Alternative Capital: *Impacts on Global Insurance and Reinsurance Markets*

Annual Circle of Chief Economists

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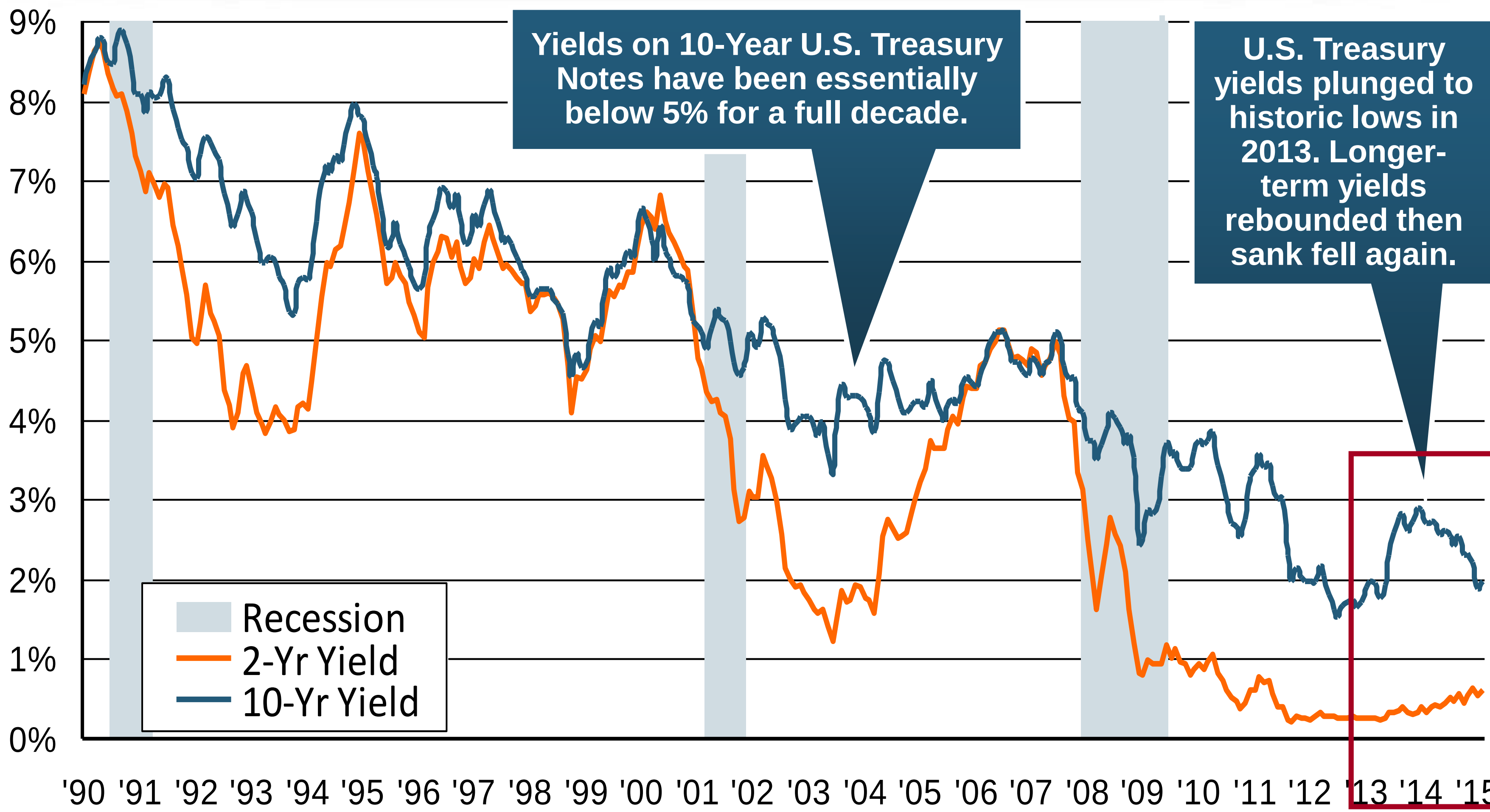
A World of Low Yields

Capital Will Seek Its Highest (Risk-Adjusted) Return

U.S. Treasury Security Yields: A Long Downward Trend, 1990–2015*

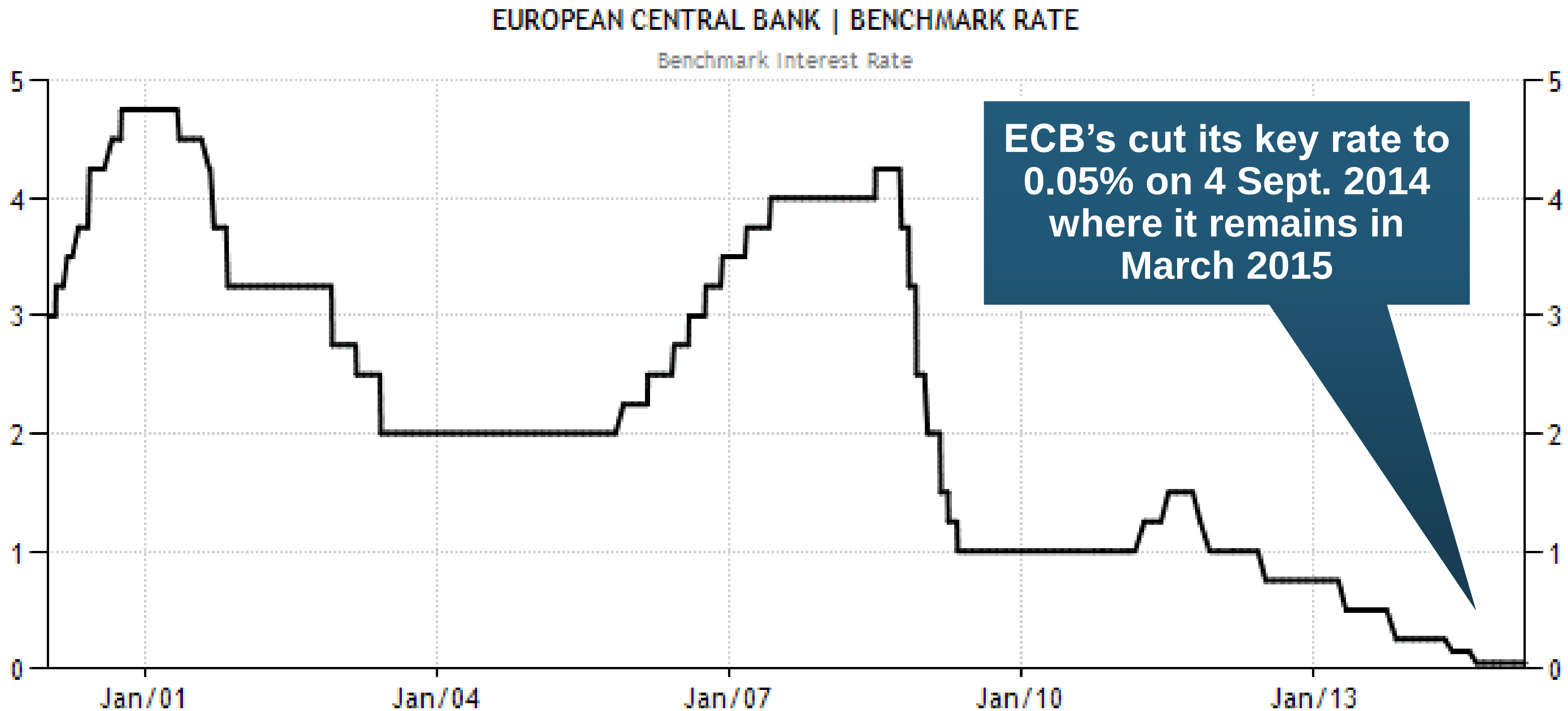


Since roughly 80% of P/C bond/cash investments are in 10-year or shorter durations, most P/C insurer portfolios will have low-yielding bonds for years to come.

*Monthly, constant maturity, nominal rates, through Feb. 2015.

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

European Central Bank Benchmark Rate, 2000 – 2015*



Interest Rates Have Been Slashed by Most Major Central Banks, Igniting a Global Quest for Yield. Reinsurance Is Just One of Many New Areas "Discovered" by Large Institutional Investors

*As of 20 March 2015.

Source: European Central Bank from www.tradingeconomics.com; Insurance Information Institute.

Book Yield on Property/Casualty Insurance Invested Assets, 2007–2016F

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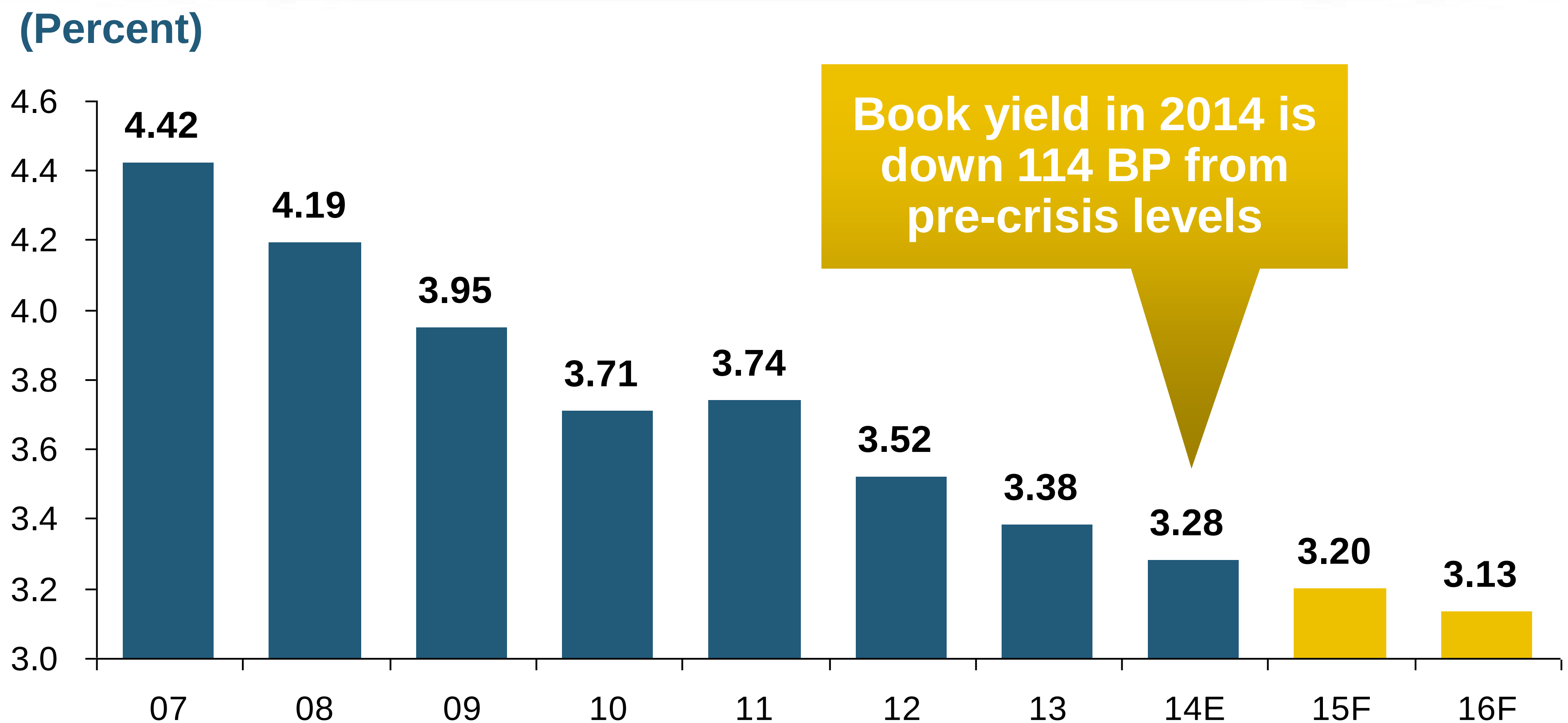


The yield on invested assets continues to decline as returns on maturing bonds generally still exceed new money yields. The end of the Fed's QE program in Oct. 2014 should allow some increase in longer maturities while short term interest rate increases are unlikely until mid-to-late 2015

