



Economic Perspectives on Coastal Property Insurance: Focus on North Carolina

**2015 Coastal Risk Retreat
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Steven N. Weisbart, Ph.D., CLU, Senior Vice President & Chief Economist
Insurance Information Institute ♦ 110 William Street ♦ New York, NY 10038

Tel: 212.346.5540 ♦ Cell: 917.494.5945 ♦ stevenw@iii.org ♦ www.iii.org

**Why the Fuss?
What's the Worst
That Could Happen?**

Coastal Counties in North Carolina



The twenty counties covered by CAMA. Image courtesy of the Division of Coastal Management.

In 1954 Hurricane Hazel Struck the Carolinas With Destructive Force

Storm Track from RPI

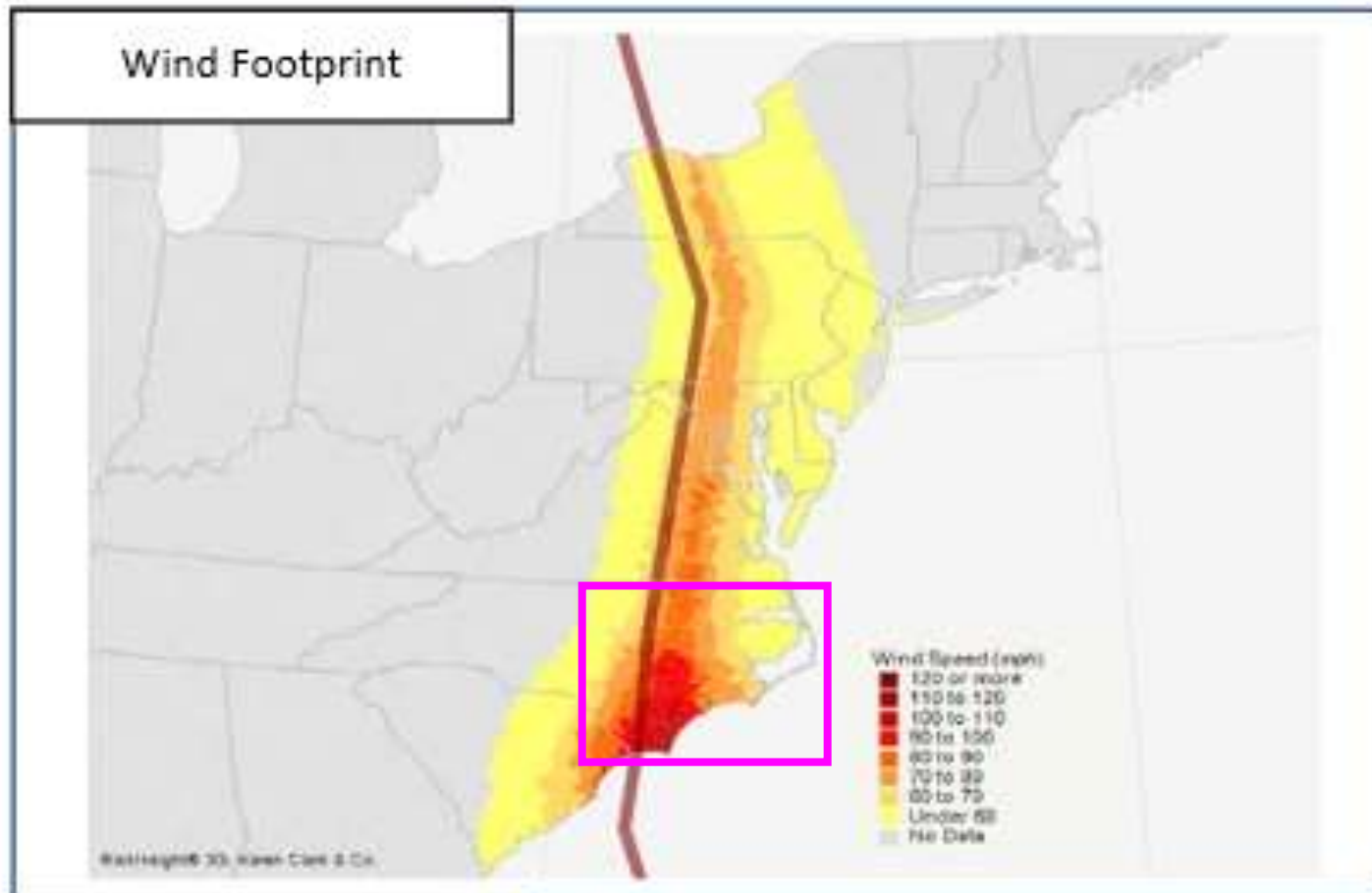


On October 15, 1954, Hurricane Hazel—the 9th storm of that hurricane season—made landfall near the North Carolina/South Carolina border.

Winds were estimated at 132 mph, which would have made it a **category 4** storm.

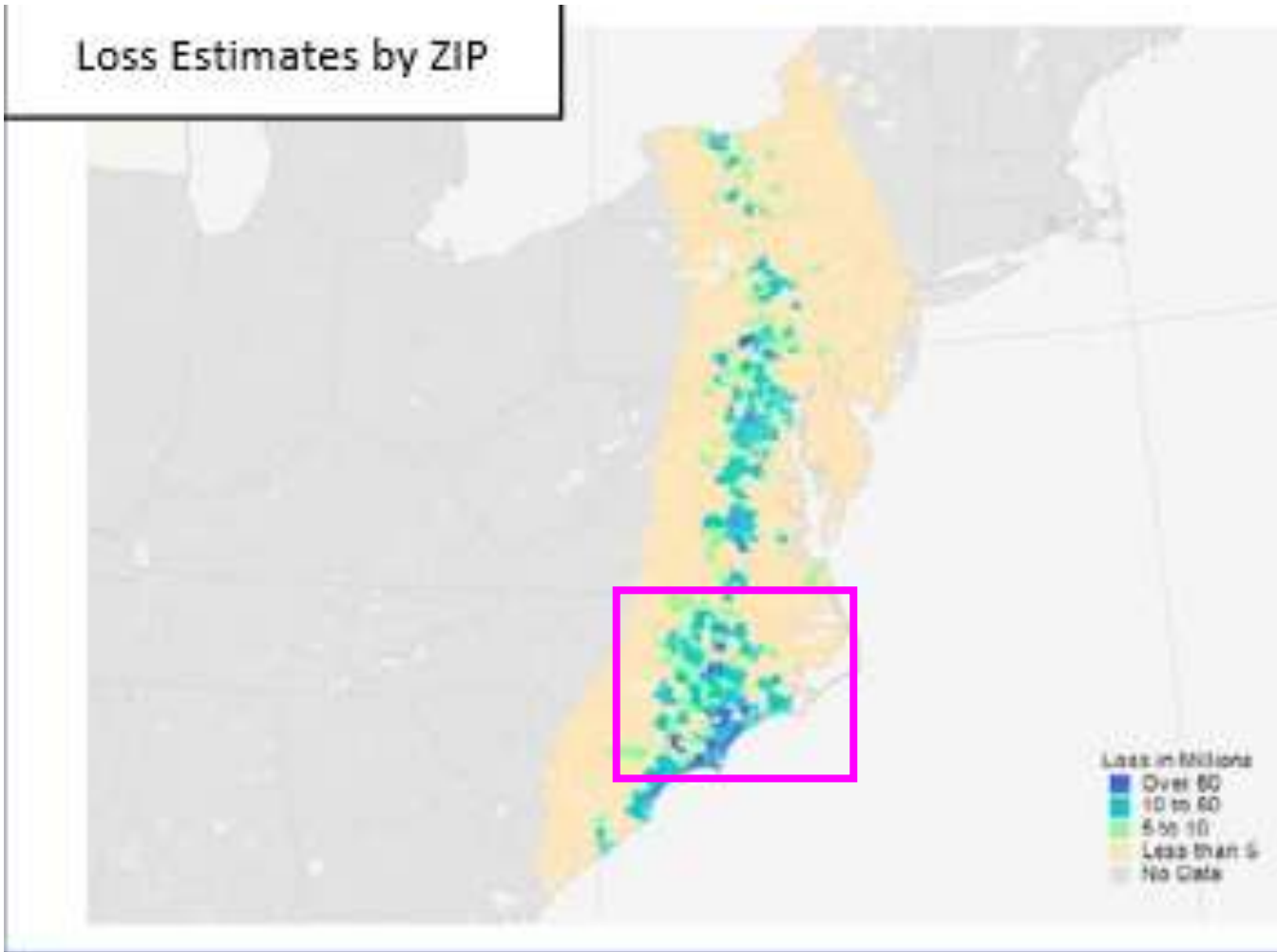
If the storm had hit in 2012, given the population growth and development that occurred in the 58 years after Hazel hit, insured claims would have been in the \$20 billion range.

Hazel's Highest Winds Struck the Lower Half of the NC Coast



Sources: Karen Clark & Company, "Historical Hurricanes that Would Cause \$10 Billion or More of Insured Losses Today," August 2012, p. 10; Insurance Information Institute

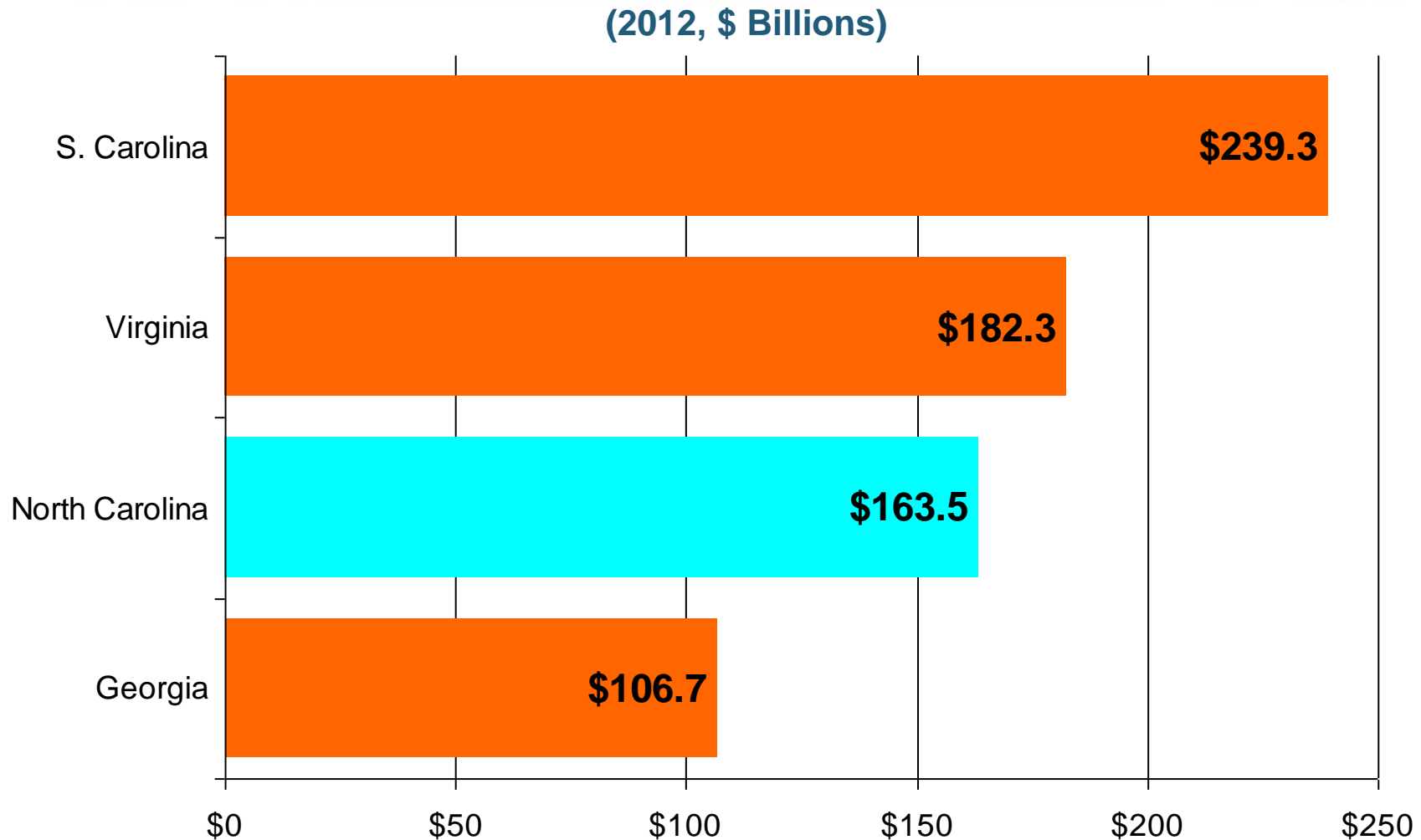
Hazel's Damage Was Severe Along the NC Shore



Sources: Karen Clark & Company, "Historical Hurricanes that Would Cause \$10 Billion or More of Insured Losses Today," August 2012, p. 10; Insurance Information Institute

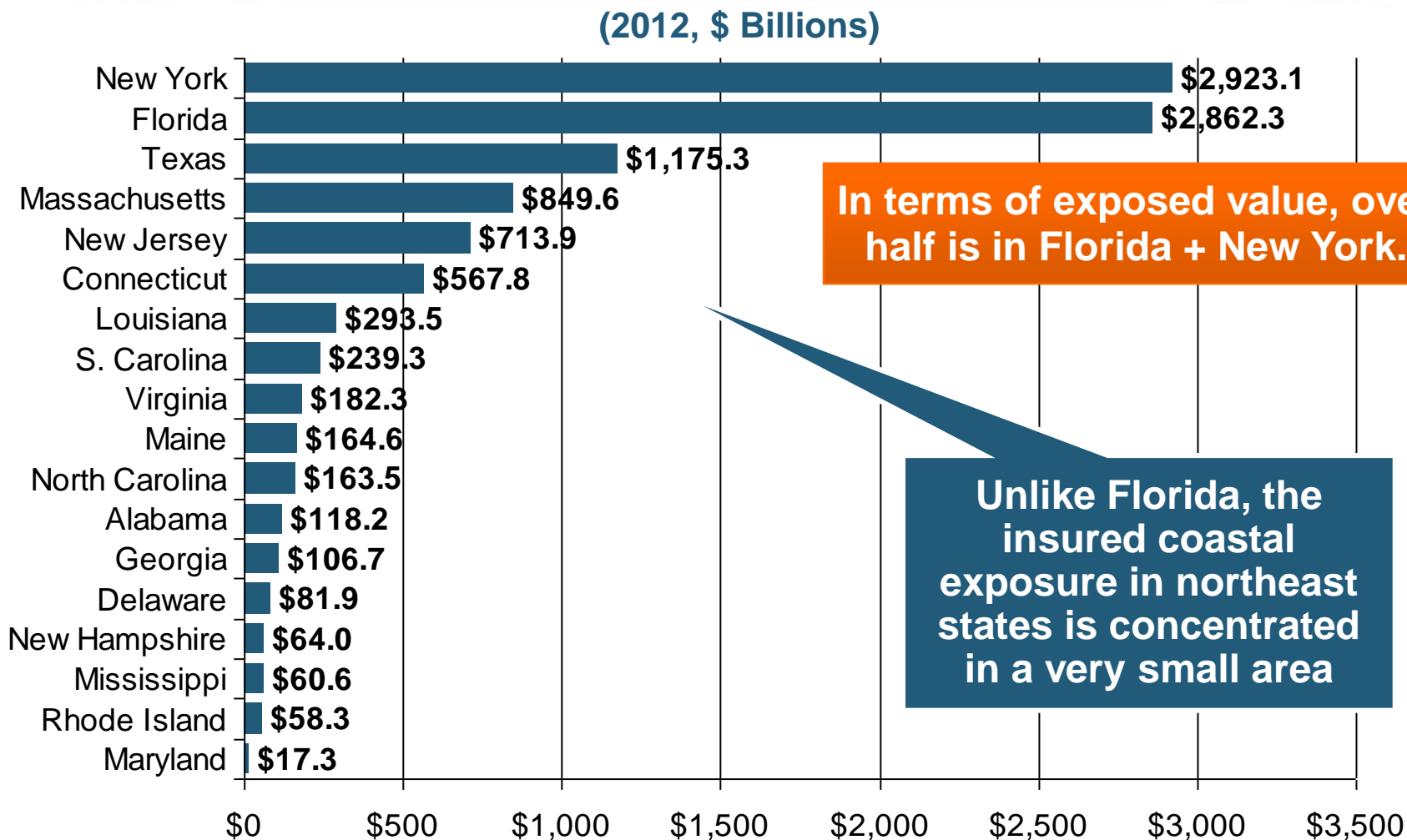
Exposure to Catastrophic Loss in North Carolina and Neighboring States

In 2012, Total Value of Insured Coastal Exposure, NC and Neighboring States



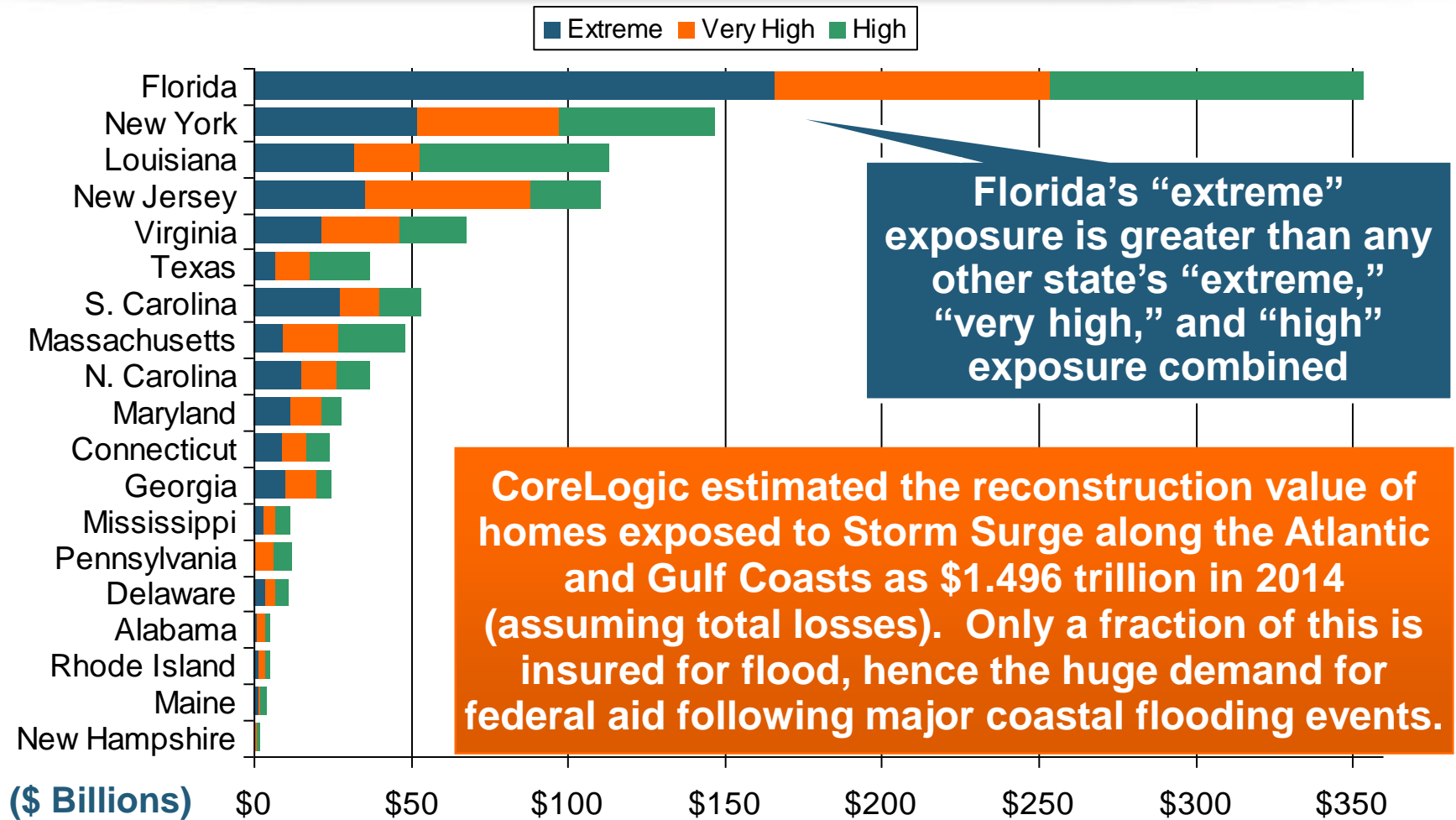
The insured value of all Atlantic and Gulf coastal property was estimated at \$10.6 trillion in 2012 , up 48% from \$7.2 trillion in 2004.

