Welcome to the 2015 Property Insights Conference!

Welcoming Remarks

Bill Keogh
CEO
Advisen

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the **right** hands at
the **right** time

to *power* performance.

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Opening Remarks

Shari Natovitz

SVP, Director of Risk Management
Silverstein Properties/World Trade Center Properties
[2015 Conference Chair]

Keynote Address

Paul VanderMarck
Chief Products Officer
RMS

The Risk Manager's Perspective

The Risk Manager's Perspective

Duncan Ellis
Managing Director, US Property Practice Leader
Marsh
Moderator

The Risk Manager's Perspective

- **Duncan Ellis**, Managing Director, US Property Practice Leader, Marsh (Moderator)
- **Laureen Coyne**, Director of Risk and Insurance Management, MTA
- **Marvin Levine**, Executive Vice President, Chief Legal Officer, General Growth Properties
- **Patricia Quinn Murnane**, Director of Corporate Insurance & Occupational Safety, AIG
- **Shari Natovitz**, SVP, Director of Risk Management, Silverstein Properties/World Trade Center Properties

PROPERTY insights conference

JUNE 4, 2015 | NEW YORK CITY

Produced by: ADVISEN Insurance Intelligence

The Risk Manager's Perspective

Morning Break

Coming up next:

TRACK 1 – “Flood Risk Management & Insurance”

Coming up next:

TRACK 2 - “Cyber Property Risks”

Track 1

Track Chair

Shari Natovitz
SVP, Director of Risk Management
Silverstein Properties/World Trade Center Properties
[2015 Conference Chair]

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Flood Risk Management & Insurance

Houston, Texas 2015 - ABC News

Flood Risk Management & Insurance

Martha Bane
Managing Director, Property Practice
Arthur J. Gallagher & Co.
Moderator

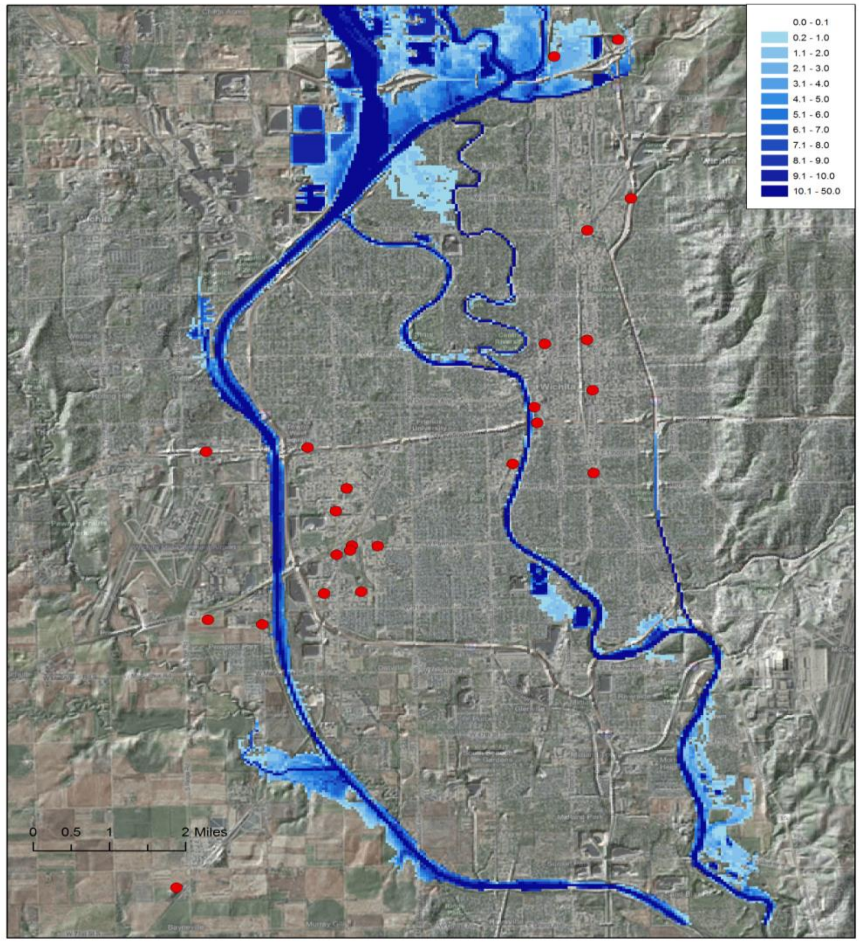
Flood Risk Management & Insurance

- **Martha Bane**, Managing Director, Property Practice, Arthur J. Gallagher & Co. (Moderator)
- **Jay Apfel**, SVP of Catastrophe Management Services, Willis Re
- **Brion Callori**, SVP, Engineering & Research Manager, FM Global
- **John Elbl**, VP, Business Development Group, AIR Worldwide
- **Dan Freudenthal**, President of Agency Flood Resources, Inc. and CRIO, Inc.
- **Evan Glassman**, President & CEO, New Paradigm Underwriters

Strategies for Managing Flood Risk

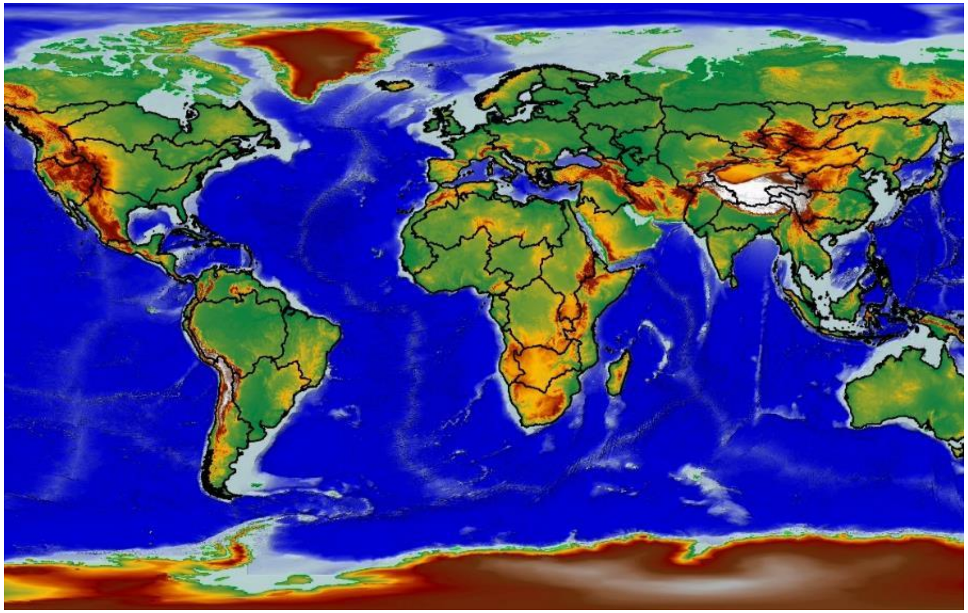
Advances in Flood Assessment and Modeling

- Global Flood Maps
- Probabilistic Flood Models
- Custom & Secondary Risk Modifiers
- Off-Flood Plain Risk



Courtesy of FM Global

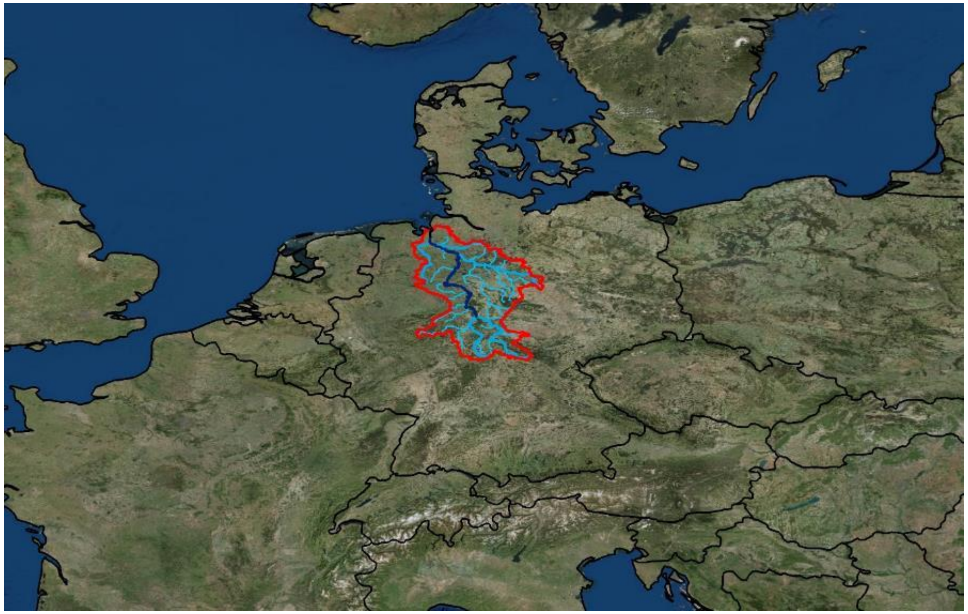
Global Scale



Low Resolution (In / Out)
2015 – First Version

Courtesy of FM Global

Regional Scale



- Taiwan 2015
- Malaysia, Po River Basin (Italy) 2016
- Philippines 2017
- Hungary, Poland, Czech Republic 2019

Courtesy of FM Global

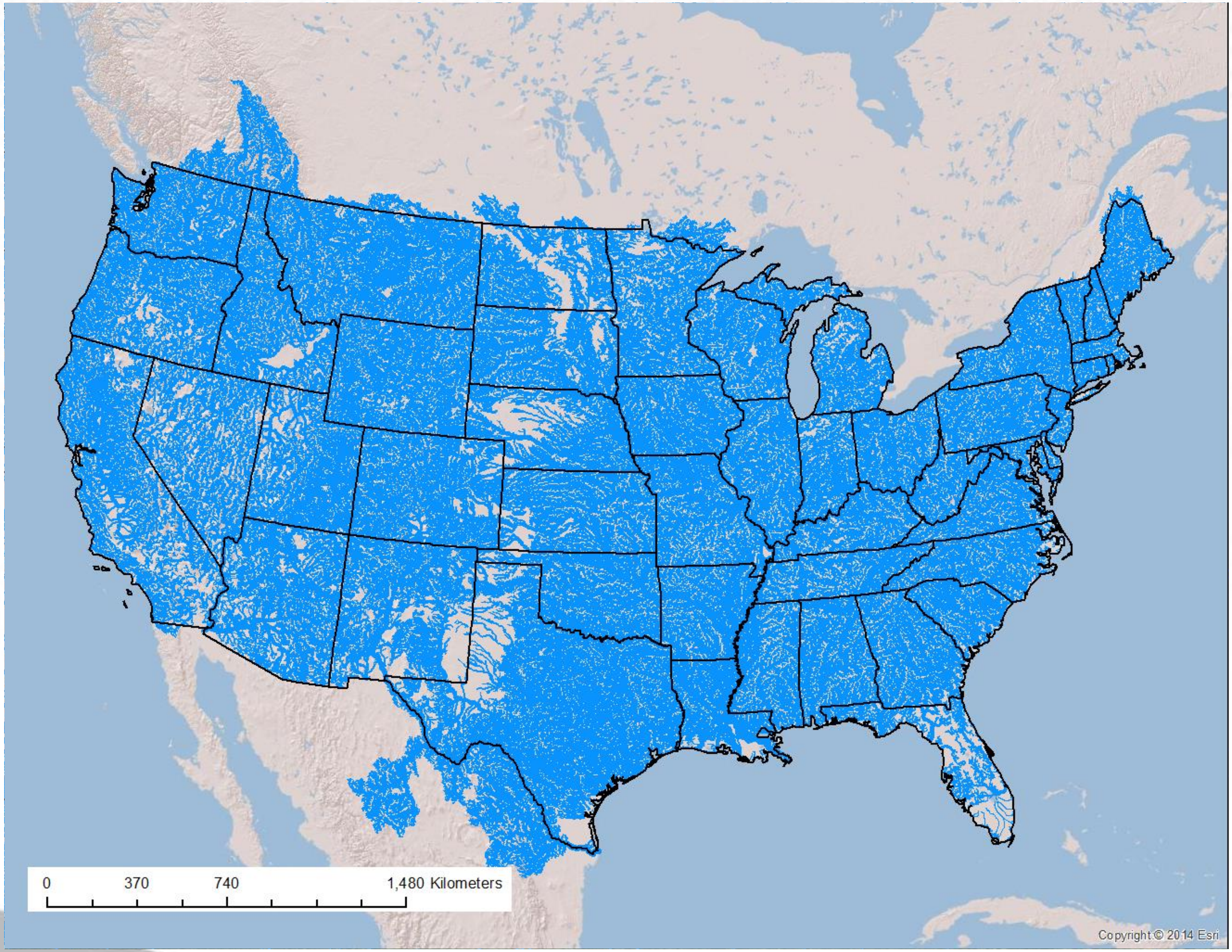
Local Scale

High Resolution

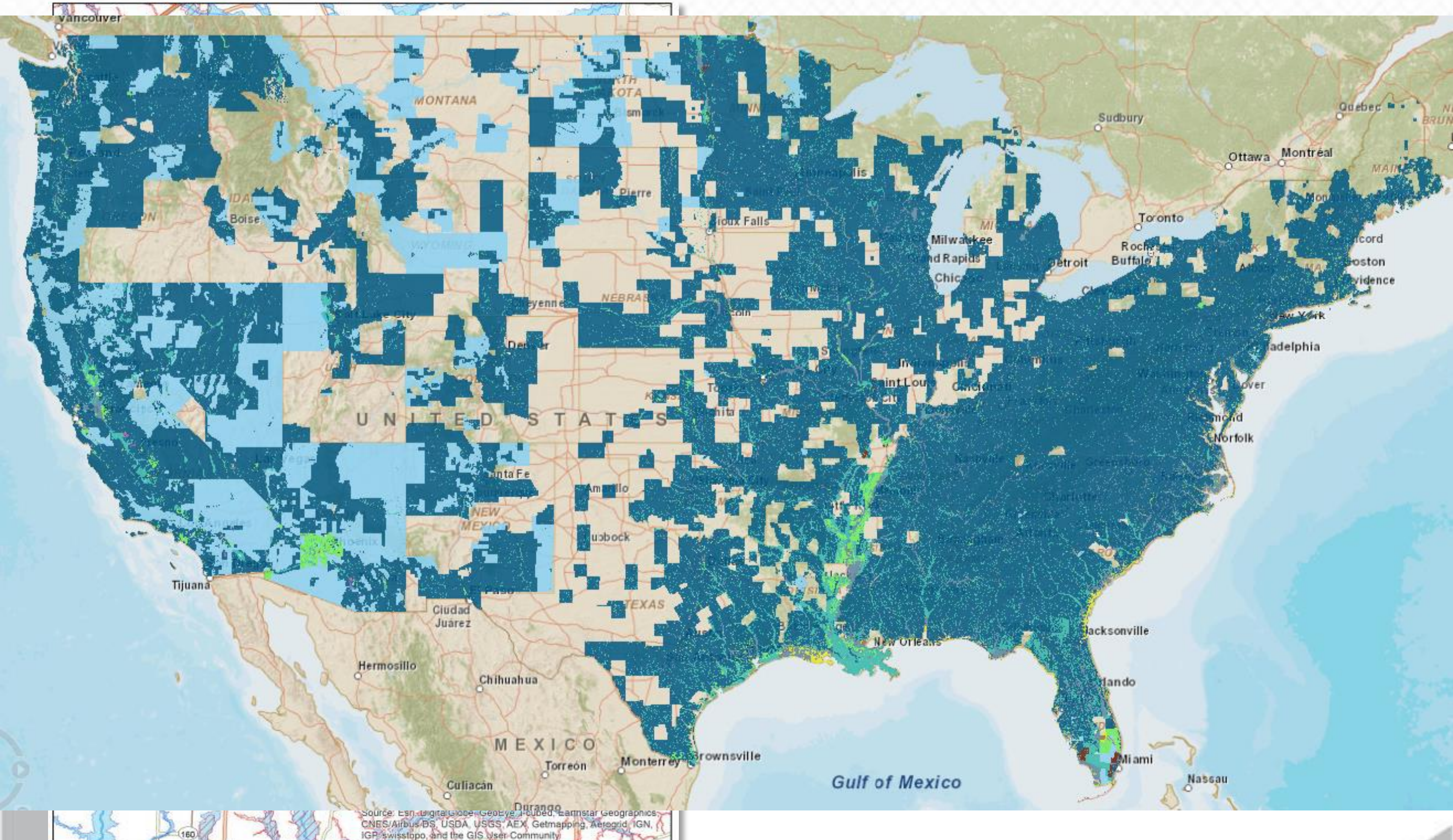
- **Po River Basin (Italy) – Small Section 2015**
- **Richmond, BC, Canada (Lulu Island) 2015**

