



# **Rising Risk and Global Opportunity** *Musings on Mega Issues in Global Insurance & Growth Prospects*

**John Street Club  
New York, NY  
November 8, 2013**

***Download at [www.iii.org/presentations](http://www.iii.org/presentations)***

Robert P. Hartwig, Ph.D., CPCU, President & Economist

Insurance Information Institute ♦ 110 William Street ♦ New York, NY 10038

Tel: 212.346.5520 ♦ Cell: 917.453.1885 ♦ bobh@iii.org ♦ www.iii.org

- **Risk, Insurance and Opportunity: A Global Perspective**
- **Old Risk, New Opportunity: Catastrophic Loss**
- **The Old World: Money Left on the Table?**
- **The Emerging Markets: Where (Most) of the Growth Is**
- **Energy**
- **Terrorism**
- **Low Yields: Are They Forever?**
- **Q&A**



# Risk, Insurance and Opportunity

*U.S. and Global Perspective*

**Is the World Becoming a  
Riskier, More Uncertain Place?**

***Or Does It Just Seem that Way?***

# Uncertainty, Risk and Fear Abound: Insurance Can Help Mitigate Risk

- US Debt and Budget Crisis
- European Sovereign Debt & Eurozone Crises
- Political Gridlock in the US, Europe, Japan
- “Hard Landing” in China/Emerging Economies
- Fiscal Imbalances
- Monetary Policy/Tapering/Low Interest Rates
- Unemployment
- Political Upheaval in the Middle East
- Resurgent Terrorism Risk
- Diffusion of Weapons of Mass Destruction
- Cyber Attacks
- Record Natural Disaster Losses
- Climate Change
- Environmental Degradation
- Income Inequality
- (Over)Regulation



Are “Black Swans”  
everywhere or  
does it just seem  
that way?

# 5 Major Categories for Global Risks, Uncertainties and Fears: Insurance Solutions

- 1. Economic Risks**
- 2. Geopolitical Risks**
- 3. Environmental Risks**
- 4. Technological Risks**
- 5. Societal Risks**



**While risks can be broadly categorized, none are mutually exclusive**



# Top 5 Global Risks in Terms of *Likelihood*, 2007—2013: Insurance Can Help With Most

	2007	2008	2009	2010	2011	2012*	2013*
1st	Breakdown of critical information infrastructure	Asset price collapse	Asset price collapse	Asset price collapse	Meteorological catastrophes	Severe income disparity	Severe income disparity
2nd	Chronic disease in developed countries	Middle East instability	Slowing Chinese economy (<6%)	Slowing Chinese economy (<6%)	Hydrological catastrophes	Chronic fiscal imbalances	Chronic fiscal imbalances
3rd	Oil price shock	Failed and failing states	Chronic disease	Chronic disease	Corruption	Rising greenhouse gas emissions	Rising greenhouse gas emissions
4th	China economic hard landing	Oil and gas price spike	Global governance gaps	Fiscal crises	Biodiversity loss	Cyber attacks	Water supply crises
5th	Asset price collapse	Chronic disease, developed world	Retrenchment from globalization (emerging)	Global governance gaps	Climatological catastrophes	Water supply crises	Mismanagement of population ageing

**In 2013, economic and climate change concerns dominated frequency concerns**

**Concerns Shift Considerably Over Short Spans of Time. Shift in 2012 to Economic Risks and Away from Environmental Risks**

# Top 5 Global Risks in Terms of *Impact*, 2007—2013: Insurance Can Help With Most

	2007	2008	2009	2010	2011	2012*	2013*
1st	Asset price collapse	Asset price collapse	Asset price collapse	Asset price collapse	Fiscal crises	Major systemic financial failure	Major systemic financial failure
2nd	Retrenchment from globalization	Retrenchment from globalization (developed)	Retrenchment from globalization (developed)	Retrenchment from globalization (developed)	Climatological catastrophes	Water supply crises	Water supply crises
3rd	Interstate and civil wars	Slowing Chinese economy (<6%)	Oil and gas price spike	Oil price spikes	Geopolitical conflict	Food shortage crises	Chronic fiscal imbalances
4th	Pandemics	Oil and gas price spike	Chronic disease	Chronic disease	Asset price collapse	Chronic fiscal imbalances	Diffusion of weapons of mass destruction
5th	Oil price shock	Pandemics	Fiscal crises	Fiscal crises	Extreme energy price volatility	Extreme volatility in energy and agriculture prices	Failure of climate change adaptation

Impacts from economic, societal, geopolitical and environmental risks were all of great concern in 2013

**Concerns Over the Impacts of Economics Risks Remained High in 2013, but Societal, Environment and Societal Risks Also Loom Large**

# **Insured vs. Uninsured Catastrophe Losses**

**Do Insurers Leave Money on the Table  
Even With Risks We've Encountered  
for Centuries?**



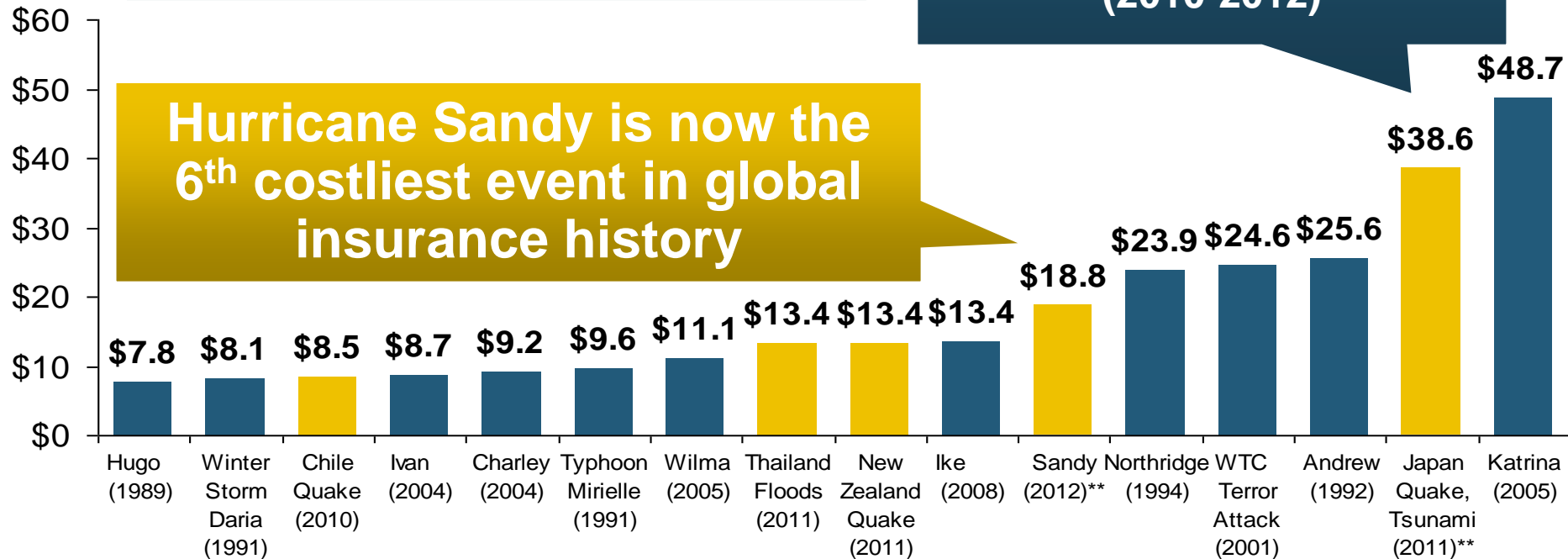
# Top 16 Most Costly World Insurance Losses, 1970-2012\*

(Insured Losses, 2012 Dollars, \$ Billions)

**2012 insured CAT Losses totaled \$60B; Economic losses totaled \$140B, according to Swiss Re**

**5 of the top 14 most expensive catastrophes in world history have occurred within the past 3 years (2010-2012)**

**Hurricane Sandy is now the 6<sup>th</sup> costliest event in global insurance history**



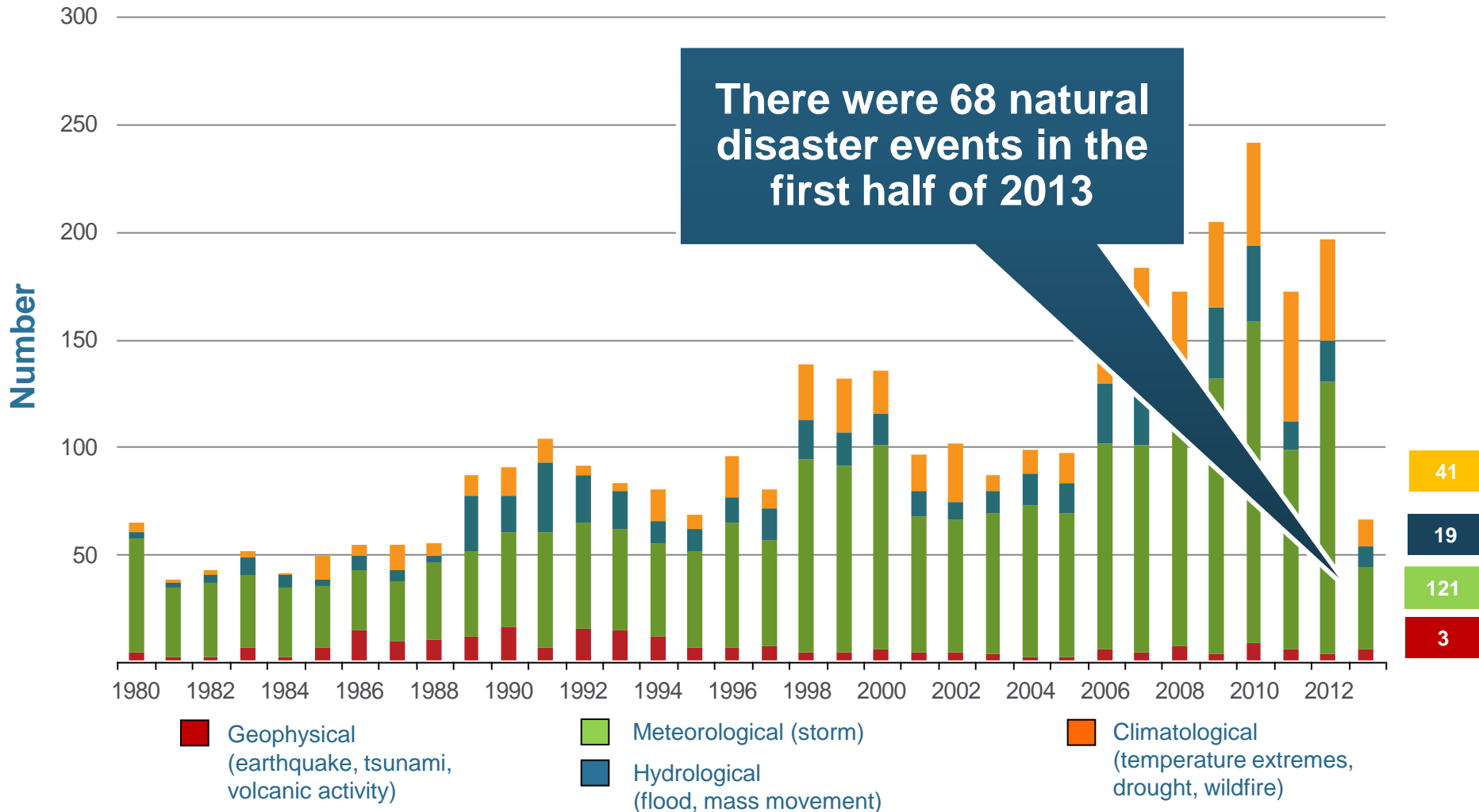
\*Figures do not include federally insured flood losses.

\*\*Estimate based on PCS value of \$18.75B as of 4/12/13.

Sources: Munich Re; Swiss Re; Insurance Information Institute research.

# Natural Disasters in the United States, 1980 – June 2013\*

Number of Events (Annual Totals 1980 – June 2013\*)

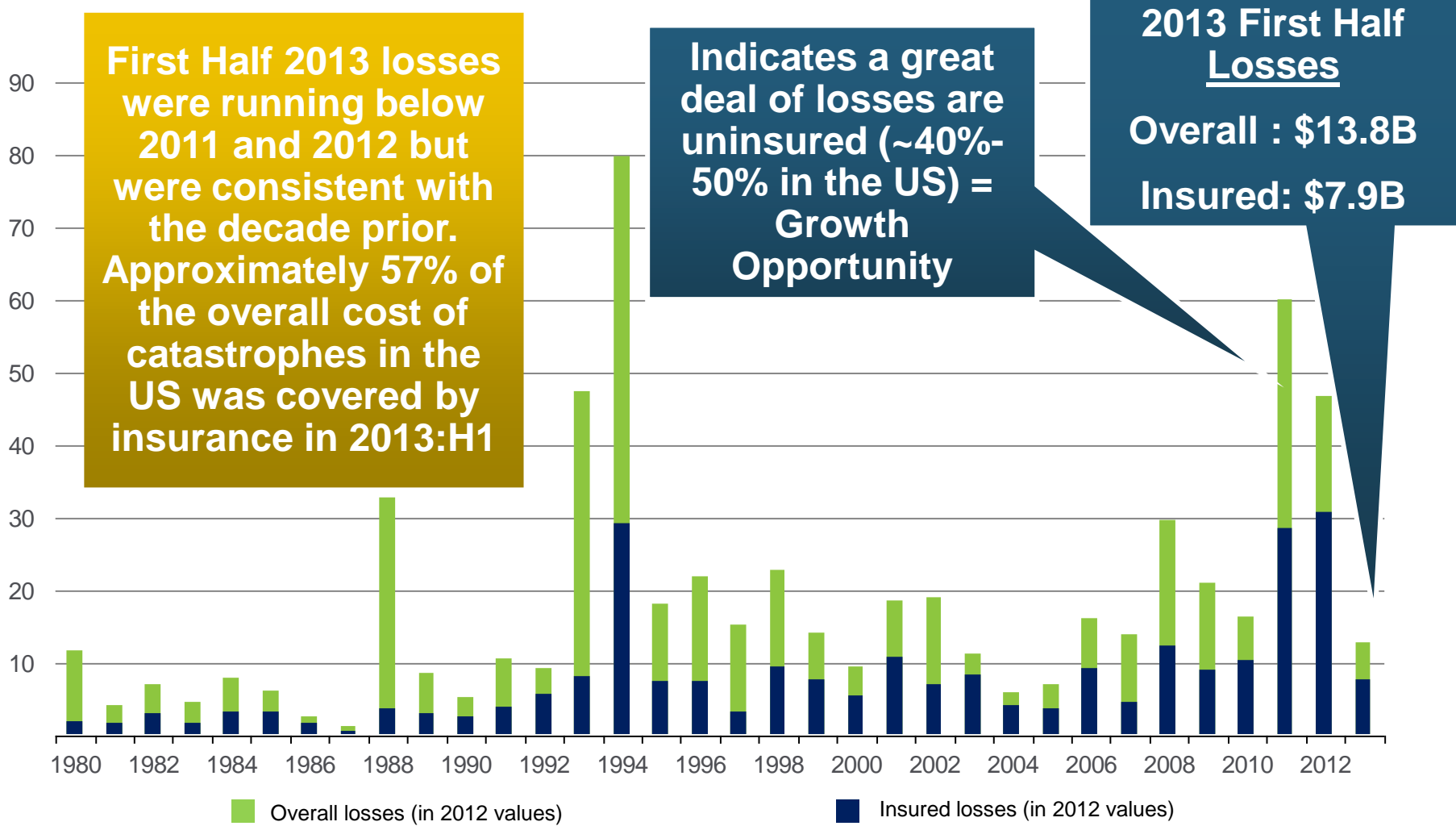


\*Through June 30, 2013.  
Source: MR NatCatSERVICE

# Losses Due to Natural Disasters in the US, 1980–2013\*

## (Overall and Insured Losses)

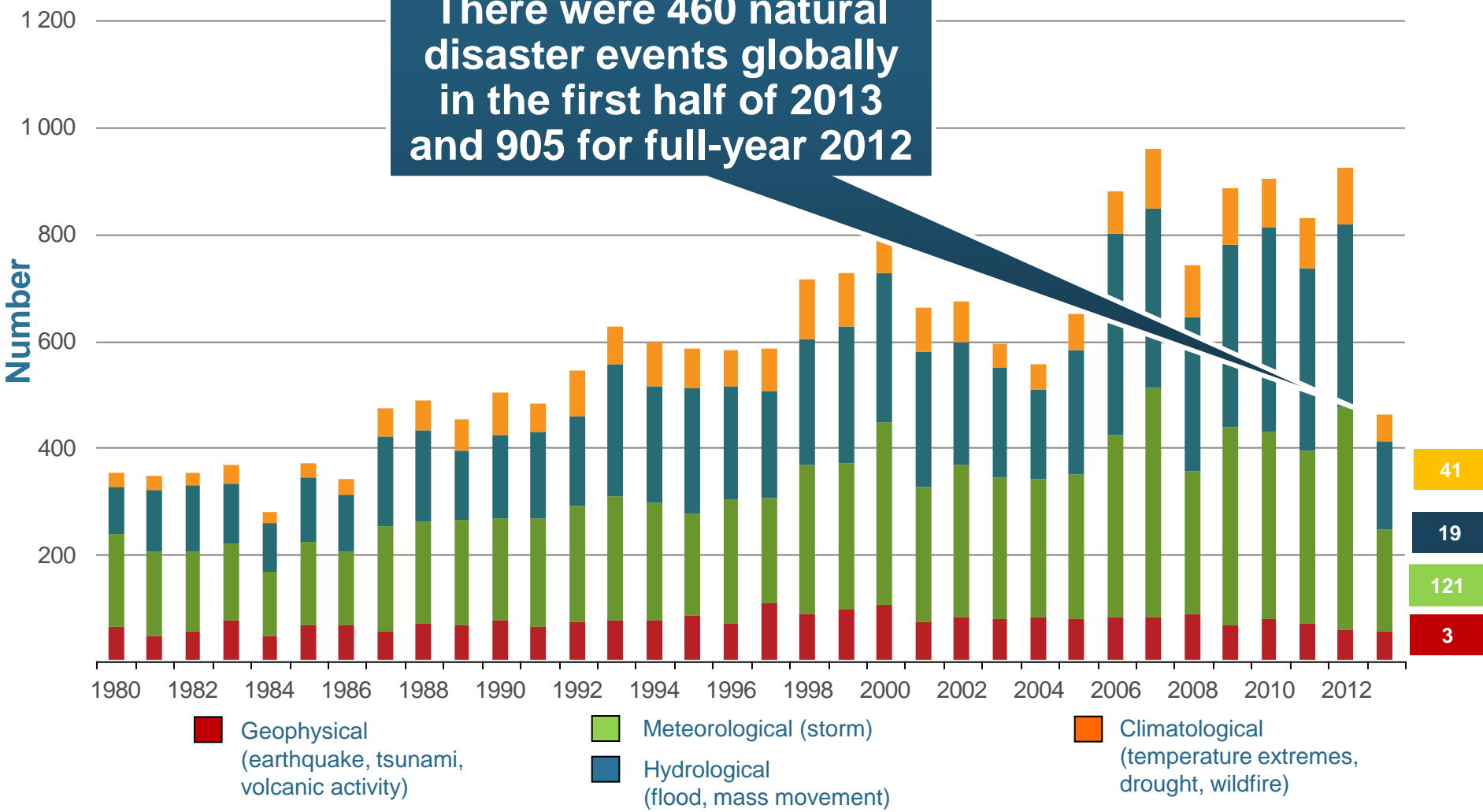
(2012 Dollars, \$ Billions)



\*Through June 30, 2013.  
 Source: MR NatCatSERVICE

# Natural Disasters Worldwide, 1980 – 2013\* (Number of Events)

There were 460 natural disaster events globally in the first half of 2013 and 905 for full-year 2012

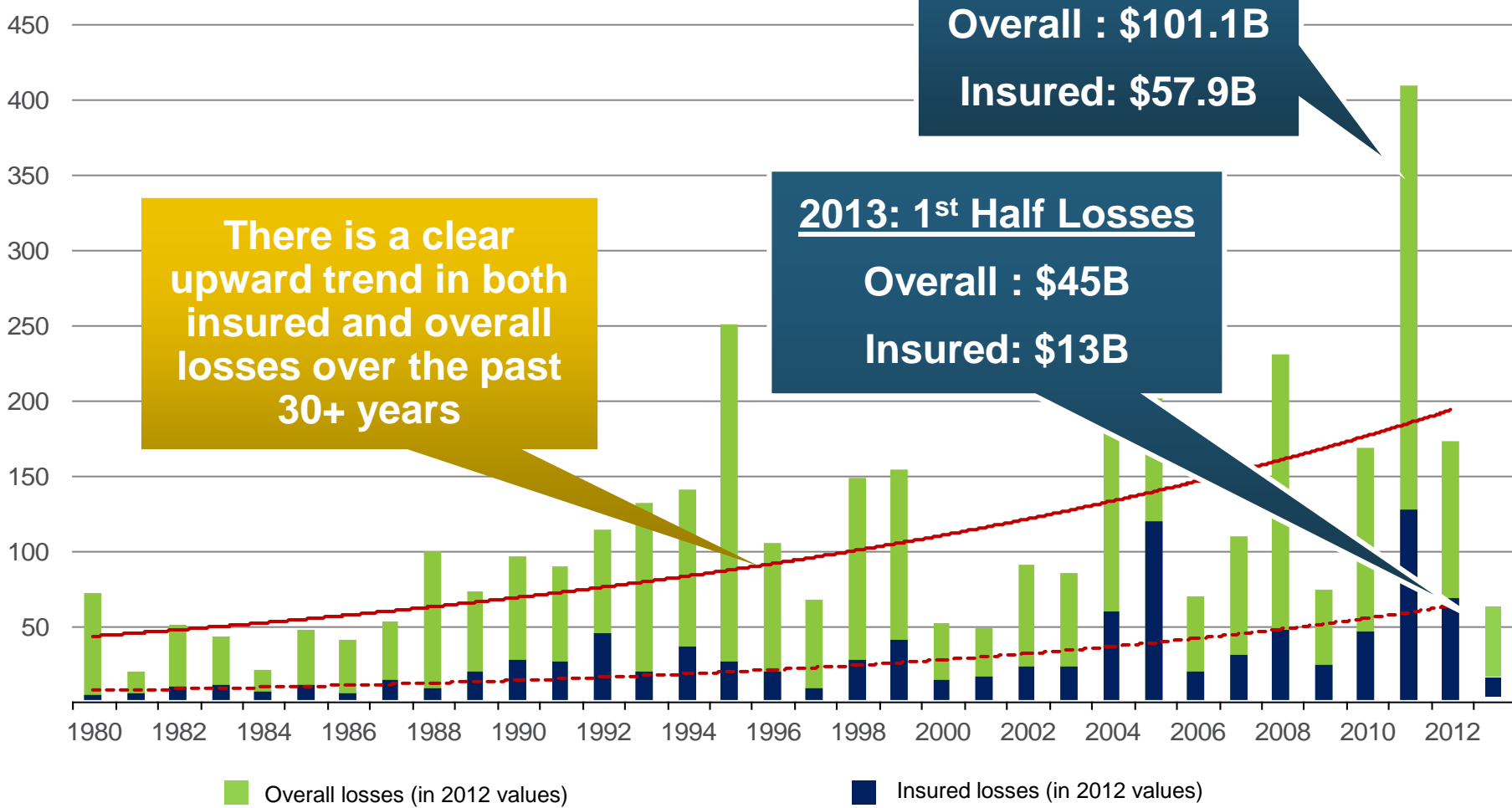


\*Through June 30, 2013.  
Source: MR NatCatSERVICE

# Losses Due to Natural Disasters Worldwide, 1980–2013\* (Overall & Insured Losses)

## (Overall and Insured Losses)

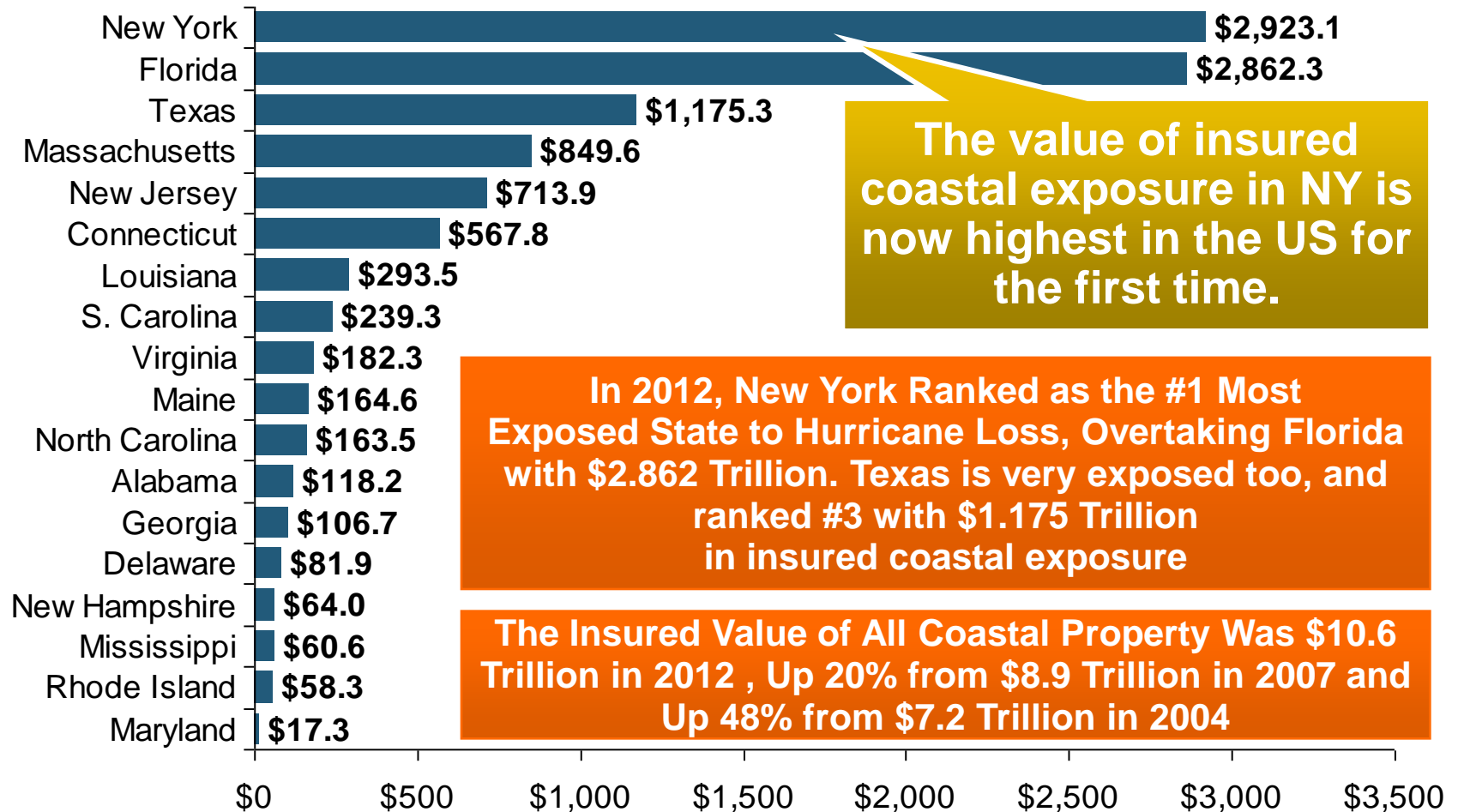
(2012 Dollars, \$ Billions)



\*Through June 30, 2013.  
Source: MR NatCatSERVICE

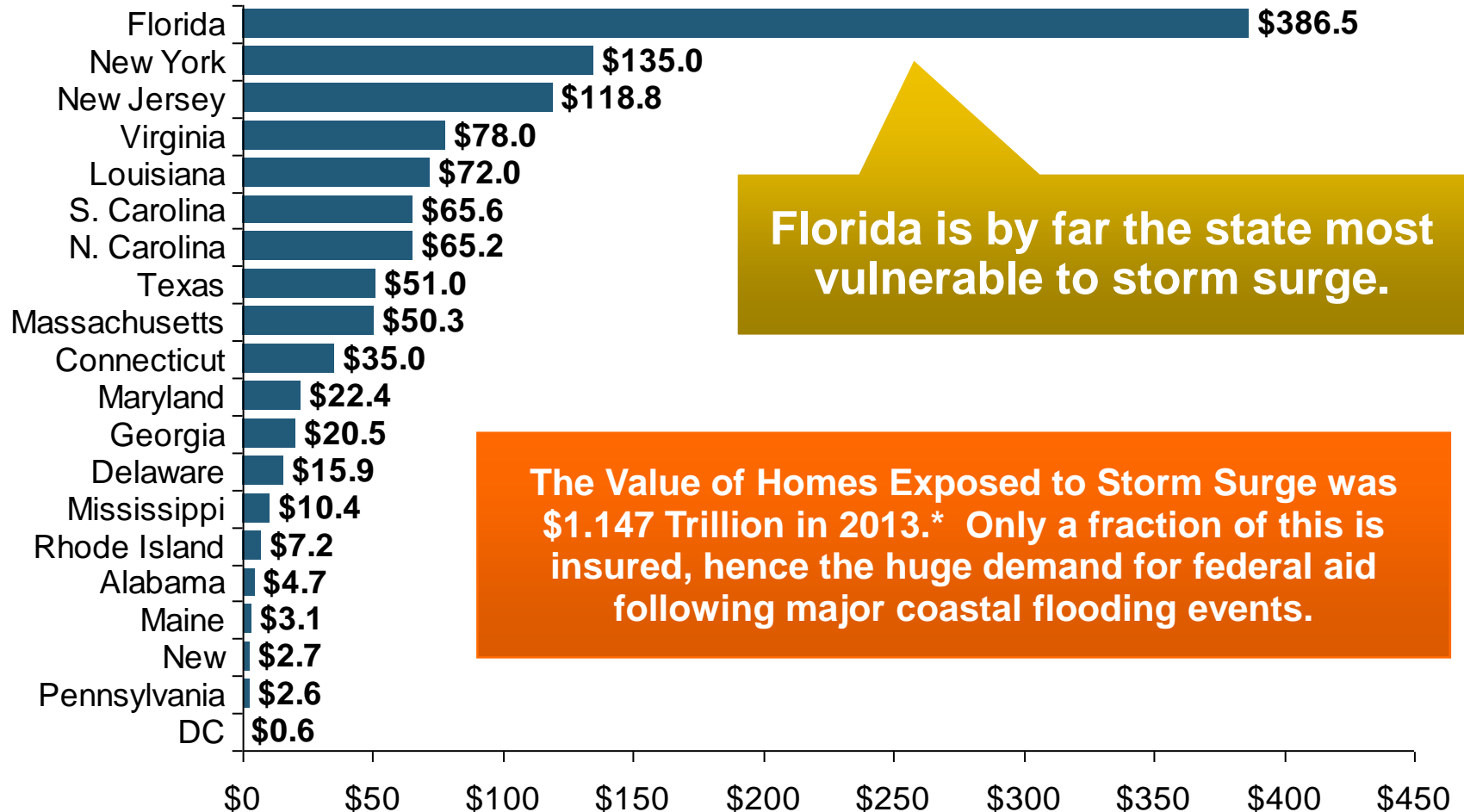
# Total Value of Insured Coastal Exposure in 2012

(2012, \$ Billions)



# Total Potential Home Value Exposure to Storm Surge Risk in 2013\*

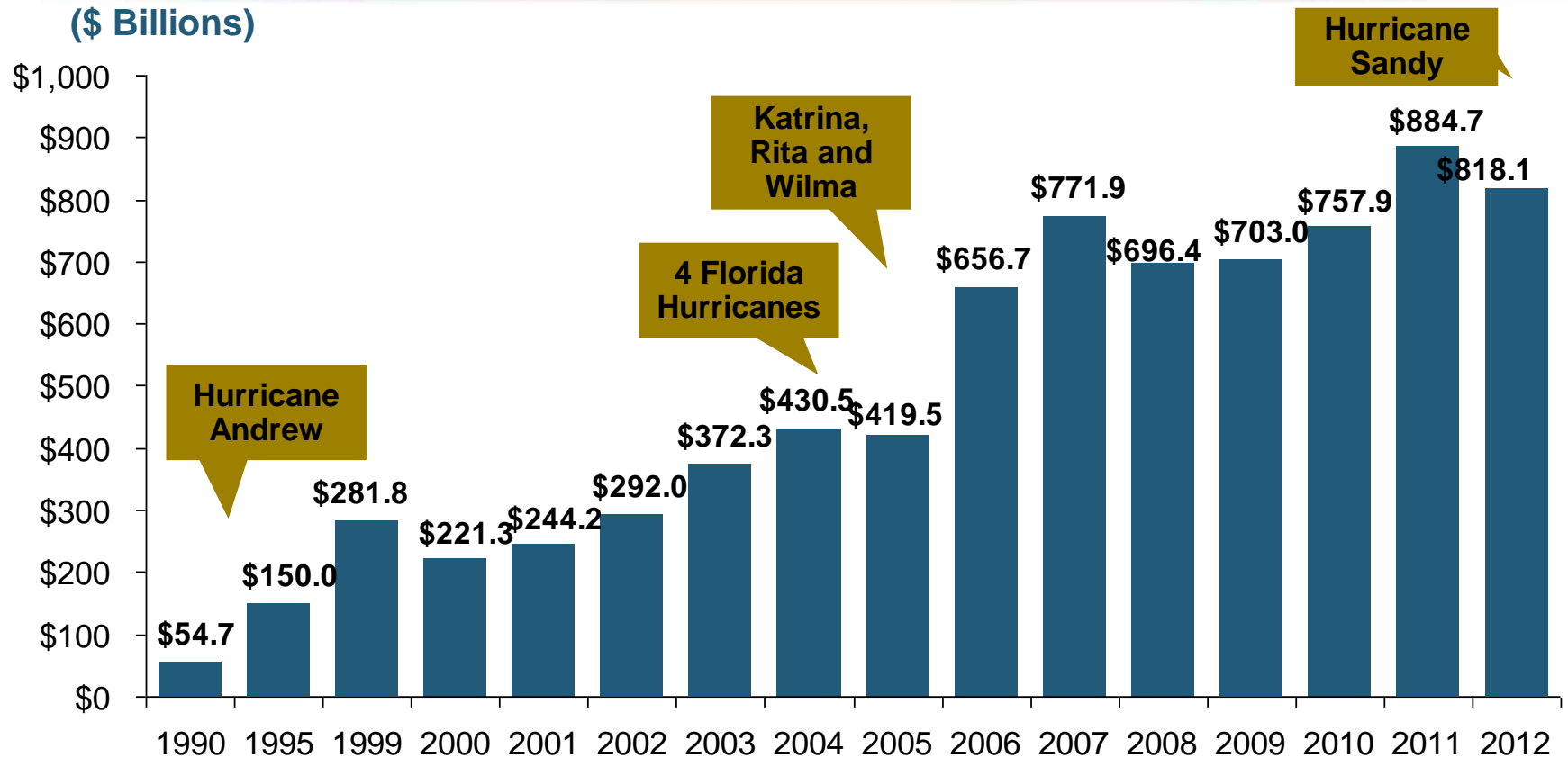
(\$ Billions)



\*Insured and uninsured property. Based on estimated property values as of April 2013.

