effects of climate change as it unfolds and do not have practices in place to identify or anticipate changes.

Only a handful of health insurers discuss how they can reduce the effect of climate change on their customers. For example Group Health Cooperative states: “Our medical care is linked with a wellness approach for all members, employees and providers. These steps support healthier and more resilient policy holders which may reduce risks from future climate change-influenced events such as the deterioration of air quality.”

FIGURE 10: HEALTH INSURER ACTIONS ON CLIMATE CHANGE IN CORE OPERATIONS



Investment

On the question of asset management, Health insurers generally leave this to external, professional managers and generally believe that market pricing and asset diversification will appropriately manage the risks posed by climate change to their investment portfolios. The three examples below illustrate common attitudes:

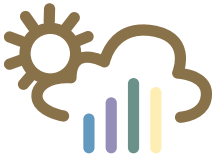
Cambia Group: *“We believe any risks or opportunities associated with climate change, such as carbon and water restrictions, are generally priced into the cost of the investment through the market; any potential arbitrage opportunities would have imbedded investment risk which we believe to be inappropriate for us to take.”*

United Health Group: *“Climate change impacts have been taken into account in our investment policy through traditional credit analysis and investment portfolio methods. Those methods emphasize portfolio diversification across industries and issuers, and each security is evaluated on a case by case basis.”*

Independent Blue Cross: *“Since approximately 75-80% of the Company’s portfolio is managed by external investment managers and they (the managers) generally have not made macro decisions to incorporate this specific risk in the management of investment portfolios, the Company does not see the need to react at this time.”*

Innovation

Only one only example of innovation was found: “The Kaiser Permanente Research Program on Genes, Environment, and Health (RPGEH) was launched in 2005, with the goal of building the largest and most comprehensive resource in the United States for research on the influence of both inherited and environmental factors on people’s health.”



Engagement

Key Findings:

- ✓ Most L&A and Health insurers and a number of P&C insurers do not believe they should engage on climate change, as they do not believe there is sufficient evidence of its causes, effects or relationship to their business.
- ✓ 47 out of 102 P&C writers do engage with clients on loss prevention, mostly by mailing leaflets, and providing website information, though this is largely related to present-day risks and not explicitly related to climate change. Small companies are generally much less active than medium or large firms.
- ✓ Insurers often engage with employees on sustainability in general, but rarely on climate change specifically. Insurers rarely mention their agents or brokers, yet they are important links to the client. The main interaction with suppliers in the P&C segment is in the use of catastrophe models. A second, much less active engagement node is between insurers across segments and their asset managers. In both these cases, insurers tend to accept the decisions of the supplier, as being the technical expert, and often do not even know how their providers are tackling climate change risks.
- ✓ Very few insurers intervene in the policy-making arena. 17 companies make a major contribution to policy formulation on disaster risk reduction via collective initiatives, single-insurer projects, or advocacy. Just 11 insurers are involved in energy conservation initiatives in a significant way, and only 10 insurers are heavily involved in initiatives on climate change.

Smaller insurers rely upon external parties for critical services such as catastrophe modeling, reinsurance strategies and asset management, yet the survey findings suggest that these insurers often do not understand whether their advisors and suppliers are factoring climate change into their decisions.

In this chapter we examine how companies are engaging with five important stakeholder groups: employees, distributors, suppliers, clients, and industry action groups.

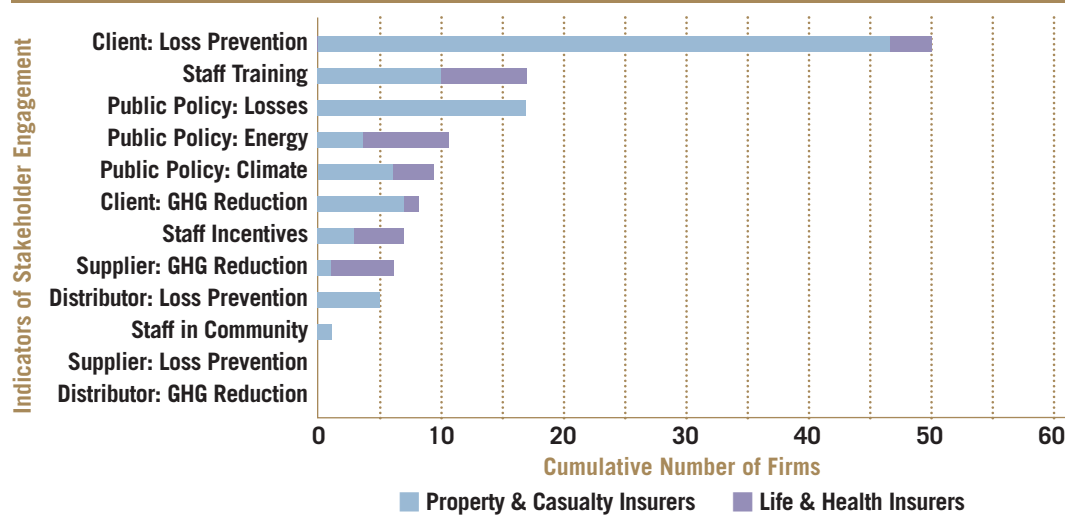
Few insurers describe efforts to engage stakeholders such as regulators, policymakers, customers, employees, asset managers or vendors on climate change. The dearth of external engagement limits the influence of insurers in shaping a public view of climate change risk. Because insurers have uneven resources to assess their own climate risk, the inward-facing approach of much of the industry also suggests that smaller companies may be disproportionately unprepared for climate change.

Smaller insurers rely upon external parties for critical services such as catastrophe modeling, reinsurance strategies and asset management, yet the survey findings suggest that these insurers often do not understand whether their advisors and suppliers are factoring climate change into their decisions.

Many insurers have adopted products designed to enable low-carbon activities. About half of large and medium-sized property insurers offer insurance products designed for low-carbon activities such as green buildings or renewable energy projects. Some of the large Life & Annuity companies offer investment products allocated to low-carbon technologies. However, since most product development has been undertaken by multinational companies headquartered overseas, most products tend to be developed for an international market and are of limited relevance in the United States market.

