



# **Economic Perspectives on the Future of Reinsurance**

***Re Underwriting: Facing the Future –  
Emerging, Issues, Risks, and Opportunities***

**New York, NY**

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# The Growth of the Reinsurance Industry Depends on ...

- The Growth of the Global Exposure Base
  - ◆ GDP growth
  - ◆ Increased premium “penetration”
  - ◆ New lines of business (e.g., flood, cyber?)
  - ◆ Inflation => Claims, Rates
- The Experience and Capital Position of the Primary Insurance Industry
- The Experience and Capital Position of the Reinsurance Industry
  - ◆ The Extent and Attractiveness of Alternate Sources of Capital

# Reinsurance is a Global Business

## Global Economic Outlook: Regional and Major Economy Perspectives

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

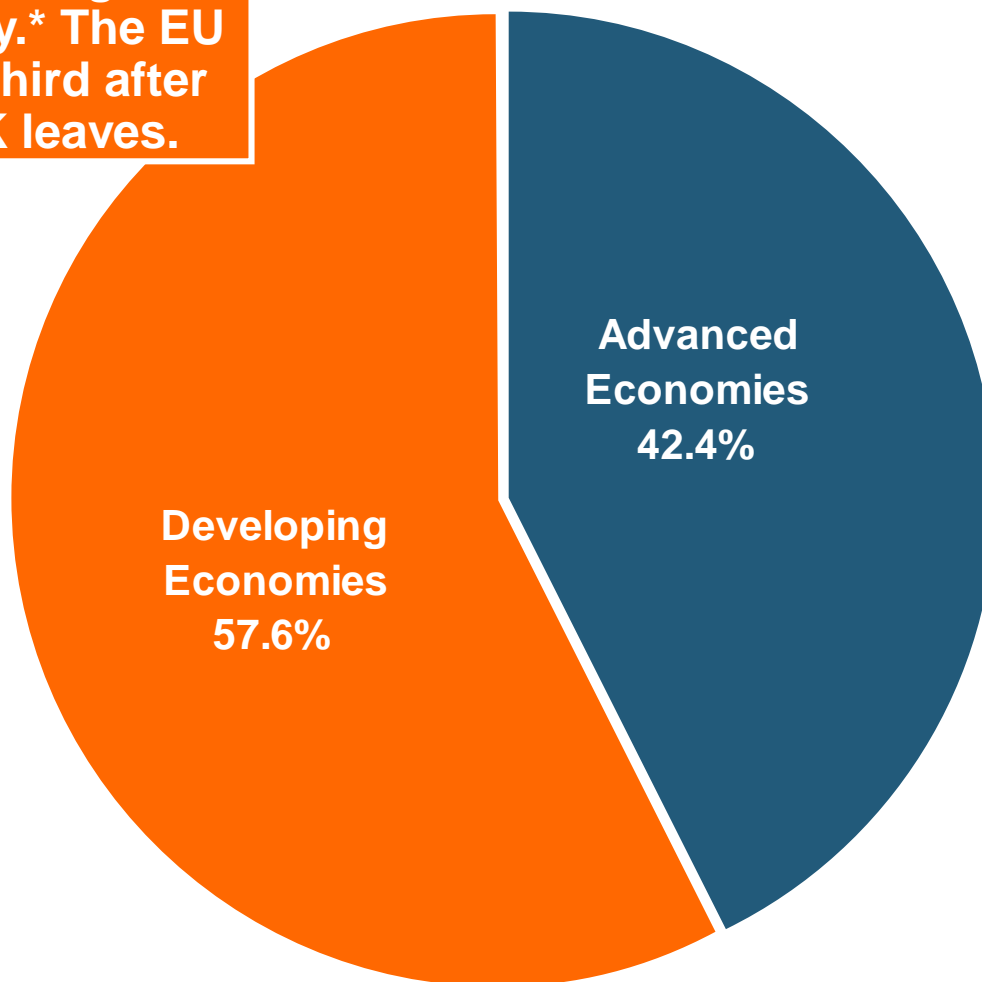
***Important Consequences for Insurer and  
Reinsurer Growth Opportunities***

# Shares of Global Output, Advanced vs. Developing Economies, 2015

China is the world's largest economy.\* The EU will be third after the UK leaves.

## Largest economies (% of world GDP)

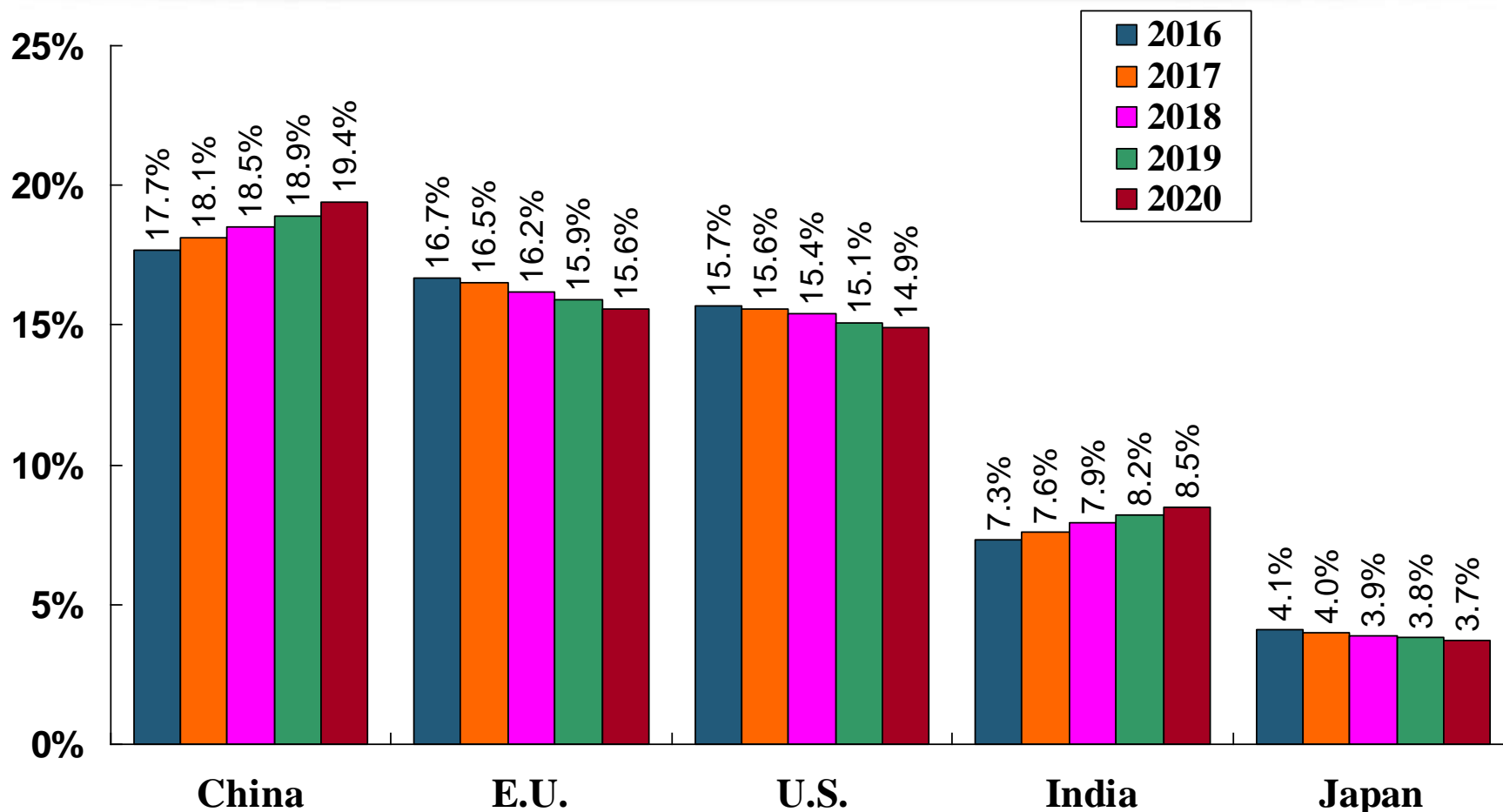
China	17.1%
Euro Union	16.9%
U.S.	15.8%
India	7.0%
Japan	4.3%
Germany	3.4%



\*Based on GDP adjusted for purchasing power parity

Sources: [http://www.economywatch.com/economic-statistics/economic-indicators/GDP\\_Share\\_of\\_World\\_Total\\_PPP](http://www.economywatch.com/economic-statistics/economic-indicators/GDP_Share_of_World_Total_PPP) (citing the International Monetary Fund, as updated 30 June 2016); Ins. Info. Institute

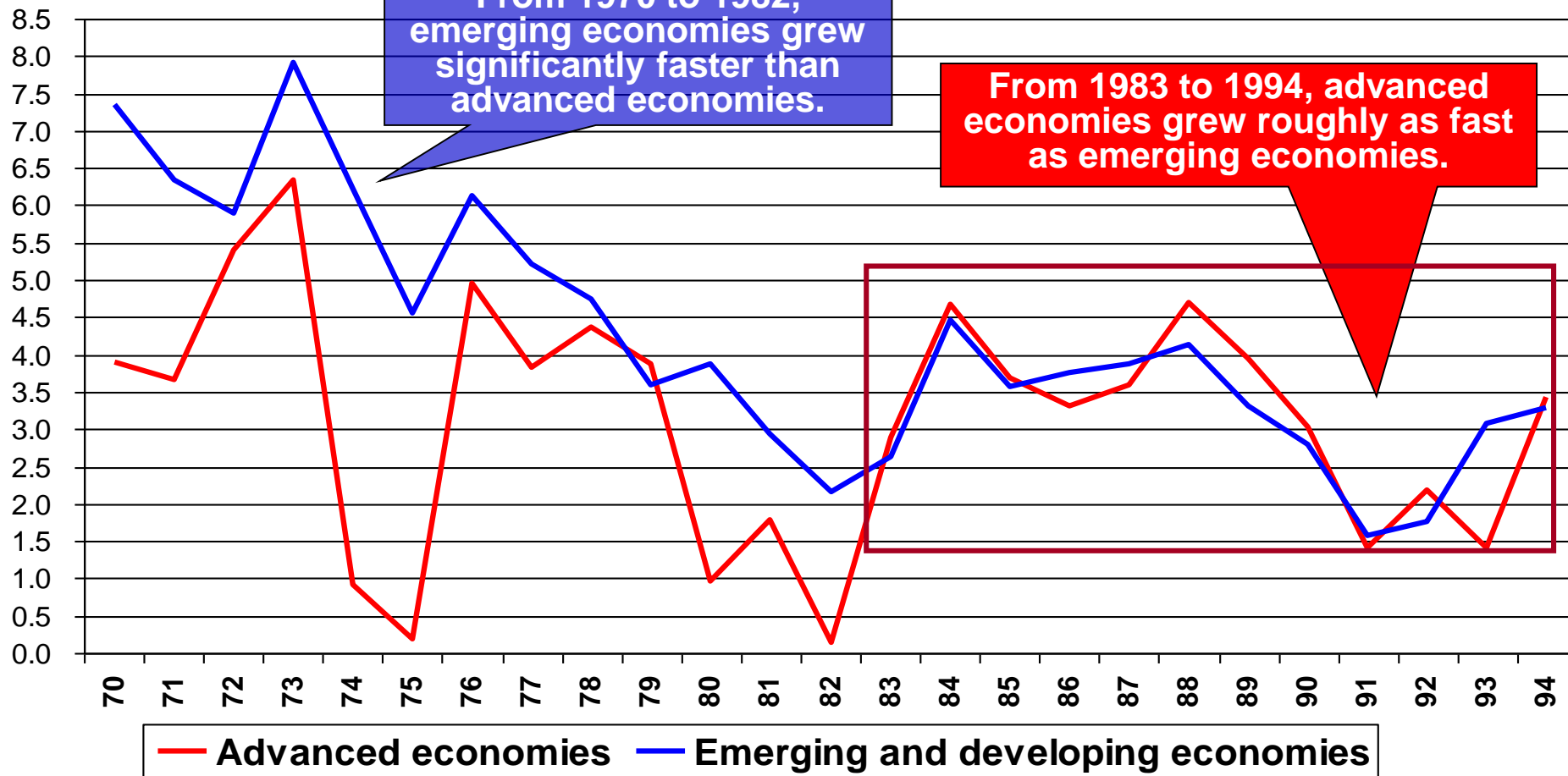
# Forecast Shares of Global Output, 5 Largest Economies, 2016-2020



**China and India are forecast to produce larger shares of global output, while the European Union (including the U.K.), the U.S., and Japan—though growing—will produce smaller shares of global output**

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

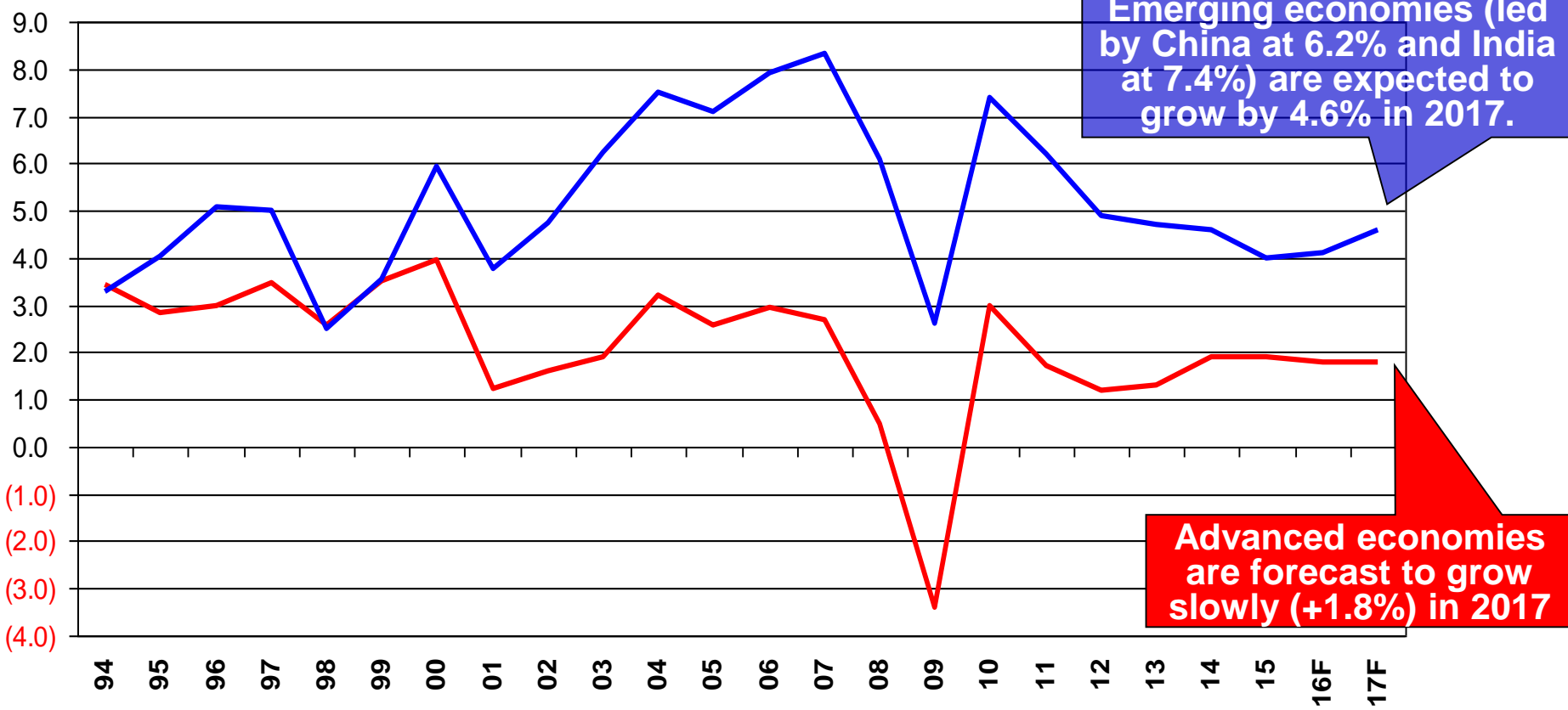
GDP Growth (%)



# Recent & Forecast GDP Growth: Advanced vs. Emerging Economies, 1994-2017F

GDP Growth (%)

— Advanced economies — Emerging and developing economies

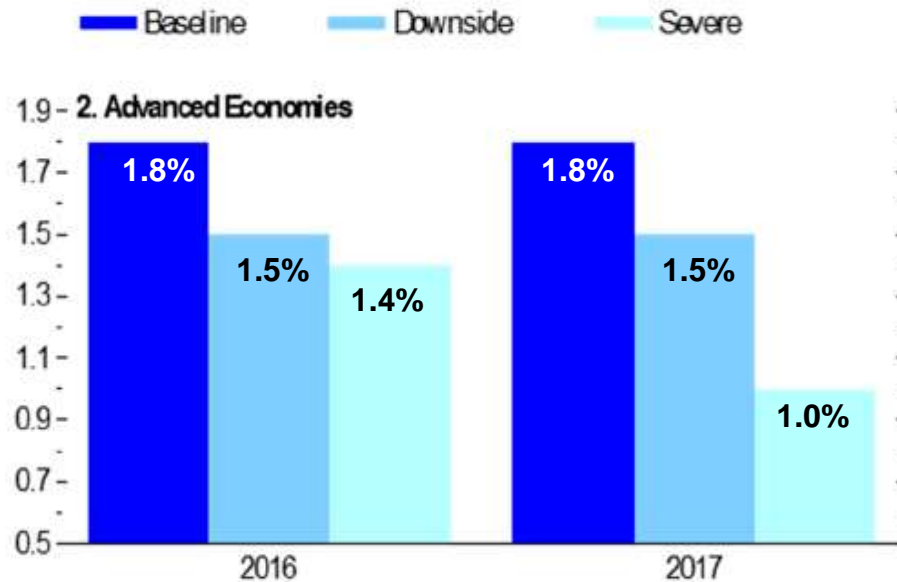


Emerging economies (led by China at 6.2% and India at 7.4%) are expected to grow by 4.6% in 2017.

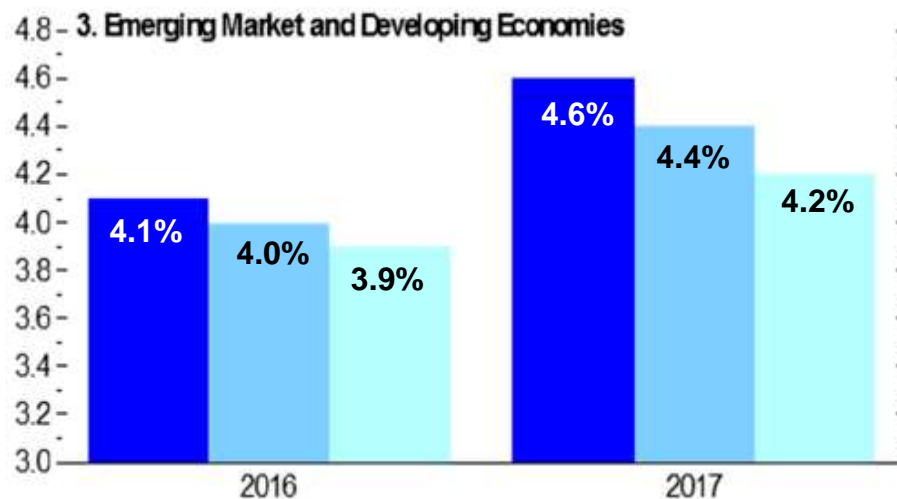
Advanced economies are forecast to grow slowly (+1.8%) in 2017

Sources: International Monetary Fund, *World Economic Outlook Update*, July 2016 and July 2014, Table 1; Ins. Info. Institute.

