



# **The Global Insurance Industry: *Overview and Outlook for Non-Life, Life and Reinsurance Markets***

**Insurance Information Institute**

**New York, NY**

**September 18, 2013**

**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**

- **Is the World Becoming a Riskier Place?**
- **Global Economic Overview: Insurance Implications**
- **Global Insurance Overview**
  - ◆ Life, Non-Life Analysis
  - ◆ Regional Differences
  - ◆ A Look Ahead
- **Global Catastrophe Loss Trends**
- **The New Investment Reality**
  - ◆ The Challenge of Persistently Low Interest Rates
- **Global Reinsurance Market Trends**
  - ◆ The Increasing Role of Alternative Capital
- **Cyber Risk: A Growing Global Concern**

# What in the World Is Going On? U.S. and Global Perspective

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

***All Major Categories of Risk Influence  
Economies and Insurance Industry  
on a Global Scale***

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

- Never Ending Echoes of the Financial Crisis
- European Sovereign Debt & Eurozone Crises
- US Debt and Budget Crisis
- “Hard Landing” in China
- Unemployment
- Monetary Policy/Taper/Interest Rates
- Political Gridlock
- Political Upheaval in the Middle East/Syria
- Resurgent Terrorism Risk
- Diffusion of Weapons of Mass Destruction
- Cyber Attacks
- Record Natural Disaster Losses
- Climate Change
- Environmental Degradation
- Income Inequality



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

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

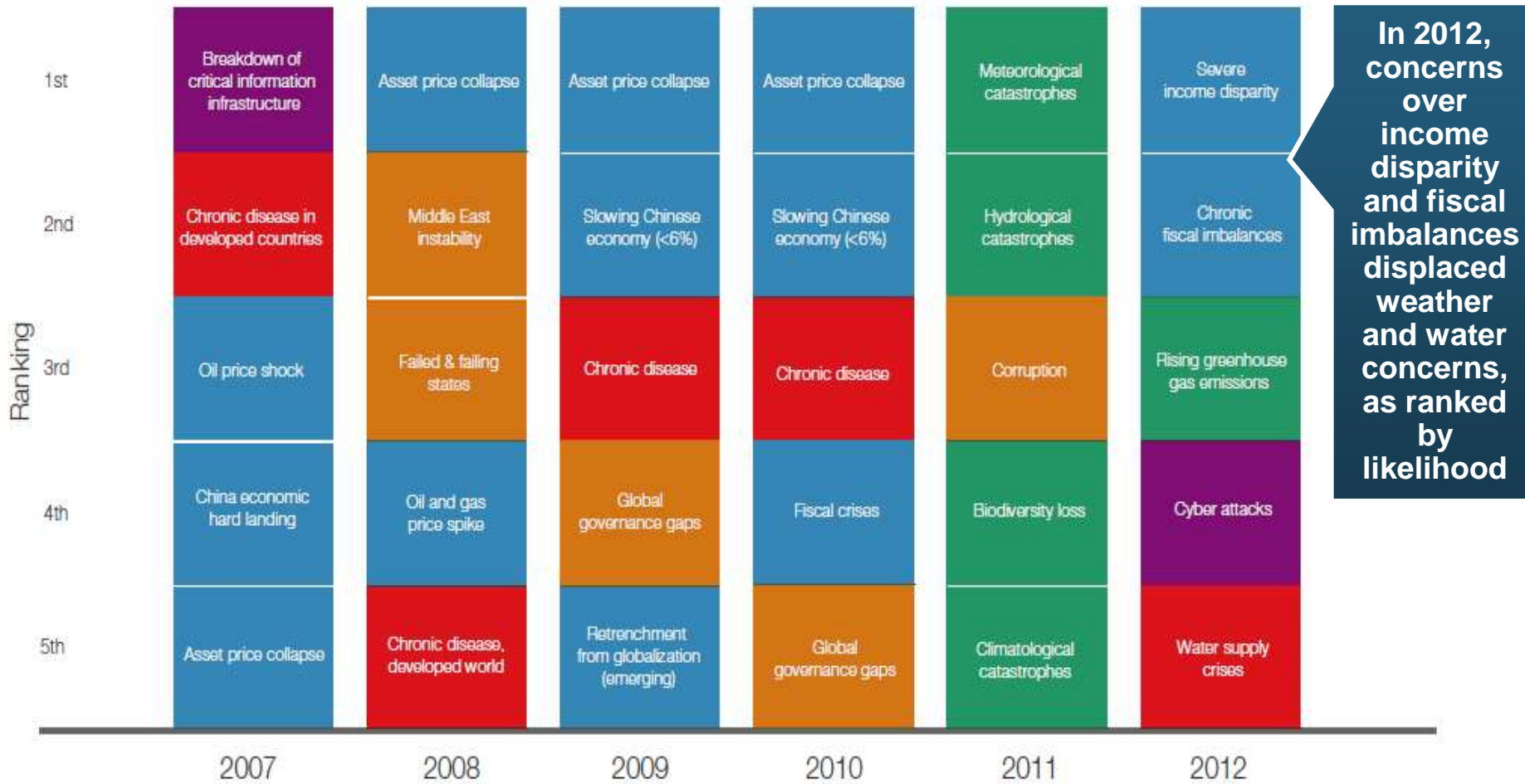
- 1. Economic Risks**
- 2. Geopolitical Risks**
- 3. Environmental Risks**
- 4. Technological Risks**
- 5. Societal Risks**



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

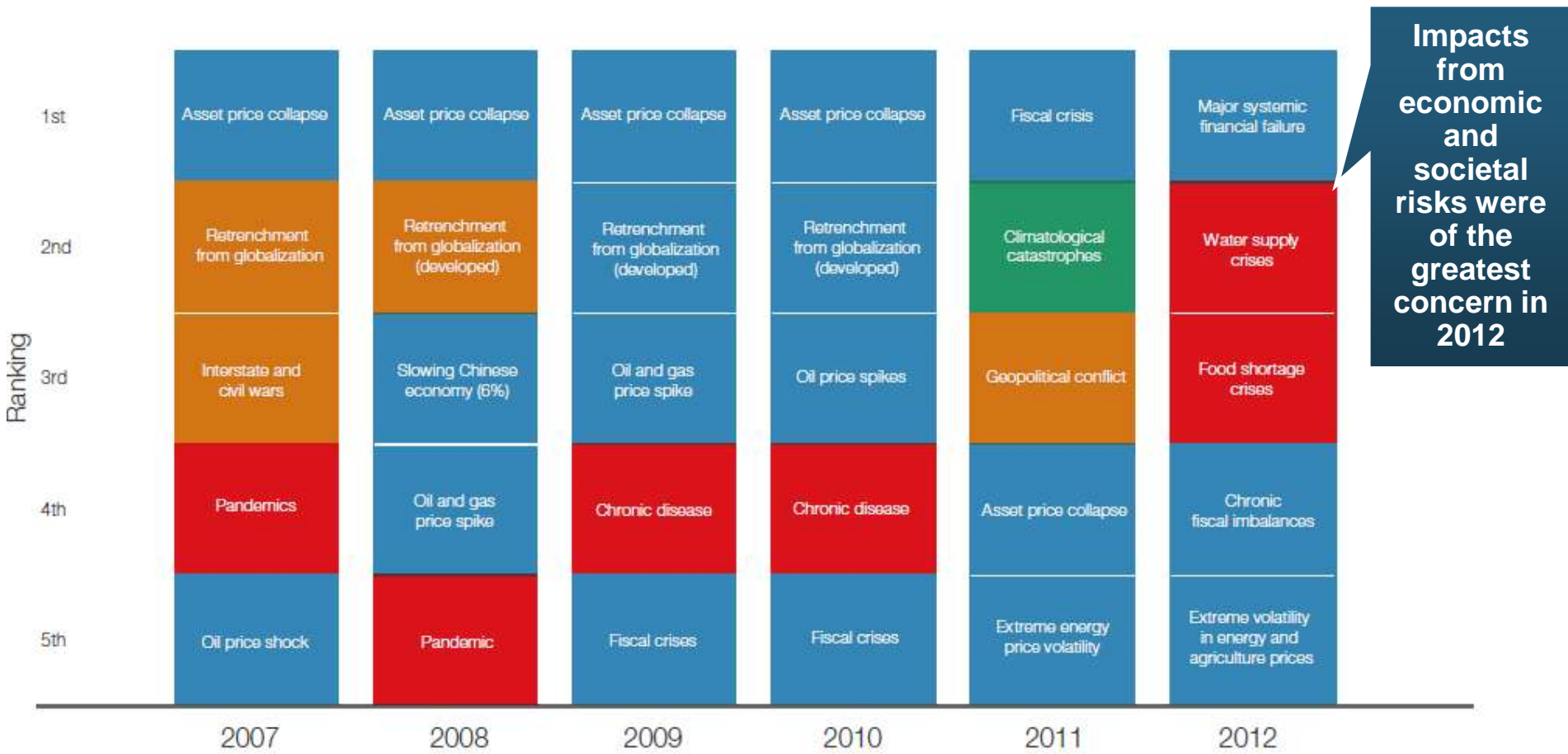


# Top 5 Global Risks in Terms of *Likelihood*, 2007—2012: Insurance Can Help With Most



**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—2012: Insurance Can Help With Most



Impacts from economic and societal risks were of the greatest concern in 2012

**Concerns Over the Impacts of Economics Risks Remained High in 2012, but Societal Risks Displaced Environmental Risks**



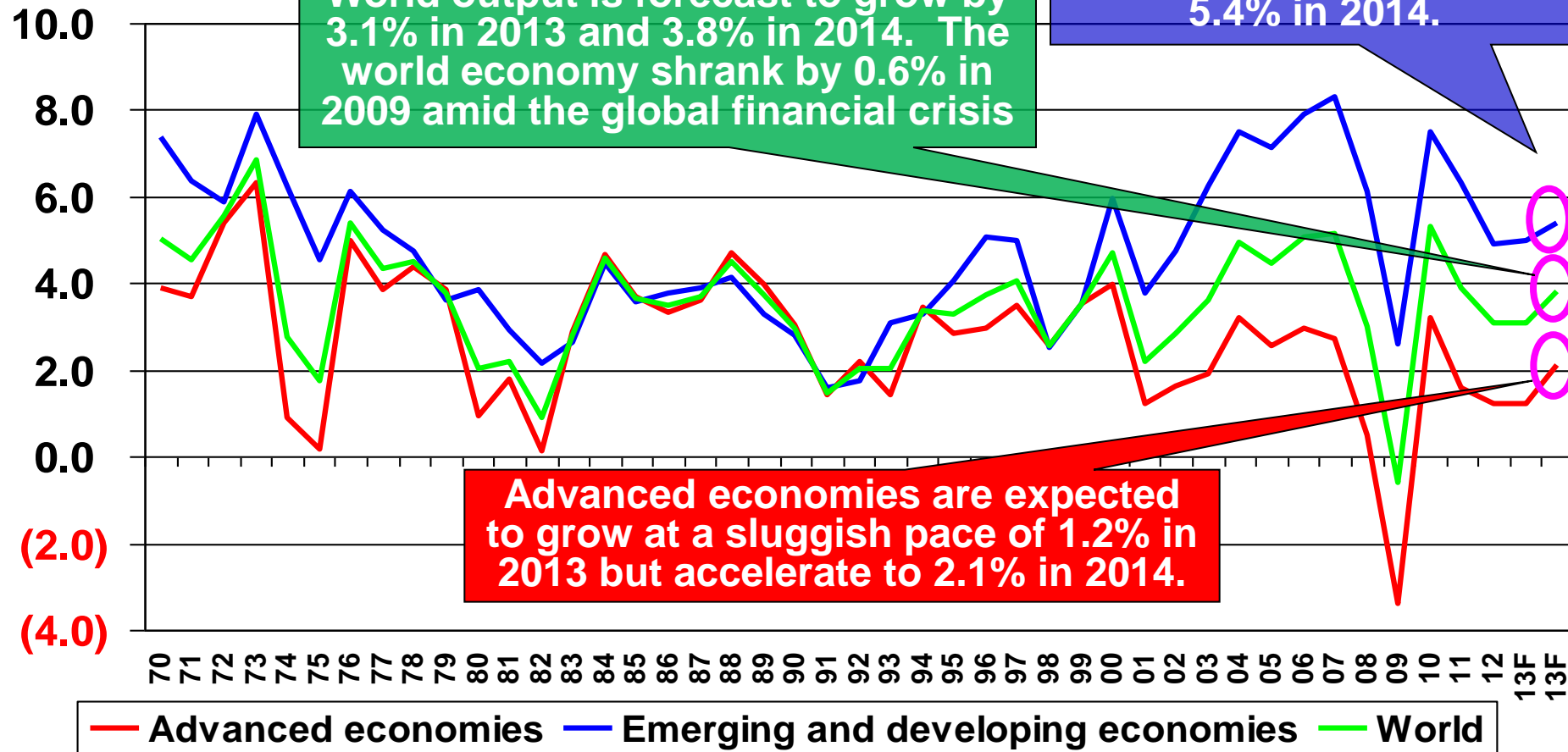
# The Strength of the Economy Will Influence P/C Insurer Growth Opportunities

**Growth Will Expand Insurer Exposure  
Base Across Most Lines**



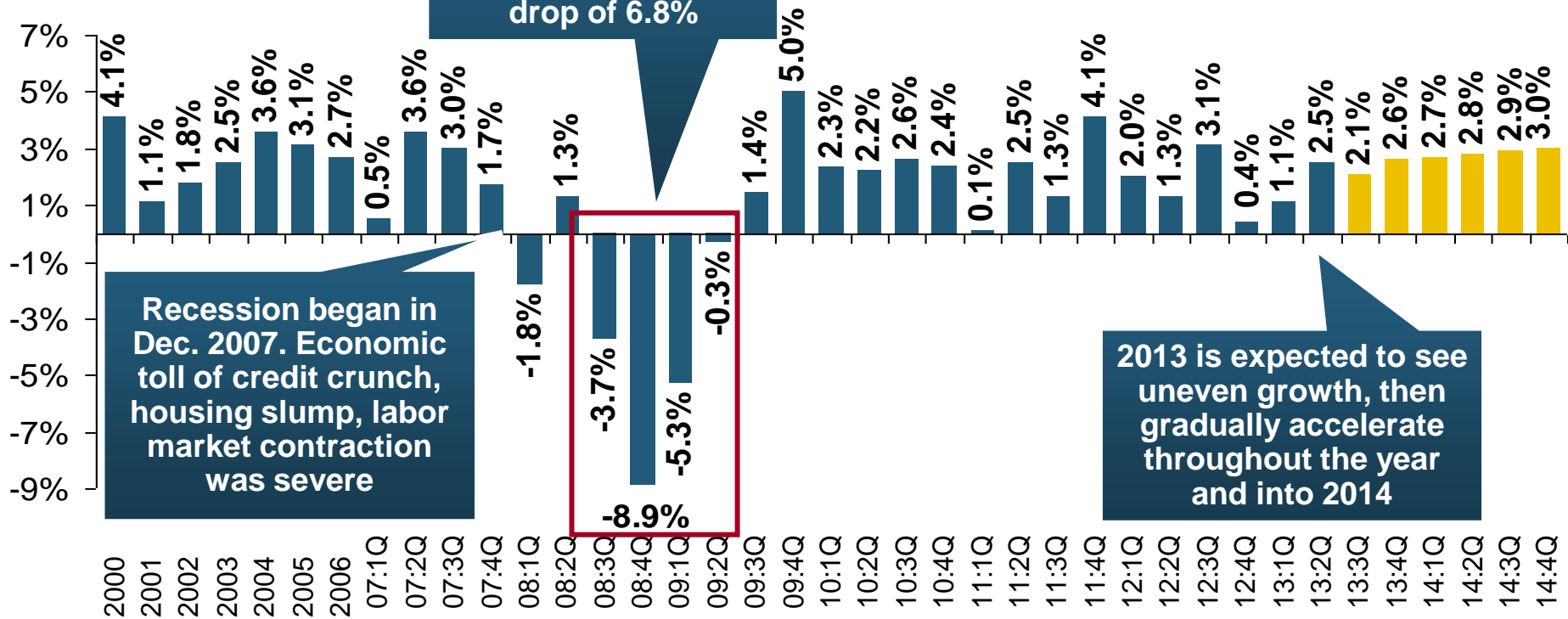
# GDP Growth: Advanced & Emerging Economies vs. World, 1970-2014F

GDP Growth (%)



# US Real GDP Growth\*

## Real GDP Growth (%)

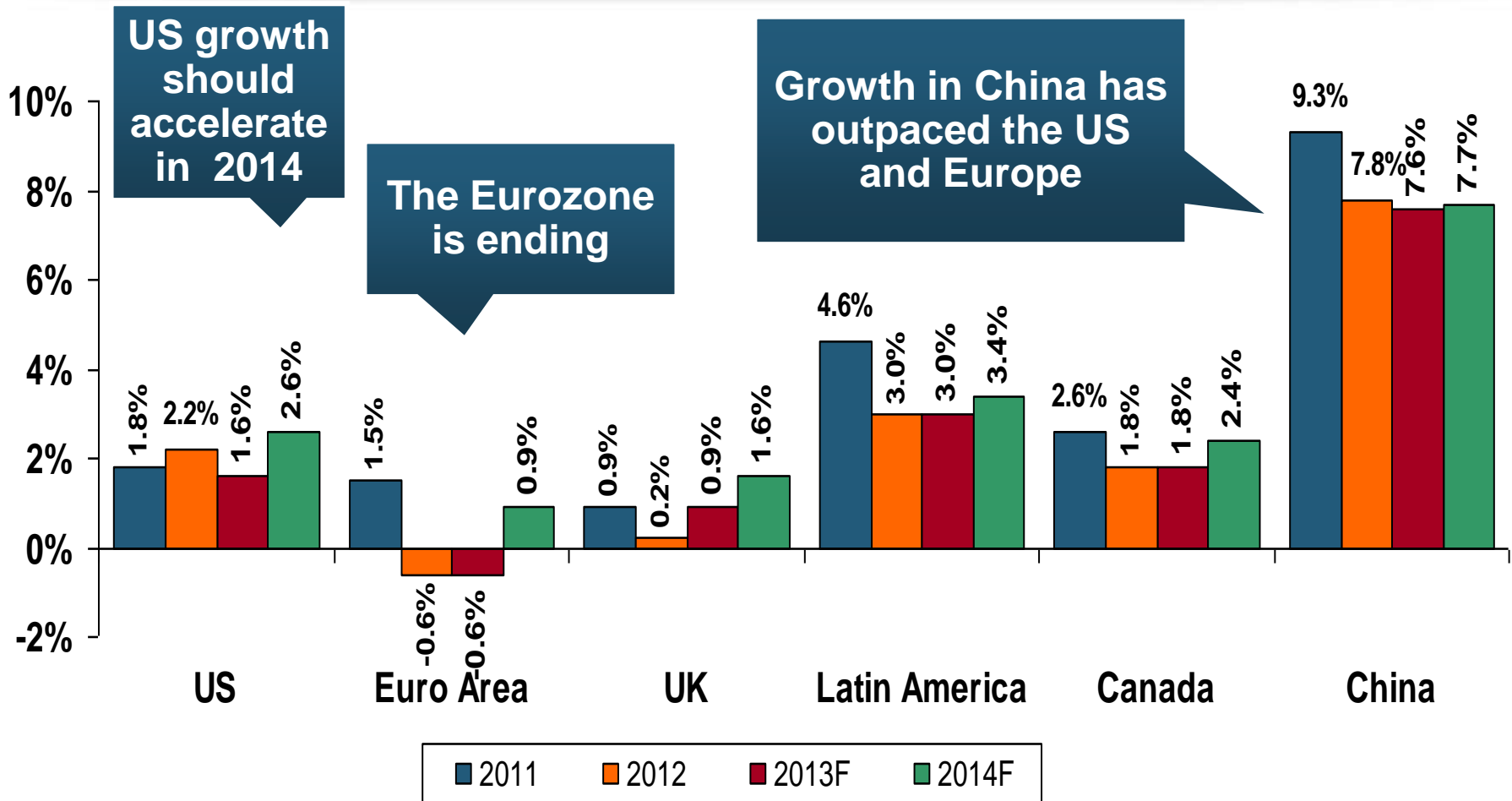


**Demand for Insurance Continues To Be Impacted by Sluggish Economic Conditions, but the Benefits of Even Slow Growth Will Compound and Gradually Benefit the Economy Broadly**

\* Estimates/Forecasts from Blue Chip Economic Indicators.

Source: US Department of Commerce, Blue Economic Indicators 9/13; Insurance Information Institute.

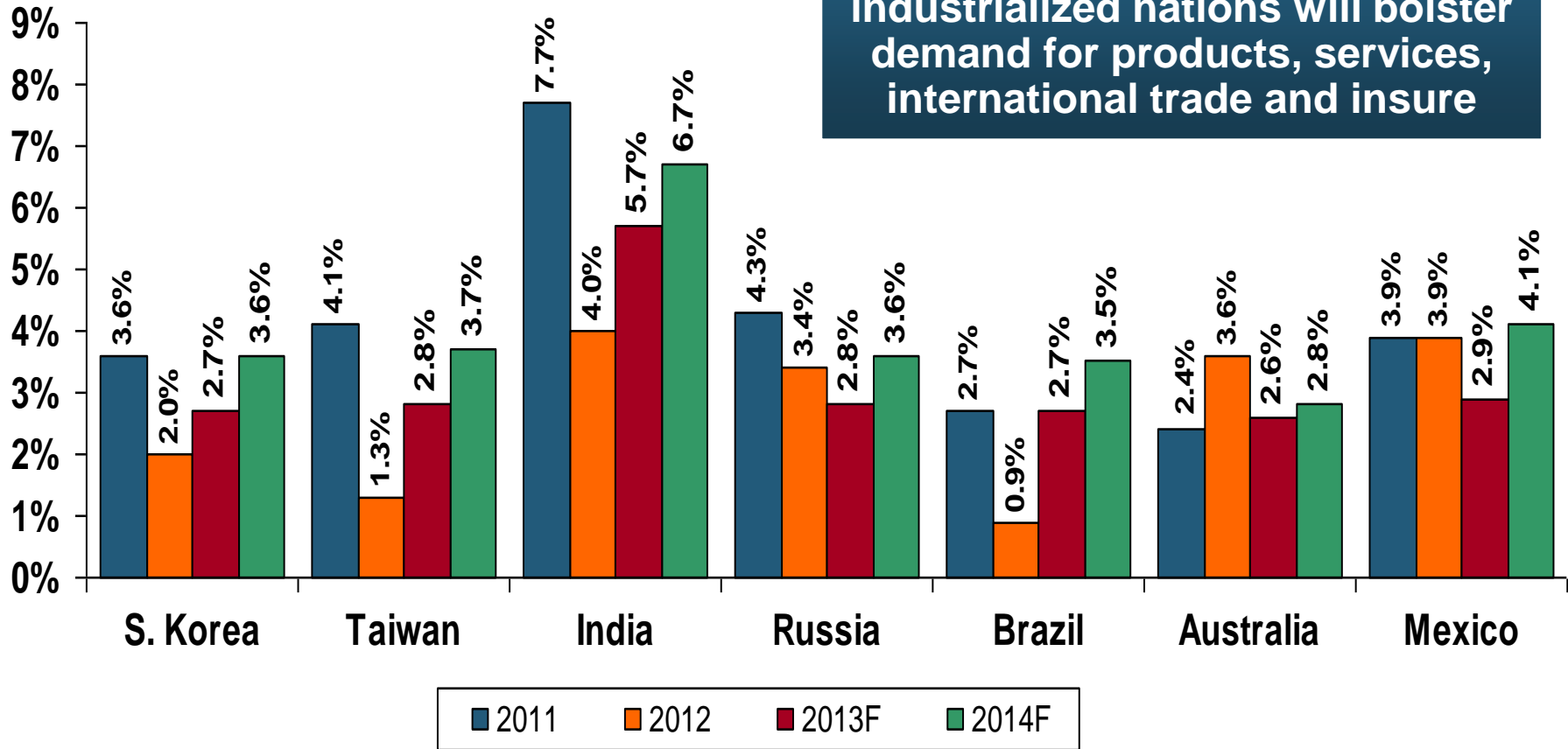
# Real GDP Growth Forecasts: Major Economies: 2011 – 2014F



**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**

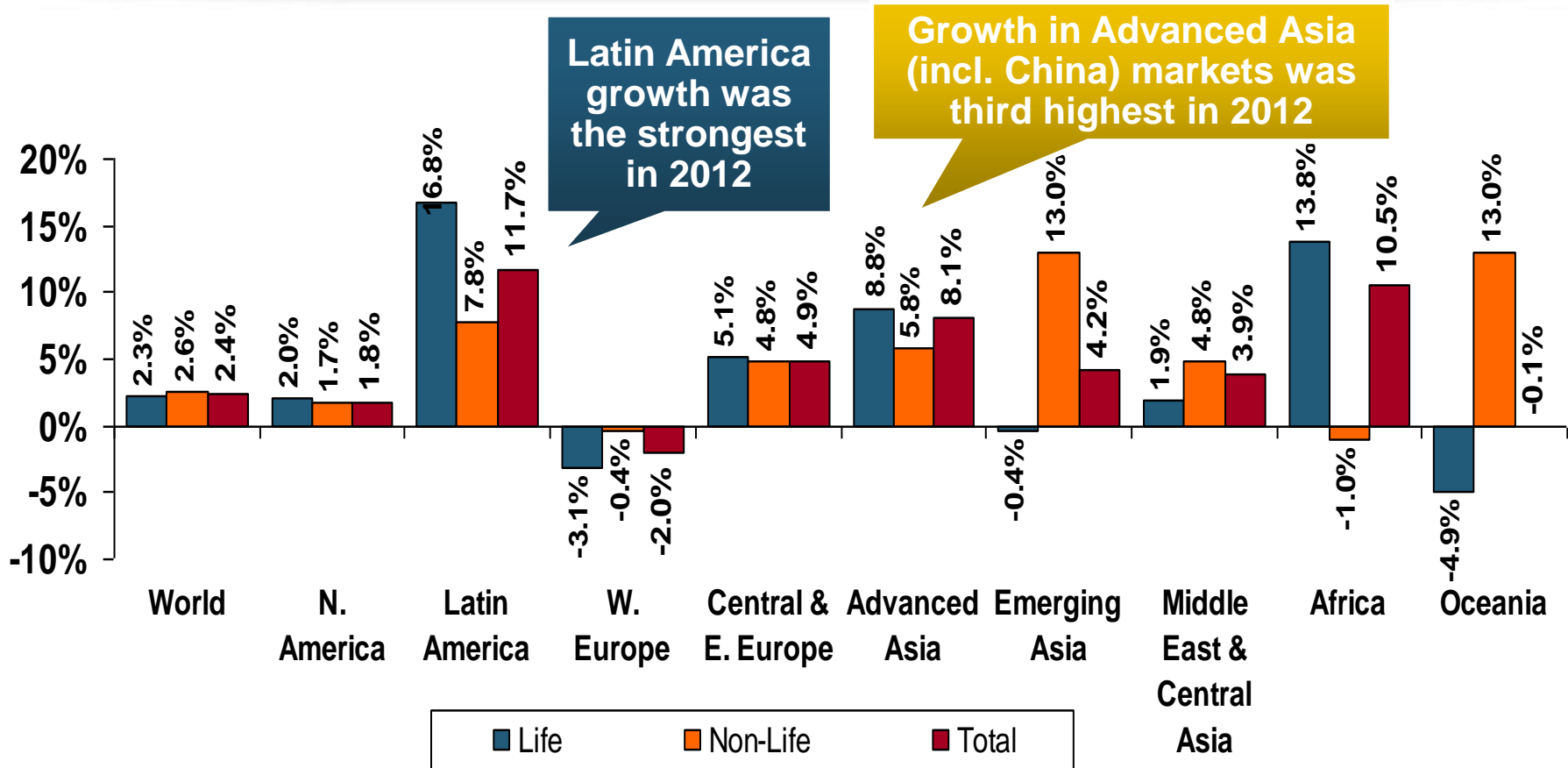


**Growth Outside the US, Europe and Japan is Relatively Strong**

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

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

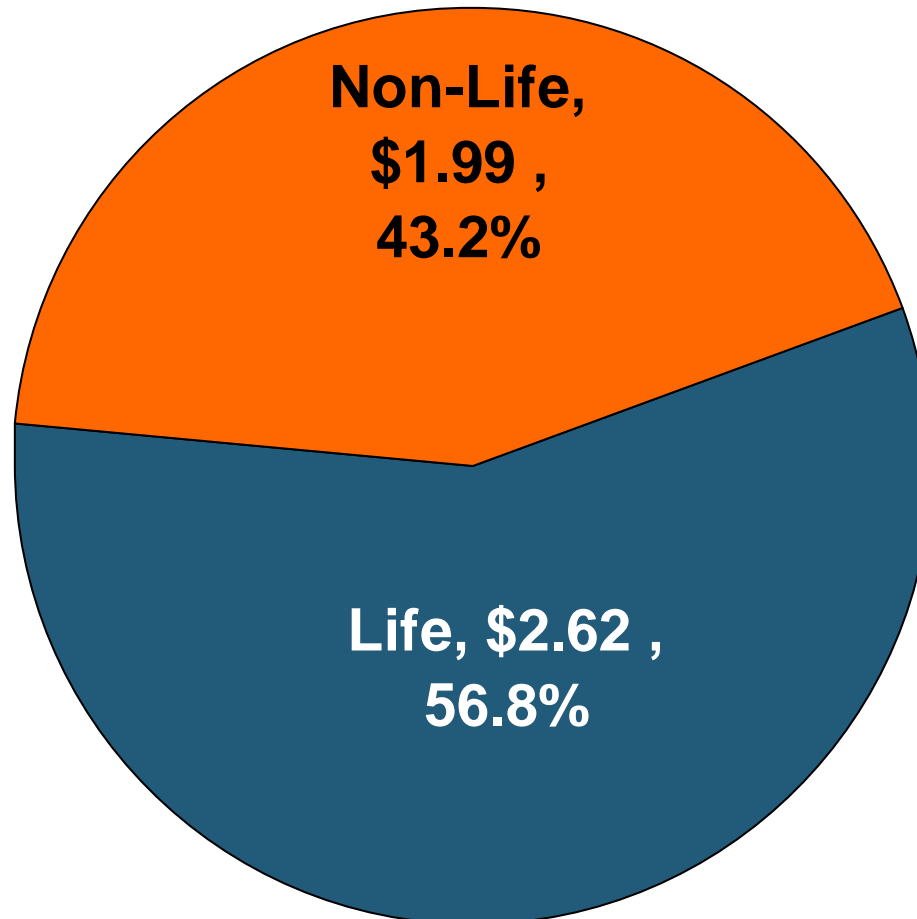
# Premium Growth by Region, 2012



**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**

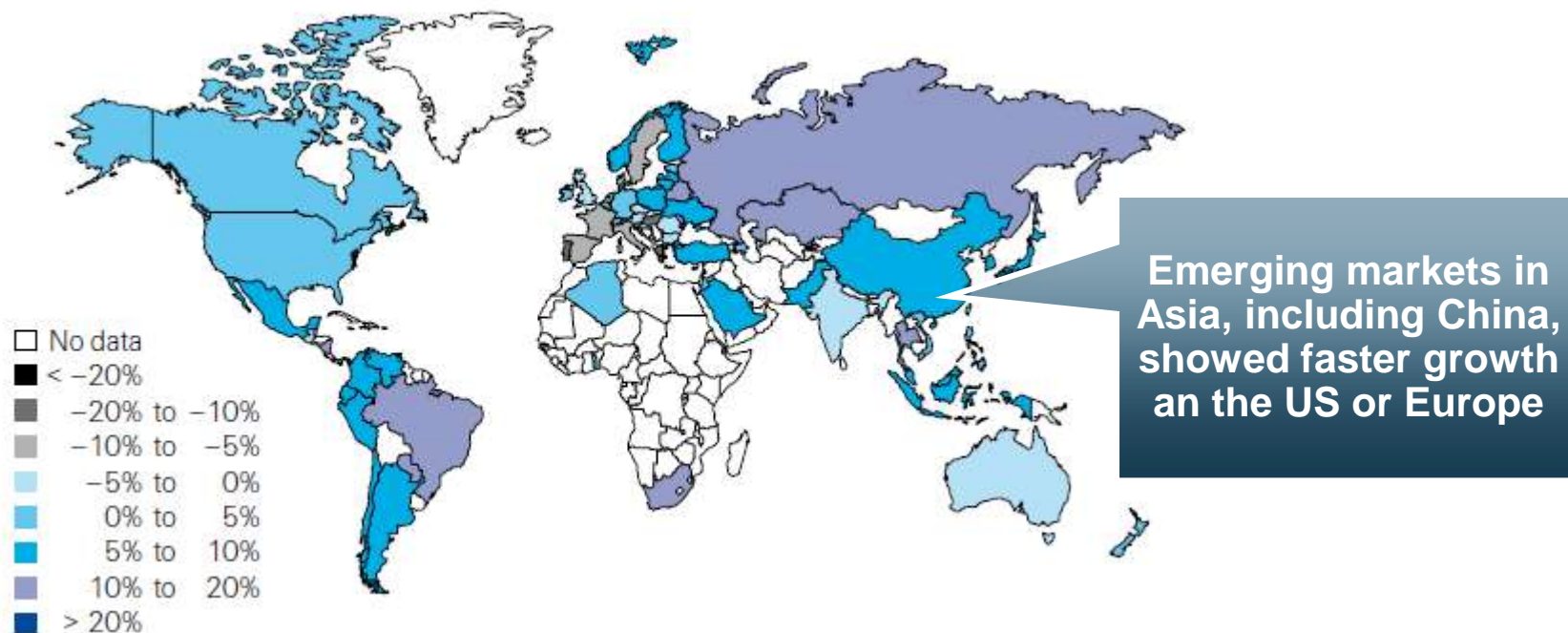
# Distribution of Global Insurance Premiums, 2012 (\$ Trillions)