Figure 11 shows that out of 184 companies, most are not active on stakeholder engagement or fail to report their activities. Not shown in the graphic is that small companies are generally much less active than medium or large firms.

FIGURE 11: NUMBER OF COMPANIES ACTIVELY ADDRESSING SPECIFIC INDICATORS OF STAKEHOLDER ENGAGEMENT



The data is split between firms that transact Property & Casualty business, and those carrying out only Life or Health, since as we have seen in the Operations Chapter, Life and Health insurance is perceived to be much less sensitive to the effects of climate change or climate variability. This is borne out by the stakeholder data, where P&C companies dominate the responses for loss prevention. On the other hand, L&H companies are ahead in public policy action on energy conservation, and also on greening the supply chain.

6.1 STAKEHOLDERS

Insurers mention four groups of stakeholders in their responses: most frequently clients, followed by staff, and rarely distributors and suppliers. Shareholders are hardly mentioned (though of course in the case of mutual insurers, the policyholders *are* the owners.)

Clients

Given the close link between property policies and weather damage, it is not surprising that many P&C insurers engage with their policyholders on the issue of loss prevention. In fact 47 out of 102 insurers transacting P&C do this, and this is also the stakeholder issue where small insurers are active. Mostly, the action is confined to mailing leaflets, and providing website information. Industrial clients do receive customized risk advice in some cases.

Three examples show the type of support that insurers are providing:

- ➔ Cincinnati Insurance uses its loss control representatives, claims representatives and underwriters to provide information, inspections and assistance to policyholders regarding improvements they can make to their properties to reduce the losses caused by climate change influenced events.
- ➔ Tokio Fire & Marine (PHLY) uses its Loss Control Department to offer seminars throughout the country to provide insureds with information regarding how to prevent and mitigate losses in the event of a catastrophic event. Topics covered include natural hazards, lightning protection, cold weather freeze-ups, and wind and water damage.
- ➔ During storm events, Alfa uses social media sites like Facebook and Twitter to inform customers about significant weather events. The company has also uploaded several videos on YouTube to demonstrate Alfa's response in handling claims after a catastrophic event such as a tornado.

Some insurers cite the use of electronic communication with policyholders as helping to reduce emissions, which is typically described as a business efficiency improvement, with emissions savings as a co-benefit. A few P&C insurers (7 out of 102) also provide some advice to policyholders on energy conservation.

AAA: "The AAA membership magazine, VIA, sent by the Motor Club to millions of AAA members, regularly showcases how motorists can reduce gasoline consumption to reduce their own carbon footprint. Online resources for AAA members and Company insureds also highlight 'green' endeavors. They help members/insureds understand the differences, and the benefits, of purchasing hybrid fuel vehicles, how best to drive them for fuel efficiency, and the automobile insurance that we make available for owners of such hybrid vehicles."

Almost all Life and Health insurers, as well as a number of P&C insurers, do not believe they should communicate with clients on climate change, as they do not believe there is reliable or relevant information. A typical response is from **Old Republic**:

"Until such time as Old Republic believes there is more specific evidence of (1) the effects of climate change on Old Republic's business and (2) appropriate responses to limit that exposure have been developed, Old Republic sees no constructive purpose in engaging its policyholders in such a dialogue."

Staff

There are plenty of examples of insurers engaging with employees on sustainability, for example Green Days, assisted commuting and car-sharing but little specifically on climate change. In general, incentives are linked to fulfilling energy efficiency targets. Many insurers do not seem to provide business-related information on climate change to staff. These four examples show good practice:

Allianz (including Fireman's Fund): "A corporate climate change awareness campaign was developed in 2010 and rolled out across the Group in 2011."

Axa: "The Companies require each employee to complete an annual transportation survey that measures their individual carbon foot print."

Group Health Cooperative: "Our Commute Solutions program was selected for its innovative and successful efforts to reduce commute trips in single occupancy vehicles, along with its comprehensive intranet information, and personalized services for Group Health's workforce."

The Hartford Insurance Group: “Creation and sales of ‘low carbon’ products may be rewarded monetarily. The Hartford has introduced a growing range of such products.”

Distributors

Insurers rarely mention their agents or brokers, yet they are important links to the client. Three examples of active engagement are:

The Hartford: “The Hartford is also seeking new affinity partners to engage with to sell our personal lines coverages to these partners’ members. A standard component of our discussion with these potential affinity partners is an explanation of The Hartford’s public commitments regarding climate change, and our current efforts. The feedback suggests that this information is considered valuable by our potential business partners.”

Mutual of Enumclaw: “Mutual of Enumclaw provides education to our agents on how policyholders can reduce loss potential from weather related loss events. Examples are the requirements of ‘buffer’ zones or ‘defensible space’ in wildfire prone areas.”

Central Mutual: “Our direction [on underwriting] is shared openly with our agency partners so they understand and partner with us on the need to protect Policyholder Surplus while being competitive in the market with both coverages and pricing.”

Suppliers

The main interaction with suppliers related to climate change is in the use of catastrophe models by Property & Casualty insurers, which was discussed more fully in Chapter 5.

A second, less active interface is between insurers and their asset managers, also covered in Chapter 5. In both these cases, insurers tend to accept the views of the supplier as the technical expert, and generally do not seek to influence them. In many cases they do not even know what their views are, as these two excerpts show:

Mutual of Enumclaw: “We are unaware whether our asset manager has policies around climate change. We have not mandated any such rules as we simply provide return and yield benchmarks that we desire to be met by our manager.”

XL: “XL implements its strategy using a variety of investment management service providers. They consider a variety of factors and risks when making decisions on XL’s portfolios, which are likely to include some consideration of climate-related risks.”

There are frequent references to introducing or using electronic communication with suppliers, but little real engagement on climate change per se. One company refers to checking emissions up the supply chain. Kaiser Foundation Health Plan says: “Suppliers must disclose if their company has a publicly-available climate action plan, including a greenhouse gas reduction target, and the percentage of their energy consumption that is generated from renewable sources.”

Insurers tend to accept the views of the supplier as the technical expert, and generally do not seek to influence them.

