



An Economic Perspective on the Reinsurance Market

Re Underwriting: Building Professional Expertise

New York, NY

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The Growth of the Reinsurance Industry Depends on ...

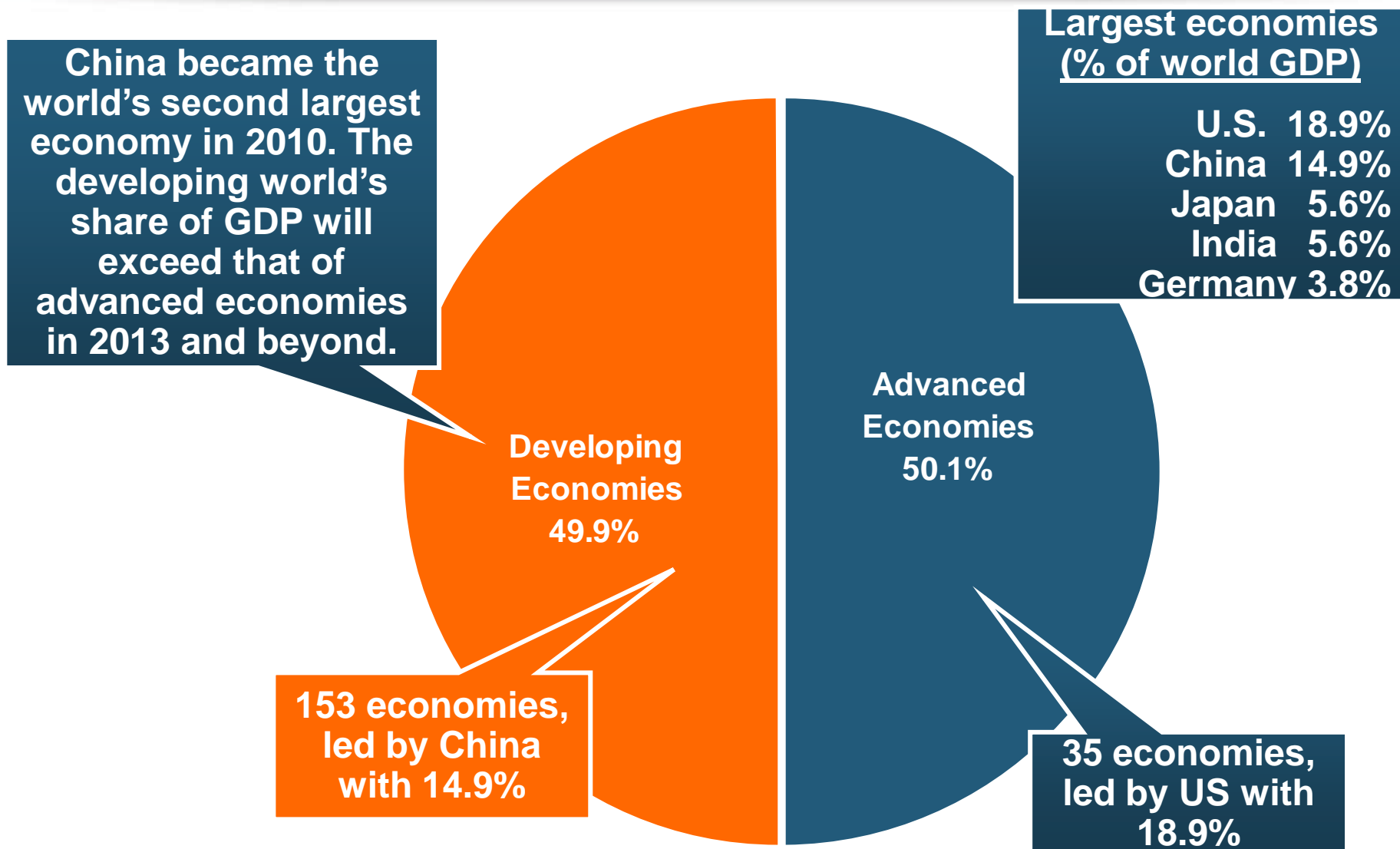
- The Growth of the Global Exposure Base
 - New lines of business (e.g., flood in the U.S.)
 - GDP/capita growth
 - Increased world trade
- Capital Market Developments
- The Growth and Capital Position of the Primary Insurance Industry
- The Capital Position of the Reinsurance Industry
- The Attractiveness and Extent of Alternate Sources/Methods of Risk Capital

Global Economic Outlook: Regional and Major Economy Perspectives

**Strength of Economies and Pace of
Recovery Varies Greatly**

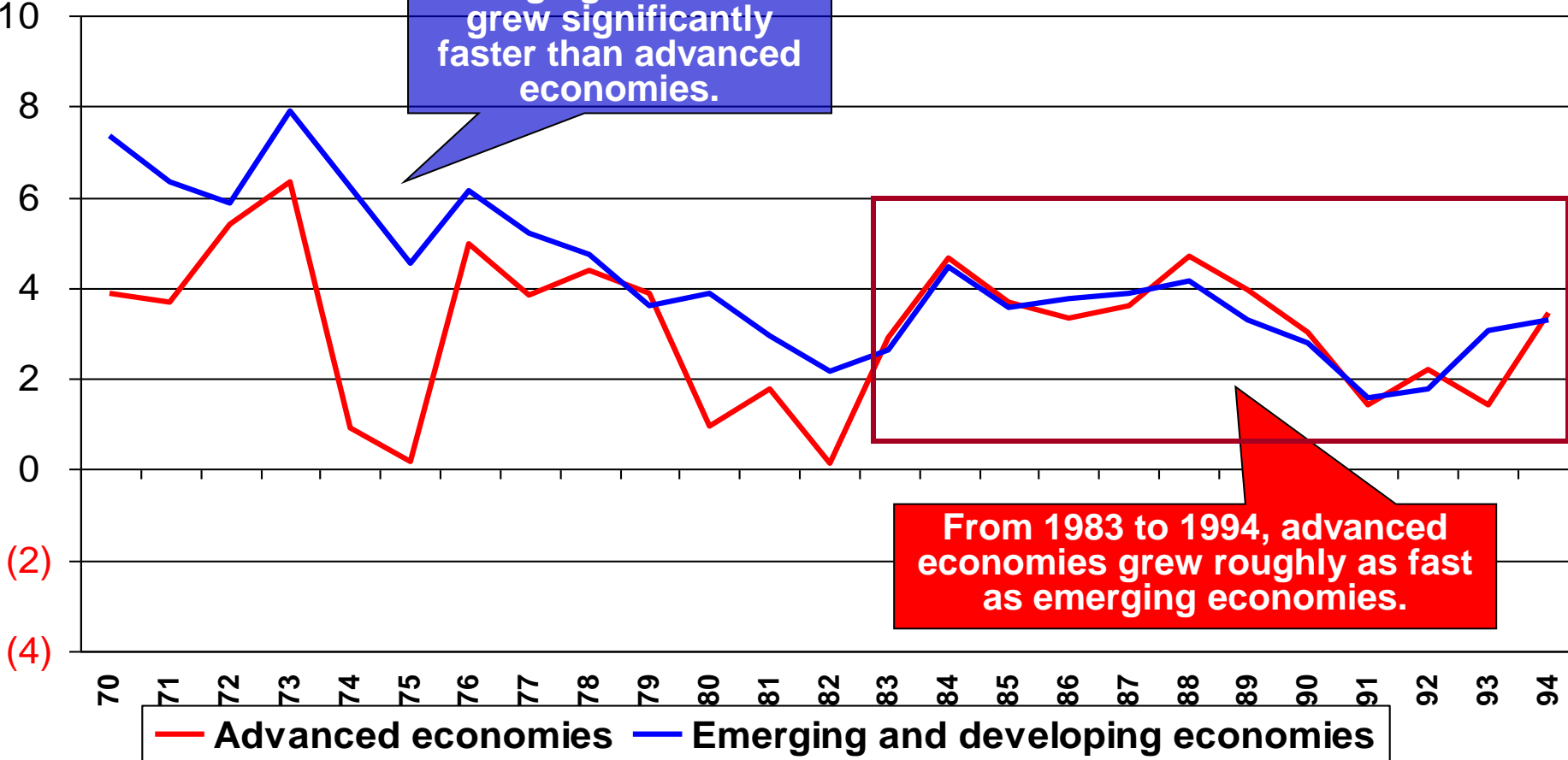
***Important Consequences for Insurer and
Reinsurer Growth Opportunities***

Shares of Global Output, Advanced vs. Developing Economies, 2012



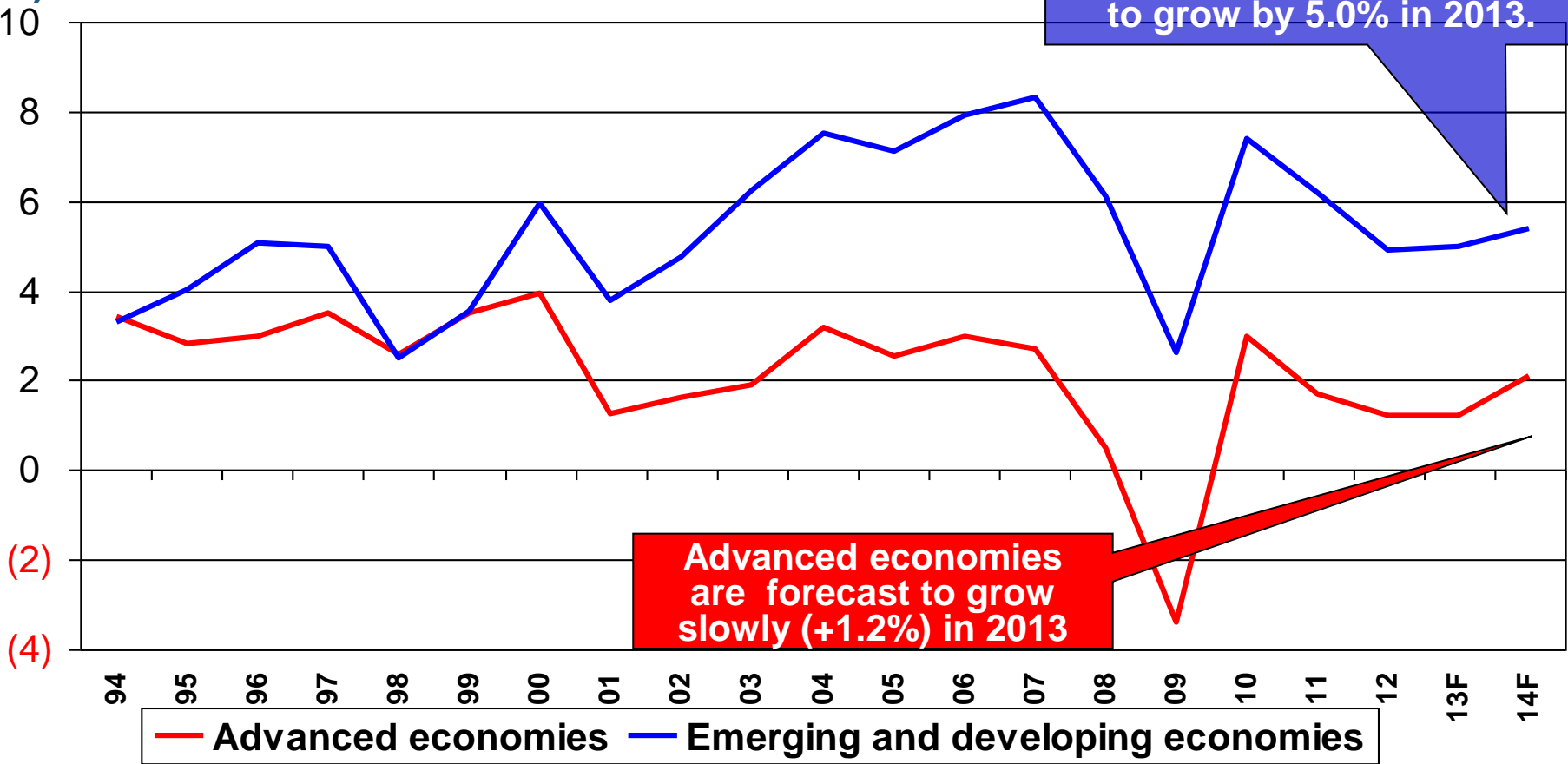
Past Global GDP Growth: Advanced vs. Emerging Economies, 1970-1994

GDP Growth
(%)

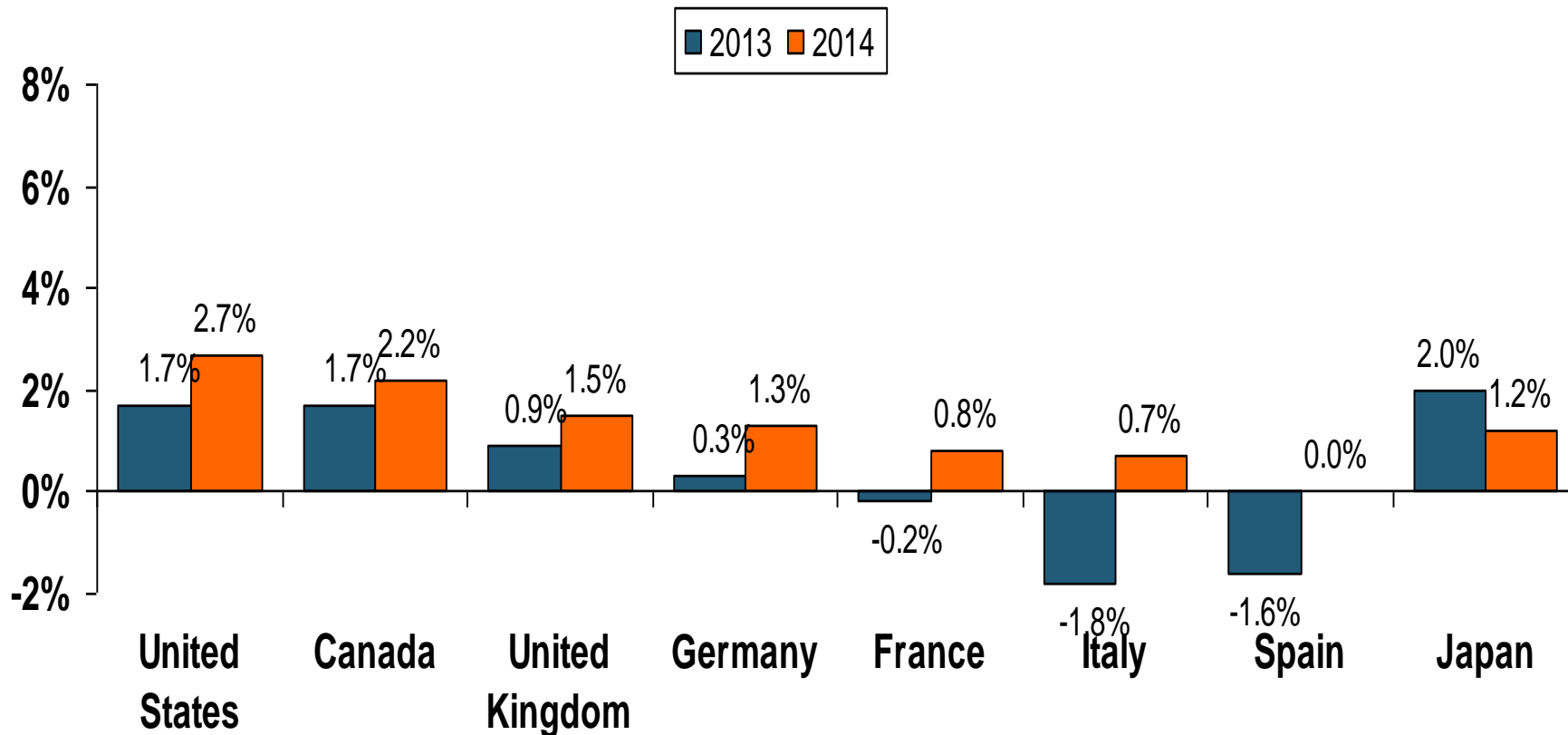


Recent & Forecast GDP Growth: Advanced vs. Emerging Economies, 1994-2014F

GDP Growth (%)

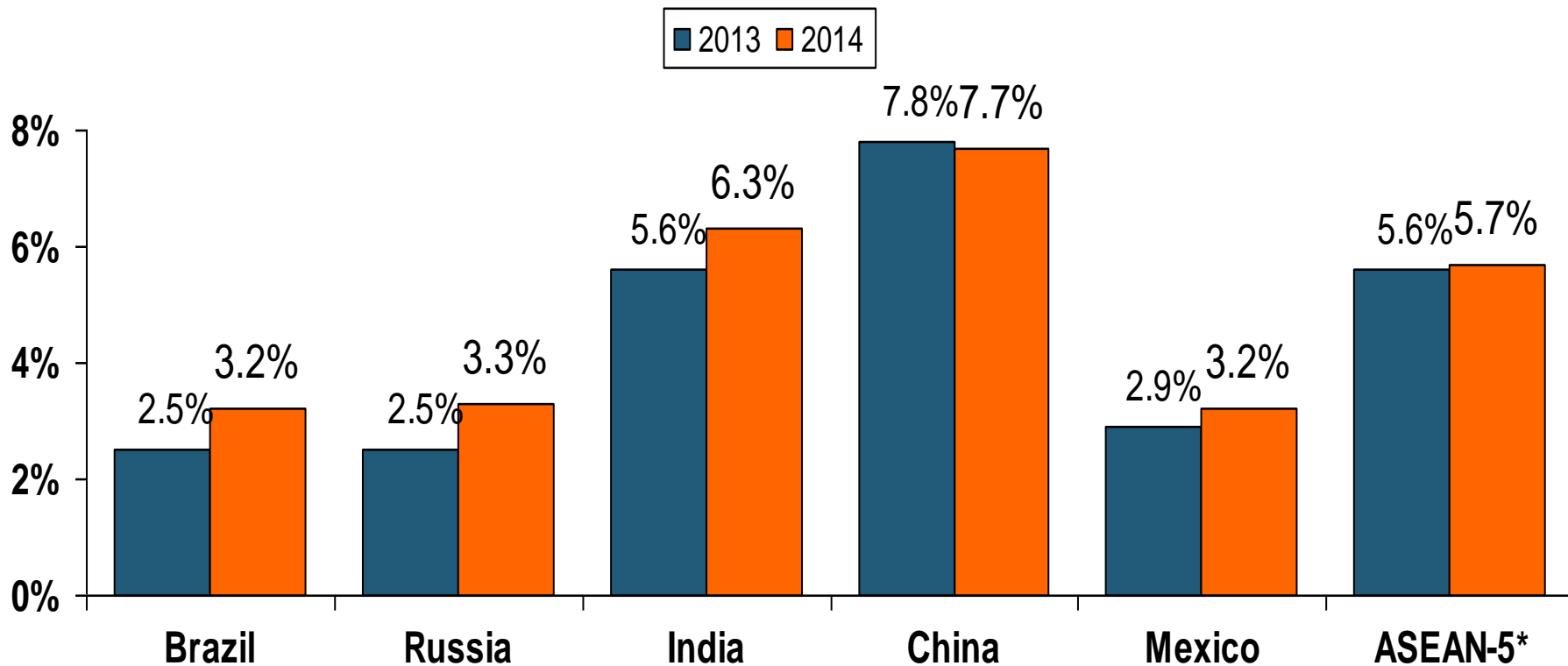


Forecasts of 2013-14 GDP Growth of Selected Advanced Economies



The July 2013 IMF report forecasts growth in advanced economies in 2013 generally around 1% or less in Europe, under 2% in North America. Slight improvement forecast for 2014.

Forecasts of 2013-14 GDP Growth of Selected Developing Economies

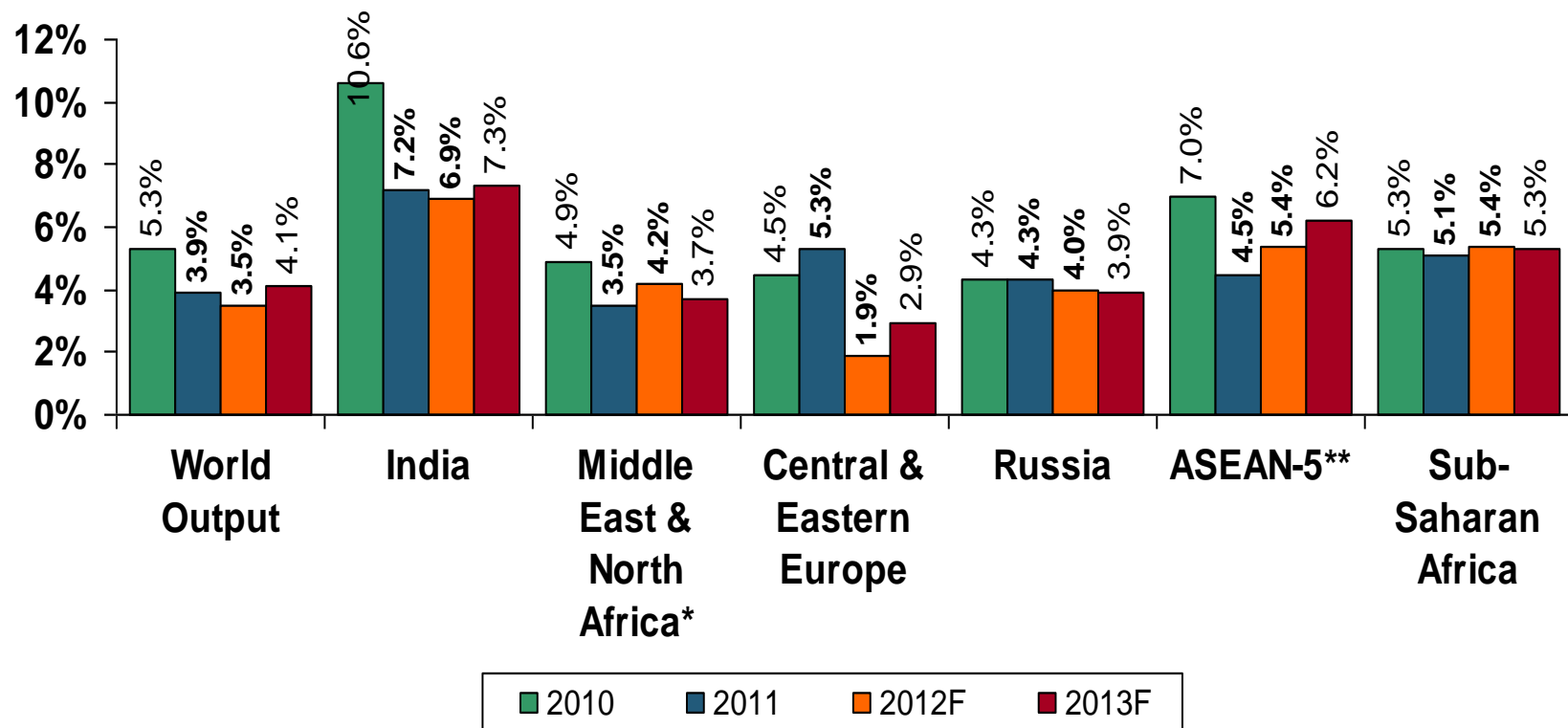


IMF continues to forecast that 2013 growth in emerging/developing economies will outpace advanced economies' growth but now says growth will be more moderate than previously forecast.

*Indonesia, Malaysia, the Phillipines, Thailand, and Vietnam

Sources: International Monetary Fund, *World Economic Outlook Update*, July 2013, Table 1; Ins. Info. Institute.

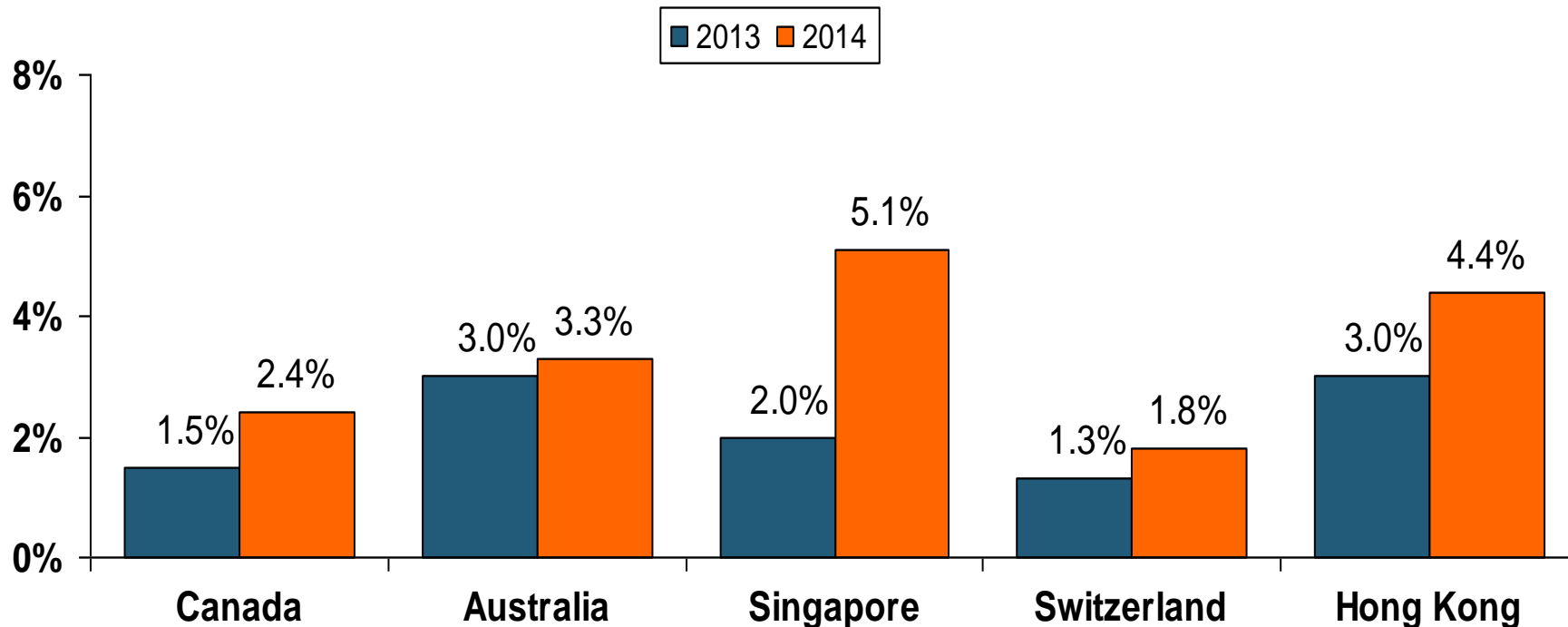
Real GDP Growth Forecasts: Emerging Market Regions: 2010 – 2013F



Growth Prospects Vary Widely by Region: All Regions Slowed in 2011 As Economic Recovery Encountered Many Challenges. IMF Outlook for 2012 Is Mixed With Broader, More Robust Growth in 2013 Predicted. Actual Growth in 2012 Could Surprise to the Upside.

