



HURRICANE RISK AND PROPERTY INSURANCE IN POLAND

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Abstract

The objective of this paper is to identify the current situation and the trends in the market of property insurance offering protection against hurricane risk. This paper presents data on strong winds in January and February 2022 in Poland and the damage caused by them. Information from the General Headquarters of the National Fire Service, from the Energa Group of Companies and from individual insurance companies was used. The analysis was performed for insurance market data, and it focused on group 8, Section II (insurance against the element risk). To this end, the Annual Reports of the Polish Insurance Chamber and the Financial Supervision Authority for the past five years were used.

Climate changes carry with them catastrophic phenomena whose frequency is growing. These include hurricanes, which have been causing multi-million property losses in recent years. Insurance companies include various aspects in the protection, which enables the policyholder to customize the product to their needs. Clients opt for this type of protection increasingly often. The gross written premium in insurance against elements and the number of active insurance policies is growing. The premium amount increased by more than 46% during the study period, and the number of active insurance policies increased by nearly 19%.

RYZIKO HURAGANU A UBEZPIECZENIA MAJĄTKOWE W POLSCE

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Abstrakt

Celem artykułu jest identyfikacja bieżącej sytuacji i trendów na rynku ubezpieczeń majątkowych związanych z zabezpieczeniem na wypadek ryzyka huraganu. Przeanalizowano dane dotyczące wichur i szkód nimi spowodowanych, które wystąpiły w styczniu i lutym 2022 roku w Polsce. Wykorzystano dane Komendy Głównej Państwowej Straży Pożarnej, Grupy Kapitałowej Energa oraz poszczególnych ubezpieczycieli. Przeanalizowano dane dotyczące rynku ubezpieczeń, skupiając uwagę na grupie 8, Działu II (ubezpieczenia od ryzyka żywiołów). W tym celu wykorzystano raporty roczne Polskiej Izby Ubezpieczeń oraz Komisji Nadzoru Finansowego z ostatnich pięciu lat.

Zmiany klimatu niosą ze sobą coraz częściej występujące zjawiska o charakterze katastroficznym. Jednym z nich jest huragan, który w ostatnich latach powoduje wielomilionowe straty majątkowe. Ubezpieczyciele włączają w ochronę różne aspekty tego zjawiska, dając możliwość ubezpieczającemu dopasowania produktu do indywidualnych potrzeb. Klienci coraz częściej sięgają po tego typu ochronę. Składka przypisana brutto w ubezpieczeniach od żywiołów i liczba czynnych polis ubezpieczeniowych wykazują tendencję rosnącą. Na przestrzeni badanych lat odnotowano wzrost składki o ponad 46% i czynnych polis ubezpieczeniowych o blisko 19%.

Introduction

Climate change is a fact. Scientists leave no doubt about it. We, as humanity, are at a critical moment, which should be the turning point in our actions aimed at containing the factors that stimulate natural disasters (Kwaśnicki, 2020). "Natural disasters are phenomena brought about by the action of natural forces, which cause natural and economic damage to the area affected by them. If people die as a result of them, they are called cataclysms" (*Trzęsienia ziemi...*, 2021). The most common types of natural disasters include floods, hurricanes, earthquakes, fires, avalanches and volcanic eruptions. Catastrophic events cause a whole range of damage. The economic damage is increasingly often emphasized, and solutions to minimize it are being sought.

According to the Weather, Climate & Catastrophe Insight 2020 Annual Report (2021), the costs generated by natural disasters in 2020 amounted to 268 billion dollars, with 64% of that sum not being covered by insurance. The same report for 2021 indicates that the costs incurred because of such events had increased and points out that the economic loss caused by cataclysms

in 2021 was estimated at 343 billion dollars. Insurance covered 38% of the damage – 130 billion dollars. Despite a slightly larger portion of the damage covered by insurance, the global protection gap amounted to 213 billion dollars (62% of uninsured damage) (*Weather, Climate...*, 2022). Similar data can be found in publications of Munich Re or estimates made by the Swiss Re Institute (Skibińska, 2022). According to the latter, 2020 was the fifth most costly year for the insurance industry since 1970 (*Natural Catastrophes...*, 2022).