# But on the heels of the Brexit vote, the Uncertainty About Growth is High



Whether the negative effect of Brexit is moderate or severe, the advanced economies are expected to be affected to a greater extent than the emerging/developing economies



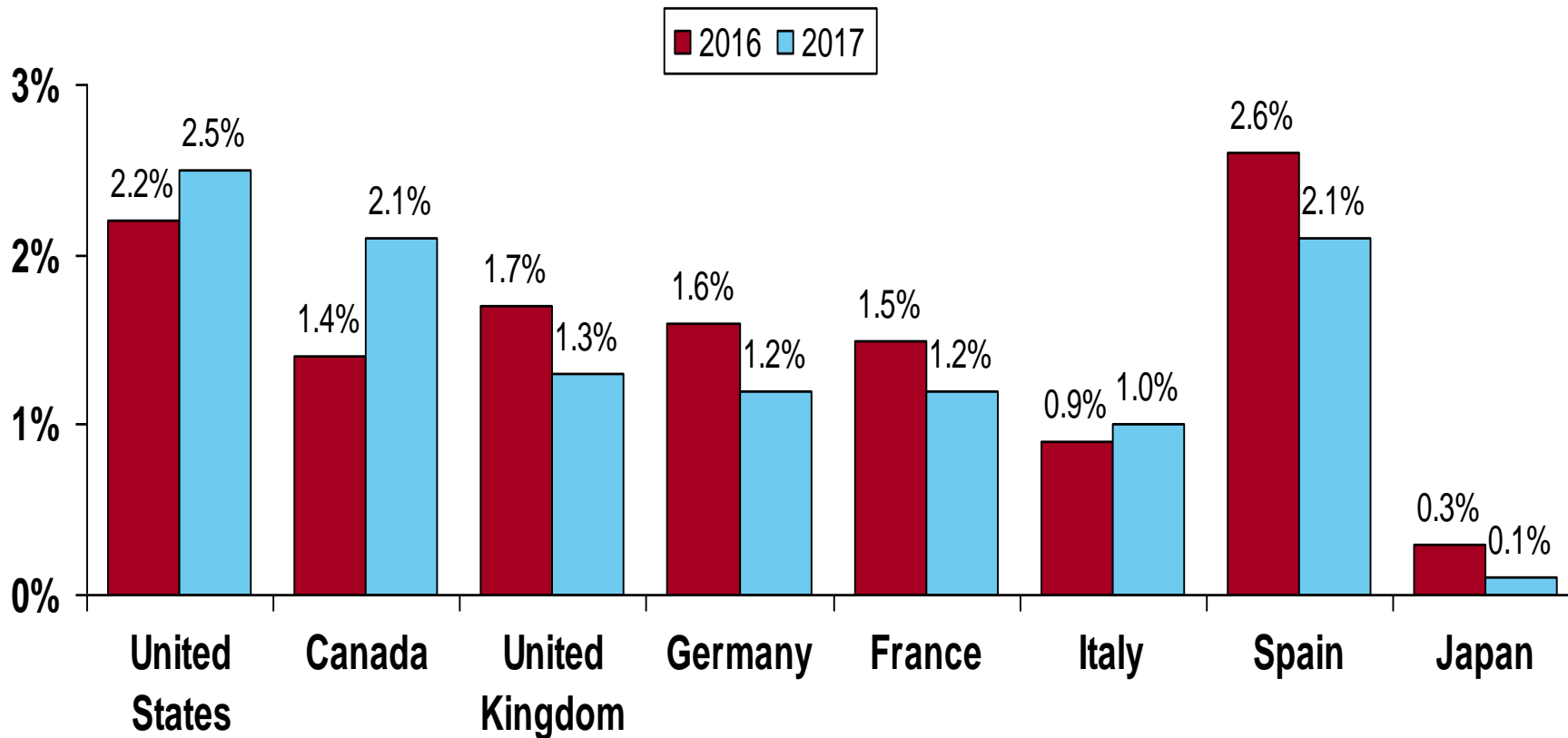
The IMF said in mid-July that both scenarios are now less likely since the markets have settled down since the vote

Source: IMF staff estimates.

Note: The baseline forecasts are constructed by aggregating individual countries' forecasts produced by area departments. The downside scenarios are simulated using a suite of models, including the IMF's Global Projection Model and Flexible System of Global Models.

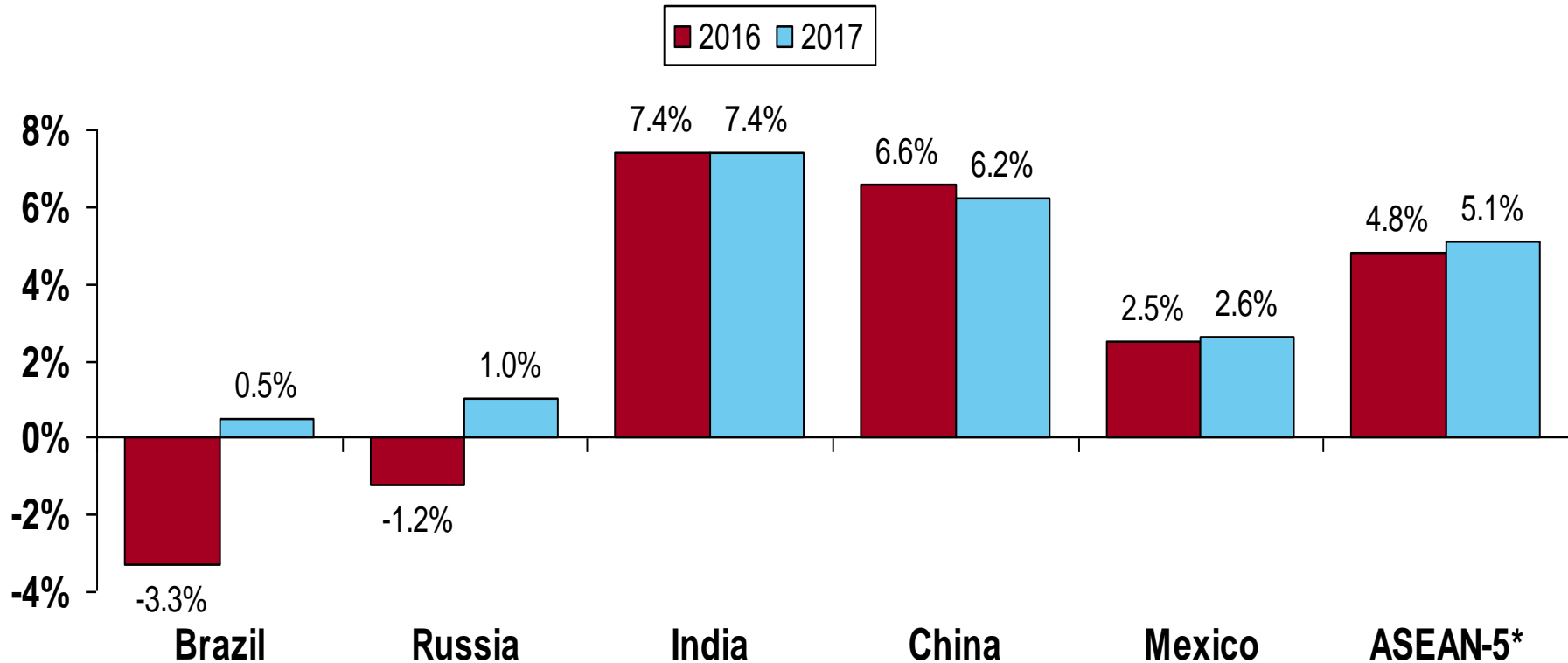


# Forecasts of 2016-17 GDP Growth of Selected Advanced Economies



**The July 2016 IMF report forecasts growth in advanced economies in 2016-17 generally under 2% in Europe, around 2% in North America. Except for North America, slight deterioration generally forecast for 2017.**

# Forecasts of 2016-17 GDP Growth of Selected Developing Economies



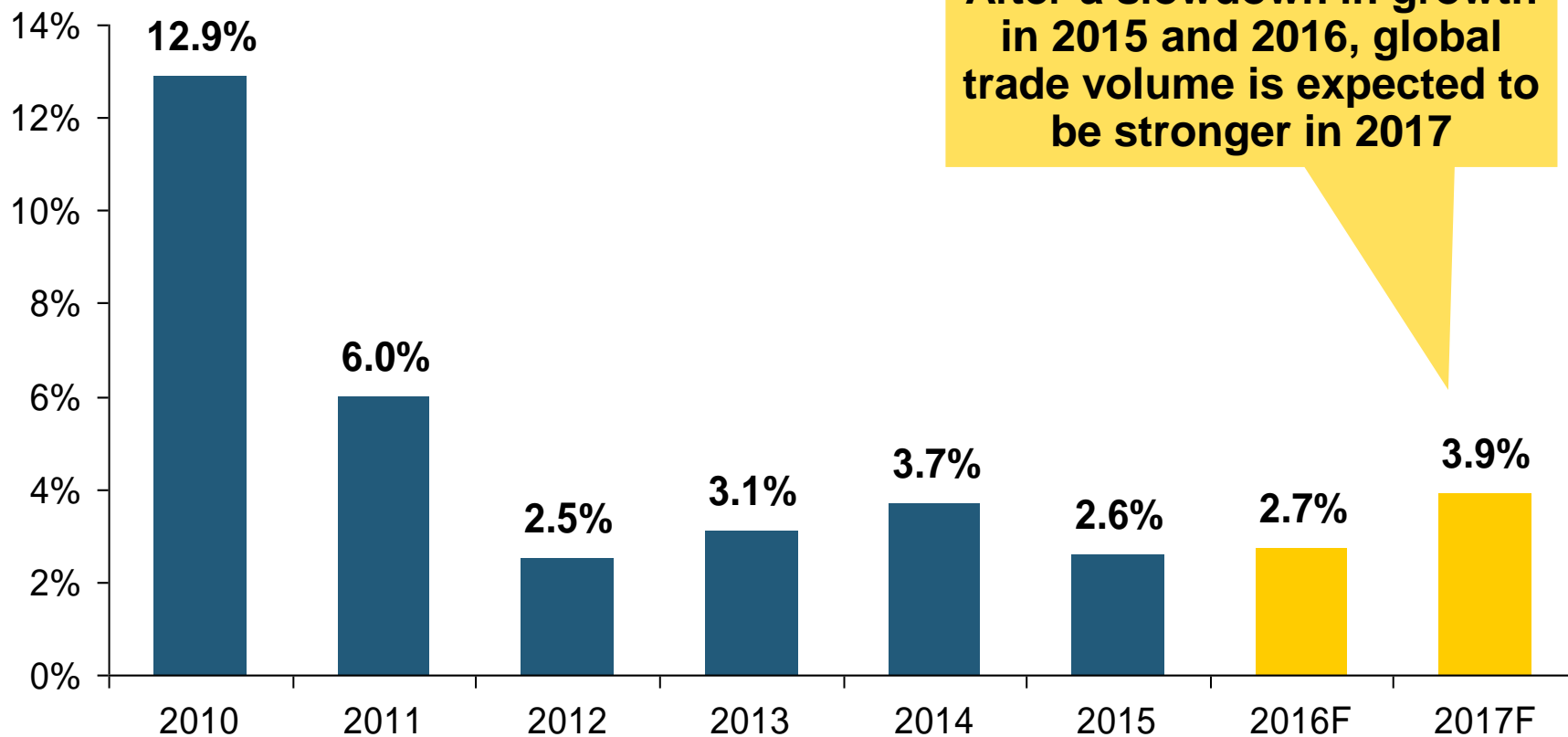
**IMF forecasts that 2016-17 growth in emerging/developing economies will continue to outpace advanced economies' growth. Brazil and Russia will recover from their slump, posting weak but positive growth.**

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

Sources: International Monetary Fund, *World Economic Outlook Update*, July 2016, Table 1; Ins. Info. Institute.

# World Trade Volume: 2010—2017F

Percentage  
Change



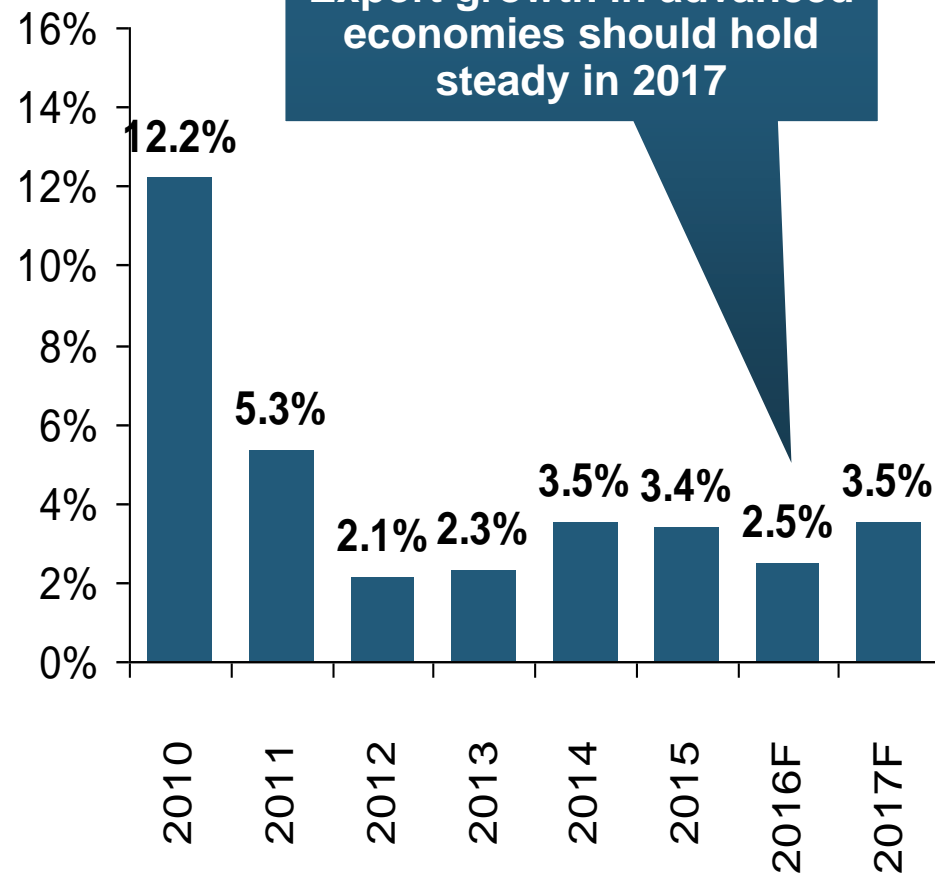
**The spurt of trade growth in 2010 was a rebound from the global recession. Growth in world trade volume (Imports + Exports) has slowed but the volume is still rising.**

# World Trade Volume: EXPORTS 2010 – 2017F

## Advanced Economies

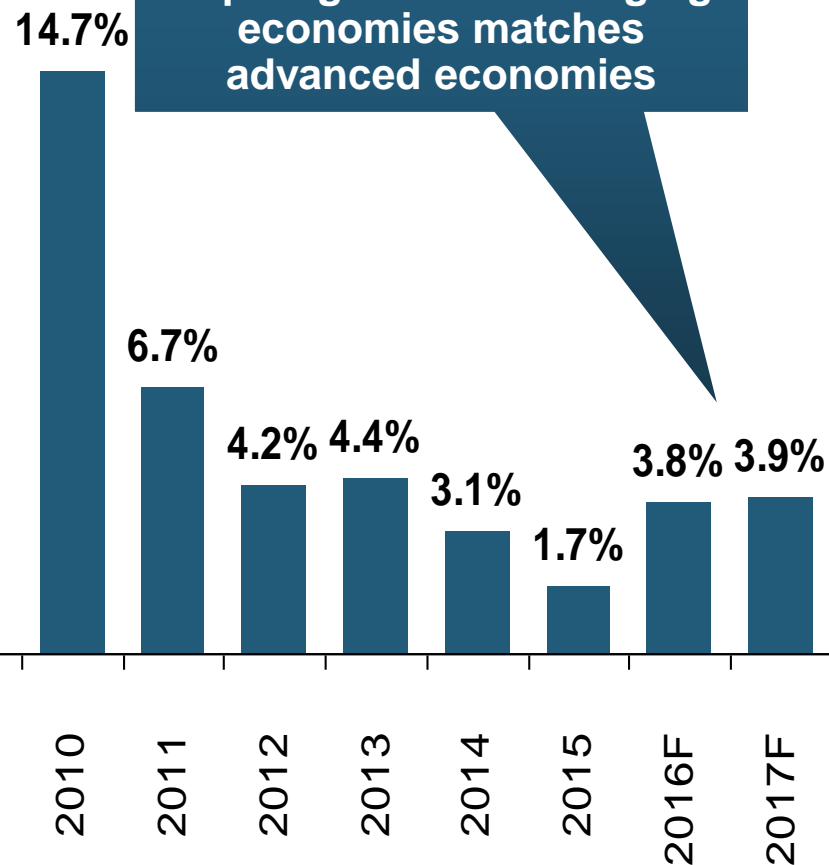
Export growth in advanced economies should hold steady in 2017

Growth (%)



## Emerging Economies

Export growth in emerging economies matches advanced economies

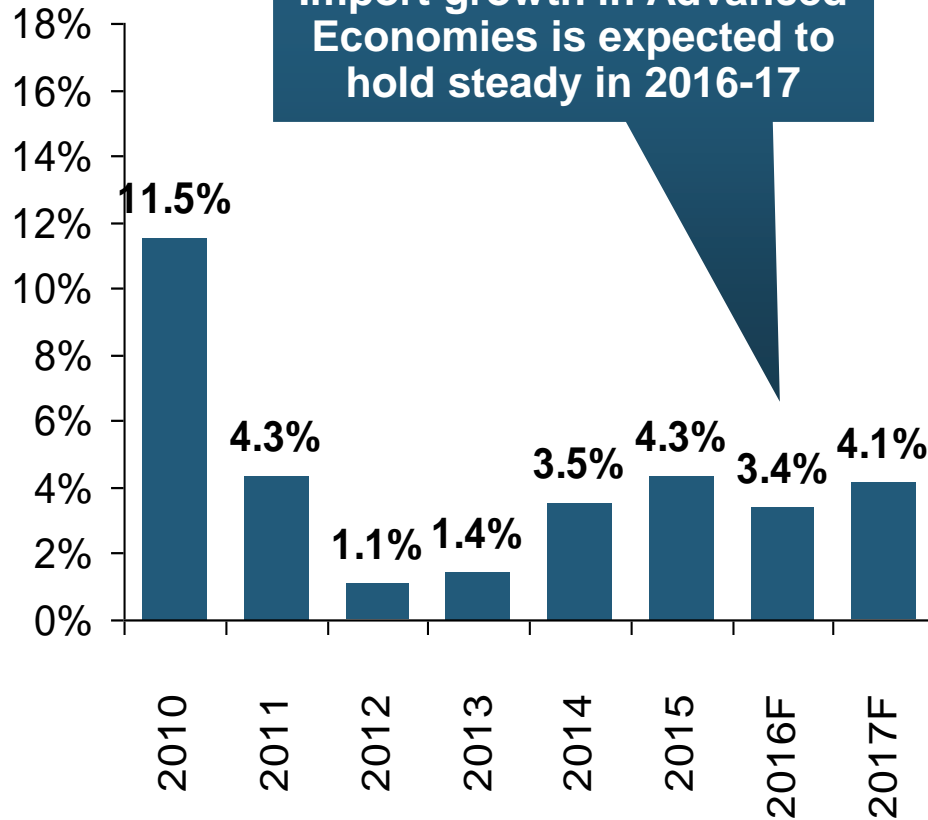


# World Trade Volume: IMPORTS 2010 – 2017F

Growth (%)

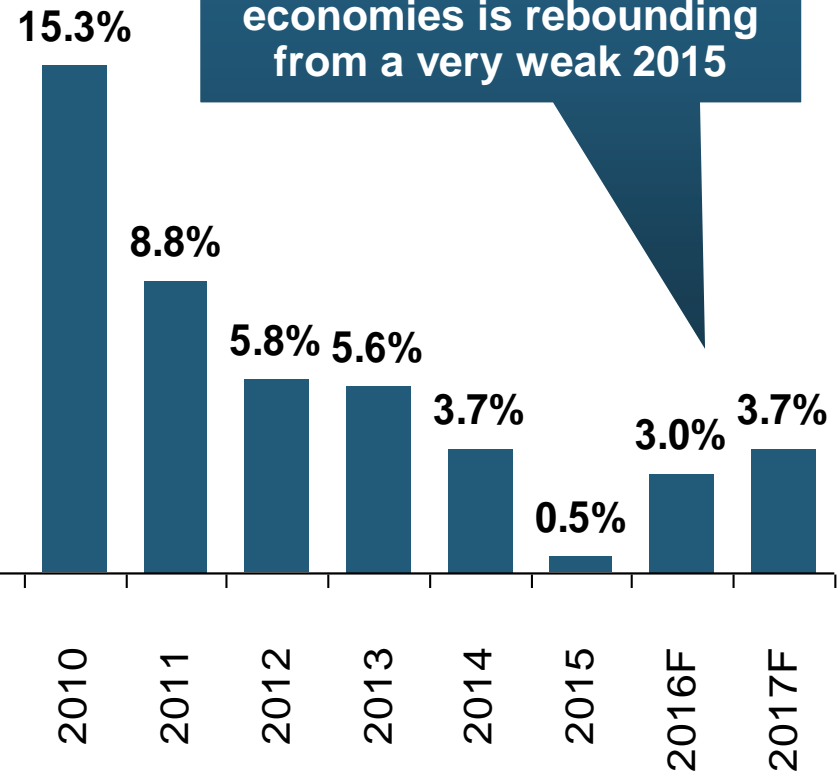
## Advanced Economies

Import growth in Advanced Economies is expected to hold steady in 2016-17



## Emerging Economies

Import growth in emerging economies is rebounding from a very weak 2015



# Global P/C Insurance Snapshot

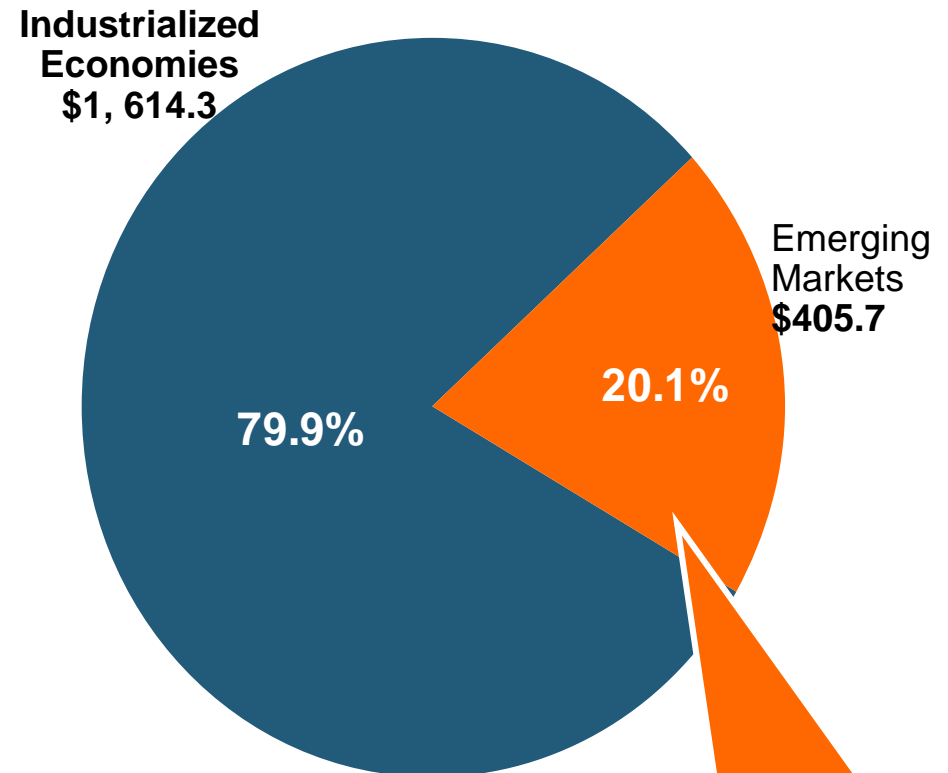
**Developing Economies  
are Severely Under-insured;  
Will Faster GDP Growth Translate into  
Significant Premium Growth?**

