Introduction to: **"Whyte DaiMin Model" Solutions for Catastrophe and Agriculture Risk Transfer and Recovery Finance**

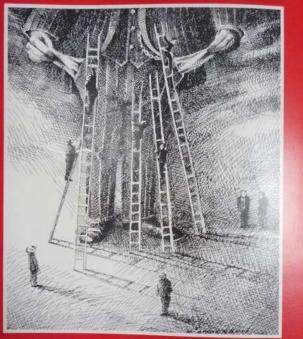
for

China's Catastrophe Insurance Pilot Project Models China's Catastrophe and Agricultural Risk Exchange Model China's Health Insurance Exchange Model ASEAN RE Catastrophe Recovery Model BRICS RE Agriculture Loss Financing Model China Special Economic Zone Development Model

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Milligan-Whyte's 1988 and Whyte DaiMin's 2015 textbooks explain and provide solutions to reinsurance market crises.

Law and Practice of International Reinsurance Collections and Insolvency



Tort and Insurance Practice Section American Bar Association China's Potential Roles in a Sustainable Scientifically Managed Global Catastrophe Recovery Finance System



Whyte Daimin Investments Limited and its two think tanks have worked for 10 years with China's national, provincial and municipal government entities, think tanks, universities and companies implementing economic development reforms and insurance, reinsurance and financial strategies aligned with China's needs and President Xi Jinping and Premier Li Keqiang's goals.

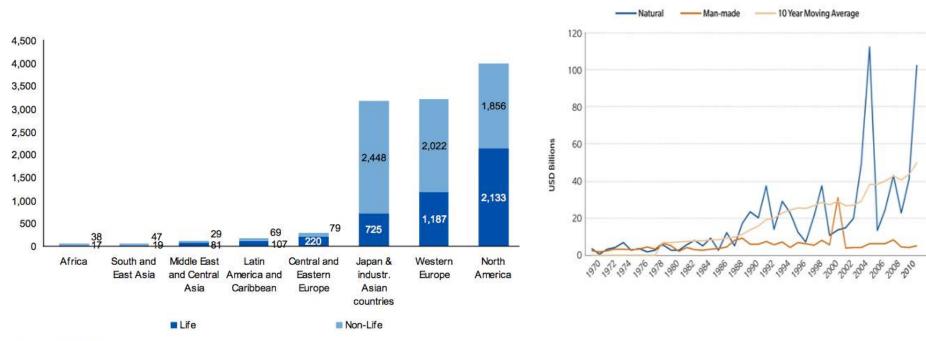
In this presentation:

- **PART 1.** summarizes why government-reinsurers partnerships relying on coverage from the reinsurance and catastrophe bond markets cannot reliably protect lower per capita income nations.
- **PART 2.** summarizes the crises in the international reinsurance market, unreliable credit worthness of reinsurers and of the pricing, terms and availability of coverage provided by catastrophe bond investors.
- **PART 3.** introduces the Whyte Daimin Catastrophe and Agricultural Loss Recovery Finance Framework and Models for China's Insurance Pilot Projects.
- **PART 4.** Whyte Daimin Models for farmers' income security in China's Agriculture Insurance Pilot Projects and Consumer Food Price Security and BRICS RE.
- **PART 5.** introduces Whyte Daimin recommended advanced working models for China's Agricultural and Catastrophe Risk Exchanges.
- **PART 6.** introduces a working Model for China's Health Care Exchanges
- **PART 7.** introduces the Whyte Daimin Model for ASEAN RE
- **PART 8.** introduces the Whyte Daimin Model for China's Free Trade Zones based on proven success of Bermuda's Economic Development Model

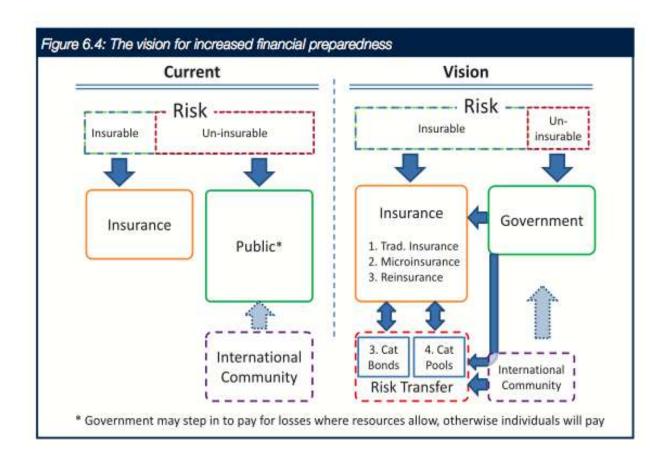
PART 1

Why the reinsurance and catastrophe bond markets <u>cannot</u> <u>reliably</u> protect lower per capita income nations. Nations with lower per capita incomes have increasing catastrophe recovery costs without the developed insurance sectors in high income nations.

Below charts reveal the insurance premium levels worldwide in 2008 and increasing insured catastrophe losses.



The key problem is that reinsurers provide the <u>only</u> models for catastrophe risk transfer and recovery finance and promote this "vision for increased financial preparedness" for catastrophes:



Reinsurers seek "partnerships" in which businesses and consumers provide <u>or governments subsidize</u> reinsurers new profits in lower income nations.

Reinsurers propose governments promote businesses and consumers buy insurance through education programs and making insurance mandatory or building insurance premiums into bank loan provisions etc. In nations not providing profitable premium levels, governments would subsidize premiums and reinsurers' profits on lower layers of catastrophe coverage reinsurers provide typically through uncollateralized reinsurance treaties. That exposes domestic insurers to the credit risk of international reinsurers' insolvency or disputing claims.

Reinsurers distribute risks they assume in the reinsurance markets and to catastrophe bond investors. Governments and the public continue to suffer the massive economic losses from <u>peak layers</u> of catastrophe risks. Reinsurers will not cover and cannot transfer peak losses to catastrophe bond investors.

Reinsurers will not provide reliable catastrophe recovery protection. Japan is a revealing case study

Japan's per capita income is US\$ 37,800 and, "The Japanese property and casualty insurance industry is the third-largest behind the U.S. and Germany with more than \$100 billion in premiums written in 2009. The earthquake in 2011 may cost more than \$100 billion, but insurers may cover as little as \$12 billion because of big coverage gaps in the country's insurance market. The ultimate impact may be closer to \$190 billion.

But many quake risks are covered by the government, or they aren't covered at all. Government is the big backstop against residential losses.

Quake is a special coverage many companies opt not to take because it's so expensive. Up to 30% of households have coverage, but take-up rates in some regions are as low as 10%.

Insurers limit the amount of coverage available. There could be a \$10 million catastrophe sublimit on a policy that protects a commercial building worth \$100 million. If there was a total loss on a policy like this, the policyholder would only get \$10 million."

"Japan's insurance market leaves major gaps," Market Watch, March 18, 2011

Although reinsurers and catastrophe bond investors cannot provide long-term commitments to provide adequate or affordable catastrophe coverage, if they can build nations' dependence on them they can then increase prices, decrease coverage terms or refuse to reinstate coverage after major loss years when it is most needed to protect nations' economic growth. They are profit driven and <u>cleverly limit and provide coverage only in 1 to 3 year periods</u>.

It is far better and safer for countries to rely on trade support based, long-term government to government sponsored partnerships. That is why we designed and are assisting in implementing a new paradigm of Whyte Daimin Models for Catastrophe Recovery Finance.

M7.2 earthquake close to the trigger of MultiCat Mexico 2012 cat bond

🕈 Share 🛛 🛷

A magnitude 7.2 earthquake which struck Mexico on Friday 18th April in the southwestern state of Guerrero, came very close to the magnitude and location required to breach the parametric trigger of the <u>MultiCat Mexico Ltd. (Ser es 2012-1)</u> catastrophe bond.

The M7.2 quake, which was located not far from the beach resorts of Acapulco, shook the region with residents of Mexico City almost 280km away reporting strong shaking from the earthquake as well.

Friday's earthquake was one of the largest felt in the Mexican capital in a number of years, perhaps due to the relatively shallow nature of the quake. The USGS initially recorded it as a M7.5 quake event, with a depth of 24km. It was subsequently downgraded to a M7.2 magnitude.

Pacific Catastrophe Reinsurance Pool Mulls New "Tools" After Country Drops Out

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The Pacific Island catastrophe risk pool managed by the World Bank is working with private sector insurers to develop new programs following the departure of one of the founding country participants.

The World's Bank's Disaster Risk Financing and Insurance Program (DRFI) is looking to shift its focus in its Pacific Catastrophe Risk Insurance Pilot initiative, according to Samantha Jane Cook, a financial sector special ist with DRFI.

"The new tools are being developed according to the demand from the countries, proliminary discussions have focused on the development of a new regional insurance tool targeted to cover more frequent and less severe events," Cook said in response to emailed questions, "The discussions with the Pacific Is and Countries regarding any new structure are ongoing. We are keen to ensure that any new structure developed is suited to the needs of the countries and their unique disaster risk financing and insurance requirements."

The changes come to lowing the departure of the Solomon Islands from part cloating in the facility last year. "[The] Solomon Islands experienced two disaster events which were not eligible for a payout and withdrew from the pilot. This has created the impetus to develop new DRFI tools to cover these layers of risk." a recent y released World Bank review of the program stated.



The reinsurance market crises and unreliable catastrophe bond coverage

All four major rating agencies (Standard & Poor, Bests, Fitch and Moody's) have "negative outlook" warnings on the global reinsurance sector

Goldman Sachs stated in 2014, <u>"The sun may have set on traditional reinsurers</u>" business model with capital markets able to efficiently enter and exit the market, the opportunity for reinsurers to extract excess returns has substantially diminished and is <u>unlikely to re-emerge</u>. Low levels of catastrophe losses in recent years are masking the effect for reinsurers, but in more average loss years the impacts on reinsurers' profitability will be more apparent to their shareholders seeking profits."

The Whyte Daimin Catastrophe Recovery Finance Models provide an <u>essential paradigm change</u> because:

- 1. Catastrophe risk models are useful but not reliable. Actuarially predicting and pricing catastrophe risks based on projecting past loss history into the future are not reliable because of the the "new unpredictable normal" of rapidly changing frequency, severity and locations of catastrophes and current limited ability of the geophysics and climatology sciences to predict catastrophes.
- 2. Reinsurers catastrophe coverage and credit worthiness are unreliable. They have had unsustainable underpricing of catastrophe reinsurance since 2005, low investment returns in bonds since 2008, and dangerous increased from 4% to 34% of reinsurers assets into stock markets since 2013.
- **3. Reinsurers and insurers should not write catastrophe risks unless** they can accurately model risk exposures and have adequate aggregate limit, premiums and assets.
- 4. Catastrophe bonds availability, pricing and terms are unreliable.
- 5. Catastrophe risks should be transferred and financed in the huge capital and commodity hedging markets instead of the small reinsurance markets.

Whyte DaiMin Model's "One Solution for Two Big Sets of Problems"

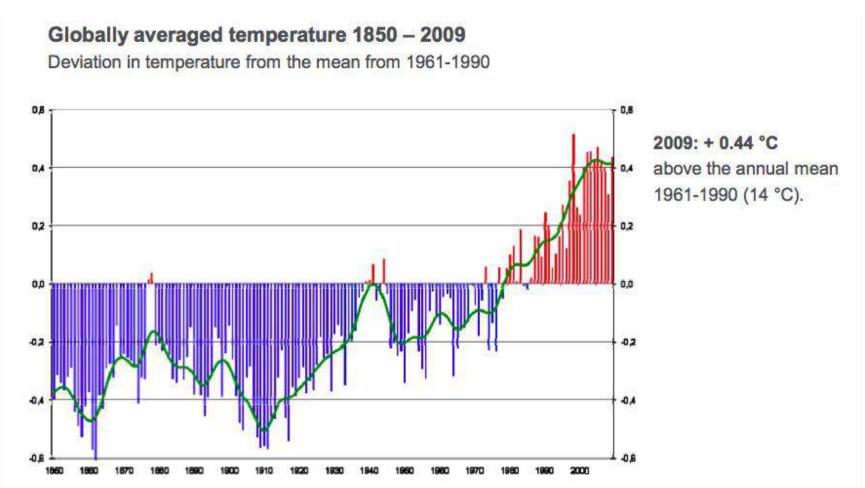
Global Reinsurers' Problems:

- 1. increasing severity and frequency of insured and reinsured catastrophe losses crises
- 2. too little capital crisis
- 3. inadequate pricing and investment return crises
- 4. underwriting and risk modeling uncertainty crises
- 5. existing reinsurers' strategic business model crisis
- pending insolvency crisis that can cripple China' s trading partners

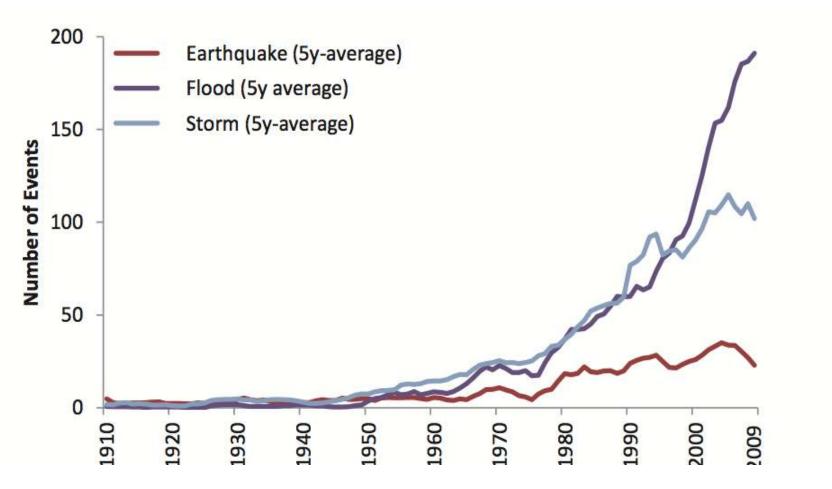
China's Problems :

- 1. increasing severity and frequency of uninsured catastrophe economic losses crisis
- 2. too much foreign currency invested in rapidly depreciating foreign debt
- 3. is not adequately allowed to invest in foreign companies equity and assets
- 4. self-insures 22% of mankind's catastrophe recovery costs
- 5. needs to sustainably develop and control its own financial industries services, reinsurance and insurance
- 6. wants to win friends in ASEAN, Asia, Africa, America and globally

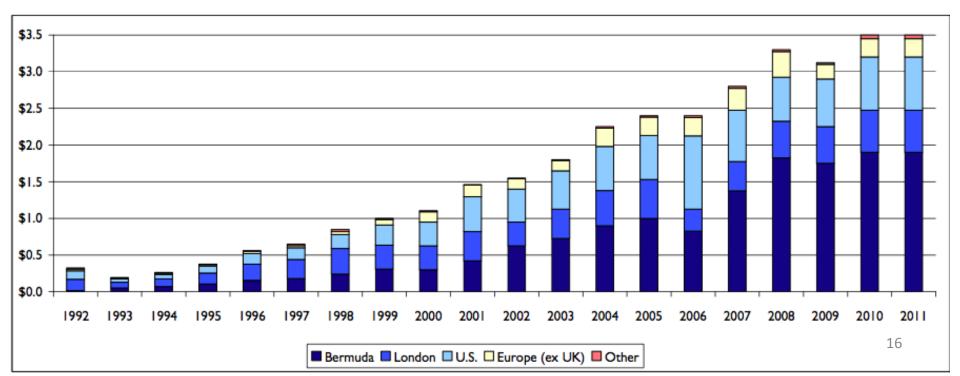
This chart reveals the new era of global average temperature deviation from historic mean temperatures increasing worldwide



This chart reveals the increasing frequency of catastrophes.



This chart reveals the corresponding growth of reinsurance and catastrophe bond based risk transfer between 1992 to 2011 from US\$ 350 Billion to US\$ 3.5 Trillion and that the innovative Bermuda reinsurance and catastrophe bond markets provide 50% of the world's catastrophe recovery finance.



These charts reveal that from 2001 to 2011 the total adjusted shareholders' equity of the largest 40 reinsurers only increased from US\$ 170 to \$350 Billion as catastrophe coverage increased from US\$ 1.5 Trillion to US\$ 3.5 Trillion In 2011 reinsurers' total equity of <u>only</u> US\$ 350 Billion was supporting the US\$17 Trillion insurance and reinsurance markets. There is US\$ 114 Trillion in the capital markets

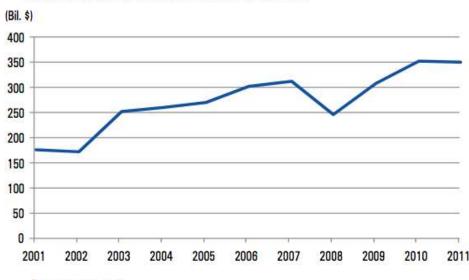
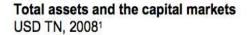
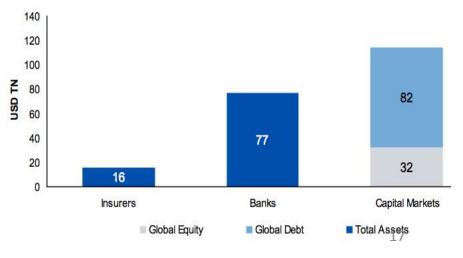


Chart 3: Top 40 Total Adjusted Shareholders Funds



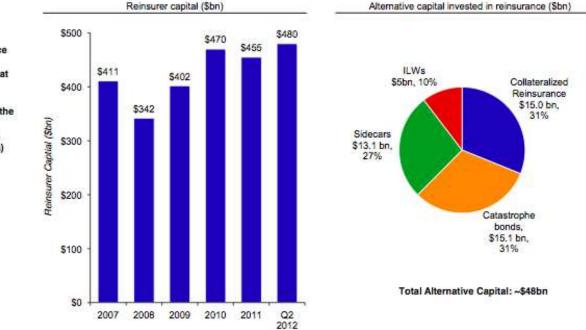


©Standard & Poor's 2012.

These charts reveal that in 2012 the total capital of all reinsurers was <u>only</u> US\$ 480 Billion and the capital from the insurance linked securities and catastrophe bond market was US\$ 48 Billion, which increased in 2014 to US\$ 68 billion or 20% of the world's catastrophe coverage. Reinsurers total capital was US\$ 578 Billion.