In 2012, Total Value of Insured Atlantic & Gulf Coastal Exposure: \$10.6 Trillion



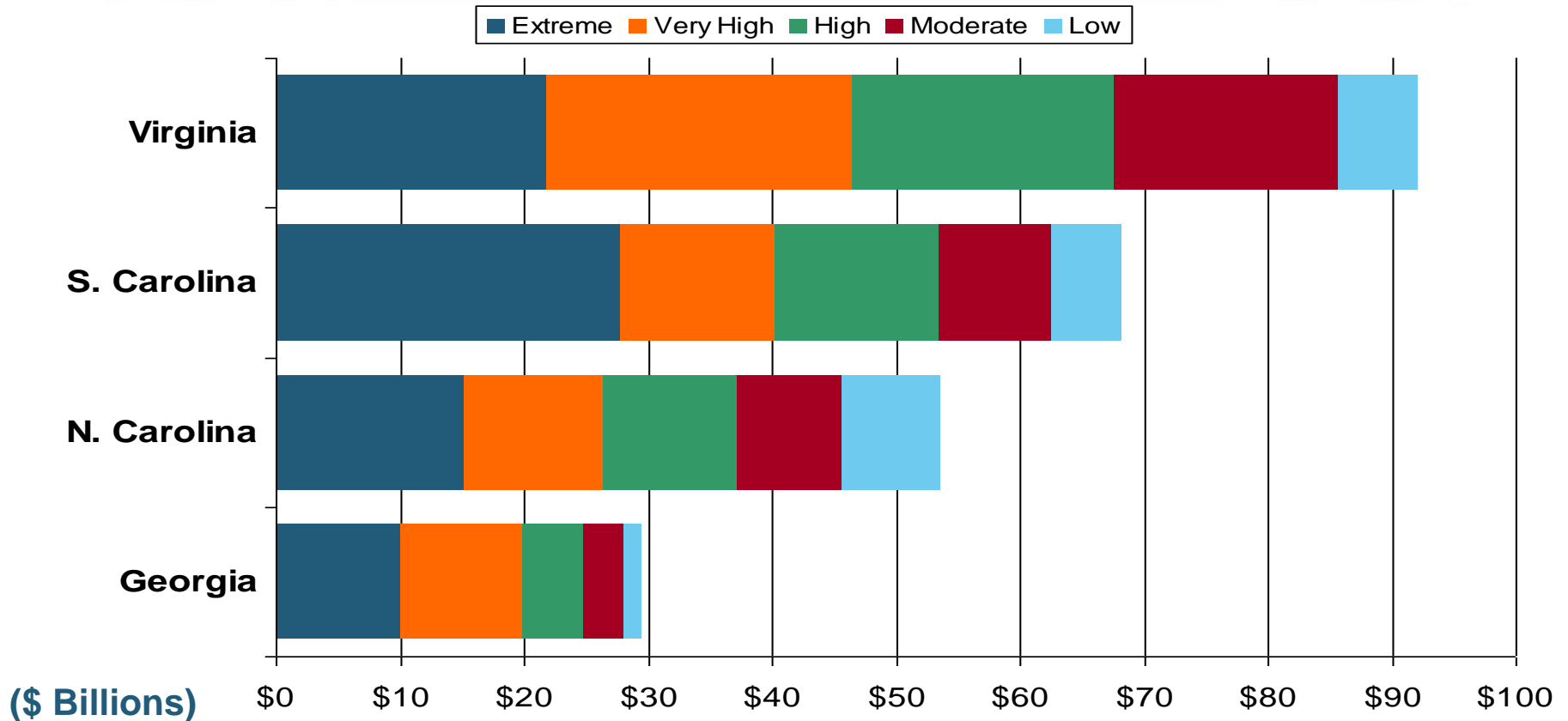
The insured value of all coastal property was estimated at \$10.6 trillion in 2012, up 48% from \$7.2 trillion in 2004.

Total Potential Home Value Exposure to Storm Surge Risk in 2014*



*Insured and uninsured property, assuming total loss of the home.
 Source: *Storm Surge Report 2014*, Table 2, CoreLogic, published July 2014.

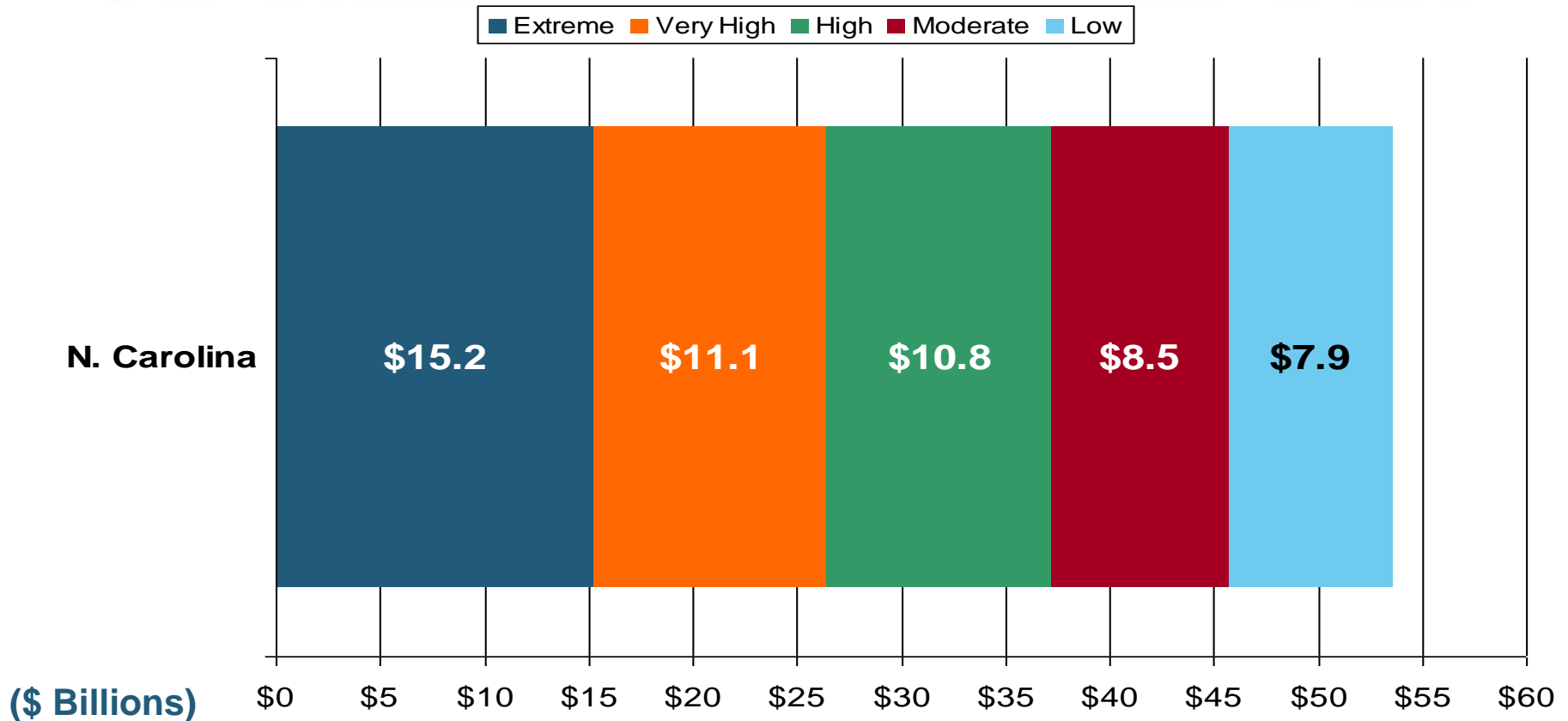
Total Potential Home Value Exposure to Storm Surge Risk in 2014*



CoreLogic estimated the reconstruction value of homes exposed to Storm Surge (assuming total losses). Only a fraction is insured for flood, hence the huge demand for federal aid following major coastal flooding events.

*Insured and uninsured property, assuming total loss of the home.
Source: *Storm Surge Report 2014*, Table 2, CoreLogic, published July 2014.

Total Potential Home Value Exposure to Storm Surge Risk in 2014*



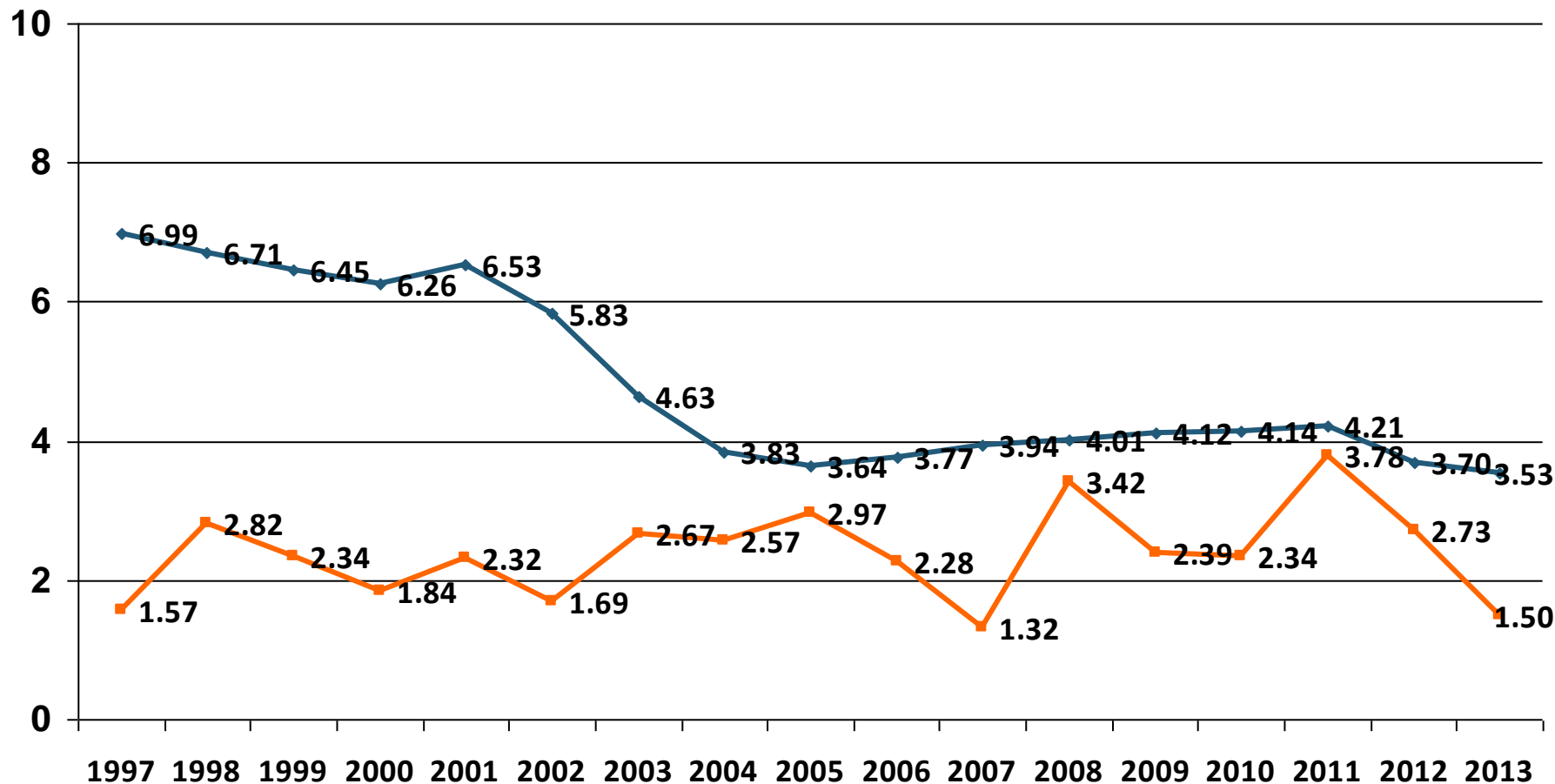
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P/C Industry Homeowners Claim Frequency, US, 1997-2013

Claims Paid per
100 Exposures

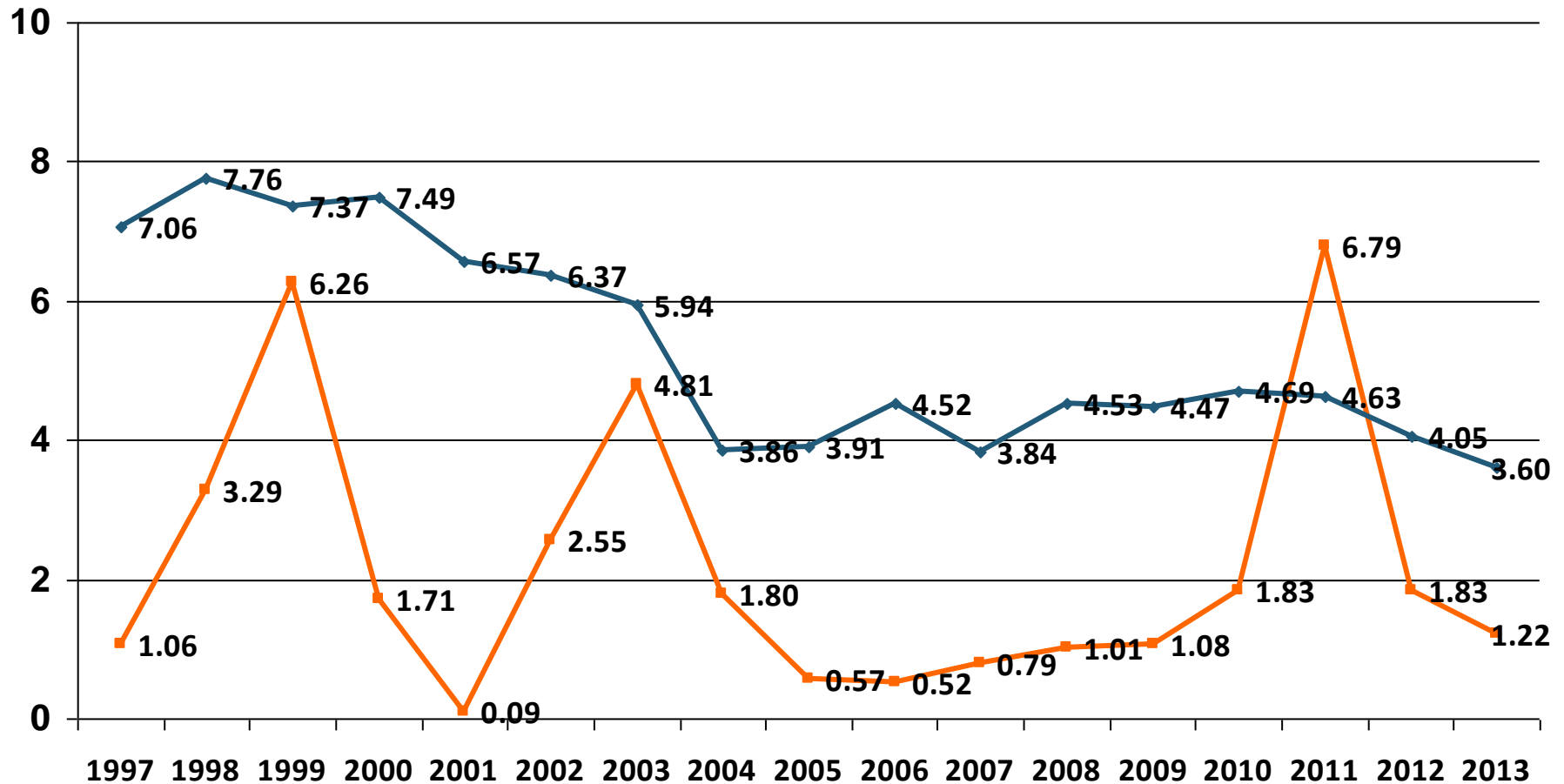
— CAT-related claims — Non-CAT-related claims