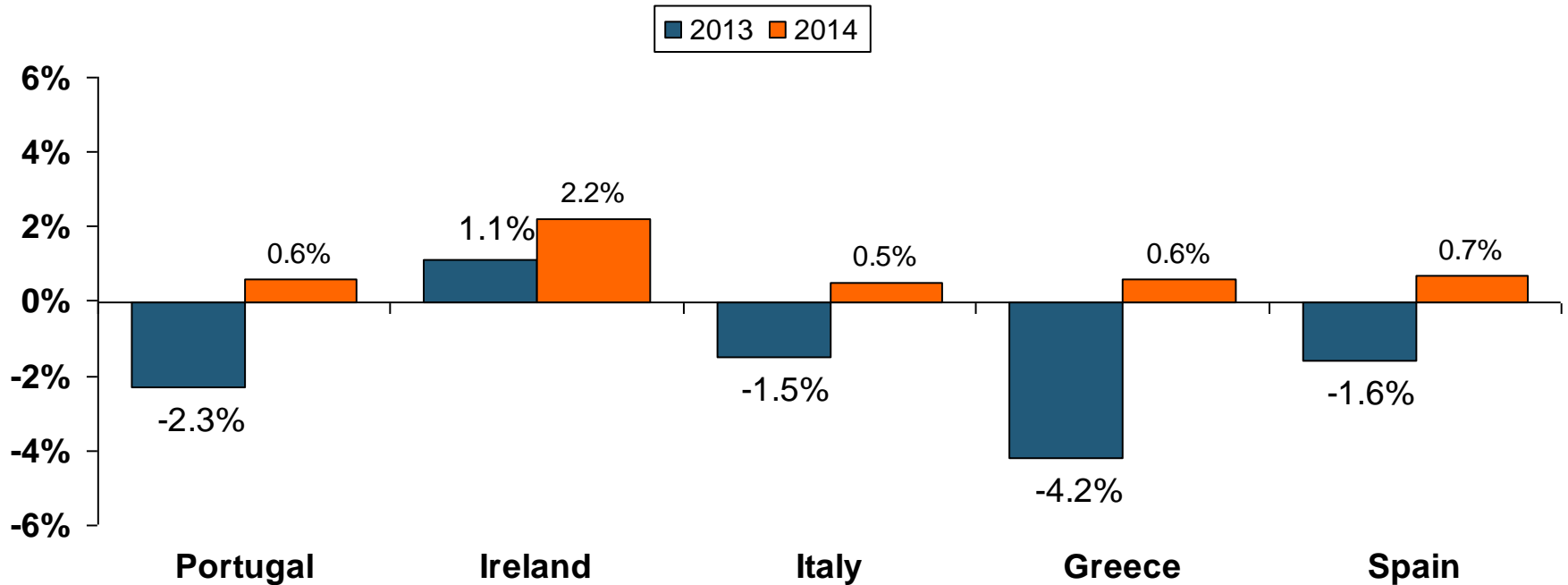
*Excludes Libya in 2011. **Indonesia, Malaysia, Thailand, Philippines and Vietnam
Sources: IMF *World Economic Outlook* (April 2012); Insurance Information Institute.

IMF Forecasts of 2013-14 Real GDP Growth for the CASSH Economies



BlackRock's global chief investment strategist thinks these 5 countries face no fiscal imbalances and are expected to grow by 3% on average. The IMF's 2013 forecast isn't as bullish on Canada and Switzerland as BlackRock is.

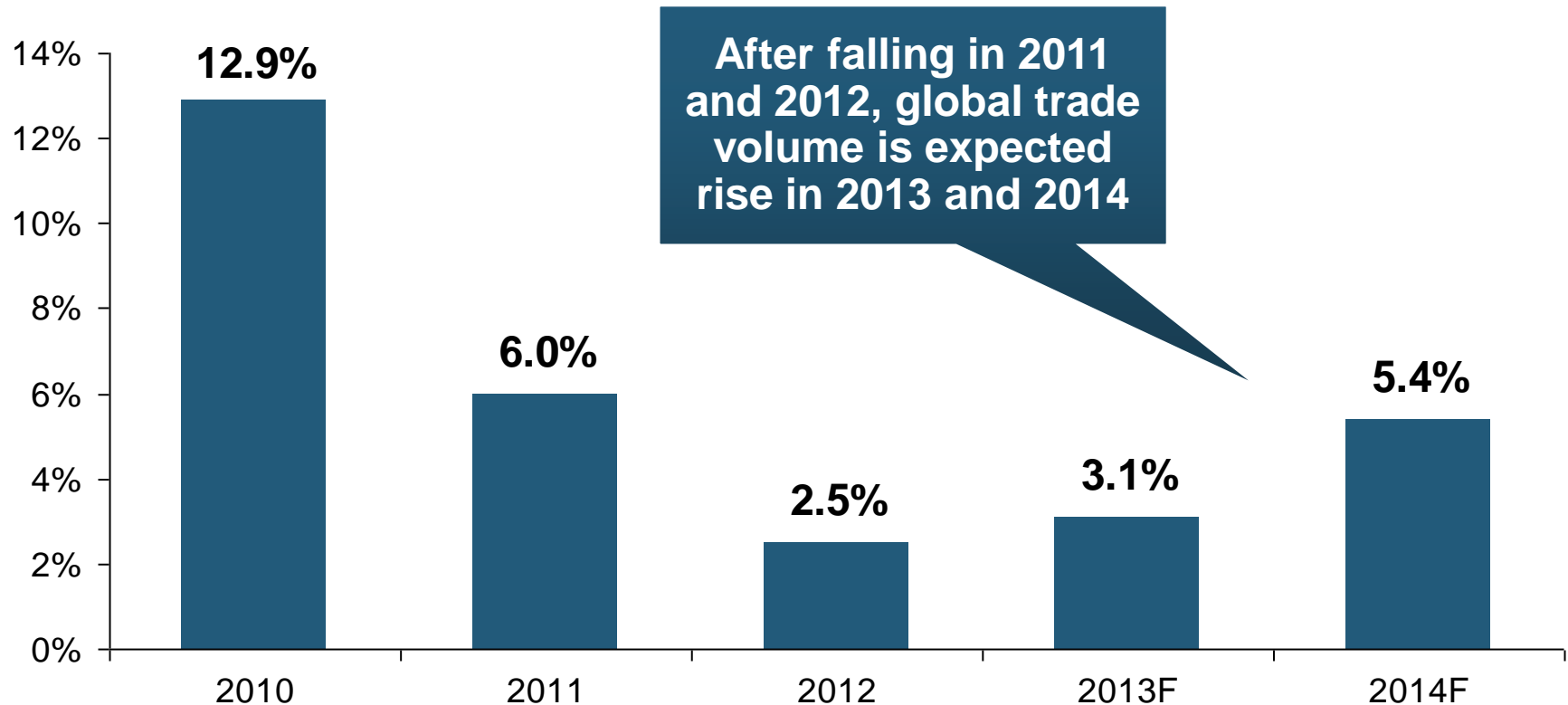
IMF Forecasts of 2013-14 Real GDP Growth for the PIIGS Economies



Sources: International Monetary Fund, *World Economic Outlook*, April 2013, Chapter 2; Ins. Info. Institute.

World Trade Volume: 2010—2014F

Percentage Change (%)



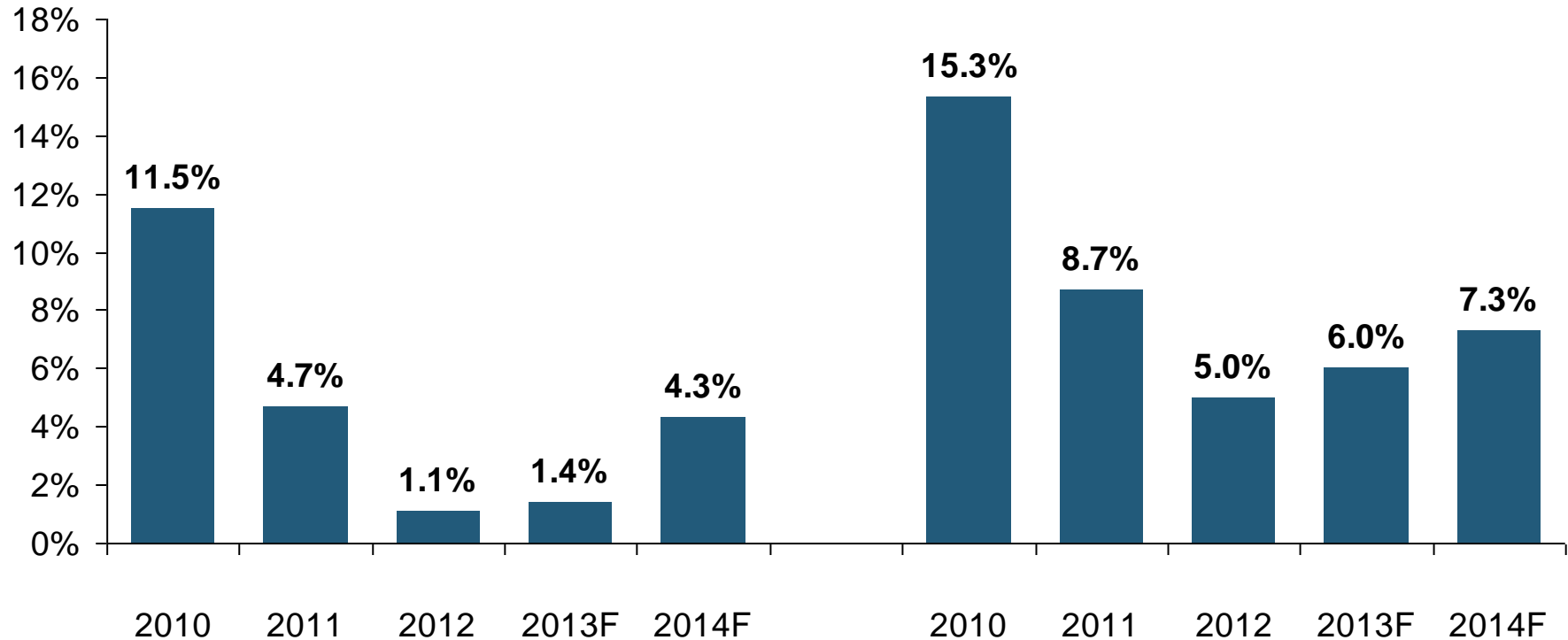
**Growth in World Trade Volume (Imports + Exports)
Has Slowed But Continues to Grow**

World Trade Volume: IMPORTS 2010 – 2014F

Growth (%)

Advanced Economies

Emerging Economies



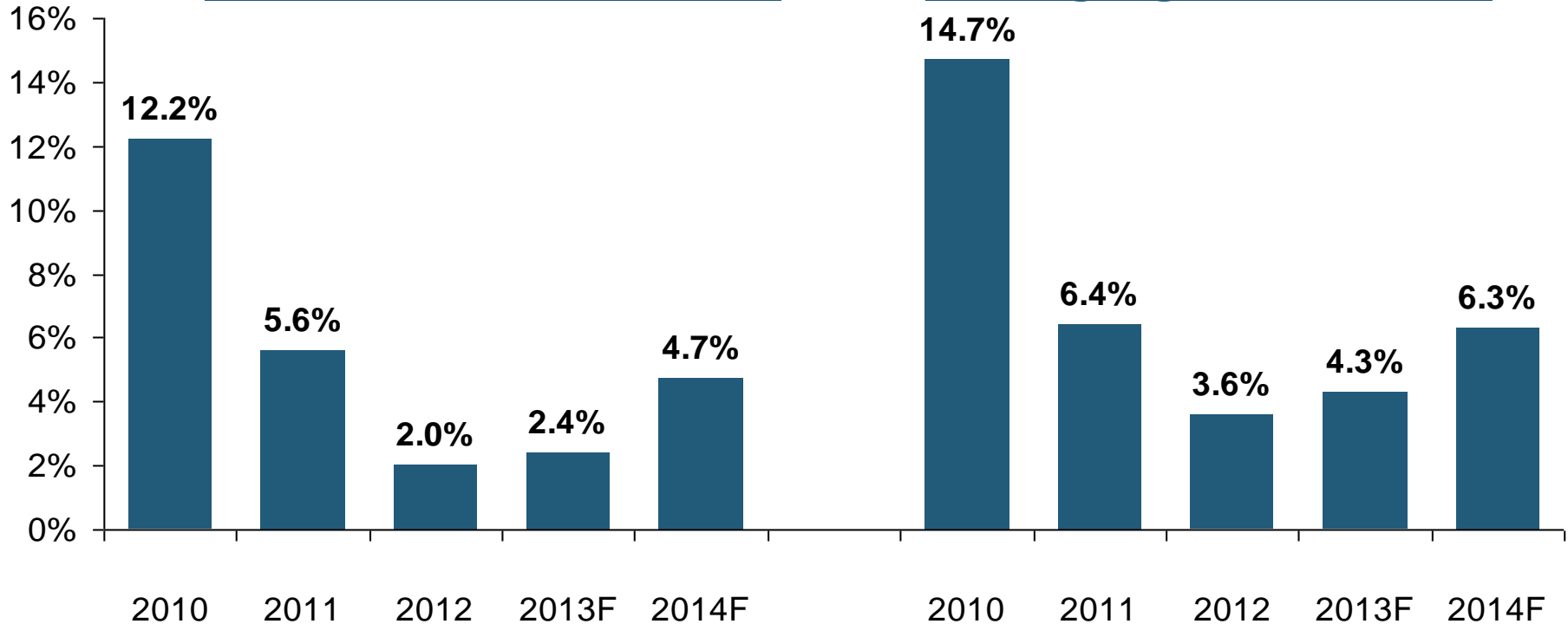
**Import growth in Emerging Economies
outpaces that in Advanced Economies by a wide margin.**

World Trade Volume: EXPORTS 2010 – 2014F

Growth (%)

Advanced Economies

Emerging Economies



Export growth in emerging economies outpaces Advanced Economies by a much narrower margin than imports.

Global P/C Insurance Snapshot

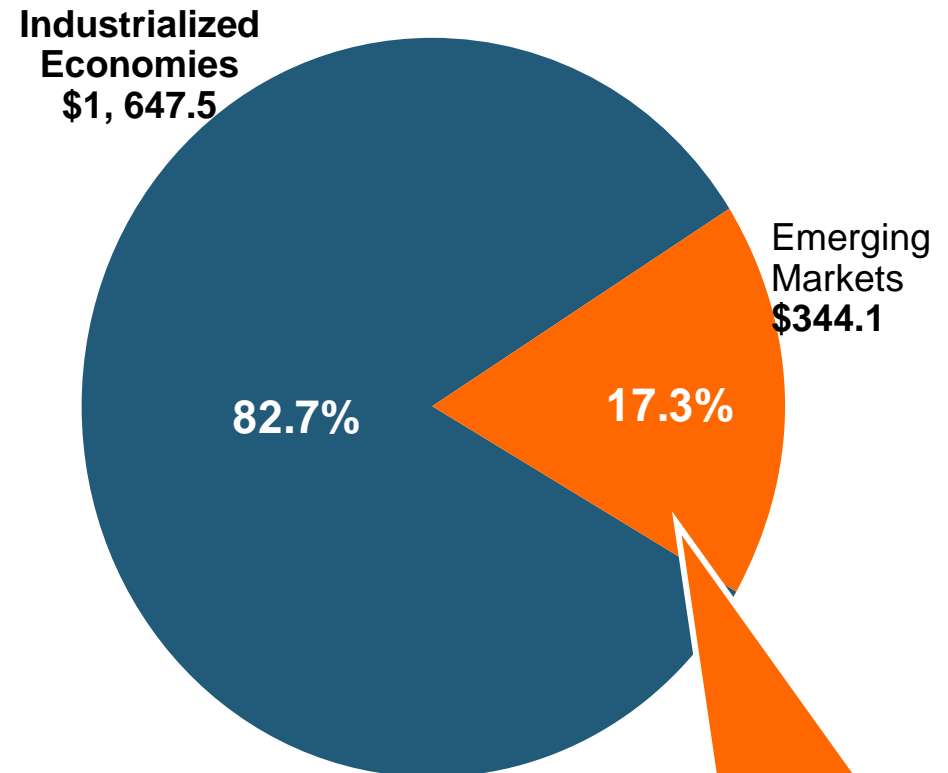
**Developing Economies
are Severely Under-insured;
Will Faster GDP Growth Translate into
Significant Premium Growth?**

Nonlife Premium: Advanced vs. Emerging Economies, 2012

Premium Growth Facts

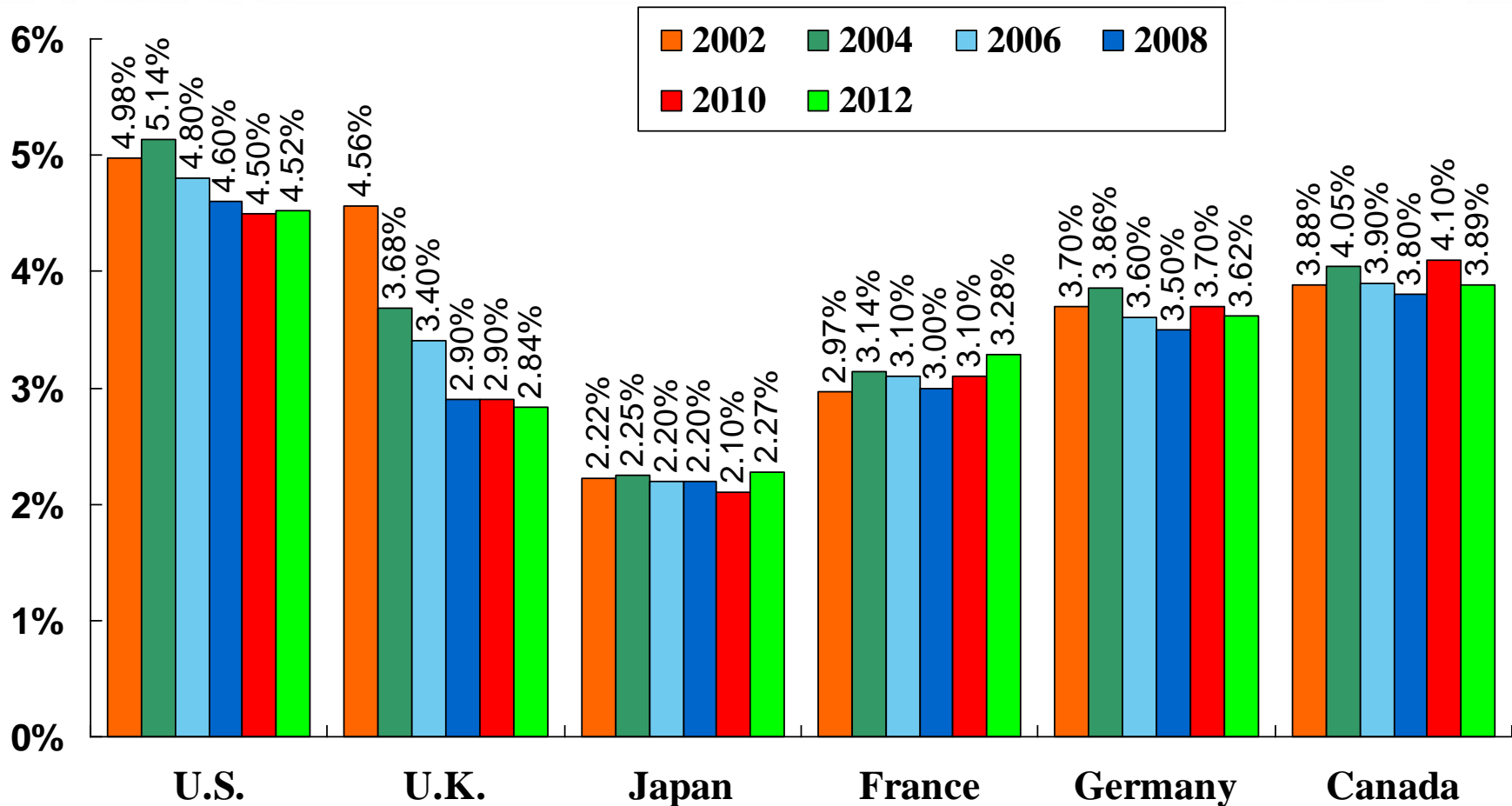
- Nonlife premiums in the emerging economies grew 8.1% in 2011 and 8.6% in 2012, after inflation adjustment.
- In the advanced economies, nonlife premiums grew by 0.9% in 2011 and 1.5% in 2012.

2012, US\$ Billions



Developing economies now produce half of global GDP but just 17% of nonlife premiums

Non-life Premium/GDP* (Penetration) for Advanced Economies, 2002-2012

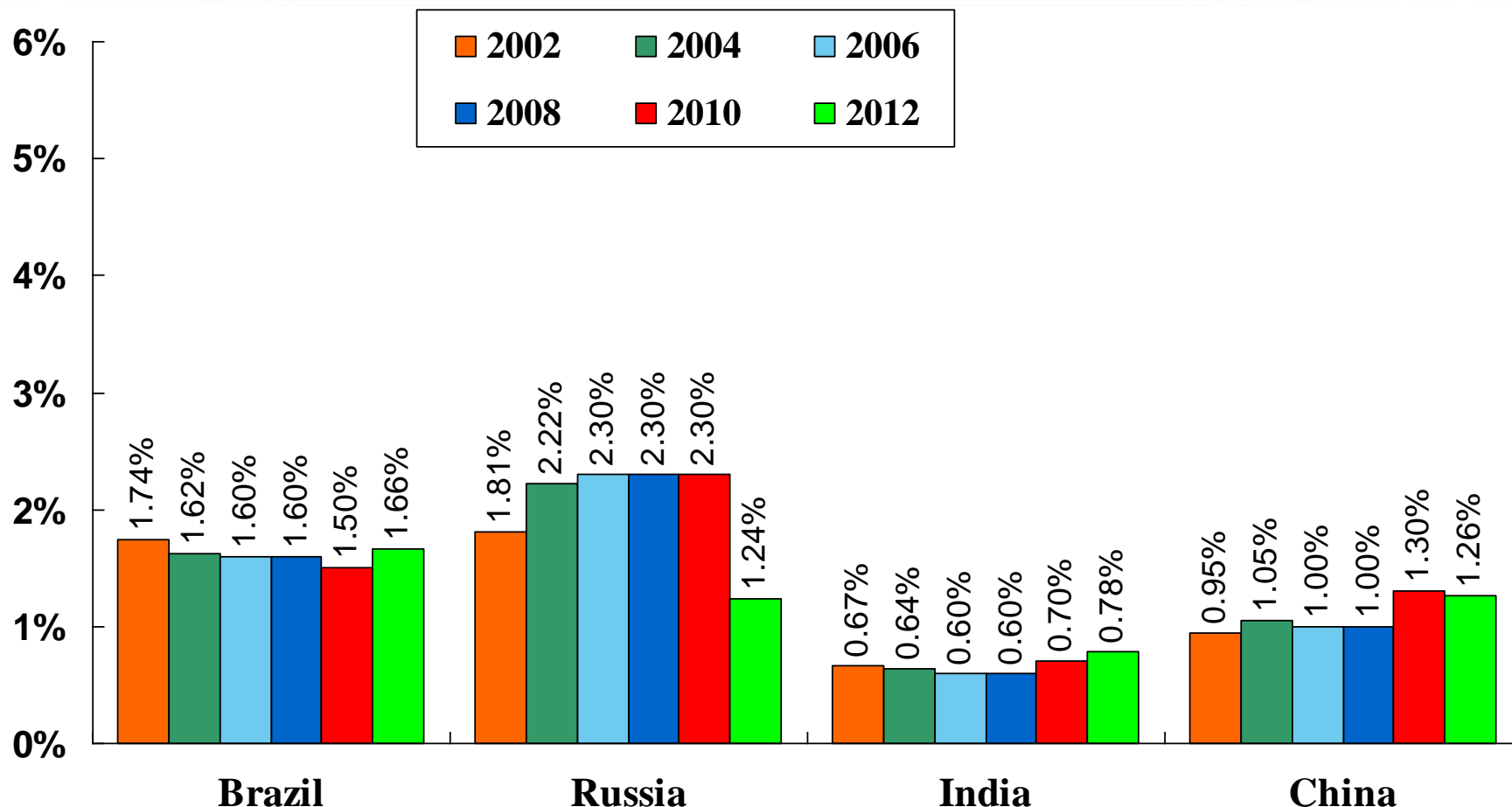


Year-to-year comparisons of the penetration percentage indicates the degree to which premium growth is keeping up with exposure growth (as proxied by GDP).