Capital inflows into traditional and alternate reinsurance markets



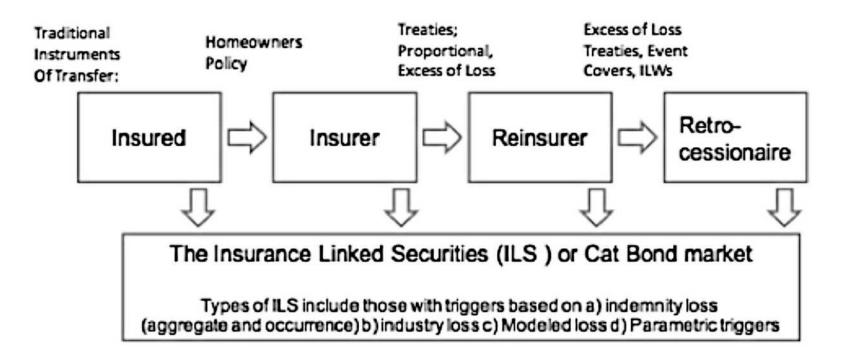


By most estimates, collateralised reinsurance now rivals the total outstanding volume of cat bonds

Since 2010, the value of the ILS cat linked market (ILWs, Collateralized Re, Sidecars, and Cat bonds) has more than doubled

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The competitive advantages of securitization of catastrophe risk is undermining reinsurers' traditional business models. Buyers can deal directly with investors on terms typically better than reinsurance risk transfer.



Catastrophe bonds securitize, transfer and make catastrophe risks tradable in the capital markets

Catastrophe bonds are rapidly taking market share from traditional reinsurance coverage. Reinsurers seeking profits of 10% to 20% from providing uncollateralized reinsurance cannot compete in many instances with catastrophe bond investors that have been willing to accept expected 5% to 7.5% profits from providing fully collateralized coverage. Catastrophe bonds pay claims more quickly than reinsurance, are often fully collateralized eliminating the credit risk of reinsurers refusing or being unable to pay claims, and are less subject to coverage disputes than reinsurance.

In 2014 US\$ 68 billion was invested in insurance linked securities that provided 20% of catastrophe recovery coverage. That <u>may increase to 40% to 50%</u>.

<u>Unfortunately catastrophe bond investors are unreliable sources</u> <u>of catastrophe risk transfer and recovery financing.</u>

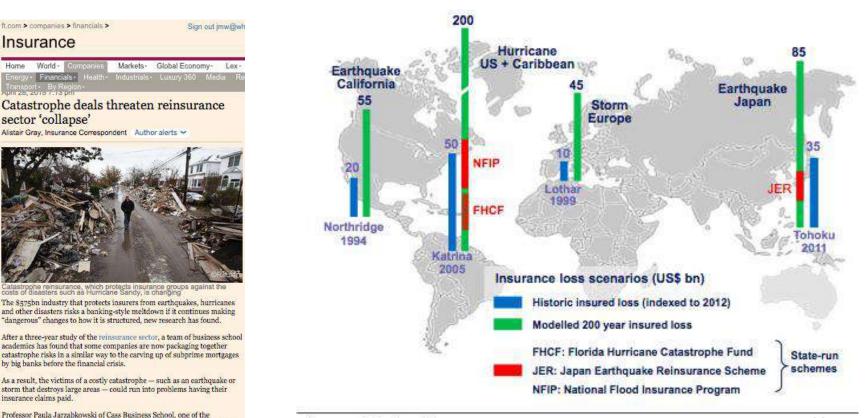
The availability of catastrophe bond coverage can easily disappear or its pricing increase and coverage terms decrease when there are major catastrophe bond losses or there is another financial crisis in the capital markets. It can also disappear when other asset classes become more attractive to investors.

Interest payments to investors in catastrophe bonds cease and they lose all or part of the capital they invested if a covered catastrophe occurs. In marketable catastrophe bond issues, modeling agencies and rating agencies issue opinions typically indicating that there is <u>no more than a 2% likelihood of investors losing</u> their capital and interest, which is true <u>to date</u> in over 300 reported catastrophe bond deals. Some investors are willing to accept higher possibilities of losing their capital for higher rates of interest. However, litigation has developed in cases where covered catastrophes occurred.

Investors have found that their investments other asset classes do not trigger losses in catastrophe bonds. But, a major catastrophe in an urban or financial center will be correlated with certain types of losses in the capital and stock markets. AIR, a leading catastrophe modeling agency warns one category 5 hurricane making landfalls on the U.S. coastline in Miami and New York could wipe out as much as <u>60% of tranches of coverage in all catastrophe bonds issued.</u>

The *Financial Times* reported on April 28, 2015 that <u>securitizing catastrophe risks "threatens reinsurance sector collapse."</u>

This chart uses industry data to compare the difference between the world's four largest insured catastrophes actual and <u>much higher potential losses</u> if they occurred now.



Source: Industry data

researchers, said mainstream insurers were potentially spreading risks to

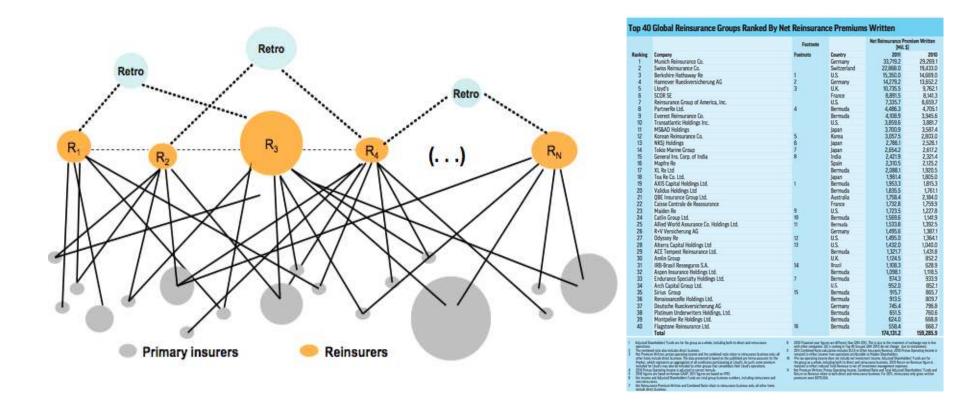
parties that did not fully understand them.

This chart reveals that the reinsurance market is concentrating rather than distributing risk.

In 2011 Munich Re, Swiss Re and Hannover Re had 34.8 % of the global reinsurance market. In the "new unpredictable normal" that concentration of risk can cause the insolvency of these companies, a domino effect of crises in the reinsurance market and the collapse of the the global financial system



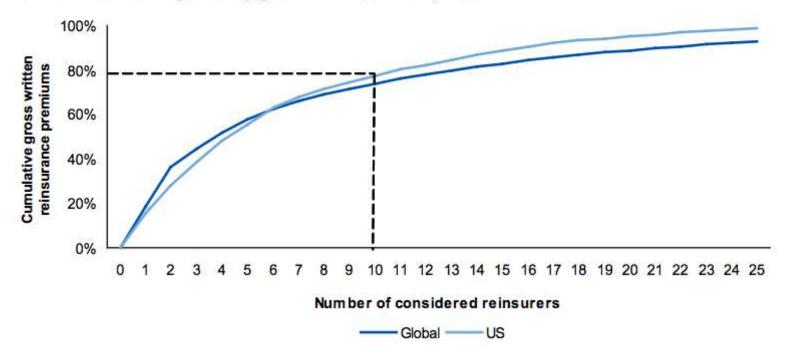
The reinsurance market is <u>dangerously</u> concentrating risk in other ways also. In addition to 3 reinsurers having 34.8% of the reinsurance market, reinsurers transfer and assume risks from each other. Each reinsurer to sets its own aggregate limits and mix of risks, most place and accept proportional risks with other reinsurers.



This chart reveals that the 10 largest reinsurers had 80% of the world's gross written reinsurance premiums in 2008:

Cumulative premiums by the largest reinsurers

Ranked in descending order by gross written premium, 2008



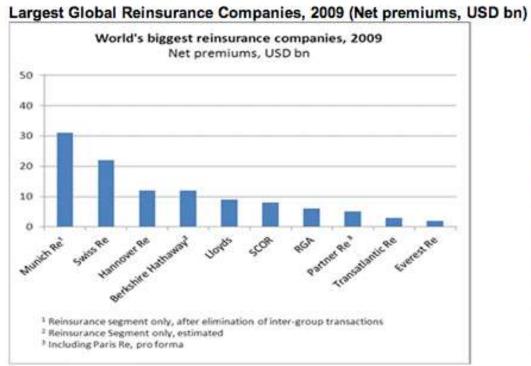
Source: AM Best, IAIS Global Reinsurance Market Report 2009, OW Press Research

1. Based on the Top 35 global reinsurers (gross written premium 2008: USD 156 BN) and the total gross written reinsurance premium according to the IAIS Global Reinsurance

2 Resed on the Top 2511S, reinsurers (arross written nremium 2008; LISD 37.2 RN of total LLS, arross written nremium of LISD 37.7 RN)

Market Report 2009 (2008: USD 159 BN) which is only considering reinsurers writing reinsurance in excess of USD 800 MM.

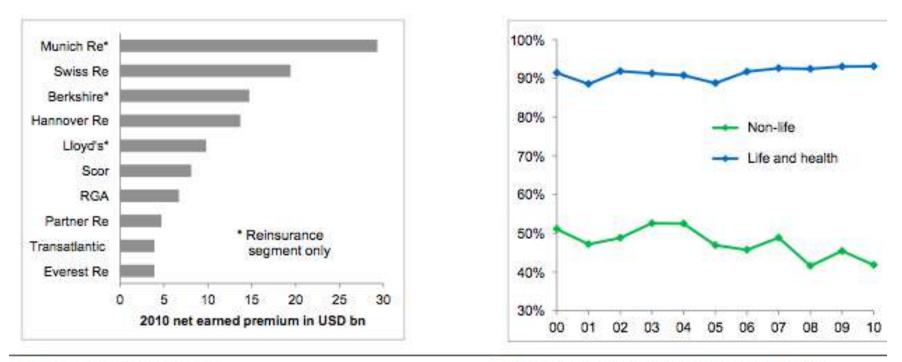
These charts reveal the 10 largest reinsurers' <u>net written premiums</u> in 2009 and the amounts of each of their <u>gross written premiums</u> in 2011



Reinsurer	2011 GWP (US millions) ^[3]
Munich Re	\$33,719
Swiss Re	\$28,664
Hannover Re	\$15,664
Berkshire Hathaway / General Re	\$15,000
Lloyd's of London	\$13,621
SCOR	\$9,845
Reinsurance Group of America	\$7,704
China Reinsurance Group	\$6,179
PartnerRe	\$4,621
Korean Reinsurance Company	\$4,551
Everest Re	\$4,286
Transatlantic Re	\$4,035
Thai Re	\$1,129

Source: Swiss Re

These charts reveal that the largest 10 reinsurers' had 80% of the non-life market globally in the 10 years from 2000-2010 and shows their <u>net earned premiums</u> in 2010

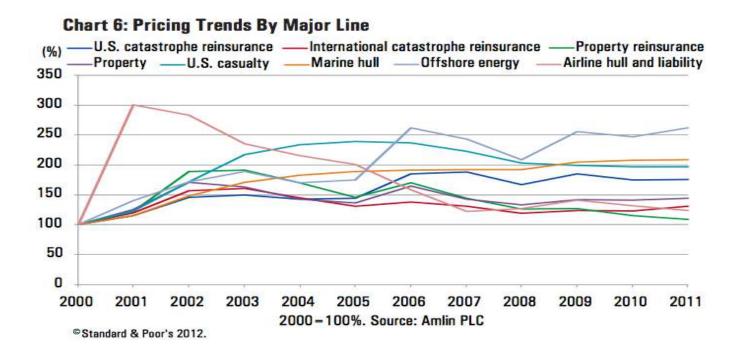


Source: Company reports

Market shares for the years 2000 to 2010 Source: Industry data

This chart reveals that international catastrophe reinsurance pricing has been inadequate <u>for the past 10 years</u>. It failed to rise after the largest reinsured catastrophe losses in history in 2005 and 2011. The inadequate premiums endanger reinsurers' solvency.

Pricing will increase and coverage terms decrease dramatically when <u>competition</u> among reinsurers and catastrophe bond investors causing the inadequate premium rates abates after major catastrophe losses.



Reinsurers are <u>gambling</u> in "nature's casino" in which catastrophes' frequency, severity and locations cannot be modeled reliably based on past experience.



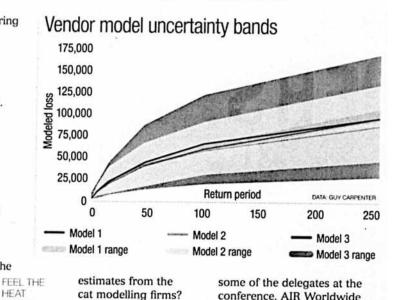
Catastrophe models 'not fit for purpose'

Underwriters slam modelling firms for 'inaccurate' and 'wrong' information
RMS, EQECAT and AIR Worldwide dominating 'unhealthy market'

Catastrophe models are suffering from a "paucity of data" that renders them inaccurate, speakers at the International Underwriting Association's fourth annual catastrophe modelling conference claimed.

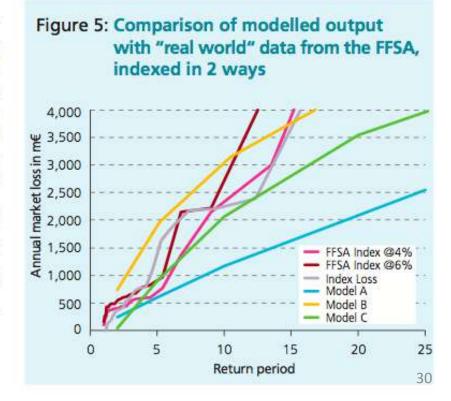
Moreover, they said that unreliable information was creating high levels of uncertainty in models and their outputs.

Karen Clark, president and chief executive of Karen Clark & Company, said it was a myth that cat models were objective tools. "They are not, because there is such little objective data," she said. "All the models are wrong – but the question is, how wrong?"



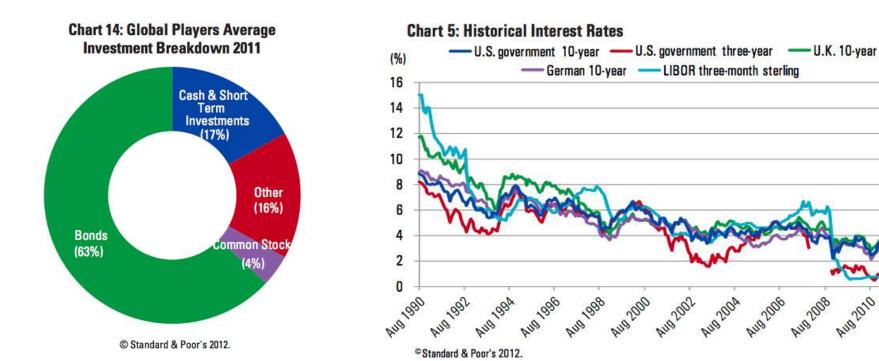
Frequency, severity and insured and reinsured financial damage <u>assumptions</u> <u>determine</u> the predictions of models. In the example below, note the differences between the 3 leading modeling agencies predictions and actual loss results.

In the third level – model validation –, data or information are taken from outside of the modelling world to compare with model results. As an example, in Figure 5 we compare historical loss from the insurance association of France (FFSA) with 2 simple indexations (i.e. 4 and 6%) in order to represent a lower and an upper bound. We then compare with vendor models using the industry-wide losses, allowing us to observe and compare the range of results at low return periods. It seems in this case that model A is too low, whereas model C is too high. This can have serious implications if using models to price contracts attaching within that range. This type of analysis enables further challenge of the models and provides benchmarks to independently assess how they behave.



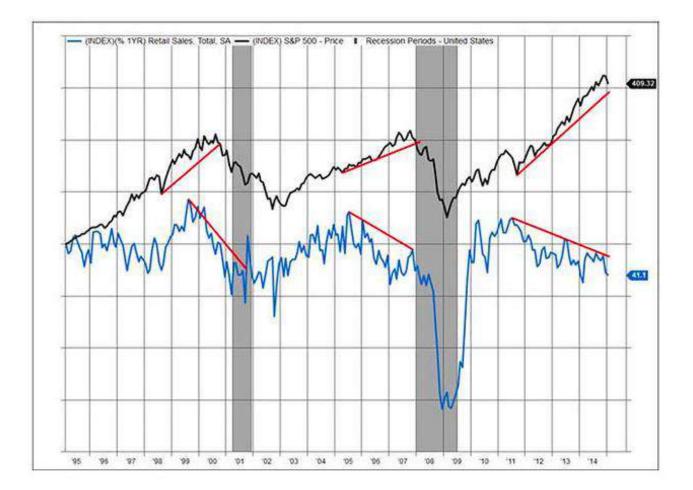
Reinsurers also have been suffering from <u>low bond</u> investment returns since 2008.

Reinsurers had approximately 63% of their assets in bonds and 4% in listed common stocks in 2012. In 2013 reinsurers' global average stock market investments increased from 4% to a dangerous 34% of their assets. This can result in the sudden simultaneous insolvency of reinsurers that will then impact others reinsurers' solvency.

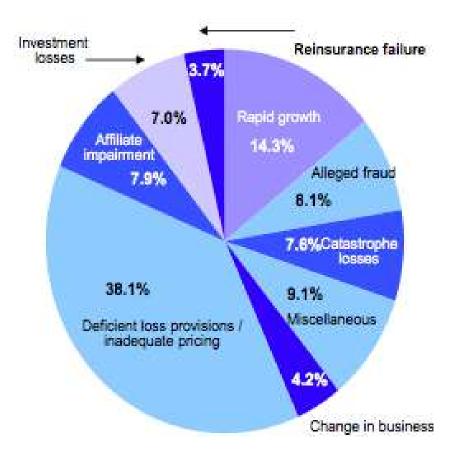


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This chart reveals the plunges in value of stock market invested assets in 2001 and 2008-2009. Reinsurers' assets invested in stock markets will drop in the normal cycles of "<u>corrections</u>" and <u>plunge</u> after major catastrophe losses and in a financial crisis

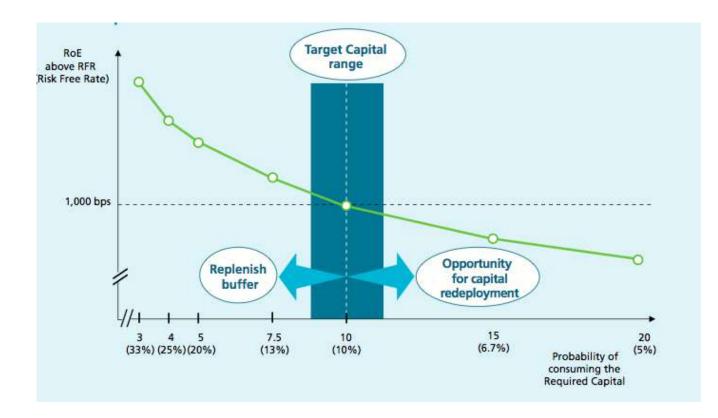


This chart reveals the causes of non-life insurers' <u>insolvencies</u> in the US due to investment losses and reinsurance failure from 1969 to 2009



Reinsurers need to protect their <u>long term solvency</u>, <u>but</u> may take unwise risks in seeking to achieve their <u>annually judged performance and profits</u>

<u>Moral hazard</u> is possible in reinsurers risk/return trade-offs in the <u>"new</u> <u>unpredictable normal</u>" and the competition for market share.