Total Premium Volume = \$4.613 Trillion\*



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

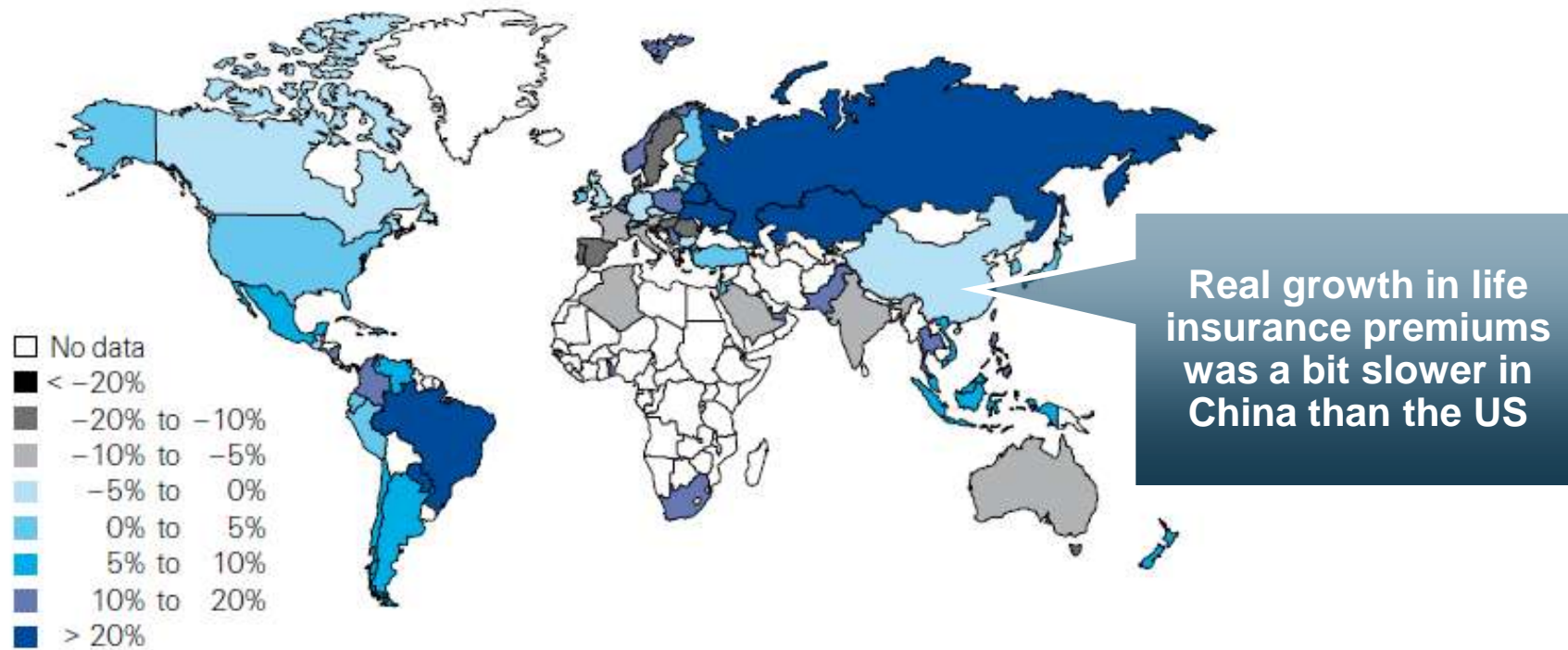
# Global Real (Inflation Adjusted) Premium Growth (Life and Non-Life): 2012



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

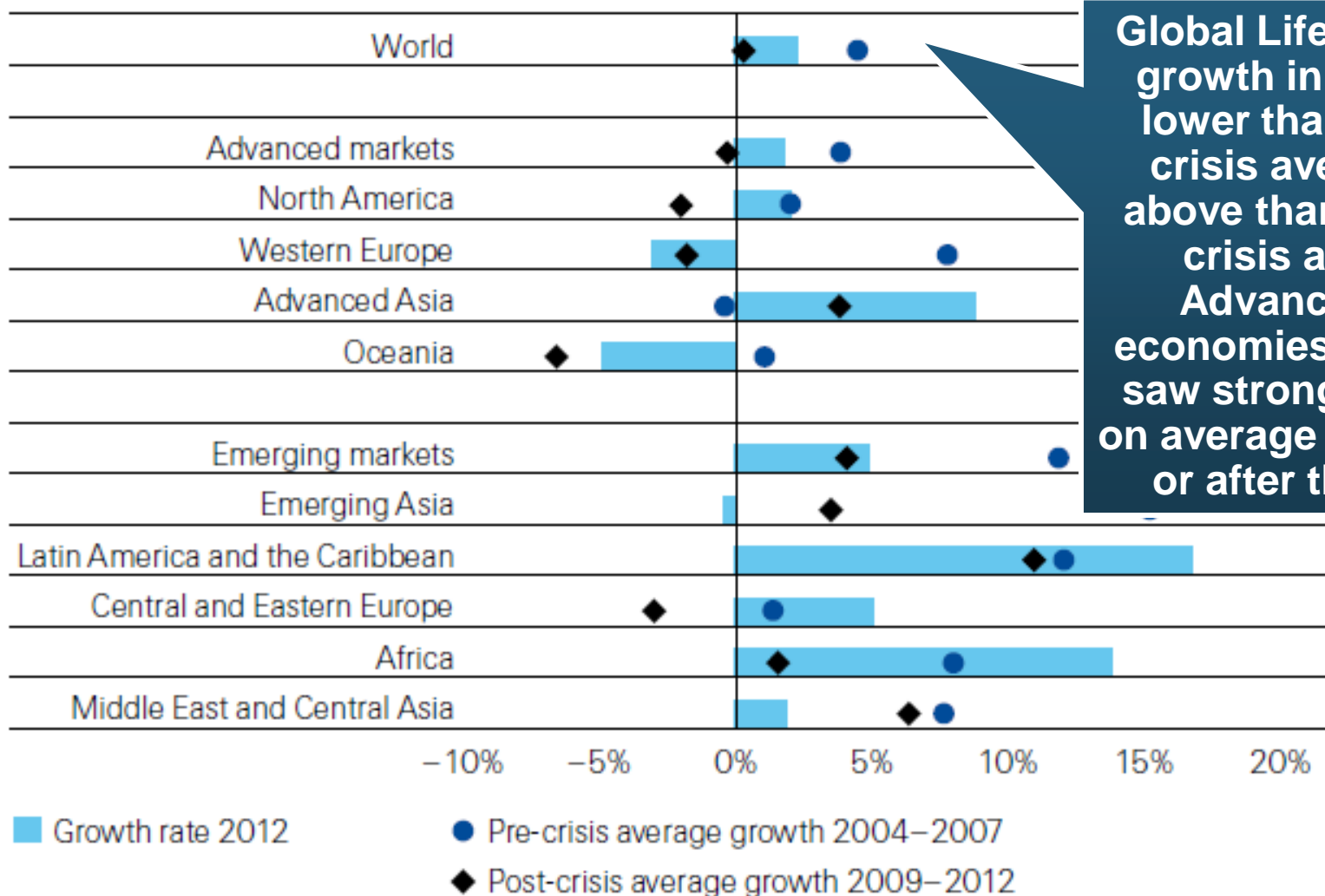


# Life Insurance: Global Real (Inflation Adjusted) Premium Growth, 2012



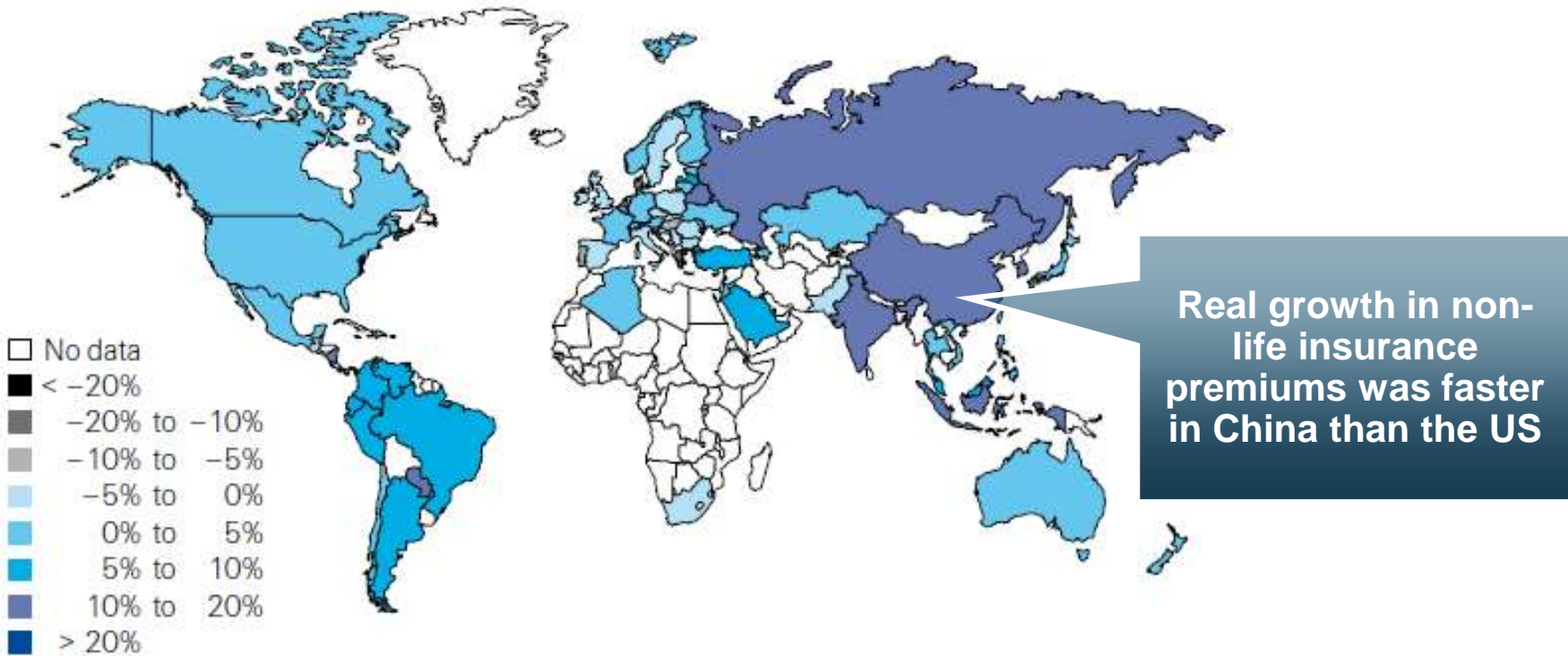
Market	Life	Non-Life	Total
Advanced	1.8	1.5	1.7
Emerging	4.9	8.6	6.8
World	2.3	2.6	2.4

# 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.

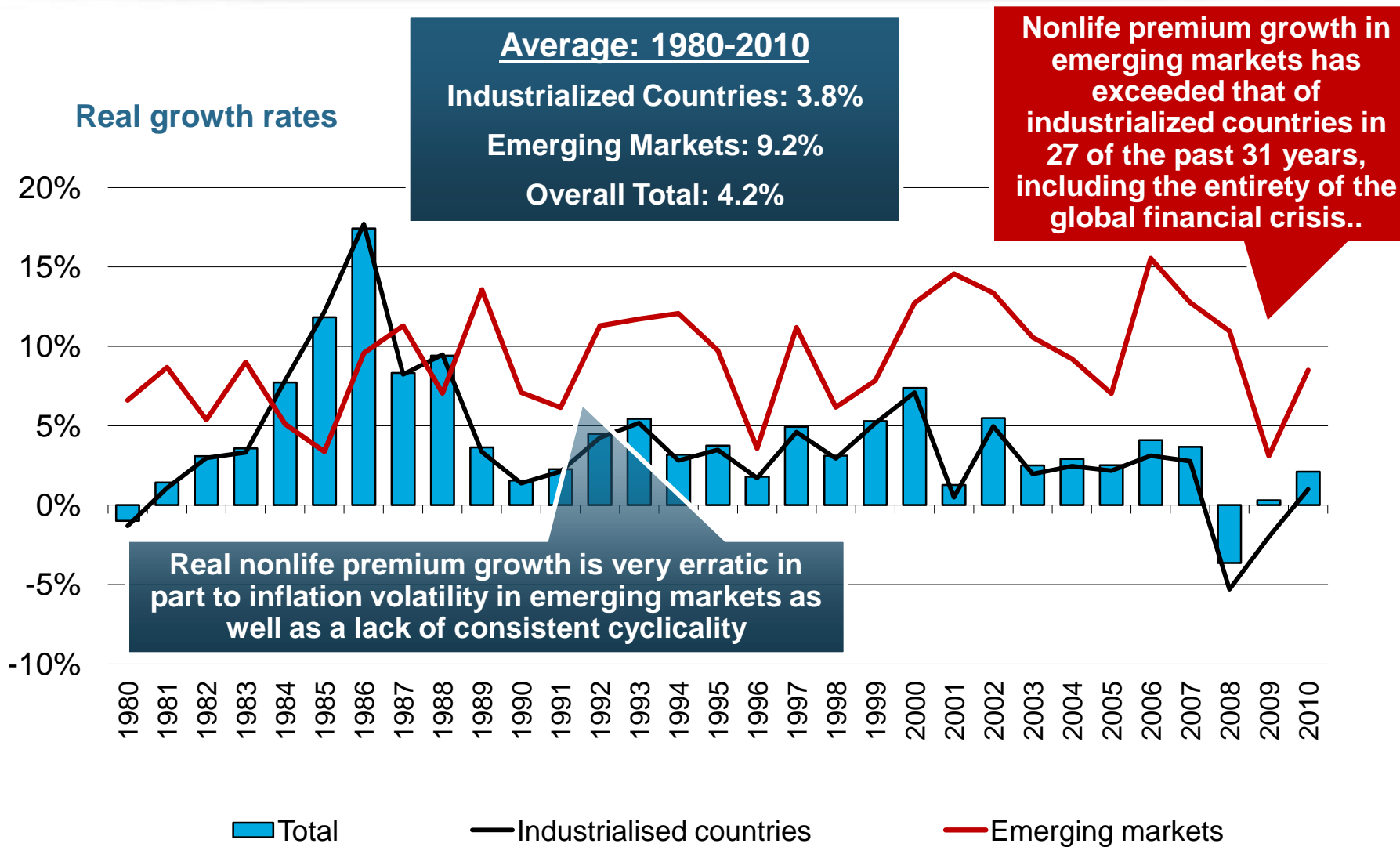
# Non-Life Insurance: Global Real (Inflation Adjusted) Premium Growth, 2012



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

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

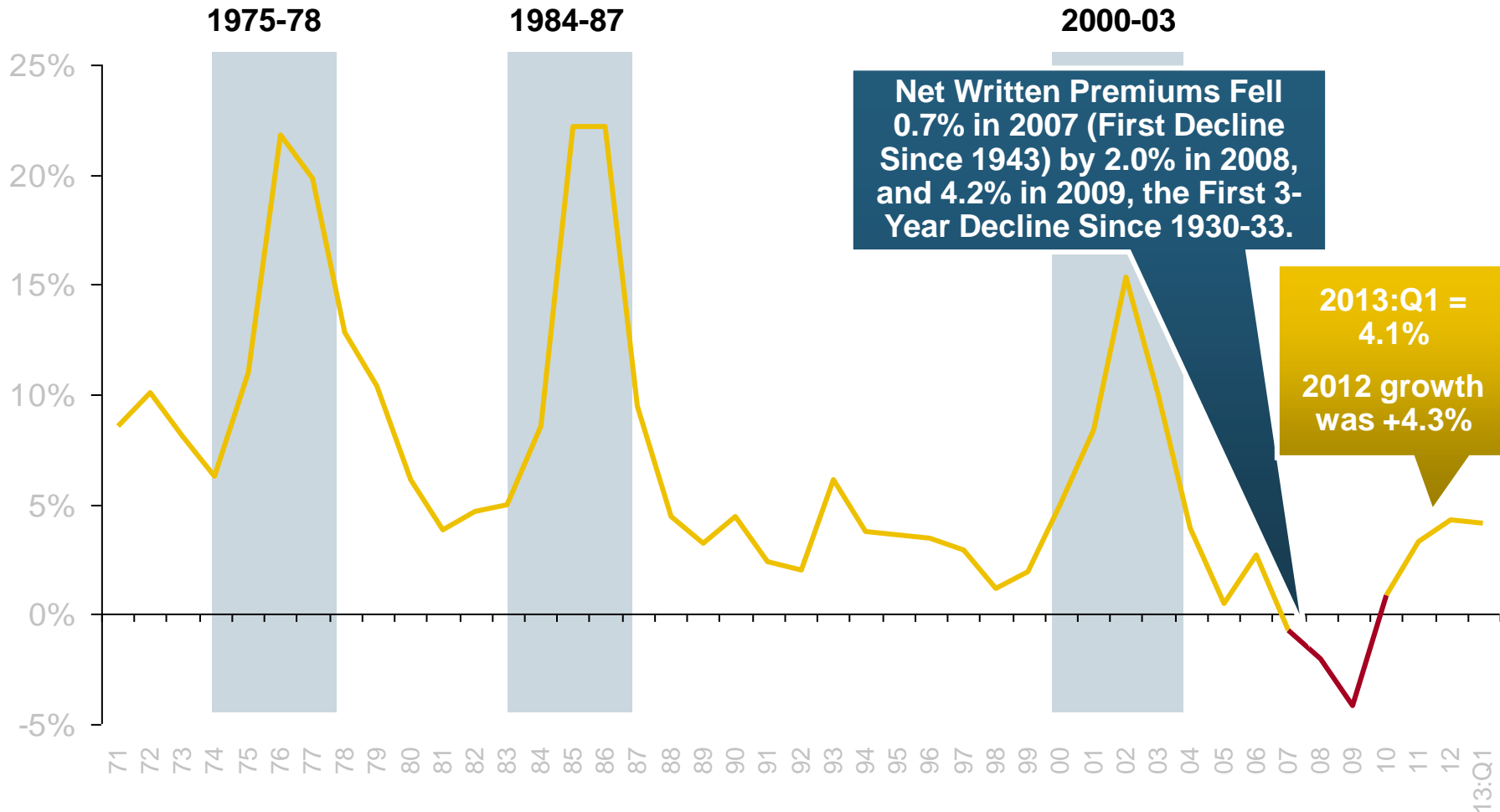
# Global Real (Inflation Adjusted) Nonlife Premium Growth: 1980-2010



Source: Swiss Re, *sigma*, No. 2/2010.

# Net Premium Growth: Annual Change, 1971—2013:Q1

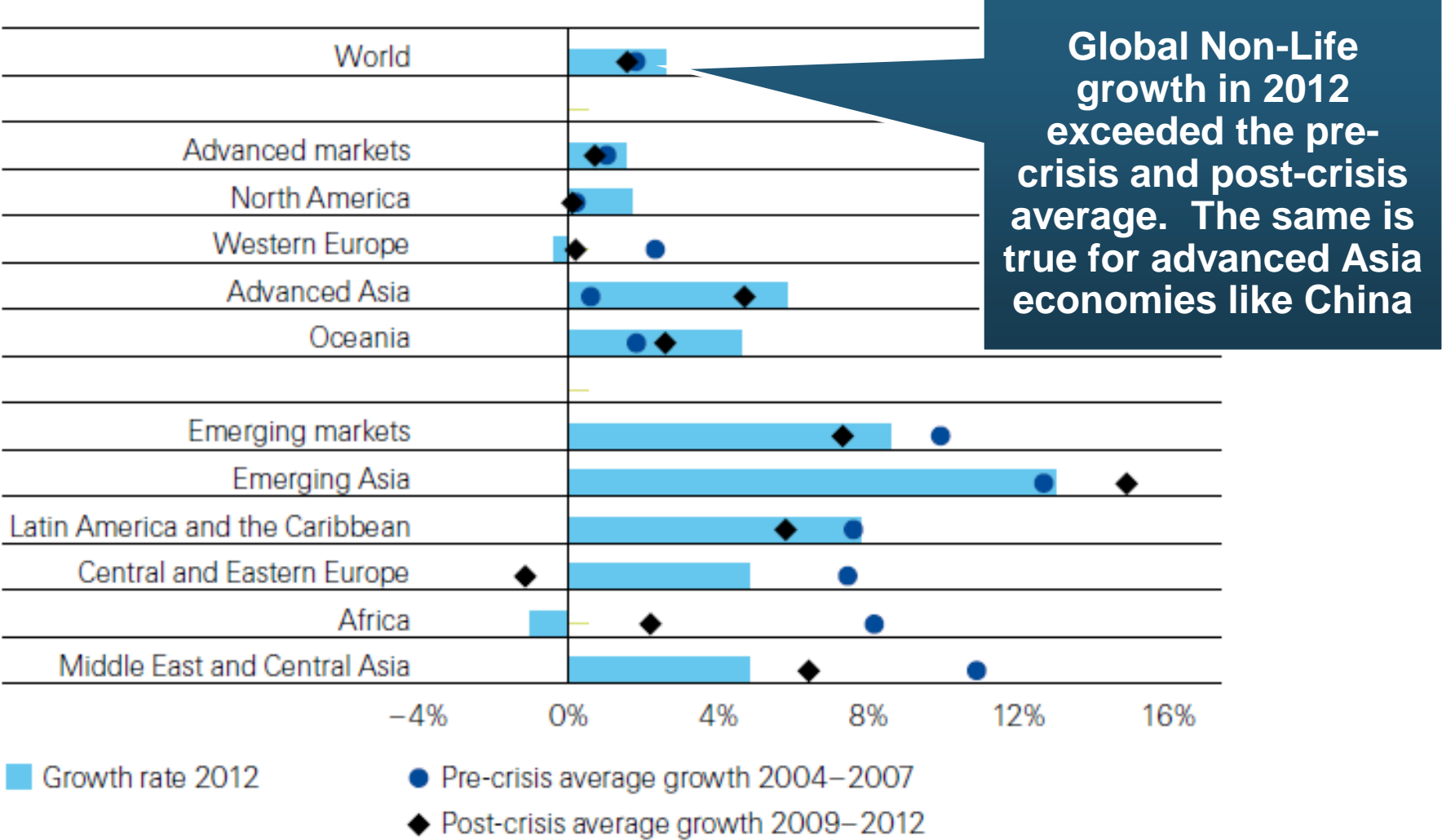
(Percent)



Shaded areas denote “hard market” periods

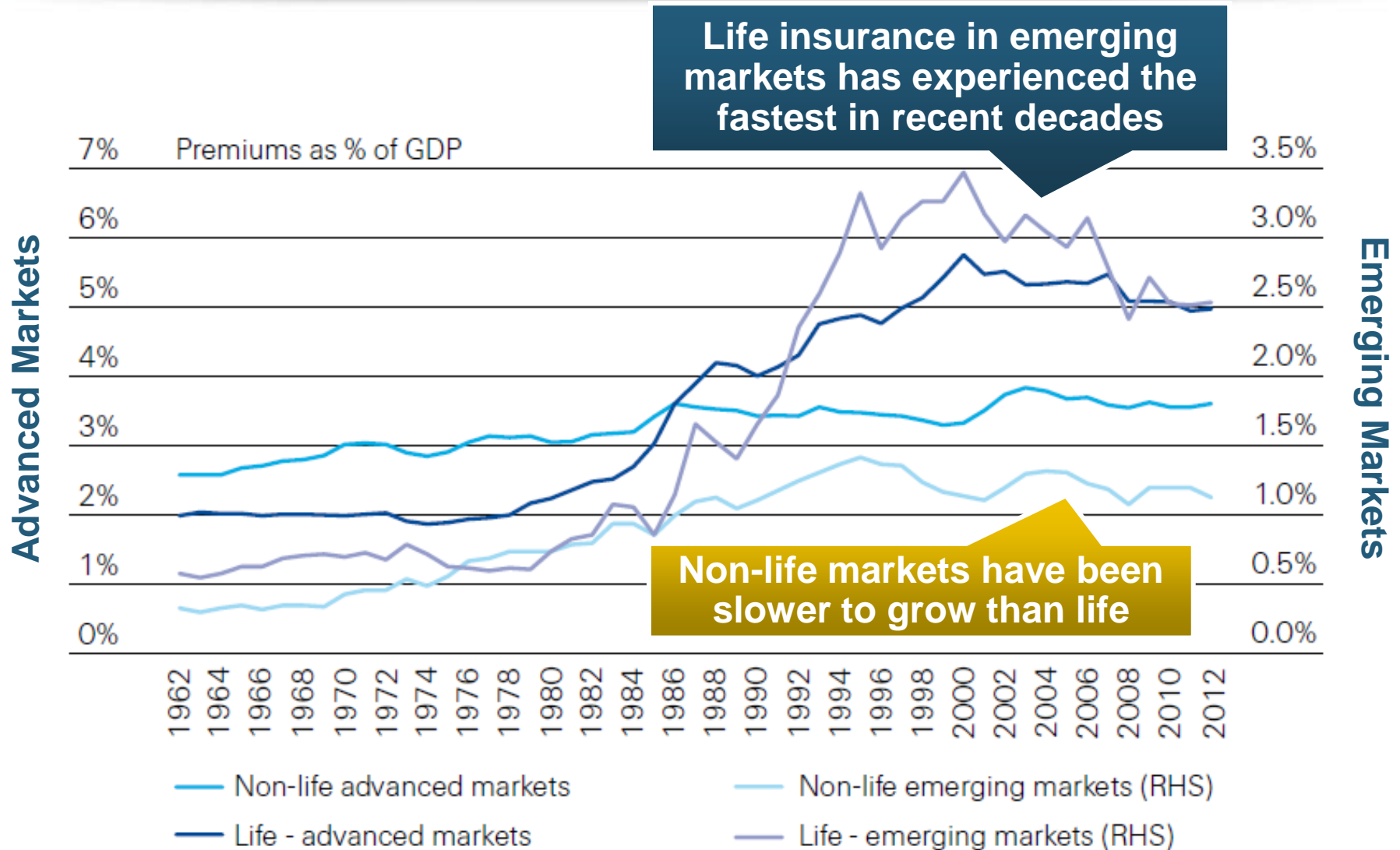
Sources: A.M. Best (historical and forecast), ISO, Insurance Information Institute.

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



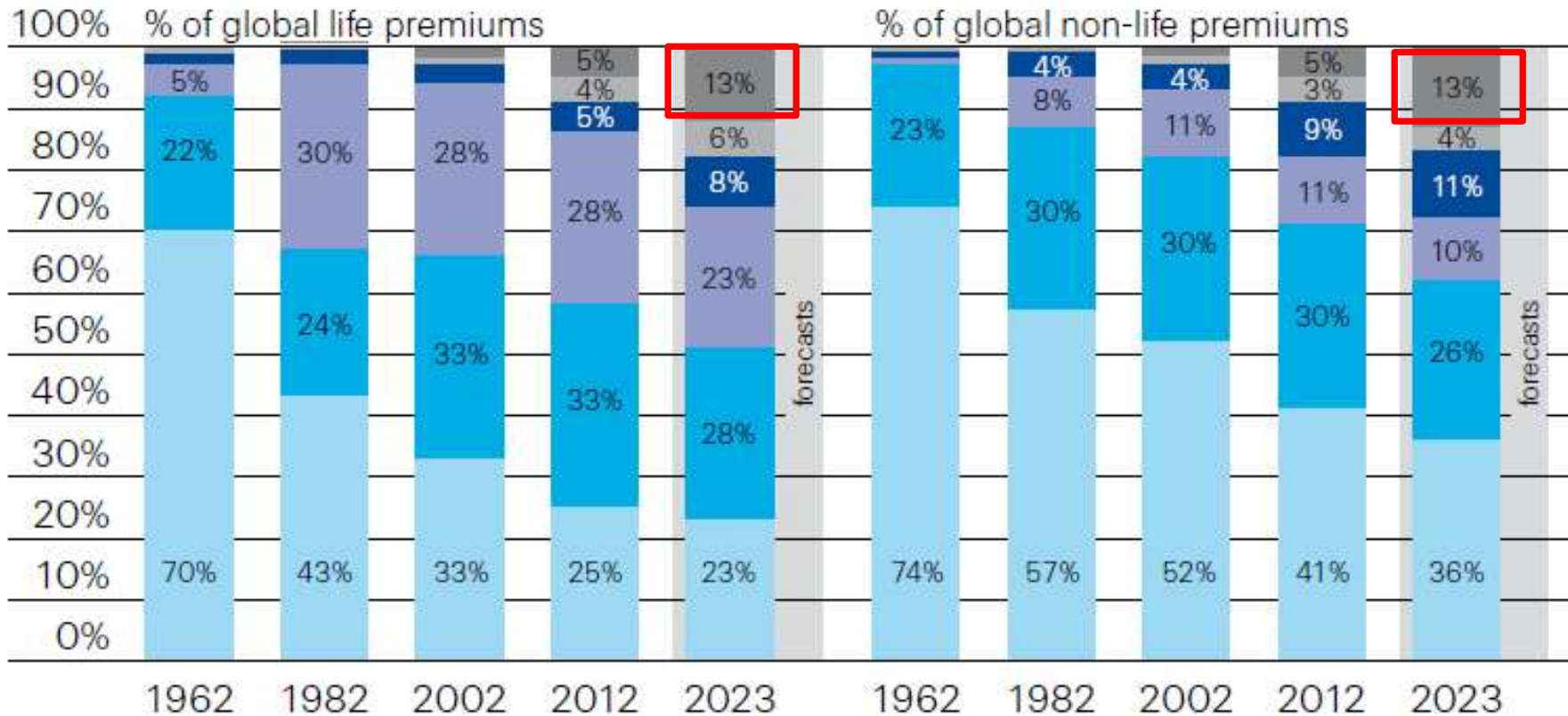
Source: Swiss Re, *sigma*, No. 3/2013.

# 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**



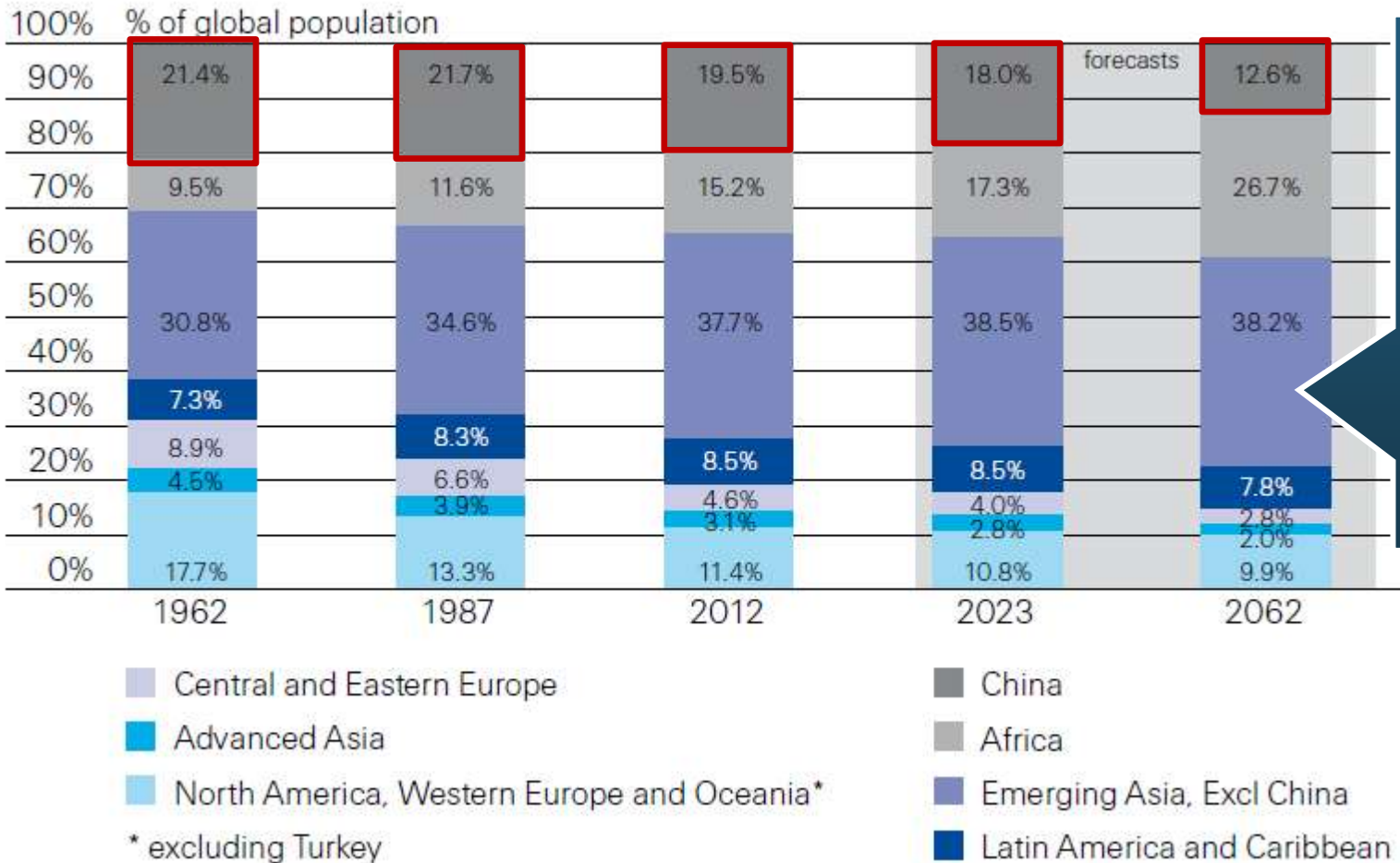
- Advanced Asia
- Western Europe
- North America, Oceania

- China
- Emerging Asia, Excl China
- Non-Asian Emerging Markets



# Population Distribution, by Region: 1962-2062F

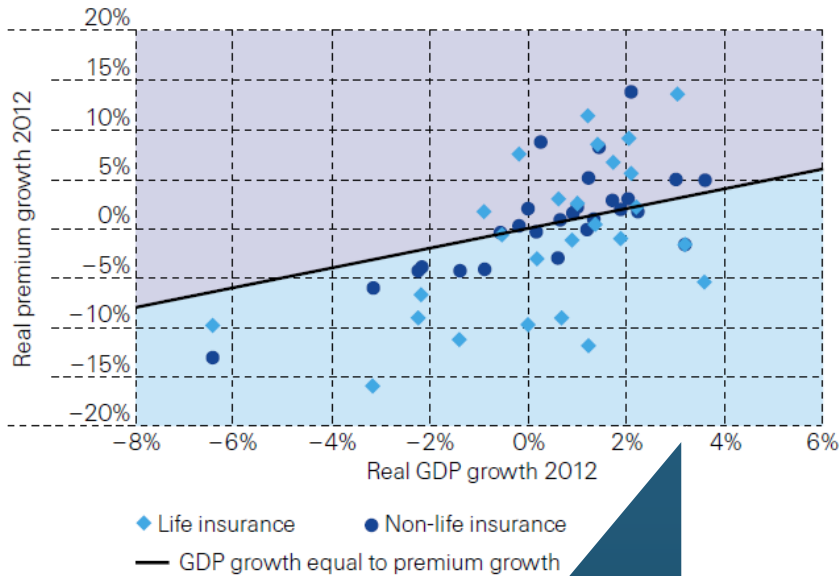
## Enormous population shifts will impact insurance demand over the next half century