Source: *Storm Surge Report 2013*, CoreLogic.

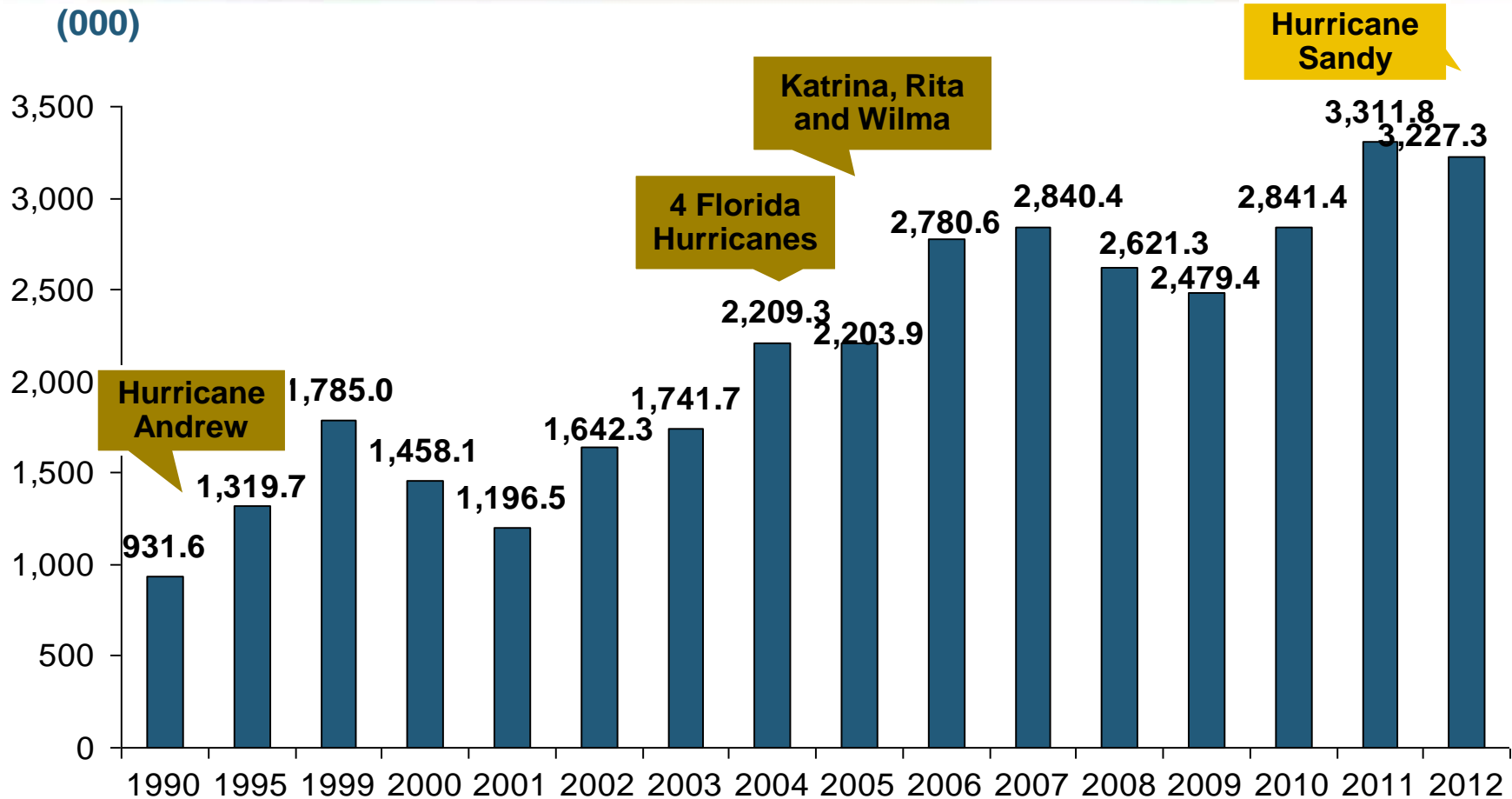
# U.S. Residual Market Exposure to Loss (1990-2012) (\$ Billions)



**In the 23-year period between 1990 and 2012, total exposure to loss in the residual market (FAIR & Beach/Windstorm) Plans has surged from \$54.7 billion in 1990 to \$818.1 billion in 2012.**



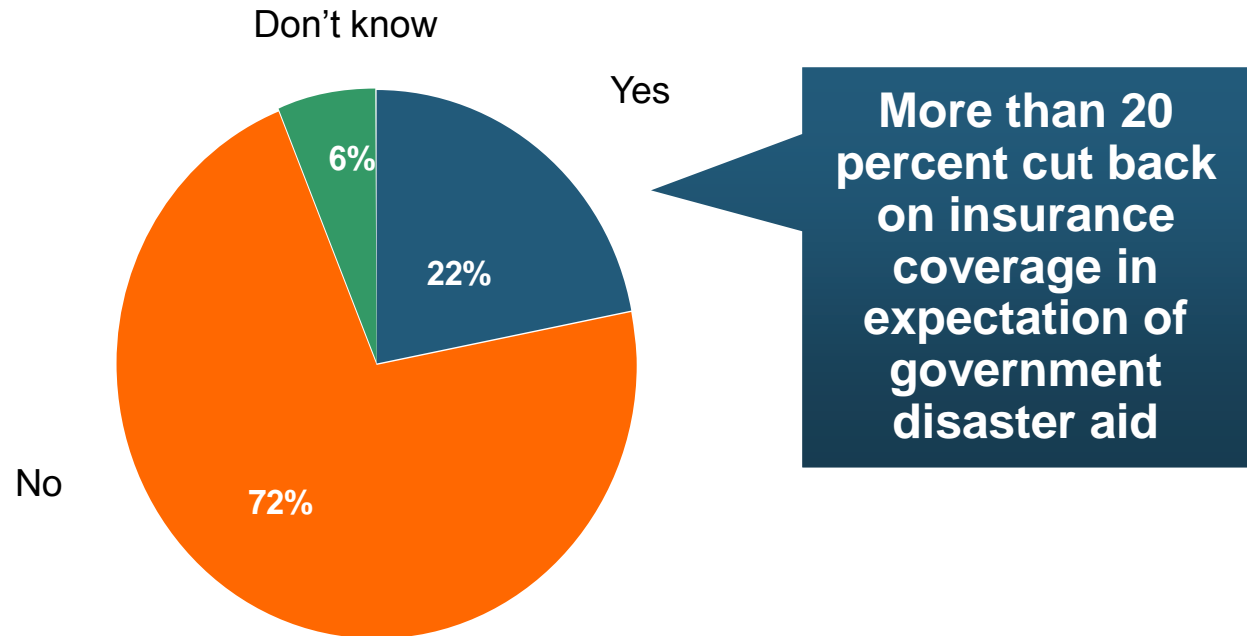
# U.S. Residual Market: Total Policies In-Force (1990-2012) (000)



In the 23-year period between 1990 and 2012, the total number of policies in-force in the residual market (FAIR & Beach/Windstorm) Plans has more than tripled.

# I.I.I. Poll: Disaster Preparedness

**Q. If you expect some relief from the government, do you purchase less insurance coverage against these natural disasters than you would have otherwise?**



**Seventy-two percent of Americans would not purchase less insurance if they expect some relief from the government—but 22% would.**

# Near and Far: The Global Economy Creates Opportunity, Transmits Risks

**Globalization Is a Double Edged Sword—  
Creating Opportunity and Wealth But  
Potentially Creating and Amplifying Risk**

***Emerging vs. “Advanced” Economies***

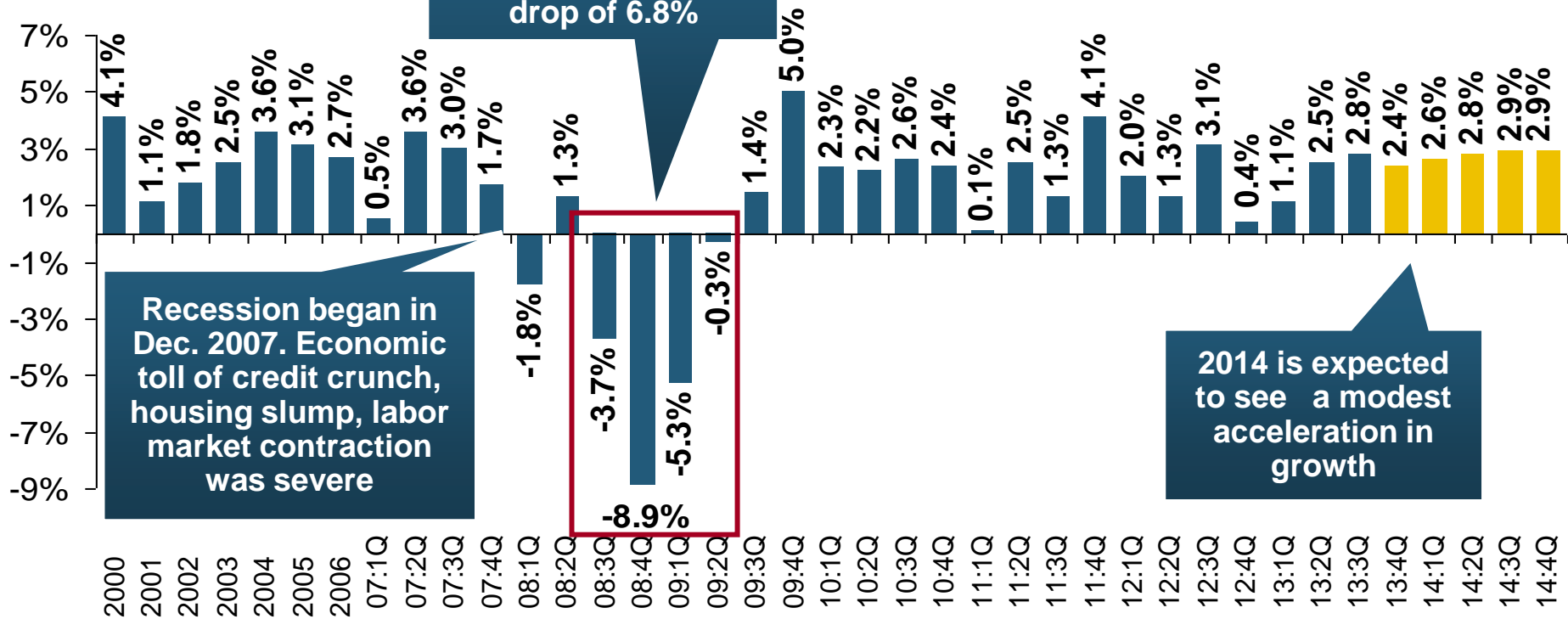


# Close to Home: Sectors Likely to Generate Above Trend Growth

**Into the 2020s, Certain Sectors Should Provide More Key Opportunities for Insurers in the US**

# US Real GDP Growth\*

Real GDP Growth (%)



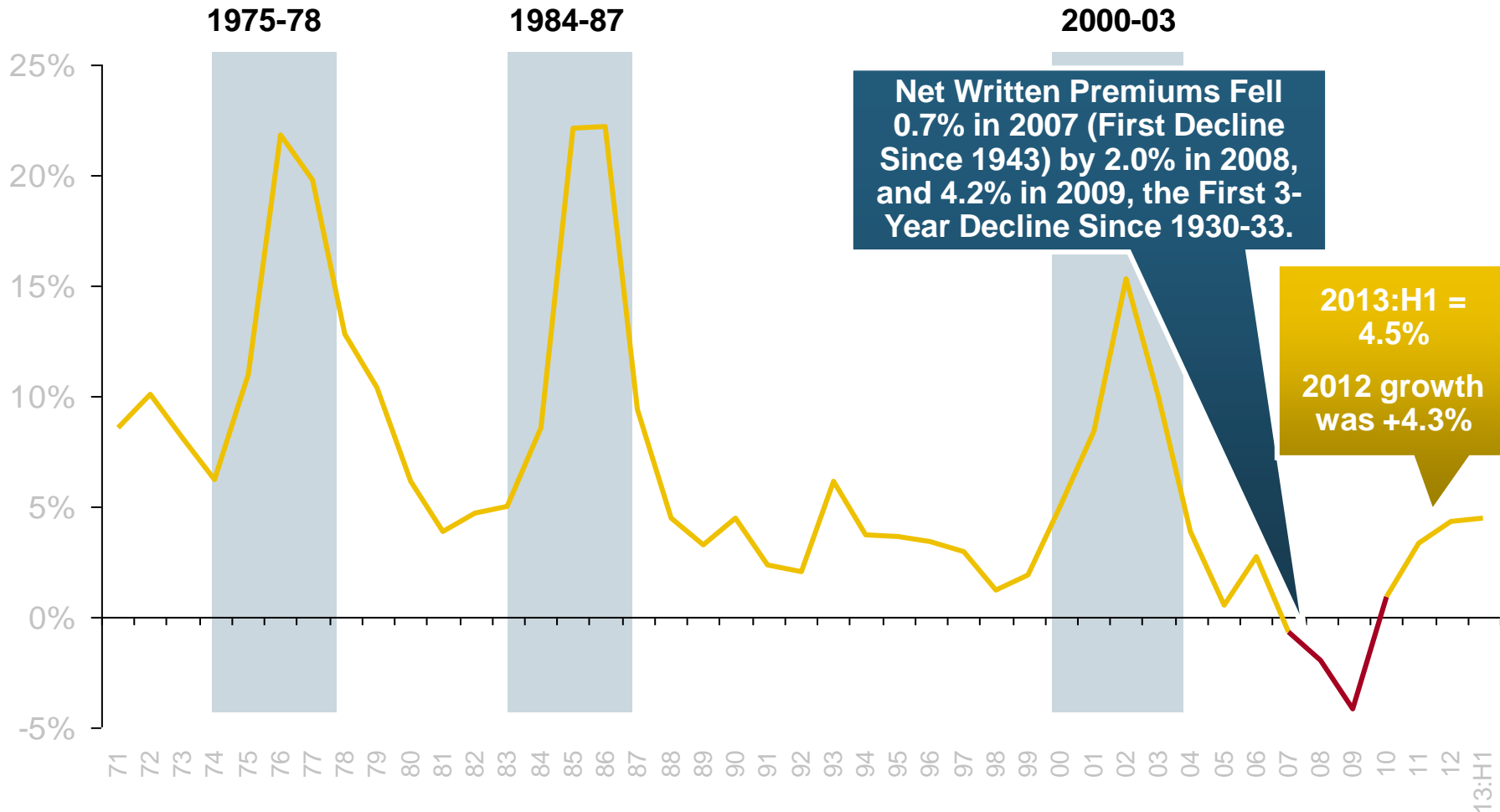
**Demand for Insurance Continues To Be Impacted by Sluggish Economic Conditions, but the Benefits of Even Slow Growth Will Compound and Gradually Benefit the Economy Broadly**

\* Estimates/Forecasts from Blue Chip Economic Indicators.

Source: US Department of Commerce, Blue Economic Indicators 10/13; Insurance Information Institute.

# Net Premium Growth: Annual Change, 1971—2013:H1

(Percent)



Shaded areas denote “hard market” periods

Sources: A.M. Best (historical and forecast), ISO, Insurance Information Institute.

# 12 U.S. Industries for the Next 10 Years: Insurance Solutions Needed

Health Care

Health Sciences

Energy (Traditional)

Alternative Energy

Petrochemical

Agriculture

Natural Resources

Technology (incl. Biotechnology)

Light Manufacturing

Inourced Manufacturing

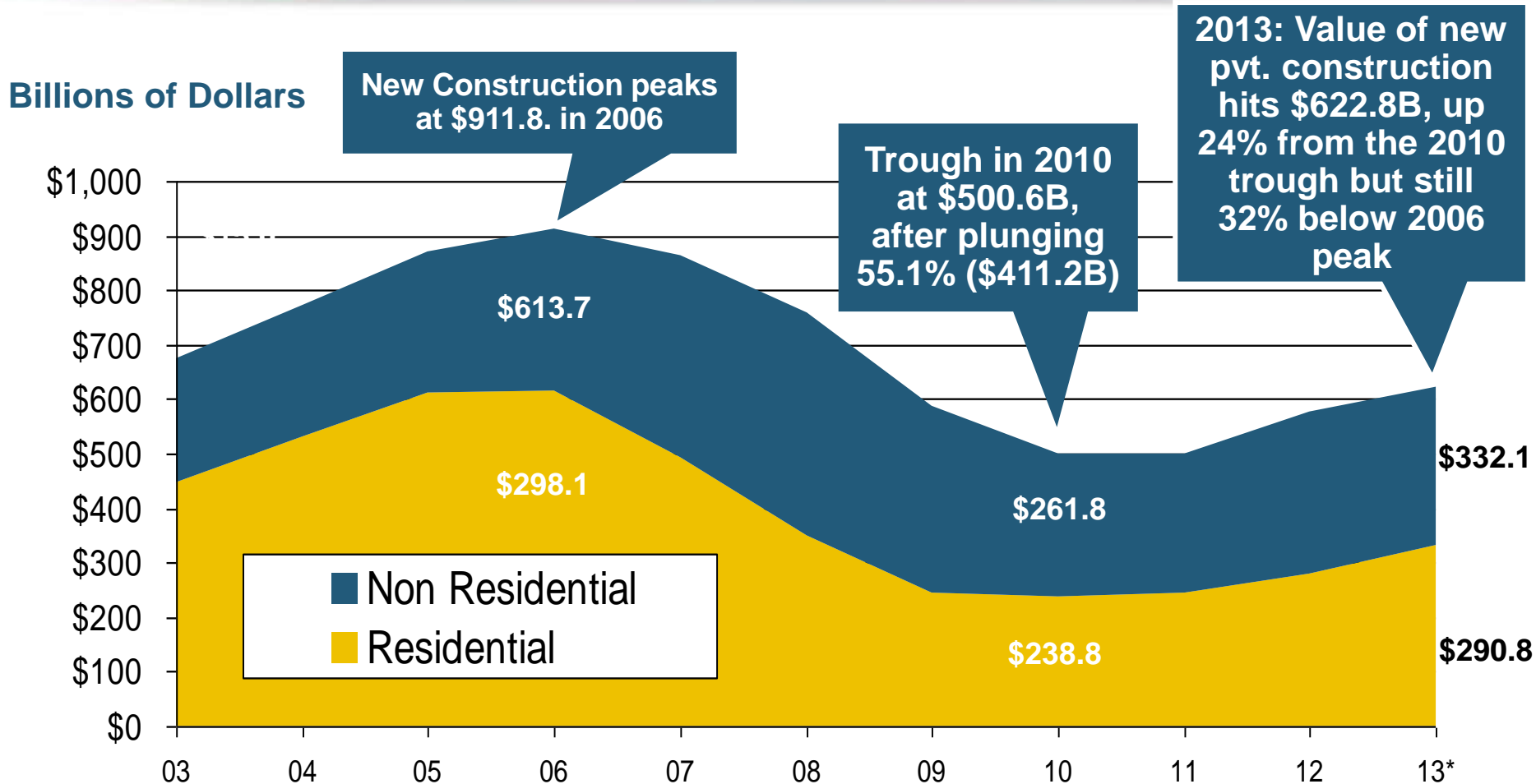
Export-Oriented Industries

Shipping (Rail, Marine, Trucking, Pipelines)



Many industries are poised for growth, though insurers' ability to capitalize on these industries varies widely

# Value of New Private Construction: Residential & Nonresidential, 2003-2013\*



**Private Construction Activity Is Moving in a Positive Direction though Remains Well Below Pre-Crisis Peak; Residential Dominates**

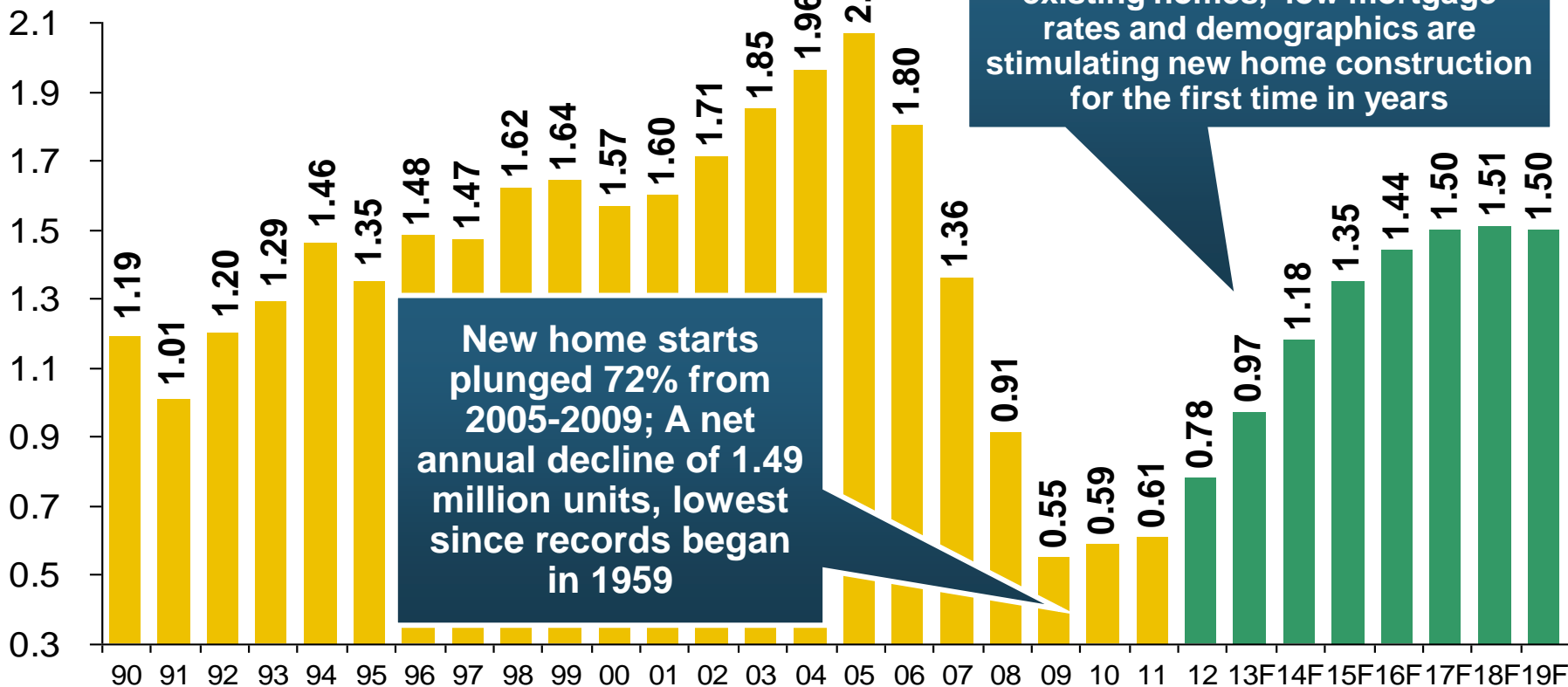
\*2013 figure is a seasonally adjusted annual rate as of June.

Sources: US Department of Commerce; Insurance Information Institute.



# New Private Housing Starts, 1990-2019F

(Millions of Units)

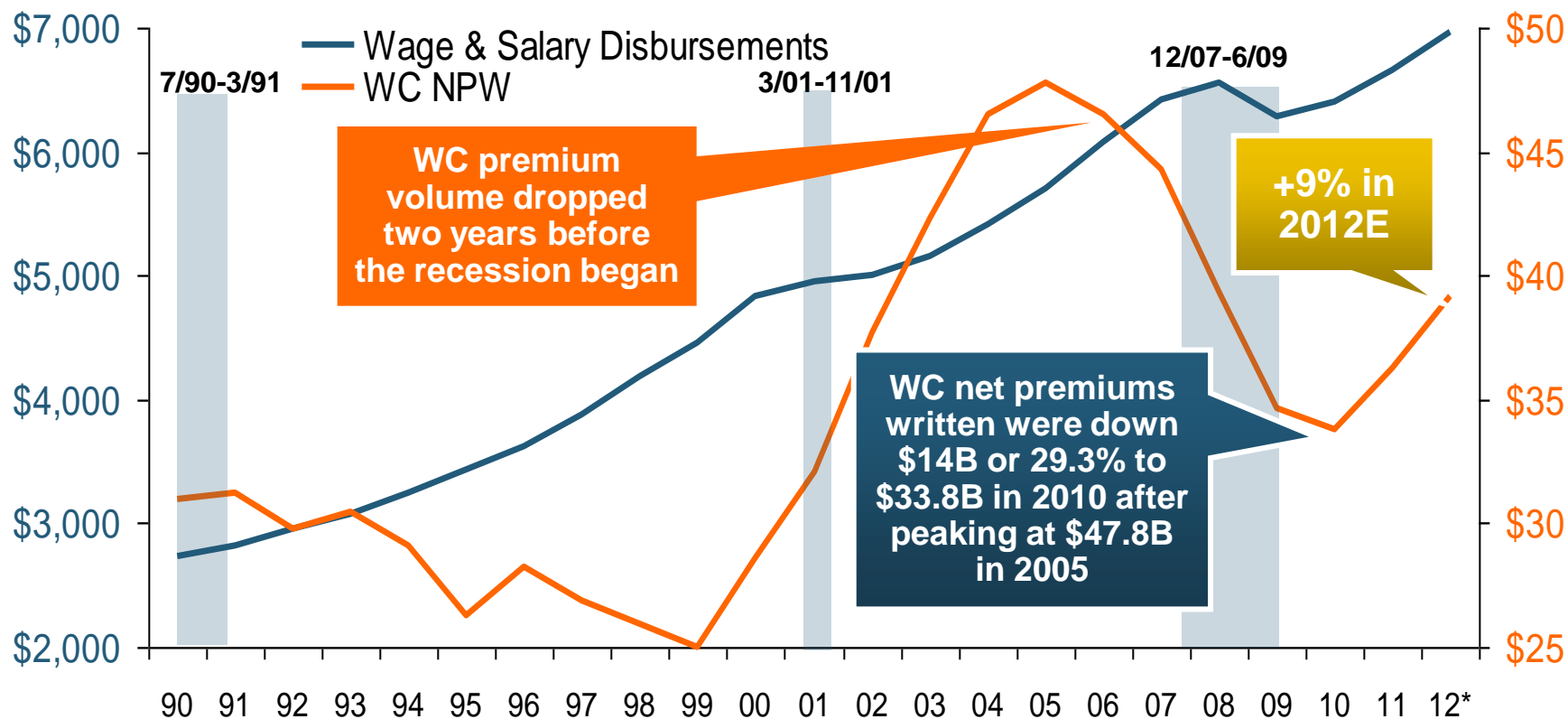


**Insurers Are Starting to See Meaningful Exposure Growth for the First Time Since 2005 Associated with Home Construction: Construction Risk Exposure, Surety, Commercial Auto; Potent Driver of Workers Comp Exposure**

# Payroll vs. Workers Comp Net Written Premiums, 1990-2012E

Payroll Base\*  
\$Billions

WC NWP  
\$Billions



**Continued Payroll Growth and Rate Increases Suggest WC NWP Will Grow Again in 2012; +7.9% Growth in 2011 Was the First Gain Since 2005**

\*Private employment; Shaded areas indicate recessions. WC premiums for 2012 are I.I.I. estimate based YTD 2012 actuals. Sources: NBER (recessions); Federal Reserve Bank of St. Louis at <http://research.stlouisfed.org/fred2/series/WASCUR> ; NCCI; I.I.I.