*both measured in U.S. dollars; premiums exclude cross-border business

Source: Swiss Re *Sigma*, various volumes

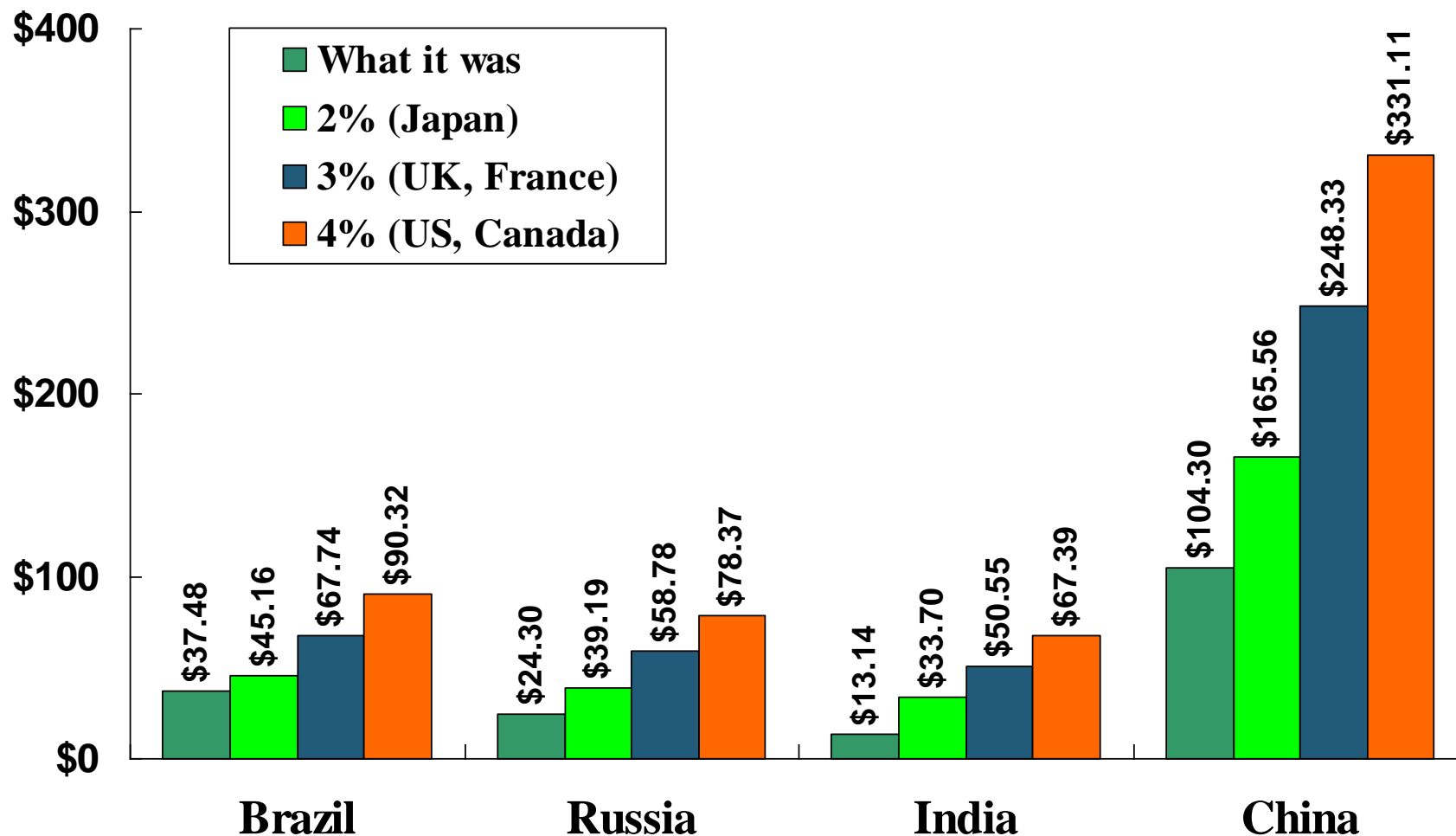
Non-life Premium/GDP* (Penetration) for the BRIC Economies, 2002-2012



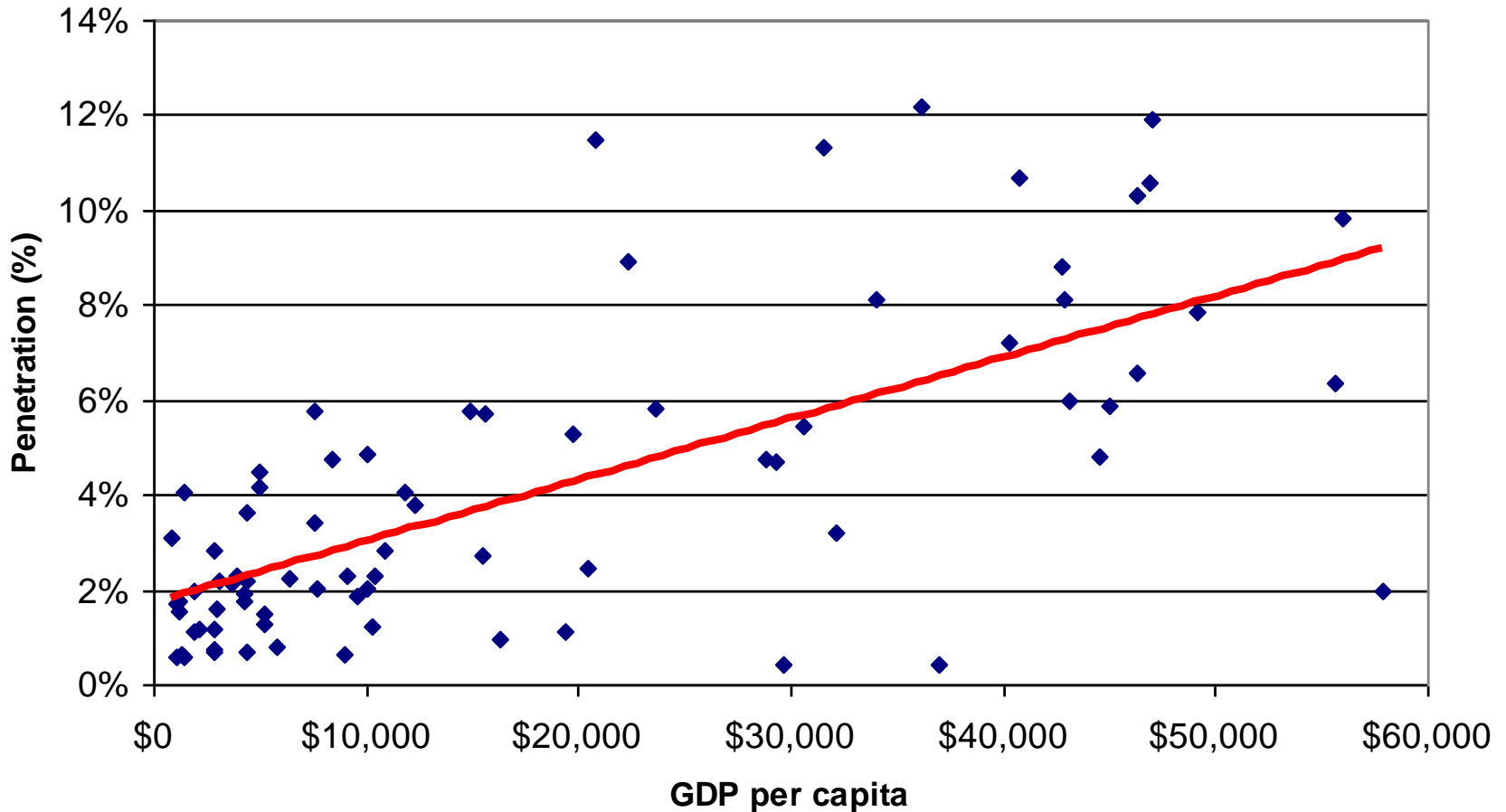
From 2001-2009, penetration in China and Russia grew steadily—an especially strong showing in light of the rapid growth in GDP (denominator in the Penetration ratio). Similarly, although the Penetration ratios in Brazil and India were essentially flat, that means premium growth basically kept pace with exposure growth.

2012 Non-life Premium if Penetration in BRIC Economies Equaled Advanced Economies

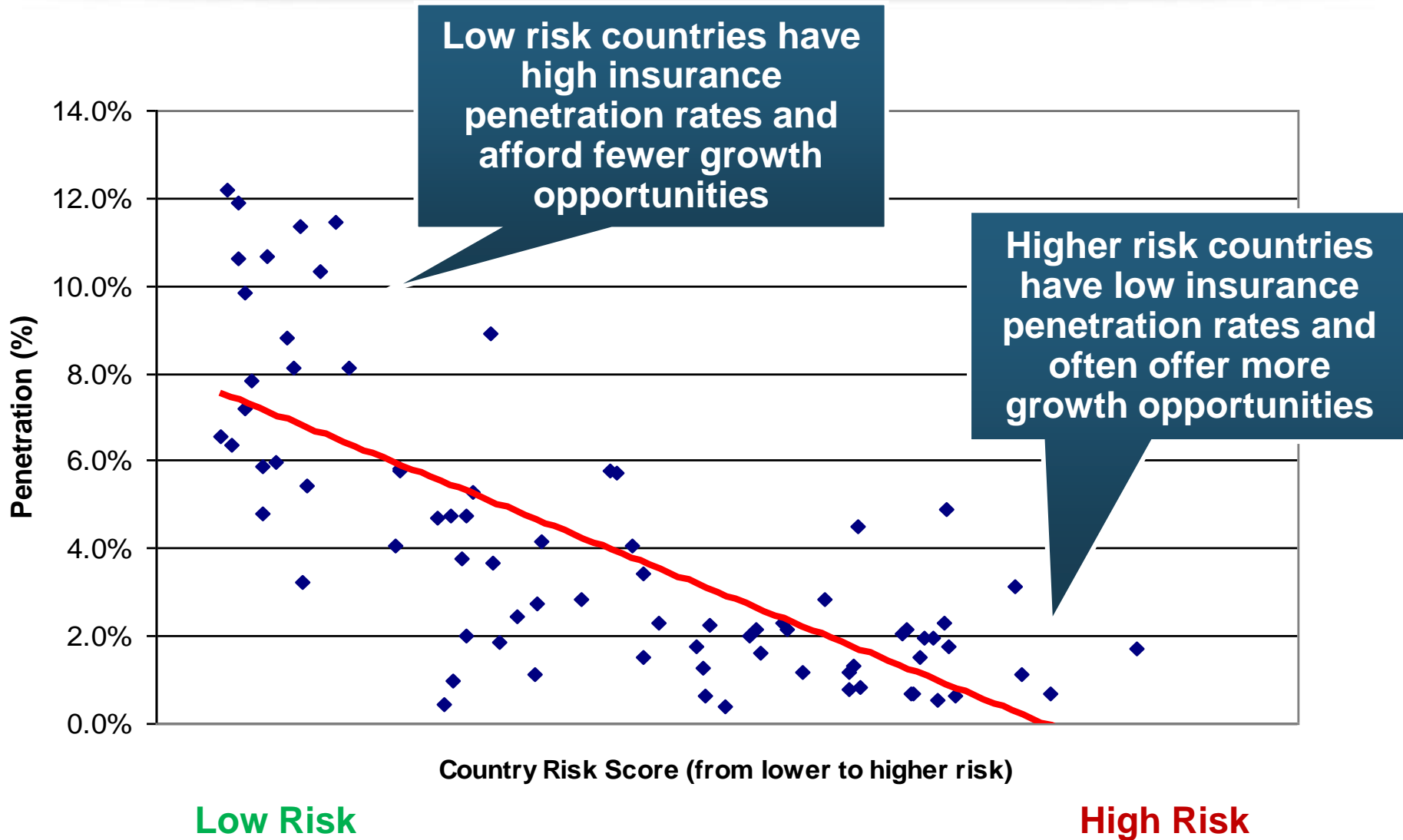
\$US, billions



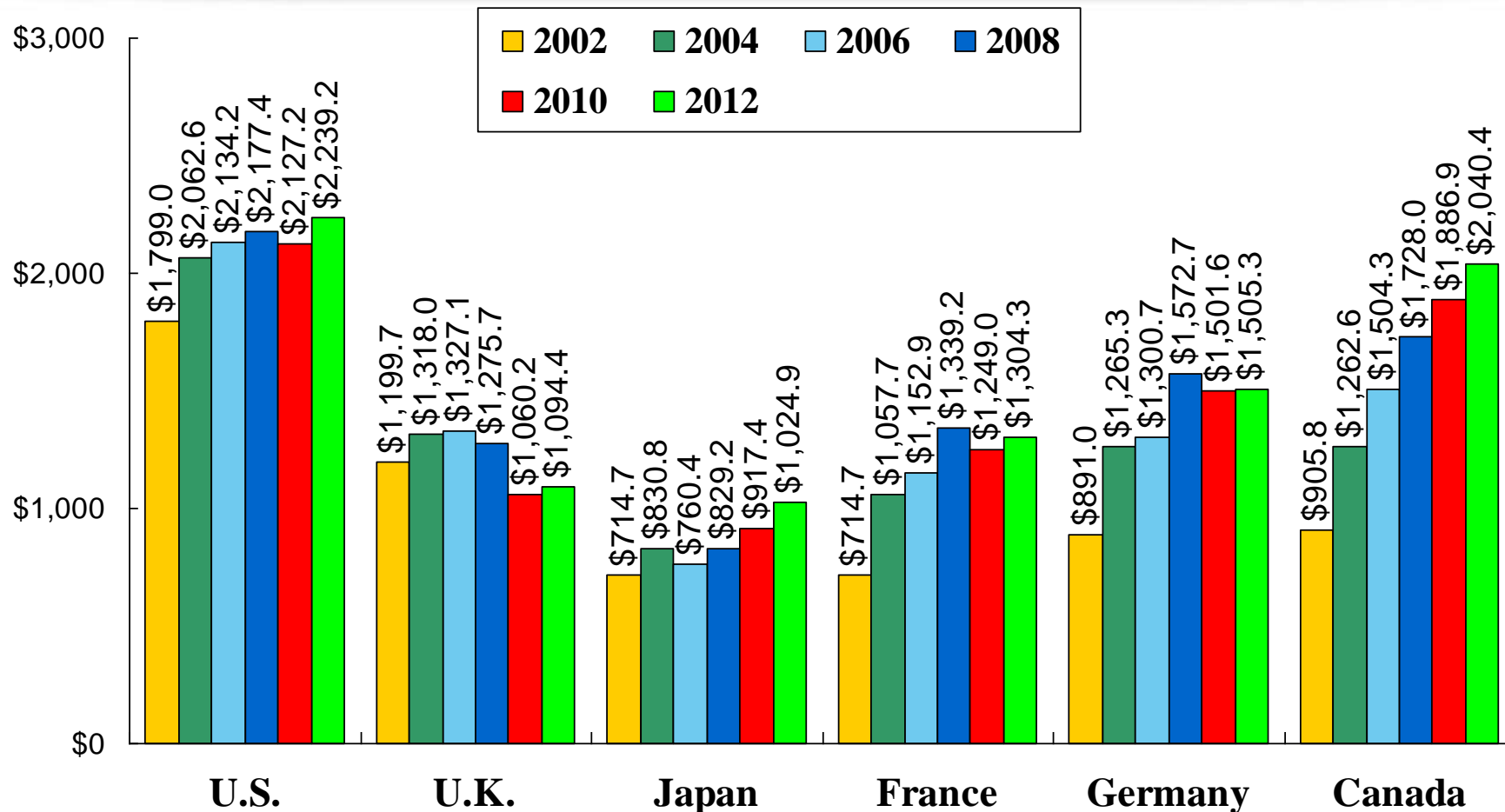
As Economies Grow Wealthier, Insurance Market Penetration Grows Also



Greater Insurance Market Penetration Possibilities in Higher-Risk Countries

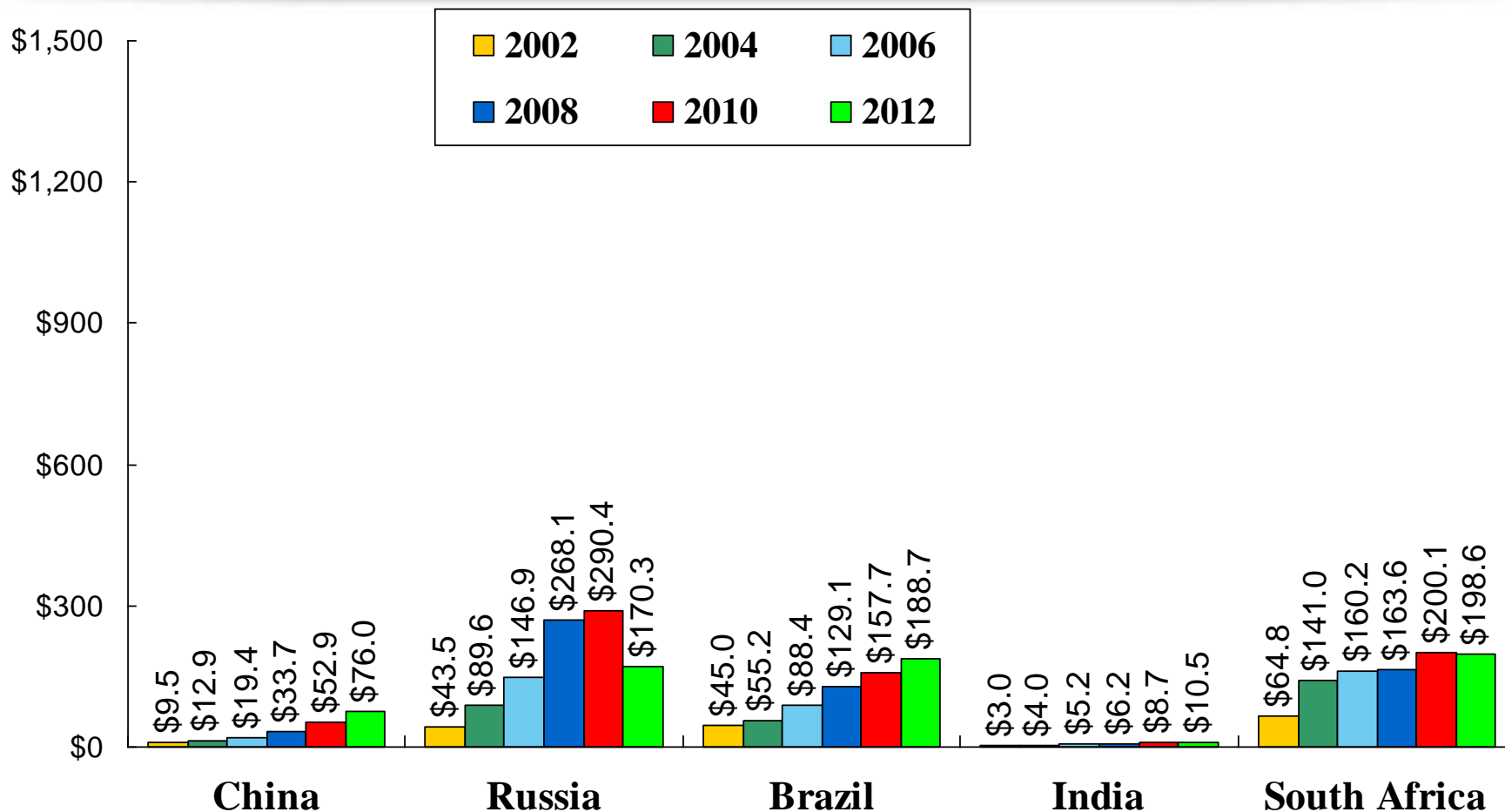


Non-life Premium* per capita (Density) for Advanced Economies, 2002-2012



From 2002-2012, Insurance Density grew in most advanced economies, retreating only slightly during the global recession. In Canada, premium density doubled from 2002-2010.

Non-life Premium* per capita (Density) for Emerging Economies, 2002-2012



From 2002-2012, Insurance Density in India tripled, and in China it grew 9-fold. South Africa, a developing economy, grew premiums about as fast as the population—fairly slowly.

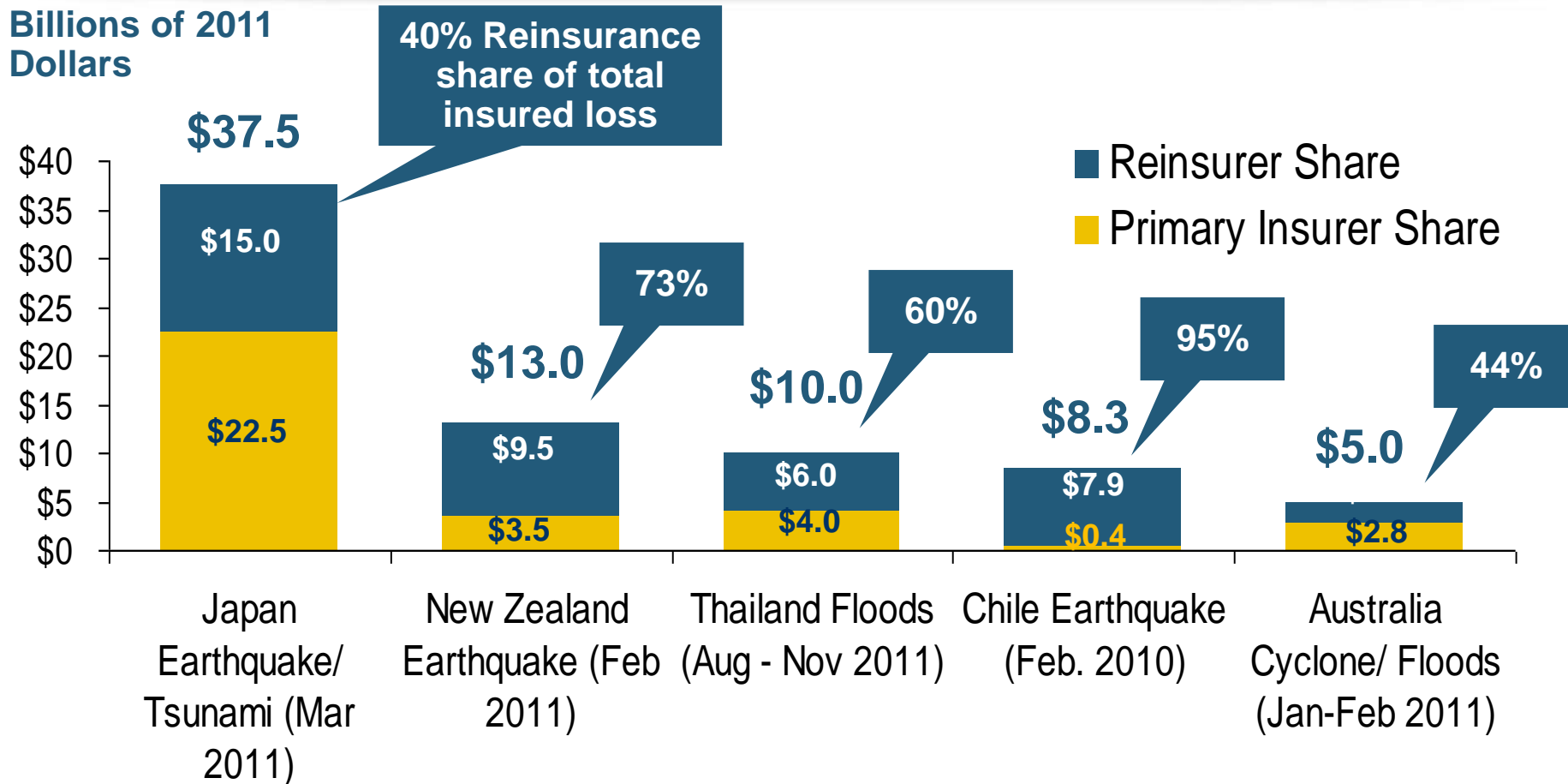
* premiums measured in U.S. dollars, exclude cross-border business

Source: Swiss Re Sigma, various volumes

Reinsurance Market Conditions

**Record Global Catastrophe Activity
is Pressuring Pricing**

Reinsurer Share of Recent Significant Market Losses



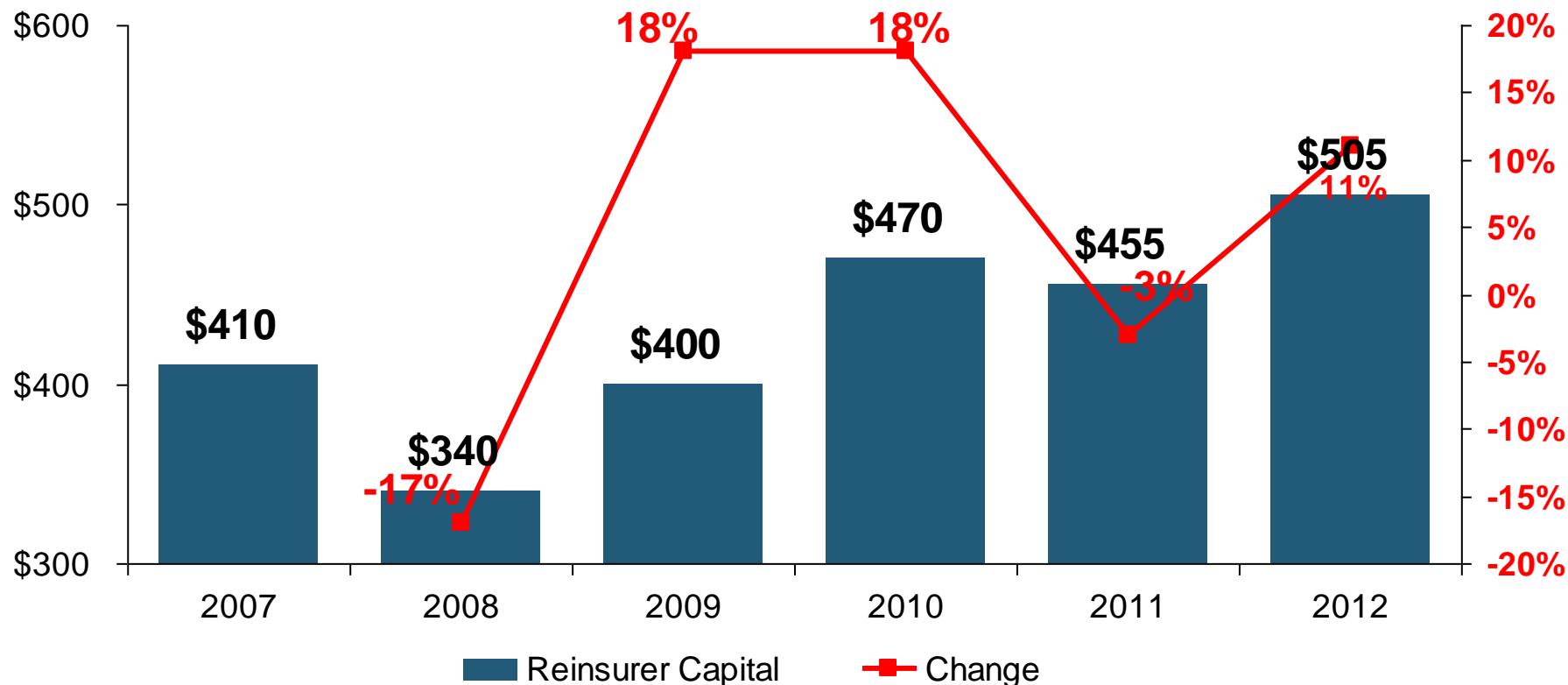
Reinsurers paid a high proportion of insured losses arising from major catastrophes around the world in recent years

Source: Insurance Information Institute from reinsurance share percentages provided in RAA, ABIR and CEA press release, Jan. 13, 2011.

