Role of Non-Life Insurance in Disaster Management Systems

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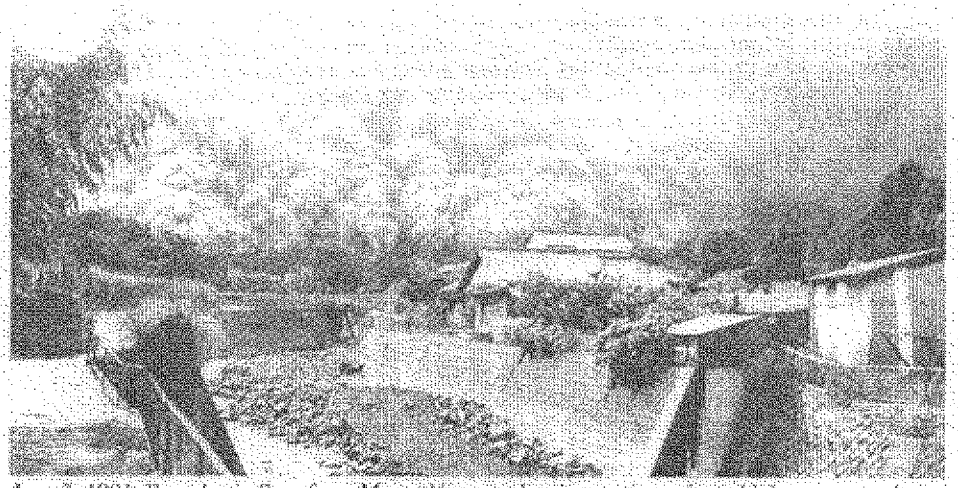
1. Frequent Occurrence of Natural Disasters

The world has recently witnessed many large-scale natural disasters. In Japan frequent disasters such as storm and flood damage caused by typhoons, earthquakes and eruptions have become an extremely important managerial issue for non-life insurance companies. In September 1991, a large and very powerful typhoon named Mireille (No. 19) passed through the Japanese Islands within one single day. It caused sixty-two deaths by the accompanying storm and flood tide and damaged 700,000 houses, thus incurring a total loss of ¥600 billion (or about US$4.5 billion in 1991). Also from late July to September of last year, typhoons and continuous and heavy rain caused flooding of small and medium sized rivers and landslide damages which killed more than 130 people. Furthermore, last year also saw the occurrence of several earthquakes in Japan. Particularly among them, an earthquake off the southwest shore of Hokkaido last July proved to be another major calamity in Japan in which more than 230 people were found dead or missing in the wake of large tidal waves and many fires.

It is important to take notice that similar to the situations in other countries, the types of damages in Japan have largely changed and diversified in recent years, as urbanization proceeds and land use changes. This trend of urbanization has lead to the concentration of assets, increasing the amount of loss year to year.

Since our modern cities function by the support of so-called "life-line" systems such as electricity, communication, transportation, etc., the occurrence of natural disasters, which sometimes results in the halting of these systems, creates an extremely large and detrimental impact on social and economic activities.

2. The Role and Problems of Non-Life Insurance



June 3, 1991: Pyroclastic flow from Mount Unzen volcanic eruption, after which many people were found dead or missing. (Photograph provided by Mainichi Shinbun)

Recent large-scale natural disasters.

SWISS RE./SIGMA

year/month	name	region	total loss paid
1990. 1	Windstorm Daria	Europe	US$ 4,600 m
2	Windstorm Vivian	Europe	US$ 3,200 m
1991. 1	Winter Storm Undine	Europe	US$ 480 m
2 ~	Unzen Volcanic Eruption	JAPAN	-
8	Hurricane Bob	North America	US$ 620 m
9	Typhoon Kinna	JAPAN	US$ 272 m
9	Typhoon Mireille	JAPAN	US$ 5,200 m
10	Oakland Bush Fires	North America	US$ 1,200 m
1992. 8	Hurricane Andrew	North America	US$ 15,500 m
9	Hurricane Iniki	North America	US$ 1,600 m
1993. 1	Kushiro-Oki Earthquake	JAPAN	US$ 9 m
3	Blizzard	North America	US$ 1,800 m
7	Hokkaido Nansei-Oki Earthquake	JAPAN	US$ 5 m
7 ~ 9	Concentrated heavy rain / Typhoon	JAPAN	US$ 1,309 m
1994. 1	Northridge Earthquake	North America	US$ 4,000 m