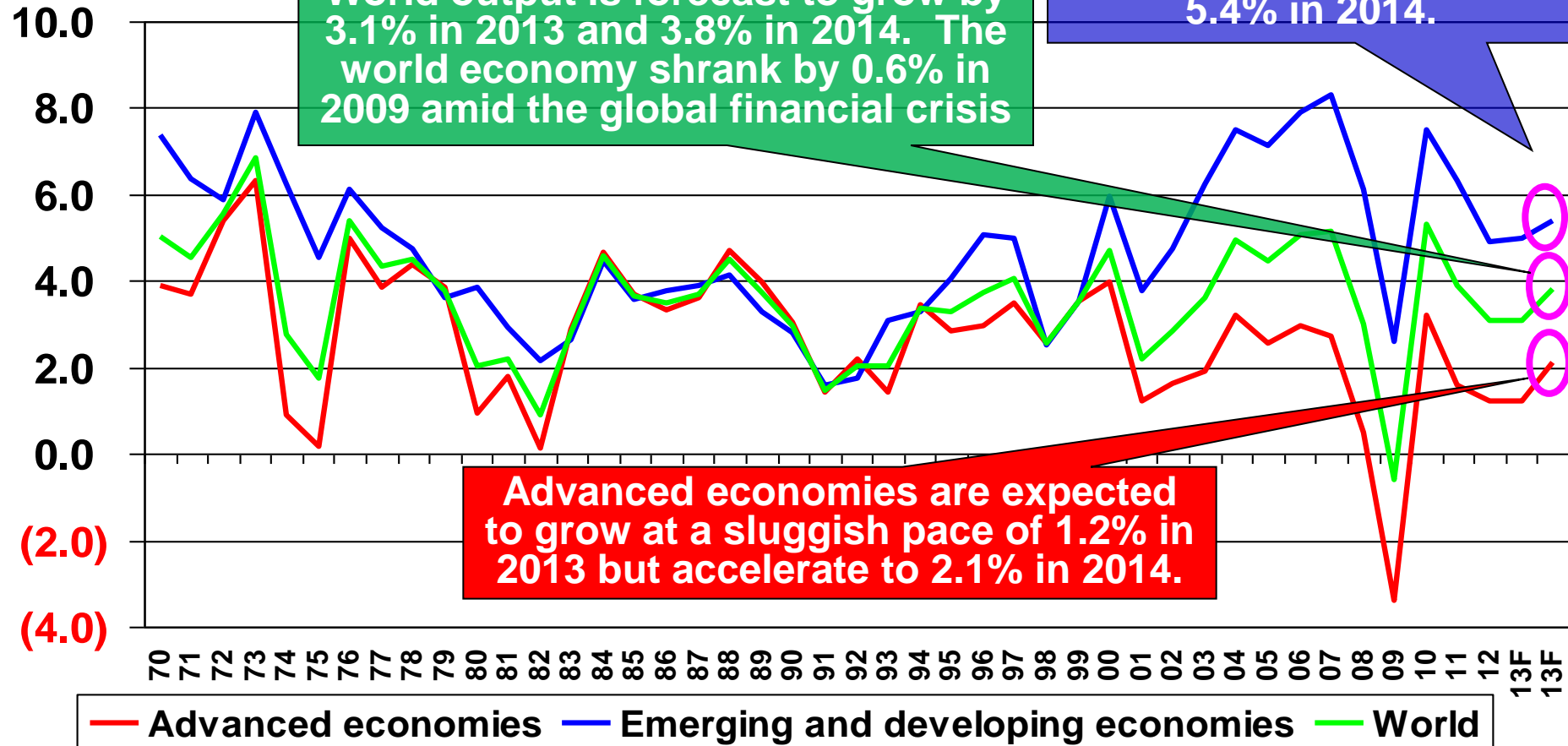


# Far from Home: Growth Beyond US Borders Will Be Faster but Riskier

**The Risk/Reward Tradeoff Is Rising and  
Will Continue to Rise**

# GDP Growth: Advanced & Emerging Economies vs. World, 1970-2014F

GDP Growth (%)

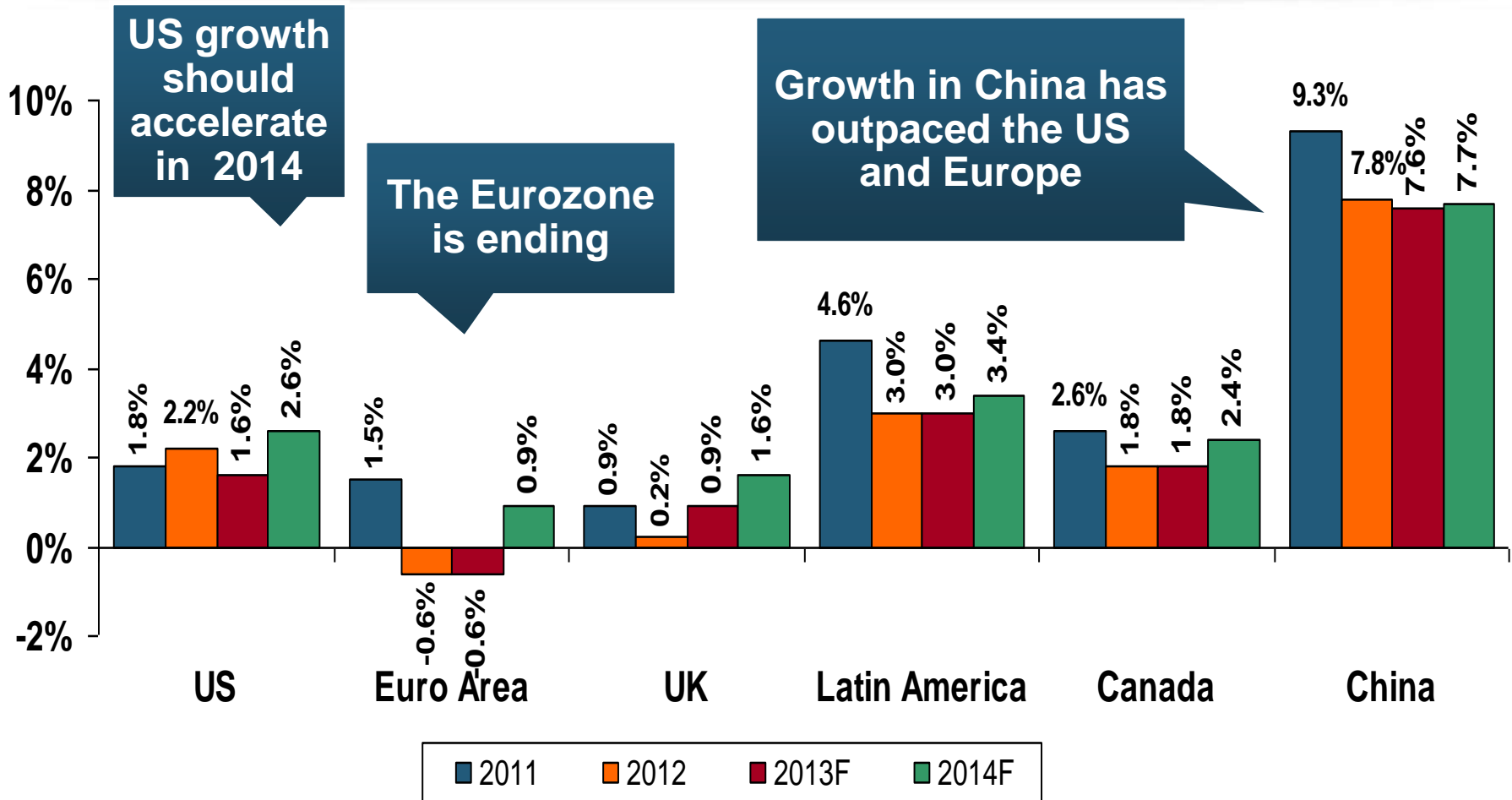


World output is forecast to grow by 3.1% in 2013 and 3.8% in 2014. The world economy shrank by 0.6% in 2009 amid the global financial crisis

Emerging economies (led by China) are expected to grow by 5.0% in 2013 and 5.4% in 2014.

Advanced economies are expected to grow at a sluggish pace of 1.2% in 2013 but accelerate to 2.1% in 2014.

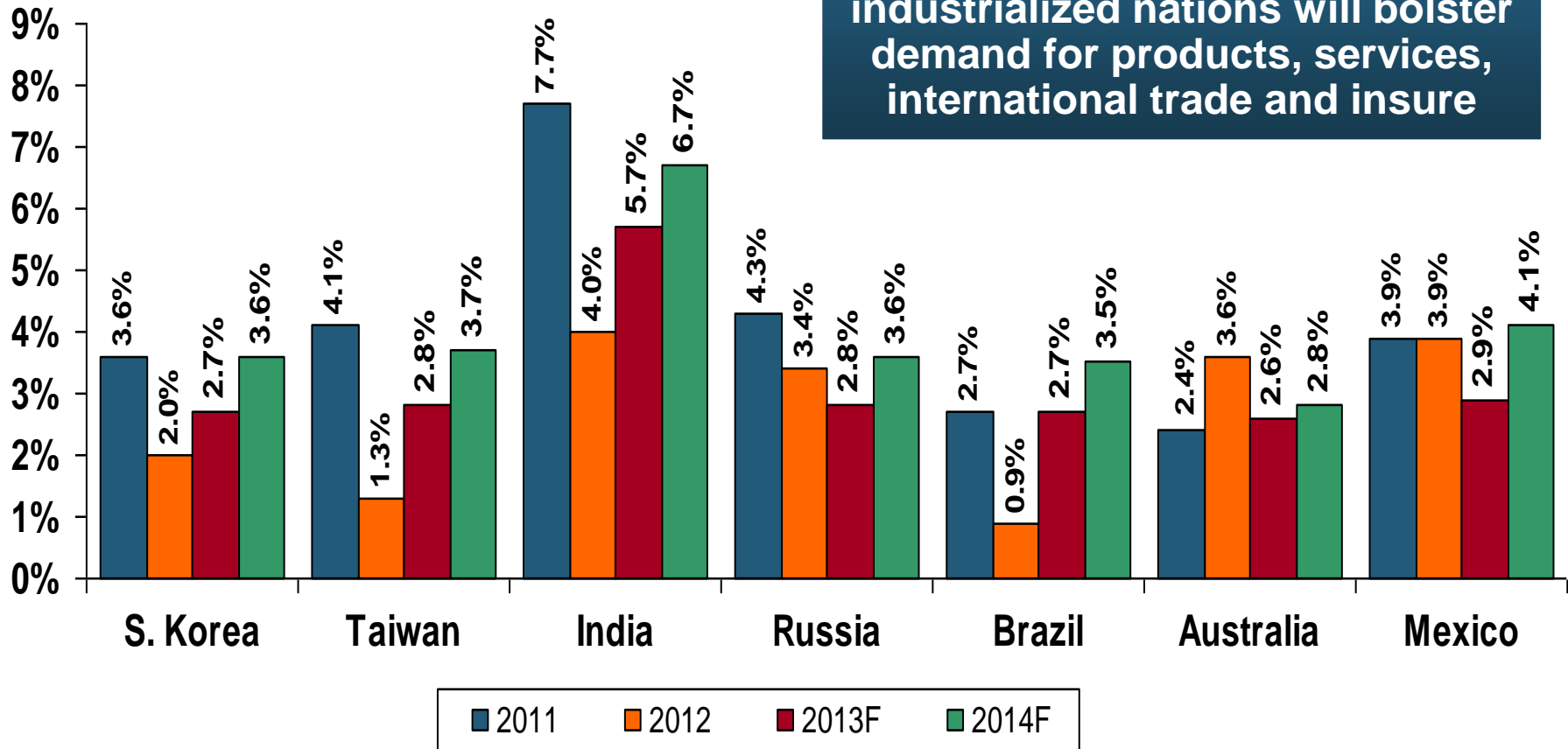
# Real GDP Growth Forecasts: Major Economies: 2011 – 2014F



**Growth Prospects Vary Widely by Region: Growth Returning in the US, Recession in the Eurozone, Some strengthening in Latin America**

# Real GDP Growth Forecasts: Selected Economies: 2011 – 2014F

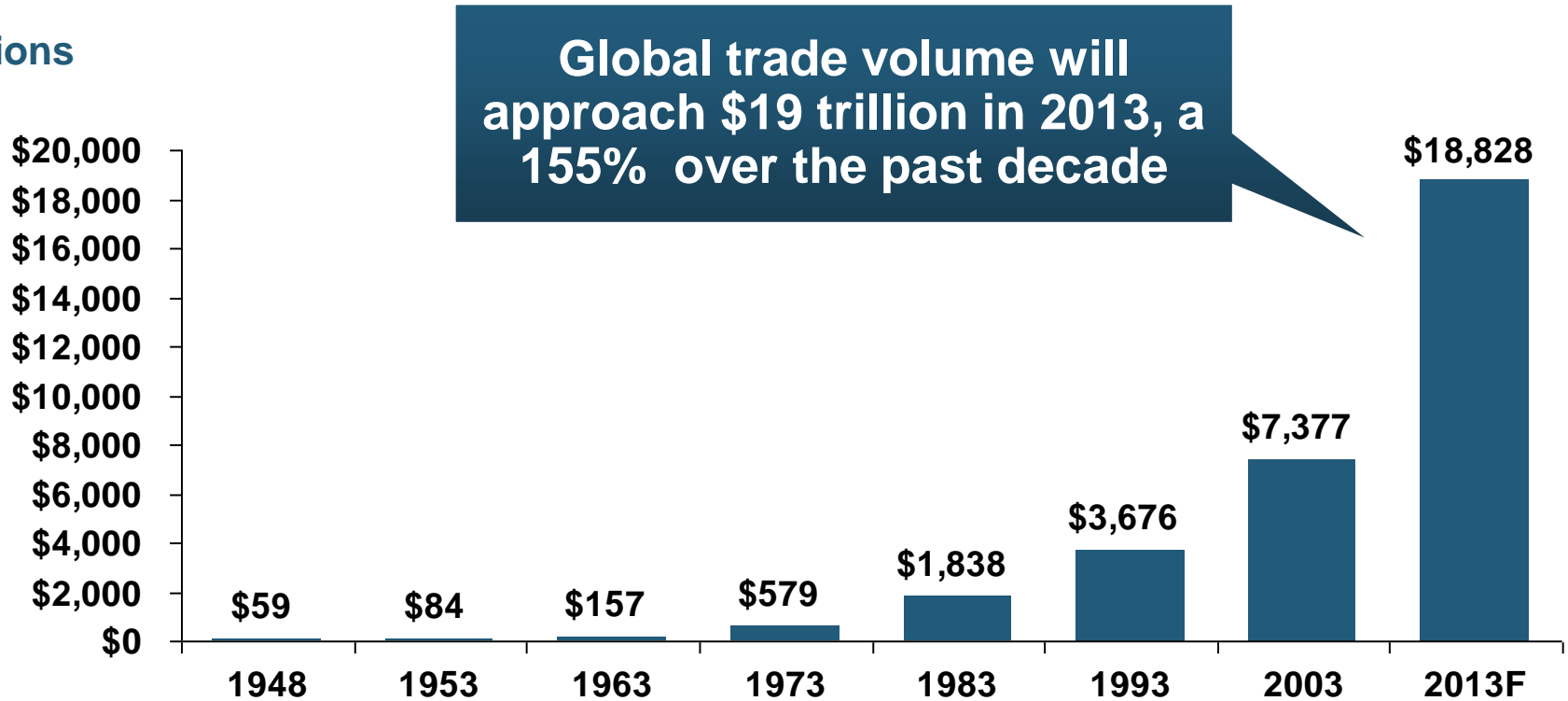
**Strong economies in smaller industrialized nations will bolster demand for products, services, international trade and insure**



**Growth Outside the US, Europe and Japan is Relatively Strong**

# World Trade Volume: 1948—2013F

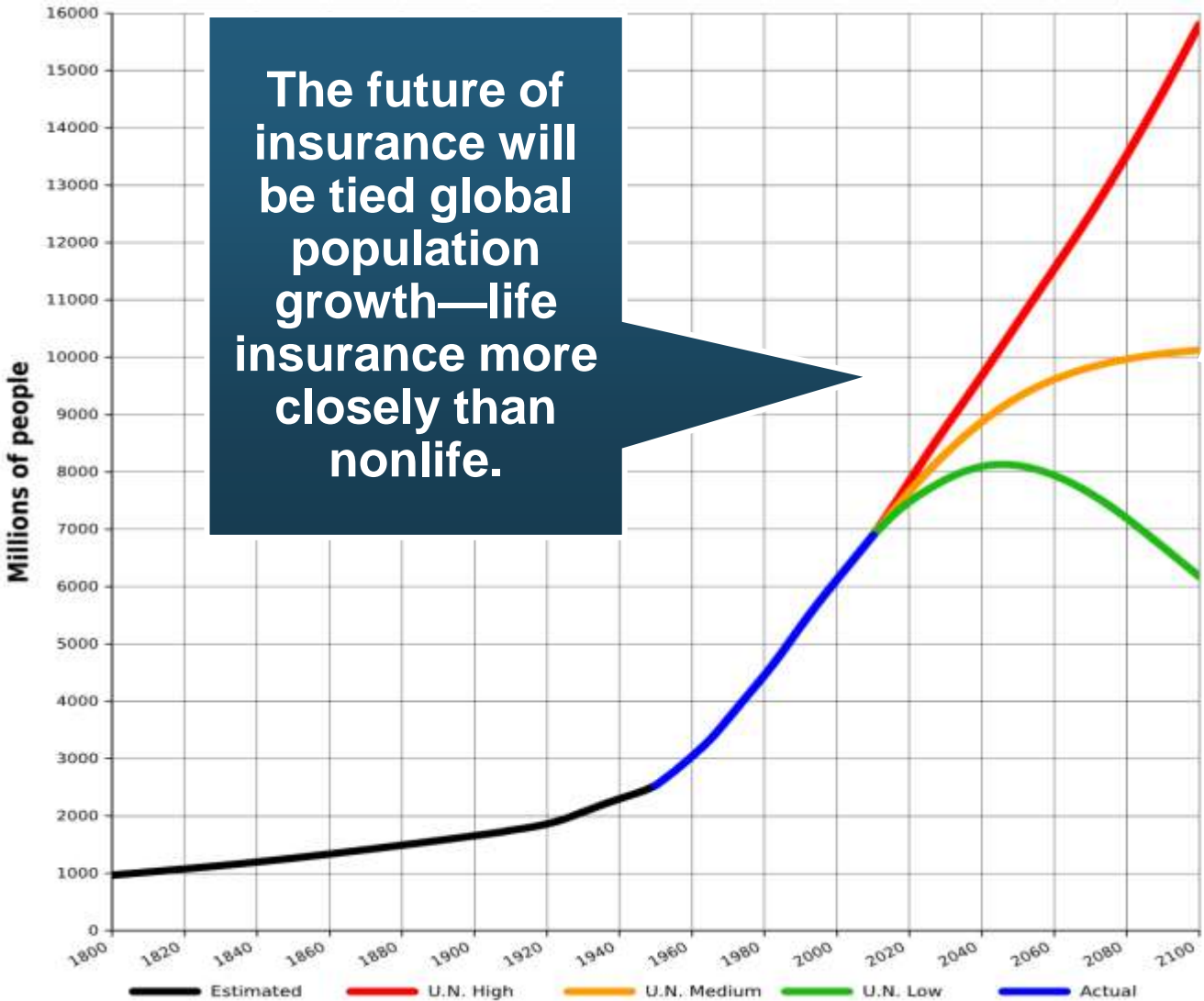
\$ Billions



**Insurance Regulation Will Necessarily Become More Transnational, Following Patterns of Global Economic Growth, the Creation of New Insurable Exposures and International Capital Flows**

Sources: World Trade Organization data through 2011; Insurance Information Institute estimate for 2013 based on IMF forecasts as of July 2013.

# World Population Growth: 2010—2100F



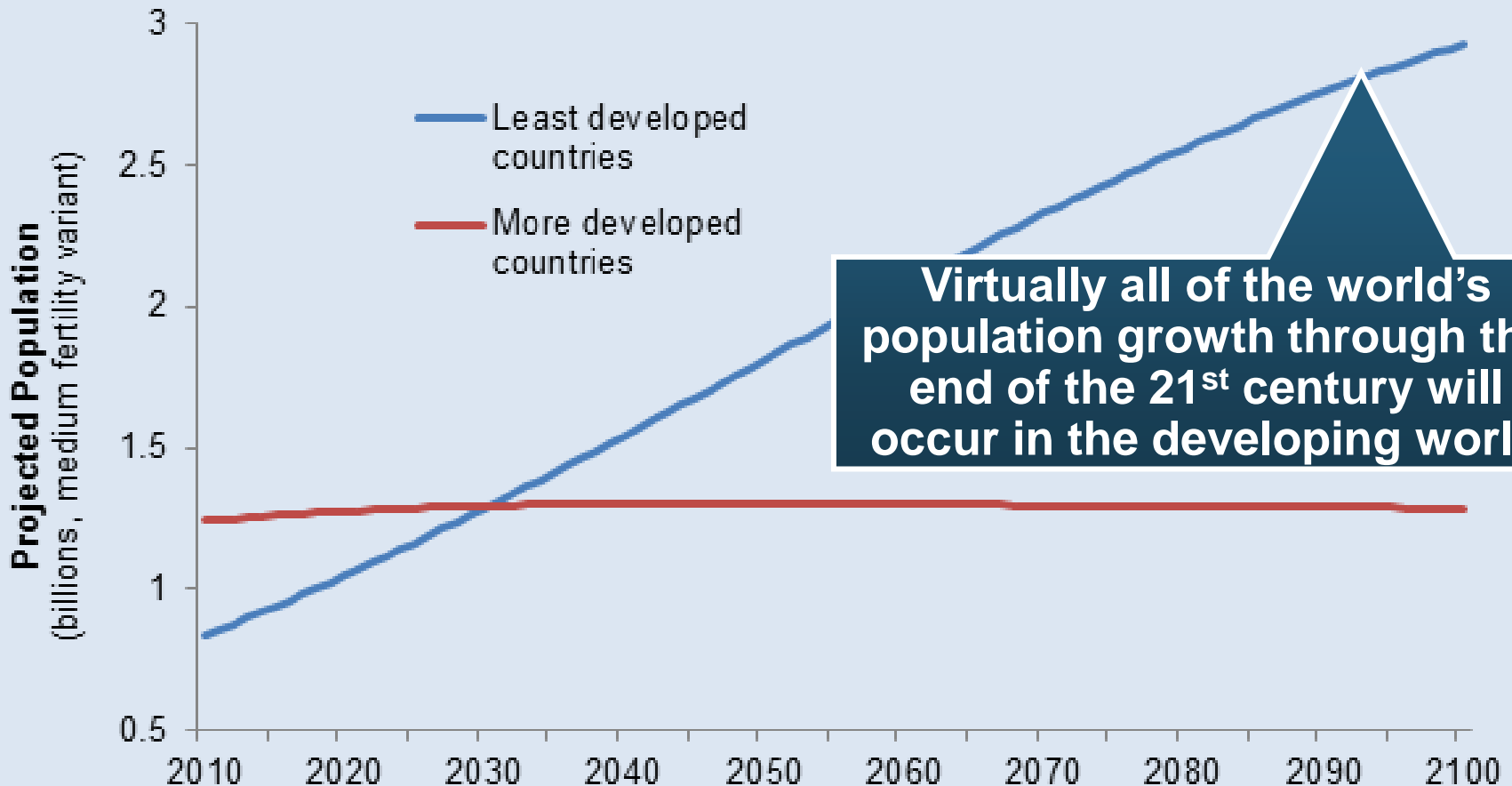
The future of insurance will be tied global population growth—life insurance more closely than nonlife.

Mid-range scenarios suggest a massive slowdown in the number of available lives to insure. Growth will be increasing dependent on product penetration rates in emerging economies



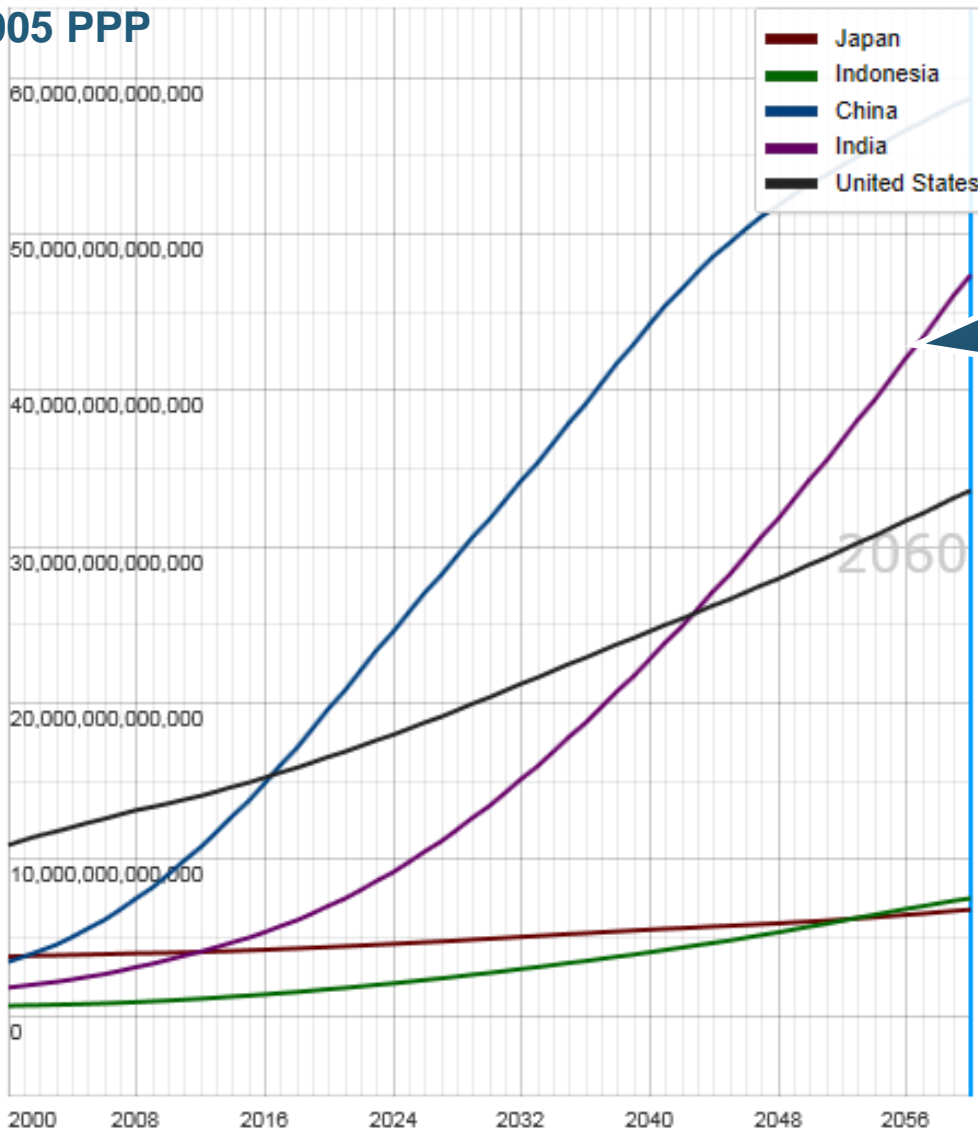
# Population Growth: Developed vs. Less Developed Countries 2010—2100F

## Growth by Current Socioeconomic Level



# Potential Output of Total Economy: US, China, India, Indonesia and Japan, 2000-2060P

\$ 2005 PPP



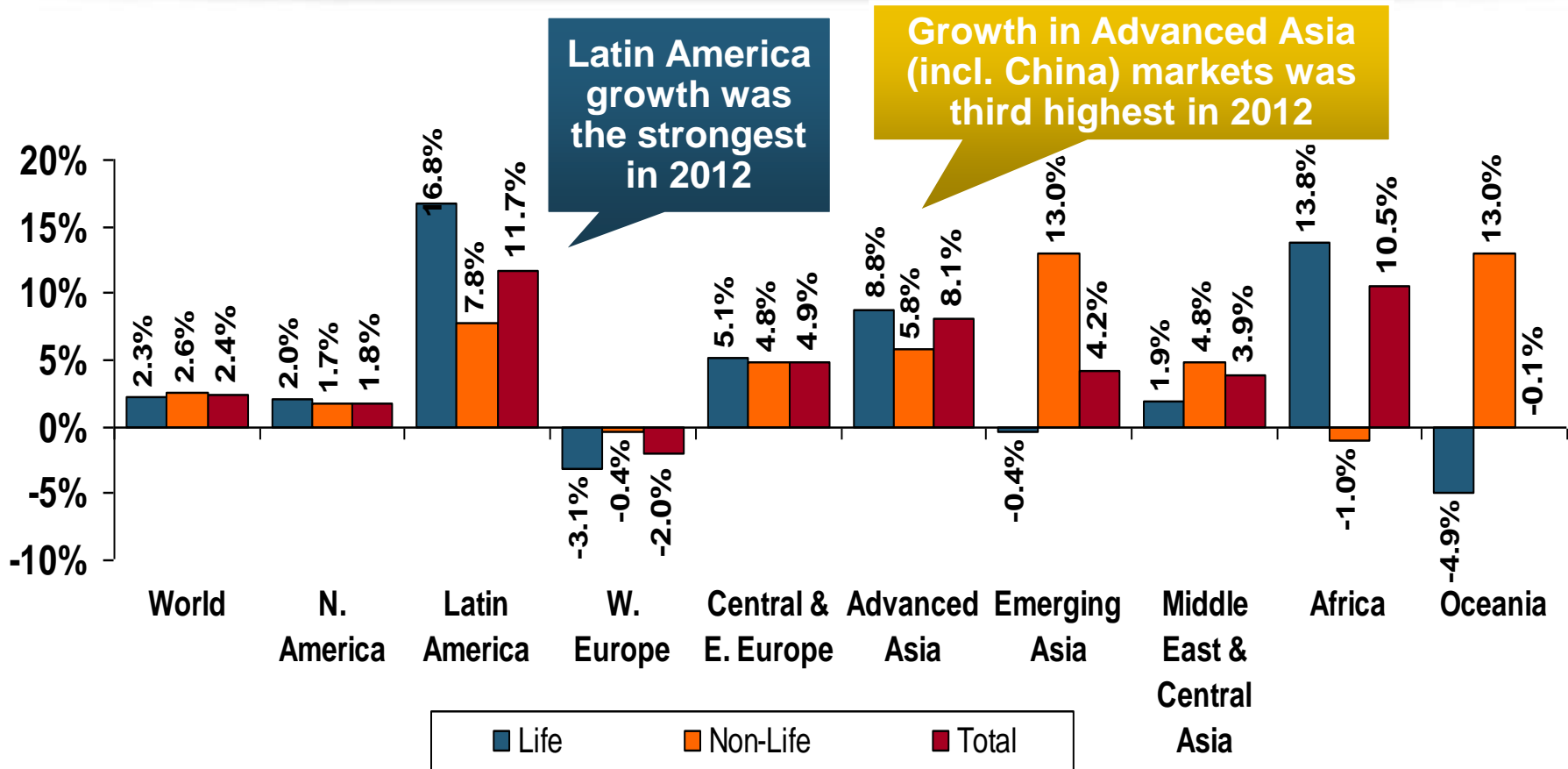
Growth in economic output will be concentrated in certain developing economies such as China and India