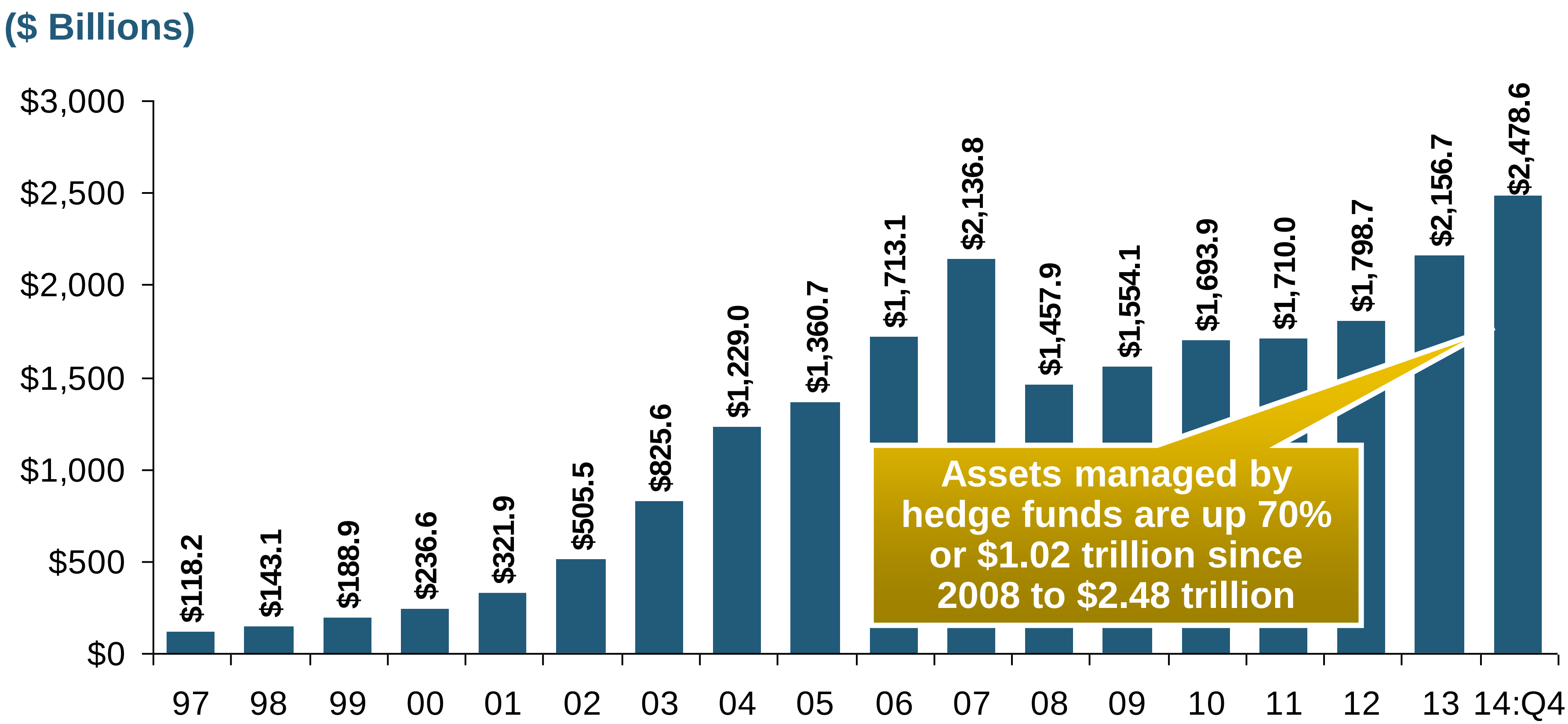
Sources: Conning.

A World Awash in Capital

Too Much of a Good Thing?

The Global Glut of Capital is Not Unique to (Re)Insurance

Hedge Fund Industry: Assets Under Management: 1997–2014:Q4[1]

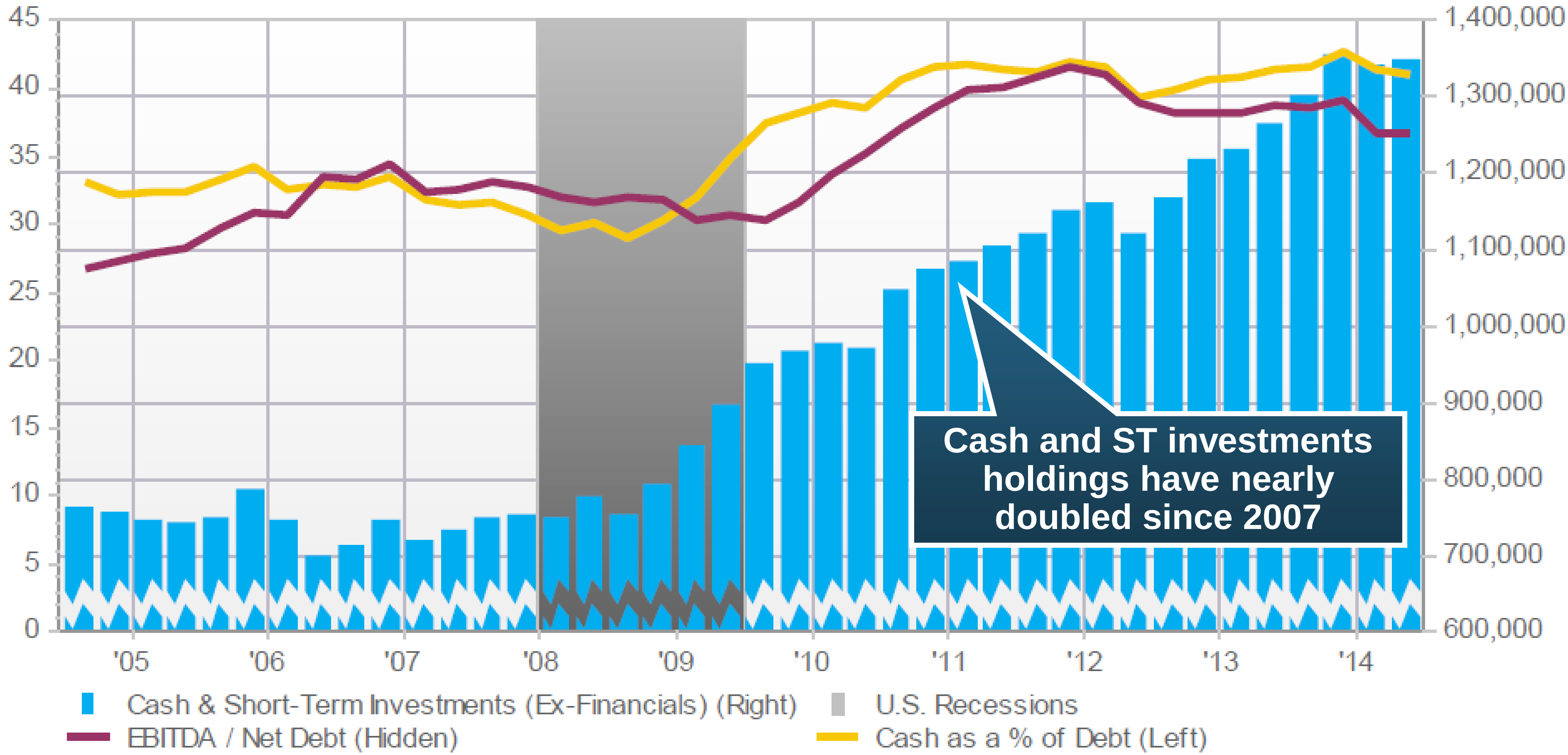


Yield Hungry Pension Funds Have Grown Rapidly Since the Financial Crisis, Deploying Oceans of Capital in Industries Across the Globe—Including the Global Reinsurance Industry

[1] Figures for 2011-2014 are as of Q4 for each year.

Sources: BarclayHedge: http://www.barclayhedge.com/research/indices/ghs/mum/Hedge_Fund.html; Insurance Information Institute.

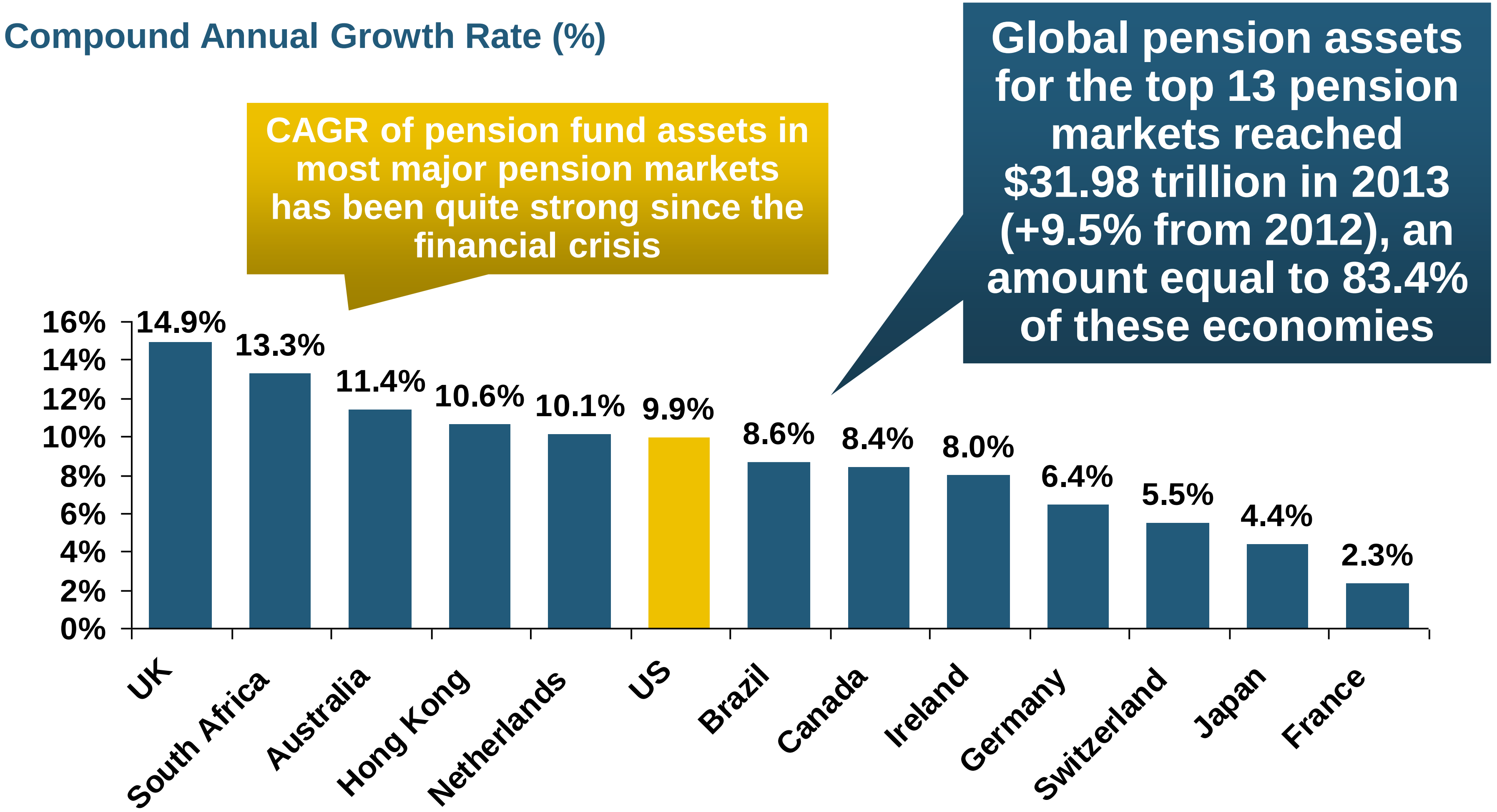
S&P 500 (Excl. Financials): Cash & Short-Term Investments



Holdings of Cash and Liquid Asset Holdings Have Soared Across Virtually All Industries Since the Financial Crisis

Source: Fact Set Fundamentals.

Global Pension Assets Growth, 2008 – 2013*



*As of year-end.

