



**INSURANCE  
INFORMATION**  
INSTITUTE

# Insurance: Vanguard of the Resilient

AAA Oregon/Idaho  
Portland, OR  
March 9, 2019

James Lynch, FCAS MAAA, Chief Actuary

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# I.I.I. Mission Statement

Improving public understanding  
of insurance...

...what it does and how it works.



# How Insurance Drives Economic Growth

## Safety/ Security



1. Insurers are financial first responders



2. Insurers are risk mitigators

## Economic/ Financial Stability



3. Insurers are capital protectors



4. Insurance is a partner in social policy



5. Insurance sustains the supply chain



6. Insurers are capital infusers

## Development



7. Insurers are community builders



8. Insurance enables infrastructure improvements



9. Insurers are innovation catalysts



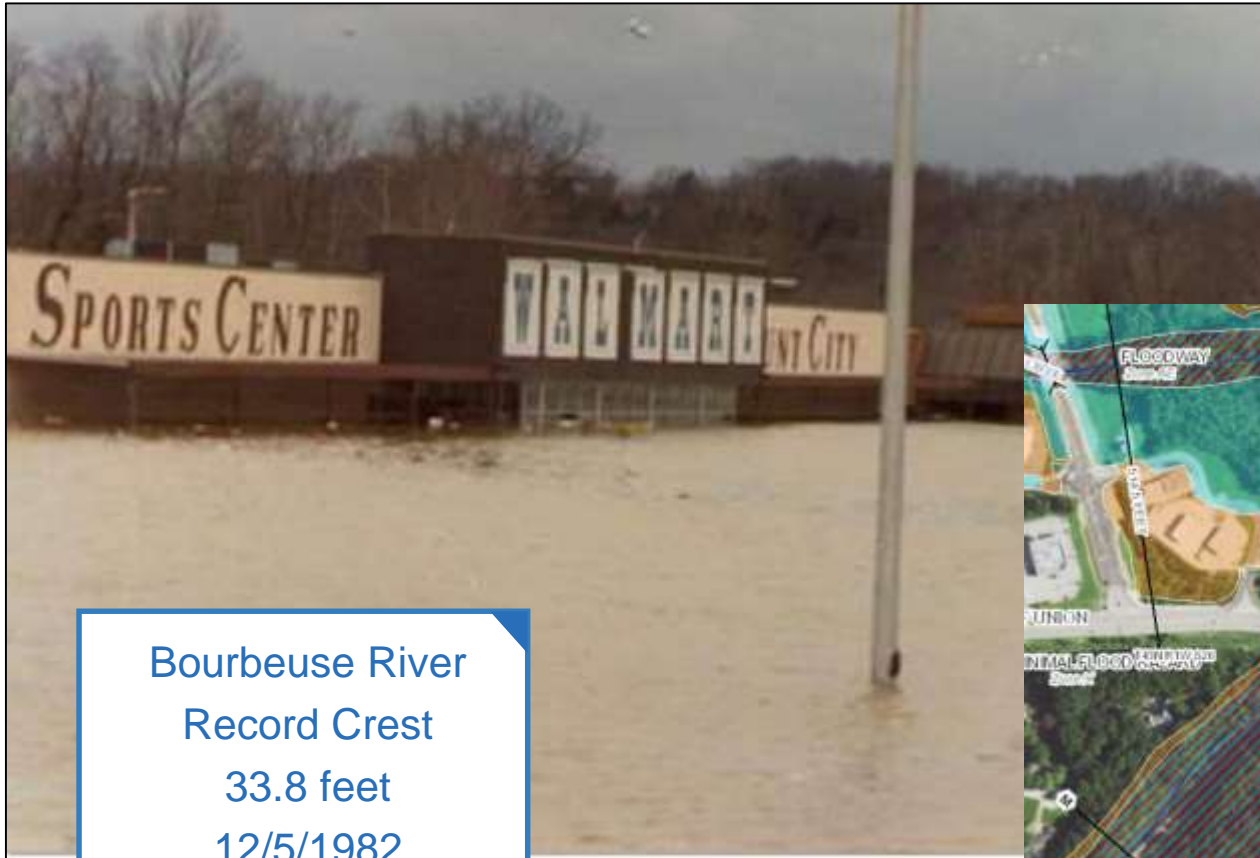
10. Insurers are credit facilitators

# Catastrophes

Extreme Weather Threatens Union

# 1982 Union, Missouri, Flood

## A Storm for the Ages



Bourbeuse River  
Record Crest  
33.8 feet  
12/5/1982



# 2015 Union, Missouri, Flood

## A Storm for the Ages



Bourbeuse River  
Record Crest  
34.3 feet  
12/29/2015



Sources: CBSnews.com; fox2news.com



# 2017 Union, Missouri, Flood

“Unfortunately, it’s a river and Mother Nature.  
And we can’t control her.”



Bourbeuse River  
Crest  
30.1 feet  
May 2-3, 2017

# Extreme Events: A Troubling Trend

Rank	Date	Event	Cause
1	Aug. 2005	Hurricane Katrina	Hurricane
2	<b>Sep. 2017</b>	<b>Hurricane Maria</b>	<b>Hurricane</b>
3	<b>Sep. 2017</b>	<b>Hurricane Irma</b>	<b>Hurricane</b>
4	Sep. 2001	September 11 Events	Terrorism
5	Oct. 2012	Hurricane Sandy	Hurricane
6	<b>Aug. 2017</b>	<b>Hurricane Harvey</b>	<b>Hurricane</b>
7	Aug. 1992	Hurricane Andrew	Hurricane
8	Jan. 1994	Northridge, CA earthquake	Earthquake
9	Sep. 2008	Hurricane Ike	Hurricane
10	Oct. 2005	Hurricane Wilma	Hurricane

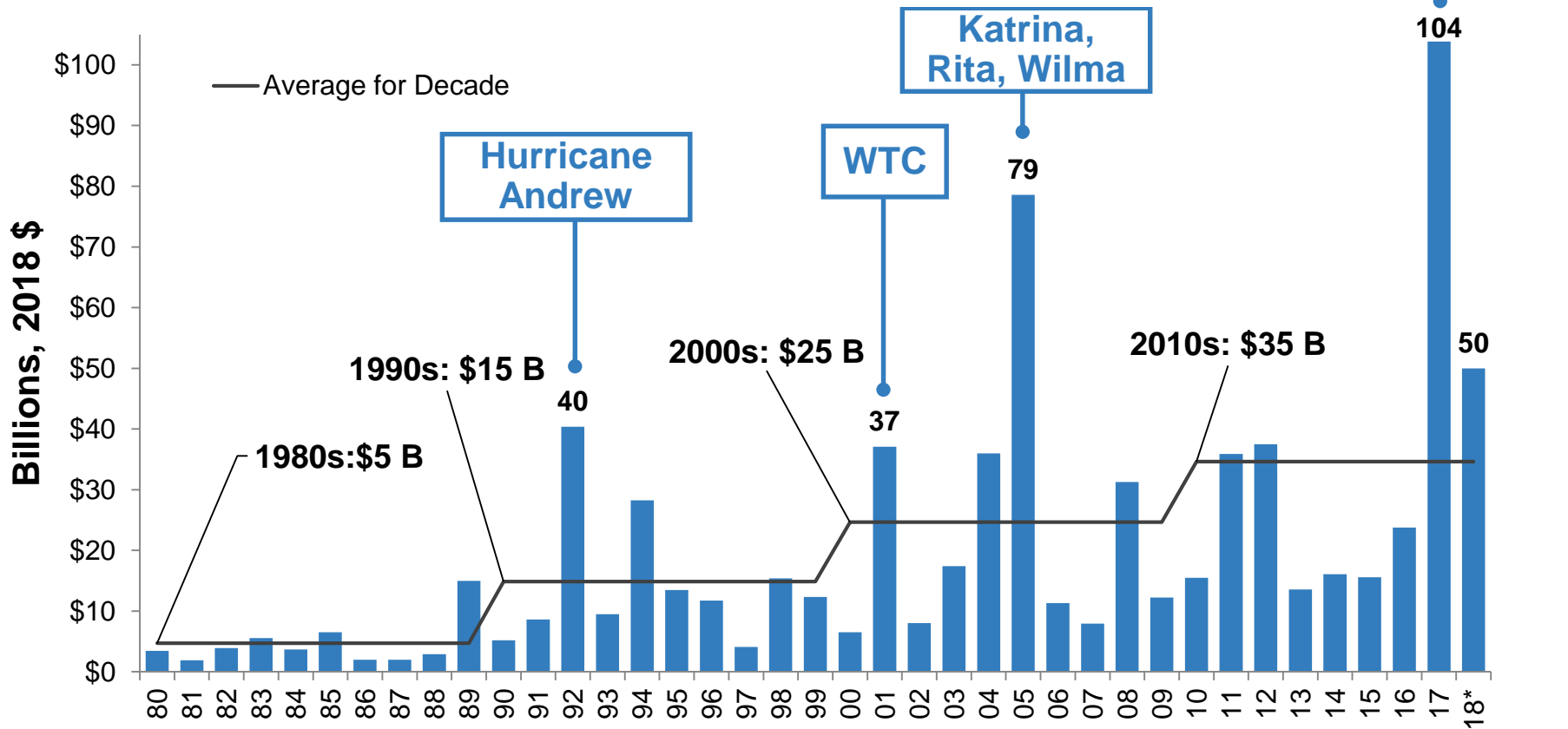
**Three of 10 Worst US Catastrophes Occurred in 2017.**



Source: The Property Claim Services® (PCS®) unit of ISO®, a Verisk Analytics® company.



# U.S. Inflation-Adjusted Cat Losses



**2018 – Third worst year for U.S. Insured Catastrophe Losses.  
Average Insured Loss per Year for 1980-2018 is \$19.3 B.**

\*2018: Inflation-adjusted estimate, subject to change. 2010s is average of 2010 to 2018.  
Sources: Property Claims Service, a Verisk Analytics business; Insurance Information Institute.



# Disruptive Forces in the World – The New Norm

**Catastrophes**

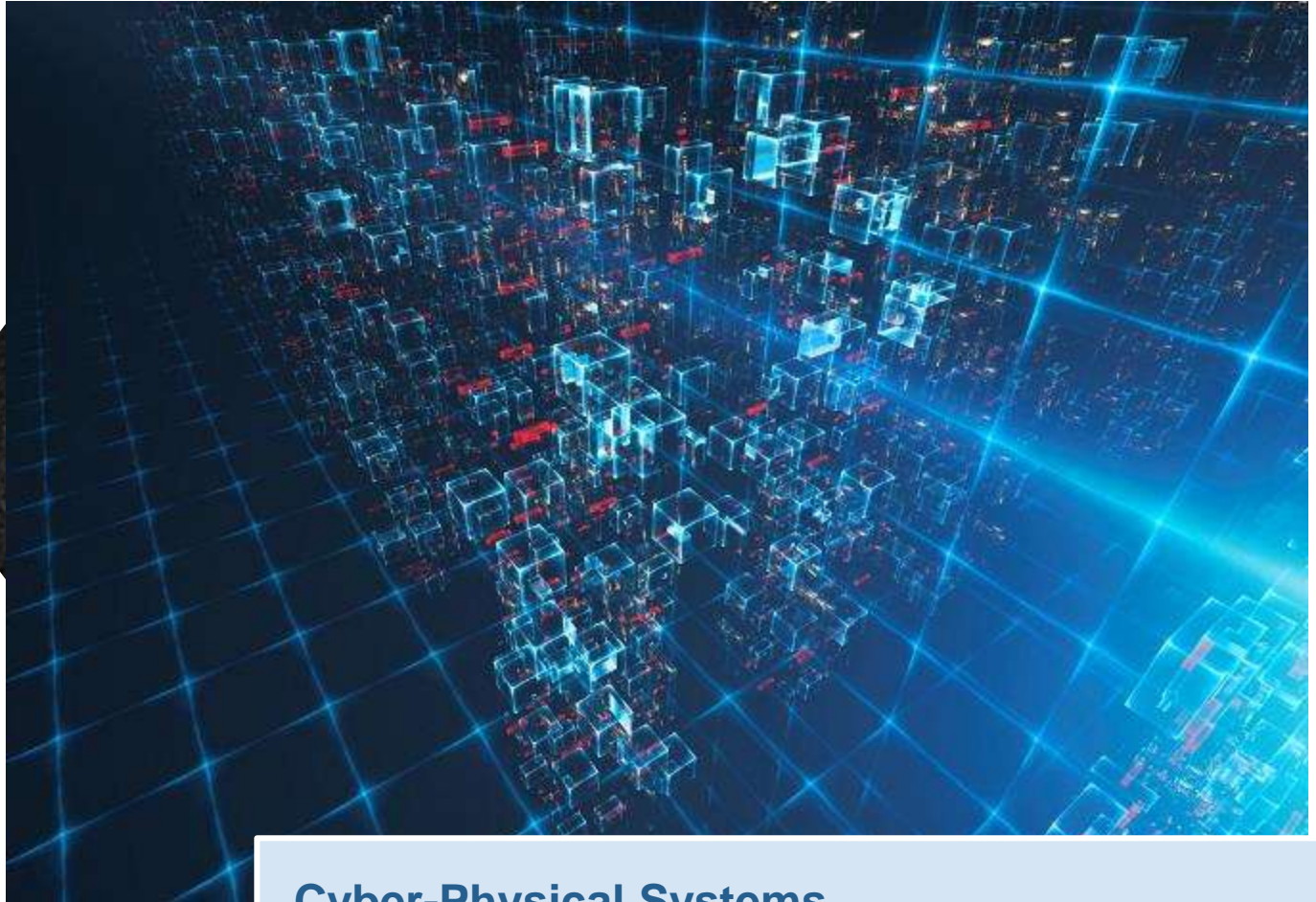
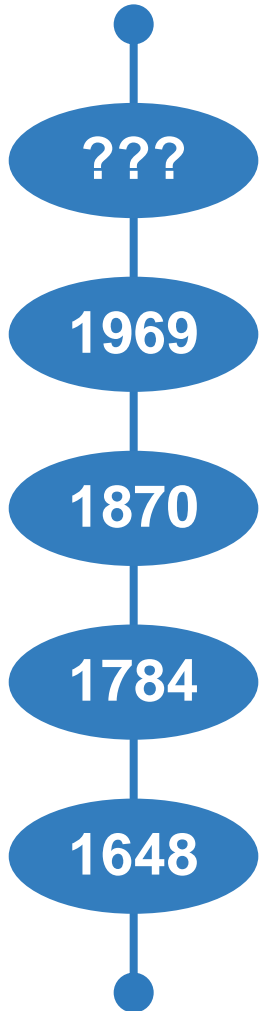


**Economics**

**Geopolitical**

**Technology**

# Insurance Leading Throughout History



Cyber-Physical Systems

# Insurers Studying Solutions to Extreme Weather

*I.I.I., Actuaries, and IBHS offering resilience know-how to consumers on how to insure and protect themselves*