# Nonlife Premium: Advanced vs. Emerging Economies, 2015

## Premium Growth Facts

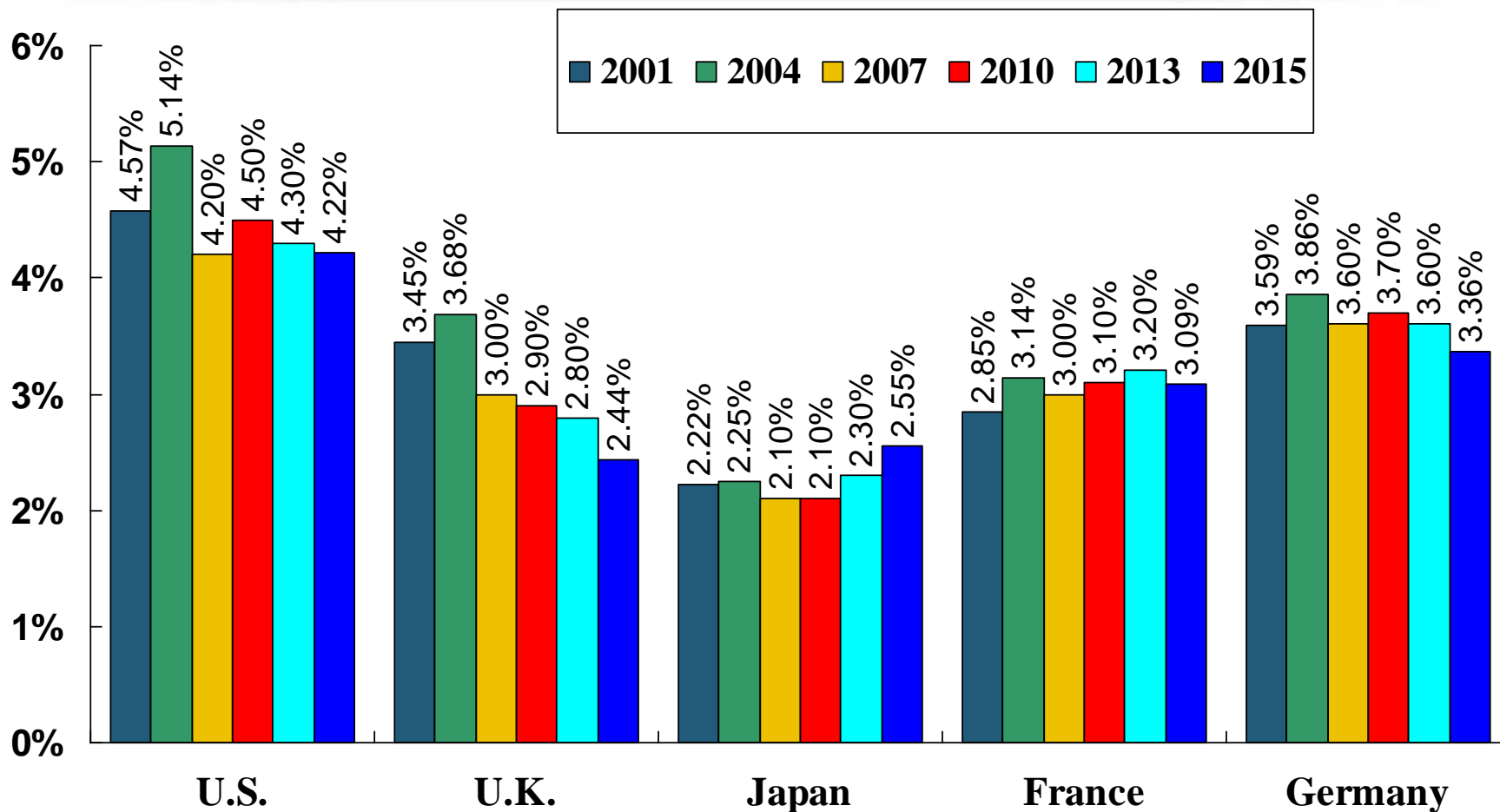
- Nonlife premiums in the emerging economies grew 7.8% in 2015, after inflation adjustment.
- In the advanced economies, nonlife premiums grew by 2.6% in 2015.

## 2015, US\$ Billions



Developing economies now produce over half of global GDP but just 20% of nonlife premiums

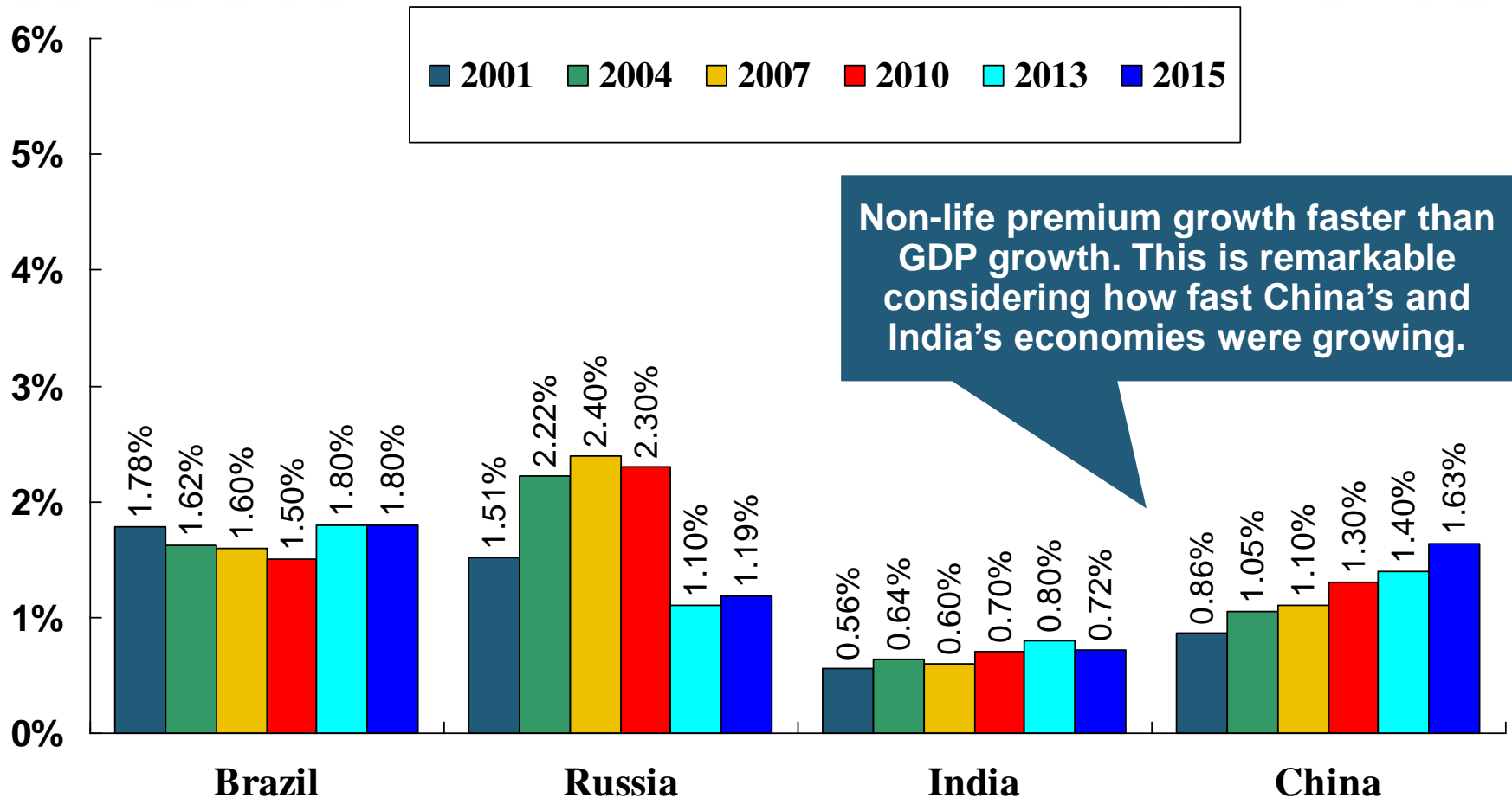
# Non-life Premium/GDP\* (Penetration) for Advanced Economies, 2001-2015



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).



# Non-life Premium/GDP\* (Penetration) for the BRIC Economies, 2001-2015



Non-life premium growth faster than GDP growth. This is remarkable considering how fast China's and India's economies were growing.

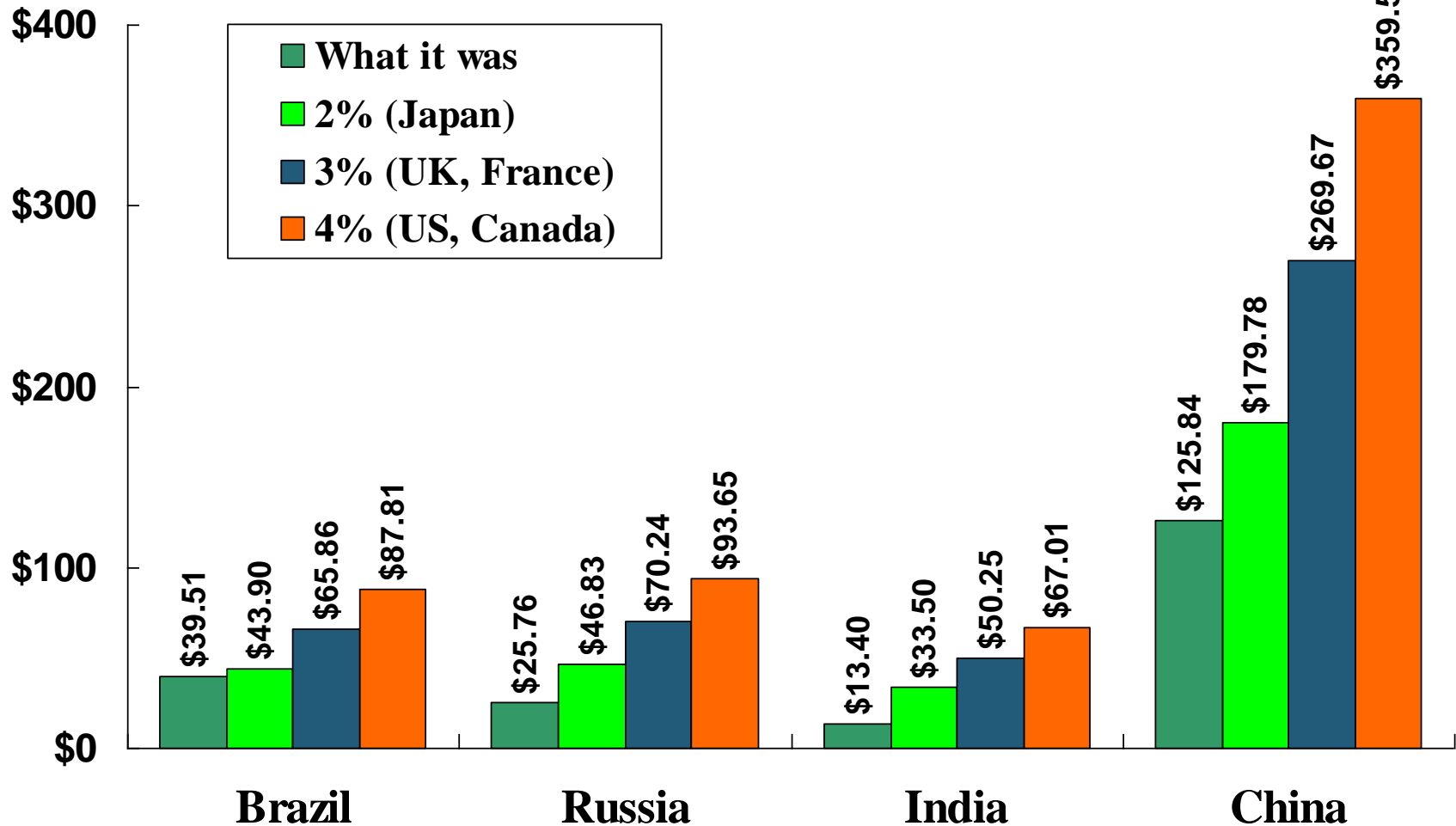
Although the Penetration ratio in Brazil was essentially flat, that means premium growth basically kept pace with exposure growth. In Russia, the economy has struggled, and non-life premium growth struggled even more.

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

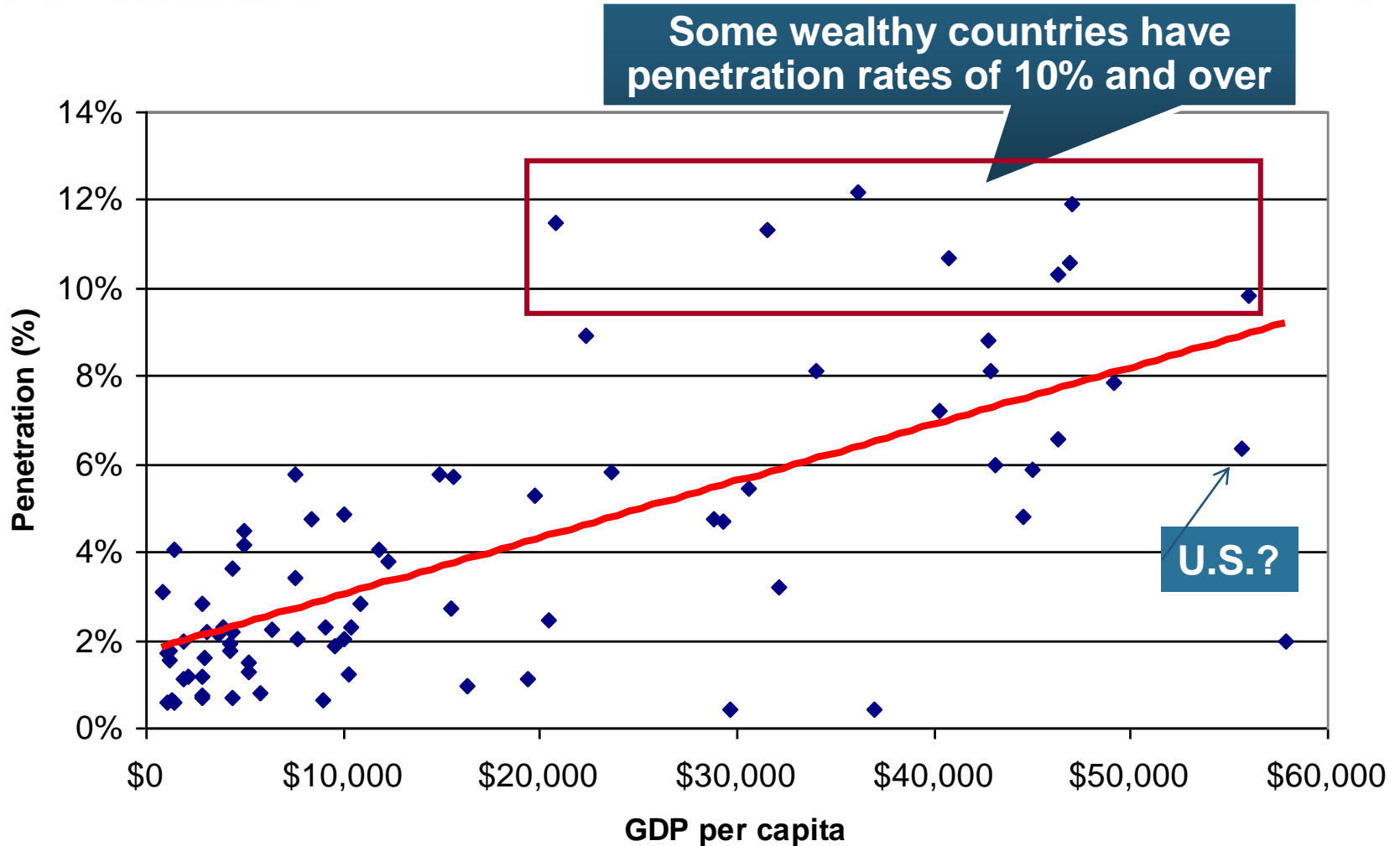
Source: Swiss Re *Sigma*, various volumes

# 2013 Non-life Premium if Penetration in BRIC Economies Equaled Advanced Economies

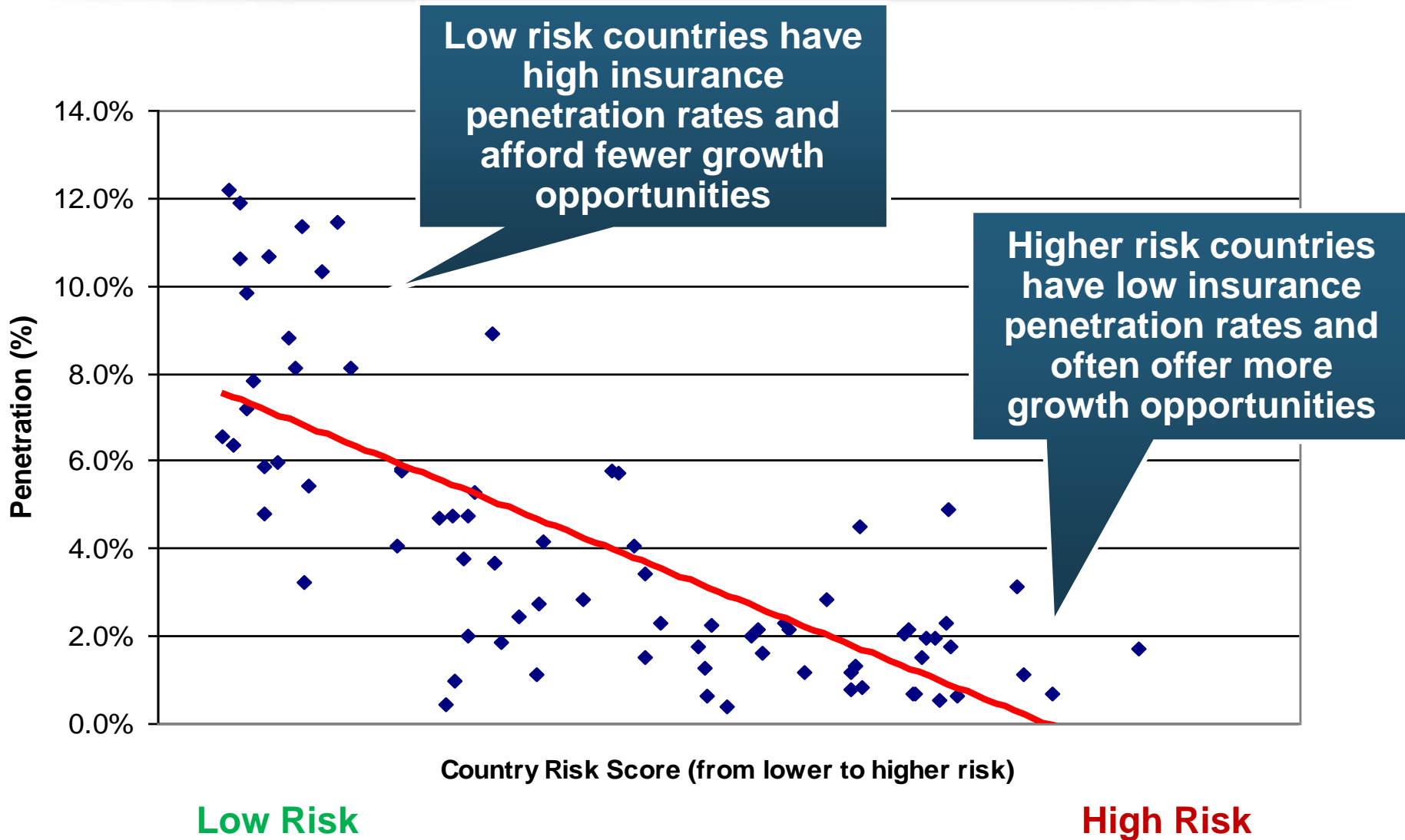
\$US, billions



# As Economies Grow Wealthier, Insurance Market Penetration Grows Also



# Greater Insurance Market Penetration Possibilities in Higher-Risk Countries





# Catastrophe Update

# Swiss Re: Definition of a Catastrophe

An event is classified as a catastrophe and included in the *sigma* database when insured claims, total losses or the number of casualties exceed certain thresholds, detailed in Table 1.

