

2011 NATURAL CATASTROPHE YEAR IN REVIEW

January 4, 2012







Welcome/Introduction Terese Rosenthal

U.S. Natural Catastrophe Update Carl Hedde

Global Natural Catastrophe Update Ernst Rauch

Economic Implications of Natural Catastrophe Losses Dr. Robert Hartwig

Questions and Answers



Questions and Answers

You will have an opportunity to ask questions at the conclusion of the presentation.

To ask a question, please dial 1 4 on your phone.

An operator will facilitate your participation.

Live Tweeting @MunichRe_US @iiiorg#NATCAT2011



U.S. NATURAL CATASTROPHE UPDATE

Carl Hedde, SVP, Head of Risk Accumulation Munich Reinsurance America, Inc.



MR NatCatSERVICE One of the world's largest databases on natural catastrophes





NATCATSERVICE

Natural catastrophe know-how for risk management and research



The Database Today

- From 1980 until today all loss events; for USA and selected countries in Europe all loss events since 1970.
- Retrospectively, all great disasters since 1950.
- In addition, all major historical events starting from 79 AD – eruption of Mt. Vesuvio (3,000 historical data sets).
- Currently more than 30,000 events

U.S. Natural Catastrophe Update U.S. Natural Catastrophes 2011 Headlines



Insured losses in the United States in 2011 totaled \$35.9 billion – above the 2000 to 2010 average loss of \$23.8 billion (in 2011 Dollars).

Very active thunderstorm (tornado-hail) season with insured losses exceeding \$25 billion, more than double the previous record. It was also the deadliest thunderstorm season in over 75 years.

Hurricane Irene and Tropical Storm Lee cause minor wind damage, major flooding in northeastern U.S.

Severe spring flooding events in the Midwest and Great Plains.

Moderate earthquake in Virginia felt across eastern seaboard.

Most damaging wildfire in Texas history.

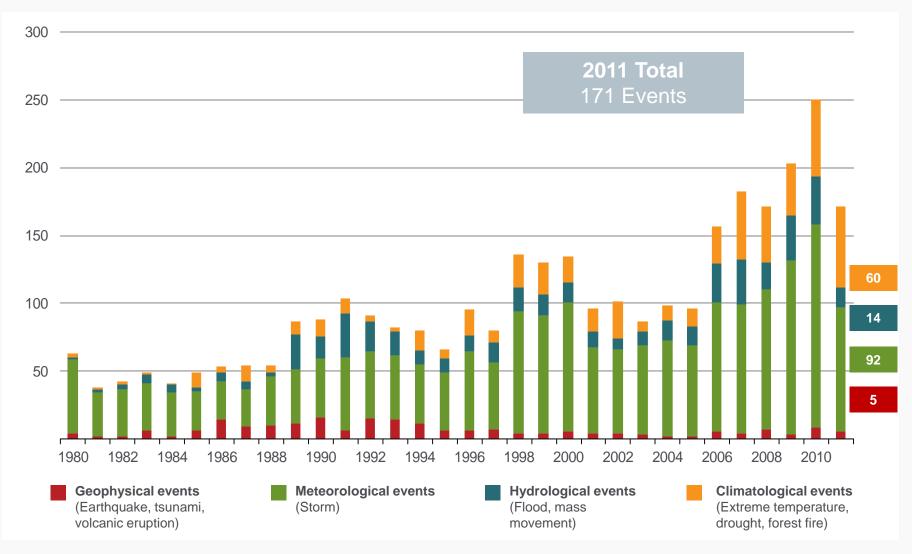
Munich RE 差

As of January 1, 2012	Number of Events	Fatalities	Estimated Overall Losses (US \$m)	Estimated Insured Losses (US \$m)
Severe Thunderstorm	69	617	46,548	25,813
Winter Storm	9	67	2,708	2,017
Flood	14	20	2,705	535
Earthquake	5	1	257	50
Tropical Cyclone	3	0	10,700	5,510
Wildfire	58	15	1,922	855
Other	2	33	8,000	1,000

U.S. Natural Catastrophe Update

Natural Disasters in the United States, 1980 – 2011 Number of Events, Annual Totals

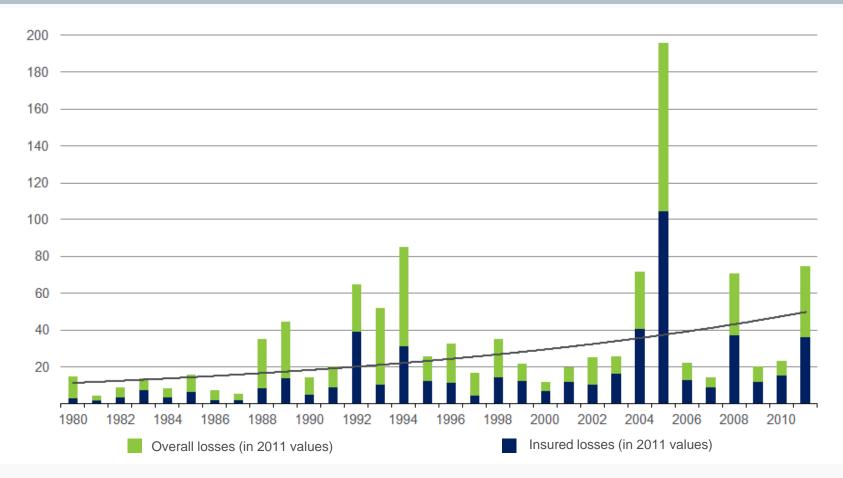




U.S. Natural Catastrophe Update Losses due to Natural Catastrophes in the United States, 1980 – 2011



Insured losses due in the U.S. in 2011 were the 5th highest on record, exceeding \$ 35billion.



Sources: MR NatCatSERVICE, Property Claims Services



Date	Event	Estimated Economic Losses (US \$m)	Estimated Insured Losses (US \$m)
2011	Texas Drought	8,000	1,000
Jan. 31 – Feb. 3	Winter Storm	1,300	975 [†]
April 3 - 5	Thunderstorms	3,500	2,000†
April 8 - 11	Thunderstorms	2,500	1,510 [†]
April 14 - 16	Thunderstorms	2,100	1,400†
April 19 - 20	Thunderstorms	1,200	830†
April 22 – 28	Thunderstorms	15,000	7,300†
April	Flooding	2,600	500
May 20 – 27	Thunderstorms	14,000	6,900 [†]
June 16 – 22	Thunderstorms	1,600	1,200†
July 10 – 14	Thunderstorms	1,300	980 [†]
August 18 – 19	Thunderstorms	1,200	840†
August 26 - 28	Hurricane Irene	10,000	5,000
September 4 – 19	WIIdfire	1,000	530 [†]

Sources: (unmarked) - MR NatCatSERVICE, [†]-Property Claims Services (PCS)

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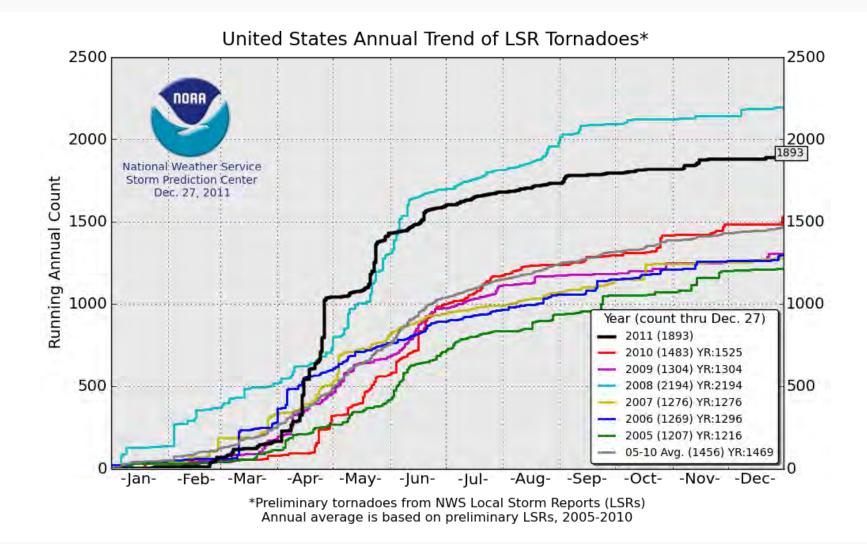


2011 U.S. THUNDERSTORM SEASON



U.S. Natural Catastrophe Update 2011 U.S. Tornado Count







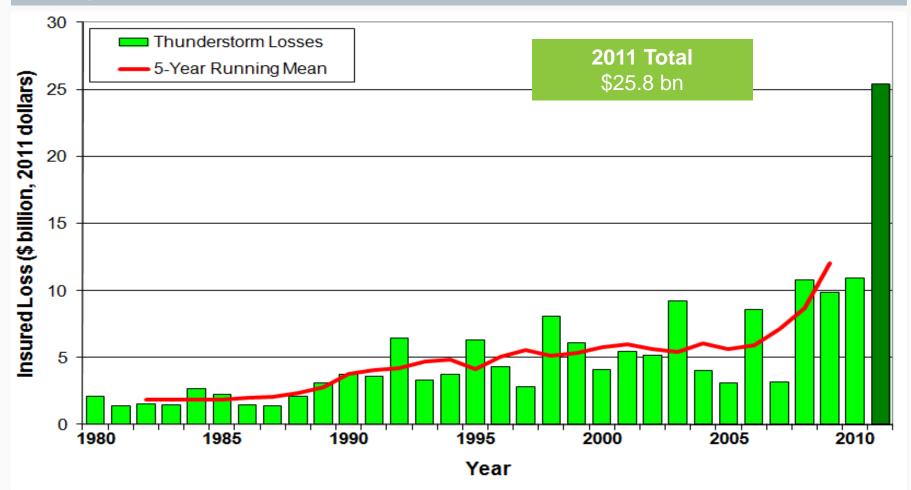
- Deadliest tornado year since 1925: 552 direct fatalities
- Deadliest single tornado since 1947: Joplin, Missouri, 158 fatalities
- Most observed tornadoes in a month: 748, April
- Largest number of tornadoes in a day: 226, April 27
- Most EF5 Tornados in a year: 6 (tied for first with 1974)
- Aggregate Insured Thunderstorm Losses: \$25.8 billion
- Billion-dollar insured loss outbreaks: 6
- Late April (Alabama) and May (Joplin) outbreaks each caused insured losses in excess of \$6 billion, and are among top 10 largest natural catastrophe losses in U.S. history, based on original dollars.