6.2 PUBLIC POLICY

Public policy efforts focus on industry initiatives in three areas: disaster loss reduction, energy conservation, and climate change specifically.

Disaster Loss Reduction

Many P&C companies note that they support the Institute for Business and Home Safety (IBHS), a disaster mitigation research and policy institute largely supported by the insurance industry. We have only counted 17 companies making a major contribution to policy formulation in collective initiatives, single-insurer projects, or advocacy at the level shown in these three cases.

Allstate: “Since 2005, ProtectingAmerica.org has been working to advance a comprehensive, integrated solution to deal more effectively and efficiently with megacatastrophes. A senior member of Allstate’s law and regulation department serves as national director of ProtectingAmerica.org. We are also working for changes in the regulatory environment, including recognizing the need for better catastrophe preparedness, improving appropriate risk based pricing and promoting the creation of government sponsored, privately funded solutions for mega-catastrophes that will make insurance more available and affordable.”

Travelers: “A current key initiative of the Travelers Institute is the Travelers Coastal Wind Zone Plan, our proposal to improve the availability and affordability of catastrophic wind coverage in communities along the Gulf and Atlantic coasts. This initiative promotes risk mitigation strategies such as better building codes and prudent land use planning and advocates for rating transparency and a consistent regulatory environment to address the insurance availability crisis in vulnerable coastal areas.”

Mutual of Enumclaw: “Mutual of Enumclaw annually meets with Washington State Senators and Congressmen to promote laws that will improve our ability to sustain climate change related losses and to reduce the overall costs to our policyholders. We have informed them on various topics such as better building codes, long term renewal of the federal flood program, less subsidy for risks located in hurricane prone areas.”

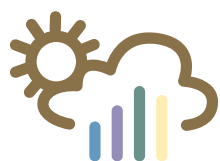
Energy Conservation

Many insurers seek certification for LEED buildings, and pursue other avenues towards higher energy efficiency, as can be seen in Chapter 2, where the drivers of energy efficiency and carbon footprint are examined. However, only 11 insurers are involved in energy conservation initiatives in a significant way. The following extract highlights commitment.

AAA: “...over the years has actively supported the Clean Air Act, policies around clean vehicles and clean fuels, and the development of public transit systems. AAA has a long-standing partnership with the Institute of Transportation Studies at the University of California at Davis, partnering with them on on-going research into improving fuel-efficient driver behavior, as well as the largest consumer study of plug-in hybrid vehicles ever undertaken.”

Climate Change

Only 10 insurers are heavily involved in initiatives on climate change. This ranges from involvement at the national level, for example Congressional testimony or press conferences by Allianz, Munich Re and Swiss Re, to participation in task forces sponsored by state Governors—for example, The Hanover participated in the Governor’s New Hampshire Climate Change Policy Task Force.



Reporting

Disclosure is an opportunity for companies to share with regulators and other stakeholders the actions being taken by the company to manage climate change. Unless a company explicitly states that it has undertaken specific activities, stakeholders, including investors and clients, cannot assume that it is doing so. For that reason, the quality of disclosure is an important indicator of the actions being taken by companies and their intention to share the benefits of these actions with stakeholders outside of the company.

Out of 184 companies, only eleven provided disclosure of sufficient quality and detail to tally more than half the eligible points in two of the four domains: Management, Drivers, Core Functions, and Engagement. These are ACE, Allianz Group (including Fireman's Fund), Farmers, Genworth Life Insurance, Hartford Insurance, Liberty Mutual, Munich Re, Prudential Group, Swiss Re, Travelers Group, and Zurich. They are almost all large, and most are involved in the property/casualty business.

The quality of disclosure is an important indicator of the actions being taken by companies and their intention to share the benefits of these actions with stakeholders outside of the company.

Several responses did not appear to be in keeping with the spirit of cooperative disclosure that one might hope to see:

State Farm: "With respect to risk management, State Farm is not aware of an industry standard that defines a 'climate risk', 'climate change' or 'climate change-related risk.' As such, State Farm has no basis to insure for a unique peril labeled a 'climate change risk' or a 'climate change related risk' or account for climate change in risk management."

However, it should be noted that in the same disclosure filing the company states: "State Farm is concerned about the prospect of global climate change, its potential impact on severe weather patterns, and how that potential impact may affect the business of insurance."

USAA simply resubmitted its previous year's response, on the basis that nothing has changed.

Everest National refused to respond, saying: "publication could result in waivers of privilege relating to claims matters, since the survey requires disclosure of claims related protocols. Further, the Survey requires disclosure of competitive information relating to Everest's products, rates, geographic exposures, loss control practices and claims as related to 'climate change'. This information is confidential and if made public could cause irreparable harm to Everest's business. Many of the Survey's questions are vague and ambiguous. We decline to respond to the survey."

As noted in Chapter 3, around ten per cent of insurers, mainly small life companies, took the line that the survey was not relevant, and therefore gave no substantive information.

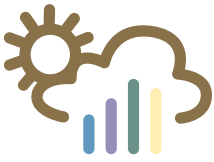
Disclosure could be significantly improved if insurers and regulators took the following steps.

Insurers

- Provide complete responses related to each significant segment of business. For example, multi-lines should disclose how their Life & Annuity segment may be affected in addition to their Property & Casualty segment, and Group filings should provide sufficient detail on how Group-level policies are implemented at subsidiaries in the United States.
- Disclosure filings should limit the amount of information incorporated by reference to external documents. Some disclosure filings are difficult to navigate: for example, The Hartford submission simply consisted of their voluminous response to the Carbon Disclosure Project, cross-referenced to their 10-K filing, without linking the information to the NAIC survey questions.
- Filings should not consist of monosyllabic responses that offer no real information on the company's approach to assessing climate risk.

