sigma No 5/2015:  
Underinsurance of property risks: closing the gap  

Swiss Re Economic Research & Consulting
Outline

1. How big is the natural catastrophe protection gap?
2. The global shortfall in property insurance
3. Dealing with underinsurance
4. Conclusions
How big is the natural catastrophe protection gap?
Global natural catastrophe losses totalled USD 1.8 trillion* over the last decade, with 70% uninsured losses.

- The global natural catastrophe property protection gap has risen steadily over the last 10 years.
- 70% of the economic losses, or USD 1.3 trillion, were uninsured.

* in 2014 dollars
Source: Swiss Re Economic Research & Consulting and Cat Perils.
Natural catastrophe protection gap by region and peril, 1975-2014

- Average uninsured portions have been around 55% for windstorms, 86% for floods, and 90% for earthquakes.

Expected insured and uninsured losses from natural catastrophes

Catastrophe models estimate the global annual uninsured losses from future natural disaster events to be USD 153 billion.

The largest uninsured natural catastrophe exposures are in the US, Japan, and China.

Many other economies are highly exposed as a % of GDP

Although the US is highest in terms of absolute uninsured value exposed...

- Smaller countries and emerging markets are likely to lose significant portions of GDP due to major catastrophes.
- Urbanization in emerging markets has contributed to higher property concentrations in risky areas.

The global shortfall in property insurance
Benchmarking property underinsurance - Insurance penetration vs. consumption per capita

Property insurance penetration (premiums as a % of GDP)

Consumption per capita in 1000 USD, logarithmic scale

Source: Swiss Re Economic Research & Consulting
Benchmarking property underinsurance - Insurance penetration vs. consumption per capita

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Property insurance penetration (premiums as a % of GDP)

Consumption per capita in 1,000 USD, logarithmic scale

Source: Swiss Re Economic Research & Consulting
Benchmarking property underinsurance - Insurance penetration vs. consumption per capita

Property insurance penetration (premiums as a % of GDP)

Consumption per capita in 1000 USD, logarithmic scale

Source: Swiss Re Economic Research & Consulting
Benchmarking property underinsurance – demand lags in many emerging economies

• For the broader scope of property risks – including fire, burglary and water – and business interruption risks, underinsurance can be estimated by the difference between best-practice countries and those with lower insurance penetration rates (premiums as a % of GDP).

• A global benchmarking of insurance penetration across nations suggests an additional **general underinsurance protection gap of USD 68 billion** worldwide. With the USD 153 billion underinsurance for catastrophe, this totals USD 221 billion annually of underinsurance.

• Of the countries most underinsured relative to GDP, many are high-growth economies. Buying insurance still lags in these economies, even though they have a rapidly growing middle class which is accumulating substantial new wealth.
Dealing with underinsurance
Underinsurance explained

- **Insurability**: Certain risks such as some peak natural catastrophe, terrorism, cyber or contingent business interruption risk, can challenge the bounds of insurability.

- **Buying behavior**: Factors like perception of risk, insurance knowledge, affordability, reliance on government post-disaster relief, trust in insurers and ease of doing business can hinder adequate take up of cover, especially in new markets.

- **Undervaluation**: Valuing properties at less than replacement value means that insurance policies may not fully cover the total damages.
Difficult-to-insure risks contribute to underinsurance

- Risks that are hard to prepare for and sometimes not fully insurable
  - Lacking historical data
  - Difficult to measure or model

- These difficult-to-insure risks include
  - New scenarios that have not occurred previously
  - Human behaviour, deliberate avoidance of prediction

Top risks for which businesses are least prepared

Source: Allianz Risk Barometer 2015
The US has the most uninsured losses of any country

• The US is home to the “peak” natural disaster risks of Atlantic hurricanes and west coast earthquakes.

• US property values are growing faster rate than GDP and inflation. Total insured property values are estimated to be more than USD 90 trillion, with only USD 40 trillion insured.