The fundamental role of non-life insurance is to support stable life and the development of sound industry by providing adequate coverage for policyholders' risks and by making expedient payments on the occurrence of disasters. However, where we further consider the role of the non-life insurance from the standpoint of natural disaster risk management, we note the following problems and issues:

Enhancement of Insurance Coverages and Stabilization of Premium Rates

The first issue I would like to address is the enhancement of insurance coverages and stabilization of premium rates. Similar to the insurance industries of other countries, the Japanese insurance industry has recently made great efforts to enhance coverage for storm, flood and earthquake insurance to better meet the needs of policyholders. However, these changes, together with the frequent occurrence of natural disasters, have rapidly increased the amount of payment for losses.

Compared with other types of losses, the payments for loss for natural disaster insurance are unwieldy and long-term statistics become essential, thus making it extremely difficult to calculate natural disaster insurance premium. As a result, some countries have come to see problems such as premium fluctuation and underwriting rejection. Hence, this ability to maintain the appropriate balance between coverages and premium rates for natural disaster insurance has become a more common problem among the world's insurance companies.

Current Situations of the Reinsurance Market

The second issue I would like to focus on is reinsurance. As we entered the 1990's, the world reinsurance market have suffered from a shortage of underwriting capacity and rising reinsurance premiums. This tendency was especially noticeable in the aftermath's of Typhoon Mireille in 1991 and Hurricane Andrew in 1992, when many insurance and reinsurance companies went bankrupt or stopped underwriting, thus causing the world reinsurance market to face an unprecedented shortage of reinsurance underwriting capacity. Yet, while the emergence of new underwriters in such places as Bermuda in 1993 and 1994 made this conservative tendency in the market a bit more relaxed, the premium rates remain at high levels.

Lloyd's of London has been no exception. It has continuously reported a deficit from fiscal year 1988 through the most recent 1990, and is also forecasted to have a loss in fiscal year 1991. In order to deal with this deficit, Lloyd's executed a reform plan this past January which allows for the participation of corporate members, the partial abolition of the unlimited liability system, etc. Although these reforms have contributed to an increase of underwriting capacity for the first time in three years, the environment surrounding the world reinsurance market is still severe. Therefore, we are now watching the current and future trends with a great interest.

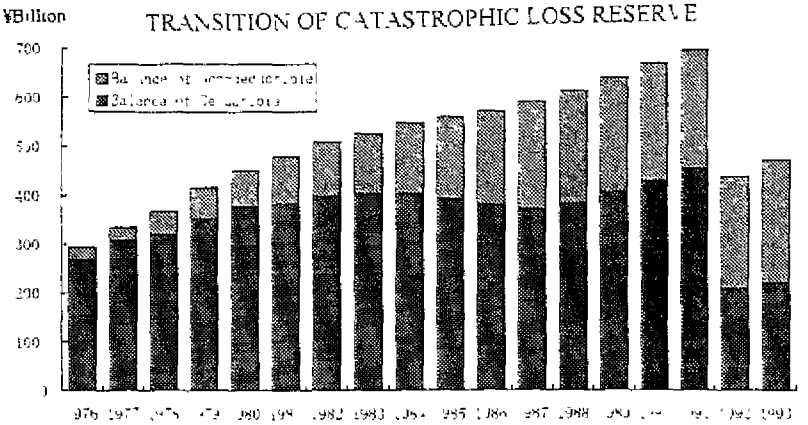
Meanwhile, government reinsurance systems for earthquake insurance covering housing and household goods was founded in 1966 to maintain stable underwriting capacity.

Capacity of Lloyd's Market.

Year	1988	1989	1990	1991	1992	1993	1994
Number of Name	32,433	31,329	28,770	26,539	22,259	19,537	18,022
Number of Syndicate	376	401	404	354	279	228	179
Capacity (£ Billion)	11.02	10.96	11.07	11.38	10.05	8.8	10.9

Strengthening Solvency

The third issue I would like to discuss is strengthening the solvency. The mission of a non-life insurance company is to quickly and definitely pay for loss whenever disasters happen. It must do so even for devastating natural disasters which could happen once every hundred or two hundred years. Being prepared for catastrophic natural disasters, the Japanese non-life insurance companies have a special system called Catastrophic Loss Reserves. A certain portion of premiums is reserved every year as Catastrophic Loss Reserve. When the loss ratio exceeds a specific level in a certain year,



Reserve for such lines as fire and cargo insurance (excluding earthquake insurance).