Regulators

- Regulators should clarify how they plan to use information made available in survey responses, which may improve the quality of filings submitted.
- The lack of quality in responses may be attributable in part to the survey questions themselves, which are not designed to solicit specific responses, and as a consequence tend to result in cross-referrals between multiple questions.
- Better responses may result if regulators were to offer disclosure guidance explaining the expected substance of the responses, for example, defining what is meant by “climate change-influenced events” and “key constituencies.” There were several instances in which these phrases were misunderstood, or used as a reason for not replying.
- The survey should focus on risks to the core functions of insurers—underwriting, claims and investment. The current form starts with a question on emissions, which is a less important area of concern as insurance itself is a low-carbon industry.
- Given the number of monosyllabic, insubstantial and even antagonistic filings, regulators should consider a mechanism to address unsatisfactory responses.



Recommendations

Substantial room for improvement remains for insurer climate risk disclosure and management. Insurers and regulators can each play a role in driving that improvement.

8.1 KEY RECOMMENDATIONS FOR INSURERS

- ➔ **Treat climate change as a corporate-wide strategic issue, affecting all functions, at all levels, and formalize this in a public corporate policy statement.** Climate change has the potential to damage value across the insurance enterprise—managing it demands a comparable scope of coordination.
- ➔ **Evaluate the potential for changes in future risk exposure due to climate change.** Insurers need to assess how a changing climate could alter extreme weather events, disease vectors, political risk and infrastructure resilience, and adapt accordingly.
 - **Support research on the influence of a warming climate on human systems, including forecasting of future catastrophe trends, disease pathways, population migration, infrastructure failure and adaptive responses.** While there is strong scientific consensus on climate change, there is a particular need to advance our understanding of the likely impacts of warming temperatures on phenomena including the frequency and severity of hurricanes and convective storms; the human health effects of more intense heat waves and expansion of insect-borne diseases; and the economic and political repercussions of failed infrastructure and inundation of developed lands.
 - **Develop catastrophe models that anticipate the probable effects of climate change on extreme weather events.** Insurers with deep scientific resources should partner directly with climate scientists to develop new modeling capabilities. For many carriers, with less scientific expertise, it is equally important that the impact of climate change on extreme inland and coastal weather events be a routine part of the conversation with catastrophe model vendors and reinsurance brokers.
 - **Engage with regulators about how to ensure that rates and loss reserves adequately reflect changes in loss trends due to climate change.** Insurers should also increase their efforts to offer preferential pricing that reflects climate-resilient behavior.
 - **Ensure that investment advisors and asset managers have established expertise on climate change risk assessment and management.** Climate change is already altering extreme event trends, with implications for equity, bond, infrastructure, real estate and commodities investors. Insurers investing in these asset classes are no less subject to climate-related losses than other institutional investors, and consequently it is imperative that insurers consider climate change expertise when selecting investment professionals.
- ➔ **Provide transparent, useful disclosure.** Disclosure should reflect the company's best efforts to assess and manage climate change—it should therefore provide enough detail to assist regulators in understanding why the company takes a certain view on climate change, including the assessments undertaken to arrive at that viewpoint. For global enterprises, disclosure should clearly differentiate activities being undertaken in the United States market from those being undertaken in Europe or other significant markets.
- ➔ **Inform Public Policy:** Promote the need for action to prevent climate change and work with policy makers at the federal, state and local levels to help them build and maintain an economy that is resilient to climate risk.

Climate change has the potential to damage value across the insurance enterprise—managing it demands a comparable scope of coordination.

8.2 KEY RECOMMENDATIONS FOR INSURANCE REGULATORS

- ➔ **Continue to mandate annual, public disclosure to foster more active engagement by insurers on the issue of climate change.** Given the potentially significant impacts of climate change on insurance availability and affordability, as well as on insurer financial health, the importance of mandatory disclosure for regulators seeking to understand climate activities in the market cannot be understated. This information provided in mandatory, public disclosure can help other market actors identify market-wide failures in risk management and push for market corrections. In this respect, disclosure results should be used not only by regulators but also by reinsurers, primaries and brokers to understand the direction the market is moving with respect to a risk factor that will profoundly shape industry performance in the coming years.
- ➔ **Clarify disclosure expectations.** Regulators can do their part to improve insurer disclosure by putting forth guidance defining the important concepts and describing the expected substance of insurer responses to the climate risk disclosure survey. In addition, regulators should redesign the survey form to elicit more useful responses—a particular effort should be made to limit the opportunity for multiple questions to elicit the same responses, and to focus questions on risks to the core operations of insurers—underwriting, claims and investment.
- ➔ **Build climate risk considerations into the financial oversight process** through the addition of climate change-related questions to the Financial Condition Examiners Handbook. Changing loss trends illustrate the need for financial examination that considers adjustments to reinsurance coverage and other risk management practices that influence solvency tests.
- ➔ **Create more shared resources to help insurers analyze and respond to climate-related risks and opportunities, including investment risks and opportunities,** correlated risks and loss modeling. Relatively few insurers have the ability to produce fundamental research on the ways that climate change may affect their business. Regulators should help to improve market-wide understanding of the ways climate can affect different areas of the insurance enterprise, and incorporate these trends into company examinations to protect market capacity. Insurers and regulators alike would benefit from more fundamental research in the following areas, which emerged as areas of weakness in this year's disclosure responses:
 - **Investment Risks and Opportunities.** Insurer portfolio exposure and climate-sensitive asset allocation strategies are a particular need.
 - **Correlated Risks.** An assessment of the potential for emergent correlated risks between investments and underwriting portfolios could inform future examination procedures.
 - **Loss Modeling.** Regulators and carriers would mutually benefit from clarification on how today's loss models incorporate climate parameters.
 - **Health and Life Loss Potential.** Fundamental research on the temperature sensitivity of morbidity/mortality statistics would likely be beneficial to insurers, regulators and public health professionals.
 - **Customer Resilience.** Regulators and insurers have a mutual interest in improving customers' resilience to extreme events, and identifying the most successful methods of driving resilience.
- ➔ **Engage with insurers, consumers and other policymakers to better understand the nature of climate change risks,** including how rates should adjust to reflect changing risks, and the steps insurers and regulators need to take to better incentivize consumers to reduce their vulnerability to these risks.



Insurer Climate Risk Disclosure Survey Questions

INSTRUCTIONS

Group Filers:

If your filing is being made on a group basis complete Section A, then in Section B provide the required information for each company covered by this report. Add as many additional lines as necessary to include all companies.