• **Consumer awareness and buying behavior** is an important challenge:
  – Surveys in New York after Hurricane Sandy in 2012 showed that only 54% of residents whose homes were less than a block away from a body of water had flood insurance.
  – Earthquake insurance take-up in California is only 12%, lower than other high earthquake risk regions such as New Zealand and Japan.

• **Undervaluation** is a core reason for underinsurance:
  – A large 2014 sample of commercial property in the US and Canada revealed that properties with limits below USD 20 million (representing 95% of the sample) were under-valued by an average 26%.

Sources: Karen Clark & Co, CoreLogic, Wharton Risk Center, Swiss Re Economic Research & Consulting
How can we close the underinsurance gap?

- Public/private collaboration
- Increase access and distribution
- Improve product design
- Mitigation, building standards, and zoning
Dealing with underinsurance: Who needs to be involved to reduce underinsurance?

Measures which promote risk mitigation or expand insurability

<table>
<thead>
<tr>
<th>Measures</th>
<th>Objectives</th>
<th>Agents</th>
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<tbody>
<tr>
<td></td>
<td>Affordability of coverage</td>
<td>Insurance industry</td>
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<tr>
<td></td>
<td>Improve product design</td>
<td></td>
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<tr>
<td></td>
<td>Increase access and distribution</td>
<td></td>
</tr>
<tr>
<td>Product innovation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Microinsurance</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Index-based insurance</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Product bundling</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>New technologies and distribution innovation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Government setting the rules for the insurance market</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Developing the takaful sector</td>
<td></td>
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</tr>
<tr>
<td>Mitigation, building standards, and zoning</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mandatory insurance programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government- backed programs for risks that are not fully insurable</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Public sector insurance programs</td>
<td></td>
<td></td>
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</tbody>
</table>

Source: Swiss Re Economic Research & Consulting
Conclusions
Conclusions

- The global shortfall in insurance cover for property risks is estimated at USD 221 billion per year.

- The challenge for the insurance industry is to focus on the needs of those who are totally or insufficiently insured.

- Government support in risk mitigation and insurance market governance is key for success.

- Further innovation in products, processes, and distribution are needed to reach previously uninsured consumers and risks.
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Underinsurance, Economics & Politics in the United States

Minding the Gap

Insurance Information Institute
September 28, 2015

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Vulnerable Economic Development, Subsidies and Underinsurance Are Inextricably Intertwined
The Four Types of Underinsurance

1. Entirely Uninsured
   - People/Businesses in this group buy no insurance at all because:
     - Unaware of it
     - Belief that cost outweighs benefit

2. Insured, but Certain Perils Excluded
   - Covered for many perils but some are excluded (e.g., flood, earthquake)
   - Fail to completely insurer because:
     - Unaware of availability of coverage
     - Belief that cost outweighs benefit
     - Lack of available coverage

3. Insured, but Policy Terms Restrictive
   - Coverage is restrictive/limited, often due to limits of insurability

4. Insured, but Undervalued
   - Perils are covered and level of coverage meets stated demand, but exposures are undervalued

Source: Swiss Re Economic Research & Consulting, sigma no. 5/2015.
Factors Influencing the Decision to Buy Property Insurance

1. Risk Awareness
   - Vulnerability to (natural disaster) risk often poorly understood
   - Awareness does not necessarily lead to insurance purchases
   - Lack of awareness; perceptions on low-probability events

2. Knowledge about Insurance Products and their Availability
   - Insurance ‘literacy’ is key
   - Understanding of what’s covered, limits, premiums, claims process often lacking

3. Affordability
   - As with any product, insurance buyers are price sensitive
   - Budget constraints could be binding for low-income consumers

4. Trust in Insurers
   - Stories of claim disputes, litigation have impact

5. Ease of Buying Insurance Products
   - Insurance products are intangible and may seem abstract to many consumers

6. Reliance on Government Aid as a Substitute for Insurance
   - Widespread expectation of government aid can reduce incentives to buy insurance, leading to a crowding out of private sector solutions

Source: Swiss Re Economic Research & Consulting, sigma no. 5/2015.
Take-Up Rates for Various Types of Insurance in the U.S.