U.S. Natural Catastrophe Update

U.S. Thunderstorm Loss Trends Annual Totals 1980 – 2011



Average thunderstorm losses have increased fivefold since 1980.



Source: Property Claims Service MR NatCatSERVICE

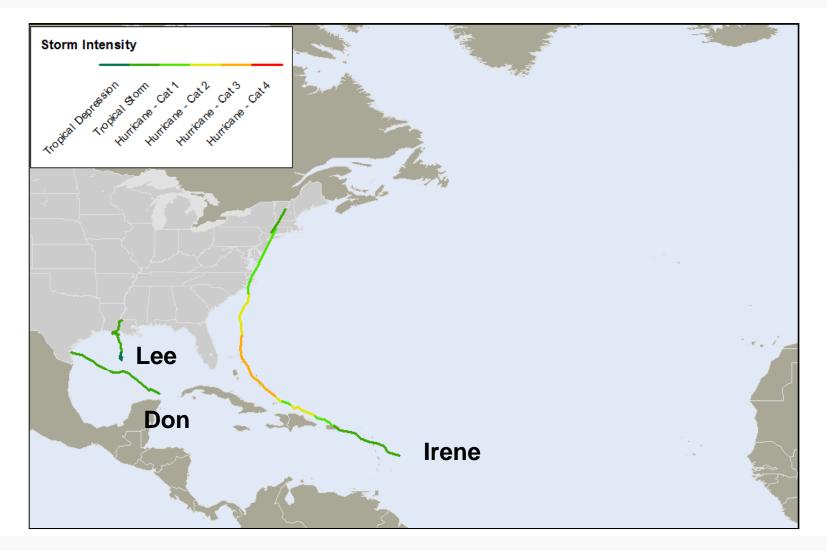


U.S. TROPICAL CYCLONES 2011



U.S. Natural Catastrophe Update Tropical Cyclone Impacting the United States in 2011





U.S. Natural Catastrophe Update U.S. Hurricanes in 2011



Hurricane Irene

- Landfalls on August 27 over the NC Outer Banks as a Category 1 hurricane and on August 28 over Brigantine, NJ, and Coney Island, NY, as a tropical storm.
- Minor to moderate wind damage in North Carolina and Virginia, heavy indirect wind damage due to tree fall further north.
- Record flooding across northeast, particularly New Jersey, New York, and Vermont.
- Economic Losses in U.S. of \$10 billion, insured losses of \$5 billion.



U.S. Natural Catastrophe Update Other U.S. Tropical Cyclones in 2011



Tropical Storm Don

- Landfall near Baffin Bay, Texas, on July 30
- Sustained winds at landfall of 50 mph, no significant damage

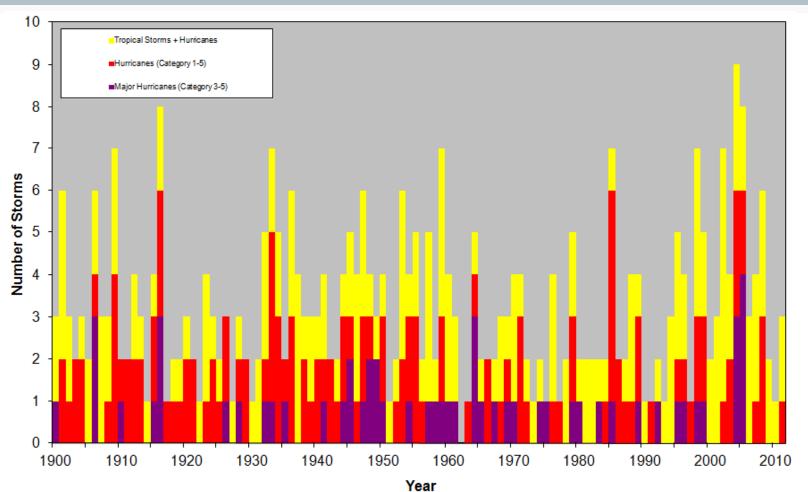
Tropical Storm Lee

- Landfall in Louisiana on September 4 with sustained winds of 45 mph
- Minor wind damage and flooding in Louisiana; As a remnant low, Lee aggravated existing Irene flooding and triggered new flooding in northeastern U.S., particularly in Pennsylvania.
- Estimated \$510 million insured loss.

U.S. Natural Catastrophe Update Number of U.S. Landfalling Tropical Cyclones 1900 - 2011



There has not been a major hurricane landfall in the U.S. since 2005.



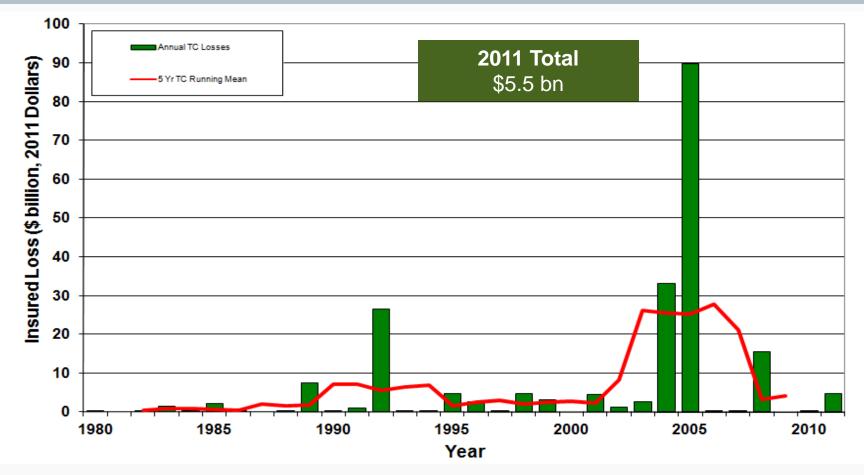
Source: NOAA

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U.S. Natural Catastrophe Update Insured U.S. Tropical Cyclone Losses, 1980 - 2011



The current 5-year average (2007-2011) insured tropical cyclone loss is \$4.1 billion per year.



Sources: Property Claims Service, MR NatCatSERVICE, NFIP



OTHER U.S. NATURAL CATASTROPHES IN 2011



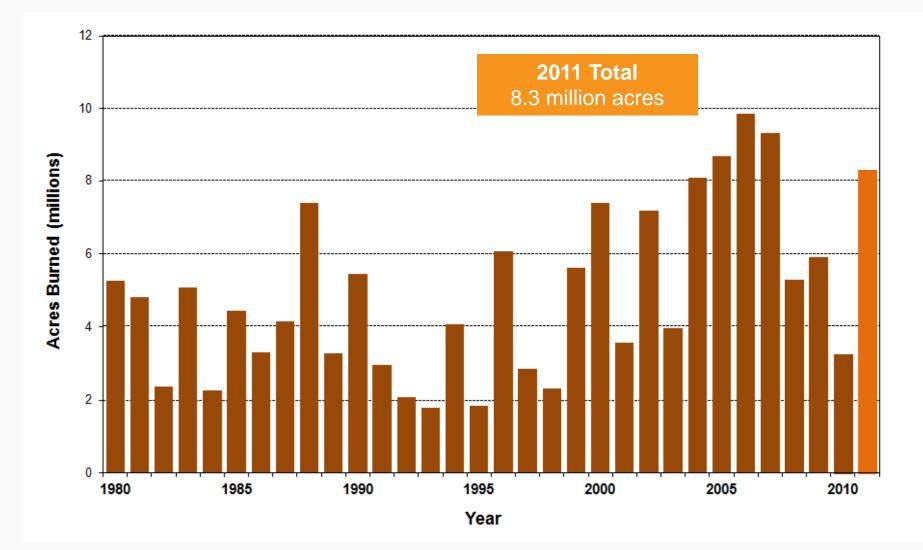


- Heavy snowmelt, saturated soils, and over 20 inches of rain in a month lead to the worst flooding of the lower Mississippi River since 1927.
- Record river crests at Vicksburg and Natchez; Morganza Spillway opened in Louisiana to protect Baton Rouge and New Orleans from possible levee failures.
- Extensive agricultural damage, property, and inland marine losses due to flood.
 Estimated economic losses of \$2 billion and insured losses of \$500 million.



U.S. Natural Catastrophe Update Number of Acres Burned in Wildfires, 1980 – 2011





Source: National Interagency Fire Center

U.S. Natural Catastrophe Update Notable Wildfires in 2011



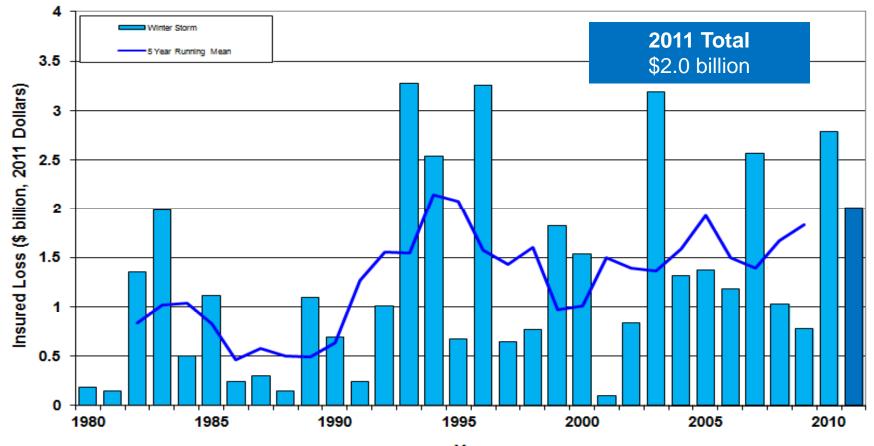
- Worst wildfire year on record in Texas due to persistent drought.
- Spring: Over 3 million acres burned in west Texas from 12 major seats of fire. Over 200 homes and businesses destroyed, \$50 million insured loss.
- September: Bastrop County Complex Fire near San Antonio destroys over 1,600 homes, insured loss of \$530 million.