China will likely become the world's largest economy between 2025 and 2030

# **Global Insurance Premium Growth Trends: Life and Non-Life**

**Growth Is Uneven Across Regions  
and Market Segments**

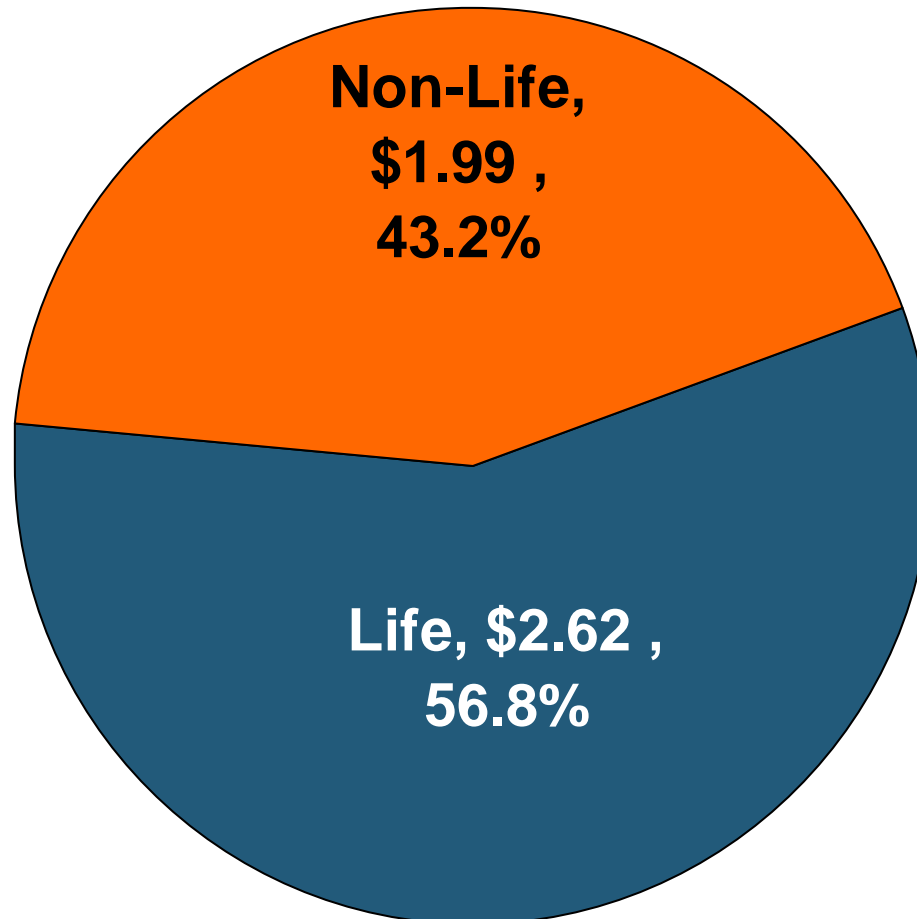
# Premium Growth by Region, 2012



**Global Premium Volume Totaled \$4.613 Trillion in 2012, up 2.4% from \$4.566 Trillion in 2011. Global Growth Was Weighed Down by Slow Growth in N. America and W. Europe and Partially Offset by Emerging Markets**

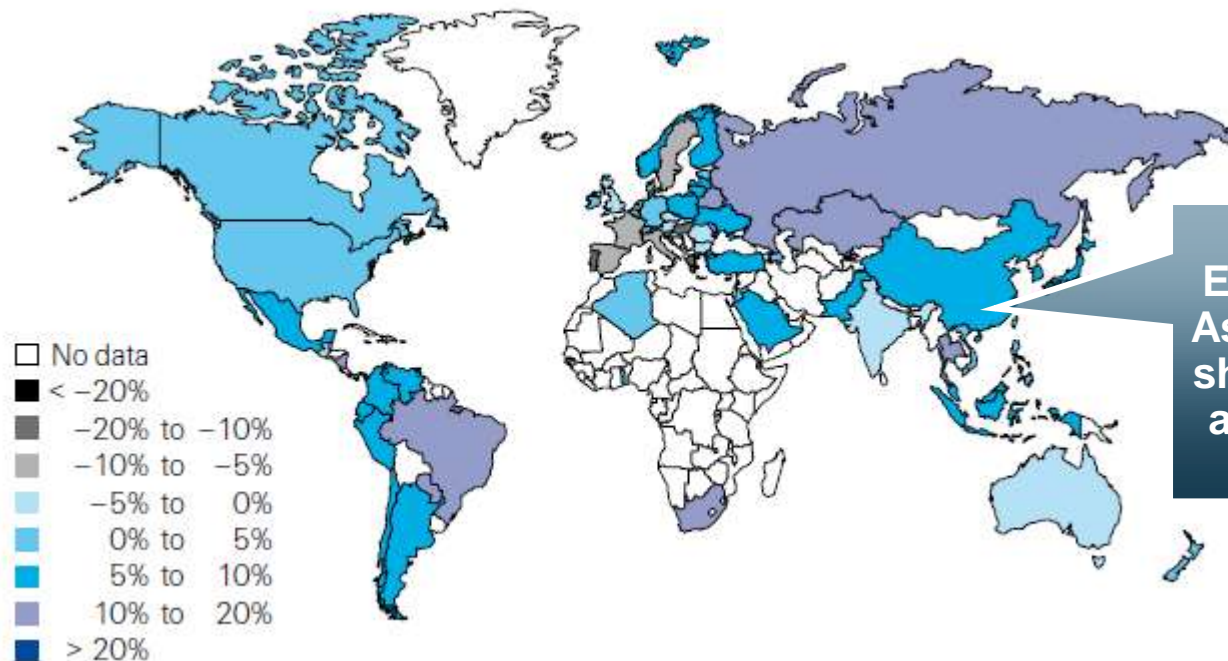
# Distribution of Global Insurance Premiums, 2012 (\$ Trillions)

Total Premium Volume = \$4.613 Trillion\*



Life insurance accounted for nearly 57% of global premium volume in 2012 vs. 43% for Non-Life

# Global Real (Inflation Adjusted) Premium Growth (Life and Non-Life): 2012

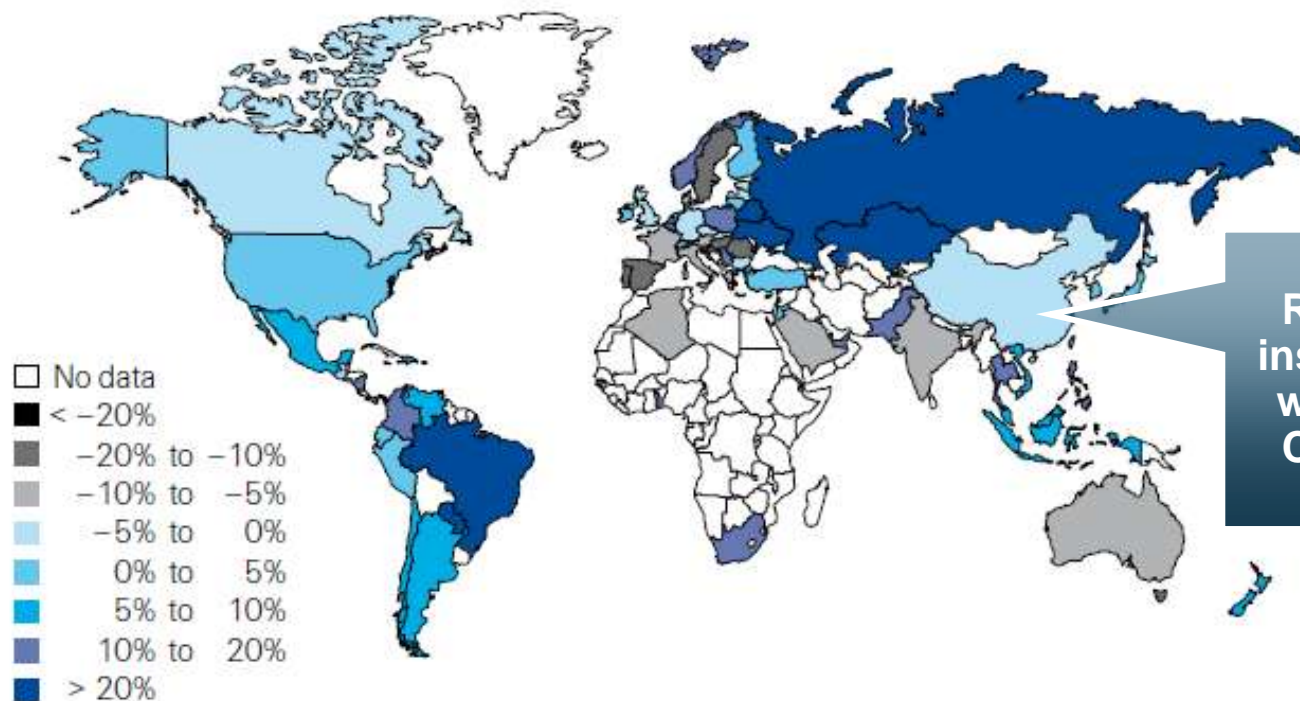


Emerging markets in Asia, including China, showed faster growth than the US or Europe

Market	Life	Non-Life	Total
Advanced	1.8	1.5	1.7
<b>Emerging</b>	<b>4.9</b>	<b>8.6</b>	<b>6.8</b>
World	2.3	2.6	2.4

Premium growth in emerging markets was 4 times that of advanced economies in 2012

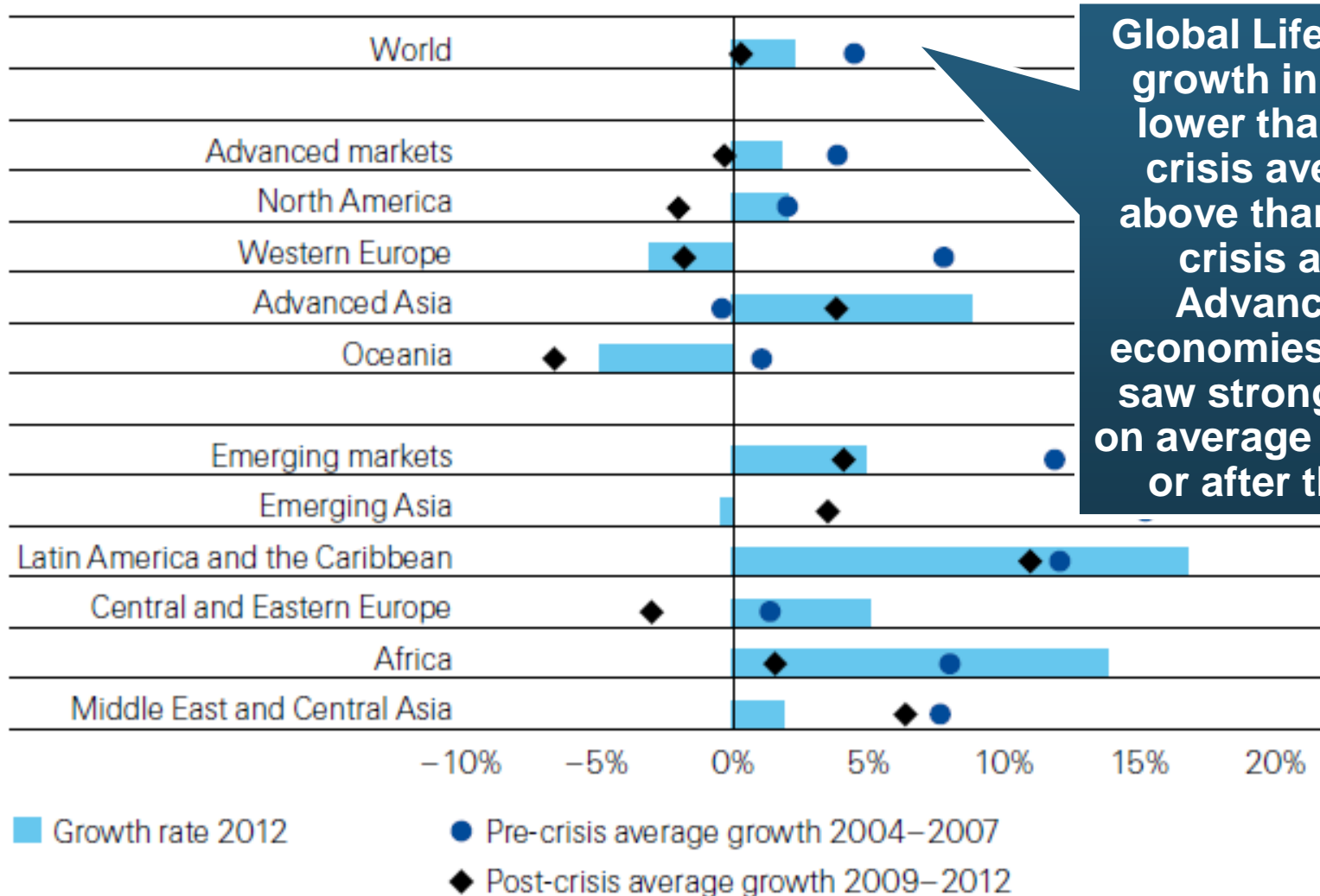
# Life Insurance: Global Real (Inflation Adjusted) Premium Growth, 2012



Real growth in life insurance premiums was a bit slower in China than the US

Market	Life	Non-Life	Total
Advanced	1.8	1.5	1.7
Emerging	4.9	8.6	6.8
World	2.3	2.6	2.4

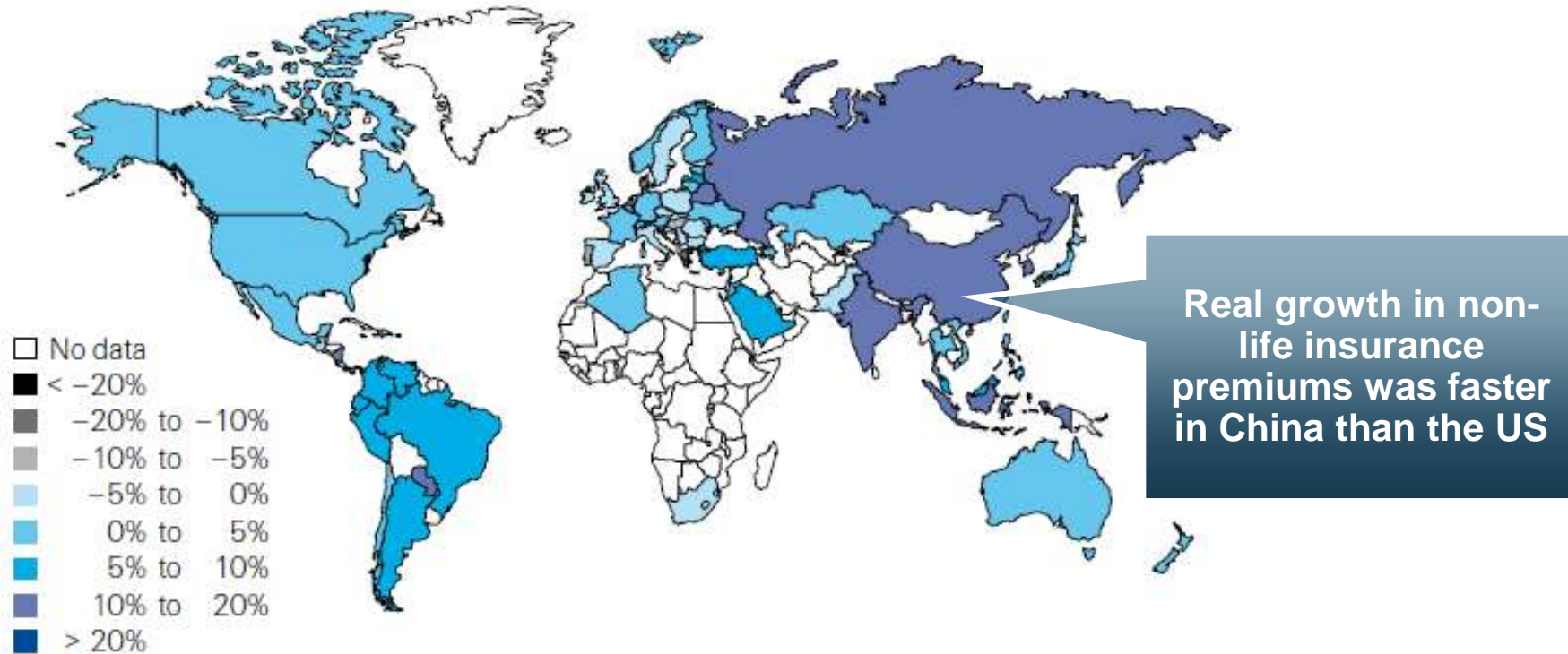
# Life Insurance: Global Real (Inflation Adjusted) Premium Growth, 2012



Global Life Insurance growth in 2012 was lower than the pre-crisis average but above than the post-crisis average. Advanced Asia economies like China saw stronger growth on average than before or after the crisis.

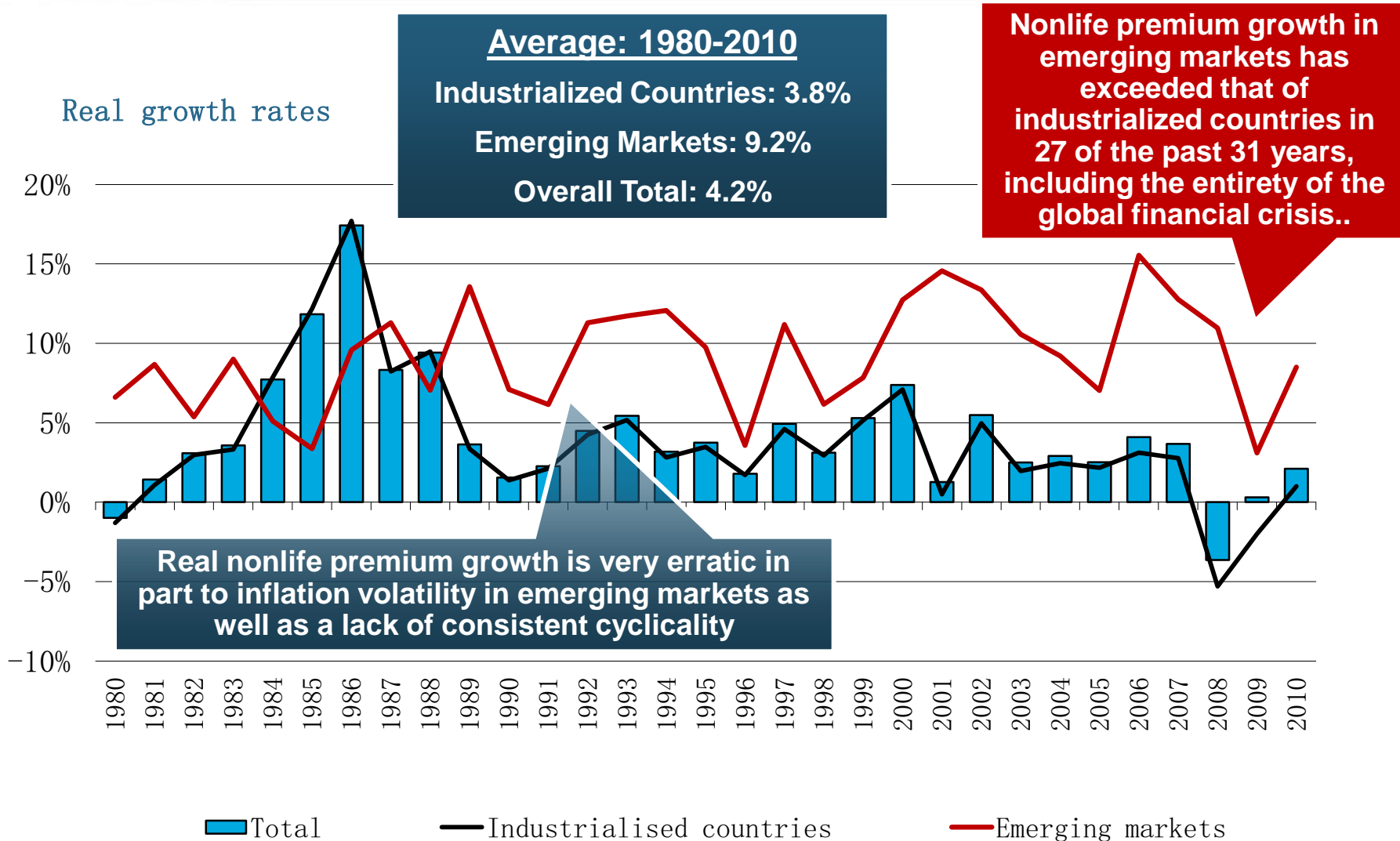


# Non-Life Insurance: Global Real (Inflation Adjusted) Premium Growth, 2012

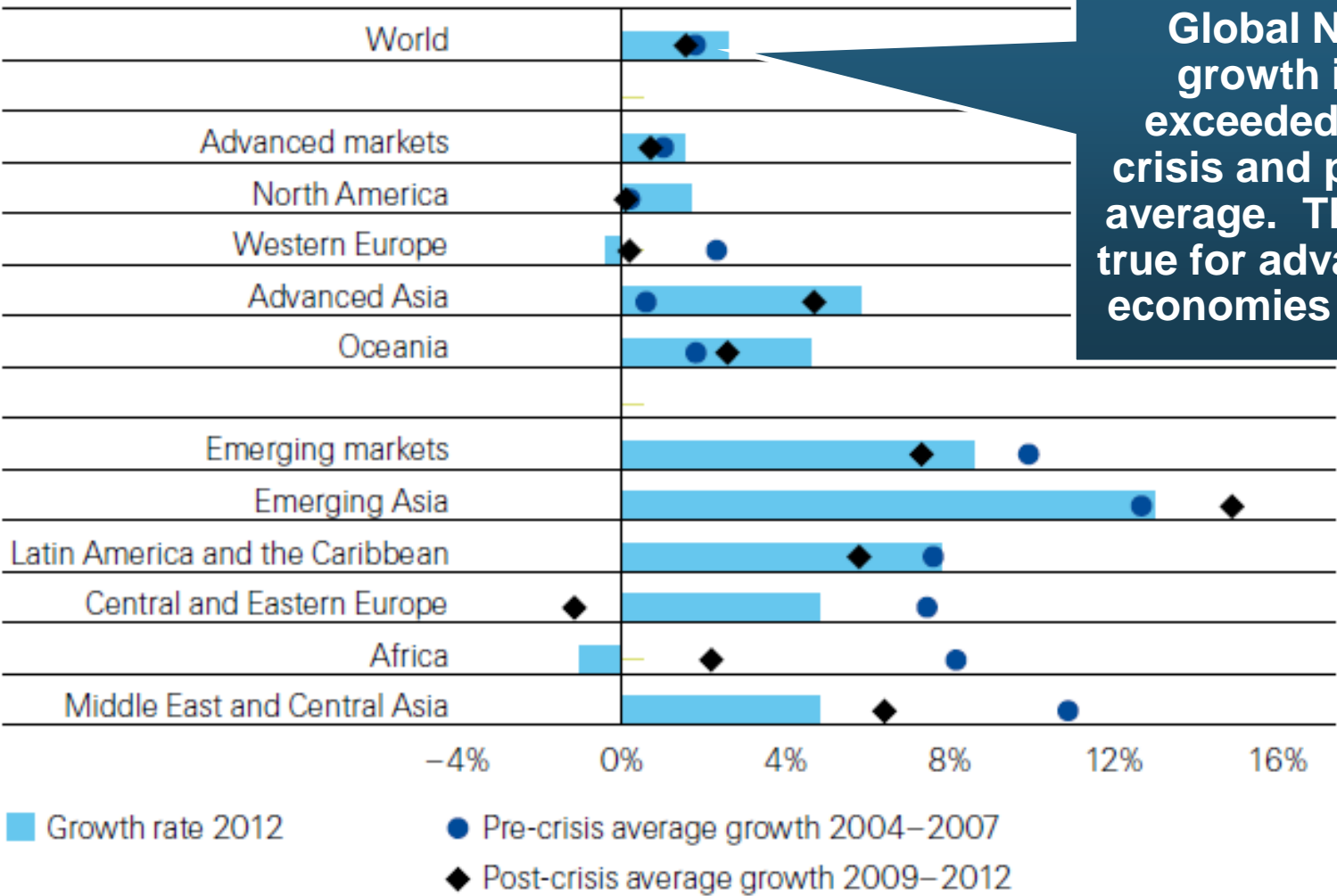


Market	Life	Non-Life	Total
Advanced	1.8	1.5	1.7
Emerging	4.9	8.6	6.8
World	2.3	2.6	2.4

# Global Real (Inflation Adjusted) Nonlife Premium Growth: 1980-2010



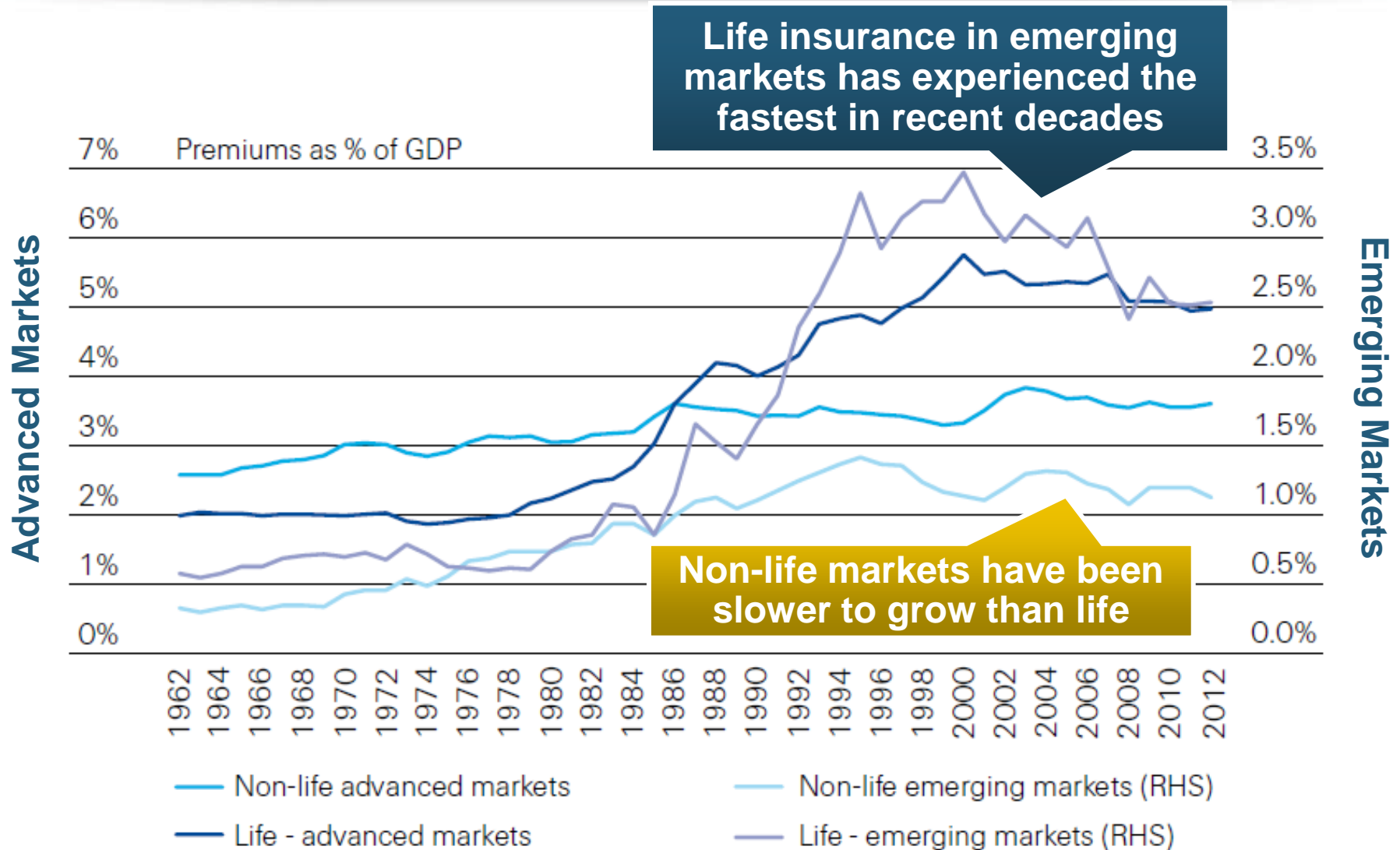
# Non-Life Insurance: Global Real (Inflation Adjusted) Premium Growth, 2012



**Global Non-Life growth in 2012 exceeded the pre-crisis and post-crisis average. The same is true for advanced Asia economies like China**

Source: Swiss Re, *sigma*, No. 3/2013.

