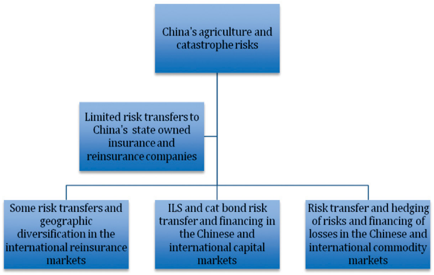
New Weather Index Insurance, Cat Bond & Hedging Model For Agriculture Losses

by **JOHN & DAI MIN MILLIGAN-WHYTE**

Insurers and reinsurers are not using fully integrated strategies combining weather index based insurance, catastrophe bonds and commodity market hedging to finance catastrophe, farmers' income and consumer food price stability risks. The integration of these strategies is possible in China. A New Scientifically Managed Catastrophe and Agriculture Risk Transfer Financing and Hedging Model With Chinese Characteristics can be used in the State Council authorized pilot projects and in Shanghai Free Trade Zone ("New Model"). Below is a diagram of a New Model for transferring, financing and hedging China's losses:



This is the fourth article in our series recommending how to develop the commercial catastrophe and agriculture protection financing China's State Council is seeking. The existing models designed in foreign markets are facing sustainability challenges in the new era of financial crisis and increasing frequency and severity of catastrophes and cannot fulfill the goals of China's socialist market economy.

China's Agricultural and Catastrophe Potential Losses are Far too Large for the US$ 510 Billion of Capital of the International Reinsurance Market to Finance.

Existing catastrophe and agriculture insurance models call for China's governments to subsidize premiums to create profits for and not "crowd out" insurers and reinsurers. They seek government-private sector partnerships in which China would buy coverage provided by insurers and reinsurers taking government subsidized profitable layers of risk and leaving the massive higher layers losses to be paid by China's governments. Models relying on the international reinsurance markets cannot offer unsubsidized commercial transfer and financing of lower levels and peak risks. China would be better served by a sustainable commercial system transferring, financing and hedging all layers of agriculture and catastrophe risks.

In 2013 Chinese government entities subsidized 80% of 30.67 billion yuan in agriculture insurance premiums, up 38% year-on-year, which provided coverage for 214 million clients. The subsidies resulted in 20.86 billion yuan in compensation payments to 33.67 million people. The approximately 30% difference in the size of the subsidies and loss payments in the current arrangements covering only 45% of China's total planting acreage is 12.81 billion yuan.

But, according China Daily agricultural insurance does not have a profitable outlook this year for China's insurance companies. The difference between total premiums minus total claims payments and administrative expenses that insurers and reinsurers have is called a "combined ratio." In the first half of 2014 the combined ratio for agriculture insurance in China was 84%. There are models that propose that China's governments subsidize premiums to insurers for taking the first 90% layer of losses and reinsurers taking the next layer up to 150% and governments funding all higher losses. These proposals are not an adequate model for China's development of commercially funded rather than government subsidized risk transfers and losses.

China's government entities currently subsidize micro finance loans and other protection for approximately 700 million farmers' incomes and for 1.5 billion consumers' food price stability. Global food prices increased 74% from 2005 to 2012. In 2013, China's nominal GDP calculated using an expenditure approach was reportedly 56.88 trillion yuan and the outstanding loans in rural areas by Chinese banks and financial institutions were reportedly 18.1 trillion yuan, up 19.7% year-on-year. Government funding requirements are increasing and the State Council is seeking commercial solutions.

The New Model Using Weather Index Based Products, Catastrophe Bonds and Hedging in the Commodity Markets is Better Suited to China's Needs.

Weather index based coverage is more easily integrated into catastrophe bond and commodity market hedging transferring and financing risks than indemnity or yield index based coverage, which are also too cumbersome for quick claims payments and administratively costly. Weather index based products cover deviations from normal rainfall and temperatures measured by weather stations, satellites and drone technologies over different crop growth cycles. The protection is provided to farmers getting loans as compulsory cover and insurance companies sell it to farmers that are not getting loans.

Two SOEs have 80% of China's current agricultural insurance market. This concentrates rather than distributes risks. If they take on too much agricultural and catastrophe risk they will have to be recapitalized. Smaller companies that operate regionally and thus also have too much undistributed geographic concentrations of risk cover the other 20%. China needs a national pool of agricultural risks that transfers part of its loss payments into the international reinsurance, capital and commodity markets.