U.S. Natural Catastrophe Update U.S. Winter Storm Loss Trends Annual totals 1980 – 2011



Average annual winter storm losses have almost doubled since the early 1980s.



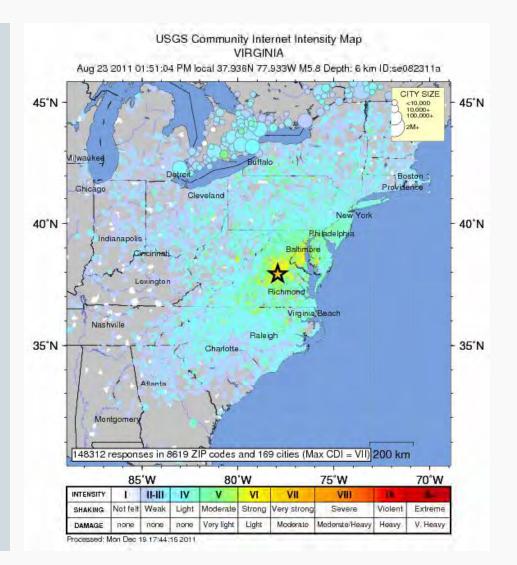
Year

Source: Property Claims Service MR NatCatSERVICE

U.S. Natural Catastrophe Update Central Virginia Earthquake



- Magnitude 5.8 on August 23, largest ever recorded in Virginia.
- Felt as far away as Canada to the north and Savannah, GA to the South.
- Minor structural and contents damage near epicenter and to old masonry buildings, including the U.S. National Cathedral and the Washington Monument in the District of Columbia.
- Only minor economic and insured losses.





GLOBAL NATURAL CATASTROPHE UPDATE

Ernst Rauch Head of Corporate Climate Center Munich Re



Global Natural Catastrophe Update Natural Catastrophes Worldwide 2011 Headlines



Number of events: 820

• The number is in line with the 10-year-average (2001-2010: **790**).

Fatalities: 27,000

- The number is quite low in comparison with previous years (2001-2010:106,000).
- The figures do not include the drought fatalities in East Africa, esp. Somalia.

Overall direct losses: US\$ 380bn

2011 is the costliest year for overall losses due to natural catastrophes.

Insured losses: US\$ 105bn

 The insured losses are the highest figures too, topped the 2005 losses in original values (US\$ 101bn).

Global Natural Catastrophe Update Natural Catastrophes Worldwide 2011 Significant Events



Earthquake, tsunami Japan	Strongest earthquake in Japan, Mw 9.0, with destructive tsunami waves up to 40 meters.	Costliest event ever in terms of overall losses; costliest event 2011 in terms of insured losses.
New Zealand	Three strong earthquakes (Mw 5.9/6.3/7.0) in 10 months.	Second highest losses for the insurance industry in 2011.
Floods Australia and Thailand	The series of floods 2010/11 were the most devastating in modern Australian history.	Strong rainfalls from Aug Nov.; highest insured losses ever from nat cat events in Thailand.
Drought, famine Somalia	Lack of rain, two short rainy seasons since October 2010.	Expected deaths due to famine in the tens of thousands.



	2011
Number of events	820
Overall losses in US\$ m (original values)	380,000
Insured losses in US\$ m (original values)	105,000
Fatalities	27,000



	2011	2010
Number of events	820	970
Overall losses in US\$ m (original values)	380,000	152,000
Insured losses in US\$ m (original values)	105,000	42,000
Fatalities	27,000	296,000



	2011	2010	Average of the last 10 years 2001-2010
Number of events	820	970	790
Overall losses in US\$ m (original values)	380,000	152,000	113,000
Insured losses in US\$ m (original values)	105,000	42,000	35,000
Fatalities	27,000	296,000	106,000



	2011	2010	Average of the last 10 years 2001-2010	Average of the last 30 years 1981-2010
Number of events	820	970	790	630
Overall losses in US\$ m (original values)	380,000	152,000	113,000	75,000
Insured losses in US\$ m (original values)	105,000	42,000	35,000	19,000
Fatalities	27,000	296,000	106,000	69,000



	2011	2010	Average of the last 10 years 2001-2010	Average of the last 30 years 1981-2010	Top Year 1981-2010
Number of events	820	970	790	630	2007 (1,025)
Overall losses in US\$ m (original values)	380,000	152,000	113,000	75,000	2005 (227,000)
Insured losses in US\$ m (original values)	105,000	42,000	35,000	19,000	2005 (101,000)
Fatalities	27,000	296,000	106,000	69,000	2010 (296,000)

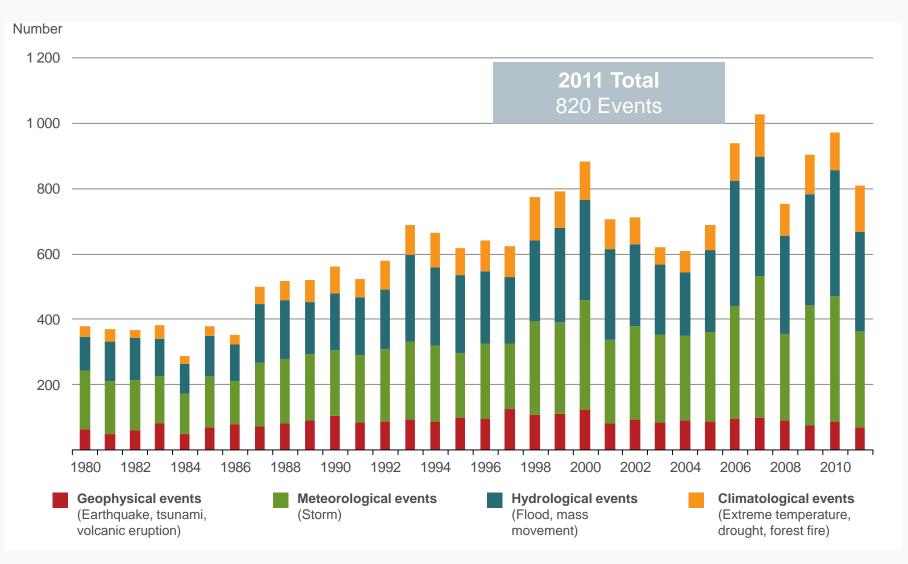
Natural Catastrophes Worldwide 2011 The five costliest natural catastrophes for the insurance industry

Date	Region	Event	Fatalities	Overall losses US\$ m	Insured Iosses US\$ m
11.3.2011	Japan	Earthquake, tsunami	15,840	210,000	35,000- 40,000
22.2.2011	New Zealand	Earthquake	181	16,000	13,000
1.8-15.11.2011	Thailand	Floods, landslides	813	40,000	10,000
22-28.4.2011	USA	Severe storms/ tornadoes	350	15,000	7,300
22.8-2.9.2011	USA, Caribbean	Hurricane Irene	55	15,000	7,000



Global Natural Catastrophe Update Natural Catastrophes Worldwide 1980 – 2011 Number of events





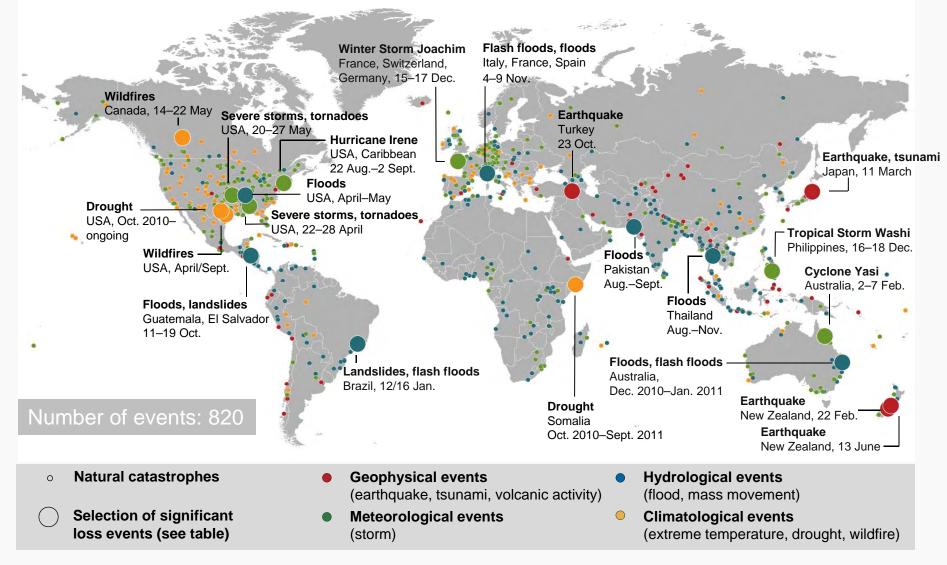
Global Natural Catastrophe Update Natural Catastrophes Worldwide 1980 – 2011 Overall and insured losses



Overall losses totaled \$380 billion; Insured losses totaled \$105 billion (bn US\$) Insured losses (in 2011 values) **Overall losses (in 2011 values)**

Global Natural Catastrophe Update Natural Catastrophes 2011 World map





Source: MR NatCatSERVICE

Global Natural Catastrophe Update Earthquake New Zealand February 2011



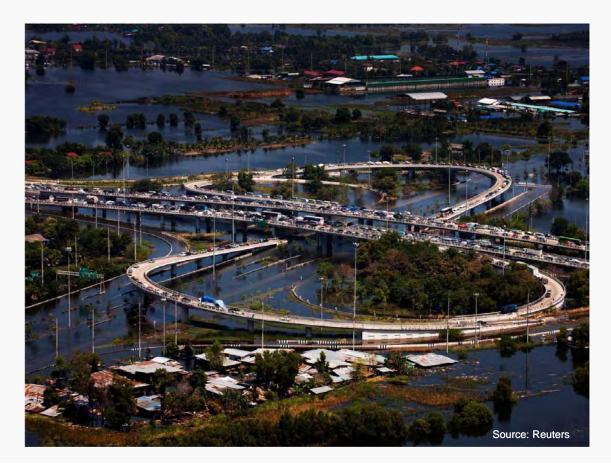


Region	Overall losses	Insured losses	Fatalities
South Island, Canterbury, Christchurch, Lyttelton	US\$ 16bn*	US\$ 13bn*	181