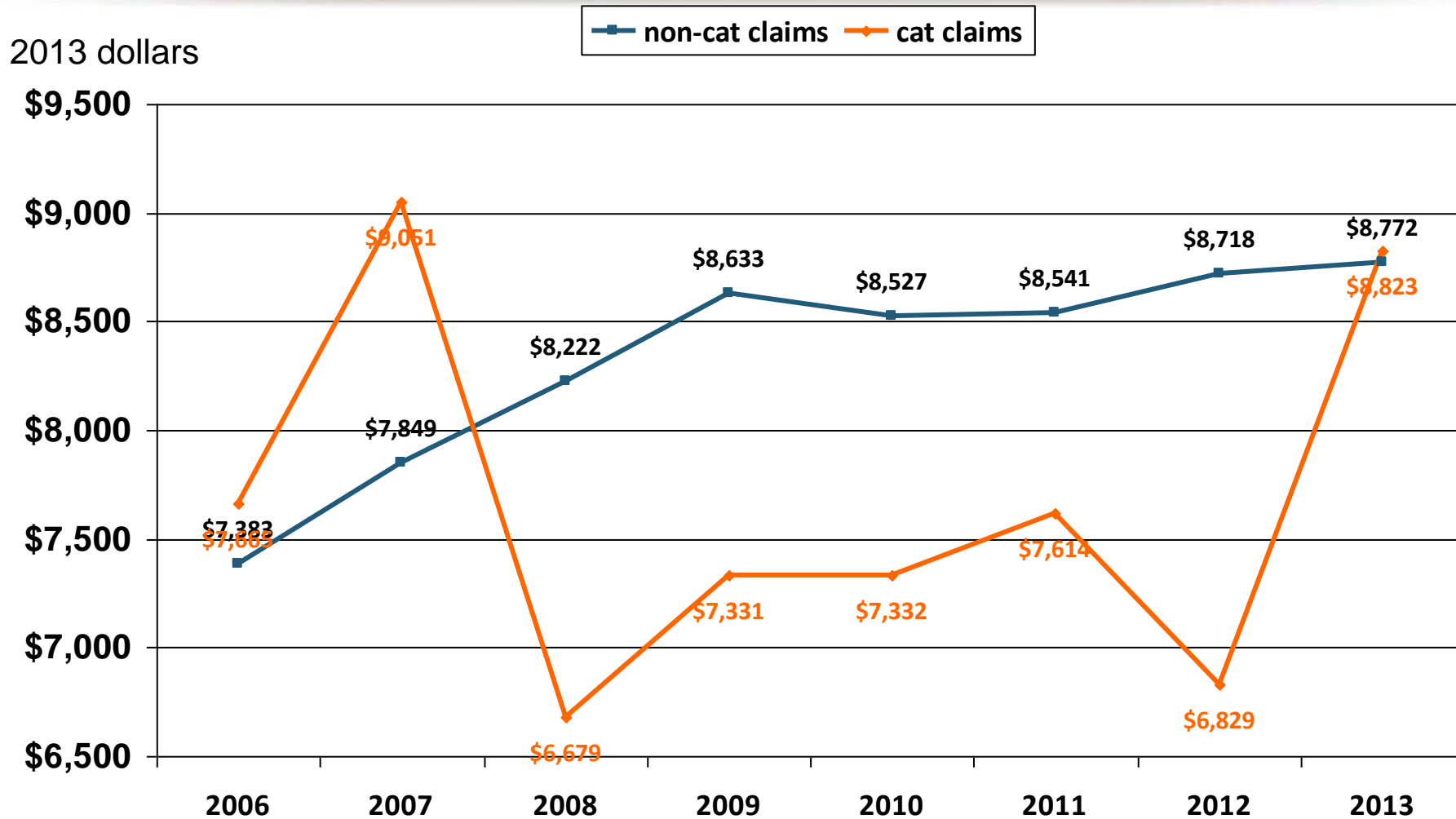
P/C Industry Homeowners Claim Frequency, North Carolina, 1997-2013

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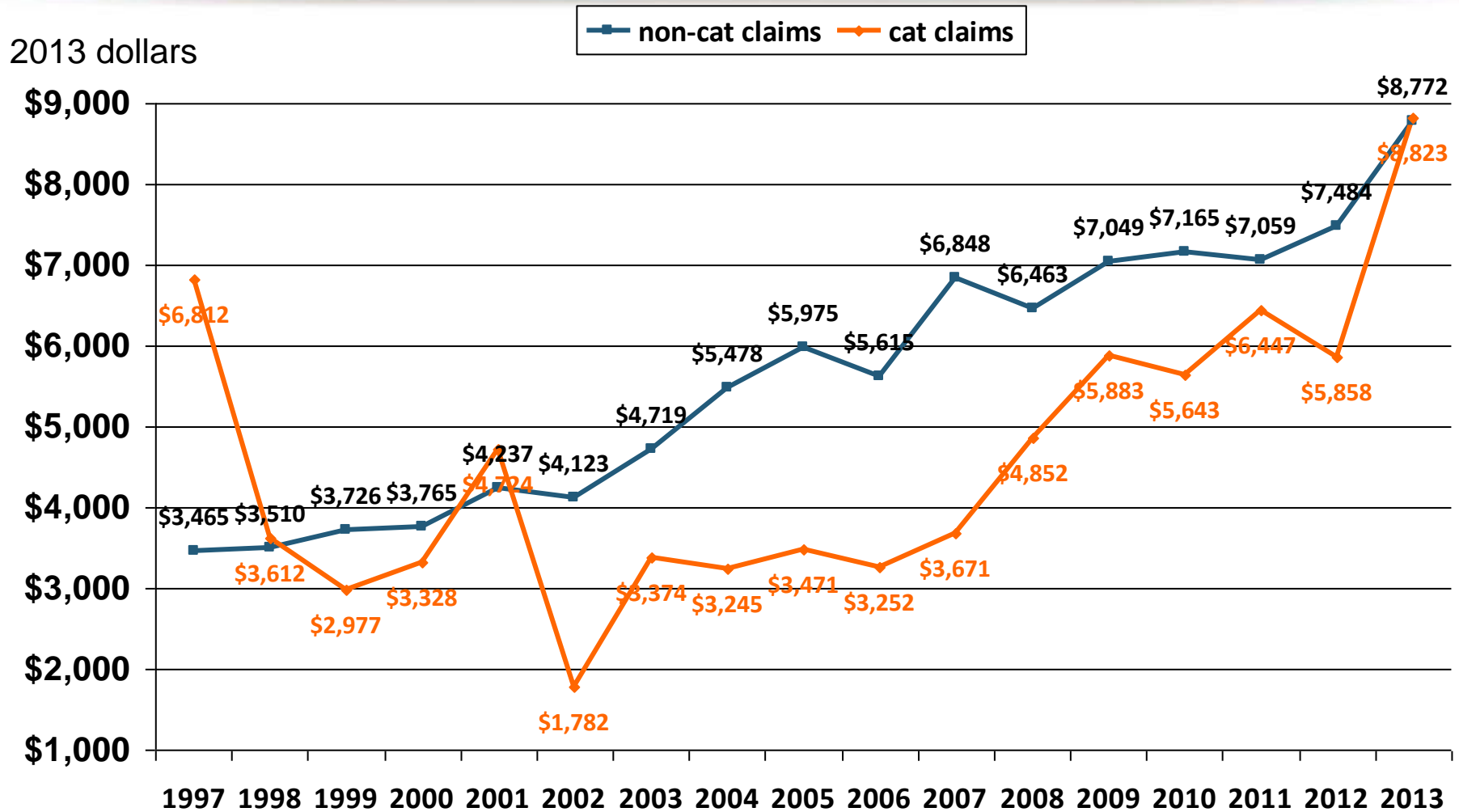


P/C Industry Homeowners Average Claim Severity, Inflation-adjusted, 2006-2013



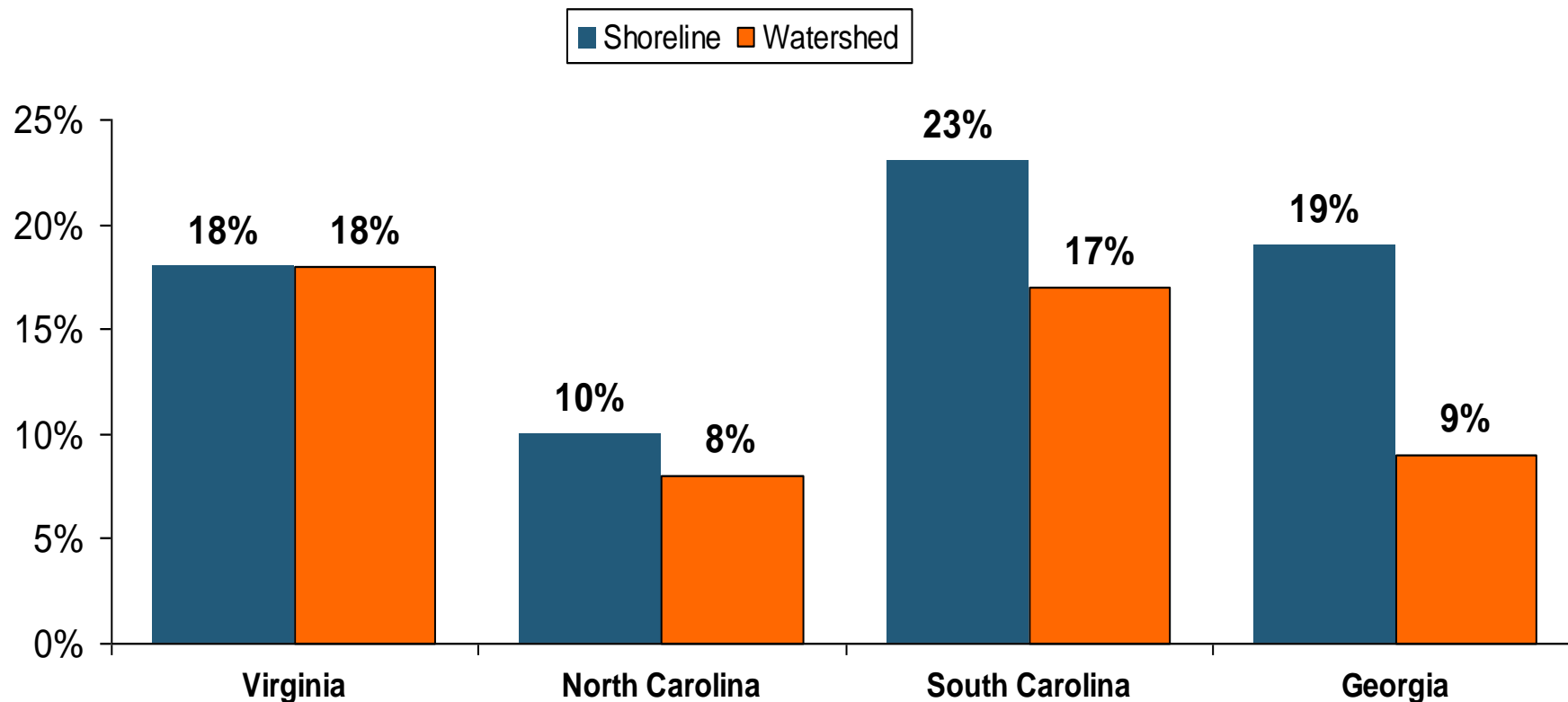
Sources: Insurance Research Council, "Trends in Homeowners Insurance Claims," 2015 edition, p. 41; BLS inflation calculator, with Insurance Information Institute calculations

P/C Industry HO Average Claim Severity, Inflation-adjusted, North Carolina, 1997-2013



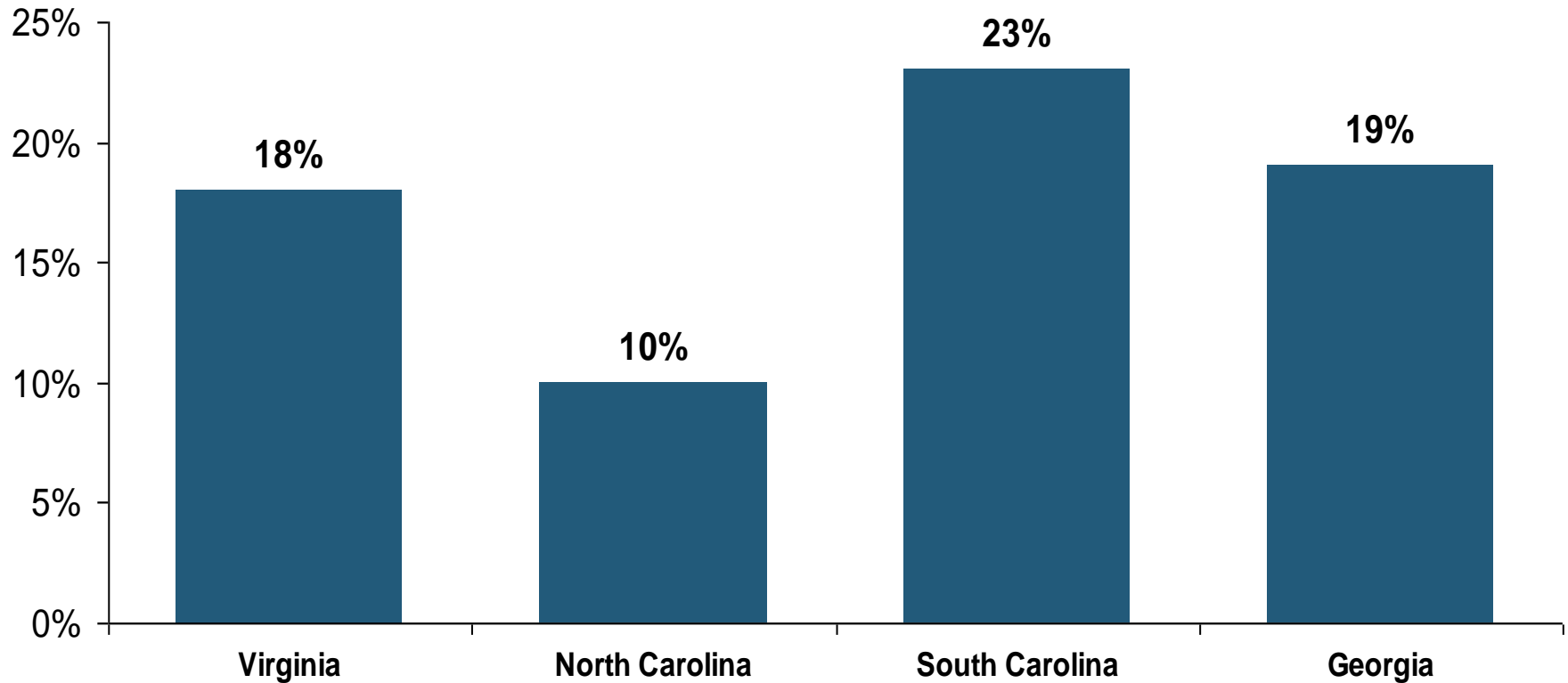
Sources: Insurance Research Council, "Trends in Homeowners Insurance Claims," 2015 edition, p. 81; BLS inflation calculator, with Insurance Information Institute calculations

Pct. Change in Population, Forecast for 2010-2020, for Coastal Shoreline/Watershed Counties, by State



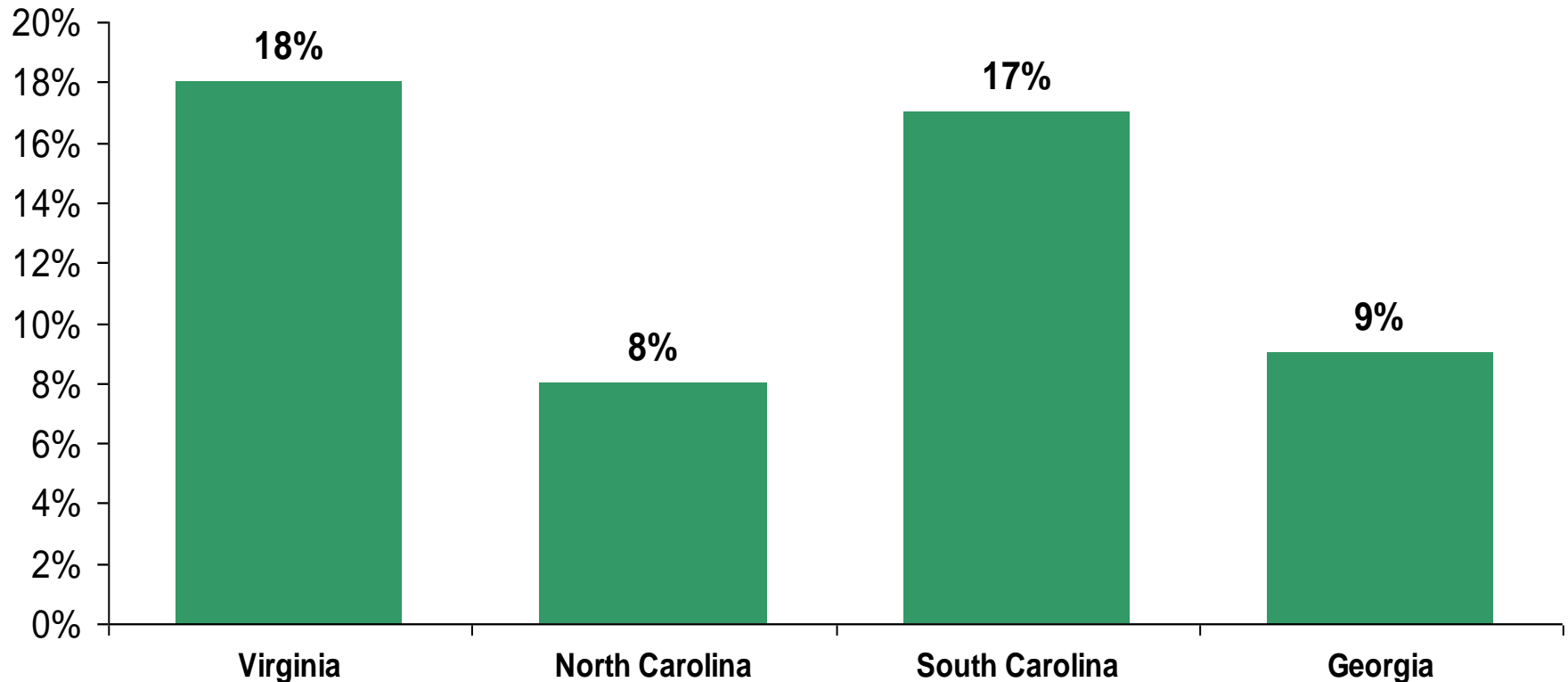
This population growth means not only more homes but more businesses, and more public buildings (schools, hospitals, etc.) and infrastructure in “harm’s way”

Pct. Change in Population, Forecast for 2010-2020, for Coastal Shoreline Counties, by State



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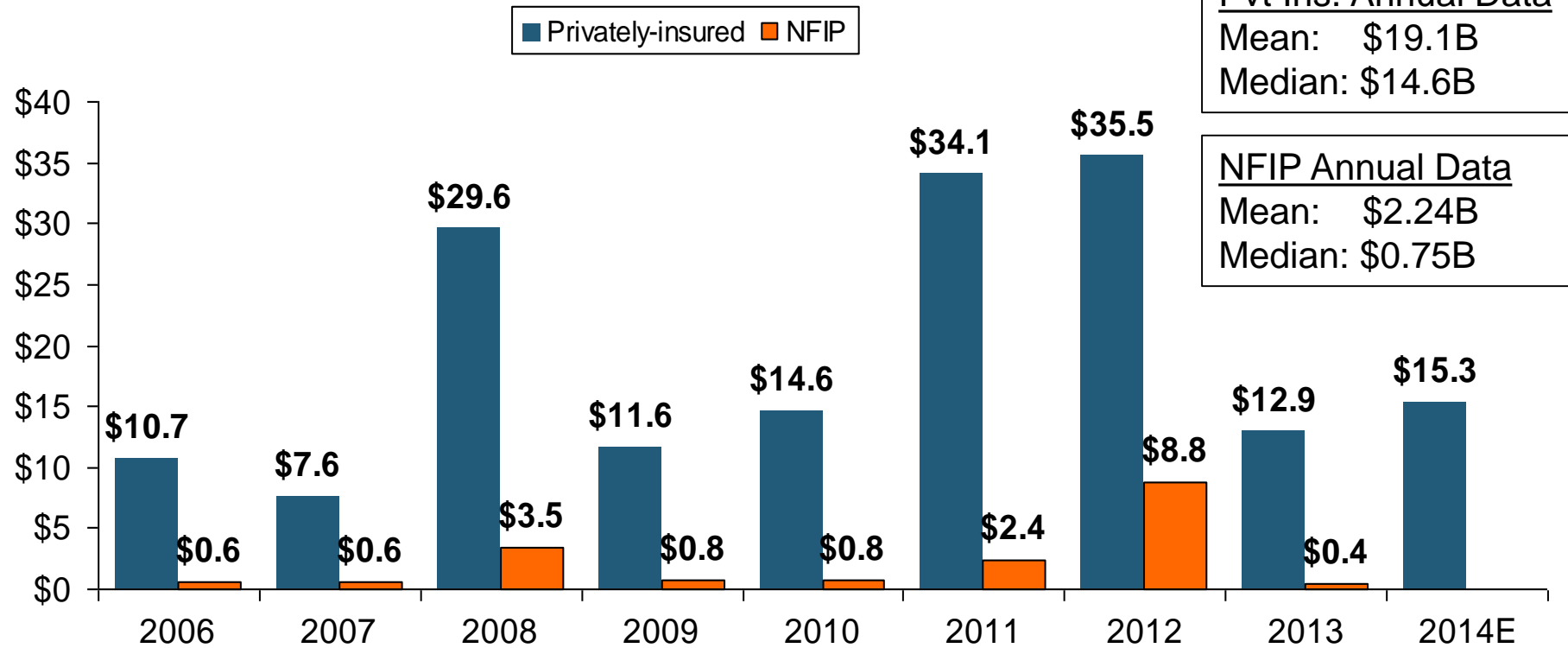
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Post-Katrina U.S. Insured Catastrophe Losses