The reinsurance industry's performance and profits <u>in 2011</u>

The worldwide reinsurance industry is:

- Moderately profitable overall (a 9% compound ROE since year-end 2000)
- Volatile (calendar year ROE's ranging between -9% and +20%)
- Shrinking (the 2011 market will be smaller than 2003's)
- Well-capitalized (leverage ratios down over 40% since 2001, even after the recent financial market declines)

Adjusting reported data for foreign affiliates and exchange rates, Holborn estimates 2010 results of:

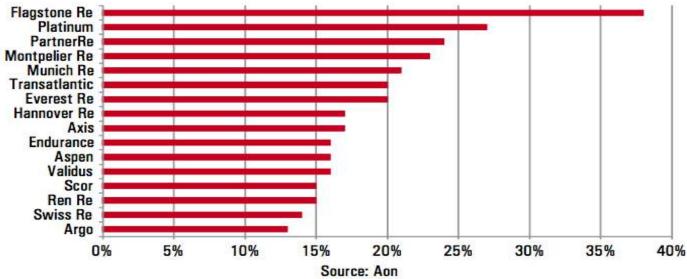
- Net earned premiums \$170 billion \$180 billion (down approximately 7%)
- Combined ratio 88% 90% (up at least two points)
- Net income \$20 billion to \$26 billion (down, but still far above the long-term average levels)
- Return on equity 10% to 12% (also down, but still strong)
- Year-end capital \$215 billion to \$225 billion (GAAP basis except for RAA members)
- Assets up, but only by 3% to 5%

Large industry events in 2010 added about 8 to 10 points to reinsurers' all lines loss ratios, about 3 to 5 points more than normal.

But, this chart reveals that in 2011 Swiss Re, Hannover Re and Munich Re had catastrophe losses that were 21%, 17% and 14% of their shareholder's equity respectively.

The chart also reveals the systemic danger of the reinsurance market's collapse as 16 reinsurers lost between 38% and 12% of their equity in catastrophe losses in 2011, the worst year <u>so far</u> in the "new unpredictable normal" of catastrophe losses.

Chart 1: 2011 Natural Catastrophe Losses Relative To Shareholder's Equity



As a Percentage of 2010 Shareholder's Equity (%)

© Standard & Poor's 2012.

A worldwide example of moral hazard

The world's largest insurance and reinsurance group with over \$1 trillion in assets discovered in 2008 it was insolvent and would collapse because of its exposure to business with financial institutions trading securitized risk. It was "too big to fail" and the U.S. government with taxpayer funds had to provide <u>\$180 billion to prevent AIG's and the global financial system's collapse.</u> In 2011 AIG remained second largest reinsurer with 14.9% of the global reinsurance market. That is a worldwide example of moral hazard.

AIG developed a major business in unregulated financial credit default swaps. It did not understand the risks it was taking in securitized risks. Its management failed in its responsibility to oversee the entire company, including AIG Financial Products.



<u>A key problem is that it is impossible to know what aggregate limits</u> each of the 200 reinsurers have or how much risk they reinsure with each other potentially exceeding individual reinsurers aggregate risk limits? Individual reinsurers assert that they limit their aggregate exposures thereby limiting their maximum possible losses. However, they will admit that they <u>transfer and</u> <u>accept risks from other reinsurers.</u>

What reinsurers are doing may be analogous to the "LMX Spiral" that pushed <u>Lloyd's in 1982 to the brink of collapse</u> and forced major financial and structural reforms in 1988. The existence of the <u>LMX spiral</u> in which reinsurers disastrously reinsured each other "was fairly well understood in London for several years before Lloyd's crisis, but there were only five published articles dealing with it".

Partner Re, the 8th largest reinsurer in 2012, is a revealing case study.

Its 2005 Annual Report indicated it's aggregate limits crucial to protecting its ability to pay losses and its solvency:

"<u>Risk:</u> The risk that the aggregate losses of Partner Re from natural perils exceed the net premiums that we receive to cover such risks. <u>Measure</u>: (i) Aggregate limits for catastrophe losses in each of our defined exposure zones. (ii) Aggregate modeled net economic losses (losses less net premiums received) at a particular return period as a specified percentage of available economic capital. <u>Tolerance</u>: (i) Total aggregate exposed limits in any one zone for a loss from a single peril to be less than US\$ 1.25 billion. (ii) Aggregate modeled losses (i.e. losses less net premiums received) of multiple events for approximately a 1-in-75 year return period to be less than US\$ 750 million (i.e. 60% of maximum zonal aggregate limit). Present position (12.31.2005): (i) Limit \$1.25 billion (ii) \$ 750 million. At Partner Re, we are concerned with both the loss of capital due to a single large event and from <u>multiple (but</u> **perhaps smaller)** events in any year.

Partner Re's aggregate limits of US\$ 1.25 billion/US\$ 750 million in 2005 are questionable because reinsurers, modeling and rating agencies were shocked by massive reinsured losses from <u>3 major hurricanes occurring in 2005 that previously</u> were thought to occur "only once in a 100 years" in the US.

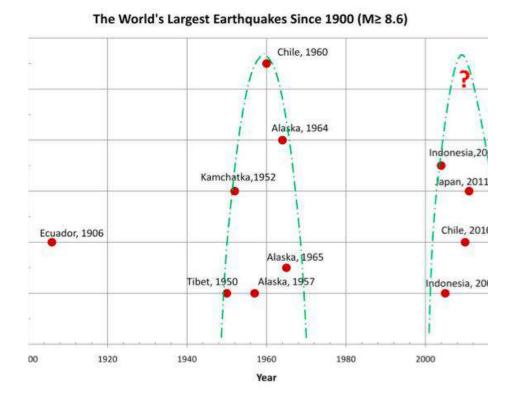
In 2010 Partner Re's CEO wrote an article, "Systemic Risk – What Risk?" Then in 2011 Partner Re lost 24% of its equity.

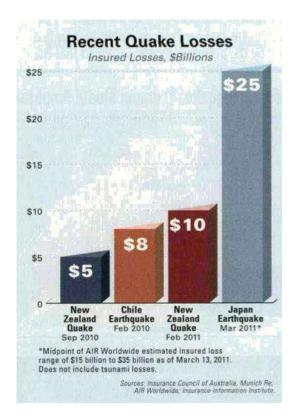
"We bear very little liquidity risk compared to banks and hedge funds. Non-life reinsurers operate at very low levels of leverage; typically we carry capital equivalent to 15% to 30% of our assets, at least double that of banks. This means we can withstand shock losses (1 in 50 or 100 year events) without damage to our claims paying capabilities.

<u>Reinsurance is a fragmented industry</u> which means that we can withstand the loss of any one participant in the industry and that capacity, on a global basis, will continue to be available so that risk can be transferred on a continuous basis. While there are some mixed insurance/reinsurance groups, there are no "financial conglomerates" left in the global non-life re/insurance industry of the size of AIG.

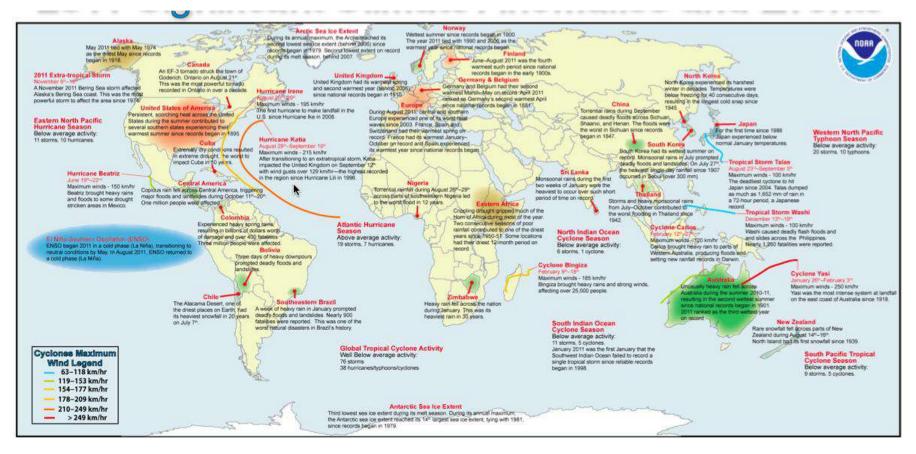
What we would like to see is a regulatory regime that has a light touch in all matters except solvency and that acknowledges the fundamental strength and resilience of the non-life re/insurance model. Non-life insurers and reinsurers must be allowed to function within a wide range of risk/return strategies and regulators need to allow companies to determine their place on the risk/return spectrum. It is up to us all to make that case."

The U.S. Geological Survey acknowledged after the unpredicted 2011 Japan earthquake, <u>"We can't predict earthquakes</u>, but "we can issue warnings 10 minutes after they occur." What is known is that major earthquakes do come in clusters and <u>we are currently in a cycle of 8.6 or over earthquakes</u> on the Richter Scale, which are extremely damaging particularly in urban and financial centers.





Also, <u>no one can predict accurately</u> the changing frequency, severity and locations of weather catastrophes and reinsured losses because the world's climate is rapidly changing. This chart reveals 2011's significant climate anomalies and events.



The US Government is very concerned about space weather catastrophe risk of US\$ Trillions of losses from geomagnetic storms.



Space weather now included in the Strategic National Risk Assessment The US government sees a 6% to 12% probability of a geomagnetic storm within 10 years causing damage that may take 4 years to repair damage to critical nation infrastructure, which is now part of the US Strategic National Risk Assessment.

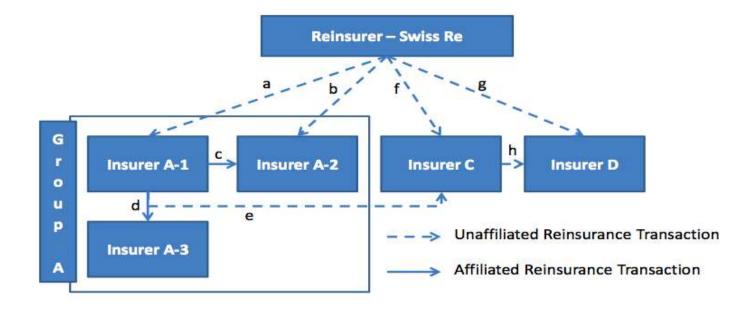


Reinsures assert that <u>more</u> catastrophe risks should be reinsured. What impact would the insolvency of a major reinsurer have on the reinsurance market and the world's economy?

This is Munich Re's Megacity Risk Index of catastrophe exposure. How can the reinsurance market with US\$ 578 Billion of total assets pay a US\$ 1 Trillion mega loss or series of US\$ 100 Billion losses in a single or successive years given that in 2011 16 reinsurers lost between 12% and 38% of their equity when they were unable to accurately predict their losses?



A major reinsurer's insolvency would cause crises for other reinsurers and insurers insolvencies and a global financial crisis.



The Financial Times reported on November 29, 2009 that Swiss Re was on a list that regulators earmarked for cross-border supervision to try to reduce impact of a major companies failure like AIG's.

<u>Nine global insurers have been named as globally significant</u> by the Baselbased Financial Stability Board and the International Association of Insurance Supervisors. The insurers stand to face tighter regulation and <u>potentially</u> <u>higher capital requirements</u> because regulators have determined that they are critical to the functioning of the global financial system.

According to Swiss Re, "The current approach to SIFIs (systemically important financial institutions) focuses on individual institutions, identifying companies based on their asset-size or market share. However, this "too big" or "too interconnected" to fail approach should not apply equally to (re)insurance and banking because it disregards the differences in business models in banking and insurance. "Size" – in other words diversification – is actually a key element in the value proposition of insurers and reinsurers. In fact, diversification across different countries, lines of business and unrelated hazards allows global (re)insurers to act like "shock absorbers" – smoothing the impact of costly events and injecting capital into the real economy. This allows global (re)insurers to remove risk from the system, as opposed to being a source of risk."

Munich Re, Swiss Re and Hannover Re had high exposure to sovereign debt

All three global reinsurers have substantial amounts of investment in fixedincome securities, particularly with respect to government and "semigovernment" (i.e., they have a direct or implied government guarantee) bonds. Fixed-income securities ranged between 65% and 89% of total investments for Munich Re, Swiss Re and Hannover Re as of year-end 2011. Government and semi-government bonds represented about half of all fixed-income investments for these three reinsurers; for Swiss Re, 80% of this exposure included non-Eurozone government bonds. Corporate bonds ranged between 10% and 16% of fixed-income investments, while covered bonds were 28% of fixed-income investments for Munich Re and 14% of fixed-income investments for Hannover Re. Covered bonds are debt instruments that are typically issued by a bank, whereby the investor has recourse to the issuer, as well as a preferential claim to a separate "cover pool" of mortgage loans, public-sector debt and loans or other highquality assets.

Reinsurers "too big to fail" should <u>decrease</u> their catastrophe risk exposure to protect their solvency. Lower income nations should not depend on the catastrophe reinsurance and catastrophe bond programs organized by reinsurers.

Reinsurers competing in the emerging new catastrophe recovery finance system with the catastrophe bond investors cannot extract adequate international catastrophe risk pricing. To protect their solvency reinsurers should reduce their exposures in the catastrophe risk transfer market. However, catastrophe bond investors would fill the vacuum and seek the highest achievable profits and they can easily stop providing capital for catastrophe risk transfer and recovery financing. It is not their core business.

Reinsurers are being driven out of the catastrophe risk market by market forces far beyond their traditional control. Many reinsurers may end up limited to making lower profits managing catastrophe bond investors capital.

Foreign reinsurers reliability has been reduced by the US threatening China with economic <u>sanctions and war</u>.

In April 2014 the US State Department publicly stated that China would be subject to sanction (as Russia is) <u>if China used "force or coercive tactics to pursue its</u> territorial claims" and the US military stated it would "<u>swiftly recapture</u>" the Diaoya Islands, <u>which would be acts of war</u>. The US has not made sanctions threats against not against Japan, Philippines, Vietnam etc. if they create a confront with China in the South China Sea. In the event of China or such other nations causing such conflict, China could find reinsurers ability to pay is prohibited by sanctions and that China is technically at war with the <u>US and its NATO allies making China's assets in such jurisdictions subject to seizure</u>.



Global Times | 2014-4-14 0:38:01 By Global Times



If China occupied the Diaoyu Islands, US Marines in the Pacific would swiftly recapture them, the commander of marines deployed in Japan assured, The Japan Times reported on Sunday.

"It's a very, very small collection of small islands," the US military newspaper Stars and Stripes quoted Lt. Gen. John Wissler as saying Friday at a breakfast with defense reporters in Washington.

"You wouldn't maybe even necessarily have to put somebody on that island until you had eliminated the threat, so to speak. And that's where that whole integration of our full capabilities as a Navy-Marine Corps team would be of value," Wissler said.

April 4, 2014 7:04 am

US warns China not to use force in maritime disputes By Demetri Sevastopulo in Hong Kong



The Obama administration has warned Beijing not to use force or coercive tactics to pursue its territorial claims in Asia, saying that sanctions placed on Russin for annexing Crimea should have a "chilling effect" on any such plans in China.

Daniel Russel, the top east Asia official at the state department, on Thursday said China's neighbours, particularly in southeast Asia, had heightened concerns about the "possibility of China increasingly threatening force or other forms of coercion to advance their territorial interests" following Russia's actions in Crimea.

Part 3

Introduction to the Whyte Daimin Framework and Models for China's Insurance Pilot Projects

China finds unexpected answers to "unsolvable problems."



Whyte Daimin Catastrophe and Agriculture Risk Transfer and Recovery Finance Models Framework

China's agriculture and catastrophe risks

Limited risk transfer to state owned insurers and reinsurers

Some geographic diversification risk transfer with creditworthy international reinsurers Cat bond and ILS risk transfer and recovery finance initially in the Chinese and later into international capital markets Transfer and hedging of risks and financing of losses in the international commodity futures markets The Whyte Daimin Framework and Models designed to support commercial solutions in China's Catastrophe and Agriculture Pilot Projects, Catastrophe, Agricultural and Health Insurance Exchanges, ASEAN RE and BRICS RE and China's Special Economic Zones are <u>pioneered</u> in 2014-2015 <u>articles</u> and 2015 <u>textbook</u>: *China's Potential Roles in a Sustainable Scientifically Managed Global Catastrophe Recovery Finance System*.







Whyte Daimin Models for China's Insurance Pilot Projects were introduced in *China State Finance Magazine* in Mandarin and *China* International Business Magazine in English in 2014-2015

Creating China's Catastrophe and Agricultural Reinsurance Finance Industries

NULLIGAN-WHYTE

Entry can be the world leader in sing in and commercially financing massive recovery cosis frem catastrophes including major earthquakes, storms, droughts and Books, Once China has these Seancing mechanisms working well demostically, it can scale them internationally. This is the first of a series of anticles explaining how tics car, be done.