January 16, 1993. Automobiles left on the collapsed national highway after the Kushiro-Oki earthquake. (Photograph provided by Mainichi Shinbun)

EXAMPLES OF RESEARCH AND STUDIES

1 Typhoon damages on industrial facilities
2 Effect of global warming on natural disasters in Japan
3 Effect of acid rain on building fatigue, equipments, automobiles, etc
4 Fire damages of high-rise buildings
5 Loss prevention measures for underground facilities
6. Effectiveness and availability of household fire extinguishing facilities
7 Effectiveness of seat belts
8 Traffic safety measures for by aged people
9 Traffic safety measures for young drivers
10 Overseas laws and regulations on safety and loss prevention

the amount exceeding the loss ratio is withdrawn. In order for Japanese non-life insurance companies to achieve their most important objectives of stabilizing their management and maintaining credibility in reliably paying for loss, Catastrophic Loss Reserve is an indispensable system. For example, when paying for the losses of Typhoon Mireille, the Japanese non-life insurance industry as a whole transferred ¥290 billion or over US$2 billion from this reserve, keeping the year's operational losses to a minimum.

Efforts to Protect against Disasters

The forth issue I would like to point out is disaster protection. The Japanese non-life insurance

industry is conducting fundamental studies and research concerning the risks of various disasters such as fires, traffic accidents and natural disasters, thus promoting disaster protection. Specifically regarding natural disasters, we are researching typhoon damages, the effect of global warming on disasters, and problems concerning acid rain. Although we are in the early stages of these programs, we hope to be able to further our efforts even more in this area. We have additional plans to conduct research and studies on how to protect loss in the event of disasters and how to evaluate the risks of new facilities, such as underground shopping centers and skyscrapers, which have not yet had the experience of being afflicted with large-scale disasters.

3. Three Proposals

Based on the preceding current conditions and the problems of the non-life insurance industry concerning natural disasters, I would like to make the following three proposals:

Stabilization of the reinsurance market and establishment or upgrading of government reinsurance systems

My first proposal deals with the stabilization of the reinsurance market and establishment or upgrading of government reinsurance systems. As I stated earlier, it is unfortunate that the current world reinsurance market is not completely stable. Yet, in order to maintain stable and continuous underwriting capacity of the reinsurance market, we need to make great efforts such as stabilizing underwriting premium rates. While government reinsurance systems are seen in Japan, the United States, France etc., I would like to propose the establishing or upgrading of government reinsurance systems for natural disasters in various countries in the world, in order to maintain a larger global underwriting capacity.

Establishment of catastrophic loss reserve systems in other countries as well

My second proposal is to establish Catastrophic Loss Reserve in countries which presently do not have such a system. As I mentioned earlier, Catastrophic Loss Reserve has an extremely effective function in dealing with devastating natural disasters. While we pledge to make further efforts to upgrade this system in Japan, I would like to suggest that similar systems be established in other countries and that favorable tax treatment be introduced for the implementation and continuance of Catastrophic Loss Reserve.

Mutual exchange of disaster information

My third proposal is the mutual exchange of disaster information. Each non-life insurance industry in the world has enormous information and data about natural disasters which have been accumulated through various and abundant experience in dealing with them. I think we should further promote studies and research on disaster risks, using the valuable data of each country. To promote and support these efforts, I would also like to recommend that information exchange in the form of joint studies or researches and in the form of exchanges of personnel among non-life insurance industries and scholars in various countries be further strengthened. These exchanges would undoubtedly prove to be tremendously useful and effective for the global community as a whole.

4. Conclusion

Although we cannot avoid natural disasters, we should do our utmost to decrease the extent of losses by disasters as much as possible. From here on, let us continue to make our best efforts to realize 'A Safer World for the Twenty-first Century' through mutual cooperation among governments, industries and academic sectors of all countries.