- ▶ Proposed I.I.I. white paper



- ▶ The American Academy of Actuaries Climate Index



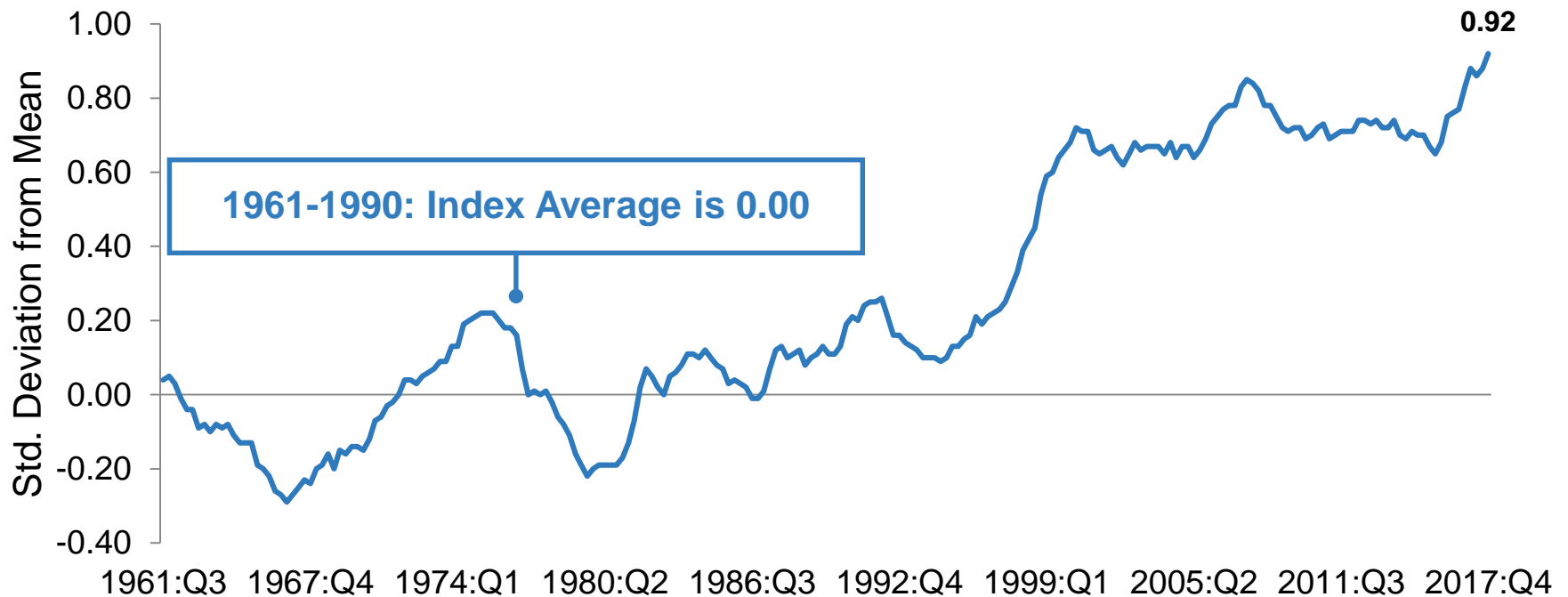
- ▶ Insurance Institute for Business & Home Safety (IBHS) resources



# Education & Analysis

## Actuaries Climate Index – Measuring Weather Extremes

### Seasonal Five-Year Moving Average, United States



**Index Measures Frequency of Extreme Events (Heat, Cold, Drought, Wind, Rain, Sea Level) Vs. 1961-1990 Average**



# I.I.I. To Create Resilience Index



**Dr. Michel Leonard, CBE**  
Vice President and  
Senior Economist, I.I.I.

- ▲ How prepared is each state for the natural and man-made disasters they are likely to see?
- ▲ I.I.I. and Aon to share their findings with the industry policy-makers and the general public



Forecasting powered by:



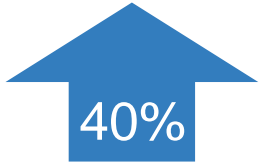
# (Re)insurance Products

## Private Industry

## Case Studies

### FEMA Reinsurance

- Through a \$150 million purchase of private reinsurance products, FEMA was able to recover approximately \$1 billion, or an eighth of its total 2017 losses.

  
40%  
2018 FEMA Reinsurance

### NFIP NatCat Bonds

- By issuing new natural catastrophe bonds geared towards institutional investors, the NFIP can bring an estimated \$500 million of additional reinsurance coverage.



### Private Market Flood Products

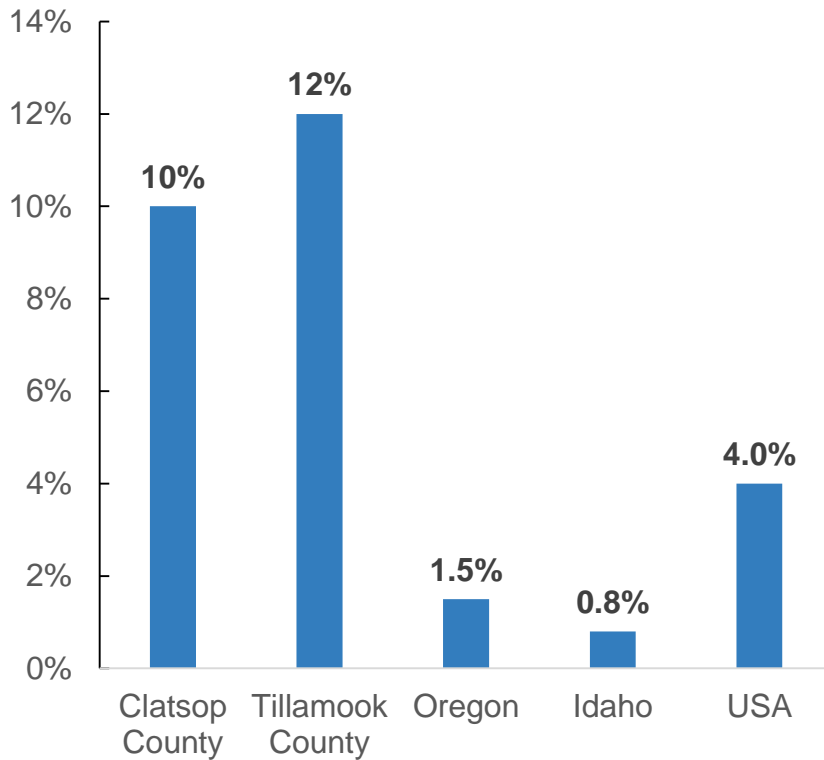
- During 2017, the private flood insurance market added 50 new carriers. Direct private flood insurance premiums written reached \$630 million, an increase of \$217 million over 2016.



# Who Is Buying Flood Insurance?

Who Has It Vs. Who Needs It

## NFIP Takeup Rates



## Oregon Counties

County	Major Floods	NFIP Takeup Rate
Benton	1996	2%
Clackamas	1862	1%
Linn	1996	2%
Marion	1996	1%
Morrow	1903	1%
Multnomah	1876, 1894, 1948, 1994, 1996	1%
Polk	1996	2%



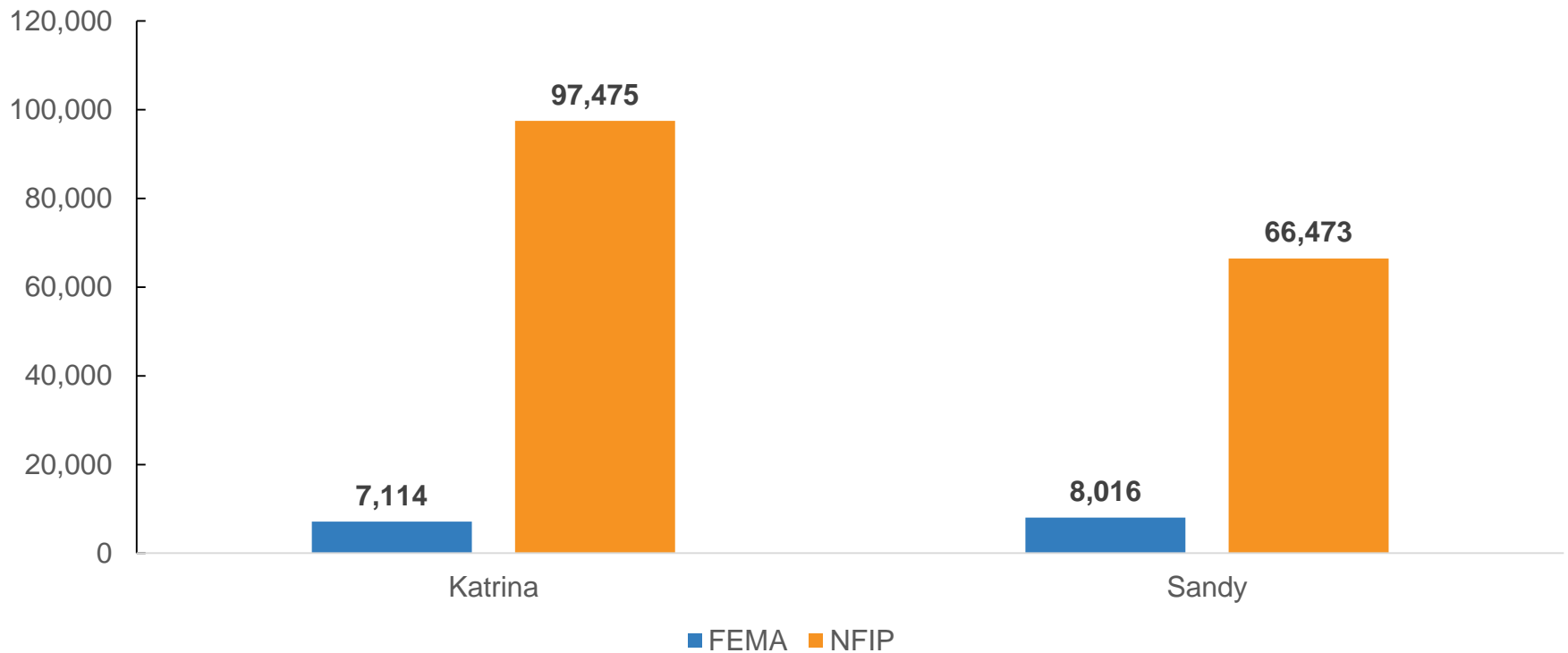
Source: National Flood Insurance Program, Insurance Information Institute.



# FEMA Grant Vs. NFIP

## Insurance Pays

### Average Payout

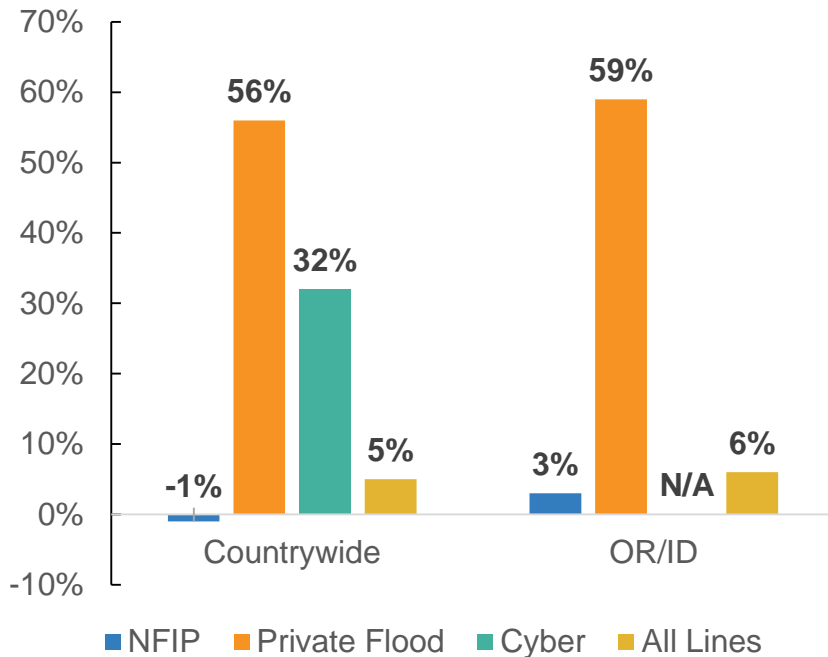


# Private Flood Insurance

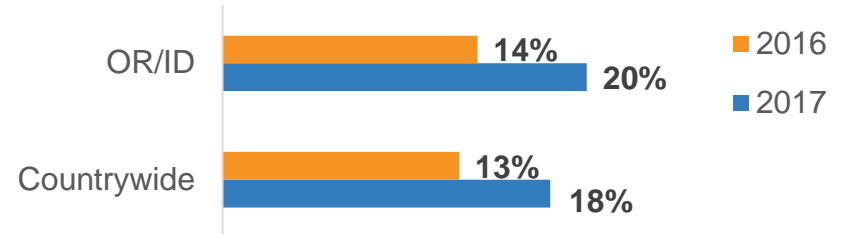
A \$640 Million Market in 2017

## Growing Faster Than Cyber

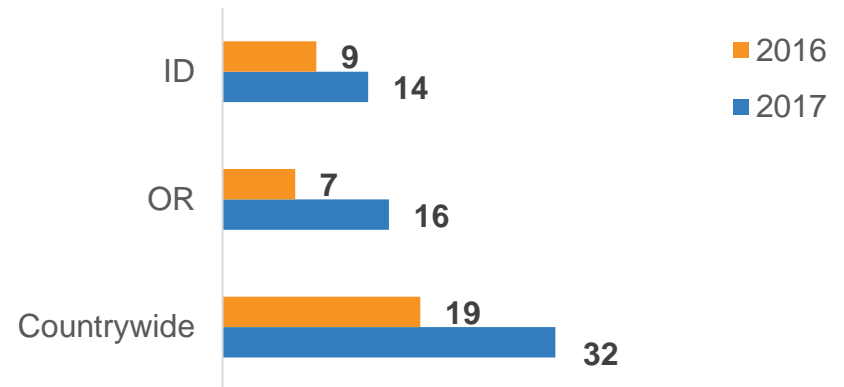
(DPW Growth, 2017 vs. 2016)



