EFFECT OF CLIMATE CHANGE ON PROPERTY AND LIABILITY INSURANCE

Obinna Chilekezi (PhD)
Department of Entrepreneurship
Joseph Ayo Babalola University, keji Arakeji, Osun State Email: obinnachilekezi1@gmail.com

ABSTRACT
The life-threatening changes in the climate have led to serious global problems which is associated with higher temperatures currently experienced across the globe. The insurance industry globally is affected by the effects from climate changes as they provide compensations for losses associated with this. This study examined the effect of climate change on property and liability insurance. The descriptive survey research design was adopted for this study and the sampling technique adopted for the study was purposive sampling. A total of 150 copies of questionnaires were administered to respondents in the selected companies but 107 were received as completed. These received completed questionnaires were used for the data analysis. The results revealed that climate change has significant impact on the insurance of property and liabilities in the Nigerian insurance industry.

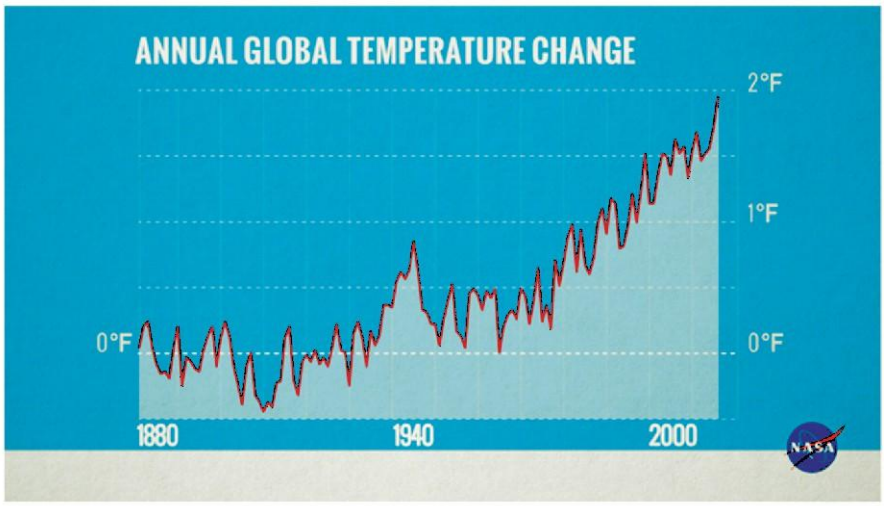
Keywords: *Climate change, Insurance industry, Liability, Property*

INTRODUCTION

The life-threatening changes in the climate have led to serious global problems, which is associated with higher temperatures currently experienced across the globe (Rihah, 2015, Rayhan, Kinzler, and Rayhan, 2023). The United Nations (2024) accused human beings of being responsible for the problems associated with global warming. It further argued that climate scientists have proved that humans are responsible for virtually all global heating in the last 200 years. The UN maintained that human activities like the ones already mentioned are causing the emission of greenhouse gases that are warming the world faster than at any time in at least the last two thousand years. As a result of this, the average temperature of the earth's surface is now about 1.2°C warmer than it was in the late 1800s (before the industrial revolution), and warmer than at any time in the last 100,000 years. The last decade (2011-2020) was the warmest on record, and each of the last four decades has been warmer than any previous decade since 1850 (Rayhan, Kinzler and Rayhan, 2023).

Many people think that climate change refers solely to warmer temperatures, yetthe rising temperature levels is only the beginning of the story. Because the Earth is a system, where everything is interconnected, a change in one area can have a rippling effect on other areas as well. There is a diversification of the effects of climate change in the current era, and this include, among others, intense droughts, water scarcity, severe fire outbreaks, rising sea levels, flooding, melting polar ice, catastrophic storms and declining biodiversity.

Figure 1: Changes in global temperature over the years



Graph of change in annual global temperatures, compared to the average of global annual temperatures from 1880-1899. Credit: NASA's Goddard Space Flight Center

According to North America Space Agency NASA (2024), some parts of earth are warming faster than others. But on average, global air temperatures near the earth's surface have gone up by about two degrees Fahrenheit in the past 100 years. In fact, the past five years have been the warmest five years in centuries. Many people, including scientists are concerned about this warming. As the earth's climate continues to warm, the intensity and amount of rainfall during storms such as hurricanes is expected to increase. Droughts and heat waves are also expected to become more intense as the climate continues to warm up. When the whole of the earth's temperature changes by one or two degrees; such a change can have big impacts on the health of plants, animals and other living organisms. These atmospheric conditions impact on claims made in property or liability insurance, which could be linked to the impact of climate change and the resulting increased hotness of the earth to either cause fire losses or increase the impact of fire losses whenever it occurs.

