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CLIMATE CHANGE: AGGRAVATED RISKS AND NECESSITY TO ADJUST

REVIEW ARTICLE

Abstract

This paper will examine the relationship between the effects of climate change and the need to develop different aspects of insurance. Series of measures that various insurers and experts have taken in an effort to adjust their businesses to new circumstances evidence that insurance industry has already become interested and active in addressing climate change issues. Given that this is a global challenge, the author highlights the necessity for the broadest possible circle of financial and other actors to recognise the risk of growing unpredictability as one of the rare patterns to be reckoned with in the context of changing climate. The paper indicates that international actors, governments, and business entities will need to work together to create a framework that will be more poised for different climate circumstances, and additionally encourage and stimulate individuals to give their appropriate contribution and protect themselves, their property and environment from the consequences of this global phenomenon.

Key words: *climate change, climate migrations, global warming, environmental protection, predict losses instruments, the CREWS initiative, environmentally sustainable business*

Introduction

As one of the biggest global challenges of the 21st century, climate change imposes the need for adjustments in almost all areas of business, including insurance.

The relationship between the phenomenon of climate change and insurance can be seen as a form of a feedback loop: the volume of damages associated with climate change is increasing, which entails the need for more extensive insurance coverage. On the one hand, insurance is based on risk management and control, whereas on the other, the risks are higher and more

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unpredictable than they used to be, and therefore the forecasting instruments and models need to be adapted to the circumstances of changing climate. Identification and adjustment to differently manifested climate is a broader thematic area of this paper. In particular, the text will look at how climate change is currently affecting the development of insurance industry in the context of more extreme catastrophic risks.

Prudential Regulation Authority of the Bank of England (Central Bank of the United Kingdom) has identified three key areas of high risk for the insurance industry that should be taken into account when considering climate challenges: aggravated risk in terms of its physical impact on people and property, fossil fuel investments of insurance companies (with the need to limit this aspect), and changes in legislation in terms of imposing stricter treatment of insurers who carry out their businesses outside the rules set for the environmental protection and climate changes.² The aforementioned shows that some of the most renowned financial institutions have long started to address the climate change issues, indicating that it is necessary to adjust the existing measures and apply different ones to limit the devastating consequences for lives and property of individuals and businesses.

Nevertheless, the problem lies in the scope: the challenge of climate change has not been universally recognized as one of priority risks in insurance industry. This is a risk which requires top-down approach where even the major international actors such as states, international organisations and multinational corporations have not set a system that would sanction ventures and activities void of climate change awareness, although there have been some indications to that extent. For example, in the Kyoto Protocol (1997) one of the most important international document was aligned with the aim to reduce atmospheric pollution and, among others, enable within the mechanism of „emissions trading“ the most developed industrial countries to buy excess (unused) emission units from others; still, that mechanism has not resulted in necessary and crucial changes toward the reduction of greenhouse gas emissions.³ Unfortunately, these insufficient achievements do not seem to have found a more efficient limitation model than that of the mentioned „swap“ which, according to similar but somewhat stricter concept is applied on the territory of the European Union (EU emissions trading system). Nevertheless, the general model of „emission swaps“ is neither stimulating nor binding enough to influence more fundamental reshaping of worldwide government systems with the highest percent of industrial and other emissions. In such a context, it is difficult to seriously discuss the curbing and reversing negative impacts of climate change.

² Nick Oldridge, „Insurance and climate change“, *The Ecologist*, 2019, <https://theecologist.org/2019/jan/11/insurance-and-climate-change>, accessed on : 05-09-2019.

³ United Nations Climate Change, *Kyoto Protocol – Targets for the first commitment period*, UNFCCC, <https://unfccc.int/process-and-meetings/the-kyoto-protocol/what-is-the-kyoto-protocol/kyoto-protocol-targets-for-the-first-commitment-period>, accessed on: 16-12-2019.