## Significant Share of Flood Mkt

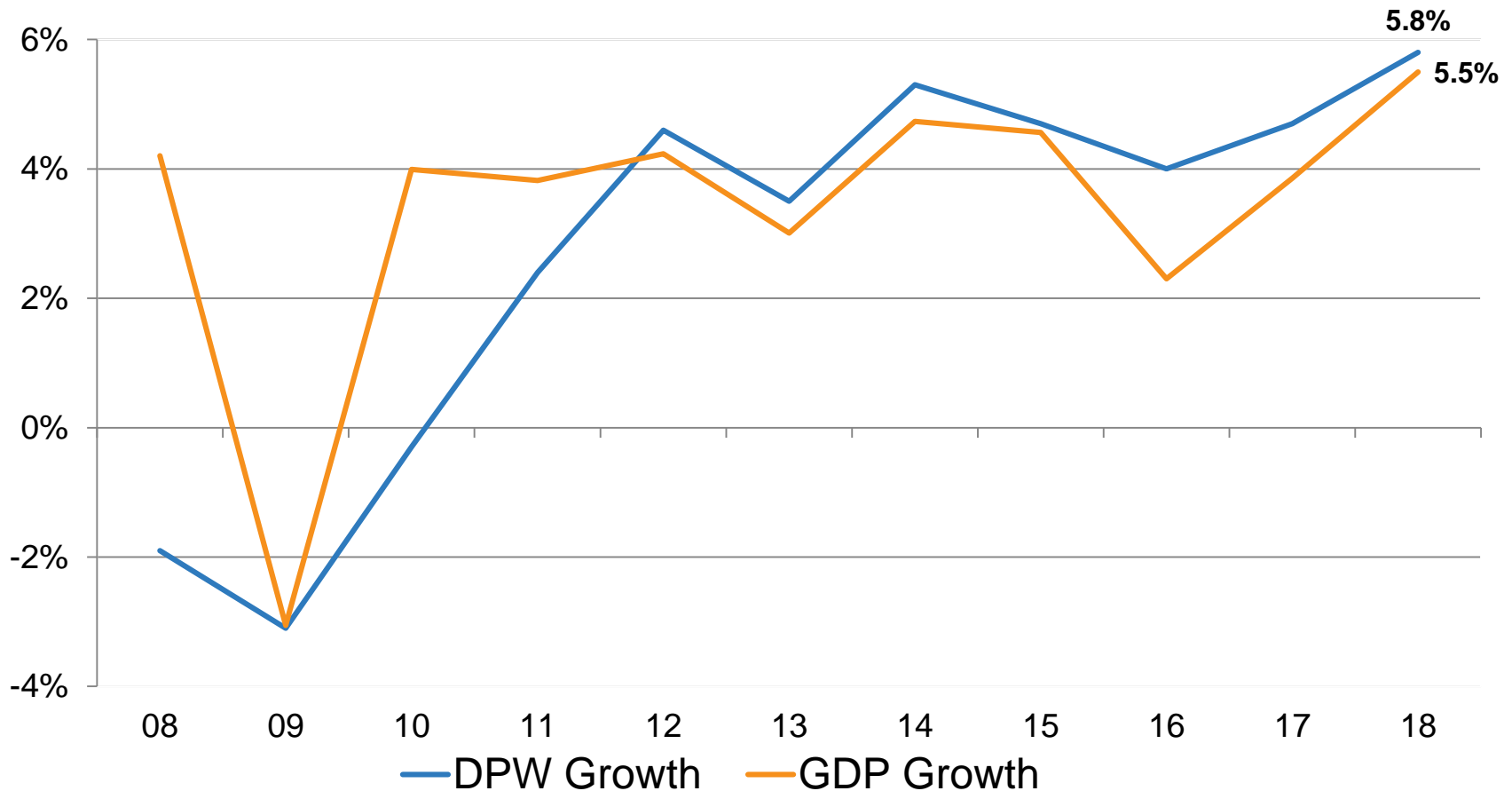


## Growing No. Writers



# Insurance Industry Economic Trends

# Direct Premium Growth, Annual Change



▼ Direct Premiums Continue to Track Economic Growth



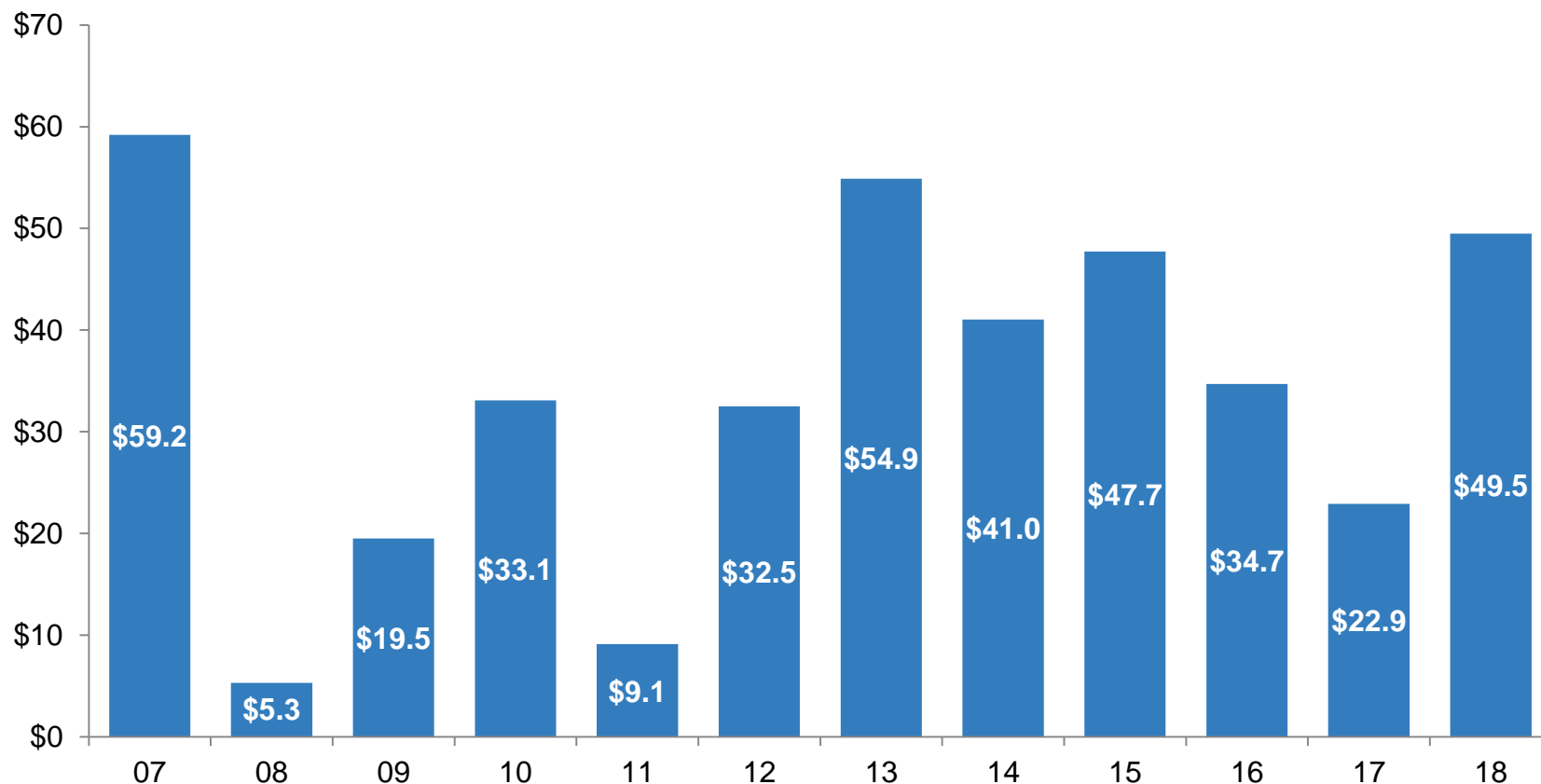
All data through second quarter.

SOURCES: NAIC data sourced through S&P Global Intelligence, Bureau of Economic Affairs, Insurance Information Institute.



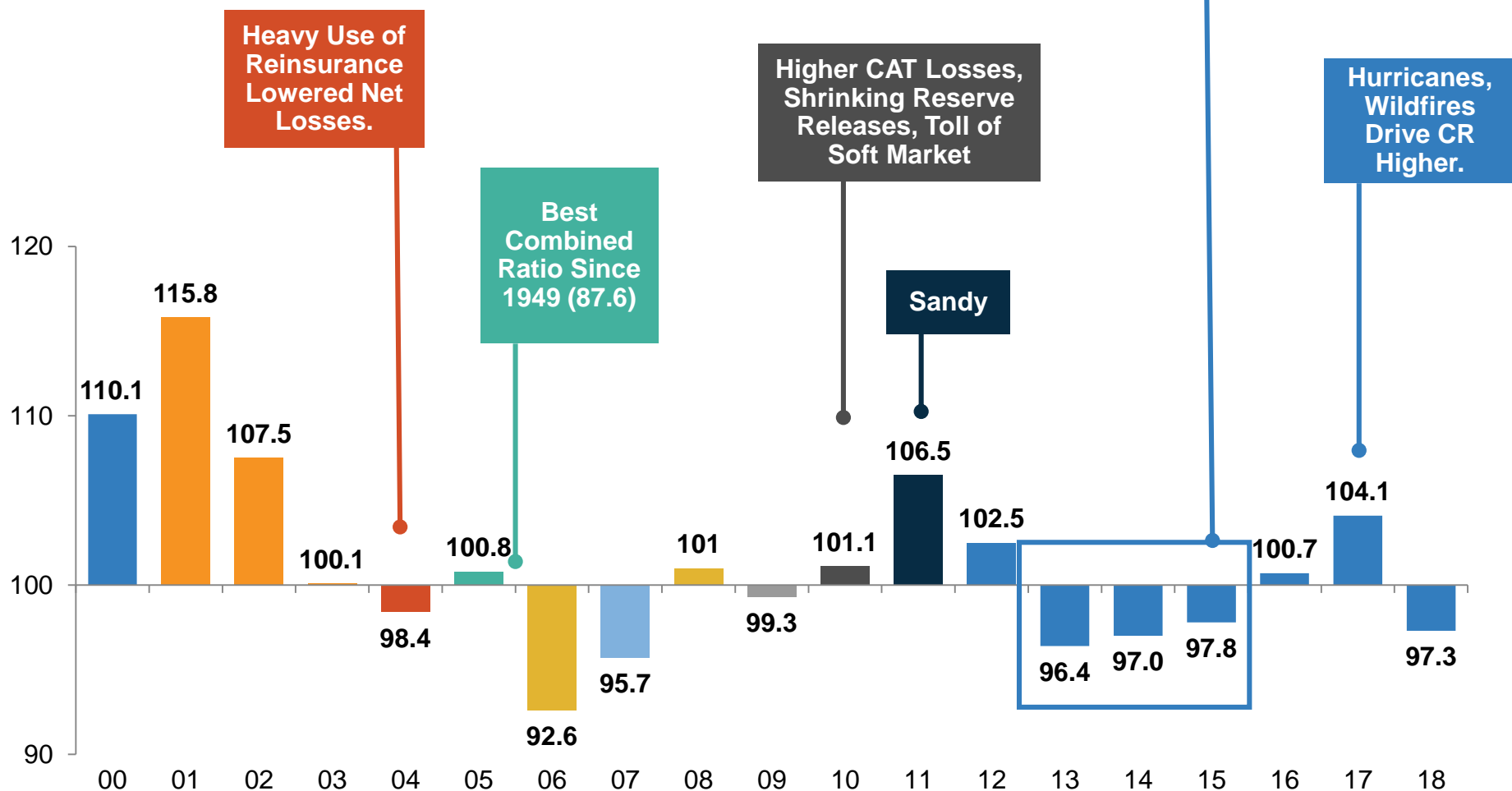
# P/C industry net income after taxes

Billions, 2018 dollars



▼ Catastrophes Drove Earnings Down in 2017, Continuing a Four-Year Slide in Inflation-Adjusted Profits.

# P/C Insurance Industry Combined Ratio, 2000-2018\*



\*Excludes Mortgage & Financial Guaranty insurers 2008-2014.

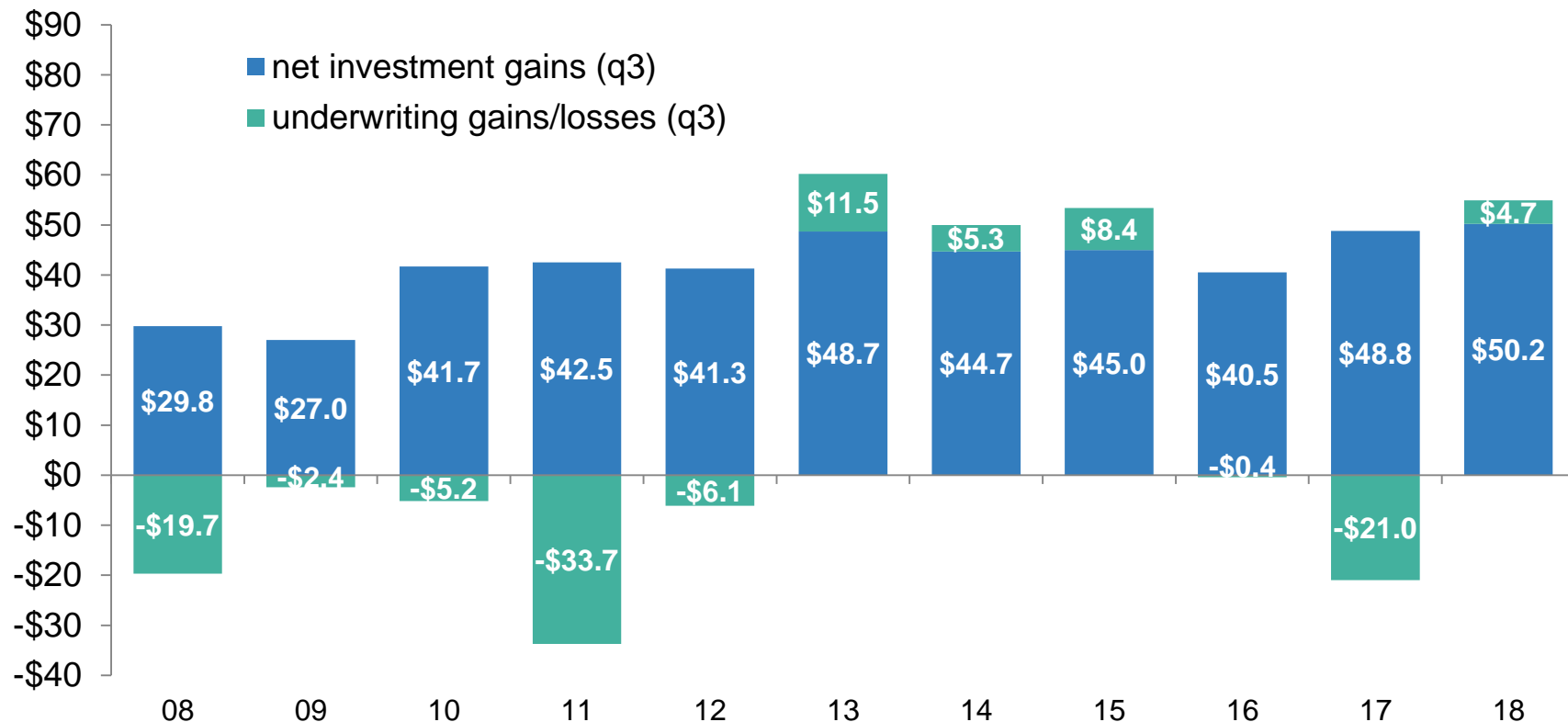
Including M&FG, 2008=105.1, 2009=100.7, 2010=102.4, 2011=108.1; 2012:=103.2; 2013: = 96.1; 2014: = 97.0.

Sources: A.M. Best; ISO, a Verisk Analytics company; I.I.I. estimate for 2018.



# Key sources of P/C insurer profits

\$ Billions



Data are before taxes and exclude extraordinary items.

Sources: NAIC data, sourced from S&P Global Market Intelligence; Insurance Information Institute.