(\$ Billions, \$ 2013)

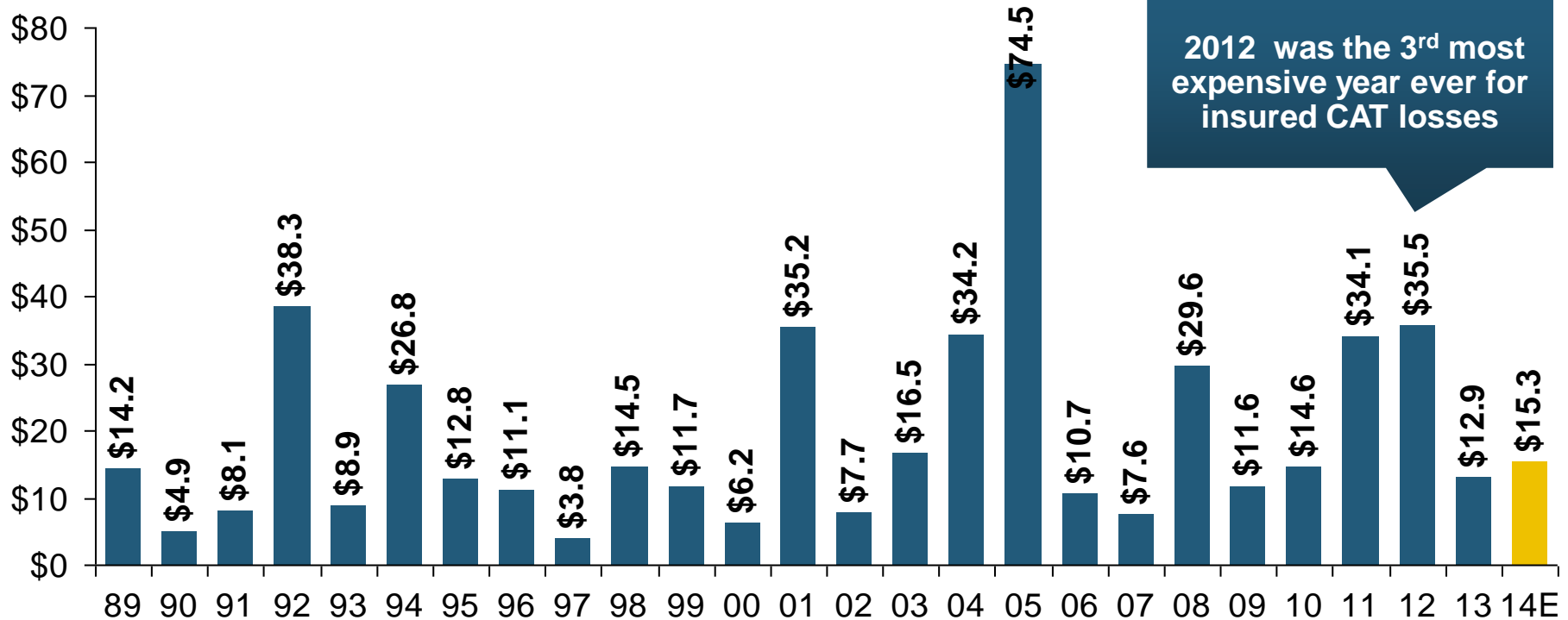


These numbers are national, not coastal, but are often largely coastal in origin. The volatility is obvious.

Sources: Property Claims Service/ISO; <https://www.fema.gov/statistics-calendar-year/loss-dollars-paid-calendar-year>
 Insurance Information Institute.

U.S. Insured Catastrophe Losses

(\$ Billions, \$ 2013)



2012 was the 3rd most expensive year ever for insured CAT losses

2013-14 were welcome respites from 2011-12, which were among the costliest years for insured disaster losses in U.S. history. Longer-term trend is for more—not fewer—costly events.

\$15.3 billion in insured CAT losses estimated for 2014

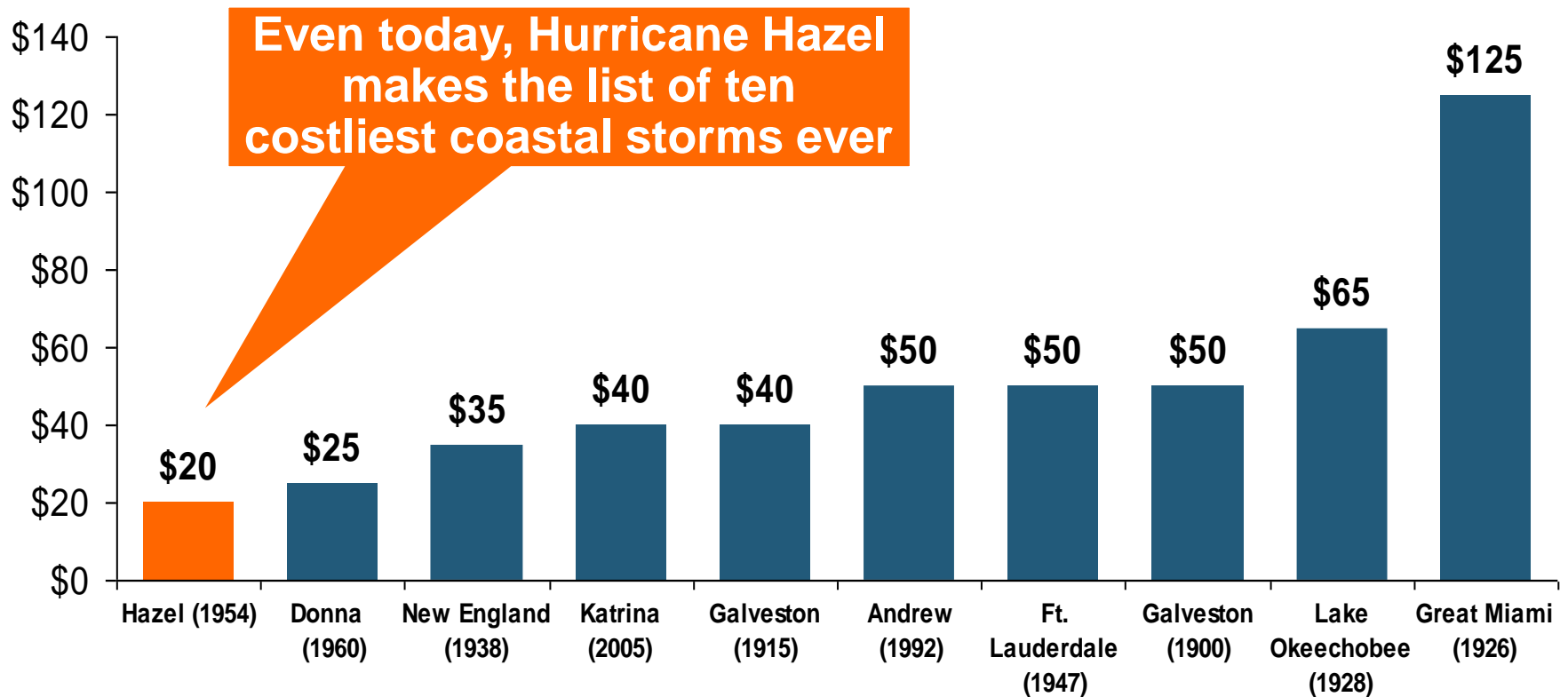
*Through 12/31/14.

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.

10 Costliest Coastal Storms in U.S. History (Adjusted for Development into 2012)

(Insured Losses,
2012 Dollars, \$ Billions)



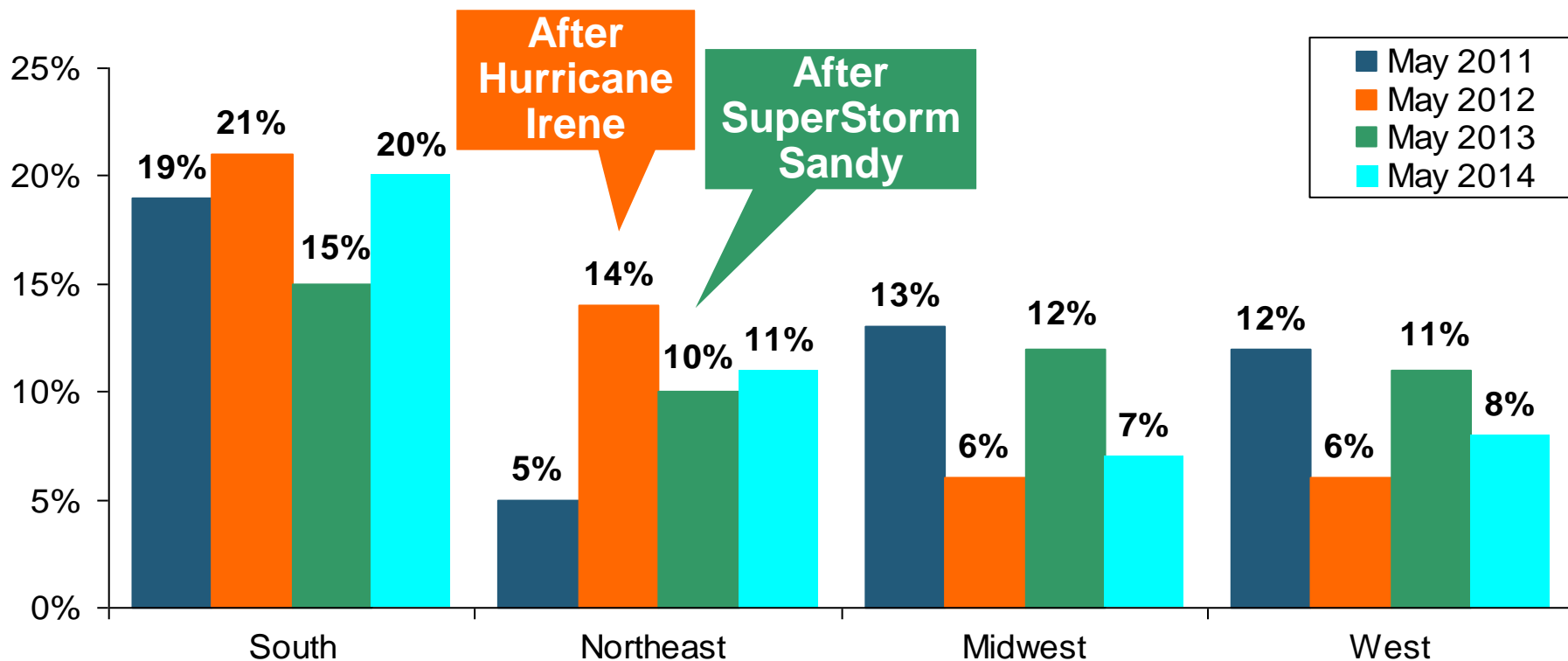
The \$7.9 billion in today's dollars doesn't reflect the significant additional construction of homes and businesses added since 1989.

Sources: Karen Clark & Company, "Historical Hurricanes that Would Cause \$10 Billion or More of Insured Losses Today," August 2012, p. 5; Insurance Information Institute

**Many People Who Probably
Should Buy Flood Insurance
Don't**

Even Frequent & Severe Floods Didn't Change Flood Insurance Ownership Much

Q. Do you have a separate flood insurance policy?¹

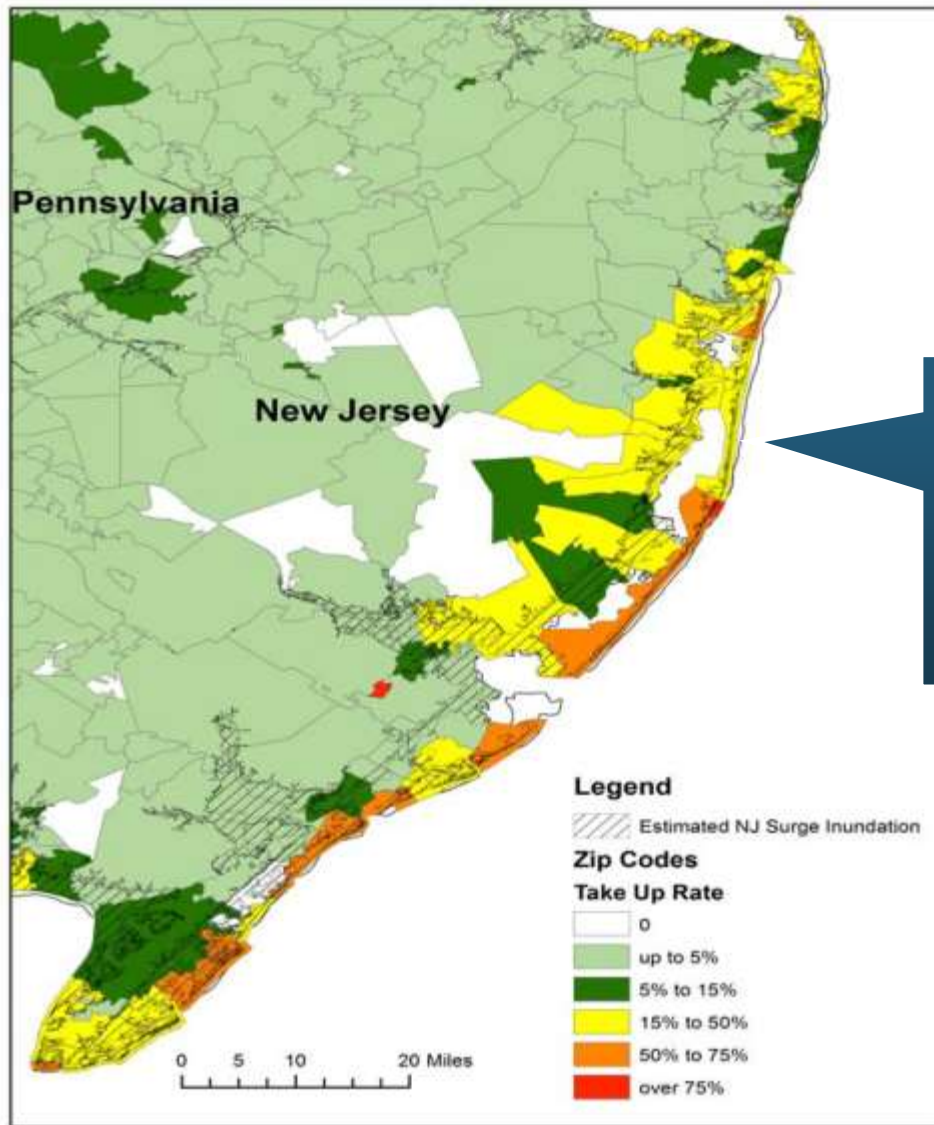


Despite extensive flooding (and wide publicity), few U.S. homeowners say they have a flood insurance policy; moreover, there is no upward trend.

¹Asked of those who have homeowners insurance and who responded "yes".

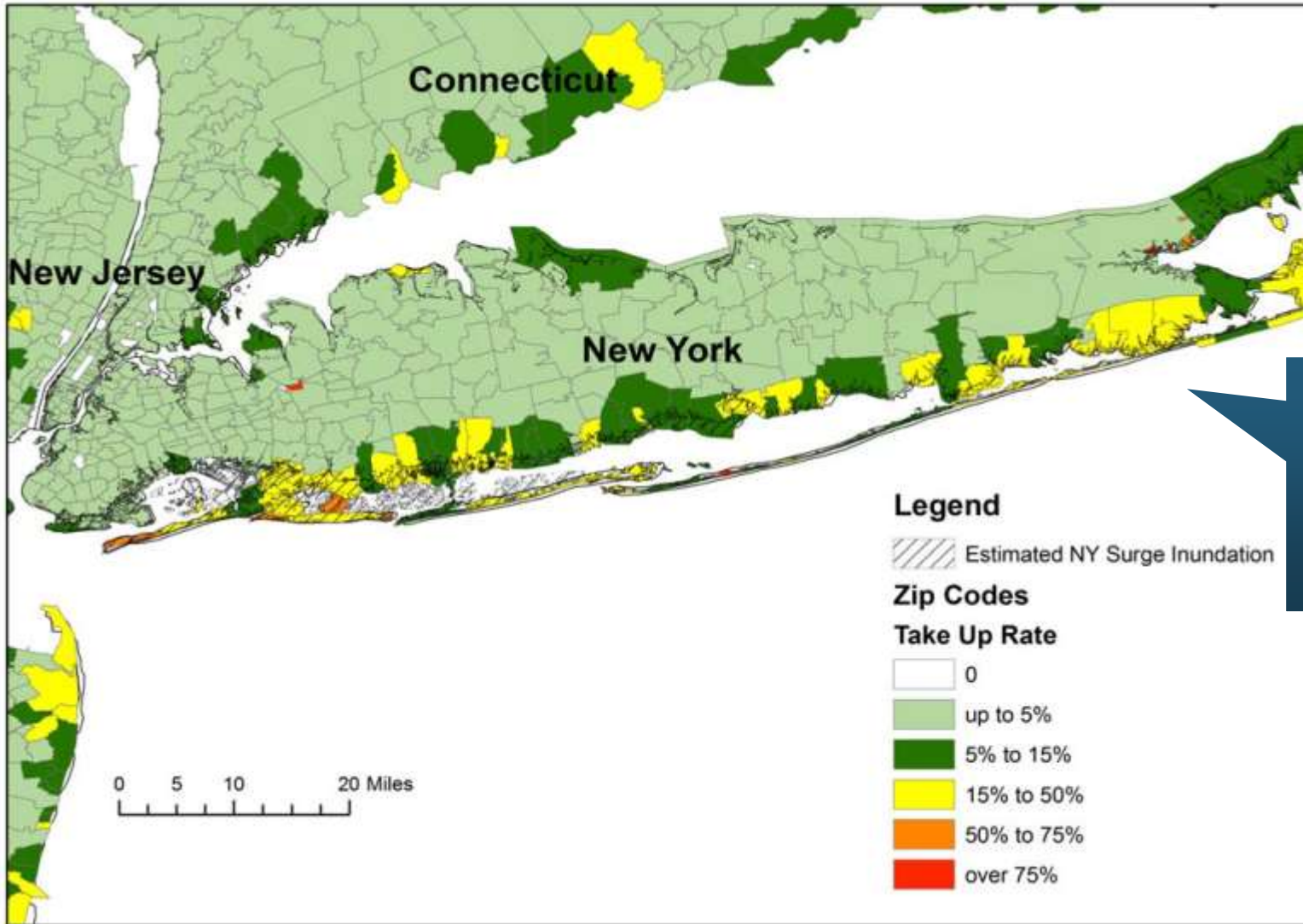
Source: Insurance Information Institute Annual *Pulse* Survey.