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

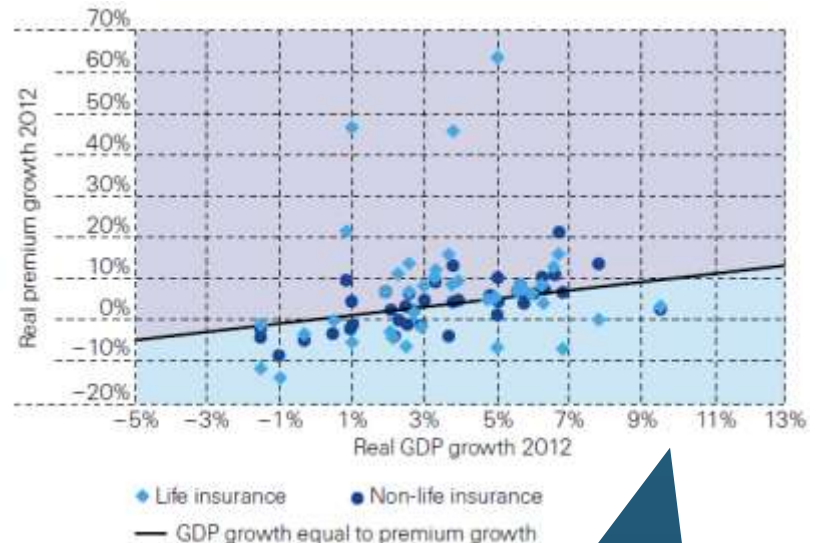
# Relationship Between Real GDP and Real Life and Non-Life Premium Growth, 2012

## Advanced Markets



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

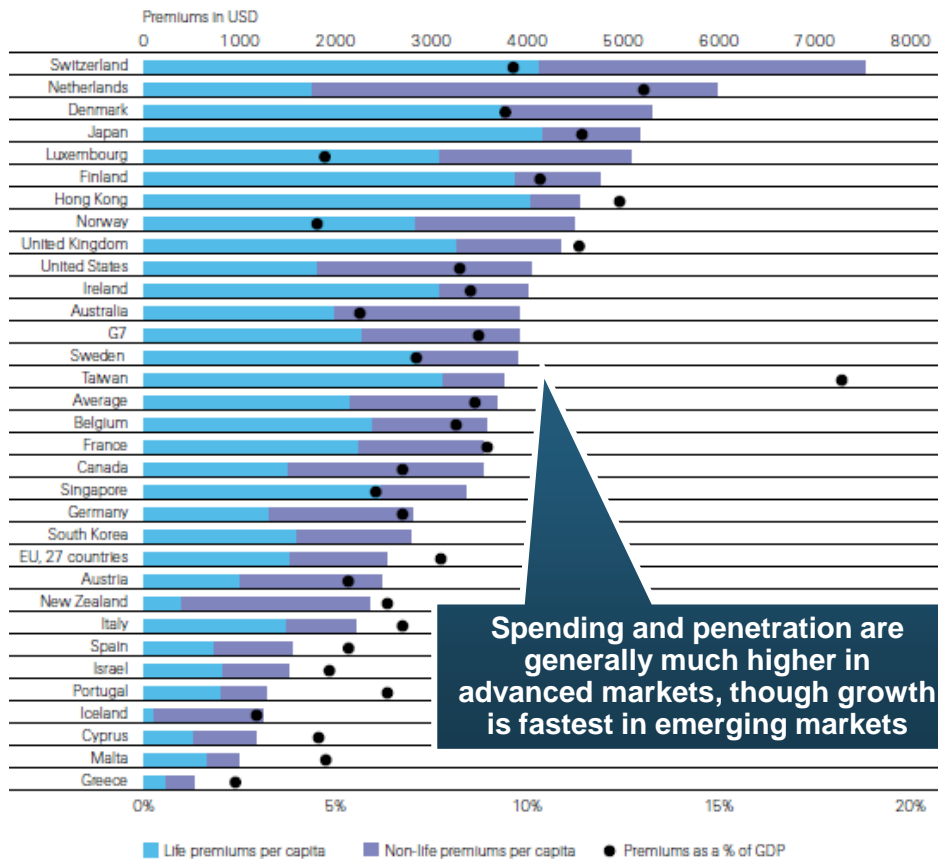
## Emerging Markets



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

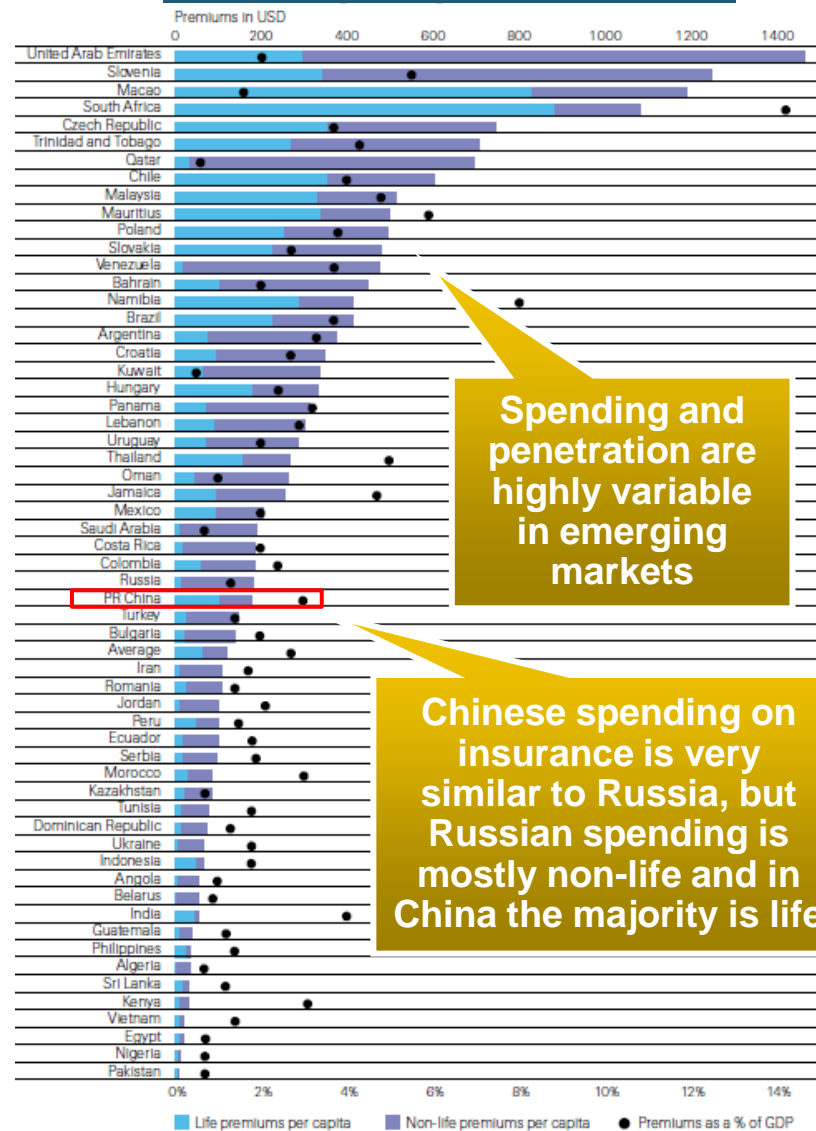
# Insurance Density and Penetration for Advanced and Emerging Markets, 2012

## Advanced Markets



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

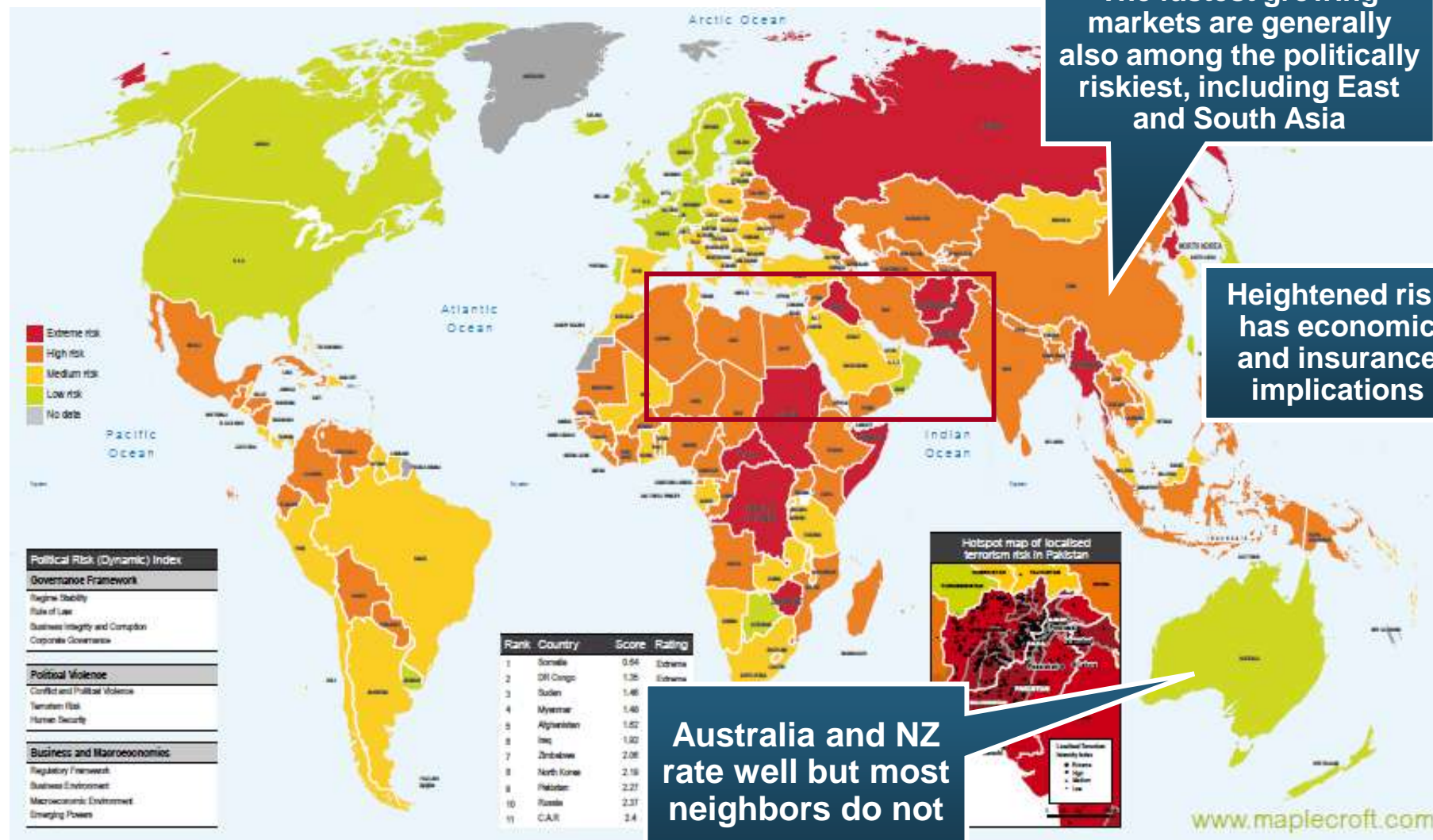
## Emerging Markets



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

# 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

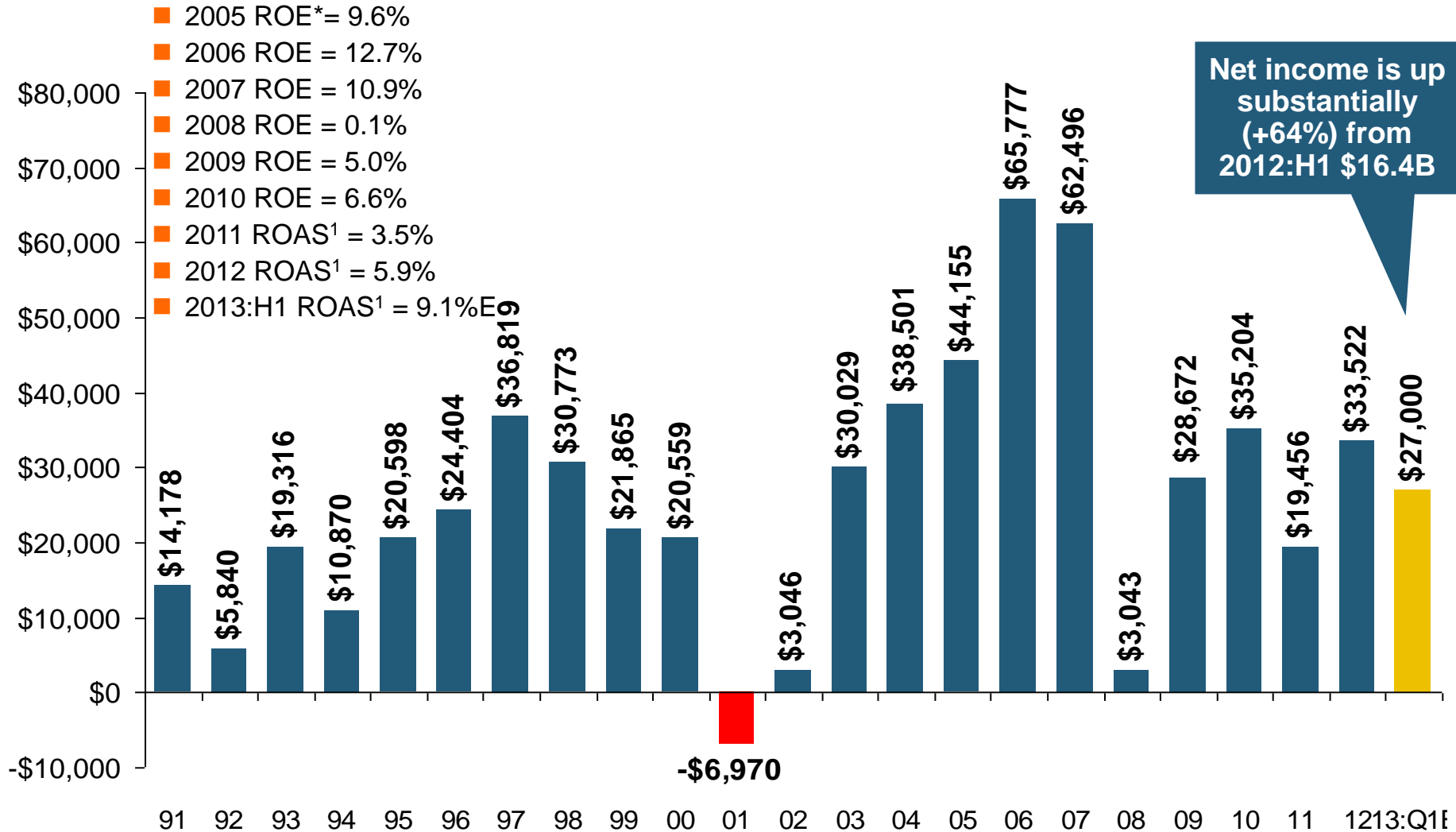


# U.S. P/C (Non-Life) Insurance Industry Financial Overview

**So Far, So Good:**

**Profit Recovery in 2013 After High CAT Losses in 2011-12**

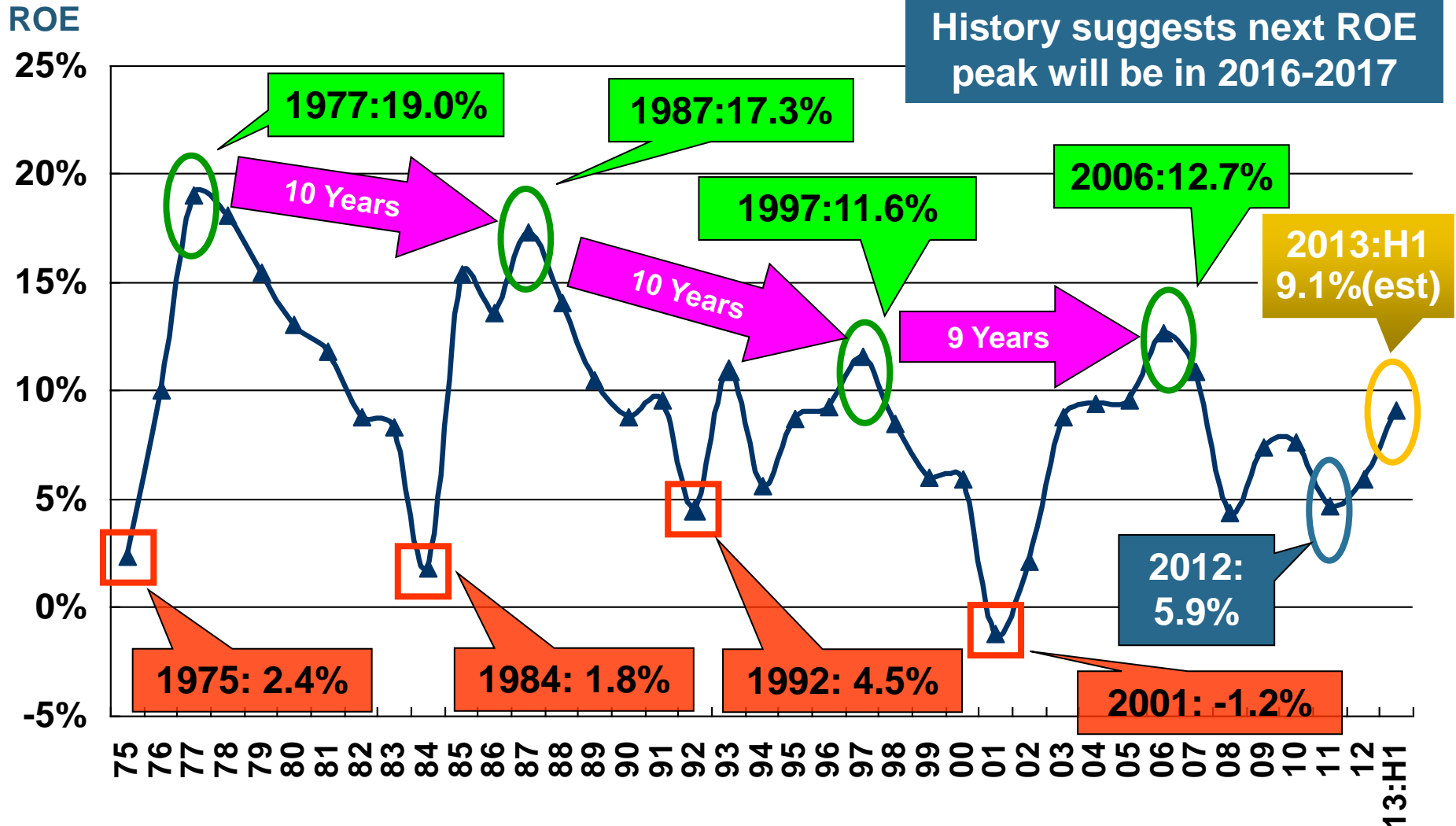
# P/C Net Income After Taxes 1991–2013:H1 (\$ Millions)



• ROE figures are GAAP; <sup>1</sup>Return on avg. surplus. Excluding Mortgage & Financial Guaranty insurers yields a 9.7% ROAS in 2013:Q1, 6.2% ROAS in 2012, 4.7% ROAS for 2011, 7.6% for 2010 and 7.4% for 2009.

Sources: A.M. Best, ISO, Insurance Information Institute

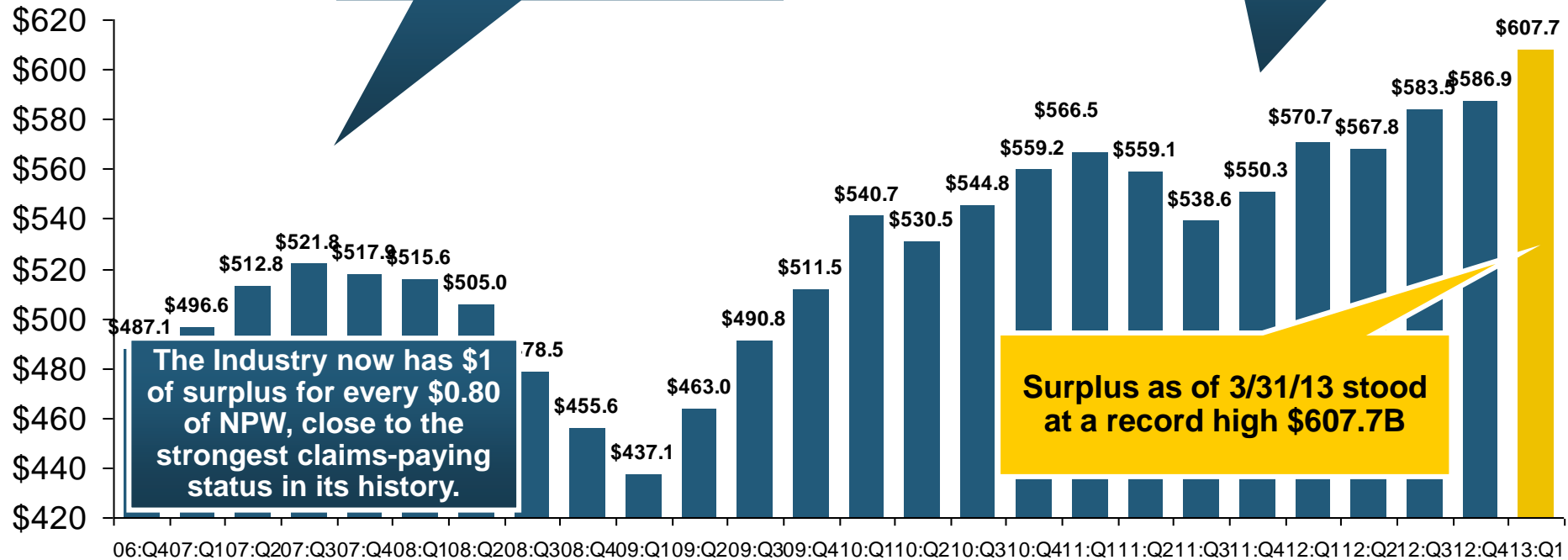
# Profitability Peaks & Troughs in the P/C Insurance Industry, 1975 – 2013:H1\*



\*Profitability = P/C insurer ROEs. 2011-13 figures are estimates based on ROAS data. Note: Data for 2008-2013 exclude mortgage and financial guaranty insurers.

# US Non-Life Policyholder Surplus (Capital), 2006:Q4–2013:Q1

(\$ Billions)



**2007:Q3  
Pre-Crisis Peak**

**Drop due to near-record  
2011 CAT losses**

**The industry now has \$1 of surplus for every \$0.80 of NPW, close to the strongest claims-paying status in its history.**

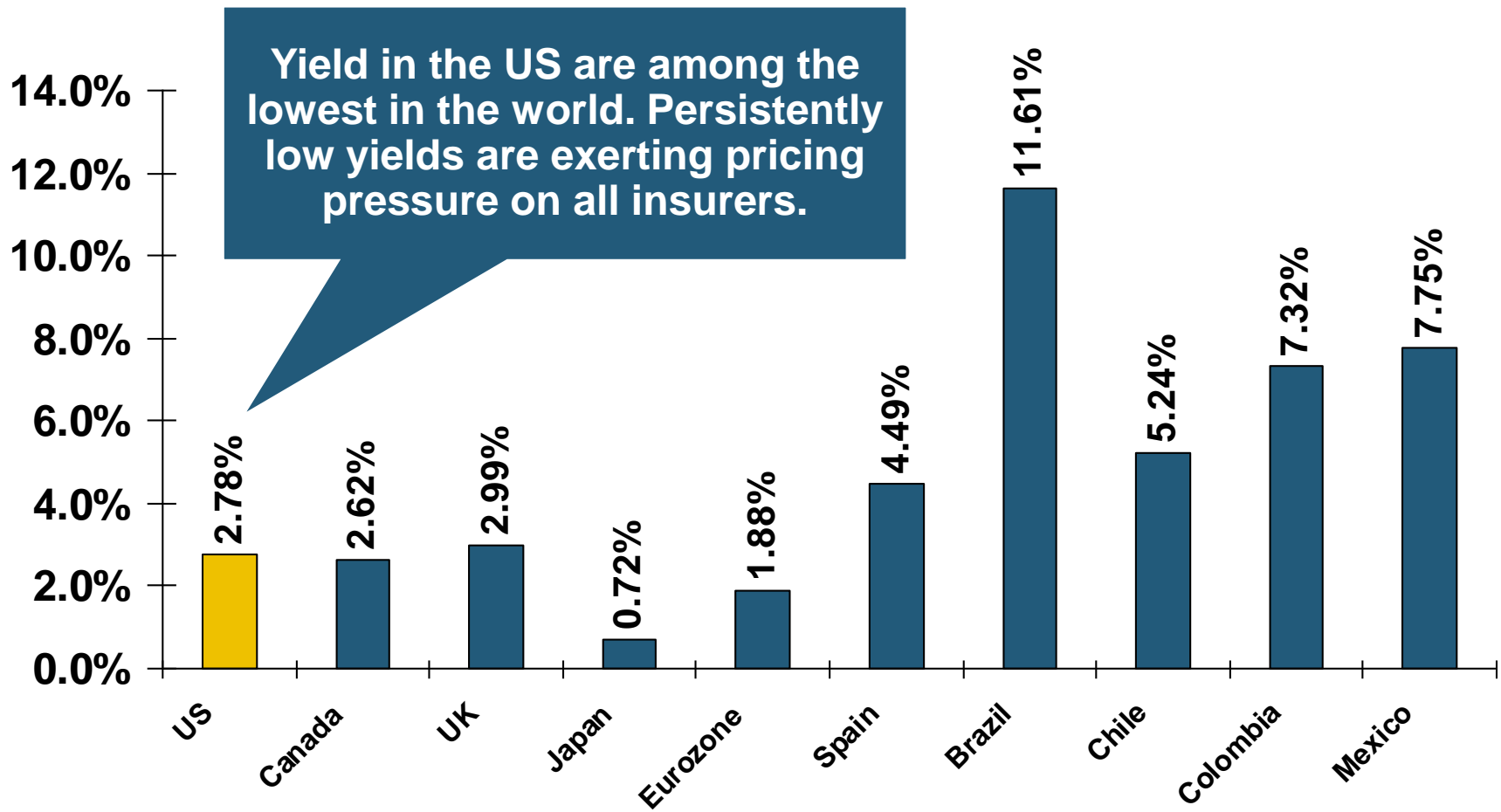
**Surplus as of 3/31/13 stood at a record high \$607.7B**

\*Includes \$22.5B of paid-in capital from a holding company parent for one insurer's investment in a non-insurance business in early 2010.

**The P/C Insurance Industry Both Entered and Emerged from the 2012 Hurricane Season Very Strong Financially.**



# Current Yields on 10-Year Government Bonds\*



\*Latest available.

Source: *The Economist*, Aug. 31, 2013; Insurance Information Institute.

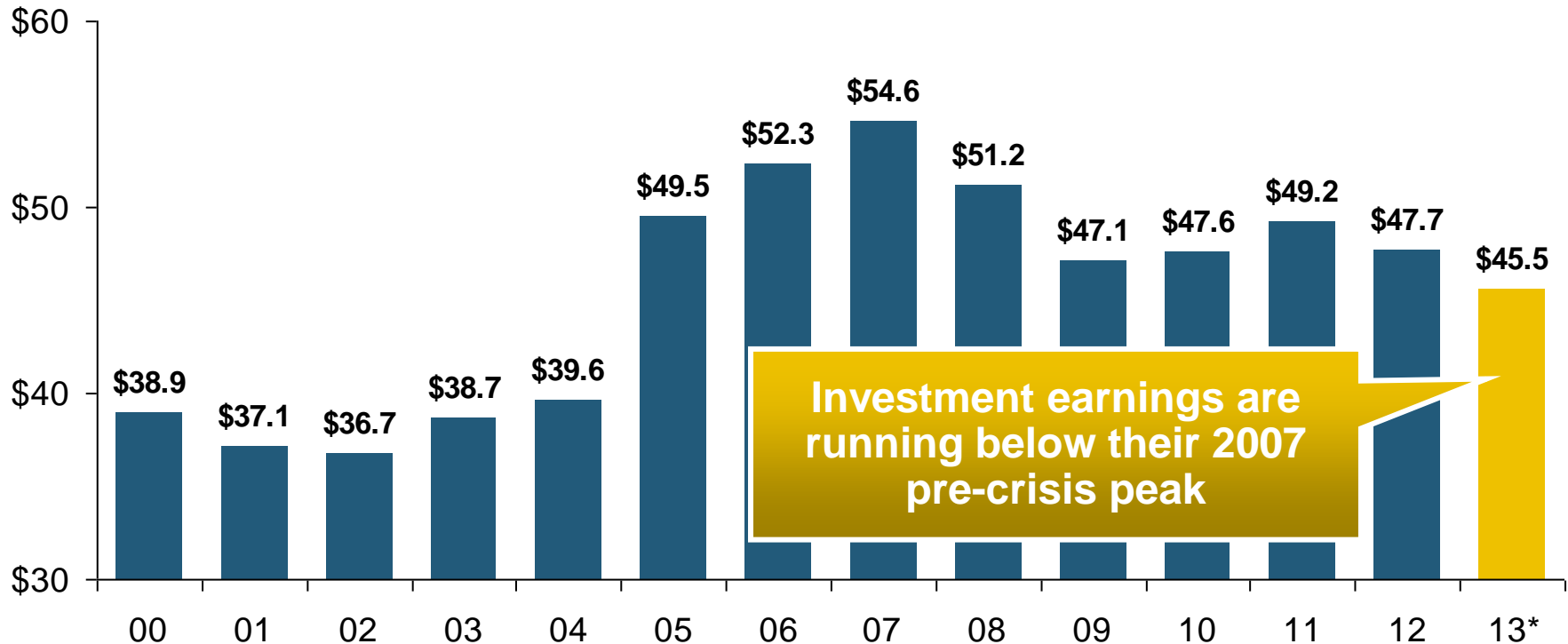
**INVESTMENTS:  
THE NEW REALITY**

**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**

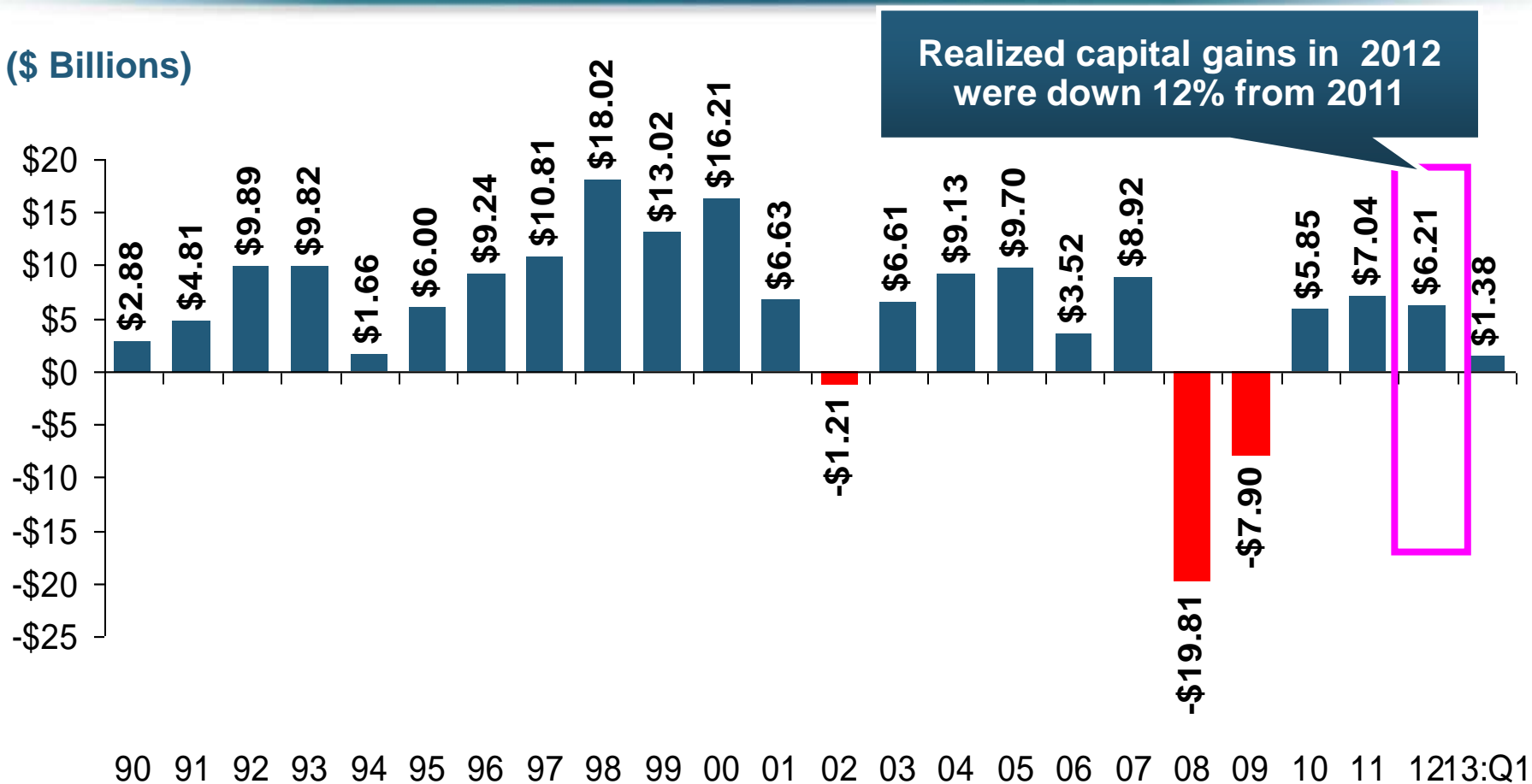
<sup>1</sup> Investment gains consist primarily of interest and stock dividends..

\*Estimate based on annualized actual Q1:2013 investment income of \$11.385B.

Sources: ISO; Insurance Information Institute.