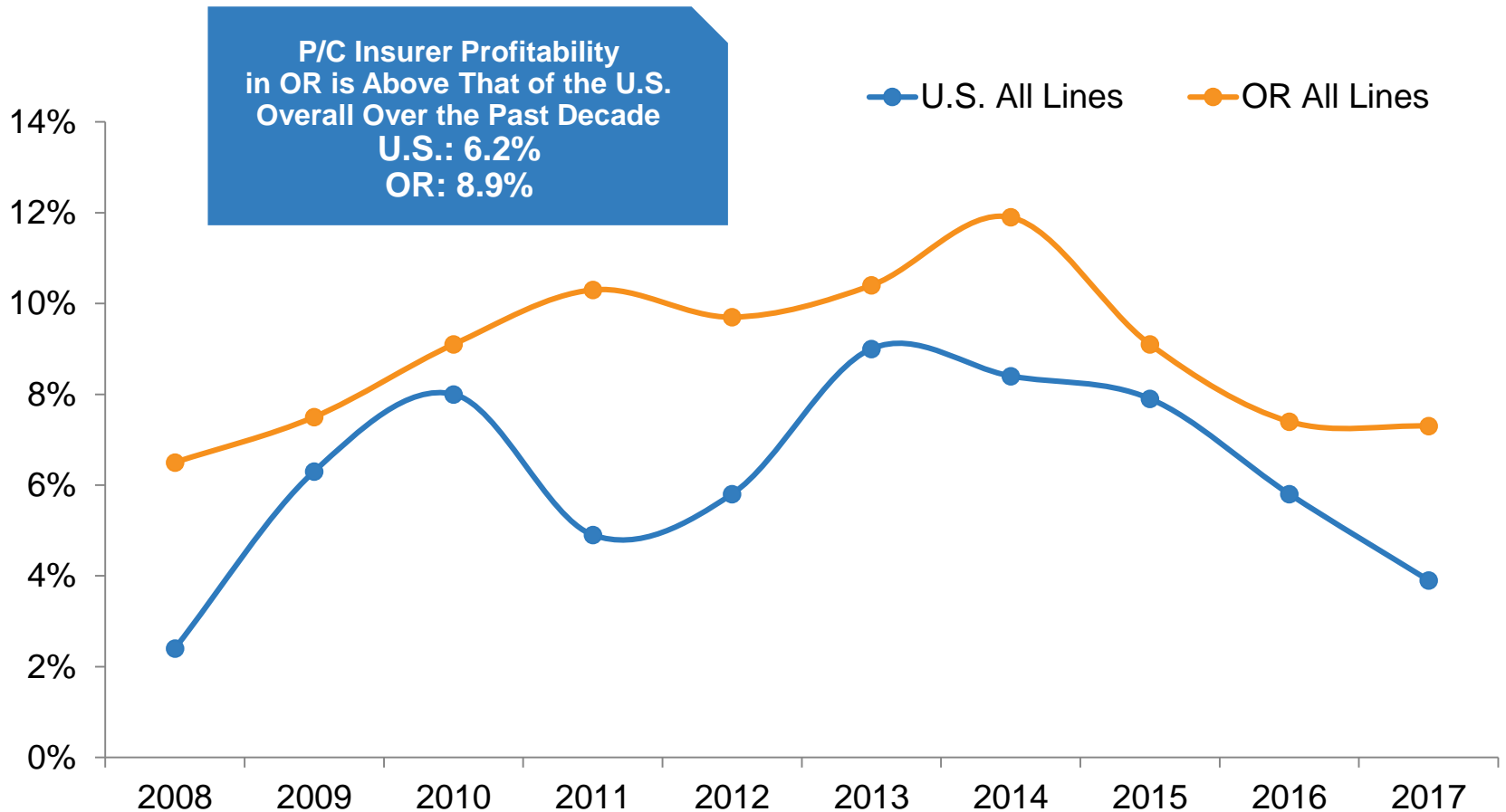


# Oregon Results

. . . And some Idaho . . .

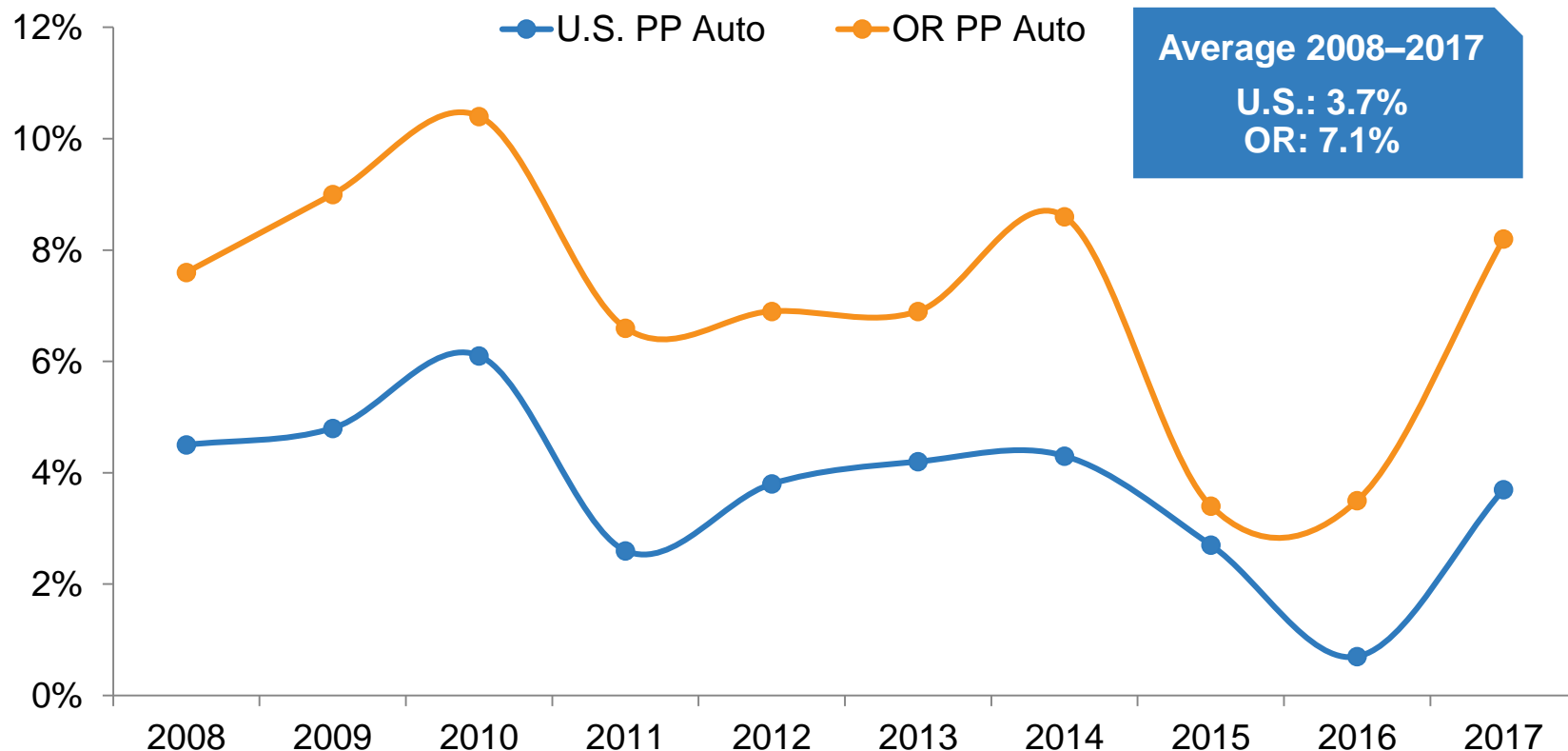


# RNW All Lines: OR vs. U.S.



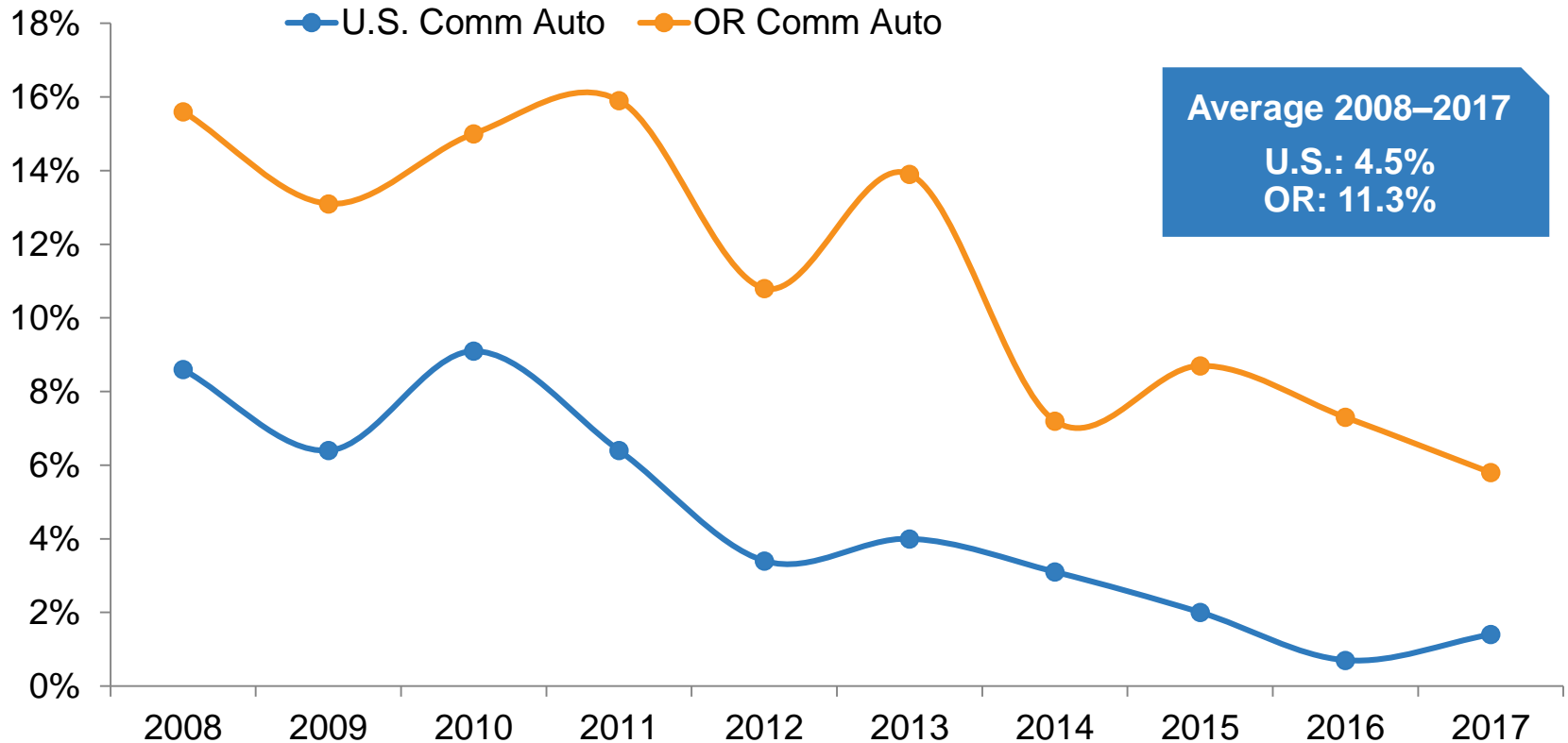
Source: NAIC.

# RNW PP Auto: OR vs. U.S.



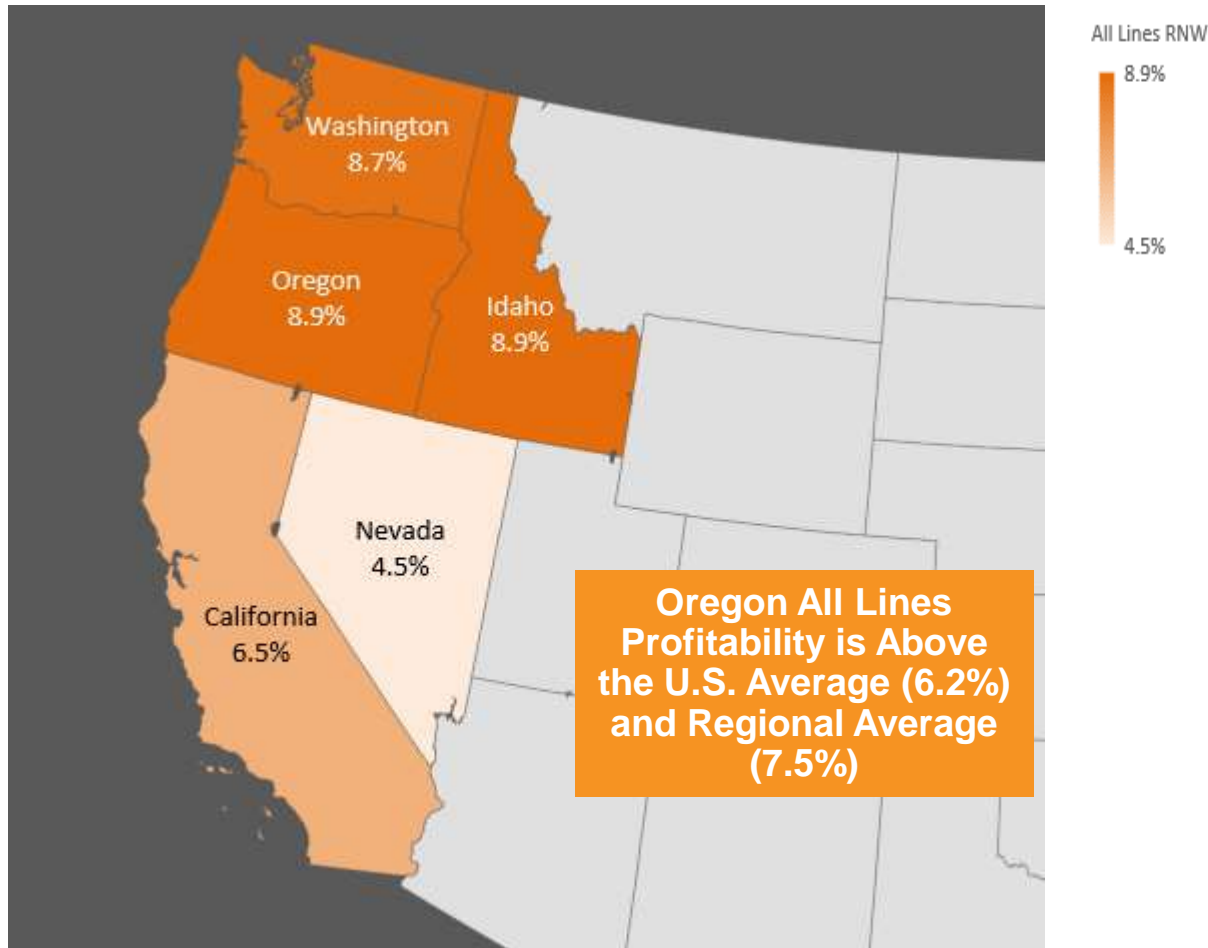
Source: NAIC.

