The RMI Top 10 for 2020

Gamma Iota Sigma Lambda Chapter
University of South Carolina
Columbia, SC
February 25, 2020

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#10
PANDEMIC RISK

P/C Insurance Exposures Are Minimal

L/H Exposures Are Manageable

2

Corona Virus: A Case Study in Coverage

❑ Corona Virus

- First detected in Wuhan region of China in mid-Dec. 2019
- Rapidly spread within China and now outside China

❑ What are the insurance implications of the virus?

- What types of insurance are impacted?
- Does coverage apply?
- How much?

Source: World Health Organization accessed 2/25/20 at: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200225-sitrep-36-covid-19.pdf?sfvrsn=2791b4e0_2

WHO Corona Virus Situation
Summary as of Feb. 25, 2020

SITUATION IN NUMBERS
total and new cases in last 24 hours

Globally
80 239 confirmed (908 new)

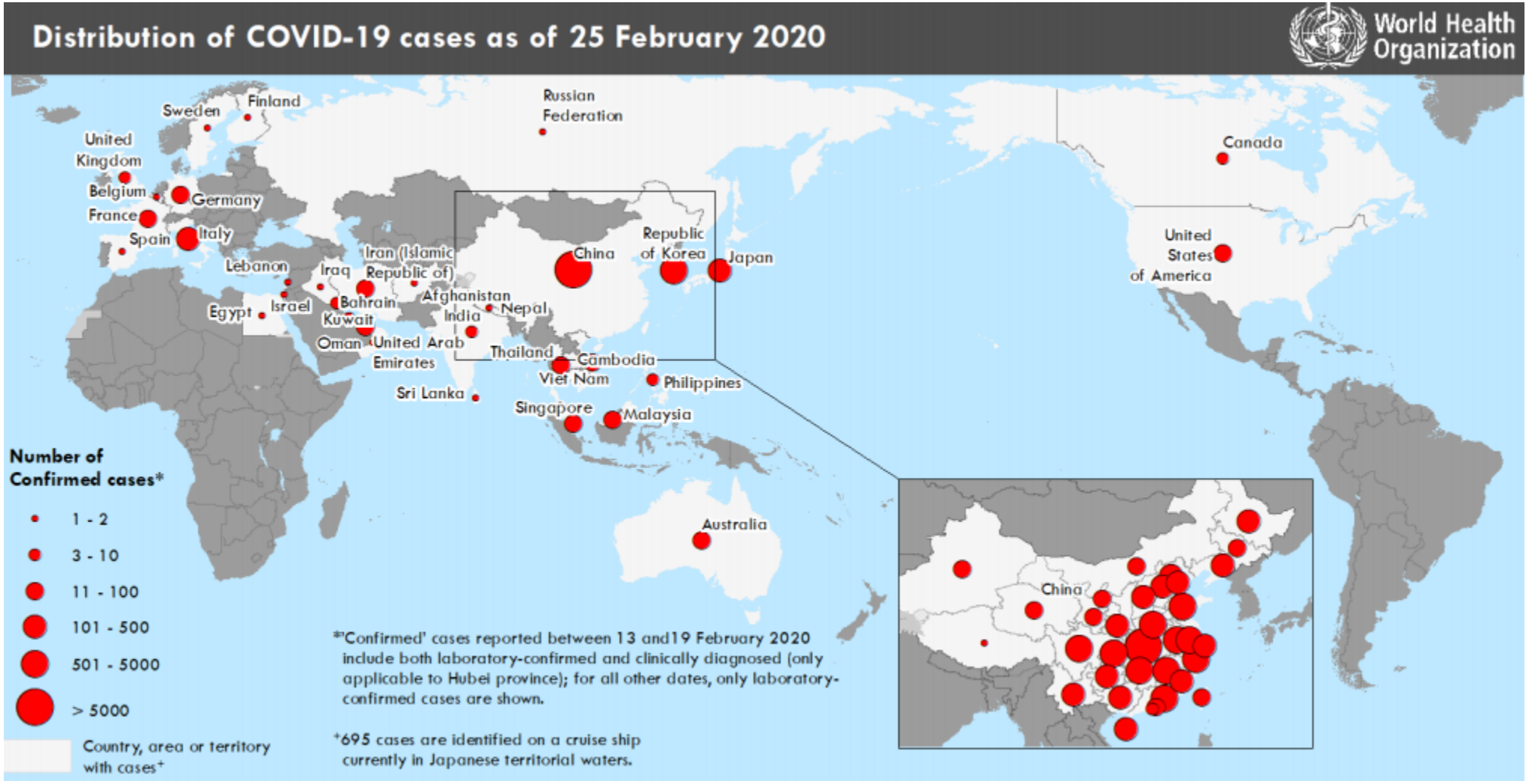
China
77 780 confirmed (518 new)
2666 deaths (71 new)

Outside of China
2459 confirmed (390 new)
33 countries (4 new)
34 deaths (11 new)

WHO RISK ASSESSMENT

China	Very High
Regional Level	High
Global Level	High

Corona Virus: A Case Study in Coverage



Source: World Health Organization accessed 2/25/20 at: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200225-sitrep-36-covid-19.pdf?sfvrsn=2791b4e0_2

Corona Virus: A Case Study in Coverage

- What type of insurance might be impacted?
- Does coverage apply?
- Why or why not?

Corona Virus: CAT Bond Impact?