Courtesy of FM Global

A Model That Is Robust at Multiple Scales Is Necessary for Developing Accurate Views of Risk



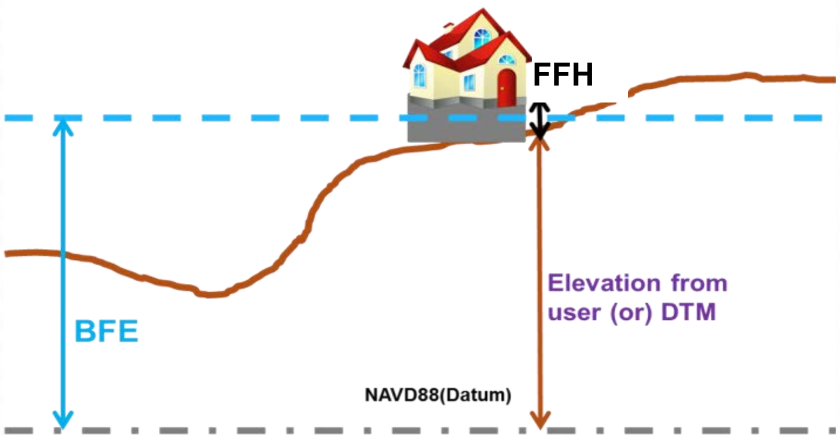
FEMA Flood Maps End at Administrative Boundaries



Primary and Secondary Risk Features Enable Improved Loss Estimates

Primary

- Occupancy, construction, height
- Year-built, location (in case of unknowns)



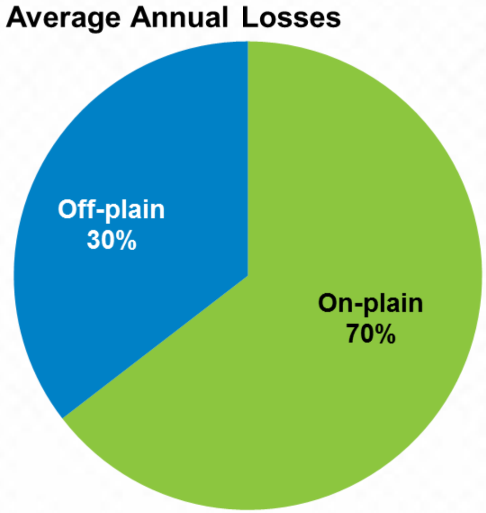
Secondary

- Foundation type, including basement
- Number of basement levels
- Nature of finish in basements—finished/unfinished
- Height of the first floor in the building and/or BFE
- Service equipment flood-protection level
- Content relative vulnerability level
- Elevation of the local ground surface
- Custom standards of protection

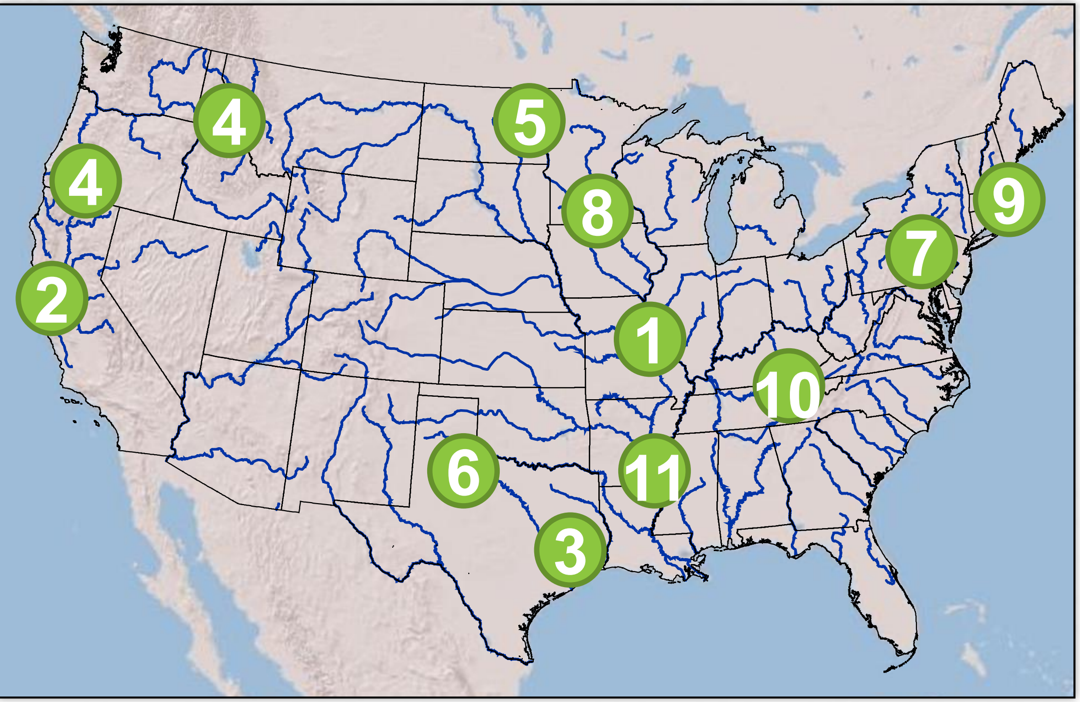
Off-Floodplain Losses Are Significant

Flash Flooding in Kansas City, MO, May 31, 2013

Courtesy: KSHB



Historical Events Used for Validation



1. The Great Flood, 1993 ($1,009m)
2. California Flood, 1995 ($310m)
3. Gulf Coast Flooding, 1995 ($2,152m)
4. Pacific Northwest, 1996-97 ($211m)
5. Red River Flood, 1997 ($143m)
6. Texas Flood, 1998 ($917m)
7. Northeast Flood, 2006 ($361m)
8. Midwest Flooding, 2008 ($444m)
9. Rhode Island Flooding, 2010 ($176m)
10. Tennessee Flooding, 2010 ($273m)
11. Lower Mississippi River, 2011 ($173m)

Flood Maps: Problems and Solutions

By Dan Freudenthal, President

- FEMA Remapping Programs
- Correcting Flood Maps
- Flood Deductibles and Sub-limits
- Other Flood Risk Management Tools

CRIO® Convert Risk Into Opportunity

AGENCY FLOOD RESOURCES
WHOLESALE FLOOD INSURANCE BROKERS

FEMA's Remapping Programs

- Map Modernization
  - 2004 – Present
  - Goal – Paper Maps to Digital Maps
  - County-by-County
  - Minor Changes – Primarily Account for Datum Shift
- RiskMAP
  - 2012 – Present
  - Goal – Update Flood Insurance Studies
  - Watershed-by-Watershed
  - Major Changes – Changing Flood Zone Boundaries and Base Flood Elevations