Source: MR NatCatSERVICE *Losses in original values

Global Natural Catastrophe Update Floods Thailand August – November 2011





Region	Overall losses	Insured losses	Fatalities
Phichit, Nakhon Sawan, Phra Nakhon Si Ayuttaya, Pathumthani, Nonthaburi, Bangkok	US\$ 40bn*	US\$ 10bn*	813

Source: MR NatCatSERVICE *Losses in original values

Global Natural Catastrophe Update Natural Catastrophes Worldwide 2011 Insured losses US\$ 105bn - Percentage distribution per continent





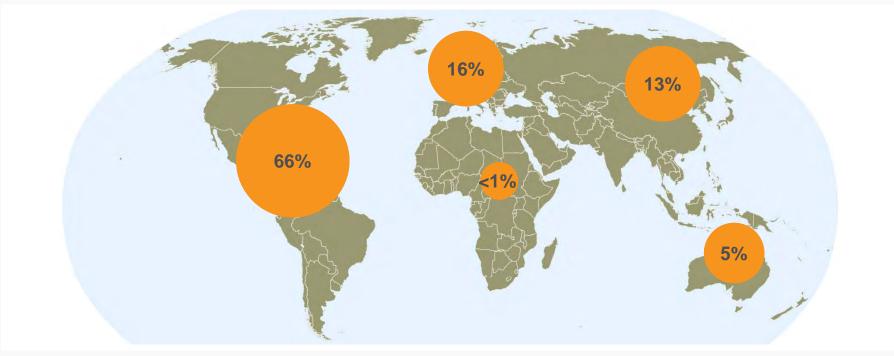
Continent	Insured losses US\$ m
America (North and South America)	40,000
Europe	2,000
Africa	Minor damages
Asia	45,000
Australia/Oceania	18,000

Source: MR NatCatSERVICE

Global Natural Catastrophe Update

Natural Catastrophes Worldwide 1980 – 2011 Insured losses US\$ **870bn** - Percentage distribution per continent



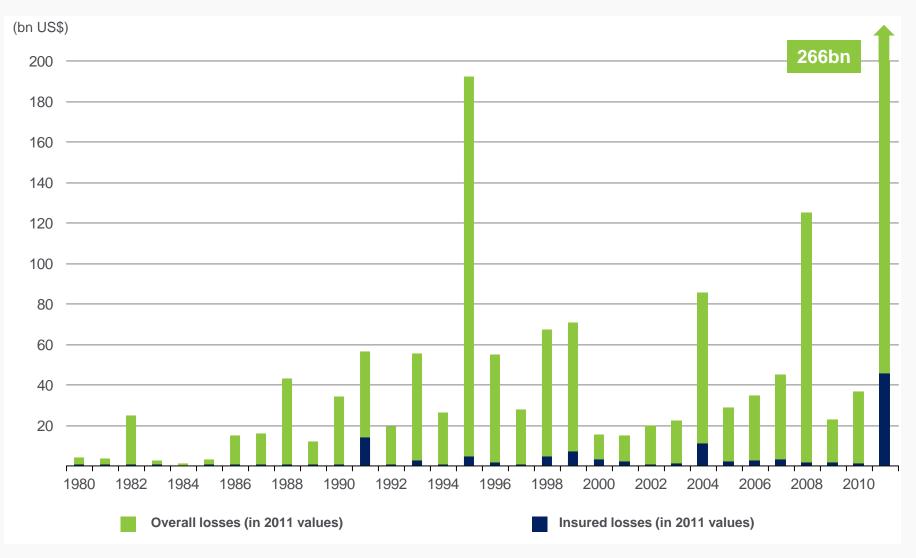


Continent	Insured losses US\$ m
America (North and South America)	566,000
Europe	146,000
Africa	2,000
Asia	115,000
Australia/Oceania	41,000

Source: MR NatCatSERVICE

Global Natural Catastrophe Update Natural Catastrophes in Asia 1980 – 2011 Overall and insured losses





Source: MR NatCatSERVICE

Global Natural Catastrophe Update Natural Catastrophes Worldwide 2011



Summary

US\$ 105bn insured losses - 47% of losses due to earthquakes (30-year-average = 10%)

Asia (44%) and North America (37%) are mainly impacted in terms of insured losses

Thailand floods – costliest flood event for overall and insured losses

Japan earthquake, tsunami – 15,840 fatalities – deadliest natural disaster in 2011

New Zealand earthquakes – high losses for the insurance market, minor fatalities

Building codes are essential to save lives – however, insured losses are nevertheless significant



Q AND A





Market and Financial Impact of 2011 Catastrophe Losses

Insurance Information Institute January 4, 2012

Robert P. Hartwig, Ph.D., CPCU, President & Economist Insurance Information Institute + 110 William Street + New York, NY 10038 Tel: 212.346.5520 + Cell: 917.453.1885 + bobh@iii.org + www.iii.org

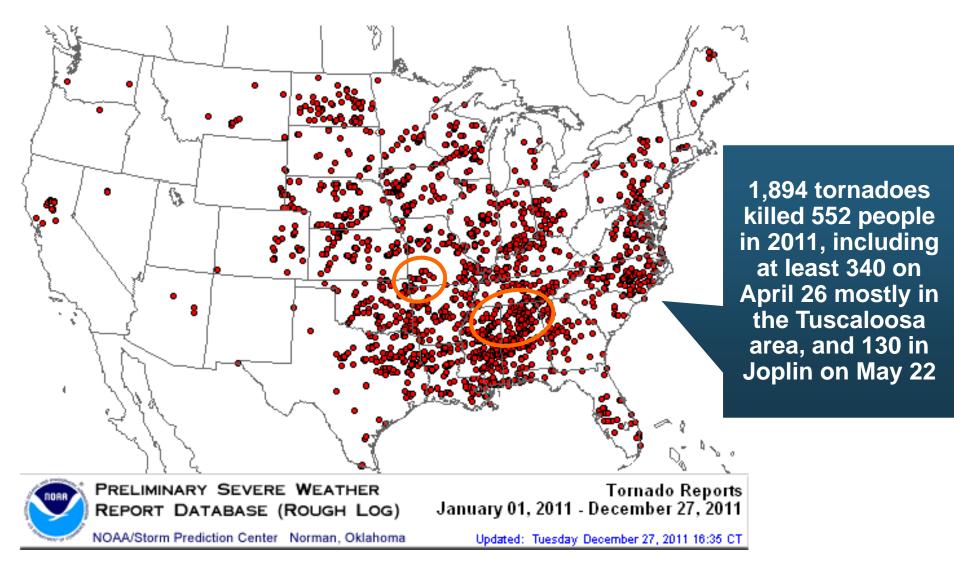


2011: Nowhere to Run, Nowhere to Hide

Most of the Country East of the Rockies Suffered Severe Weather in 2011, Impacting Most Insurers

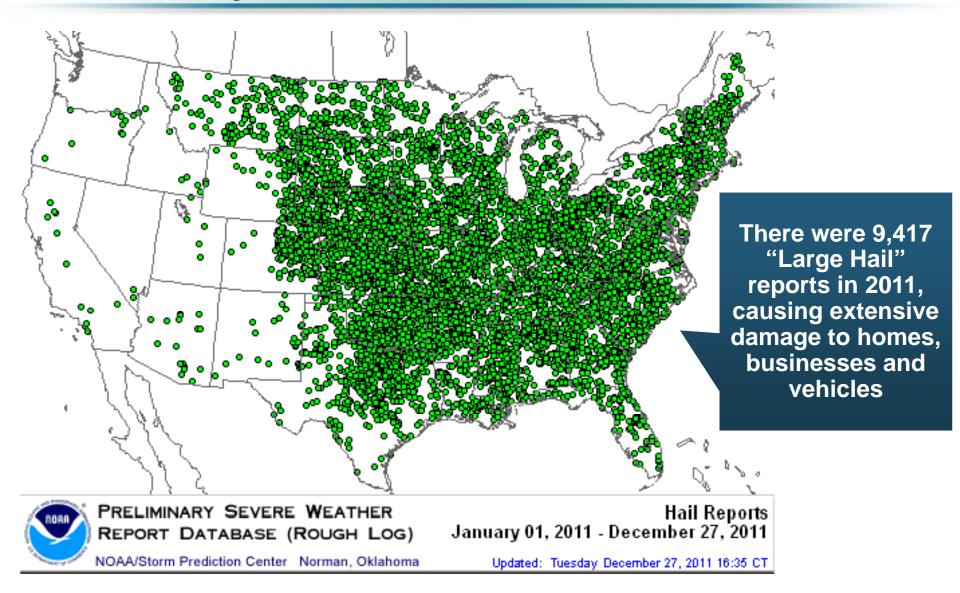
Location of Tornadoes in the US, January 1—December 27, 2011