# RNW Comm. Auto: OR vs. U.S.

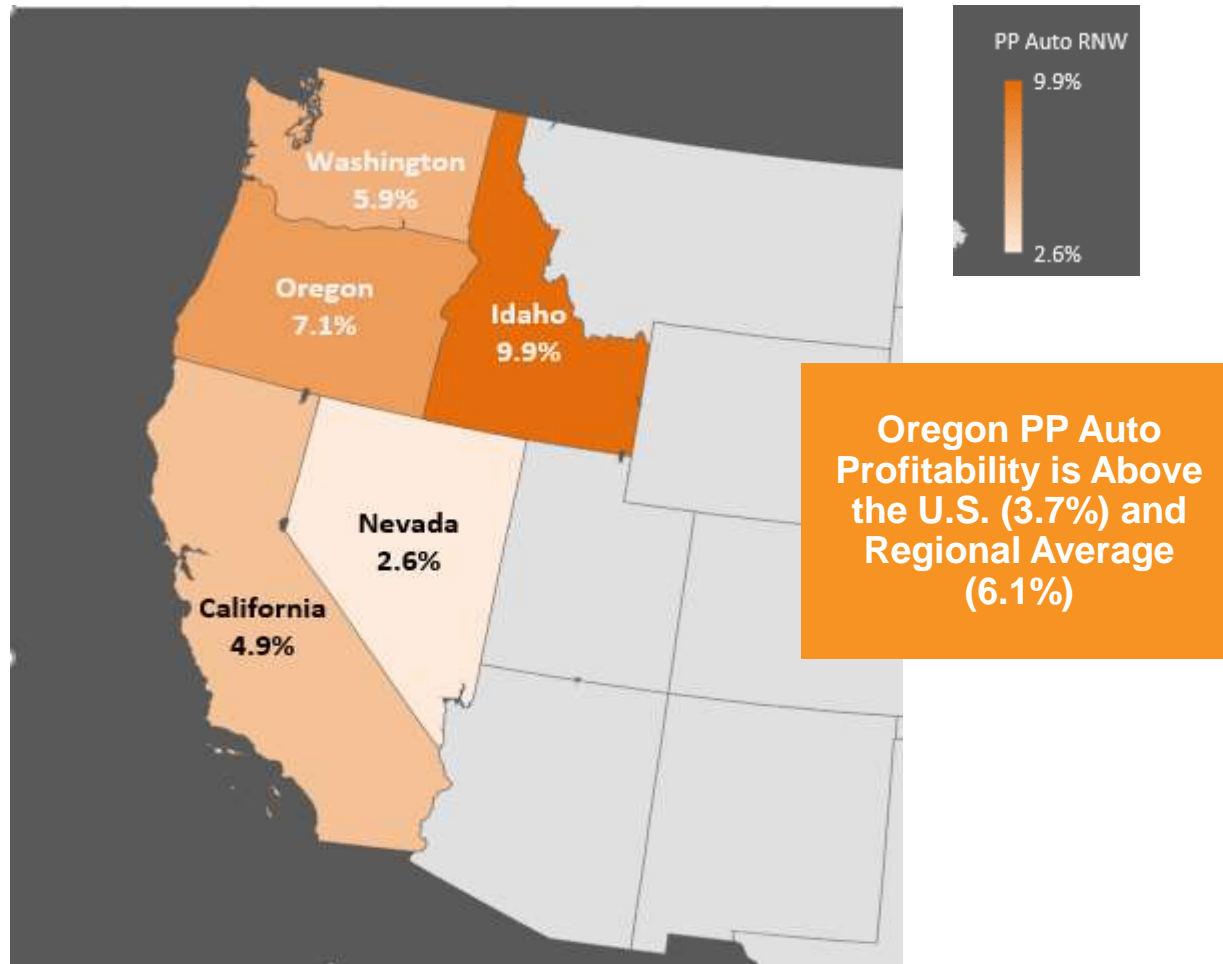


Source: NAIC.

# All Lines: 10-Year Average RNW OR and Nearby States, 2008–2017



# PP Auto: 10-Year Average RNW OR and Nearby States, 2008–2017



# Top Ten Most Expensive and Least Expensive States for Automobile Insurance, 2016<sup>1</sup>

Rank	Most Expensive States	Average Expenditure	Rank	Least Expensive States	Average Expenditure
1	New Jersey	\$1,309.29	1	Idaho	\$599.77
2	Louisiana	1,302.11	2	Iowa	628.10
3	New York	1,301.64	3	North Dakota	639.10
4	Michigan	1,270.70	4	South Dakota	648.01
5	Florida	1,259.55	5	Maine	650.38
6	District of Columbia	1,246.80	6	Wyoming	677.53
7	Rhode Island	1,193.58	7	Wisconsin	688.32
8	Delaware	1,159.86	8	Vermont	691.56
9	Massachusetts	1,096.53	9	Indiana	692.29
10	Connecticut	1,086.17	10	North Carolina	699.91

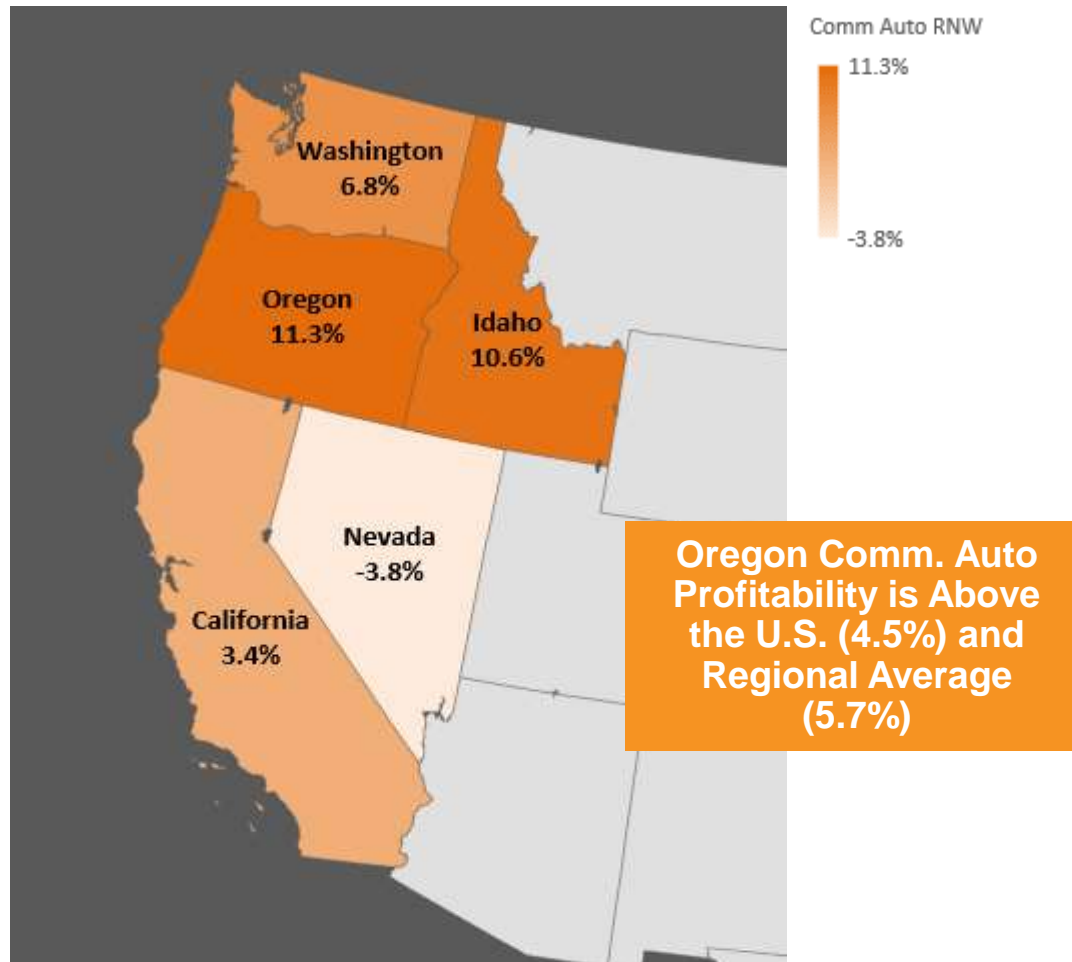
**Oregon Ranked 21st in Average Expenditure for Auto Insurance in 2016. The Average Expenditure was \$877.09.**



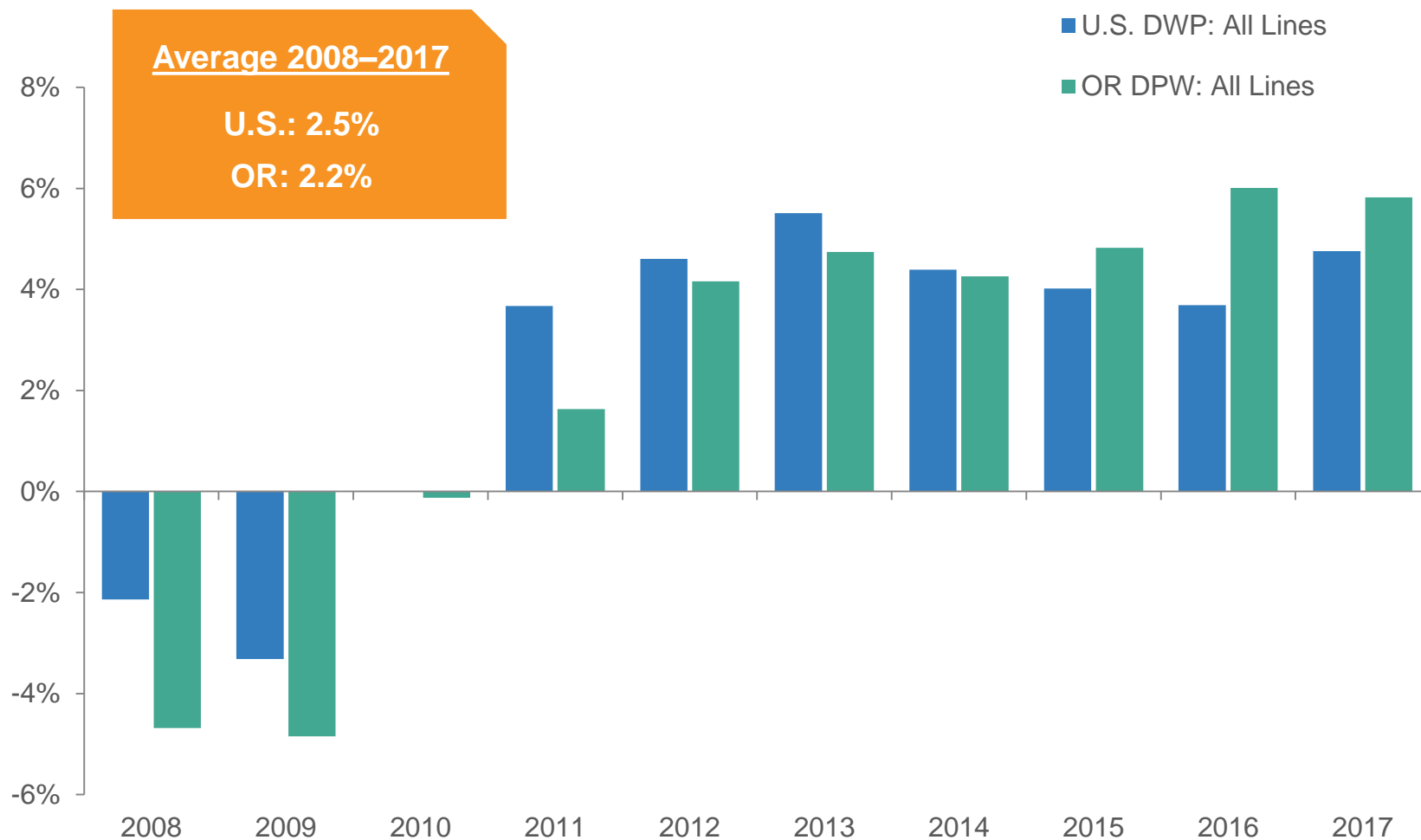
<sup>1</sup>Based on average automobile insurance expenditures.  
Source: © 2018 National Association of Insurance Commissioners.



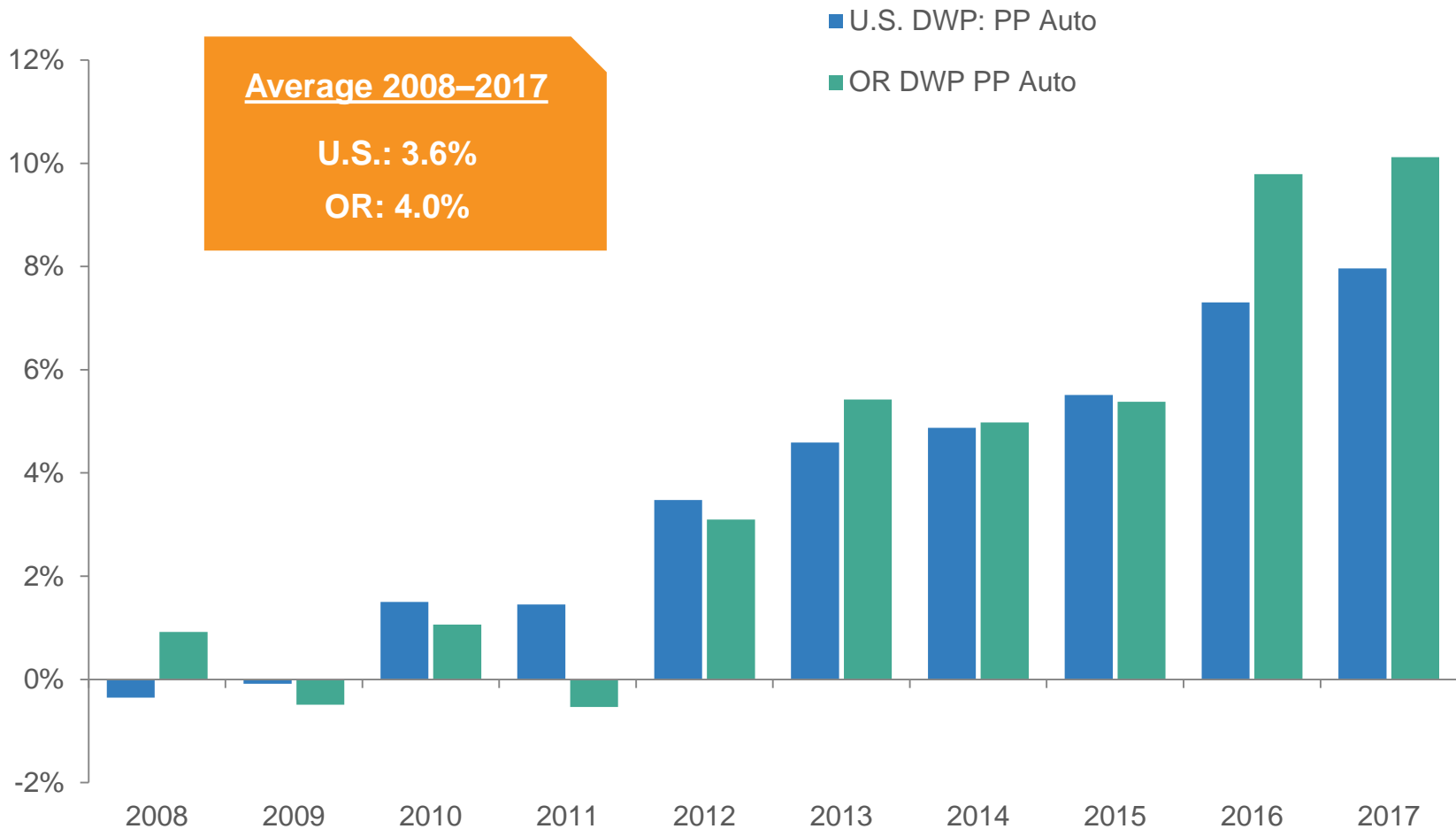
# Comm. Auto: 10-Year Average RNW OR and Nearby States, 2008–2017