# Life and Non-Life Insurance Penetration as a % of GDP: 1962-2012



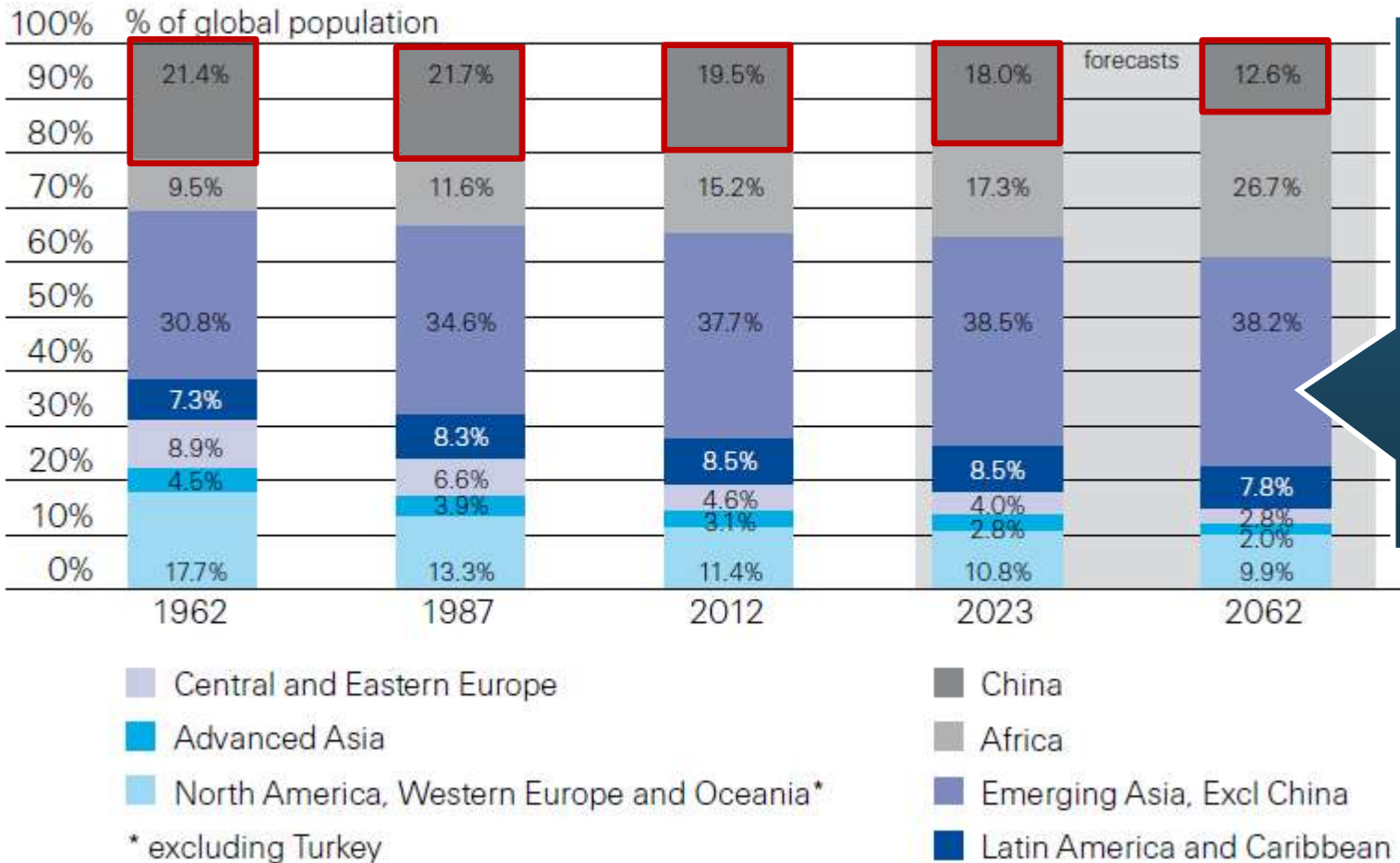
# Premiums Written in Life and Non-Life, by Region: 1962-2012

**Emerging market shares rose rapidly over the past 50 years**



# Population Distribution, by Region: 1962-2062F

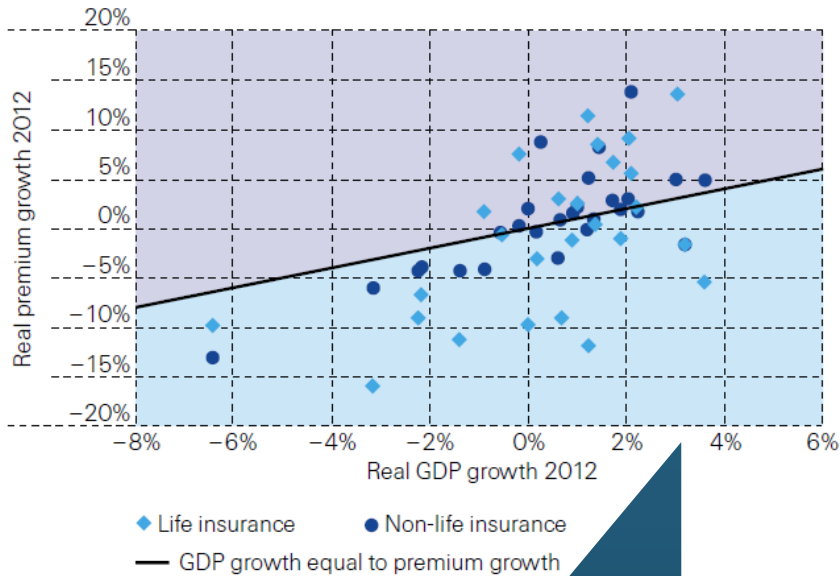
## Enormous population shifts will impact insurance demand over the next half century



Africa is expected to be the fastest population growth over the next 50 years, but no expectation now of Asia-like growth in economies or insurance demand

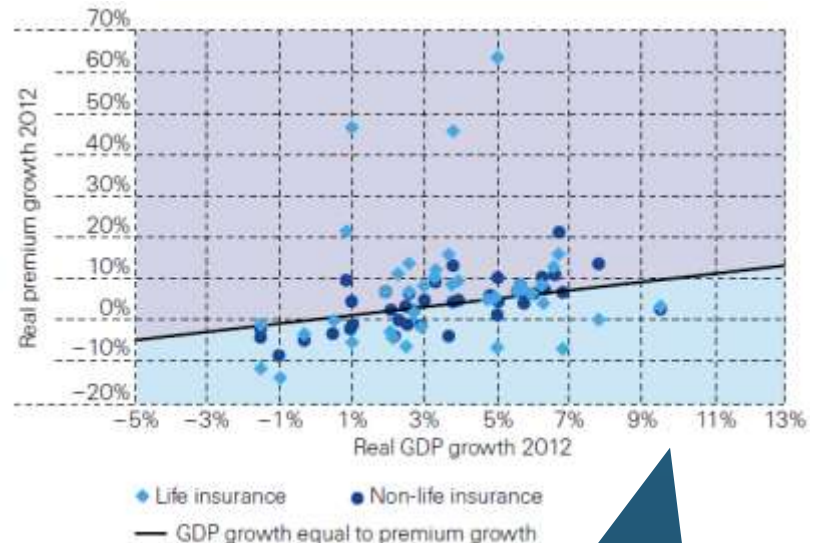
# Relationship Between Real GDP and Real Life and Non-Life Premium Growth, 2012

## Advanced Markets



The was a clear but highly relationship between real GDP growth and real premium growth in advance markets in 2012

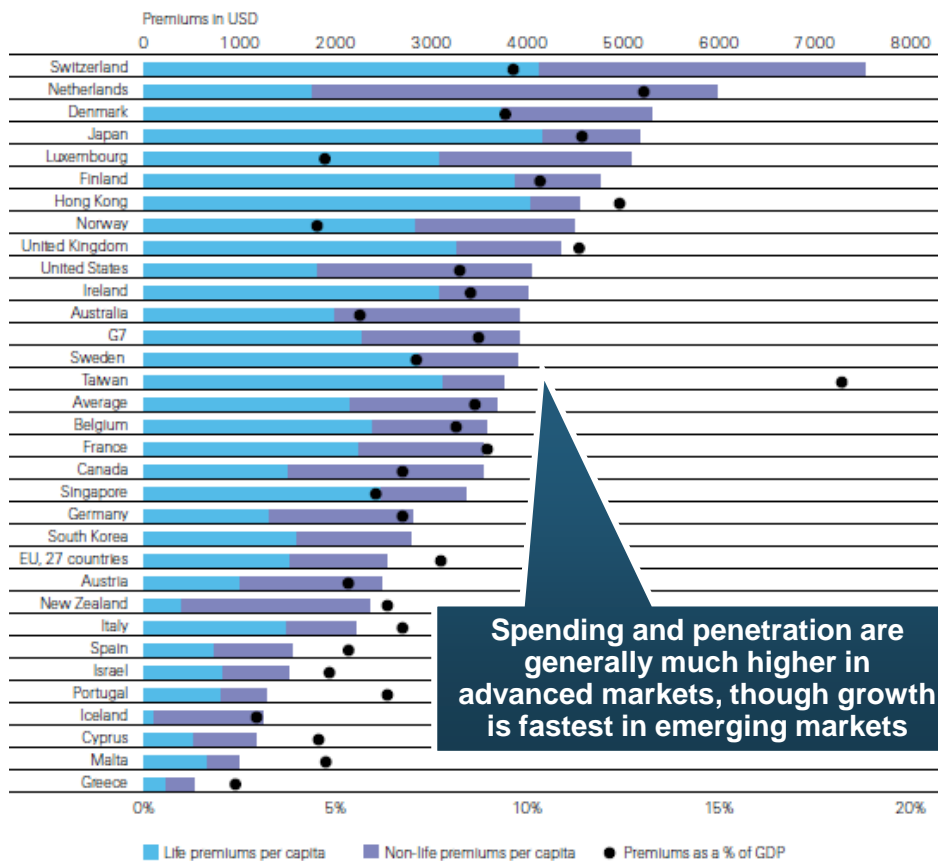
## Emerging Markets



The correlation between real GDP growth and real premium growth in emerging markets was much stronger than in advanced markets in 2012

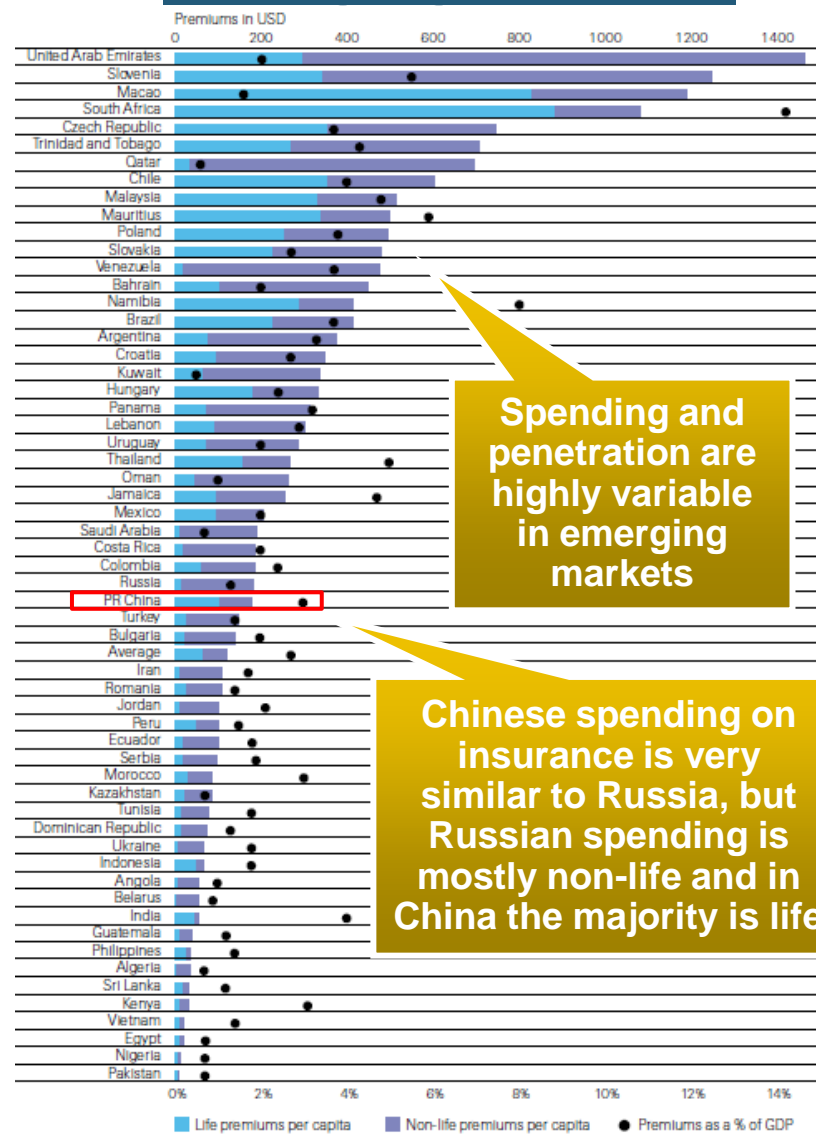
# Insurance Density and Penetration for Advanced and Emerging Markets, 2012

## Advanced Markets



Spending and penetration are generally much higher in advanced markets, though growth is fastest in emerging markets

## Emerging Markets



Spending and penetration are highly variable in emerging markets

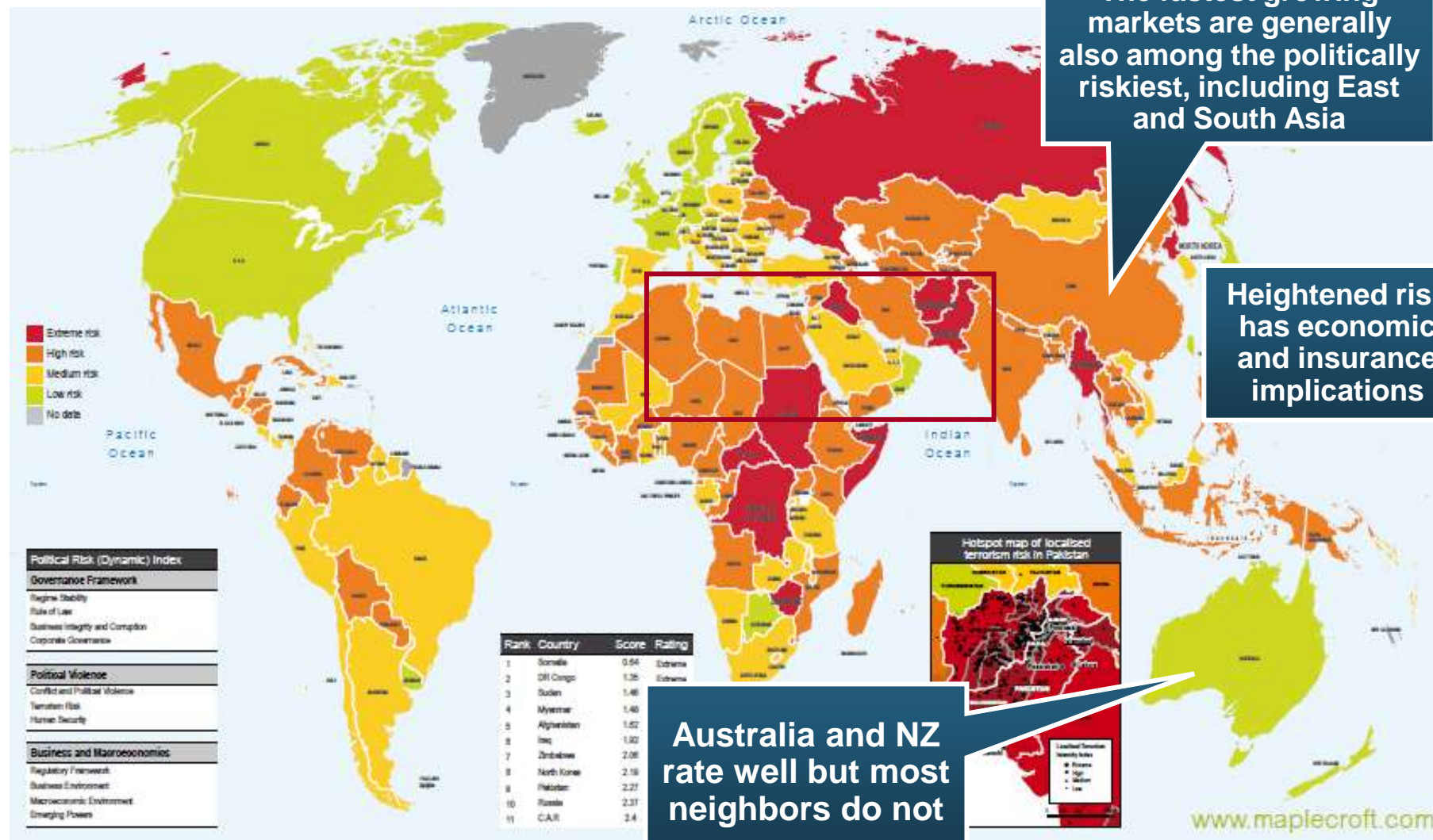
Chinese spending on insurance is very similar to Russia, but Russian spending is mostly non-life and in China the majority is life



# **The Unfortunate Nexus: Opportunity, Risk & Instability**

**Most of the Global Economy's Future  
Gains Will be Fraught with Much  
Greater Risk and Uncertainty than in  
the Past**

# Political Risk in 2011/12: Greatest Business Opportunities Are Often in Risky Nations



The fastest growing markets are generally also among the politically riskiest, including East and South Asia

Heightened risk has economic and insurance implications

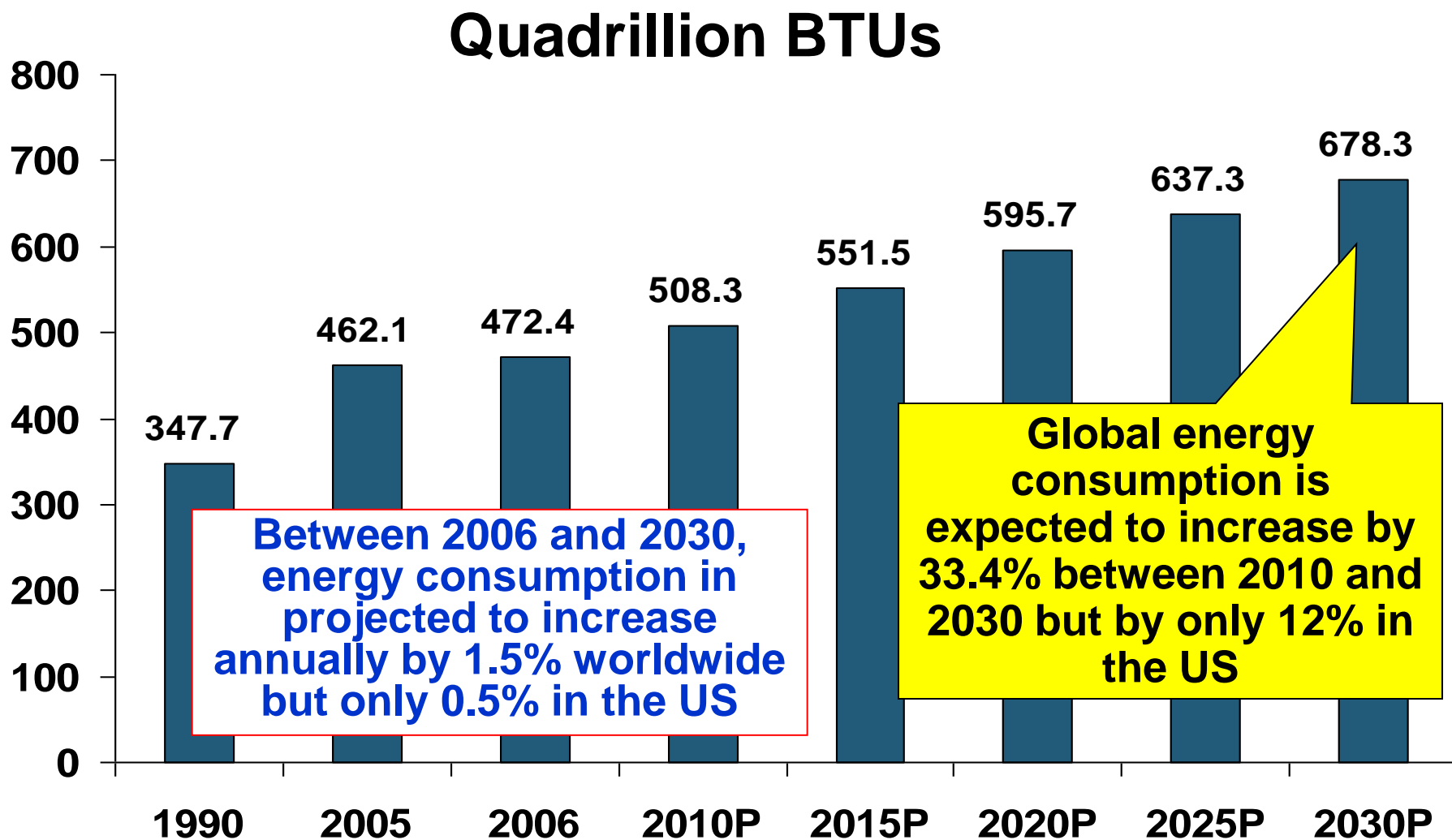
Australia and NZ rate well but most neighbors do not



# Energy is a Long-Term Global Growth Play for Insurers and Reinsurers

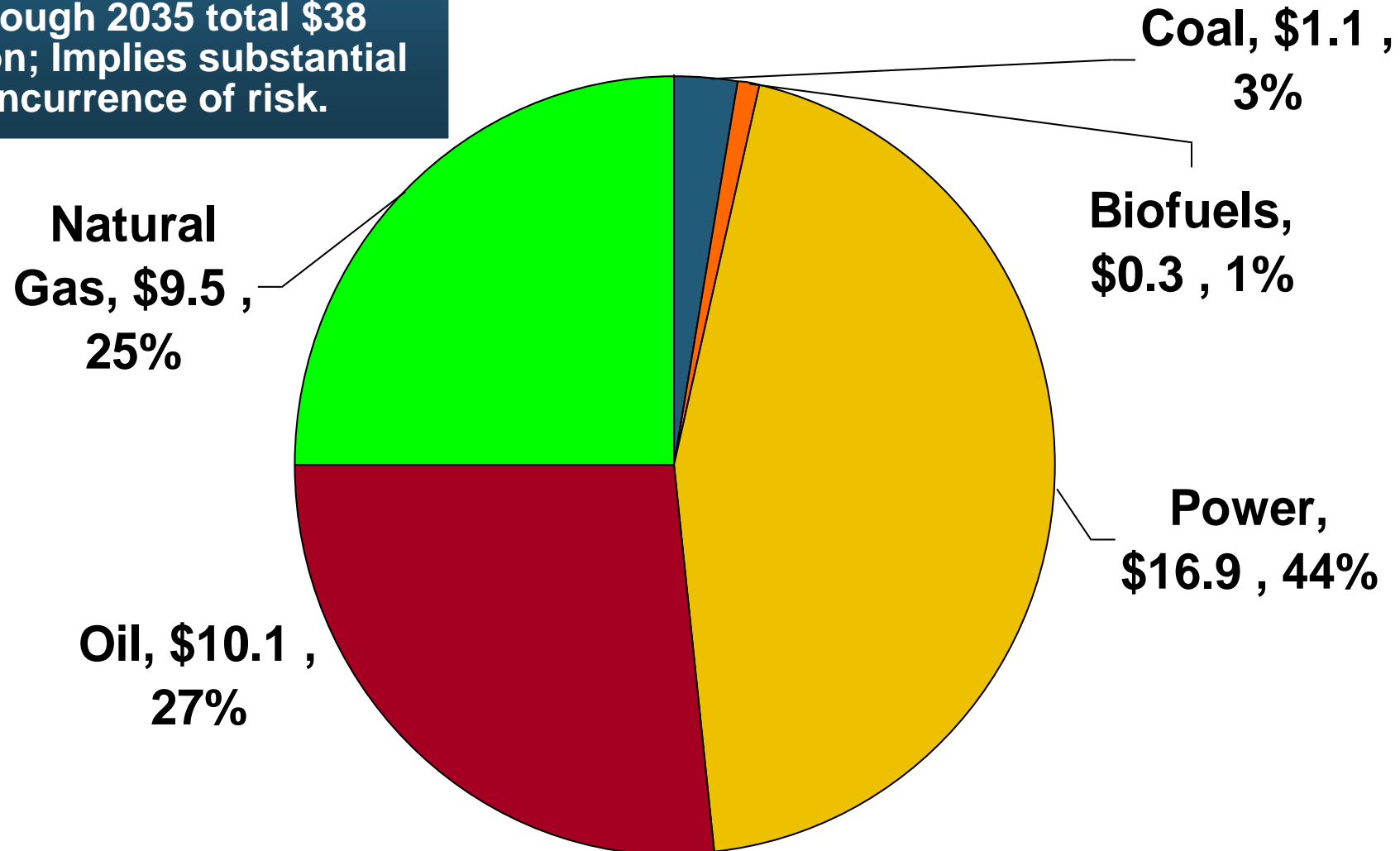
**Extraction, Generation, Transmission  
All Provide Opportunities for Decades  
to Come in an Energy Hungry World**

# World Primary Energy Consumption, 1990-2030P



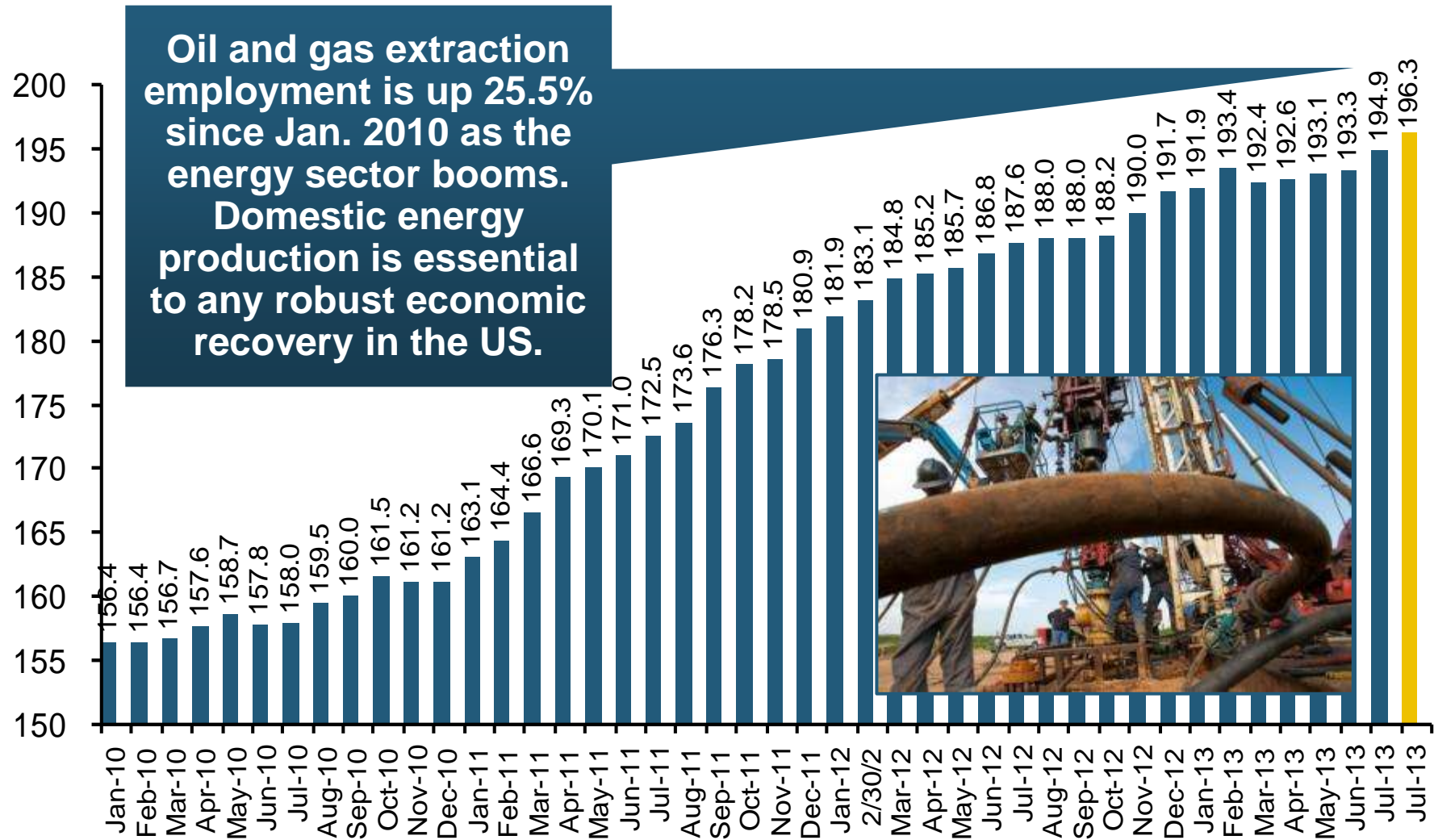
# Cumulative Projected Investment in Global Energy Infrastructure, 2011-2035 (\$ Trill.)

**Projected energy infrastructure investment through 2035 total \$38 trillion; Implies substantial incurrence of risk.**



# US Oil & Gas Extraction Employment, Jan. 2010—August 2013\*

(Thousands)



\*Seasonally adjusted

Sources: US Bureau of Labor Statistics at <http://data.bls.gov>; Insurance Information Institute.



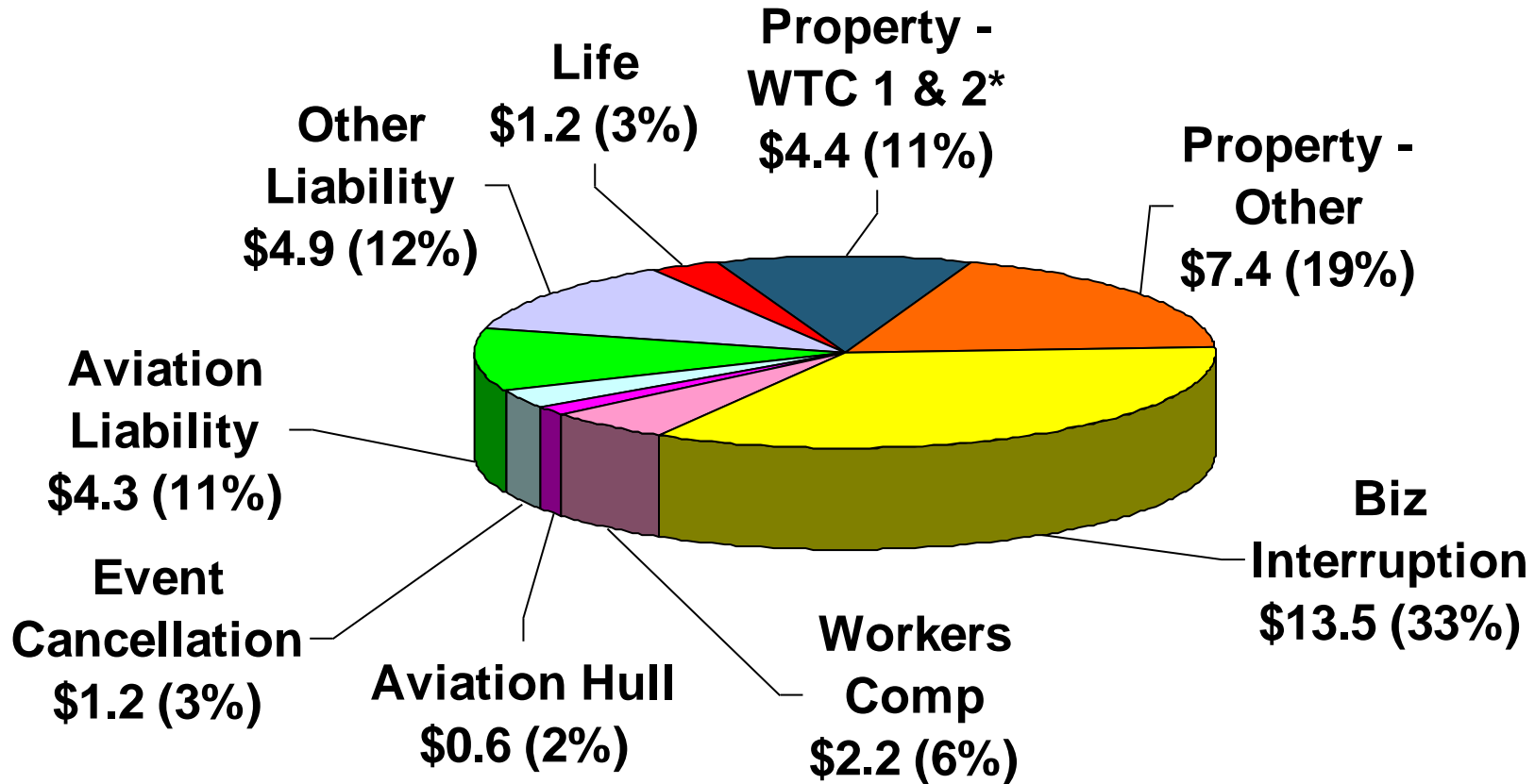
# Is Terrorism an Insurable Risk or Not?