On the other hand, property insurance according to Twin (2024) is a broad term for a series of policies that provide either property protection or liability coverage for property owners. Twin maintained that property insurance provides financial reimbursement to the owner or renter of a structure and its contents in case of damage or theft—and to a person other than the owner or renter if that person is injured on the property. Thus, property insurance can include a number of policies such as homeowners insurance, renters insurance, flood insurance, and earthquake insurance. Personal property is usually covered by a homeowner's or renter's policy. The exception is personal property that is expensive and of high value, and is usually covered by purchasing an additional policy called a "rider." If there's a claim, the property insurance policy will either reimburse the policyholder for the actual value of the damage or the replacement cost to fix the problem.

The International Risk Management Institute (2024) defined property insurance is first-party insurance that indemnifies the owner or user of property for its loss, or the loss of its income-producing ability, when the loss or damage is caused by a covered peril, such as fire or explosion. The Institute added that in this sense, property insurance encompasses inland marine, boiler and machinery, and crime insurance, as well as what was once known as fire insurance, now simply called property insurance: insurance on buildings and their contents.

Liability insurance consists of various policy types such as auto insurance, homeowners/condo/renters insurance, burglary and theft insurance, workers' compensation, commercial general liability insurance, public liability, pollution liability, and contaminated product insurance (Chartered Insurance Institute, 2021). In this way, the legal liability of a person - real or corporate, and therefore the application of coverage exist when negligence has been demonstrated by the policyholder. The insurance group further revealed that these third-party losses are covered under a liability plan, whether the loss involves personal injury or damage to property.

It is important to note that liability insurance, also known as casualty insurance is a broad type of coverage that protect individuals and businesses against legal liabilities resulting from accidents, injuries or property damages. It encompasses a variety of coverage types, including liability, theft, workers' compensation, and aviation, auto, and cyber risk insurance among others. One specific type of casualty insurance is homeowner's insurance, which provides coverage for damages to the home or for injuries that occurred on the property. Hdfcergo (2024) maintained that businesses can secure property and casualty insurance to cover physical assets like buildings, equipment, and inventory, as well as potential legal liabilities. This means that the terms and extent of coverage can vary greatly from one policy to another.

The risks that were traditional protected through property and casualty insurance are also presently being threatening by those associated with climate changes. This explains why there is a need to examine the impact of this new phenomenon on property and casualty insurance.The problem of climate change, especially from the perspective of global warming has impacted negatively on property and casualty insurance in most countries of the world. It has led to increase in claim costs in these classes of insurance. Furthermore, it has led to an increase in new risks, which has demand covers in some countries of the world. The objective of this study therefore is to examine the impact of climate change on property and liability insurance.

LITERATURE REVIEW

The problem of climate change has been with mankind as one of the social problems he faces from time immemorial hence the climate has never remained the same as students of geography can testify. Hence the term Climate Change. Climate change, according to Dietz, Shwom, & Whitley (2022)is one of the greatest ecological and social challenges of the twenty- first century. Sociologists, according to Dietz et al (2022) have made important

contributions to our knowledge of the human drivers of contemporary climate change, including better understanding of the effects of social structure and political economy on national greenhouse gas emissions, the interplay of power and politics in the corporate sector and in policy systems, and the factors that influence individual actions by citizens and consumers. Dietz et al (2022) argued that sociology is also poised to make important contributions to the study of climate justice across multiple lines of stratification, including race, class, gender, indigenous identity, sexuality and queerness, and disability, and to articulate the effects of climate change on our relationship to non-human species. This tends to prove that the problem of climate change has always been a societal problem, which has had destructive impacts on humanity and their assets.