Map Mod: In Progress vs. Completed

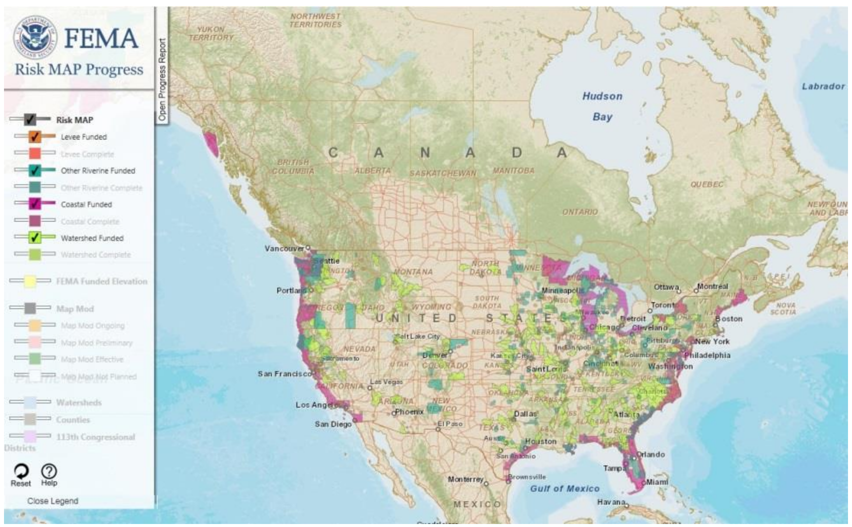
http://riskmapprogress.msc.fema.gov/

In Progress

Complete

RiskMAP: In Progress vs. Completed

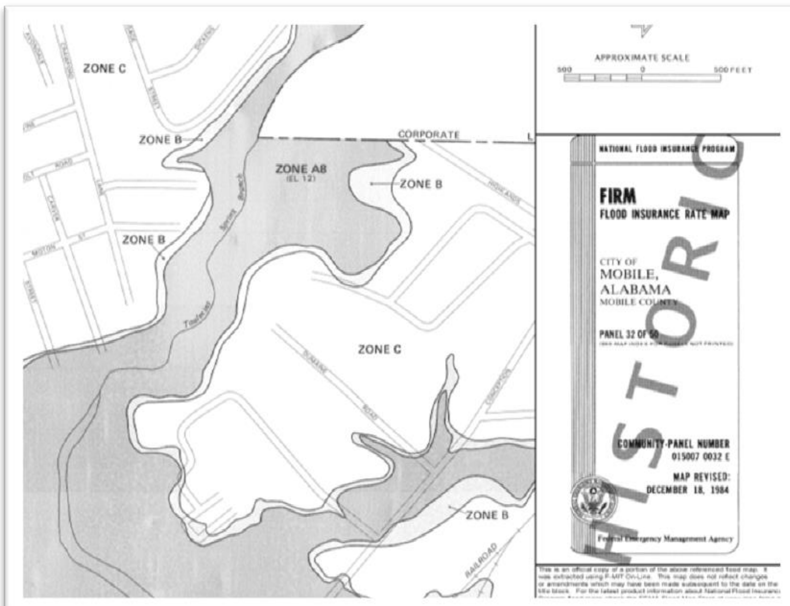
http://riskmapprogress.msc.fema.gov/



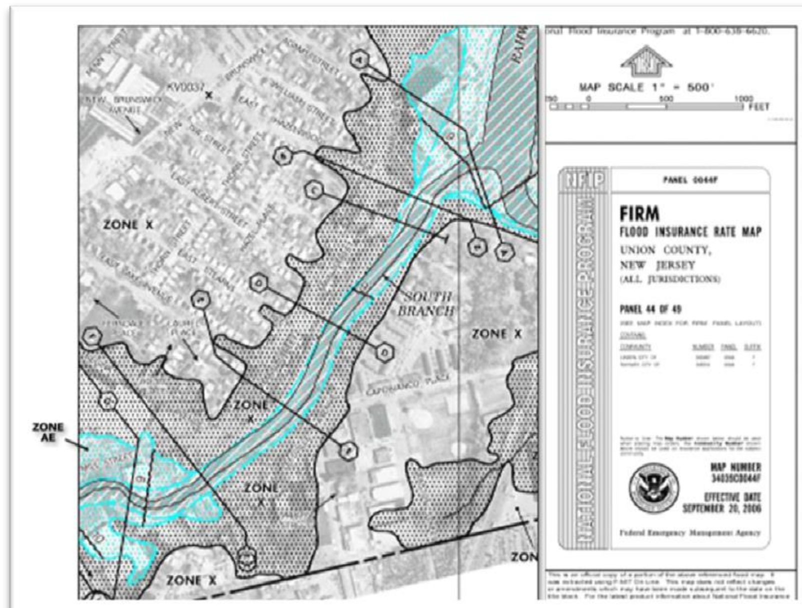
In Progress

Complete

FEMA’s Maps

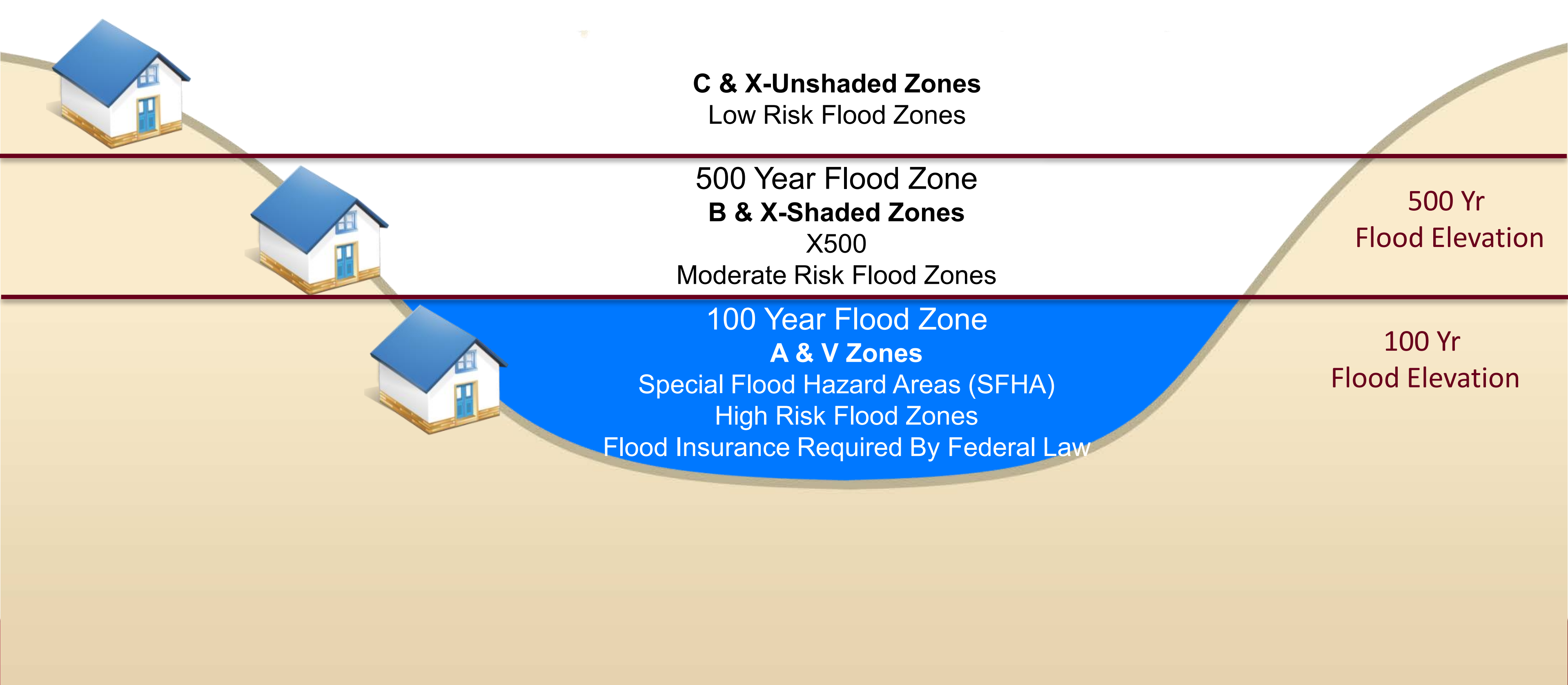


Old Maps: FIRM
Flood Insurance Rate Maps



New Maps: DFIRM
Digital Flood Insurance Rate Maps

Flood Zones


C & X-Unshaded Zones
Low Risk Flood Zones
500 Year Flood Zone
B & X-Shaded Zones
X500
Moderate Risk Flood Zones
500 Yr
Flood Elevation
100 Year Flood Zone
A & V Zones
Special Flood Hazard Areas (SFHA)
High Risk Flood Zones
Flood Insurance Required By Federal Law
100 Yr
Flood Elevation

FEMA's Remapping Challenges

- **Big Task:** 1.1 million miles bordering rivers, lakes, coasts and other flood sources.
- **Insufficient Funds**: Federal funding substantially reduced.
  - 2010 - $220 million
  - 2013 - $90 million
- **Scale of Project:** Don't have enough funds to collect data for and evaluate individual properties and buildings.
- **Connecting Dots:** Interpolate between elevation points or transects, which does not represent the real topography between those points.
- **Old Data:** Don't always use most recent data set even though it is available.
- **Floodplain Always Changing**: As a result of development of roads, buildings, homes, etc.

Flood Zone Correction & Flood Map Revision

The goal is to utilize FEMA's flood zone reclassification programs to correct inaccurate flood zone designations or Flood Insurance Rate Maps (FIRM):

- **Flood Zone Correction - FEMA's MT-1 Program:**
  - Letters of Map Amendment (LOMA) and Letters of Map Revision – Based on Fill (LOMR-F)
  - Typical Time Frame: 30-90 days
  - Reclassify buildings based on comparison of building characteristics to FEMA's existing FIRM

- **Flood Map Revision - FEMA's MT-2 Program:**
  - Letters of Map Revision (LOMR)
  - Typical Time Frame: 90-180 days
  - Revise FEMA's Flood Insurance Study (FIS) and the corresponding FIRM to change flood zone boundaries and/or base flood elevations

Bottom Line:
Eliminates federal flood insurance requirement, often improves coverage and increases or protects asset values

Benefits of Correcting Flood Maps

Successful flood zone correction delivers valuable benefits:

- Corrects erroneous flood zone classifications
- Eliminates unwarranted flood insurance requirements imposed by lenders
- Maximizes flood coverage afforded under a master property insurance policy
- Eliminates unnecessary NFIP policies and the associated premiums
- Increases NOI and, therefore, asset values
- Improves marketability of properties for sale

Property Insurance Markets: Trends

- Changing flood deductible language
- Decreasing flood sub-limits
- Increasing rates
- Creating more geographic restrictions

Bottom Line:
Pay close attention at renewal

Property Policy Flood Deductibles

- Most common flood deductibles for A and V zones are:
  - Maximum limits available through NFIP per building, whether purchased or not
  - A fixed dollar amount per occurrence, such as $250,000, $500,000 or $1,000,000
  - 5% of location or affected TIV per occurrence, subject to $500,000 or $1,000,000 minimum
- Most common flood deductible applicable to X-unshaded and C zones is the insured's AOP deductible
- Flood deductibles for X-shaded, X-500 and B zones can be AOP deductible, same as A and V zone deductible, or somewhere in between

Related Flood Risk Management Tools

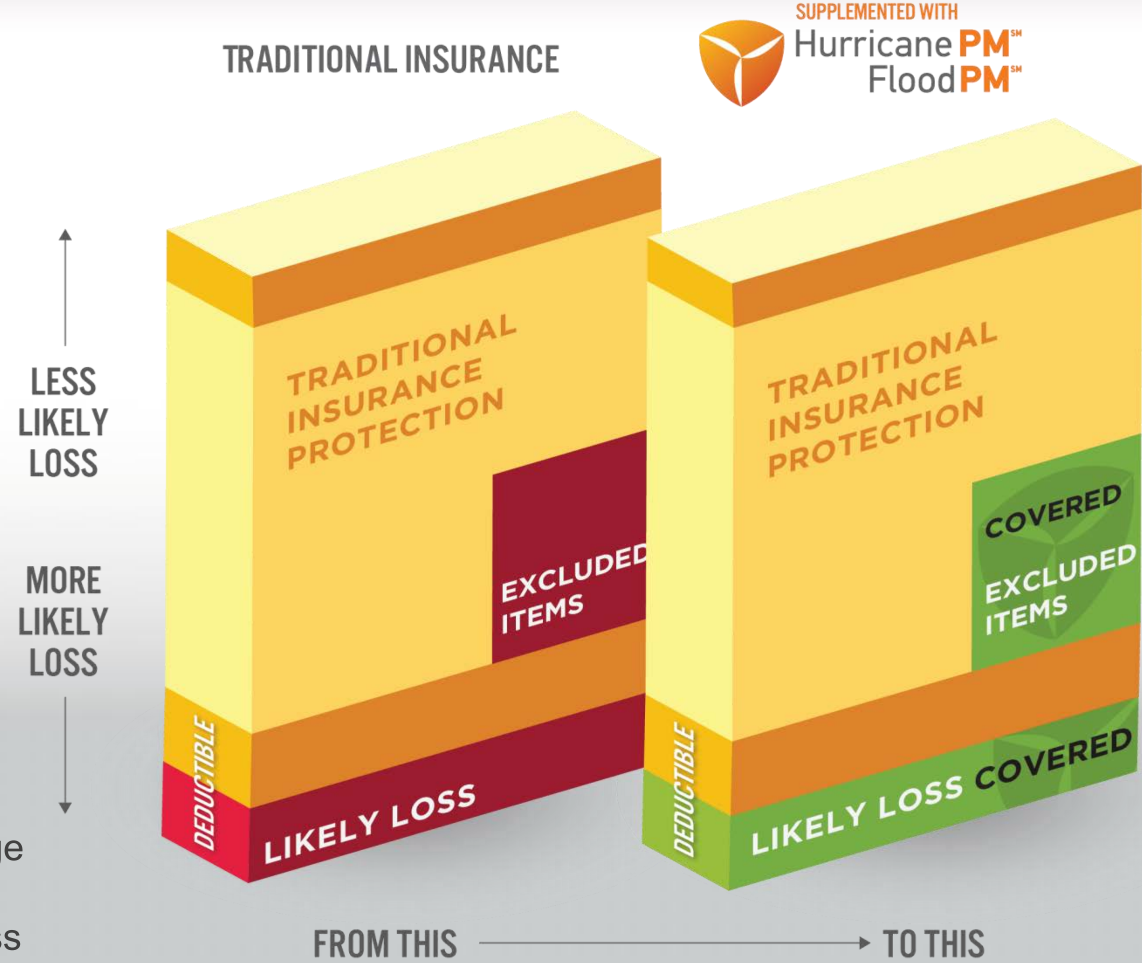
- Portfolio Review
- Premium Reduction
- Levee Research
- Elevation Certificate Coordination
- Development Consulting
- Mitigation Consulting

Pricing Challenges, Aggregation Management and Coverage Adequacy

- Private Insurance Solutions
- Common Definition of Flood
- Deficiencies in the NFIP Program

Hurricane PM℠

SUPPLEMENTAL PROTECTION



- No Distinction Between Wind & Surge
- Rapid Claims Settlement
- Cover For Almost Any Economic Loss

NFIP – Sustainability and affordability

- NFIP – Created in 1968, administered by FEMA
  - Over 5M policies, $1.3T in insured values, nearly $4B in premiums
- Not designed to be actuarially sound or cover catastrophic loss years
  - 2005 Katrina – NFIP paid $17.5B as of 12/31/14
  - 2012 Sandy – NFIP paid $7.5B as of 12/31/14
  - NFIP currently $23B in debt
- Biggert-Water Act enacted in 2012 to strengthen financial position of NFIP
  - HFIAA repealed and modified certain provisions in 2014, including rate subsidies
- Key Question:
  - Will changing legislation and enhanced Flood analytic capabilities make it feasible for the private market to write US Flood Insurance?

Private Market Participation

- Traditionally private market writings have been limited to excess flood insurance in personal and small commercial lines and the large commercial market.
- Private market involvement in the NFIP has been through the WYO program servicing the business but not bearing the risk.
- Flood offering provides additional tie to existing policyholders and allows for expansion of marketing efforts for new business
- Questions to consider:
  - What is the proper definition of "flood"?
  - How much flexibility will companies have to offer increased deductibles, ACV vs. RCV for contents, coverage exclusions, actuarially sound rates?
  - How will reinsurers price risk without a standard industry view of the exposure?

Effectiveness of Flood Mitigation Tools

- Taking control of your own destiny - Flood losses aren't inevitable
- Impact on Capacity and Pricing
- Flood Management Strategies

Flood Management Strategies

- Portfolio-level vs. Location-level
- Location-level basis – “boots on the ground”
  - Complete data capture through detailed knowledge of individual properties
  - Leveraging known mitigation strategies against hazard information
- Portfolio-level basis – “aggregation management and modeled loss”
  - Monitoring exposure base against flood hazard (FIRMs, etc.)
  - Comparing historical losses against commercial vendor models
- Flood management strategies can have an impact on reinsurance capacity and pricing
  - Will be dependent on a “standard” industry view of risk

FM Approvals
Member of the FM Global Group

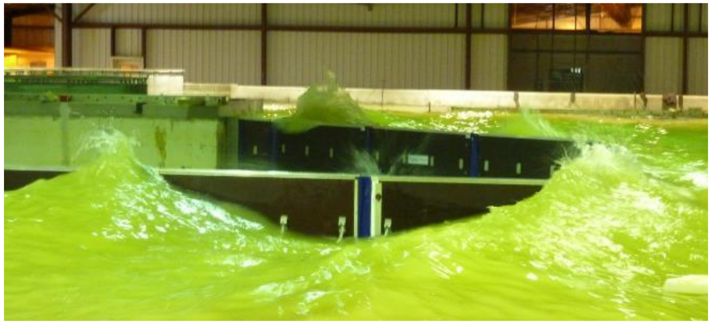
Approved American National Standard
ANSI

American National Standard for Flood Abatement Equipment ANSI/FM Approvals 2510

ANSI/FM Approvals 2510-2014
Approved February 4, 2014

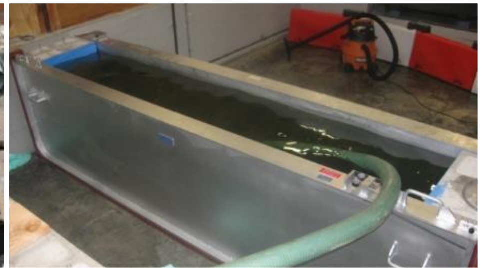
February 2014

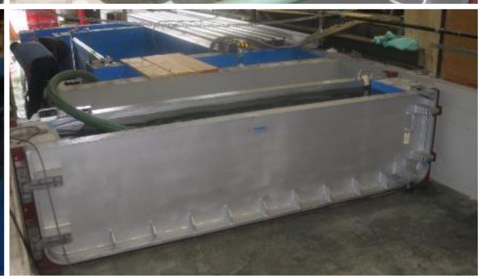
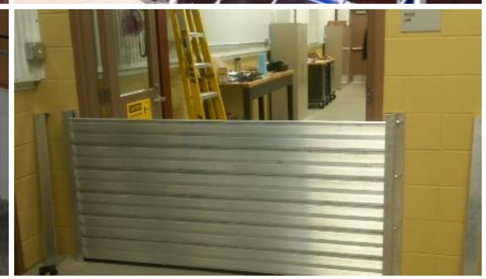
Overtopping