## Insured losses (claims)

Maritime disasters	19.7 million
Aviation	39.3 million
Other losses	48.8 million

or Total economic losses 97.7 million

## or Casualties

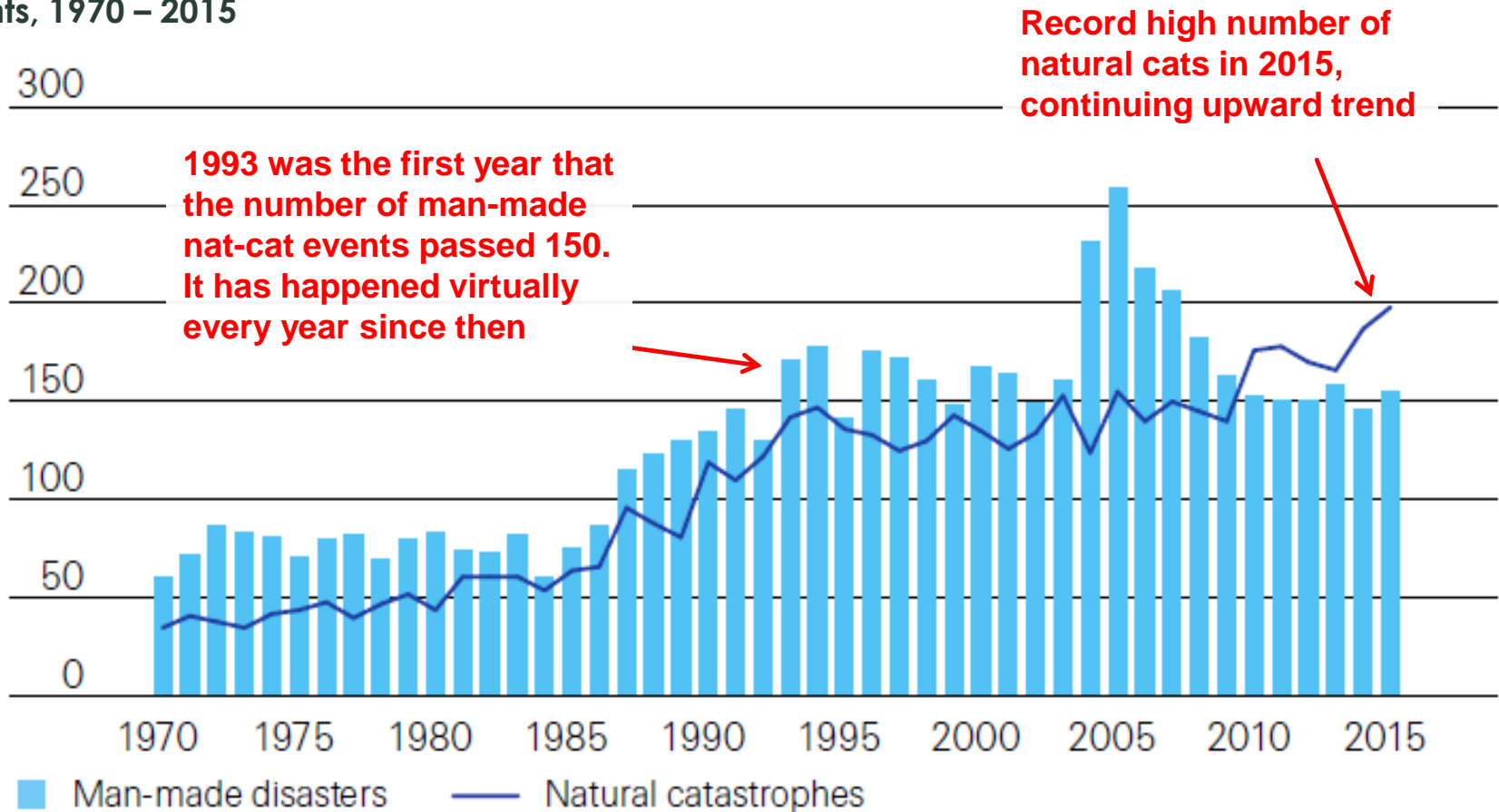
Dead or missing	20
Injured	50
Homeless	2000

Source: Swiss Re Economic Research & Consulting and Cat Perils.

Source: Swiss Re Sigma No. 1/2016 «Natural catastrophes and man-made disasters in 2015: Asia suffers substantial losses».

# The number of natural catastrophe events continues to trend up

Number of catastrophe events, 1970 – 2015



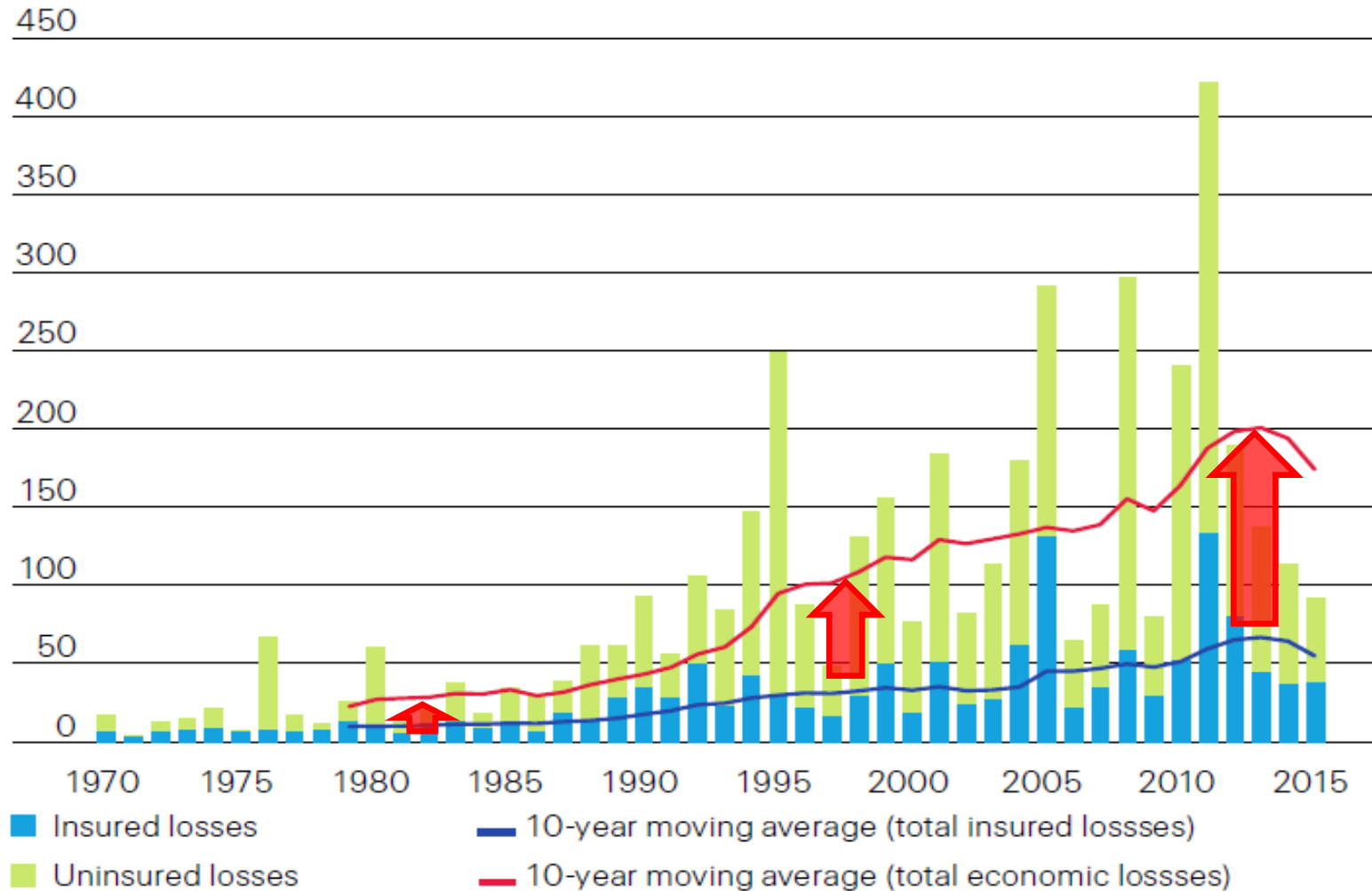
# Swiss Re: Man-Made Catastrophes in 2015

Catastrophe	# of Deaths
Boat sinking off Libyan coast	800
Stampede at pilgrimage in Saudi Arabia	769
Germanwings airplane crash	150
Egyptair airplane crash	224
Other aviation disasters	311
Major fires, explosions, other	1,123
Total	7,000

Source: Swiss Re Sigma No. 1/2016 «Natural catastrophes and man-made disasters in 2015: Asia suffers substantial losses».



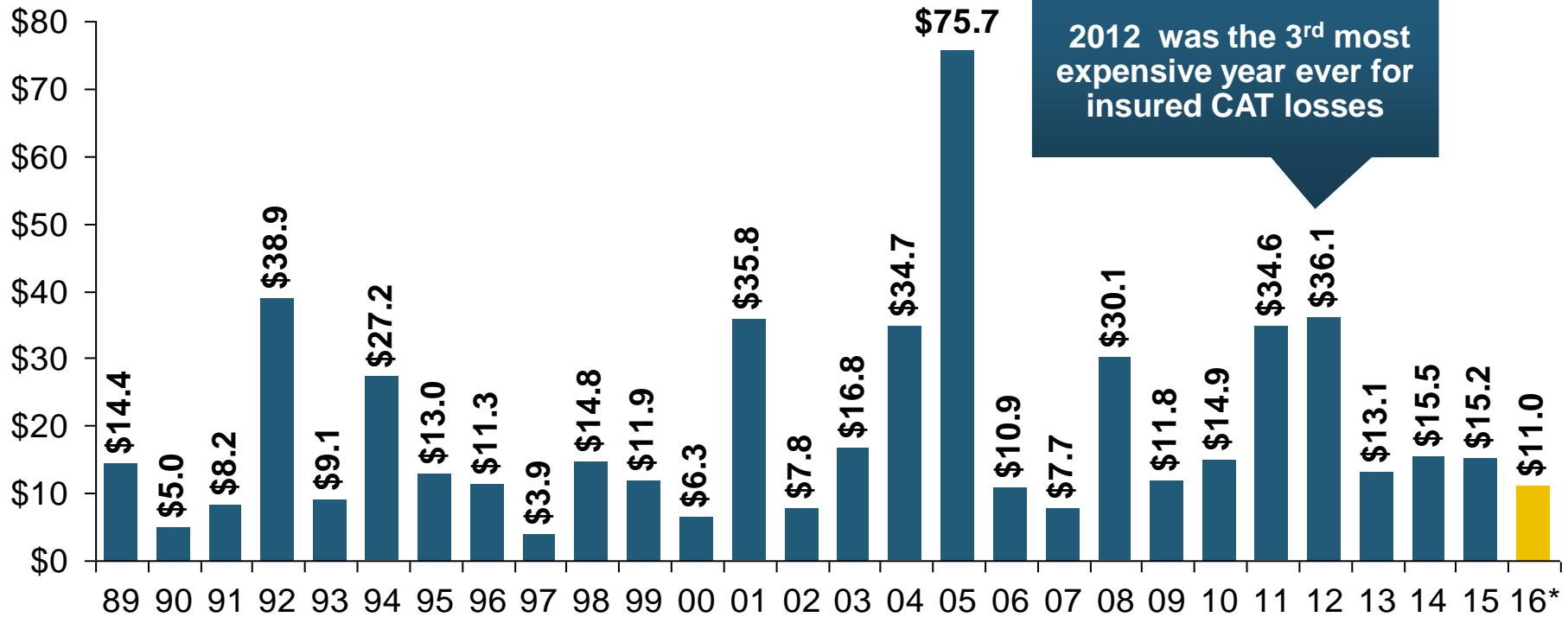
# Total losses outpaced insured losses



Source: Swiss Re Sigma No. 1/2016 «Natural catastrophes and man-made disasters in 2015: Asia suffers substantial losses».

# U.S. Insured Catastrophe Losses

(\$ Billions, \$ 2015)



2012 was the 3<sup>rd</sup> most expensive year ever for insured CAT losses

**2013/14/15 Were Welcome Respite from 2011/12, among the Costliest Years for Insured Disaster Losses in US History. 2016 Is Off to a Costlier Start.**

**\$11.0B in insured CAT losses though 6/30/16**

\*Through 6/30/16. 2016 figure stated in 2016 dollars.

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.

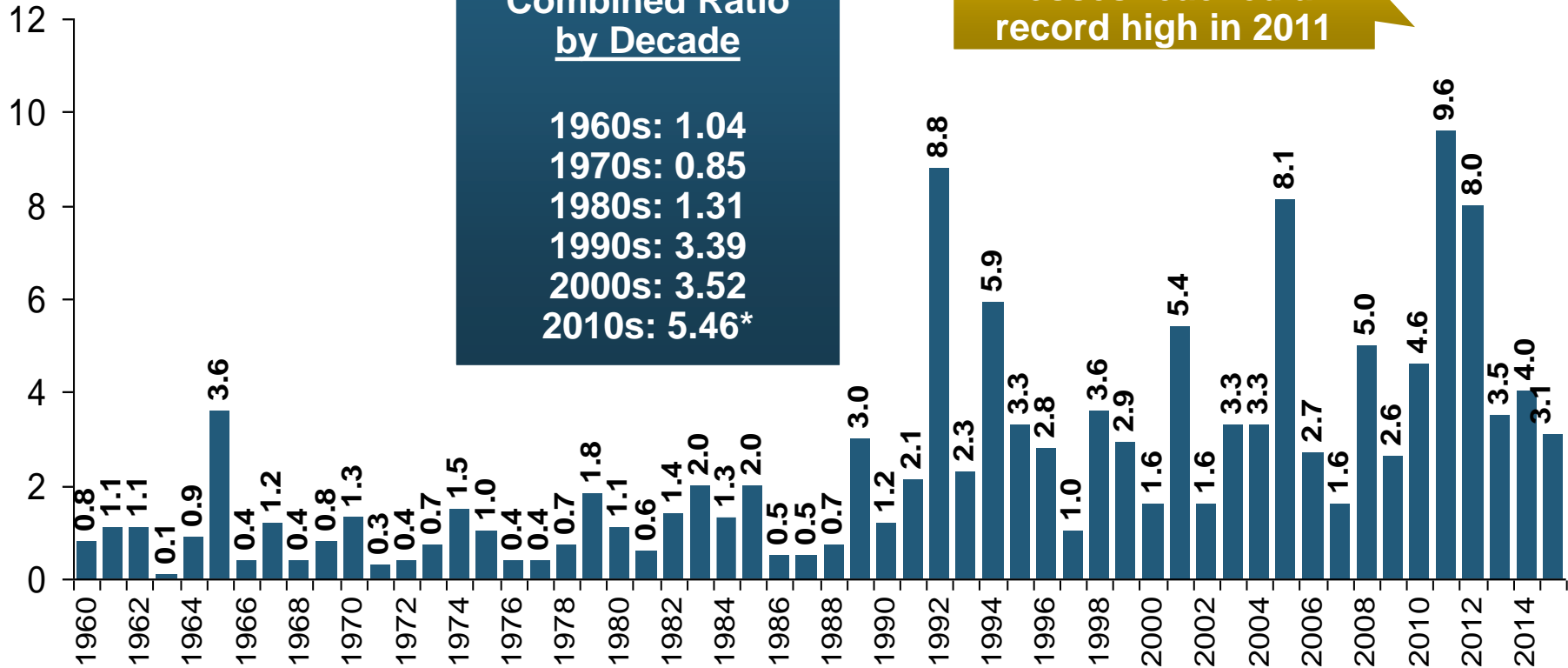
# Combined Ratio Points Associated with Catastrophe Losses: 1960 – 2015E\*

## Combined Ratio Points

**Avg. CAT Loss Component of the Combined Ratio by Decade**

1960s: 1.04  
 1970s: 0.85  
 1980s: 1.31  
 1990s: 3.39  
 2000s: 3.52  
 2010s: 5.46\*

Catastrophe losses as a share of all losses reached a record high in 2011



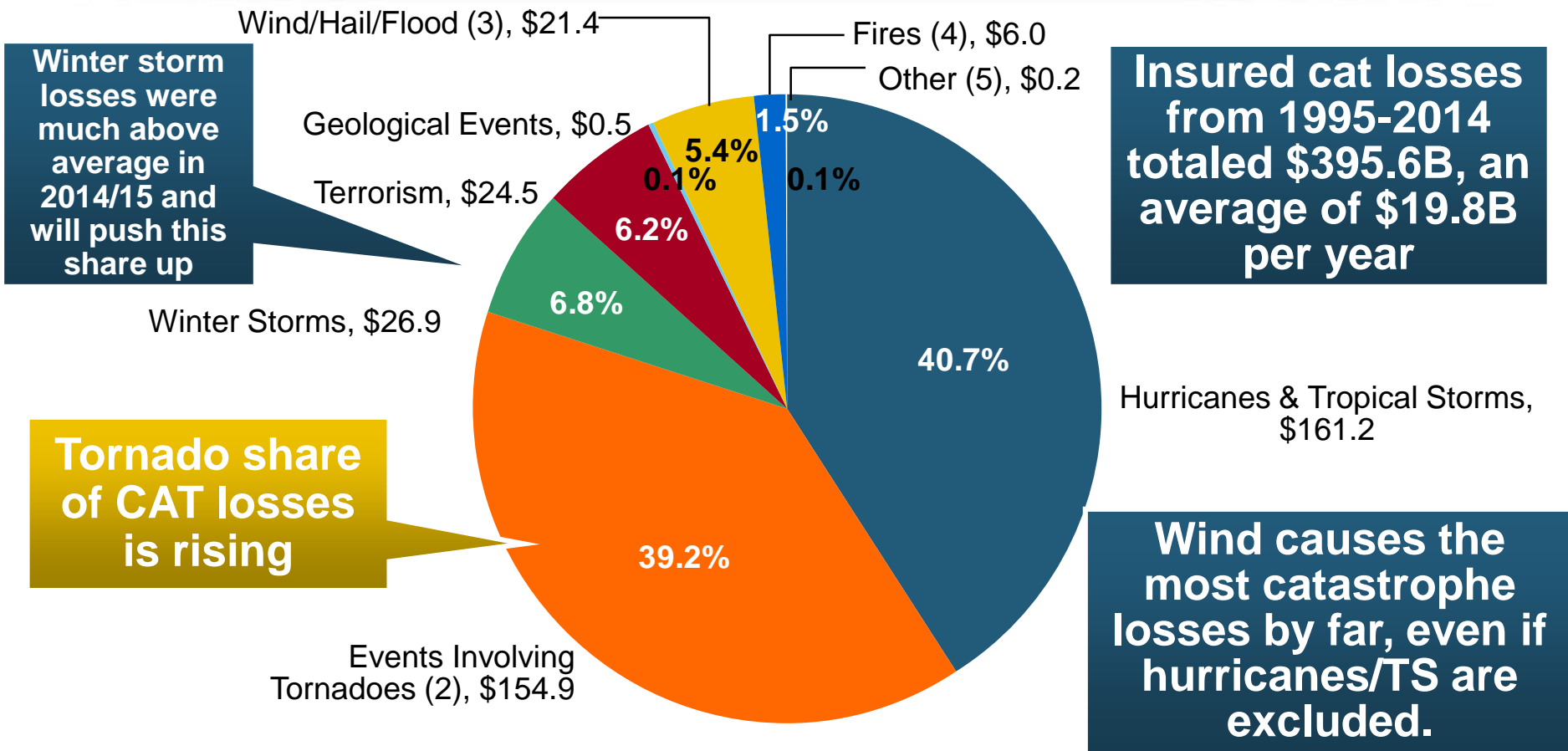
**The Catastrophe Loss Component of Private Insurer Losses Has Increased Sharply in Recent Decades**

\*2010s represent 2010-2015E.