China's historic agricultural losses are 656 to 10% annually but peak losses can reach 25% or more. China has the highest exposure to earthquake risk in the world and its growing orban concentrations of people and industry create huge risks and recovery cests China kas far too much geographic concentration of catastrophe risk. The China Insurance Regulatory Commission indicates that less than 1% of earthquake recovery costs are covered by insurance which hinders reconstruction. Recovery costs are currently financed by Chinese government entries. The peak risks and recovery cests are too massive for Chinese insurance companies or the international reinsurance companies to finance

commercially. Financing calastrophe risks in the capital markets is a major global energing financial industry. China's trading partners and particularly developing rations to not yet have the colostrophe recovery financing they need to protect their economies. Approximately 60% of global economic lasses from natural and man-made disasters are uninsured. China is the only parton with the continuation of credible inancial resources, government controlled economic management capabilities and hoge domestic market size needed play

the loading role in developing the global agricultural loss and catastrophe recommenfinance industries. It has US\$3.83 trillion in foreign governments' currency and debt securities that need to recirculate in the global economy investing in einsurance companies and the new asset class of insurance linked securities are an impertant new diversification of China's conestments. China's central bank's State

Administration of Foreign Eachange has purchased 3% of Munich Re, the world's largest insurance and minsurance group. Investments in reinsy rance and option and massive intervention was

the size, turnoour and investor lines to inversion blocked and within how the mostly invest in and finance China's peak risks of being non-invasive. "There are only 10 countries that accepted the langest net oreign direct Investmenti fram China serween 2004 and 2010. In 2011, US\$32.H billier, worth of investments proposed by Ohina failed to be completed. That's more than half the CISS601 billion in norman deals made by Chinese companies in 2011 But investments by Chinese

comparies have generated political backlash in some countries, and several big deals have fallen victim to regulatory concerns" according to China's Ministry of Commence China's winsurance investments are good for the whole world. We live in new eras of plobal financial and economic instability and of the increasing frequency and severity of economic and insured lesses from natural catastrephes. The Engencial Times summed up these new eras danger. The world must prepare to be shocked. The 2008 financial crists filusirated the possible consequences of excessively disturbing an obscure cerner of a complex system. The result then was a swift large and unpredicted

dislocation in the way the system worked Adaptation to the outcome was not an

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创建巨灾和农业再保险金融产业

其获得公司56的股后,对再保留公司 学校的一名教授专提三叉的连续证券 「你特戴教育保険会融中心 和保险连续证券的投资基本在大量性论。 石质输出材装饰,*1000亿美元的合伙 对由始盟、区墓、单实和放水等性 10.21 正定期生活的给某保险办理和直保的 安然成於成大保留成太法行经济和通信 由国际国际协会委护联合任务和 不同就产, 的这些公司内占为何的原置 能资意在承诺在编程的演要全幕产生。 是考虑的,出生时代,全球全秘和经济 交易资产价值总额的2%, 征且占有不 \$533.54、安白古新安全经济和保险 2.1%的单键将本市场价值直接, 这意 我们认为,中国可以在这一领域成为分 840% 经外贸易的局部 自己意义的 化合规性物 **验验、积累积成长出运业及来的装饰的** 中国历史上的表录很失事复生在 变化和会融活等的新时代中线制力法: 值总编想失存资本市场基金犯的终于 6%暂10%方在,最大损失率可以达35% 为订稿标许保证成本规模新作用常常 对保险市场来说是极天性的。许多可 该支多, 些优秀上地震风险凝集中的间。 2、据合国秘书检测局文在1013年期 女与赫济状况都不相关,投资于巨大风 家之一,在日本集中的城市人口和工业 合词投告中担击,"来自很水、坟窗和一 1010年度日本10年度20月1日日1日 市区最含着极高的风险和保安成本(一 早天的直接很失死少被低伤了90%。到 经济集合,分散投资风险,就量任务机 本记纪为止,来回灾害的直接损失大概 日日中发生),民城区大风险集中度生 把防禁证券化一样。在史广阔的证券有 在25万亿美元大台,巨大学经济相生 很高,中国铁造营营用委员会测出。 场心器任实相失极非常者情备的。"不 以天法检师的连发感觉武士升,并且只 保险公司服务的保险保险保险不足实行性。 来的是,2006年,资本市场台流艇将已 修缮过政府和合业的合作来减少损失。 **整成太老 16. 定得了**实际重建进程, 实 春年的消的风险(次偏语紫癜机)引发 后体发成本现在主要来自政内部门的 无赋,通过保险公司、非保险公司和资 了全球金融和经济优权,如果自然口 财政拨款,保险公司成者国际网络险会 本市场工具(如此灾彻存)为巨灾风险 无风险证券化不能得到很好的梦想,那 敏感, 使够帮助国家在经历大资冲击后 时元力承担如此更大的风吸和实际做。 太空任何掘引起全球金融系统的原稿。 就设法: 学结构复。这种汉顶偏变和分散机相互 类研成改正有努力规制具有政治影响 市自然和人物区实际保护全保护 我的对威快区力区的一世地发出而多 力的場所、対於基金和完整公司、中国 医强矢中有近60%没有保险保证,印度 作用:"但是,但是我关助公司也是当此 政府在为全球保险运输证券有场稳定 是唯一拥有可靠的财政委员和广大区区 美豆大的地球地球和气候的不确定员 发展提供监管框架等图中具有更短频 内白砾;并且政府有能力管控经济发展。 头, 但未保险的不在是完全和险低的被 的标注 的国家,这些优势是有发展全球农业地 资助相等问题, 包引发现自以和回客介 日本区委員会からに接通書画の支援 大和巨大铁发金融产业中占新领导地位 发发频频建设保险运动证券进入资本 全国市保险市场, 而来自保险并和订单 的必要条件。中国有196万亿美元(截 市场而不是两保险出场的投资者获得 的新资本在应对解讨己的巨文损失中是 2.2014年1月度)外的保备,最高于有 然终始进行改争。 中常重要的。2012年,再保险市场有将 保险公司和保险还修证券对中国来说是 20世纪99年代初期发生了一次日 近200米国际再补助会时,内核灯的全 一种新式儿童家的多种化投资方式。可 大学治带和多次绝父生世、中国保险人 都资本只有490亿美元,将加上来自营 11. 中央部行外汇委用器校委的实了全 和此何的人都不会成为了他们会回来。 本市场的间段适然证券投资注入的+80 经关约风险基面程度,1992年,前蔡南 亿美元的资本,共 5260亿美元。一个成 建最大的偏原和鲜色染色的——基亚黑

系列大型巨大将使得大型消化除公司 根记尔影响称个许快的光场, 比如, 相 提2011年日本地贸易与特况停计结果。 综合保险。另位差示的保险相乐、由于 1+107年一名读前48次祖母,二个读道。 第这种自然定面对全球会融影体和66图。 这种的影响是无法承望的,许可的这种

很失或必须原主要保险和内保险公司的 被产重成个成的应用和资本自场边就不 ·安、河海梁和北头的新香料采随, 三家 世界上基大中国保险公司已经将国际保 biter to the main of an e-side interesting adder to 是因威胁全球全脑系统稳定性的公司。 因为这种公司的巨大规模和应该设备。

HOLD CONTRACTOR AND A STREET OF

中国将参引生为中国保险的客保险人。 然而,汉母公司本身被数语国家中和位 易恐机爆身, 医为你们在3136的全球 前保持市场特别,所以本社会器体被求 的政治公司网络公司同社会成为学士会 236. 拿运纳系,外带公司权大都了中国。 保险有场的146元间保险市场的196.间 无法举心证据从资源保险公司并由政 和控制其自身政治秘密掌握高的任实 和农业保险和润保险市场的需要并不 一致,但是,中国的保险和钙铁路公司

发展市业和时候给,片川加速点面内保 希叔现光扶油走起中,由于有限的深际 (4) 方法:103(25(25))(3)(4)(3)(4)(2)(4) 网络 正式如果: 由国际政府的工程保险 会一直在寻找路径,为市场设计和开发 可靠。我好的使马产品以满足中国的使 验需求,尽管或音频行为农业保险提供 将五40亿美元的补证, 古场上的表示 保险产品并不合意或者无法认真业化 出的小获利。 前中间来说, 百基大用植物市场 是一个可以母亲的成功经验。作为全 球最有创造力的再保险中心,最早较较 超过10%的合成具保收保费。并为全 球15万亿美元的12天保险推供2万亿 美元的公实再保险保障。通过建立一 种交无食病的监管框架,它在如何内 成长为全球第二人再保险市场,条管 產業税据不同类别公司的不同省在和 要产, 无不同类型的保险和得保险会 经进行报道宣传们的监督, 医产展过 1466亿美元和资产福祉 4000亿美元保 司保险会司在当县大使之赵相友交级 的运营关系,这些保险运动证券的投资 者来说住是极具限引力的。借鉴可非

大的成功经验,中国可以成为世界农业 和广关将创始趋势产品的最大投资者。 投代者和清荷者。 🚥 虎任编辑 明碧

Only the global capitol markets have 50 The kinetical Score Jard 76

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Municipal Catastrophe Bond Model:

In the Shenzhen and other pilot projects, <u>instead of using unreliable reinsurance</u> <u>coverage that cannot be safely scaled nationally throughout China</u>, a Municipal Government or other government entity or a Chinese insurer issues a parametric catastrophe bond covering all catastrophe perils for 2.5 billion RMB <u>or far larger</u> <u>amount</u> that is fully collateralized that initially only Chinese citizens can invest in with an attractive interest payment return per annum. Investors loose capital on a sliding scale but not interest payments if any covered multi-peril catastrophe occurs. In a later stage foreign investors can be allowed to invest on the same terms as Chinese investors.

8月6月 新 約	更 出 吴奇伎	磁文汉 许大华 许宏才 雇 弱 余 成 高培勇		・: 110 所ヒ火休 1965, 和中. 支付金額等金司的補助		報件主法
		刘尚希 李俊生 慧庆好	□怀特戴敏再保险金融中心	1241亿元,约为补贴后被的1/3;支付	计被筛选的市政府销售已次依要以支	直接经济
	103140	39.05.12	巨牢固修导性的巨大将生成中国的	价有保险保险的农民的补贴约为1786	村巨灾损失。目前,已经在8个人口密	8.4
ŁK		併 东	保险和再保险公司的营木来说过于庞大	亿元。约为补贴贫瘠的20%。这样的表	集的试点城市会合由市政分发行情景。	木市场的
2.编 躬		何志平	而无法系织,并且运程度大提失会严重	化保险实持对表民和政府未必都不分	作者认为、可以同时在这些优力城市介	
#GF現985		秦中見	影响这些公司的图多物分性。因此,他	理, 而且, 如此严意的补痛仅覆盖中因	许市政府会认向资本市场发行巨实使	风险,举
相社长		1116	们应该聚焦于波动较小、小型且有利可	建建直积的 45%。中国的保险公司和再	去。国际投资者对有合理规则的巨大传	限公司,
綿中心封	r	* ¥	10. 以前三子以前数下,小量三百利可 圈的风险,请水市场的风险转移方式更	保险公司是国有企业,因此,当他们时	新的需求是很大的。而且这一需求出经	死亡率送
朝中心園		北东	語行内心により下し、他们内心を行っていた。 語伝中国的国情与系表。	臣実調時提供保险或内保防保防时,只	新马索水定能入时,同量这一离水已经 新过了供给, 如果社會原利均將仍然已	到资本市
		方義海	国际中国中国与国家, 据保监会保计,中国共保险保持	不过是增加了政府补贴的成本和交易	要量了1948、原来可以将我的相当出亡 实量券需求需人,服需要支付的利息率	的多年机
同责任编	82	资 故	新体量至长行,甲因本体网体数 载人将从3015年的2860亿美元十升到	*注意电加了最佳作量的成本和交易 成本,将巨尖损失从政府转移到了国有	×鉄炉南水面入, 中市要又打10円8半 装可以除机。	火造券(
6本設計		行いた時	和A的从303年的280亿大元上开到 3030年的7330亿美元。据名,如何利用	这本,希望大的人所以后转使员了回射 企业,而当他们因常过厂实民险有失去。	国内第一个巨大能险法点于2014	
				2010年1月1日1日本2月1天2日 信付部人时,他们也是所当你放琴来香	年6月1日已在深圳启动, 系统止风暴,	
E管单位 E泰单位	中华人民3 中国财政3	二和国(対政部 - 二)	如此皮人的全被资源建立可持续的。商	另外的方向,他们也2460円38地发来以 每的常助。		
E型单位 E版单位	中国财政		业化运作的巨块风险分散机制能?	HIDBORD, 山内保险试点项目应该专注千增12	暴雨,坍塌,回电,洗滑,龙花风,台风,	
6 N		2.编辑中心	在美国。40%的巨灾和农业损失被		海啸、泥石迷、雨坡、沉陽、冰雹、水浸、	
l if	88227058		转移到私管保险公司和再保险公司、但	灾风险和损失转移到回外和回告的资本	4.9 缆及以上地壳,余品以及次生就应和	
"告电话 [1]电话	88227113 68222816	88227120	是美国政府为销售巨灾和农业保险的	市场投资者身上。这一体制适应中国消	任何自然灾害引发的核事故导致的医疗	
i muelos Francii	csf187420		同有,私行保险和再保险公司提供补	卖著不熟悉也不愿意购买福算定价的公	支出、失能相差亡责任、这一保障覆盖	
t Ht		北区万寿路西街	略,在中国,人们习惯于由政府承担巨	个巨尖操作产品的现状。他们资本市场	深圳市价辖区所有人口,包括居民,旅	
		3号楼(北京187信箱)	实恢复或本并认为理所当然。我们可	充分利用了中国经济转飞的实力背景。	高大员、工作者和其他人。深圳市政府	
同胞编码	100036		以也应该保过保险和再保险的间限和	而不是查希望于私人保险市场提供无需	支付的全部保持为3000万元、单一实害	
P M	北京华旗	印刷有限公司	低或而直接采用更适价和更安全的资	政府补贴的保险产品,在许多国家,政	事故的保护方式亿元,在单一火害事故	
ដ វេ	河北省雷行	蓝万印刷有限公司	本市场手段,如全藏抵押担保的巨灾值	府都支持巨次债券的发行。投资者时巨	中每一个受益人最高可获得10万元。另	
〔唐 楚	全国各地的		春,可以在提高巨实保障水平的同时降	灾情号的需求一直很大,并且发行巨灾	外、政府也建立了3000万元巨灾基金补	
的复数形式	平国財政) 2-987	泉志社市场营销中心	低政府斜端和损失支出。2013年,政府	侯贵的成木不断下降。以下是市政巨灾	充保险的保障。中国大保公司希保了一	
国際发行		图书剪稿总公司	机构为农业保险306.7亿元的保养收入	侯券运作的模型匠;	年前深圳巨克保险,合作的再保险人是	
	出版东 399		受供了将近10%的补贴,平均每年通增	国务院和保监会可以有用国际和	瑞士冉保险会司。2014年7月,41年来	
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& 刊已載(1) 5年2月CN 1書文字兼1 一次佳給村 次法,靖在, 23处理,1	(K) 原列裁i (权使用费) (和作者不) 未福町注唱		信用/或其他市政府和股资备可 提望的利用水平1。	25亿元的支付, 育成本成为3年 - 债务运营的已	次极大通过高位序 【着身上, 这种仅仅	
		C 6/6/10/				

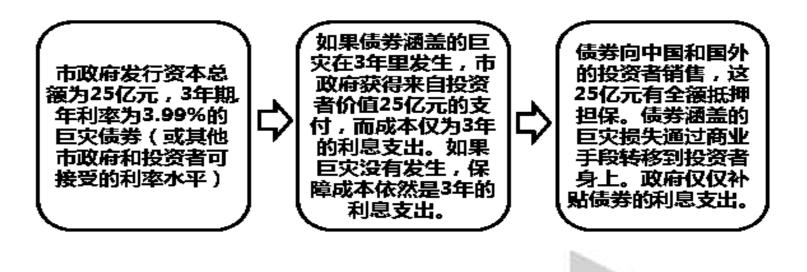
E的台风"威马通"给深圳带来的	棣、地震、重大自然灾害、恐怖袭击、份	是可以借坠的模式。十耳其为财产所有
邻提失高达265.5亿元。	染和瘟疫导致的死亡率大幅提升的风	人提供政府担保的强制地表保险产品。
出土可保险公司使用巨灾债券向资	险。现士再保险公司通过这种方法为白	土耳其声称在2013年发行的巨头债券以
转移它牵担的匹疗,失能和死亡	身筹集了2.75亿美元的资本保险。	非常具有竞争力的价格等集了4亿美元
举例说,它拥有Via资本管理有	云南是试点项目中专注于保险地震	的全继担保保险资本。从而使其同有30
1. 这一公司在2012年发行了两类。	导致的房屋和财产损失的地区。巨实引	亿美元的地震振失支付能力。土耳其其
6连结巨大债券,通过将风险转移	发的财产损失率可能会10倍高于事故损	他巨大债券产品也可释被资本市场约投
x市场来保障——个有全接抵押扣保	失,承保财产损失可能更昂贵,而且地	资志青睐,中国市场对这些投资占来说
4极深死亡率保险产品。死亡率回	震保险的阴阳和定价更加难以确定。 在	是一个潜在的巨尖拔拳鼓旁机会。 🛤
\$保障由于遗行病、遗感爆发、海	这一试点计划中,土耳其的巨大保险地	责任编辑 韩语



Use Municipal Catastrophe Bond Solutions in China's Catastrophe Pilot Projects

ernment owned insurers	For example, China's insurers paid
arers. The prevailing	merely 142 million RMB in claims to
enong China and foreign	victims of the 7.0 magnitude earthquake
nsurers and experts is that	in Sichuan that left over 196 people dead,
anded catastrophe insurance	13,400 injured, 300,000 people displaced
will enable Chinese to get	and caused widespread property damage.
ng insurance and stimulate	Insurers received only 806 claims for 47
surance market to launch	fatalities and 121 injured cases. China's
d products. Realistically, that	insurers and reinsurers are state owned so
rickly, if at all, in China dae	when they insure or reinsure catastrophe
ed cultural traditions and	risks they add subsidies costs plus
of government funding of	transaction costs in merely transferring
covery costs.	catastrophe losses from government to powernment owned entities. If they
pass the limitations	become involvent by taking on catastrophe
cies of insurance and	risks they will require government
w using cheaper and safer	bailouts.
it solutions such as fully	
catastrophe bonds.	The pilot projects should focus on
s how State Council and	transferring catastrophe risks and
rease catastrophe protection	losses to foreign and Chinese capital
using the subsidies and	market investors.
ament pays. The difference	They can also be used to develop
na's agriculture insurance	and test socialist market models with
inistrative costs and claims	Chinese characteristics, which suit
resul another key problem	China's consumers' unfamiliarity with
nce-based approaches. In	and reluctance to buy actuarially priced
ment entities subsidized	catastrophe insurance. That new strategy
billion RMB in agriculture	can work quickly and sustainably and
veniums, up 38% year-on-	does not rely on trying to get Chinese
ng coverage for 214 million	consumers and companies to pay
t these subsidies provided	actuarially priced insurance premiums
llion RMB in compensation	plus creating profits for insurers and
llion farmers. The 30%	reinsurers. Using the capital market
the sizes of the subsidies	stakes advantage of China's economic
rers and loss payments to	success instead of hoping that the private
81 billion RMB. The current	insurance market will provide non-
ourance arrangements have	subsidized products. In various countries,
iencies for farmers and	governments are backing catastrophe bond
nd cover only 45% of China's	issues. Investor demand remains high
acrouge.	and the cost of sponsoring a cat bond are
	coming down.
quake risks and losses are	State Council and CIRC can use

市政巨灾债券 (Municipal Cat Bond)发行示图



CONTRACTOR T. CONTRACTOR M. CONTRA Constraints and Some

Catastrophe Contingent Capital Arrangement Model:

It does not use reinsurance or a catastrophe bond and provides <u>fully collateralized</u> risk transfer and catastrophe recovery funding of 2.5 billion RMB or far larger amount. The Shenzhen Municipal or other government or a Chinese insurer uses a contingent capital structure transferring catastrophe risk to investors providing fully collateralized parametric recovery financing that initially only Chinese citizens can invest in with an attractive interest payment return per annum. Investors loose capital in a sliding scale but not interest payments if a covered multi-peril catastrophe occurs. In a later stage foreign investors will be allowed to invest on the same terms as Chinese investors.