# P/C Insurer Net Realized Capital Gains/Losses, 1990-2013:Q1

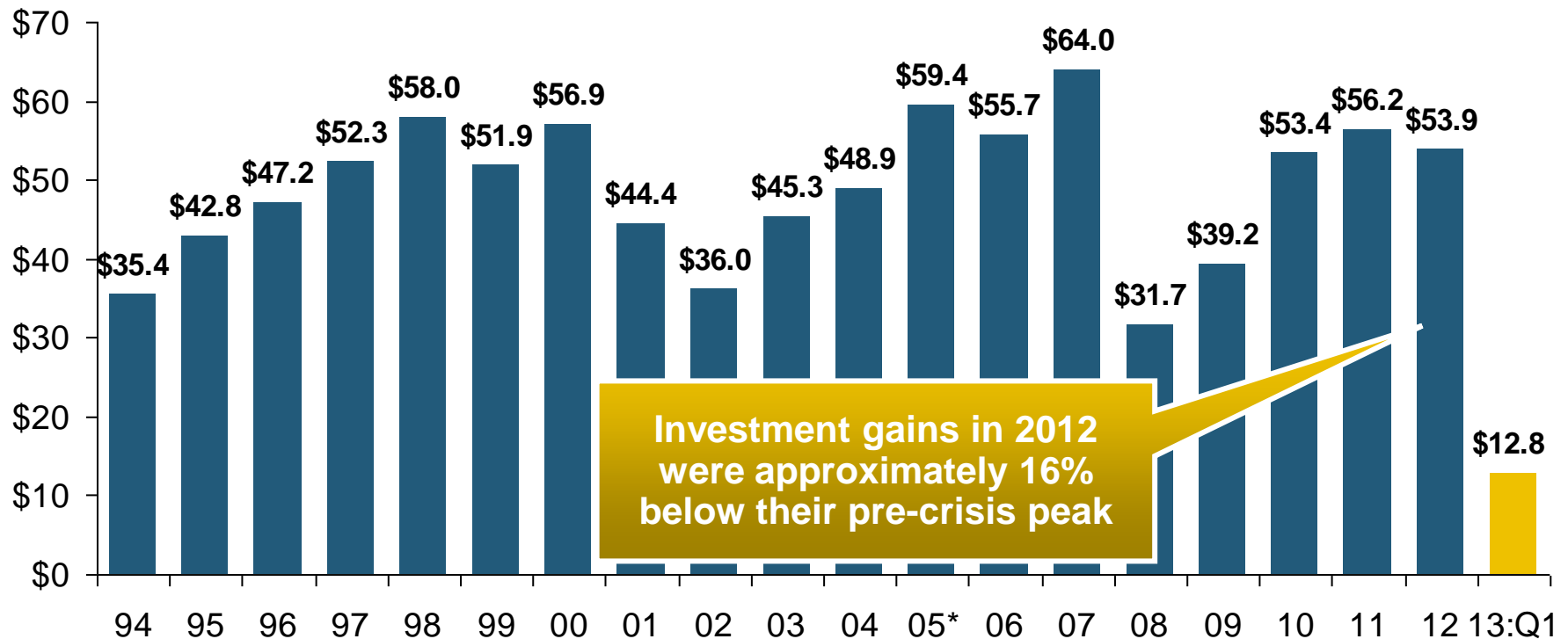
(\$ Billions)



**Insurers Posted Net Realized Capital Gains in 2010, 2011 and 2012 Following Two Years of Realized Losses During the Financial Crisis. Realized Capital Losses Were the Primary Cause of 2008/2009's Large Drop in Profits and ROE**

# Property/Casualty Insurance Industry Investment Gain: 1994–2013:Q1<sup>1</sup>

(\$ Billions)



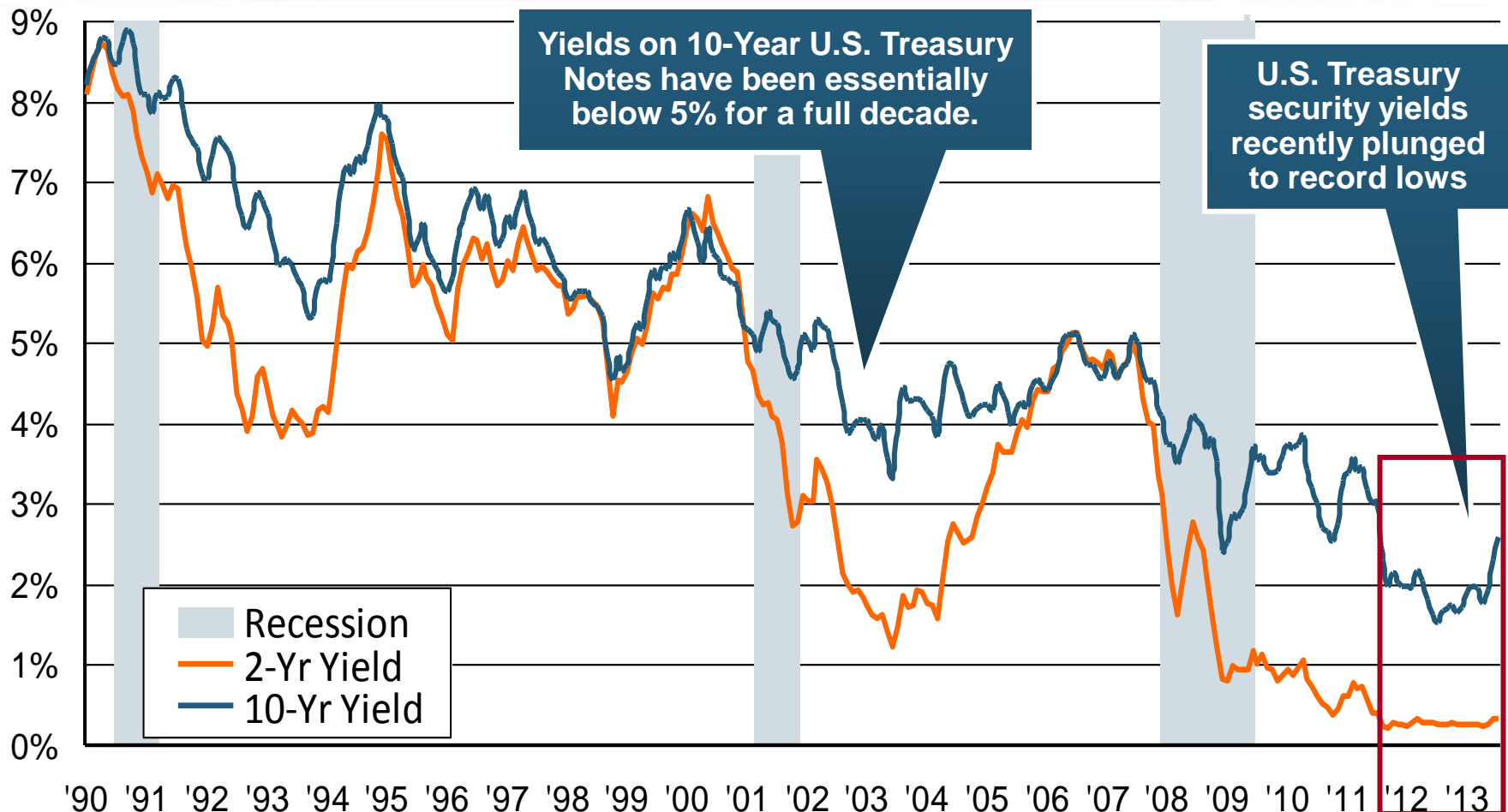
**Investment Gains Are Slipping in 2012 as Low Interest Rates Reduce Investment Income and Lower Realized Investment Gains; The Financial Crisis Caused Investment Gains to Fall by 50% in 2008**

<sup>1</sup> Investment gains consist primarily of interest, stock dividends and realized capital gains and losses.

\* 2005 figure includes special one-time dividend of \$3.2B;

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 July 2013.

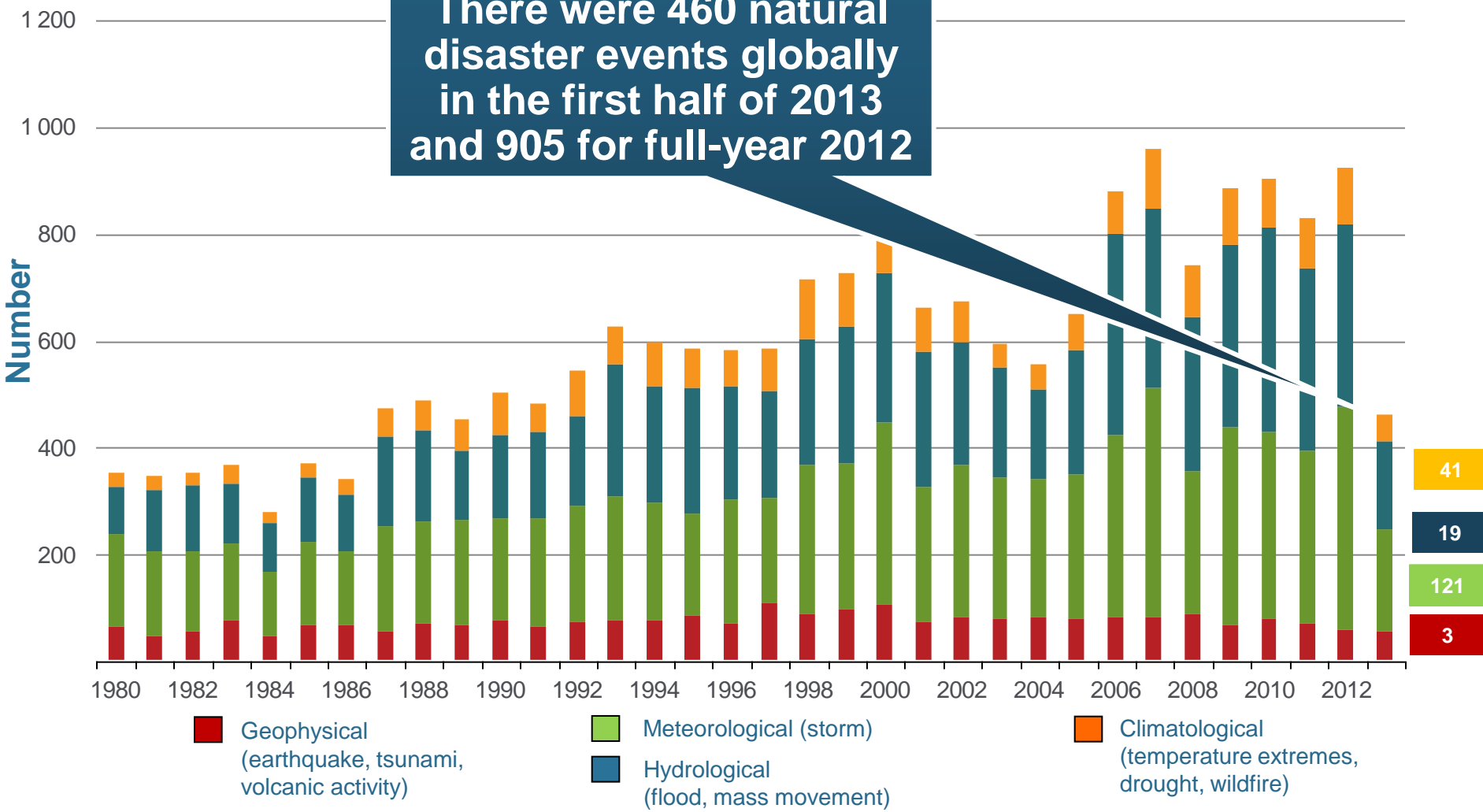
Sources: Federal Reserve Bank at <http://www.federalreserve.gov/releases/h15/data.htm>.  
 National Bureau of Economic Research (recession dates); Insurance Information Institute.

# **U.S. Insured Catastrophe Loss Update**

**Catastrophe Losses in Recent Years  
Have Been Very High**

# 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



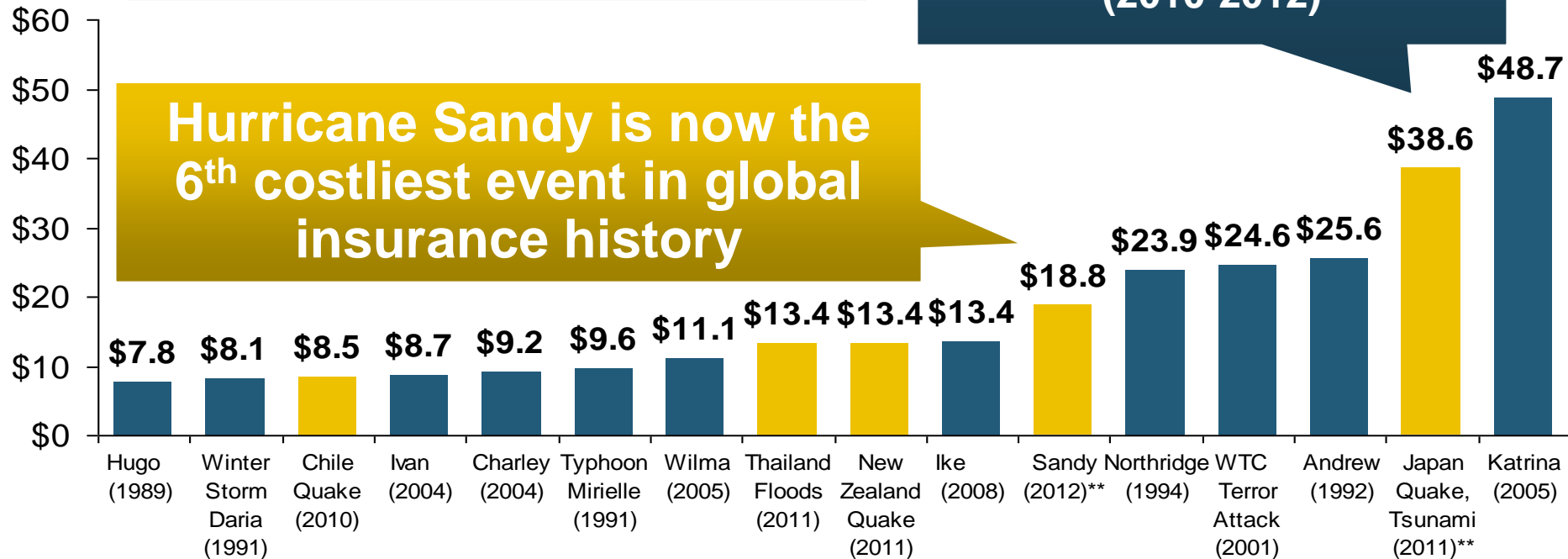
# Top 16 Most Costly World Insurance Losses, 1970-2012\*

(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.

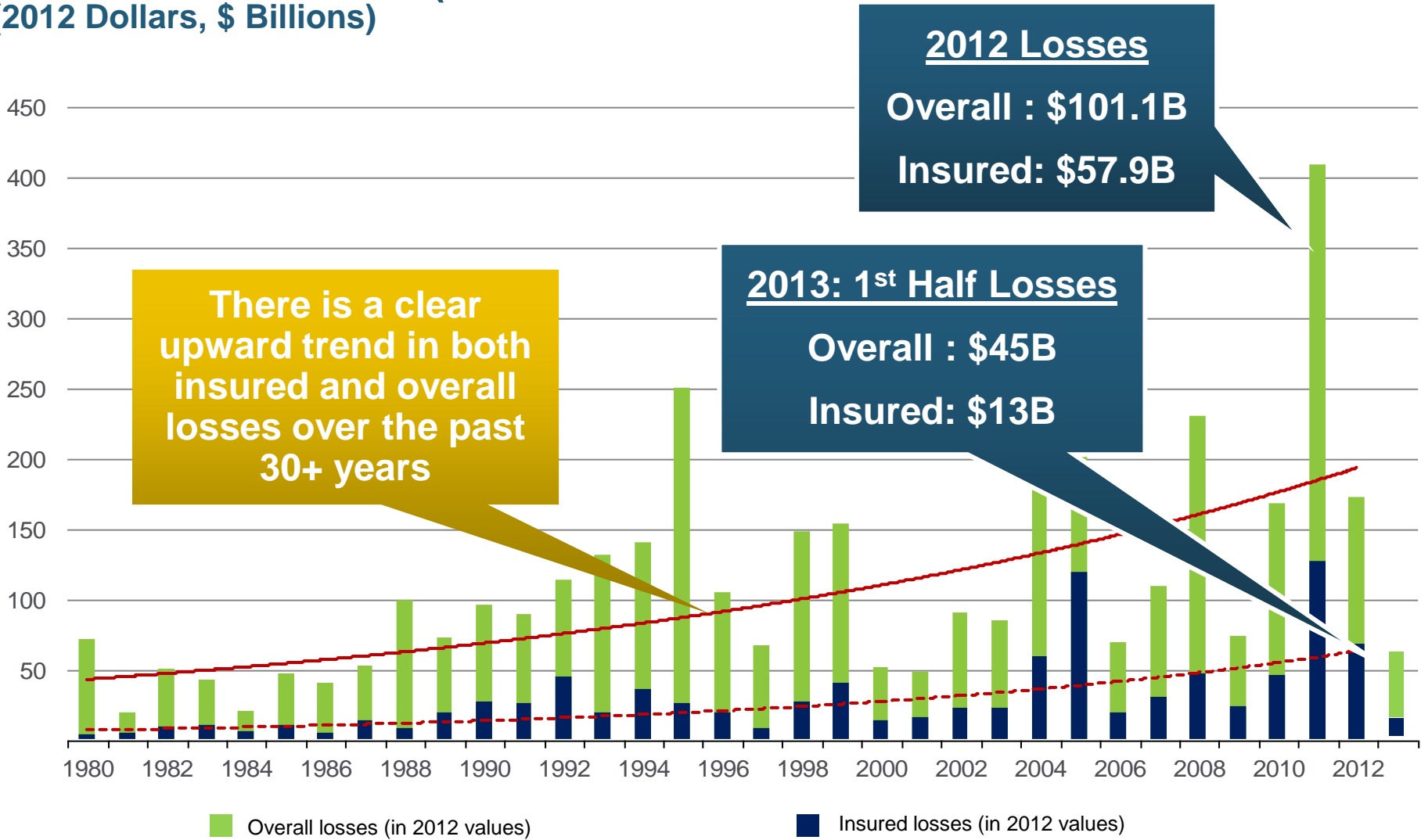
Sources: Munich Re; Swiss Re; Insurance Information Institute research.

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



## (Overall and Insured Losses)

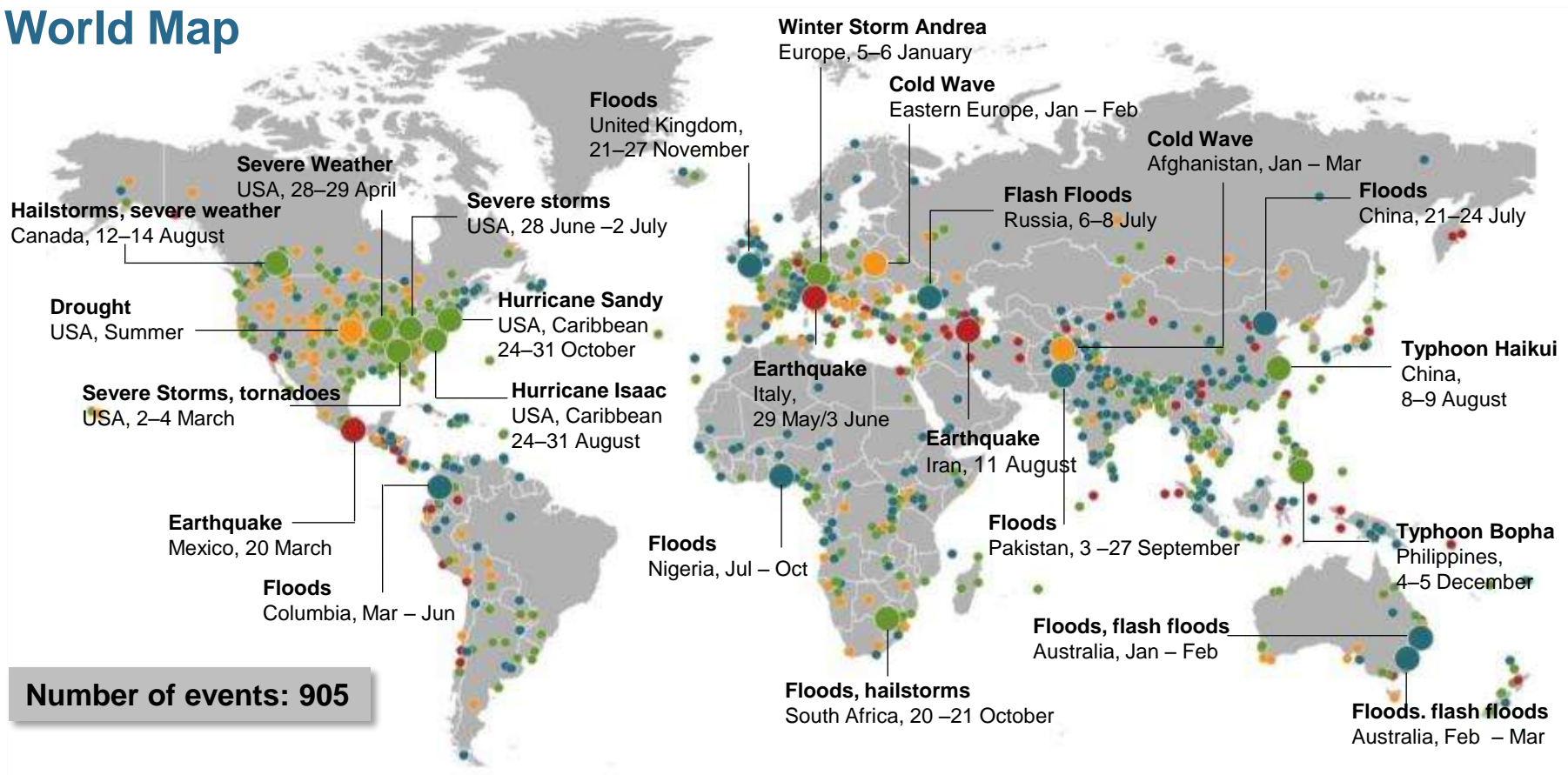
(2012 Dollars, \$ Billions)



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

# Natural Loss Events: Full Year 2012

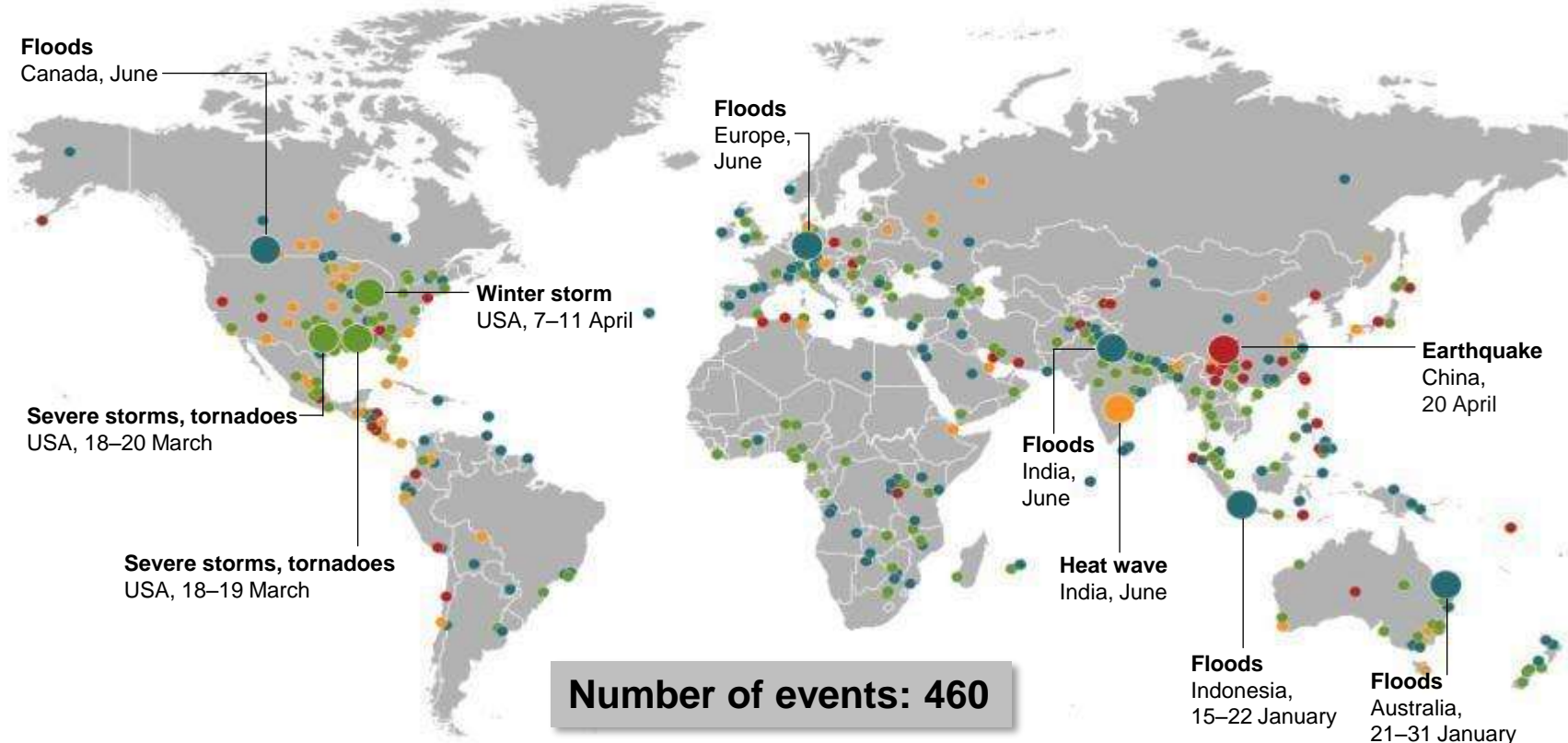
## World Map



- Natural catastrophes
- Geophysical events (earthquake, tsunami, volcanic activity)
- Hydrological events (flood, mass movement)
- Selection of significant Natural catastrophes
- Meteorological events (storm)
- Climatological events (extreme temperature, drought, wildfire)

# Natural Catastrophes January – June 2013

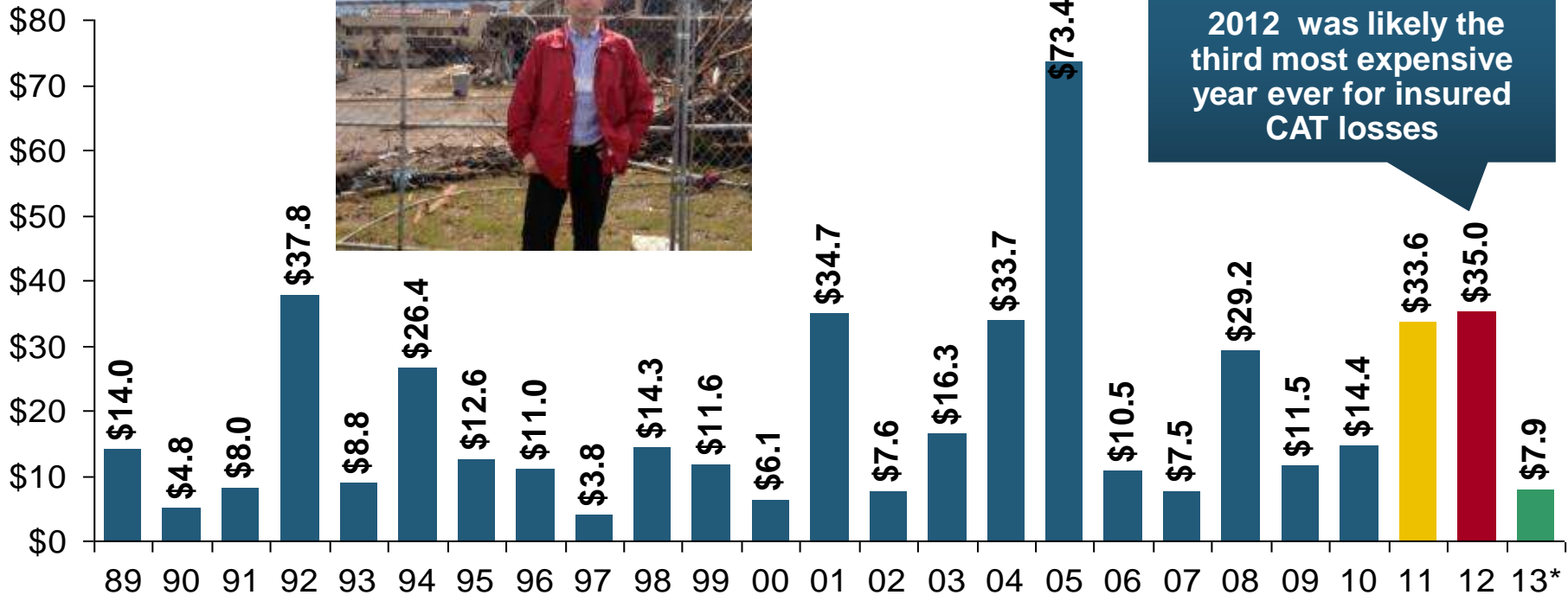
## World map with significant events



- Natural catastrophes
- Selection of significant loss events
- Geophysical events (earthquake, tsunami, volcanic activity)
- Meteorological events (storm)
- Hydrological events (flood, mass movement)
- Climatological events (extreme temperature, drought, wildfire)

# U.S. Insured Catastrophe Losses

(\$ Billions, \$ 2012)



2012 was likely the third most expensive year ever for insured CAT losses

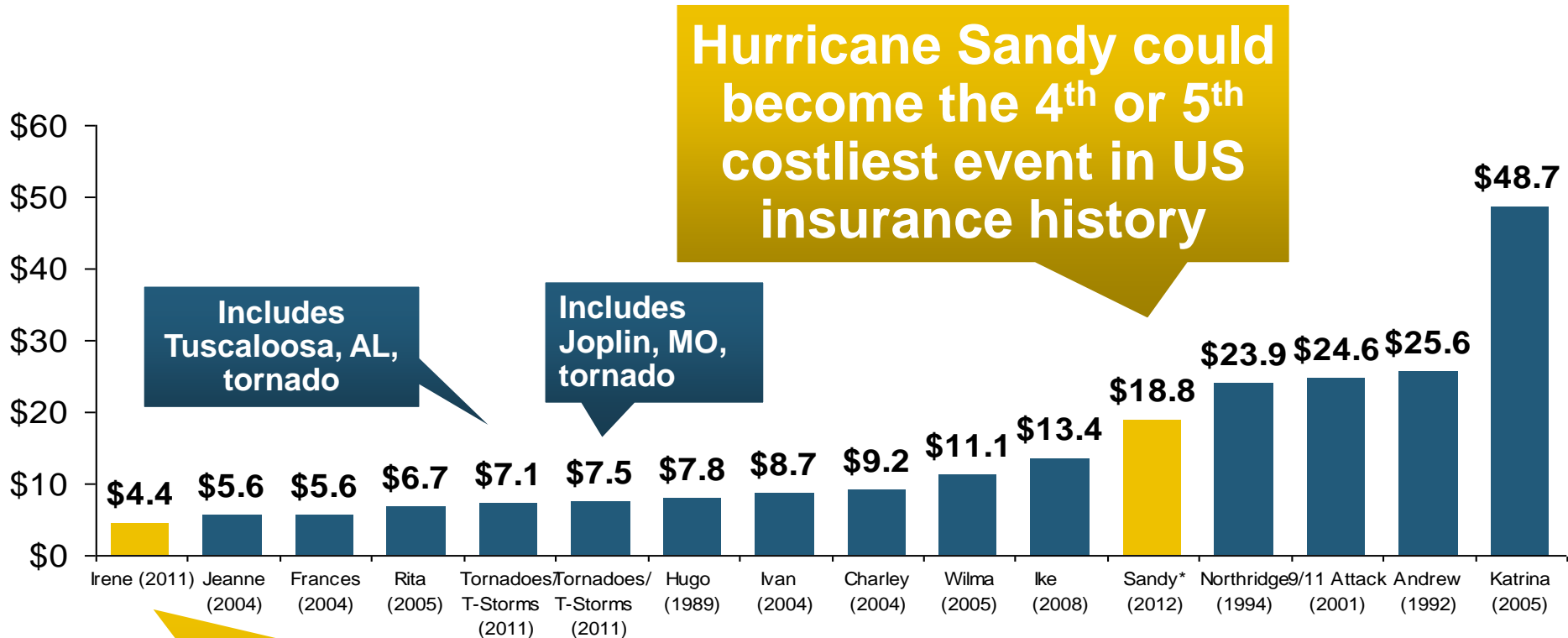
**2012 Was the 3<sup>rd</sup> Highest Year on Record for Insured Losses in U.S. History on an Inflation-Adj. Basis. 2011 Losses Were the 6<sup>th</sup> Highest. YTD 2013 Running Below Average But Q3 Is Typically the Costliest Quarter.**

Record tornado losses caused 2011 CAT losses to surge

\*Through 6/2/13. Includes \$2.6B for 2013:Q1 (PCS) and \$5.32B for the period 4/1 – 6/2/13 (Aon Benfield Monthly Global Catastrophe Recap).  
 Note: 2001 figure includes \$20.3B for 9/11 losses reported through 12/31/01 (\$25.9B 2011 dollars). Includes only business and personal property claims, business interruption and auto claims. Non-prop/BI losses = \$12.2B (\$15.6B in 2011 dollars).  
 Sources: Property Claims Service/ISO; Insurance Information Institute.

# Top 16 Most Costly Disasters in U.S. History

(Insured Losses, 2012 Dollars, \$ Billions)



**Hurricane Irene became the 12<sup>th</sup> most expensive hurricane in US history in 2011**

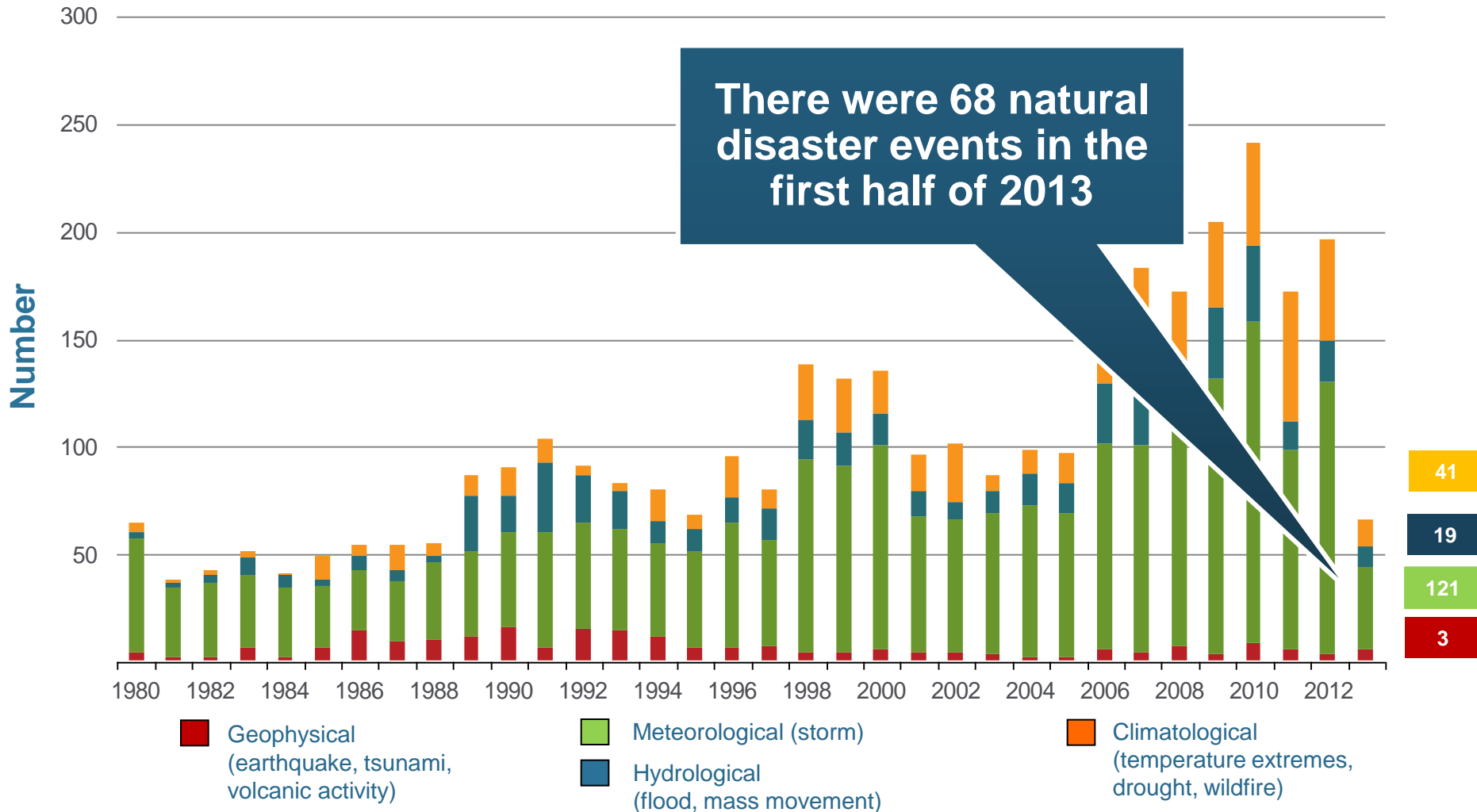
**12 of the 16 Most Expensive Events in US History Have Occurred Over the Past Decade**

\*PCS estimate as of 4/12/13.