Notes: Private carrier losses only. Excludes loss adjustment expenses and reinsurance reinstatement premiums. Figures are adjusted for losses ultimately paid by foreign insurers and reinsurers.

Source: ISO (1960-2009); A.M. Best (2010-15E) Insurance Information Institute.

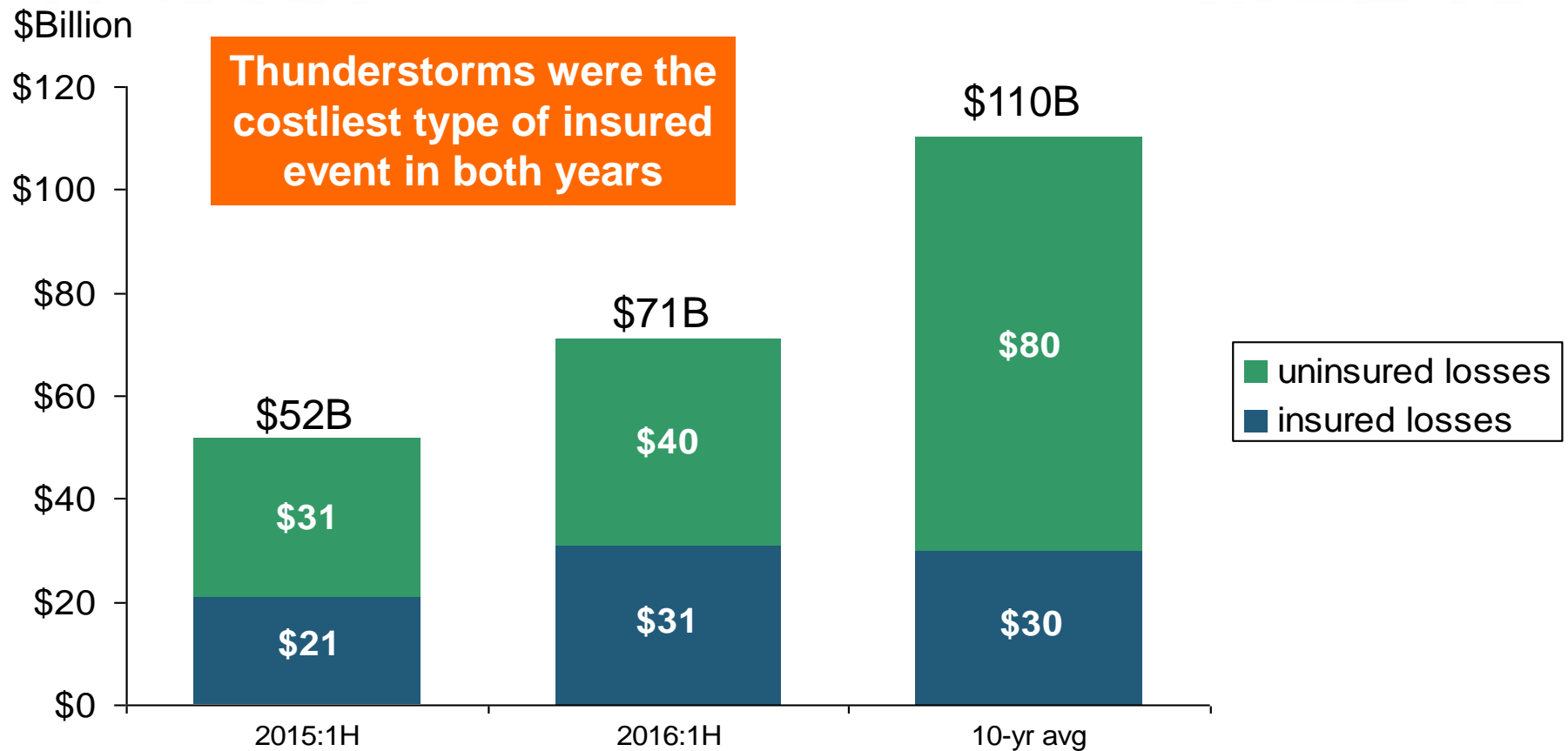
# Inflation-Adjusted U.S. Catastrophe Losses by Cause of Loss, 1995–2014<sup>1</sup>



1. Catastrophes are defined as events causing direct insured losses to property of \$25 million or more in 2014 dollars.
2. Excludes snow.
3. Does not include NFIP flood losses
4. Includes wildland fires
5. Includes civil disorders, water damage, utility disruptions and non-property losses such as those covered by workers compensation.

Source: ISO's Property Claim Services Unit.

# Global CATs in the First Half of 2016 vs. 2015:1H and 10-year average



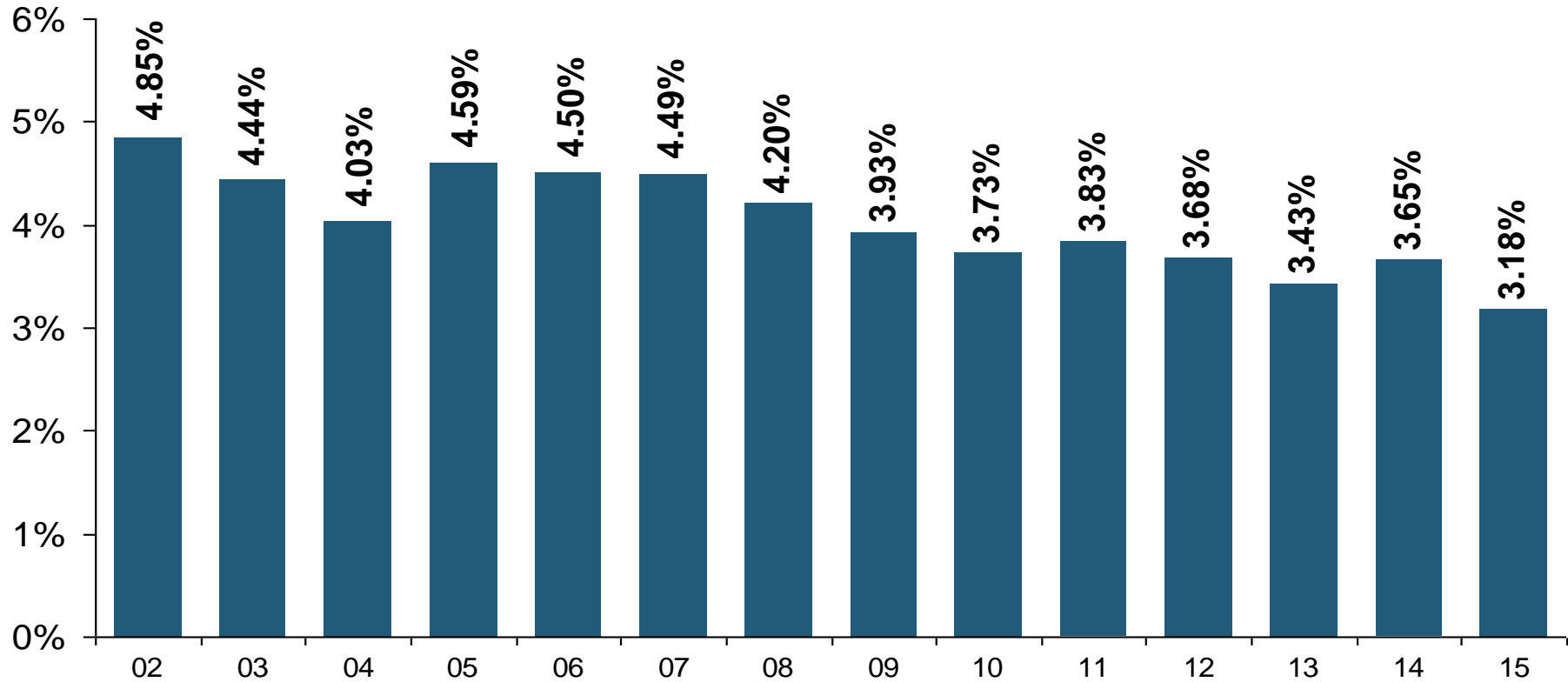
In 2016:1H, insured losses were 44% of total CAT losses, compared to 40% in 2015:1H. The insured losses were a higher percent of total losses in these years than the 10-year average.



# **Investments: A Key Driver of Profitability**

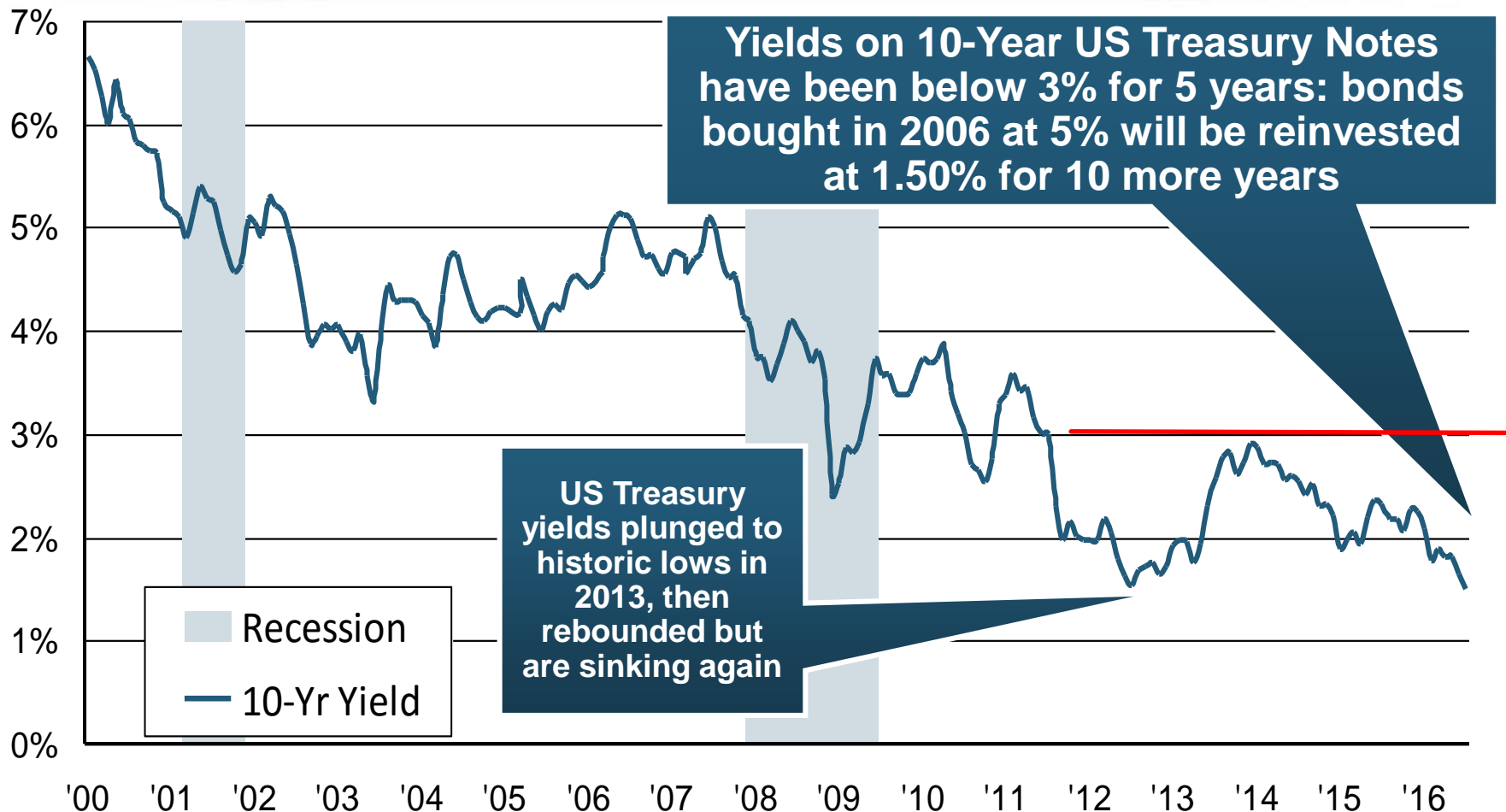
**Depressed Yields Will Necessarily  
Influence Underwriting & Pricing**

# U.S. P/C Insurer Portfolio Yields, 2002-2015



**P/C carrier yields have been falling for over a decade, reflecting the long downtrend in prevailing interest rates. Even as prevailing rates rise in the next few years, portfolio yields are unlikely to rise quickly, since low yields of recent years are “baked in” to future returns.**

# US Treasury Note 10-Year Yields: A Long Downward Trend, 2000–2016\*



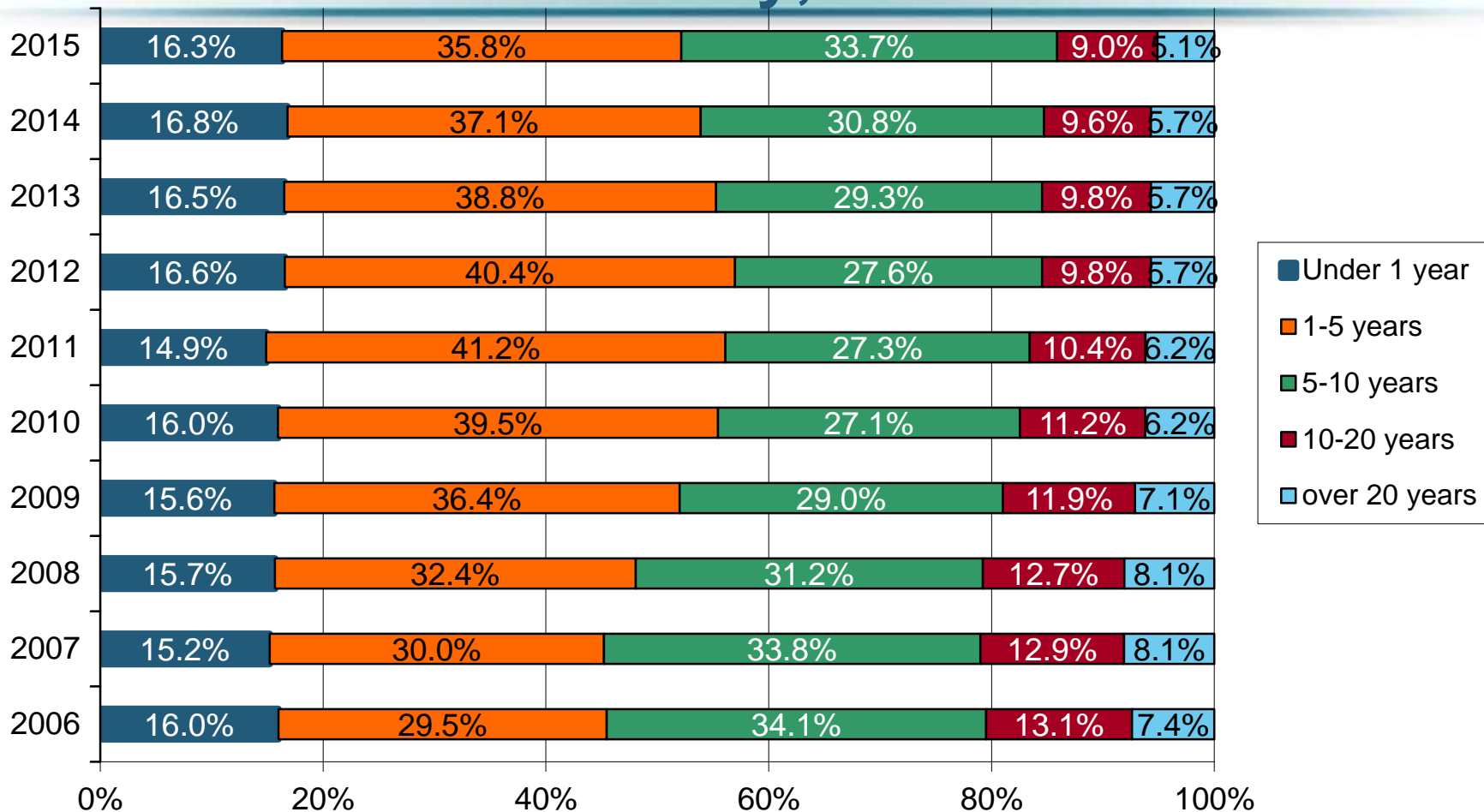
**Since roughly 80% of P/C bond/cash investments are in 5-to-10-year durations, most P/C insurer portfolios will have low-yielding bonds for years to come.**

\*Monthly, constant maturity, nominal rates, through July 2016.

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

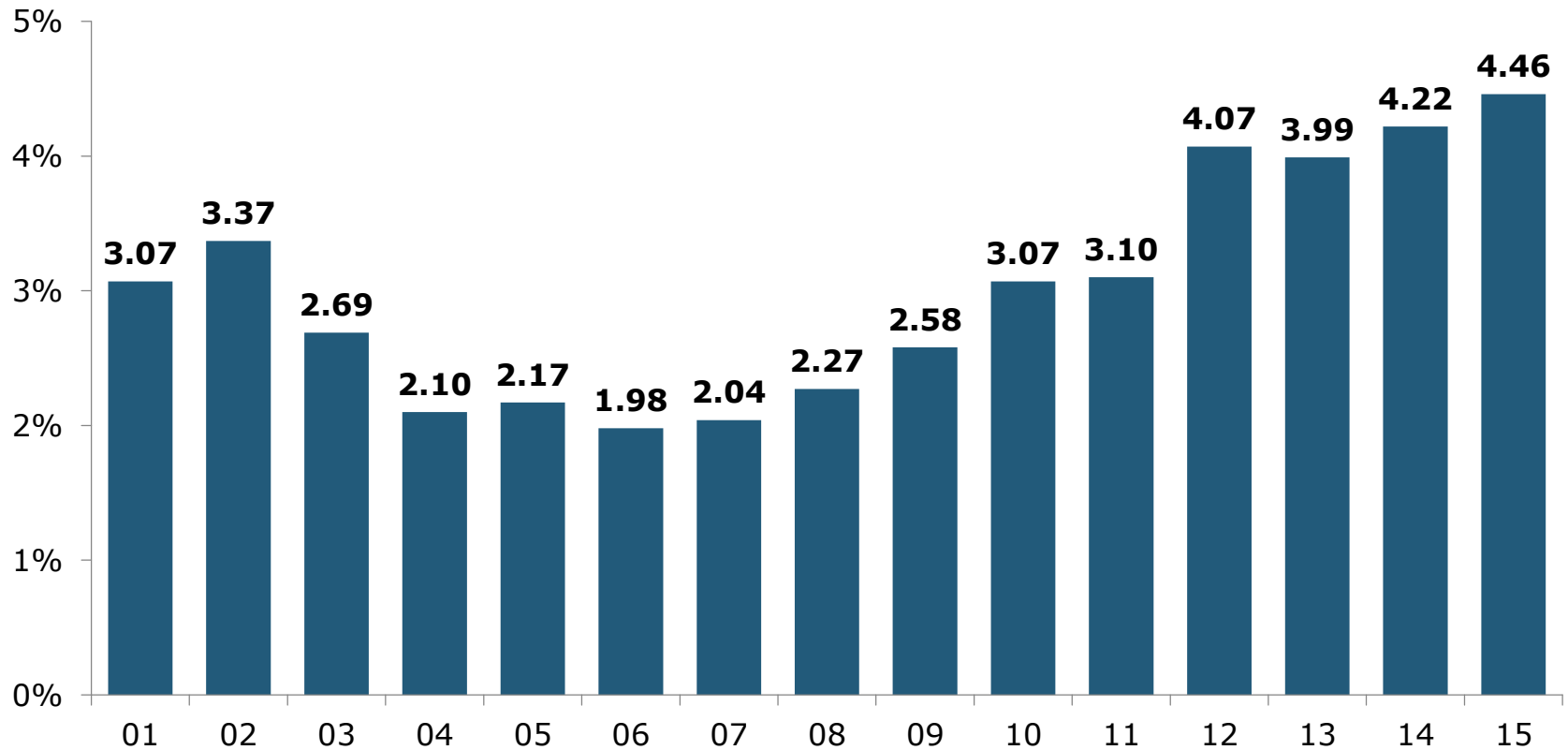


# Distribution of Bond Maturities, P/C Insurance Industry, 2006-2015



**Two main shifts over these years. From 2008 to 2011-12, from bonds with longer maturities to bonds with shorter maturities. But beginning in 2013, the reverse. Note, however, that the percentages in bonds with maturities over 10 years continues to drop.**

