CHAPTER 11

Weather Index Insurance and Commercial Applications in China

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Abstract

As disastrous extreme weather events triggered by climate change become more frequent each year, the economic losses caused by extreme weather events have led to ever higher socioeconomic costs. The application of adaptive tools and market-oriented applications are highly regarded by the international community as a response to the socioeconomic impacts of climate change and a way to strengthen natural disaster risk management. This article describes the advantages and disadvantages of a weather index insurance, comparing it with traditional property and casualty insurance. Various problems challenging development of weather index insurance products and implementation in the Chinese insurance market system are presented. A case study conducted by the China Meteorological Administration in Fujian Province offers the modus operandi and several developmental suggestions for a weather index insurance and its commercial application.

Keywords

Weather Index Insurance – Disaster Risk Management – Commercial Application – China

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I Introduction

A meteorological disaster is a natural disaster that occurs frequently and has a particularly large impact range, involves high casualties, and causes large economic losses.

According to statistics from the Munich Re Group,\(^1\) 88% of the major natural disasters recorded from 1980 to 2010 worldwide are primary or secondary meteorological disasters causing 59% of the total casualties. Meteorological disasters are the cause of 75% of economic losses and 91% of insured losses worldwide. Meteorological disasters have experienced a significant upward trend accompanying the increased frequency and intensity of extreme weather and climate events caused by climate change, wreaking greater havoc. In 2010, 828 meteorological disasters led to numerous casualties and serious economic losses, an increase of 160% compared with 1980 (317), a trend that causes further challenges to the sustainable development of the economy and society.

The rate of economic losses caused by climate change is increasing every year creating an ever greater need for international tools to reduce the effects of climate disasters. Since the first weather derivatives trading system was designed and applied to deal with agriculture disaster risk in the USA in 1997, developed countries in Europe have also tried to set up a weather index derivatives market, various meteorological catastrophe security plans, and an exchange market for meteorological disaster insurance products, meteorological index futures, and meteorological index options trading.\(^2\) Agricultural weather index insurance has developed rapidly in some developing countries in Asia, Africa, and Latin America since 2002 with encouragement from the World Bank. Drought index insurance has emerged in India, Mexico, Malawi, Ethiopia, and Tanzania; flood index insurance products were introduced in Bangladesh and Vietnam; hurricane index insurance has appeared in the Caribbean Islands; and large-scale livestock catastrophe index insurance was created in Mongolia.\(^3\)

China is located in the East Asian monsoon region, which has diverse natural conditions and a large variety of climate regimes, leaving it prone to various kinds of meteorological disasters. Due to the complicated procedures involved with common property damage insurances, traditional insurance products

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