Source: Towers Watson Global Pensions Asset Study 2014 at: http://www.towerswatson.com/en-US/Insights/IC-Types/Survey-Research-Results/2014/02/Global-Pensions-Asset-Study-2014

Pension Asset Allocation (World's 7 Largest Pension Markets)

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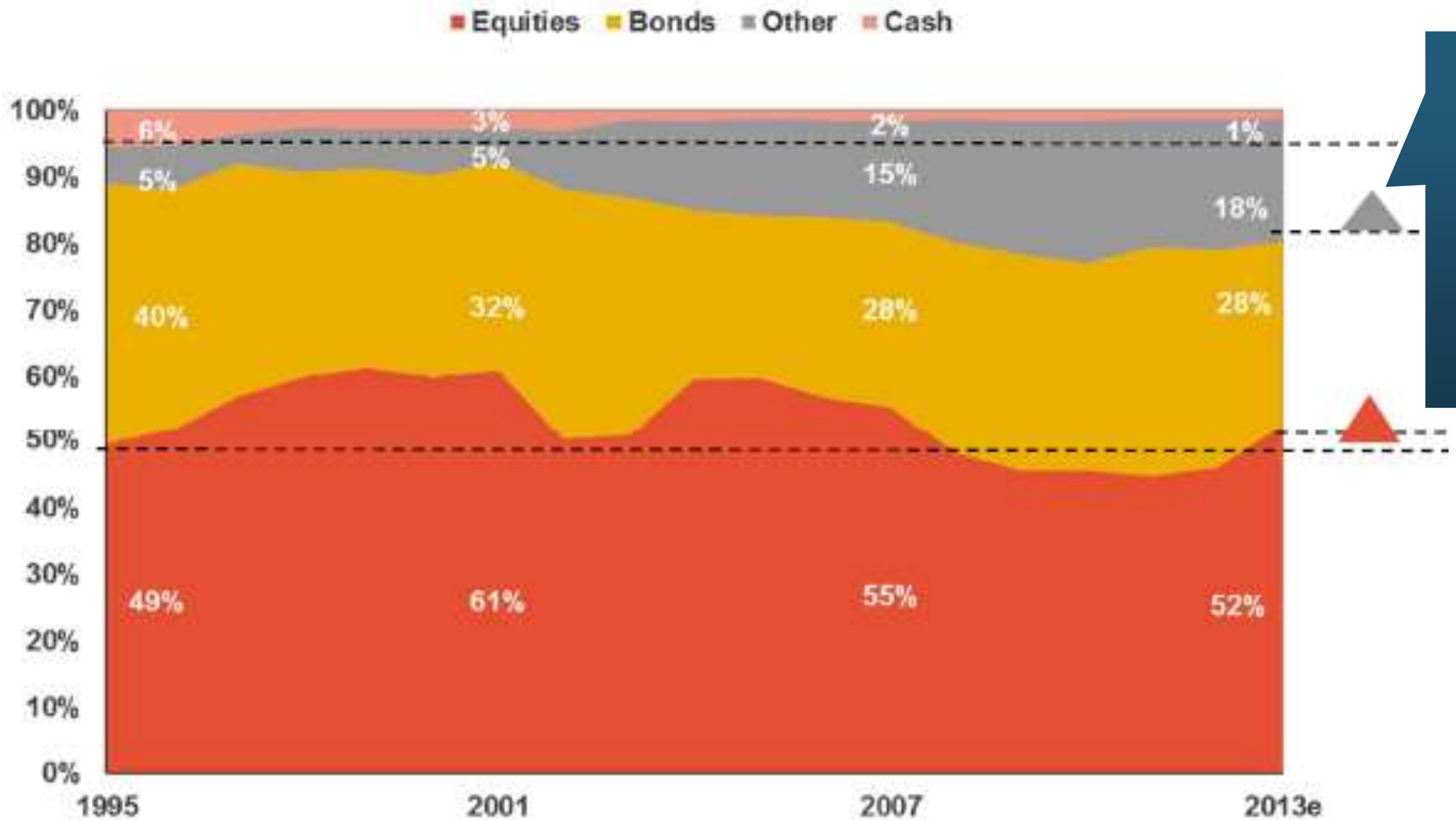

Alternative investment's share of assets is up +15 points since 2001 from 5% to 18%

Holdings of Cash and Liquid Asset Holdings Have Soared Across Virtually All Industries Since the Financial Crisis

*Australia, Canada, Japan, Netherlands, Switzerland, UK, US.
Source: Towers Watson Global Pensions Asset Study 2014 at: http://www.towerswatson.com/en-US/Insights/IC-Types/Survey-Research-Results/2014/02/Global-Pensions-Asset-Study-2014

Policyholder Surplus, 2006:Q4–2014:Q3

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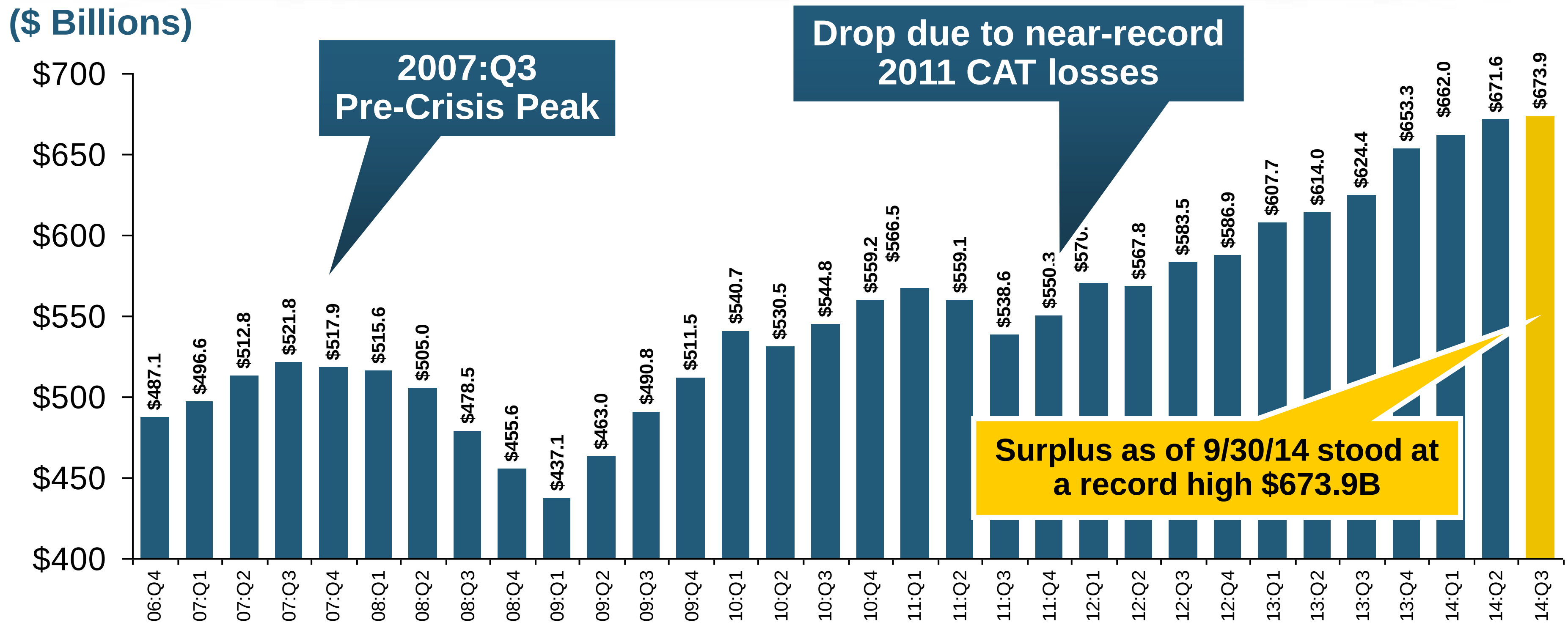

The industry now has $1 of surplus for every $0.73 of NPW, close to the strongest claims-paying status in its history.

2010:Q1 data includes $22.5B of paid-in capital from a holding company parent for one insurer’s investment in a non-insurance business .

The P/C insurance industry entered 2015 in very strong financial condition.

Sources: ISO, A.M .Best.

US Policyholder Surplus: 1975–2014*

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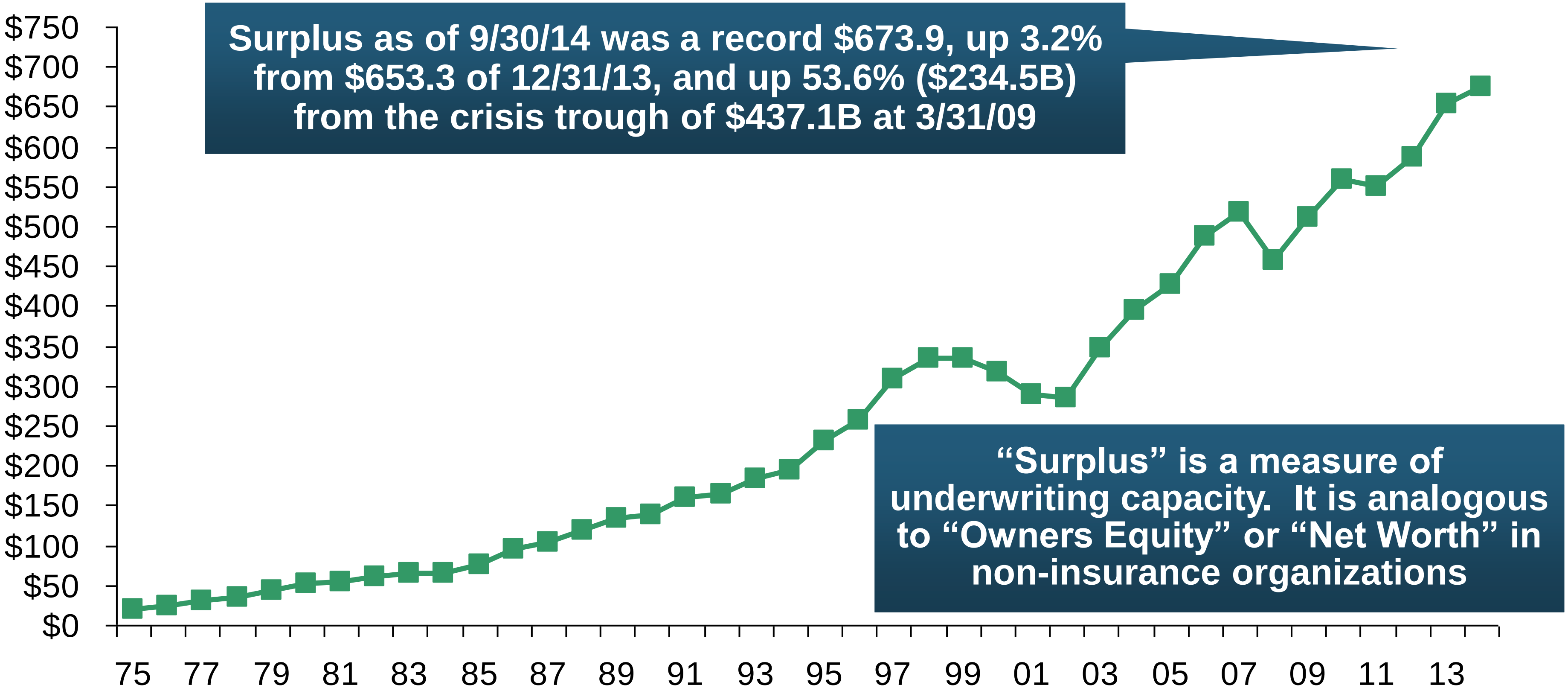
($ Billions)

Surplus as of 9/30/14 was a record $673.9, up 3.2% from $653.3 of 12/31/13, and up 53.6% ($234.5B) from the crisis trough of $437.1B at 3/31/09



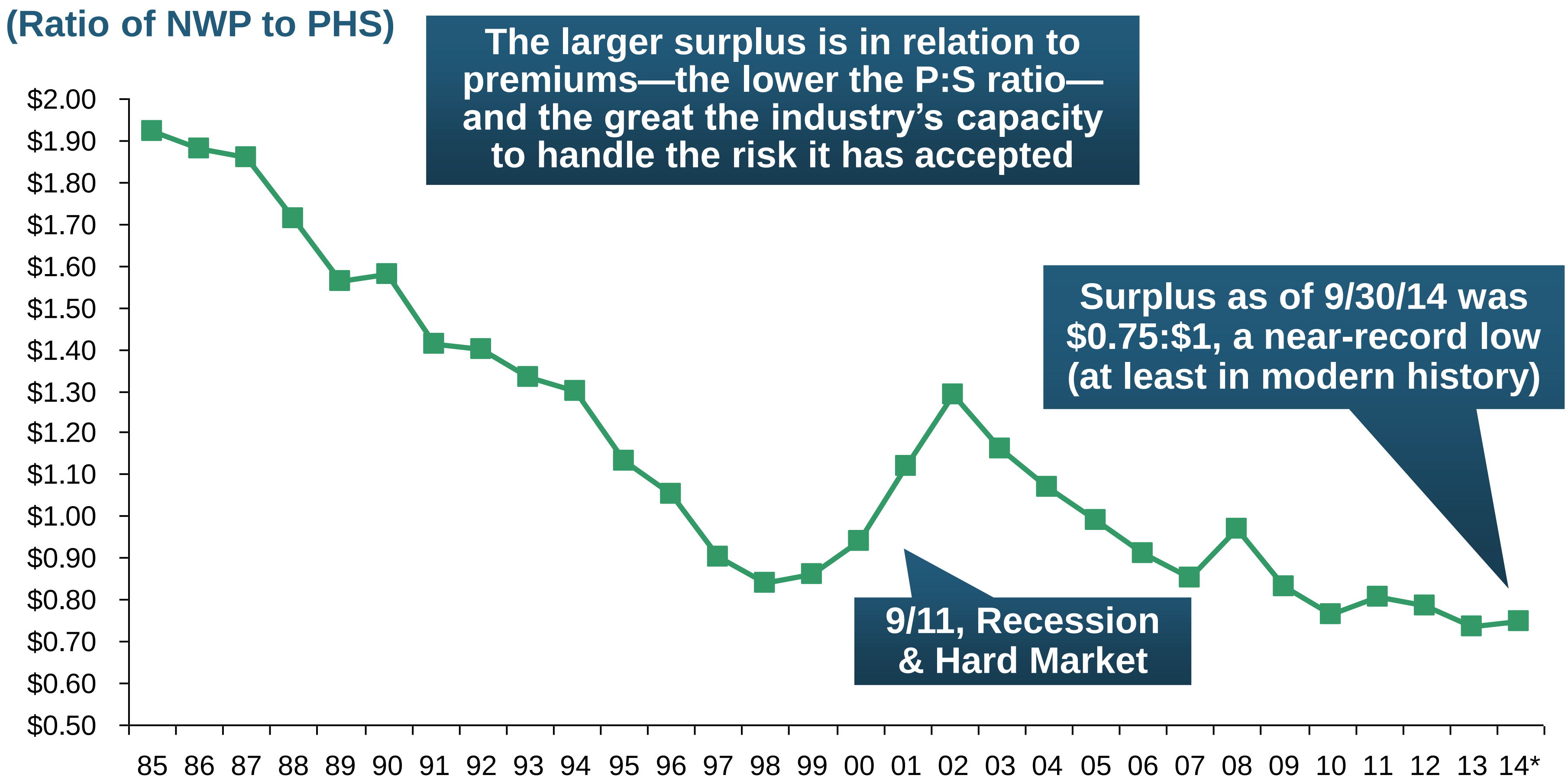
"Surplus" is a measure of underwriting capacity. It is analogous to "Owners Equity" or "Net Worth" in non-insurance organizations

The Premium-to-Surplus Ratio Stood at $0.73:$1 as of 9/30/14, a Near Record Low (at Least in Recent History)

* As of 9/30/14.