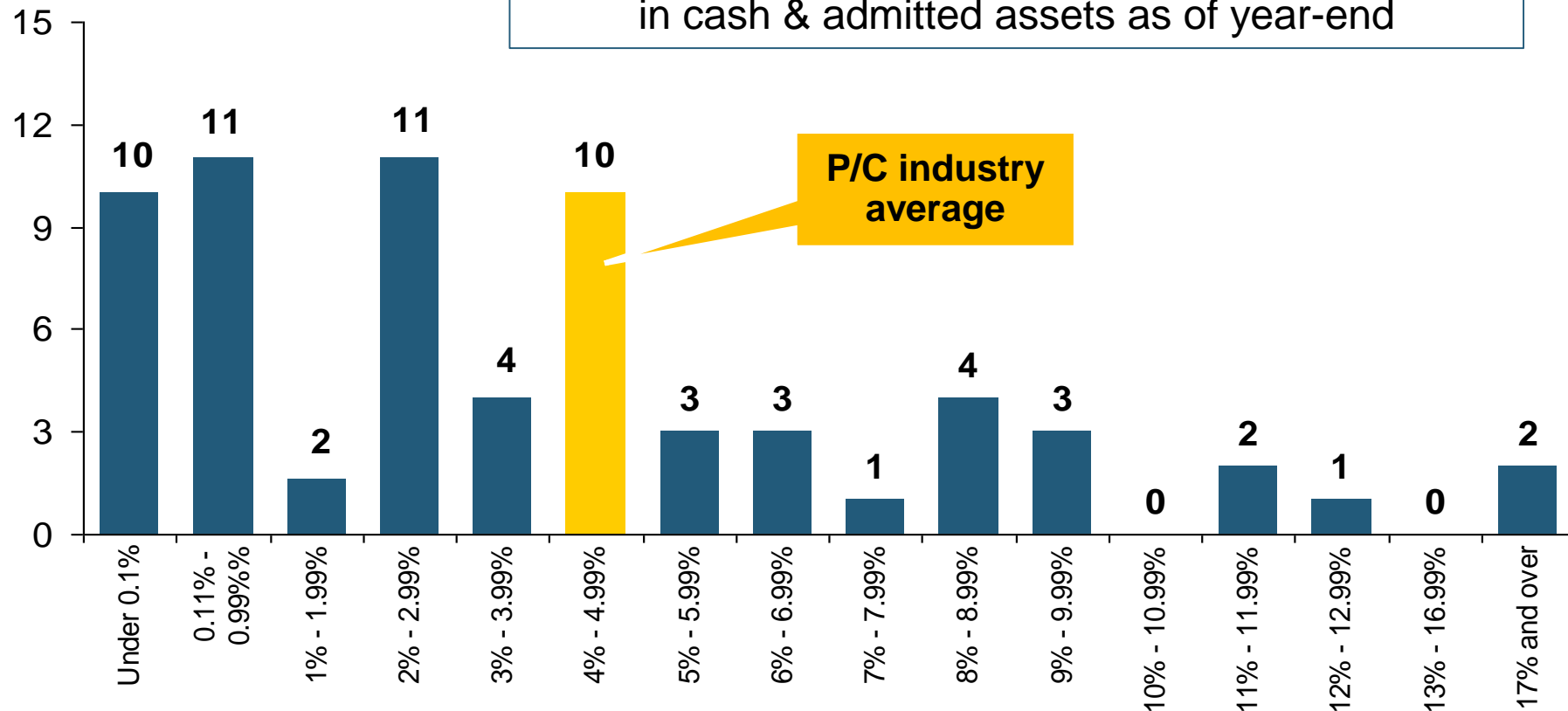
# P/C Insurers: Below-Investment-Grade (BIG) Bonds as a Percent of Total Bonds, 2001-2015



**Chasing Yield? As a Group, P/C Carriers Have Increased the Percentage of Bond Investments in Riskier Instruments. Since 2006, That Percentage Has Risen About 250 Basis Points. As Interest Rates Rise, Will This Percentage Return to Pre-recession Levels?**

# P/C Insurer Groups Holdings of BIG\*\* Bonds as a Percent of Total Bonds, 2014

Number of Groups



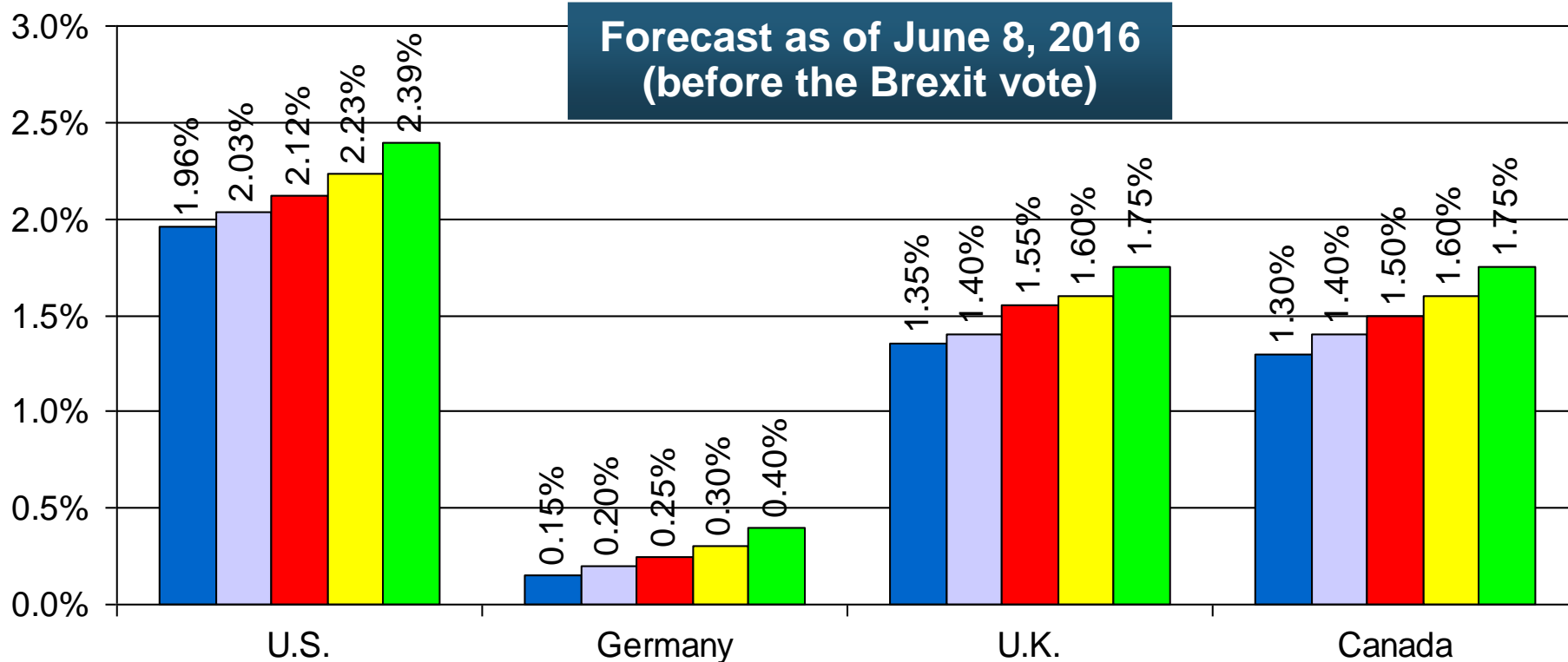
**There is a wide disparity among insurance groups regarding holdings of below-investment-grade bonds. Some hold none (or almost none); a few have over 10% of their bond portfolio in BIGs.**

\*\*Below Investment Grade

Sources: NAIC, via SNL Financial; Insurance Information Institute.

# Forecasts for 10-Year Government Bond Yields, Quarterly, 2016:Q3 - 2017:Q3

■ 2016:Q3 ■ 2016:Q4 ■ 2017:Q1 ■ 2017:Q2 ■ 2017:Q3



As noted, inflation in these nations is forecast to remain at 2% or lower through 2017. With real growth also low, bond yields aren't likely to rise much more than 1/3 of a percentage point by 2017:Q3.

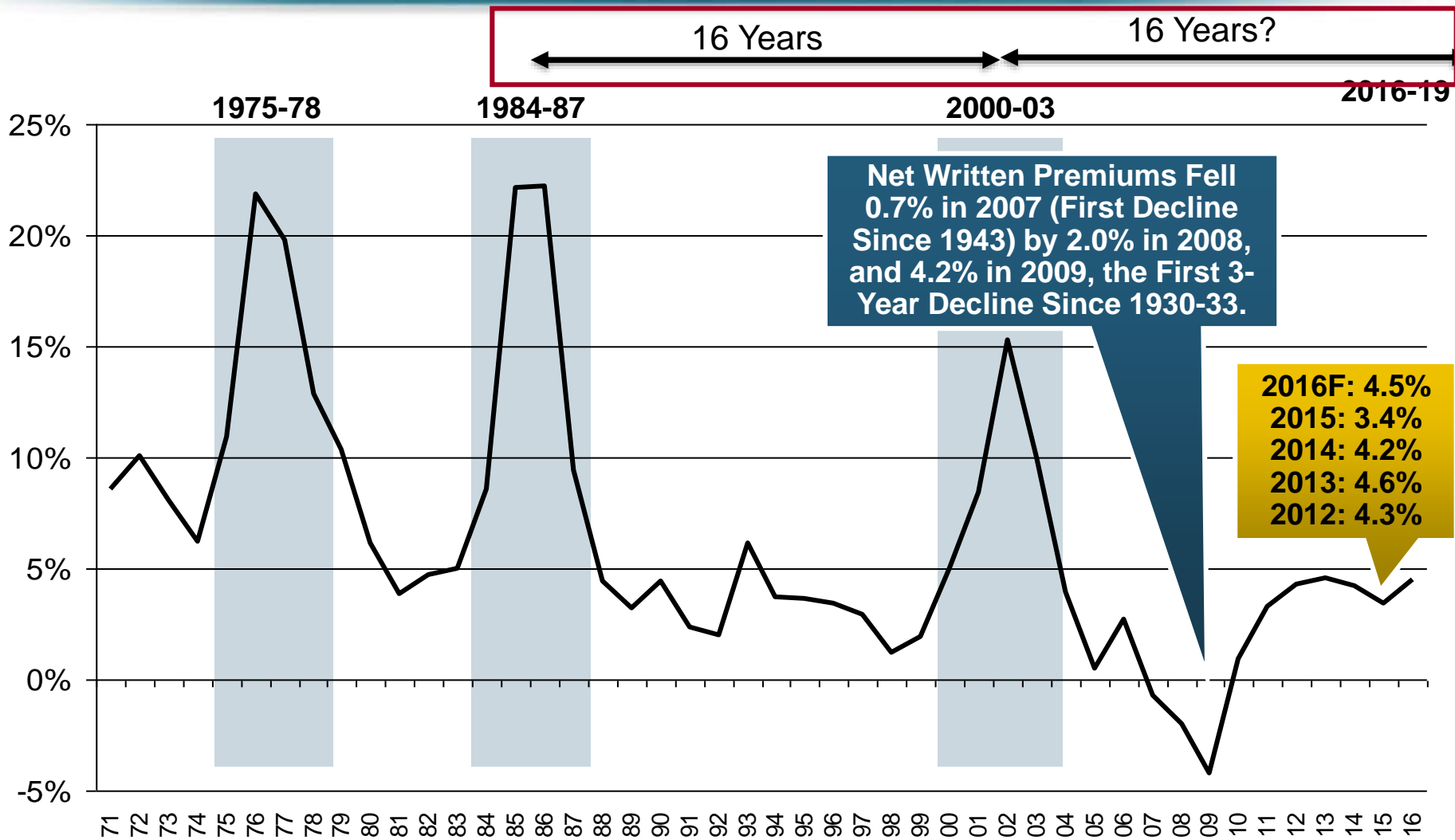
# Other Things That Could Affect the Course of Interest Rates

- Prices of world currencies (the value of the US Dollar vs. the Euro, the Yen, the Yuan and other major world currencies)
- Prices of a number of commodities (especially oil)
- Prevailing interest rates in other countries (determined, in part, by those countries' central banks)
- The demand for, and the supply of, loanable funds



# The Growth, Profitability, and Capital Position of the Primary P/C Insurance Industry

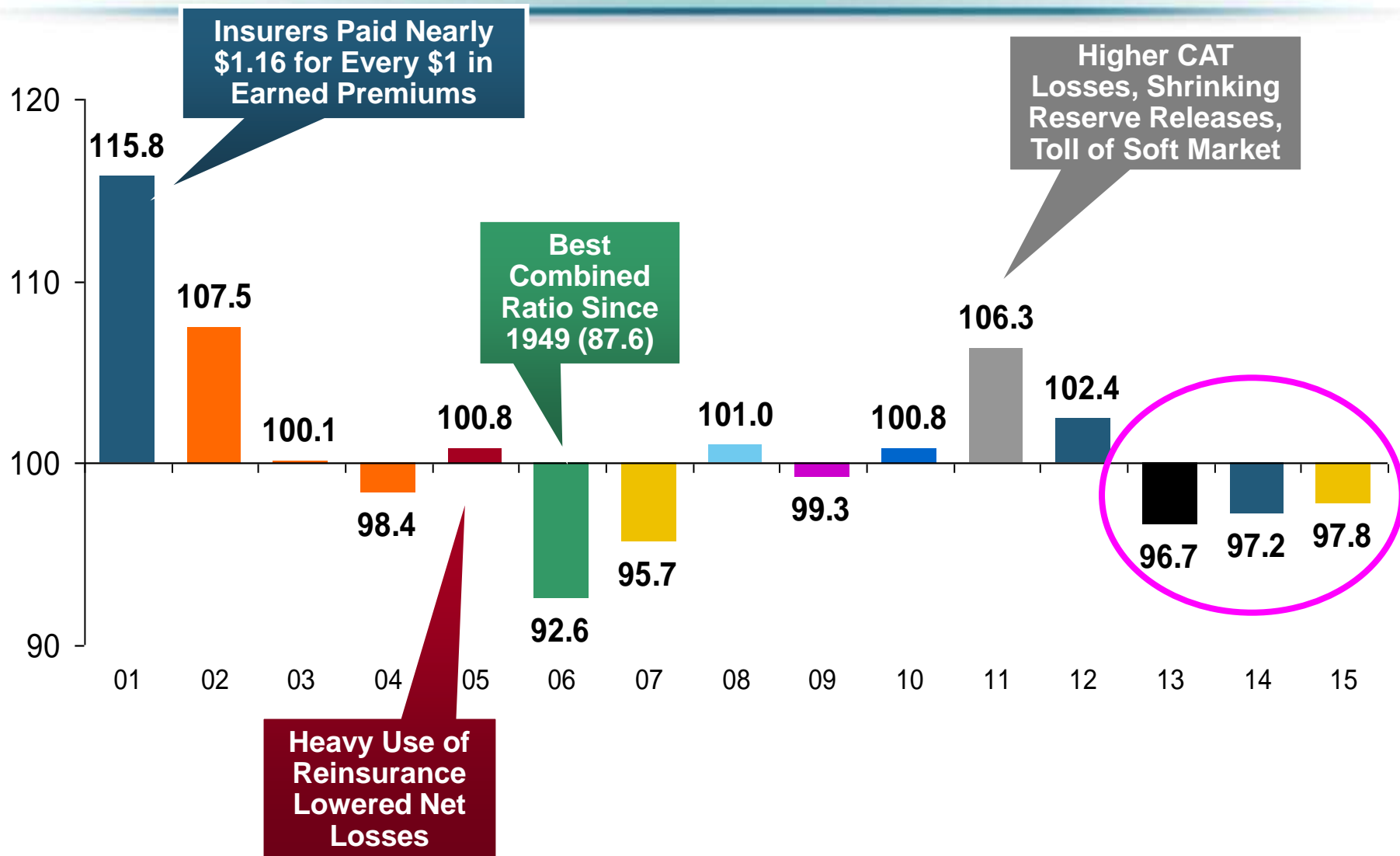
# Net Premium Growth: Annual Change, 1971—2016F



Shaded areas denote "hard market" periods

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

# P/C Insurance Industry Combined Ratio, 2001–2015\*



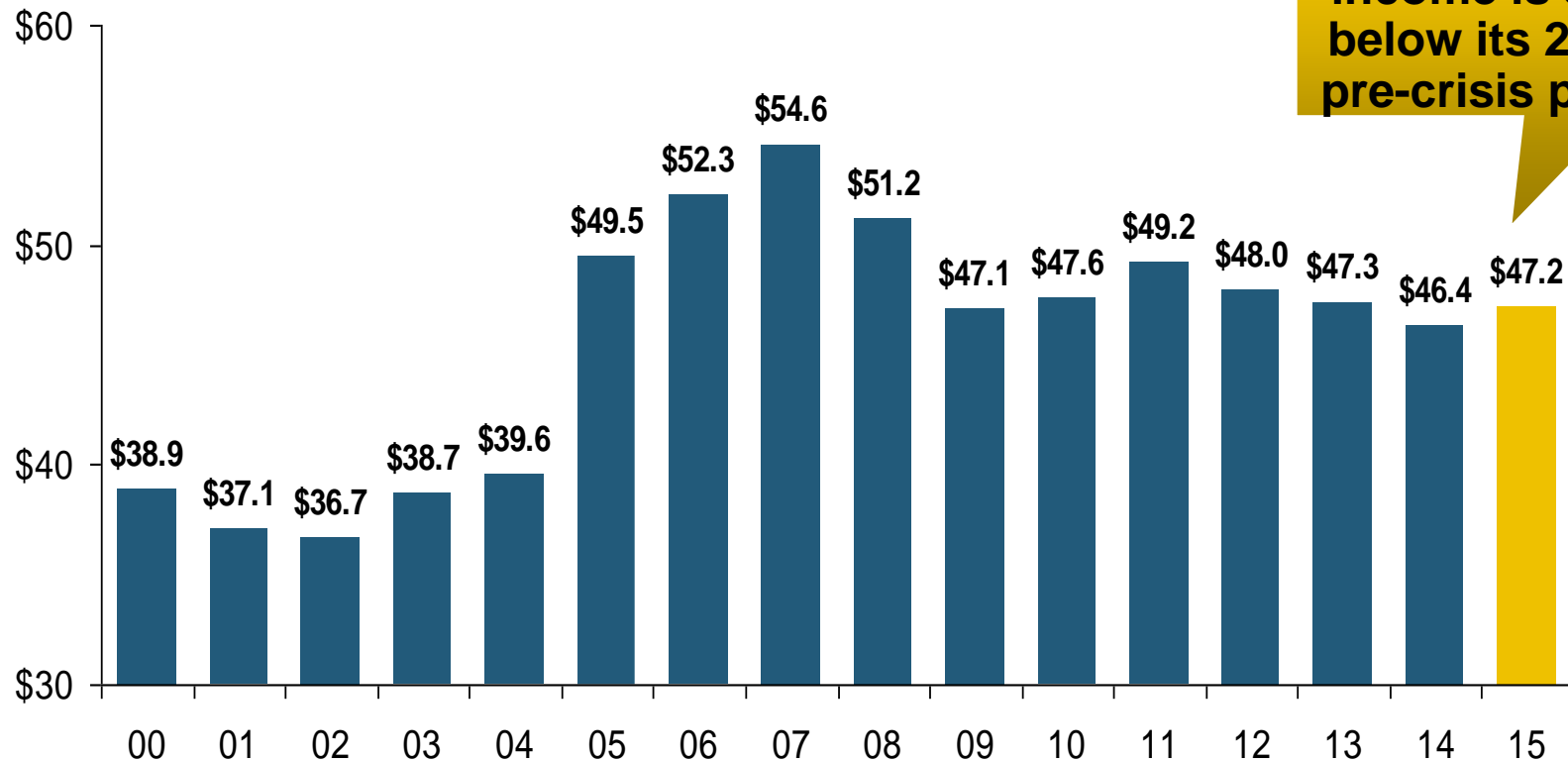
\* Excludes Mortgage & Financial Guaranty insurers 2008--2014. Including M&FG, 2008=105.1, 2009=100.7, 2010=102.4, 2011=108.1; 2012:=103.2; 2013: = 96.1; 2014: = 97.0.

Sources: A.M. Best, ISO.