On the other hand, climate change has led to the destruction of property and other assets hence the need to device some forms of insurance covers for these assets. The essence of property insurance therefore, is to address the various risks that could lead to property damage as a result of climate change. Some of the classes of insurance that are regarded as property insurance include: money insurance, fire and special perils insurance, theft insurance, etc. (Rivelli, 2023). The properties involved could be damaged by climate change aside from the traditional ways known to humankind. Fire for instance could be escalated by forest fires, which is becoming a common occurrence in most countries of the worlds (Ransom, 2019). This may be the reason Kaplan Financial Education (2019) notes that property insurance includes many types of insurance designed to cover property losses—the risks that we will suffer financial losses because the things we own are damaged or destroyed from insured perils of which losses from climate change is inclusive.

This climate change could increase the legal liability of a person to his neighbours following losses caused by his negligent act. This brings us to the realm of liability insurance. The Centre for Climate Engagement (2023) revealed that climate change can affect policyholders' liabilities, and consequently insurers' exposure to liability risks. Just as climate change creates and amplifies physical risks relevant to insurers, new legal risks are emerging. Actions that policyholders take now might lead to them incurring liabilities many years in the future, but claims may still be made under current insurance policies. Analogies have been drawn with the impact of asbestos-related claims once the link between asbestos and health impacts became clear – insurers cannot wait until climate litigation become a large threat if they wish to shield themselves from climate-related losses.

Climate risk insurance, according to Väähänen (2019) is a risk transfer solution that aims to protect individuals, businesses and countries against the negative impacts of extreme weather conditions that are becoming more frequent and severe due to climate change. Väähänen (2019) further argued that the idea behind the concept of CRI is that climate change is resulting in frequent and severe natural disasters, and for most of them, there is some evidence that not only floods and droughts but also volcanic eruptions and earthquakes that are becoming increasingly frequent due to the effects of climate change. Climate risk insurance, therefore, is insurance against climate-induced disaster risks mainly drought, flood, typhoon and earthquake (debate also include volcanic eruptions as there is evidence that they are becoming increasingly climate-induced); integrates into inclusive insurance approaches more broadly, and some covers are found in the micro- insurance sphere (Sidiropolous, 2023). It is important to observe that sometimes, the term disaster risk insurance is used, or the terms “extreme- weather insurance“, “index-based insurance” or “parametric insurance” are being used for this type of cover where applicable.

However, Fellowes-Granda (2024) argued that the insurance industry may have limited capacity, and a pooled or government-backed compensation system is the only way to deal with the substantial costs of natural catastrophes. To cover the most extreme events, insurers rely on reinsurance, either through the private market or from the state. Generally, the reinsurer assumes responsibility for covering a portion of the risk, especially for rare but extreme event losses. This enables insurers to access greater capital in a cost-effective way, and assist in managing liquidity following a large claim event. In most countries, regulation sets out capital requirements and ensuring solvency for all but for the most unusual events (Fellowes-Granda, 2024).

RESEARCH METHODOLOGY

The simple descriptive survey research design was adopted for this study. This method assists in empirically investigating the impact of climate change on property and casualty insurance. The descriptive research design is good in looking at the variables from an abstract perspective such as this. The study is cross-sectional in nature since findings and conclusions are based on primary data obtained from insurance practitioners in Lagos State at this point in time. The purposive sampling technique was adopted. Thus, six insurance companies in Lagos State, Nigeria were selected as sample for the study. There are no special criteria for the choice of these companies except for the

convenience of the researcher. A total of 150 copies of questionnaires were administered to respondents in the selected companies.

For this study, primary data was collected from respondents from the companies selected as sample. Structured questionnaire was used for the study. The items in the questionnaire were developed by the Researcher based on the characteristics of the variables and extensive review of conceptual, theoretical, and empirical literatures from other studies. Questions in the questionnaire and interview guide were drawn in line with the study objectives.

RESULTS AND DISCUSSION

Table 1: Frequency Distribution of Responses on the Relationship between cost of Claims and Risk of climate change

Response	**Frequency**	**Percentage**
Strongly Agree	27	25.23
Agree	21	19.63
Neutral	15	14.02
Disagree	19	17.76
Strongly Disagree	25	23.36
	107	**100**

Source: Author's computation, 2024

PLACE MISSING TEXT AND TABLE HERE

The Chi square statistic was calculated as summation of square of observed minus expected values divided by expected value

Response	Observed	Expected	Observed Expected	General Expected
Strongly Agree	27	21.4	5.6	1.47
Agree	21	21.4	-0.4	0.01
Neutral	15	21.4	-6.4	1.91
Disagree	19	21.4	-2.4	0.27
Strongly Disagree	25	21.4	3.6	0.61
	107	**107**		**4.27**