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

Premium-to-Surplus Ratio: 1985–2014*



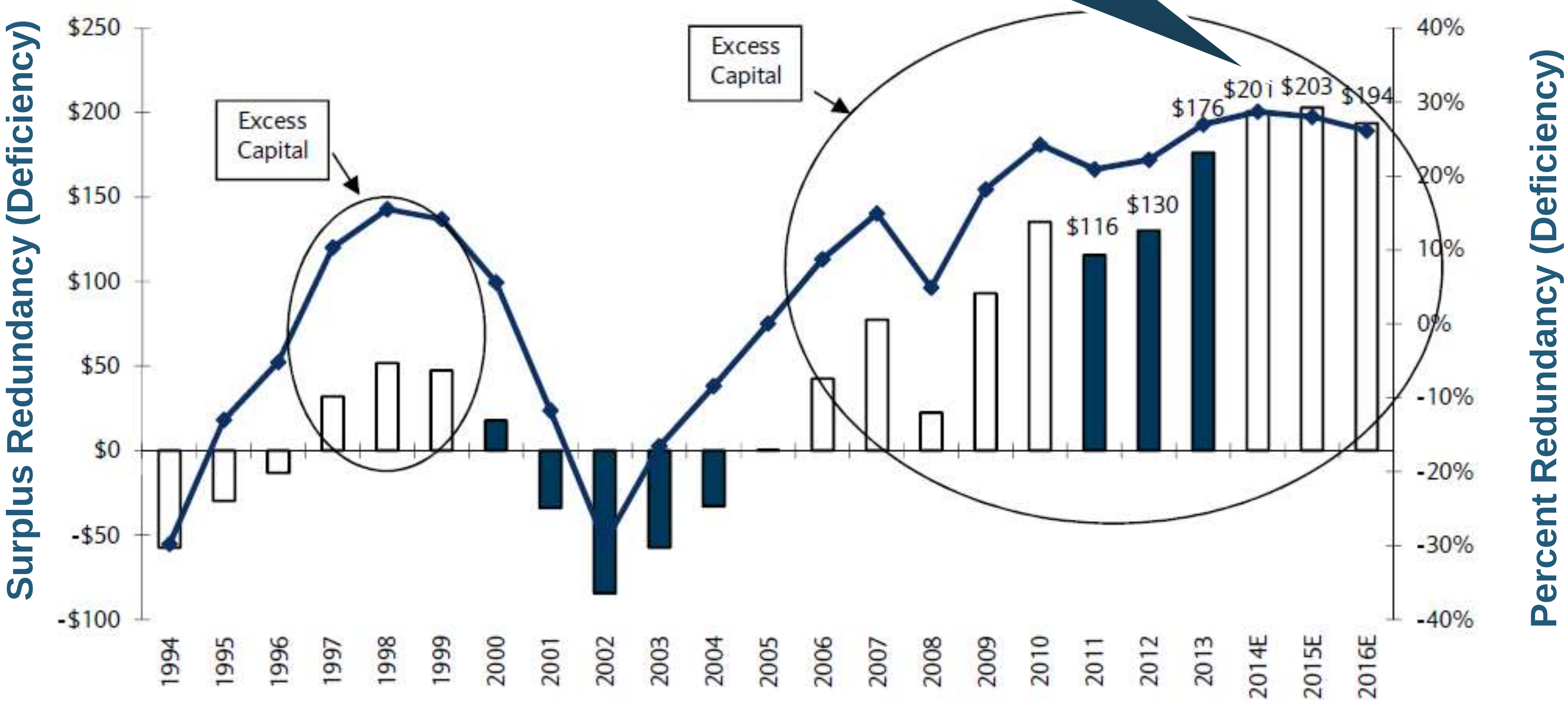
The Premium-to-Surplus Ratio Stood at $0.75:$1 as of 9/30/14, a Record Low (at Least in Recent History)

* As of 9/30/14.

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

US P/C Insurance Industry Excess Capital Position: 1994–2016E

Barclay's suggests that surplus is approximately $200B (~30%)



The Industry's Strong Capital Position Suggests Insurers Are in a Good Position to Increase Risk Appetite, Repurchase Shares and Pursue Acquisitions

Source: Barclays Research estimates.

Alternative Capital

New Investors Continue to Change the Reinsurance Landscape

First I.I.I. White Paper Released in March 2015

Global Reinsurance Capital (Traditional and Alternative), 2006 - 2014

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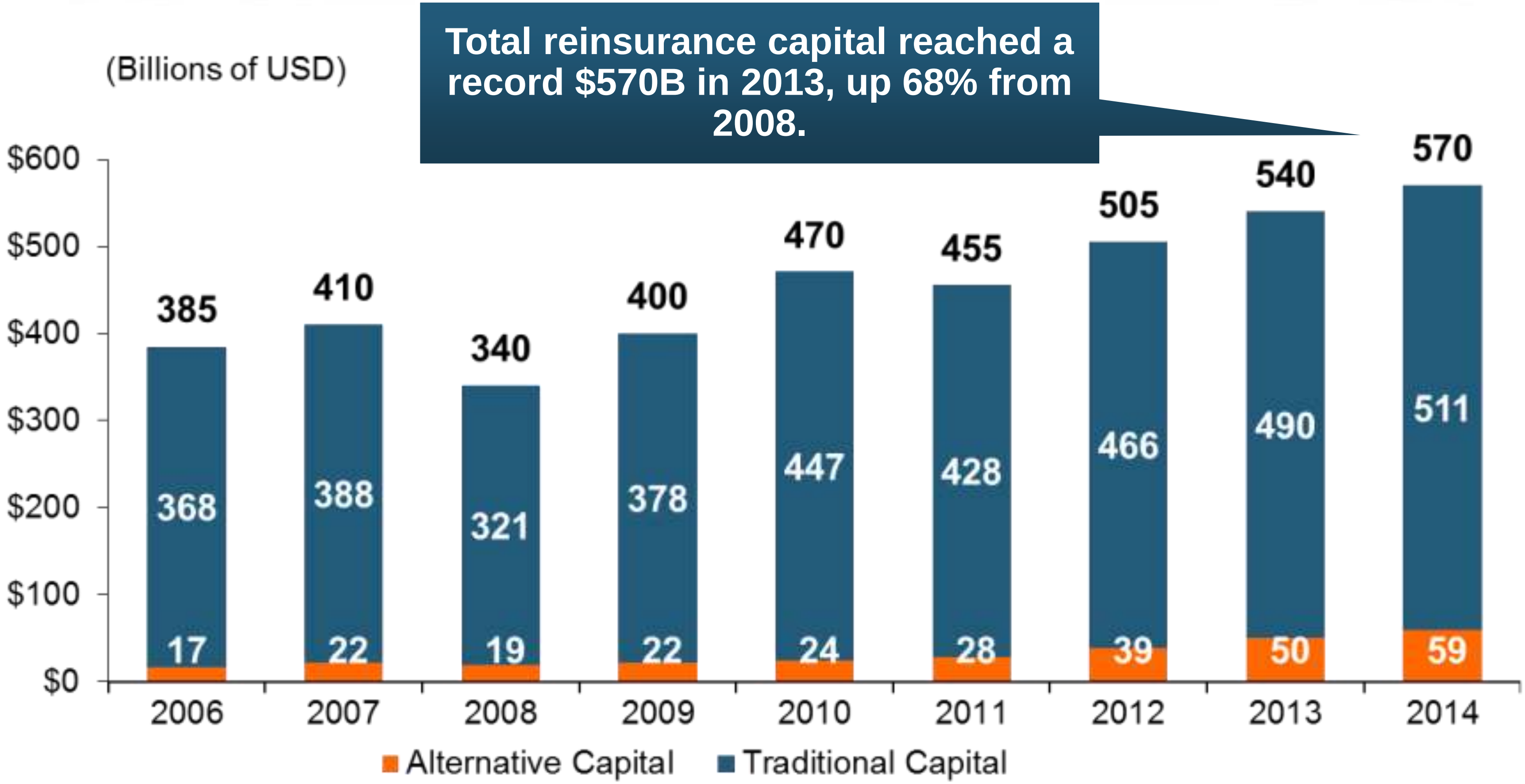

But alternative capacity has grown 210% since 2008, to $50B. It has more than doubled in the past three years.

2014 data is as of June 30, 2014.
Source: Aon Benfield Analytics; Insurance Information Institute.

Increase in Global Reinsurance Capital, 2008 – 2014:Q4

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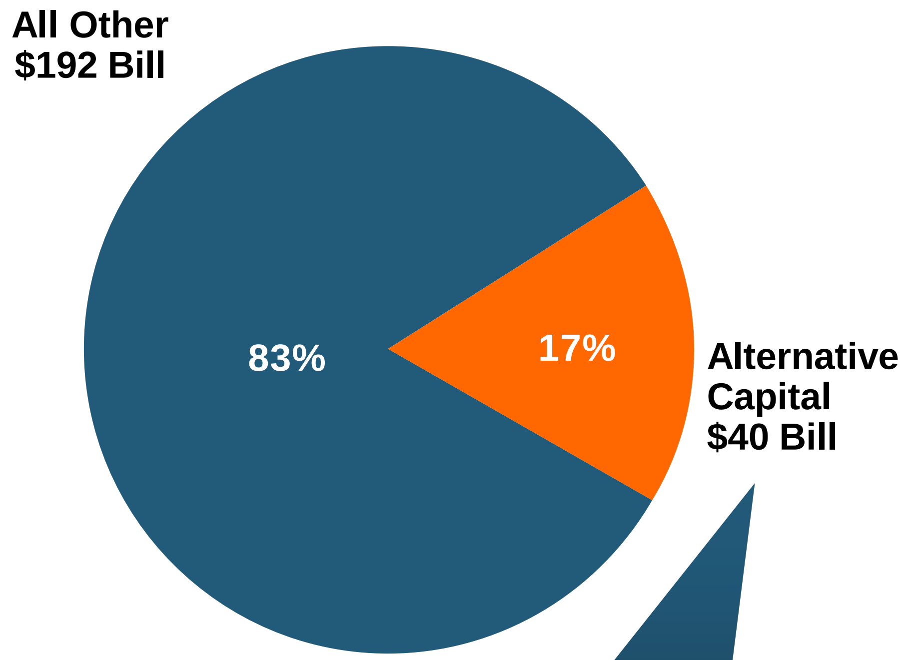
Alternative Capital Growth Facts

- Reinsurance capital increased by ~$230 Bill. from 2008 - 2014
- Alternative capital’s growth rate was 25% in 2014, 28% in 2013 and 39% in 2012.
- Alternative capital’s share of global reinsurance capital has doubled, from 5.9% in 2008 to 12.0% in 2014
- This growth has occurred during a period of falling and very low interest rates and, with the exception of 2011, relatively benign global cat activity.

2014, $Billions



Alternative Capital now accounts for about 17% of global reinsurance capital

Source: Insurance Information Institute based on data from Aon Benfield.