# Property/Casualty Insurance Industry Investment Income: 2000–2015<sup>1</sup>

(\$ Billions)

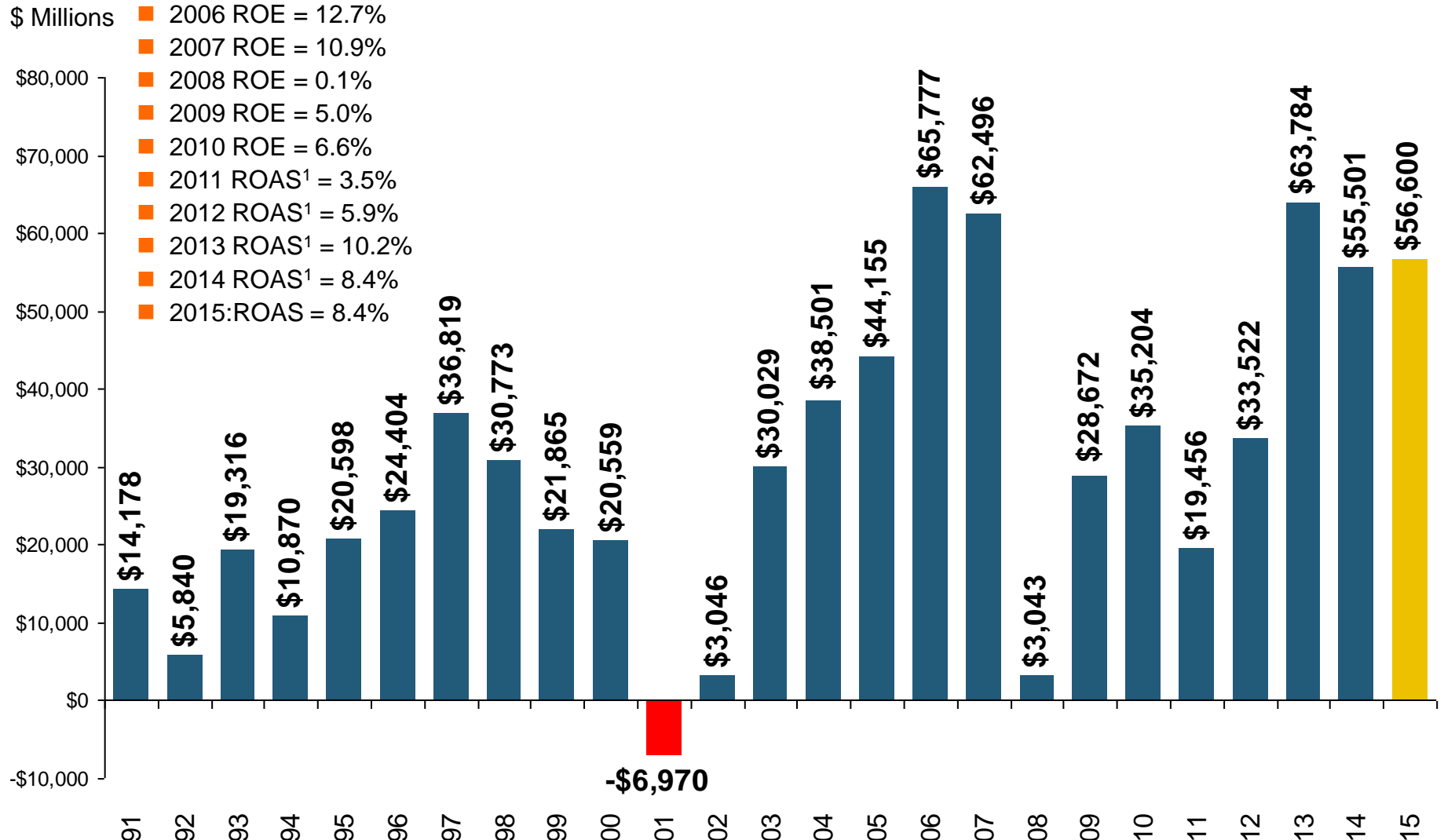


Investment income is still below its 2007 pre-crisis peak

Due to persistently low interest rates, investment income fell in 2012, 2013 and 2014 but showed a small (1.9%) increase in 2015—a trend that may continue.

<sup>1</sup> Investment gains consist primarily of interest and stock dividends. Sources: ISO; Insurance Information Institute.

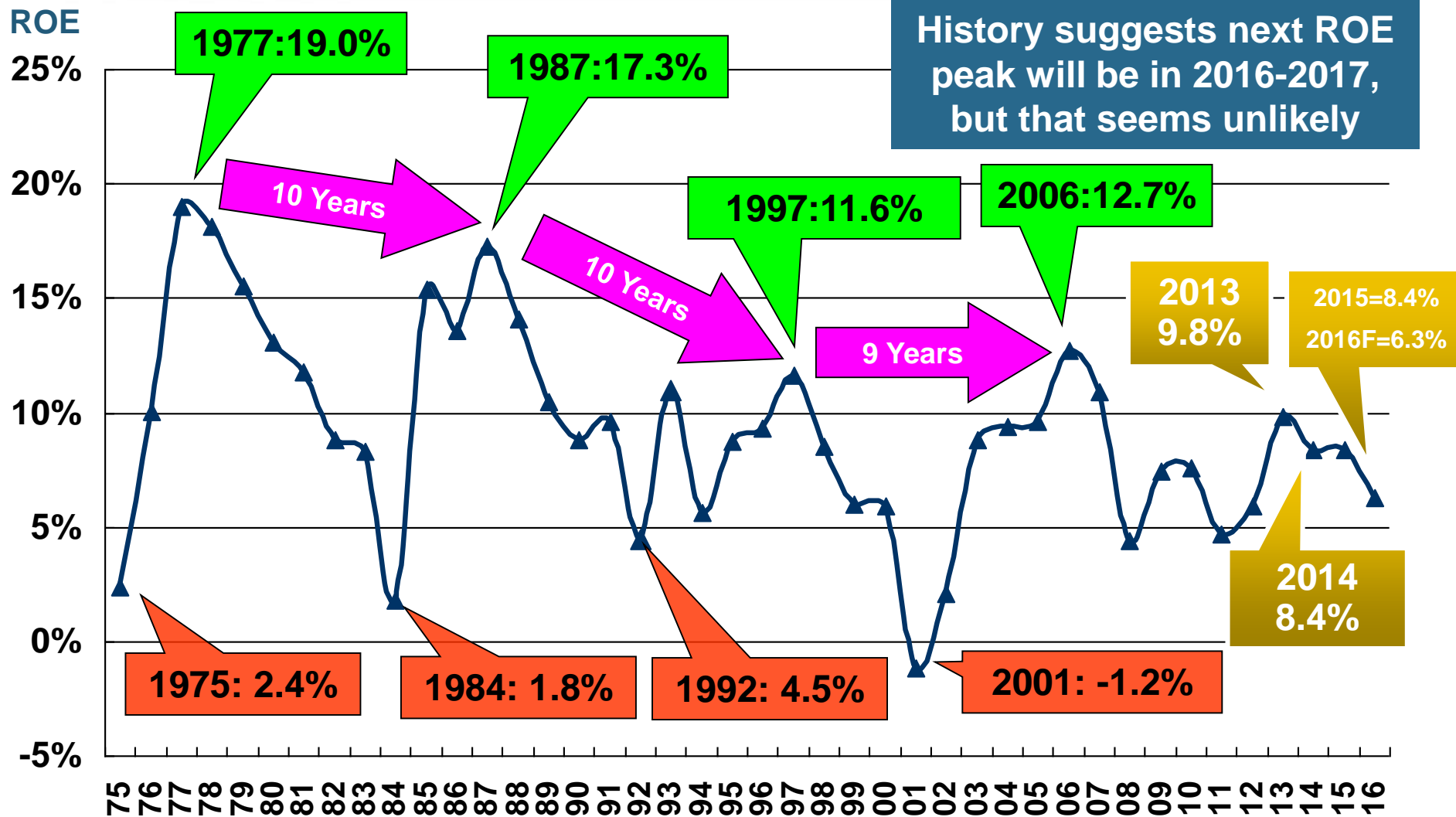
# P/C Industry Net Income After Taxes 1991–2015



• ROE figures are GAAP; <sup>1</sup>Return on avg. surplus. Excluding Mortgage & Financial Guaranty insurers yields a 8.2% ROAS in 2014, 9.8% ROAS in 2013, 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.

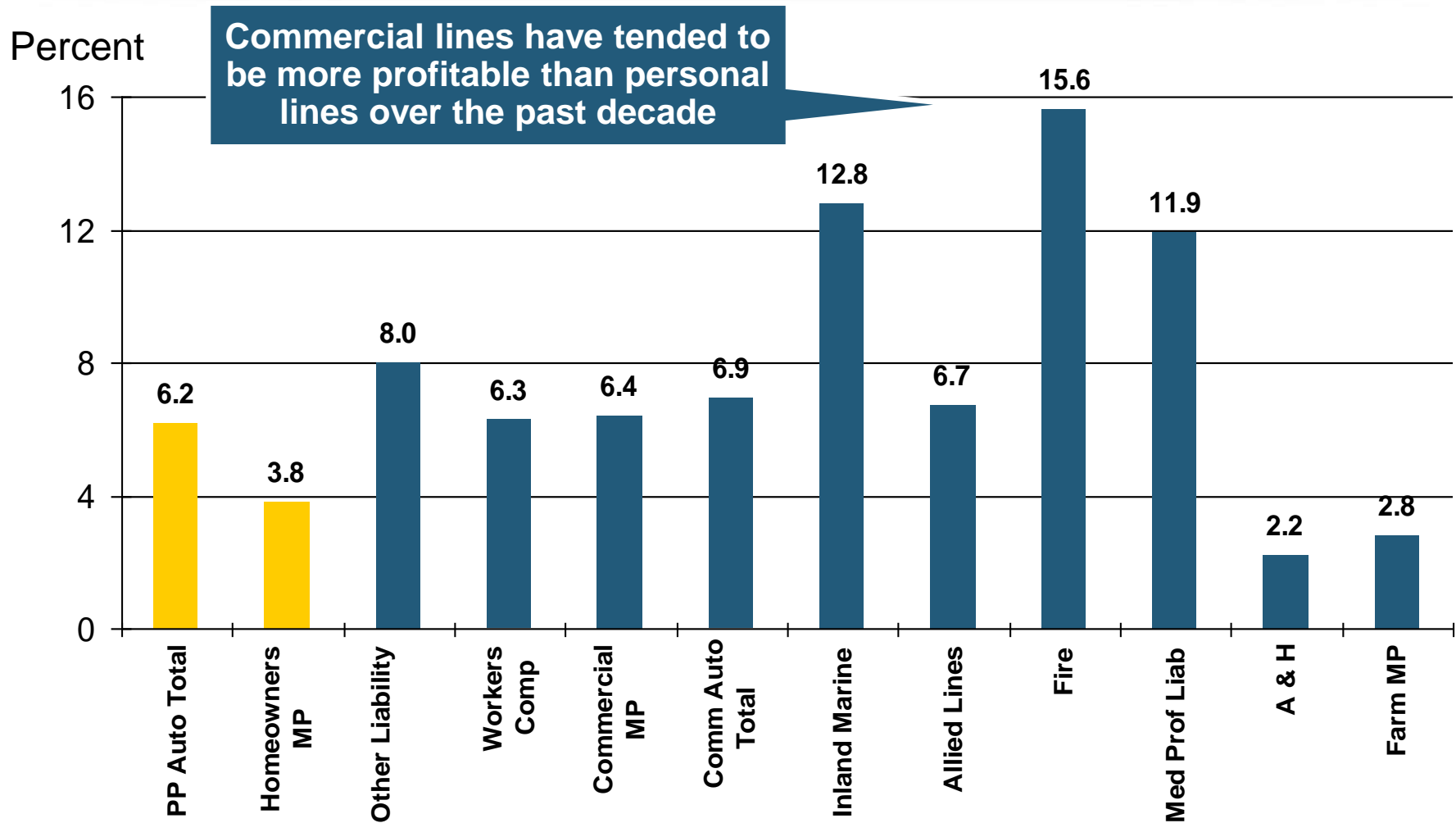
# Profitability Peaks & Troughs in the P/C Insurance Industry, 1975 – 2016F



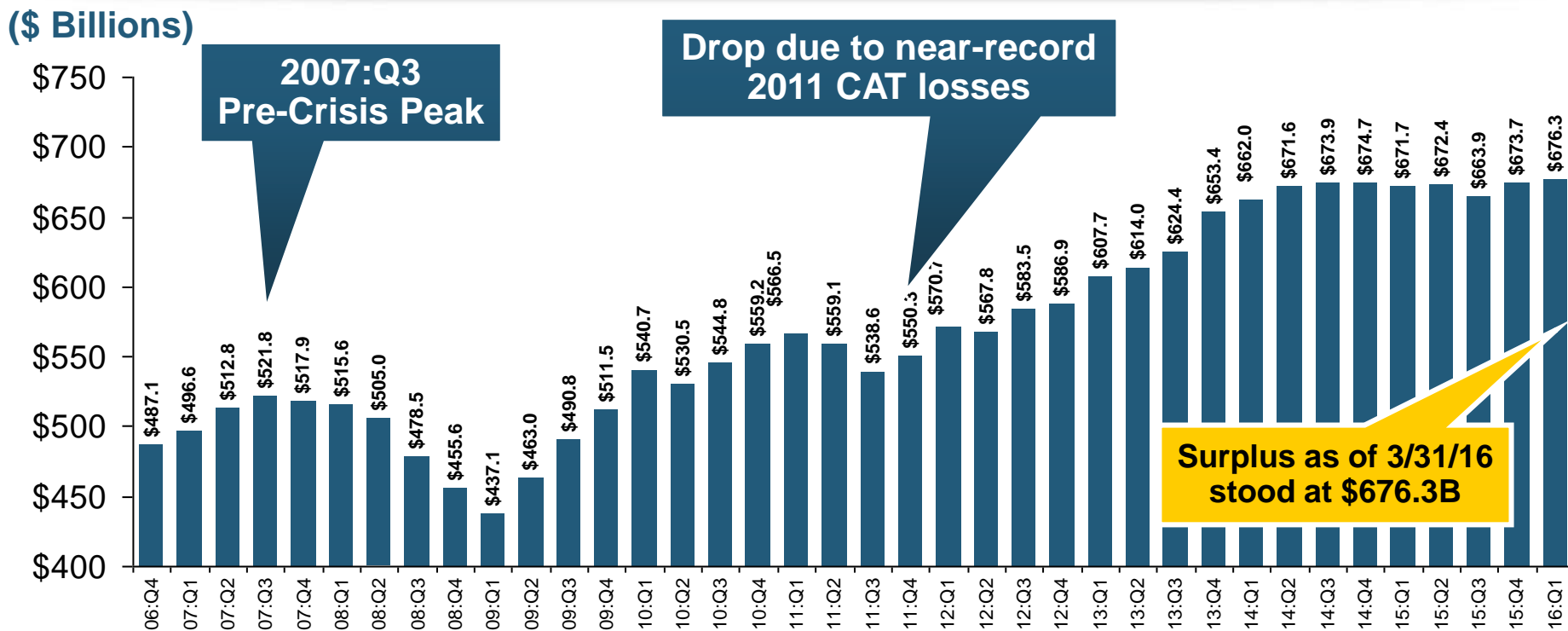
\*Profitability = P/C insurer ROEs. 2011-14 figures are estimates based on ROAS data. Note: Data for 2008-2014 exclude mortgage and financial guaranty insurers.

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

# Return on Net Worth (RNW) Largest Lines: 2005-2014 Average



# Policyholder Surplus, 2006:Q4–2016:Q1



The industry now has \$1 of surplus for every \$0.77 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 2016 in very strong financial condition.

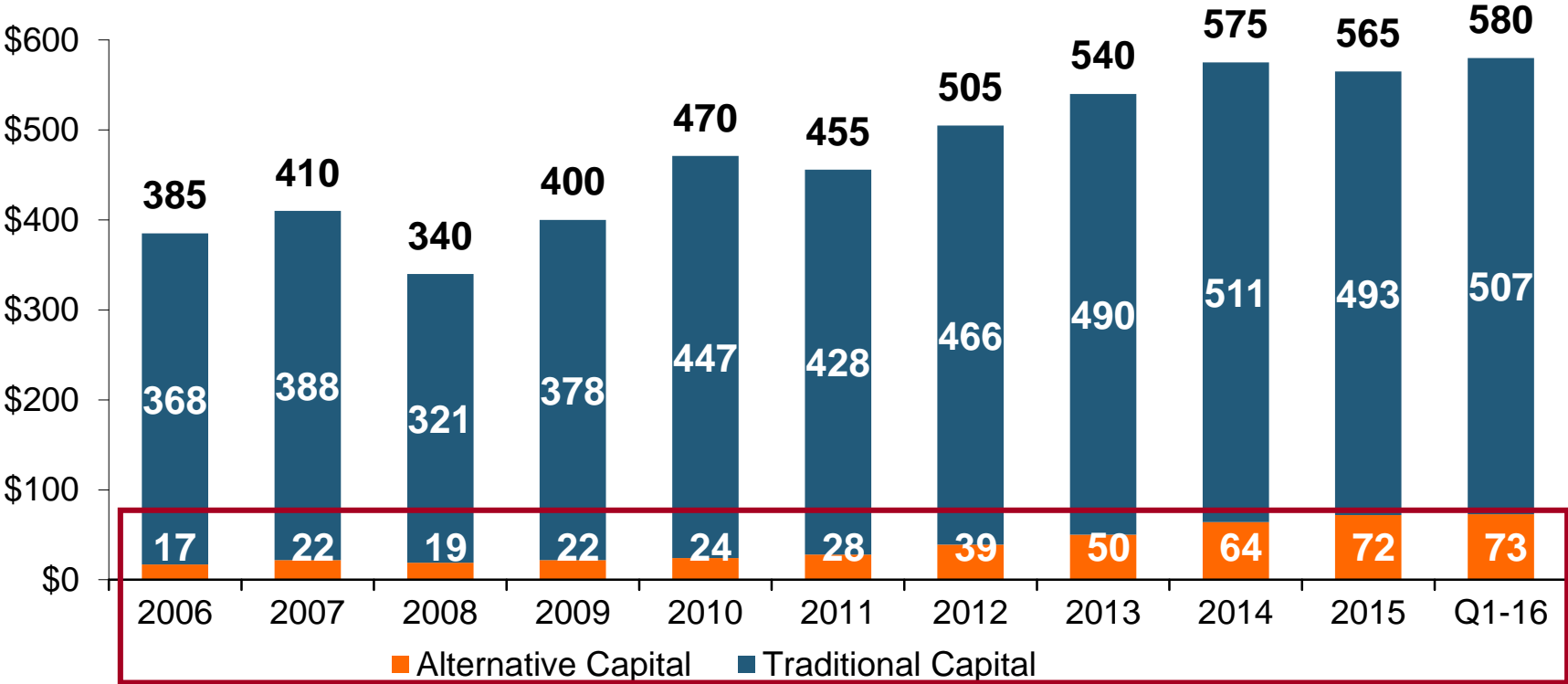
# Alternative Capital

**New Investors  
Are Changing the Reinsurance Landscape**

# Global Reinsurance Capital (Traditional and Alternative), 2006-2016

Total reinsurance capital is at a new high, just above the 2014 level.

(Billions of USD)



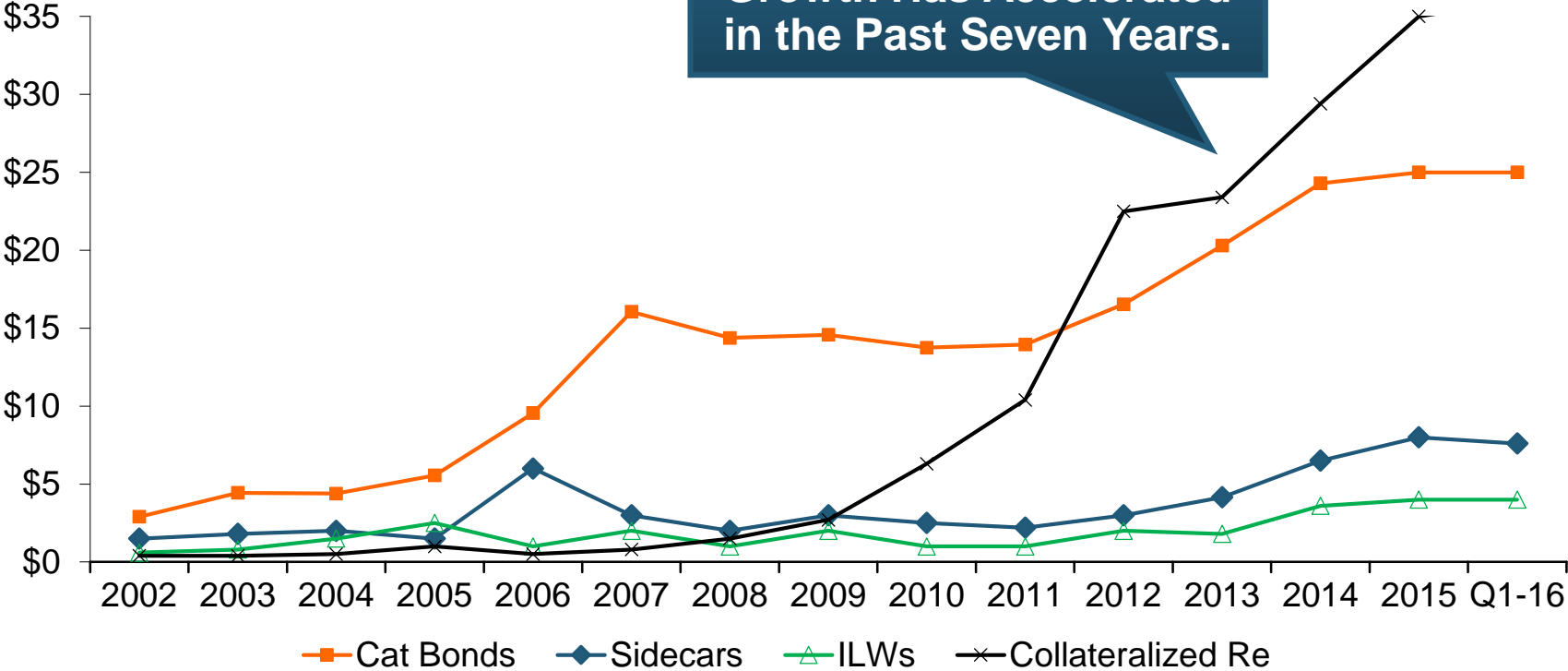
**Alternative capacity has grown 284% since 2008. In just the past four years it more than doubled. Aon projection: \$180 Billion by 2018.**

Source: Aon Benfield Analytics; Insurance Information Institute.