Issue of Critical Importance with  
Looming Expiration of TRIA

***Download III's Terrorism Insurance Report at:***  
***[http://www.iii.org/white\\_papers/terrorism-risk-a-constant-threat-2013.html](http://www.iii.org/white_papers/terrorism-risk-a-constant-threat-2013.html)***

# Loss Distribution by Type of Insurance from Sept. 11 Terrorist Attack (\$ 2011)

(\$ Billions)



**Total Insured Losses Estimate: \$40.0B\*\***

\*Loss total does not include March 2010 New York City settlement of up to \$657.5 million to compensate approximately 10,000 Ground Zero workers or any subsequent settlements.

\*\*\$32.5 billion in 2001 dollars.

Source: Insurance Information Institute.



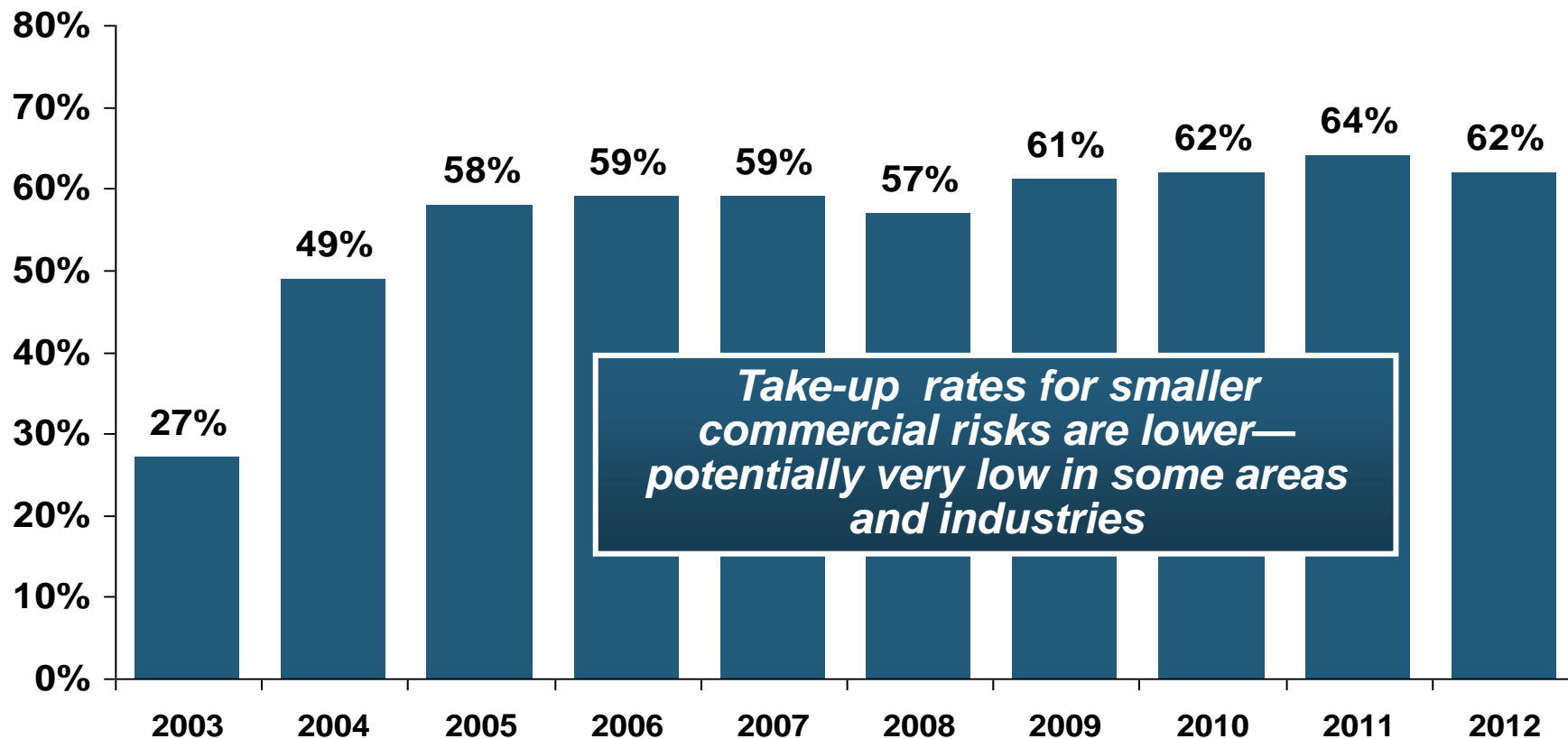
# I.I.I. TRIA Testimony Before US Senate Banking Committee (Sept. 25, 2013)

Robert Hartwig, [Future of TRIA Program, U.S. Senate Banking Committee](#)



- **Difficult Reauthorization Battle Ahead**
  - ◆ **Very difficult to overcome antigovernment/small government, Tea Party forces in the House**
  - ◆ **Most Committee members in both houses weren't around in 2007**
- **House Hearings in 2012; House and Senate in Sept. 2013**
  - ◆ **Additional House hearing on Nov. 13**
- **If Reauthorized, Insurer Participation Likely Increased**
- **Some Have Attacked TRIA as “Corporate Welfare”**
  - ◆ **In reality the taxpayer is 100% protected**
  - ◆ **NFIP, Crop programs have led to misconceptions**
- **Emphasizing Benefits to Employees Under WC is Key**
- **Misperception by Some that Terrorism is Urban Issue**
- ***Standalone Market Opportunities? “Swiss Cheese” Market?***

# Terrorism Insurance Take-up Rates, By Year, 2003-2012



**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.**

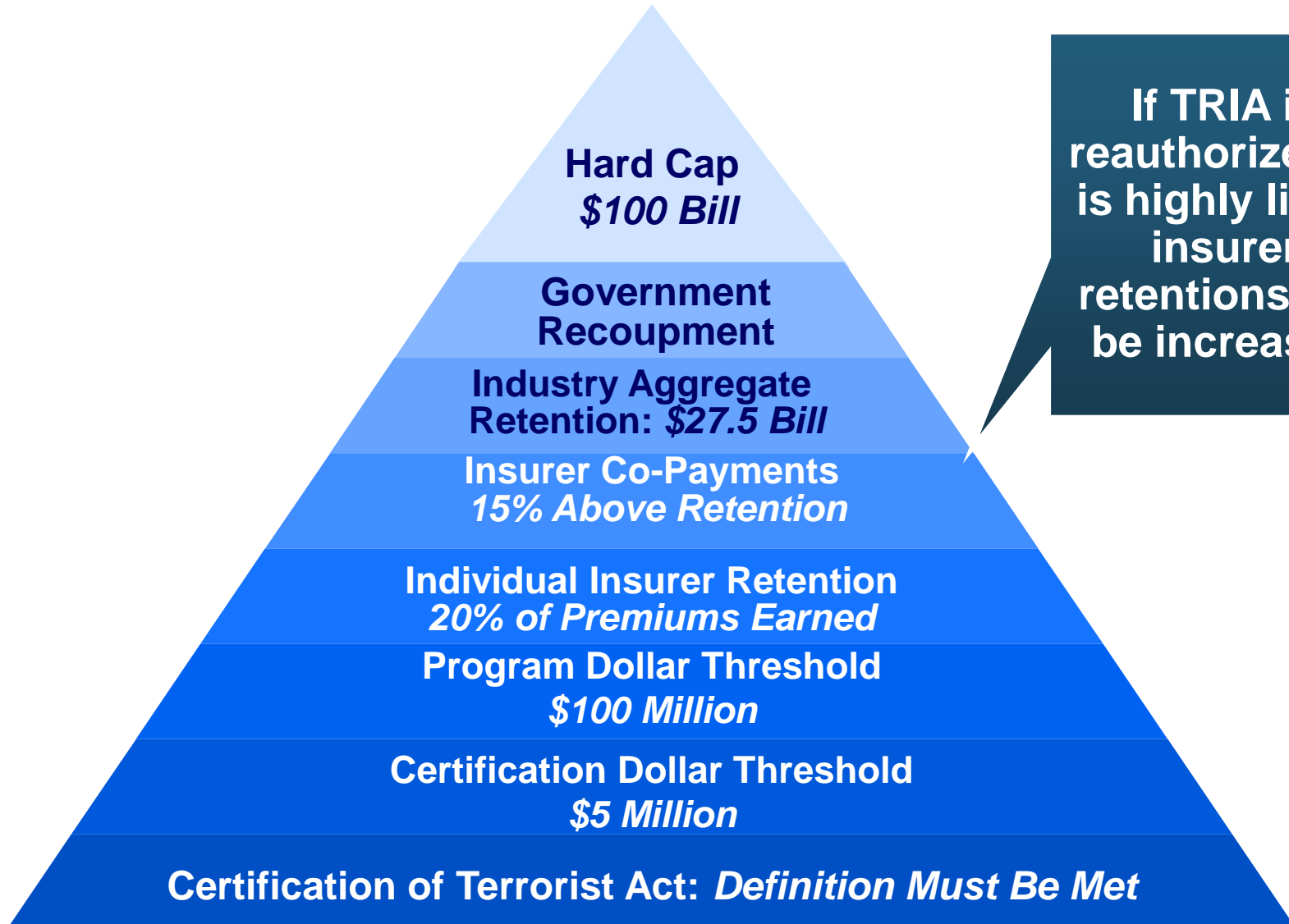
# Terrorism Violates Traditional Requirements for Insurability

Requirement	Definition	Violation
<b>Estimable Frequency</b>	<ul style="list-style-type: none"> <li>• Insurance requires large number of observations to develop predictive rate-making models (an actuarial concept known as credibility)</li> </ul>	<ul style="list-style-type: none"> <li>• Very few data points</li> <li>• Terror modeling still in infancy, untested.</li> <li>• Inconsistent assessment of threat</li> </ul>
<b>Estimable Severity</b>	<ul style="list-style-type: none"> <li>• Maximum possible/ probable loss must be at least estimable in order to minimize “risk of ruin” (insurer cannot run an unreasonable risk of insolvency though assumption of the risk)</li> </ul>	<ul style="list-style-type: none"> <li>• Potential loss is virtually unbounded.</li> <li>• Losses can easily exceed insurer capital resources for paying claims.</li> <li>• Extreme risk in workers compensation and statute forbids exclusions.</li> </ul>

# Terrorism Violates Traditional Requirements for Insurability (cont'd)

Requirement	Definition	Violation
<p><b>Diversifiable Risk</b></p>	<ul style="list-style-type: none"> <li>• Must be able to spread/distribute risk across large number of risks</li> <li>• “Law of Large Numbers” helps makes losses manageable and less volatile</li> </ul>	<ul style="list-style-type: none"> <li>• Losses likely highly concentrated geographically or by industry (e.g., WTC, power plants)</li> </ul>
<p><b>Random Loss Distribution/ Fortuity</b></p> <p>Source: Insurance Information Institute</p>	<ul style="list-style-type: none"> <li>• Probability of loss occurring must be purely random and fortuitous</li> <li>• Events are individually unpredictable in terms of time, location and magnitude</li> </ul>	<ul style="list-style-type: none"> <li>• Terrorism attacks are planned, coordinated and deliberate acts of destruction</li> <li>• Dynamic target shifting from “hardened targets” to “soft targets”</li> <li>• Terrorist adjust tactics to circumvent new security measures</li> <li>• Actions of US and foreign govts. may affect likelihood, nature and timing of attack</li> </ul>

# Pyramid of Taxpayer Protection: Strong, Stable, Sound and Secure



**If TRIA is reauthorized, it is highly likely insurer retentions will be increased**

# Summary of Terrorism Risk Insurance Program Extension Bills Introduced in 2013

Bill	Summary
<p>•<b>H.R. 508: “Terrorism Risk Insurance Act of 2002 Reauthorization Act of 2013”</b></p> <p>•Introduced Feb. 5 by Rep. Michael Grimm (D-NY)</p>	<ul style="list-style-type: none"> <li>•5-Year Extension (through 2019)</li> <li>•Extend recoupment period for any TRIA assistance from 2017 to 2019</li> </ul>
<p>•<b>H.R. 2146: “Terrorism Risk Insurance Program Reauthorization Act of 2013”</b></p> <p>•Introduced May 23 by Rep. Michael Capuano (D-MA)</p>	<ul style="list-style-type: none"> <li>•10-Year Extension (through 2024)</li> <li>•Extend recoupment period for any TRIA assistance from 2017 to 2024</li> <li>•Requires President’s Working Group on Financial Markets (PWGFM) to issue reports on long-term availability and affordability of terrorism insurance in 2017, 2020 and 2023</li> <li>•Reports to be drafted with consultation from NAIC and representatives of the insurance and securities industries and policyholders</li> </ul>
<p>•<b>H.R. 1945: “Fostering Resilience to Terrorism Act of 2013”</b></p> <p>•Introduced May 9 by Rep. Benny Thompson (D-MS)</p>	<ul style="list-style-type: none"> <li>•10-Year Extension (through 2024)</li> <li>•Recoupment period changed to 2024</li> <li>•Would transfer responsibility for certification of a “act of terrorism” to the Secretary of Homeland Security from Secretary of Treasury.</li> <li>•PWGFM to issue reports in 2017, 2020 and 2023</li> <li>•Requires Sec. of DHS to provide insureds with “timely homeland security information, including terrorism risk information, at the appropriate level of classification and information on best practices to foster resilience to an act of terrorism.”</li> </ul>

# Terrorist Risk Index





# CYBER RISK

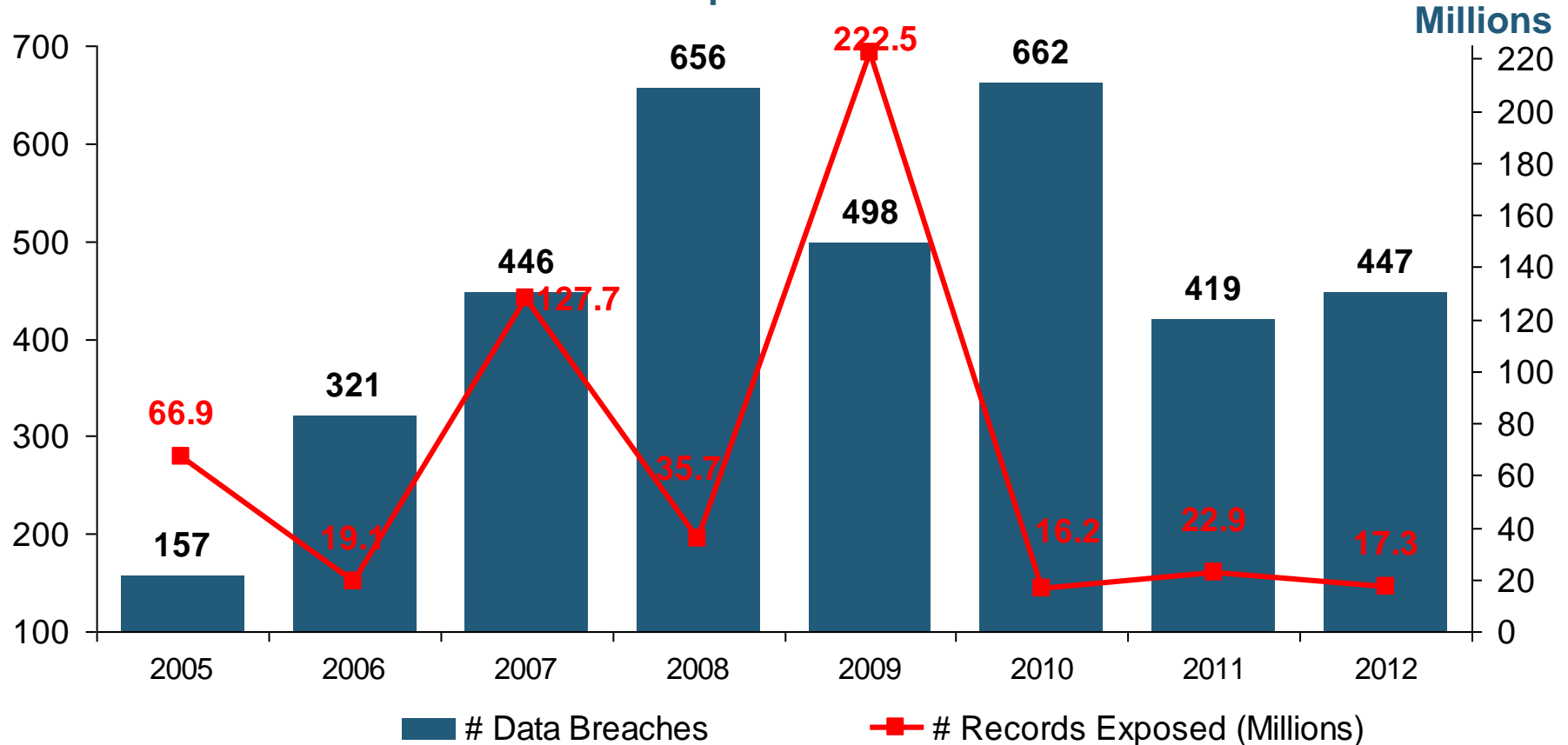
**Cyber Risk is a Rapidly Emerging  
Exposure for Businesses Large  
and Small in Every Industry**

**NEW III White Paper:**

**[http://www.iii.org/assets/docs/pdf/paper\\_CyberRisk\\_2013.pdf](http://www.iii.org/assets/docs/pdf/paper_CyberRisk_2013.pdf)**

# Data Breaches 2005-2012, By Number of Breaches and Records Exposed

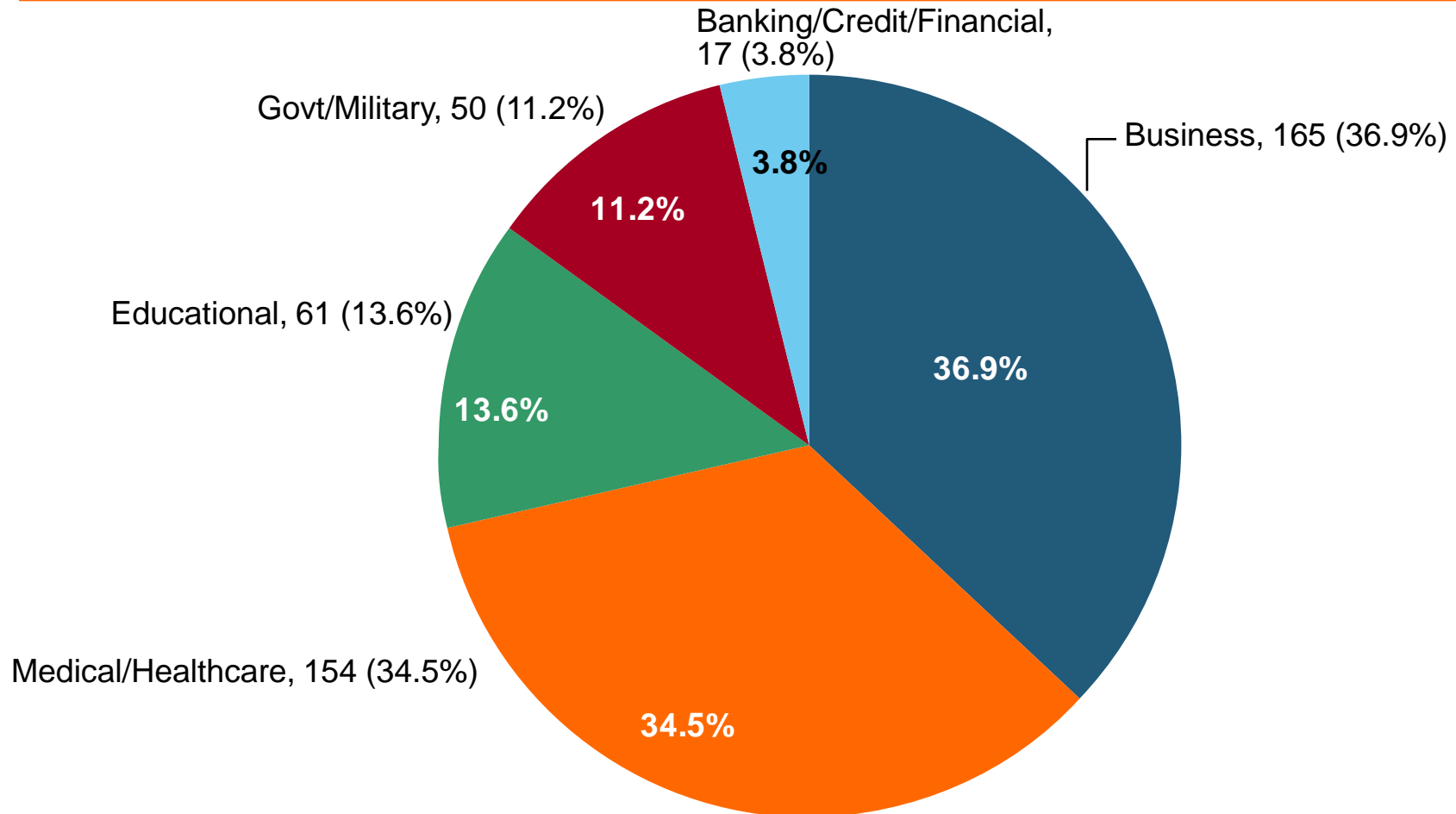
# Data Breaches/Millions of Records Exposed



The total number of data breaches and number of records exposed fluctuates from year to year and over time.

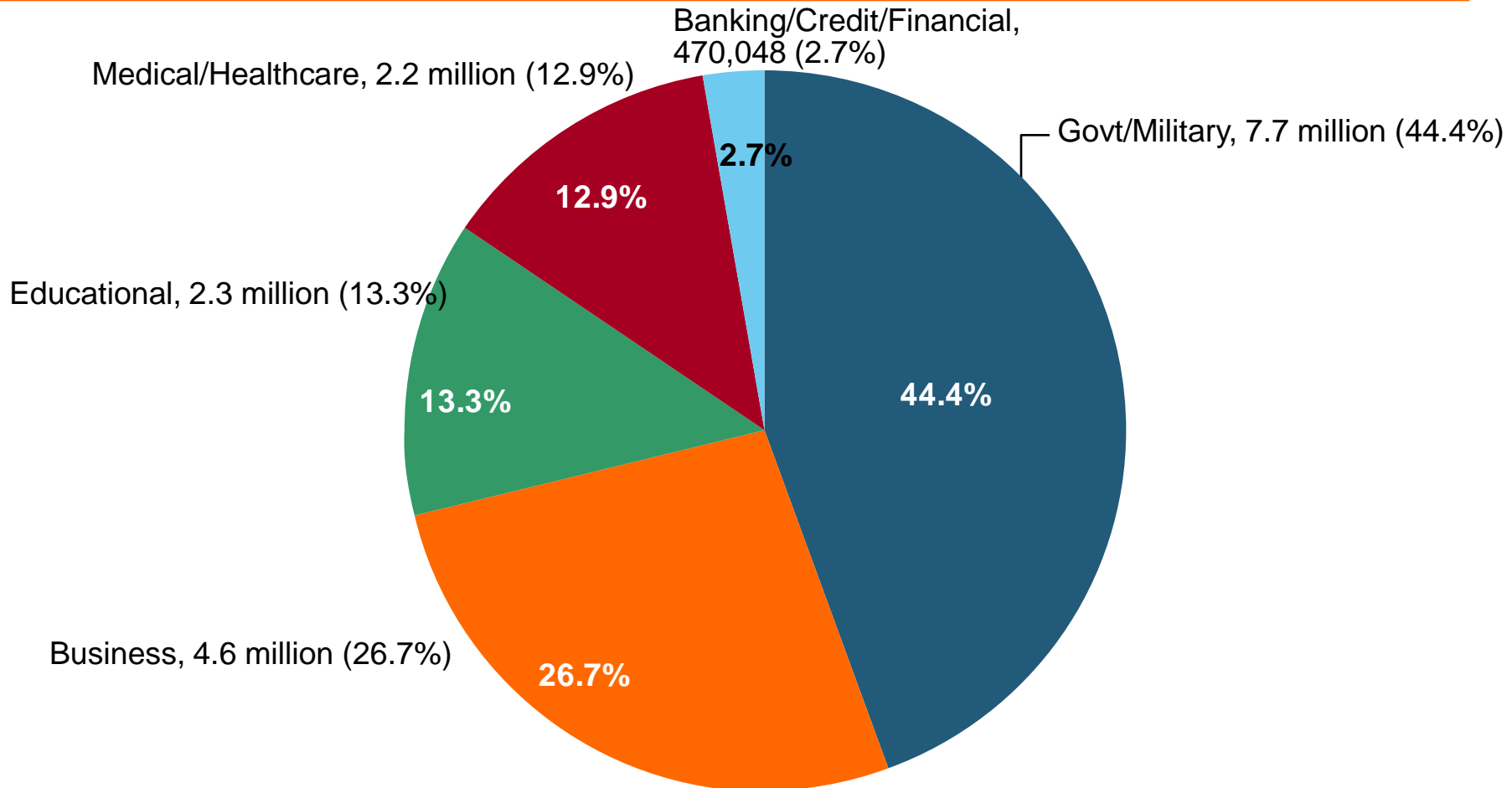
# 2012 Data Breaches By Business Category, By Number of Breaches

The majority of the 447 data breaches in 2012 affected business and medical/healthcare organizations, according to the Identity Theft Resource Center.



# 2012 Data Breaches By Category, By Number of Records Exposed

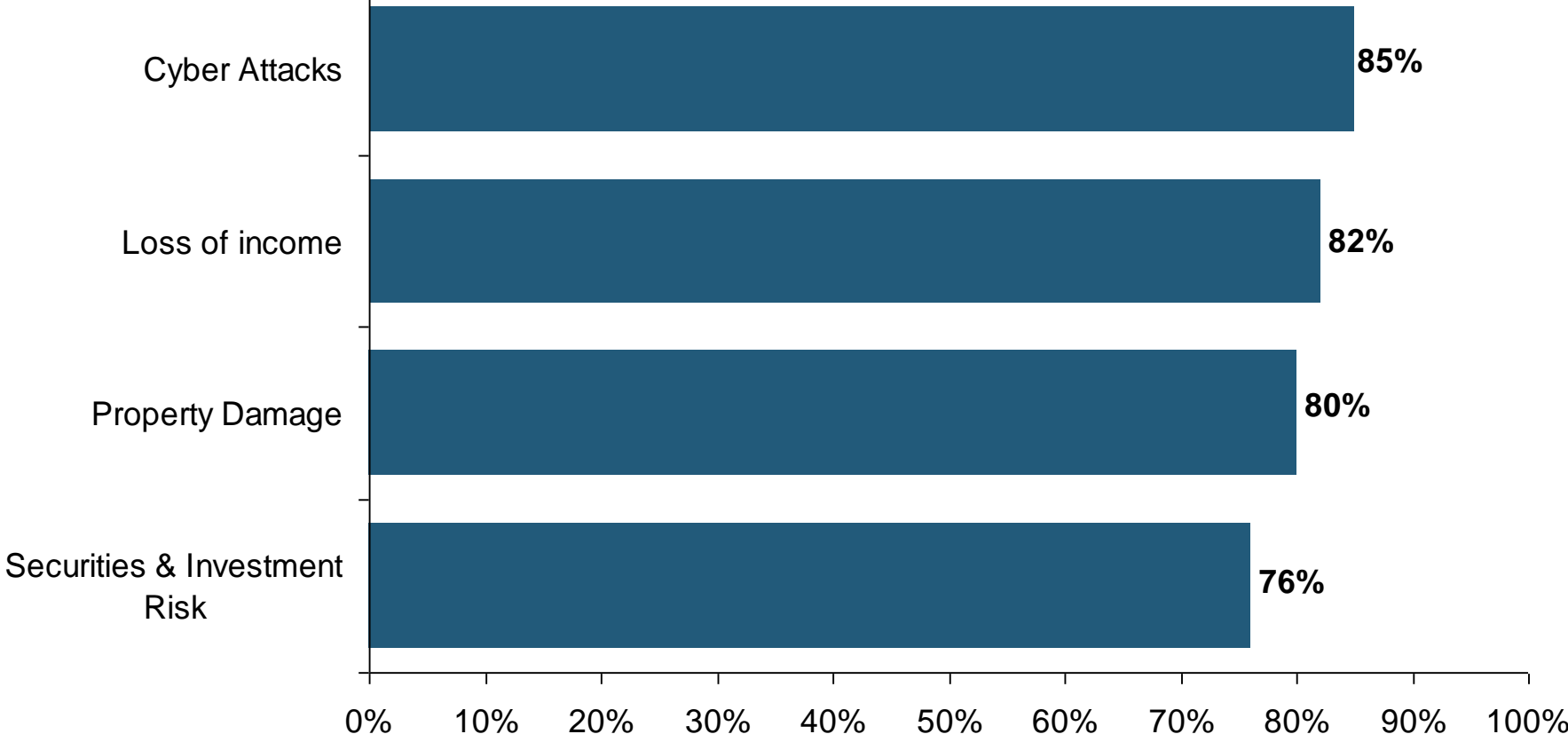
Government/Military and Business organizations accounted for the majority of records exposed by data breaches during 2012.



# AIG Survey: Cyber Attacks Top Concern Among Execs



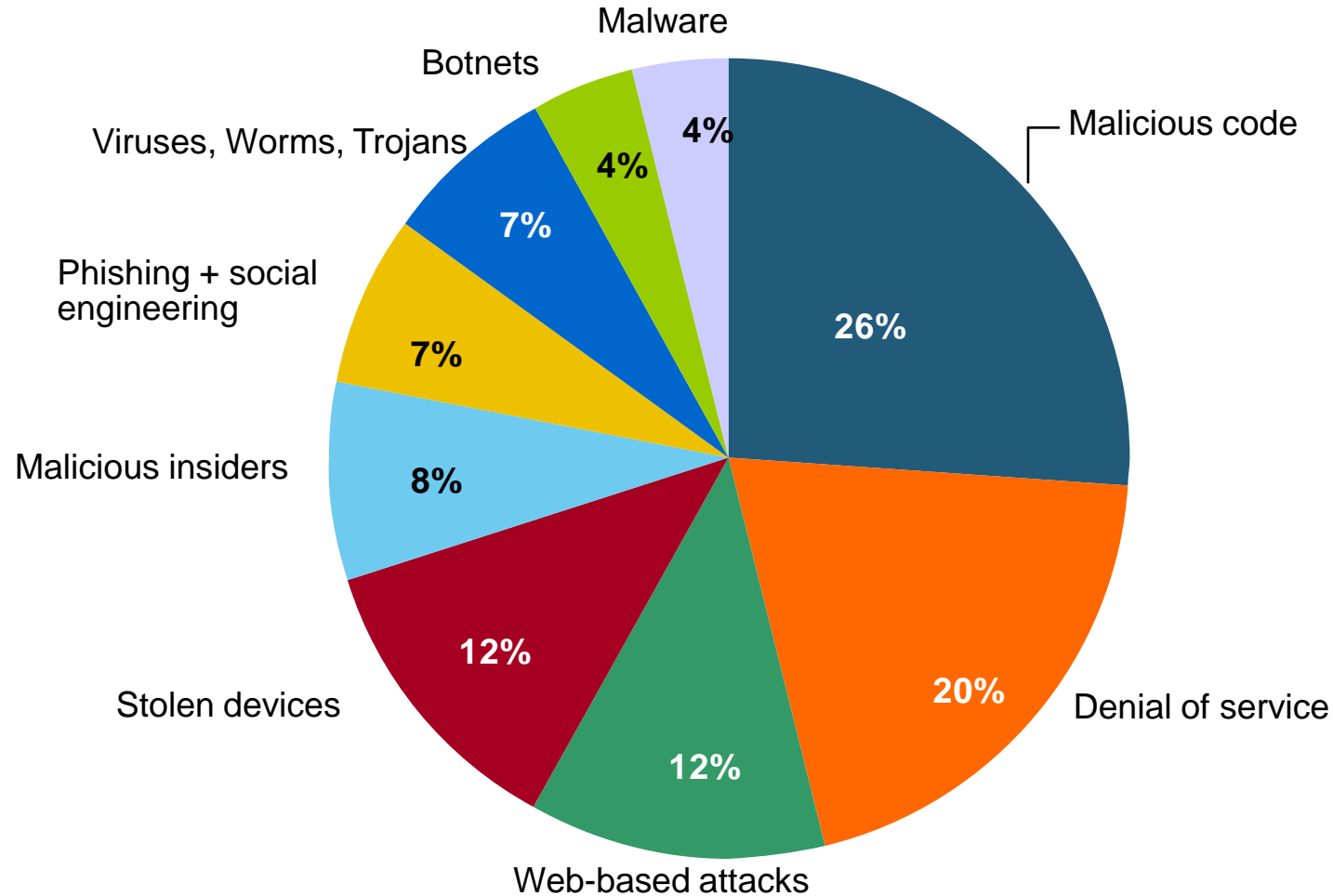
While companies are focused on managing a variety of business risks, cyber attacks are a top concern. Some 85% of 258 executives surveyed said they were very or somewhat concerned about cyber attacks on their businesses.