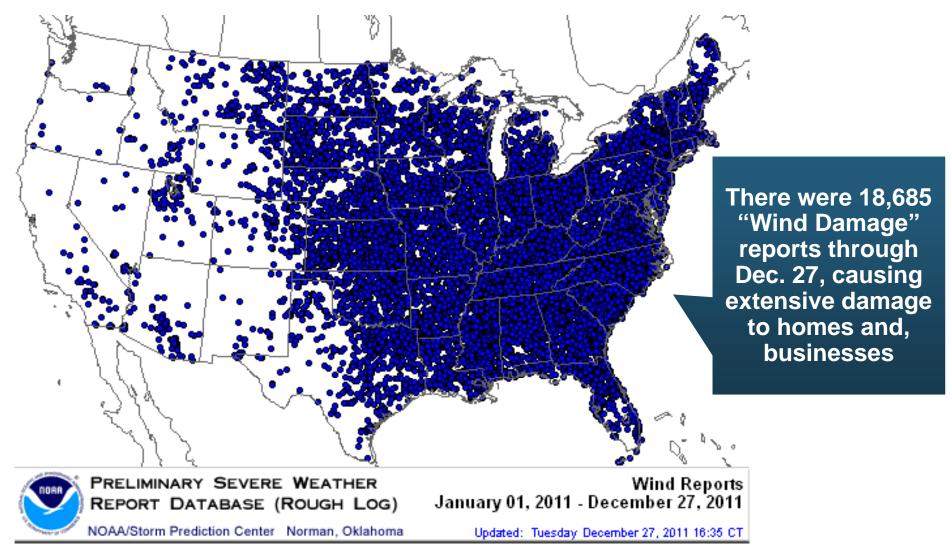
Location of Large Hail Reports in the US, January 1—December 27, 2011





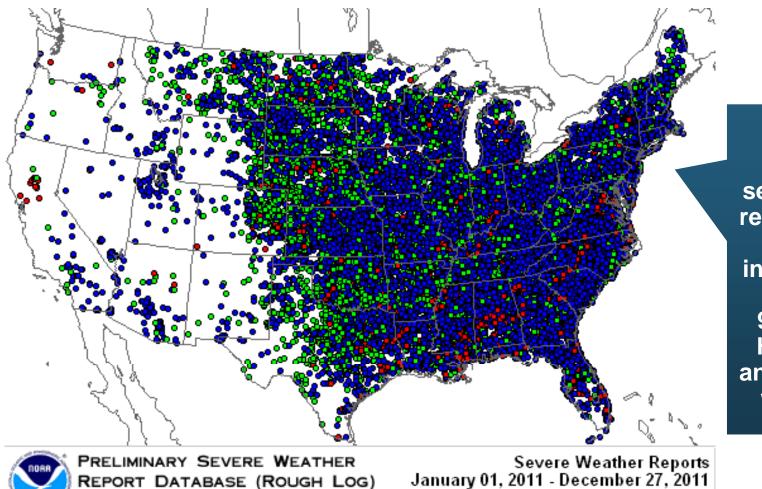
Location of Wind Damage Reports in the US, January 1—December 27, 2011





Severe Weather Reports, January 1—December 27, 2011



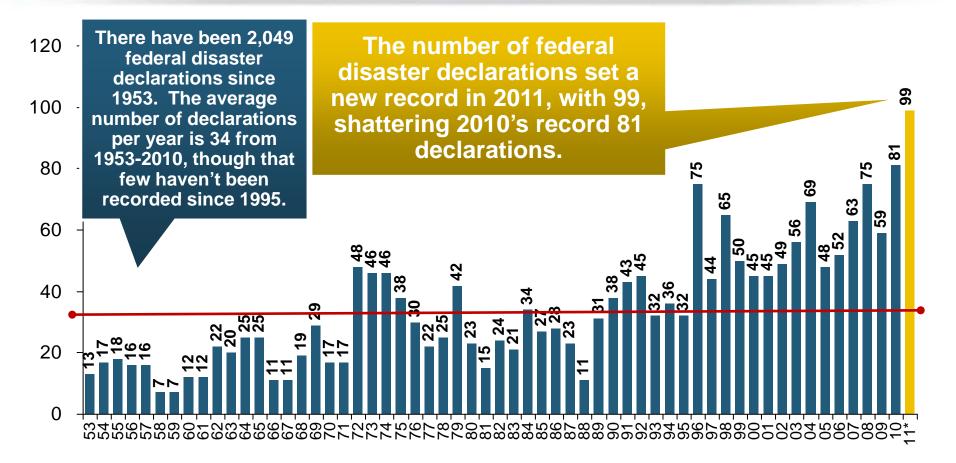


There have been 29,996 severe weather reports through Dec. 5; including 1,894 tornadoes; 9,417 "Large Hail" reports and 18,685 high wind events

NOAA/Storm Prediction Center Norman, Oklahoma Updated: Tuesday December 27, 2011 16:35 CT

Number of Federal Disaster Declarations, 1953-2011*



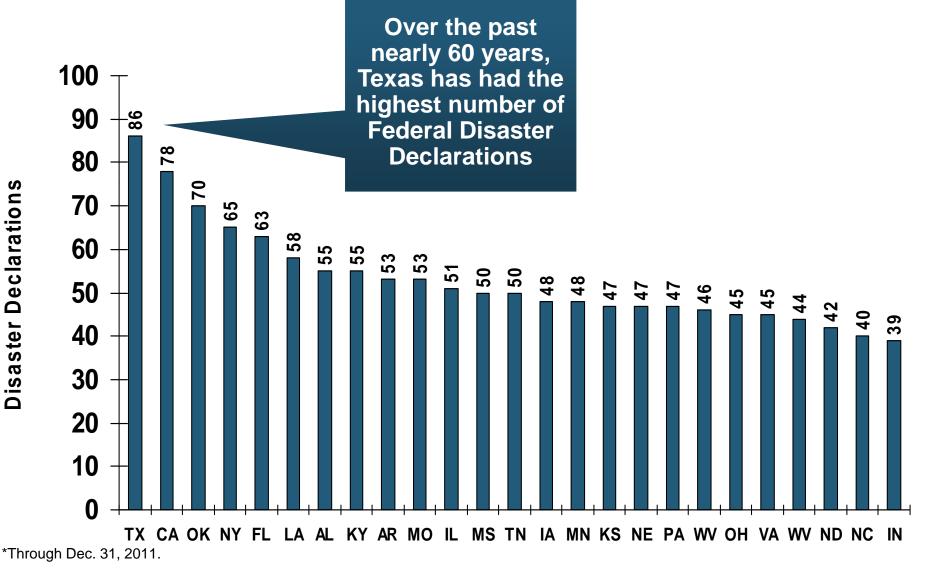


The Number of Federal Disaster Declarations Is Rising and Set a New Record in 2011

*Through December 31, 2011.

Source: Federal Emergency Management Administration: <u>http://www.fema.gov/news/disaster_totals_annual.fema</u>; Insurance Information Institute.

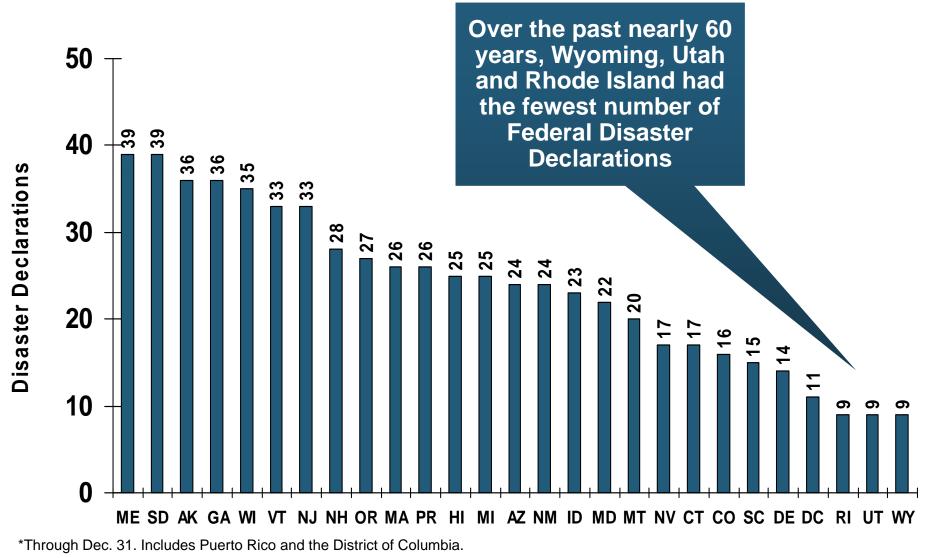
Federal Disasters Declarations by State, 1953 – 2011: Highest 25 States*



Source: FEMA: http://www.fema.gov/news/disaster_totals_annual.fema; Insurance Information Institute.

Federal Disasters Declarations by State, 1953 – 2011: Lowest 25 States*



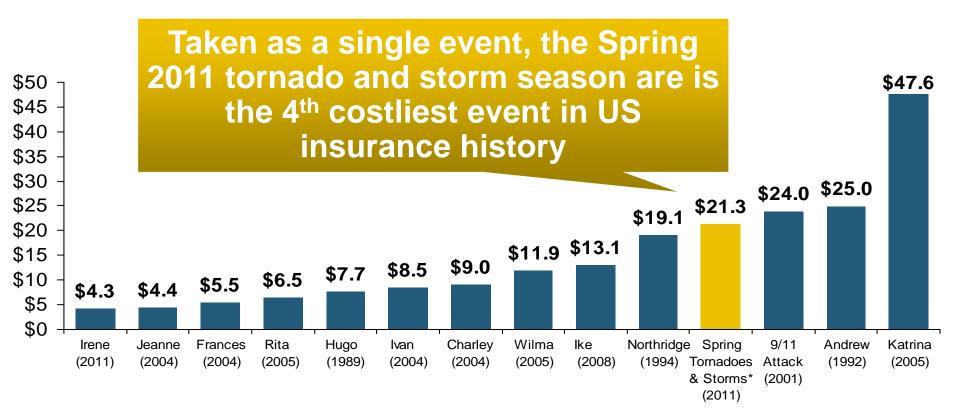


Source: FEMA: http://www.fema.gov/news/disaster_totals_annual.fema; Insurance Information Institute.

Top 14 Most Costly Disasters in U.S. History

INSURANCE INFORMATION INSTITUTE

(Insured Losses, 2011 Dollars, \$ Billions)



*Losses will actually be broken down into several "events" as determined by PCS. Includes losses for the period April 1 – June 30. Sources: PCS; Insurance Information Institute inflation adjustments.