- This coronavirus outbreak has the potential to become an eligible event under the terms of the World Bank's pandemic catastrophe bond, should the outbreak meet certain pre-defined criteria
- The World Bank's $320 million IBRD CAR 111-112 catastrophe bond provides a source of insurance or reinsurance capital to back the Pandemic Emergency Financing Facility (PEF).
- For an outbreak of a pandemic to qualify and become an eligible event under the terms of the World Bank's pandemic catastrophe bond, it needs to meet a certain level of severity related criteria, in terms of duration of the outbreak, the number of confirmed deaths reported, its spread geographically and also a growth rate factor in terms of how quickly the outbreak is spreading.

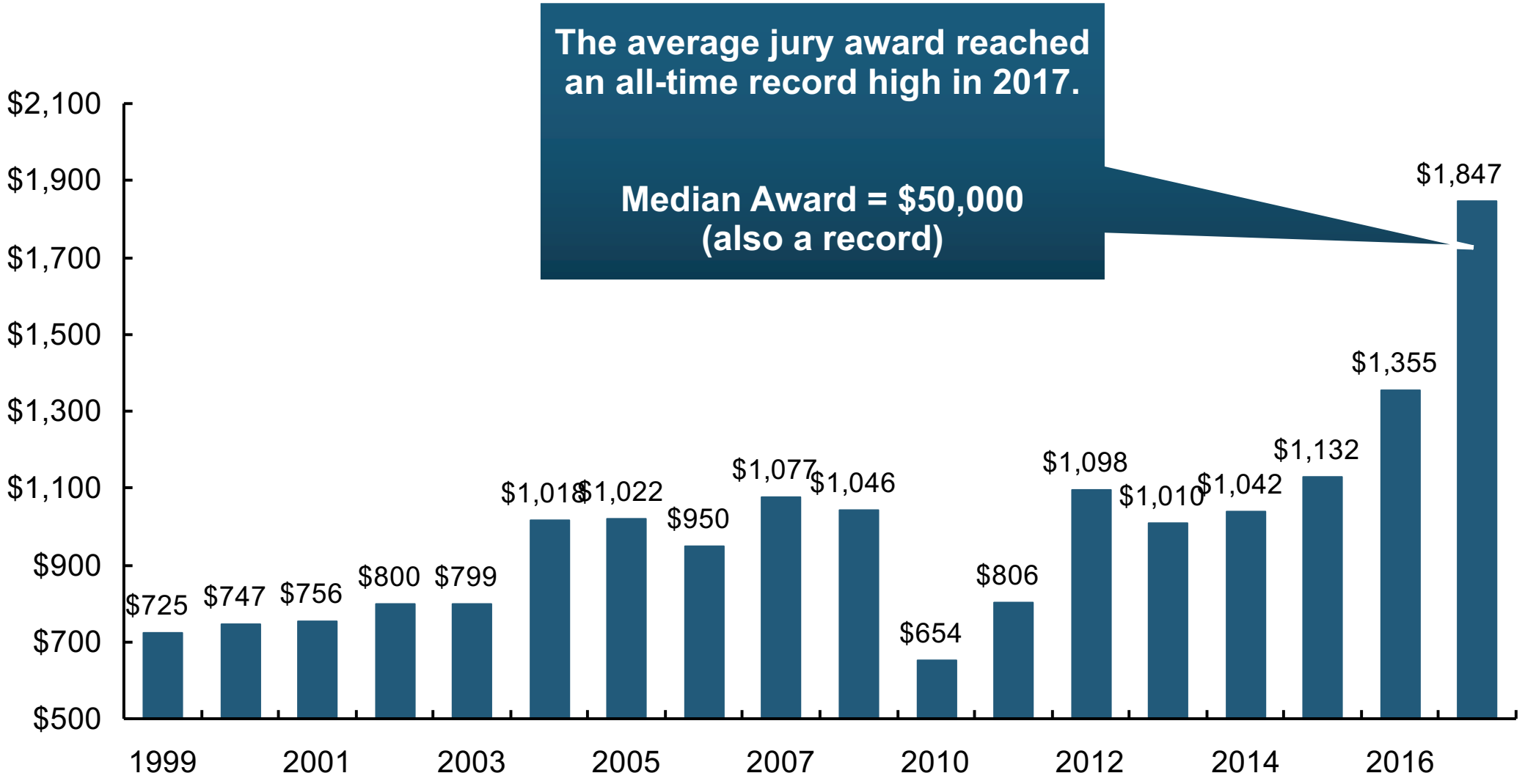
Source: Artemis accessed 2/4/20 at: https://www.artemis.bm/news/china-most-likely-coronavirus-source-for-world-banks-pandemic-cat-bond/

#9
TORT ENVIRONMENT
The Return of Social Inflation?

Tort Costs Are Under Pressure from a Variety of Different Factors

7

Average Jury Awards, 1999 – 2017 (latest available)



Source: Jury Verdict Research; Risk and Uncertainty Management Center, Univ. of South Carolina.

The Nation's Judicial Hellholes: 2019 – 2020

Watch List

- CO Supreme Court
- Florida
- MD General Assem.
- MT Supreme Court
- PA Supreme Court
- WV Supreme Ct.

Dishonorable Mention

- AK Supreme Court
- KS Supreme Court
- OR Supreme Court

Source: American Tort Reform Association; Risk and Uncertainty Management Center, Univ. of South Carolina.