Source: Penn Schoen Berland on behalf of American International Group.

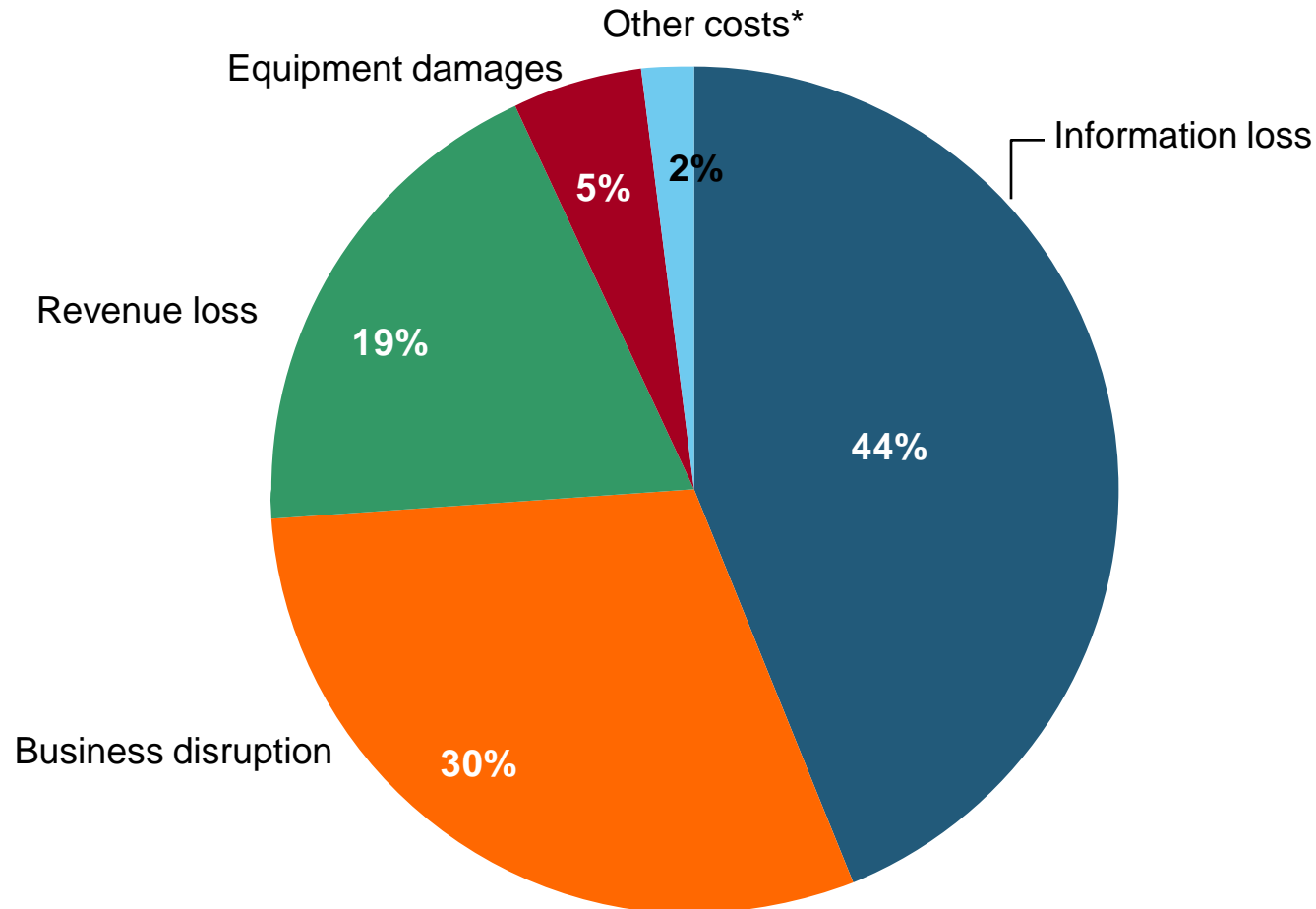
# The Most Costly Cyber Crimes, Fiscal Year 2012

Malicious code, denial of service and web-based attacks account for more than 58 percent of the total annualized cost of cyber crime experienced by 56 companies.



# External Cyber Crime Costs: Fiscal Year 2012

Information loss (44%) and business disruption or lost productivity (30%) account for the majority of external costs due to cyber crime.



\* Other costs include direct and indirect costs that could not be allocated to a main external cost category

Source: 2012 Cost of Cyber Crime: United States, Ponemon Institute.

# High Profile Data Breaches, 2012-2013

Date	Company	Description of Breach
Mar 2013*	South Korean banks, media cos	Cyber attack causes computers to crash at South Korean banks and media companies, paralyzing bank machines across the country. No immediate reports of records compromised.
July 2012	Yahoo	Security breach at Yahoo in which some 450,000 passwords lifted and posted to the Internet.
July 2012	eHarmony	Online dating site eHarmony confirms security breach in which some 1.5 million user names and passwords compromised.
July 2012	LinkedIn	Social networking site LinkedIn reportedly targeted in hacker attack that saw 6.5 million hashed passwords posted to the Internet.
April 2012	Utah Dept of Technology Services	Utah Department of Technology notifies of a March 30 breach of a server containing personal data including social security numbers for about 780,000 Medicaid patient claims. Breach traced to Eastern Europe hackers.
Mar 2012	Global Payments	Credit card processor Global Payments confirms hacker attack has compromised the payment card numbers of around 1.5 million cardholders.
Mar 2012	CA Dept of Child Support Services	Officials announce that four computer storage devices containing personal information for about 800,000 adults and children in California's child support system were lost by IBM and Iron Mountain Inc.
Jan 2012	Zappos	Online shoe retailer Zappos announces that information, such as names, addresses and passwords on as many as 24 million customers illegally accessed.
Jan 2012	NY State Electric + Gas Co	Security breach at NYSEG that allowed unauthorized access to NYSEG customer data, containing social security numbers, dates of birth and bank account numbers, exposing 1.8 million records.

\*March 2013 attack is not part of ITRC research.

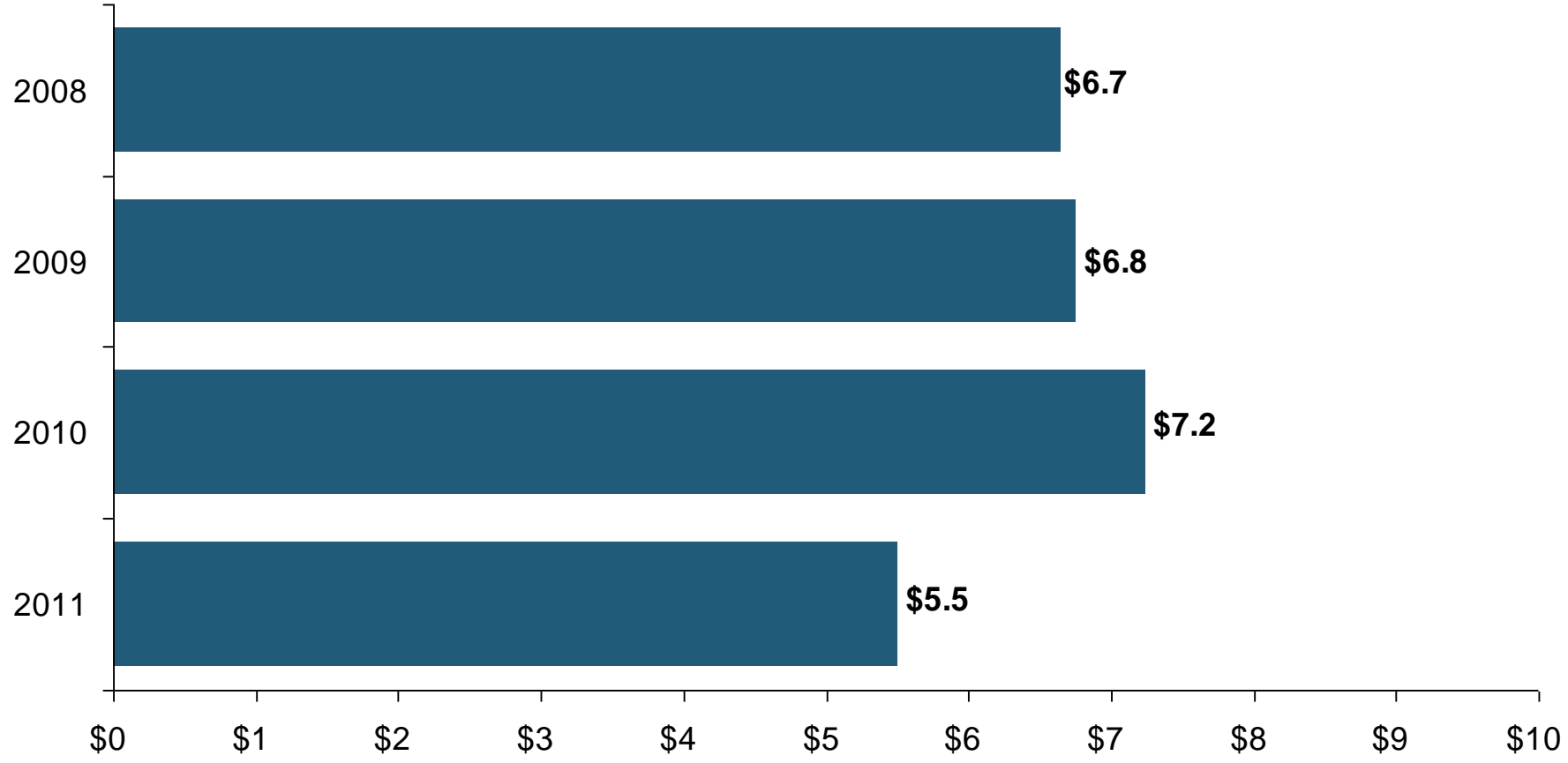


# Average Organizational Cost of a Data Breach, 2008-2011\* (\$ Millions)



The average organizational cost of a data breach in 2011 was \$5.5 million, down 24% from \$7.2 million in 2010. Companies have improved steps taken in both preparing for and responding to a data breach.

(\$ Millions)

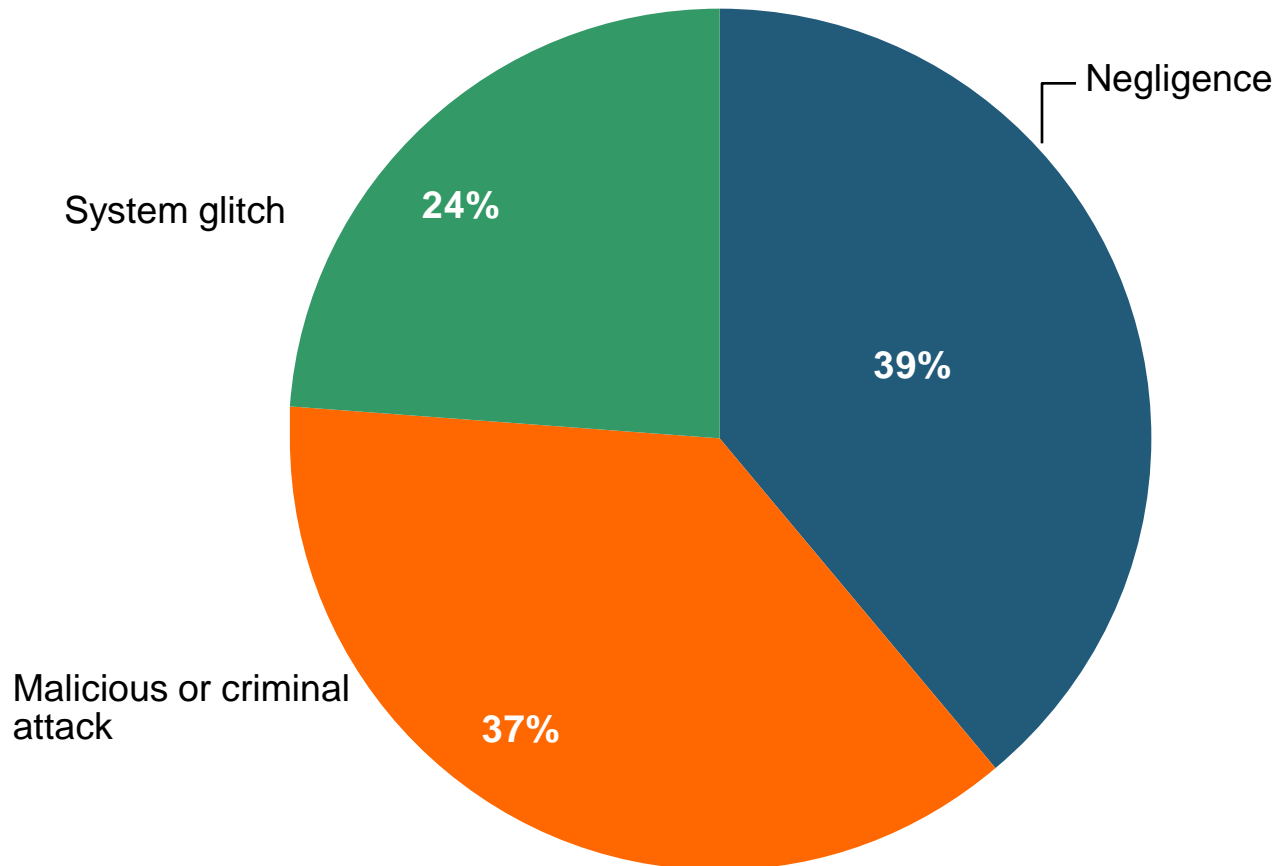


\*Findings of this benchmark study pertain to the actual data breach experiences of 49 U.S. companies from 14 different industry sectors, all of which participated in the 2011 study. Total breach costs include: lost business resulting from diminished trust or confidence of customers ;costs related to detection, escalation, and notification of the breach; and ex-post response activities, such as credit report monitoring.

Source: 2011 Annual Study: U.S. Cost of a Data Breach, the Ponemon Institute.

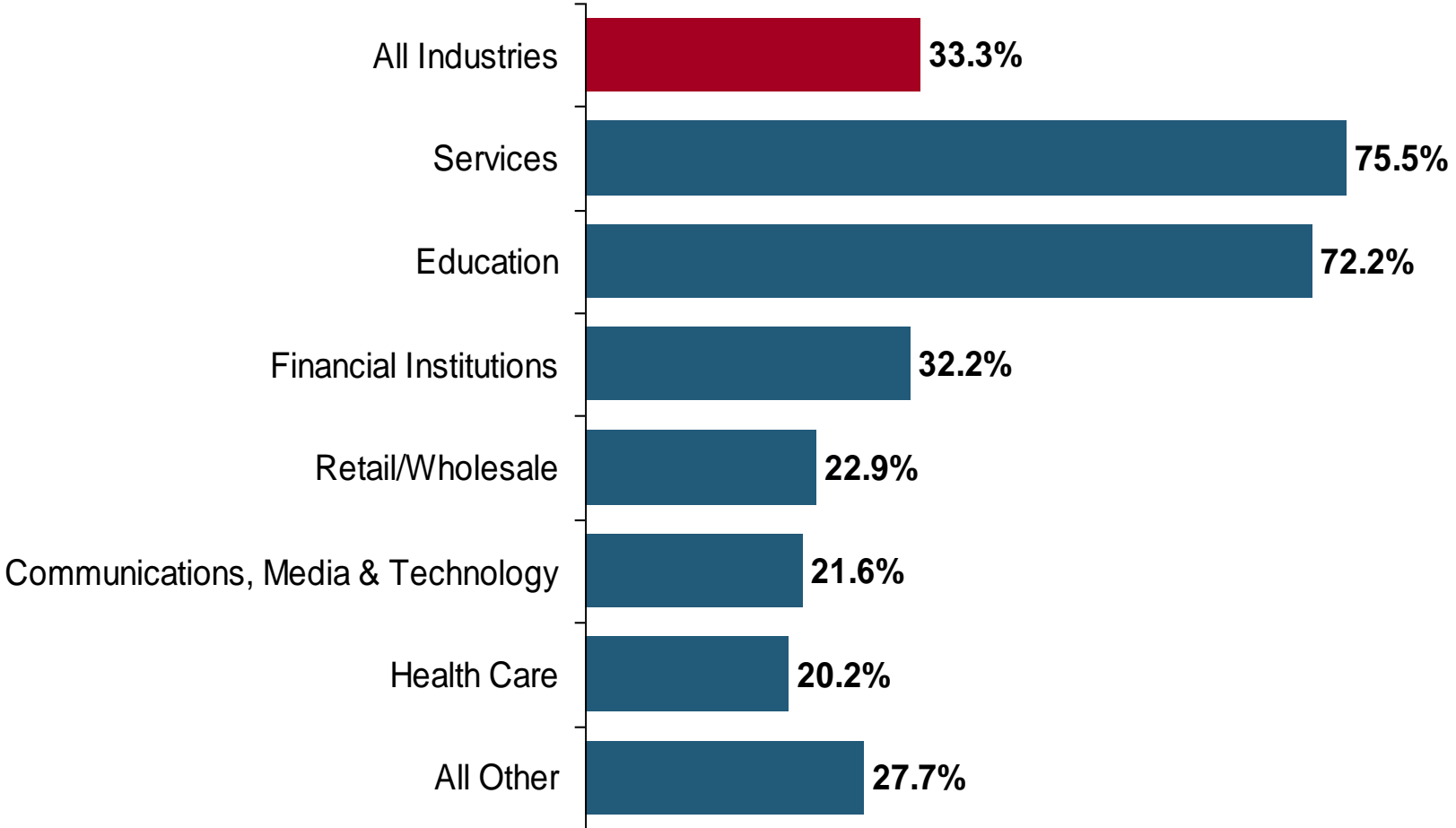
# Main Causes of Data Breach

Negligent employees and malicious attacks are most often the cause of the data breach. Some 39 percent of incidents involve a negligent employee or contractor, while 37 percent concern a malicious or criminal attack.



# Marsh: Increase in Purchase of Cyber Insurance Among U.S. Companies, 2012

Interest in cyber insurance continues to climb. The number of companies purchasing cyber insurance increased 33 percent from 2011 to 2012.

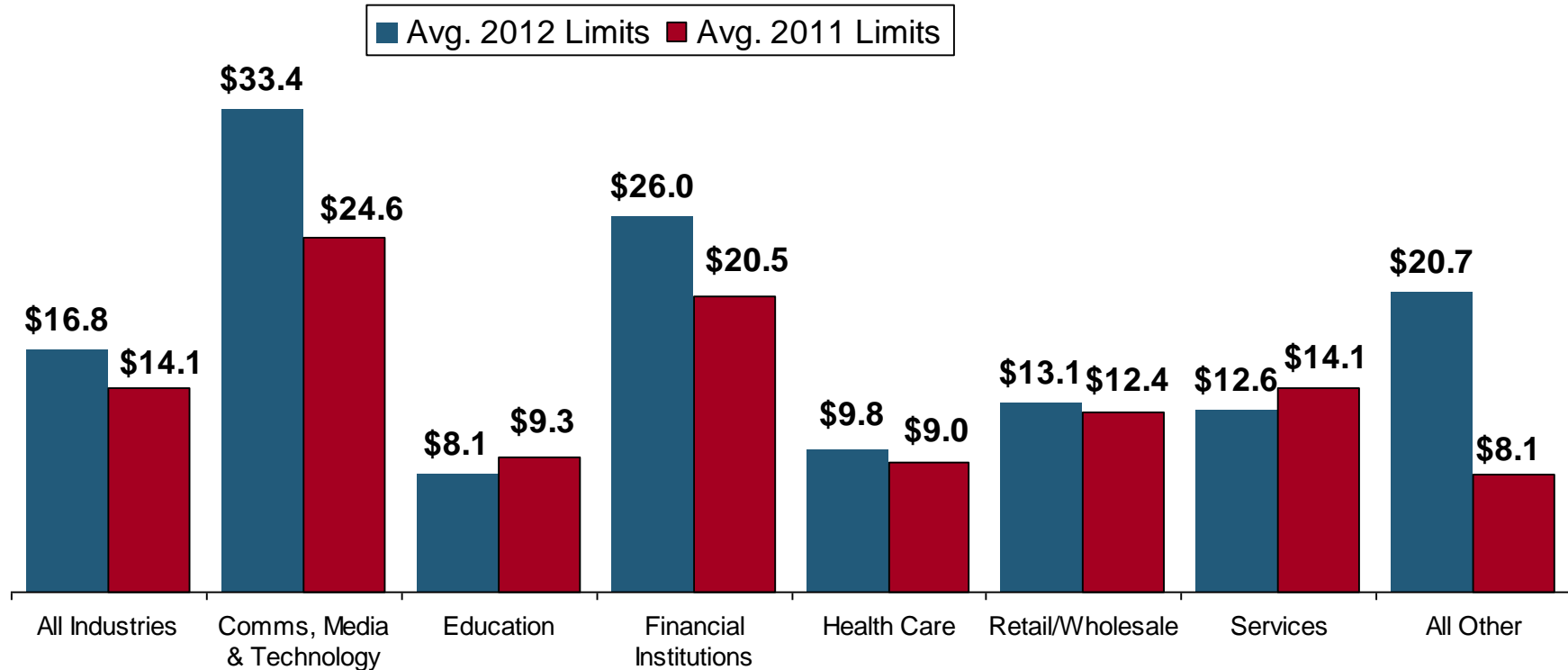


Source: Marsh Global Analytics, Marsh Risk Management Research Briefing, March 2013

# Marsh: Total Limits Purchased, By Industry – Cyber Liability, All Revenue Size

Cyber insurance limits purchased in 2012 averaged \$16.8 million across all industries, an increase of nearly 20% over 2011.

(\$ Millions)

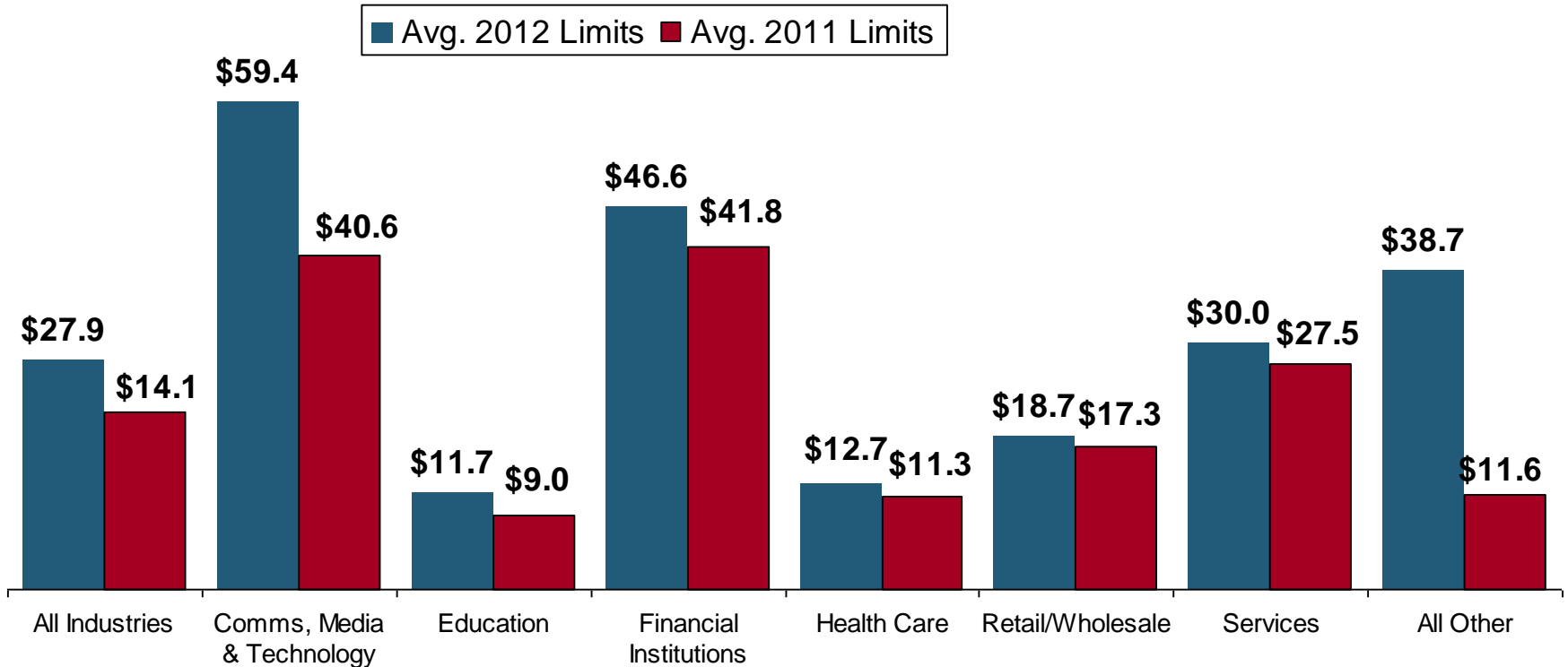


Source: Marsh Global Analytics, Marsh Risk Management Research Briefing, March 2013

# Marsh: Total Limits Purchased, By Industry – Cyber Liability, Revenue \$1 Billion+

Among larger companies, average cyber insurance limits purchased in 2012 increased nearly 30% over 2011.

(\$ Millions)



Source: Marsh Global Analytics, Marsh Risk Management Research Briefing, March 2013

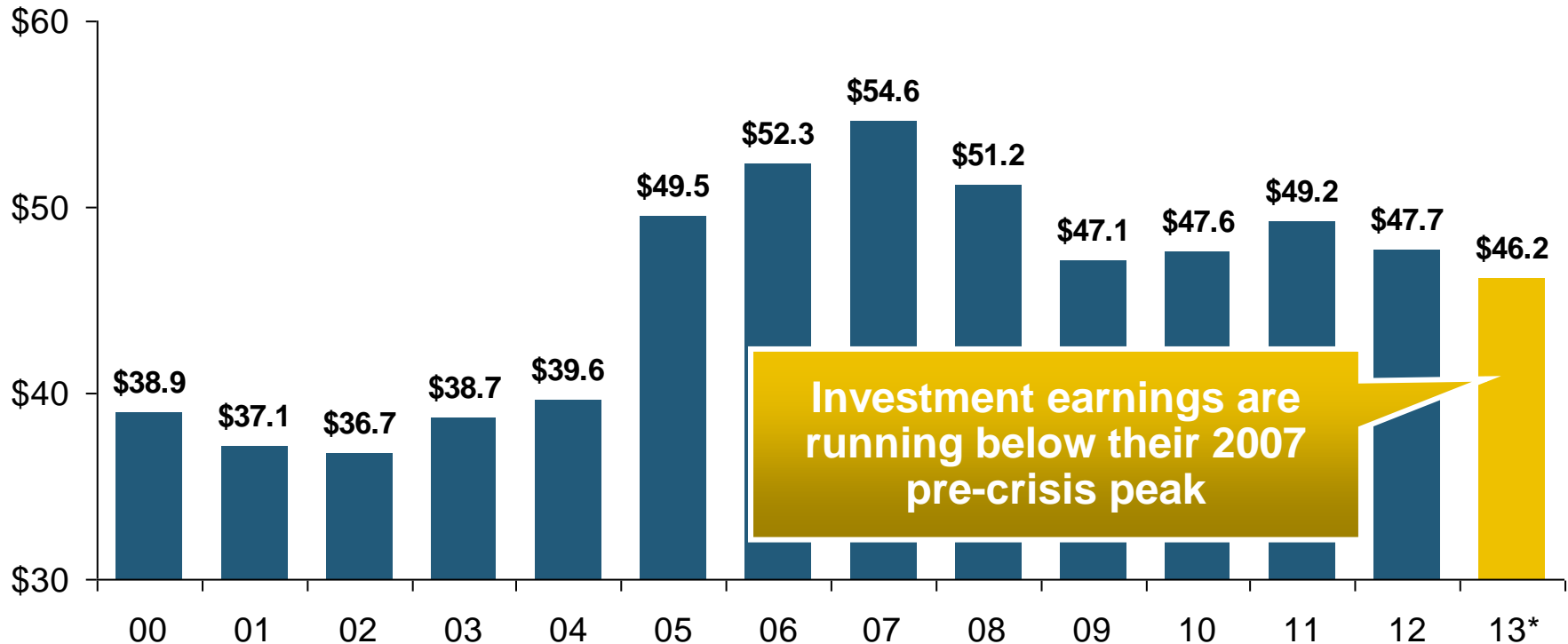
# **INVESTMENTS: THE NEW REALITY**

**Investment Performance is a Key  
Driver of Profitability**

***Depressed Yields Will Necessarily  
Influence Underwriting & Pricing***

# Property/Casualty Insurance Industry Investment Income: 2000–2013\*1

(\$ Billions)



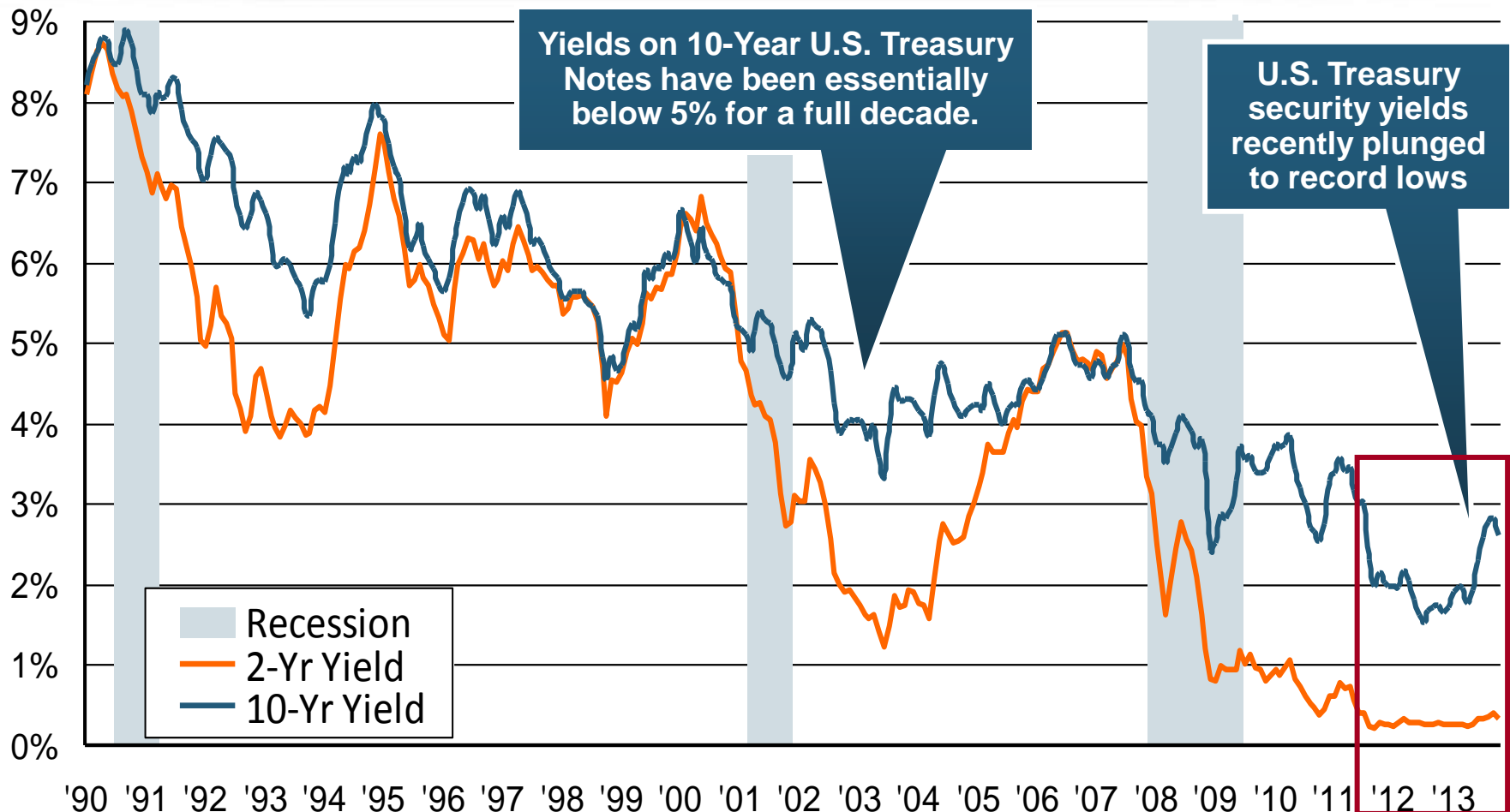
**Investment Income Fell in 2012 and is Falling in 2013 Due to Persistently Low Interest Rates, Putting Additional Pressure on (Re) Insurance Pricing**

<sup>1</sup> Investment gains consist primarily of interest and stock dividends..