Sources: PCS; Insurance Information Institute inflation adjustments to 2012 dollars using the CPI.

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

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

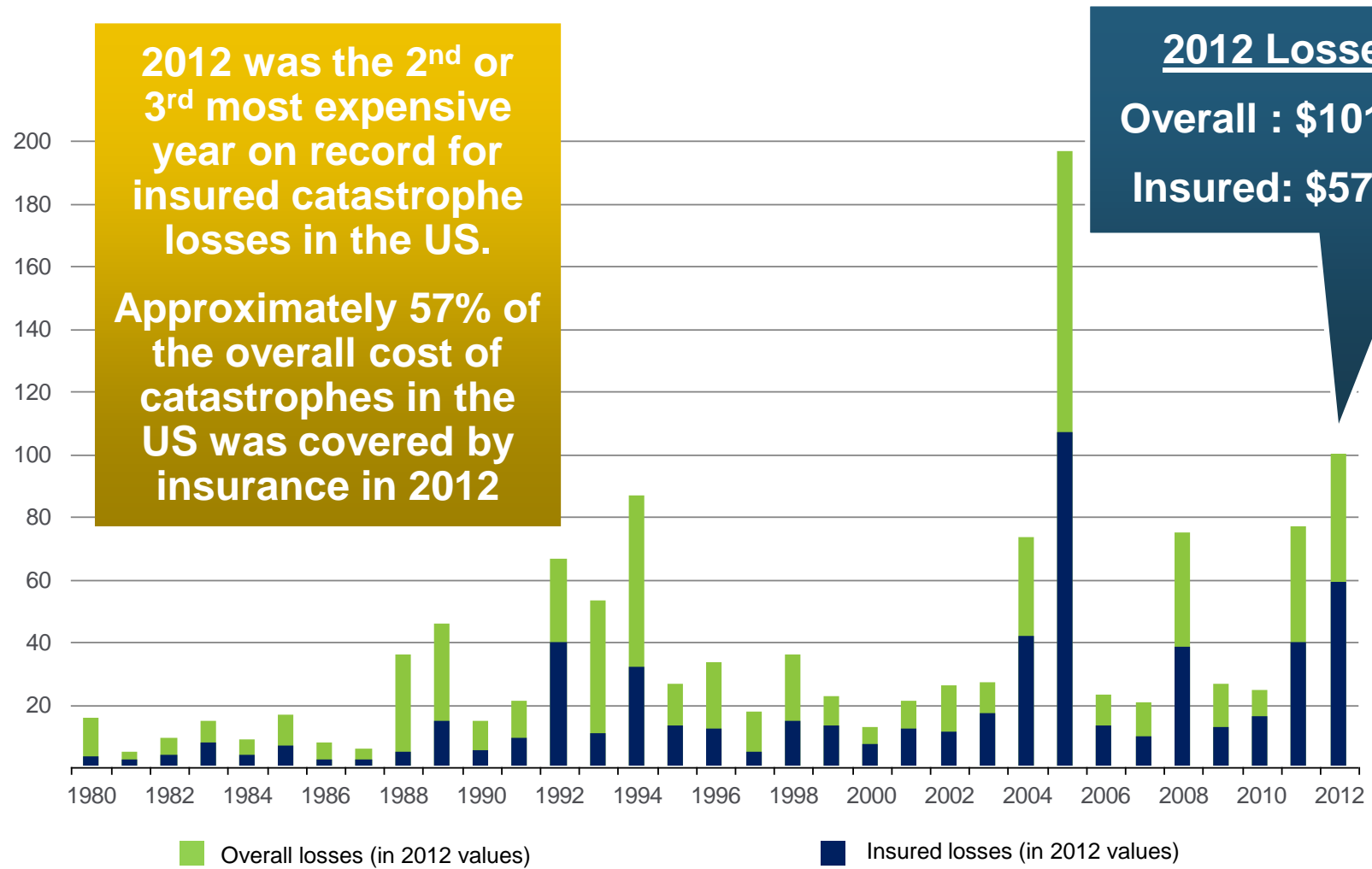


\*Through June 30, 2013.  
Source: MR NatCatSERVICE

# Losses Due to Natural Disasters in the US, 1980–2012 (Overall & Insured Losses)

## (Overall and Insured Losses)

(2012 Dollars, \$ Billions)

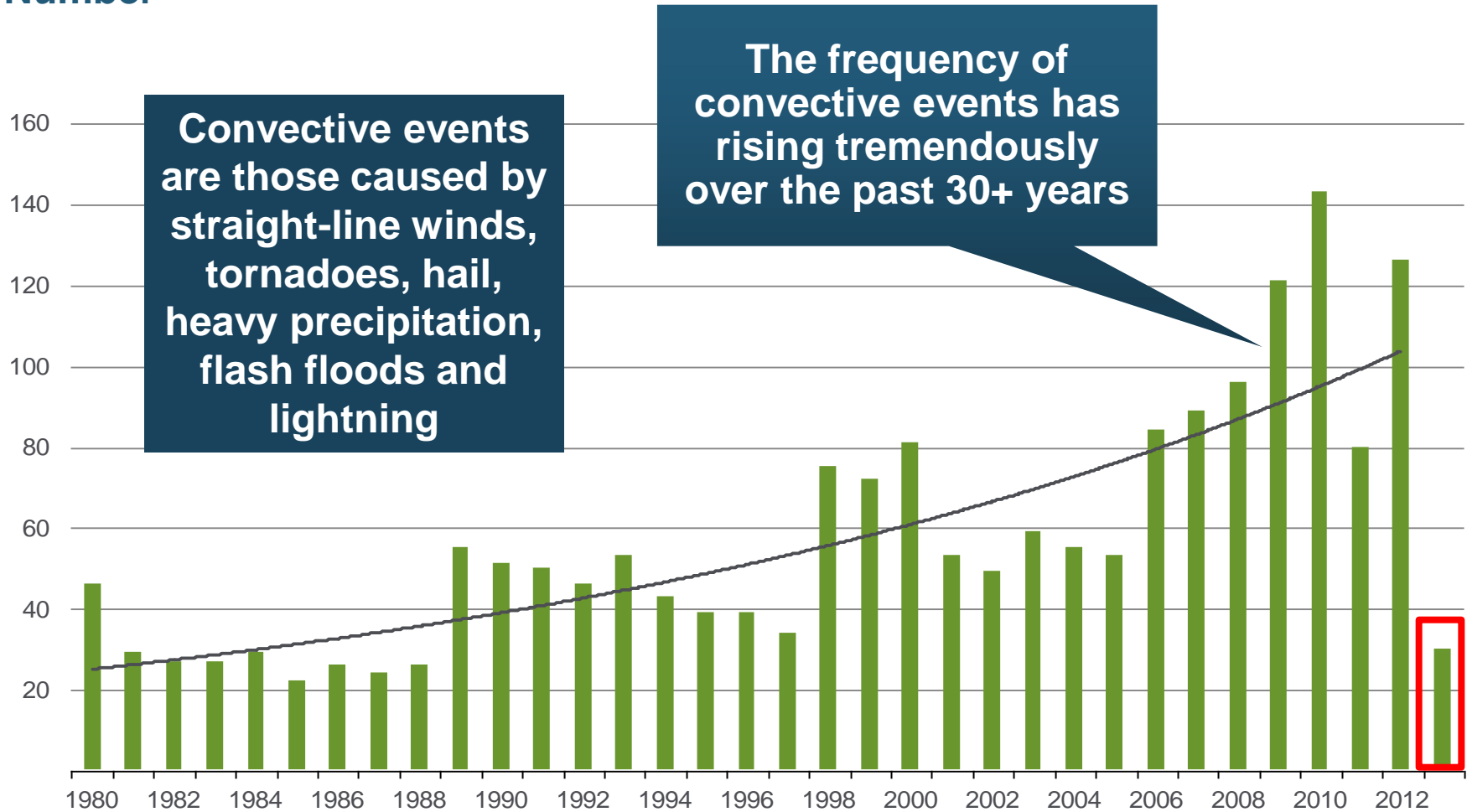




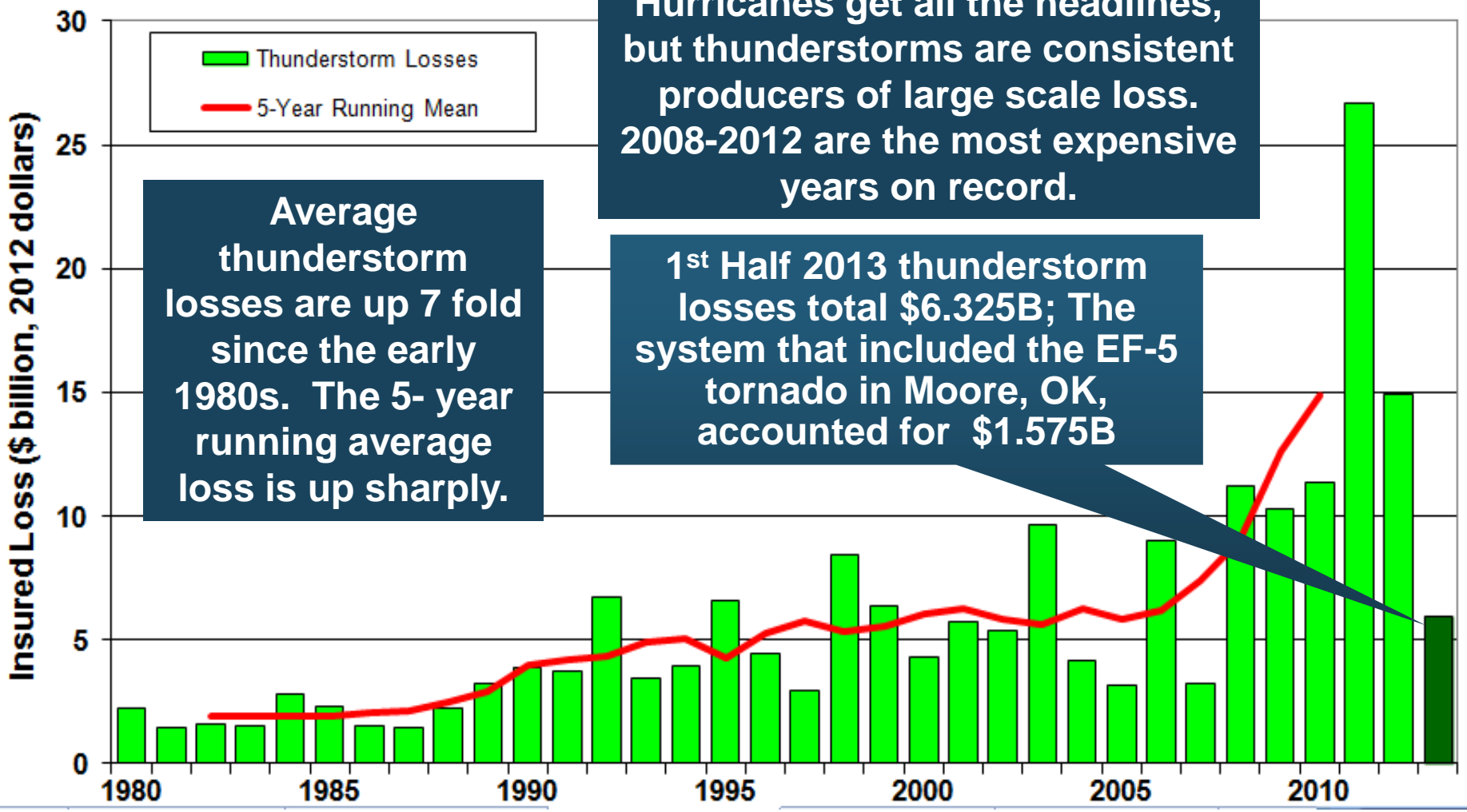
# Convective Loss Events in the U.S.

Number of events 1980 – 2012 and First Half 2013

Number



# U.S. Thunderstorm Loss Trends, 1980 – June 30, 2013



**Average thunderstorm losses are up 7 fold since the early 1980s. The 5- year running average loss is up sharply.**

**Hurricanes get all the headlines, but thunderstorms are consistent producers of large scale loss. 2008-2012 are the most expensive years on record.**

**1<sup>st</sup> Half 2013 thunderstorm losses total \$6.325B; The system that included the EF-5 tornado in Moore, OK, accounted for \$1.575B**

# Terrorism Update

## Boston Marathon Bombings Underscore the Need for Extension of the Terrorism Risk Insurance Program

***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)***

# Terrorism Risk Insurance Program

- Reauthorization Was a Major Industry Initiative for 2013 Even Before Boston
- I.I.I. Testified at First Congressional Hearing on 9/11/12
  - ◆ Provided testimony at NYC hearing on 6/17/13
- I.I.I. Accelerated Planned Study on Terrorism Risk and Insurance in the Wake of Boston and Was Well Received
  - ◆ *Terrorism: A Constant Threat* issued in June 2013



## ■ Boston Marathon Bombing Has Helped Focus Attention in Congress on TRIPRA and its Looming Expiration

- ◆ Act expires 12/31/14
- ◆ Exclusionary language will likely be inserted for post-1/1/2014 renewals and will likely lead to significant media interest (educational opportunity)
- ◆ Numerous headwinds; not a priority issue in 2013 in Congress
- ◆ 3 extension bills introduced in 2013—2 since Boston

## ■ Media Interest Soared

- ◆ I.I.I. was conducting its first interviews within minutes after live-tweeting (nearly) from the scene; TV interest was high
- ◆ Local, national and international media focused on this topic for the first time in any significant way since TRIA's inception in late 2002
- ◆ Inquiries revealed very little/no understanding (or even awareness) outside insurance industry and business owners
- ◆ Certification process caused confusion

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

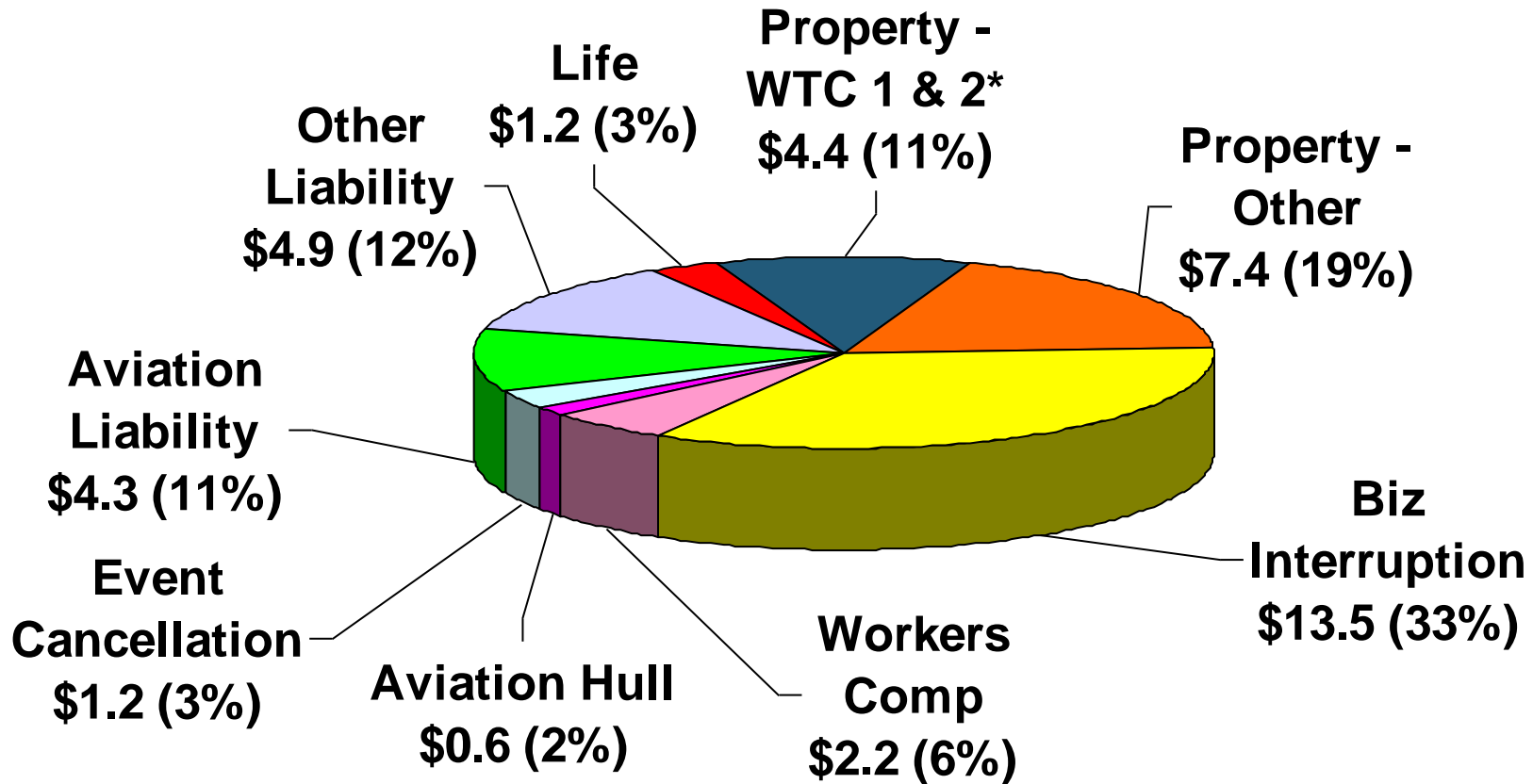
Bill	Summary
<p>•<b>H.R. 508: “Terrorism Risk Insurance Act of 2002 Reauthorization Act of 2013”</b></p> <p>•Introduced Feb. 5 by Rep. Michael Grimm (D-NY)</p>	<ul style="list-style-type: none"> <li>•5-Year Extension (through 2019)</li> <li>•Extend recoupment period for any TRIA assistance from 2017 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



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

(\$ Billions)



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

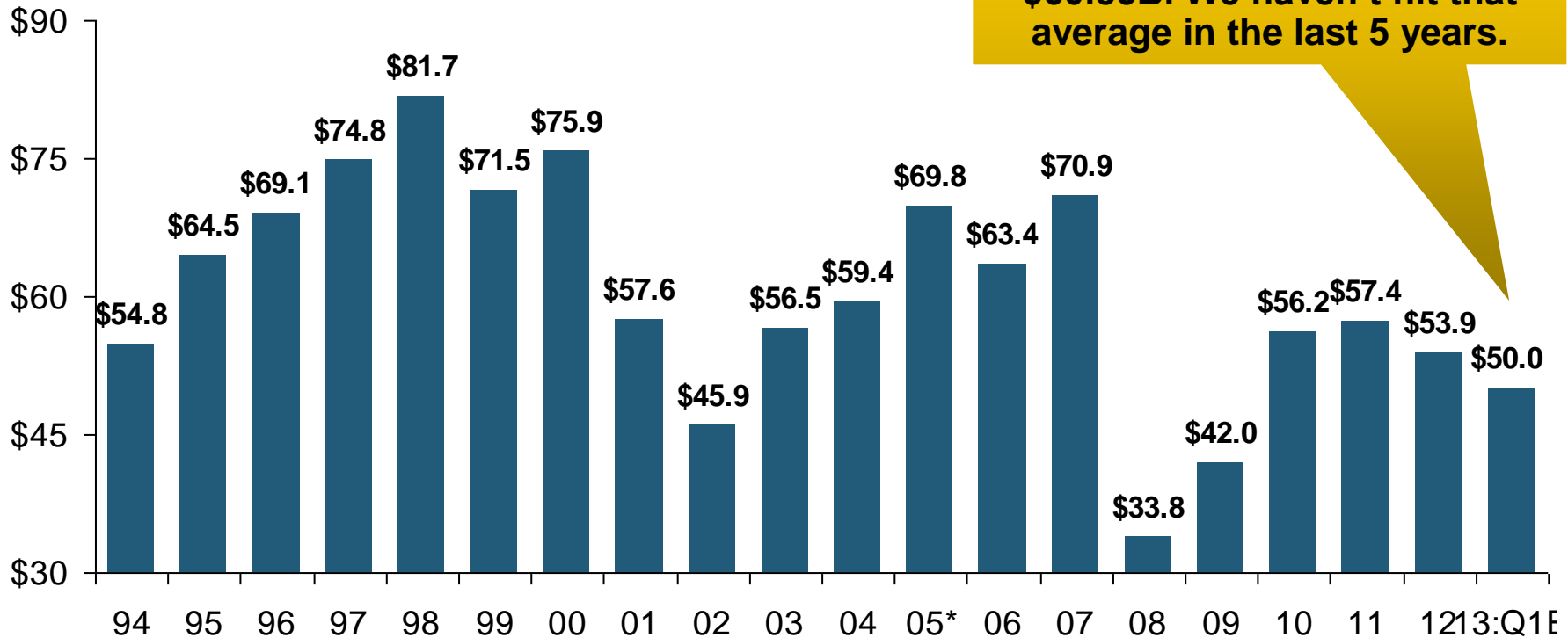
\*Loss total does not include March 2010 New York City settlement of up to \$657.5 million to compensate approximately 10,000 Ground Zero workers or any subsequent settlements.

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



# P/C Industry Investment Gains, Inflation-Adjusted: 1994–2012<sup>1</sup>

(\$ Billions, 2012 dollars)



**1994-2012 average yearly gain: \$60.85B. We haven't hit that average in the last 5 years.**

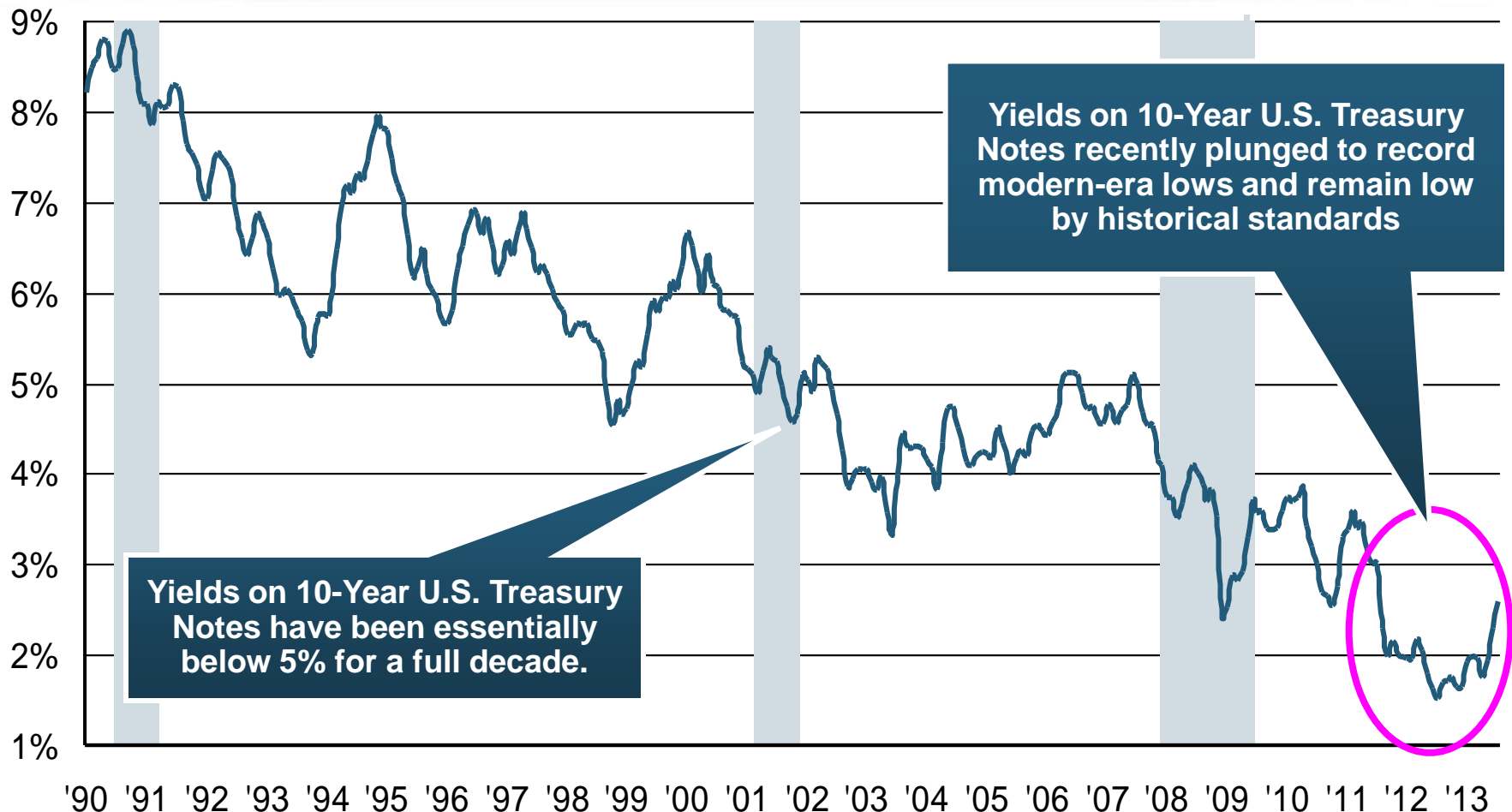
**Because the Federal Reserve Board aims to keep interest rates exceptionally low until the unemployment rate hits 6.5%—likely at least another year off—maturing bonds will be re-invested at even lower rates.**

<sup>1</sup>Investment gains consist primarily of interest, stock dividends and realized capital gains and losses.

\*2005 figure includes special one-time dividend of \$3.2B; 2013F figure is I.I.I. estimate for 2013:Q1, annualized.

Sources: ISO; Insurance Information Institute.

# U.S. 10-Year Treasury Note 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.**

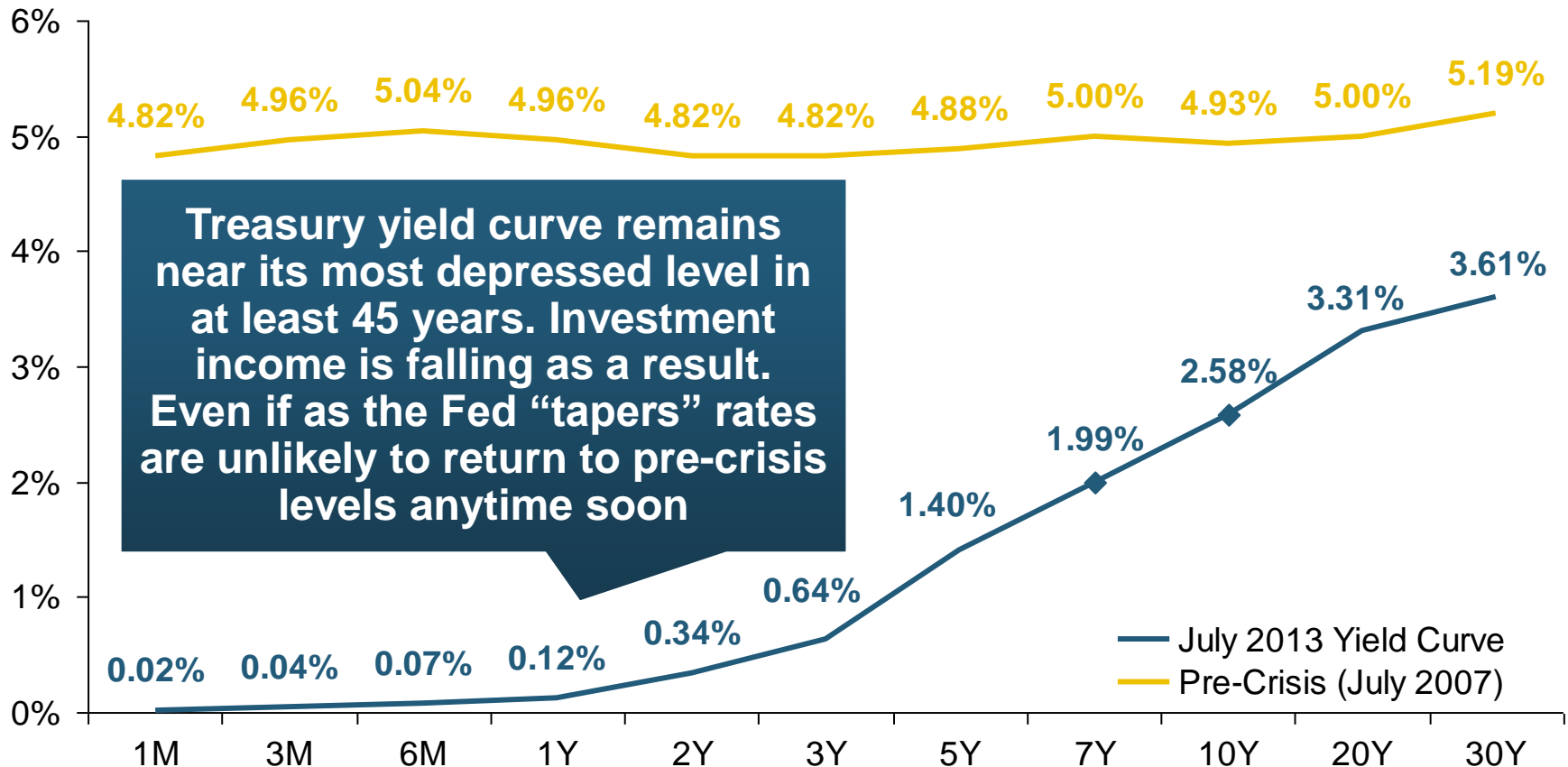
\*Monthly, through June 2013.

Note: Recessions indicated by gray shaded columns.

Sources: Federal Reserve Bank at <http://www.federalreserve.gov/releases/h15/data.htm>.

National Bureau of Economic Research (recession dates); Insurance Information Institutes.

# Treasury Yield Curves: Pre-Crisis (July 2007) vs. July 2013

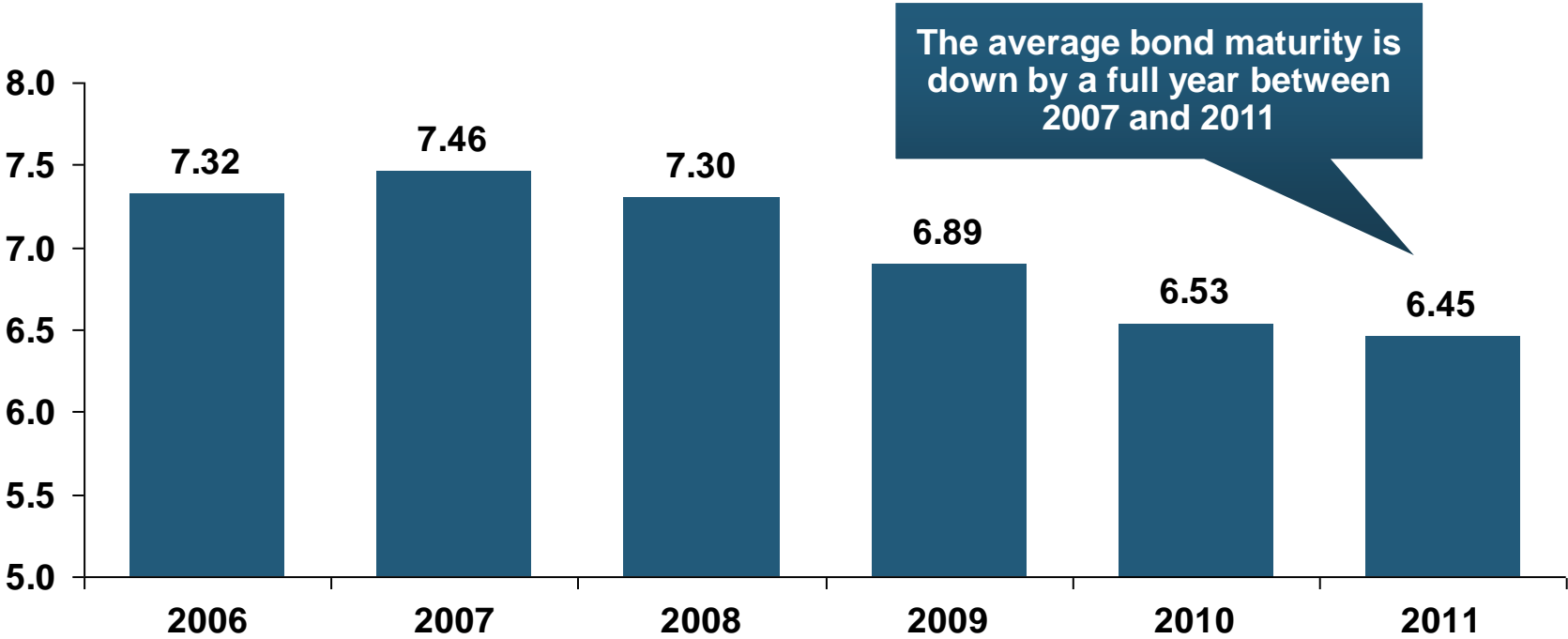


Treasury yield curve remains near its most depressed level in at least 45 years. Investment income is falling as a result. Even if as the Fed “tapers” rates are unlikely to return to pre-crisis levels anytime soon

The Fed Is Actively Signaling that it Is Determined to Keep Rates Low Until Unemployment Drops Below 6.5% or Until Inflation Expectations Exceed 2.5%; Low Rates Add to Pricing Pressure for Insurers.