Residential NFIP Flood Take-Up Rates in NJ (2010) & Sandy Storm Surge



Flood coverage penetration rates were extremely low in many very vulnerable areas in NJ, with take-up rates far below 50% in many areas

Residential NFIP Flood Take-Up Rates in NY, CT (2010) & Sandy Storm Surge



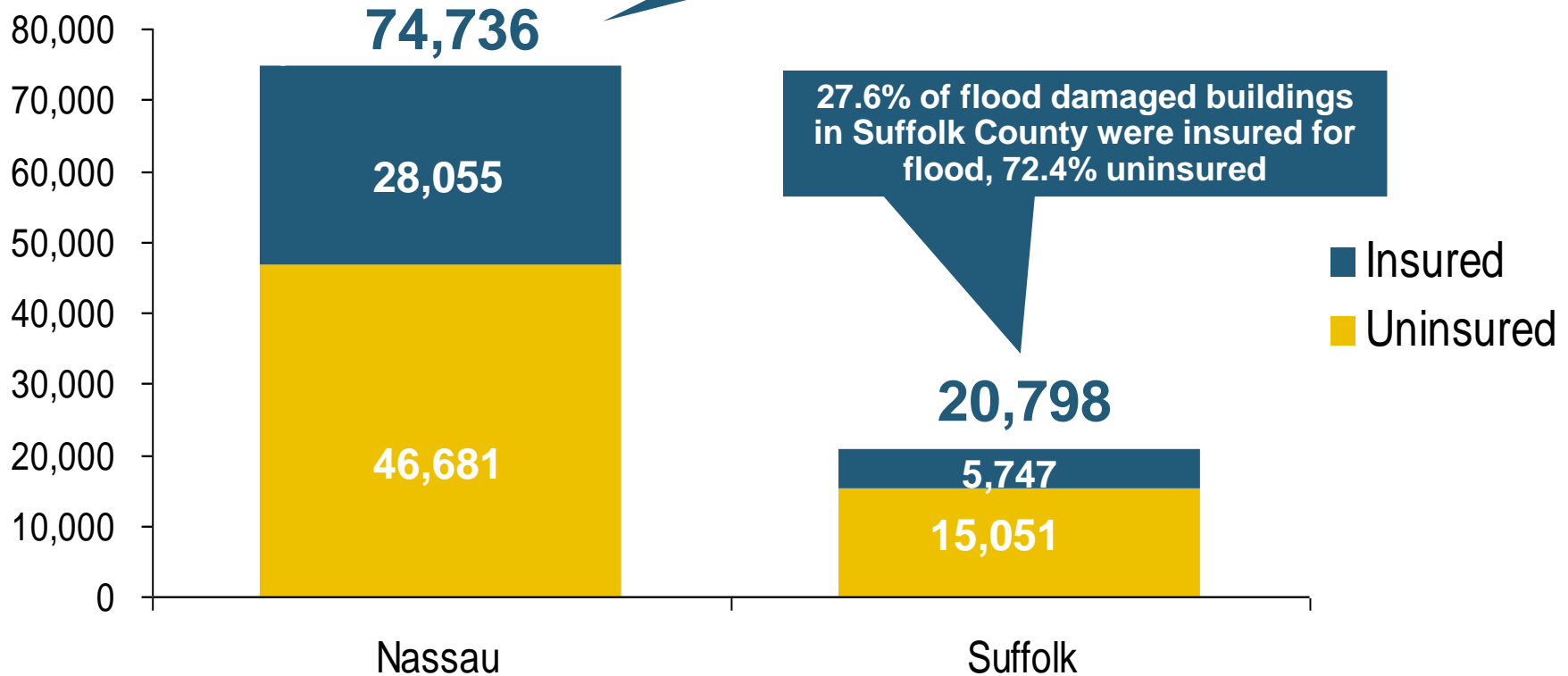
In many very vulnerable areas of NY and CT, take-up rates were far below 50%

Share of Flood Damaged Structures with Flood Insurance: Long Island

Only 37.5% of flood damaged buildings in Nassau County were insured for flood, 62.5% uninsured

27.6% of flood damaged buildings in Suffolk County were insured for flood, 72.4% uninsured

Number of buildings



The Maximum FEMA Grant is \$31,900. The Average Grant Award to Homeowners and Renters on Long Island is About \$7,300

Why Don't They Buy? They Don't Think They Will Ever Be Flooded

- What are the odds of a 100-Year flood occurring?
 - ◆ In any single year, 1 chance in a 100
 - ◆ So why buy flood insurance, year after year, for an event that is highly unlikely to happen?

- But suppose you own your home for 30 years. What is the chance of seeing a 100-year flood during the time you live there?
 - ◆ 1 chance in a 4
 - ◆ And the longer you live there, the greater the odds of a flood hitting your home

Flood Insurance Policies in Brunswick County, NC (as of 1/31/2015)

Number of Policies in Force	17,923
Amount of Insurance in Force	\$5,423,191,100
Amount of Insurance per policy	\$302,583
Annual Premium on in-Force Policies	\$20,920,329
Annual Premium per policy	\$1,167.23
Policies in Force as a Percent of Housing Units*	22.6%
Total Number of Claims, 1/1/1978 – 1/31/2015	6,928
Total Payments, 1/1/1978 – 1/31/2015	\$46,071,518.99
Claims Closed without Payment, 1/1/1978 – 1/31/2015	2,853
Claims Closed with Payment	4,075
Average Payment per Claim Closed with Payment	\$11,305.89
Claims still open	0

*number of housing units is for 2013

Sources: <http://bsa.nfipstat.fema.gov/reports/1011.htm#NCT> ; <http://quickfacts.census.gov/qfd/states/37/37019.html> (housing units); I.I.I.

Inconsistent Financial Behavior

A Risk Preference Test, Part 1

Imagine you have this choice:

- You may choose a gamble that offers an 80 chance of winning \$4,000 and a 20% chance of winning nothing, or
- You get a guaranteed \$3,000.

Which choice do you make?

4 out of 5 people chose the \$3,000.

A Risk Preference Test, Part 2

Now imagine that you won the gamble and have \$4,000 and you now have this choice:

- You may choose a gamble that offers an 80 chance of losing the \$4,000 and a 20% chance of not losing it, or
- You pay \$3,000 of your \$4,000 to avoid the gamble.

Which choice do you make?

92% of people chose the gamble.

Source: David Rolpeik, *How Risky Is It Really?: Why Our Fears Don't Always Match the Facts* (New York: McGraw-Hill, 2010), p. 40, citing Kahneman and Tversky.

Risk Preference Test Observations

- In the first test, involving only positive (or at worst non-negative) outcomes, most people are risk-averse. They choose the “sure thing.”
 - ◆ In part this is because the first dollars are more valuable to them than the higher amounts.

- In the second test, **involving only negative outcomes**, most people are loss-averse. They choose the gamble, hoping the worse outcome doesn't happen.
 - ◆ In part this is because the first dollars lost are more valuable to them than the higher amounts

Source: David Rolpeik, *How Risky Is It Really?: Why Our Fears Don't Always Match the Facts* (New York: McGraw-Hill, 2010), p. 40, citing Kahneman and Tversky.

What is a “Psychological Account”?

- An amount of money a person considers acceptable spending for a particular purpose
 - ◆ Classic example: you paid \$100 for a ticket for a concert but when you arrive to see it the ticket is gone. Another ticket is available for another \$100.
 - Do you spend another \$100 or
 - Have you spent the money in “the concert account” and go home?

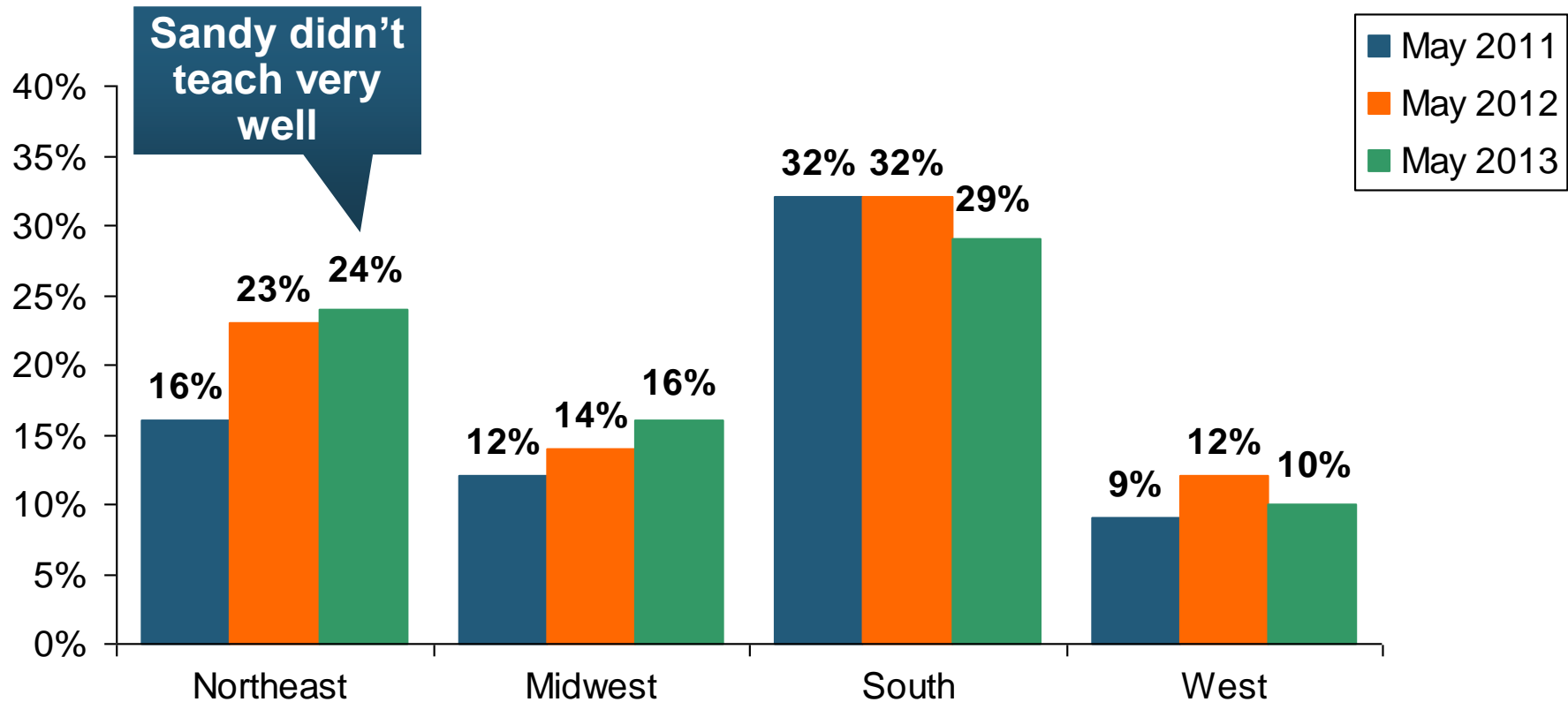
- I argue that the reason why some people don’t buy certain insurance coverages is that they have a psychological or mental account that is too small

Public Attitudes About Flood Insurance

**Even with Subsidies,
Most People Weren't Buying It**

1 in 4 with Homeowners Insurance Think That it covers Flood Claims

Q. Does your homeowners policy cover damage from flooding during a hurricane?¹



You might think that homeowners in the South, with perhaps greater exposure to flooding from hurricanes and thunderstorms, would be more aware that homeowners insurance doesn't cover flood claims.

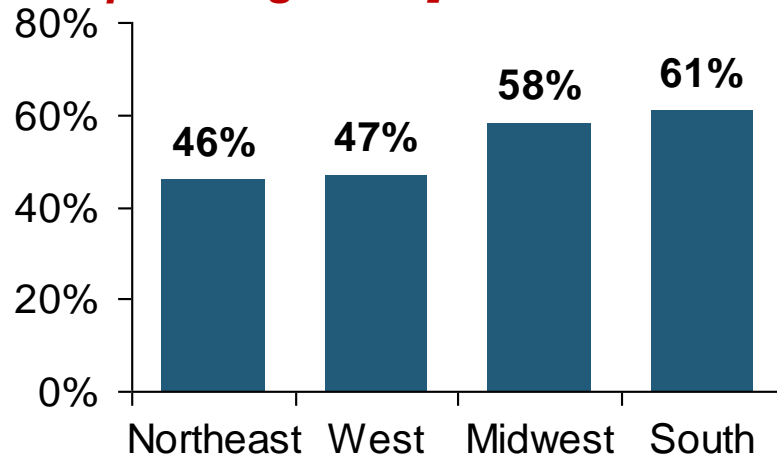
¹Asked of those who have homeowners insurance and who responded "yes".

Source: Insurance Information Institute Annual *Pulse* Survey.

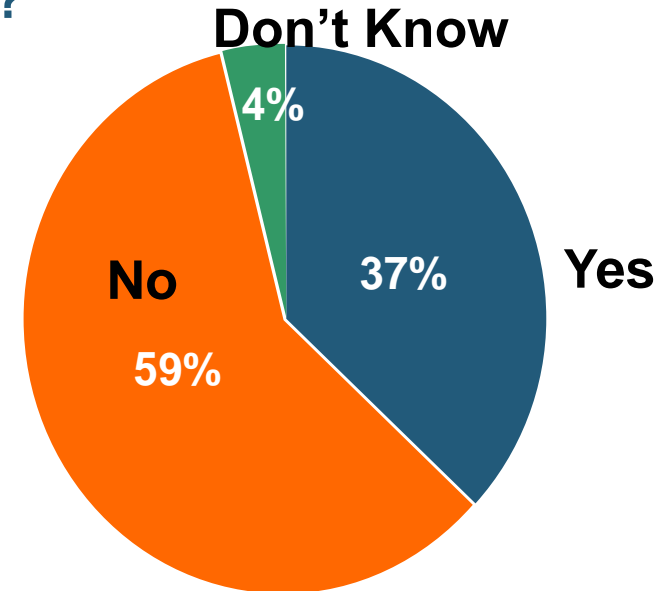
Flood Insurance: It's Not "Fair" for Premiums to Reflect Expected Claims

Q. The federal government plans to raise the price of flood insurance so it reflects the costs of paying claims. Do you believe this is fair?

[% Responding "NO"]



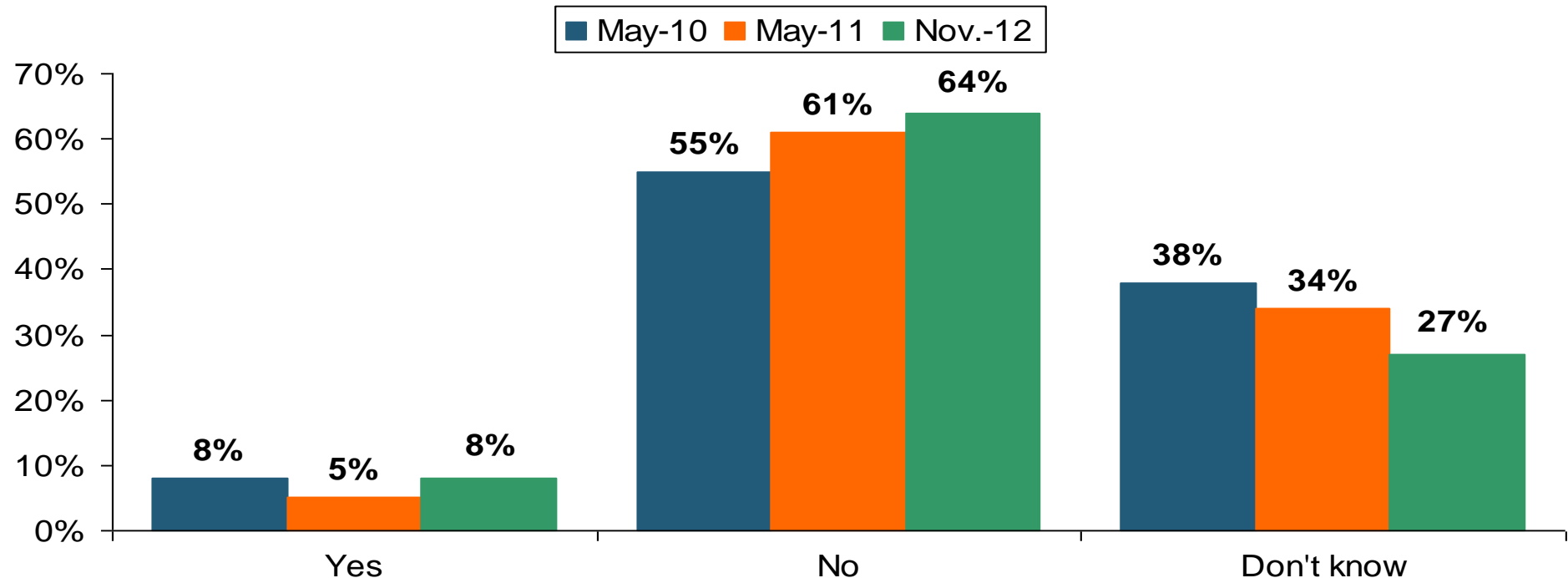
Q. Do you think that it is fair that people who live in areas affected by record storms in 2011 and 2012 should pay more for their homeowners insurance in the future?



A majority of Americans do not think it is fair for the federal government to raise its flood insurance premiums to better reflect claims payouts or to charge people who live in high-risk areas actuarially-fair premiums.

I.I.I. Poll: Disaster Preparedness

Q. Will the government pay for damage to your home that is not covered in your homeowners policy?¹



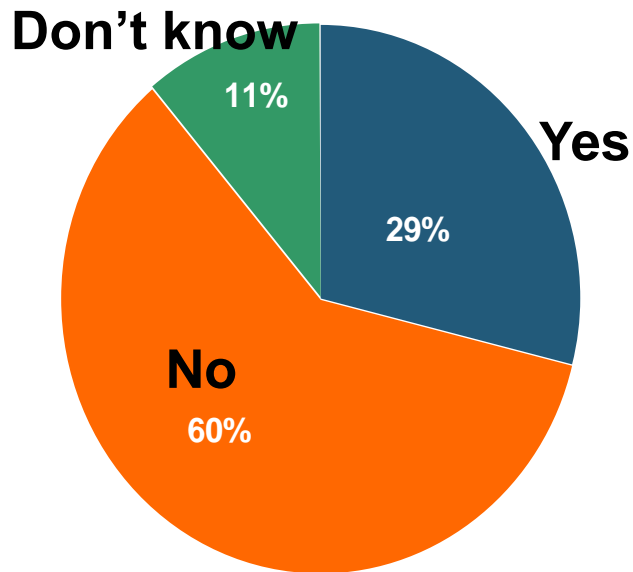
Sixty-four percent of homeowners say that the government will not pay for damage to their homes that is not covered by their homeowners policy.