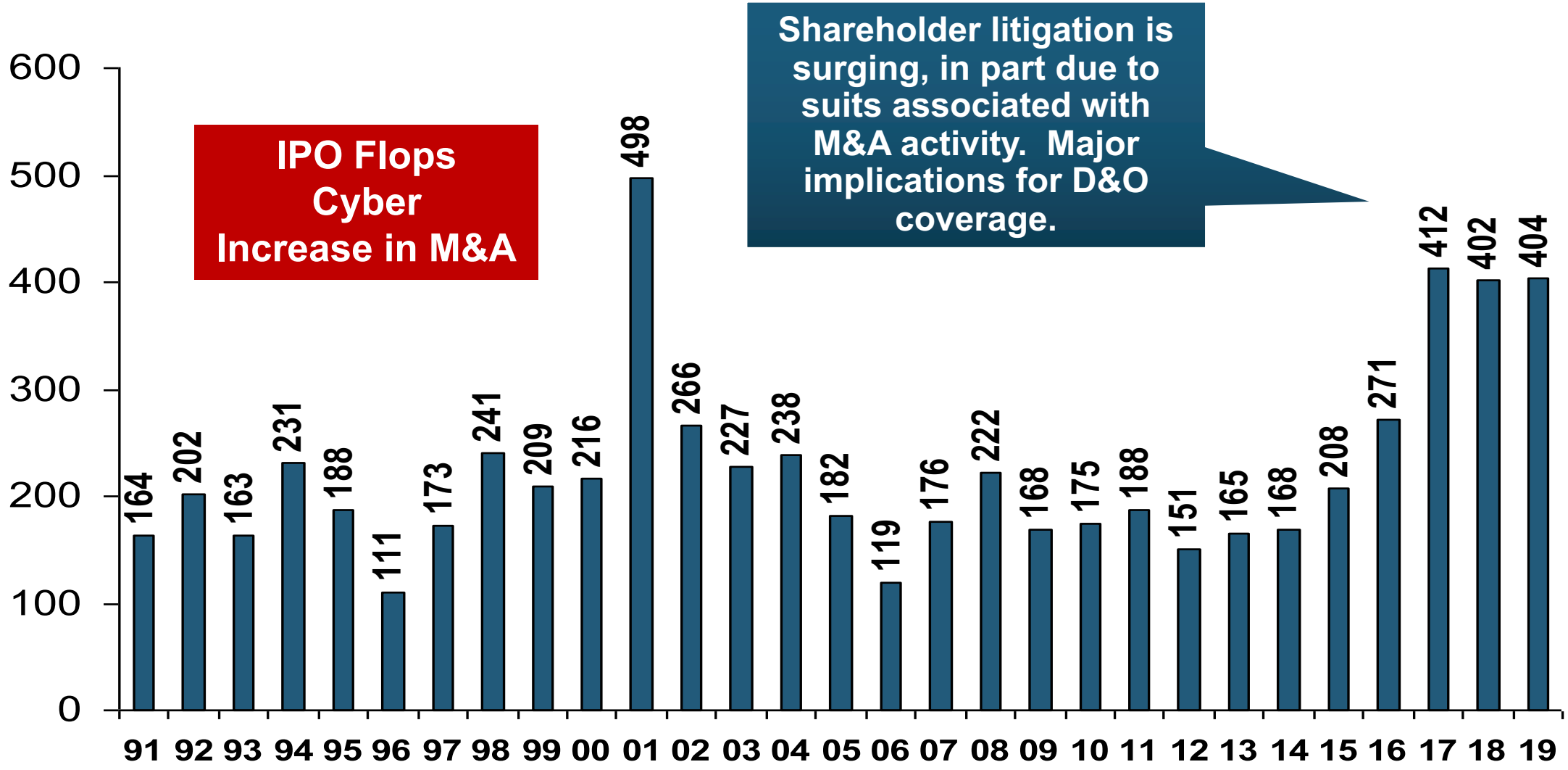
Defense Costs and Cost Containment Expense as a Percent of Incurred Losses ($000), 2016 - 2018

	2016		2017		2018	
	Amount	As a percent of Incurred losses	Amount	As a percent of Incurred losses	Amount	As a percent of Incurred losses
Product liability	$844,606	102.5%	$645,190	68.6%	$861,155	66.4%
Medical professional liability	1,920,552	50.3	1,660,939	43.7	1,690,271	41.8
Commercial multiple peril[2]	2,152,076	35.0	2,117,223	34.8	2,276,024	31.2
Other liability	4,066,992	15.4	5,167,731	21.9	4,573,280	14.9
Workers compensation	3,270,001	3.7	2,956,635	3.3	3,065,540	3.3
Commercial auto liability	1,487,106	9.9	1,746,182	11.2	1,823,716	10.2
Private passenger auto liability	5,008,575	20.9	5,380,006	24.8	6,007,796	27.9
All liability lines	**$18,749,908**	**11.4%**	**$19,673,906**	**12.1%**	**$20,297,782**	**11.6%**

Personal Auto has seen the sharpest increase in recent years

Note: Figures are net of reinsurance and exclude state funds.
Source: NAIC sourced from S&P Global Markets; Ins. Info, Inst.; Risk and Uncertainty Management Center, Univ. of South Carolina.