Global Reinsurance Capital, 2007-2012

\$ Billions

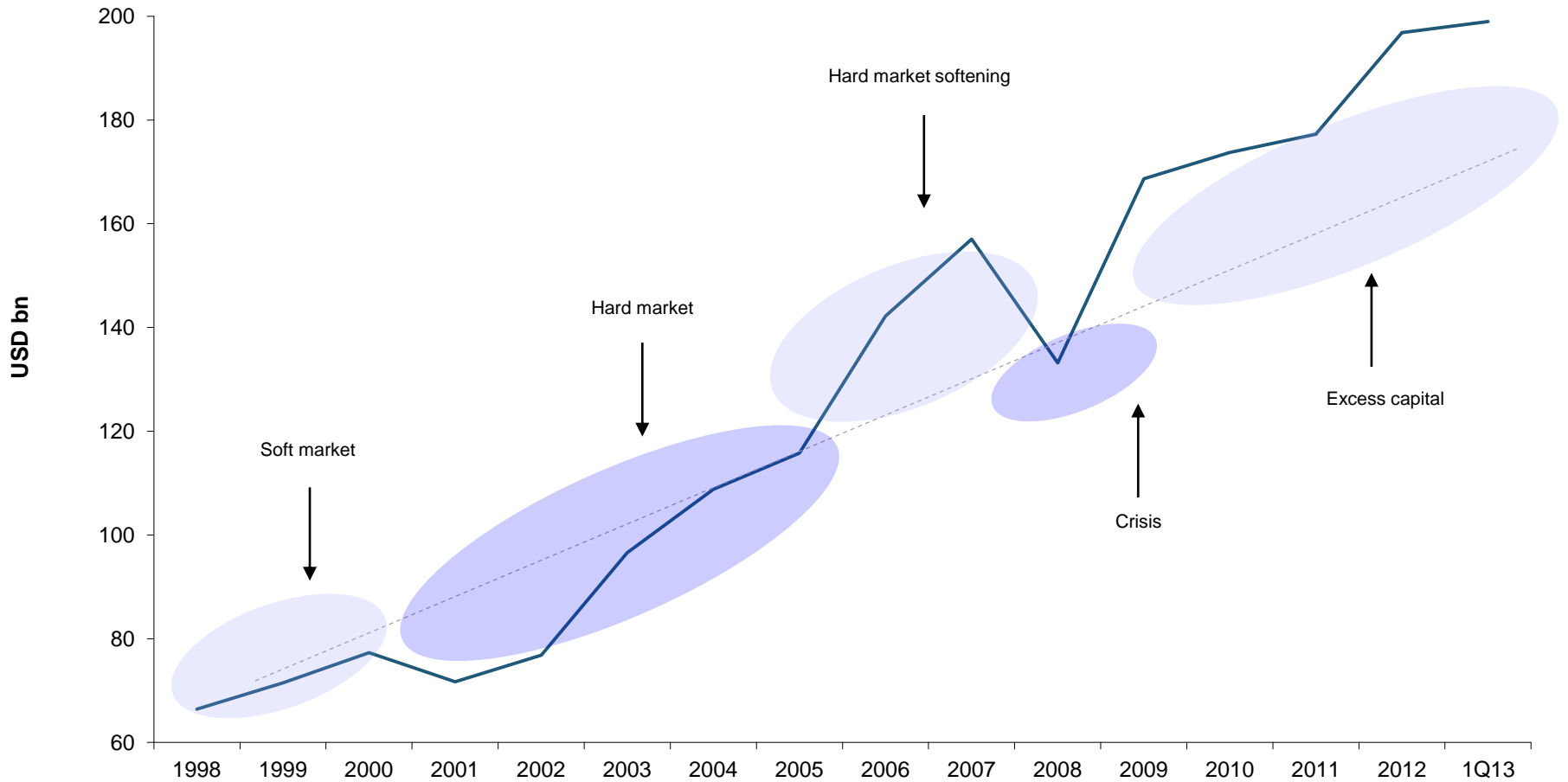
% Change



2007-2012 compound average growth rate: 4.3%
High Global Catastrophe Losses Have Had a Modest Adverse Impact on Global Reinsurance Market Capacity

Source: Aon Reinsurance Market Outlook, April 2013 Update from Individual Company and AonBenfield Analytics; Insurance Information Institute.

Guy Carpenter Reinsurance Composite, Historical Capital Levels, 1998 - 2013:Q1



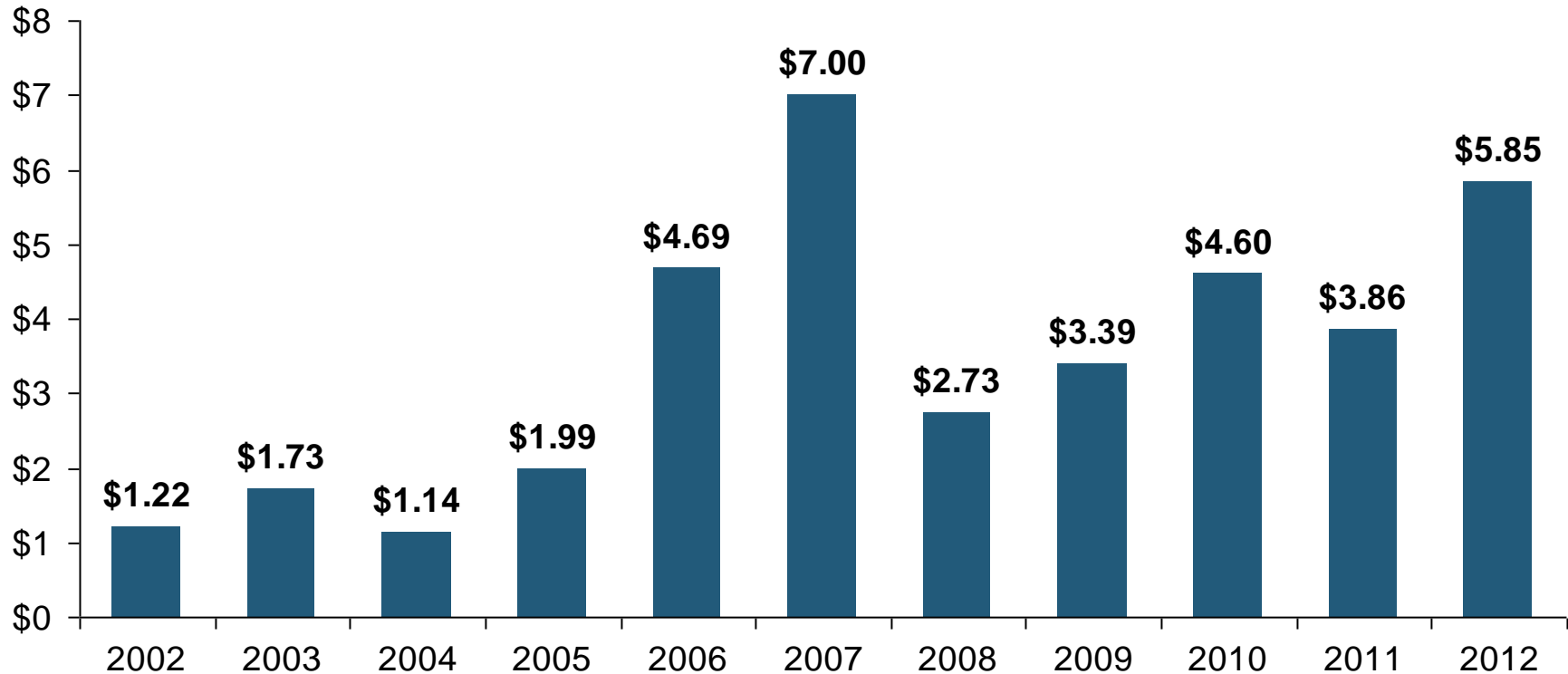
Regional Property Catastrophe Rate-on-Line Index, 1990—2013 (as of January 1)



Property-Cat reinsurance pricing was up in the US as of 1/1/13 but was down in Europe/UK

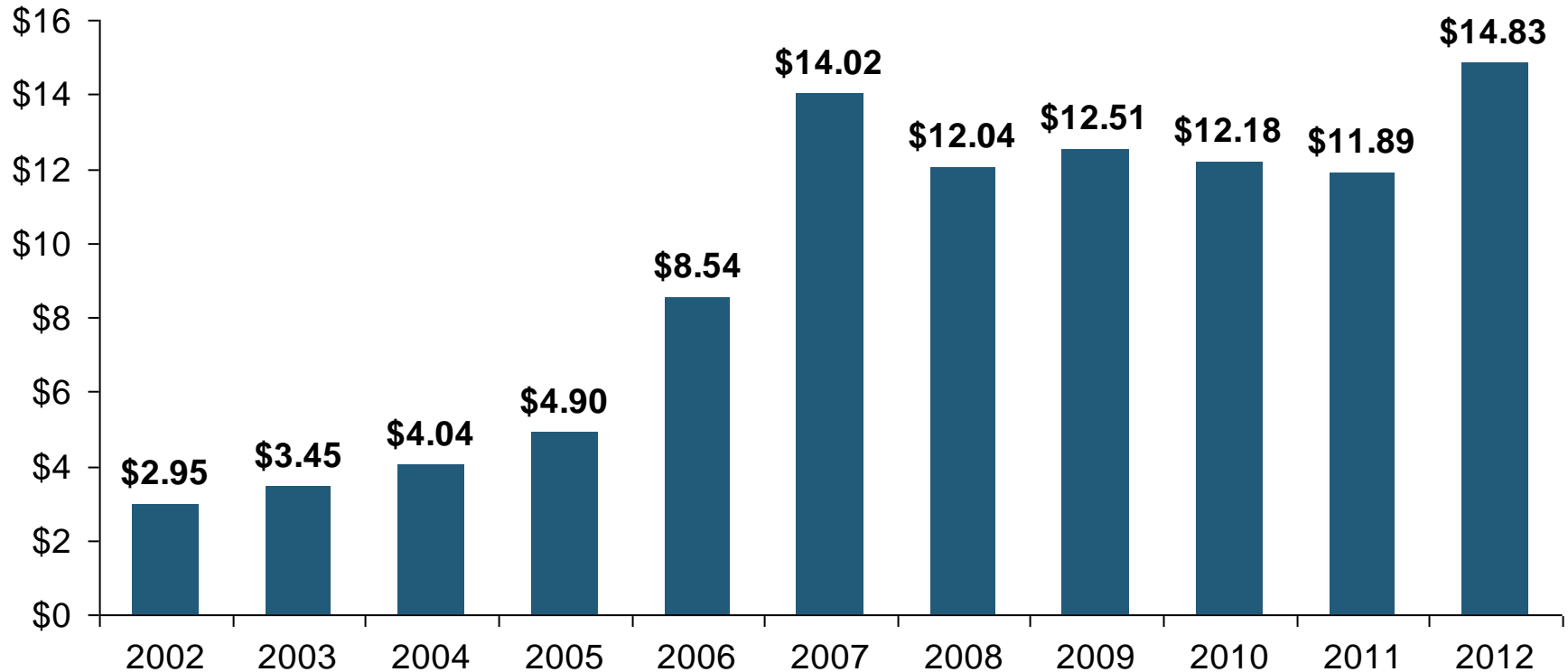
Catastrophe Bonds, Risk Capital **Issued**, 2002-2012

(\$ Billions)

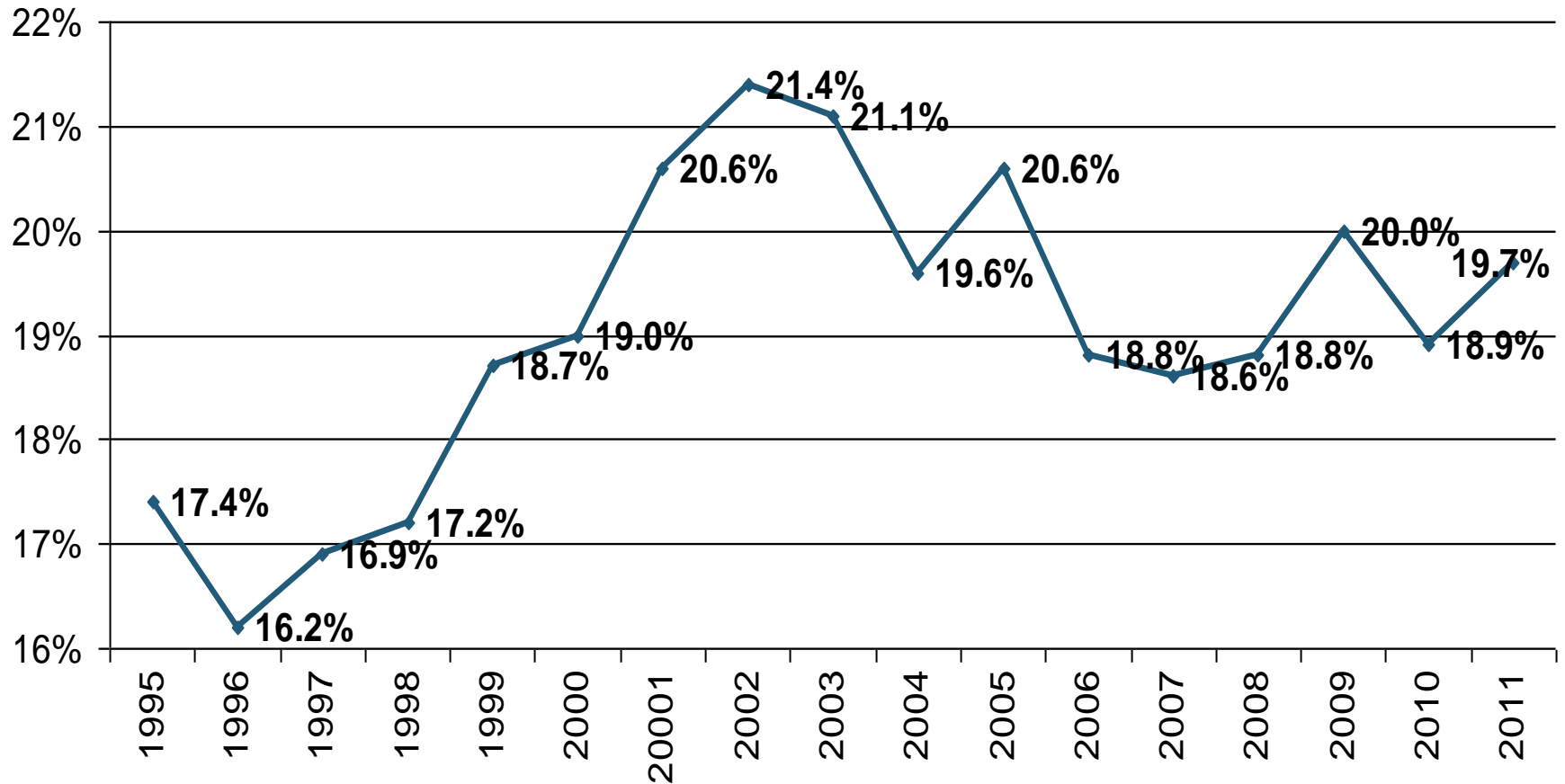


Catastrophe Bonds, Risk Capital **Outstanding**, 2002-2012

(\$ Billions)



Reinsurance Utilization Rates, 1995-2011



Since 1999, the reinsurance utilization rate has been continually above 18.5%, despite the remarkable increase in surplus per dollar of premium.

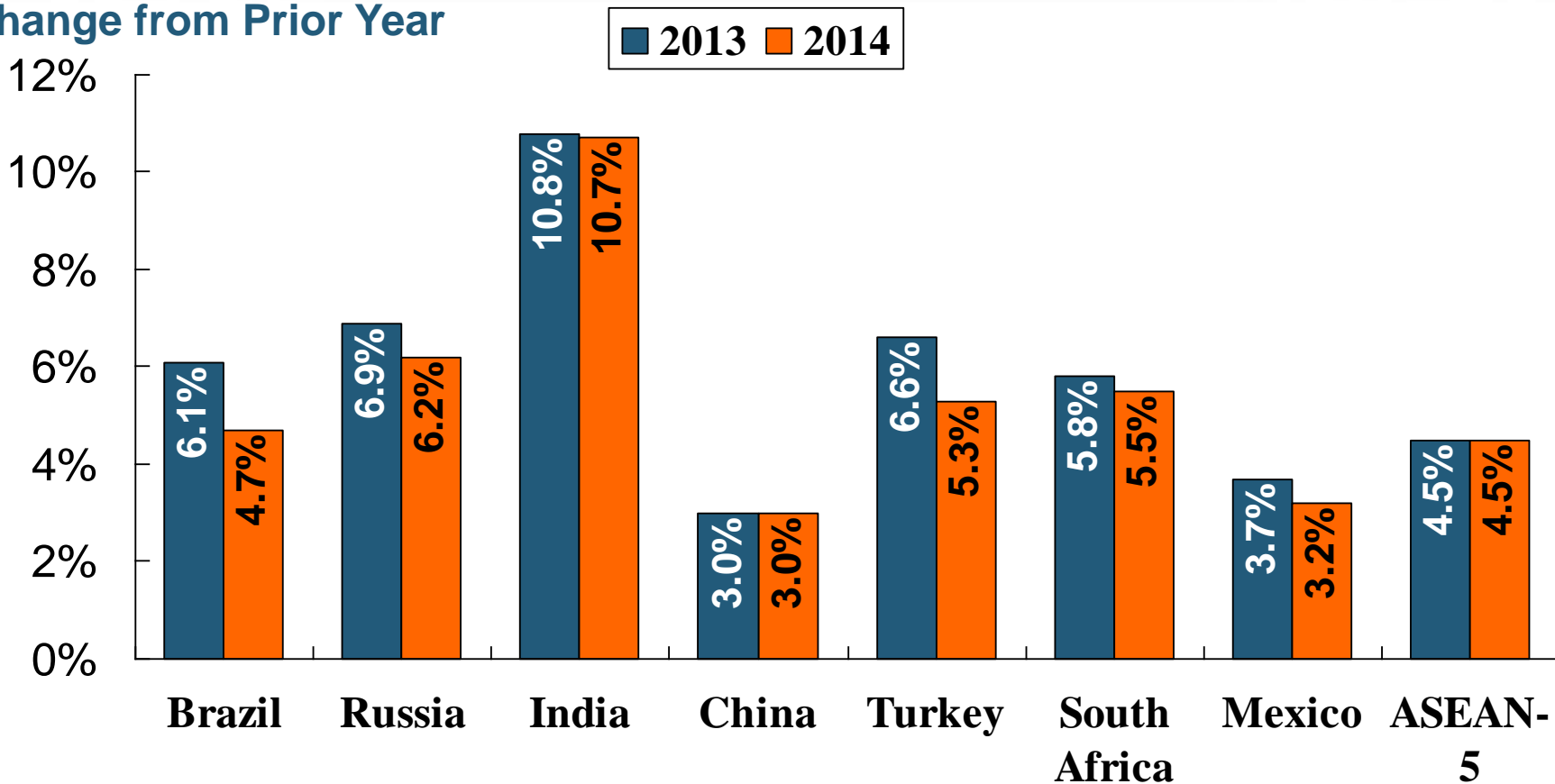
Economic Threats to the Reinsurance Industry

- Effects of the near-stagnation of the major European economies
 - ◆ Tight monetary/fiscal policy => Slow/No Growth
 - ◆ Other headwinds affecting growth:
 - Population aging
- Inflation Transmitted Globally
 - ◆ From Russia, India, Brazil, and other countries
 - ◆ Soaring food and other commodity prices
 - ◆ Oil prices and supply reliability

Helpful and Harmful: Inflation affects claims and investment income

IMF Inflation Rate Forecast for 2013-14 for Selected Emerging Economies

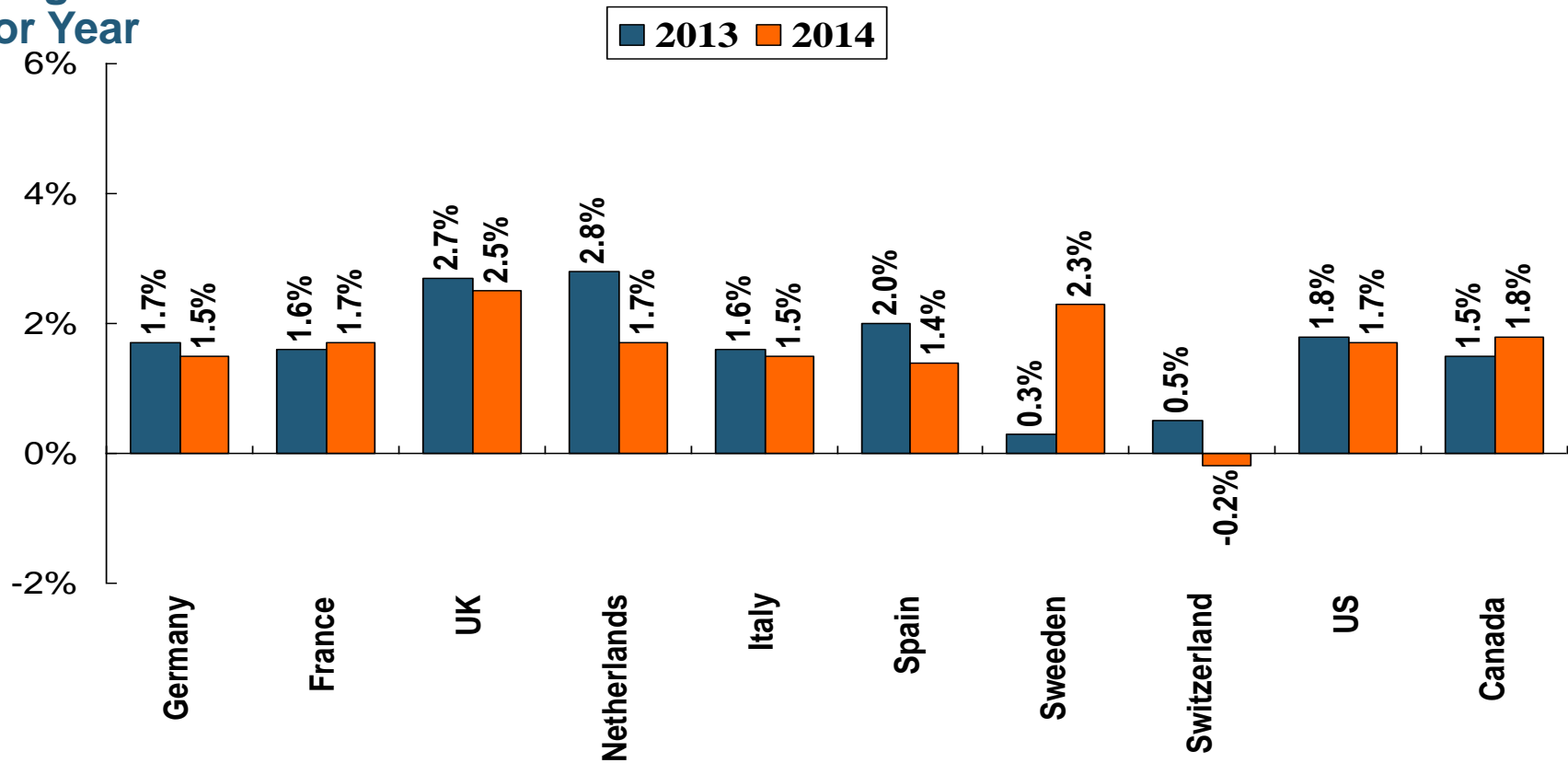
Change from Prior Year



Inflation is forecast to be 6% or more in 2013 in some major emerging economies. Inflation there can spread to advanced economies through imports. The IMF forecasts a slight decrease in inflation in 2014.