CHINA STATE FINANCE High State

Use Finance Solutions Instead of Insurance and Reinsurance in **China's Catastrophe Pilot Projects**

- JOHN & DAJ MIN MILLIGAN-WHYTE

This article pioneers a new type of catastrophe triggered funding provided directly to municipal governments by investors through Chinese banks. It vaplains why it should be developed and sted in some of Osicu's catartrophe pilot peniecte D is a cheiper, safer, simpley and better way fer manicipal governments to commercially transfer and fund their catastrophe recovery costs. It avoids the inademacies and anneonany costs of estavo her contractive fea contracti a new socially responsible catastrophy recovery flanding asset class for foreignand Channe interture.

Large international releasurers hope to develop prefitable roles in providing China's catastrophe recovery funding that becomes crucial to China's social stability. Currently all of the pilot projects have been focused on using station and minourant solutions. But uting catastrophe insurance provided by SOEs that rely on payments from lowiges reinsurers is tast a good model for China, Incores and resources only want prefitable tisks where the premiume they receive over time significantly exceed their administrative and less costs.

The insurance based catastrophe recovery funding system China is now being guided on to the path of becoming reliant upon will exposed China to major price increases or reductions is coverage determined by the foreign reinsurers. It also exposes both China's narcent catactrophe incurance and minutance system and BOE insurers to credit risks due to the

to eventuate a transment or insultance of Catastronite lasses are exposive rign reincurers. It may only became and China's desire for affordable

alwises later in this decade that using only insurance and remountance in the plot projects results in China's failure to create a reliable and commercially funded catamonelle lass trassfer and funding system, which the State Council is weiking in the pilot projects. China's SOEs are best statied to

innuring profitable high frequency, low severity linux, 50Es are not stated to invaring and then relying on foreign resonances to pay aspecticable high severity atastoophe lesses, which are occurring more often in highly populated areas of China due to climate shange. It is prudent to have some of

the pilot projects developing and testing capital market solutions that make payments directly to menicipal governments. This is the stath article in our series recommending that capital market and commodity market solutions he developed and tested in the pilot. projects. The fifth article recommended that manicipal governments directly issue catarreple bods sold in the capital markets in the pilot projects without the costs and inadequacies of involution or

In the United States and Earope up to 40% of catastophe and agriculture losses are covered by instructor and tance companies. Foreign models for previding catastrophe insurance took centuries to develop and did so in economic legal and cultural systems. very different from China's. They are net workable in China's circumstances. In China sizes only approximately Ph-of catastrophe losses are covered by statutor, the dangers of China adopting this approach are not fully experienced yet.

coverage and international relevance needs for commensurate profits for taking such massive risks conflict. Using insurance and reinsurance to fund catastrophy looses requires trains to get Chinese mutatized governments mirs and officers unfamiliar with paying for catastrophe insurance to hav it end to pay actuarially sound premi The staltural and business attitudes for Chinese municipal governm constances and public decay so do not enst. They are difficult to create in China aretime steen. Trying to do to in not

passible without mussion government subsidies that want increase as catastrophe rator overage increases. Trying to do se will remove China's provenies obsidizing premiums to make the roke content and reissures do take profitable plan funding the peak lonses too hig for sammers and minusers' canital bases and tisk appetites. Fortunately, there are cheaper unfer simples and heter ways for China to commercially transfer and fund catastrophe lasses that can be developed and tested in the State Council's pilet

Catastrophe triggered hanking subtions are a form of what are called "contingent capital facilities." This is how they can be structured and work in the pilot projects. If a catastrophe covered let the contingent capital finance facility occurs a Chinese hank will immediately pay the amount of funds agreed on before the catactrophe to the municipal povernment because investors' have wided a fully collateralized guarantee that immediately non the Chinese bank the funds and it pays to the municipa povernment. The chart below shows ow the contingent capital catastrophe triggered bank farance structure would work, for example, in the Shenzhen

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山国财政

HINA STATE FINANCE

在巨灾保险试点中采用金融融资方案 百萬大日本金額研究中心

通过银行病的管理的资金方式定定 发生后直接交付前地方政府,这种创新 巨尖相关是带难预测的。中国对可 性的巨实融资格式成本任、安全、简单。 承受的巨大保险保障的重要与国际所保 基地方政府通过商业手段转移口实现政 静公司封承担如此巨大风险而要求相应 和为当地以灾救济、恢复和重建融资的 利用的需要是不成的, 使用保险和再保 段为日実現失助管常要不纳悉购买日実 理想方式,它没有保险和再保险手段存 在的保護不足和原作成本高品質問題。 保险产品的地力政府, 办办和保险购买 同时大极弊者依由了一种新想具有社会 它并支付保费。对威力政府、企业和增 教育的日本市中国教育中市第1 民来说,说服他们购买巨大保险产品的 国际两保政证头都计划和希望在 文化背景和商业体系的不存在,并且知 巨灾恢复融资体系中建立一种对自己 时间内由限增建立和完善这样的体系。 有利的商业模式。拐我,中国目前巨灾 如果执行这样的方案就必须依赖于大量 保险试点项目都专住于发展保险和再 的政府补偿,并随着巨大保险保障范围 前扩大,此类补贴也会水度都高,政府 保险模式,实际上,保险公司和再保险 公司只能兼相可兼利的风险, 鱼灯预期 总统不断由保险公司和再保险公司补助 約備約得券の相互差超过16倍過利約 保费才能让他们在承担风险后仍然获 行成本,以保险和药保险为基础的区安 利,最北之外,政府还要为保险和所保 恢复融资体系,不仅资格小园外再保险 除公司因自身要本基础和风险现在能力 会词控制的保费大幅上升或保障巡照 的局限要无力承担的极端损失实单。基 那小的风险, 也让中国新建立的巨灾役 于这些不利因素, 建这采用一种成本里 除和再保险体系以及拥有保险公司面 低、更安全、更简单而且效果更轻的努 本市场和期货市场解决已实验费的会融 临阔外再强险公司无力特付成公司破 产的位用间路。 方案,能够通过商业手段转移行实现阶 在原始和时期 动物和医颈的公司 15-161-0-20-0-88-00-这种方案就是巨灾联结资本融资

承保了巨灾和农业很失的40%。 但是 方服(Contingent Capital Facilities), 此一 国外建立巨定保险的模式经历了长期 的积累和发展,而且他们的经济,法律 种应急资本工具。如果应急资本工具承 和文化体系与中国非常不同。因外的这 保纳回火发生,银行就必须将在巨火发 再模式在中国的营营下县打不课的,在 中国、只有大约1%的巨实根头有保险 府、又因为投资者为此提供了全新抵押 决方案、即在巨实发生对他够实现对当

银行向基果了以失激结点 急资本删资承诺书纳地方 藏岩支付 25 亿元防行支债 发动力型本动物工具,田 为投资者在安排已出银行 服住的全新成种的保保证 金珍亿元 前保,故在巨火发生时,银行能马上得 到资金,从而实现对地方政府的即刻支 付,最行将向地力政府收取不可归还的 承述费,此费用不一定会提高,因为提 地政府即时直接的资金支付,从而现建 行的设急资本的支付具有全稀批押保 **周期局害保障公司利用股公司支付,**而 III1,承结费,只有当应急要本因承保的 核聚合核和积负需救助的人和手小用 后来发生后面导致的文程行为发生时, 产生的时能和特行问题。中国地力政府 脑力政府才需要撤销,应急要本工具不 现在田庄宣新分配预算符合未为定大的 会增加地方政府的债券,因为投资者相 百家发生后的三个桥段居产生的成本融

当合词定义的巨尖发生时。

谢介国向银行支付了保证金。 相互连续的操行应急资本工具和 ¥约人也会因查查的经济活动而减少。 教装者的担保合同实现了在回来救济 因此投资干部济发展,健康和教育方面 公共需求最高的地区由银行向地方成 的资金就会减少。这些后期都会扩大日 政的即时支付,而按照保障的宽积,育 灾对当地社会和经济的负担影响。 先县需要保外再保险人物受保有保险 国际和国内使装着领先以全部线 公司提出的保险额付出来 之后来联合 押给出的提对支付保证使得保行可以 变付给所有保险公司,因有保险公司之 实现对地方政府的部时文付, 如果未保 后将聚金支付给地方政府, 丙由地方线 的过安发生,这些教育要请先去会然成 **府支付给享有保险保障的国际实受损** 部夺晋平位托基会中用来监理相保的 的居民。这一过程存在很多时爆和关助 投资资金,他们影响投票于这类区实际 移付的风险,这些风险即使在巨火保险 结应急救产品为了由未更高的利率时 已经建立和发展的外国结逐和法律体 種、其相位期以実力生导物检索相关的 重下也存在。 试验与他们投资在其他类别的资产是 日本体育的三个阶段市 地方政府 不相关连的。

要要快速支付需大的要会以成足公众的 爆行贷款和担保结构不需要保险 急近带水,紧急救济,恢复成本,长期 用将保险的参与、能够在现有成新的错 **业建成本。这些成本对保险和两保险公** 行导致和保证条何下运作并受到近常。 间来说是重大而无力承积的, 而本文建 因为不幸曾保险和再保险,因此无需依 生之前协商好的金棚跟新支付给地方载 说的试点计划专注于一种新型商业化解

除和再保险运营条例,对于从地方政府 相數作为支付案件条件。这些控数可以 承担过来的风险,投资者可以自知成时 用来完美你时期行支付地方政府打击 我们们知道你们的你的小孩子, 方面的 where, Accessive we as an as a way or At Ab as 国家和地区,这种位普法保和模式已经 行。这两面数对应的支持也可以按比例 爱爱了几十年成几百年。在中国建立该 增減, 崇地方政府可能遭受的天气成场 样的监管体系向面对间及谨慎的设计 增日;实指数储高,投资者失去的资本金 等,当这些成本产生时,地力政府的 811730 1144.00 授贺者不仅承担区灾风险,而且 从此风险时使用用数保险的保险和 为由地方政府可能承担的目安或本有 再保险公司来说是一个大时期,因为在 确定的特定全额担保合同模供全额延 这种情况下。被保险人实际的损失可靠 将不到全氟补偿。然初,与保险公司

巨灾原结银行能进点杂意本工具的结构及运作原则

宋贤, 在服行向地方政府

瞬间 25 亿元的巨大联结论

急救本股投工具的承诺书

中目明日有有合同定义的

万実気生材オ会产生支付

押担保,为此他们将券到地方政府支 付的具有吸引力的利率作为回服、中国 应急资本融资工具(或以实债券)的 人民福行为他们近期发行的能够却刻 收候投票者资金的债券支付了3.79%--地方政府来说绝非是被亏一条的问题 3.99%之间的年末来, 谢板的刺来可以 在投资者和地方政府之间协直确定。进 为这种应急带来的试验只有在承载的 日灾发生时才会导致投资者全部成部 分费本模都以实应急要本服要合同资 文村给账方或府,如果承保的口实没有 发生、经管者不仅从地力政府获得到重 相应实践阶出应用的利息时程, 岩且还 像收回他们暂存在价托基金的交解系 押制你的全部资本。

光相连续的银行完杂资本工具和 按要素的相保合同可以使用地理成实气

地方政府的利益相关者是纪众, 出杂路 人和再保险人的股东是逐时者。地方就 附是寻找通过商业于段转移目火恢复成 本的主体。即使这一成本相高以至于无 非宗会通过自由于改强组转增, 它也会 总常愿意接受来自投资者的资本会主 待。因为应急资本编资模式经有保险公 司和再保险公司的高额批加成本问题。 RORDORNESSER 所以由为政府的基本间的公司不存在

相注, 新新试验和与服行合作使用订束

保険の保持入的目标与由や政治不同

eigang (200 nov m) konsider

地方政府向投资者工行具

NUMBER OF A DOMESTIC STATES.

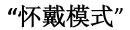
们由国行委任的 25 亿元保

至金川米州的风险。 御行

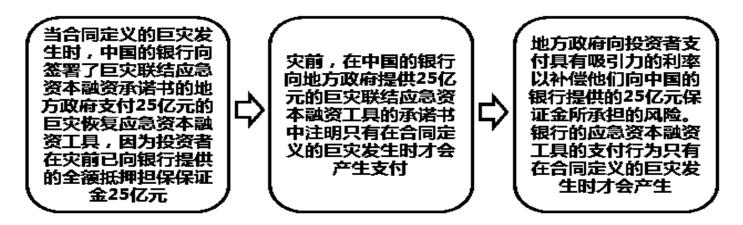
的应急资本服务工具的发

付行为具有在自民定义的

民灾国生物才会产生



巨灾应急信托帐户(Contingent Capital)运作示图



The structure of a catastrophe contingent capital facility from a bank to a municipal government funded by a fully collateralized guarantee from investors

Investors provide a fully collateralized 2.5 billion RMB payment guarantee paid to the Chinese bank when it pays the municipal government the catasrophe recovery contingent capital finance facility triggered by the occurrence of defined catastrophes Chinese bank then provides the municipal government with a 2.5 billion RMB catastrophe triggered continggent capital finance facility commitment in which the payment is only triggered by the occurrence of defined catastrophes The municipal government pays attractive interest rate to investors for investor's guarantee of the 2.5 billion RMB payment to the Chinese bank providing the contingent capital finance facility triggered only by the occurrence of the occurrence of defined catastrophe

PART 4

Whyte Daimin Models for farmers' income security in China's Agriculture Insurance Pilot Projects and BRICS RE.

Whyte Daimin Models also provide <u>profitable</u> risk transfer for Farmers Income Security in China's Agriculture **Insurance Pilot Projects and BRICS RE.**

Creating China's Catastrophe and Agricultural Reinsurance Finance Industries

N/JOHN MILLIGAN-WHYTE

thing can be the world leader in Investing in and commercially financing massive recovery costs frem catastrophes including majer earthquakes, storms, droughts and Roods Once China has these financing mechanisms working well domestically, 2 can scale them internationally. This is the first of a series of articles explaining how ilus car, be done.

China's historic agricultural losses. are 656 to 10% annually but peak losses can wach 25% or more. China has the highest exposure to earthquake risk. in the world and its growing orban concentrations of people and Industry create huge risks and recovery cests. China kas far teo muck geographic concentration of catastrophe risk. The China Insurance Regulatory Commission indicates that less than 1% of earthquake recovery costs are covered by insurance. which hinders reconstruction. Recovery costs are currently financed by Chinese government entries. The peak risks and recovery costs are not massive for Chinese. insurance companies or the international reinsurance companies to finance Only the global capitol markets have

50 The Flore Investigation April 20

the size, turnover and investor base to invest in and finance China's peak risks. commercially. Financing calastrophe risks in the capital markets is a major global enterging financial industry.

China's trading partners and particularly developing nations do not yet have the catastrophe recovery financing they need to protect their economies. Approximately 60% of global economic losses from natural and manimade disasters are uninsured. Oking is the only nation with the combination of credible financial resources, government controlled

economic management capabilities and hogy domestic market size needed play the leading role in developing the global approximited loss and catastrophe receivery Snance Industries. It has US\$3.83 million in foreign governments' currency and debt securities that need to recirculate. in the global economy investing inreinsurance companies and the new asset class of insurance linked securities are an important new diversification of China's un-estiments. China's central bank's State

Administration of Foreign Eachange has purchased 3% of Munich Ry, the world's langest insurance and reinsurance. stroom investments in release and

insurance linked securities have the meril of being non-invasive. There are only 10 countries that accepted the largest net foreign direct investment from China between 2004 and 2010. In 2011, US\$32.8 billion worth of investments proposed by

China failed to be completed. That's more than half the US\$601 billion in overseas deals made by Chinese companies in 2011 But investments by Chinese companies have generated political backlash to some countries, and several big deals have fallen victim to regulatory concerns" according to China's Ministry of Commerce.

China's winsurance (news/ments are good for the whole world. We live in new eras of alobal financial and economic instability and of the increasing frequency and severity of economic and lasured lesses from natural catastrephes. The Financial Times summed up these new eras danger. "The world must prepare to be shocked. The 2008 financial crisis illustrated the possible consequences of excessively disturbing an obscure center of a complex system. The result then was a swift large and unpredicted dislocation in the way the system worked. Adaptation to the outcome was not an apping and massive interventing way



How to Finance China's **Farmers' Income and Consumer Food Price Stability**

This article recommends that

by JOHN & DAT MIN MILLIGAN-WHYTE

China's Farmers' Income and Consumer Food Price Stability can Only Be Achieved Using Capital Markets Financing and Commodity Markets' Hedaina

This is the third article in our series and floods impacting farmers' incomes recommending how China can create the and consumer food price stability. State catastrophe and agriculture protection Council has approved farmer's income financing industries that the State Council stability programs. China also needs to is seeking to develop. The series' thesis create programs to protect its 1.5 billion is that in order to protect China's social consumers food price stability. harmony, economic growth and national security, China could become the world's A New Scientifically Managed Model largest consumer, provider and investor in with Chinese Characteristics is Needed catastrophe and agriculture loss recovery to Protect China's farmers' Income and Consumer Food Price Stability financing. China can fill these roles in the reinsurance, capital and commodity markets due to the huge financing costs China create a new model with Chinese of the catastrophe and agriculture loss protection it needs, its control of the world's largest catastrophe and agriculture insurance market and the huge amount of capital required to finance its agriculture and catastrophe risks. China is the only entity in the world with the required combination of massive need, market and

capital. consumer price stability affordable. China has US\$ 3.83 trillion of foreign debt and currency reserves that require profitable investment and expect and misguided for China to design recirculation internationally. Reliable its regulatory system using foreign models sources of capital are required to finance not suited to the legal, economic and China's farmers' income and consumer cultural conditions in China. Foreign food price stability. The capital required models and products also have features is larger than all the capital in the that are not working well according to the international reinsurance market. The World Bank's 2010 Report on Government international capital markets are larger but Support to Agriculture Insurance. too unstable for China to safely entrust "Overall, government sponsored Multiwith providing its farmers' income and Peril Crop Insurance programs have consumer food price stability. been disappointing. Limited insurance Global food prices increased 74%

from 2005 to 2012. From 1990 to 2005 they

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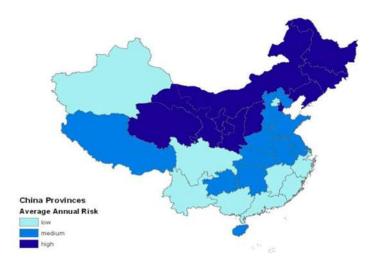
increased only 2.3%. Protecting China's of the catastrophic risks involved in social stability and national security agriculture; poor financial performance requires its governments to subsidize inappropriate pricing; uncontrolled moral consumer food prices. China's agriculture hazard; and adverse selection are among losses have averaged 6% to 10% annually. the key endemic problems underlying agricultural insurance programs But worldwide climate change is having major effects on the frequency, severity worldwide, in both developed and and locations of temperature, droughts developing countries."