Alternative Capital as a Percentage of Traditional Global Reinsurance Capital

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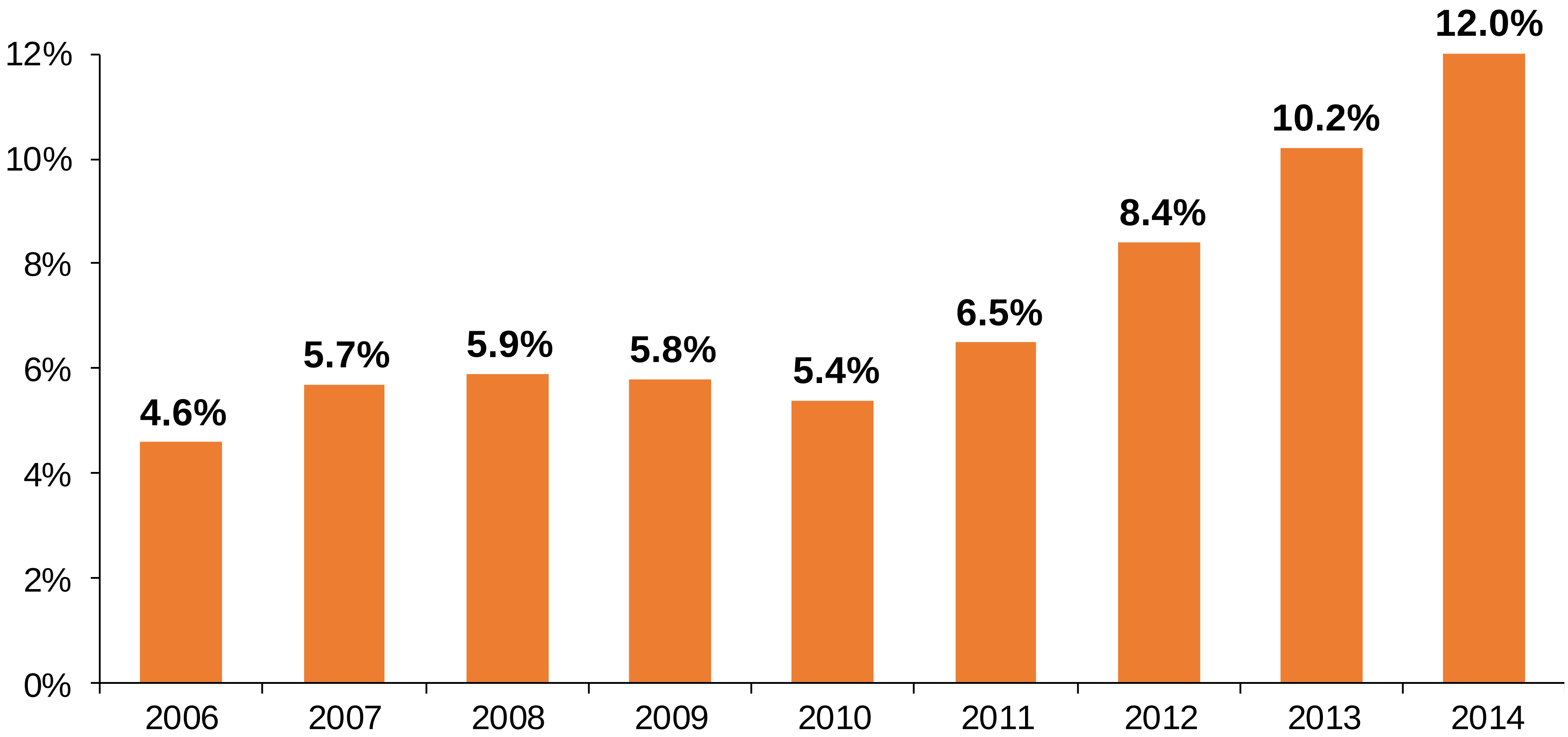
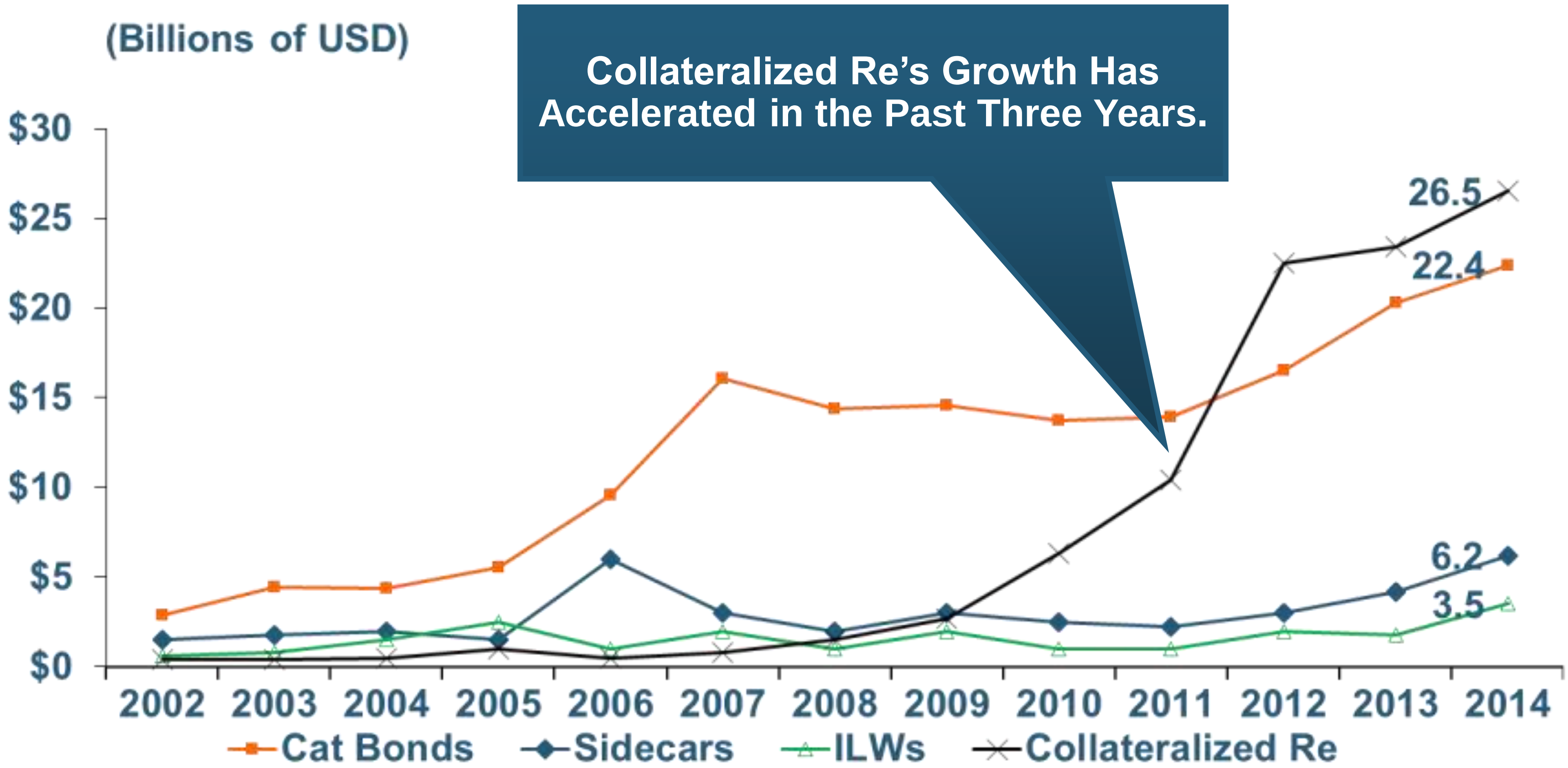


Alternative Capital's Share of Global Reinsurance Capital Has More Than Doubled Since 2010.

2014 data is as of September 30, 2014.

Source: Aon Benfield Analytics; Insurance Information Institute.

Growth of Alternative Capital Structures, 2002 - 2014



Collateralized Reinsurance and Catastrophe Bonds Currently Dominate the Alternative Capital Market.

2014 data is as of June 30, 2014.

Source: Aon Benfield Analytics; Insurance Information Institute.

Catastrophe Bond Issuance and Outstanding: 1997-2014

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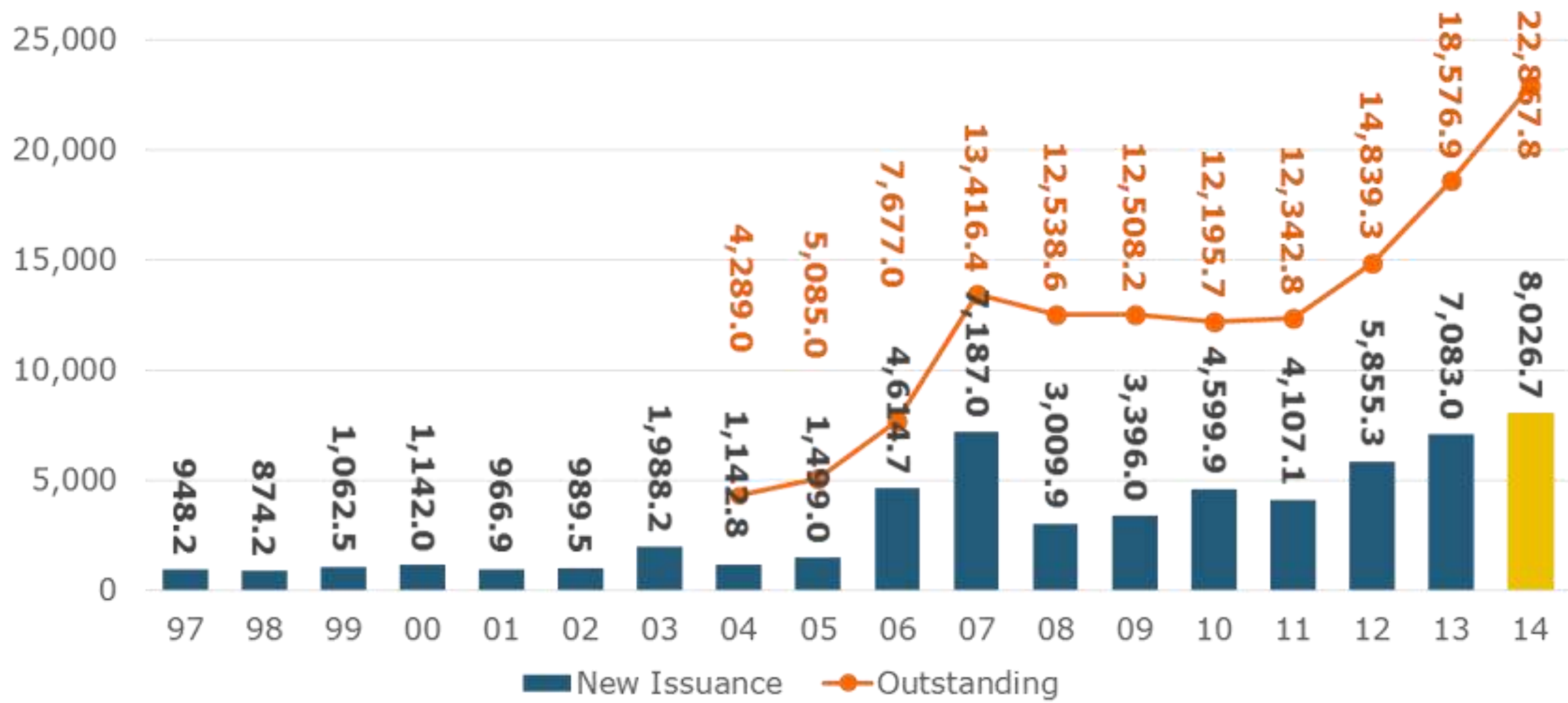
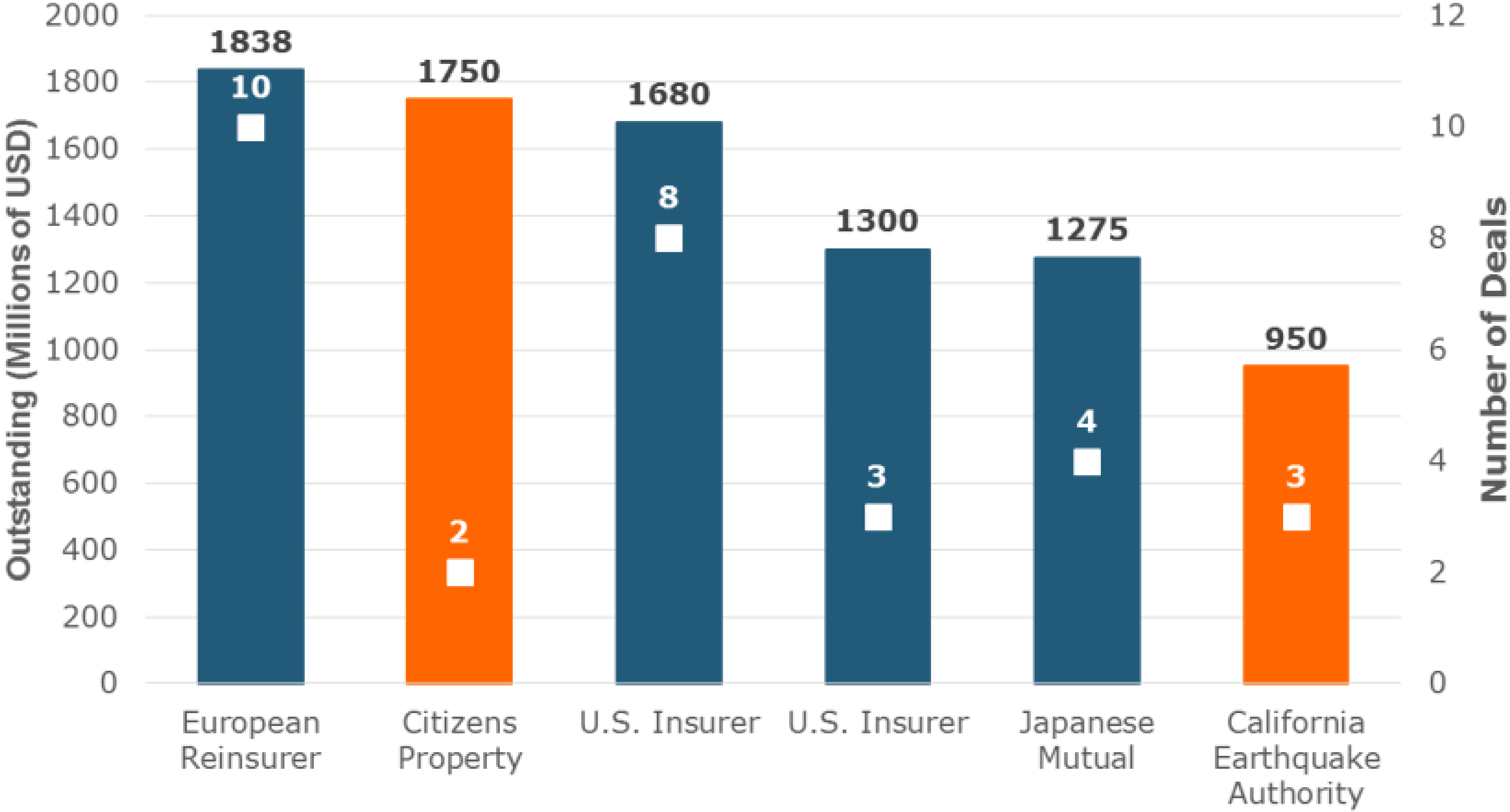
Risk Capital Amount ($ Millions)