¹Asked of those who have homeowners insurance and who responded "yes".

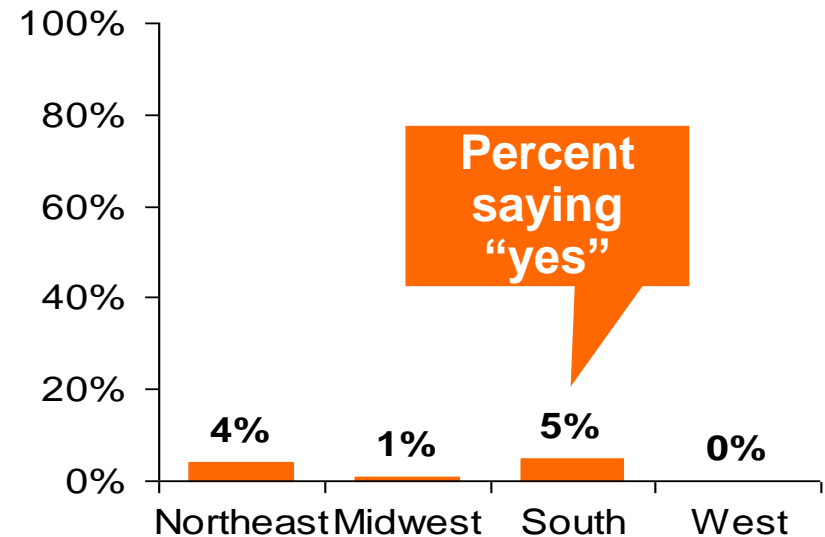
Source: Insurance Information Institute Annual *Pulse* Survey.

Why Buy Flood Insurance?

Q. Will the government provide you with funds to pay some of the disaster costs to your property?



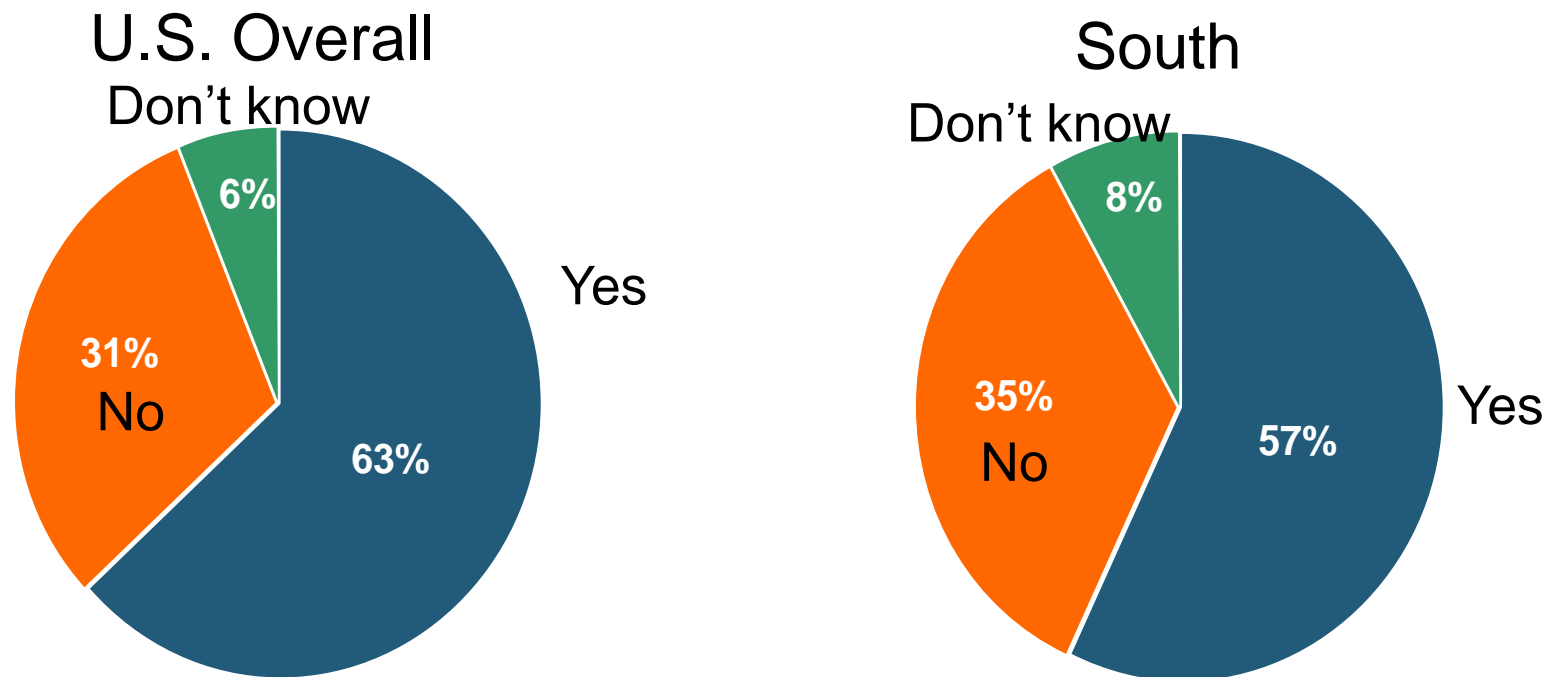
Q. Have recent flooding events such as Hurricane Sandy or Hurricane Irene motivated you to buy flood coverage?¹



30% of Americans believe the government will pay some of their disaster costs.

I.I.I. Poll: Should Flood Insurance Premiums Reflect Flood Risk?

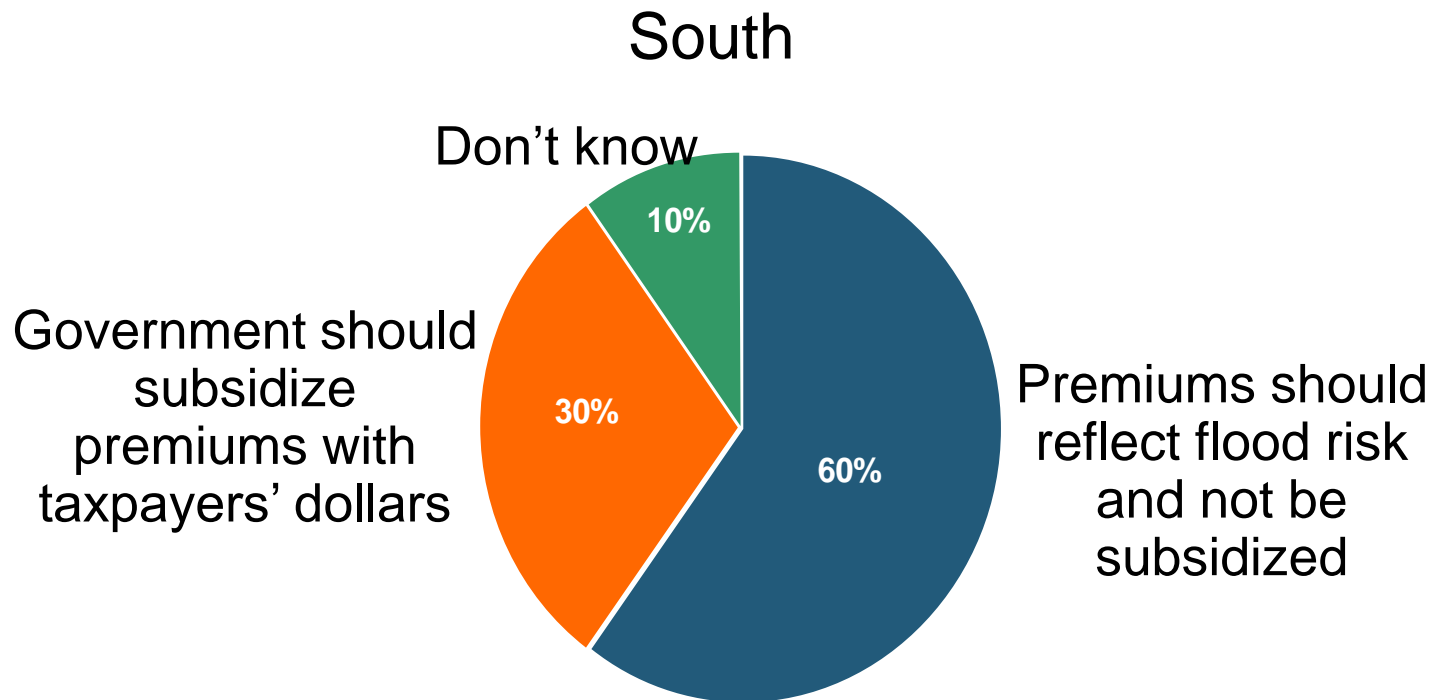
Q. Is it fair that flood insurance premium increases are higher if people who live in high flood risk areas and rebuild their homes do not elevate them?



In the South, a somewhat smaller percentage (than in the U.S. overall) believe that higher flood insurance premium increases should apply to homes that aren't elevated against flooding.

I.I.I. Poll: Should Flood Insurance Premiums Reflect Flood Risk?

Q. Should flood insurance premiums reflect the risk of flooding no matter what the cost or should the government subsidize the cost of flood insurance with taxpayers' dollars?



Three-fifths of Americans in the U.S. South think flood insurance premiums should be raised to reflect the risk of flooding.

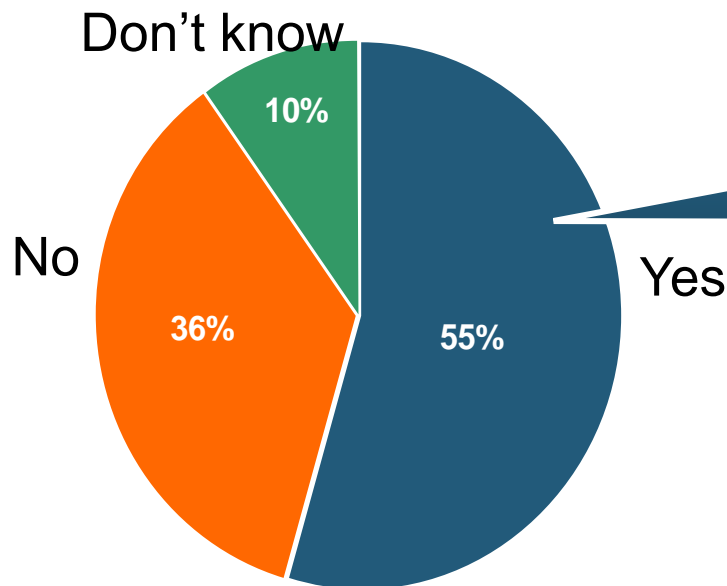
Congress Followed the Polls

- It passed the Biggert-Waters Flood Insurance Reform Act in mid-2012
 - ◆ The act had a 1-year wait to implement some provisions
 - ◆ The act had a 2-year wait to implement some other provisions

- During that period, we asked another poll question...

I.I.I. Poll: Should the Subsidies Be Restored?

Q. The federal government provides insurance coverage at taxpayer-subsidized rates for damage from floods through the National Flood Insurance Plan. A new law eliminates the subsidy and raises rates. Should the rate increase should be repealed?



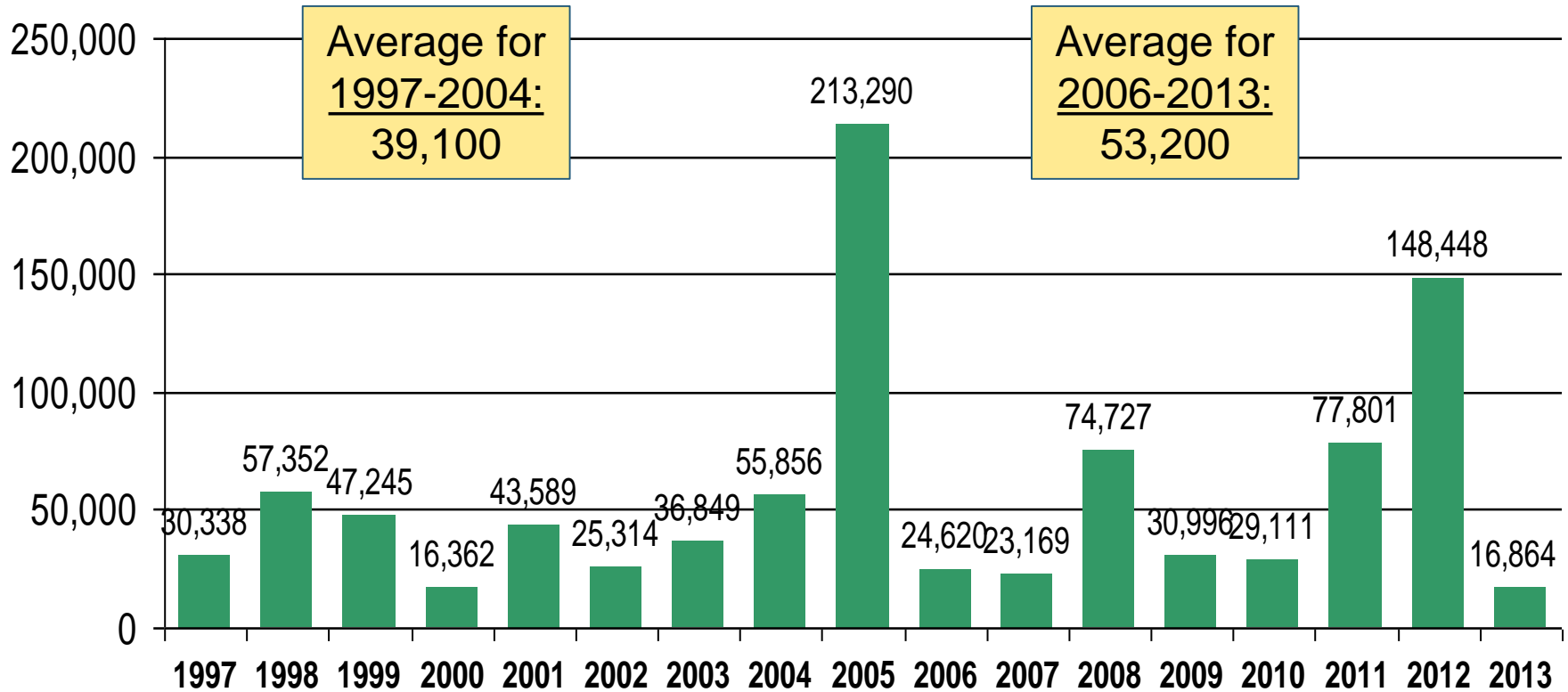
It is inconsistent for the public to support full-risk rates while wanting to maintain subsidies, but this exactly mirrors Congressional sentiments.

More than half of Americans polled for the November 2013 survey said National Flood Insurance premium hikes should be repealed.

Claims Management

Following KRW, the P/C Insurance Industry learned that it needed more claims adjusters

Number of NFIP Claims Paid, Yearly, 2005-2013*



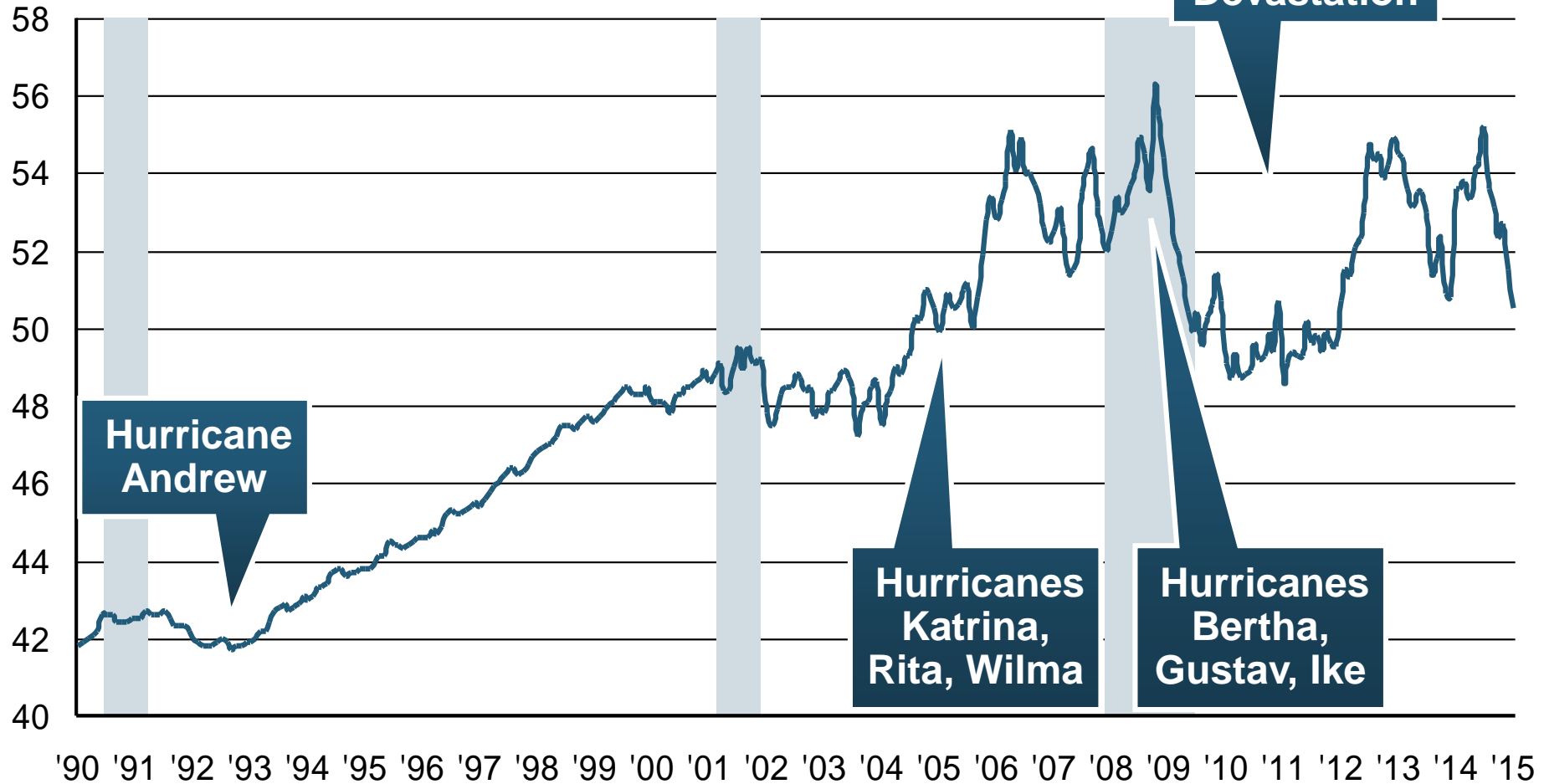
How many adjusters are needed each year to handle flood claims? Three times since 2005 NFIP has paid 75,000 claims in a calendar year; that never happened before. (And this excludes claims closed without payment.)