Individual Company Filers:

Provide the information for your company in Section B.

Section A

Group Name:

Group No.:

Section B

NAIC No.:

Company Name:

Nationwide Direct Premiums Written

NOTES:

- If available, Comparable CDP Questions are listed after each question as a reference.
- If you have additional information to submit, please include these as attachments, along with the completed survey, in the e-mail to the New York State Department of Financial Services.
- The survey begins below.

1. Does the company have a plan to assess, reduce or mitigate its emissions in its operations or organizations? If yes, please summarize.

CDP: **Performance** Question 21

2. Does the company have a climate change policy with respect to risk management and investment management? If yes, please summarize. If no, how do you account for climate change in your risk management?

3. Describe your company's process for identifying climate change-related risks and assessing the degree that they could affect your business, including financial implications.

CDP: **Risks and Opportunities** Questions 1-3

4. Summarize the current or anticipated risks that climate change poses to your company. Explain the ways that these risks could affect your business. Include identification of the geographical areas affected by these risks.

CDP: **Risks and Opportunities** Questions 1-3

5. Has the company considered the impact of climate change on its investment portfolio? Has it altered its investment strategy in response to these considerations? If so, please summarize steps you have taken.

CDP: **Risks and Opportunities** Question 3: "Other Risks", Question 6: "Other Opportunities"

6. Summarize steps the company has taken to encourage policyholders to reduce the losses caused by climate change-influenced events.

CDP: **Risks and Opportunities** Questions 4-6

7. Discuss steps, if any, the company has taken to engage key constituencies on the topic of climate change.

CDP: **Governance** Question 24, 26, 27

8. Describe actions your company is taking to manage the risks climate change poses to your business including, in general terms, the use of computer modeling.

CDP: **Risks and Opportunities** Questions 1-3



Scoring Methodology

The framework for assessing insurers' responses is designed to cover the key issues around climate change of which insurers in the American market should be aware and the steps that a prudent insurer should be taking to address them.

It was derived from a combination of three sources:

- Previous work by Ceres on insurers and climate change,
- Previous work by Dr. Dlugolecki on insurers and climate change, and
- A review of other assessment structures, particularly ClimateWise, the Carbon Disclosure Project, and the Investors' Global Framework for Climate Risk Disclosure.

This resulted in a framework analyzing the submissions across four *domains* of interest:

- **Management:** how the companies manage climate change issues,
- **Drivers:** what concerns shape their strategies,
- **Actions:** what steps they take in their core functions or operations⁴⁸, and
- **Stakeholders:** how they interact with key parties⁴⁹, including their involvement in public policy and the quality of the report.

A total of 50 points was allocated: 9 for Management; 12 for Drivers; 15 for Actions; and 14 for Stakeholders. In turn these four domains were split into indicators, as described below and in Table A1, to give the necessary granularity for the review. Each response was then marked out of 50. , To support the learning and development purpose of this exercise, the individual scores will not be published.

MANAGEMENT. *The maximum score is 9 points.*

This domain is about the firm's overall approach to climate change: how senior is the level at which climate change policy is determined; which *functions* of the company are covered by the policy; and what *aspects* of climate change are dealt with.

Scoring

Level: Is the issue of CC explicitly accepted as a top business issue and supervised? . . . **3 points**

Functions: Does the policy cover client-facing as well as back-office functions? . . . **3 points**

Aspects: Does 'climate change' mean client impacts, regulation, and in-house work? . . . **3 points**

These points are the maximum for each indicator. Lesser scores are given for partial coverage of the domain.

⁴⁸ Core functions for insurers are defined as product design, risk assessment, loss reduction, claims handling and investment.

⁴⁹ Key parties are clients, distributors, suppliers, and staff.

DRIVERS. *The maximum score is 12 points.*

There are 12 drivers, worth one point each, which fall into two broad groups; six internal or reflexive motivators, concerned with the company itself, without specifically considering insurance risk, and six external drivers, focussed on the risk to the client (or client's assets).

Scoring – Internal Drivers

Emerging Risk: No risk identified yet, but recognition that potential exists 1 point

Reputation: Belief that a position on climate change is important for the brand 1 point

Security: Business continuity plan/ self-reinsurance/ cost of capital 1 point

Sustainability: General concern for sustainability 1 point

Energy Efficiency: Major uses of energy addressed 1 point

Greenhouse Gas Emissions: Corporate targets and reports 1 point

Scoring – External Drivers (*effects of extreme weather on the firm's clients*)

Hurricanes: Hurricane hazard reviewed knowledgeably 1 point

Other Extreme Weather: At least one non-hurricane risk reviewed knowledgeably 1 point

Climate in General: Awareness that climate change may affect relevant hazards 1 point

Liability: Clients may be sued 1 point

GHG Emissions Controls: Awareness of how clients may be affected 1 point

Societal Change: Views on behavior change (clients, insurance regulators) 1 point

ACTIONS. *The maximum score is 15 points.*

This domain deals with the steps that the insurer is taking to address climate change in its core activities of product design (acceptance of physical risk to the client, promoting loss reduction by the client, and supporting emissions reduction by the client); claims-handling; and asset management. The framework varies depending on the lines of business: Property & Casualty, Life & Annuities or Health. This is because the importance of the functions differs, with more attention to product design in P&C, and more focus on investment in L&A.

The intention is to have a maximum score of 15 points for actions for any insurer. Thus for insurers or groups which report in one reply as multi-line (normally P&C with L&A; P&C with Health; or L&A with Health), the scores are scaled down for the various portfolios. For example, for an insurer with P&C and L&A, the P&C score is halved to 7.5 points, and the L&A score is halved to 7.5 point. That is why some scores include half-points.