2014 Has Seen the Largest Cat Bond Ever - $1.5 Billion (Florida Citizens). Bond Issuance Set a Record.

Source: Guy Carpenter.

Largest Sponsors of ILS, Year-End 2014



Two of the Largest ILS Issuers Are Government-Sponsored Insurers. Nine Government-Related Insurers Have $4.6 Billion in Outstanding Securities.

Source: Artemis.bm; Insurance Information Institute.

Reinsurance Pricing: Change in Rate on Line for Cat Business

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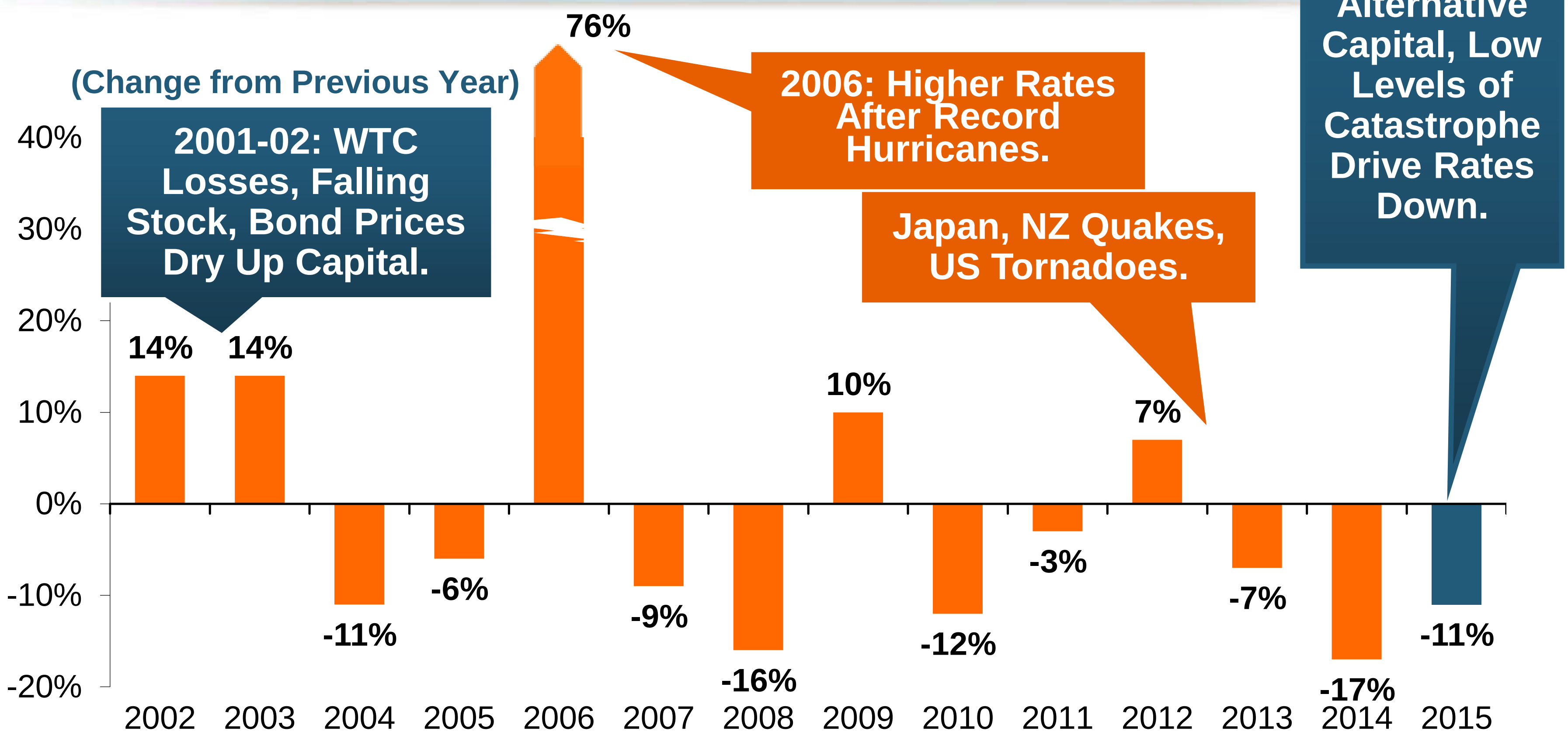

Catastrophe Reinsurance Prices Fell 11 Percent on January 1 Renewals, Driven by Emergence of New Capital, Mild Catastrophe Losses.

2014 reflects change through June 30 from prior year end. 2015 is for January 1 renewals..

Source: Guy Carpenter; Insurance Information Institute.

U.S. Wind-Exposed Risk Premium* 2010:Q1 to 2014:Q4

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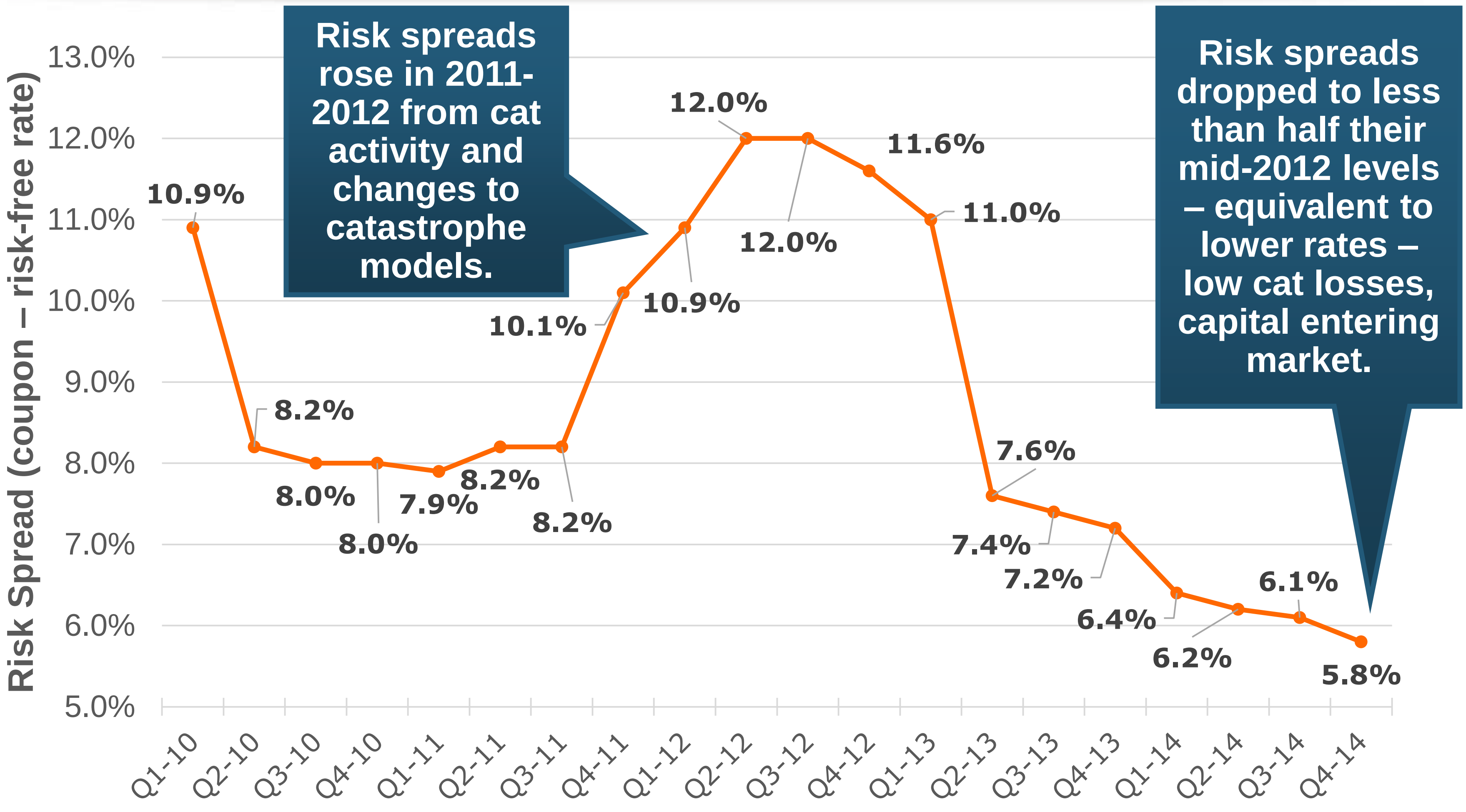

* Trailing 12-month average
SOURCE: Willis Capital Markets, Insurance Information Institute.