Shareholder Class Action Lawsuits*



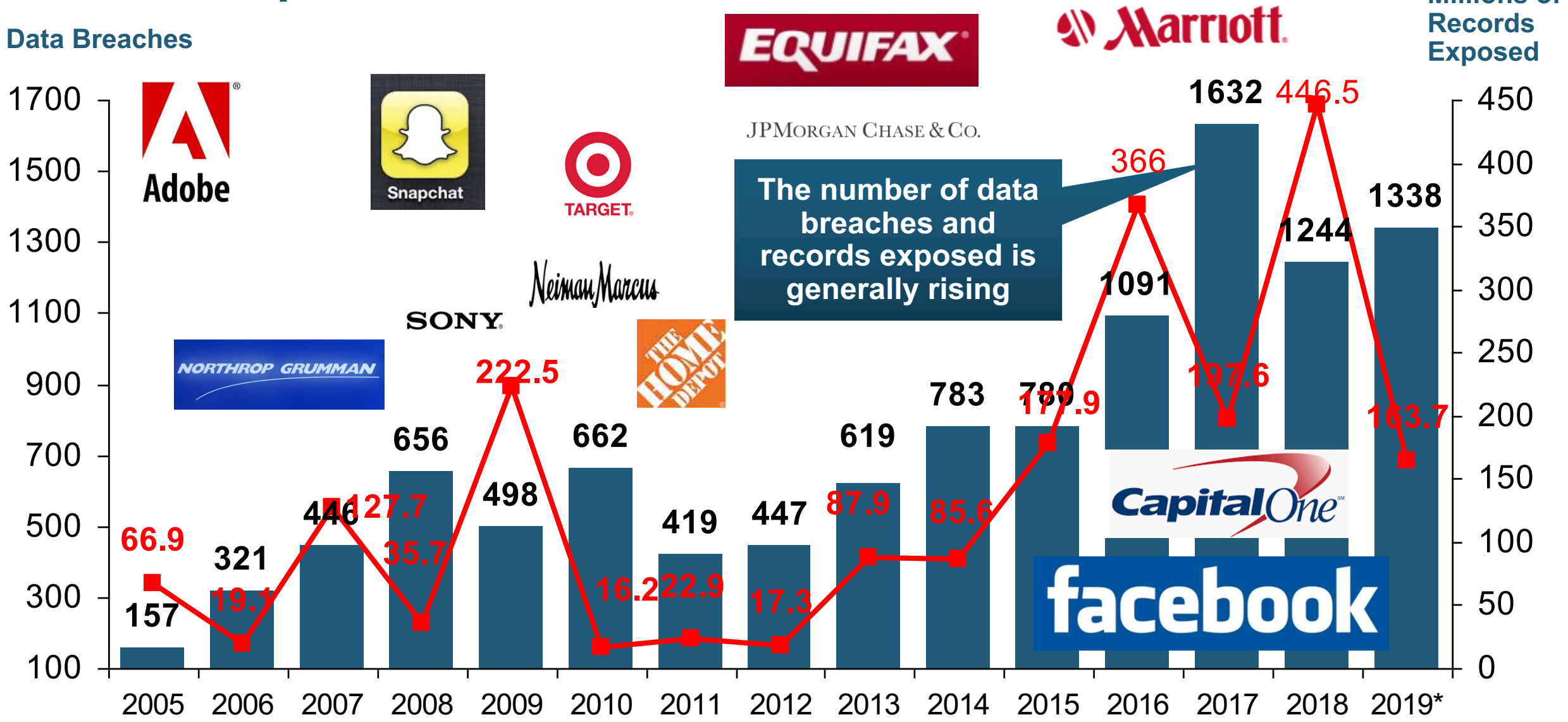
Source: Stanford University School of Law (securities.stanford.edu); Risk and Uncertainty Management Center, Univ. of South Carolina.