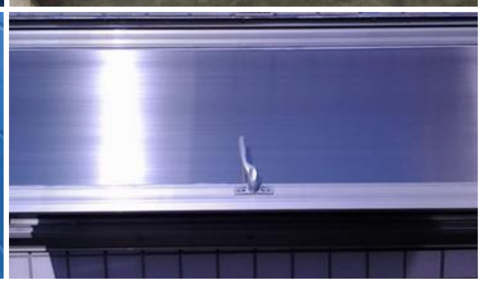


Dynamic Wave Testing

Large Debris Impact




FM

APPROVED

Lender/Rating Agency Requirements

- NFIP vs. Private Flood Insurance
- Deductible Buy-Downs
- Indemnity Agreements

Flood Risk Management & Insurance






New Avenues of Alternative Capital

New Avenues of Alternative Capital

Elana Margulies
Senior Manager, Asset Management
EisnerAmper LLP
Moderator

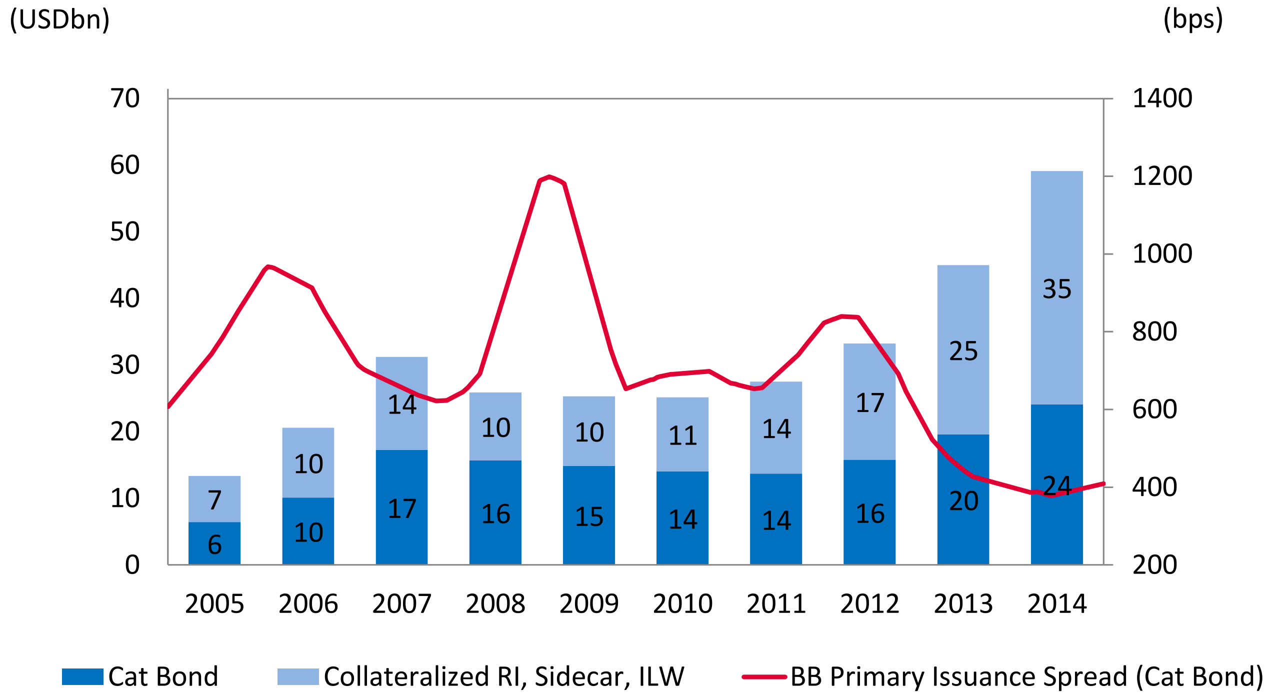
New Avenues of Alternative Capital

- **Elana Margulies**, Senior Manager, Asset Management, EisnerAmper LLP (Moderator)
- **Bill Dubinsky**, Managing Director & Head of ILS, Willis Capital Markets & Advisory
- **Philipp Kusche**, Director, Senior Insurance-Linked Securities Structurer and Originator, Swiss Re

New Avenues of Alternative Capital

New Avenues of Alternative Capital

Alternative Capital Overview



- The capacity from Alternative Capital is provided in formats of Catastrophe Bonds ("Cat Bond"), Collateralized Reinsurance, Sidecars, Industry-Loss-Warranties ("ILW")
- Total capacity as of the end of 2014 is estimated around $59 billion; $24 billion of which is from Cat Bonds

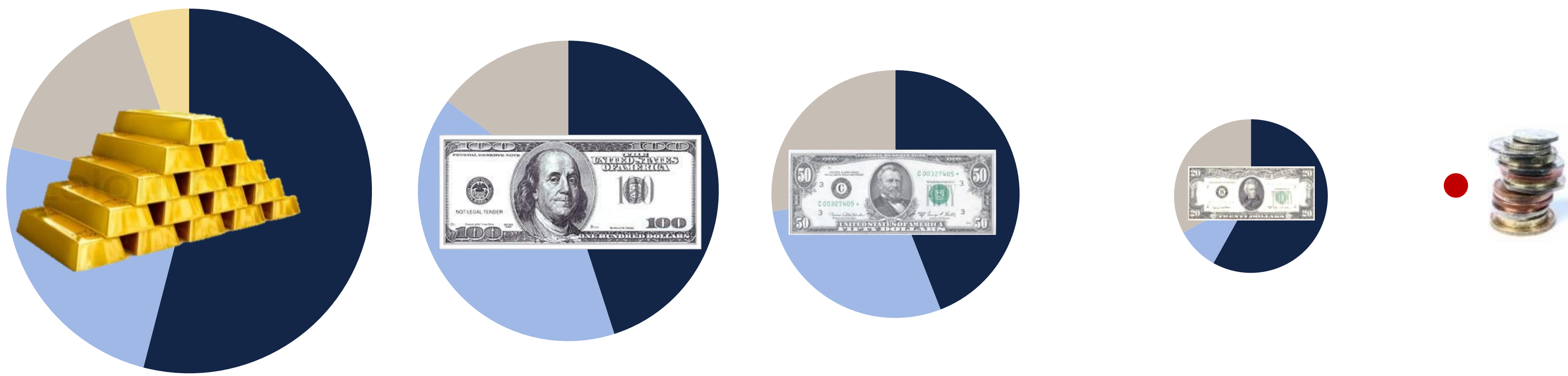
Source: Swiss Re Capital Markets. As of December 31, 2014

New Avenues of Alternative Capital

ILS Asset Class Has Room to Grow

Currently, investment in the Insurance-Linked Security asset class remains relatively low

Invested Assets by Investor Class	Global Bond Market	Global Equity Market *(Market Capitalization)*	Global Asset-Backed Market	Alternative Reinsurance Capital[1]



$128 Trillion	**$99 Trillion**	**$69 Trillion**	**$15 Trillion**	**$65 Billion**
High Net Worth	Government	Americas	U.S. MBS	Bonds < 0.07%
Pension Funds	Financial Institutions	Asia-Pacific	U.S. ABS	Equities < 0.10%
Family Offices	Other Corporates	All Other	All Other	ABS < 0.43%
Sovereign Wealth				Pensions < 0.18%

(1) Alternative Reinsurance Capital refers to Alternative Capital.
Source: Bank of International Settlements, SIFMA, Towers Watson, World Federation of Exchanges and Willis estimates. As of March 31,2015.

New Avenues of Alternative Capital

Examples of Corporate Cat Bond Issuances

Deal	Sponsor	Year	Size (million)	Trigger
Concentric	Oriental Land Co. / Tokyo Disney	1999	USD 100	Parametric
Studio Re	Vivendi / Universal Studios	2002	USD 175	Parametric
Golden Goal Finance	FIFA	2003	USD 475	Other
Pylon	EDF	2003	EUR 190	Parametric
Avalon Re	OCIL	2005	USD 405	Indemnity
DREWCAT Capital	Dominion Resources	2006	USD 50	Parametric
Midori	East Japan Railway Co.	2007	USD 260	Parametric
Pylon II	EDF	2011	EUR 150	Parametric
MetroCat Re	FMTA / MTA	2013	USD 200	Parametric

Source: Swiss Re Capital Markets.

Risk Factors

An investment in Insurance Linked Securities involves potentially significant risks for an investor. In summary, these risks include (but are not limited to):

- Investors may lose all or a portion of their investment in Insurance Linked Securities if a natural catastrophe or other event triggers a payment by the issuer of the Insurance Linked Securities under the underlying risk-transfer agreement that the Insurance Linked Securities relate to.
- The maturity of Insurance Linked Securities may be extended without the prior consent of the investor.
- The Insurance Linked Securities may be redeemed before their maturity date (including before any extension of such maturity date by the issuer).
- If the Insurance Linked Securities are redeemed before maturity, the interest rate payable under the Insurance Linked Securities will be reduced.
- Investors have limited recourse to assets of the issuer of the Insurance Linked Securities and no recourse to assets of the counterparties to the underlying risk-transfer agreements to which the Insurance Linked Securities relate.
- If the issuer of the Insurance Linked Securities becomes insolvent, investors may lose some or all of their investment.
- Investors may be required to consolidate the issuer for accounting purposes under certain circumstances.
- An investment in the Insurance Linked Securities may have adverse tax consequences for investors.
- Any claim you have against the issuer in the event of the issuer's insolvency will rank below any claim a counterparty to the underlying risk-transfer agreements, to which the Insurance Linked Securities relate, has against the issuer.
- Enforcement of the security interest granted to a Trustee for the benefit of the investors may be limited.
- The Insurance Linked Securities may not have a secondary market or the secondary market for the Insurance Linked Securities may have limited liquidity; the market price of the Insurance Linked Securities in the secondary market may be highly volatile.
- The Rating Agenc(y)(ies) (if any) may change any rating assigned to the Insurance Linked Securities. Any credit rating given in respect of the Insurance Linked Securities may not reflect the potential impact of all risks related to the Insurance Linked Securities. A credit rating is not a recommendation to buy, sell or hold the Insurance Linked Securities and may be revised or withdrawn by the rating agency at any time.

The risk factors relating to an investment in Insurance Linked Securities are set out in detail in the offering materials for the relevant Insurance Linked Securities.

Before entering into any financial transaction, you should ensure that you fully understand the terms, have evaluated the risks and determined that the transaction is appropriate for you in all respects.

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New Avenues of Alternative Capital

Conference Luncheon

Coming up next:

TRACK 1 - “Multinational Risk Management & Insurance Issues”

Coming up next:

TRACK 2 - “The Informed Customer”

Track 1

Track Chair

Shari Natovitz
SVP, Director of Risk Management
Silverstein Properties/World Trade Center Properties
[2015 Conference Chair]

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Multinational Risk Management & Insurance Issues

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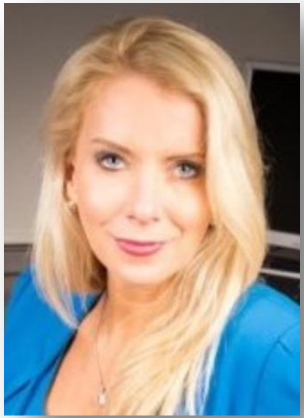
Marianne Halvorsen
Vice President, Northeast
Lockton
Moderator

Multinational Risk Management & Insurance Issues

- **Marianne Halvorsen**, Vice President, Northeast, Lockton (Moderator)
- **John Durante**, President & Principal Owner, Risk Logic
- **Stan Johnson**, Managing Director of Disputes and Investigations, Navigant
- **William Porter**, Head of International Sales and Distribution, Zurich GCiNA

Multinational Risk Management & Insurance Issues



An Economist's View

An Economist's View

Thomas Holzheu
Chief Economist, Americas, Economic Research & Consulting
Swiss Re

An Economist's View
Underwriting cycles and M&A

Thomas Holzheu
June 4th, 2015

Anatomy of past cycles

- Claims trends, investment yields, capital, and cat losses are the most important driving factors.
- All hard markets since the 1970s have been triggered by external claims or asset shocks.
- Soft markets were funded by investment returns and/or reserves releases.

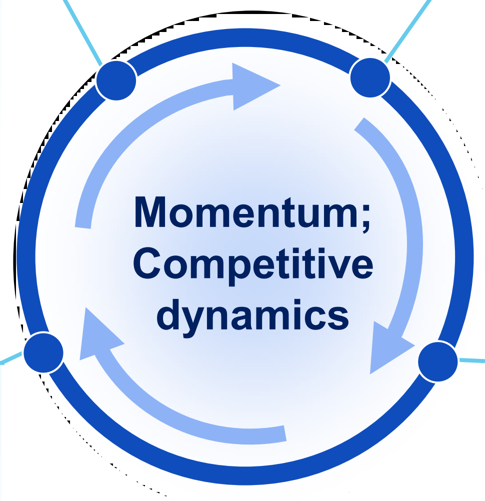
What are the main drivers of the underwriting cycle?

Claims trends

- Changes in expected losses have the strongest impact on insurance premiums.
- Health Care expenditures and wage inflation are key drivers for US casualty claims severity.
- Hurricane Andrew, hurricane Katrina, and WTC losses etc triggered paradigm shifts regarding risk exposures.

Investment income

- Interest rate changes are a significant external factor for insurance premiums.
- With rising asset leverage (long-term trend), insurers' profits become more sensitive to changing investment yields.
- High investment returns have encouraged cash flow underwriting and fueled soft markets.



Cat losses

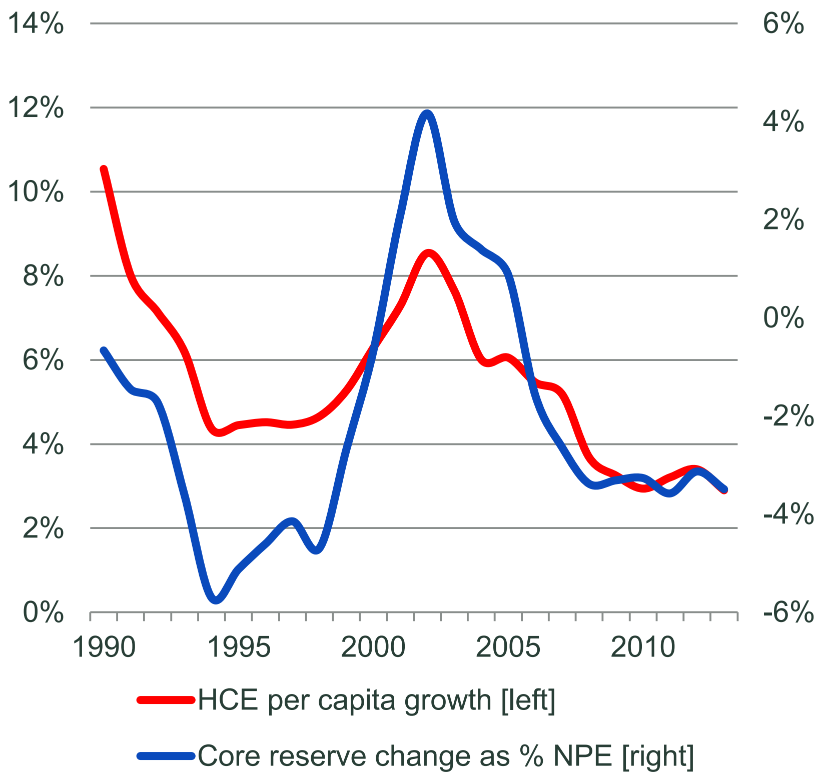
- The effect of catastrophes is smaller than often assumed. For example, Northridge and Sandy affected prices only minimally.
- Large catastrophes reduce industry capital which is easy to replenish in the medium term.
- Some large events, however, have a greater impact on supply and demand because they reveal unrecognized or un-modeled risks.

Industry capital

- Drops in capital have triggered rate increases; excess capital increases competitive pressures and falling rates.
- Accounting capital can be inflated by low interest rates and deficient claims reserves.
- Capital management reduces excess capital.
- Alternative capital and stand-by capital from potential investors are increasingly determining competitive dynamics.