IMF Inflation Rate Forecast for Selected Advanced Economies, 2013-2014

Change from
Prior Year

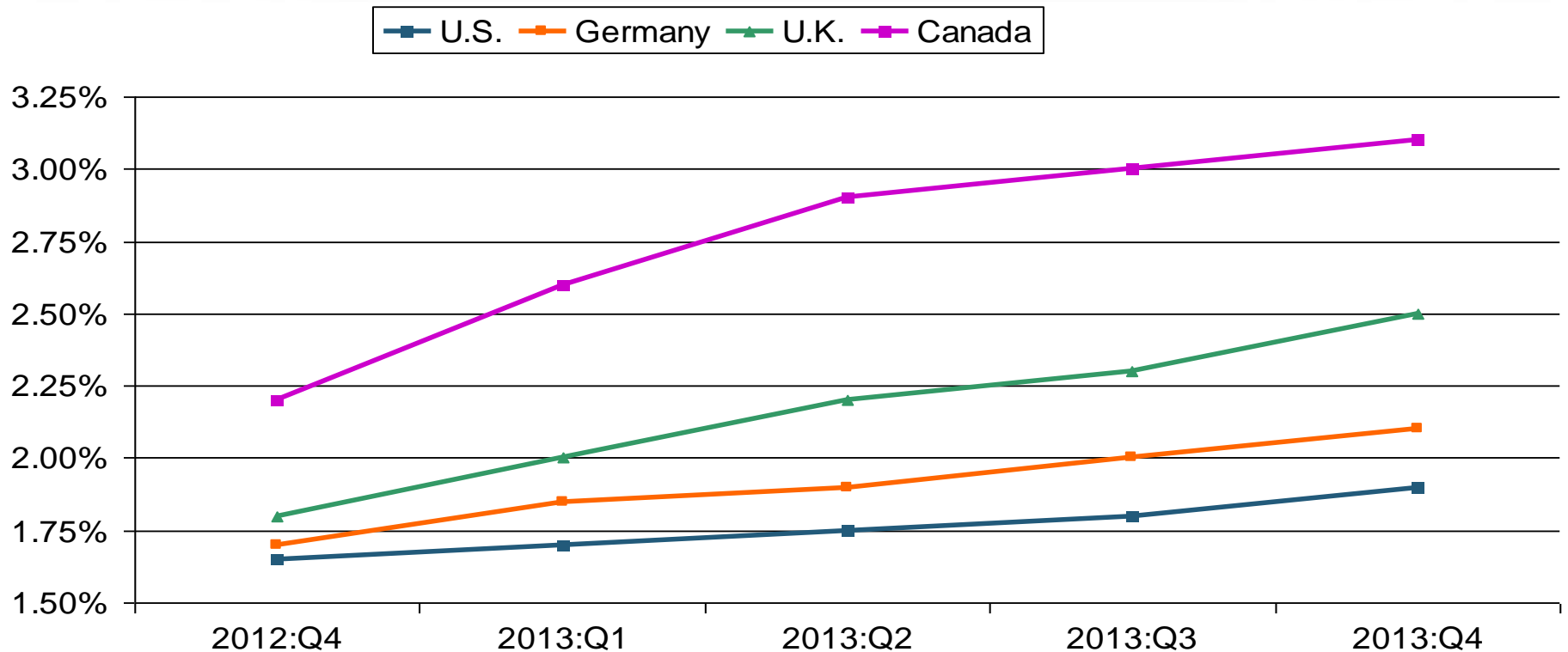


Inflation is forecast to be less than 2% in 2013 across most major European economies. If so, inflation is unlikely to be imported to the US, and interest rates are likely to remain low, obscuring tight conditions in trade credit markets.

Longer-Term Issues (a partial list)

1. Persistently Low Interest Rates
2. Currency Market Instability
3. Sovereign Bond Market Concerns (Greece, Spain, Ireland, etc.)
4. Strong Capital Flows to Emerging/Developing Economies => Asset Price Bubbles?
5. Regulatory Backlash/Developments
6. Terrorism

Yield Forecasts for 10-Year Government Bonds, 2012:Q4-2013:Q4



As these nations' economies improve and concerns about inflation increase, actions to keep interest rates low will ease, and the yields on longer-term bonds are expected to rise. But persistent high rates of unemployment and excess capacity will likely keep them from rising more than one percentage point by the end of 2013.

Terrorism Risk and Insurance

***Download I.I.I.'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)***

“Traditional” Losses Arising from Terror Attack Scenarios

Risk	Concern
Property	<ul style="list-style-type: none">• Cost to repair, rebuild, replace
Casualty	<ul style="list-style-type: none">• Death/injury of workers• Death/injury customers & other 3rd parties
Liability	<ul style="list-style-type: none">• Claims of negligence (direct & 3rd party)
Business Interruption	<ul style="list-style-type: none">• Loss of income/extra expense may exceed insurance and company resources

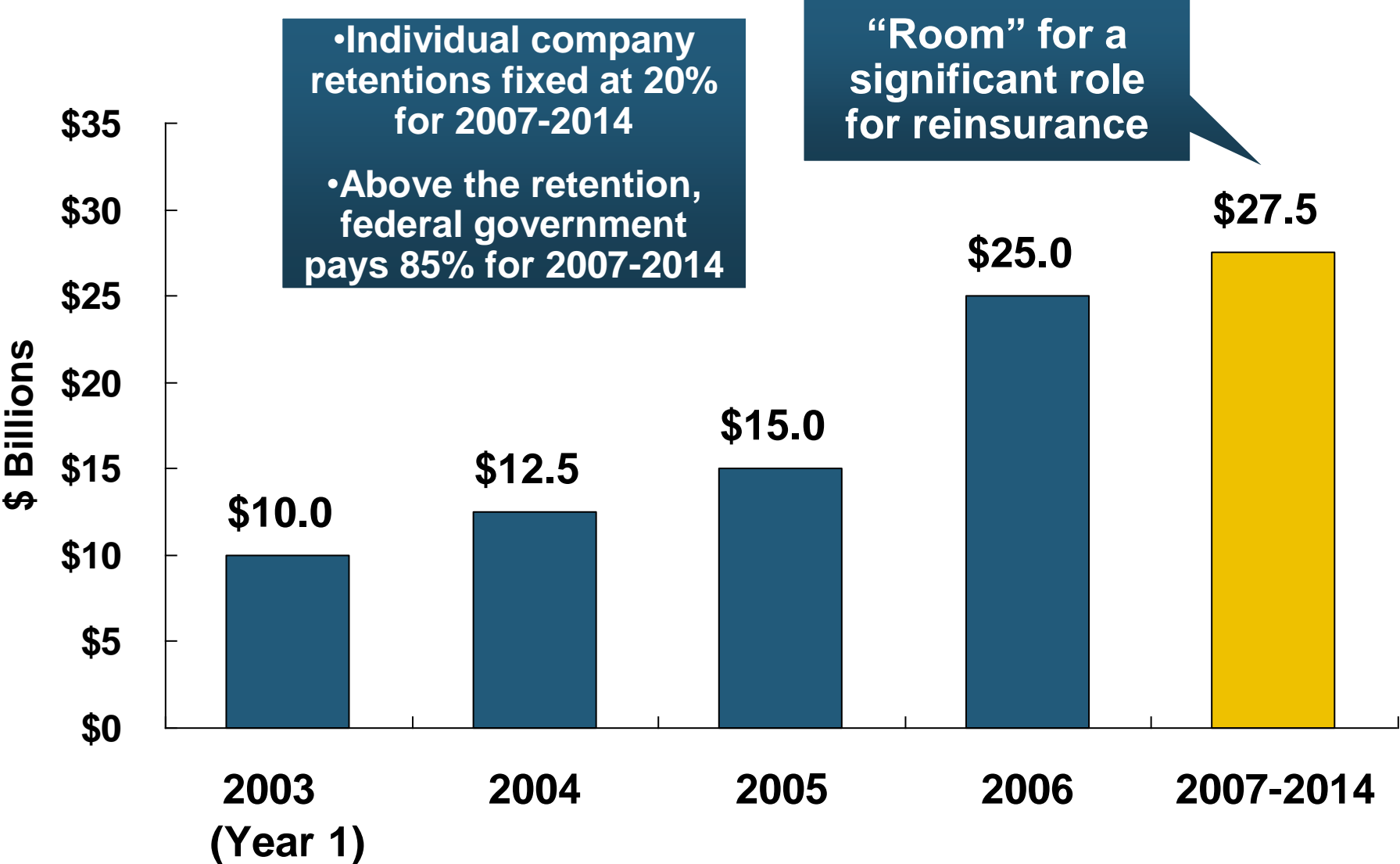
“Less Traditional” Losses Arising from Terror Attack Scenarios

Risk	Concern
Contingent Business Interruption	<ul style="list-style-type: none">• Upstream damage/dislocations interfere with ability to operate
D&O	<ul style="list-style-type: none">• Shareholders could allege management/directors did not take prudent steps to prevent attack or manage its effects
Latent Liability	<ul style="list-style-type: none">• Claims of disability/disease/death well after the event (e.g., first responders post 9/11)
Political Risk	<ul style="list-style-type: none">• Global political landscape and economic opportunities could shift• US government policy influences risk

“Non-Traditional” Losses Arising from Terror Attack Scenarios

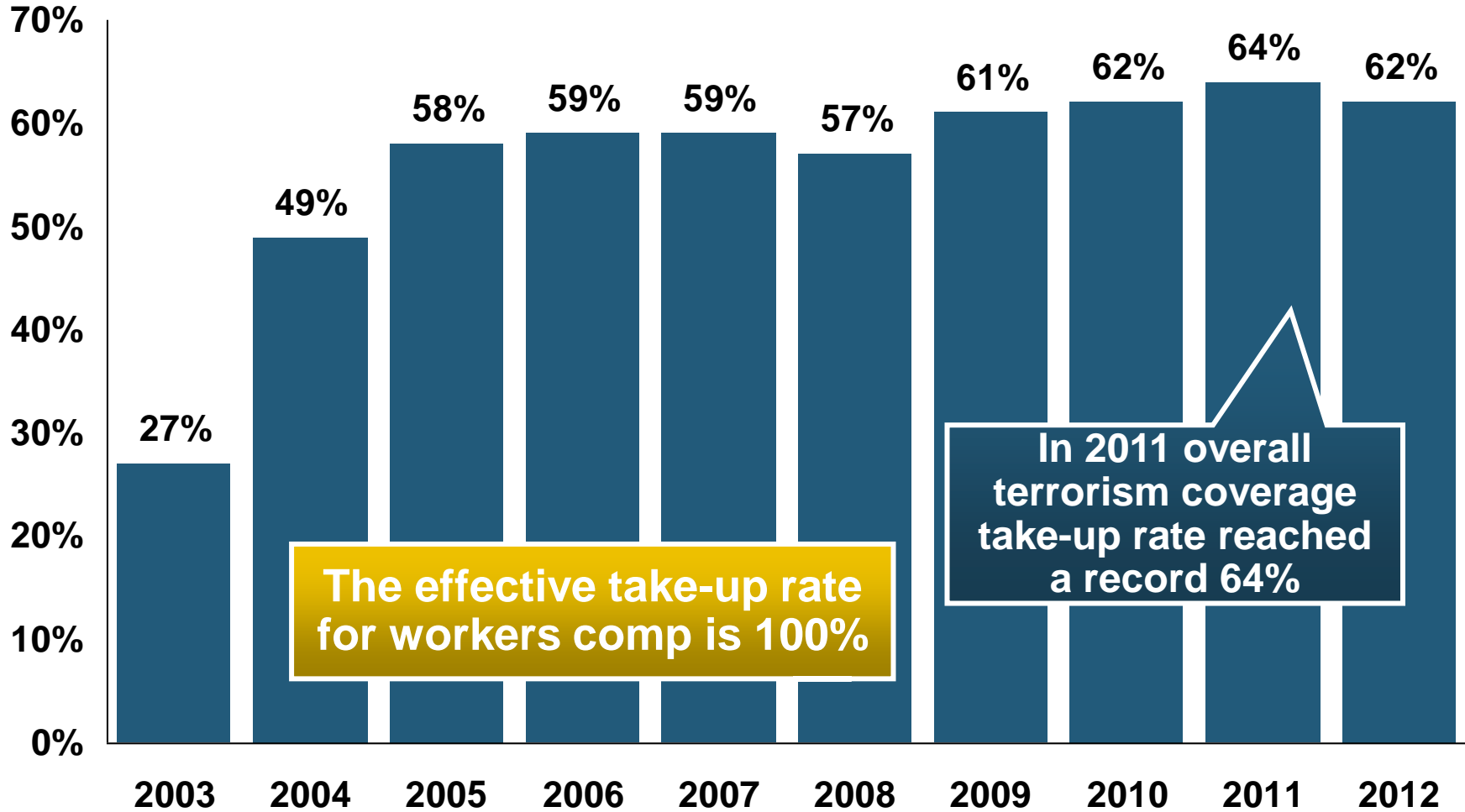
Risk	Concern
Cyber Risk	<ul style="list-style-type: none">• Infiltration, disruption or disruption• Could involve your IT, or up/downstream
Investment Risk	<ul style="list-style-type: none">• Terrorist attack will likely negatively influence investment opportunities, possibly for extended period
Reputational Risk	<ul style="list-style-type: none">• Loss of income/extra expense may exceed insurance and company resources
Regulatory Risk	<ul style="list-style-type: none">• Responses could impact performance
Economic Risk	<ul style="list-style-type: none">• State of the economy pre/post-attack influences performance

Insurance Industry Retention Under TRIA and Its Successors



Source: Insurance Information Institute

A Steady Take-Up Rate for Terrorism Coverage



Summary of Terrorism Risk Insurance Program Extension Bills Introduced in 2013

Bill	Summary
<p>•H.R. 508: “Terrorism Risk Insurance Act of 2002 Reauthorization Act of 2013”</p> <p>•Introduced Feb. 5 by Rep. Michael Grimm (D-NY)</p>	<ul style="list-style-type: none"> •5-Year Extension (through 2019) •Extend recoupment period for any TRIA assistance from 2017 to 2019
<p>•H.R. 2146: “Terrorism Risk Insurance Program Reauthorization Act of 2013”</p> <p>•Introduced May 23 by Rep. Michael Capuano (D-MA)</p>	<ul style="list-style-type: none"> •10-Year Extension (through 2024) •Extend recoupment period for any TRIA assistance from 2017 to 2024 •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 •Reports to be drafted with consultation from NAIC and representatives of the insurance and securities industries and policyholders
<p>•H.R. 1945: “Fostering Resilience to Terrorism Act of 2013”</p> <p>•Introduced May 9 by Rep. Benny Thompson (D-MS)</p>	<ul style="list-style-type: none"> •10-Year Extension (through 2024) •Recoupment period changed to 2024 •Would transfer responsibility for certification of a “act of terrorism” to the Secretary of Homeland Security from Secretary of Treasury. •PWGFM to issue reports in 2017, 2020 and 2023 •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.”

Cyber Risk

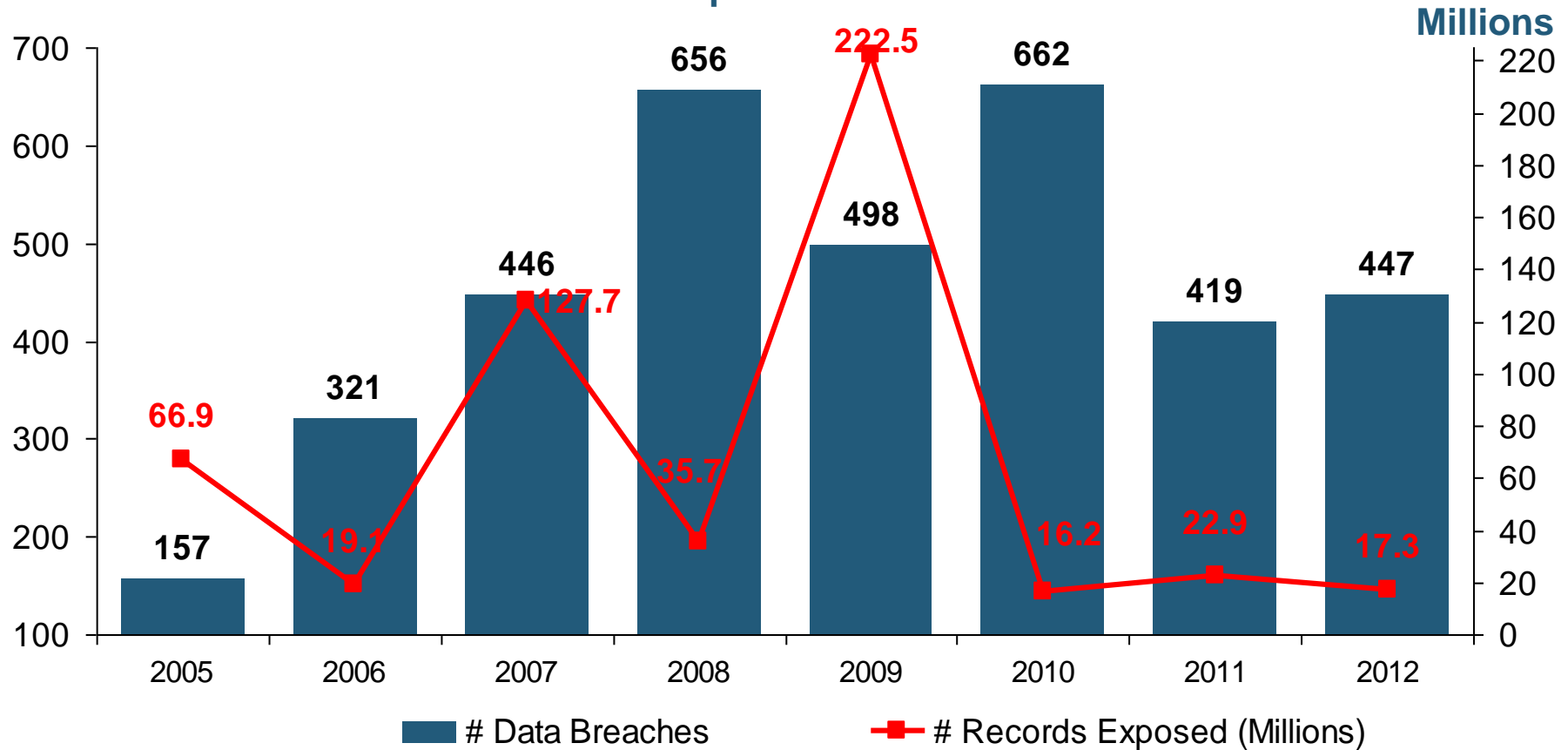
**Cyber Risk is a Rapidly Emerging
Exposure for Businesses in Every
Industry**

New I.I.I. White Paper:

http://www.iii.org/assets/docs/pdf/paper_CyberRisk_2013.pdf

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

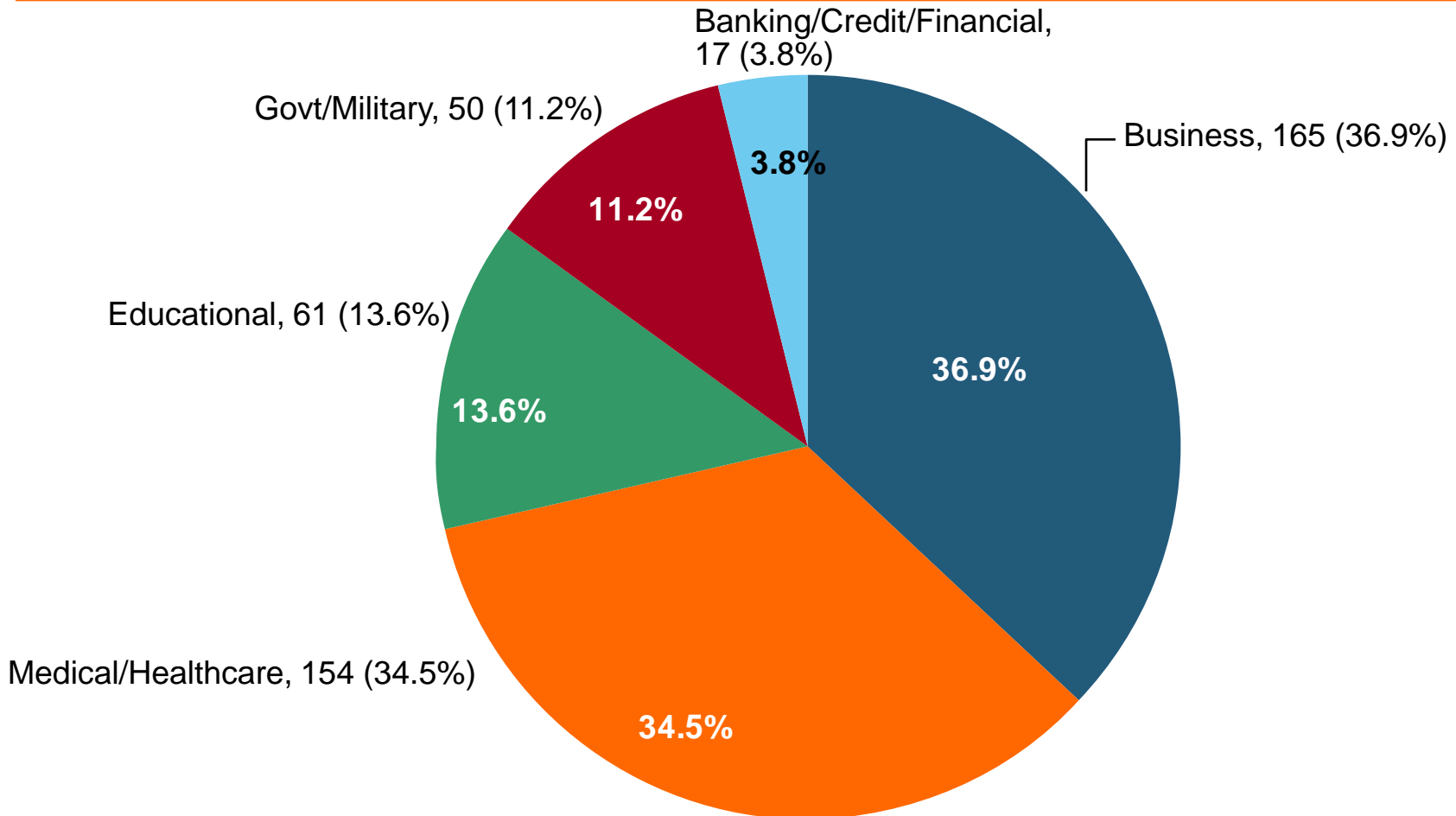
Data Breaches/Millions of Records Exposed



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.

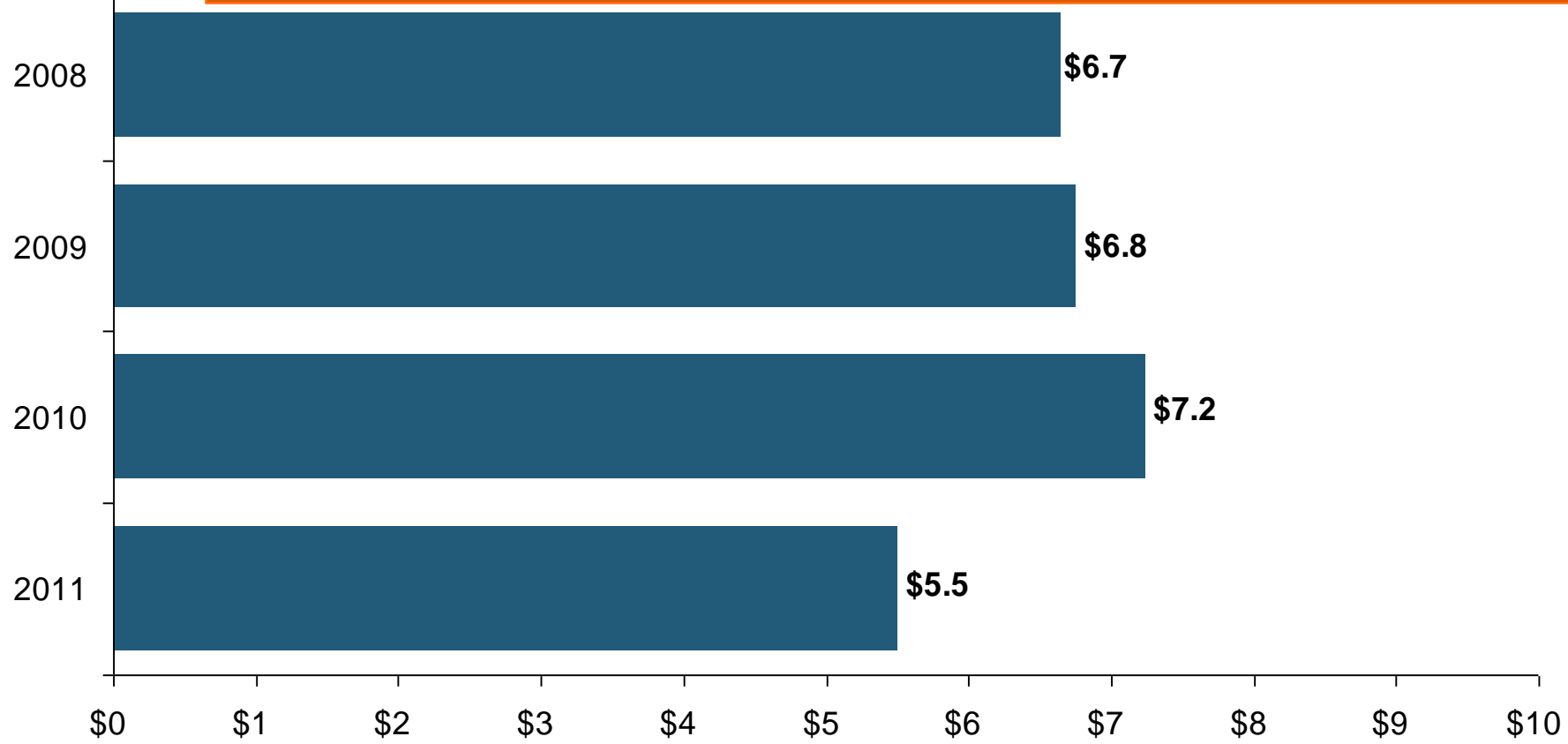


Average Organizational Cost of a Data Breach, 2008-2011* (\$ Millions)



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)