To determine the significance, compare the calculated Chi-square value with the critical value from the Chi-square distribution table at the desired significance level (0.05) and 5-1=4 degrees of freedom which is 9.488

Since $4.27 < 9.488$, we fail to reject the null hypothesis. There is no significant relationship between the cost of claims in property insurance and the risk in climate change based on this data. The Chi-square test indicates that the observed differences in responses are not statistically significant. Therefore, we do not have enough evidence to conclude that there is a significant relationship between the cost of claims in property insurance and the risk in climate change based on the given data.

CONCLUSION AND RECOMMENDATIONS

Climate change is a global problem which is affecting the whole of mankind in a negative manner, and by extension it has increased the amount of losses experienced in both the property and liability risks insured by insurance companies, globally. Thus, climate change increases the risks of claims made to insurers as a result of increased reported losses from the insureds and policyholders. It also have the tendencies of changing the profiles of insured risks and potential insurable risks and thereby create news risks and/or increasing the risks' exposures already in existence. Using the data from the Nigerian insurance industry's experience, it is obvious that there is a significant relationship between climate change and increase in claims in property and liability in the insurance industry. Thus, climate change is impacting negatively on insurers of property and liability risks in the country. In other words, climate change are having negatively effects on the operations of the insurance industry in Nigeria. There is need therefore for the insurance companies in Nigeria to work together in finding a joint approach to tackle this problem.

In view of the above, the Nigerian insurance industry operators should invest in techniques that would enhance their risk assessment of risks especially those that have the potential of being affected by climate change. The operators should also engage in climate change risks mitigation processes through ensuring that proposed risks are properly assessed before covers could be granted and should as well collaborate with national efforts in addressing the impact of climate change in the country. This way the insurance industry will contributing in the fight against

the impact of climate change to mankind, which on the long run would impact positively on their claims payment profile.

REFERENCES

Centre for Climate Engagement (2023). *Insurance Law and Climate Change.* Cambridge: Centre for Climate Engagement, Hughes Hall

Chartered Insurance Institute (2021). *Liability Insurance Underwriting and Claims.* London: Chartered Insurance Institute

Fellowes-Grenda, L. (2024). 4 principles for addressing climate risks in the insurance industry. https://www.americanprogress.org/article/4- principles-for-addressing-climate-risks-in the-insurance-industry/h d f c e r g o (2 0 2 4) . W h a t i s c a s u a l t y i n s u r a n c e ? https://www.hdfcergo.com/blogs/home-insurance/casualty-insurance-definition-types-and-xamples

International Risk Management Institute (2024). Property insurance. https://www.irmi.com/term/insurance-definitions/property- insurance

Kaplan Financial Education (2019). An overview of property and casualty insurance. https://www.kaplanfinancial.com/resources/getting-started/an-overview-of-property-and-casualty-insurance

NASA92024). What is climate change? Climate Kids. https://www.climatekids.nasa.gov/climate-change-meaning

Ransom, D. (2019). *General Insurance Business.* London: Chartered Insurance Institute

Rayhan, A. Kinzler, R. & Rayhan, R. (2023). Climate change and global warning: Studying impacts, causes, mitigations and adaption. ResearchGate.

Rihah, U. S. (2015). Global warming: Causes, effects and solutions. *Durreesamin Journal*, 4(1), pp1-14

Rivelli, E. (2023). What is property insurance and how does it works? Forbes Advisor. https://www.forbes.com/advisor/homeowners-insurance-property-insurance/

Sidiropolous, M. (2023). Ten theories of climate change. Climate. https://www/researchgate.net/publication/375161345

Twin, A. (2024). Property Insurance: Definition and how coverage works. https:/www.investopedia.com/terms/p/property-insurance.asp

United Nation (2024)What is climate change?Climate Actions. https://www.un.org/en/climatechange/what-is-climate-change

Väähänen, E., Nett, K, Costella, C., Mendler de Suarez, J. (2019). Policy Brief: Linking Climate risk insurance with shock-responsive social protection. InsuResilience GlobalPartnership, Food and Agricultural Organisation (FAO) and United Nations (UN) Environment and UN Climate Resilience Initiative,pp1-54.