Take-Up Rate

Take-up rates vary widely by type of coverage

PROPERTY UNDERINSURANCE: A BY-PRODUCT OF A RATIONAL ECONOMIC AND POLITICAL PROCESS?

Consumers, Politicians Act in their Own Self-Interest

Underinsurance Results
Excessive Catastrophe Exposure → Underinsurance: Outcomes of Economically & Politically Rational Decision Process?

• **Property Owners**
  - Make economically rational decision to live in disaster-prone areas
  - Low cost of living, low real estate prices & rapid appreciation, low/no income tax, low property tax, rapid job growth
  - Government-run insurers (e.g., FL Citizens, NFIP) often provide implicit subsidies by selling insurance at below-market prices, fewer underwriting restrictions
  - Government aid, tax deductions, litigation recovery for uninsured losses
  - No fear of death and injury

• **Local Zoning/Permitting Authorities**
  - Allowing development is economically & politically rational & fiscally sound
  - Residential construction creates jobs, attracts wealth, increases tax receipts, stimulates commercial construction & permanent jobs, develops infrastructure
  - Increases local representation in state legislature & political influence
  - Property and infrastructure damage costs shifted to others (state and federal taxpayers, policyholders in unaffected areas)

• **Developers**
  - Coastal development is a high-margin business
  - Financial interest reduced to zero after sale

Source: Insurance Information Institute.
Excessive Catastrophe Exposure → Underinsurance: Outcomes of Economically & Politically Rational Decision Process?

- **State Legislators**
  - Loathe to pass laws negatively impacting development in home districts
  - Local development benefits local economy and enhances political influence
  - Rapid development lessens need for higher income and property taxes
  - Can redistribute CAT losses to unaffected policyholders and taxpayers
  - Can suppress insurance prices via state insurance regulator, suppress pricing and weaken underwriting standards in state-run insurer & redistribute losses

- **Congressional Delegation**
  - Home state development increases influence in Washington
    - Political representation, share of federal expenditures
  - Loathe to pass laws harming development in home state/district
  - Tax law promotes homeownership and actually produces supplemental benefits for property owners in disaster-prone areas
  - Large amounts of unbudgeted disaster aid easily authorized
  - Tax burden largely borne by those outside CAT zone & those with no representation (children & unborn)

- **President**
  - Presidential disaster declarations and associated aid are increasing
  - Political benefits to making declarations and distributing large amounts of aid
  - Direct impact on favorability ratings & election outcomes
  - Losses can be distributed to other areas and the unrepresented

Source: I.I.I.
Negative Outcomes from Subsidies and Flawed Design of Govt.-Run Insurers

- True risk associated with building activity is obscured

- Subsidies lead to market distortions/inequities:
  - Many thousands of homes likely would not have been built (or built differently) if property owner obligated to pay actuarially sound rates

- Serial rebuilding in disaster-prone areas is the norm

- Property owners come to assume that the government rate is the “fair” rate and object to moves to actuarially sound rates.

- Government-run insurer can’t control its own exposure
  - Legislature mandates for govt. coverage in most cases if no private insurer will offer coverage due to high risk, near certainty of destruction

- Taxpayer Burden: NFIP is $20B+ in debt
CONSUMER AWARENESS AND UNDERINSURANCE

Education of the Public Is a Difficult, Continuous Process

Case Study: Flood Insurance
I.I.I. Poll: Home Insurance

Q. Do you have renters insurance?¹

Americans are increasingly choosing to rent, but are slow to understand the need to insure, exacerbating the underinsurance gap.

The Percentage of Renters Who Have Renters Insurance Has Been Rising Since 2011.

¹Asked of those who rent their home.

Source: Insurance Information Institute Annual Pulse Survey.
I.I.I. Poll: Home Insurance

Q. Does your homeowners policy cover damage from flooding during a hurricane?¹

More Than Half of Homeowners Know Their HO Insurance Does Not Cover Flood From a Hurricane, But A Significant Proportion Either Think It Does Or Do Not Know.