Property & Casualty

Risk Acceptance: 1 per significant product feature dealing
with climate risk acceptance(maximum 3 points)

Loss Reduction: 1 per significant product feature dealing
with climate loss reduction(maximum 3 points)

Emissions Reduction: 1 per significant product feature dealing
with GHG reduction(maximum 3 points)

Claims-Handling: Significant action beyond normal loss reduction1 point
Significant action to reduce GHG emissions beyond normal efficiency ..1 point

Investment: Significant action to avoid climate-related risk
beyond normal risk management of funds1 point
Significant action to promote GHG emissions reduction
beyond normal risk management of funds1 point

Innovation: 1 point per major product innovation
with the aim of managing CC better(maximum 2 points)

Life and Annuities

Risk Acceptance: 2 for any significant product feature dealing
with climate risk acceptance(maximum 2 points)

Loss Reduction: 2 for any significant product feature dealing with climate loss reduction
(maximum 2 points)

Investment: 2 for each significant action to avoid climate-related risk
beyond normal risk management of funds(maximum 4 points)
2 for each significant action to promote GHG emissions
reduction beyond normal risk management of funds(maximum 4 points)

Innovation: 3 points for any major product innovation with
the aim of managing CC better(maximum 3 points)

Health

Risk Acceptance: 2 for any significant product feature dealing
with climate risk acceptance(maximum 4 points)

Loss Reduction: 2 for any significant product feature dealing
with climate loss reduction(maximum 4 points)

Claims-handling: Significant action beyond normal loss reduction3 points

Investment: Significant action to avoid climate-related risk
beyond normal risk management of funds1 point
Significant action to promote GHG emissions reduction
beyond normal risk management of funds1 point

Innovation: 2 points for any major product innovation with
the aim of managing climate change better(maximum 2 points)

STAKEHOLDERS. *The maximum score is 14 points.*

This domain is about interactions on climate change with key parties involved with the firm: staff; business partners; clients; policy makers; and regulators (through the survey).

Staff (*engaging on climate change with employees and associates*)

Training: provision of information on climate change relevant to work
(not only resource efficiency) **1 point**

Incentives: staff are offered benefits linked to actions on climate change **1 point**

Community Activities: staff are encouraged and supported to engage
in outside projects on climate change **1 point**

Business Partners (*engaging on climate change along the supply chain*)

Distributors: actions on climate impacts in relation to distributors **1 point**
actions on GHG reduction in relation to distributors **1 point**

Suppliers*: actions on CC impacts in relation to suppliers **1 point**
actions on GHG emissions reduction in relation to suppliers **1 point**

Clients: actions and information on climate impacts for clients **1 point**
actions and information on GHG emissions reduction for clients **1 point**

Multi-Stakeholder Initiatives Germane to Climate Change

Disaster Reduction: significant role in initiatives to manage weather risks **1 point**

Energy Conservation: significant role in initiatives to reduce energy use **1 point**

Climate Change: significant role in initiatives explicitly on climate change **1 point**

Reply to NAIC Survey

Meaningful: significant response on two of the four domains **1 point**

Comprehensive: significant response on third and/or fourth domains **1 point**

* Suppliers includes external asset managers used for investment

TABLE A1 COMPANY SCORING FRAMEWORK

Domain	Criterion	Max. Pts.	Indicator	Pts.	Definition
Management of Climate Change Issues Max.Score: 9 The firm's overall approach to climate change			Level	3	climate change explicitly accepted as a top business issue and supervised.
			Functions	3	with actions that cover client facing as well as back office functions.
			Aspects of CC	3	across client impacts, regulatory aspects, inhouse operations
Drivers Max. Score: 12 Motives for approach to climate change	Generic Enterprise Risk climate change as a general (non-insurance) business issue	3	Emergent Risk	1	no risk identified yet, but recognition that potential exists
			Reputation	1	belief that a position on climate change is important for the brand
			Security	1	business continuity plan & self-reinsurance/cost of protection
	Sustainability	1	Eco-Efficiency	1	general concern for sustainability
	Energy Concerns attention to the firm's own GHG emissions	2	Cost Efficiency	1	actions on major energy uses, own premises, transport and officework processes
			Carbon Footprint	1	potential regulatory concern/the firm sets GHG objectives and reports progress
	Weather Impact on Clients & Clients' Assets knock-on effects of extreme weather on the firm's clients	3	Hurricanes	1	hurricane hazard reviewed knowledgeably
			Other Weather	1	at least one non-hurricane hazard reviewed knowledgeably
			Other Impacts	1	awareness that climate change may affect relevant hazards somehow
	Societal Impact on Clients & Clients' Assets knock-on effects of actions by other parties on the firm's clients	3	Liability to Others	1	awareness of the issue
Regulations Related to Greenhouse Gases			1	knowledgeable review of the issue	
Behavior Change			1	behavior change (clients, regulators etc)/impact on economic conditions	
Operations* Max. Score: 15 Actions that deal with climate change issues on core activities. (A) Property/Casualty/Specialty Regarding these lines of insurance.	Products concerning insurance products	9	Risk Acceptance	3	1 per significant product feature dealing with climate risk acceptance (max 3)
			Loss Reduction	3	1 per significant product feature dealing with climate loss reduction (max 3)
			GHG Reduction	3	1 per significant product feature dealing with GHG reduction (max 3)
	Claims concerning claims handling processes	2	Loss Reduction	1	significant action beyond normal loss reduction
			GHG reduction	1	significant action beyond normal efficiency
	Investment concerning fund management	2	CC impacts	1	significant action beyond normal risk management of funds
			GHG Reduction	1	significant action beyond normal risk management of funds
	Innovation	2	As for Criterion	2	1 point per major product innovation with the aim of managing CC better (max 2)
Operations* Max. Score: 15 (B) Life & Annuities Regarding these lines of insurance.	Products concerning insurance products	4	Risk Acceptance	2	any significant action aimed at improving acceptance of CC risk in products
			Loss Reduction	2	any significant action aimed at reducing losses from CC on products
	Investment concerning investment of funds for clients	8	CC Impacts	4	2 per significant action beyond normal risk management of funds (max 4)
			GHG Reduction	4	2 per significant action beyond normal risk management of funds (max 4)
	Innovation	3	As for Criterion	3	any significant product innovation with the aim of managing CC better

* (Usually one of A or B or C): If both (A) and (B) are covered in one report, score half marks for (A) and half marks for (B), to maintain the total score at 15 for operations. Similarly for (B) and (C).