Previous Instruments and Patterns Need to Undergo „Climate Adjustments“

More or less, it is a common knowledge that global warming changes the course and impacts the scope of devastating climate events. This is supported by the statement of Torsten Jeworrek, one of the executives of a renowned reinsurance company Munich Re. Namely, he said that the subject of discussion is no longer whether climate change is happening but how to act on such change in a sustainable manner.⁴ In light of experience with recent risks (such as wildfires in Canada which, due to its colder climate, has not been exposed to such hazards so far), insurers face problems when projecting (future) costs on earlier patterns.⁵ Namely, many insurers, which have been present on certain markets for many decades or even longer than a century, rely (heavily) on previous reports and maybe even on outdated data on a given area. On the one hand, relying on earlier data is one of the necessary factors in financial planning. Observing the regularity and characteristics of particular areas allows the identification of local or regional specificities and incorporation of the specific requirements of that part of the market into appropriate insurance policies. This ensures flexibility or a (re)design of the insurance service in accordance with customer needs. All these activities are carried out in an effort to obtain the appropriate profile of the insured, and preserve and even improve the customer trust as long as possible.

However, overreliance on earlier data, reports and models (including those regionally oriented and context-sensitive, and thus successful in forecasting) carries the risk that the challenges largely associated with intensified climate change will not be sufficiently addressed.

In other words, disasters and damage that occur as a result of climate change should not be interpreted as isolated events, but rather as the announcement of a more extreme and devastating phase in the planet's climate history. Although changes affect different regions unevenly and in different ways, it is important to bear in mind that these changes are global, whereas the degree of their unpredictability has been shifted upwards in all areas. In this regard, it is important to have a more comprehensive view of these developments: given that it is a global phenomenon, the fact that sudden devastating consequences of today are happening in one place (even where there were none) should be taken into consideration even where these consequences have still not been felt (or have not been felt to that extent) as well as where they fall within the traditional scope of risk (unfortunately, this does not preclude additional complications in these areas in terms of intensification of old or emergence of new risks).

⁴ Bradley Hope, Nicole Friedman, „Climate Change is Forcing the Insurance Industry to Recalculate“, *The Wall Street Journal*, 2 October 2018, <https://www.wsj.com/graphics/climate-change-forcing-insurance-industry-recalculate/>, accessed on: 10-12-2019.

⁵ Ibid.

When it comes to extreme weather and phenomena that can be linked to global warming, the most devastating effects are caused by ever stronger hurricanes along the east coast of the United States of America.⁶

In addition to the devastating loss of thousands of human lives and disastrous damage to the property of US citizens and the economy, a need to take extensive preventative measures to limit further losses that go beyond the projection of 150 billion Dollars will be an additional challenge.⁷ The demand and prices of real property in the US mainland are already going up, as coastal regions are increasingly exposed to hurricanes and other calamities. In the future, changes may lead to more serious migrations within the United States, where regions such as Southeast could see population decline in favour of the Northeast and West that are less affected by climate issues.⁸ Naturally, the mentioned examples are not limited to the North American continent, but illustrate possible developments in other parts of the world. Thus, for example, an increasingly intense process of devastation and drainage of soil in African countries is expanding desert land at the expense of other land. This diminishes the opportunities for more sustainable survival in these areas, forcing the population to move towards areas less exposed to extreme climate conditions. Migrations through the Mediterranean that the European continent has seen in the past decade are not only the result of socio-political and economic problems, but also of increasingly harsh climates and poor soil, combined with the population growth. Climate migrations, which are expanding across the globe, have become a widely studied phenomenon. Unfortunately, the countries that are a part of a so-called “Global South” (such as those in Africa, South Asia or South America), which include some of the poorest countries and societies in the world, are particularly vulnerable to climate change and less resilient to its adverse effects. This also widens the gap between these countries and more developed countries in the Northern Hemisphere.⁹

Toward Recognising Changed Reality

The risks associated with climate change are increasingly becoming the subject of interest and activities of insurance practitioners. In the 12th Annual Survey of Emerging Risks of Canadian actuarial associations and institutions, based on analysis performed by several hundreds of actuaries from different countries,

⁶ Boris Marović, Vladimir Njegomir, Tamara Bikicki, *Agricultural Insurance under the Solvency II and Climate Change*, Proceedings for the 28th Meeting of Insurance and Reinsurance Companies Sarajevo, SorS, Sarajevo, 2017, pp. 35. Available in electronic form: <http://www.sors.ba/UserFiles/file/SorS/SORS%202017/RADOVI/Zbornik%20SorS%202017-Marovic-Njegomir.pdf>, accessed on: 11- 12- 2019.