Reinsurance companies' business models are currently in crisis. Climate change is making losses harder to model. The financial crisis is resulting in low investment income. Competition within the reinsurance market and from the ILS industry is contributing to the pricing of some risks being inadequate. Reinsurers may have to risk their capital accepting actuarially inadequate premiums, give up market share or increasingly become managers of ILS investors rather than their own capital. All of these put pressure

characteristics for financing farmers' on their profitability. Nonetheless, many Chinese may income and consumer food price stability feel a lack of confidence because they China's innovative model can use a fully integrated combination of weather-based do not have as much experience with insurance, reinsurance, insurance linked insurance and reinsurance as their foreign securities (ILS) financing in the capital counterparts. China can mitigate the risk markets, and hedging strategies in the of it spending this decade trying to adapt commodity markets to make the costs of agriculture insurance and reinsurance protecting China's farmers' income and products used in developed countries to China's realities. It can use new and better strategies to transfer and finance its risks. It is unrealistic for foreigners to It can develop an innovative regulatory system using capital and commodity market financing to fill deficiencies in

insurance and reinsurance protection strategies An innovative new insurance linked securities or "ILS" industry is growing rapidly because catastrophe and agriculture risks are increasingly too large and expensive for the reinsurance market to finance. ILS protection is penetration despite high premium often cheaper and fully collateralized subsidies; consistent underestimation at inception reducing default risk. ILS China should <u>nationally pool</u> agricultural risks because a regional approach concentrates risk.

This chart reveals the expected <u>MPCI</u> losses and market share of crop yield.

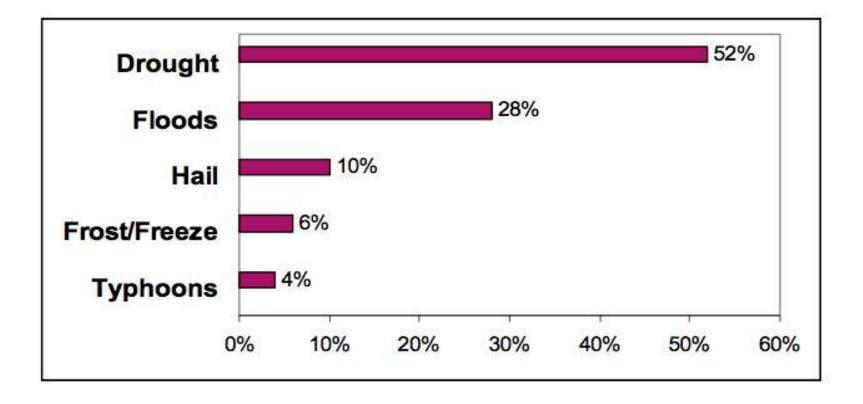


	Merket	Percent of Average Annual Loss by Cause of Loss						
Province	5hare	Drought	Floods Half	Freeze				
Shandong	10.4%	71%	15%	11%	3%			
Hanan	8.8%	63%	24%	9%	3%			
Jiangsu	6.9%	36%	40%	12%	10%			
Hebei	6.3%	72%	10%	16%	2%			
Sichuan	5.4%	52%	32%	11%	4%			
Guangdong	5.3%	33%	42%	10%	9%			
Hubei	5.1%	43%	43%	7%	6%			
Hunan	4.8%	45%	44%	6 %	4%			
Anhui	4.6%	41%	45%	6%	7%			
Guangxi	3.4%	53%	32%	7%	5%			
Heilongjiang	3.4%	53%	34%	6%	6%			
Lisoning	3.4%	68%	22%	7%	2%			
Zhejierg	3.3%	26%	47%	11%	6%			
Fujian	2.9%	32%	44%	7%	10%			
Yuman	2.9%	50%	24%	12%	13%			
Xnjieng	2.8%	49%	12%	25%	13%			
Jiangxi	2.7%	36%	49%	7%	6%			
Jilin	2.7%	59%	28%	9%	4%			
Shaanxi	2.3%	71%	17%	7%	4%			
Inner Mongolia	2.3%	74%	12%	9%	5%			
Gansu	1.8%	72%	10%	11%	7%			
Guizhou	1.8%	51%	25%	17%	6%			
Shanxi	1.6%	80%	7%	6%	4%			
Hainan	0.9%	37%	37%	5%	7%			
Shanghai	0.6%	12%	47%	12%	25%			
Tienjin	0.5%	72%	10%	17%	0%			
Beijing	0.5%	69%	8%	21%	1%			
Ningxie	0.4%	71%	8%	11%	10%			
Qinghai	0.2%	63%	8%	23%	5%			
Tibet	0.1%	58%	20%	3%	11%			

Table 2.5: Market Share of Crop Value in China with Share of Cause of Loss

'ource: author's analysis of cause of loss data.

Very profitably insurable percentages of types of losses agriculture losses nationally in China historically are simpler than the China's current farmers' income security strategies achieve. <u>What are the prospectively percentages</u> <u>of losses because of climate change?</u>



Historically trend in losses for crops in China 1980-2002 were very insurable. <u>What does this chart look like updated from 2003 to 2014?</u>

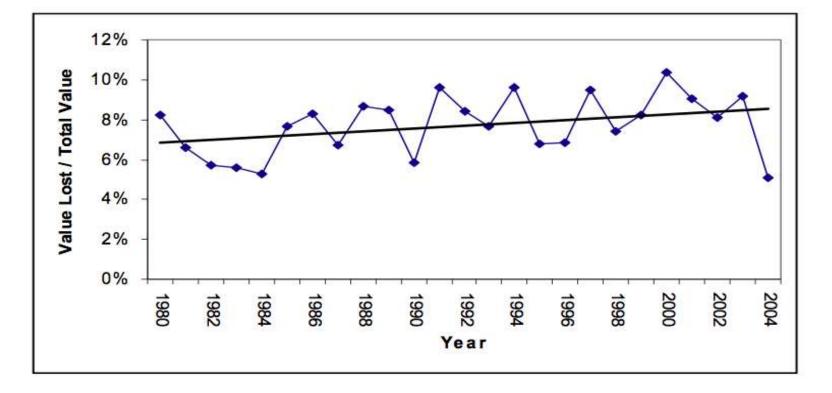
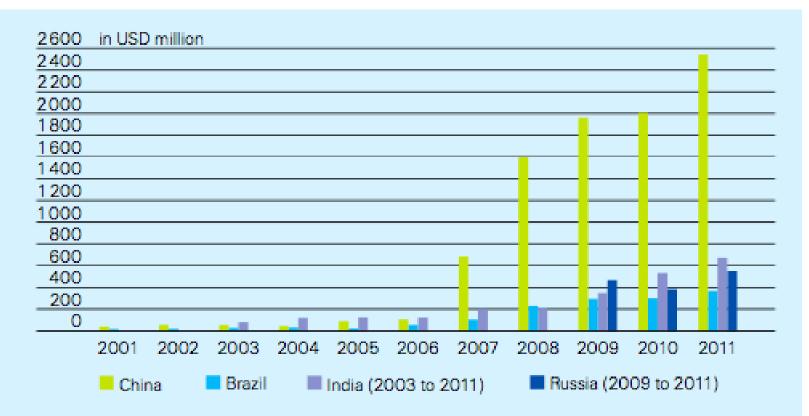


Figure 1.1. Trend in losses for crops in China from 1980 to 2002

In 2013 Chinese government subsidies in agriculture insurance were 30 billion RMB and payments to farmers were <u>only</u> 20 billion RMB and <u>profitability for insurers was</u> <u>problematic.</u> When China implements Whyte Daimin Models for transferring agriculture loss risks, China will have a <u>scalable model in in China and internationally in BRICS RE</u>.



Note: Figures in parentheses denote available data span for India and Russia.

Sources: National insurance regulation authorities, Swiss Re Economic Research and Consulting.

PART 5

Whyte Daimin Recommends Advanced Working Models for China's Agricultural and Catastrophe Risk Exchanges

The best working model for CIRC, China Economic Zone Development and the State Council's needs and goals is the complex of electronic exchanges in Chicago at the CME Group



Driving Global Growth and Commerce

CME Group is the world's leading and most diverse derivatives marketplace, handling 3 billion contracts worth approximately \$1 guadrillion annually (on average). The company provides a marketplace for buyers and sellers, bringing together individuals, companies and institutions that need to manage risk or that want to profit by accepting risk.

Our exchanges - CME, CBOT, NYMEX and COMEX - offer the widest range of global benchmark products across all major asset classes, including futures and options based on interest rates, equity indexes, foreign exchange, energy, agricultural commodities, metals, weather and real estate. As part of our commitment to providing innovative risk-management solutions to the marketplace, CME Group also offers a growing slate of cleared OTC products and services.

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CME operates weather and agriculture risk transfer exchanges



Agri	cultura	Produc	us I	Home		Viev	v All Ags roducts		Finterac	tive
Featured	G	ains and ilseeds		Livesto	ock Dair	y Lu	mber S	ofts	Expiration	Calend
Product		the state of the s			Change		10000000	and the second second	Commitme	
Corn Futures	ZCN5	2015	077	360'2	-2'6		362'6	364'4		102,074
Soybean Futures Soybean Oil	ZSN5	2015		974'0	-2'2		976'0	982'0	972'2	61,039
-utures		2015		33.19	+0.23		32.96	33.34	32.86	46,993
Soybean Meal Futures	ZMN5	2015	-	310.1 a	-3.3		313.4	315.0	310.0	34,494
Chicago SAW Wheat Futures	ZWN5	2015	-	481'4 a	0	۵	483'0	484'2	476'2	48,422
Cattle Futures	LEM5	2015	-	150.400	-1.100		151 <mark>.</mark> 525	152.92	5 150.050	29,555
log utures	HEM5	2015	-	84.450	-0.375		85.000	85.000	83.900	18,856
Feeder Cattle Futures	GFQ5	AUG	-	217.600	-0.025		218.200	219.17	5216.950	4,594
Class III Milk Futures	DCM5	2015		17.03	-0.33	۵	17.41	17.49	17.01	510
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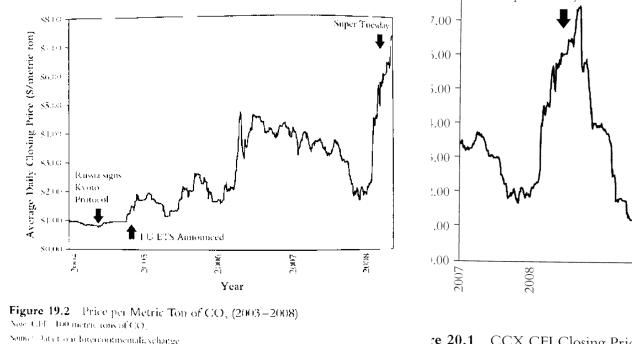
oduct suite offering market inity to trade Euro-denominated

Trade CME Cocoa Futures Trade CME Europe Cocoa Futures today and take

<u>China should develop a weather risk transfer and recovery commercial</u> financing system. The Chicago Climate Exchange was destroyed by US insurance industry resistance, the 2008 financial crisis impact and ultimate failure of the cap and trade model for dealing carbon credits to try to deal with the economic impact of climate change.

3.00

Super Tuesday



CCX success until 2008 financial crisis



2009

Year

2010



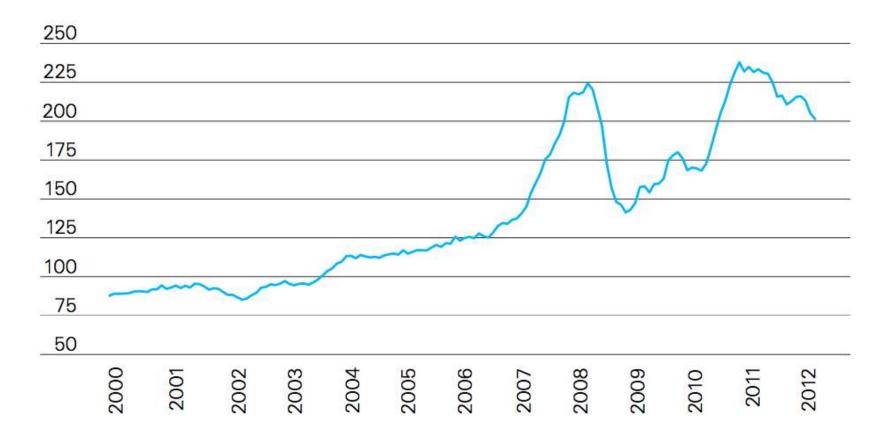
China subsidizes agriculture prices. This chart reveals the comparison of international and China wheat prices. <u>How can China's government continue to achieve and finance these subsidies essential to political and economic stability?</u>





This chart reveals the food prices crisis, it rose 2.3% between 1990-2005 but <u>74% in 2005-2012</u>

(Swiss Re Sigma 2013 Report)



Source: Nominal monthly food price index, the Food and Agriculture Organisation of the United Nations (FAO).

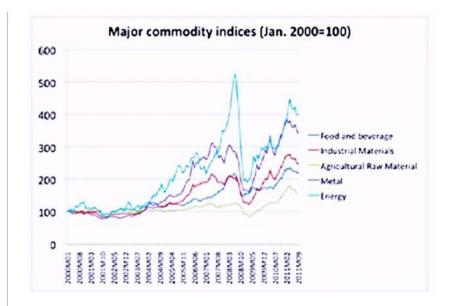
This chart reveals the relationships of Food, Metals & Energy Prices 2000-2012 in the World Economic Forum 2013 Annual Report. The correlation suggests major <u>opportunities to hedge food prices using food, energy and mineral futures and other major commodity futures prices</u>.
Whyte Daimin Models focus on developing these <u>solutions to farmer income and consumer price stability problems.</u>

In the last ten years, food prices have more than doubled, while metals and energy prices have more than tripled Natural resource inflation

Source: IMF

Note: Food Price Index includes Cereal, Vegetable Olls, Meat, Seafood, Sugar, Bananas, and Oranges Price Indices; Metals Price Index includes Copper, Aluminum, Iron Ore, Tin, Nickel, Zinc, Lead, and Uranium Price Indices; Fuel (Energy) Index includes Crude oil (petroleum), Natural Gas, and Coal Price Indices.





CME operates energy and metals risk transfer exchanges. The correlations movements of food, energy and metal prices may enable very large weather and catastrophe risks to be hedged in these exchange mechanism also.

					V	ew A	II Ene	rgy	Tools	
s you n ketplac tomers	ieed to ce, an u that no	tap in nrival othe	to it: The r led produc r exchange	portunity an most extens t suite, a co e can match IVER MOR	d NYI ive ar mmitr , and	MEX nd liqi ment	has t uid er to ou	he hergy r	F Open Tool F CFTC Tool	n Calenda Interest Traders a Broker ClearPort
Top 10 Energy roduct	s C	ude Sil	Natural Gas	Refined Products	Biof	uels	Coa	Electri	city Pet	rochemical
learing	Globe	x Floo	or ClearPo	ort Nam	ict e	Gro	ib up	Exchange	e Volume	Open
CL	CL	CL		Crude O Futures		Cry	de	NYMEX	Contract of the	1,742,75
NG	NG	NG	a NG	Henry H Natural Futures	Bas	Natu Ga	ural is	NYMEX	515,79	1,020,53
RB	RB	RE	RB	BBOB Gasoline Physical Futures	8	Refi Prod	ned ucts	NYMEX	139,89	388,61
но	но	но	ЮН	NY Harb LSD Futures	or	Refi	ned	NYMEX	136,150	370,05
LO	LO	LC	LO	Crude O	íl.	Cry	de	NYMEX	124,06	3,852,61
LN	LNE	LN	I LN	Natural (Options (Europe		Nati	Iral	NYMEX	120,764	3,312,50
BZ	BZ	BZ	BZ	Brent La Day Fina Futures	st incial	Cry	de	NYMEX	109,75	5 157,06
NN	NN	NN	NN NN	Henry H Natural (Last Day Einancia Futures	Jas	Nati	ural as	NYMEX	57,270	3 1,619,60
WA	WAY	WA	a wa	WTI Cru Oil 1 Mo Calenda Spread Options		cg	de	NYMEX	35,77	430,29
NP	NPG	NF	NP	Henry H	ub late	Nati	Iral	NYMEX	13,29	528,31

Note: Volume and Open Interest data is from the previous trade date. Preliminary data updates at approximately 9:00 p.m. CT and the final update is at 10:00 a.m. CT next business day.

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Navigate our Energy Product Suite



Crude & Refined roducts Products

Options **Options Products**

Meta					View A Pro	Metals Jucts	Tools	
Top 10 M	Aetals Pr	oducts	Preci	ous Base	Ferrou	s Other	Provid	ders/Storag
Clearing	Globex	Floor C	CME	Product Name	Sub Group	Exchange	Volume	Open
GC	GC	GC	GC	Gold	Precious	COMEX	176,748	408,432
HG	HG	HG	HG	Copper Futures	Base	COMEX	50,353	170,667
SI	SI	SI	SI	Silver	Precious	COMEX	34,916	176,026
OG	OG	OG	OG	Gold	Precious	COMEX	27,736	1,535,087
PL	PL	PL	PL	Platinum	Precious	NYMEX	8,109	70,636
PA	PA	PA	PA	Palladium	Precious	NYMEX	5,907	32,147
SO	SO	SO	SO	Silver	Precious	COMEX	5,140	172,930
MGC	MGC	1	883	E-micro Gold Futures	Precious	COMEX	1,183	1,562
PO	PO	PO	PO	Platinum	Precious	NYMEX	980	15,687
HR	HRC		HR	U.S. Midwest Domestic Coll-Steel Coll-Steel (CRU) Index -utures	Ferrous	NYMEX	710	19,539

Note: Volume and Open Interest data is from the previous trade date. Preliminary data updates at approximately 9:00 p.m. CT and the final update is at 10:00 a.m. CT next business day.