Decelerating health care expenses fuel benign claims growth and reserves releases

Health care expense growth vs reserves changes (% of NPE)

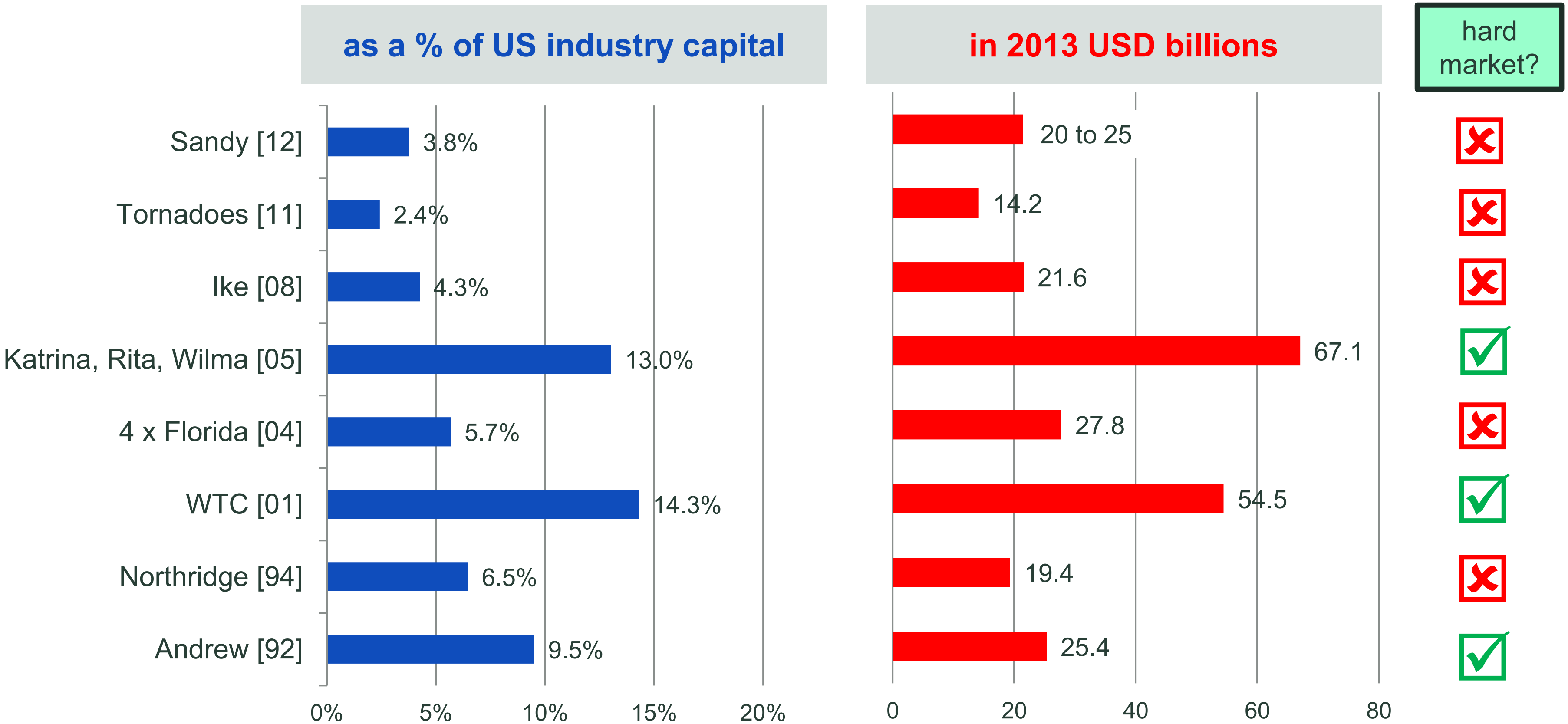


Sources: A.M. Best, SNL, Centers for Medicare and Medicaid Services

- CPI inflation is not a strong driver of US claims costs. Health care expense (HCE) growth is the most significant macro driver.
- HCE growth decelerated in the early 1990s and lately in 02 – 08.
- Current reserves releases (since ~ 06) are windfall gains from decelerating HCE and benign claims severity.
- Claims trends are likely to rise with stronger economic growth pushing up medical and wage inflation.

How Big is an Industry Changing Event?

… depends on capital, profitability, and model changes



Insured losses (share of the private insurance industry) from Hurricane Sandy are estimated at 20 to 25 bn, losses for World Trade Center at 42 bn. All other refer to property cat losses for private US carriers. Sources: PCS, RAA, Swiss Re Economic Research and Consulting.

77

Swiss Re

How does the current soft cycle compare?

- Benign claims inflation, reserves releases, and below-average cat losses support profitability against a deteriorating pricing trend.
- Traditional capital is inflated by low interest rates.
- Low interest rates benefit alternative capital business models in short-tail lines compared to traditional carriers with large asset leverage.

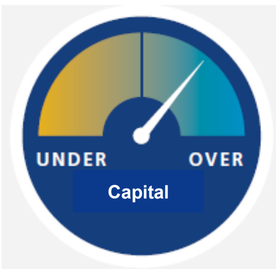
How does this cycle compare to the past?

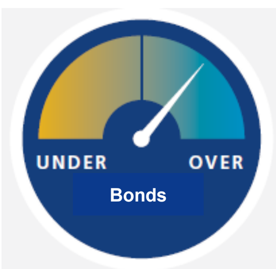
Low yields, low claims inflation

- Low earnings contribution from investments
  - Reduces incentive to pursue cash-flow underwriting
    ➔ traditional re/insurers show U/W discipline.
  - Attractive relative returns on property cat insurance compared to other asset classes have attracted **alternative capital** into the P&C sector
    ➔ new market entrants drive price competition.
- Recent reserves releases are fueled by benign claims growth; low wage and health care inflation

  ➔ accelerating wages and HCE costs will drive claims growth and future reserves deficiencies.
- Hard markets are triggered by poor profitability
  - Profitability is dependent on reserves releases and capital gains.
  - P&C industry ROE was 8% in 2014; normalized ~ 6%.

Too much capital for the market to harden?
Vulnerabilities can accumulate





- Capital is compartmentalized by carriers and lines of business
  - Not all the USD 710 bn capital are available to cover cat losses.
  - The top 100 homeowners writers (writing 96% of HMP business) have ~ USD 300 bn in capital * which also backs ~ 125 bn in equity investments.
  - Capital declines by ~ USD 215 bn if top two companies with the most surplus tied to common stocks are excluded (= 58% of industry equity investments).
- Capital is inflated by low interest rates; this will change
  - Current interest rate forecasts imply a ~ 90 bn loss of market value on the bond portfolio through 2016.
- Capital could be absorbed by potential future reserves deficiencies
  - Carried loss reserves of USD 610 bn.*
  - Every percent additional unexpected claims inflation equals a reserves shortfall of USD 23 bn.

* year-end 2013

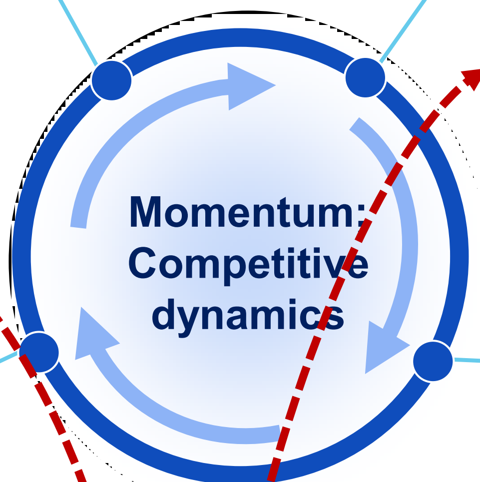
Rising interest rates and inflation will affect competitive forces at multiple levels

Claims trends

- Claims trends are likely to rise with stronger economic growth pushing up medical and wage inflation.
- Rising claims inflation erodes prior-year claims reserves.

Investment income

- Portfolio yields will only rise gradually with rising rates.
- Lower expected capital gains with rising interest rates.



Cat losses

Industry capital

- Rising rates will reduce the market value of bonds.
- 200 bps rise in interest rates will absorb 10 to 15% of GAAP capital.

Strongly affected by rising interest rates and (claims) inflation.

Swiss Re

Conclusions

- All cycles are different
  - Soft markets follow periods of strong returns and usually are "funded" by strong investment returns and/or reserves releases.
  - Strong hard markets were triggered by loss shocks that also changed loss expectations (liability crisis, hurricane Andrew, WTC, hurricane Katrina).
- Large catastrophes or asset shocks are no guarantee for a market turn
  - Lost capital is easily replenished by alternative capital.
  - Northridge earthquake (94), stock market meltdown (08/09), hurricane Sandy (12) were offset by other economic forces.
- Low interest rates and claims inflation are the current dominant forces
  - The two strongest factors are bound to change with the economic recovery.
  - These are slow-moving changes and may need a catalyst like adverse development or a large catastrophe to change market dynamics.

M&A in insurance

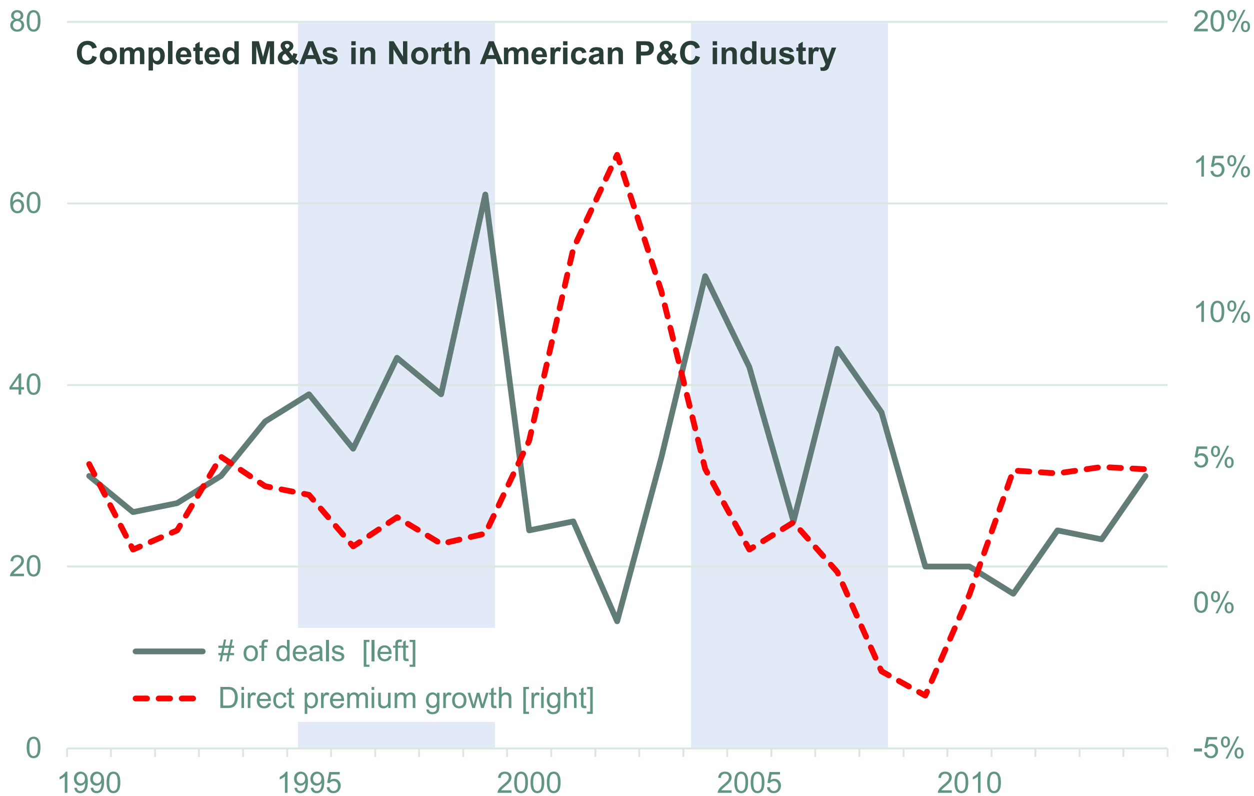
- Hard markets trigger the entry of alternative capital.
- Soft markets accelerate M&A and industry consolidation.
- Low interest rates and claims inflation are the current dominant forces and are bound to change with the economic recovery.

Structural change in the industry comes in waves, driven by the cycle

- Hard markets trigger the entry of new (categories of) players
  - High prices induce substitution into alternative markets: captives in the mid-1980s, Bermuda startups in the mid-1990s, startups and cat bonds after 2001, sidecars and ILW after 2005, AC funds after 2013, …?
  - The momentum usually winds down in the following soft market, opportunistic players withdraw, key players stay in the market, and investors are on standby for the next market opportunity.
- Soft markets accelerate industry consolidation
  - Waves of re/insurance M&A in 97 – 99, 06 – 08, and 15 - ??
  - Weak organic growth and deteriorating earnings prospects are motivations for M&A. The deals aim at growth, economies of scale, diversification, access to growth markets etc.
  - In addition to fueling soft market conditions, booming stock markets and availability of cheap credit created favorable financing conditions for M&A.

M&A waves in the North American P&C sector

- Over the past 25 years **there have been two noticeable M&A upswings in insurance** – the late 1990s and mid-to-late 2000s, prior to the global financial crisis.



Source: Thomson ONE, Datastream, Swiss Re Economic Research & Consulting.