# Average Maturity of Bonds Held by US P/C Insurers, 2006—2011\*

Average Maturity (Years)

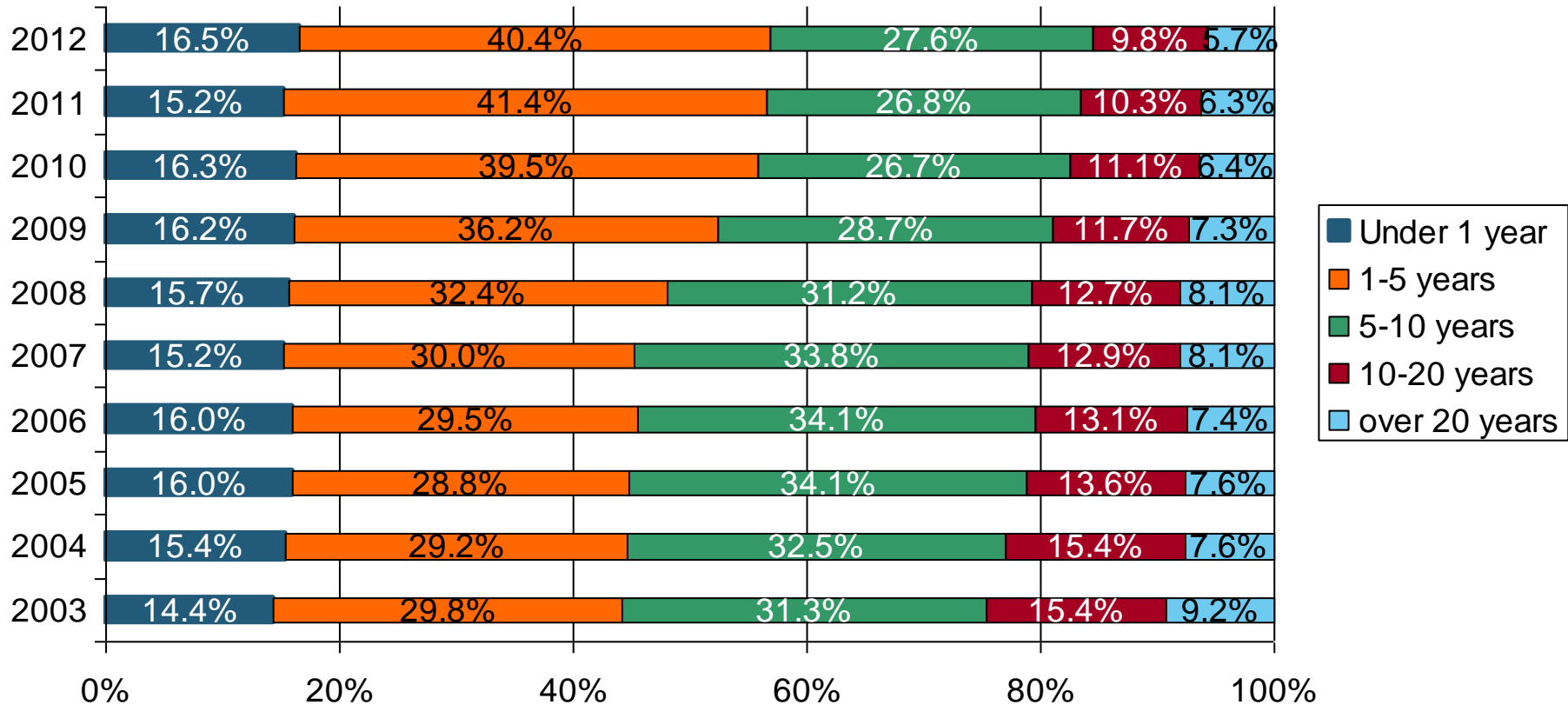


**Falling Average Maturity (and Duration) of the P/C Industry's Bond Portfolio is Contributing to the Drop in Investment Income Along With Lower Yields**

\*Year-end figures. Latest available.

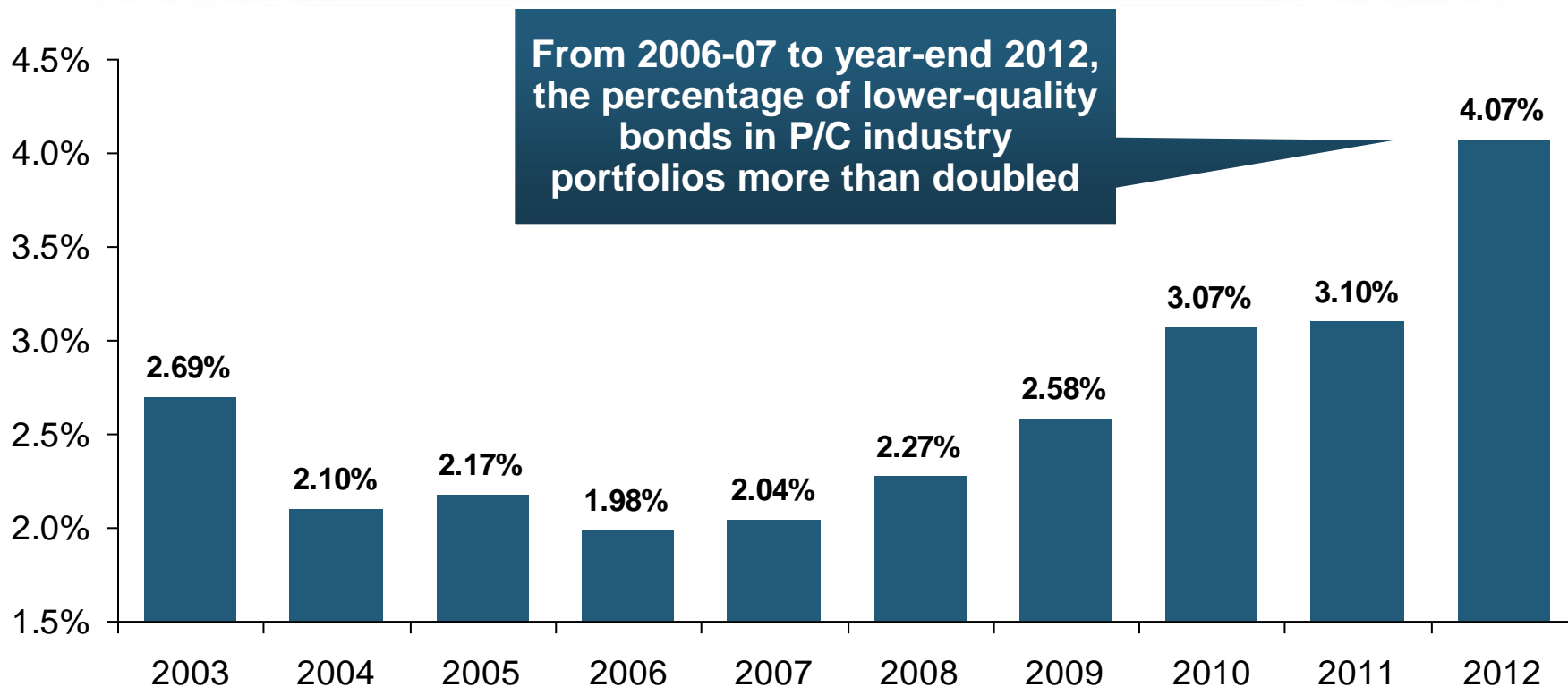
Sources: Insurance Information Institute calculations based on A.M. Best data.

# Distribution of Bond Maturities, P/C Insurance Industry, 2003-2012



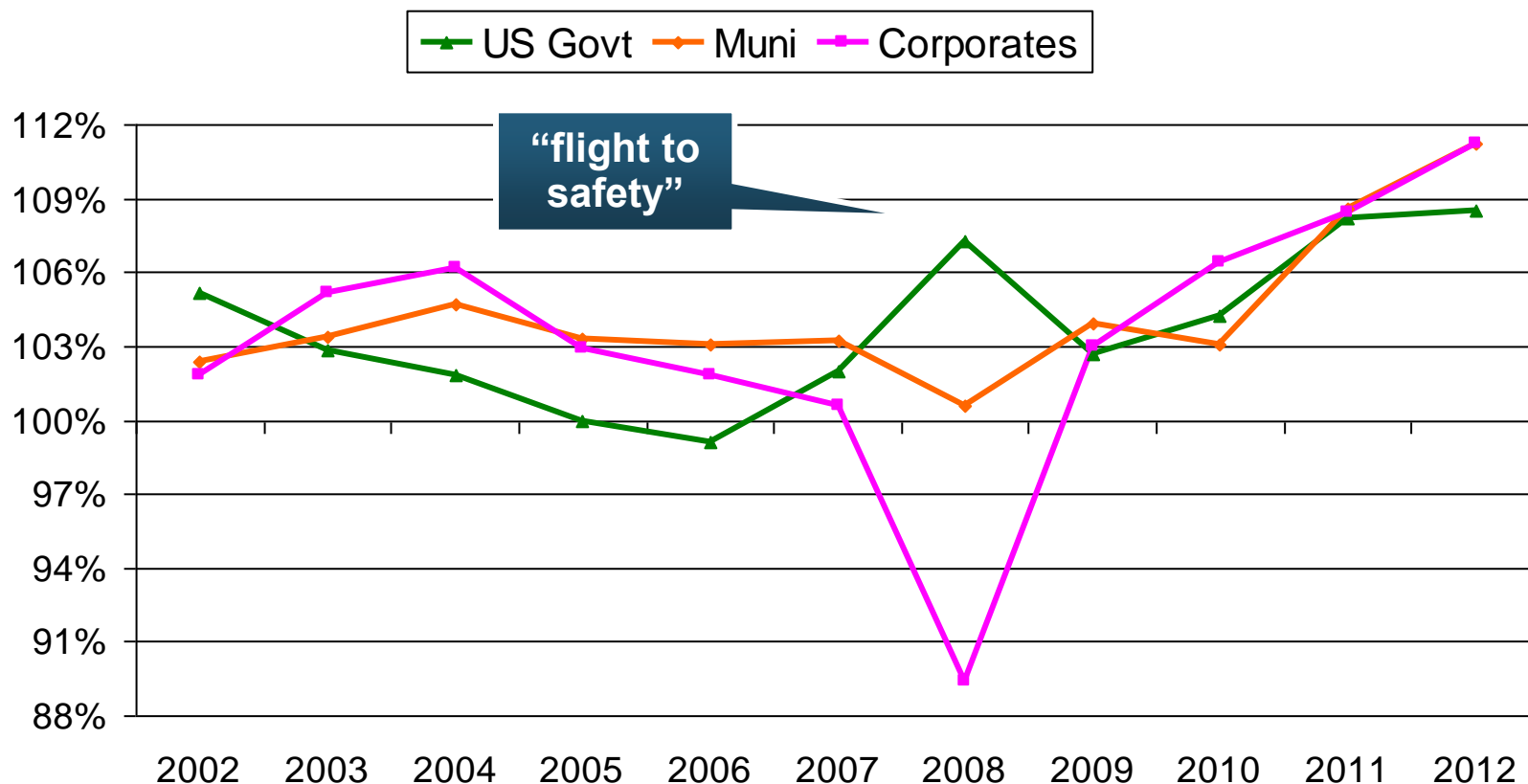
The main shift over these years has been from bonds with longer maturities to bonds with shorter maturities. The industry first trimmed its holdings of over-10-year bonds (from 24.6% in 2003 to 15.5% in 2012) and then trimmed bonds in the 5-10-year category (from 31.3% in 2003 to 27.6% in 2012). Falling average maturity of the P/C industry's bond portfolio is contributing to a drop in investment income along with lower yields.

# Bonds Rated NAIC Quality Category 3-6 as a Percent of Total Bonds, 2003–2012



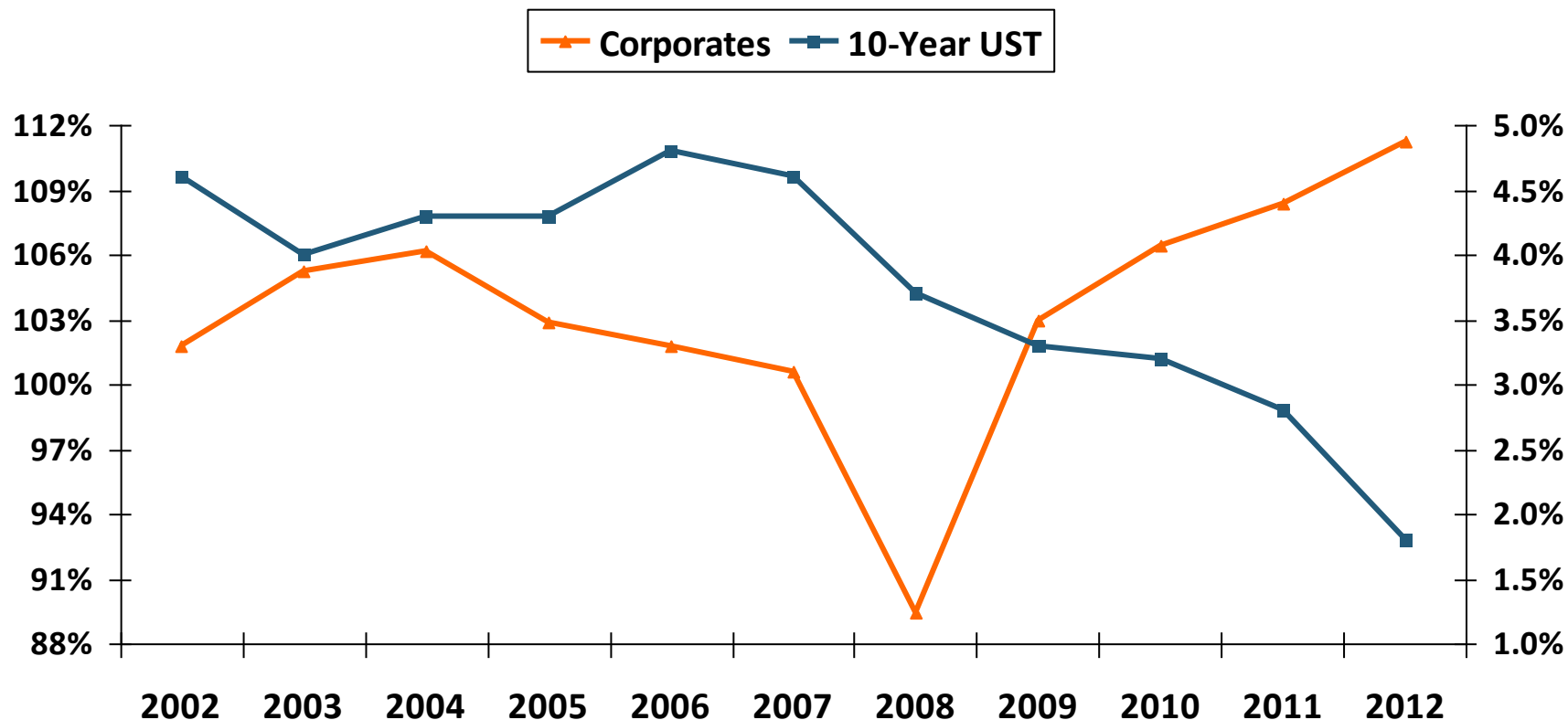
There are many ways to capture higher yields on bond portfolios. One is to accept greater risk, as measured by NAIC bond ratings. The ratings range from 1 to 6, with the highest quality rated 1. Even in 2012, over 95% of the industry's bonds were rated 1 or 2.

# Insurance Industry Fair Value as a Percent of Par History, by Bond Type, 2002–2012



**Because the Federal Reserve Board aims to keep interest rates exceptionally low until the “headline” unemployment rate hits 6.5%, maturing bonds will be re-invested at even lower rates.**

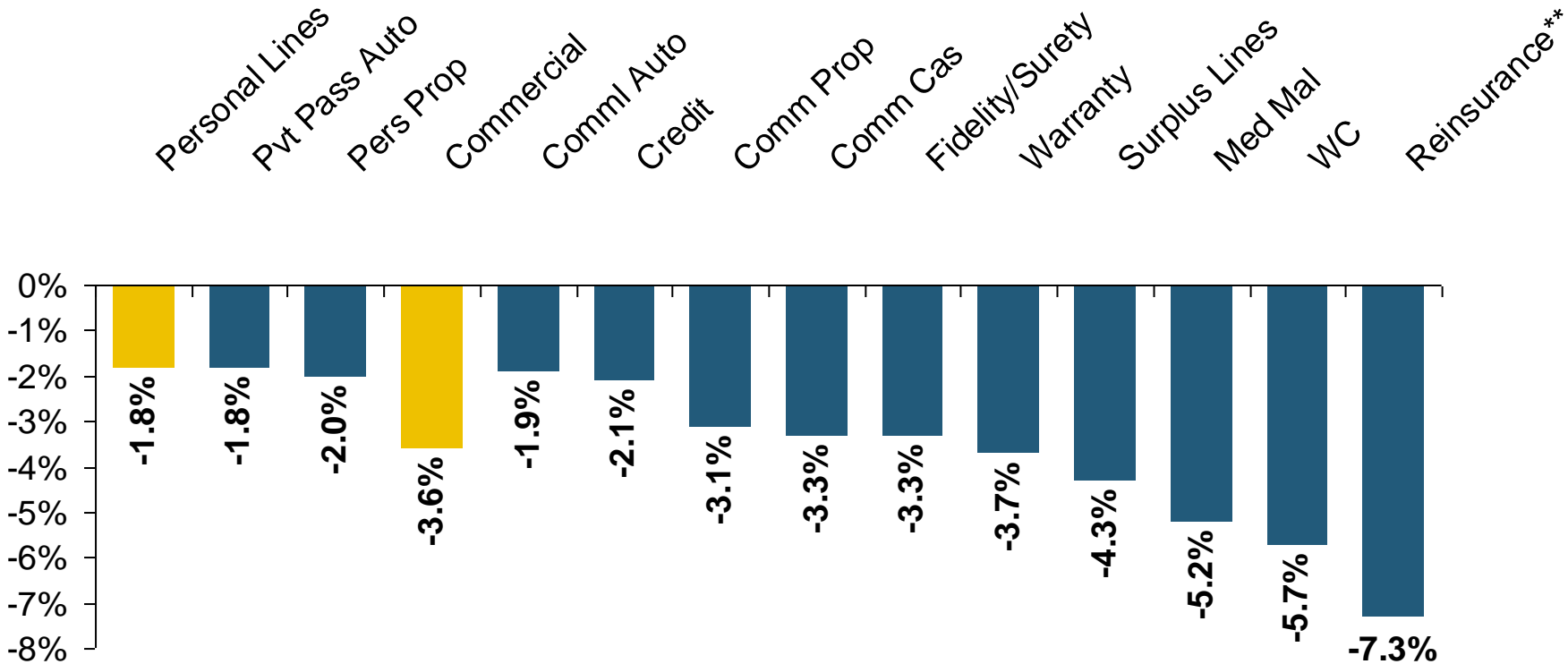
# As Yields (Blue) Sank, Fair Value as a Percent of Par (Orange) Rose, 2002–2012



**When interest rates rise again, the Fair Value of Insurance Industry bonds will fall. How far and how fast the fall occurs depends on many factors, but the direction of change is clear.**



# Reduction in Combined Ratio Necessary to Offset 1% Decline in Investment Yield to Maintain Constant ROE, by Line\*



**Lower Investment Earnings Place a Greater Burden on Underwriting and Pricing Discipline**

\*Based on 2008 Invested Assets and Earned Premiums

\*\*US domestic reinsurance only

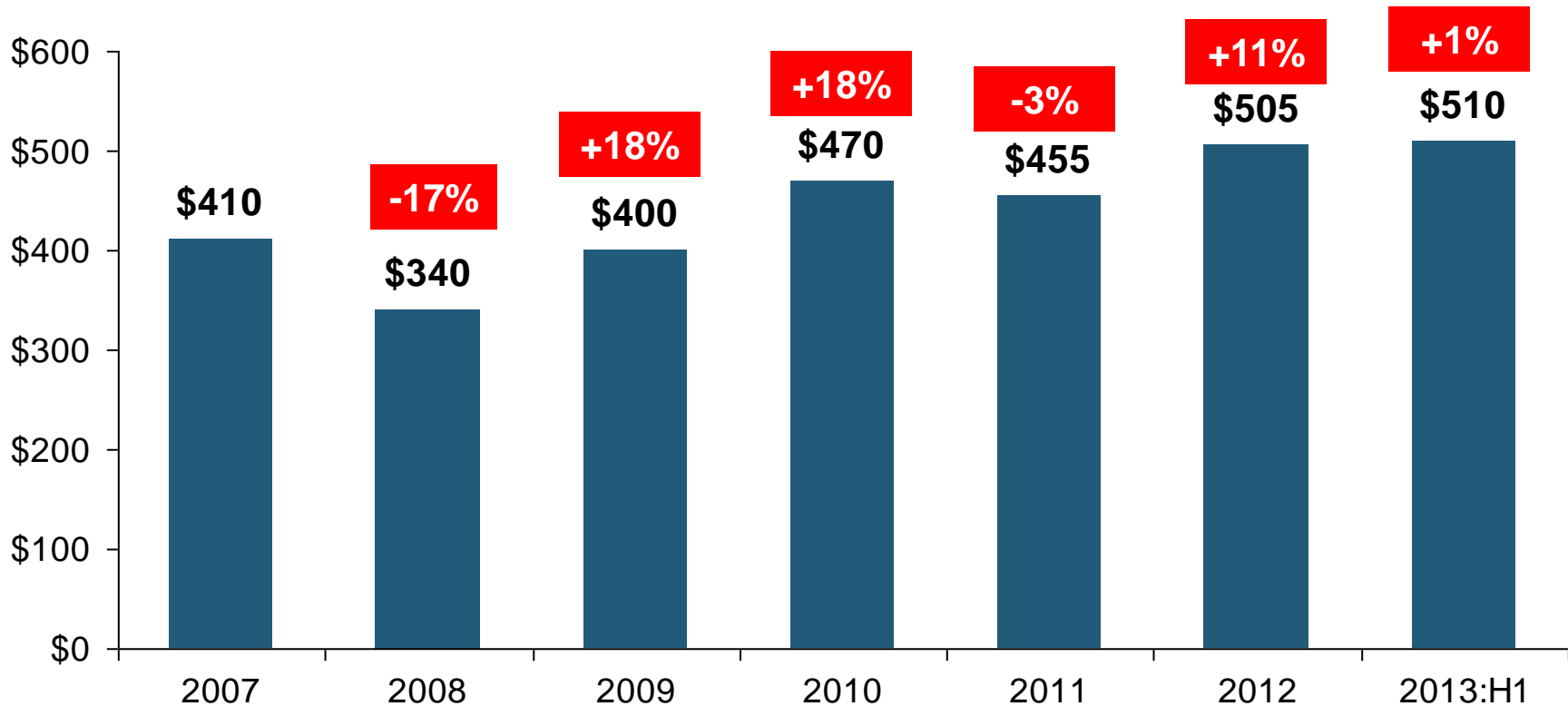
Source: A.M. Best; Insurance Information Institute.

## **3. REINSURANCE MARKET CONDITIONS**

**Ample Capacity as  
Alternative Capital is  
Transforming the Market**

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

(\$ Billions)

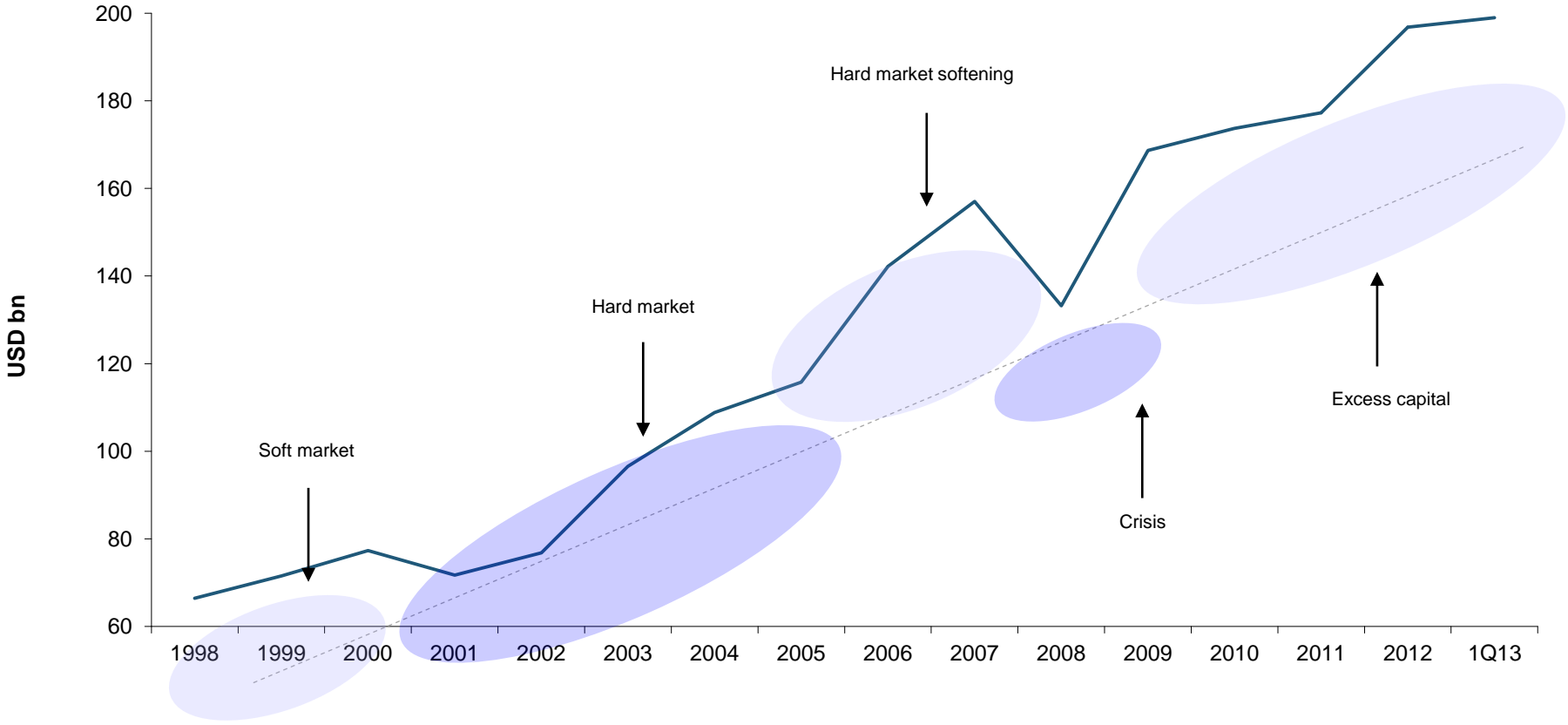


**Global Reinsurance Capital Has Been Trending Generally Upward Since the Global Financial Crisis, a Trend that Seems Likely to Continue**

\*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.

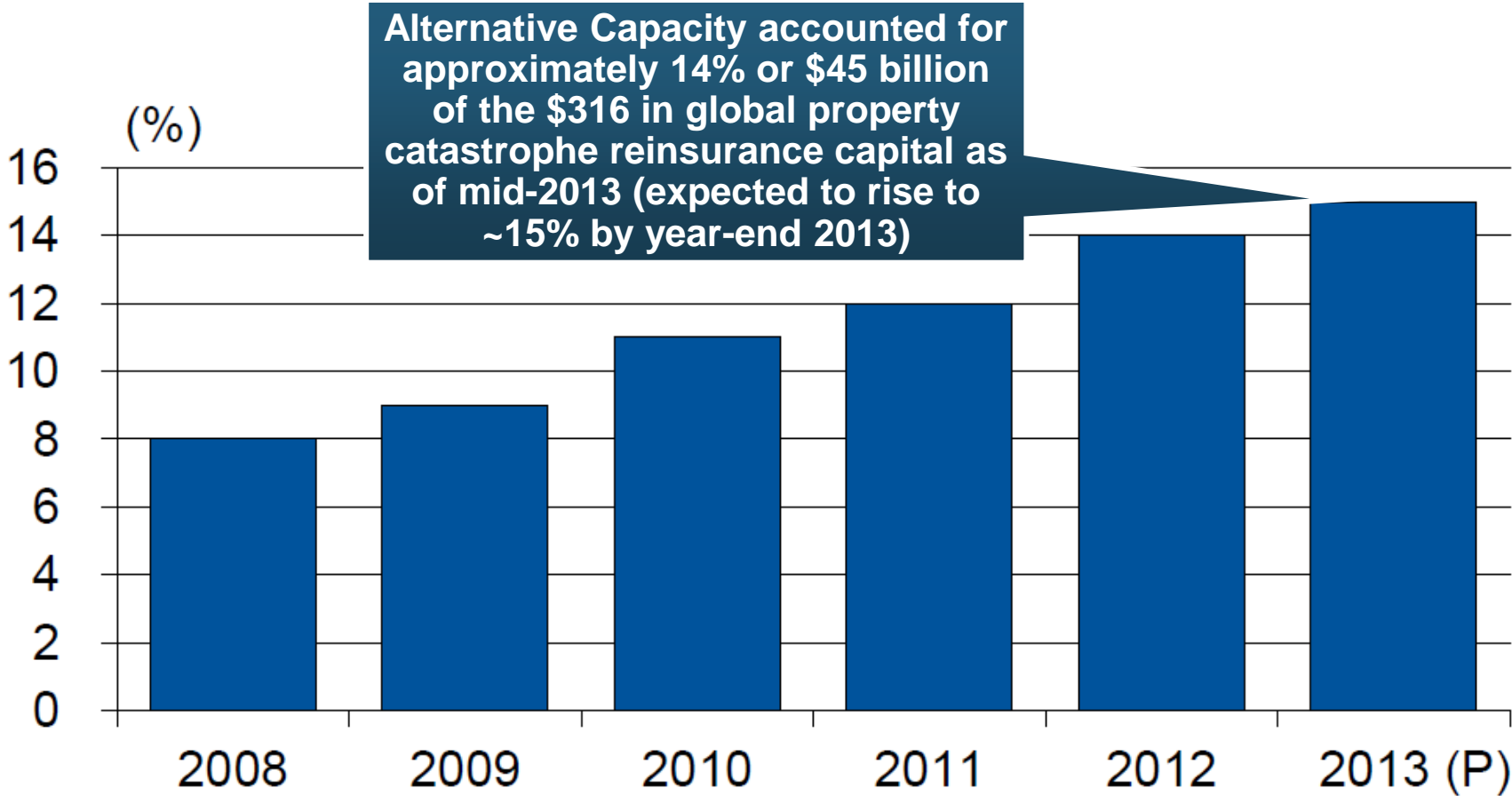
# Long-Term Evolution of Shareholders' Funds for the Guy Carpenter Global Reinsurance Composite



Source: Guy Carpenter

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

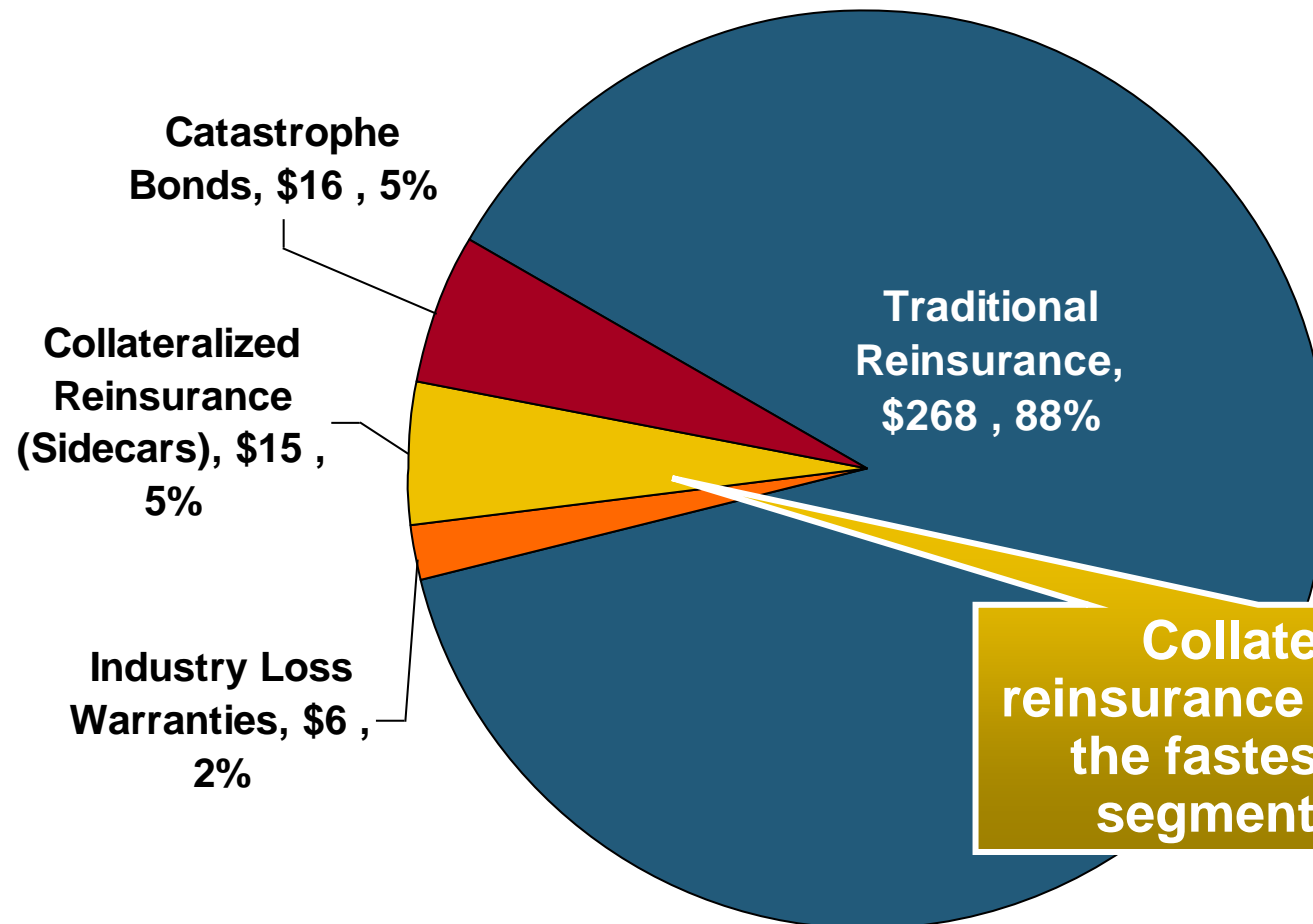
(As of Year End)