¹Asked of those who have home insurance.
Source: Insurance Information Institute Annual Pulse Survey.
Q. Does your homeowners policy cover damage from flooding during a hurricane?¹

Respondents answering “YES”

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>34%</td>
</tr>
<tr>
<td>Northeast</td>
<td>30%</td>
</tr>
<tr>
<td>Midwest</td>
<td>14%</td>
</tr>
<tr>
<td>West</td>
<td>14%</td>
</tr>
<tr>
<td>Total U.S.</td>
<td>24%</td>
</tr>
</tbody>
</table>

Homeowners in the South and Northeast Were Most Likely to Think Home Insurance Pays for Flood Damage.

¹Asked of those who have home insurance.
Source: Insurance Information Institute Annual Pulse Survey.
Q. Do you think that the damages in these disputed claims from Hurricane Sandy were covered by homeowners insurance or flood insurance policies?¹

- 43% understood correctly that the claims are on flood policies.
- 33% thought the claims were related to home insurance.
- 24% do not know.

Only 1/3 of those who heard about Superstorm Sandy claim disputes thought the claims were related to home insurance while 43% understood correctly that the claims are on flood policies.

¹ Asked of those who had heard about disputes following Hurricane Sandy.

Source: Insurance Information Institute Annual Pulse Survey.
The number of NFIP policies in force has plunged by 549,000 or 9.6% since 2009, even as coastal development surges and sea levels rise.
Number of National Flood Insurance Program Policies in Force by Month, Mar. 2004 – Mar. 2015

Source: FEMA/NFIP.
Florida’s Longest Spans Between Major Hurricanes

*As of Sept. 28, 2015
Source: Insurance Information Institute and flhurricane.com.

The current hurricane dry spell is now the longest in recorded history. Despite recent low activity, it is not a question of “IF” a hurricane will hit Florida but “WHEN”.

Years

<table>
<thead>
<tr>
<th>Span</th>
<th>Years</th>
<th>Days</th>
</tr>
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<tbody>
<tr>
<td>Oct. 24, 2005 - ???*</td>
<td>9</td>
<td>339</td>
</tr>
<tr>
<td>Aug., 31, 1856 - Oct. 23, 1865</td>
<td>6</td>
<td>249</td>
</tr>
<tr>
<td>Sep. 4, 1979 - Nov. 20, 1985</td>
<td>6</td>
<td>79</td>
</tr>
</tbody>
</table>

*As of Sept. 28, 2015
Source: Insurance Information Institute and flhurricane.com.
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*As of Sept. 28, 2015
Source: Insurance Information Institute and flhurricane.com.
21st CENTURY RISKS

Insurers Are Working to Keep the Gap Small

Innovation Is the Key
In 2003, the first year TRIA was in effect, the terrorism take-up rate was 27 percent. Since then, it has increased steadily, remaining in the low 60 percent range since 2009.

**TRIA’s high take-up rates, availability and affordability have benefitted businesses, workers and the entire US economy since the program’s enactment.**
Percentage of U.S. Companies Purchasing Cyber Insurance Increased in 2014

Ever larger numbers of insureds seek financial protection via cyber insurance. The percentage of U.S. companies buying cyber insurance rose to 16 percent in 2014.

*Take-up rate refers to the overall percentage of clients that purchased standalone cyber insurance.

Average limits purchased for cyber risk rose to $12.8 million for all industries and all company sizes in 2014. *Power and utility companies witnessed the sharpest percentage increase in average limits, at 59 percent.*

The On-Demand/Sharing Economy: Insurers Are Minding the Gap!

- The “On-Demand” Economy is or will impact many segments of the economy important to P/C insurers
  - Auto (personal and commercial)
  - Homeowners/Renters
  - Many Liability Coverages
  - Professional Liability
  - Workers Comp

- Many unanswered insurance questions due to regulation and litigation, but...

- *Insurance solutions are increasingly available to fill the many insurance needs and gaps that arise*
Thank you for your time and your attention!

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