The highest costs – 40 billion dollars – were generated by last year's hurricanes in the Atlantic (USA and Central America). Floods in China resulted in a loss of 32 billion dollars and fires on the west coast of the USA – 20 billion. Smaller losses (13 billion USD) were caused by the cyclone Amphan in India, Bangladesh and Sri Lanka, floods in India (10 billion USD) and the locust invasion, which ravaged Eastern Africa (8.5 billion USD). The greatest loss in Europe was caused by hurricanes Ciara and Alex (5.9 billion USD) (Skibińska, 2022, after Christian Aid). The impact of climate change is also felt in Poland. Weather phenomena of a devastating force not seen before are increasingly frequent. The beginning of 2022 brought hurricane-force winds in a span of several days. These events inspired the authors to take up the subject.

The objective of this paper is to identify the current situation and the trends in the market of property insurance offering protection against hurricane risk.

This paper presents data on gales which took place in January and February 2022 in Poland and the damage caused by them. Data from the General Headquarters of the National Fire Service, the Energa Group of Companies and individual insurance companies were used, compiled and analysed. The analysis was performed for insurance market data, and it focused on group 8, Section II (insurance against the element risk). To this end, the Annual Reports of the Polish Insurance Chamber and the Financial Supervision Authority for the past five years were used.

The Risk of Hurricanes and the Damage They Cause

The risk of hurricanes has been dealt with by scientists of many disciplines. This paper does not deal with the genesis of the phenomenon, but it focuses on its definition used in the insurance business, which has an impact on the economic outcome of wind of extreme force. Considering this, one has to be aware that whether wind can be called a hurricane depends on its speed. There are considerable differences already at this stage. Currently, there are 26 insurance companies on the Polish market which offer insurance against hurricanes or strong winds. The insurance market and its trends are described by Ryszard Stempel in a publication *Performance of the Polish insurance sector in the second decade of the 21st century* (Stempel, 2020). The most popular

in terms of the gross written premium in 2022 were: PZU SA, TUiR WARTA SA and STU ERGO HESTIA SA (KNF, 2022). Following are the differences in defining the risk of a hurricane by these insurance companies:

1. The definition used by PZU SA, a product called “PZU Dom”: “Hurricane – wind whose speed is not lower than 13.8 m/s, as determined by the Institute of Meteorology and Water Management (Instytut Meteorologii i Gospodarki Wodnej – IMGW), which causes massive damage. If an opinion from the IMGW cannot be obtained, the presence of a hurricane is ascertained by the PZU based on actual facts and the size of damage it caused at a spot or in its vicinity” (*Ogólne warunki ubezpieczenia PZU Dom*, 2021);

2. The definition used by TUiR WARTA SA, a product called “WARTA Dom”: “Strong wind – the movement of the atmospheric air at a speed not lower than 17.5 m/s (63 km/h), caused by an uneven distribution of the atmospheric pressure, causing massive damage” (*Ubezpieczenia mieszkaniowe*, 2021). It is noteworthy that the insurance company does not use the word “hurricane”, but “strong wind”, which is often the case in insurance offers on the Polish market.

3. The definition used by STU ERGO HESTIA SA, a product called “ERGO 7”: “Hurricane – the action of wind whose speed is not lower than 15 m/s, which causes massive damage” (*Wszystko o ubezpieczeniu...*, 2022).

According to these definitions, wind speed is the decisive factor in classifying it as a hurricane. It is essential in the loss adjustment process. It is the decisive factor in recognizing the liability for damages of the insurance company, which has a direct impact on awarding compensation. Those who suffered a loss often wonder what the reason for these differences is. One has to bear in mind that a large majority of property insurance types, especially those concerning houses and flats owned by individuals, are voluntary. Insurance companies construct their products with the use of their own risk estimation algorithms, hence the differences in the offers. Therefore, one should always read the General Terms and Conditions of Insurance before taking out insurance to make it suit one’s needs. The importance of the issue is demonstrated by the events of early 2022 and the loss suffered by many households, companies and institutions.

The Government Security Centre issued 11 alerts warning of strong wind within the first seven weeks of 2022, three of which were for the whole country. The situation on 29 and 30 January was particularly difficult. There was an atmospheric front in the whole country, with a strong wind with gusts exceeding 100 km/h in the north and 90 km/h in the centre and in the south of the country. According to the National Fire Service data, it was the strongest wind for years (Komenda Główna Państwowej Straży Pożarnej, 2022). There were thousands of events and related interventions all over Poland. Selected data are presented in Table 1 to demonstrate the scale of the phenomenon and the damage it caused.