\*Estimate based on annualized actual H1:2013 investment income of \$23.199B.

Sources: ISO; Insurance Information Institute.

# U.S. Treasury Security Yields: A Long Downward Trend, 1990–2013\*



**Since roughly 80% of P/C bond/cash investments are in 10-year or shorter durations, most P/C insurer portfolios will have low-yielding bonds for years to come.**

\*Monthly, constant maturity, nominal rates, through October 2013.

Sources: Federal Reserve Bank at <http://www.federalreserve.gov/releases/h15/data.htm>.  
National Bureau of Economic Research (recession dates); Insurance Information Institute.



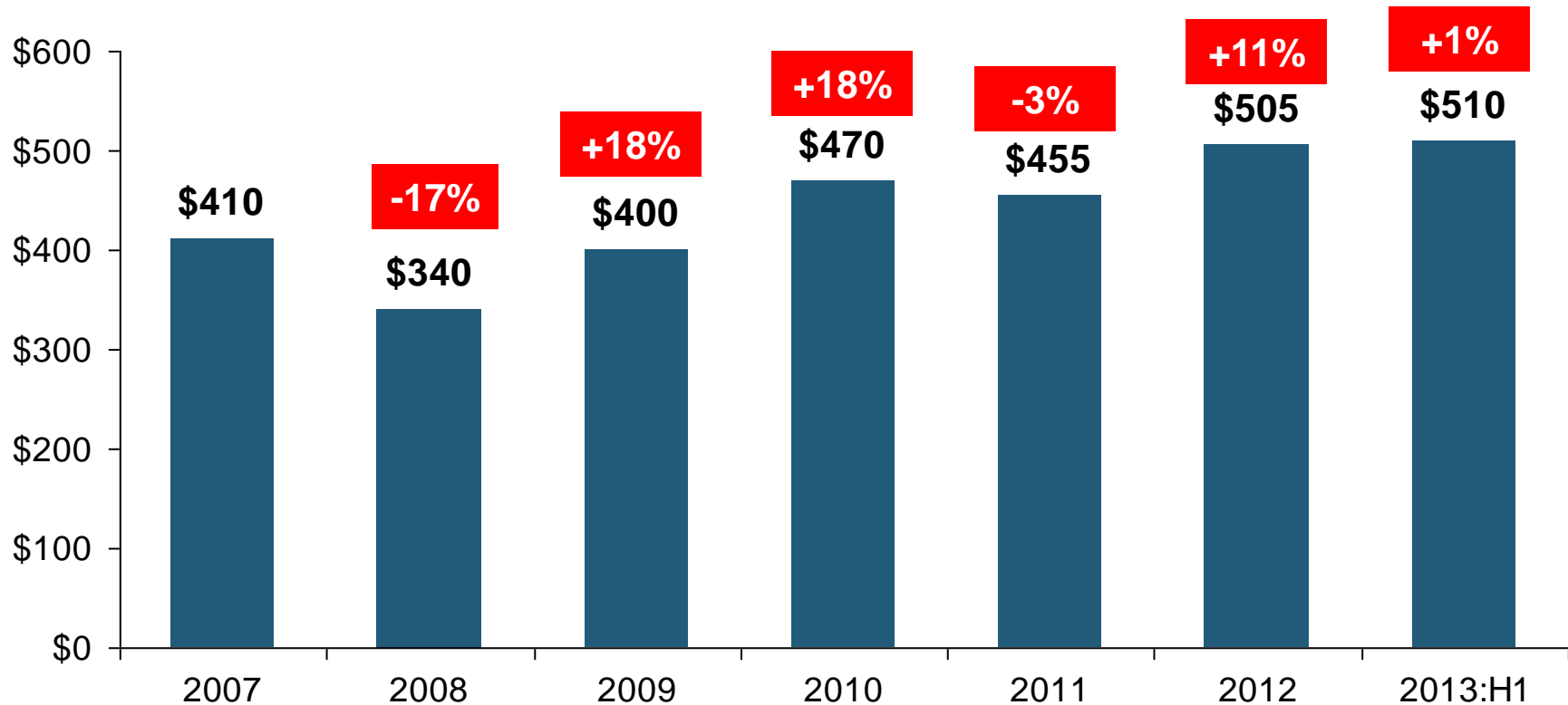


# THE SEARCH FOR YIELD DISCOVERS REINSURANCE

## Alternative (Convergence) Capital and Reinsurance Markets

# Global Reinsurer Capital, 2007-2013:H1\*

(\$ Billions)

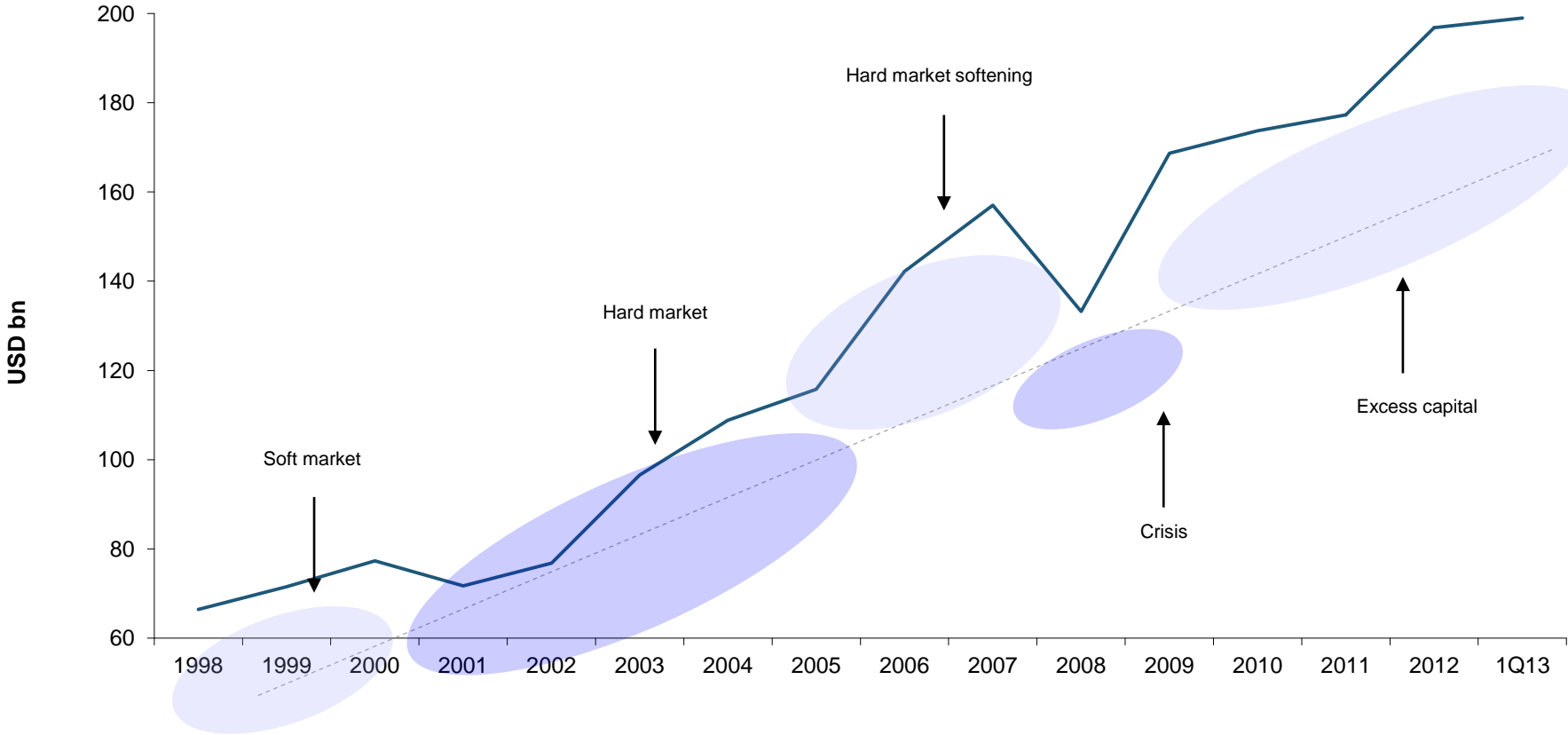


**Global Reinsurance Capital Has Been Trending Generally Upward Since the Global Financial Crisis, a Trend that Seems Likely to Continue**

\*Includes both traditional and non-traditional forms of reinsurance capital.

Source: Aon Benfield Aggregate study for the 6 months ending June 2013; Insurance Information Institute.

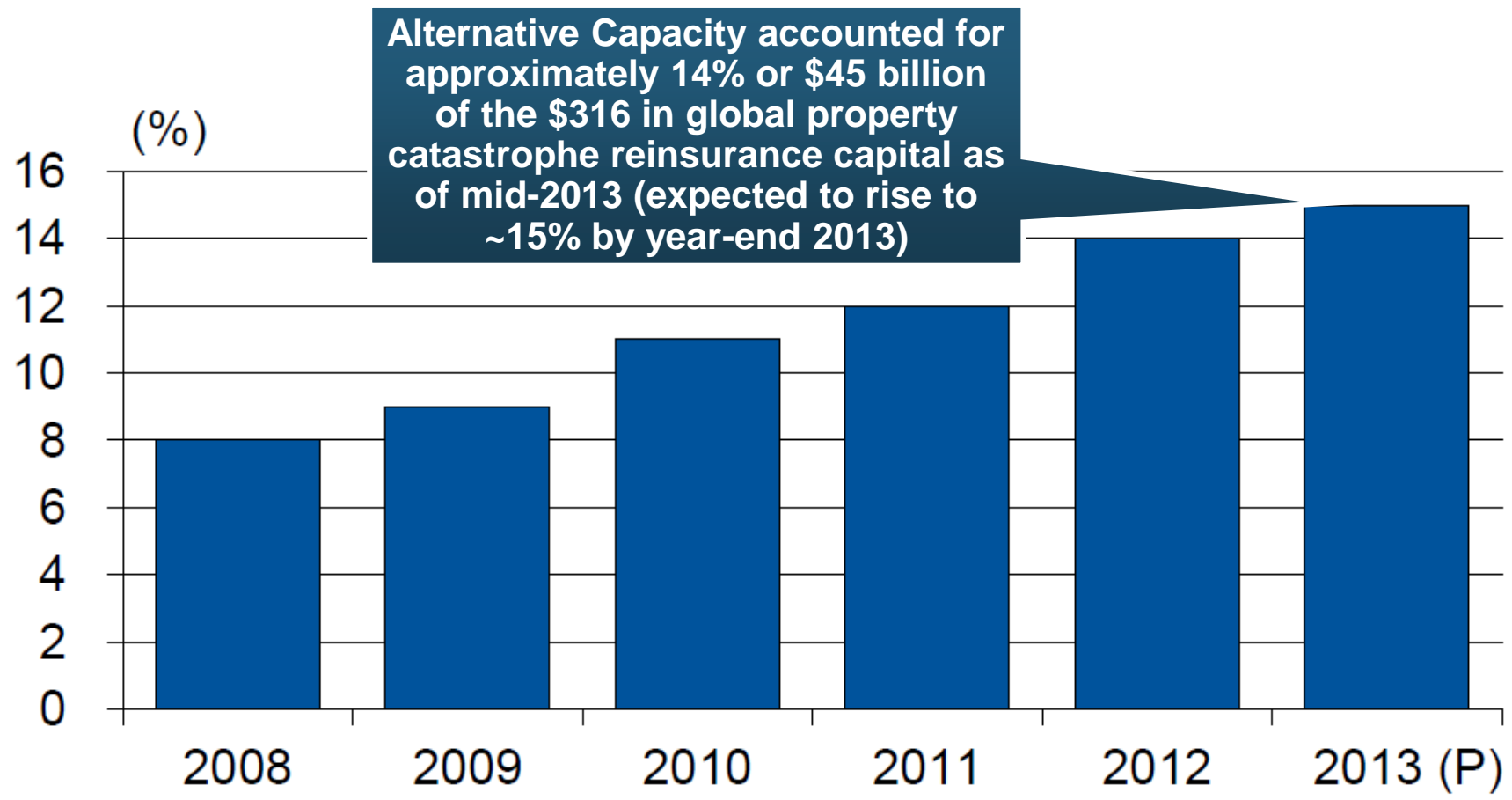
# Long-Term Evolution of Shareholders' Funds for the Guy Carpenter Global Reinsurance Composite



Source: Guy Carpenter

# Alternative Capacity as a Percentage of Global Property Catastrophe Reinsurance Limit

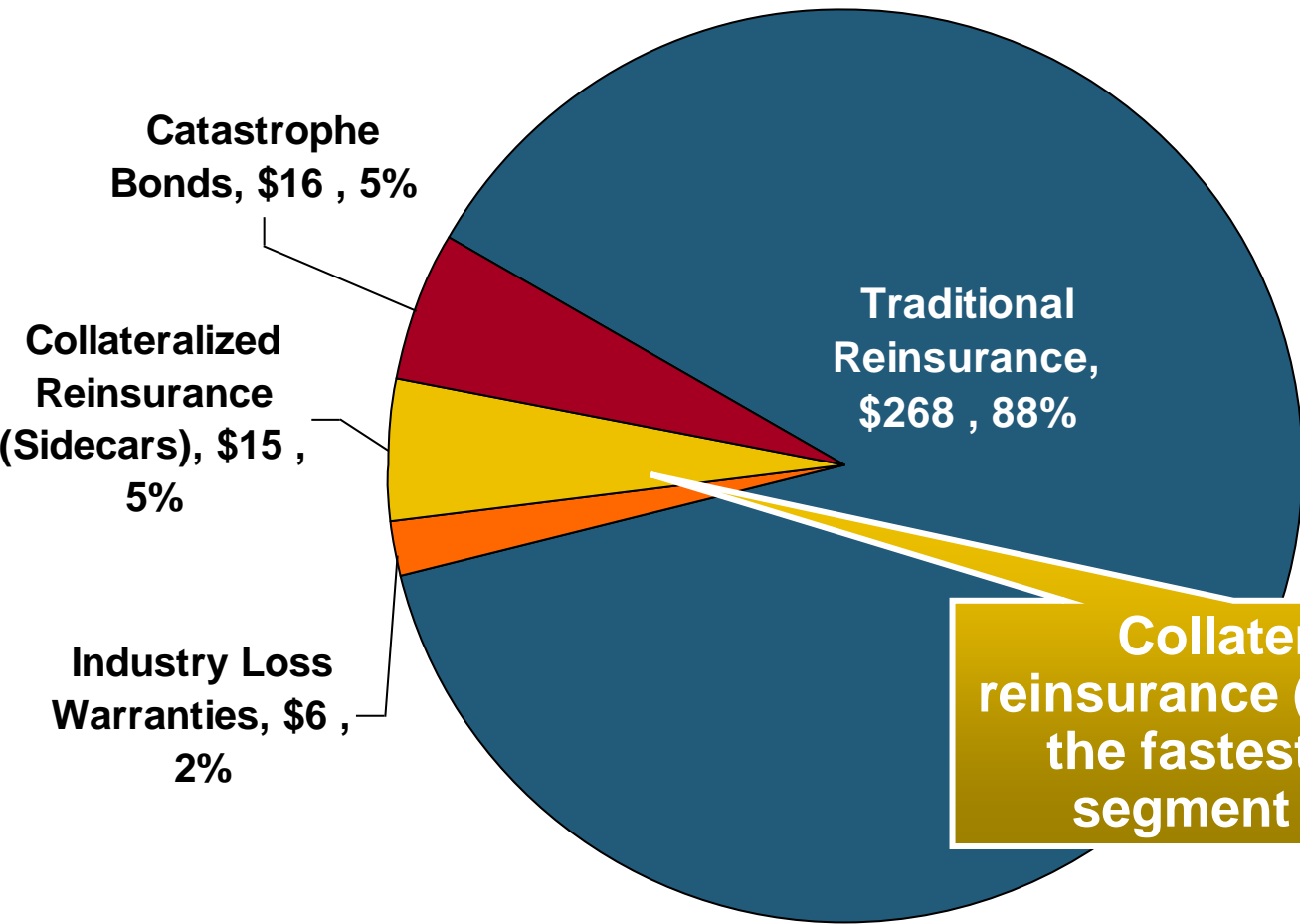
(As of Year End)



Source: Guy Carpenter

# Property Catastrophe Reinsurance Capacity by Source as of Mid-2013 (\$ Bill)

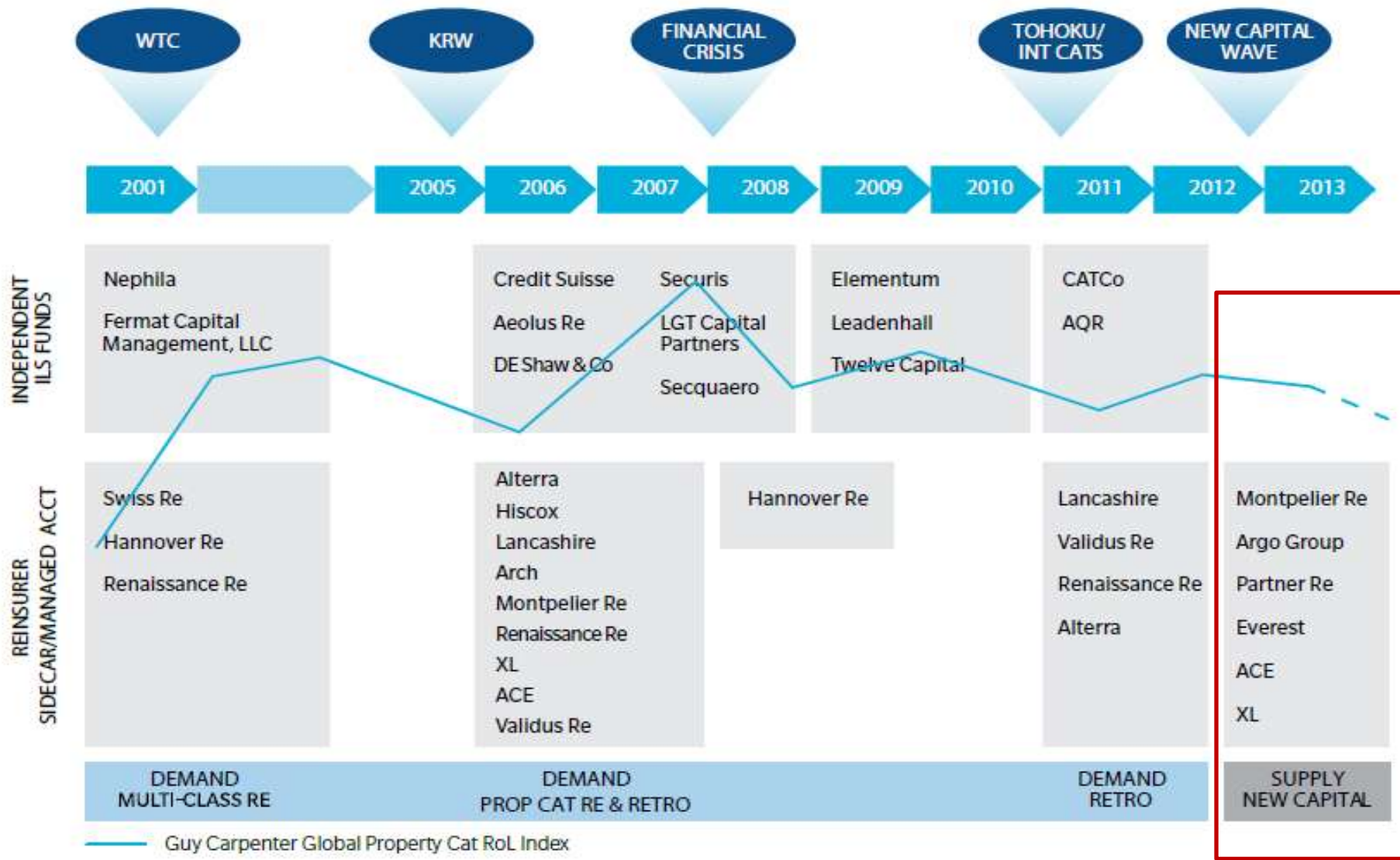
Total = \$316 Billion\*



“Convergence Capital” accounted for an estimated \$45B or 14% or total property catastrophe reinsurance capacity as of mid-2013, up \$10B over the past 18 months (since 1/1/12). Penetration of this type of capacity is growing

Collateralized reinsurance (sidecars) is the fastest growing segment recently

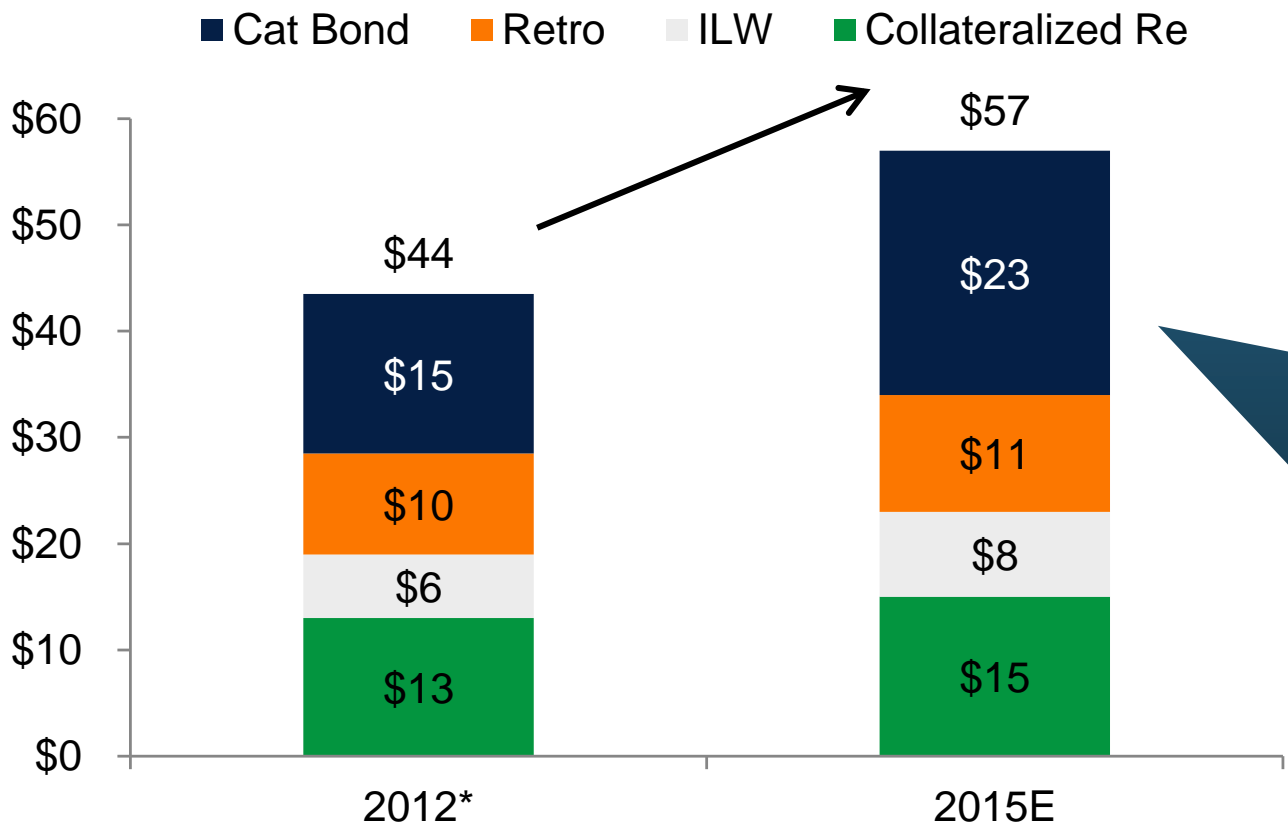
# Alternative Capacity Development, 2001–2013:H1



Source: Guy Carpenter; *Mid-Year Market Report*, September 2013; Insurance Information Institute.

# Non-Traditional Property Catastrophe Limits by Type, YE 2012 vs. YE 2015E

## NON-TRADITIONAL P/CAT LIMITS BY TYPE

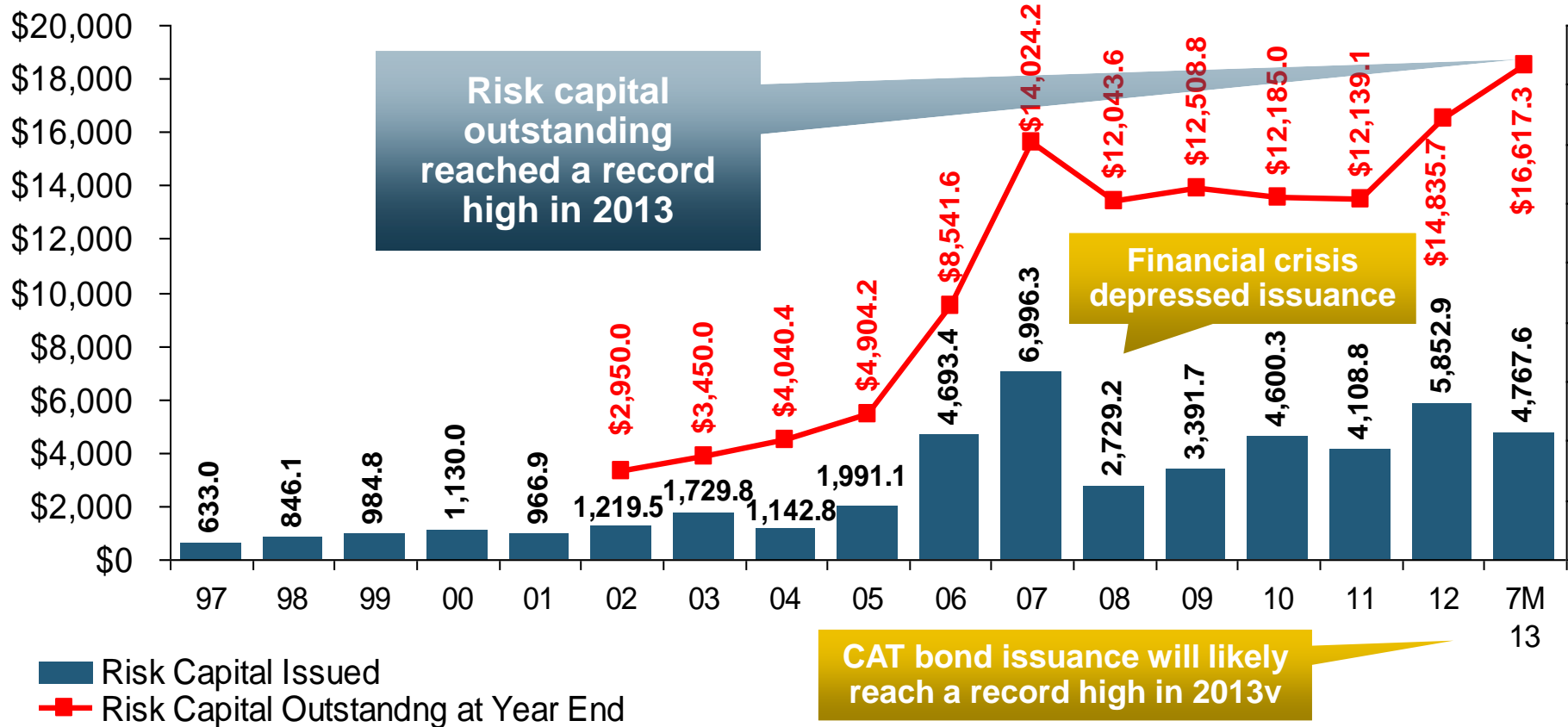


**Alternative capital is expected to rise by 30% by YE 2015 and will ultimately account for 20-30% of total reinsurance spend, according to Guy Carpenter**

Source: Guy Carpenter; \*As Of Mar-2013

# Catastrophe Bonds: Issuance and Outstanding, 1997- 2013\*

Risk Capital Amount (\$ Millions)



**Catastrophe Bond Issuance Is Approaching Pre-Crisis Levels While Risk Capital Outstanding Stands at an All-Time Record**

\*Through July 2013.

Source: Guy Carpenter; Insurance Information Institute.



## Insurance Information Institute Online:

[www.iii.org](http://www.iii.org)

*Thank you for your time  
and your attention!*

*Twitter: [twitter.com/bob\\_hartwig](https://twitter.com/bob_hartwig)*

*Download at [www.iii.org/presentations](http://www.iii.org/presentations)*