Non-U.S. Wind-Exposed Risk Premium* 2010:Q1-2014: Q1

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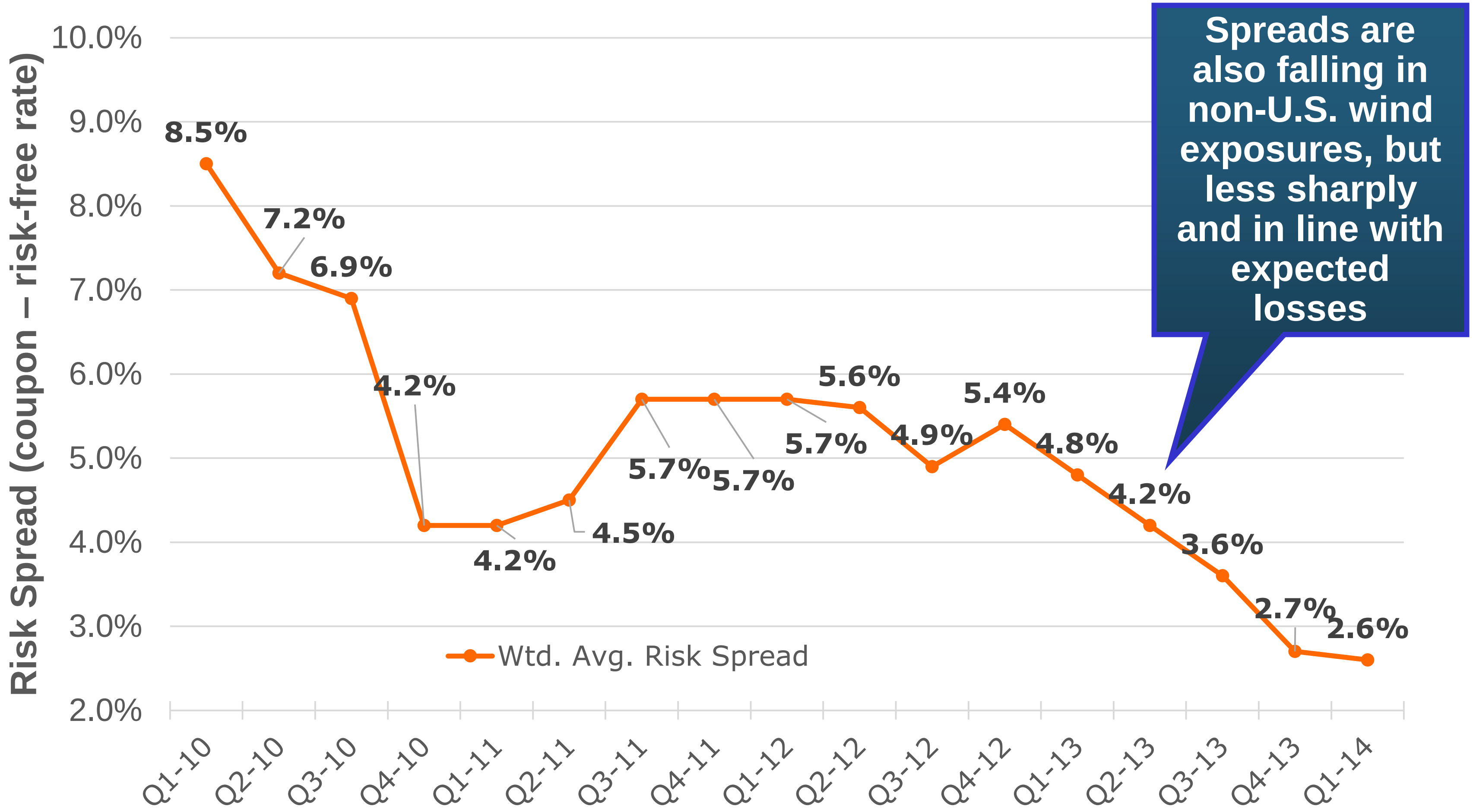
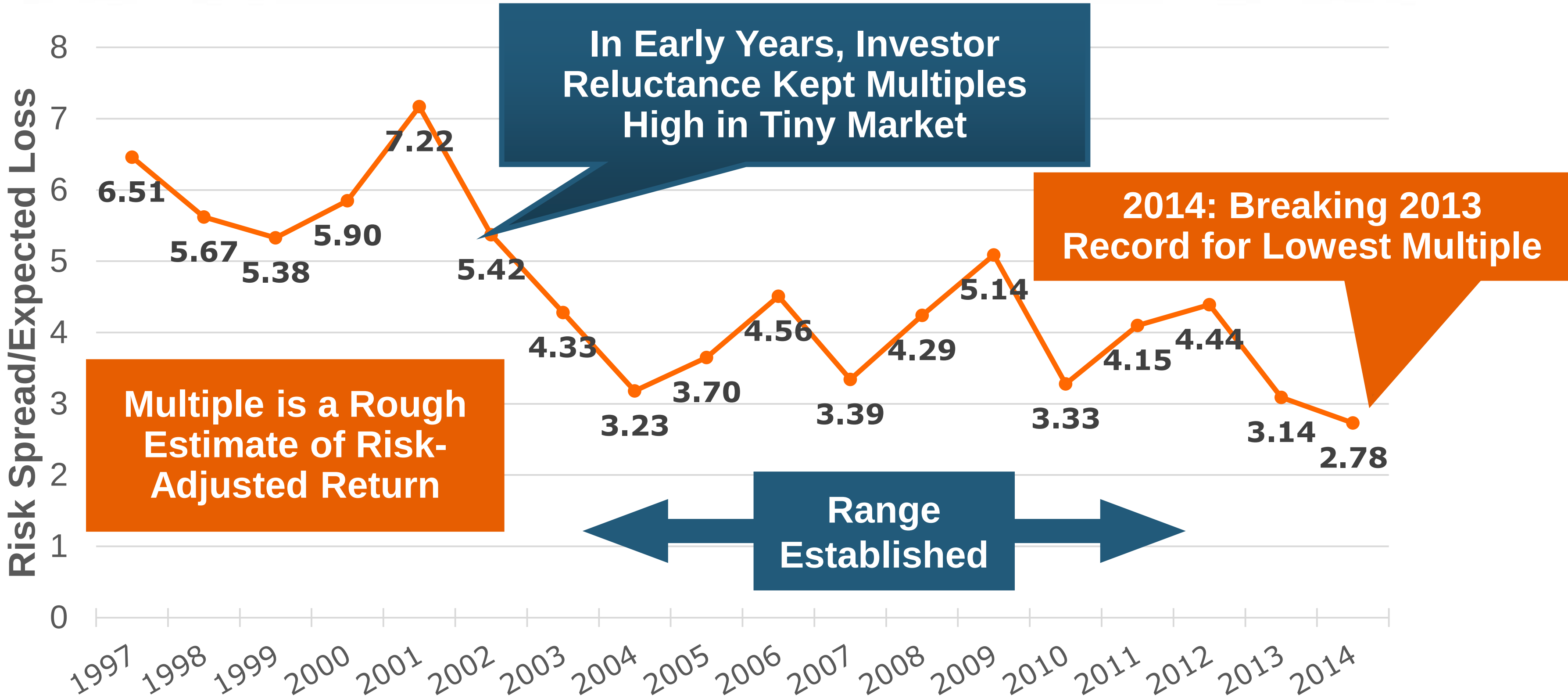


* Trailing 12-month average.
SOURCE: Willis Capital Markets, Insurance Information Institute.

Insurance-Linked Securities: Average Multiples, 1997 – 2014*



Cat Bond Terms Have Also Softened, With Indemnity Triggers (Favored by Insurers) Growing More Common.

*The ILS Multiple is computed as: (Bond Coupon – Risk Free Yield)/Expected Loss.
SOURCE: www.Artemis.bm Deal Directory, Insurance Information Institute.

ILS Issuance by Trigger

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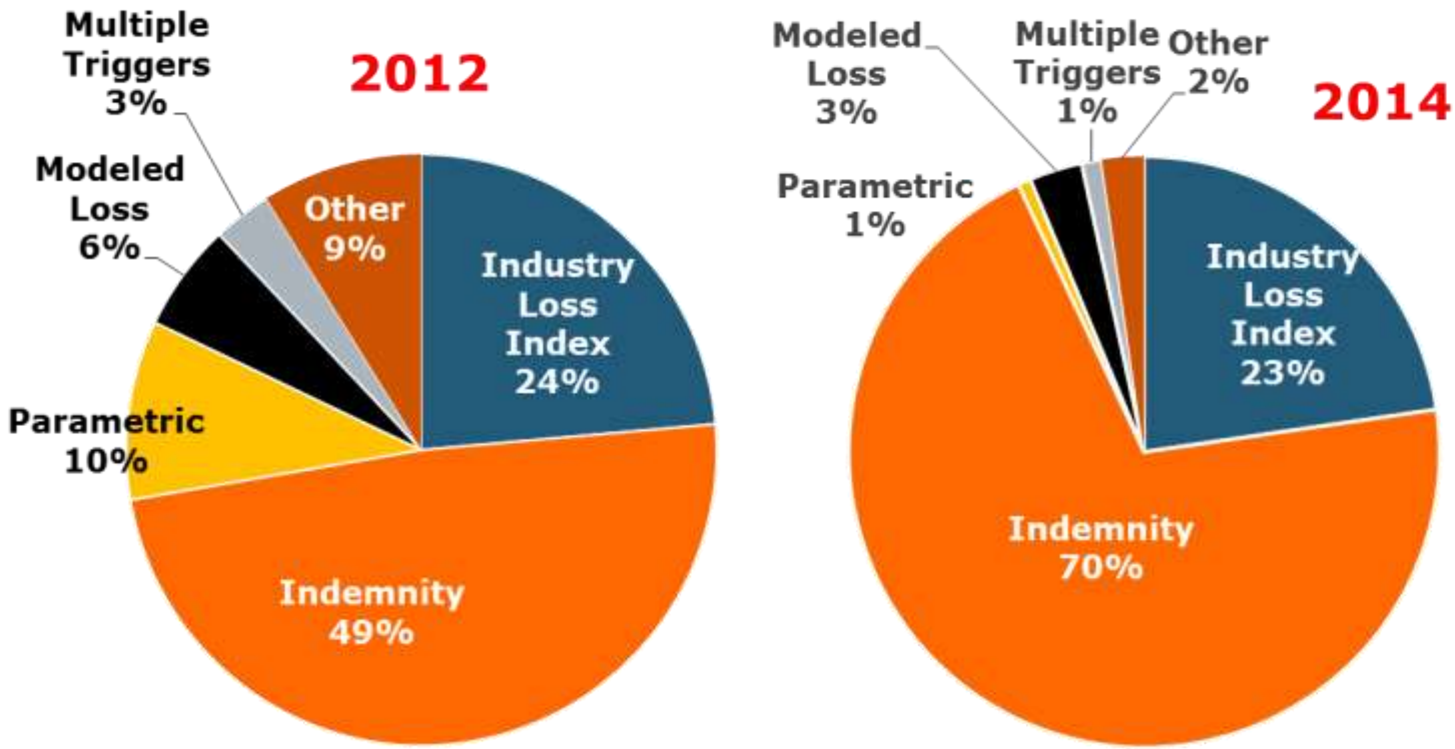

Terms Are Shifting Away From 'Objective' Triggers (Favored by Investors) Toward Indemnity Trigger (Favored by Insurers).

Source: Artemis.bm; Insurance Information Institute.