#8
CYBER RISK & TECHNOLOGICAL DISRUPTION

The 4th Industrial Revolution

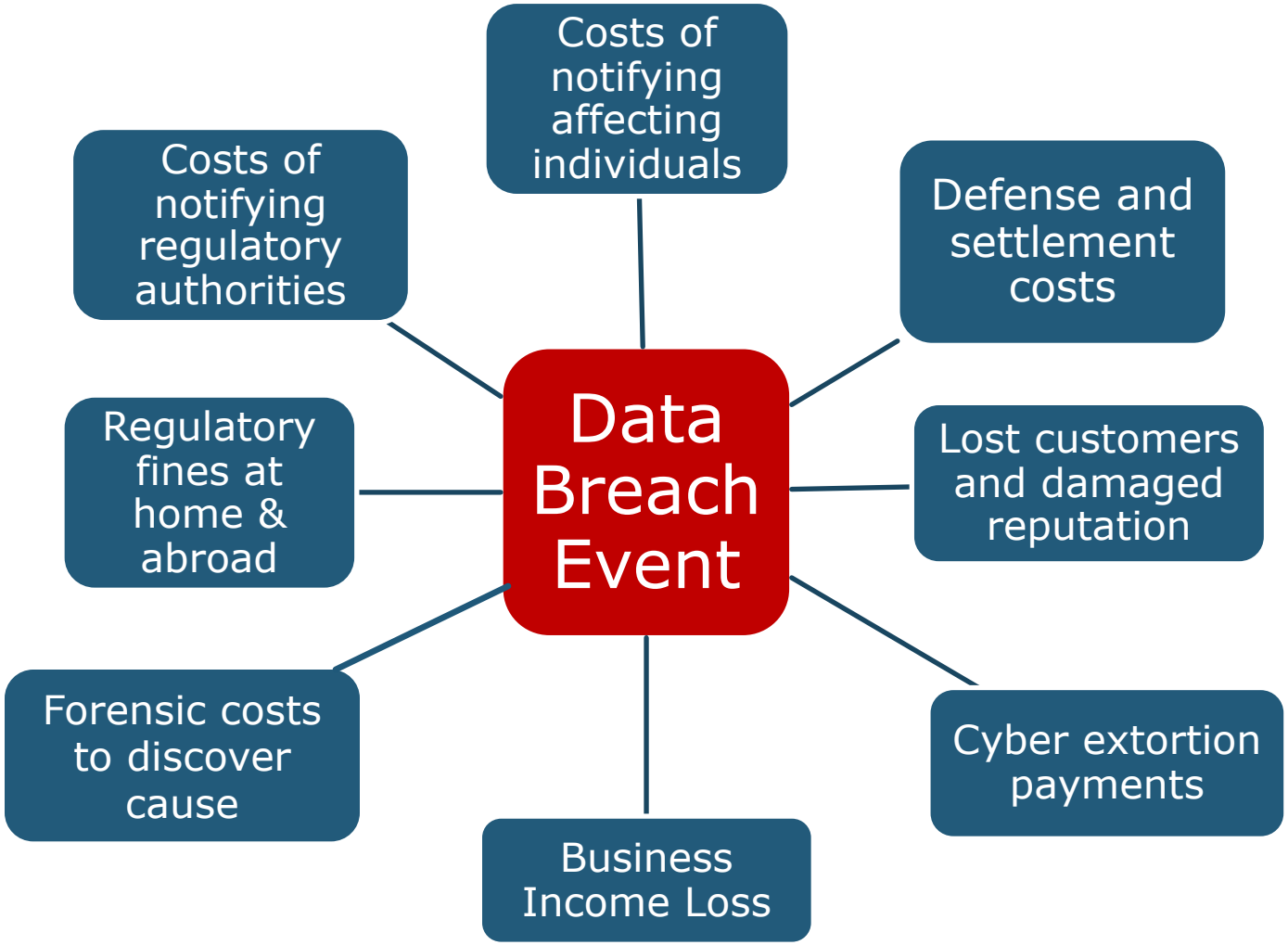
12

Data Breaches 2005-2019*, by Number of Breaches and Records Exposed



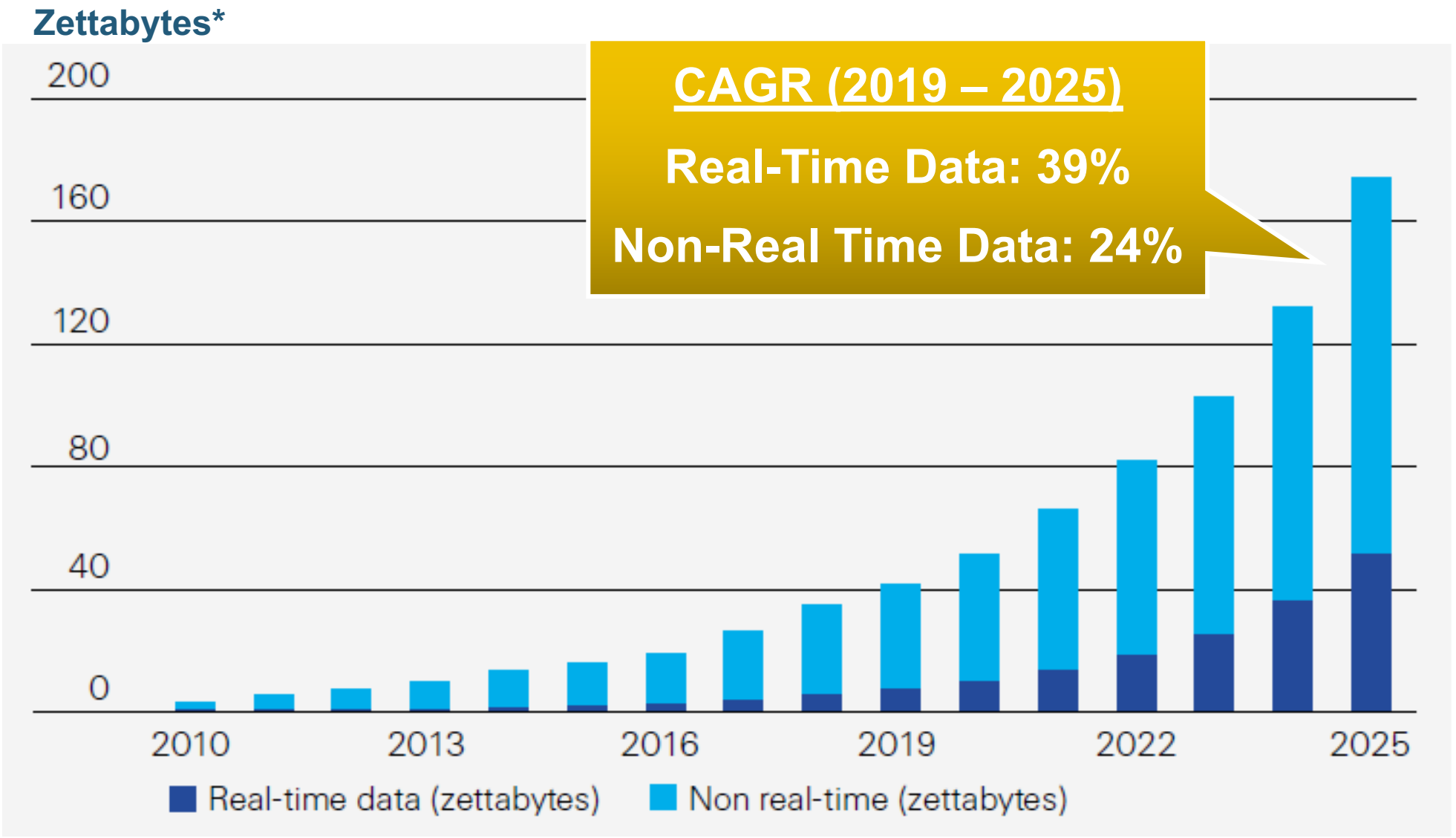
*Through Nov. 2019.
Source: Identity Theft Resource Center.

Data/Privacy Breach: Many Potential Costs Can Be Insured



Source: Zurich Insurance.