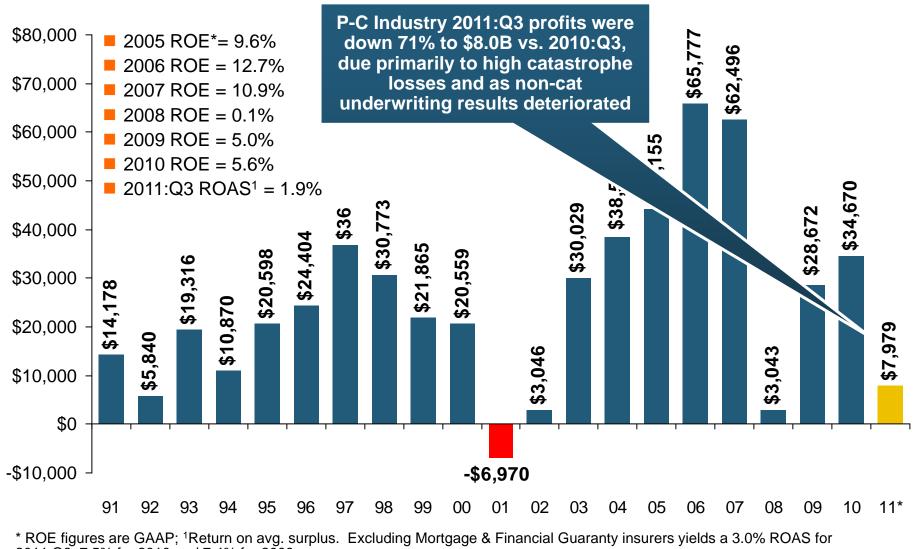


P/C Insurance Industry Financial Overview

Profit Recovery Was Set Back in 2011 by High Catastrophe Loss & Other Factors

P/C Net Income After Taxes 1991–2011:Q3 (\$ Millions)



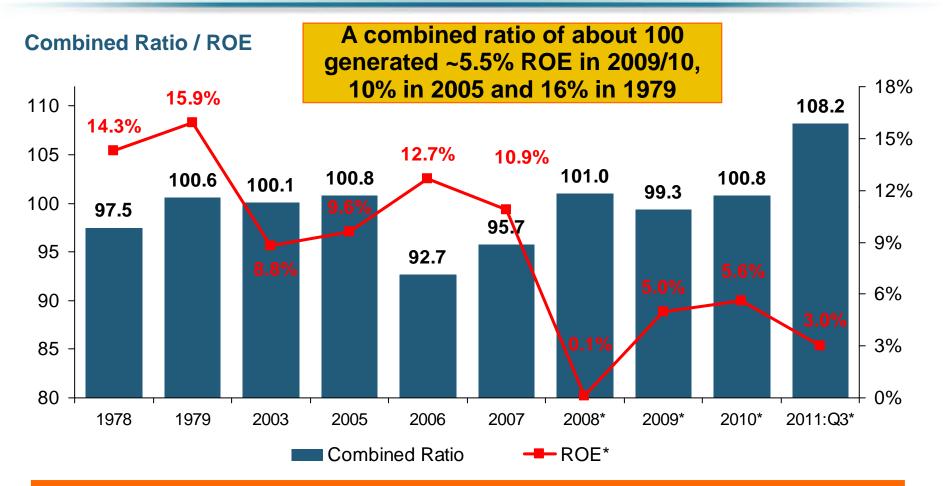


2011:Q3, 7.5% for 2010 and 7.4% for 2009.

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

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

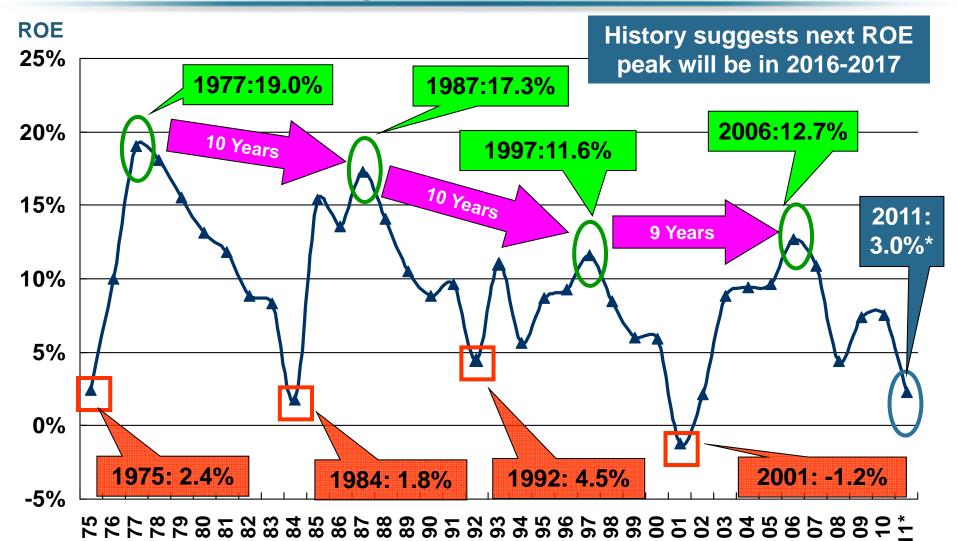
INSURANCE



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

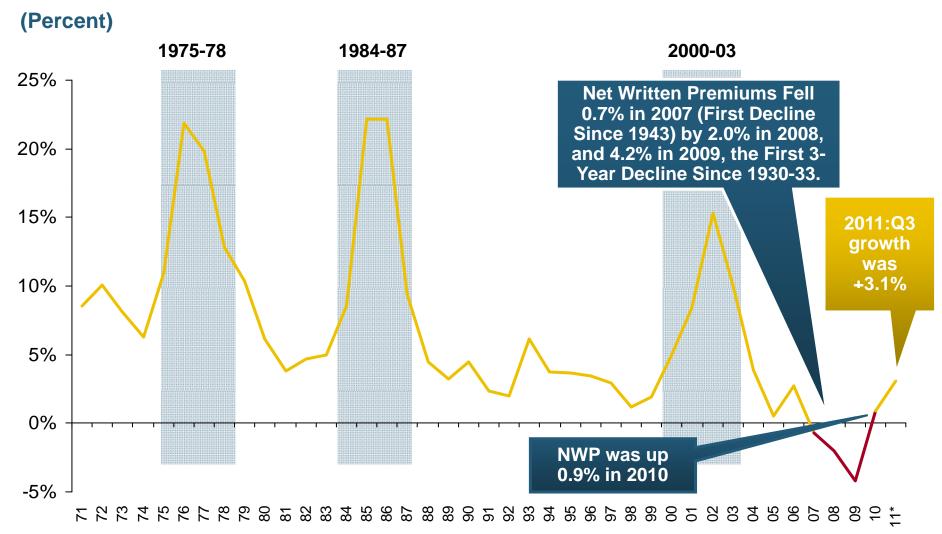
* 2011 figure is return on average statutory surplus. 2008 -2011 figures exclude mortgage and financial guaranty insurers. 2011:Q3 combined ratio including M&FG insurers is 109.9, ROAS = 1.9%.
 Source: Insurance Information Institute from A.M. Best and ISO data.

Profitability Peaks & Troughs in the P/C Insurance Industry, 1975 – 2011*



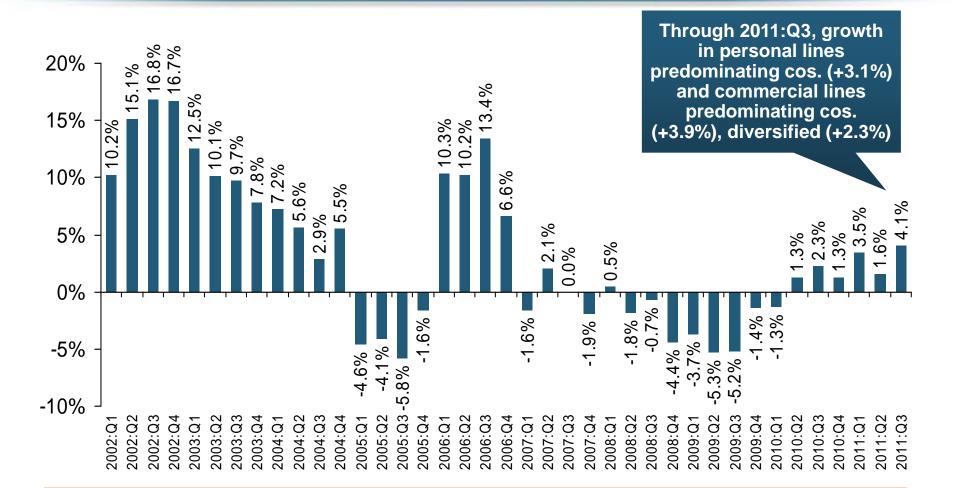
*Profitability = P/C insurer ROEs are I.I.I. estimates. 2011 figure is an estimate based on annualized ROAS through Q3 data. Note: Data for 2008-2011 exclude mortgage and financial guaranty insurers. For 2011:Q3 ROAS = 1.9% including M&FG. Source: Insurance Information Institute; NAIC, ISO, A.M. Best.

Soft Market Persisted in 2010 but Growth Returned: More in 2011?