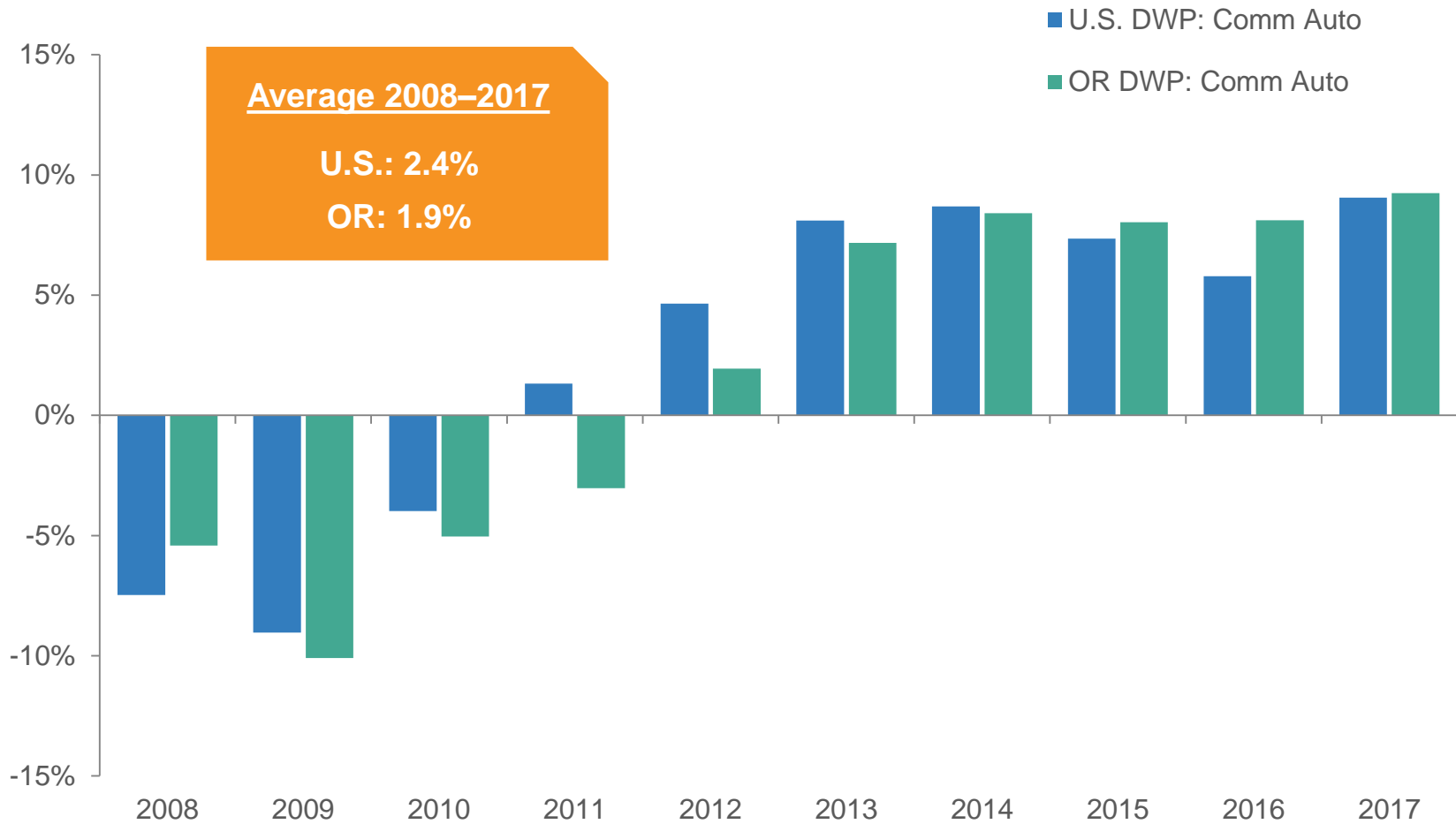
# All Lines DWP Growth: OR vs. U.S.



# Private Passenger Auto DWP Growth: OR vs. U.S.



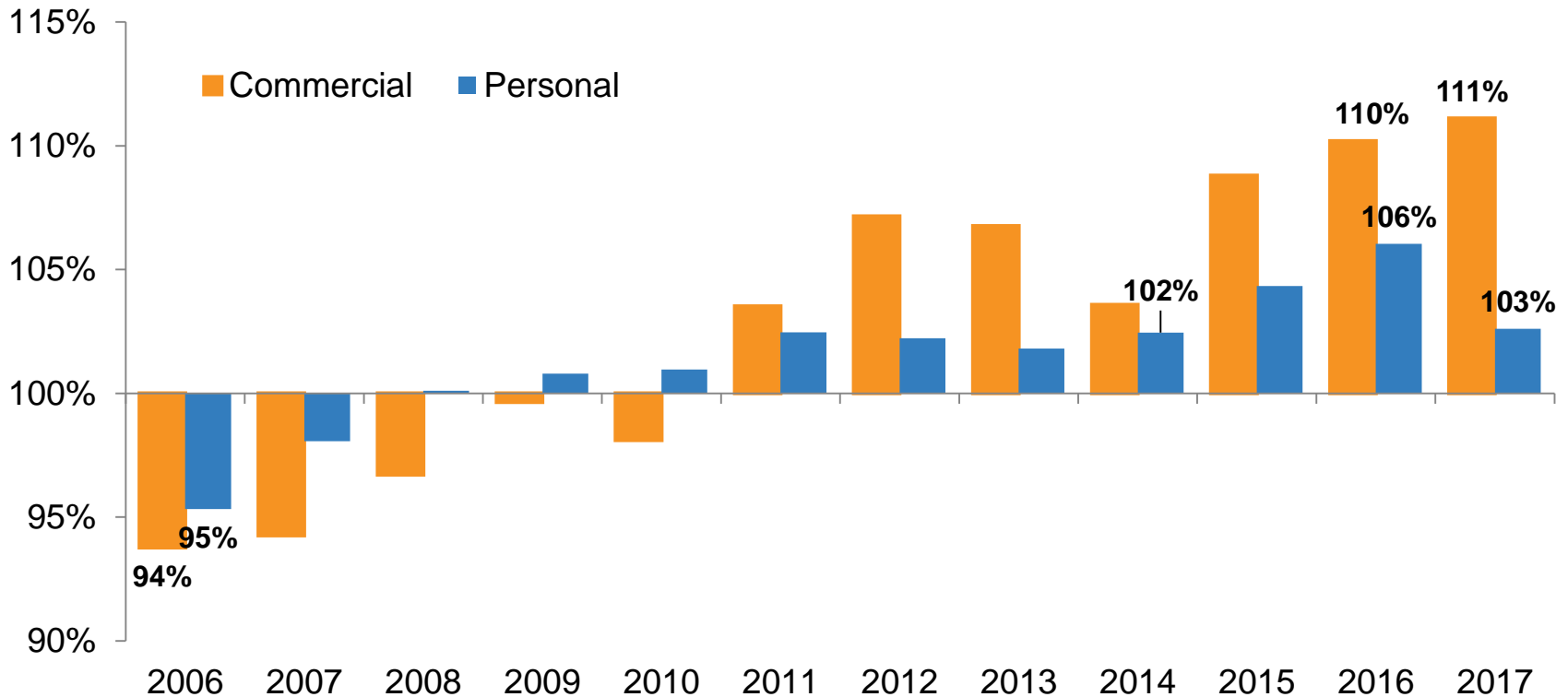
# Commercial Auto DWP Growth: OR vs. U.S.



# Auto Coverages

The Tide Has Turned.  
But It Is Not Low Tide.

# Auto Net Combined Ratio



**Rate Actions Helped Personal Auto Results. Not So for Commercial Auto.**



Source: National Association of Insurance Commissioners data, sourced from S&P Global Market Intelligence; Insurance Information Institute.



# Rising Accident Costs

## All Coverages Affected

Increase in Loss Costs, 2016:Q3–2018:Q3



Bodily Injury

6.7%



Property  
Damage

3.8%



Personal Injury  
Protection

4.8%



Collision

3.5%



Comprehensive

-4.0%

**From 2016 to 2018, the cost of accidents has risen dramatically. By contrast, consumer prices overall rose 6.6 percent from 2016 to 2018.**

# Results by Line

## Incurred Loss Ratios

LOB	2018	2017	Change From Year Earlier
Personal Auto Liab	66	70	-4.7
Homeowners	63	70	-7.1
PhysDam (PA, CA)	60	67	-7.0
GL (incl Products)	57	55	2.6
WC	48	54	-6.0
Fire & Allied Lines	66	118	-51.9
CMP	58	63	-5.3
Comm Auto Liab	70	69	0.9
Other	44	50	-6.8
<b>Total</b>	<b>59</b>	<b>67</b>	<b>-7.6</b>



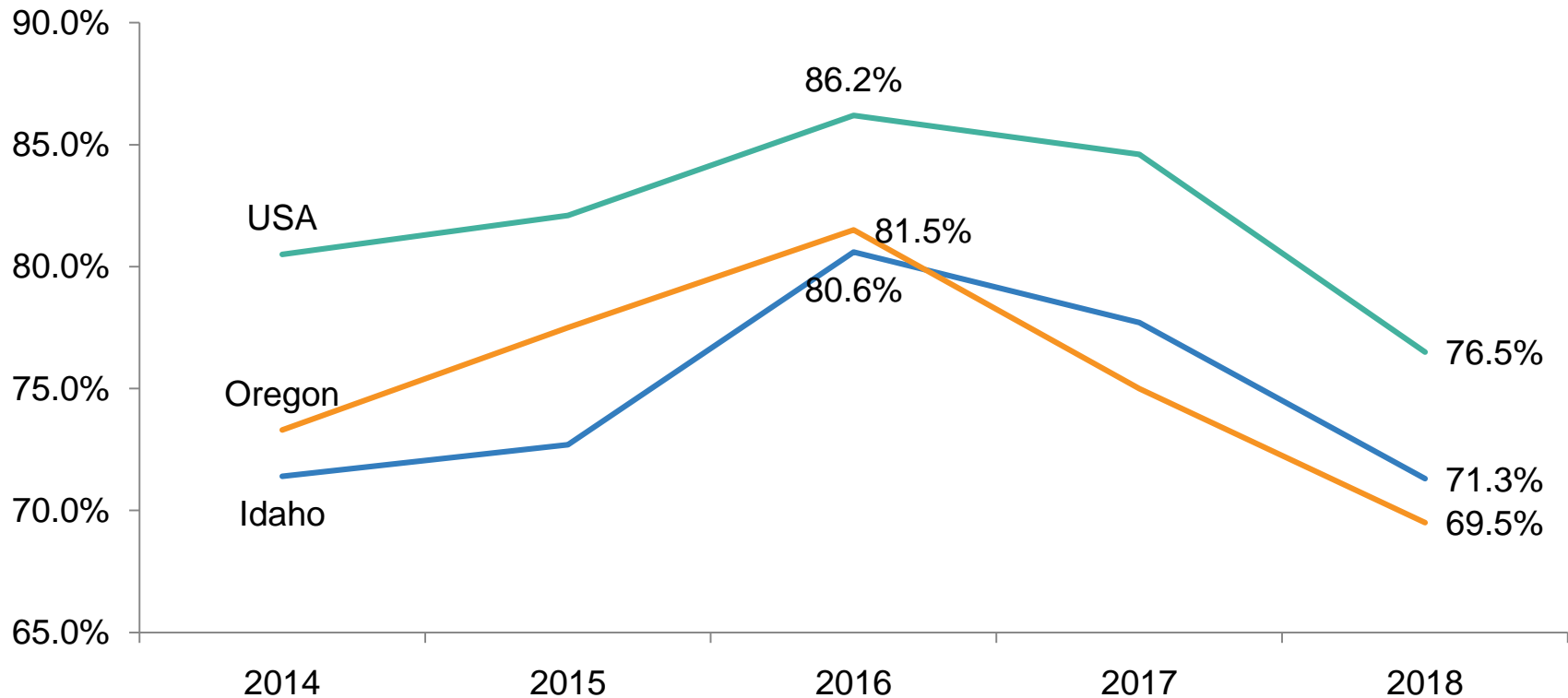
Through Q3. Differences may not add up due to rounding.

Sources: NAIC data from S&P Global Intelligence, Insurance Information Institute.

**Positive Number =  
Bad News**

# Loss Ratio Trends

Liability and PhysDam Loss Ratios



**Auto Loss Ratios Where They Were in 2014 – When the Combined Ratio Was 102.**



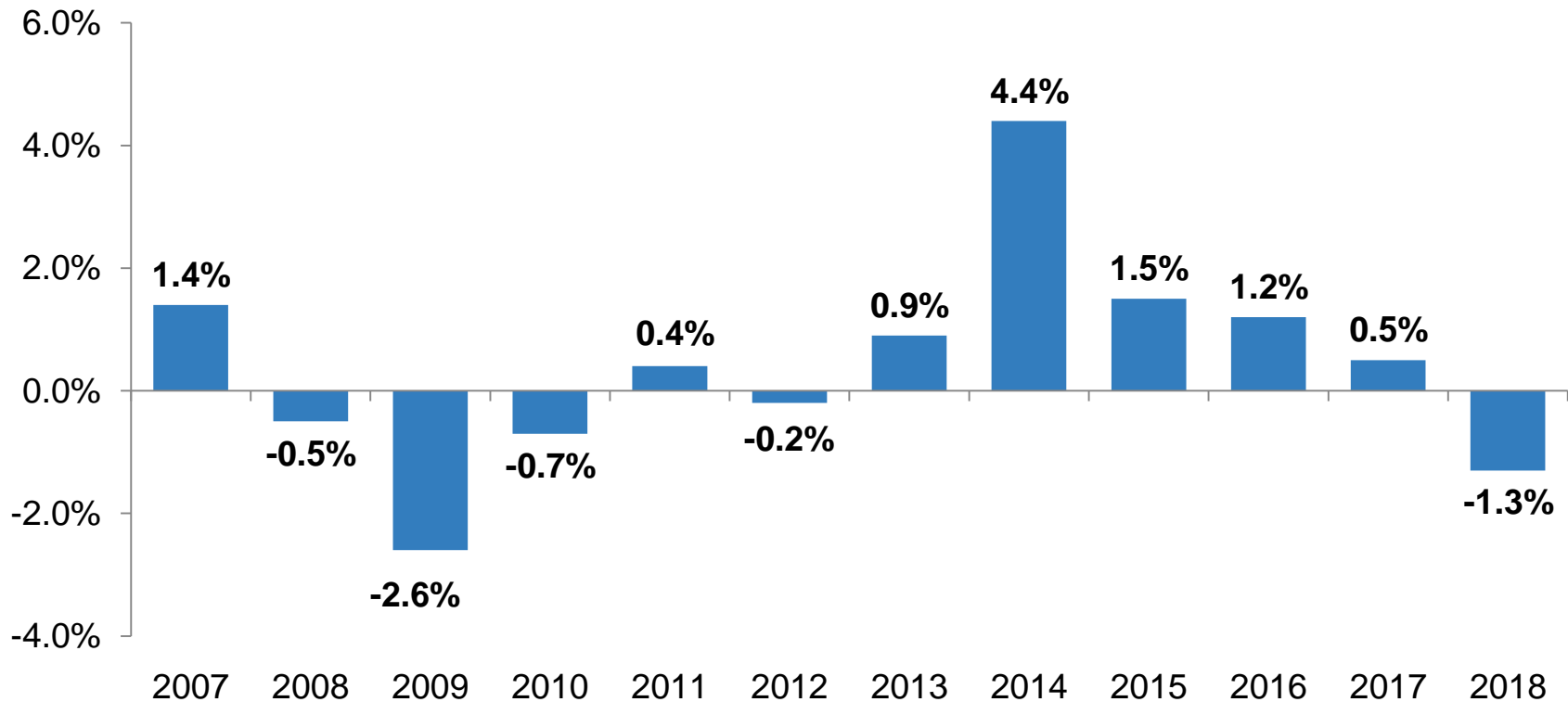
Four Quarters Ending in September. Paid Losses, including all Loss Adjustment Expenses. Excludes commissions and other expenses.  
Source: Fast Track Monitoring System.