Acceleration of M&A activity
So far mostly in the Reinsurance sector

Bermuda reinsurers Axis Capital, PartnerRe in $11 billion merger

NEW YORK/FRANKFURT | Mon Jan 26, 2015 11:38am EST

Platinum Underwriters (PTP) to be Acquired by RenaissanceRe Holdings in $1.9B Deal

XL Group plc Announces Acquisition of Catlin Group Limited

Fairfax Financial of Canada Agrees to Buy Specialty Insurer Brit

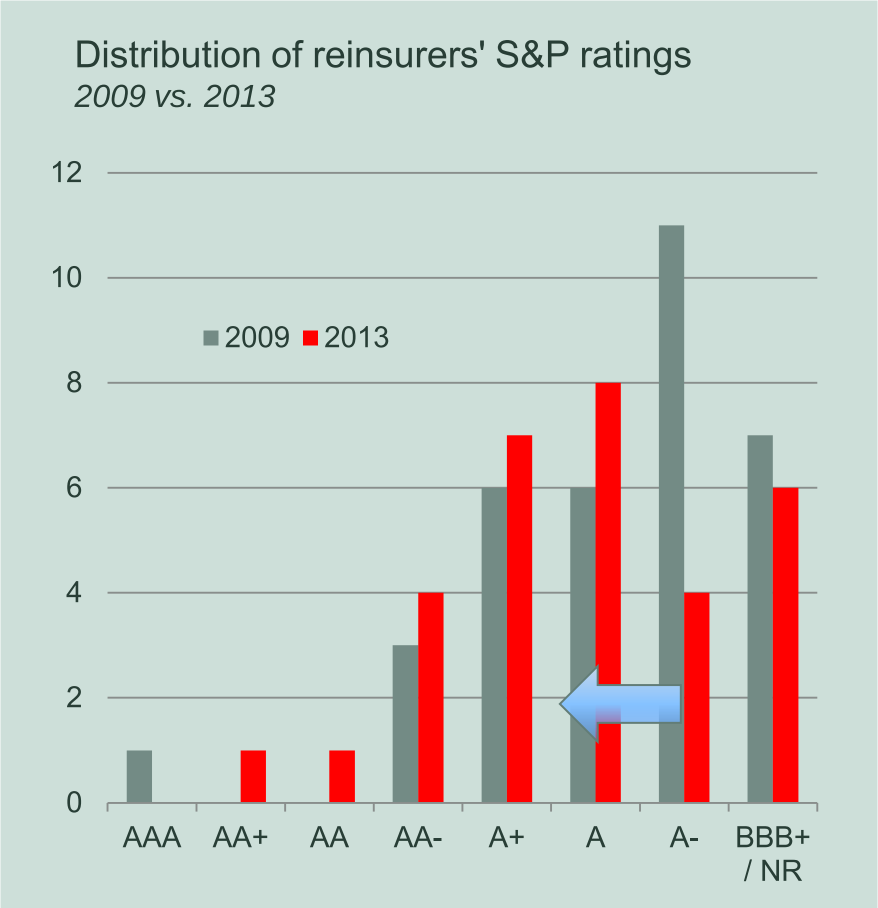
Endurance to Buy Reinsurer Montpelier Re

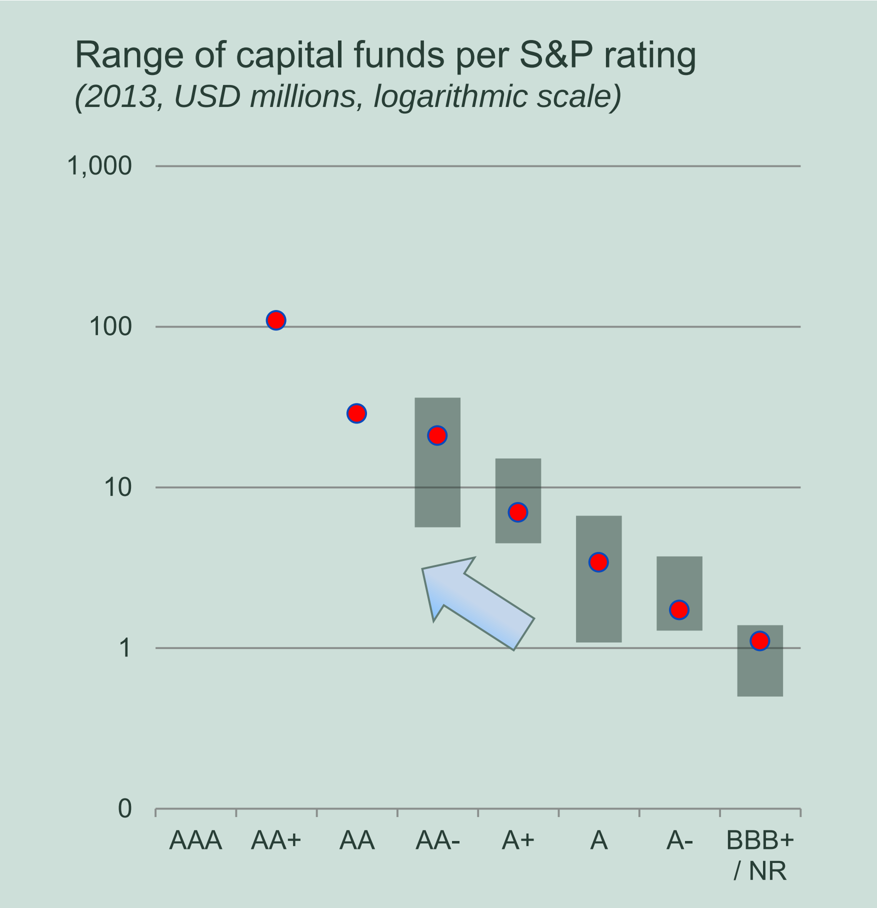
Deal for $1.83 billion expands Endurance's reinsurance business

- Mergers seen as <u>defensive</u> in nature due to
  - flood of alternative capital entering reinsurance industry
  - intense price pressure and competition
  - biggest insurance groups rationalizing their reinsurance panels to a much smaller number of bigger players

- Value creation mostly through cost synergies
- Transactions give new entities better access to corporate insurance and casualty business

Size matters: A-minus rated, small reinsurers get squeezed





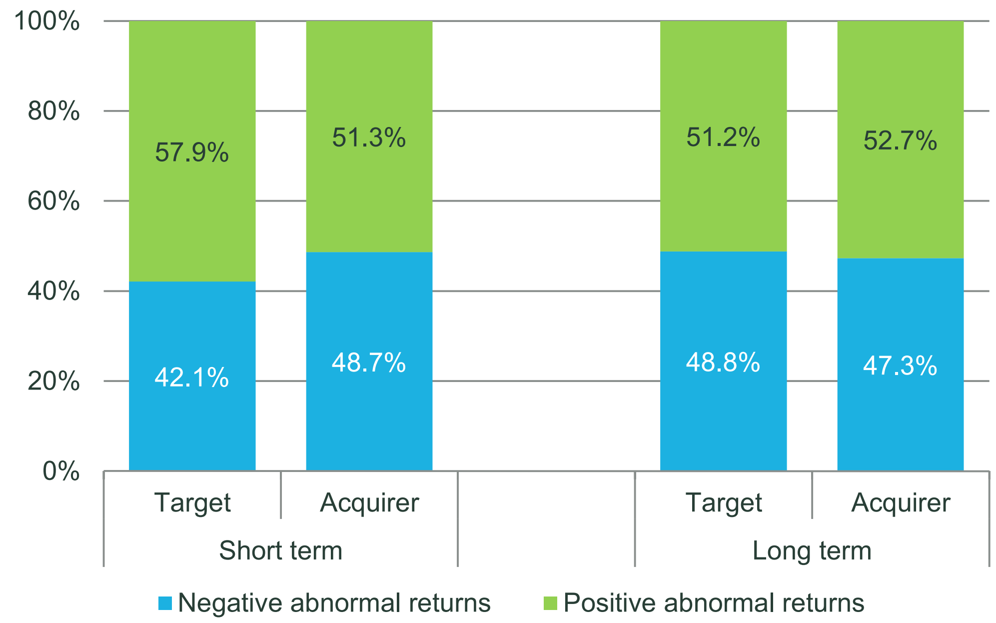
Does M&A in insurance add value?

- Echoing the results of earlier studies, **post-merger stock performance has been mixed.** Of around 1700 deals in insurance over the past decade, broadly as many transactions led to negative as positive abnormal stock returns.

- On average, **M&A deals do generate positive returns for buyers in the long run** but there is wide variation across transactions.

- The **deals that seem to create value most consistently are where insurers are from the same country or involve vertical integration**.

Proportion of insurance M&A deals with positive short-term and long-term abnormal returns, percent



Note: Short-term refers to cumulative daily abnormal returns for the period one day before and one day after an M&A was announced. Long-term is based on cumulative weekly abnormal returns for the period 52 weeks post deal announcement date (see Appendix for more details).

Source: Swiss Re Economic Research & Consulting.

Conclusions: Further consolidation ahead

- **Perceptions that balance sheet size is crucial.** The increasing scale of peak risks means some classes of business can often only be underwritten by reinsurers with large capital buffers.
- **Search for further diversification gains.** expansion into less commoditised casualty reinsurance (e.g. RenRe and Platinum) as well as primary, mostly commercial lines (e.g. Partner Re and Axis)
- **Changing reinsurance buyer demand.** Driven partly by recent regulation, primary insurance companies (especially the large global firms) have tended to buy less reinsurance, rationalise the set of reinsurers they use, or turn to alternative capital providers.
- **Global ambitions of emerging market reinsurers.** A number of reinsurers from emerging markets such as China, India and Brazil have a stated goal to expand their footprint internationally.

More research at: www.swissre.com/sigma/

Track 2

Track Chair

David Bradford
President, Research & Editorial division
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Cyber Property Risks

Cyber Property Risks

David Bradford
President, Research & Editorial division
Advisen
Moderator

Cyber Property Risks

- **David Bradford,** President, Research & Editorial, Advisen (Moderator)
- **Chris DeMunbrun,** Special Agent, United States Secret Service
- **Gerry Kane,** Cyber Security Segment Director in Risk Engineering, Zurich Services Corporation
- **Peter Rosen,** Partner, Latham & Watkins
- **Nadine Silva,** EVP and Property Division Executive, Lexington Insurance Company

Cyber Property Risks

Cyber Property Risks: The Carrier View

Cyber Property Risks: The Carrier View

John Gambale
Head of Professional Liability & Lexington Financial Lines, U.S. & Canada
AIG

Cyber Property Risks: The Broker View

Cyber Property Risks: The Broker View

Chris Keegan
Senior Managing Director,
Cyber & Technology National Practice Leader
Beecher Carlson

ADVISEN PROPERTY CONFERENCE 6/4/2015

BEECHER CARLSON

PROPERTY CYBER RISKS

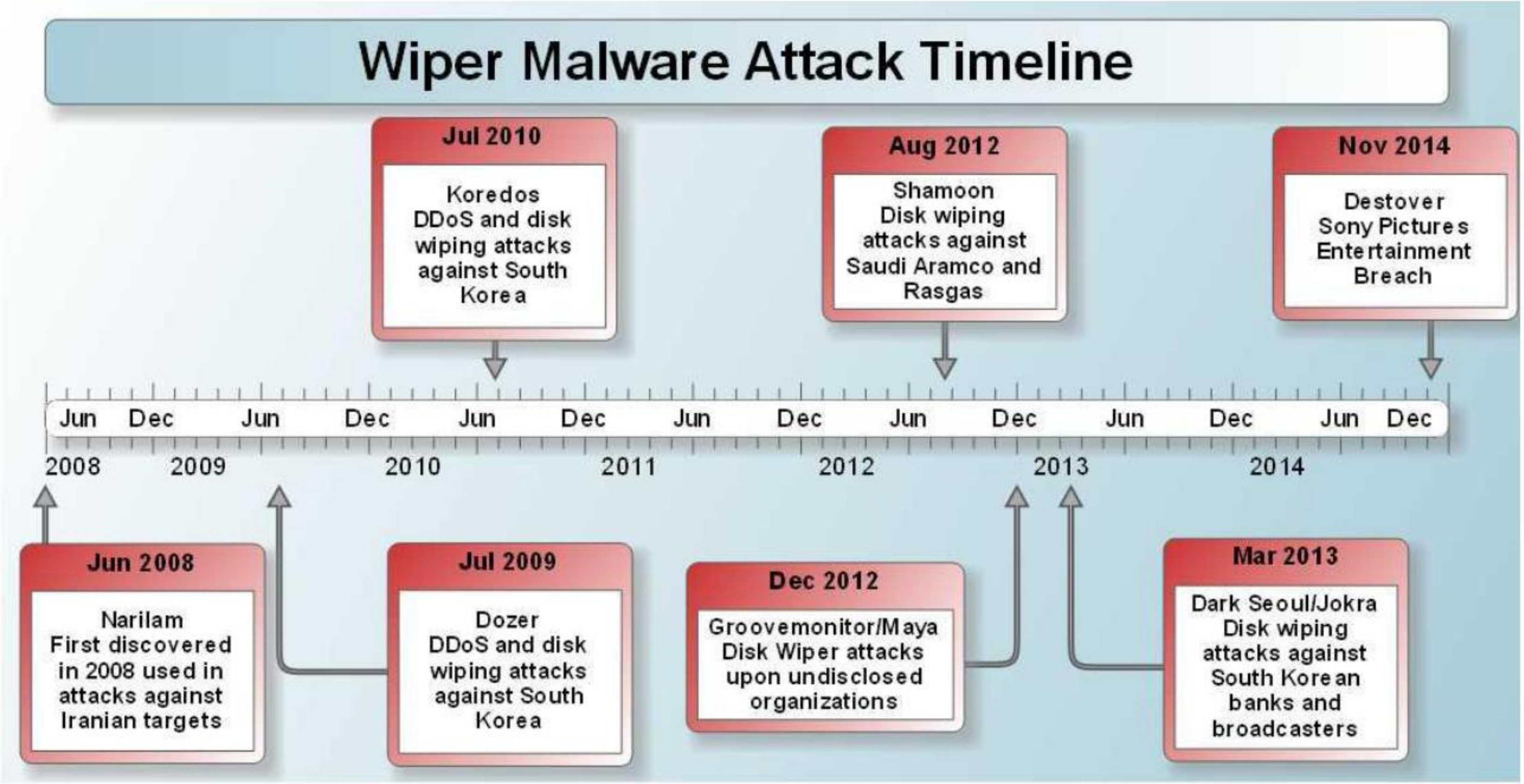
1. What is not in the traditional property policy.
    1. Most policies exclude cyber risk or significantly sublimit coverage
    2. A small number of markets provide but with high hourly time limits and retentions applying to geographies rather than networks or application
    3. Hacker cover only
    4. No cover for programming errors or other unintneded downtime
2. What is in a cyber policy
    1. Non physical business interruption and recreation of data
    2. Cause
        1. Hackers – malicious actors
        2. Can extend to “unplanned and unintended” outages
3. New initiatives in the market
    1. Property damage (and Bodily Injury) coverage cause by cyber attacks
        1. Excess and DIC
        2. Attached to property coverages
        3. Standalone cyber policies

LARGE DIRECT CYBER LOSS EXAMPLES

FIRST PARTY LOSSES AND VALUES

SONY	Sony was attacked by "wiper" malware which was dropped onto Sony's network without detection and communicated with the intruders network to upload hard drive contents. The malware then destroyed the drive contents using a "bootkit" to erase the content and delete the master boot record. This prevents the machine from booting back into the operating system and renders it useless. Current loss in public documents up to 12/31/2014 - $15M. Estimate by Sony Officer for up to 3/31/2015 - $35M. Estimate for total loss by outside security firms $70 - $100M http://www.csoonline.com/article/2879444/data-breach/hack-to-cost-sony-35-million-in-it-repairs.html, http://www.reuters.com/article/2014/12/09/us-sony-cybersecurity-costs-idUSKBN0JN2L020141209,
CLIENT	Last year a $10B + revenue co found PCs and servers were shutting down in an event which wiped hard drives clean. The malicious code wiped data stored on servers and then automatically rebooted them exposing data that's untouchable while a machine is still running. It then wrote over the erased hard drives with a random pattern of ones and zeros, making data so difficult to recover that it has been more cost-effective to buy and reprogram new machines than keep the old ones. Current estimated cost of data reprogramming, forensics, revenue loss and extra expense - $100M +
ARAMCO	Saudi Arabia's national oil company, Aramco, was attacked in an event that damaged more than 30,000 computers in which the attack was aimed at stopping oil and gas production in Saudi Arabia. The virus was introduced when a technician unknowingly inserted an infected USB computer drive. Total loss not disclosed. Assuming $3000 to replace each server and $2000 for the programming, the loss could be as high as $150M