A National Pool Commercial Financing China's Agriculture Risks could be Provided Catastrophe Bonds.

The international insurance linked securities ("ILS") industry, which developed in the last 20 years, uses new mechanisms such as catastrophe bonds to raise capital to pay for the increasing frequency and severity of catastrophe losses. Investors diversify their portfolios by buying catastrophe bonds because catastrophe losses are believed to be uncorrelated with losses in other asset classes

The NDRC has announced that China will use weather index based insurance, catastrophe bonds and foreign capital. China can regulate its catastrophe bond and agricultural commodity hedging markets so that the pricing and hedging used protect food producers and consumers as well as providing profit levels attractive to investors. China's scientifically managed, socialist market economy has advantages in doing so compared to the US regulatory system.

China can by Pass Deficiencies in Insurance and Reinsurance Loss Funding and Develop its Financial Service Industries by Using Catastrophe Bonds and Commodity Hedging Solutions.

In order to protect its economic and national security China could become the world's largest consumer, provider and investor in catastrophe and agriculture loss recovery financing. It can fill these roles in the reinsurance, capital and commodity markets due to its huge market for this protection and the huge costs and capital required to finance its agriculture and catastrophe risks. China is the only entity it can rely on with the required combination of massive need, market size and capital.

Currently only about US$ 50 billion in capital is able to participate in the ILS markets. International demand for catastrophe bond investment opportunities exceeds supply and China is the largest emerging market for such risk transfers. China can transfer part of its losses internationally by providing catastrophe bond investment opportunities and some of the capital required to underwrite its catastrophe bonds. China has US$ 3.83 Trillion of foreign debt and currency reserves that require profitable investment and sovereign wealth funds are suitable investors in catastrophe bonds

China can also Hedge and Transfer its Losses in the International Commodity Markets.

Using weather index based coverage rather than indemnity or yield-based coverage would facilitate this. Hedging agricultural and catastrophe losses in commodity markets is not yet widely used by insurance and reinsurance companies. China has more expertise in commodity trading than insurers and reinsurers, which view risk transfers in the commodity markets as not being their core business. The mindsets and skills of professionals in the reinsurance, catastrophe bond and commodity markets are very different.

There are some US insurance companies that use commodities market hedges. The US is the only market where there are insurance products that cover commodity price movements. Such risks are hard to hedge if the loss to be covered is a combined yield and price loss rather than a simple pricing risk attractive to commodity traders and investors. Some Bermuda companies focused on catastrophe bond solutions also provide agriculture risk products. But they do not have China's experience in hedging risks in the commodity markets. Combining China's commodity market expertise and their reinsurance and catastrophe bond expertise would be mutually beneficial.

China could issue catastrophe bonds to support a program it established to provide both bank guarantees and letters of credits as collateral for loans to farmers and for hedging consumer food price increases. The Agriculture Price Risk Management Program is an interesting model. It is operated by a profit seeking bank and the World Bank. Each made US$ 200 million commitments to the program that provides guarantees and letters of credit to enhance the collateral available to farmers, food processors and consumers in developing countries. This program also facilitates the trading of derivatives that hedge the price of commodities such as corn, wheat, soybean, rice, sugar, cocoa, milk and live cattle.

Sidebar

John & Dai Min Milligan-Whyte

John Milligan-Whyte, author of China Capital Reinsurance Finance Center's China Catastrophe and Agriculture Insurance System Plan and Shanghai's Free Trade Zone Plan, was Chairman of the Committee advising Bermuda's Minister of Finance, member of Bermuda's Law Reform Commission and United States National Association of Insurance Commissioners' Advisory Committee Drafting the US Model Insurance Act and Vice Chairman of the American Bar Association's Tort & Insurance Section. He is a director of China Capital Limited and was a director of insurance, reinsurance and hedge fund companies, co-recipient of the 2002 Asian M&A Deal of the Year Award and of the 2010 China Business Leaders Summit's Outstanding Business Leaders' Social Responsibility Award.

Dai Min, a Research Professor and President of the China Capital Reinsurance Finance Center, initiated the China Insurance Industry Leadership Program with Wharton and Renmin Universities funded by XL Group Plc approved by the China Insurance Regulatory Commission and was a currency trader on Wall Street and has advised Chinese and foreign companies since 1990.