# Claim Trends by Coverage

Focus on Collision

# Collision Claims Frequency

Annual % Change



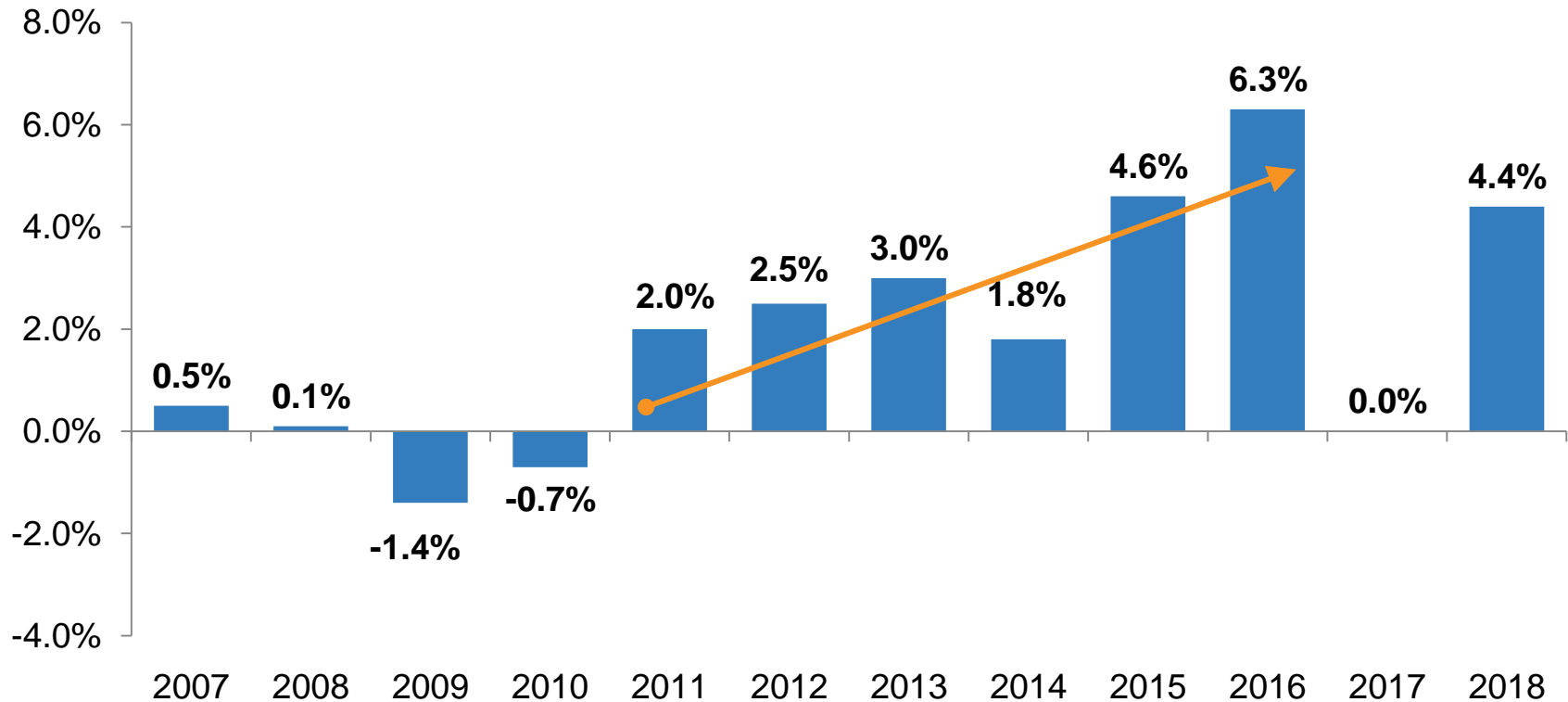
**Claim Frequency Has Been Flat Since 2014. But It Normally Falls.**



\*Four Quarters Ending in September.  
Source: Fast Track Monitoring System.

# Collision Claims: Severity Trending Higher

Annual % Change



**The Size of Claims Keeps Growing.**



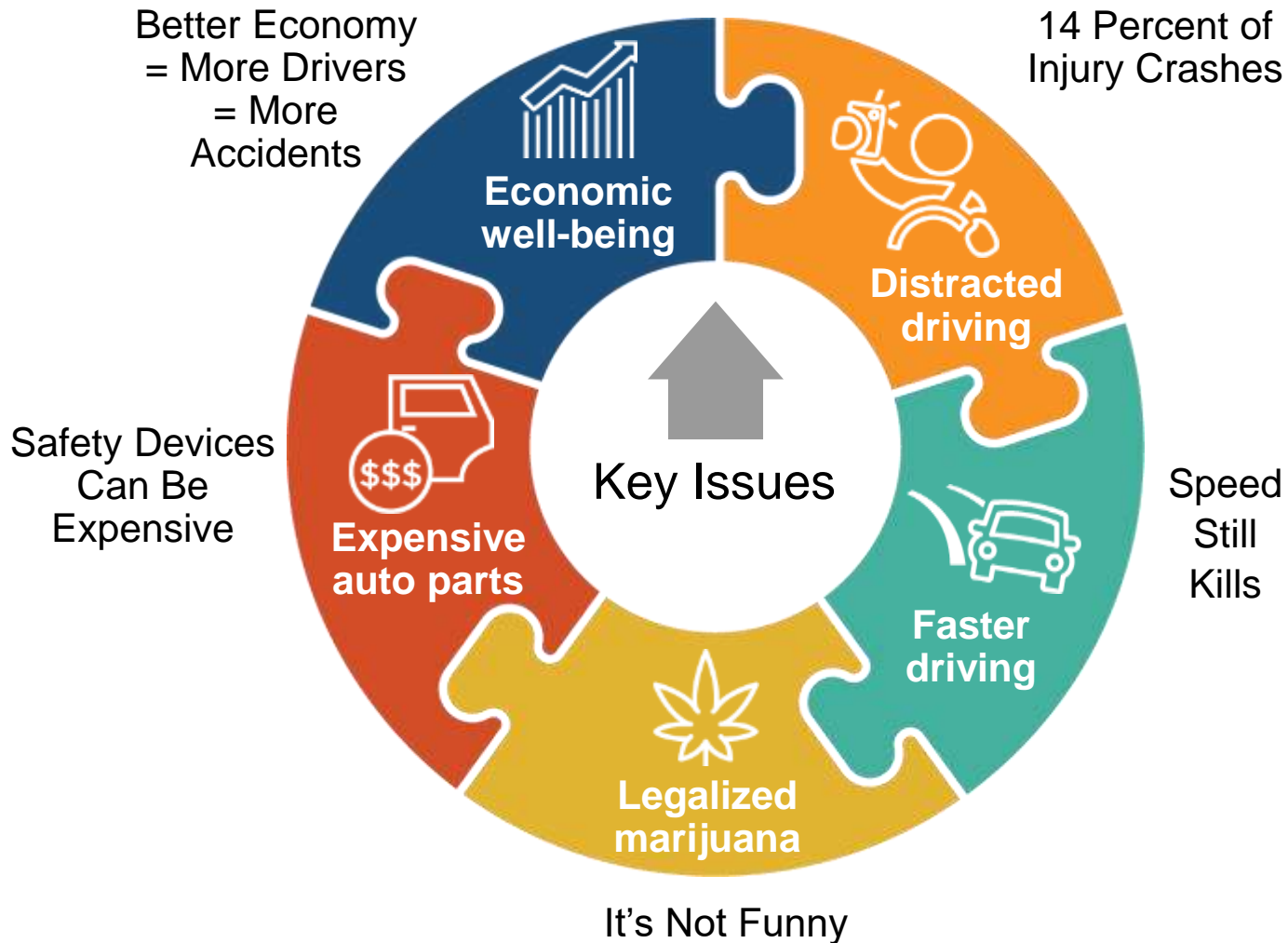
\*Four Quarters Ending in September.  
Source: Fast Track Monitoring System



# What's Driving These Trends?

Frequency; Severity; Distraction?

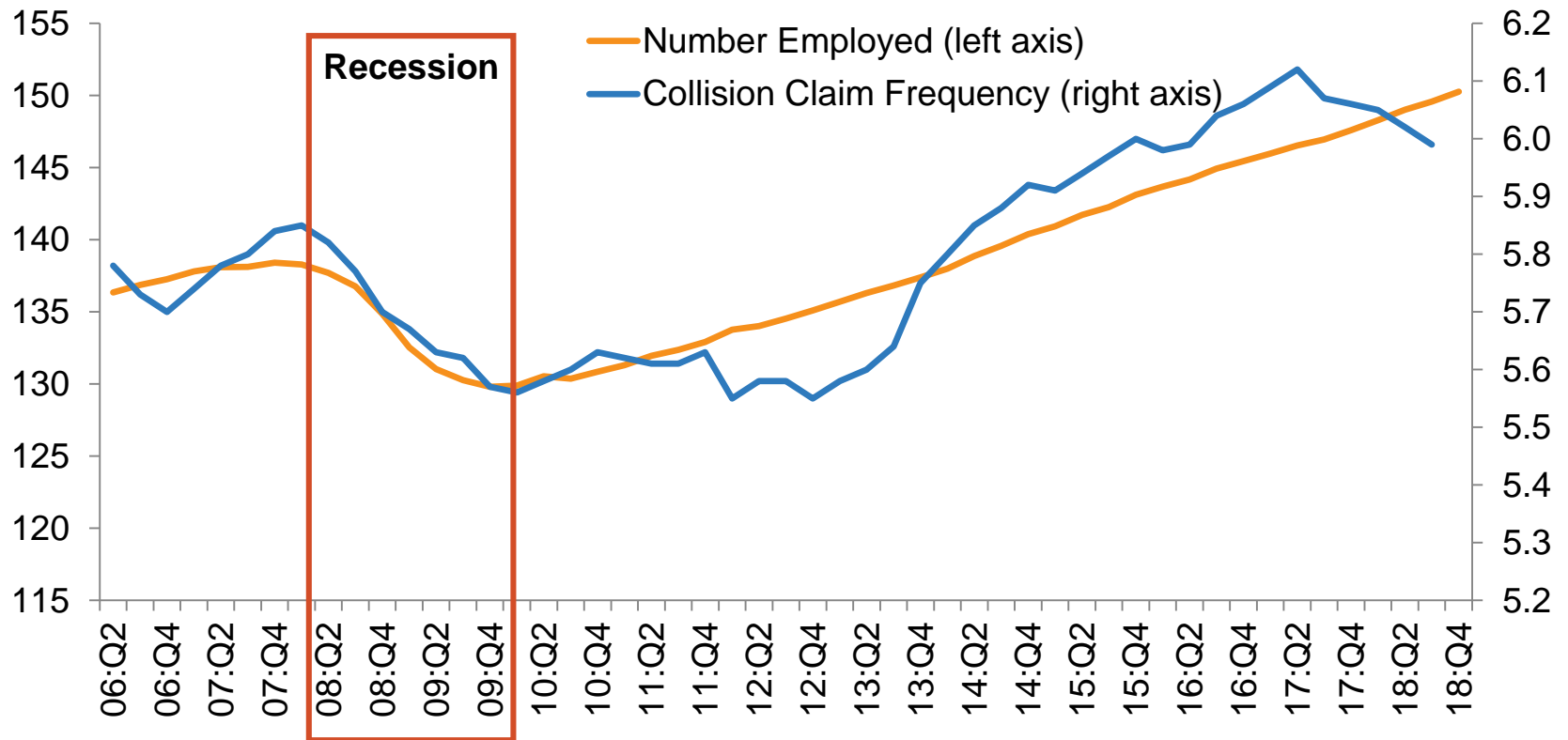
# Road Safety



# More People Working and Driving => More Collisions

Number Employed, Millions

Overall Collision Claims Per 100 Insured Vehicles



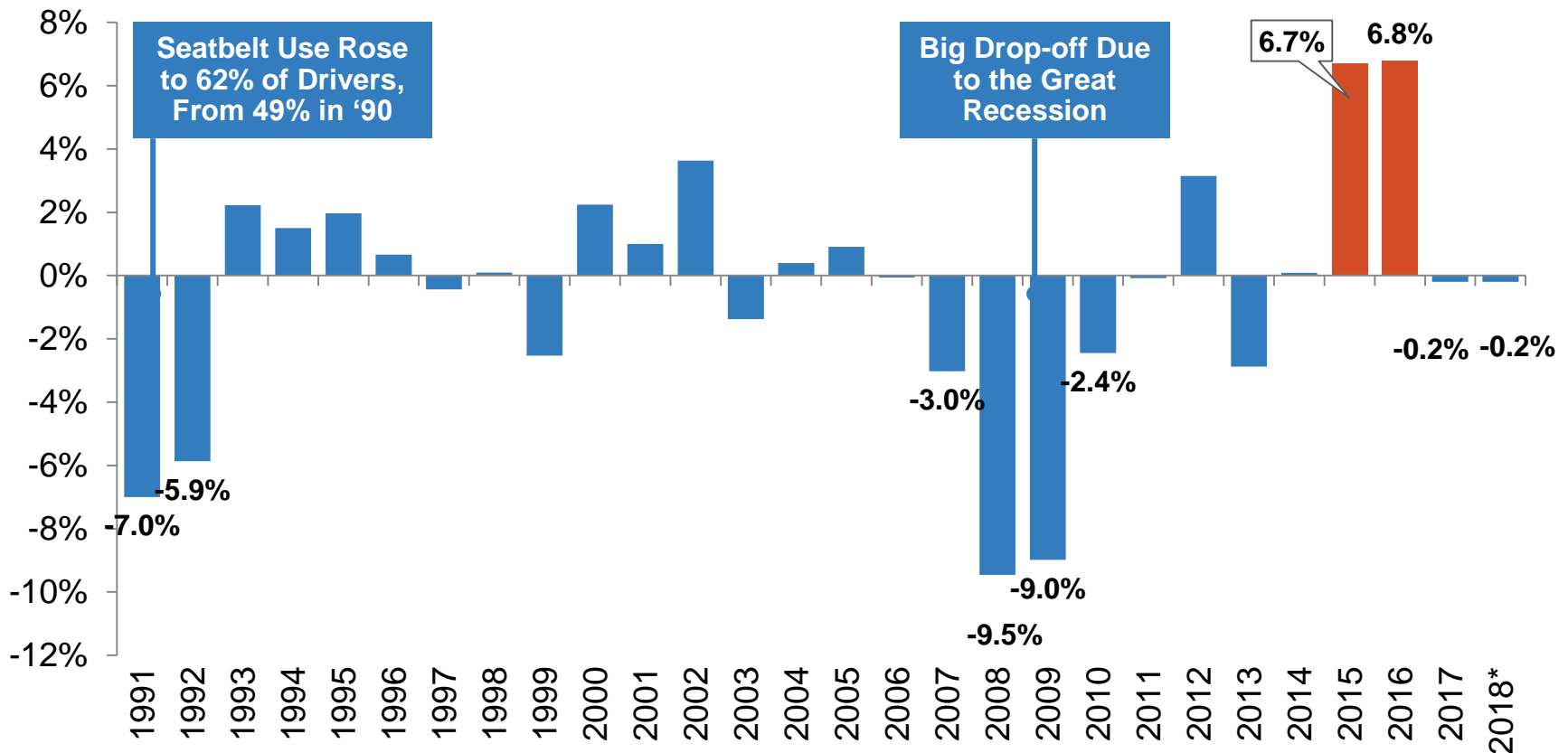
**When People are Out of Work, They Drive Less. When They Get Jobs, They Drive to Work, Helping Drive Claim Frequency Higher.**



Sources: Seasonally Adjusted Employed from Bureau of Labor Statistics; Rolling four-quarter average frequency from Fast Track Monitoring System; Insurance Information Institute.