⁷ *Ibid*, pp. 35–36.

⁸ Brad Plumer, Nadja Popovich, As Climate Changes, Southern States Will Suffer More Than Others, *The New York Times*, New York, June 29 2017, <https://www.nytimes.com/interactive/2017/06/29/climate/southern-states-worse-climate-effects.html>, accessed on: 11- 12- 2019.

⁹ United Nations, *About the UN Climate Partnerships for the Global South*, UN, <https://www.un.org/sustainabledevelopment/scpi/background/>, accessed on: 14-01- 2020.

the risk of climate change is described as „top current risk“ for the year 2019.¹⁰ In last year’s survey, climate change ranked second, just behind the risks in the area of infrastructure (including IT) interconnections, while in the years before, climate risk was not among the top five, as voted by actuarial experts involved in the project.¹¹ Concerning the results for 2019, in addition to seeing climate change as a top current risk, most participants considered it a top emerging risk as well as a leader in “top emerging risks combination” (where participants could include three different risks). The fact that among challenges such as demographic change, economic disruptions, terrorism etc. the actuaries dealing with calculations and risk projections placed climate change at the top of their list of current priorities shows that this challenge has outgrown its long-established environmental matrix and moved into the field of interest of other industries, including insurance.

In insurance business, climate change poses enhanced challenges for all participants; starting with the availability of services at affordable prices to slowing down market development and the risk of costs spilling over to the government bodies and individuals.¹² As early as in the second decade of the 21st century, certain authors referred to the forecasts of the specialised agencies of the United Nations for 2006 and warned that if emissions were not reduced by the middle of that decade, the line separating from inadequate determination of insurance premiums could be already crossed, whereas by 2025, certain markets, such as particular coastal parts of the United States, would be impossible to cover by insurance.¹³ This is, among other things, a consequence of the weather extremes that, in recent decades, have become more visible in different parts of the world, which makes it difficult to predict losses and provide an appropriate and more comprehensive insurance offer.

Increasingly frequent and devastating weather and climate events such as hurricanes, heavy rainfall, droughts, fires and other disasters and phenomena (rising sea and ocean levels) also increase the risk of physical consequences and higher claims. A reinsurance company, Munich Re, estimates that the years 2017 and 2018 were the most challenging two-year period in terms of catastrophe claims, with 225 billion dollars of insured losses.¹⁴ Yet, there is still room for expanding insurance; the same reinsurance company indicates that in 2016, less than one-third of natural and catastrophic losses were covered by insurance.¹⁵ Although data on natural catastrophes and associated disasters for 2019 are still

¹⁰ Max J. Rudolph, FSA, CFA, CERA, MAAA, Rudolph Financial Consulting, LLC, *12th Annual Survey of Emerging Risks – Key Findings*, Casualty Actuarial Society, Canadian Institute of Actuaries, Society of Actuaries, March 2019, pp. 5–6.

¹¹ Ibid.

¹² Vladimir Njegomir, Dragan Marković, *Klimatske promene i njihov uticaj na osiguranje i reosiguranje*, School of Business, Novi Sad School of Business, Novi Sad, 2011, pp. 111–112.

¹³ Ibid.

¹⁴ Patrick Jenkins, „Why climate change is the new 9/11 for insurance companies“, *Financial Times*, 2019, <https://www.ft.com/content/63c80228-cfee-11e9-99a4-b5ded7a7fe3f>, accessed on: 18-09-2019.

¹⁵ Ibid, footnote no. 2.

incomplete, unfortunately, worrying trends continue in 2019: rainforest wildfires in Brazil increased by as much as 83% compared to last year, while in September 2019, Hurricane Dorian, one of the most severe and devastating Caribbean hurricanes ever recorded, caused severe damage in the Bahamas.¹⁶ In any case, the magnitude of the unfavourable effects of climate change is reaching a level where it is necessary to globally identify this adverse situation in a more decisive and systematic manner, and establish the measures that would slow down or reduce the adverse effects. Given the complexity of this phenomenon and its multidimensionality, it is necessary to identify and coordinate measures in many areas and all parts of the social and economic system. Since this challenge is global and fundamentally unpredictable, it is all the more important to widely spread the awareness of climate risk.