Damage and interventions recorded by the fire service provide very important information to insurance companies. It is used as the basis for developing insurance products and modifying existing offers (usually by adding some

Table 1

Fire brigade interventions caused by strong wind on 29-31 January 2022

No.	Intervention type	Number of interventions	Range (whole country/voivodeship)
1.	Damaged roofs	1,394	whole country
2.	Damaged roofs	324	Wielkopolskie
3.	Damaged roofs	230	Śląskie
4.	Ripped-off roofs	107	whole country
5.	Felled tree – fatalities	1	whole country
6.	Felled tree – injured individuals	12	whole country
7	Interventions total, including on 30.01.2022	18,000 16,387	whole country
8.	Interventions total	2,352	Zachodniopomorskie
9.	Interventions total	2,165	Pomorskie
10.	Interventions total	2,113	Wielkopolskie
11	Interventions total	1,506	Mazowieckie

Source: prepared by the author based on data from the National Fire Service.

clauses). Catastrophic events of increasing intensity and the growing damage they cause – both to property and to individuals, have brought about an increase in policy prices. According to data provided by EIB insurance brokers, the prices of such insurance products had increased in early 2022 by 15% compared to the same period of the previous year. The prices are expected to grow further, by several dozen percent, which particularly applies to policies for entrepreneurs (Rydlewska & Sasik, 2022).

Strong winds often result in electric power disruptions. This is a serious problem now that nearly all devices that people use are powered by electricity. This applies both to individual and institutional clients. The beginning of 2022 saw massive power failures caused by strong winds. The second attack of a hurricane on 19 February was particularly damaging. The data provided by the Energa-Operator company were not good. Selected information is shown in Table 2.

Power disruptions caused by violent weather phenomena have been given increasing attention by people who assess the insurance risk. Insurance companies monitor the issue from many angles. When calculating the risk exposure, the cause of the damage and the chain of events that affect its extent are taken into account. This chain of events which caused the risk of power disruptions during the period in question is usually as follows: a strong wind felled a tree, which fell on a land power line and broke it. According to the National Fire Service data, there were 24,866 interventions around the country on 19 February 2022, in which the firefighters had to remove felled trees, including over two thousand in the Warmińsko-Mazurskie Voivodeship. Insurance increasingly

Table 2

Information on the power supply grid failures on 19 February 2022

No.	Item	Number
1.	Consumers affected by power disruptions: in the whole country including up to 24.02.2022 in the Warmińsko-Mazurskie Voivodship	350,000 880 8,200
2.	High voltage line failures (in the whole country)	70
3.	Medium voltage line failures (in the whole country)	588
4.	High voltage substations without power supply (in the whole country)	50
5.	Medium and low voltage substations without power supply: in the whole country in the Warmińsko-Mazurskie Voivodship	13,000 700

Source: prepared by the author based on data from Energa-Operator (2022).

often covers damage caused by overvoltage associated with power disruptions (including mainly thawing of goods and materials) and – which is becoming a trend in property insurance – loss generated by disruptions in the business activity (Rydlewska & Sasik, 2022). It is noteworthy that falling trees cause damage of a much greater extent: to roofs, buildings, structures, tombstones in cemeteries, etc. Most insurance companies operating in the Polish market, including (the three largest ones) PZU SA, TUiR WARTA SA and STU ERGO HESTIA SA offer protection against this risk. It is important that the client should know the difference with respect to protection and check the Terms and Conditions of Insurance to see if it is adequate to their needs. It is sometimes necessary to expand the scope of protection by an additional insurance clause, which entails a higher premium.

Insurance Against Elements in Light of Market Reports

Increasingly violent weather phenomena are reflected in insurance statistics. An analysis of data from the past five years reveals certain trends and consumer responses to catastrophic events. Table 3 shows data on insurance against damage caused by elements. It focuses on group XVIII of Section II (Insurance and Reinsurance Activity Act; Ustawa o działalności ubezpieczeniowej i reasekuracyjnej, 2015), leaves out damage related to motor vehicles and includes insurance of houses and flats and holiday homes.