Catastrophe Bonds Outstanding, Q4 2014

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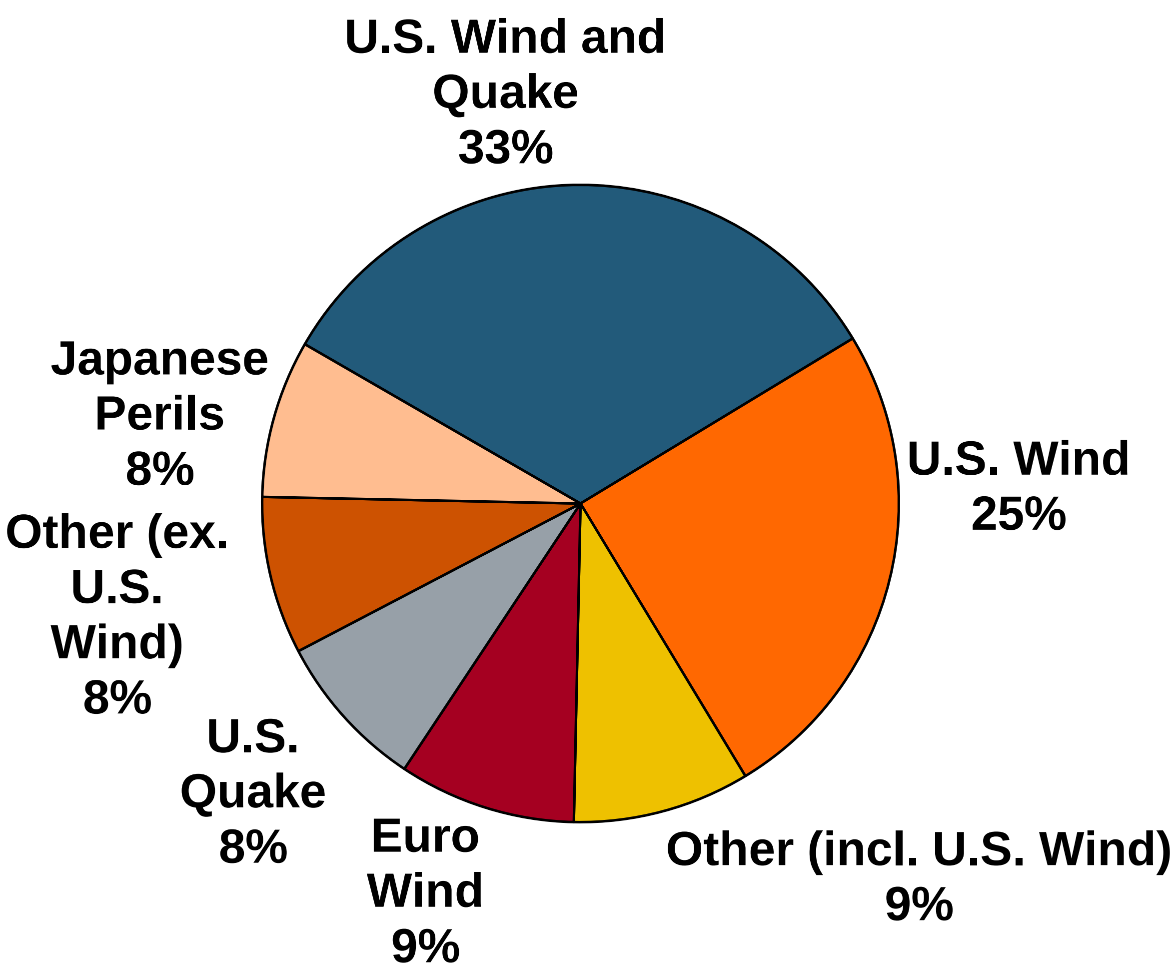
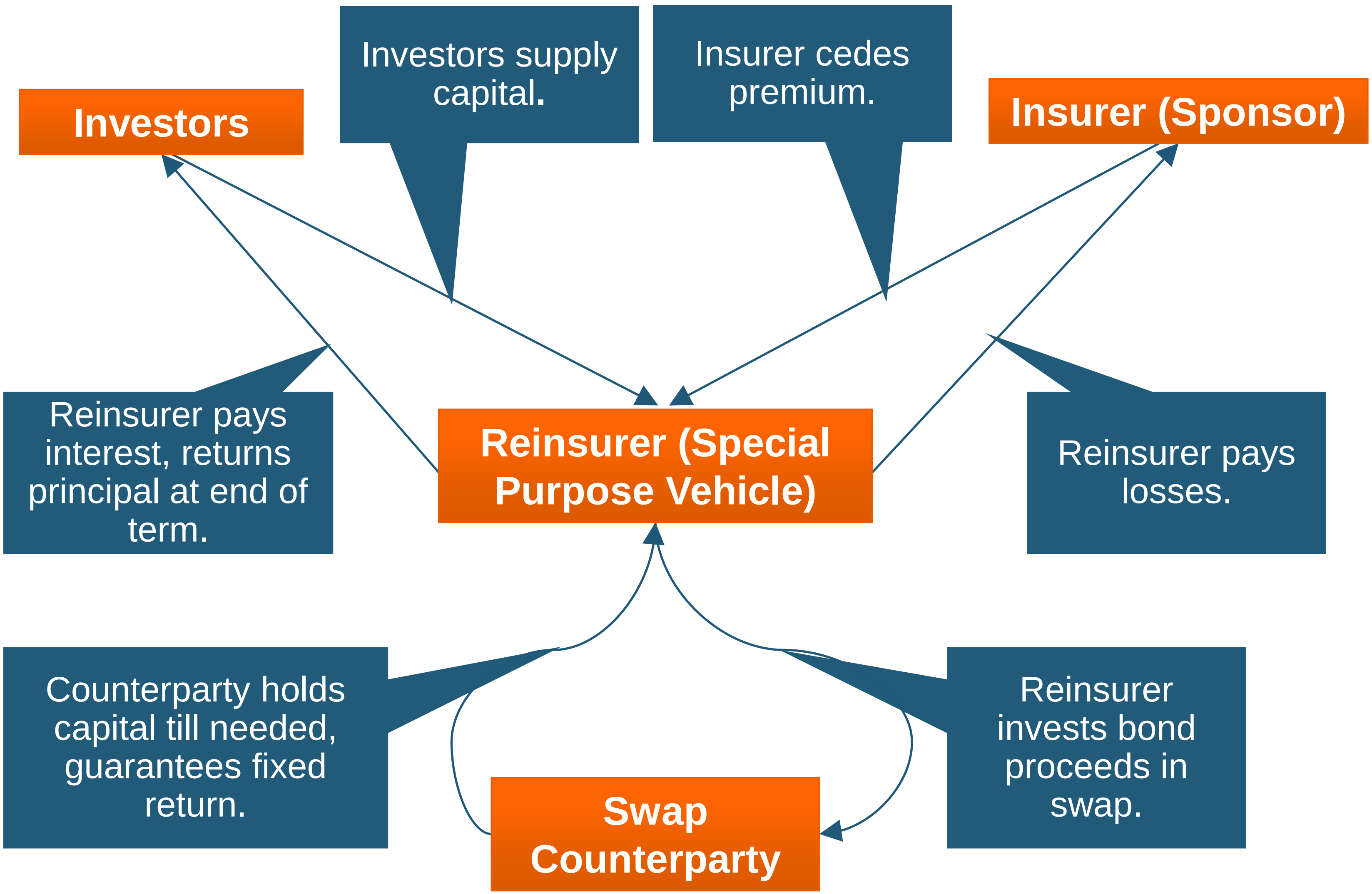
Catastrophe Bonds Are Heavily Concentrated in U.S. Hurricane Exposures. Two-thirds of Catastrophe Risks Outstanding Cover U.S. Wind Risks.

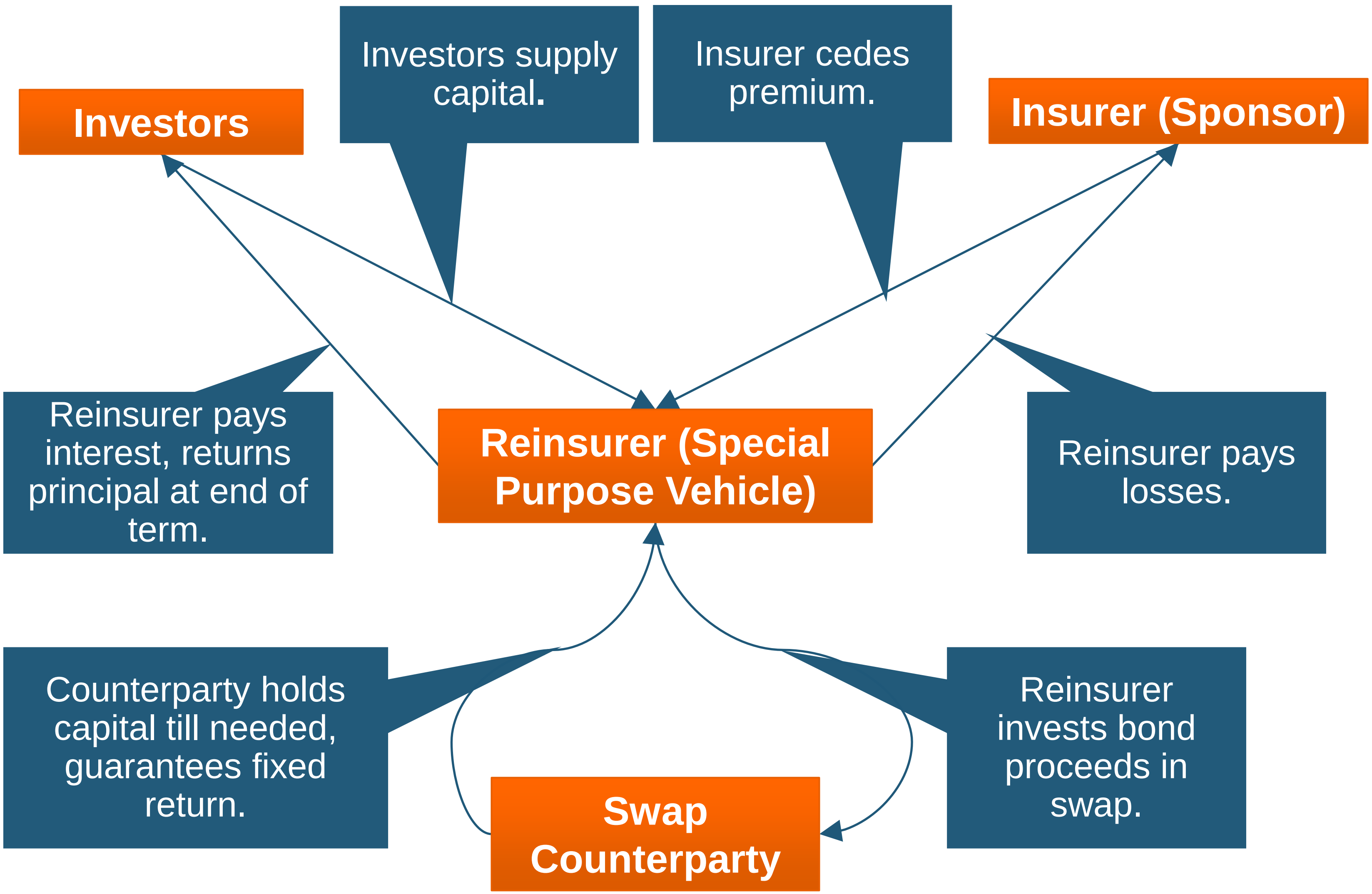


Source: Willis Capital Markets, Insurance Information Institute.

How a Catastrophe Bond Works



How a Catastrophe Bond Works



I.I.I. Will Release its First Report on Alternative Capital During Q1 2015

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ALTERNATIVE CAPITAL: PASSING FANCY OR PERMANENT FIXTURE?

Forthcoming: Q1 2015

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- **Issue of alternative capital in (re)insurance has received increased attention in recent years**
- **Significant structural changes in property catastrophe reinsurance space**
- **Questions addressed include:**
  - **Sources of new capital**
  - **Reasons/Drivers of growth**
  - **New structures**
  - **Impact of major triggering event(s)**
  - **Impacts of higher interest rates**
  - **Cat bond yield compression**

Questions Arising from Influence of Alternative Capital

- What Will Happen When Investors Face Large-Scale Losses?
- What Happens When Interest Rates Rise?
- Does ILS Have a Higher Propensity to Litigate?
- How Much Lower Will Risk Premiums Shrink/ROLs Fall?
- Will Investors Lose Interest as Risk Premia Shrink?
- Will There Be Spillover Into Casualty Reinsurance?
- Will Alternative Capital Drive Consolidation?
- Has the Reinsurance Industry Been Fundamentally and Irrevocably Transformed?

Three Possible Scenarios for Alternative Capital (per McKinsey)

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- **Peak At or Near Current Level:** Alternative capital could peak at its current level, as spreads fall too low to keep investor interest, or until a major catastrophe drives them off. Insurers would still seek alternative arrangements but would prefer the security traditional reinsurers offer. Reinsurers would continue to partner with alternative investors, but these deals would remain a minor piece of overall capital.
- **Doubling to 30% of Catastrophe Capital:** Alternative investors remain attracted to bonds where risk is uncorrelated with the overall economy and insurers continue to like spreading risk outside a few traditional reinsurers, particularly in structures in which losses are collateralized at the inception of the deal.
- **Grow Even Larger (>30%):** Dislocating the current markets, as investors grow comfortable enough with the arrangements that they begin to offer terms that more closely resemble the traditional reinsurance contract.

SOURCE: Insurance Information Institute from McKinsey & Company, *Could Third-Party Capital Transform the Reinsurance Markets*?, Sept. 2013.

Notable Catastrophe Bond Events

Bond	Sponsor	Event(s)	Loss to Investors
Kelvin Ltd.	Koch Energy	U.S. Winter 2000-01	$5 million
George Town Re	St. Paul Re	9/11, Hurricane Floyd, European wind	$1 million
KAMP Re	Zurich	Hurricane Katrina (2005)	$144 million
Avalon Re	Oil Casualty	Katrina, 2005 fuel depot explosion, NYC street collapse	$13 million
Ajax	Aspen Re	2008 Lehman bankruptcy	$72 million
Carillon	Munich Re	2008 Lehman bankruptcy	$31 million
Newton Re	Catlin	2008 Lehman bankruptcy	$4 million
Willow	Allstate	2008 Lehman bankruptcy	$10 million
Muteki Ltd.	Munich Re for Zenkyoren	2011 Tohuku earthquake	$300 million
Vega Capital	Swiss Re	2011 Tohuku earthquake	$16 million
Mariah Re	American Family	2011 tornadoes	$200 million*
Vega Capital	Swiss Re	Superstorm Sandy (2012)	$7 million
Successor X	Swiss Re	Superstorm Sandy (2012)	$15 million[2]

*In litigation.

Source: Munich Re.

Potential Pros and Cons of Alternative Capital (per McKinsey)

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- **PROs**
  - Collateralized deals (in theory) reduce the risk (albeit quite small) that the reinsurer will be unable to fulfill its obligations
  - Insurers can diversify risk across more markets, rather than being concentrated with just a few reinsurers, many of whom reinsure each other via retrocessional arrangements
  - Insurers can lock in strictures for several years, which is particularly attractive when yields (rates) are low
- **CONs**:
  - Capital may not be available over the long term. Investors can quickly exit if reinsurance (ILS) investments become less attractive than alternatives
  - Alternative agreements do not perfectly replicate traditional reinsurance treaties. Basis risk is one mismatch. Lack of reinstatement provisions in cat bonds is another.
  - Insurers also frequently benefit from reinsurers' knowledge of the marketplace. Alternative capital providers often lack this expertise.

SOURCE: Insurance Information Institute from McKinsey & Company, *Could Third-Party Capital Transform the Reinsurance Markets*?, Sept. 2013.

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