*calendar years; latest available (posted 7/24/2014)

Source: <http://www.fema.gov/statistics-calendar-year/number-losses-paid-calendar-year> ; Insurance Information Institute

U.S. Employment in Independent (Non-carrier) Claims Adjusting, 1990–2015*

Thousands

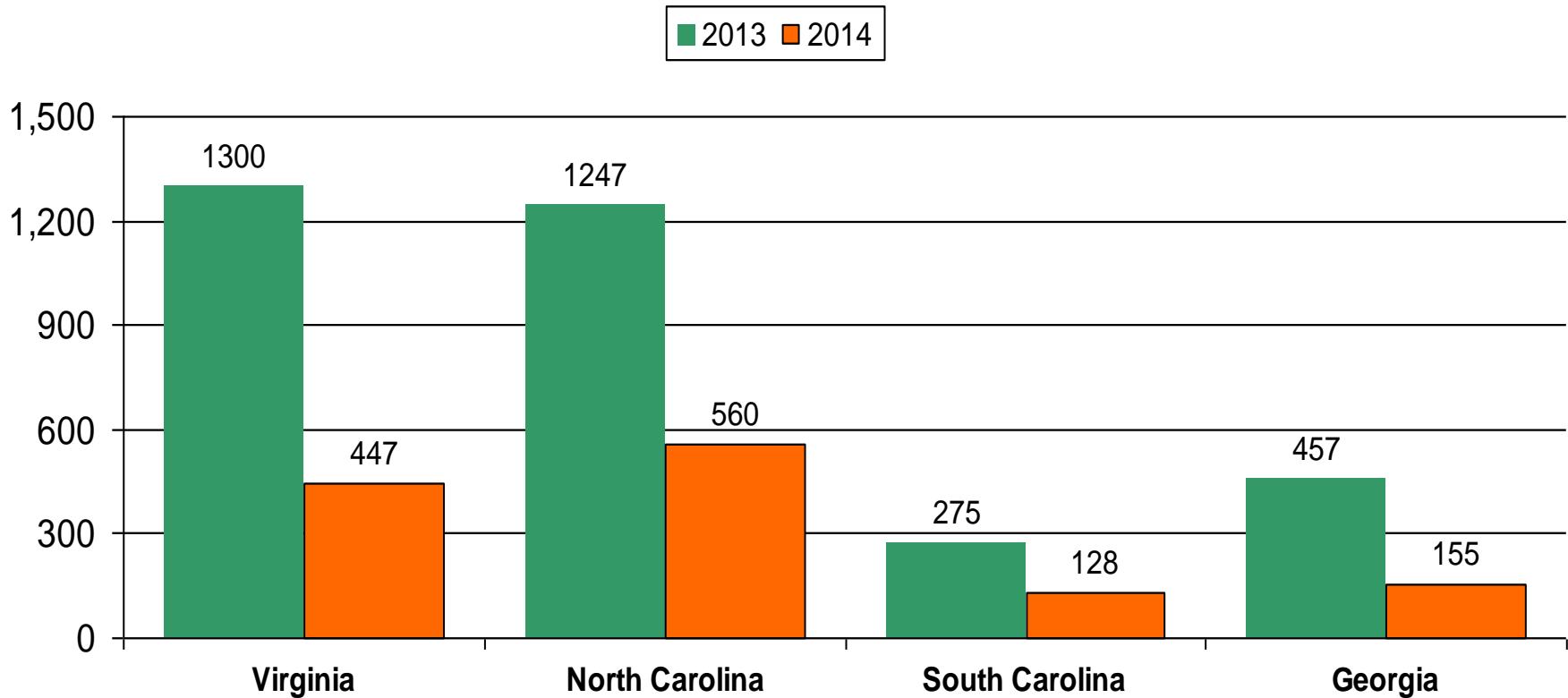


*As of January, 2015; not seasonally adjusted.

Note: Recessions indicated by gray shaded columns.

Sources: U.S. Bureau of Labor Statistics; National Bureau of Economic Research (recession dates); Insurance Information Institute.

Number of NFIP Claims Paid, 2013-14,* NC and Neighboring States

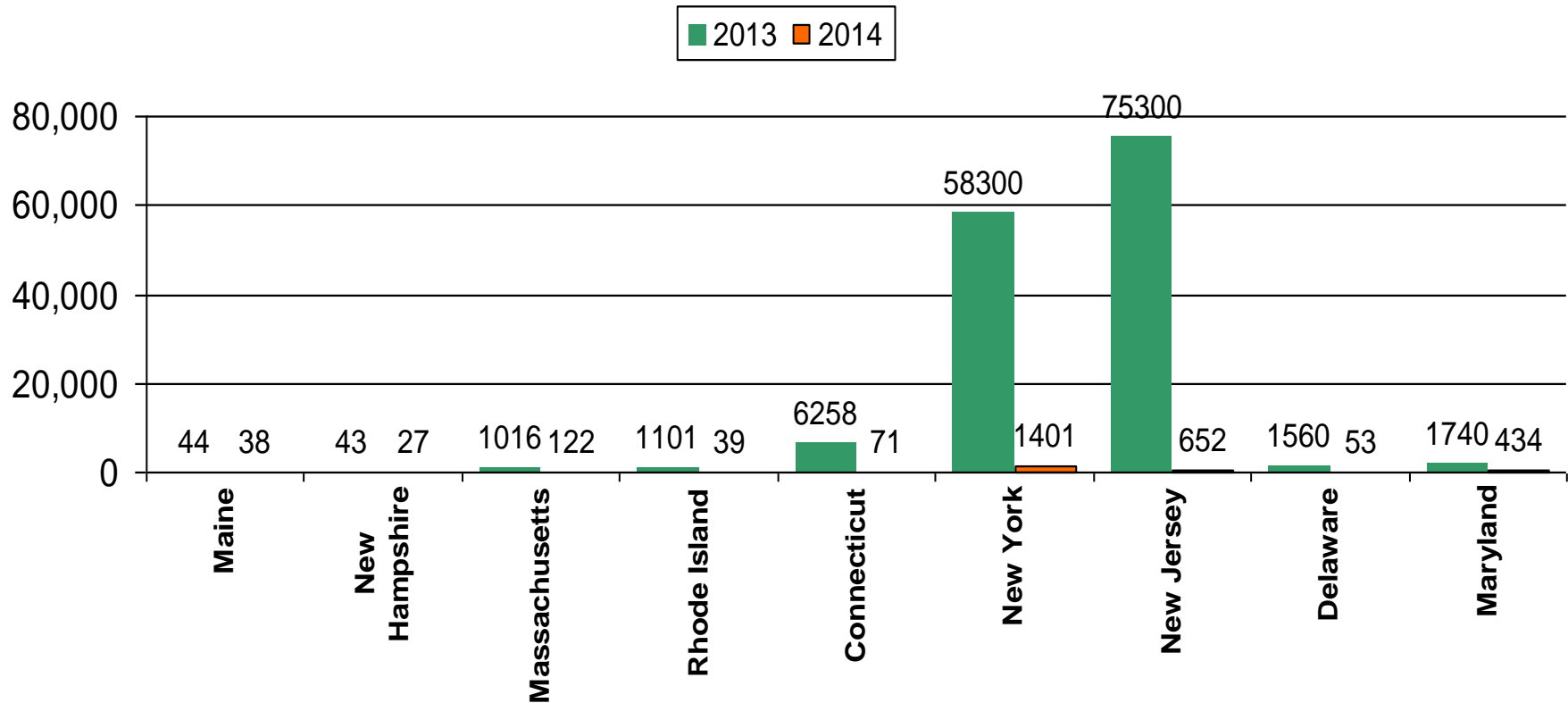


The number of paid claims varies from one year to the next.

*fiscal years, ending Sept 30 2013 and Sept 30 2014, respectively

Source: <https://www.fema.gov/media-library/assets/documents/21075> ; Insurance Information Institute

Number of NFIP Claims Paid, 2013-14,* Coastal New England and Mid-Atlantic States



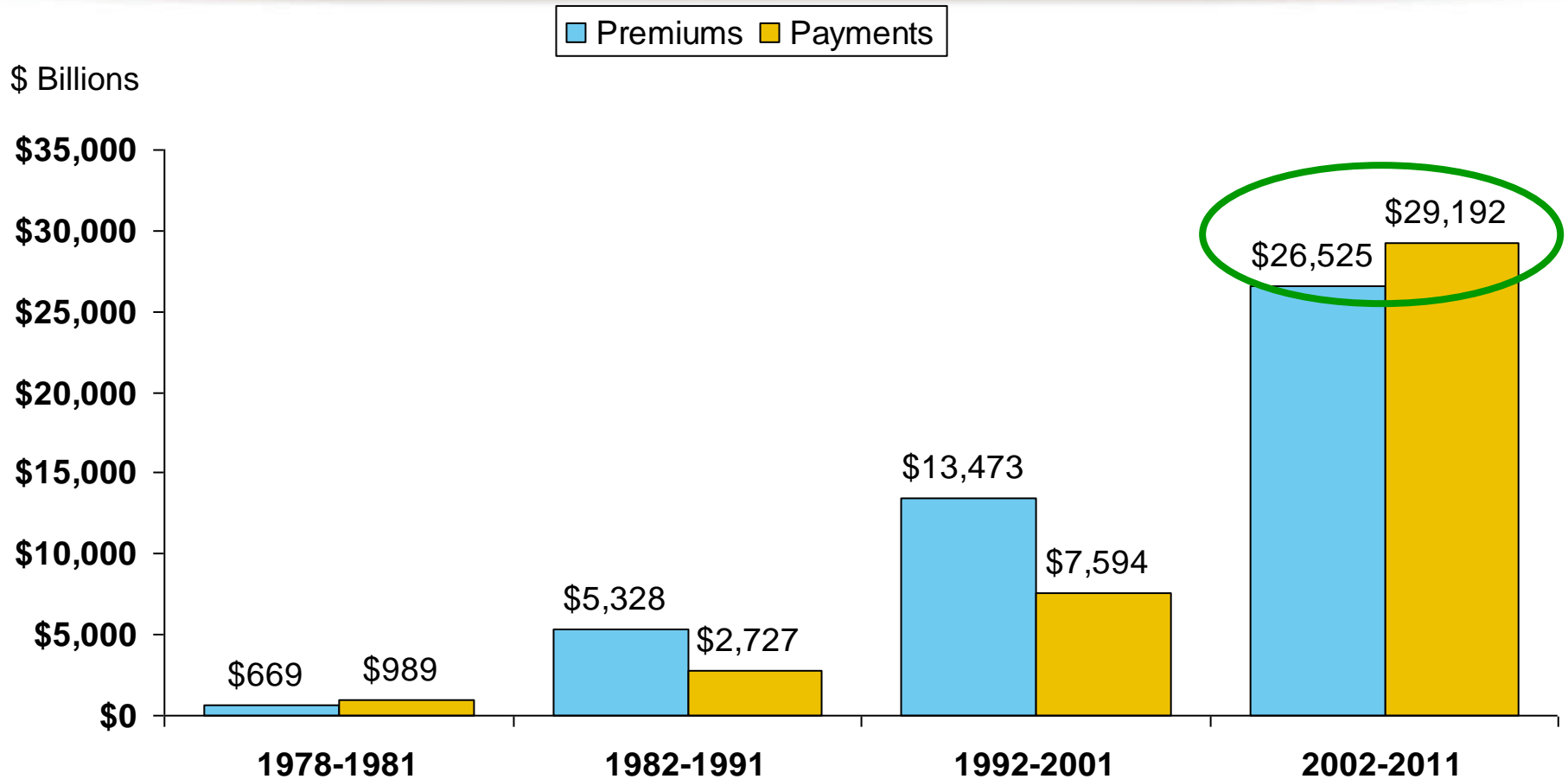
The number of paid claims varies from one year to the next and the trend isn't consistent from state to state.

*fiscal years, ending Sept 30 2013 and Sept 30 2014, respectively

Source: <https://www.fema.gov/media-library/assets/documents/21075> ; Insurance Information Institute

A [Really] Brief History of Flood Insurance in the U.S.

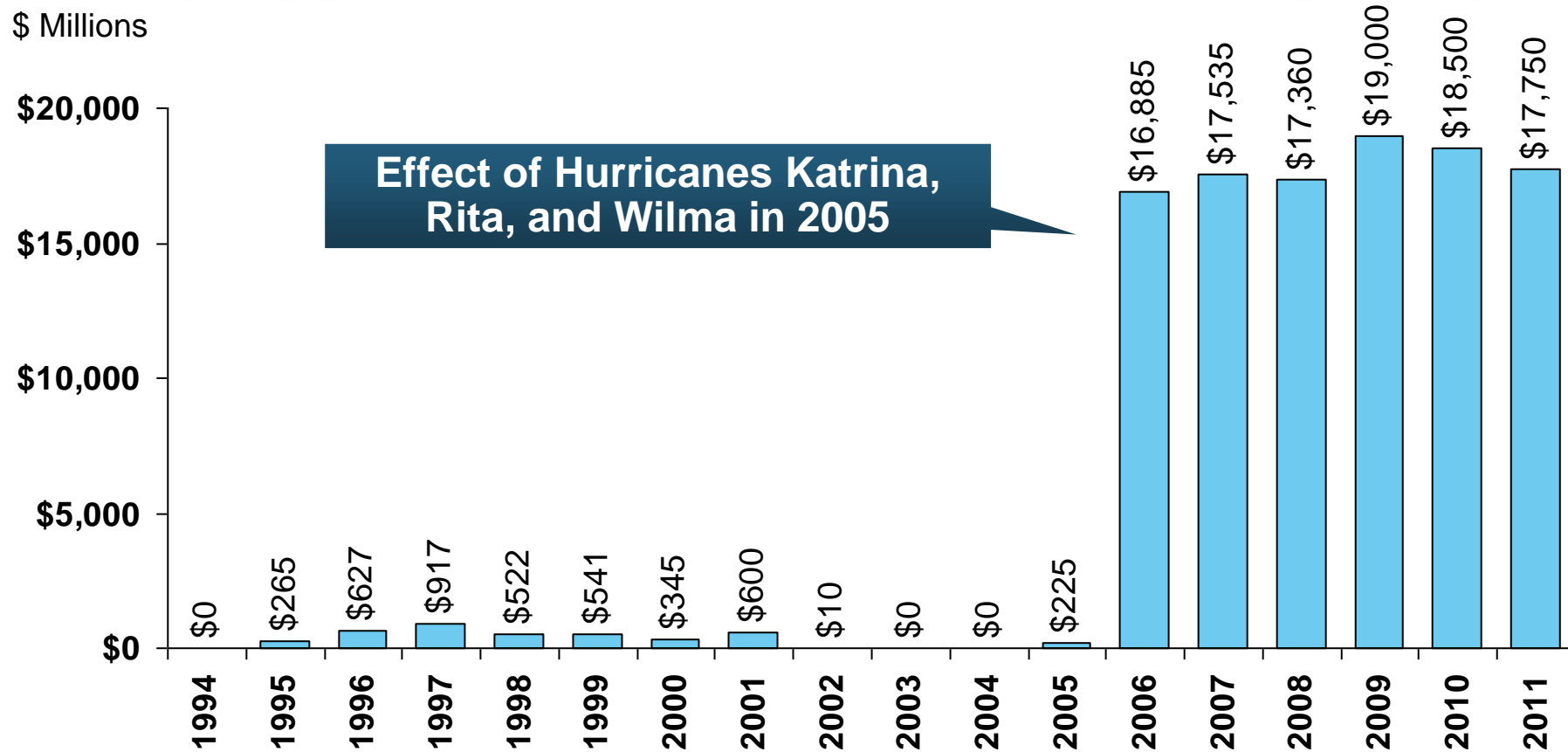
NFIP Premiums and Claims Payments



Claims payments exceeded premiums by over \$3 billion in the most recent decade

Sources: Rawle King, "The National Flood Insurance Program: Status and Remaining Issues for Congress," Congressional Research Service, Feb. 6, 2013, Table 3; Insurance Information Institute.

NFIP's Cumulative Debt to the U.S. Treasury, 1994-2011



Once the cumulative debt ballooned to over \$16 billion (and made worse in 2008 by Hurricanes Gustav and Ike) it became clear that the NFIP would never be able to retire the debt

People Don't Buy Flood Insurance Because They Don't Think They Will Ever Be Flooded, and Yet...

- Before superstorm Sandy struck, there were about 240,000 flood policies in force in New Jersey
- In the year after superstorm Sandy struck, 75,300 flood insurance claims were filed
- So a little less than 1 in 4 flood insurance policyowners filed a claim in one year

The Flood Insurance Reform Act of 2012 (Biggert-Waters)

Who Are Biggert and Waters?