TABLE A1 COMPANY SCORING FRAMEWORK (con't.)

Domain	Criterion	Max. Pts.	Indicator	Pts.	Definition
Operations* Max. Score: 15 (C) Health Regarding these lines of insurance.	Products concerning insurance products	8	Risk Acceptance	4	2 per significant product feature dealing with climate risk acceptance (max 4)
			Loss Reduction	4	2 per significant product feature dealing with climate loss reduction (max 4)
	Claims concerning claims handling processes	3	Loss Reduction	3	significant action beyond normal loss reduction
	Investment concerning fund management	2	CC Impacts	1	significant action beyond normal risk management of funds
			GHG Reduction	1	significant action beyond normal risk management of funds
	Innovation	2	As for Criterion	2	any significant product innovation with the aim of managing CC better
Stakeholders Max. Score: 14 Key parties involved with the firm.	Staff engaging on CC with employees and associates	3	Training	1	information relevant to employment (not simply resource efficiency)
			Incentives	1	staff are offered benefits linked to climate change
			Community Activities	1	staff are encouraged and supported to engage in outside projects on CC
	Business Partners engaging on CC along the supply chain	4	Distributors: CC Impacts	1	information and actions on CC impacts in co-operation with distributors
			Distributors: GHG Reduction	1	information and actions on GHG reduction in co-operation with distributors
			Suppliers†: CC Impacts	1	information and actions on CC impacts in co-operation with suppliers
			Suppliers†: GHG Reduction	1	information and actions on GHG reduction in co-operation with suppliers
	Clients purchasers of goods and services from the firm	2	CC Impacts	1	information on CC impacts/disaster risk reduction for clients
			GHG Reduction	1	information on GHG reduction for clients
	Public Policy a significant (steering) position in multistakeholder initiatives germane to CC	3	Disaster Reduction	1	initiatives to manage weather disaster risks
			Energy Conservation	1	initiatives to reduce energy use
			CC Specifically	1	initiatives explicitly adressed at CC
	Reporting quality of reply to NAIC survey	2	Meaningful	1	significant response on two of the 4 domains
			Comprehensive	1	significant response on third and/or fourth domains
Total Possible Score		50			

* (Usually one of A, B or C): If both (A) and (B) are covered in one report, score half marks for (A) and half marks for (B), to maintain the total score at 15 for operations. Similarly for (B) and (C).

† Suppliers includes external asset managers used for investment



Insurer Respondents to Climate Survey

List of Companies	
1	AAA LIFE INSURANCE COMPANY
2	ACCIDENT FUND INSURANCE COMPANY OF AMERICA
3	ACE GROUP
4	ACUITY A MUT INS CO
5	AETNA LIFE INSURANCE COMPANY
6	ALFA MUTUAL
7	ALLIANZ GROUP
8	ALLSTATE GROUP
9	AMERICAN AGRI-BUSINESS INSURANCE COMPANY
10	AMERICAN FAMILY LIFE ASSURANCE CO. (CA)
11	AMERICAN FAMILY LIFE ASSURANCE CO. (WA)
12	AMERICAN FAMILY LIFE ASSURANCE CO. OF NY
13	AMERICAN FAMILY MUT INS CO
14	AMERICAN FIDELITY
15	"AMERICAN INTERNATIONAL GROUP, INC."
16	AMERICAN NATIONAL INSURANCE COMPANY
17	AMERICAN NATIONAL PROPERTY AND CASUALTY CO
18	AMERICAN UNITED LIFE INSURANCE COMPANY
19	AMERICO FINANCIAL LIFE AND ANNUITY INSURANCE CO
20	AMERITAS LIFE INSURANCE CORP.
21	AMICA MUTUAL GROUP
22	ANNUITY INVESTORS LIFE INSURANCE COMPANY
23	ANTHEM BLUE CROSS LIFE AND HEALTH INSURANCE CO
24	ARCH INSURANCE GROUP
25	ASSURANT GROUP
26	ASSURED GUARANTY
27	ATHENE ANNUITY & LIFE ASSURANCE CO
28	AUTO OWNERS INS CO
29	AUTOMOBILE CLUB INSURANCE ASSOCIATION
30	AVIVA LIFE AND ANNUITY COMPANY
31	AXA GROUP
32	AXIS INSURANCE COMPANY
33	BALBOA GROUP
34	BANNER LIFE INSURANCE COMPANY
35	BERKSHIRE HATHAWAY GROUP
36	BLUE SHIELD OF CALIFORNIA LIFE & HEALTH INS CO
37	CALIFORNIA STATE AUTO GROUP
38	CAMBIA GROUP
39	CENTRAL MUTUAL INSURANCE COMPANY
40	CHUBB GROUP OF INSURANCE COMPANIES
41	CIGNA GROUP
42	CINCINNATI INSURANCE COMPANY (THE)
43	CNA GROUP
44	CNO INSURANCE COMPANIES
45	COMMERCE INS CO
46	COMPANION LIFE INSURANCE COMPANY
47	COMPANION PROPERTY AND CASUALTY INSURANCE CO
48	CONTINENTAL WESTERN INSURANCE COMPANY
49	COUNTRY MUTUAL GROUP
50	COUNTRY PREFERRED INSURANCE COMPANY
51	CUNA MUTUAL GROUP
52	DELTA DENTAL INSURANCE COMPANY
53	DOCTORS' COMPANY, (THE)
54	ELECTRIC INSURANCE COMPANY
55	EMBLEM HEALTH INC
56	EMPLOYERS MUTUAL CASUALTY COMPANY
57	EQUITRUST LIFE INSURANCE COMPANY
58	ERIE INSURANCE GROUP
59	EVEREST NATIONAL INSURANCE COMPANY
60	EXCELLUS
61	FARM BUREAU LIFE INS CO
62	FARM BUREAU PROP & CAS INS CO
63	FARM FAMILY CASUALTY INSURANCE COMPANY
64	FARMERS GROUP
65	FEDERATED MUTUAL GROUP
66	FIDELITY INVESTMENTS LIFE
67	FIDELITY NATIONAL INDEMNITY
68	FIDELITY NATIONAL TITLE
69	FIRST AMERICAN TITLE INSURANCE COMPANY
70	FIRST HEALTH
71	FM GLOBAL GROUP
72	FRANKENMUTH MUT INS CO
73	GENWORTH GROUP
74	GMAC INSURANCE
75	GREAT AMERICAN INSURANCE COMPANY
76	GROUP HEALTH GROUP
77	HANOVER GROUP
78	HARLEYSVILLE MUTUAL INSURANCE
79	HARTFORD INSURANCE GROUP
80	HCC LIFE INSURANCE COMPANY
81	HEALTH NET LIFE INSURANCE COMPANY
82	HM LIFE INSURANCE COMPANY
83	HOMESTEADERS LIFE COMPANY
84	HORACE MANN LIFE INSURANCE COMPANY
85	HUDSON INSURANCE COMPANY
86	IDS PROPERTY CASUALTY INSURANCE COMPANY