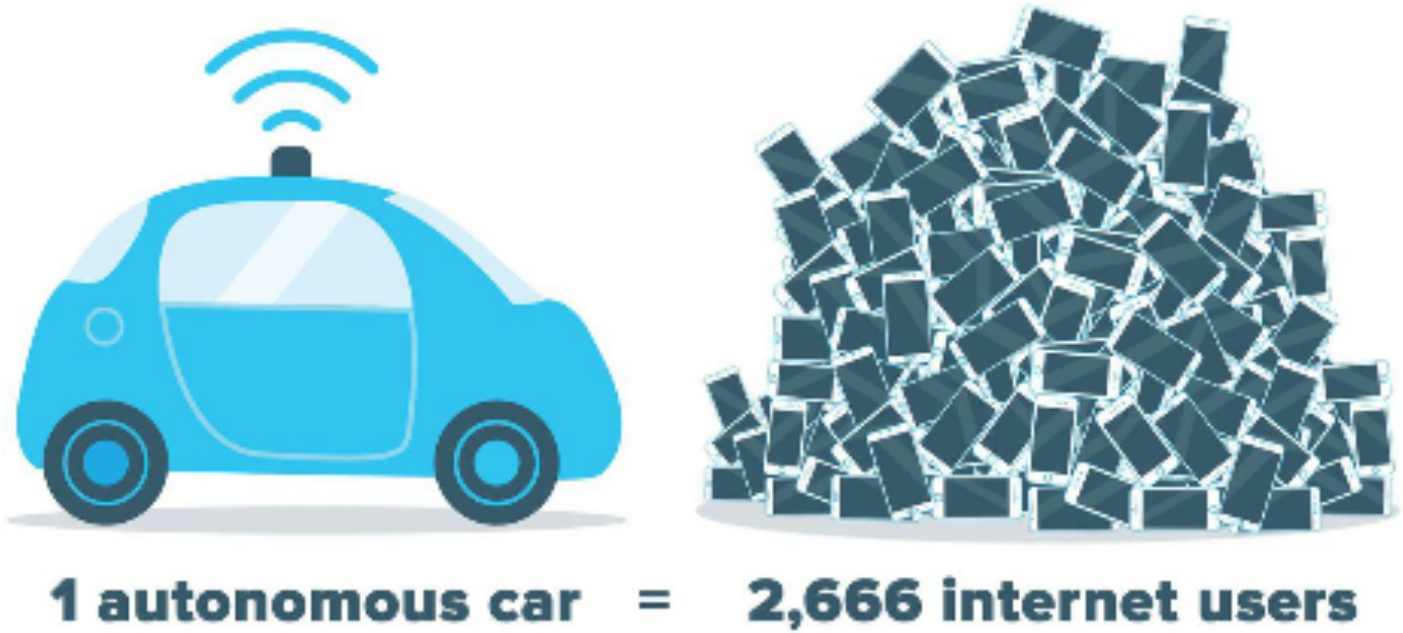
The Pace of New Data Creation is Growing Exponentially



By the early 2030s, Real Time Data creation will exceed Non-Real Time for the first time ever—mostly automatically, inexpensively and non-intrusively via sensors, transaction records and social media platforms

*A zettabyte is 10^{21} bytes of information and is equal to 1 trillion gigabytes.
Source: IDC, Swiss Re, Sigma 4/2019 at: https://www.swissre.com/institute/research/sigma-research/sigma-2019-04.html; USC RUM Center.

Example:
Autonomous Vehicles: Will Insurers Drown in the Data?