A step in the right direction is the fact that by 2019, 195 countries around the world signed the Paris Agreement under the United Nations Convention on Climate Change. The said Agreement adopted measures to limit the emission of greenhouse gases, and make adjustments, i.e. to adapt to climate change, and include the financial aspect related to the implementation of these measures. In addition to setting up the Green Climate Fund and allocation of significant funding from a number of countries, the Group of 7 most developed countries (USA, Canada, Japan, Germany, France, UK and Italy) launched the CREWS (Climate Risk and Early Warning Systems - climate risk insurance and early warning) and announced the investment of \$420 million in promoting climate protection (Climate Risk Insurance or InsuResilience) which, with this type of insurance, seeks to enhance the outreach of beneficiaries from developing countries.¹⁷ This is highly important in view of the fact that climate-related disasters are largely affecting underdeveloped parts of the world that find it harder to cope with the damages due to limited financial, organizational, and other capacities.

Building Climate Awareness by Stricter Rules

Increasingly devastating and unpredictable disasters and climate phenomena complicate financial projections of damages in the insurance business. Although in their projections of claims insurers rely on previous years' information and models, and on the previously recorded data, increasing weather and climate volatility makes the planning process less reliable and therefore additionally risky. However, given that climate change is more or less recorded worldwide,

¹⁶ Reuters, *Dorian's death toll in Bahamas rises to 50: official*, Reuters, 2019, <https://www.reuters.com/article/us-storm-dorian/dorians-death-toll-in-bahamas-rises-to-50-official-idUSKCN1VV2A1>, accessed on: 20-09-2019.

Also: Reuters, *Amazon wildfire: Brazil records 83% increase in forest fires*, Hindu Business Line, 2019, <https://www.thehindubusinessline.com/news/variety/amazon-wildfire-brazil-records-83-increase-in-forest-fires/article29212717.ece>, accessed on: 15-09-2019.

¹⁷ Department of Foreign Affairs and Trade of the Government of the Commonwealth of Australia, *Roadmap to US\$100 Billion*, 2017, pp. 15–16.

the need for insurance protection in this regard is expected to grow. A growing number of insurance companies take into account this fact when planning their business activities. The pressure on insurance providers to include climate factors in their business is rising, although some of them have already started to consider these factors in order to improve their offer and be the first to attract potential policyholders. Not only does this reflect insurers' need to ensure their solvency as much as they can, but is also a consequence of stricter framework rules and climate principles that these companies are expected to observe in their operations.

On the one hand, regulations in the fields of ecology and environmental protection are continuously improving and expanding their scope; while on the other, green organizations are calling upon insurers to make their businesses more environmentally sustainable. Thus, in the United Kingdom, the Client Earth is taking legal actions against insurance companies and other financial organizations that, in their operations, do not sufficiently take into account climate factors, while the institutions of the city of Paris (the place where the most serious global climate change initiative has been launched) are trying to completely discourage insurers from investing in the fossil fuel industry.¹⁸ Currently, there are 900 climate related lawsuits filed in 24 countries.¹⁹

Insurers have always had a close relationship with the fossil fuel industry. They provided coverage for facilities and persons, and invested in the development of this industry. Tightening regulations and discouraging global use of fossil fuels is one of the attempts to counteract the negative effects of climate change. On the other hand, the attempts to curb the growth of fossil fuel use for the benefit of green energy sources could soon have an impact on the profits of insurers investing in traditional energy sources. In the coming years, insurance companies and other companies that continue to invest in the coal, fuel, and the like industries could face the diminishing cost-effectiveness of such activities. However, it is more to the picture than meets the eye: many countries tie the growth of their economies to the exploitation and export of fossil energy sources, which is why they do not find it easy to refocus on greener sources of supply or income in the short term, especially in countries that, despite their large natural resources, do not belong to the developed economies and do not have diversified sources of income

In view of the above, France, as a member of the G7 and one of the most economically developed countries with a diversified economy, may not find it impossible to, as announced, stop using coal to produce electricity by 2022, or ban all petrol or diesel vehicles by 2040, but majority of the countries across the globe may find this goal unreachable.²⁰ For example, even some European countries, such as those from the east of the continent (e.g. Poland) cannot give

¹⁸ Nick Oldridge, „Insurance and climate change“, *The Ecologist*, 2019, <https://theecologist.org/2019/jan/11/insurance-and-climate-change>, accessed on: 05-09-2019.