Metals Essentials

Marker Prices | Daily Bulletin | Margins/Performance Bonds | Trading Hours | Fee Schedule | Blocks | Rulebooks

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ndy Massey of well as hedging aluminum and where the business is





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PART 6

Model for China's Health Care Exchanges

A leading working model for CIRC, China Economic Zone Development and the State Council's needs and goals is the <u>New York Department of Financial Services</u>, <u>New York Insurance Department and New York Health Benefits Exchange</u>.

New York 🗾 State IE State Agencies E Search all of NY gov - State Agencies O Search all of NY.gov Federal Health Care Reform nystateofhealth in New York State ABOUT- RESOURCES- GET HELP- 1-855-355-5777 Q SEARCH Individuals & Families Employers Brokers Employees Navigators What is Health Care Reform? Please visit the NY State of Health website for updated Benefits for Specific Groups information, listing of events and more. Questions and Answers http://www.nystateofhealth.ny.gov/ Find Health Insurance Timelines and Events Health Benefit Exchange Grants Establishment NY State of Health (Health Benefit Exchange) On October 26, 2012, New York submitted its Blueprint application to HHS for approval to operate a state-based health benefit exchange. NYS submitted a Submitted Comments Declaration Letter on July 9, 2012 and an updated Declaration letter on Updates November 14. The Blueprint submission was in advance of the November Research and Resources 16th deadline set by HHS. HHS expects to formally approve applications and make certification decisions by January 1, 2013. Click here to view the Partnership for Coverage: Blueprint application documents. New York's Health Reform Experience On October 1, 2012, NYS formally submitted its selection of an Essential Health Benefits benchmark plan to Health and Human Services. New York Contact Us has selected the benefits of the State's largest small group plan, Oxford EPO, lome as the benchmark plan. In addition to the selection of a benchmark plan, the state has indicated the coverage areas in which benefits will be supplemented Sign Up for Implementation in order to meet ACA requirements. View the letter to HHS. For more detail Update Emails on the benefits covered by the Oxford EPO plan, see Exhibit 3 of the final Milliman report. Follow the NYS Department of Financial Services for health care On September 25, 2012, NYS submitted a series of documents to HHS in reform updates advance of the state's in-person design review scheduled for October 9th and 10th in Bethesda, MD. The sections covered during the design review correspond with requirements of the State's Exchange Blueprint Application due November 16, 2012. A copy of the Blueprint application can be found here. NYS submitted a Declaration Letter in July. On July 9, 2012 Governor Cuomo submitted a declaration letter to the Centers for Medicare & Medicaid Services confirming New York's intent to establish a State-based Health Benefit Exchange consistent with the Affordable Care Act. The letter indicates the State's intent to perform 2015 Plan Compare Tax Credit & Premium Estimator advance premium tax credit and cost sharing reduction eligibility determinations and designates Donna Frescatore, who will serve as the The 2015 Plan Compare The Marketplace will offer Executive Director of the New York Health Benefit Exchange, as the primary provides information about a choice of low-cost point of contact for the State's Exchange Blueprint Application. quality health plans. It's health plans offered on the Individual Marketplace and also the only place you

Small Business Marketplace

and is intended to allow you to preview

the plans available.

can receive financial assistance

costs even more.

based on your income to lower your

On April 12, 2012, Governor Cuomo issued Executive Order #42 to establish a statewide Health Exchange. The Executive Order established the New York Health Benefit Exchange within the Department of Health.

The establishment of the New York Health Benefit Exchange was included in

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CIRC should visit the Illinois Department of Insurance that is the other leading US insurance regulator. Illinois does not have a "ObamaCare" Health Insurance Exchange, like many US states because it has a Republican Governor.





About the Governor

Governor Bruce Rauner

Bruce Rauner (Republican) was sworn in as the 42nd Governor of Illinois on Jan. 12, 2015.

His goal as governor is to create a more prosperous state, where everyone has an opportunity to succeed.

Bruce will remain focused on delivering value for taxpayers, creating a pro-jobs economic climate, ensuring world-class schools and educational options for every Illinoisan, and bringing term limits and greater accountability to state government.

Bruce was born in Illinois and is a self-made businessman who had no inheritance or family wealth.

A dedicated and diligent student, Bruce worked while he attended Dartmouth College, where he graduated with top honors. He went on to earn an M.B.A. from Harvard.

Returning to Illinois in 1981, Bruce began working at then startup investment company Golder, Thoma, Cressey (later GTCR). As one of its earliest partners, Bruce helped build the firm into one of the most successful and respected businesses in Illinois.

GTCR has been trusted for decades to oversee the retirement investments of first responders, teachers and other Illinois workers and has created tremendous returns for them – far surpassing the stock market's performance – providing exceptional value for taxpayers.

Bruce has reinvested much of his success into the state he loves through supporting education, the YMCA, local hospitals and community organizations. His greatest passion is education. Bruce and his wife, Diana, have devoted a tremendous amount of their personal time and resources to improving education throughout the state.

Bruce has never let his success change him. He still drives a 20-year-old camper van, wears an \$18 watch, and stays in the cheapest hotel room he can find when he's on the road. He is the proud father of six children – two boys and four girls – and Diana is the love of his life. He hunts birds, hikes, loves riding his Harley, and jumps at every opportunity to fish.



In the US health care costs were <u>15% of GDP</u>, currently are <u>18%</u> and rising to <u>20% potentially</u>. Rising costs threaten insurer solvency and health care insurance costs for consumers. The US Affordable Care Act relies upon three "Rs" of reinsurance, risk adjustment and the <u>"risk corridor" feature, which needs to be adequately funded and is not in the US</u>.



Underfunded Risk Corridors are causing uncertainty and potential volatility in Health Insurance market.

0

Part 7

Whyte Daimin Model for ASEAN RE

ASEAN and its member nations are in the early stage of trying to create an affordable and reliable catastrophe recovery financing method to protect economic growth. <u>How can they achieve it</u>?



The Whyte Daimin Model for ASEAN RE was introduced in China International Business Magazine, April 2015.

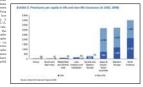


W hyte Daim in M odelfor ASEAN Catastrophe Recovery Financing

this century are in the range US\$ 2.5 trillion and "are	Falle 23 Tarine Fearth sorted to and 1410 2010						
piraling out of control." In igher income countries 40% of catastrophe losses are innexed by insurance reminums, the chart shows be premiums, per capita for 6 and non-the insurance a high and lower income agions.							
einsurers hope to increase heirprofits from low er scon e countries.	111111111						

implex for many consumers to understand, too unprofitable for insurers and international to provide. It could be too	2	 	har
for many ASEAN nations' for many ASEAN nations' mus to sustainably subsidize after one or a series of major hes. Even in countries with		 1	_
stoped insurance industries and systems where up to 40% of closes are paid for by premiums sumers and businesses, insurers	# #	-	- 100

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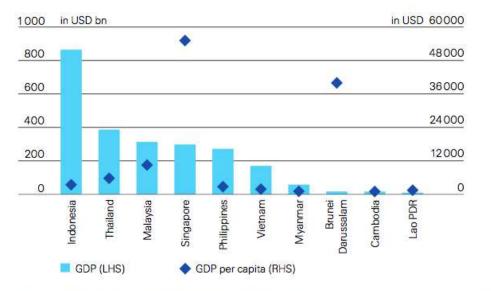


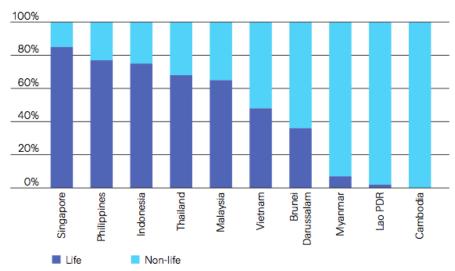


The Whyte Daimin Model for ASEAN RE, which can also be used for BRICS RE, was created to enable China to <u>profitably</u> develop its financial service industry domestically and internationally by providing:

- 1). <u>Affordable and reliable</u> catastrophe risk transfer and recovery financing to participating ASEAN governments to administer according to each ASEAN nations conditions and needs;
- 2). By "<u>smoothing</u>" participating ASEAN nation's economic catastrophe losses to protect ASEAN nations' economic growth and trade with China; and
- 3). To help promote <u>harmonious</u> outcomes for territorial, trade and economic issues.

These charts reveal 9 of the 10 ASEAN member nations have lower per capita incomes and accordingly low insurance penetration. <u>Seeking to create insurance penetration for reinsurers to expand their profits will not provide adequate, affordable or reliable catastrophe risk transfer and recovery finance in nations without well developed insurance sectors.</u>





Source: Oxford Economics, Swiss Re Economic Research & Consulting.

ASEAN's indigenous insurers' solvency will be safer and they will more profitable if they <u>do not write</u> catastrophe insurance if they lack adequate capital, claims handling, and properly priced premiums from businesses and consumers.

For ASEAN nations' indigenous insurers to steadily develop they need to use their limited capital to only cover life and non-life insurance policies that exclude catastrophe coverage. They should only provide insurance that they are able to accurately model and receive actuarially sound premiums for.

Each ASEAN nation will need to develop their own insurance companies and regulatory systems.

It will take ASEAN as an economic community a long time to try to integrate ten nations' insurance regulatory systems.

Thailand's reinsurance problems are a revealing case study.

Thailand's Deputy Prime Minister proposed the creation of a new reinsurer for the ASEAN region after the 2011 floods, (which we refer to as "ASEAN RE") because <u>the three largest "global reinsurers" would either not deal with Thailand or demanded greatly increased premiums</u>. Several major manufactures were forced to stop production during the floods and could leave Thailand. The government assured them it was implementing mitigation investments and recovery strategies.

In 2012 it established a National Catastrophe Fund with US\$1.6 billion of government capital and guarantees. By 2013 the Fund had sold over a million catastrophe insurance policies covering flood, windstorm and earthquakes. Households, small and medium size businesses and industrial enterprises purchased 92%, 7% and 1% respectively of the policies. Standard premium rates were set from .5% to 1.25% of the amount insured and premiums totaling about US\$ 60 million were paid to Thailand insurers.

The Fund that acts as the primary reinsurer providing proportional reinsurance coverage provides 58%, 16% and 26% coverage of the households, businesses and industrial enterprises risks. "Foreign reinsurers" covered losses in a layer from US\$ 1 billion to US\$ 16 billion. <u>But other "global reinsurers" were reported to be "reluctant to back the Fund "unless the price is right."</u>

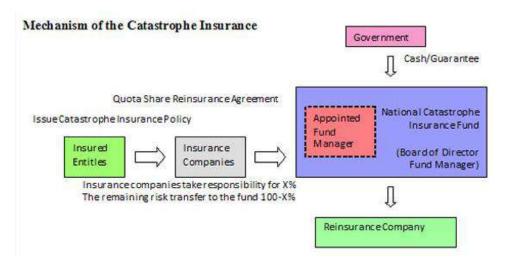
These charts reveal the <u>slow and low percentage of 2011 flood loss claims</u> <u>payments to insureds</u> by insurers and reinsurers by May 2012 and overview the structure of the National Catastrophe Insurance Fund set up by Thailand's government in 2013.

Thailand Non-Life & Life – Industry Flood Loss (2011)

As of May 15, 2012. (USD Millions)

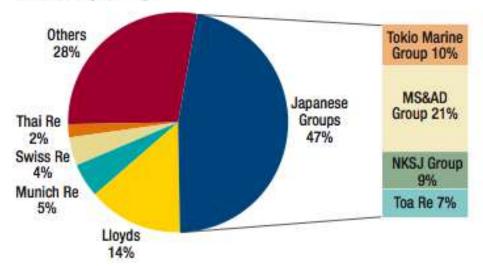
		Incurr	Pai	d vs		
	Clair	ns	Incurred I	OSS	Incurred loss	
	Number	%	Amount	%	Number of Claims	Claims Amount
Industrial All Risks	8,464	10%	USD 14,854	96%	30%	41%
Fire (Small/Medium Enterprises)	3,906	4%	433	3%	71%	30%
Fire (Personal)	36,067	41%	106	1%	90%	80%
Motor	39,797	45%	135	1%	95%	96%
Total Non-Life	88,234	100%	USD 15,527	100%		
Life	213	0%	1	0%	100%	100%
Total	88,447	100%	USD 15,528	100%		

Source: Thailand Office of Insurance Commission



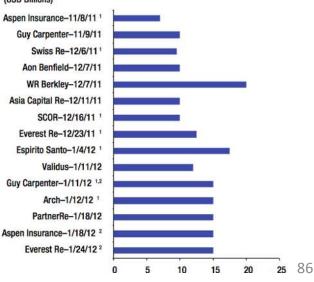
The World Bank's estimate of the 2011 Thailand flood <u>economic losses was US\$ 45.7</u> <u>billion.</u> According to A.M. Bests, the insured loss estimates made by 15 reinsurers ranged between <u>US\$ 8 billion to US\$ 23 billion</u>. These charts reveal the large number of insurers, reinsurers and retrocessionaires involved. Claim documents must come from often unsophisticated insureds in the midst of a catastrophe. Then <u>claims need to be adjusted</u> by insurers, reinsurers and retrocessionaires. Then claim payments flow from retrocessionaires to reinsurers to insurers to insureds, which urgently needed the payments to recover from the catastrophe. <u>Even in the US's highly developed and regulated market, ten years after Hurricane Katrina only 45% of claims from insureds had been paid.</u>

Thailand Non-Life – Shares of Insured Flood Losses (2011)



Insured Flood Losses (2011)

Estimates of industrywide losses provided by industry participants and observers. (USD Billions)



Thailand's insurance regulator proposed that ASEAN form a new ASEAN pool reinsurer in 2013

COUNTRY PROFILE - THAILAND

Gearing up for ASEAN Economic Community

With the impact of the 2011 Thai floods still making waves, the Thai insurance industry is now gearing up for 2015 when ASEAN economies integrate under a common market. The regulator is leading the charge and insurers are working towards continuous sustainable growth.



Regulator leads the charge

The Office of Insurance Commission (OIC) had a busy past year looking both back and forward. Looking back, it had worked proactively with the industry in responding to the flood crisis and initiating measures to mitigate the impact of similar future disasters. Looking forward, it has been helping drive the industry to be fast on its feet as the ASEAN economic integration draws near. Mr Pravej Ongartsittigul, Secretary General of the OIC, urges Thai insurers to aggressively take on the regional opportunities coming their way.

By Manuelita Contreras

A s the Thai insurance industry gears up for the economic integration of the ASEAN region in 2015, the OIC has been playing an active role of nor only putting in place necessary regulations and infrastructure but incentives as well to better prepare insures. It is also poshing the message that they should think beyond Thailand and embrace the opportunities the ASEAN Economic Community (AEC) will offer them.

"Lecho the message for them to be more aggressive," said Mr Pravej Ongarisittigul, following Deputy Prime Minister and Finance Minister Kitriratt Na-Ranong's call to insurers at an industry gathering to be more aggressive and not be too defensive.

His office and the Thai General Insurance Association had agreed to set up a working team, to be comprised of members from both the public and private sectors, to work on boosting the capability of the Thai insurance industry. Specifically, it will look into revising the Non-life Insurance Act and developing distribution channels particularly for microinsurance, among other things.

"The objective was to stimulate the awareness of and active participation among insurers in the developments in the next 10 to 20 years, in light of the various economic indicators in the region," he said. "The mutual understanding of such will pave a path for an action plan in the industry,"

He said the inclusion of microinsutance in the plan was aimed at increasing the insurance penetration rate, particularly among customer segments that need protection the most. "As the current cycle of contoning growth in the ASEAN region continues, so does the increase in income of

"The market is operating to an extent that is fair, efficient, and transparent. Liberalisation in terms of licensing is not on the agenda at the moment."

individuals. The insurance industry can serve and expand to a much wider base of consumers and contribute to the stability and well-being of the general public."

Cross-border partnerships encouraged

On the life side, the OIC is also encouraging insurers to proactively prepare for the expected changes in their business environment and associated opportunities and threats once the AEC comes into force.

He said that beyond the domestic market, the industry and his office are looking into the feasibility of providing assistance to the CLAV countries (Camboda, Laos, Myanmar, Vietnam) in developing their insurance industries to better serve their markets. We have similar cultures, and we hope to expand our similarities to include our economies in the years to come." he said.

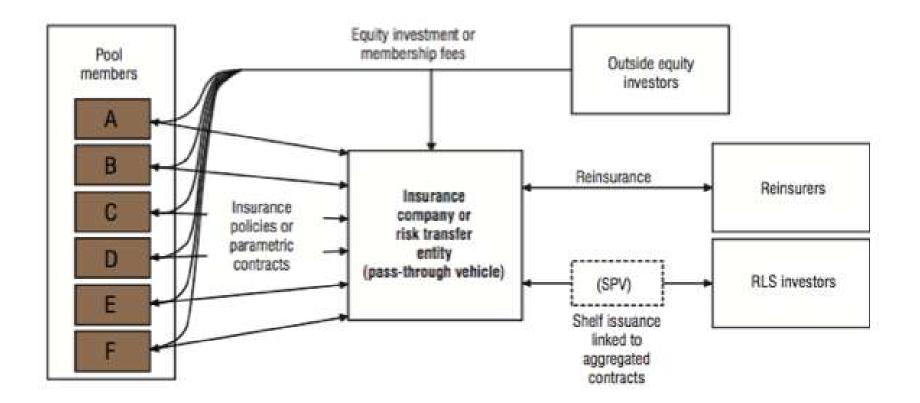
The OIC has been seeing positive cross-border business developments with these countries in the form of exclusive partnerships, and is encouraging more of such activities.

De-tariffing being looked

One concern insurers have raised as they prepare for the AEC is the need for de-tarriffing, as corrently most classes of business are subject to tariffs. Although companies have pricing flexibility, they still need to get regulationy approval.

- Mr Pravei Ongartsittigu

Thailand Regulator proposed below "Basic Model" for ASEAN RE



The Basic Model's structure is good. But Thailand's regulator's proposal <u>does not have an adequate business model.</u>

He proposed it is to be funded by equity investment and membership fees and outside equity investors. An insurance company or risk transfer entity that is a "pass-through vehicle would pool ASEAN members risks, which would be covered by insurance policies or non-insurance based parametric contracts. The insurance company or risk transfer entity would negotiate costs and terms of coverage for the risks with reinsurers and catastrophe bond investors.

In theory, the Basic Model would establish a large pool of business and resulting competition between reinsurers and catastrophe bond investors that want to obtain ASEAN's pooled business.

Reasons the "Basic Model" will not work

It should not:

- 1) <u>use insurance policies</u> with the resulting slow catastrophe claim payments to millions of policyholders in countries that lack adequate insurance companies and regulations.
- 2) <u>rely only on the availability and affordability</u> of on-going reinsurance and catastrophe bond coverage.
- 3) <u>be dependent financially on prompt</u>, undisputed catastrophe recovery payments from them.