*2011 figure is through first 9 months vs. same period in 2010 Shaded areas denote "hard market" periods Sources: A.M. Best (historical and forecast), ISO, Insurance Information Institute. NSURANCE

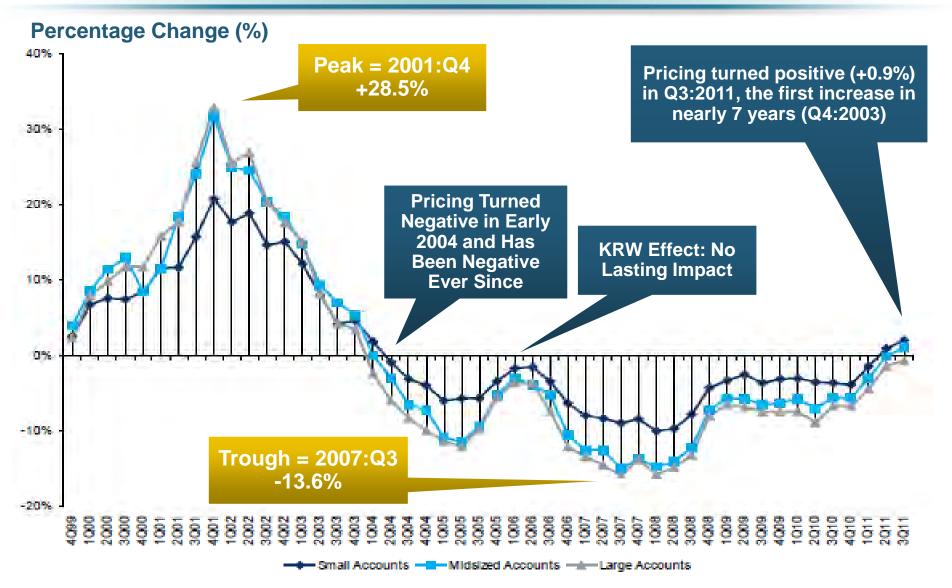
P/C Net Premiums Written: % Change, Quarter vs. Year-Prior Quarter



Finally! Back-to-back quarters of net written premium growth (vs. the same quarter, prior year)

Sources: ISO, Insurance Information Institute.

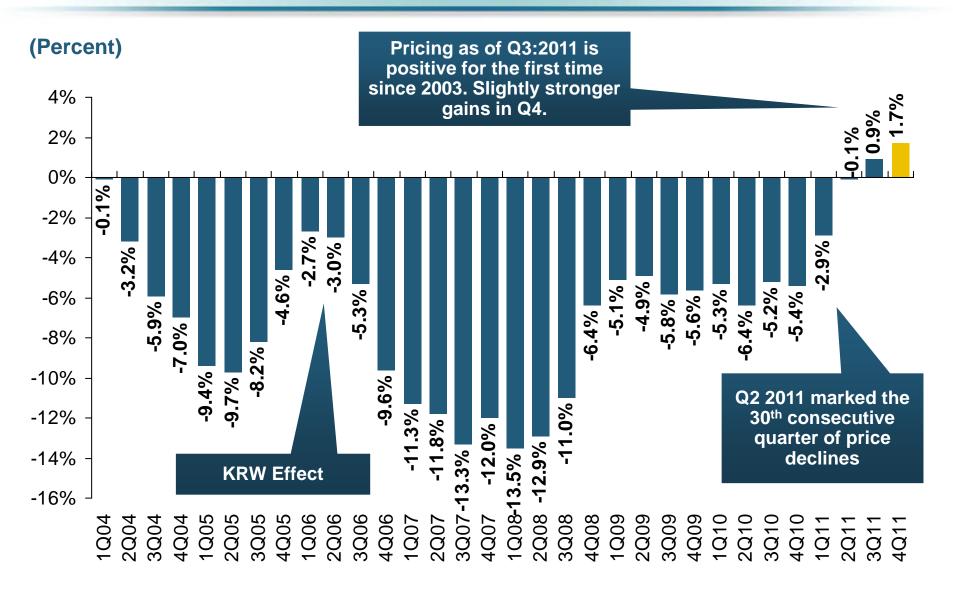
Change in Commercial Rate Renewals, by Account Size: 1999:Q4 to 2011:Q3



Source: Council of Insurance Agents and Brokers; Insurance Information Institute.

NSURANC

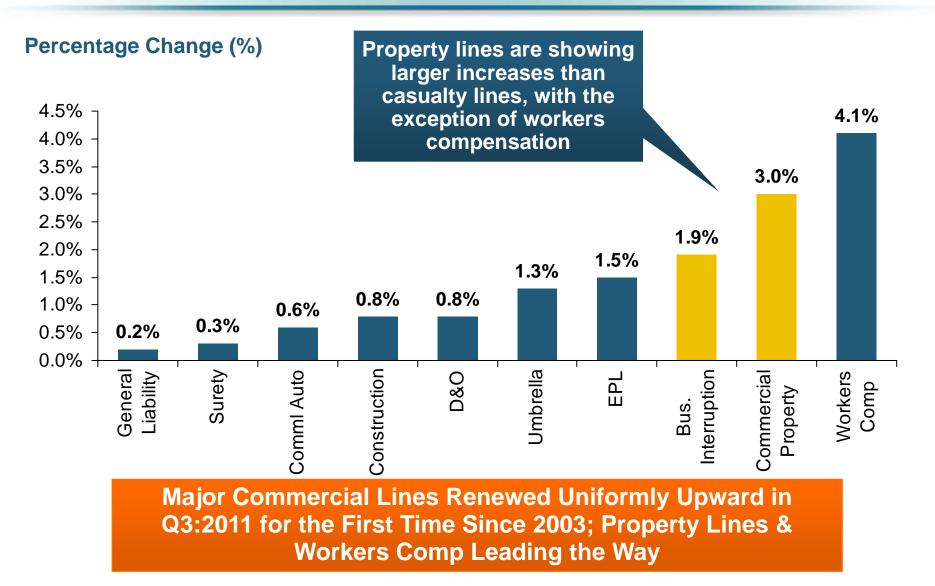
Average Commercial Rate Change, All Lines, (1Q:2004–4Q:2011E*)



Source: Council of Insurance Agents & Brokers (1Q04-4Q11); Marsh (Q411E); Insurance Information Institute

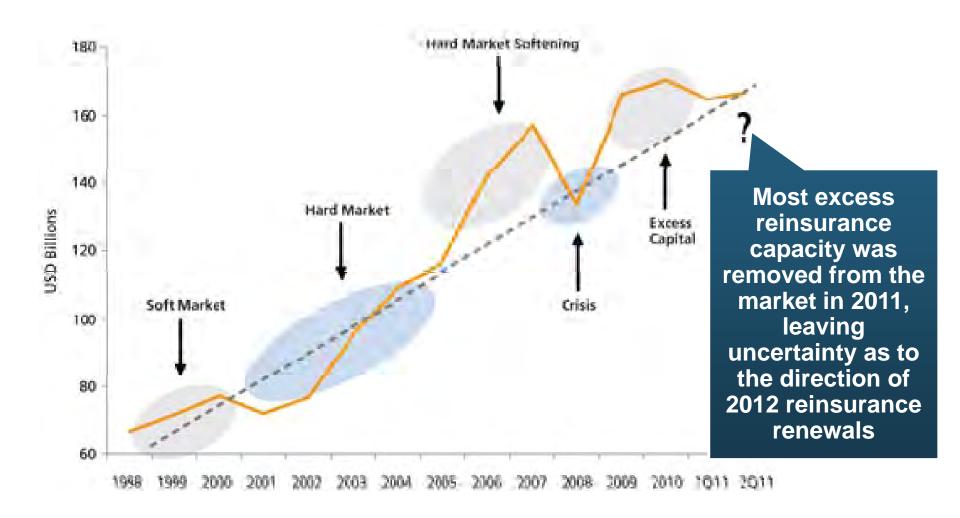
Change in Commercial Rate Renewals, by Line: 2011:Q3





Source: Council of Insurance Agents and Brokers; Insurance Information Institute.

Historical Capital Levels of Guy Carpenter. Reinsurance Composite, 1998—2Q11



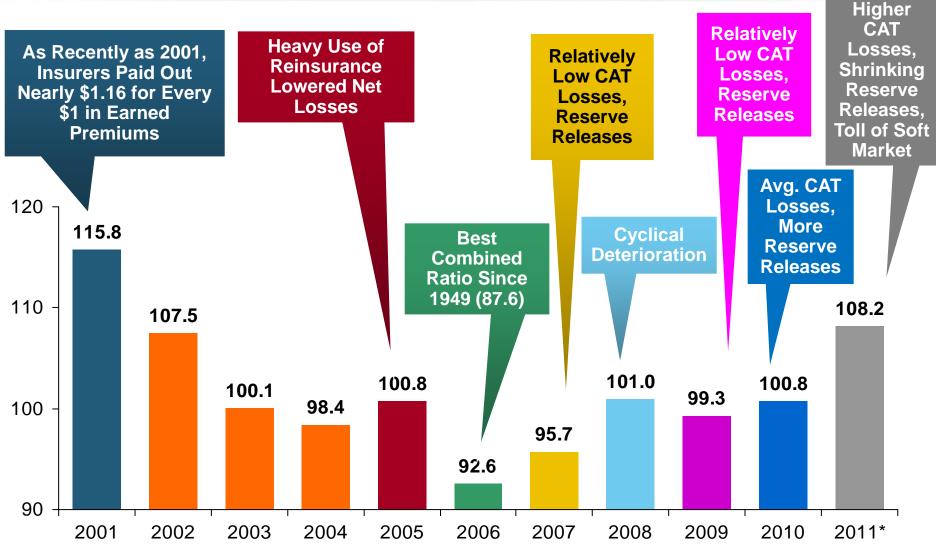


UNDERWRITING

Catastrophes Will Lead Insurers their Largest Underwriting Loss in a Decade

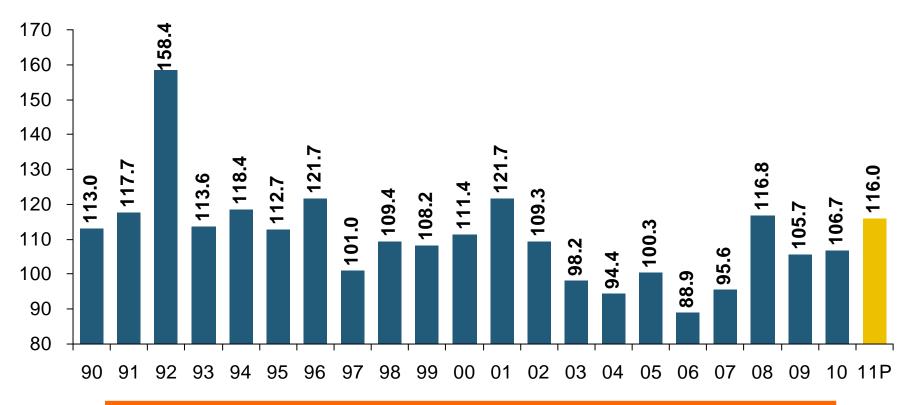
P/C Insurance Industry Combined Ratio, 2001–2011:Q3*





* Excludes Mortgage & Financial Guaranty insurers 2008--2011. Including M&FG, 2008=105.1, 2009=100.7, 2010=102.4, 2011=109.9 Sources: A.M. Best, ISO.