Source: Guy Carpenter

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

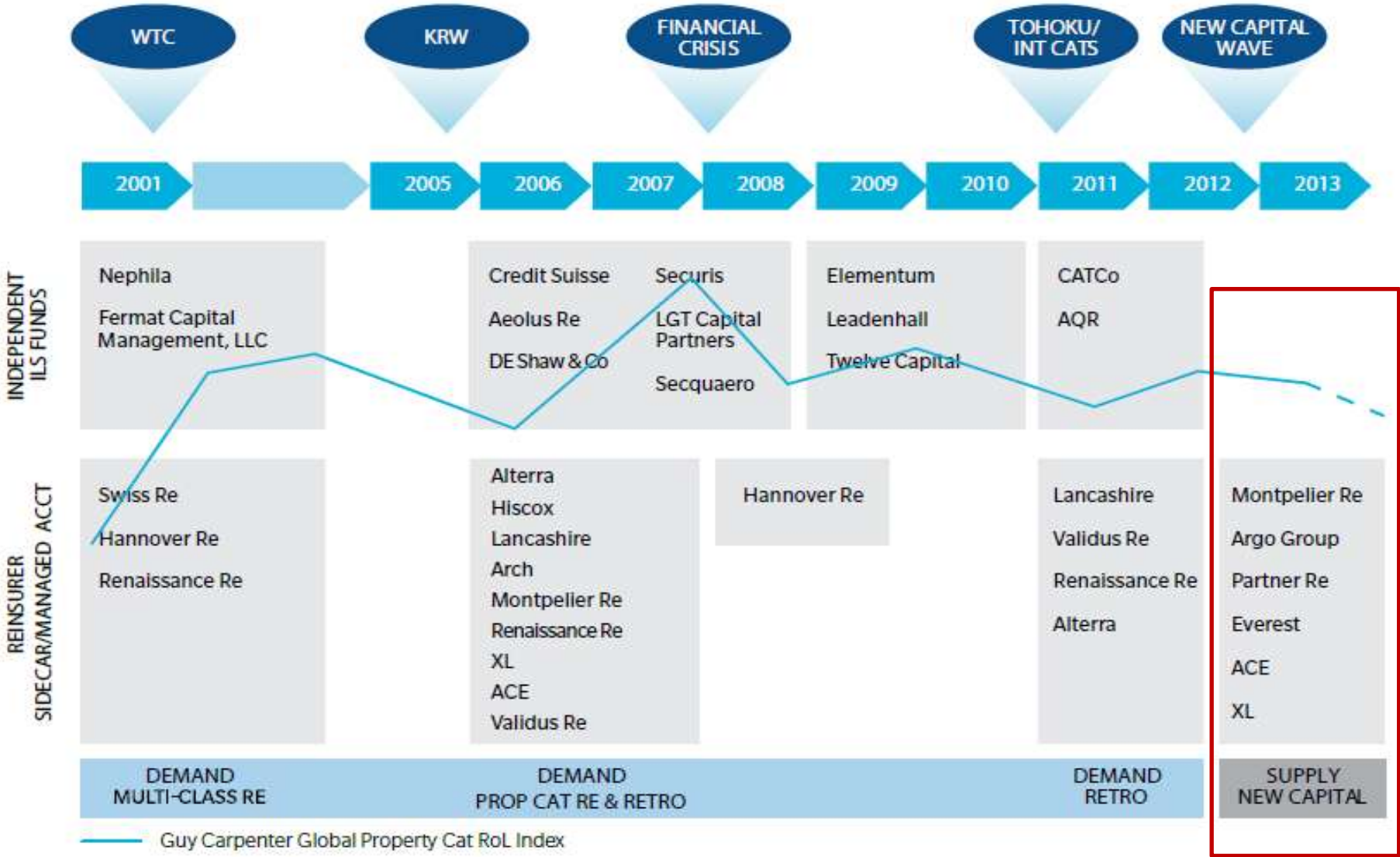
Total = \$316 Billion\*



“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

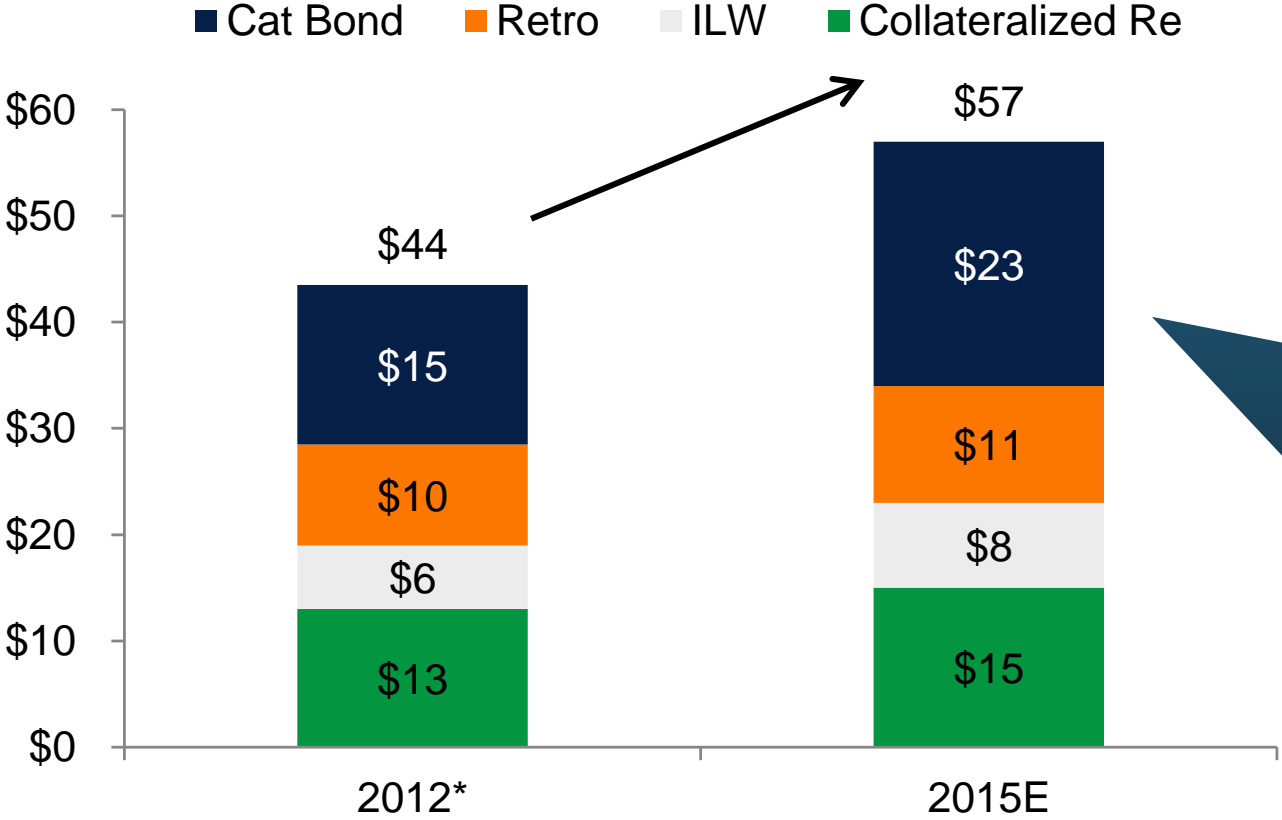
# Alternative Capacity Development, 2001—2013:H1



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



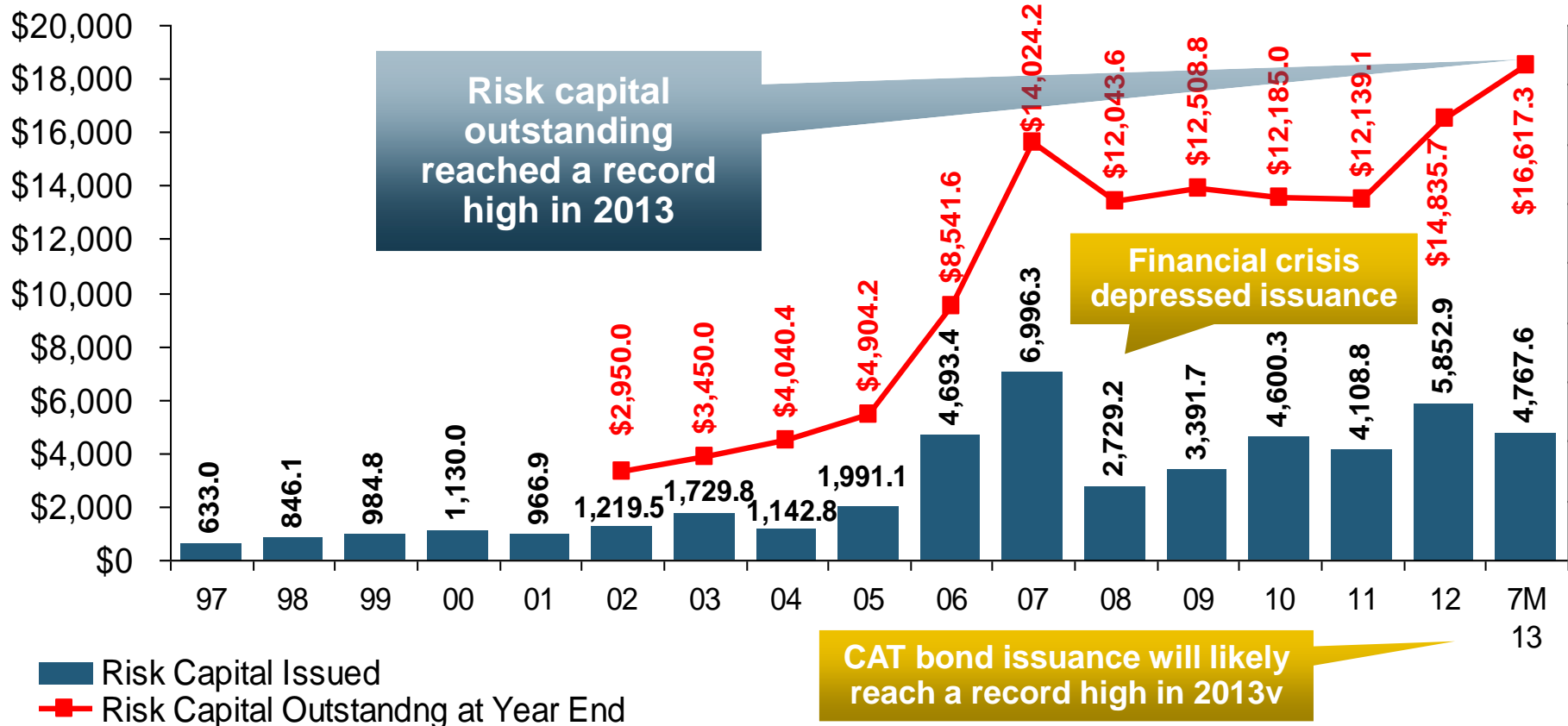
Alternative capital is expected to rise by 30% by YE 2015 and will ultimately account for 20-30% of total reinsurance spend, according to Guy Carpenter

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



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

Risk Capital Amount (\$ Millions)

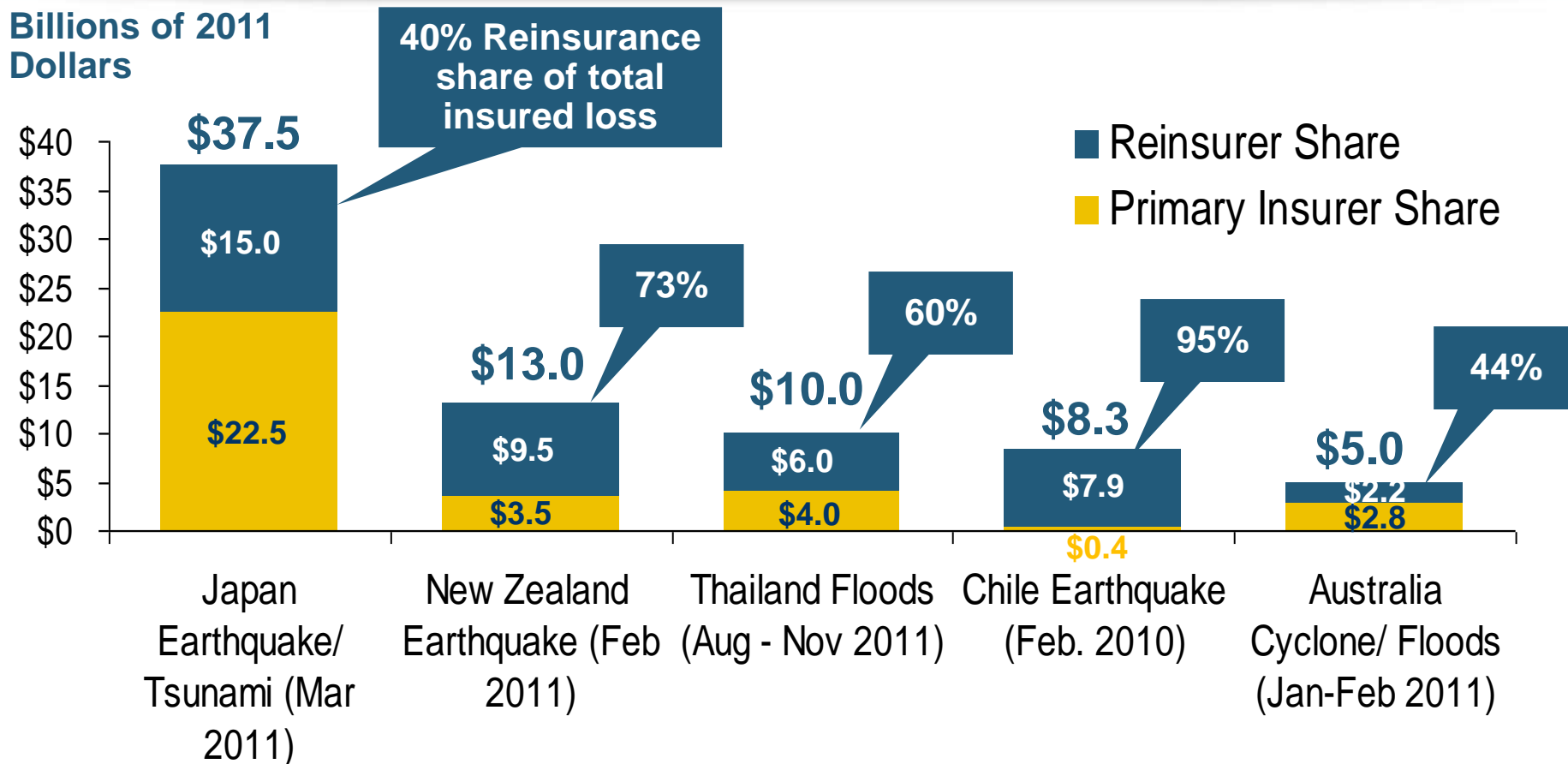


**Catastrophe Bond Issuance Is Approaching Pre-Crisis Levels While Risk Capital Outstanding Stands at an All-Time Record**

\*Through July 2013.

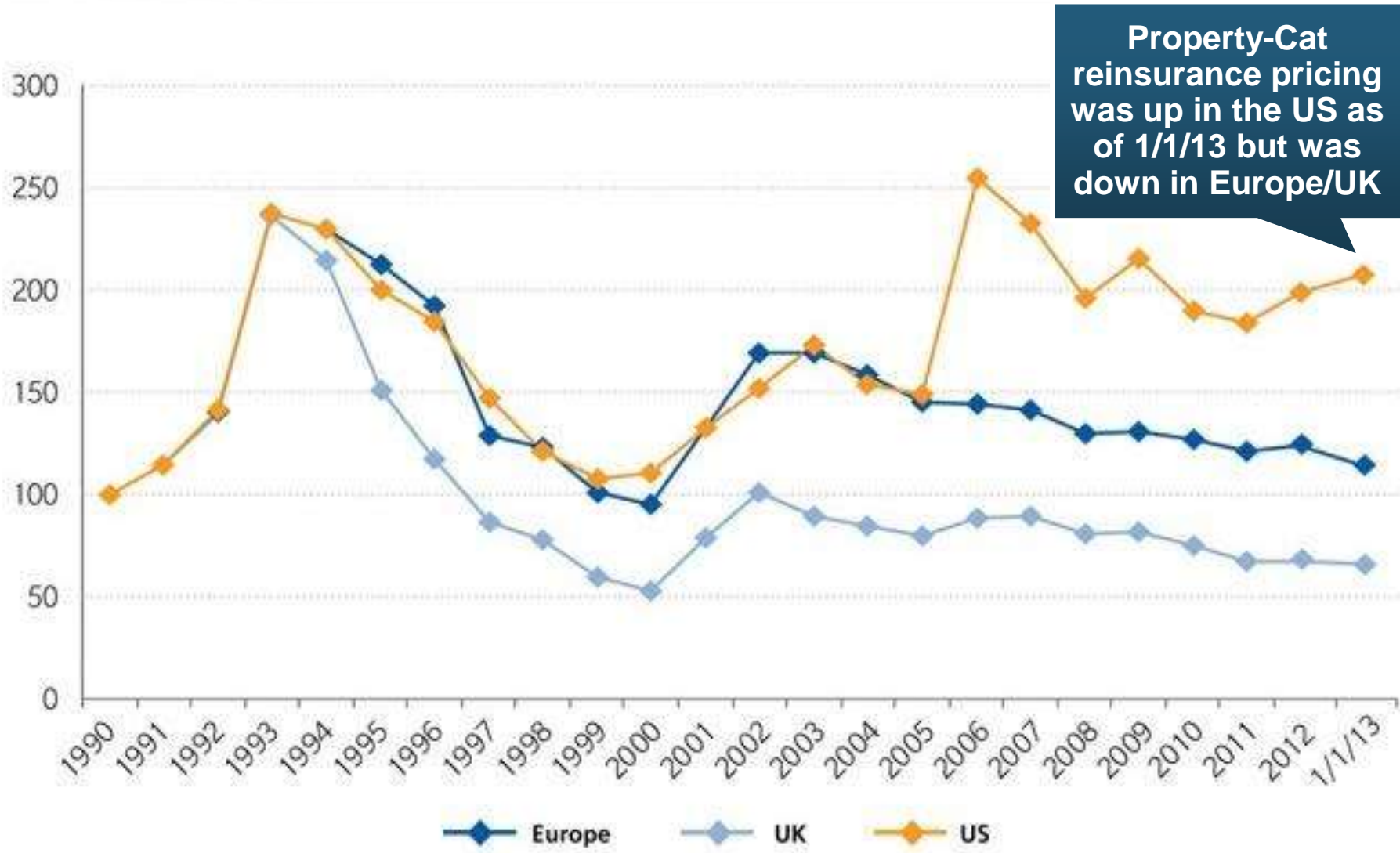
Source: Guy Carpenter; Insurance Information Institute.

# Reinsurer Share of Recent Significant Market Losses



**Reinsurers Paid a High Proportion of Insured Losses Arising from Major Catastrophic Events Around the World in Recent Years**

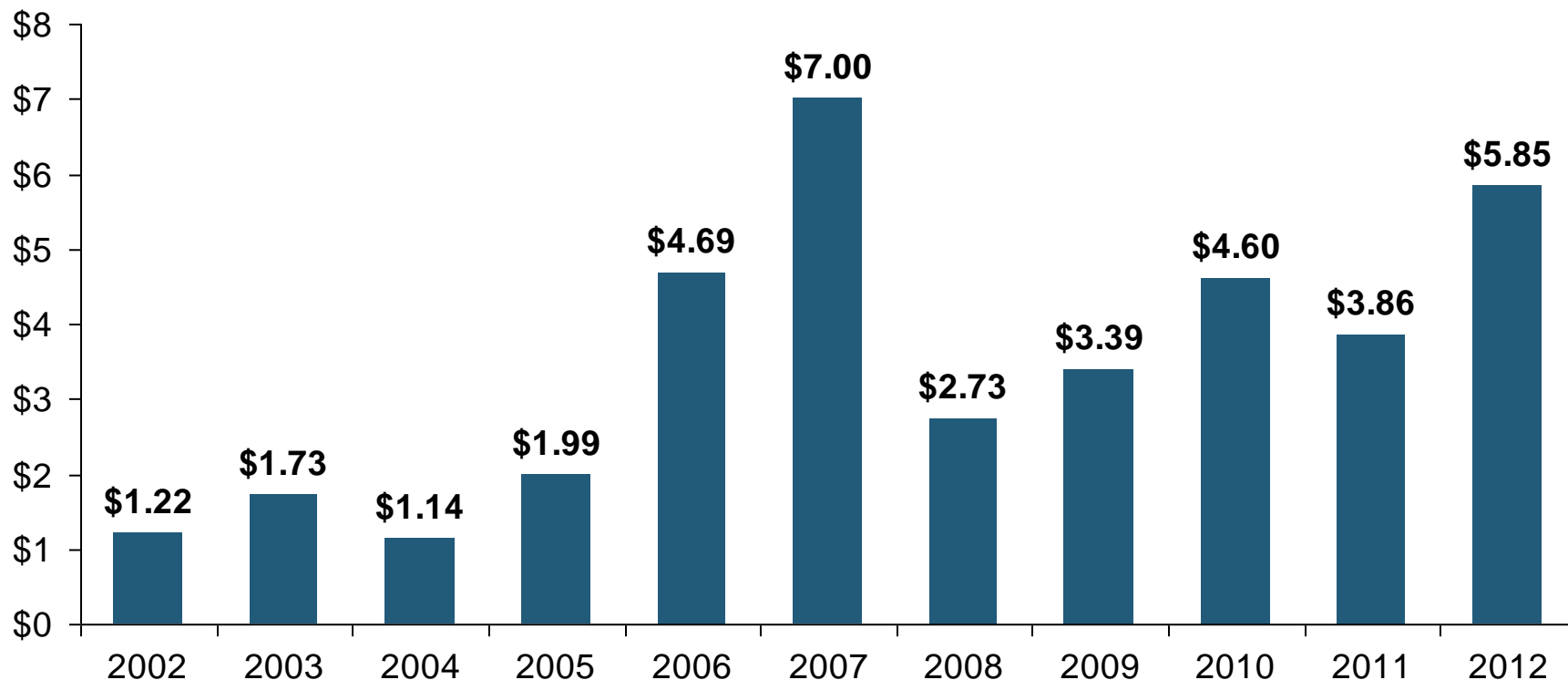
# Regional Property Catastrophe Rate on Line Index, 1990—2013 (as of January 1)



Sources: Guy Carpenter; Insurance Information Institute.

# CATASTROPHE BONDS, ANNUAL RISK CAPITAL ISSUED, 2002-2012

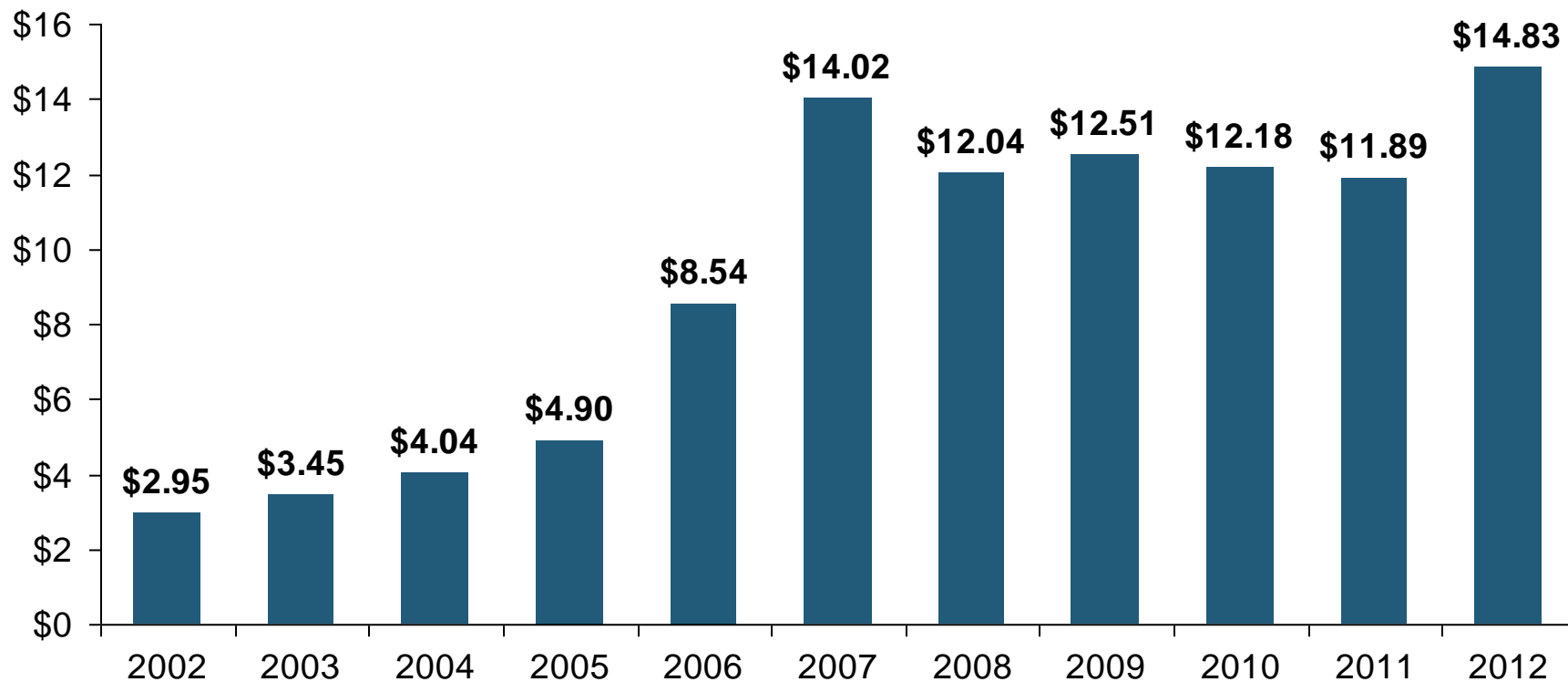
(\$ Billions)



Note

# CATASTROPHE BONDS, RISK CAPITAL OUTSTANDING, 2002-2012

(\$ Billions)



Note

# CYBER RISK

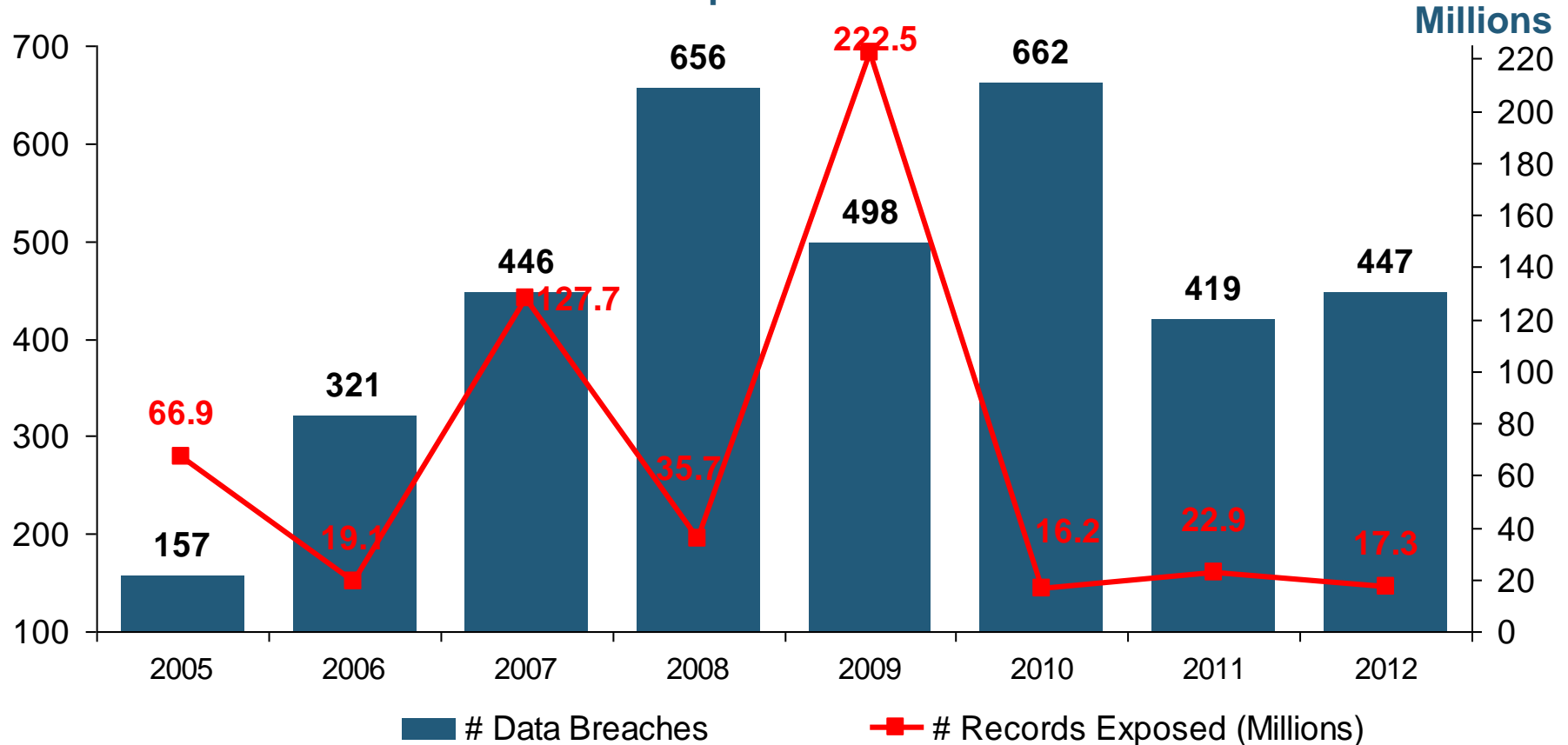
**Cyber Risk is a Rapidly Emerging  
Exposure for Businesses Large  
and Small in Every Industry**

**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 2005-2013, By Number of Breaches and Records Exposed

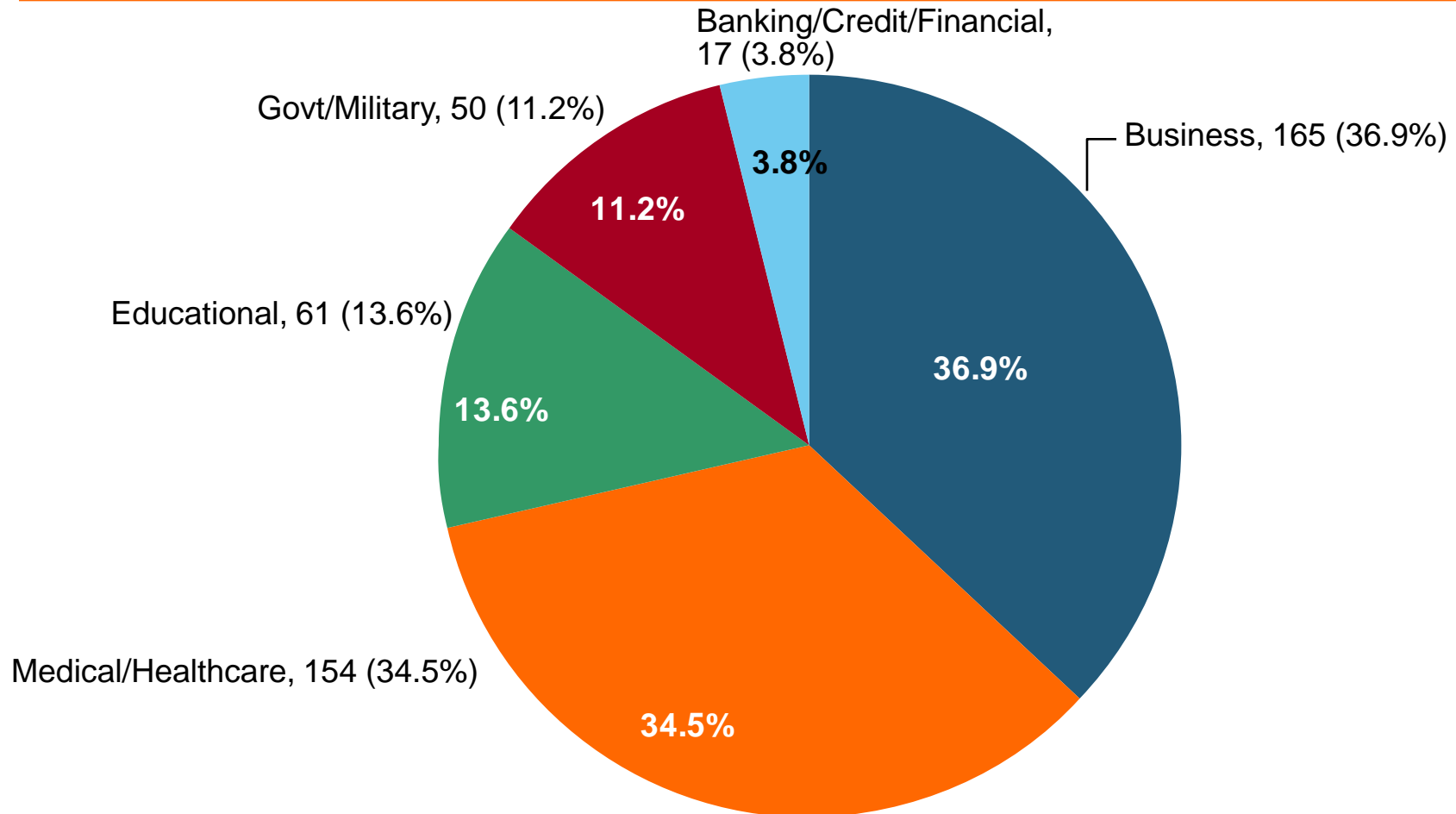
# Data Breaches/Millions of Records Exposed



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

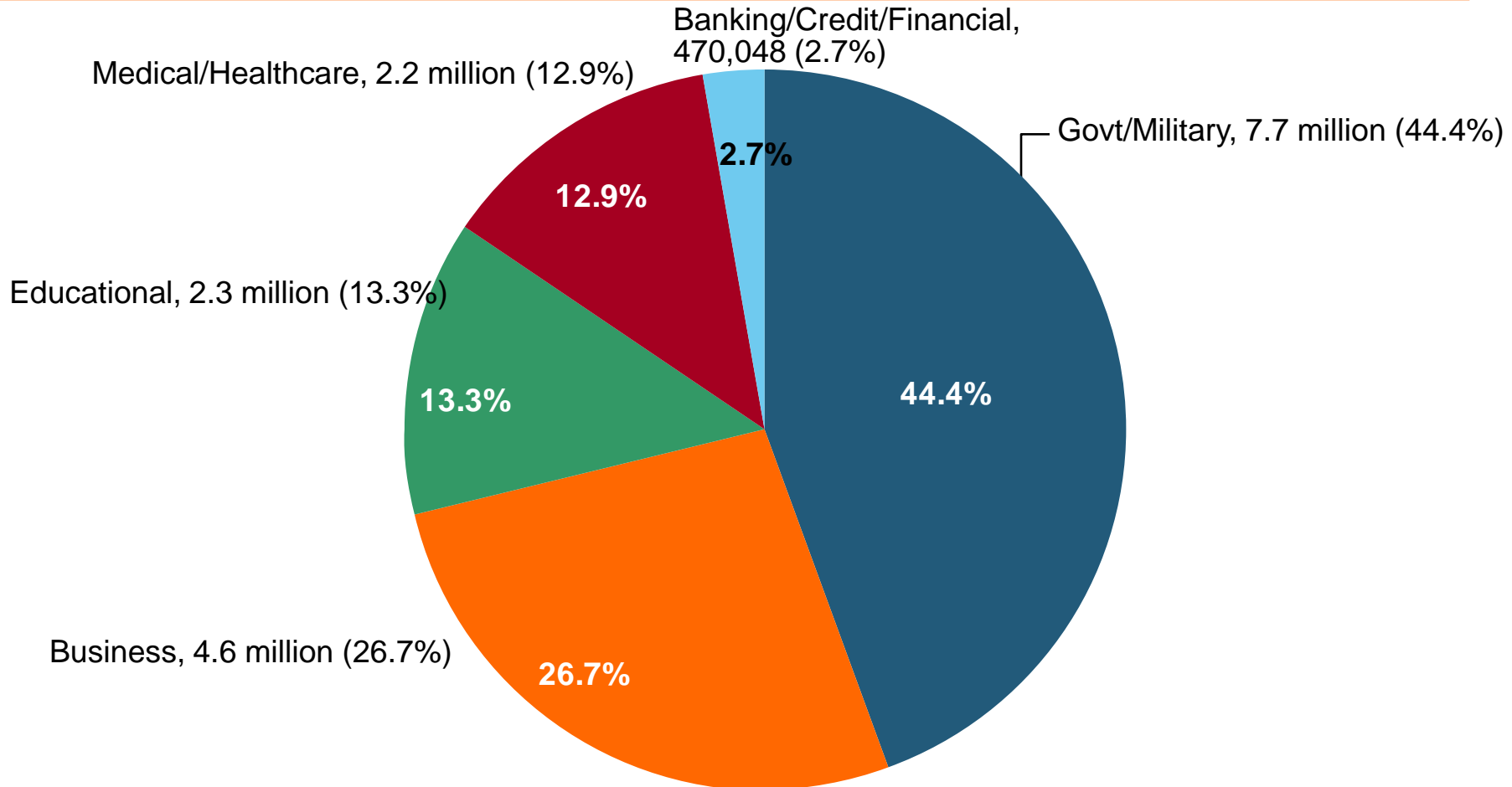
The majority of the 447 data breaches in 2012 affected business and medical/healthcare organizations, according to the Identity Theft Resource Center.