Judy Biggert, Republican,
former congresswoman from
Illinois' 13th district



Maxine Waters, Democrat,
congresswoman from California's
43rd district



Biggert-Waters: Main Provisions

- Eliminates subsidies on
 - ◆ Second homes
 - ◆ Commercial properties
 - ◆ Properties with severe repetitive claims
 - ◆ Properties that incurred damage in excess of fair market value
 - ◆ Policies lapsed (not immediately renewed)
 - ◆ Primary homes when sold

- National Academy of Sciences to report on the “affordability” of NFIP premiums

The Homeowner Flood Insurance Affordability Act of 2014

Signed into law on March 21, 2014

Repeals and modifies some provisions of Biggert-Waters Flood Insurance Reform Act of 2012

Makes other changes not in B-W

Summary of the 2014 Law

- Lowers recent rate increases on some policies
- Prevents some future rate increases
- Implements an annual surcharge on all policies
 - ◆ \$25 on primary residences
 - ◆ \$250 on all other properties
 - ◆ Annual surcharges remain until all premiums are at actuarially appropriate levels and all subsidies are eliminated
- Repeals certain rate increases that had already gone into effect
 - ◆ Provides refunds
- Increases maximum deductibles
- Mandates that FEMA develop an installment plan for non-escrowed flood insurance premiums

Summary of the 2014 Law (cont'd)

- Creates a “Flood Insurance Advocate” to advocate for fair treatment of NFIP policyholders
 - ◆ Helps policyholders and property owners understand the procedures related to
 - appealing preliminary flood maps and
 - Implementing measures to mitigate evolving flood risks
 - ◆ Educate property owners on
 - measures to reduce flood insurance rates through effective mitigation
 - The flood insurance rate map review and amendment process
 - ◆ Help potential policyholders in obtaining and verifying accurate and reliable flood insurance rate information when buying or renewing a flood insurance policy

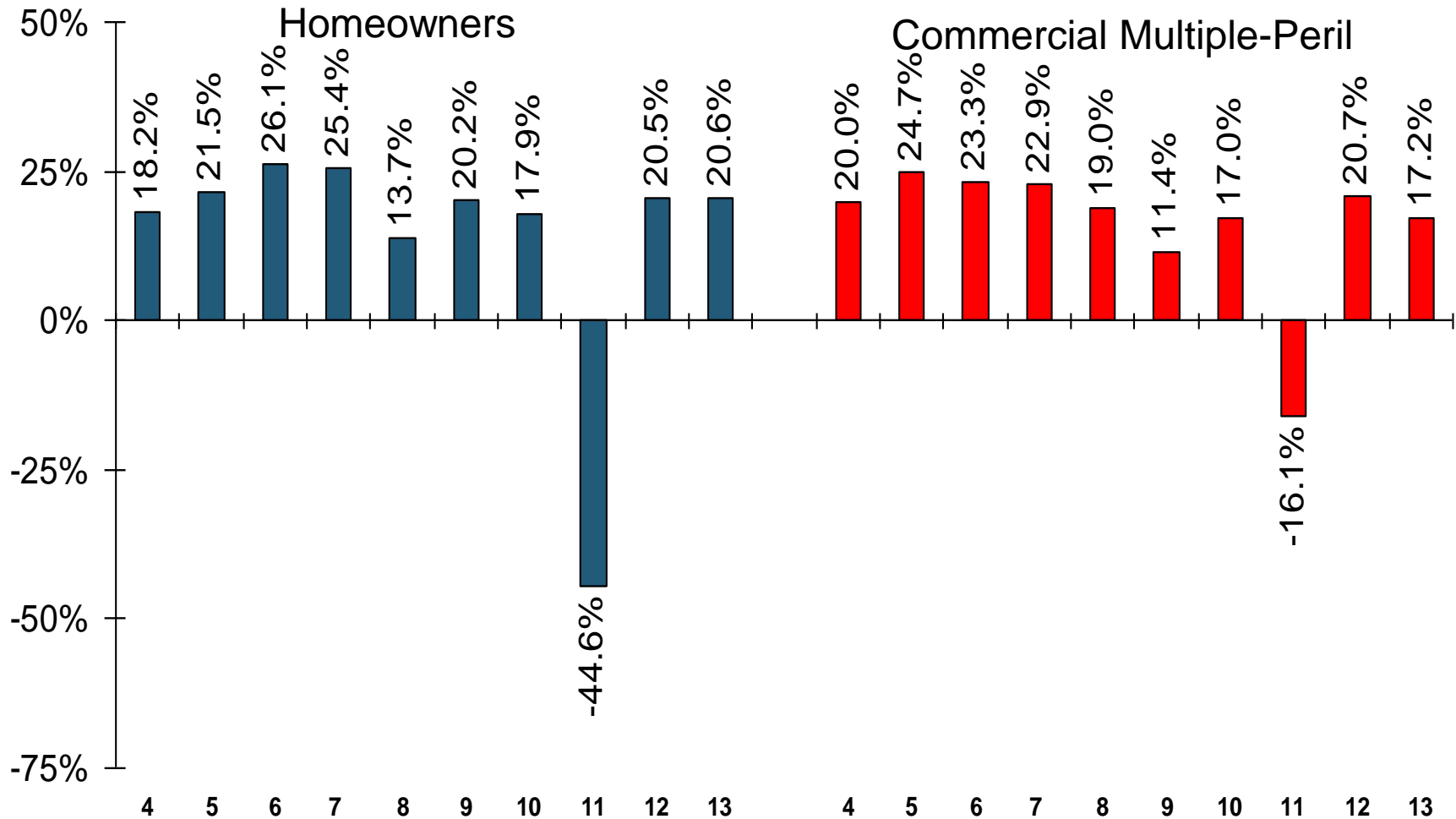
Summary of the 2014 Law (cont'd)

- Authorizes additional resources for a study of affordability by the National Academy of Sciences
 - ◆ Due September 2015
 - ◆ The “affordability framework” must consider
 - Accurate communication to consumers of the flood risk
 - Targeted assistance based on financial ability to pay
 - Individual and community actions to mitigate flood risk or lower the cost of flood insurance
 - The effect of increases in premium rates on participation in NFIP
 - The impact of mapping updates on affordability of flood insurance
 - ◆ Must include proposals for ensuring that flood insurance is affordable among low-income populations.

Private Insurance Capacity Against Property Claims

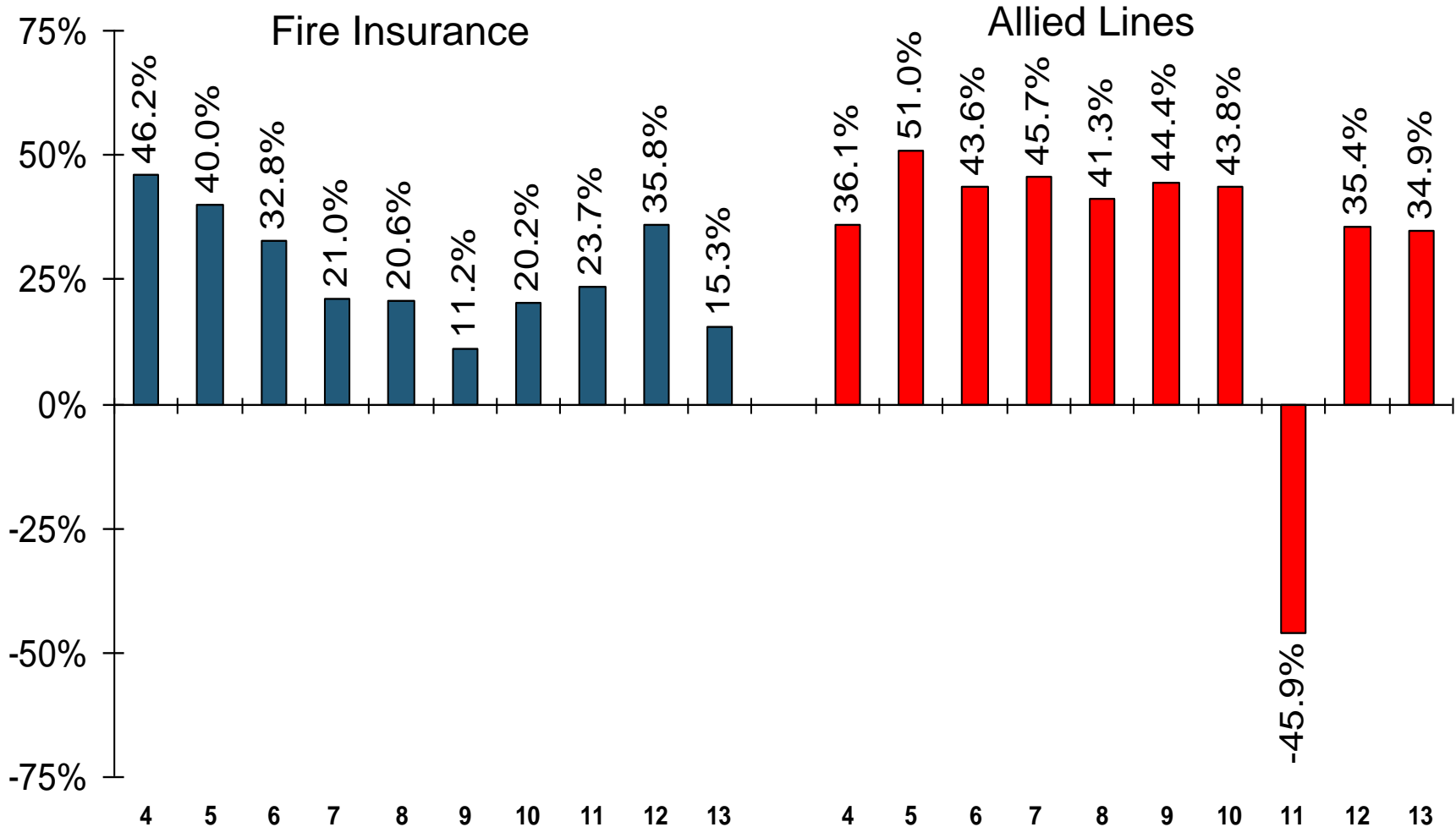
**Capital Accumulation in the
Reinsurance Sector Exerts
Downward Pressure on
Windstorm Rates (for Now)**

Return on Net Worth, Property Insurance, North Carolina, 2004-2013



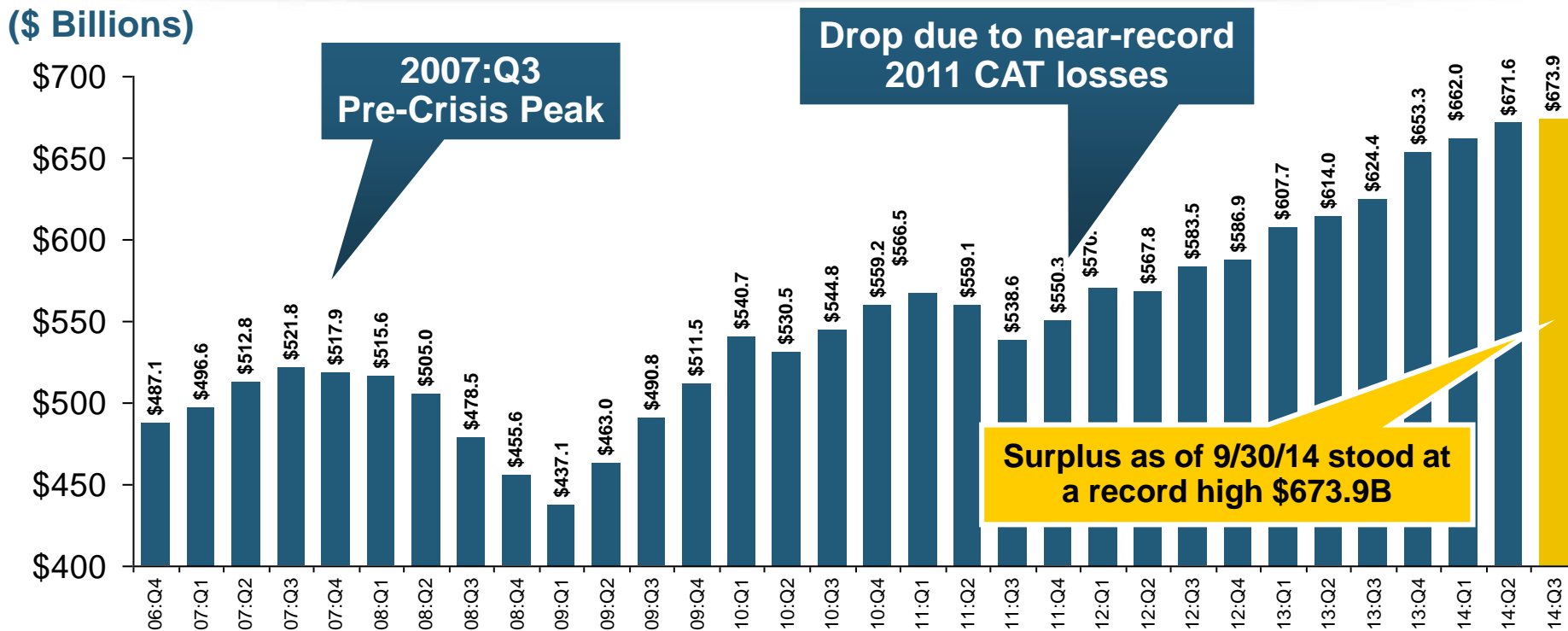
Sources: NAIC, *Report on Profitability by Line by State in 2013*; Insurance Information Institute.

Return on Net Worth, Property Insurance, North Carolina, 2004-2013



Sources: NAIC, *Report on Profitability by Line by State in 2013*; Insurance Information Institute.

Policyholder Surplus, 2006:Q4–2014:Q3



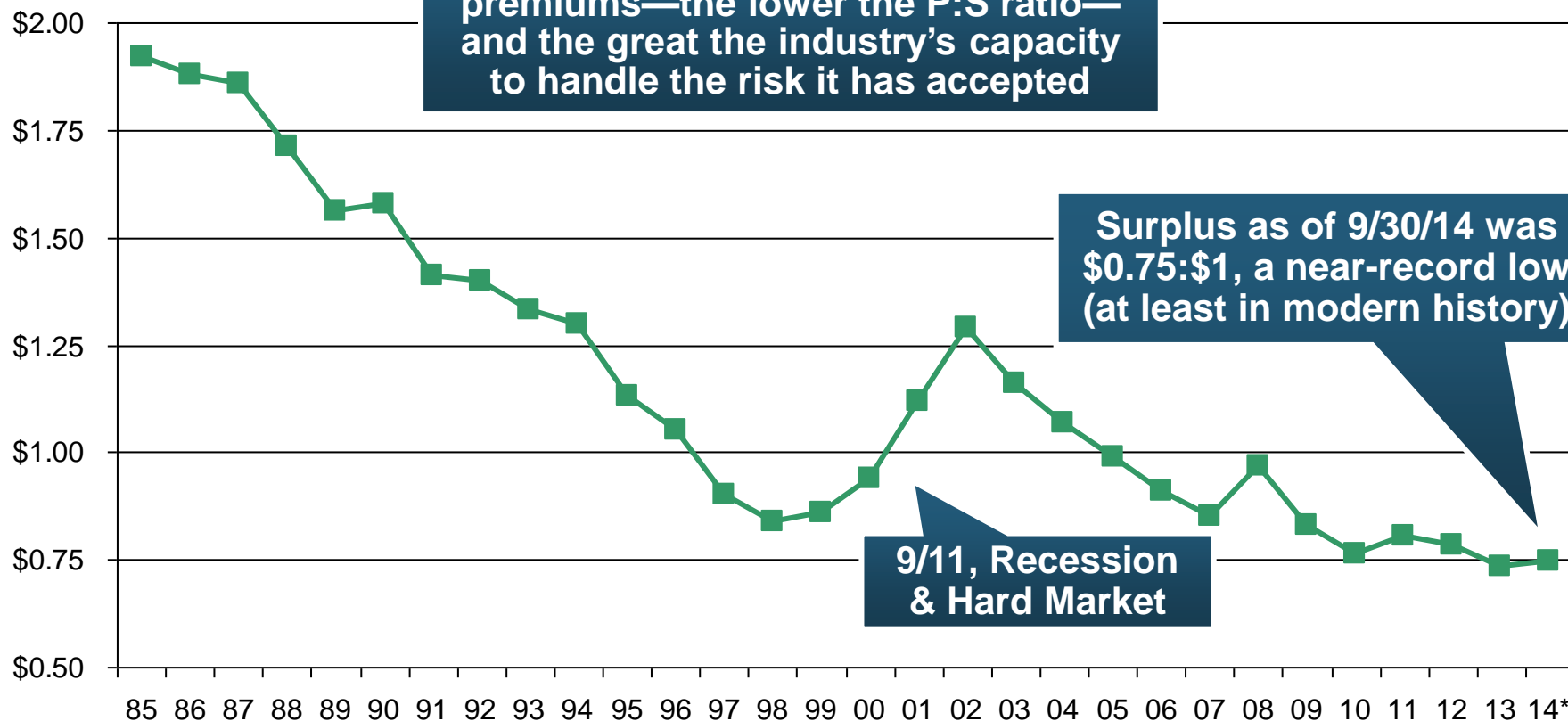
The industry now has \$1 of surplus for every \$0.73 of NPW, close to the strongest claims-paying status in its history.

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.

Premium-to-Surplus Ratio: 1985–2014*

(Ratio of NWP to PHS)



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.

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

Total reinsurance capital reached a record \$570B in 2013, up 68% from 2008.

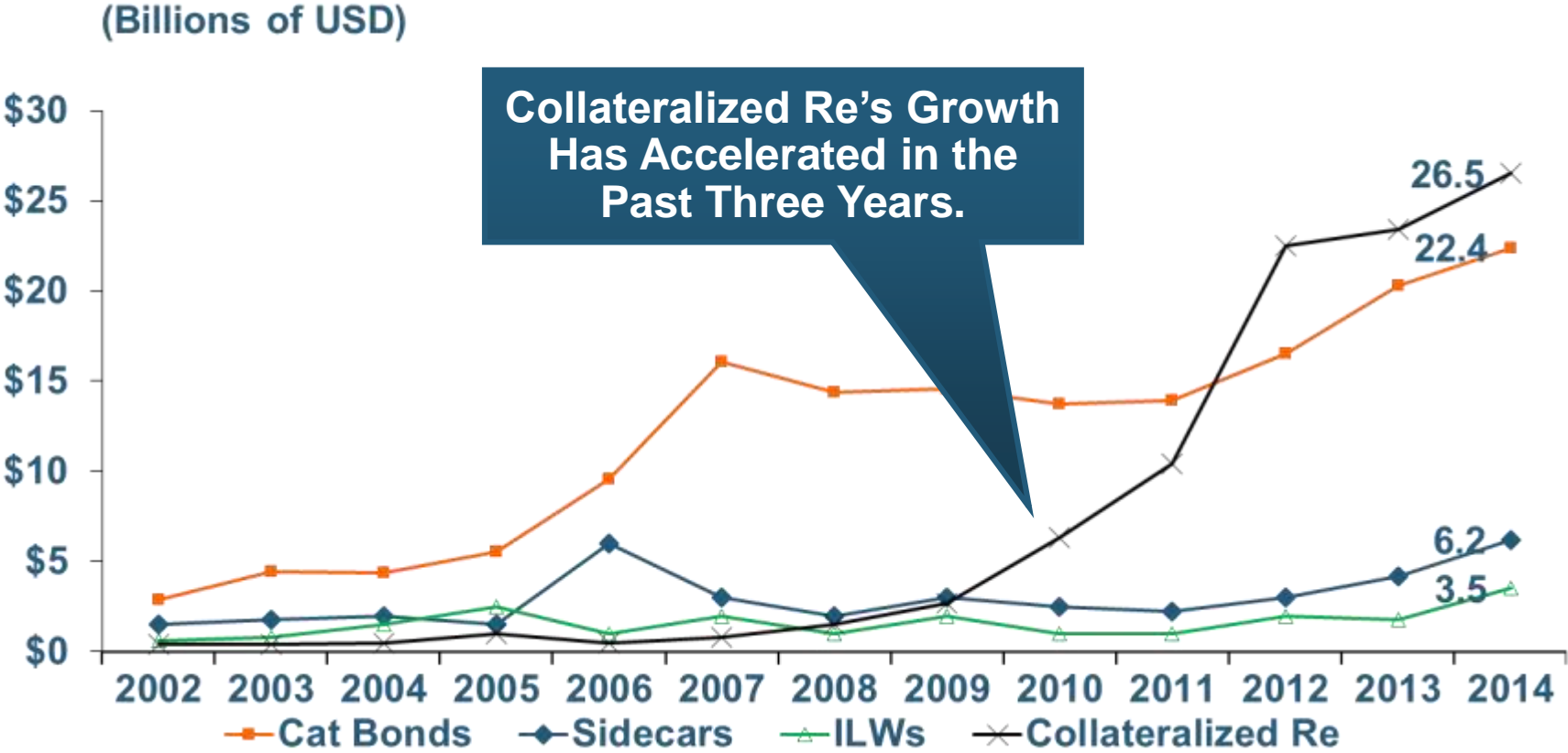


But alternative capacity has grown 210% since 2008, to \$50B. It has more than doubled in the past three years.

2014 data is as of June 30, 2014.

Source: Aon Benfield Analytics; Insurance Information Institute.

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.

Final Thoughts

If We Believe More Coastal Property Should be Insured Against Flooding...

- Extensive educational and outreach programs are needed
 - ◆ Nature and extent of the risk
 - ◆ Benefits of flood insurance over government loans and grants
 - ◆ Cost-effective Mitigation strategies

- Properties on which a subsidized flood insurance rate is “grandfathered” should be advertised as entitled to a flood insurance “sale”

Insurance Information Institute Online:

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