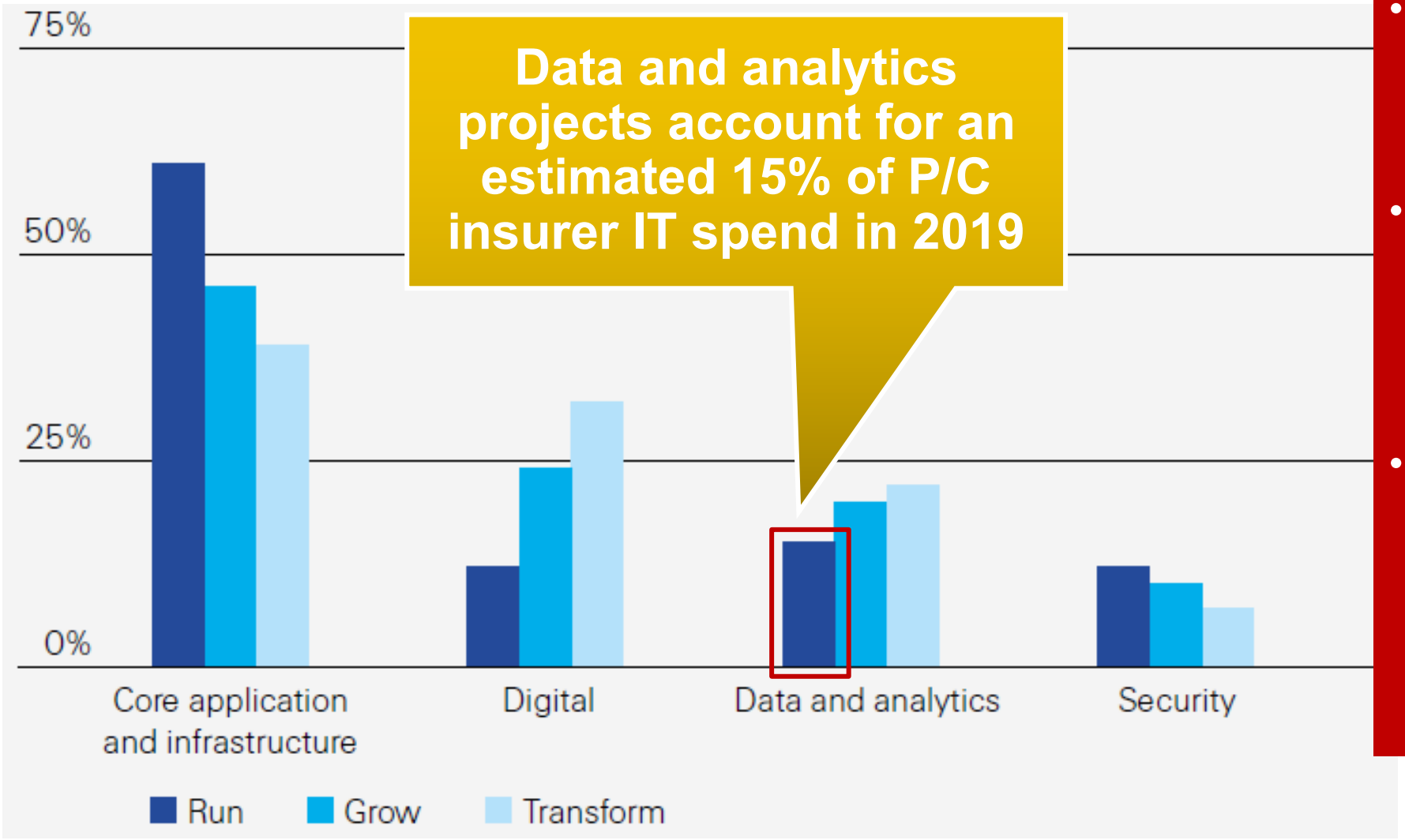


- The average human by 2020 will generate about 1.6GB in data every day
- The average autonomous vehicle will process about 4,000GB per day—as much as nearly 2,700 humans
- Are insurers ready for this?

Source: Intel Corp.

Estimated Distribution of P/C Insurer IT Spend, by Category, 2019

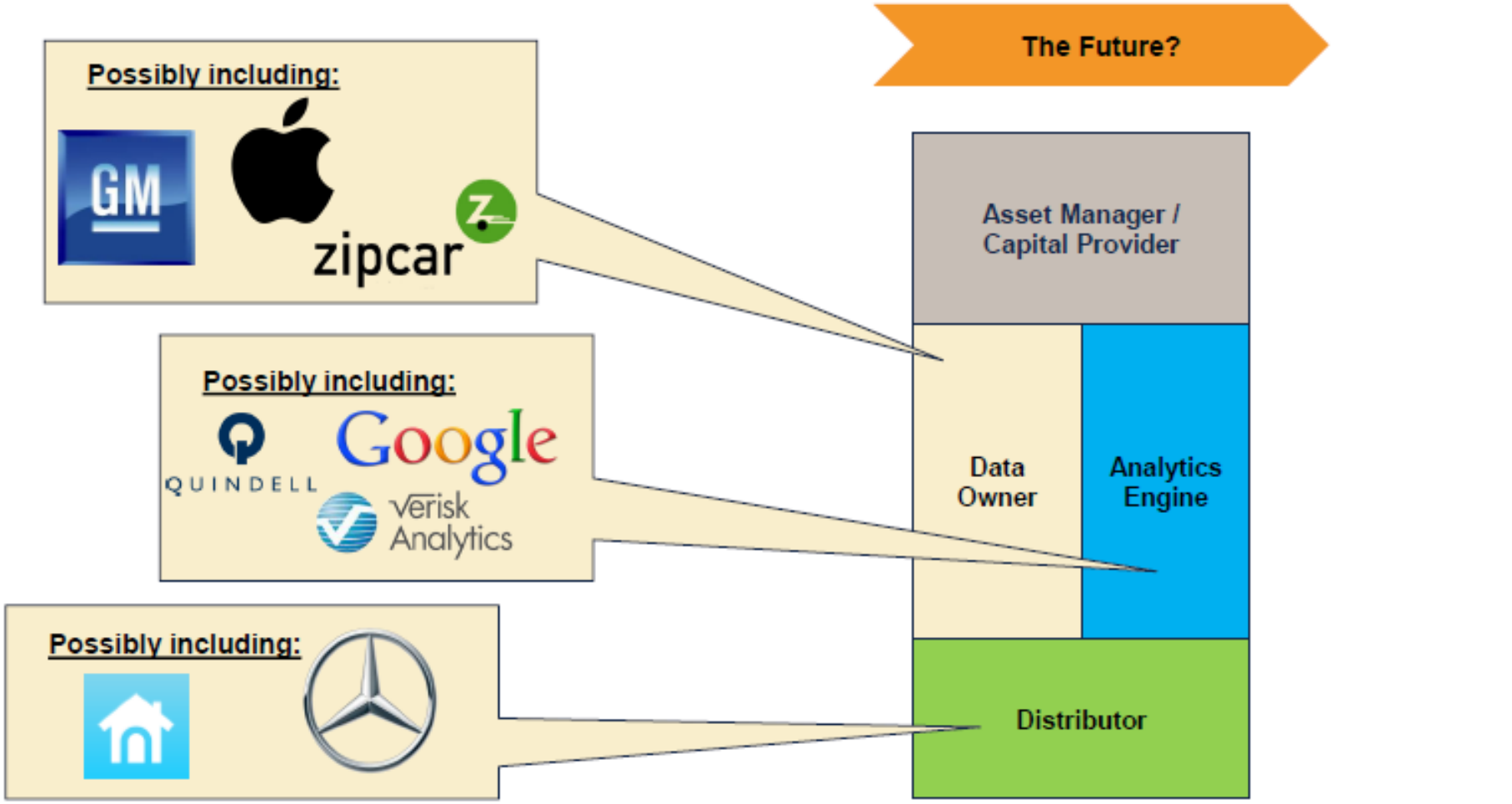
Zettabytes (1ZB = 10^{21} bytes)