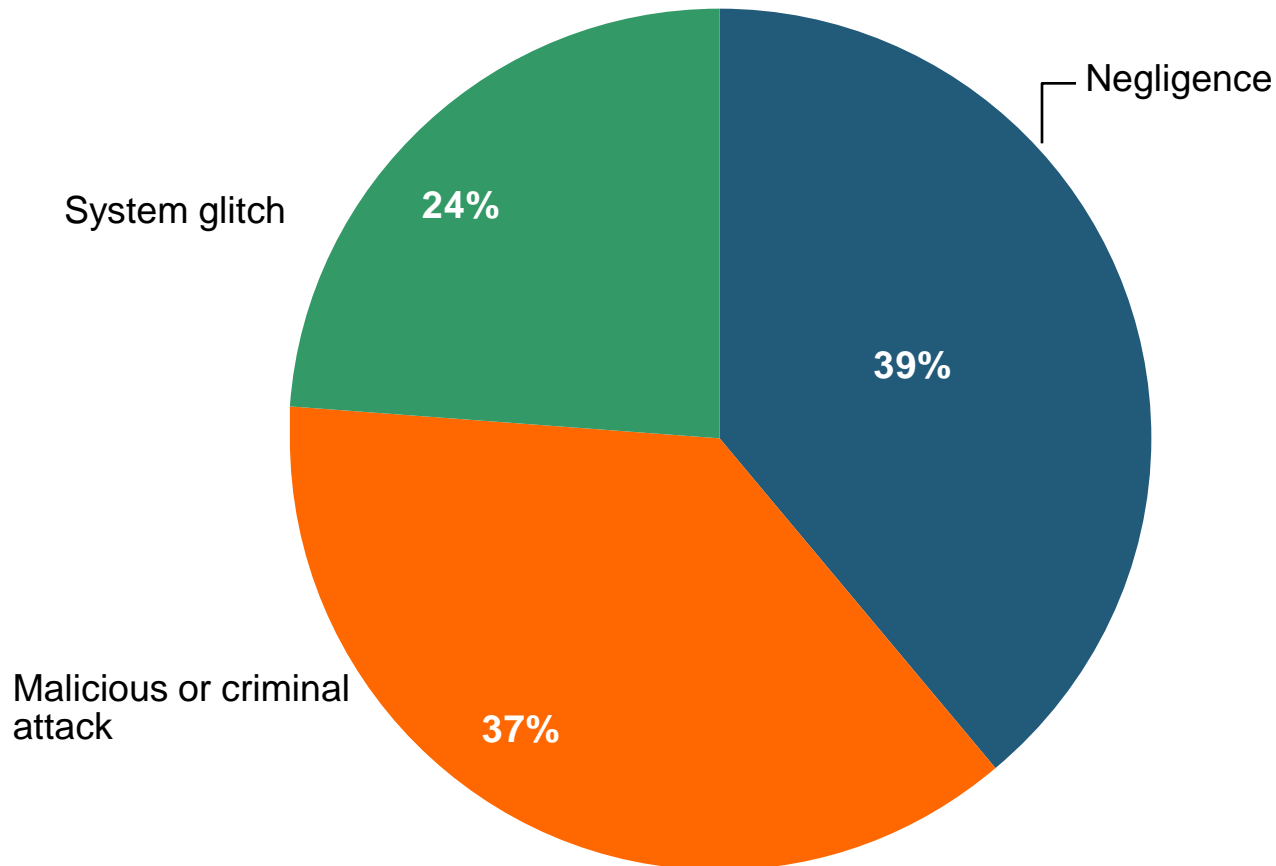


*Findings of this benchmark study pertain to the actual data breach experiences of 49 U.S. companies from 14 different industry sectors, all of which participated in the 2011 study. Total breach costs include: lost business resulting from diminished trust or confidence of customers ;costs related to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

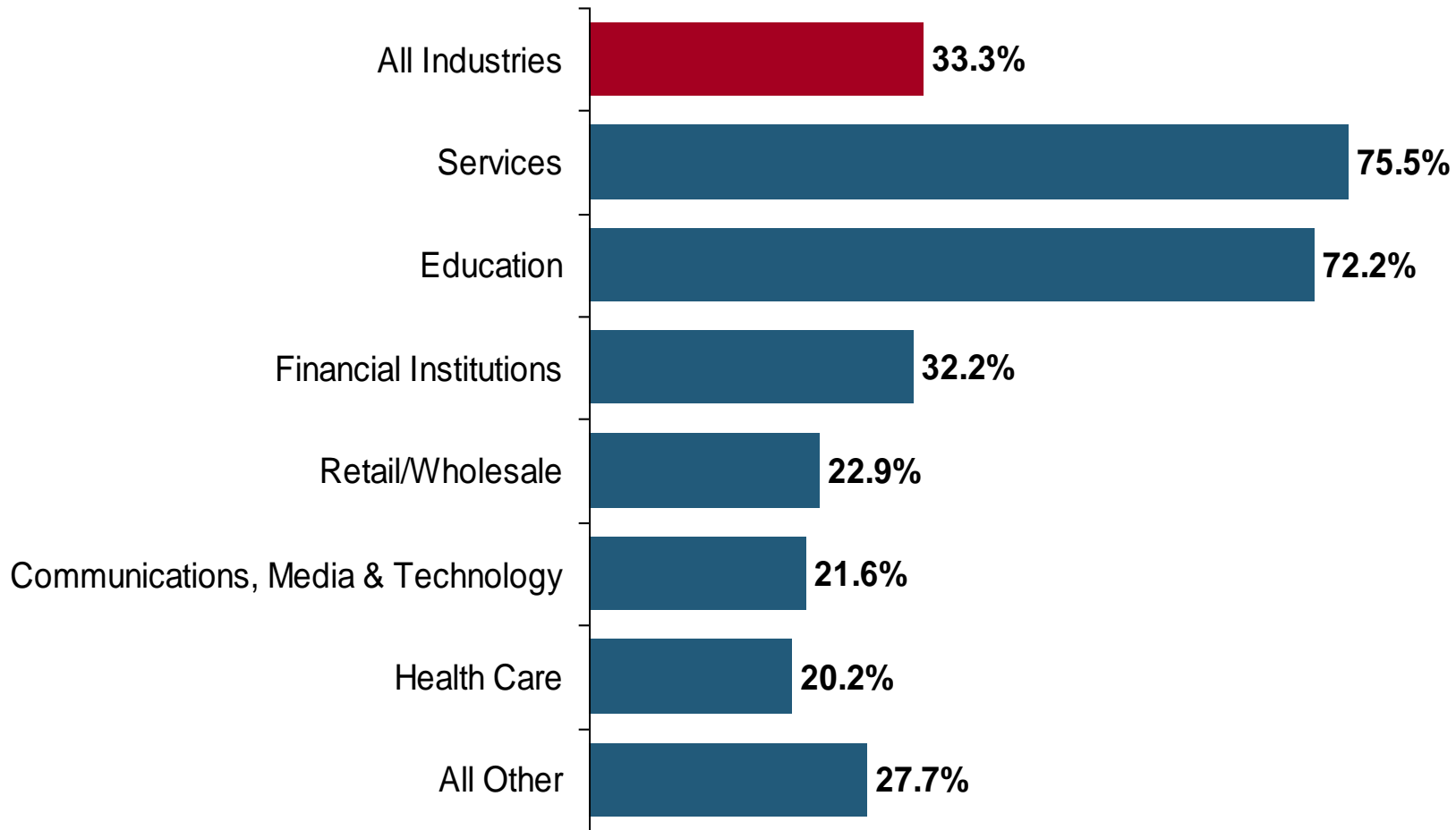
Main Causes of Data Breach

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.



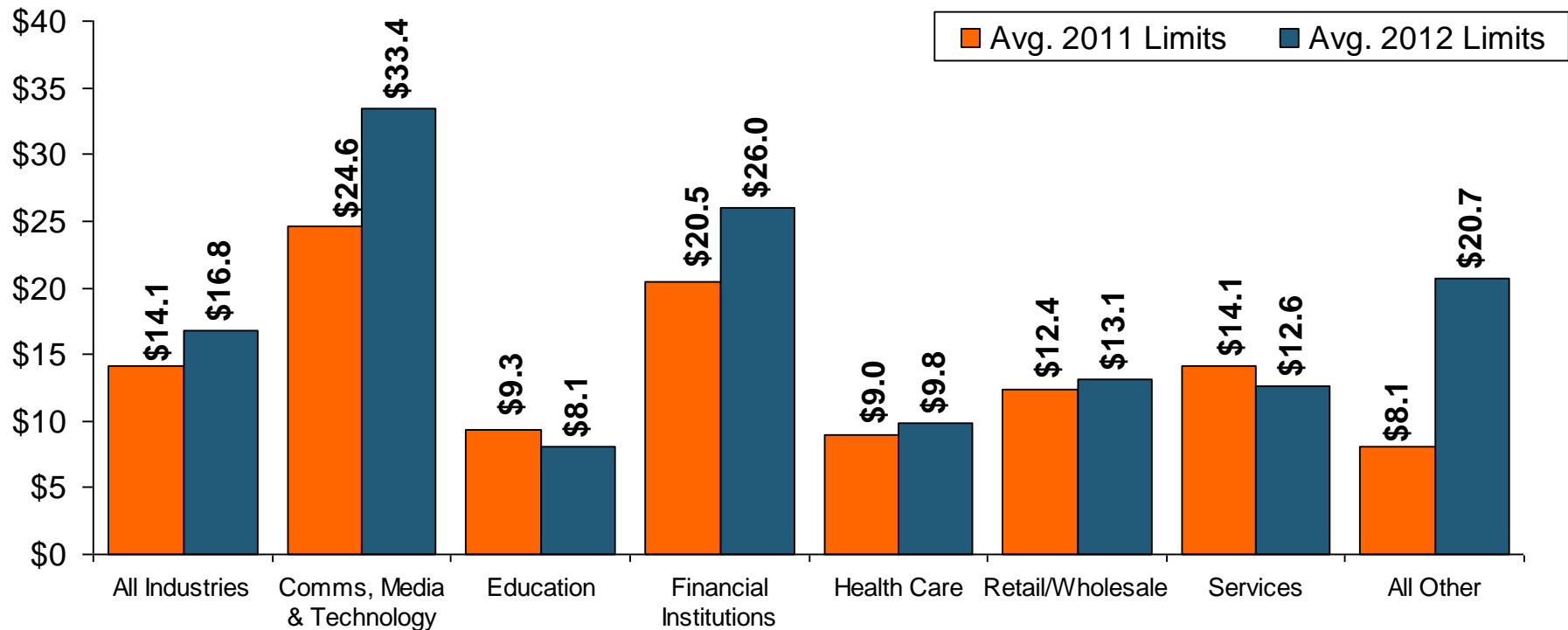
Marsh: Increase in Purchase of Cyber Insurance Among U.S. Companies, 2012

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



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

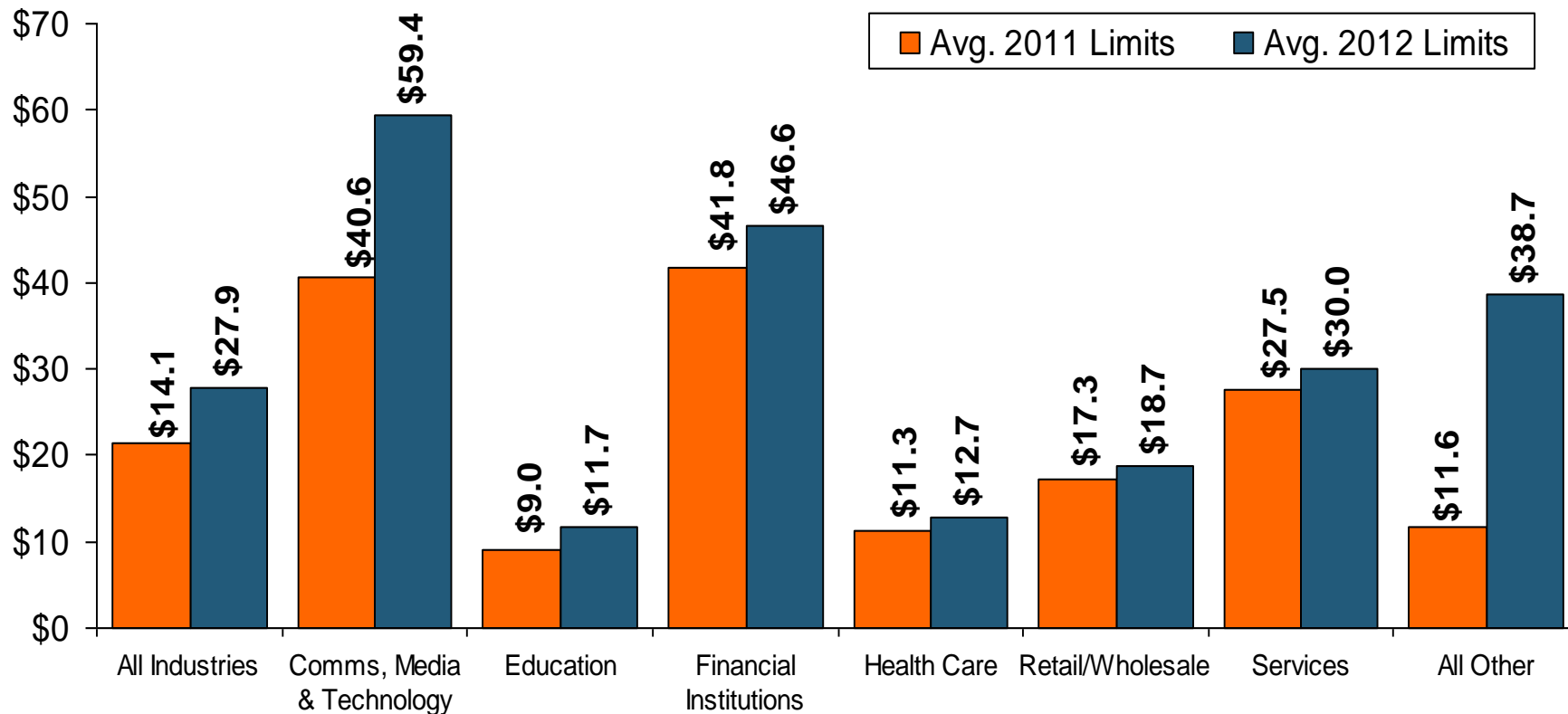
(\$ Millions)



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

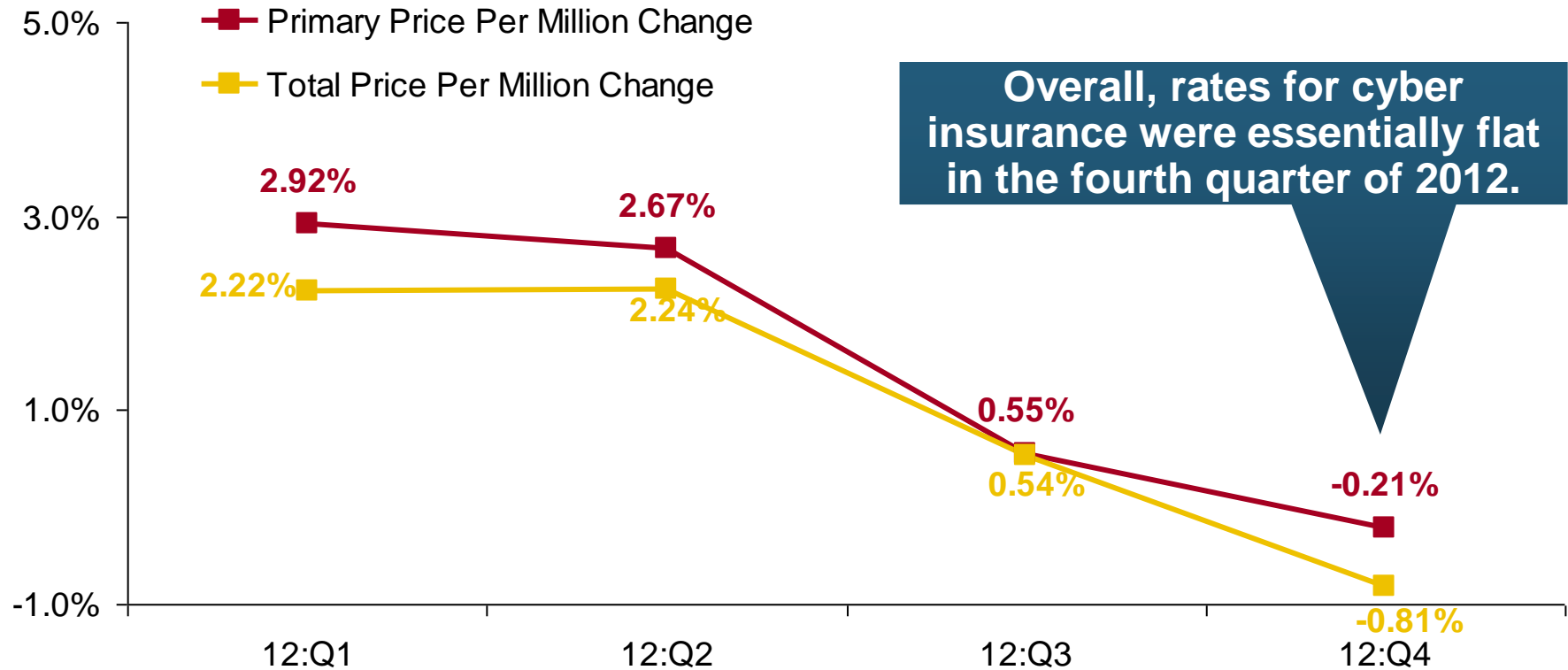
Marsh: Total Limits Purchased, By Industry: Cyber Liability, Revenue \$1 Billion+

(\$ Millions)



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

Cyber Liability: Historical Rate (price per million) Changes

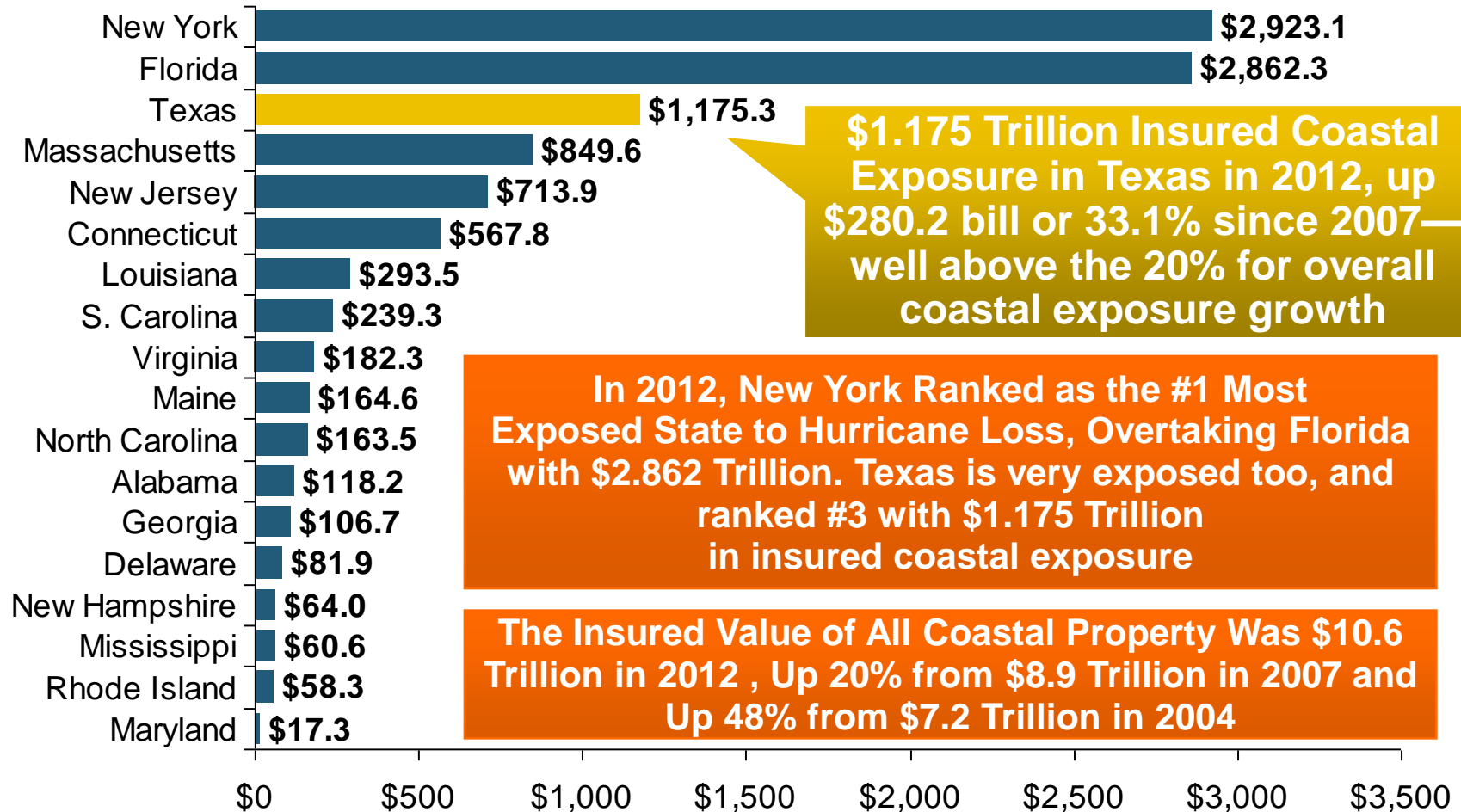


Catastrophe Loss Update

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

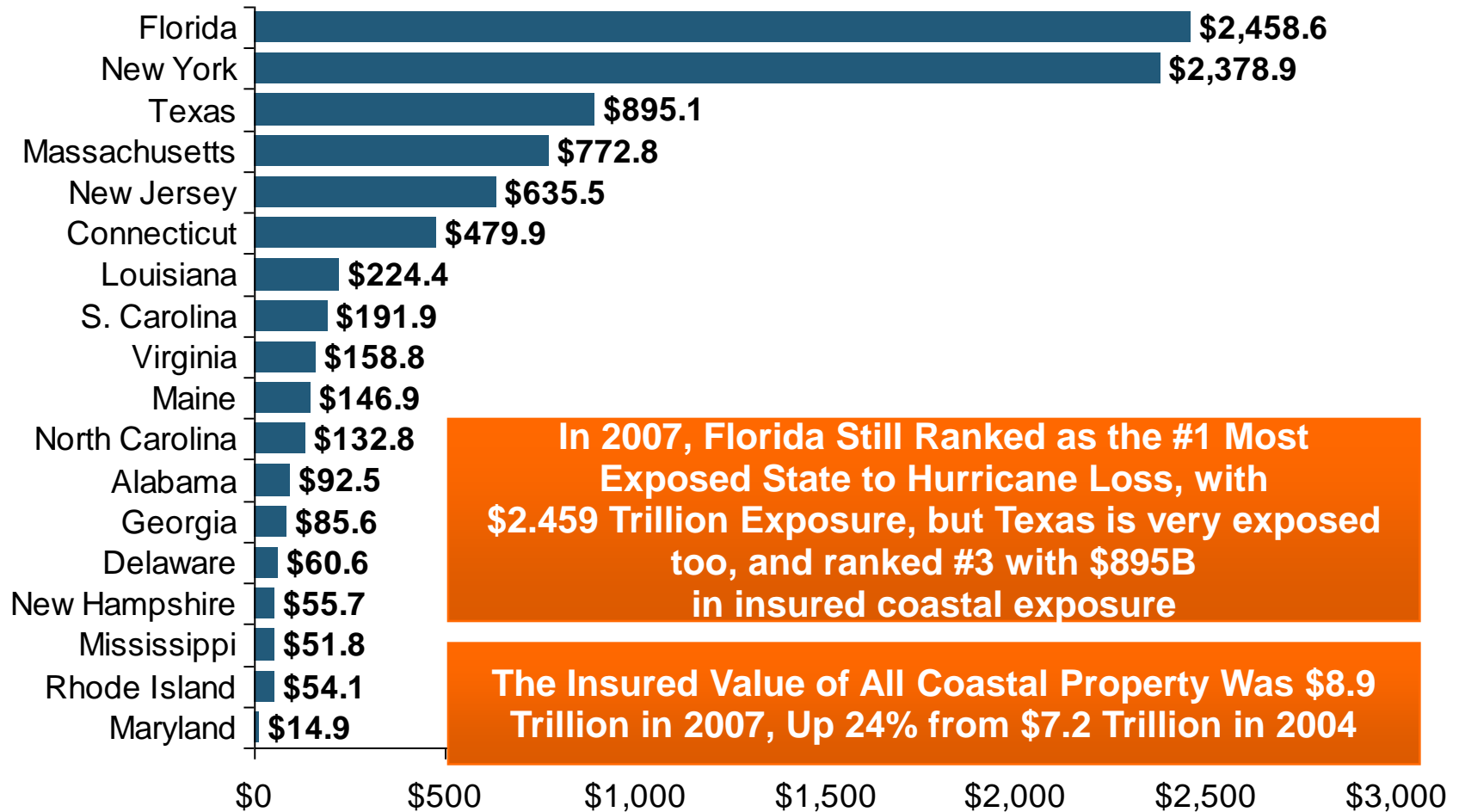
Total Value of Insured Coastal Exposure in 2012

(2012, \$ Billions)



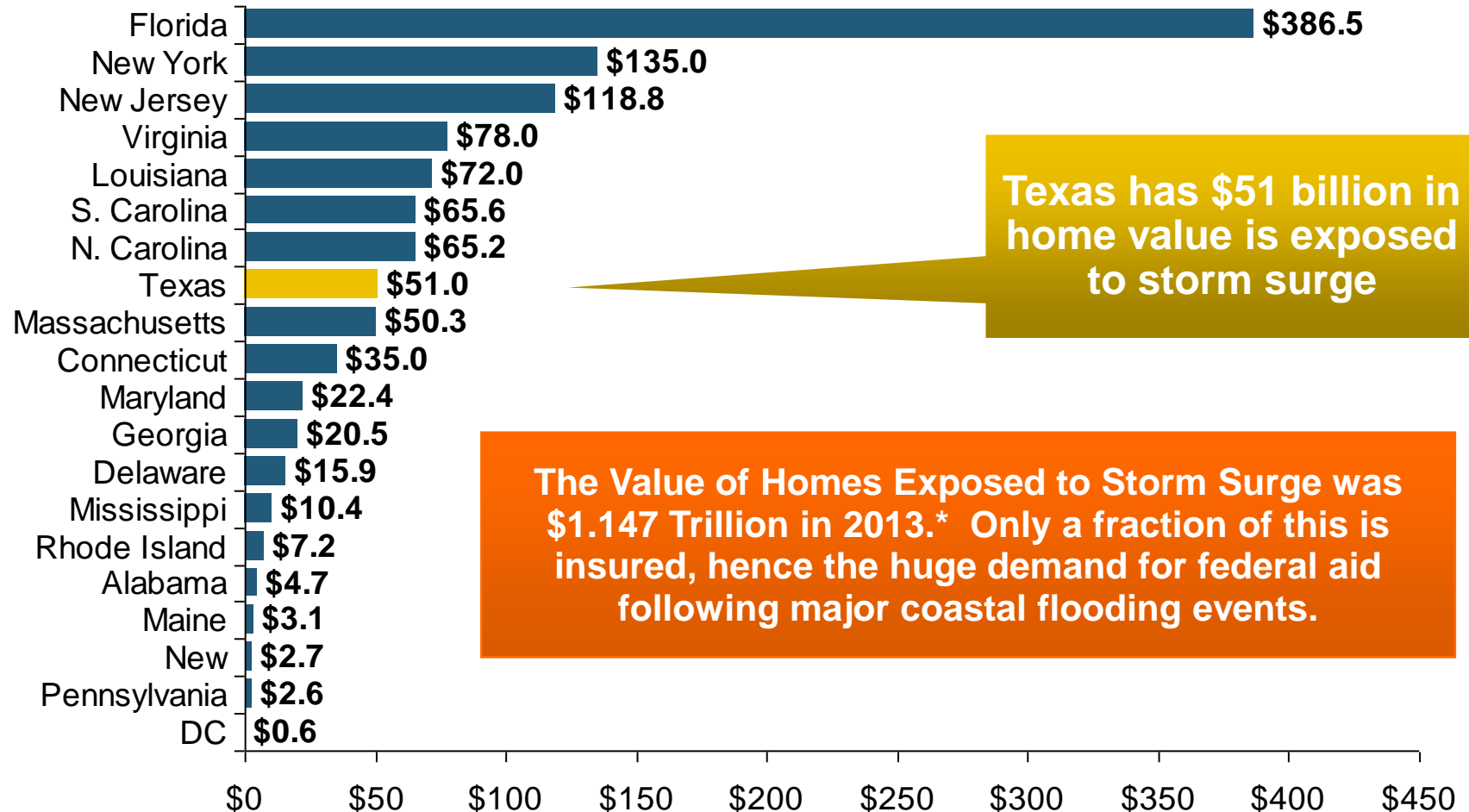
Total Value of Insured Coastal Exposure in 2007