Wiper Virus History



Source: IBM Wiper Threat Report 12 19 2014

CYBER BI

Financial and Physical Exposures

Financial Damages

1st Party Damages (to your organization)

- **Response costs**: forensics, notifications, credit monitoring, crisis management, public relations
- **Revenue losses** from network or computer outages, including cloud
- Cost of **restoring lost data**
- **Cyber extortion** expenses
- Value of **stolen intellectual property** and associated revenue and market share losses

Tangible (Physical) Damages

1st Party Damages (to your organization)

- **Mechanical breakdown** of your equipment
- Destruction or **damage to your facilities** or other property
- **Environmental cleanup** of your property
- **Lost revenues** from physical damage to your (or dependent) equipment or facilities (business interruption)
- **Bodily injury** to your employees or others

CYBER PROPERTY FACILITIES

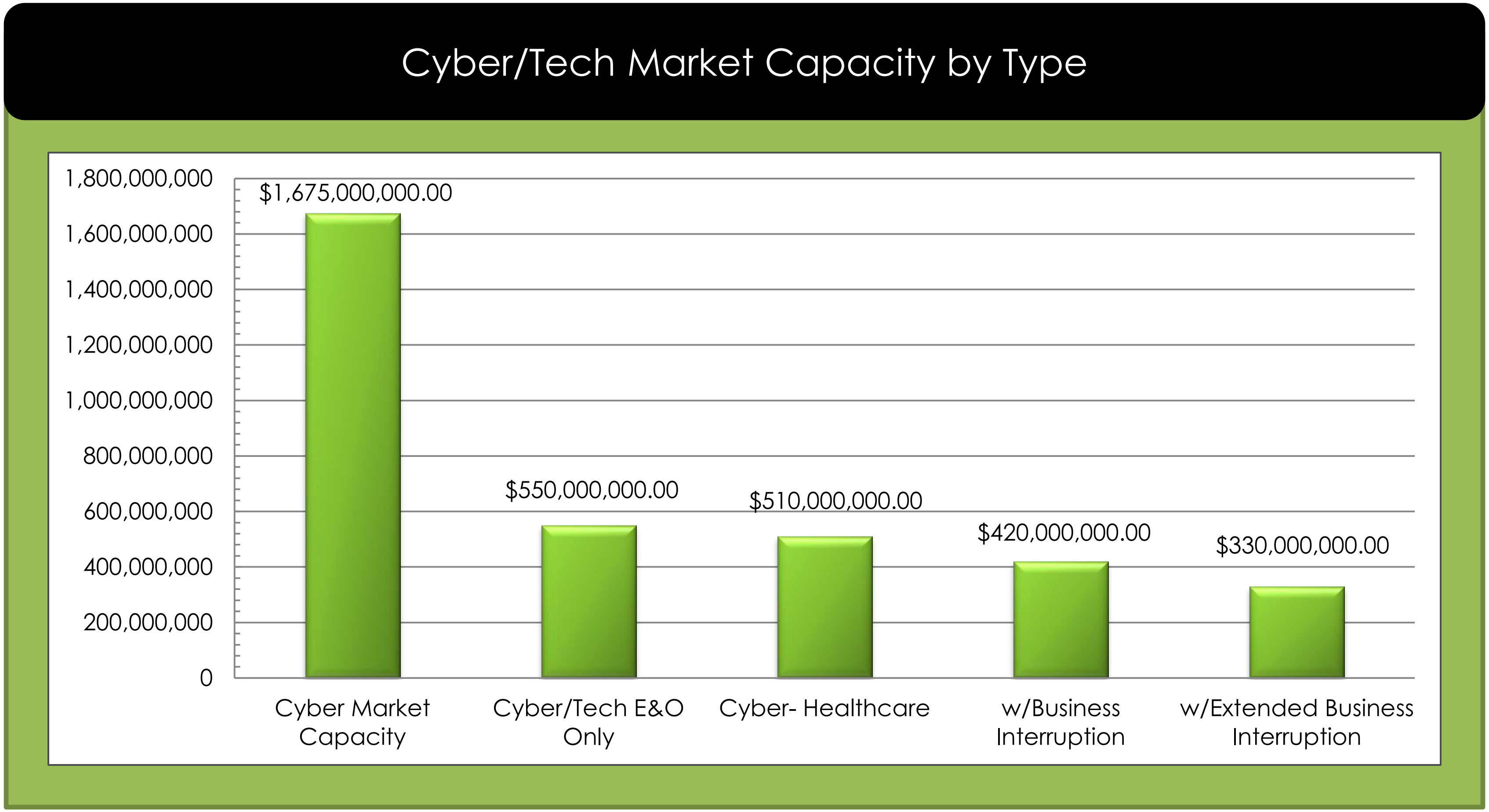
Cyber Facilities – New or in Development

Carrier/Broker	Type of Coverage	Capacity	Comments
Energy Industry insurance participant	• Bodily Injury & Property Damage written on a standalone or excess DIC basis . • Add to property or liability • Standalone	$50M	• Industry-specific to members only for addition to property • Standalone available open market
Large reinsurer	Business Interruption and Extra Expense Total or partial interruption, interference or malfunction of the IT systems (including your network) as a consequence of a non-physical cause. Non-physical cause shall mean all causes no resulting in both permanent and visible loss or damage to IT systems.	$50M to $100M	• Usually have to be a client on other lines of business • Requires similar information as a property program
Large Reinsurer	Business Interruption and Extra Expense Can provide significant capacity but prefer to narrow to identified and associated critical information systems and network.	$150M to $300M	• BAE Data Tech Risk Assessment • Policy language not available, fully manuscript
London Broker	Critical Asset Protection and Business Interruption Written specifically for utility and energy market and provides coverage for income loss resulting from total/partial interruption of power supply due to non-physical events.	$100M to $150M	• TCS Risk Assessment required • Additional utility open market capacity of $100M to $150M
London MGA	Combining Cyber (first and third party) and includes Business Interruption and Extra Expense, Tech E&O.	$50M	

New and In Development including Property Damage

Carrier/Broker	Type of Coverage	Capacity	Comments
London Reinsurance Broker	Initiative to create a facility for Cyber Bodily Injury & Property Damage covering income loss, and first party rebuild of physical property arising out of property damage caused by a cyber event. Proposed but not yet completed.	$300M	• Similar programs have been proposed by brokers but these have yet to come to market.
Lloyds Syndicate	Facility for Property Damage covering income loss, and first party rebuild of physical property arising out of property damage caused by a cyber event. **Bodily injury cover may be available by endorsement.**	$250+	• Launched and currently available • Underwritten by the property division assisted by the Cyber division
Lloyds Syndicate	Facility for Cyber Business Interruption & Property Damage covering income loss, and first party rebuild of physical property arising out of property damage caused by a cyber event.	$20M	• Currently available in a property policy
Lloyds Market MGA	Offer Media related BI (i.e. content of a manual leads to bodily injury) but do not provide in any base forms.	$10M	• May offer by endorsement and for a premium

Cyber
Market Capacity



Gaps that may still exist

- Physical cause and data loss
- Contingent or Dependent Business Interruption – some Cyber coverage available
- Errors or Omissions
- Intentional acts of employees
- Limits may not be high enough because traditional property policies group risks by geography whereas Cyber Downtime is by network or application
- Response costs where there is no revenue impact
- Voluntary takedown
- Cyber Terrorism or state actor attacks

The Beecher Cyber Team

Chris Keegan – Senior Managing Director - Cyber Practice Leader
New York, NY I T 646-358-8530 I C 646-592-3542
ckeegan@beechercarlson.com

John Kerns - Executive Managing Director
New York, NY I T 646.358.8503 I C 646.413.2319
jkerns@beechercarlson.com

Robert O'Shea - Managing Director
New York, NY I T 646.358.8513 I C 646.872.0052
roshea@beechercarlson.com

Sarah Lyon - Vice President
Atlanta, GA I T 678.651.2213 I C 404.623.6280
slyon@beechercarlson.com

Christina Wunsch - Senior Vice President - Claims Advocate
New York, NY I T 646.358.8518 I C 646 315 0224
cwunsch@beechercarlson.com

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Conference Luncheon

Coming up next:

TRACK 1 - "Multinational Risk Management & Insurance Issues"

Coming up next:

TRACK 2 - "The Informed Customer"

Track 2

Track Chair

David Bradford
President, Research & Editorial division
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The Informed Customer

The Informed Customer

David Bradford
President, Research & Editorial division
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The Informed Customer

- **David Bradford**, President, Research & Editorial division, Advisen (Moderator)
- **Paul Drennan,** AVP, Predictive Analytics, Applied Research, The Hartford
- **Rob Kreager**, Sales Executive, Marsh ClearSight
- **John Lucker**, Principal, Deloitte Consulting LLP

The Informed Customer




The Economics of Disaster-Resistant Buildings

Nepal Earthquake, Kathmandu India 2015 - Press Trust of India

The Economics of Disaster-Resistant Buildings

- **David Butry**, Economist, National Institute of Standards and Technology (NIST)

- **Chuck Miccolis**, Senior Engineering Manager of Commercial Lines, Insurance Institute for Business & Home Safety

2015 Property Insights Conference

New York, NY

June 4, 2015

Developing a Methodology to Evaluate the Economics of Community Disaster Resilience

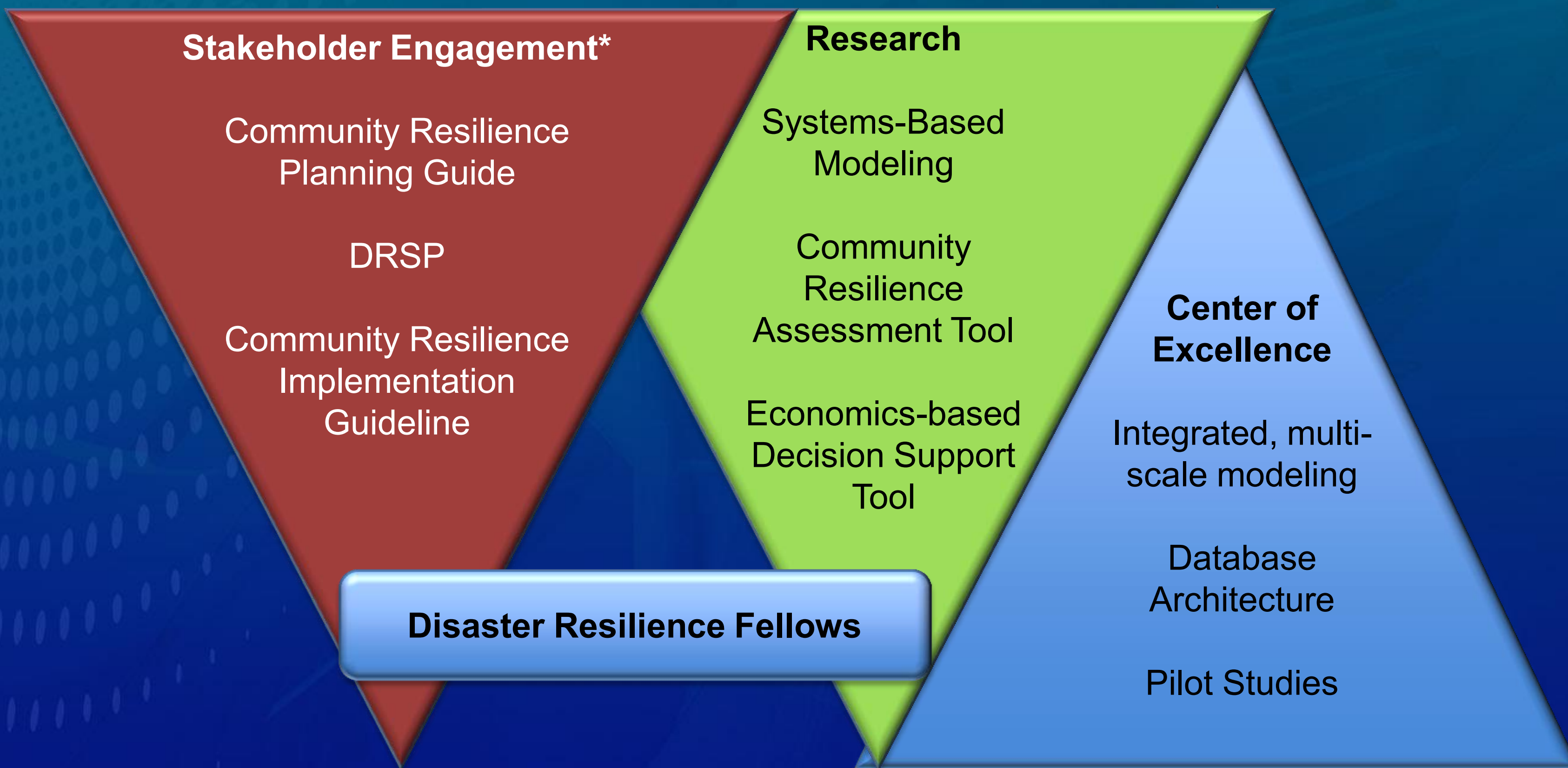
David T. Butry
Economist, Applied Economics Office
Engineering Laboratory
NIST

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

What is the Problem?

- Natural and man-made disasters result in significant costs due to direct and indirect losses.
- Superstorm Sandy caused over $65B in losses.
- Large single events can cause losses exceeding $100B.
- Current approach of response and rebuilding is impractical and inefficient for dealing with natural disasters.
- Planning does not account for interconnected nature of buildings and infrastructure, nor for the affect on social institutions.
- Changing nature of hazards is not always considered.