¹⁹ Ibid.

²⁰ Chloe Farand, „France will 'ban all petrol and diesel vehicles by 2040'“, *Independent*, London, 2017, <https://www.independent.co.uk/environment/france-petrol-diesel-ban-vehicles-cars-2040-a7826831.html>, accessed on: 20-09-2019.

up their current model of supply and economy growth so easily. Namely, Poland has large quantities of coal and uses it for energy purposes, whereas its economy is considerably tied to fossil fuels.

Similarly, it is not easy for the insurers whose large part of income is generated from investments in fossil fuels to quickly and painlessly reorientate to other industries, especially if this one is among predominant additional sources of profit. However, the presence of insurers in the fossil fuel industry is significant, and in light of the global climate change campaign, their companies are not likely to be relieved from pressure to reduce investments in that sector. Quite the opposite, given the estimates that insurers can significantly reduce fossil fuel production and use (owing to their financial influence in the industry), they are expected to be subjected to a stronger institutional and social conditioning to invest in greener energy sources.²¹ In other words, the pressure on insurers, other companies, and other actors to shift their focus from the fossil fuel industry will increase. This is especially true for coal, which is considered the largest atmospheric pollutant and the most represented energy source in terms of carbon dioxide emissions.²²

In addition to coal, fuel combustion from vehicles is a dominant source of carbon dioxide emissions, and given the increasing environmental awareness at the global level, this will impact further development of the automotive and transportation industries. This pattern may also affect the investors in traditional automotive and transportation industry and their insurers. Individual insurers are also focusing their business on environmentally aware companies and individuals.²³ Thus, one British insurance company assumed the name of “environmental insurer” and for the individuals and legal entities who are interested in green policies and wish to support awareness-raising on the need to curb the consequences of climate change, started to carry out the activities of environmental counselling, education, and assistance. Their services also include special benefits such as green home insurance, insurance of organic produce, healthy food, etc., thus seeking to attract policyholders who take environmental protection seriously.

Closing Remarks

At the end of the second decade of the 21st century, insurance companies are acting on climate change and facing significant modifications. Namely, the frequency and magnitude of catastrophic and other weather- and climate-related damages pose a significant challenge for insurers, who are not able to

²¹ Nick Oldridge, „Insurance and climate change“, *The Ecologist*, 2019, <https://theecologist.org/2019/jan/11/insurance-and-climate-change>, accessed on: 05-09-2019.

²² United States Environmental Protection Agency, *Sources of Greenhouse Gas Emissions*, EPA, 2019, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>, accessed on: 18-09-2019.

²³ NatureSave Insurance, *About NatureSave*, NSI, London, 2019, <https://www.naturesave.co.uk/>, accessed on: 18-09-2019.

plan their financial operations as reliably as before. In addition, insurers are also under pressure from institutions and communities to support divestment of fossil fuels (which are one of the main causes of climate change), and to adopt a more environmentally friendly business model. This also requires adjustments in financial planning and changed concept of business and investments. Such changes inevitably involve additional costs. In a particular number of countries, legal actions are already taken against insurers who, in their operations, have not sufficiently taken into account climate factors. Not only does this negatively affect the expenditures of these companies, but also damages their reputation among an increasingly environmentally aware public.

With all this in mind, and as regulations in this field become stricter, Western European and other insurers face challenging tasks in terms of incorporating a range of climate factors into their financial planning. However, this also creates a possibility to attract more environmentally conscious policyholders, and launch and develop new insurance services. In this regard, companies that are keeping pace with the demands imposed by climate change have the opportunity to reach out to an increasing number of policyholders who support the development of green policies. In view of the fact that curbing climate change is a must, eco-conscious business will increasingly equate to socially responsible business and will become an additional aspect of the identity of financial companies placed in the focus of not only international and national standards, but also an increasing number of climate-conscious policyholders.

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