(2007, \$ Billions)



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

(\$ Billions)

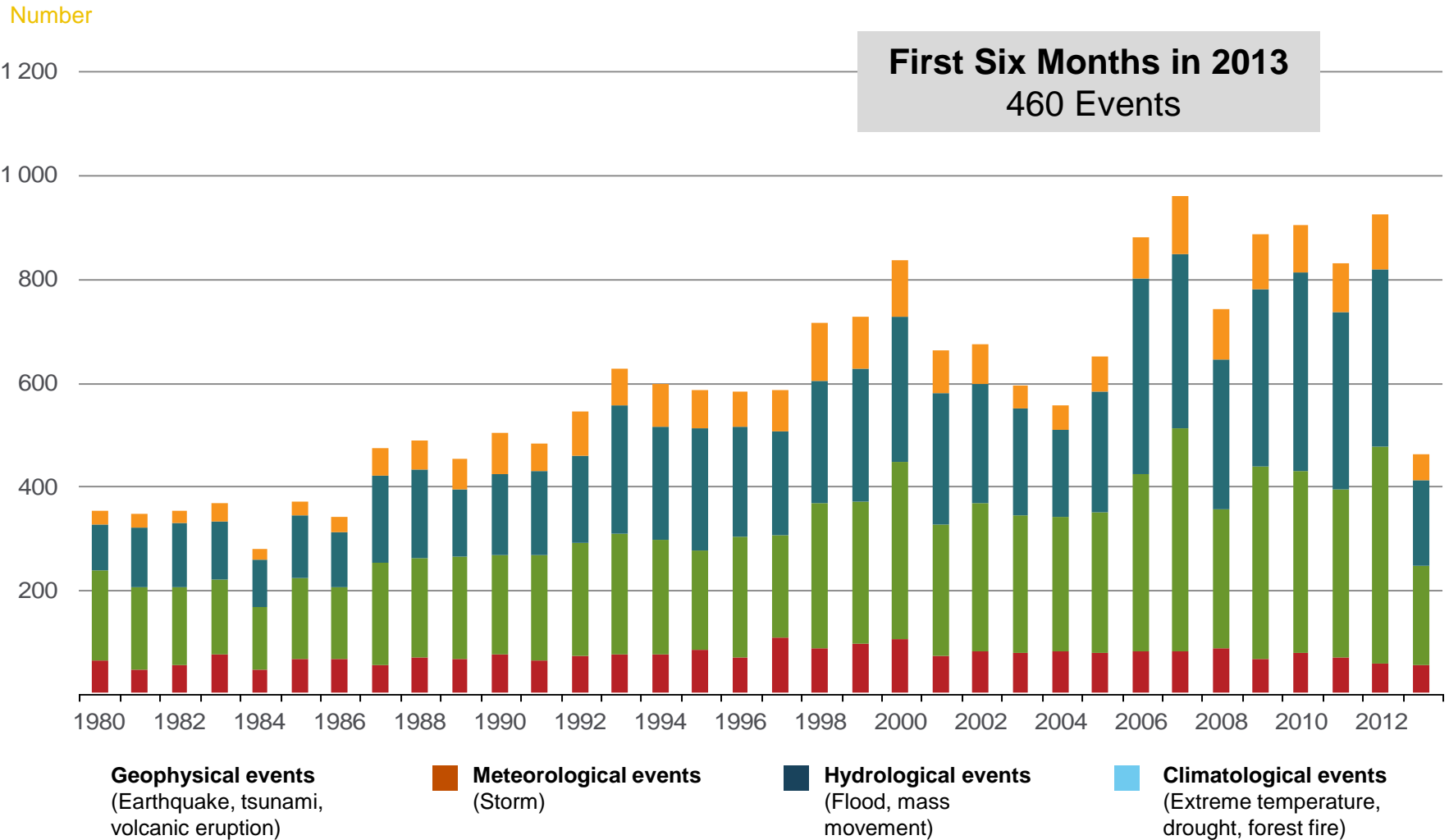


*Insured and uninsured property. Based on estimated property values as of April 2013.

Source: *Storm Surge Report 2013*, CoreLogic.

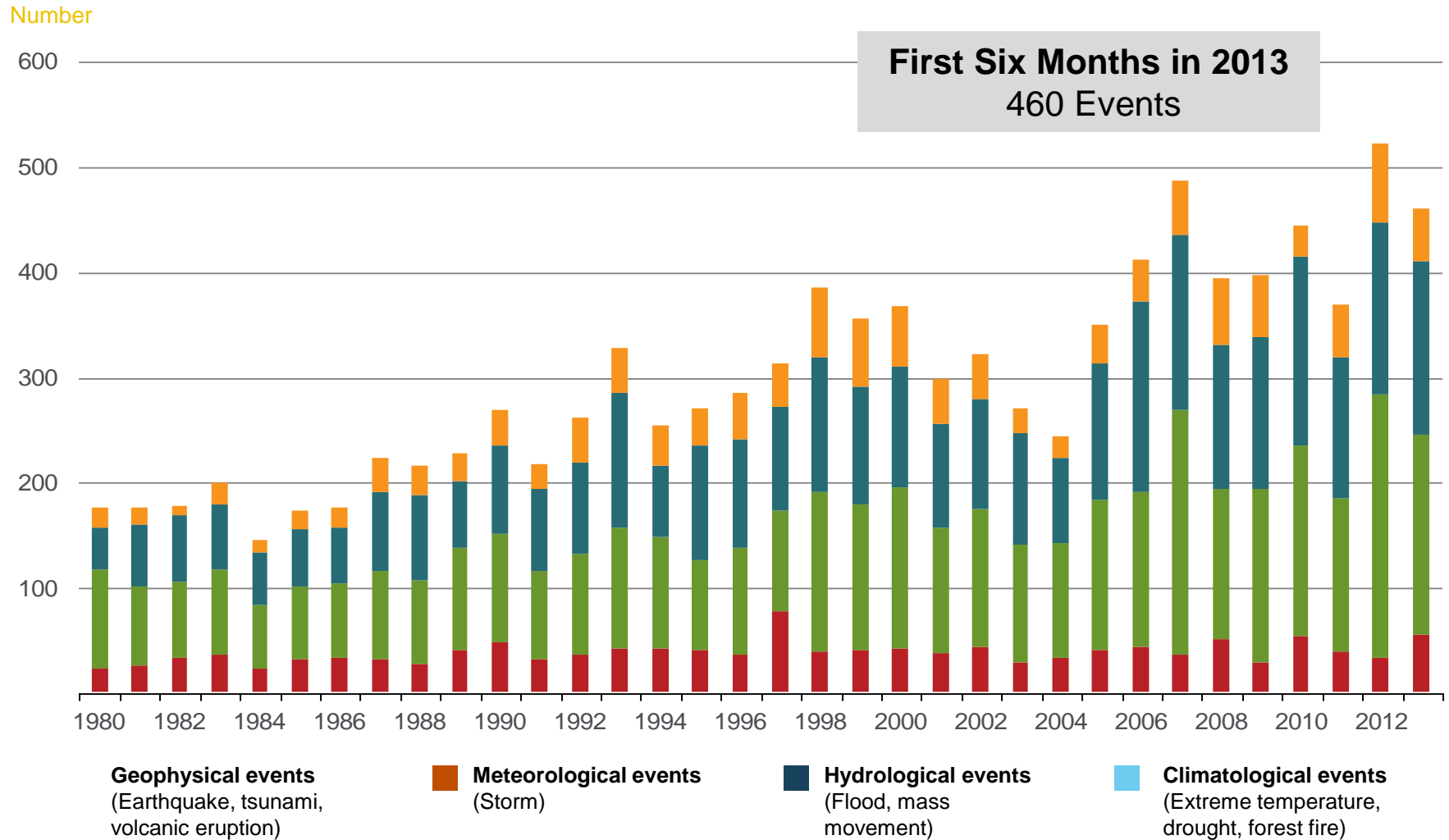
Natural Catastrophes Worldwide 1980 – 2013

Number of Events (Annual Totals 1980 – 2012 vs. First Six Months 2013)



Natural Catastrophes Worldwide 1980 – 2013

Number of Events (January – June only)



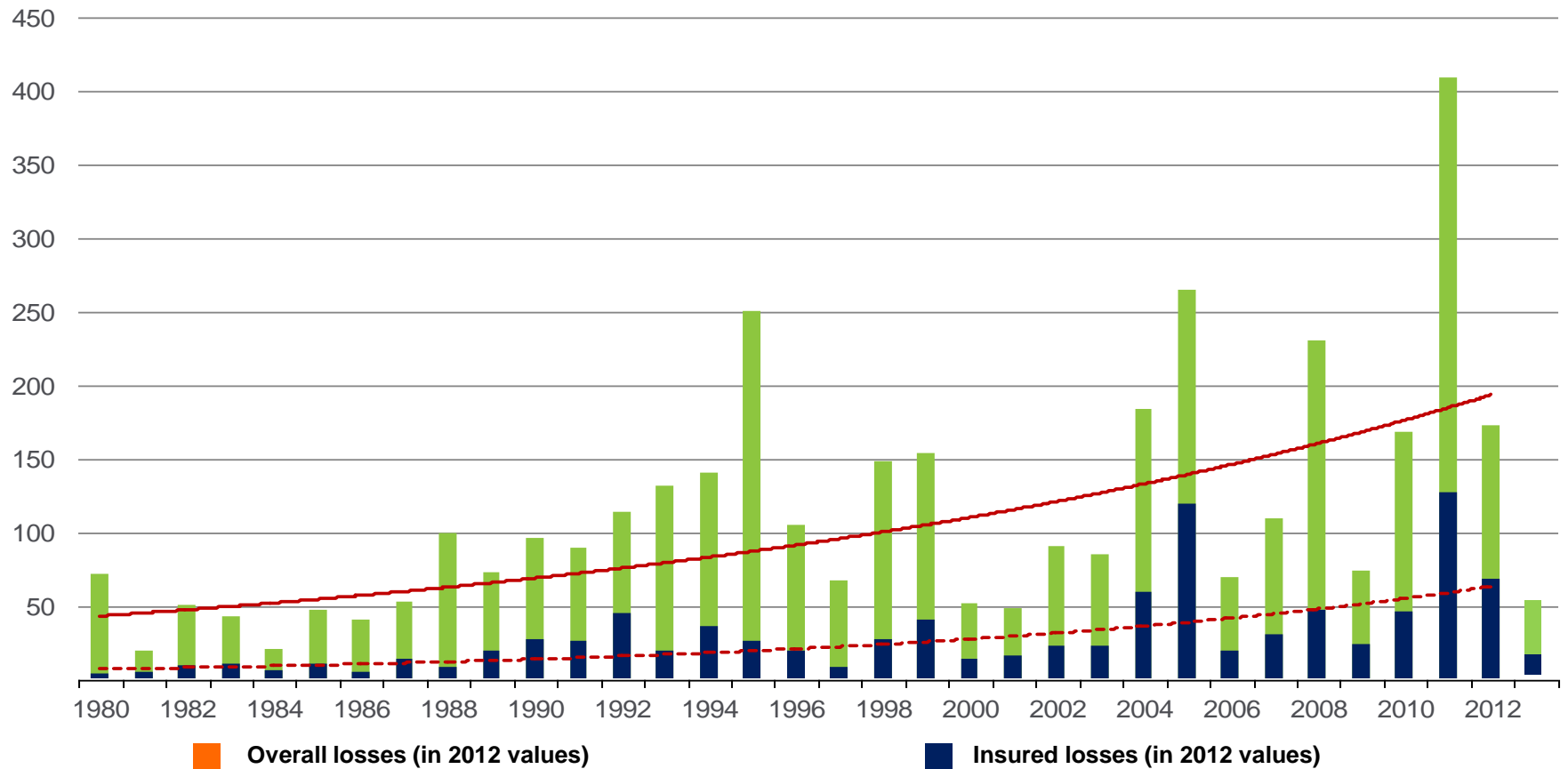
Natural Catastrophes Worldwide 1980 – 2013

Overall and Insured Losses (Annual Totals 1980 – 2012 vs. First Six Months 2013)



Overall losses totaled US\$ 45bn; Insured losses totaled US\$ 13bn

(bn US\$)



New Study Suggests Increase in Convective Activity Is Costly for Insurers

- Study examines convective (hail, tornado, heavy rainfall and thundersquall) events in the US with losses exceeding US\$ 250m in the period 1970–2009
- Past losses are normalized (i.e., adjusted) to currently exposed values
- After normalization there are still increases of losses
- Increases are correlated with the increase in the meteorological potential for severe thunderstorms and its variability

For the first time, research shows that climatic changes have already influenced US thunderstorm losses

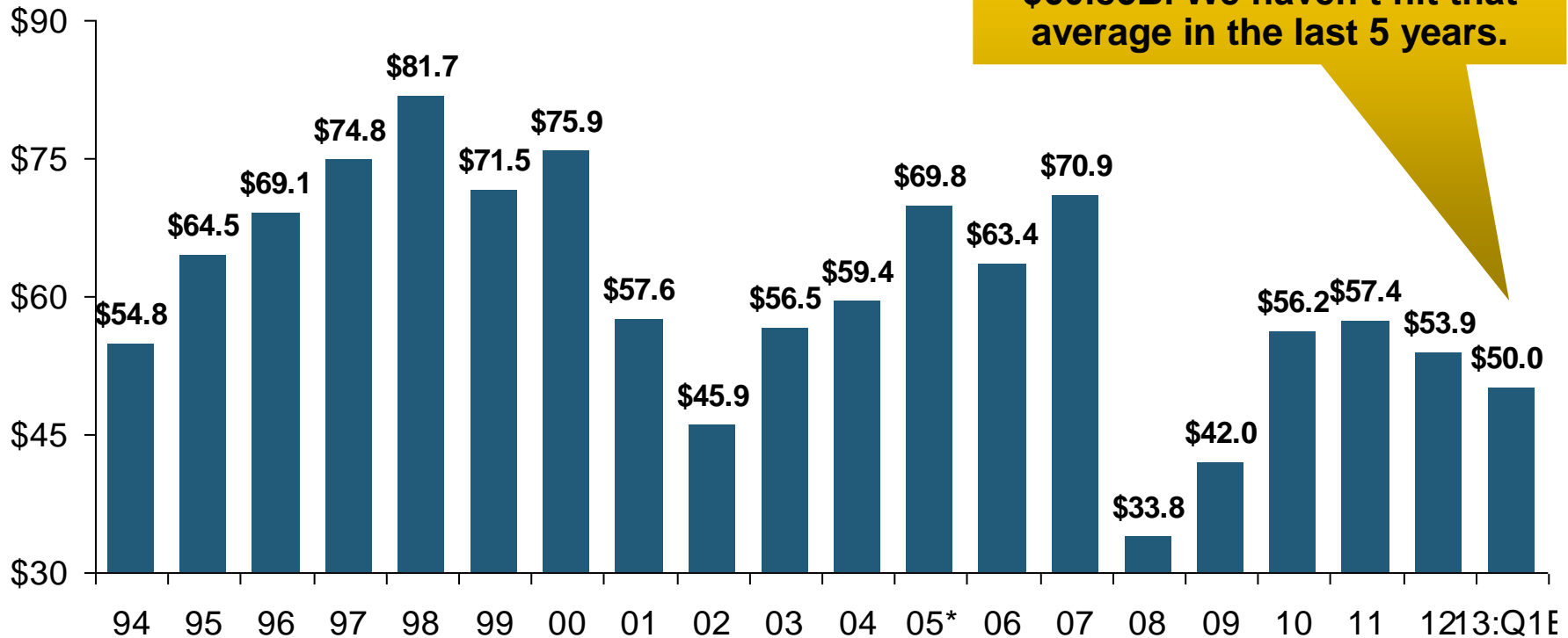


Investments: A Key Driver of Profitability

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

P/C Industry Investment Gains, Inflation-Adjusted: 1994–2012¹

(\$ Billions, 2012 dollars)



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

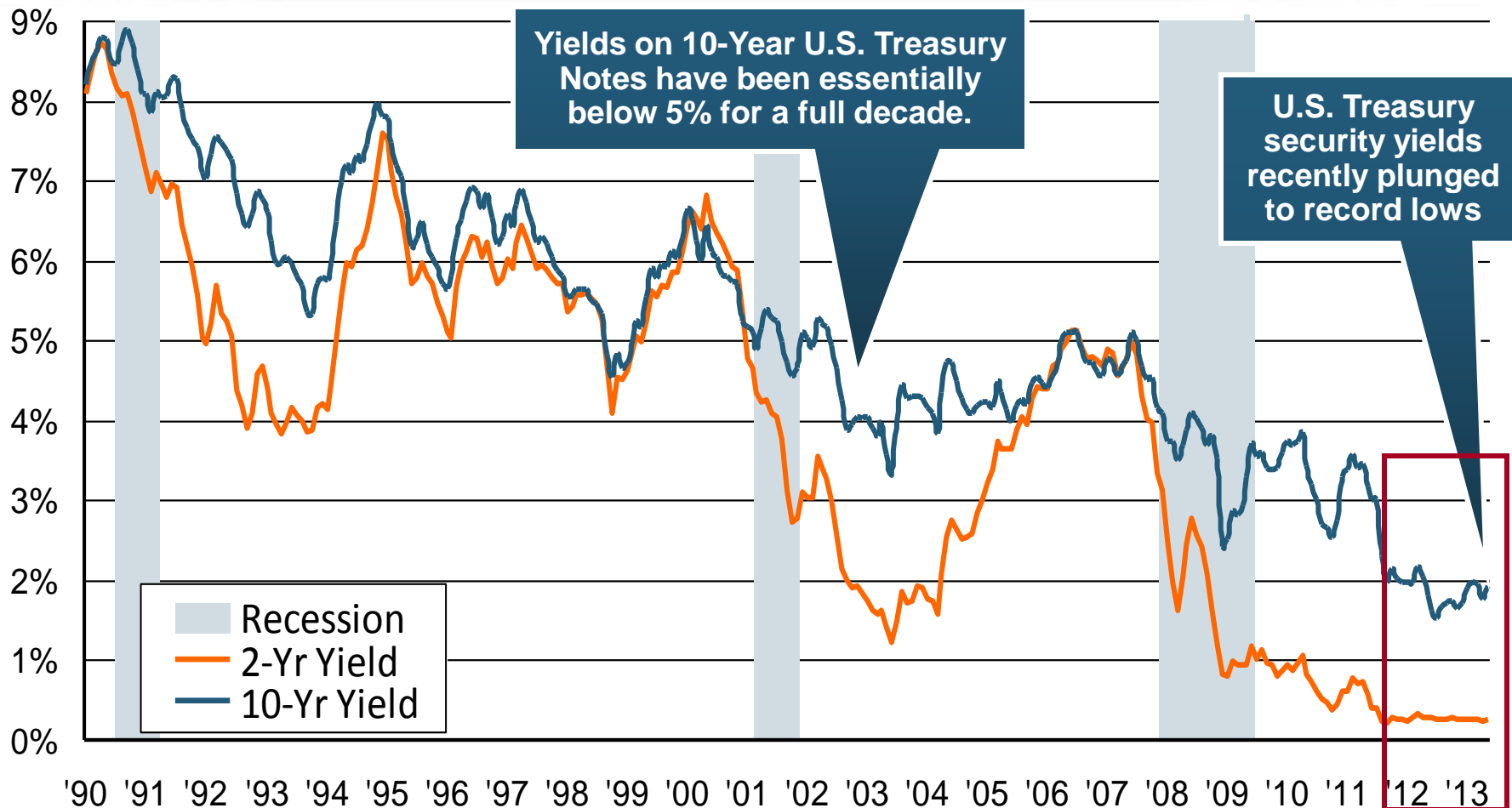
Because the Federal Reserve Board aims to keep interest rates exceptionally low until the unemployment rate hits 6.5%—likely at least another year off—maturing bonds will be re-invested at even lower rates.

¹Investment 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. Treasury Security Yields*: A Long Downward Trend, 1990–2013

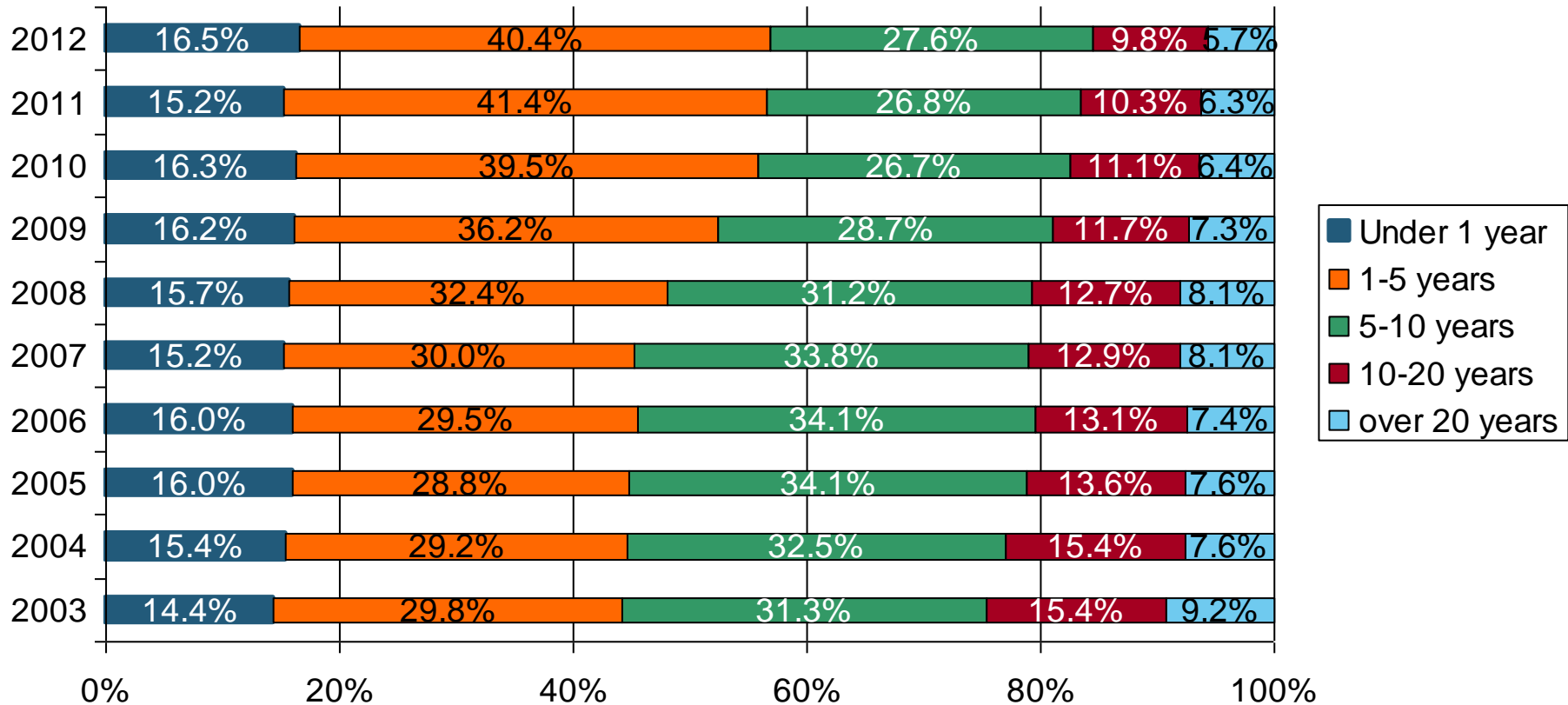


Since roughly 80% of P/C bond/cash investments are in 10-year or shorter durations, most P/C insurer portfolios will have low-yielding bonds for years to come.

*Monthly, constant maturity, nominal rates, through May 2013.