# Severity: Driving Fatalities are Rising

Annual Change in Motor Vehicle Deaths



**Driving Has Been Getting Safer for Decades, But Recent Trend is Discouraging— over 40,000 Deaths in 2016**



Sources: National Safety Council, Insurance Information Institute.

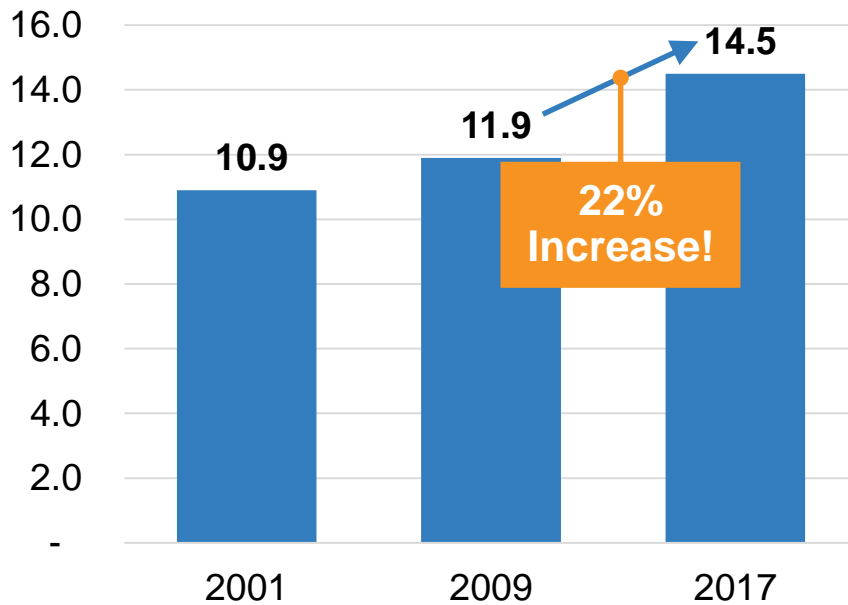
\*2018 estimate of 40,000 deaths

# Auto Repair: Complexity Grows

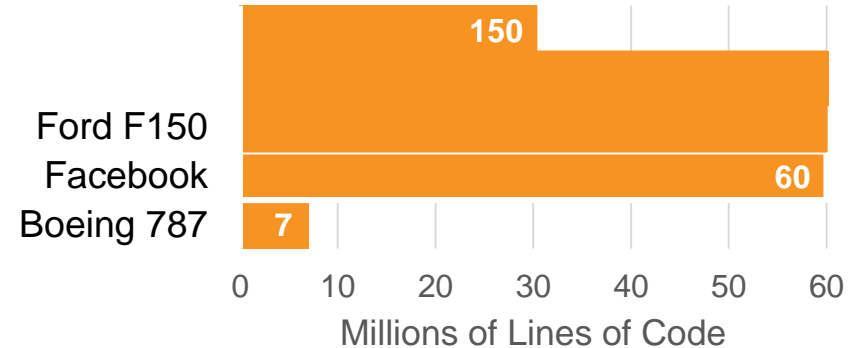
More Cool Stuff to Fix

## More Parts, More Labor: Higher Costs

Parts/Collision Claim on Current Year Car



## Electronics Add to Cost, Complexity



- ▶ Electronics: 40-50% of cost of vehicle
  - ◆ Pre-repair scan: \$63
  - ◆ Post-repair scan: \$93
  - ◆ Calibration labor: sublet at \$150
  - ◆ OEM: 98% of camera/sensors



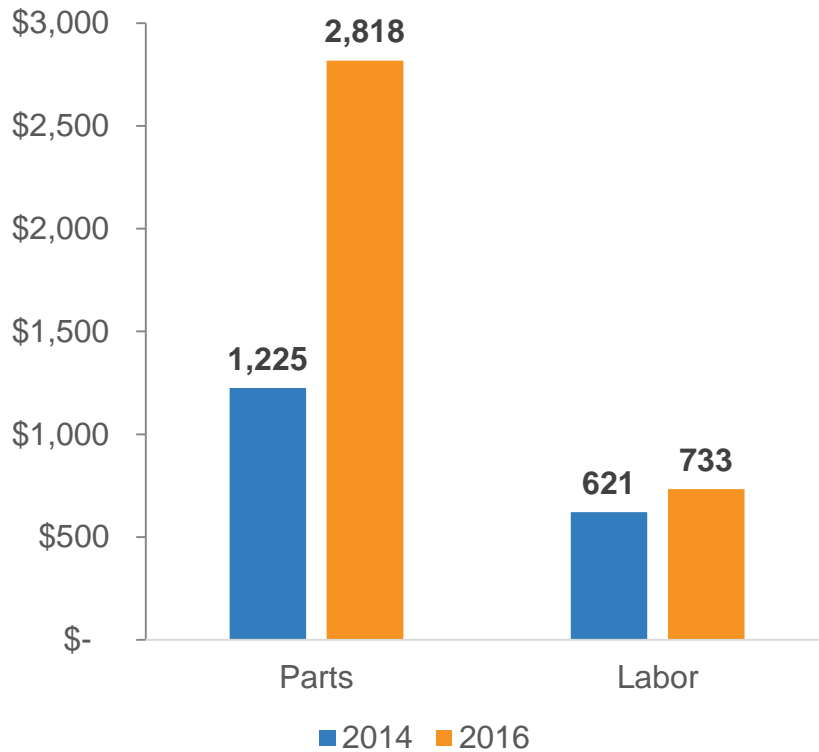
\* Property Damage Only.

SOURCES: CCC Information Services; Ford Motor Co.;

# Fixing a Bumper

... On an Entry-Level Luxury Car (~\$35K)

## 2014 Cost vs. 2016 Cost



## What Has Changed?

	2014	2016
Grille: Distance Sensor	\$0	\$2,818
Headlamp Assembly	394	918
Mechanical Labor	0	108

## Fewer Accidents, Higher Costs

- ▲ Parts: 130% Higher
- ▲ Labor: 18% Higher
- ▲ Total cost: \$1,705 higher



2016 vehicle has LED headlights and adaptive cruise control.  
SOURCE: Liberty Mutual Insurance.

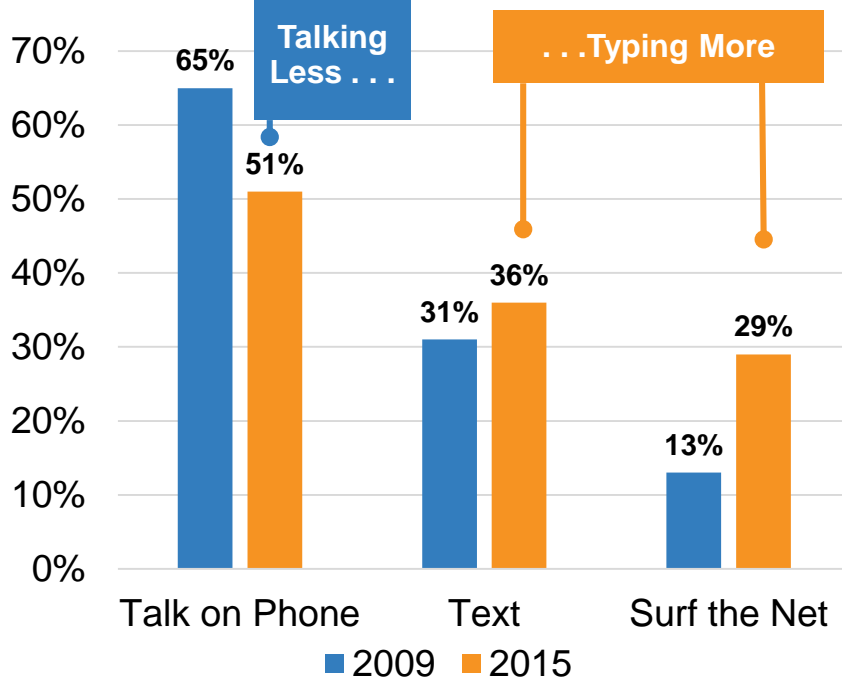


# What About Distractions?

It's A Problem. Is It Growing?

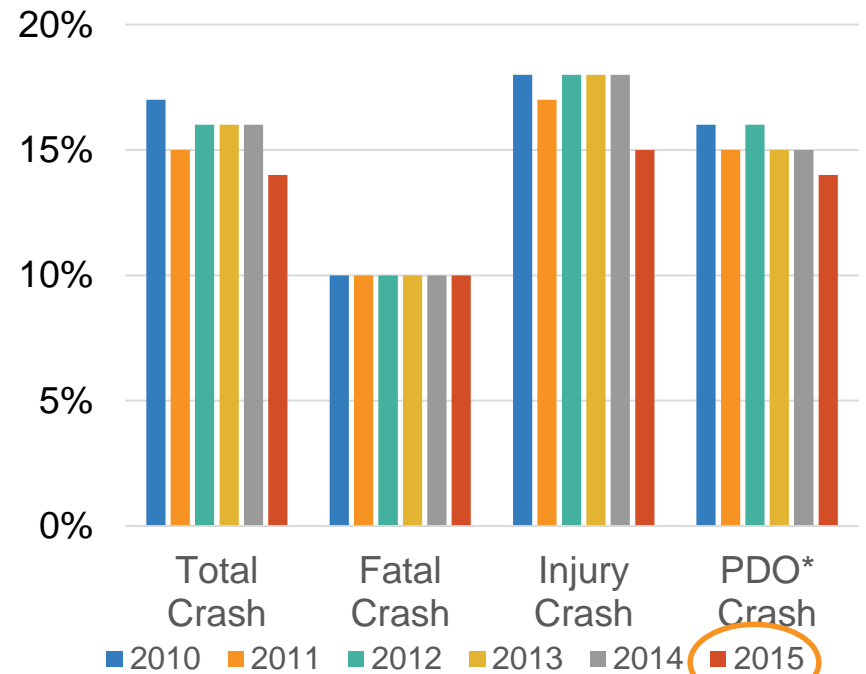
## What We Do Behind The Wheel

Percentage of Drivers Who . .



## But Impact Is Not Clear

Percentage of Crashes Involving Distraction



Most Recent Year



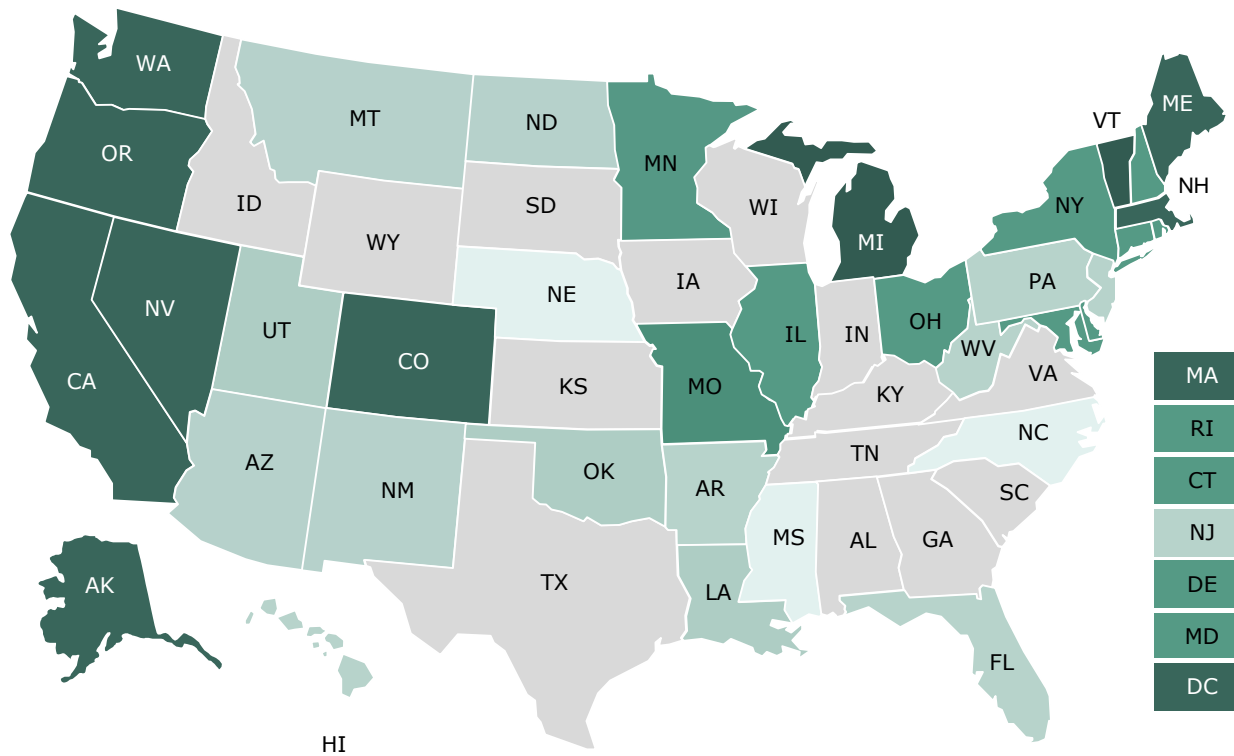
\* Property Damage Only.

SOURCES: State Farm, National Highway Transportation Safety Administration (distraction.gov)

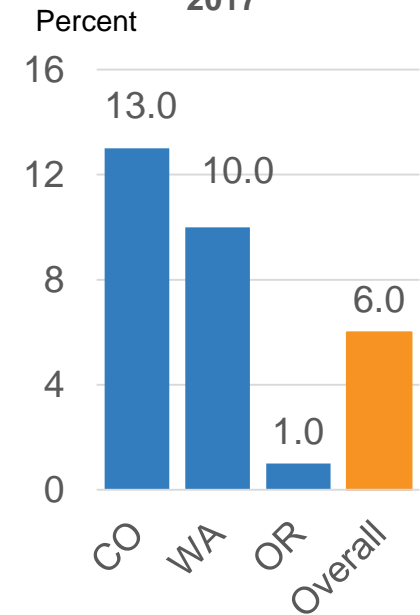
# Weed Spreads Like Wildfire. Insurers Caught in the Middle

## Current marijuana laws by state

Fully legal
  Medical use legal and recreational use decriminalized
  Medical use legal
  Recreational use decriminalized
  Fully illegal



### Change in Collision Frequency, 2012-2017\*



\* Vs. Neighboring States.

Sources: – Map - National Journal; Ballotpedia, 2019

Collision Frequency – IIHS, LEGAL POT: Crashes are up in states with retail sales, October 18, 2018





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# Thank you for your time and your attention!

Read our auto [White Paper](#) on Rising Personal Auto Costs at  
[www.iii.org](http://www.iii.org)