It needs to:

1) have its <u>own massive loss funding ability</u> to make catastrophe recovery payments immediately.

2) raise an impressive, extremely large amount of <u>start-up capital</u>.

3) be sure it has access to <u>further rounds of massive capital</u>, even without reinsurance and catastrophe bond coverage in place, if there is a series of major catastrophe loss years.

It is essential to its ability to attract capital from capital market investors and its <u>solvency and ability to provide coverage after large loss years</u>

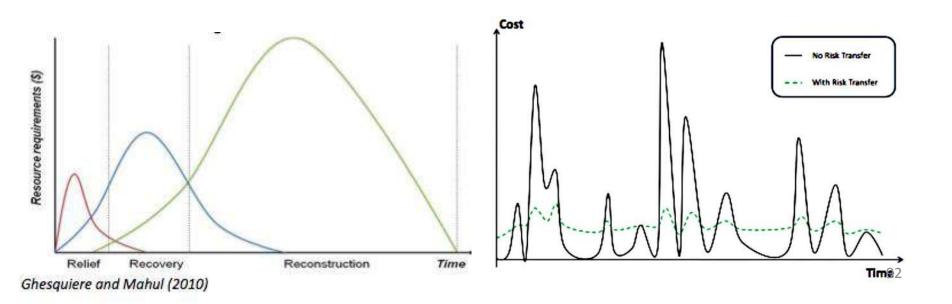
The Whyte Daimin Model for ASEAN RE includes the following business features:

- 1. It will provide <u>parametrically triggered</u> catastrophe recovery funding paid only directly to participating ASEAN RE member nation's <u>governments</u>.
- 2. There is <u>no loss sharing among ASEAN RE pool member nations</u>. Instead the protection provided is known as "loss smoothing" for each individual ASEAN countries governments.
- 3. Each participating ASEAN nation's government immediately pays ASEAN RE for the loss payments it receives from ASEAN RE with a <u>bond issue</u> when a parametrically defined covered catastrophe occurs.
- 4. ASEAN Re can <u>hold or sell the bonds</u> in the international capital markets.
- 5. ASEAN RE can also raise capital in the capital markets by <u>itself issuing bonds</u>.
- 6. ASEAN RE's credit worthiness and <u>credit rating</u> provided by its own huge capital, is also further enhanced by the credit rating of its long term committed outside major strategic equity investors.

1). ASEAN RE will "<u>smooth</u>" the impact of catastrophe caused economic losses and provide the pre-catastrophe mitigation investment and post-catastrophe recovery finance necessary to protect ASEAN nations' economic growth.

2). ASEAN RE will use its own high capitalization to do so as well as using reinsurance risk transfer and catastrophe recovery financing and catastrophe bond investors when they are fully collateralized and attractively priced.

3). These charts show the <u>three stages</u> of catastrophe recovery finance needed and the "smoothing" effect provided by ASEAN RE's coverage.



ASEAN RE will provide parametrically triggered catastrophe recovery finance for <u>all peril catastrophe risk exposures</u>

- 1). ASEAN RE's member nations governments will <u>pay only relatively low annual membership</u> <u>fees</u> to pay for ASEAN RE's operating expenses and no more <u>unless</u> they receive catastrophe recovery finance payments. If they do, they in return will simutantiously pay ASEAN RE back in sovereign bonds equal to the loss payments <u>plus a 10% guaranteed profit</u> for ASEAN RE. This will attract major sovereign and capital market investors' support for ASEAN RE's massive capitalization, which must dwarf existing reinsurers' assets.
- 2). <u>Unlike reinsurers, ASEAN RE's profitability will not be negatively affected by high loss years.</u>
- **3).** Asia typically has about 50% of the world's catastrophe losses annually. However this chart suggest some non-correlation from typhoon damage geographically.

	that also affect									
1-in-20 year events	Japan	Korea	China	Hong Kong	Taiwan	Philippines	Thailand	Malaysia		
Japan	1.00	L.	L		L.	L				
Korea	н	1.00	L		L	L				
China	M	L	1.00	M	M	М				
Hong Kong	L		1.00	1.00	L	H	-			
Taiwan	M	L	H		1.00	M				
Philippines			M	L	L	1.00	L	12		
Thailand			L			М	1.00	E		
Malaysia	L				L	М	L	1.00		



China can be the "first mover", a committed, long term, strategic investor, <u>crucial</u> to funding and creating ASEAN RE

- 1). Trade and investments in ASEAN nations already creates <u>10% of China's annual</u> <u>GDP</u>. China has the long-term commitment to ASEAN's economic stability and growth. China is contributing major funding to the One Belt, One Road initiative, which it is supporting with a new US\$ 40 billion Silk Road Fund and half of the initial US\$ 100 billion for the Asian Infrastructure Investment Bank.
- **2).** Protecting those loans and ASEAN's economic growth will <u>increase the</u> <u>requirements</u> for the amount of catastrophe risk transfer and recovery financing.
- **3**). China is able to provide the <u>massive capital backing</u> that ASEAN RE needs.
- **4).** Unlike the 10% to 20% profit reinsurers need, China is a <u>strategic investor</u>. It has multifaceted, on going trade relationships with ASEAN nations.
- 5). <u>Unlike the reinsurers and catastrophe bond investors, China can profitably make a long-term commitment to financially support ASEAN RE in both high and low loss years.</u>

China's support can ameliorate the deficiencies in the Basic Model

- 1. China's initial investment and long term financial backing ASEAN RE will act as an enterprise risk management strategy that <u>protects the solvency</u> of ASEAN RE from relying solely on whether reinsurance and catastrophe bond coverage is available and priced at affordable costs.
- 2. China's support enables ASEAN RE to <u>take advantage of the fully collateralized</u> <u>protection</u> offered by catastrophe bond investors and achieve competitive pricing and terms for reinsurance coverage, <u>when it is fully collateralized and has attractive broad coverage terms and pricing</u>.
- 3. Unlike the post-catastrophe loans provided by international development banks and relief organizations, this ASEAN RE business model <u>does not interfere</u> with the sovereignty of ASEAN governments in managing their own economies and insurance industry development.

PART 8

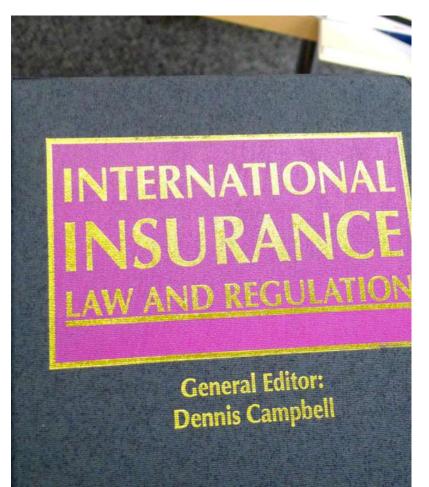
The Whyte Daimin Models for China's Insurance Pilot Projects.

ASEAN RE and BRICS RE can be an effective catalyst for the development of China's financial services industry and international economic activities, which can surpass Bermuda's successful economic development model

Whyte Daimin Model for China's Free Trade Zones success

Bermuda, which has a population of 70,000, made itself into the center for innovative companies providing 50% of the US\$ 3.5 Trillion in catastrophe recovery finance and 50% of the world's catastrophe bonds.

No such jurisdiction exists in Asia and the developing world.



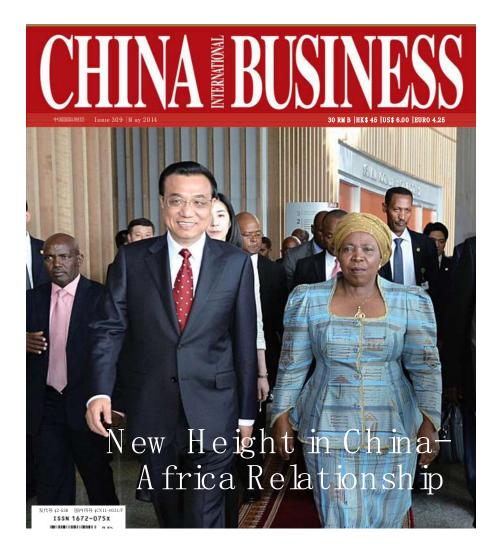
Bermuda

John Milligan-Whyte Milligan-Whyte & Smith Hamilton, Bermuda

's Insurance and Reinsurance

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Implementing the Whyte Daimin Models in the Insurance Pilot Projects, ASEAN RE and BRIC RE can make a Chinese city or cities the <u>leading global centers for</u> <u>catastrophe and agriculture loss recovery finance</u>



Catastrophe & Agriculture Reinsurance Finance in Shanghai's Free Trade Zone

by JOHN AND DAI MIN MILLIGAN-WHYTE

Commission and China and Bermuda's Ministries of Finance working together with Chinese and Bermuda companies in the Shanghai Free Trade Zone (SFTZ) can enable Chinese government entities to commercially transfer, finance and hedge catastrophe and agricultural losses in the reinsurance, capital and commodities markets. This is the second in a series of monthly articles on why and how this can be achieved.

Bermuda's Ministry of Finance began creating the world's leading "special economic zone" for insurance and reinsurance in the 1980s. By 2005 Bermuda was the world's second largest reinsurance market receiving 11% of the world's reinsurance premiums. With the rapidly increasing frequency and severity of economic losses caused by natural catastrophes since 1992. Bermuda reinsurance companies now provide USS2 trillion of the USS3.5 trillion catastrophe reinsurance coverage available globally.

Bermuda made itself into the world's most attractive jurisdiction for the companies providing reinsurance and insurance linked securities finance (known as "ILS") by developing the world's most effective insurance and reinsurance regulatory system. Bermuda became the best-regulated jurisdiction for Wall Street and sophisticated investors to set up highly capitalized and rated new reinsurers quickly.

China and Bermuda's Strategic Partnership in Shanghai's New Free Trade Zone

le Zone China's insurers and reinsurers business can profitably develop with Bermuda reinsurers as their strategic partners in providing China's catastrophe and agriculture insurance and reinsurance products and coverage. Providing the coverage China urgently needs to protect its economy also requires far more reliable and highly capitalized reinsurance capacity than currently exists in the international insurance, reinsurance and ILS markets. China Investment Corporation's

assets of US\$585 billion and the State Council's estimate that China's insurance and reinsurance premium payments in 2015 will reach US\$484 billion annually are already larger than the total assets of US\$480 billion of the world's 200 reinsurance companies and US\$48 billion capacity in the ILS markets.

China can Protect Itself by Becoming the Largest Consumer, Provider and Investor in Agriculture and Catastrophe Reinsurance and ILS finance

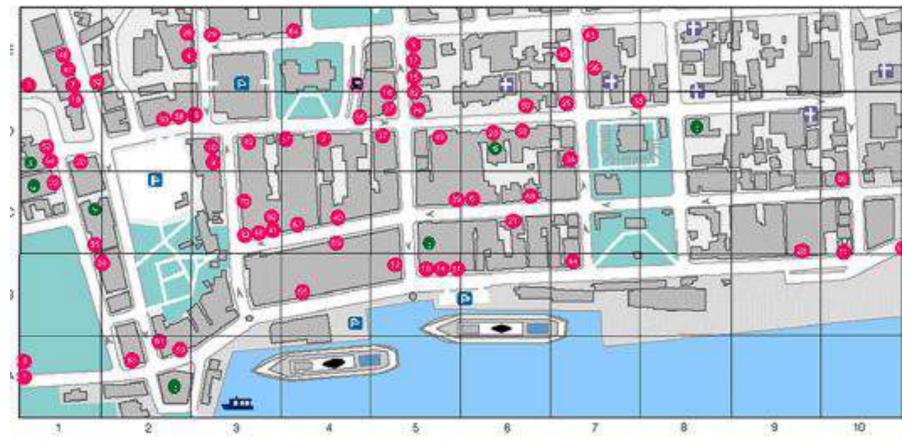
China's agriculture and catastrophe risk exposures and peak losses are far too large to be reliably provided by the capital in the international reinsurance market. Such massive and volatile loss exposures need to be financed and hedged in the global capital and commodities markets using the new asset class of insurance linked securities, which are already providing 20% and may grow to provide 50% or more of the capital providing catastrophe recovery costs protection.

China has the world's highest exposure to earthquake risk and huge urban concentrations of people and industry. In 2006 the State Council's "Opinions on the Reform and Development of the Insurance Industry" made it clear that China should establish a national financial support system for catastrophe insurance. But, eight years later, Yunnan, Shenzhen and Ningbo are the only three sites that have been approved as catastrophe insurance pilot areas. Shanghai, Beijing and Guangzhou produce 60% of China's GDP and 90% of its exports.

Less than 1% of China's earthquake recovery costs are covered by insurance, which hinders and delays reconstruction Combining China's capital and urgent need for protection with Bermuda's successful regulatory experience is required to safely design and scientifically manage the massive catastrophe and agriculture insurance and reinsurance coverage China needs. The long-term reconstruction costs of a peak loss or losses, if uninsured, can trigger fiscal and economic crises beyond the management abilities of local, provincial and national government bodies already overwhelmed by a catastrophe's immediate relief and recovery costs.

Huge earthquakes of 8.6 and over on the Richter scale come in 15 year cycles We are in an 8.5 cycle and as a result of the 2011 Japanese earthquake there is an 81% to 93% probability of a major earthquake hitting Tokyo. Japan's Cabinet Office estimates that would cause US\$1 trillion in insured losses, which is more than all the assets of the global reinsurance market. It will also trigger further uninsured losses of US\$1.7 trillion. Earthquakes occur in interrelated regional clusters. Such a peak loss or a series of major losses will bankrupt many of the world's insurance and reinsurance companies and trigger capital and credit market crises and collapse of international trade supporting China's economy.

Trillions of dollars of additional liquid capital reserves are needed to 98 Bermuda's economic development strategy and resulting regulation and expertise developed over the past 30 years and attracted sophisticated, innovative and highly capitalized companies as a result of traditional reinsurers lack of innovation.



Bermuda developed specialized insurance and reinsurance legislation that made it a "special economic zone" for the US, EU and other nations. This chart shows the different types and levels of regulation in Bermuda for different classes of smaller and huge insurers and reinsurers.

Summary of Bernuda.	biorance Regulatory Ru	en		PLAN AND INC.	350 m 1 m 1
License category	Class 1	Class 2	Class 3	Class 4	Long-Term
Type of Firm	Single parent captives insuring risks of parent and affiliates only	Multi-owner captives and single parent captives writing up to 20% unrelated business	Insurers and reinsurers not included in classes 1, 2, or 4. E.g., captives where more than 20% of net premiums is unrelated business	Open market insurers and reinsurers underwriting for example direct excess liability insurance and property extastrophe orinsurance	Life insurers and long term accident and beath
Minimum solvency margin Statutory capital and surplus misst exceed greater of: (a) Minimum capital and surplus (b) Premium test First S6 million NPW plus Eacros of S6 million NPW	S120,000 20 percent 10 percent	\$250,000 20 percent 10 percent	\$1,000,000 30 percent 15 percent	\$100,000,000 50 percent ¹ 50 percent ¹	\$250,000
(c) (Net) loss reserve test	10 percent	10 percent	13 percent	15 percent	
Liquidity ratio	Relevant assets' must asceed 75% of defined liabilities	Relevant assets must exceed 75% of defined liabilities	Relevant assets rout exceed 75% of defined habilities	Relevant assets must succeed 75% of defined limbilities	No requirement
Information filed in annual rotum	Cover sheet Solvency contribute Declaration of ratios Auditor's report	Cover sheet Solvency certificate Declaration of ratios Statutory financial statoments Auditor's report Loss reserve specialist opinion (triennial)	Cover sheet Solvency ortificate Declaration of ratios Statutory financial statements Auditor's report Loss reserver specialist opinion (annual)	Cover sheet. Solvency cattlificate Declaration of notos Statutory financial statements Schedule of coded reinsutance Auditor's report Loss reserve specialist opinion (annual)	Cover sheet Solvency certificate Actaonal optition Statutory financial statements Auditor's report
Failure to creet. solvency margin	Principal tepresentative report to BMA with 30 days	Principal representative report to BMA with 30 days	Cease paying dividends. Report within 30 days on how company intends to comply with solvency margin.	Cease paying dividends. Report within 30 days on how company intends to comply with solvency margin. If capital and surplus falls below \$750,000, additional reporting rules.	Principal representative report to HMA with 30 days

100

Bermuda companies paid 25% of 2005 Wilma, Rita and Katrina losses in the worst catastrophe annual losses year to date.

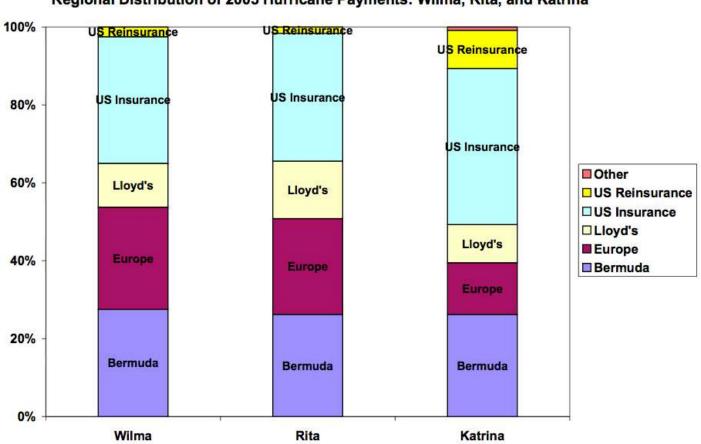


Figure 6.9 Regional Distribution of 2005 Hurricane Payments: Wilma, Rita, and Katrina Whyte Daimin Investments Limited and Whyte Daimin Center's catastrophe recovery finance expertise harmonizes the fulfillment of China's needs and potential to provide better solutions for China's trading partners.

John Milligan-Whyte designed the model for ASEAN RE. He is chairman of Whyte Daimin Investments Limited and its two think tanks. He was Chairman of the Committee Advising Bermuda's Minister of Finance on Reinsurance and Insolvency, a member of the Bermuda Law Reform Commission and United States National Association of Insurance Commissioners' Advisory Committee, that drafted the US Model Insurance Act and Vice Chairman of the Insurance Section of the American Bar Association. From 1984 to 2008 he was an advisor and director of insurance, reinsurance and hedge fund companies in Bermuda. He was co-recipient of the Financial Law Review's Asian M&A Deal of the Year Award in 2002 and the first non-Chinese recipient of the China Business Leaders Summit's Outstanding Business Leader's Social Responsibility Award.

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