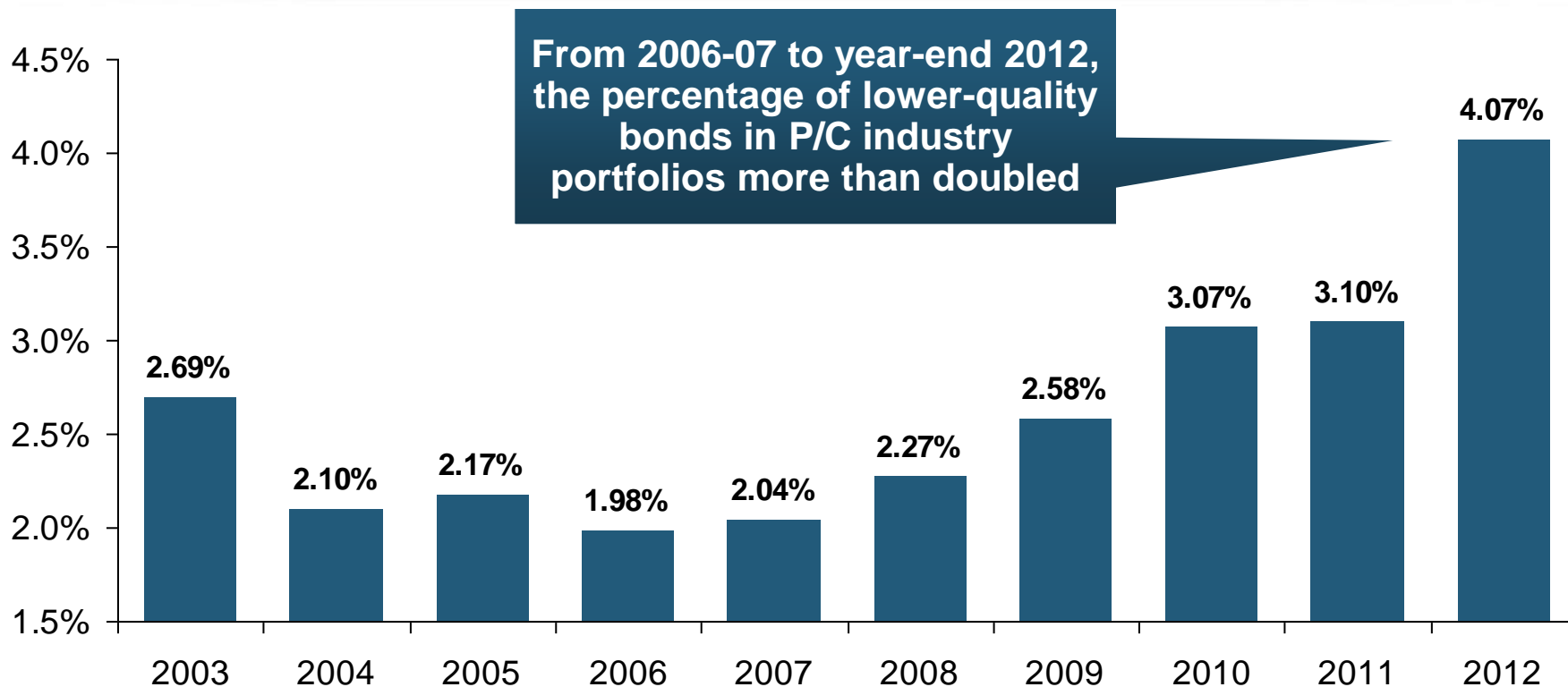
Sources: Federal Reserve Bank at <http://www.federalreserve.gov/releases/h15/data.htm>.
National Bureau of Economic Research (recession dates); Insurance Information Institute.

Distribution of Bond Maturities, US 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



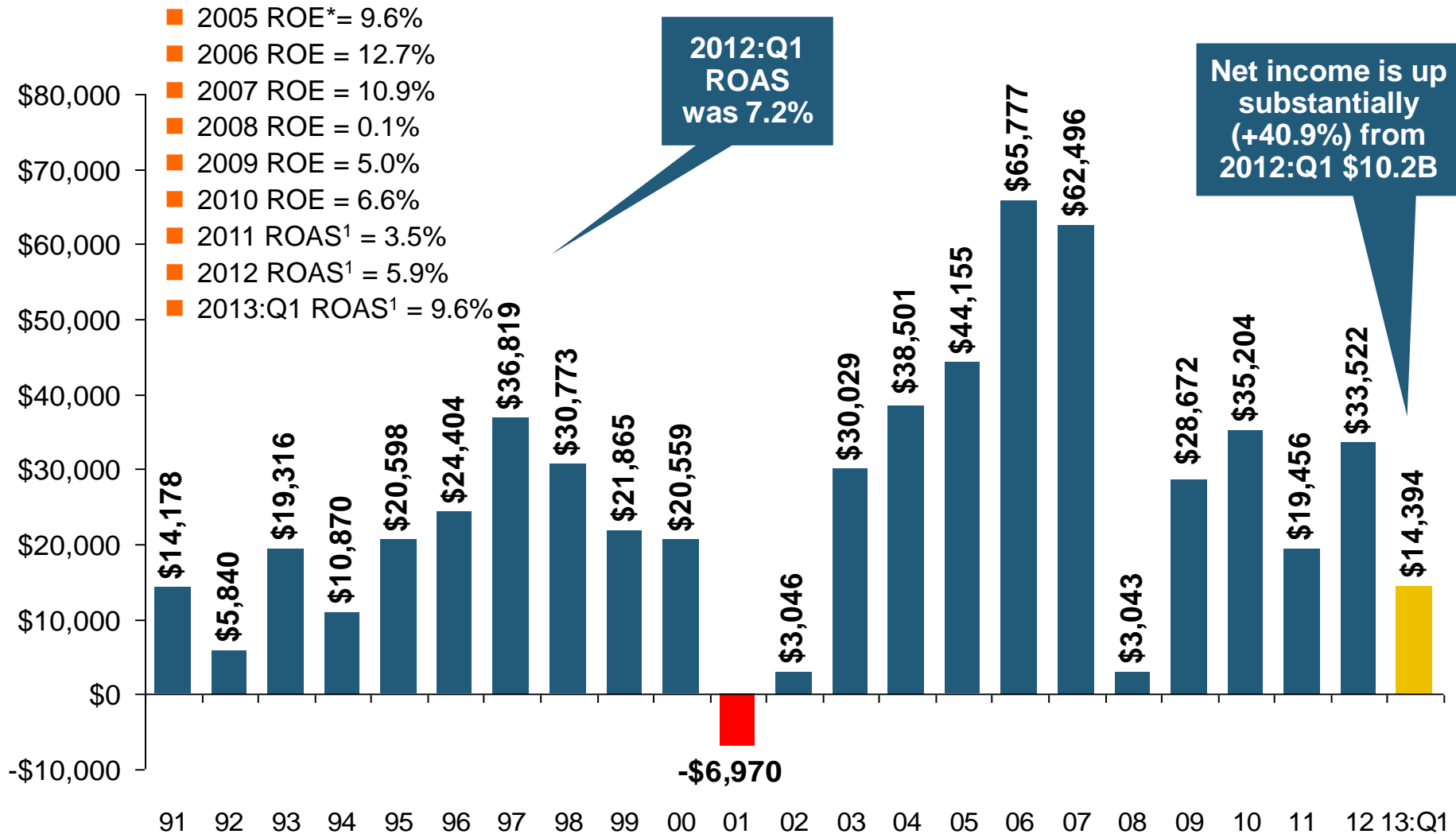
There are many ways to capture higher yields on bond portfolios. One is to accept greater risk, as measured by NAIC bond ratings. The ratings range from 1 to 6, with the highest quality rated 1. Even in 2012, over 95% of the industry's bonds were rated 1 or 2.



P/C Insurance Industry Financial Overview

**Profit Recovery in 2012 After
High CAT Losses; Ultimate
Impact of Sandy Still Unclear**

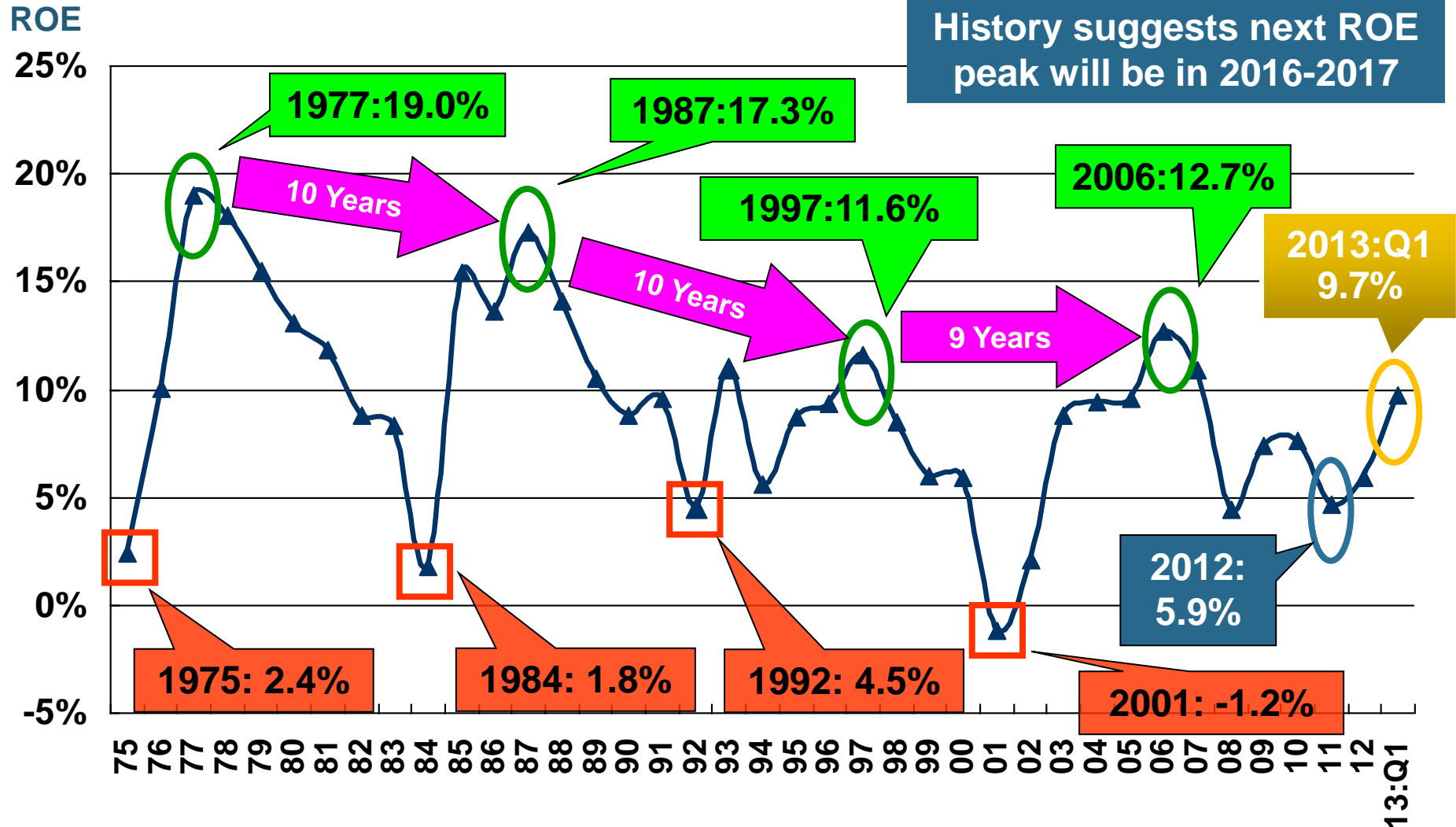
P/C Net Income After Taxes 1991–2013:Q1 (\$ Millions)



• ROE figures are GAAP; ¹Return 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:Q1*



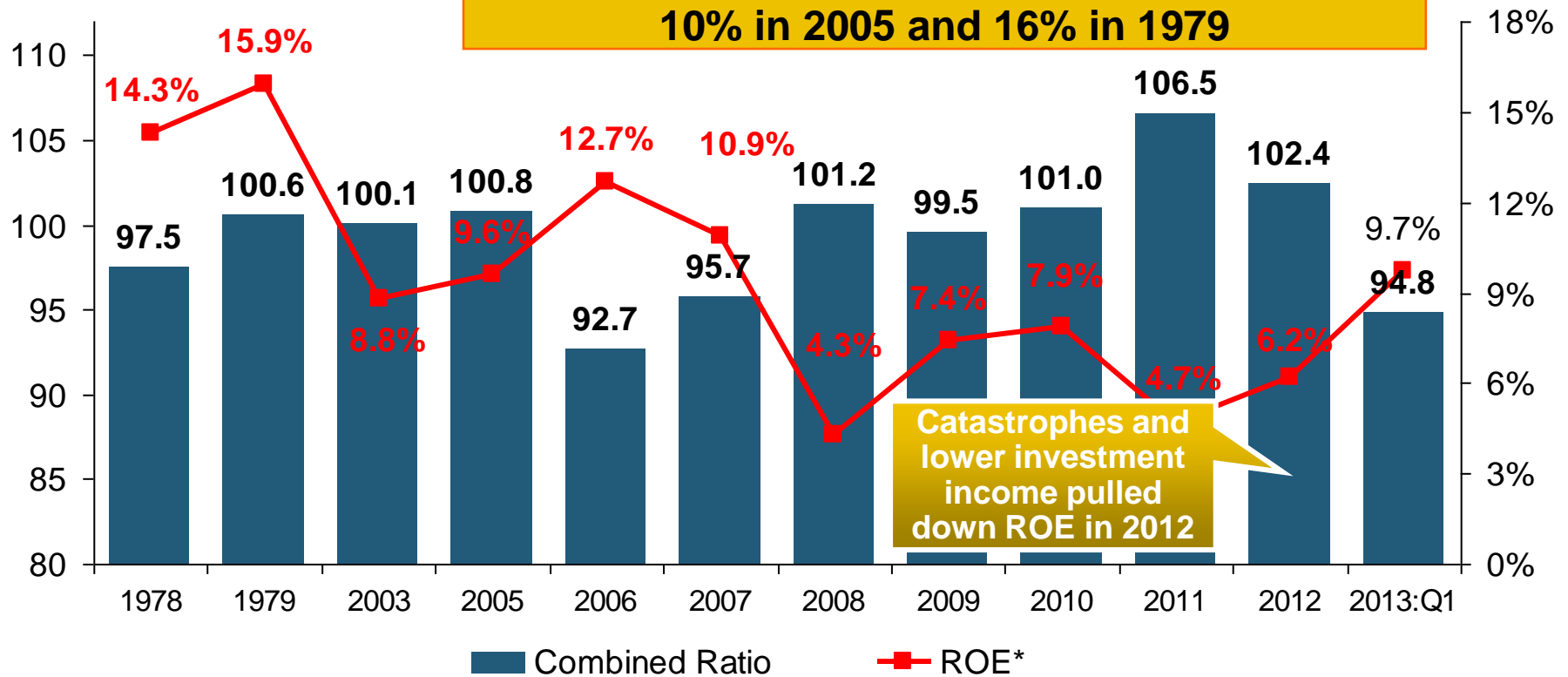
*Profitability = P/C insurer ROEs. 2011-13 figures are estimates based on ROAS data. Note: Data for 2008-2013 exclude mortgage and financial guaranty insurers.

Source: Insurance Information Institute; NAIC, ISO, A.M. Best.

A 100 Combined Ratio Isn't What It Once Was: Investment Impact on ROEs

Combined Ratio / ROE

A combined ratio of about 100 generates an ROE of ~7.0% in 2012, ~7.5% ROE in 2009/10, 10% in 2005 and 16% in 1979



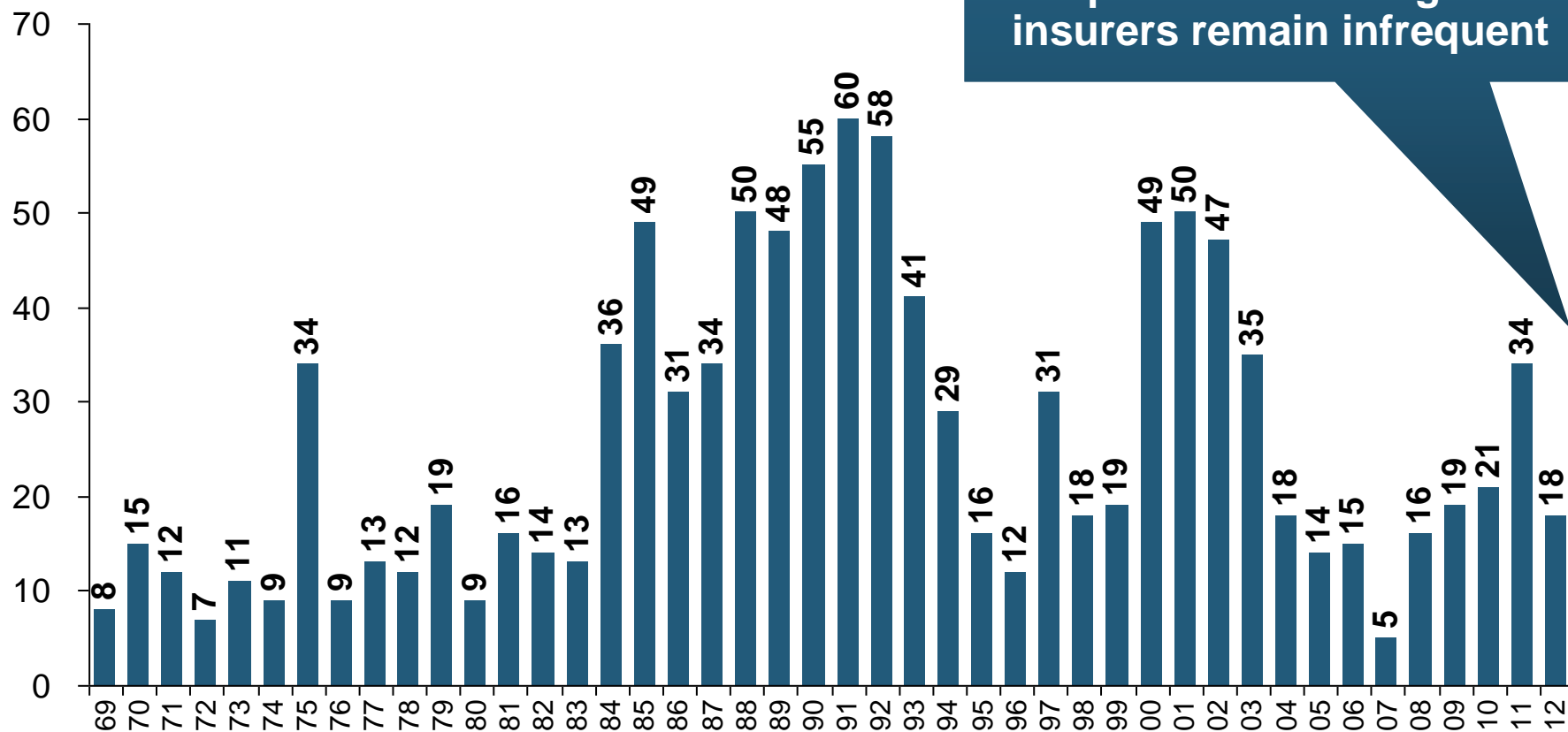
Catastrophes and lower investment income pulled down ROE in 2012

Combined Ratios Must Be Lower in Today's Depressed Investment Environment to Generate Risk Appropriate ROEs

* 2008 -2012 figures are return on average surplus and exclude mortgage and financial guaranty insurers. 2012 combined ratio including M&FG insurers is 103.2, 2011 combined ratio including M&FG insurers is 108.1, ROAS = 3.5%.

Source: Insurance Information Institute from A.M. Best and ISO data.

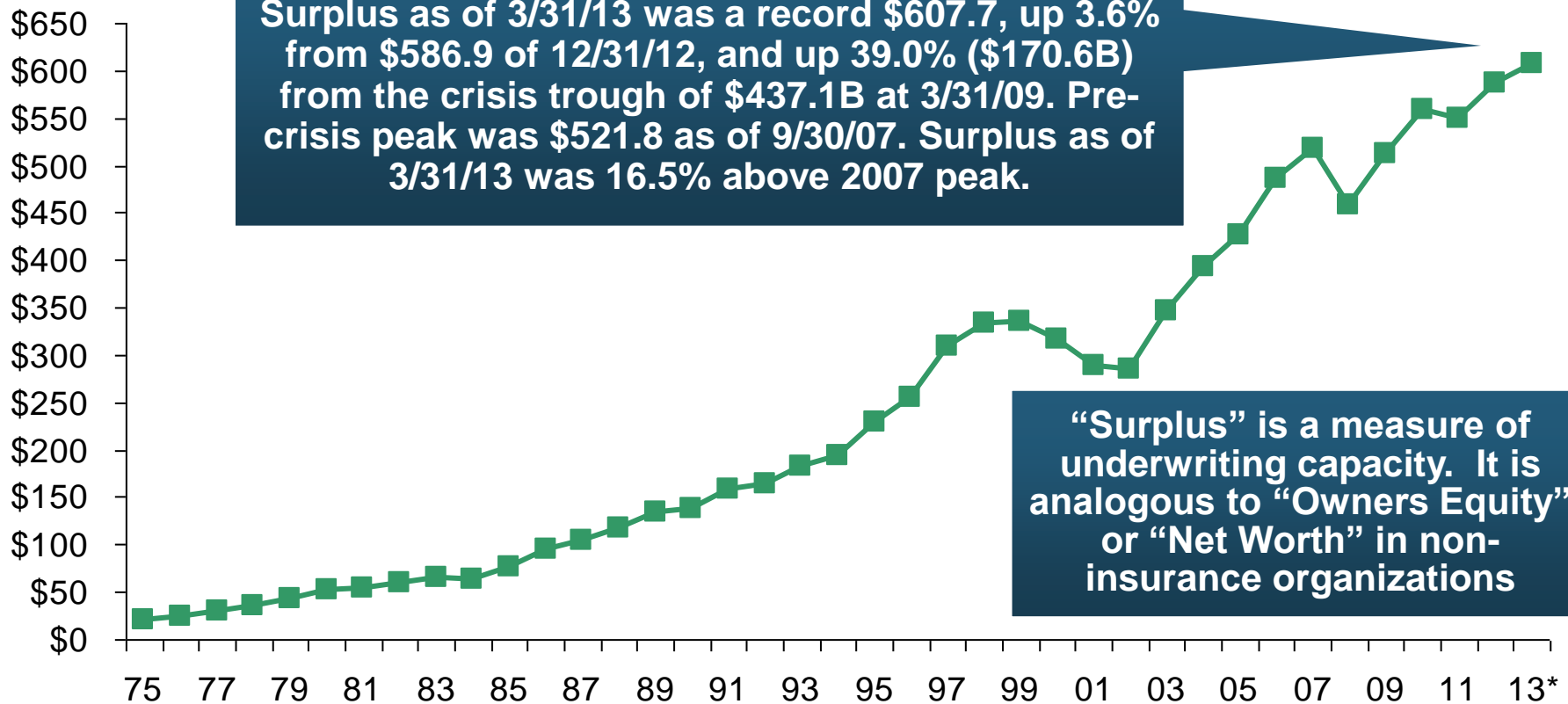
P/C Insurer Impairments, 1969–2012



The Number of Impairments Varies Significantly Over the P/C Insurance Cycle, With Peaks Occurring Well into Hard Markets

US Policyholder Surplus: 1975–2013*

(\$ Billions)



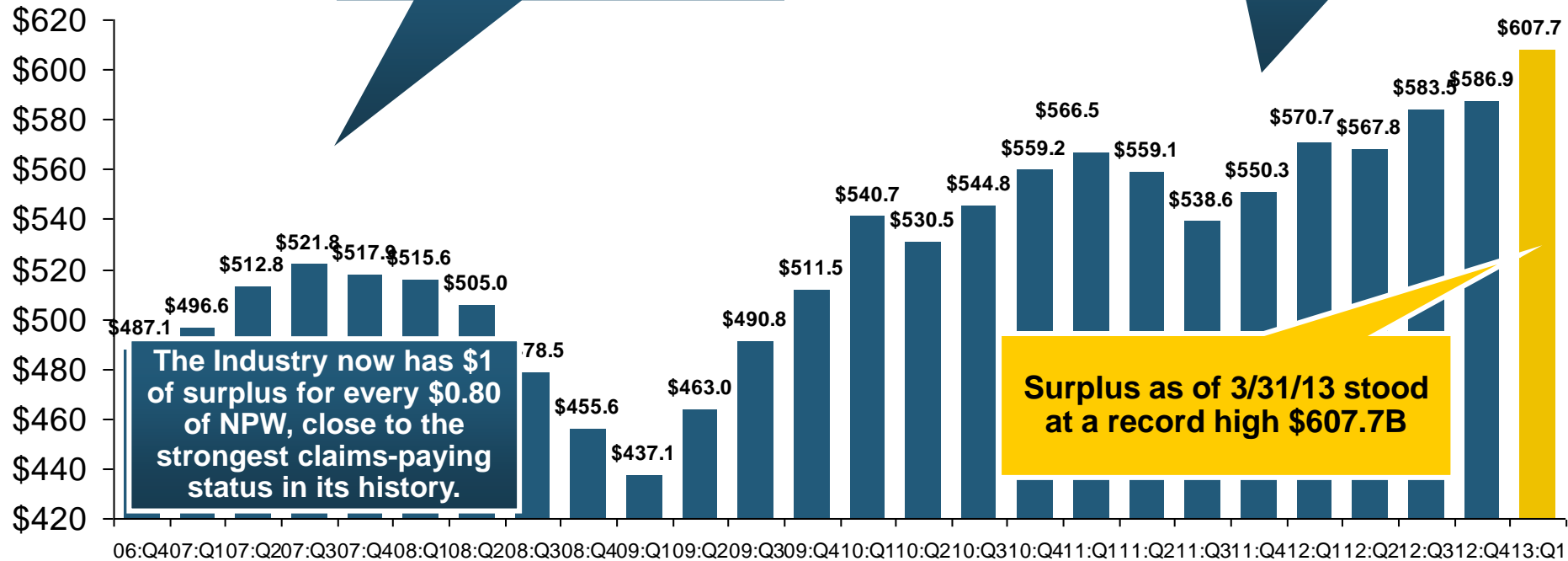
The Premium-to-Surplus Ratio Stood at \$0.77:\$1 as of 3/31/13, A Near Record Low (at Least in Recent History)*

* As of 3/31/13.

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

Policyholder Surplus, 2006:Q4–2013:Q1

(\$ Billions)



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.

Insurance Information Institute Online:

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***Thank you for your time
and your attention!***