NIST Community Resilience Program



*Stakeholder Engagement component is called out in the President's Climate Action Plan

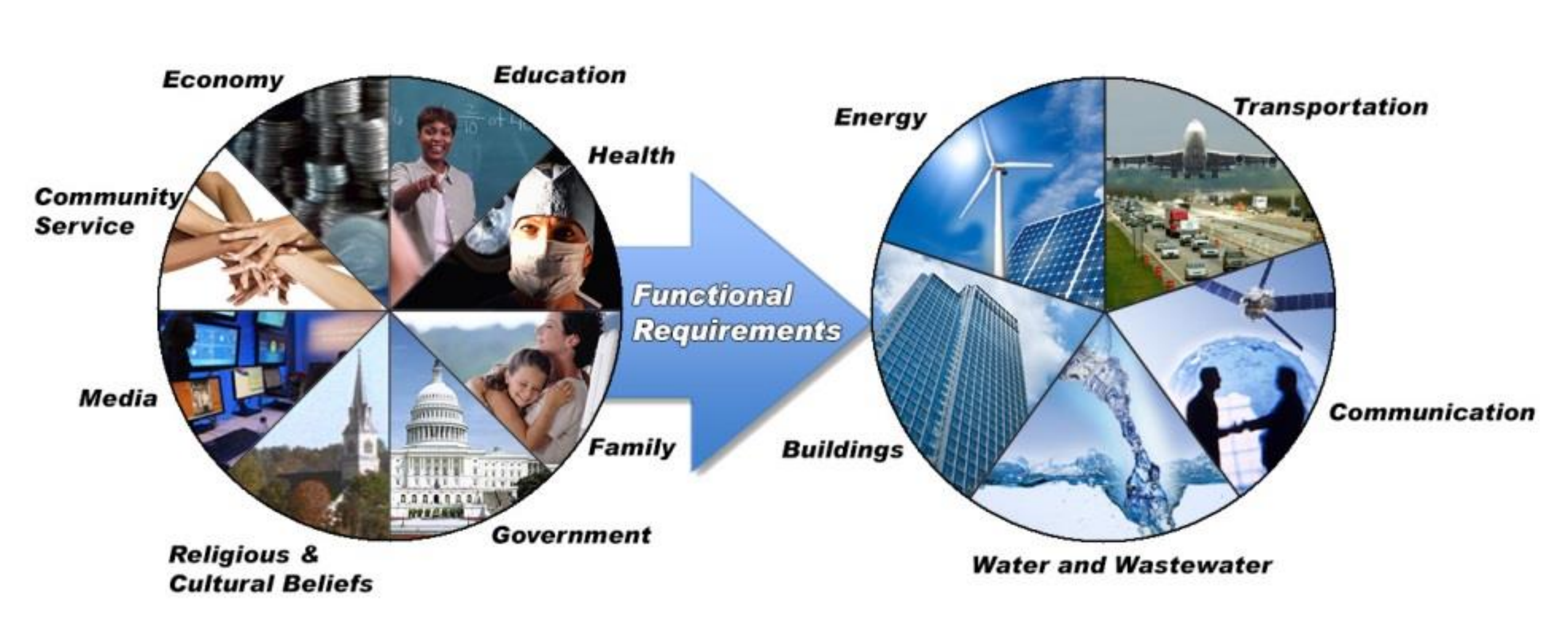
What is Resilience?

- Resilience is defined as:
  - “the ability to *adapt* to changing conditions and *withstand* and *rapidly recover* from disruption due to emergencies”. (PPD-8)
  - “the ability to *prepare for* and *adapt to* changing conditions and to *withstand* and *recover rapidly* from disruptions. Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents.” (PPD-21)
- In the context of community resilience, the emphasis is not solely on mitigating risk, but implementing measures to ensure that the community recovers to normal, or near normal function, in a reasonable timeframe.

What is a Community?

- The term "community" refers to a place that:
  - Is designated by geographical boundaries
  - Functions under the jurisdiction of a governance structure, such as a town, city, or county.
- Each community has its own identity based on its location, history, leadership, and available resources.
- Some systems (e.g., electric power) often extend beyond the boundaries of the community.

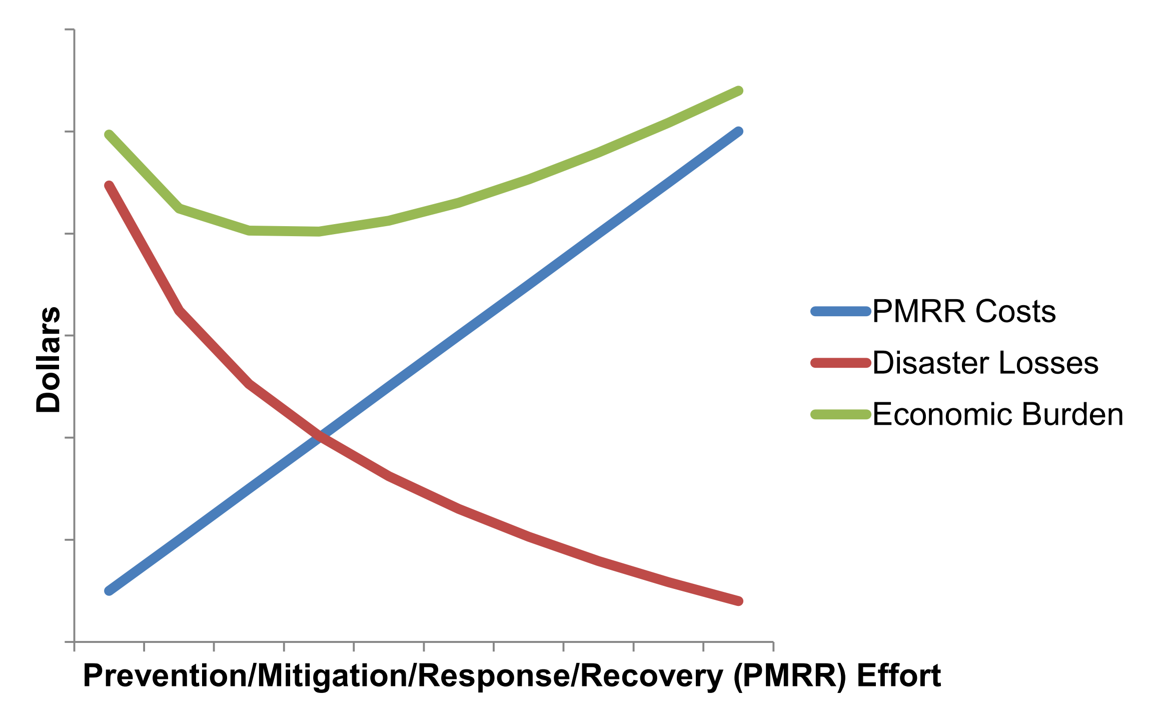
Community Needs Drive Functional Requirements for the Built Environment



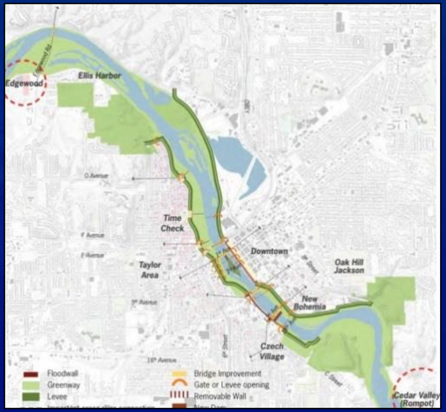
- Social systems drive the performance requirements for our built environment
  - Resilience levels for facilities and infrastructure systems depend on their role in the community
  - Enables a rational prioritization of available resources

Economic Optimality

Invest to minimize the economic burden of disasters on communities



Downtown Cedar Rapids, Iowa, during the 2008 floods



Recovery and Reinvestment Plan

Balancing Competing Concerns

- Perspective: *Who is affected?*
  - Community v. individual
    - Role of social institutions
- Values: *What is affected?*
  - Costs v. (Avoided) Losses
    - Role of Social Capital
- Location: *When/Where affected?*
  - Shocks v. Stresses
    - Role of the ‘Resilience Dividend’
- Confidence: *How well do we know?*
  - Certainty v. Uncertainty
    - Role of risk management

Superstorm Sandy

NIST Contact & Publications

NIST Resilience Website:

http://www.nist.gov/el/building_materials/resilience/

NIST Applied Economics Office Website:

http://www.nist.gov/el/economics/

NIST Resilience Planning Guide:

http://www.nist.gov/el/building_materials/resilience/guide.cfm

NIST Publication: Disaster Resilience: A Guide to the Literature

http://www.nist.gov/manuscript-publication-search.cfm?pub_id=906887

E-mail: david.butry@nist.gov

The Economics of Disaster-Resistant Buildings

Insurance Institute for Business & Home Safety®

Chuck Miccolis
Senior Engineering Manager, Commercial Lines

IBHS Mission:

"To conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses, and communities against natural disasters and other causes of loss."

Putting Midwest Construction Standards to the Test


Evaluating/Demonstrating Typical Wildfire Ignition Points


Creating Realistic Hail


Evaluating/Demonstrating Wind-Driven Rain Risks

Challenges with "Built to Code"

- A building built in accordance with a locally adopted version of a model code (if any).
- **The minimum legal standard.**
- The challenge:
  - "Built to code" is not consistent everywhere
  - Building to code is primarily for life safety, not preserving use

Insurance Institute for Business & Home Safety

2012 MEDIA DEMO

High-Wind Commercial Construction Test

Test was designed to demonstrate that building performance can be significantly improved in several key areas through relatively low-cost mitigations techniques.

Focus areas include:

- Perimeter edge flashing and roof membrane
- Load path
- Roof-mounted equipment
- Overhead roll-up door
- Effects of over-pressurization

Insurance Institute for Business & Home Safety

Result: $44,769 vs. $4,660

Commercial Roof Testing

Insurance Institute for Business & Home Safety

FORTIFIED Commercial Levels

HURRICANE

FORTIFIED COMMERCIAL

- FORTIFY roof and provide electrical connections for backup power

FORTIFIED COMMERCIAL

- FORTIFY building envelope; provide on-site backup power

FORTIFIED COMMERCIAL

- FORTIFY key structural systems (load path)

HIGH WIND & HAIL

FORTIFIED COMMERCIAL

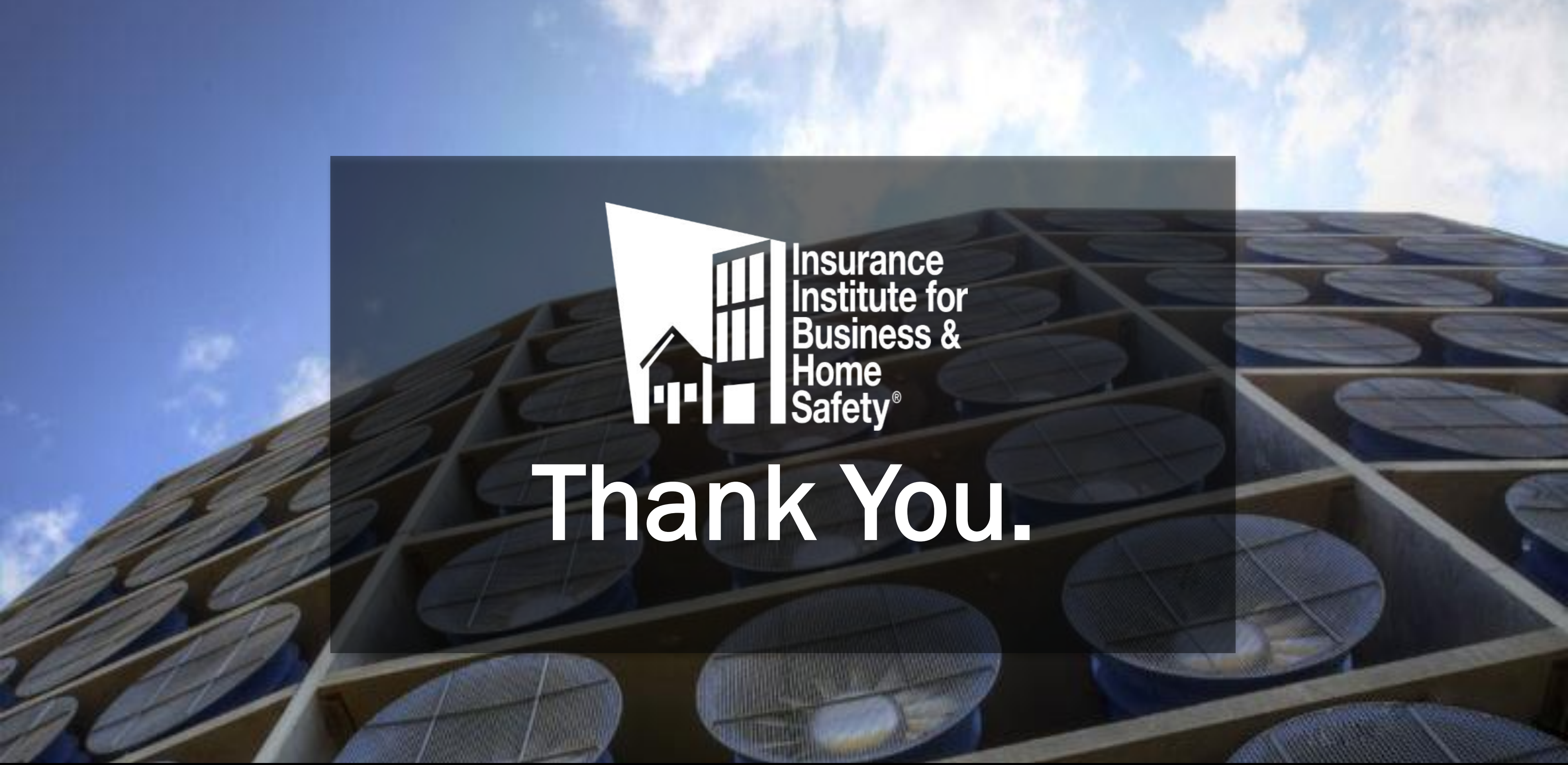
- FORTIFY roof
- FORTIFY building envelope protection, and optional electrical connections for backup power

FORTIFIED COMMERCIAL

- FORTIFY key structural systems – load paths; provide on-site backup power for critical utilities

FORTIFIED COMMERCIAL

Insurance Institute for Business & Home Safety



Chuck Miccolis
cmiccolis@ibhs.org

Please visit DisasterSafety.org

The Economics of Disaster-Resistant Buildings

Afternoon Break

Coming up next:

GENERAL SESSION - "A Dynamic Property Marketplace - The Broker's Perspective"

A Dynamic Property Marketplace - The Broker's Perspective

A Dynamic Property Marketplace The Broker's Perspective

Erik Nikodem
Property Executive, Americas Region,
AIG Property Casualty
Moderator

A Dynamic Property Marketplace The Broker's Perspective

- **Erik Nikodem,** Property Executive, Americas Region, AIG Property Casualty (Moderator)
- **Brenda (Ballard) Austenfeld,** President, Kansas City, Managing Director, National Property Practice, R-T Specialty
- **Duncan Ellis,** Managing Director, US Property Practice Leader, Marsh
- **David Finnis,** National Property Practice Leader, Willis
- **Rick Miller,** Managing Director, U.S. Property Practice Leader, Aon

PROPERTY insights conference

JUNE 4, 2015 | NEW YORK CITY

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A Dynamic Property Marketplace
The Broker's Perspective





View from the Top

Sydney, Australia Lightning Storms - Supplied-news.com.au

View from the Top

Bill Keogh
CEO
Advisen
Moderator

View from the Top

- **Bill Keogh**, CEO, Advisen (Moderator)
- **Cory Anger**, Managing Director, GC Securities, Global Head of ILS Origination and Structuring, Guy Carpenter
- **Bryon Ehrhart**, CEO of Aon Benfield Americas & Chairman of Aon Securities Inc.
- **Thomas Lawson**, President & Chief Executive Officer, FM Global
- **Robert Schimek**, Senior Vice President & Chief Executive Officer – Americas, AIG

View from the Top

Closing Remarks & Reception