The size and popularity of an insurance market is usually described by the number of active policies during a specific period and the amount of the gross written premium. Table 3 shows that the gross written premium in group XVIII is growing steadily – by 46.3% during the period under study. At least two causes of this can be identified. First, the extent and the sudden nature

Table 3

Gross written premium, amount of compensation, the number of active policies and the number of events in insurance against damage caused by elements in 2017-2021

Specification	2017	2018	2019	2020	2021	Q1 2022
Group VIII Insurance against damage caused by elements, not classified in groups 3-7 – gross written premium (kPLN)	3,017,397	3,302,784	3,547,079	3,934,708	4,414,609	1,403,601*
Gross written premium (kPLN) – insurance of flats and holiday homes*	1,321,936	1,392,192	1,483,738	1,653,351	1,892,559	534,629
The number of active policies – insurance of flats and holiday homes*	11,712,267	12,358,138	13,691,286	13,182,295	13,905,278	15,461,416 including those taken out during the period under study: 4,124,152
The amount of compensation paid (kPLN) – insurance of flats and holiday homes*	496,045	469,771	542,607	635,651	832,123	226,257
The number of events – insurance of flats and holiday homes*	305,851	256,329	289,315	315,945	362,462	101,713

Source: prepared by the author based on data from the *Financial Supervision Authority and the Polish Insurance Chamber.

of catastrophic damage increased, which stimulated interest in this type of product among potential policyholders. Second, the value of the damage grows, inducing a response from insurance companies, which increases the policy prices (Michalski *et al.*, 2016). This is also reflected in data on the gross written premium in flat and holiday home insurance. These data should be viewed from multiple angles, and the gross written premium should be juxtaposed with the number of active policies, the number of events and the amount of compensation paid.

There was a powerful hurricane over Bory Tucholskie in August 2017, which resulted in nearly 10 million cubic metres of felled and broken trees and nearly 120 thousand ha of damaged forests, including 39.2 thousand ha which required complete renewal. “The greatest tragedy happened near the village of Suszek in the Jakubowo forest district (Rytel Forest Inspectorate), where two girl scouts were killed at a camp in the forest.” (*To było piekło...*, 2021). Apart from that, hundreds of houses and other buildings were destroyed. All of this stimulated

interest in insurance protection of their property. Hence, the growth of the number of policies in 2018-2019. The number of active policies decreased slightly in 2020, by 3.8% compared to 2019. This was caused both by the COVID-19 pandemic and by the absence of such dramatic experience in 2019 as in 2017. Some people had to save money, so they were not willing to take out voluntary insurance policies. Unfortunately, the pandemic did not stop the extreme weather phenomena. A lot of damage was caused by wind, including local whirlwinds, in 2021, especially in summer. This number had increased by 15% compared to 2020, and the amount of compensation paid increased by kPLN 196,472 i.e. by 31%.

When analysing the number of policies, one should pay attention to Q1 of 2022. The number of active policies in the period was the highest for five years – 15,461,416. Interestingly, this number is largely affected by the number of policies taken out in early 2022, when as many as 4,124,152 agreements were signed. In this case, the experience of strong winds (the recorded number of events was high compared to previous years) contributed to an increase in the interest in insurance protection.

Conclusions

Climate change and its effects are a fact. Currently, it is necessary to develop and implement solutions to alleviate the economic effects of events brought about by elements. The most prominent in this context is an instrument which makes it possible to compensate for damage, i.e. insurance against catastrophic risks. This paper shows that the damage caused by hurricanes alone can be huge. As in January 2022, when one hurricane-force wind damaged or ripped off the roofs of 1,500 houses. In February, 350 thousand households suffered from power disruptions lasting two days on average, which – apart from limitations of everyday activities – resulted in property damage: the thawing of goods and materials and disruption in production and service processes.

Insurance companies expand their offers to include more cover options. Including the effects of thawing and disruptions in activities is becoming a trend. Studies show that people are increasingly aware of the economic effects of the damage, and they are seeking ways of limiting them. The gross written premium increased by 46.3% during the period under study, while the number of active policies increased by 18.7%. When analysing consumer behaviour, one cannot fail to see that an increase in the interest in insurance protection is largely caused by catastrophic events. One such example is an increase in the number of policies taken out in Q1 2022. Therefore, the insurance industry is facing an important challenge in educating and encouraging people to use insurance protection against the risk of damage caused by the elements.

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