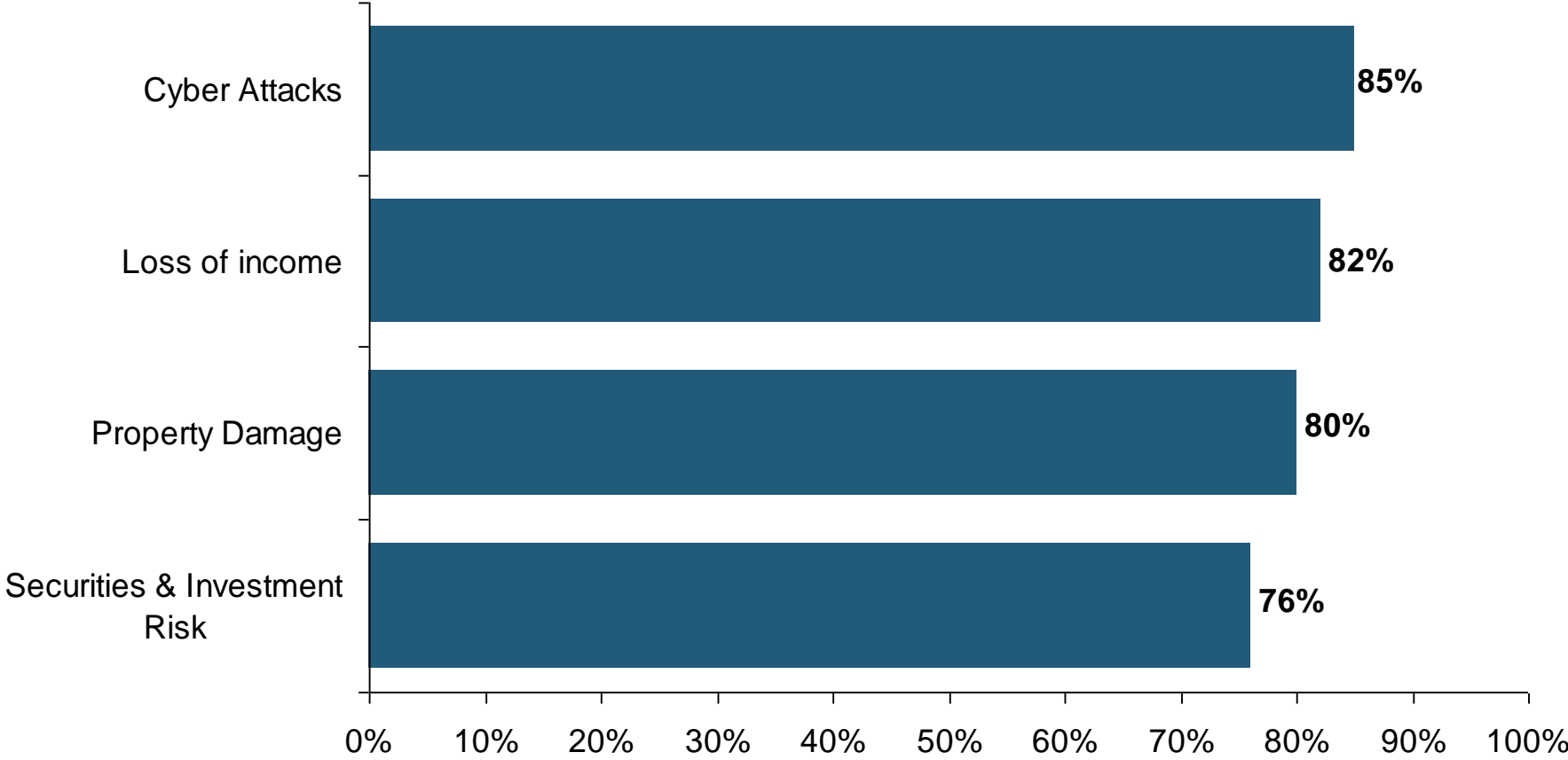
# 2012 Data Breaches By Category, By Number of Records Exposed

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

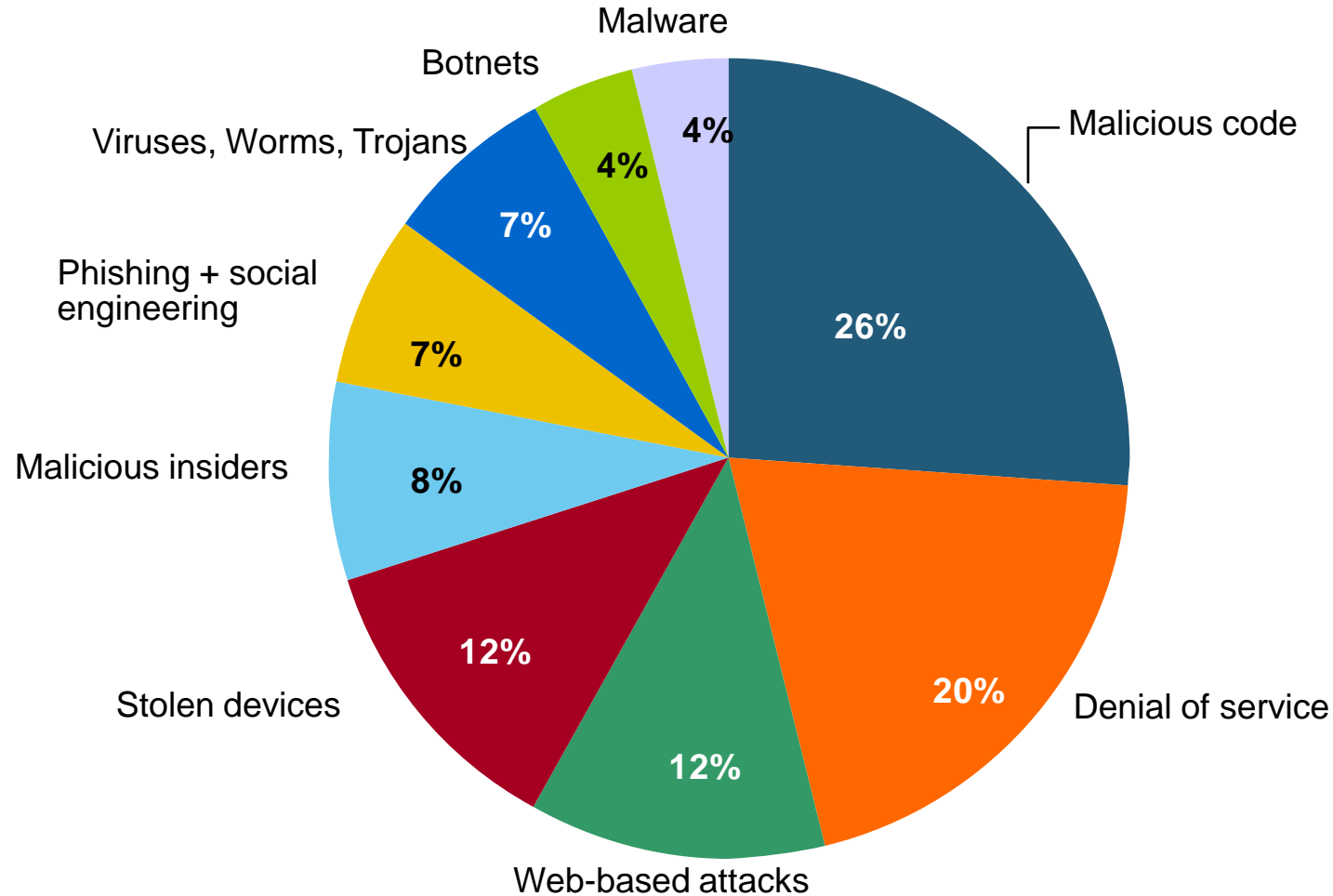
While companies are focused on managing a variety of business risks, cyber attacks are a top concern. Some 85% of 258 executives surveyed said they were very or somewhat concerned about cyber attacks on their businesses.



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

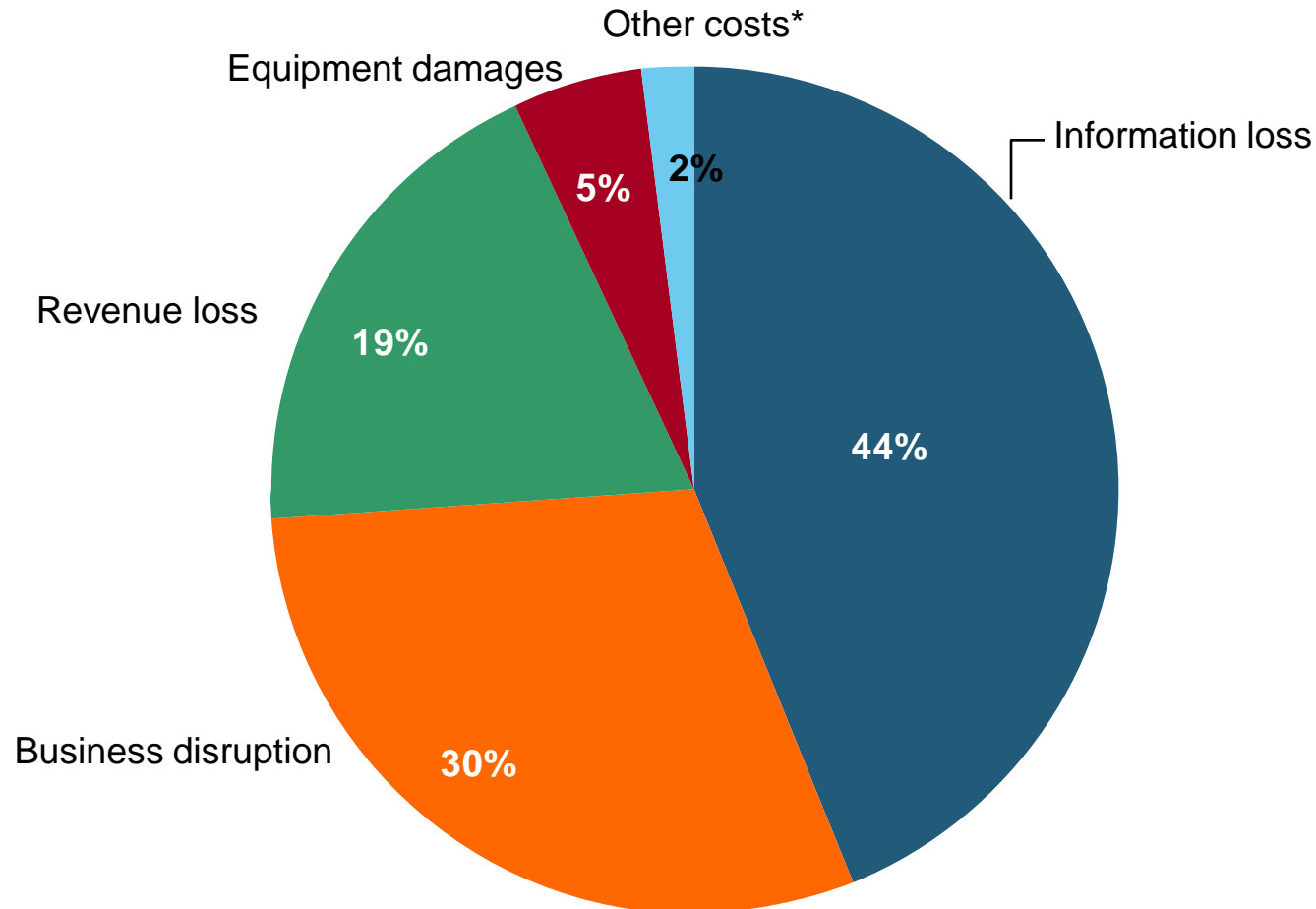
# The Most Costly Cyber Crimes, Fiscal Year 2012

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.

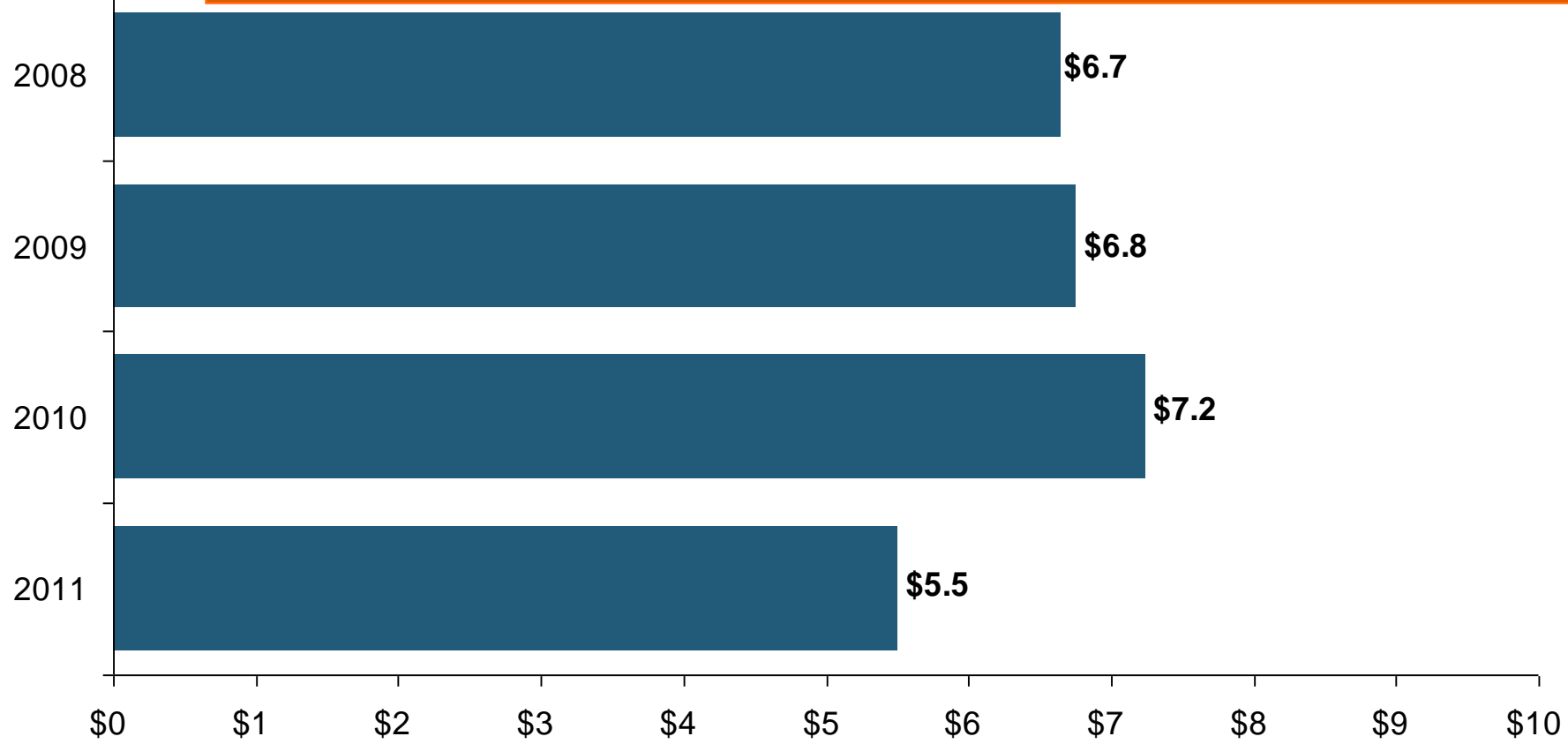
\*March 2013 attack is not part of ITRC research.

# 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)

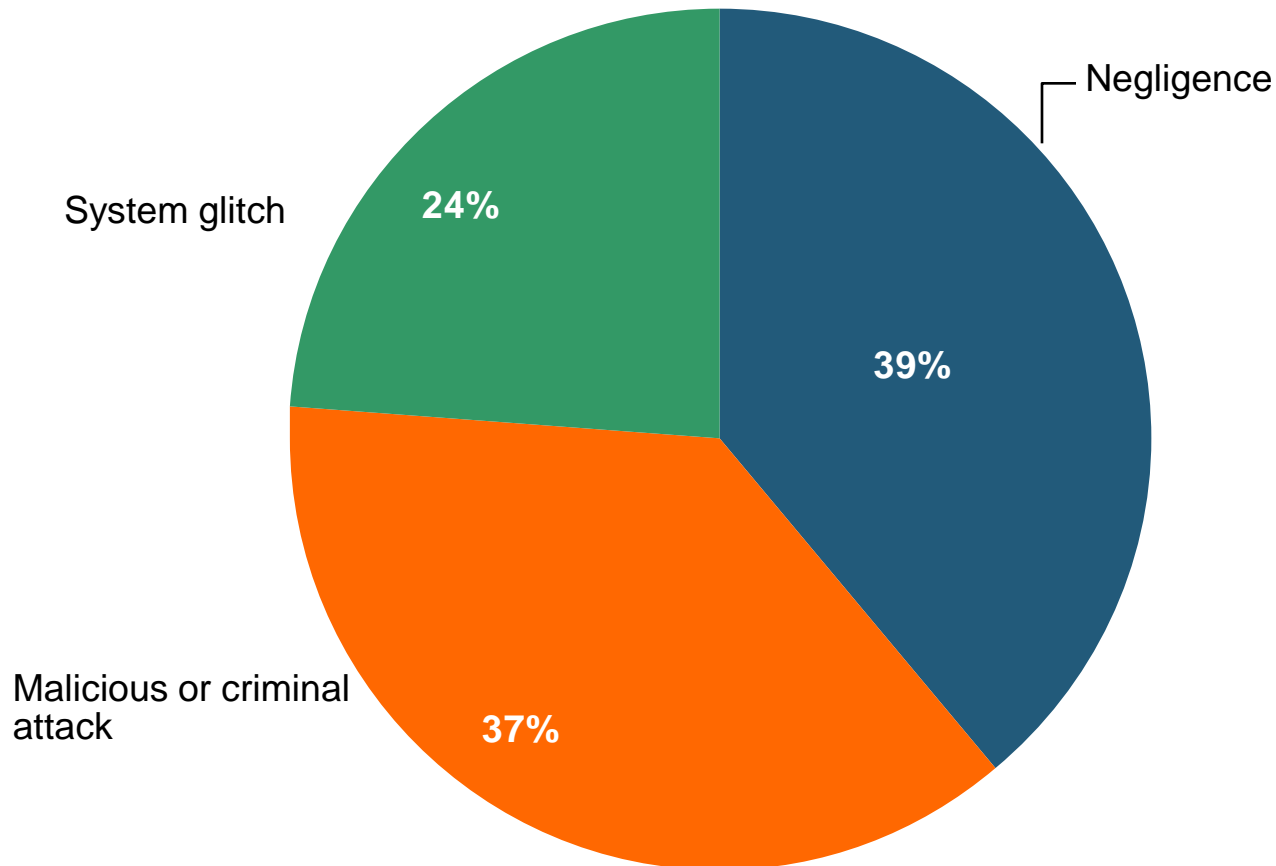


\*Findings of this benchmark study pertain to the actual data breach experiences of 49 U.S. companies from 14 different industry sectors, all of which participated in the 2011 study. Total breach costs include: lost business resulting from diminished trust or confidence of customers ;costs related to 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.

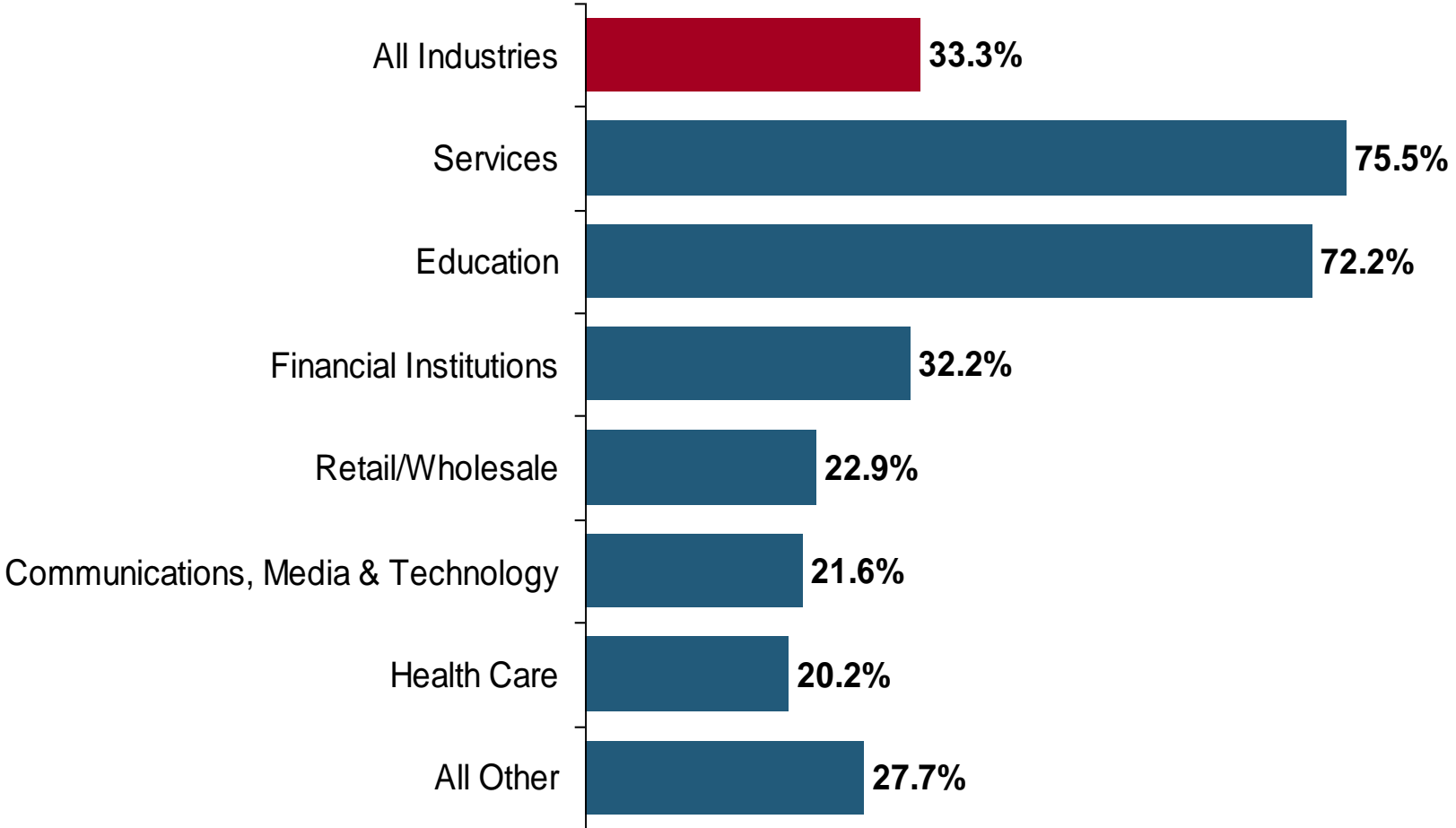
# Main Causes of Data Breach

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.



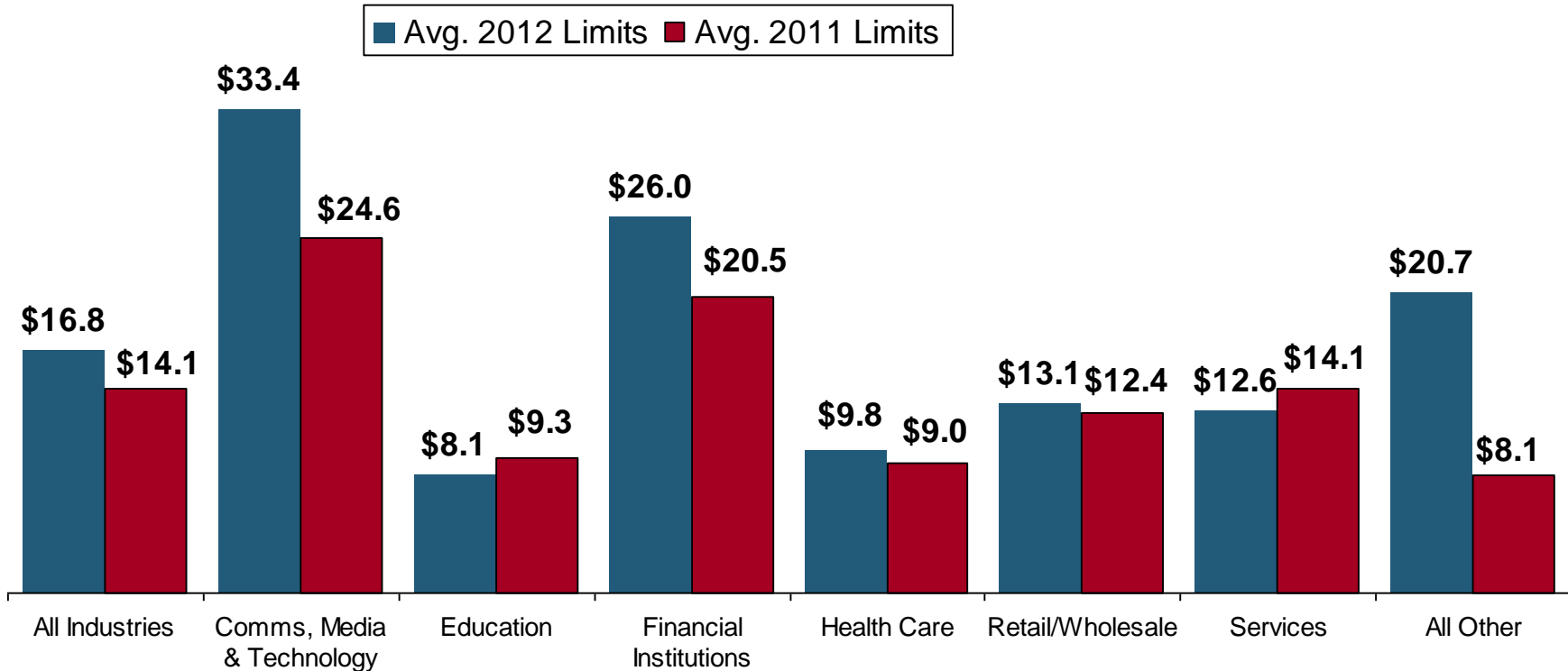
Source: Marsh Global Analytics, Marsh Risk Management Research Briefing, March 2013



# 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)

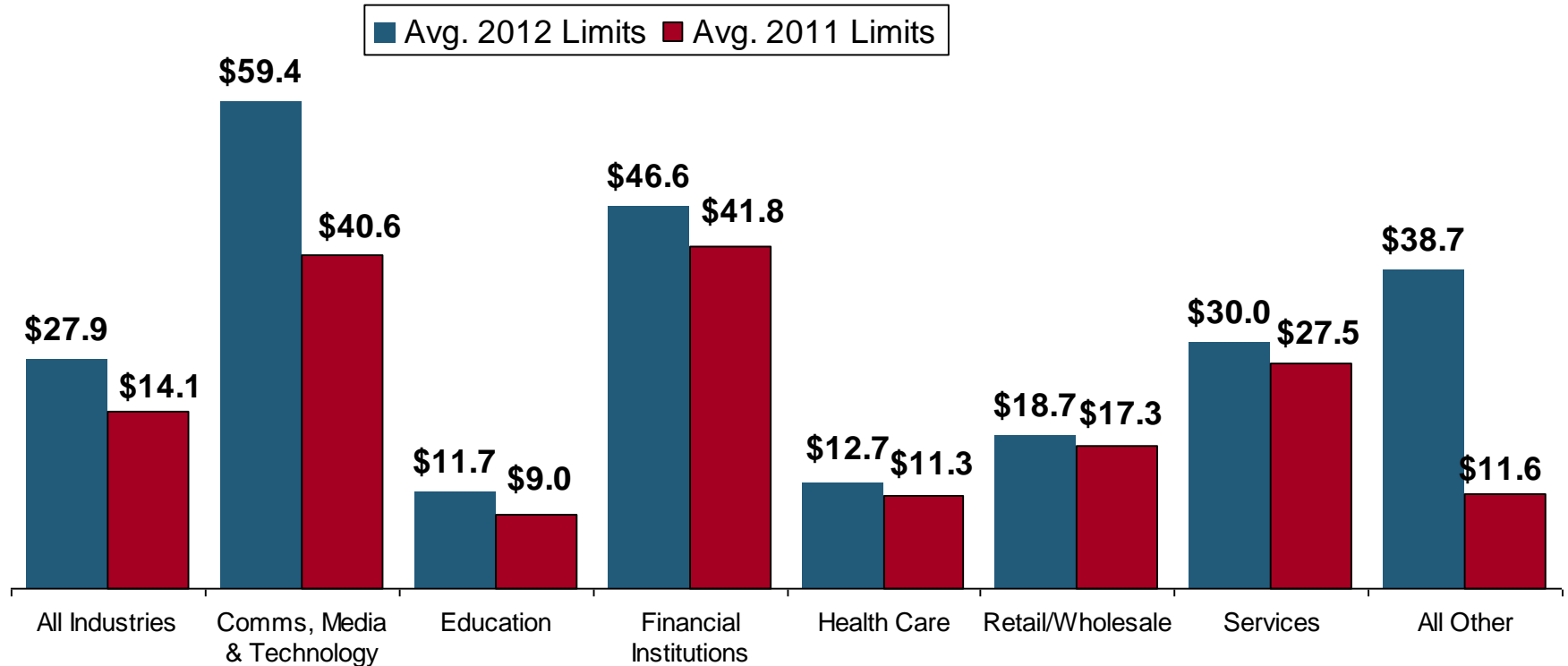


Source: Marsh Global Analytics, Marsh Risk Management Research Briefing, March 2013

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

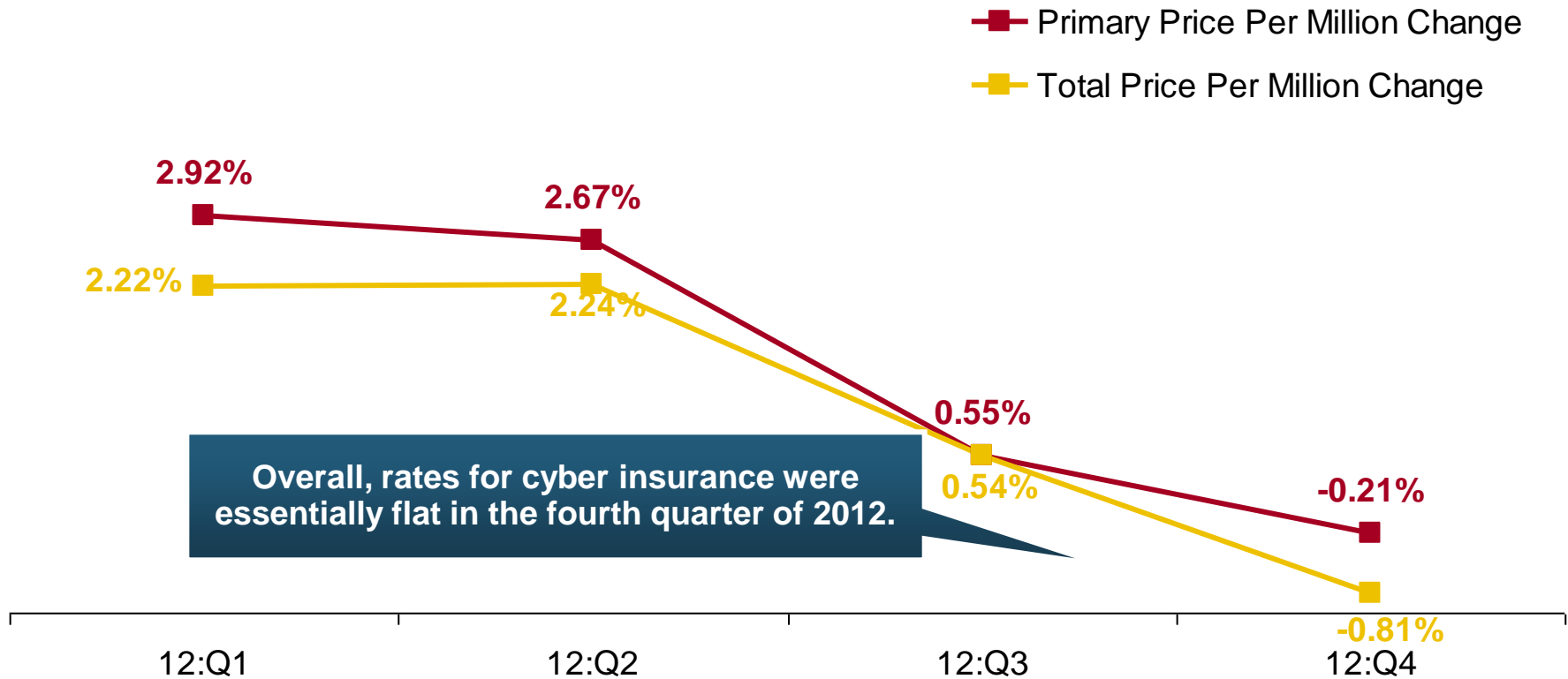
Among larger companies, average cyber insurance limits purchased in 2012 increased nearly 30% over 2011.

(\$ Millions)



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

# Cyber Liability: Historical Rate (price per million) Changes



## 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)***