# Growth of Alternative Capital Structures, 2002–2016

(Billions of USD)

Collateralized Re's Growth Has Accelerated in the Past Seven Years.



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

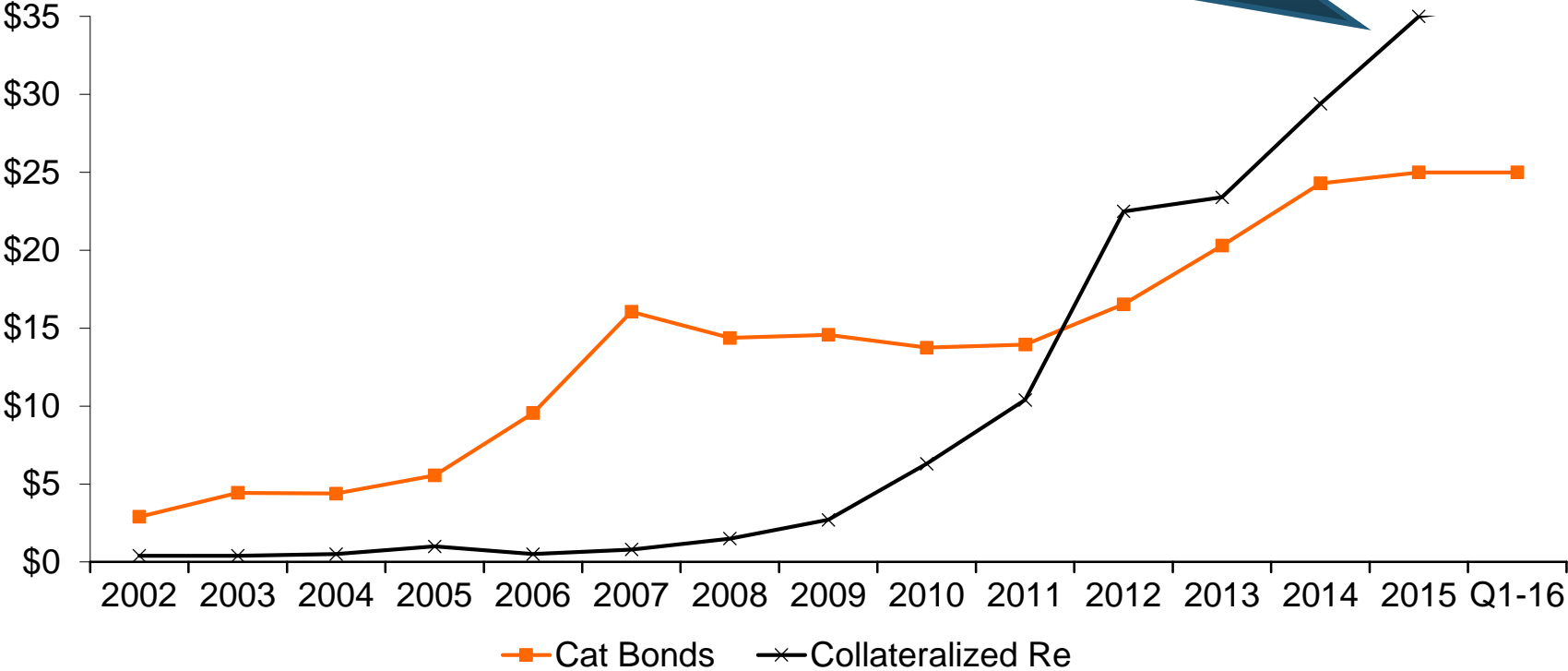
Source: Aon Benfield Analytics; Insurance Information Institute.



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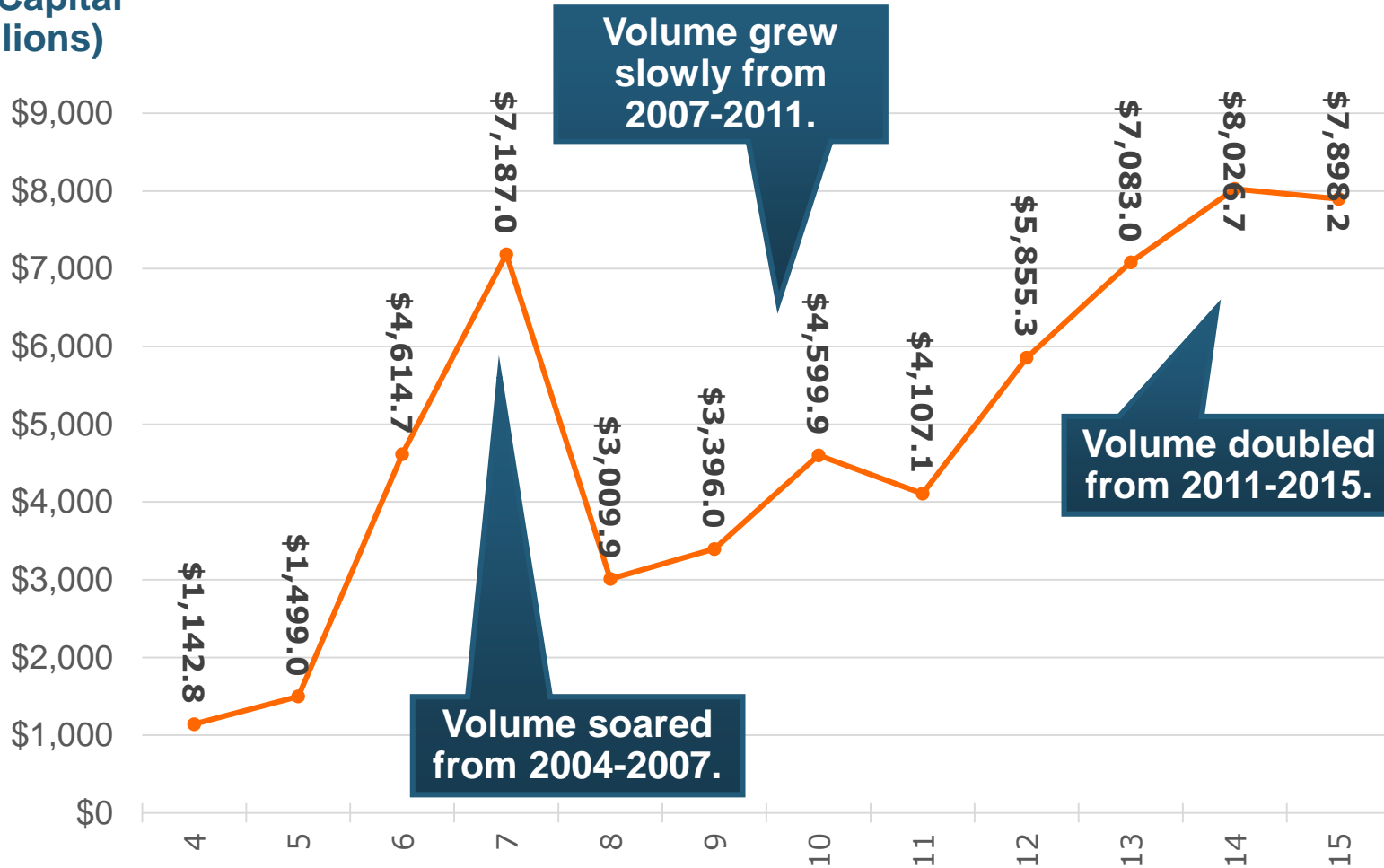


**Collateralized Reinsurance and Catastrophe Bonds Currently Dominate the Alternative Capital Market.**

Source: Aon Benfield Analytics; Insurance Information Institute.

# Catastrophe Bonds Issued, 2004-2015

Risk Capital  
(\$ Millions)

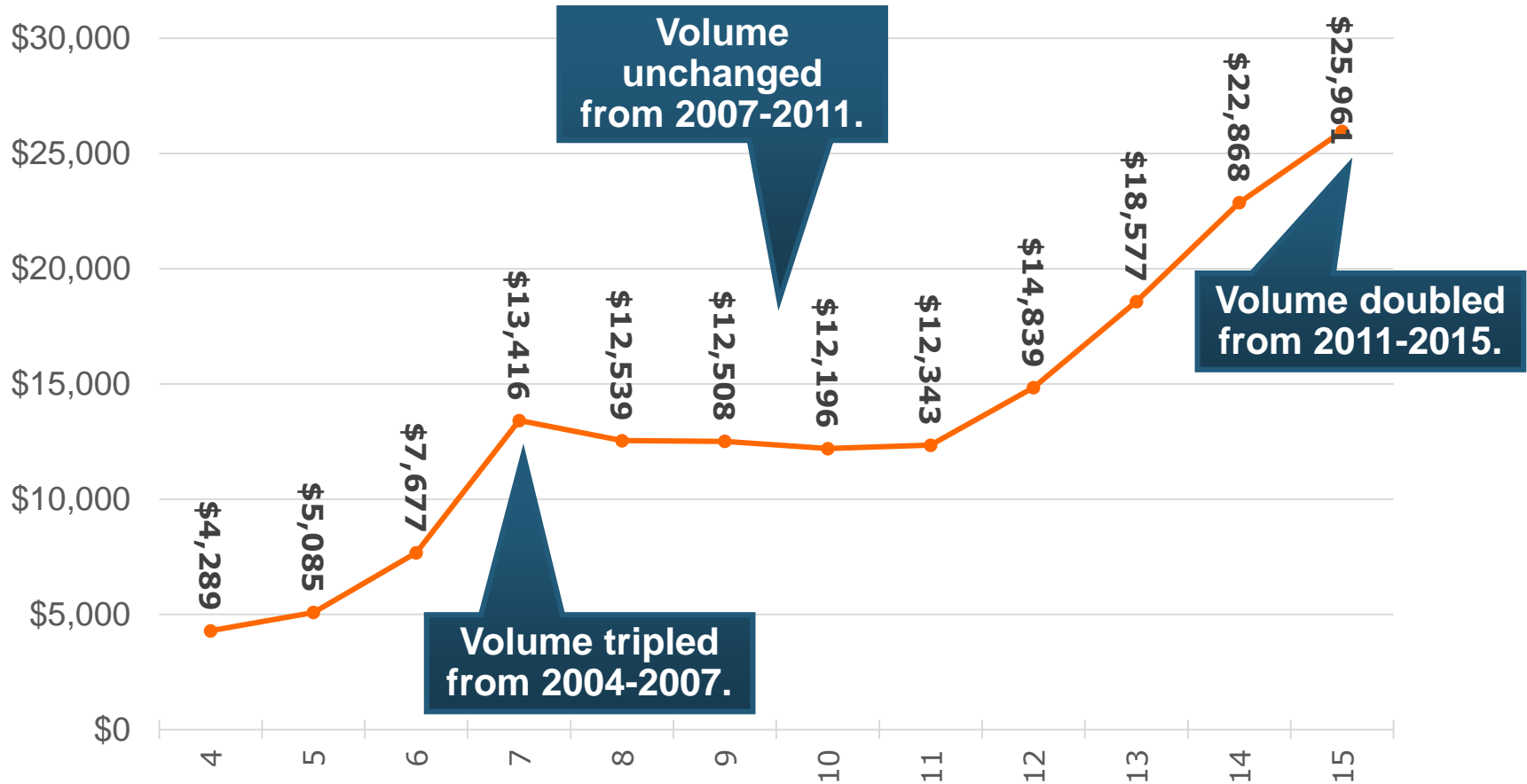


\* Trailing 12-month average

Sources: Willis Capital Markets, Insurance Information Institute.

# Catastrophe Bonds Outstanding, 2004-2015

Risk Capital  
(\$ Millions)



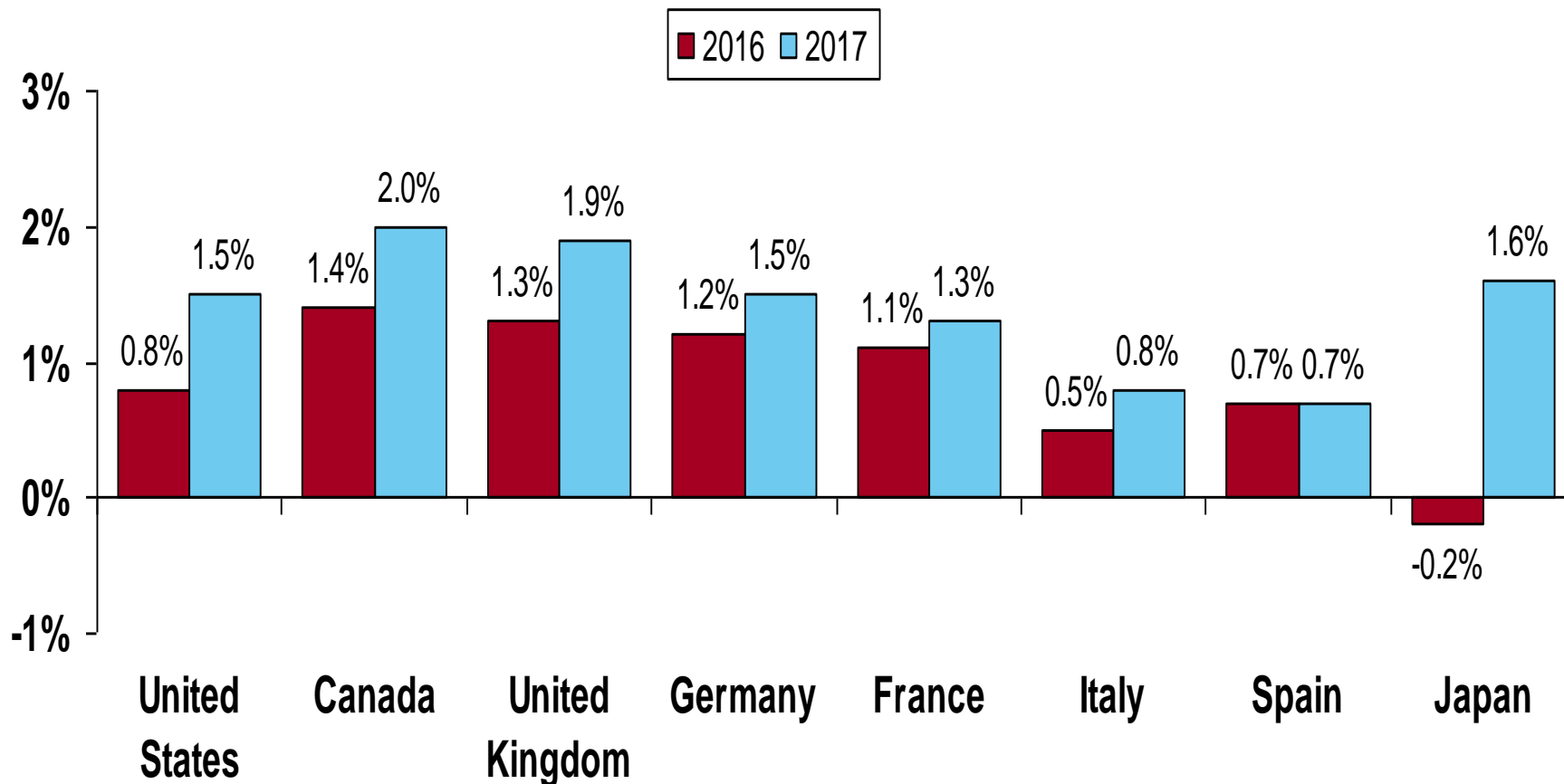
\* Trailing 12-month average

Sources: Willis Capital Markets, Insurance Information Institute.

## Economic Issues Facing the Reinsurance Industry

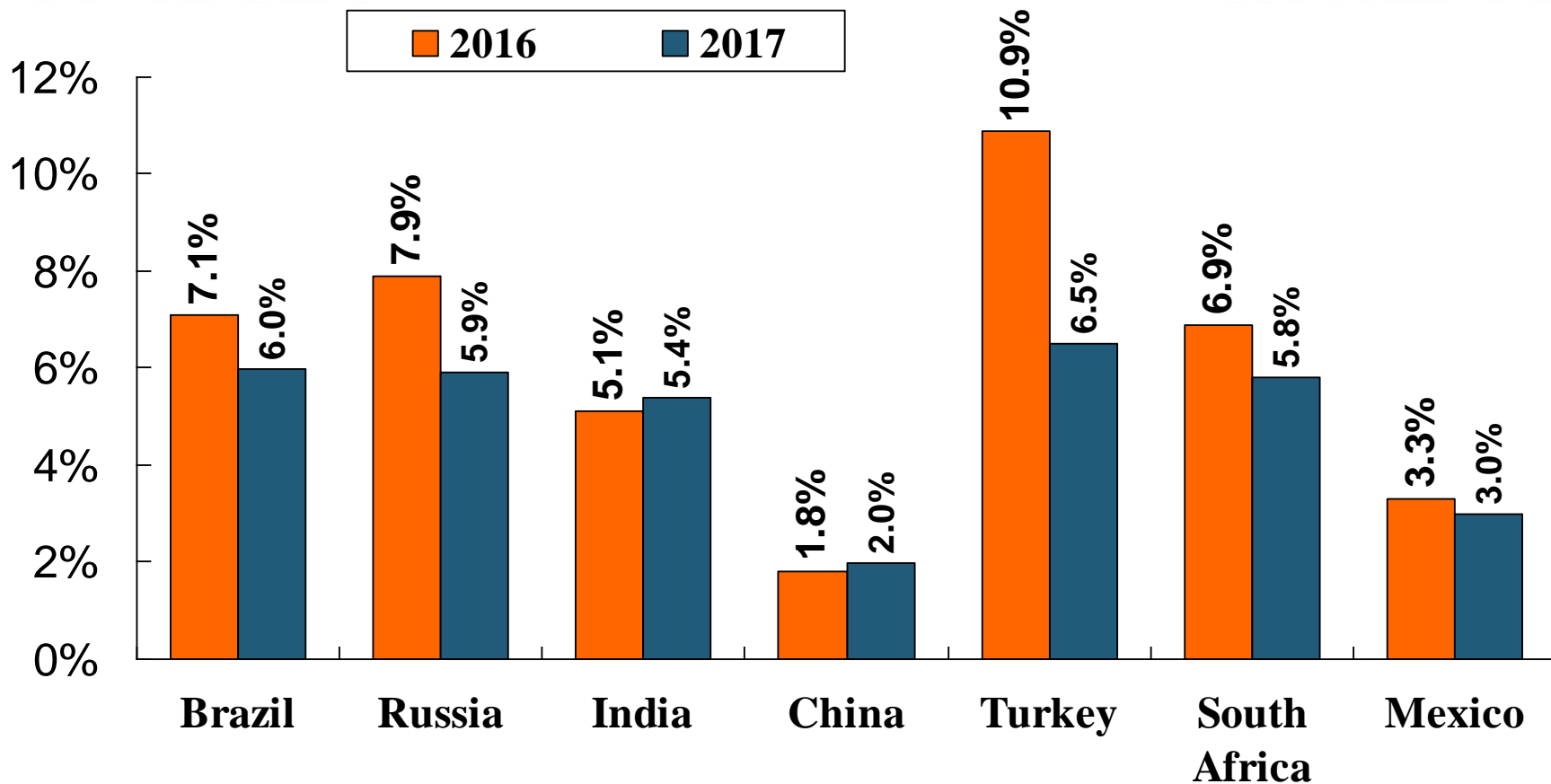
- Effects of the near-stagnation of the major European economies
  - ◆ Tight monetary/fiscal policy => Slow/No Growth
  - ◆ Other headwinds affecting European growth:
    - Population aging
- A Return to Tariffs/Trade Wars?
- Inflation is not a concern currently, but it could become one quickly
  - ◆ **Helpful and Harmful: Inflation affects claims (bad) and investment income (good)**

# IMF Inflation Forecast for Selected Advanced Economies, 2016-2017



**The July 2016 IMF report forecasts 1% inflation in advanced economies in 2016 and a little higher growth in prices in 2017.**

# IMF Inflation Rate Forecast for 2016-17 for Selected Emerging Economies



**Inflation is forecast to be 6% or more in 2016-17 in some major emerging economies. Inflation there can spread to advanced economies through imports. The IMF forecasts a slight decrease in inflation in 2017.**

# Longer-Term Issues (a partial list)

1. Persistently Low Interest Rates
2. Currency Market Instability
3. Strong Capital Flows to Emerging/Developing Economies => Asset Price Bubbles?
4. Regulatory Backlash/Developments
5. Terrorism



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