List of Companies			
87	INFINITY INSURANCE COMPANY	136	PYRAMID LIFE INSURANCE COMPANY (THE)
88	ING AMERICA INSURANCE HOLDINGS INC	137	Q-CARE INSURANCE COMPANY
89	INTERINSURANCE EXCHANGE OF THE AUTOMOBILE CLUB	138	QBE GROUP
90	JACKSON NATIONAL LIFE INSURANCE COMPANY	139	RADIAN GUARANTY INC.
91	JEFFERSON NATIONAL LIFE	140	RIVERSOURCE LIFE INSURANCE CO. OF NEW YORK
92	JOHN DEERE INSURANCE COMPANY	141	RLI GROUP
93	JOHN HANCOCK GROUP	142	RSUI INDEMNITY COMPANY
94	KAISER FOUNDATION HLTH PLAN OF THE NW	143	RURAL COMMUNITY INSURANCE COMPANY
95	KEMPER INDEPENDENCE INSURANCE COMPANY	144	SAFETY NATIONAL CASUALTY CORPORATION
96	LIBERTY MUTUAL GROUP	145	SECURITY BENEFIT LIFE INSURANCE COMPANY
97	LINCOLN FINANCIAL GROUP	146	SECURITY MUT LIFE INS CO OF NY
98	LINCOLN HERITAGE LIFE INSURANCE COMPANY	147	SELECTIVE INSURANCE GROUP, INC.
99	MARKEL INSURANCE COMPANY	148	SENTRY GROUP
100	MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY	149	STARR IND & LIAB CO
101	MEDICAL PROTECTIVE COMPANY (THE)	150	STATE AUTO GROUP
102	MERCURY CASUALTY COMPANY	151	STATE COMPENSATION INSURANCE FUND
103	MET LIFE GROUP	152	STATE FARM GROUP
104	MINNESOTA LIFE INSURANCE COMPANY	153	STATE LIFE INSURANCE COMPANY (THE)
105	MORTGAGE GUARANTY INSURANCE CORPORATION	154	STATE NATIONAL INSURANCE COMPANY, INC.
106	MUNICH RE	155	SUN LIFE GROUP
107	MUTUAL OF AMERICA LIFE INSURANCE COMPANY	156	SWISS RE GROUP
108	MUTUAL OF ENUMCLAW INS CO	157	SYMETRA FINANCIAL
109	MUTUAL OF OMAHA INSURANCE COMPANY	158	THE GUARDIAN
110	MVP HEALTH CARE	159	THE PENN MUTUAL LIFE GROUP
111	NATIONAL INTEGRITY LIFE INSURANCE COMPANY	160	THE PHOENIX LIFE INSURANCE COMPANY
112	NATIONAL INTERSTATE INSURANCE COMPANY	161	THE PRUDENTIAL GROUP
113	NATIONAL LIFE GROUP	162	THE STANDARD
114	NATIONAL WESTERN LIFE INSURANCE COMPANY	163	THE TIAA FAMILY OF COMPANIES
115	NATIONWIDE MUTUAL INSURANCE COMPANY	164	TOKIO MARINE BRANCH
116	NAVIGATORS INSURANCE COMPANY	165	TORCHMARK GROUP
117	NEW JERSEY MANUFACTURERS INS CO	166	TOWER INSURANCE CO
118	NEW YORK LIFE	167	TRAVELERS GROUP
119	NGM INS CO	168	U.S. SPECIALTY INSURANCE COMPANY
120	NORTHWESTERN MUTUAL GROUP	169	UNION CENTRAL LIFE INSURANCE COMPANY (THE)
121	NYCM INSURANCE GROUP	170	UNITED FIRE GROUP
122	OCCIDENTAL FIRE & CASUALTY CO OF NTH CAROLINA	171	UNITED HEALTH GROUP, INC.
123	OLD REPUBLIC GROUP	172	UNITED STATES FIRE INSURANCE COMPANY
124	ONEBEACON AMER INS CO	173	UNITRIN AUTO AND HOME INSURANCE COMPANY
125	PACIFIC LIFE GROUP	174	UNUM HEALTH GROUP
126	PACIFICSOURCE HLTH PLANS	175	USAA GROUP
127	PENNSYLVANIA LIFE INSURANCE COMPANY	176	VERMONT MUTUAL INSURANCE GROUP
128	PHILADELPHIA CONSOLIDATED HOLDING	177	VISION SERV PLAN INS CO
129	PHYSICIANS RECIP INSURERS	178	WASHINGTON DENTAL SERV
130	PREMERA BLUE CROSS	179	WESTERN AND SOUTHERN GROUP
131	PRIMERICA LIFE INSURANCE COMPANY	180	WESTERN UNITED INSURANCE COMPANY
132	PRINCIPAL LIFE INSURANCE COMPANY	181	WILLIAM PENN LIFE INSURANCE CO OF NEW YORK
133	PROGRESSIVE INSURANCE GROUP	182	XL GROUP
134	PROTECTIVE LIFE	183	ZENITH INSURANCE COMPANY
135	PROVIDENCE HLTH PLAN	184	ZURICH US POOL



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