Homeowners Insurance Combined Ratio: 1990–2011P

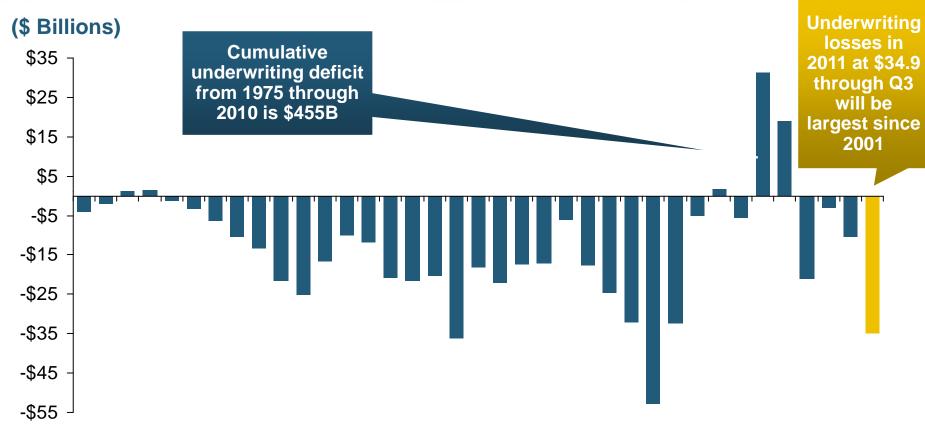


Homeowners Line Could Deteriorate in 2011 Due to Large Cat Losses. Extreme Regional Variation Can Be Expected Due to Local Catastrophe Loss Activity

Sources: A.M. Best (1990-2010); Insurance Information Institute (2011P).

Underwriting Gain (Loss) 1975–2011*

INSURANCE INFORMATION INSTITUTE

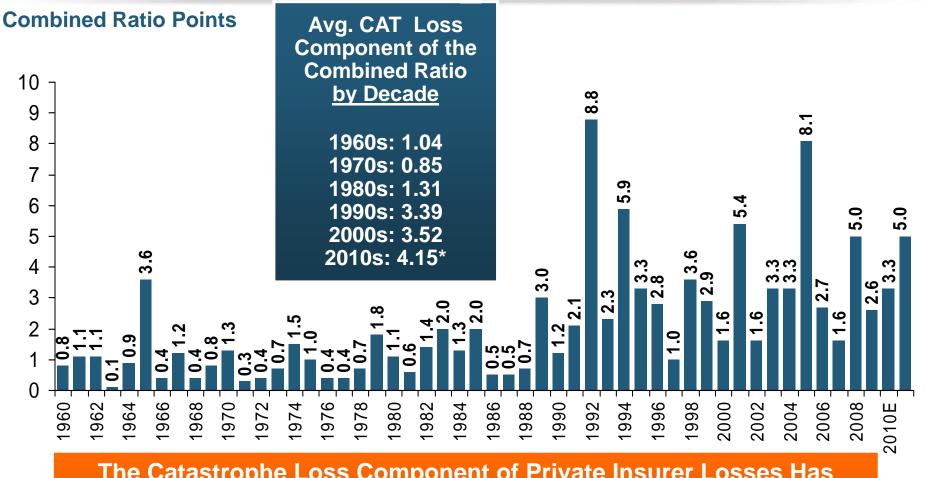


75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 1011*

Large Underwriting Losses Are *NOT* Sustainable in Current Investment Environment

* Includes mortgage and financial guaranty insurers in all years Sources: A.M. Best, ISO; Insurance Information Institute.

Combined Ratio Points Associated with Catastrophe Losses: 1960 – 2011E*



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

*Insurance Information Institute estimates for 2010 and 2011.

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; Insurance Information Institute.

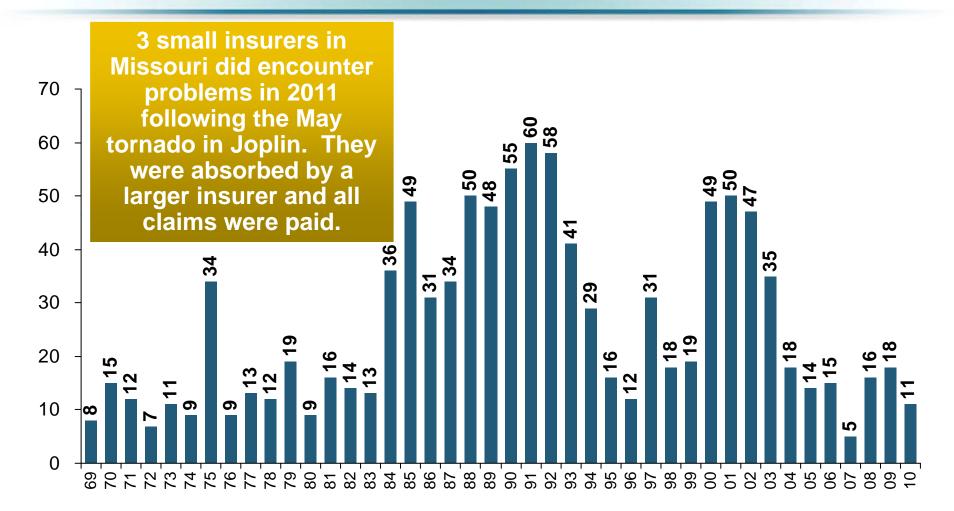
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Financial Strength & Underwriting

Cyclical Pattern in P-C Impairment History is Directly Tied to Underwriting, Reserving & Pricing

P/C Insurer Impairments, 1969–2010



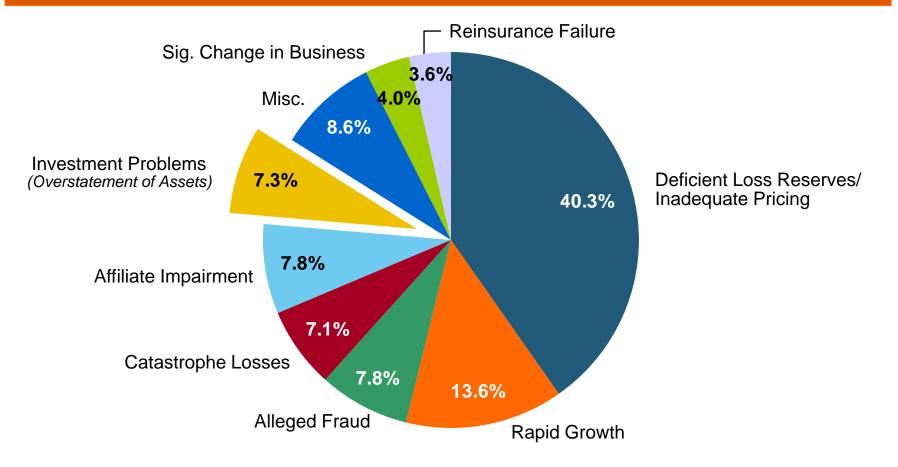
The Number of Impairments Varies Significantly Over the P/C Insurance Cycle, With Peaks Occurring Well into Hard Markets

Source: A.M. Best Special Report "1969-2010 Impairment Review," June 21, 2010; Insurance Information Institute.

Reasons for US P/C Insurer Impairments, 1969–2010



Historically, Deficient Loss Reserves and Inadequate Pricing Are By Far the Leading Cause of P-C Insurer Impairments. Investment and Catastrophe Losses Play a Much Smaller Role



Source: A.M. Best: 1969-2010 Impairment Review, Special Report, April 2011.

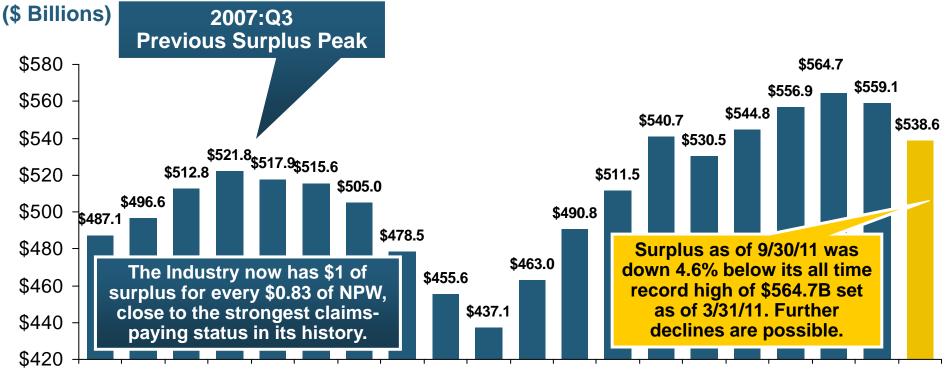


SURPLUS/CAPITAL/CAPACITY

Have Large Global Losses Reduced Capacity in the Industry, Setting the Stage for a Market Turn?

Policyholder Surplus, 2006:Q4–2011:Q3





06:Q4 07:Q1 07:Q2 07:Q3 07:Q4 08:Q1 08:Q2 08:Q3 08:Q4 09:Q1 09:Q2 09:Q3 09:Q4 10:Q1 10:Q2 10:Q3 10:Q4 11:Q1 11:Q2 11:Q3

*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.

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Quarterly Surplus Changes Since 2011:Q1 Peak
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11:Q2: -\$5.6B (-1.0%)

11:Q3: -\$26.1B (-4.6%)



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Question and Answer Process



To ask a question, please dial 1 4 on your phone.

An operator will facilitate your participation.





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