- **Global P/C and L/H IT spend is estimated at $220B in 2019 (Gartner)**
- **Of that $220B, 8-10% is estimated to be outlays for data and analytics (Swiss Re)**
- **Equates to ~3% of global insurance industry's expense base (expense ratio assumed to be 15% of global premiums of $5.3 trillion)**

Source: IDC, Swiss Re, Sigma 4/2019 at: https://www.swissre.com/institute/research/sigma-research/sigma-2019-04.html; USC Risk and Uncertainty Management Center.

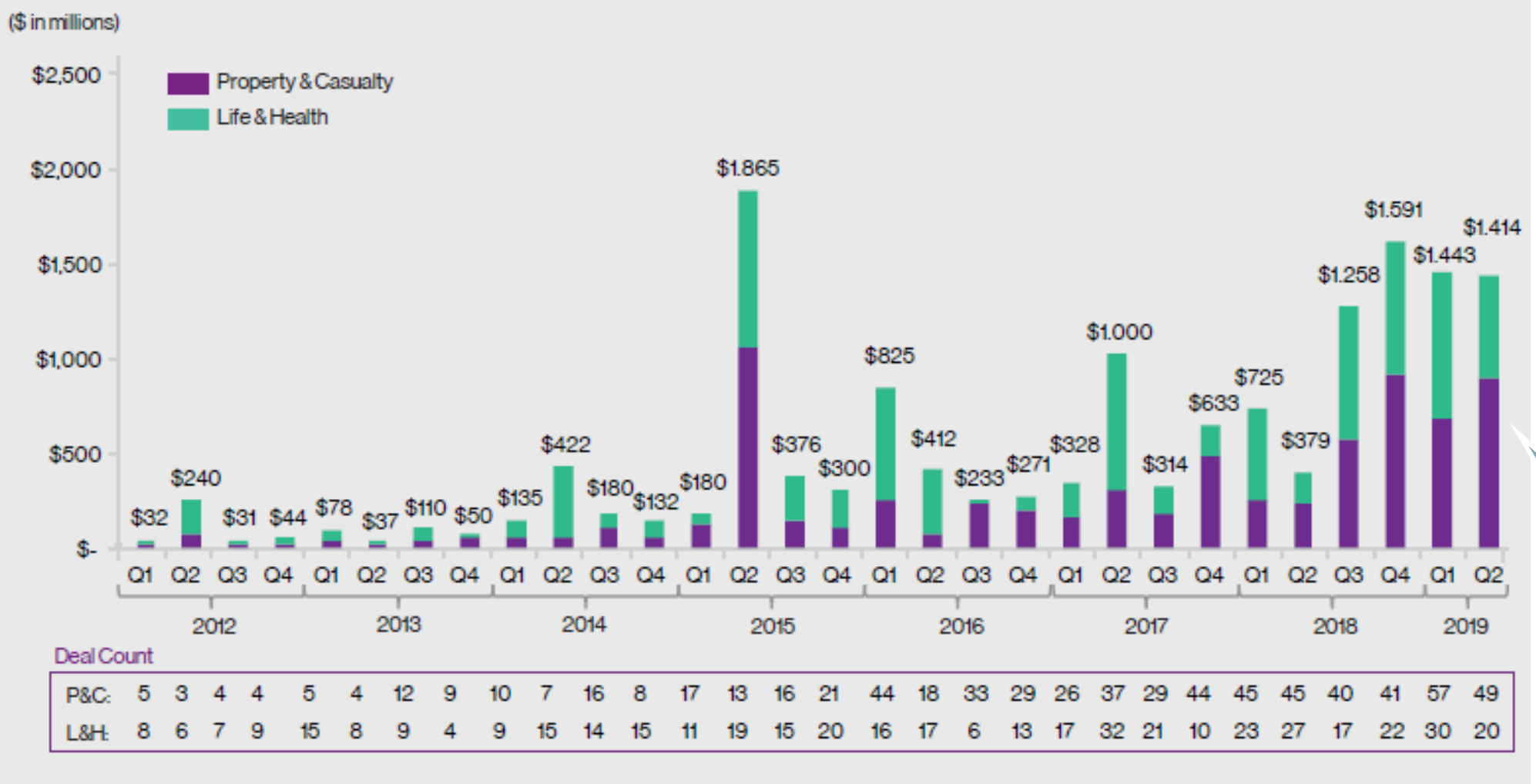
The Internet of Things and the Insurance Industry Value Chain



Who owns the data? Where does It flow? Who does the analytics? Who is the capital provider?

Source: Willis Capital Markets & Advisory; Risk and Uncertainty Management Center, University of South Carolina.

InsurTech Funding Volume, All Stages
2012:Q1 – 2019:Q2



InsurTech funding remains close to historic highs

P/C accounts for ~70% of InsurTech funding

Source: Willis Towers Watson, Q*uarterly InsurTech Briefing,* Q2 2019; Risk & Uncertainty Management Center, University of South Carolina.

Wide Variety of Investors in InsurTech

Sampling of (Re)Insurer Investors

Sampling of Other Corporate VC Investors

Source: CB Insights,*Quarterly InsurTech Briefing,*, Q1 2018; Univ. of South Carolina, Center for Risk and Uncertainty Management.

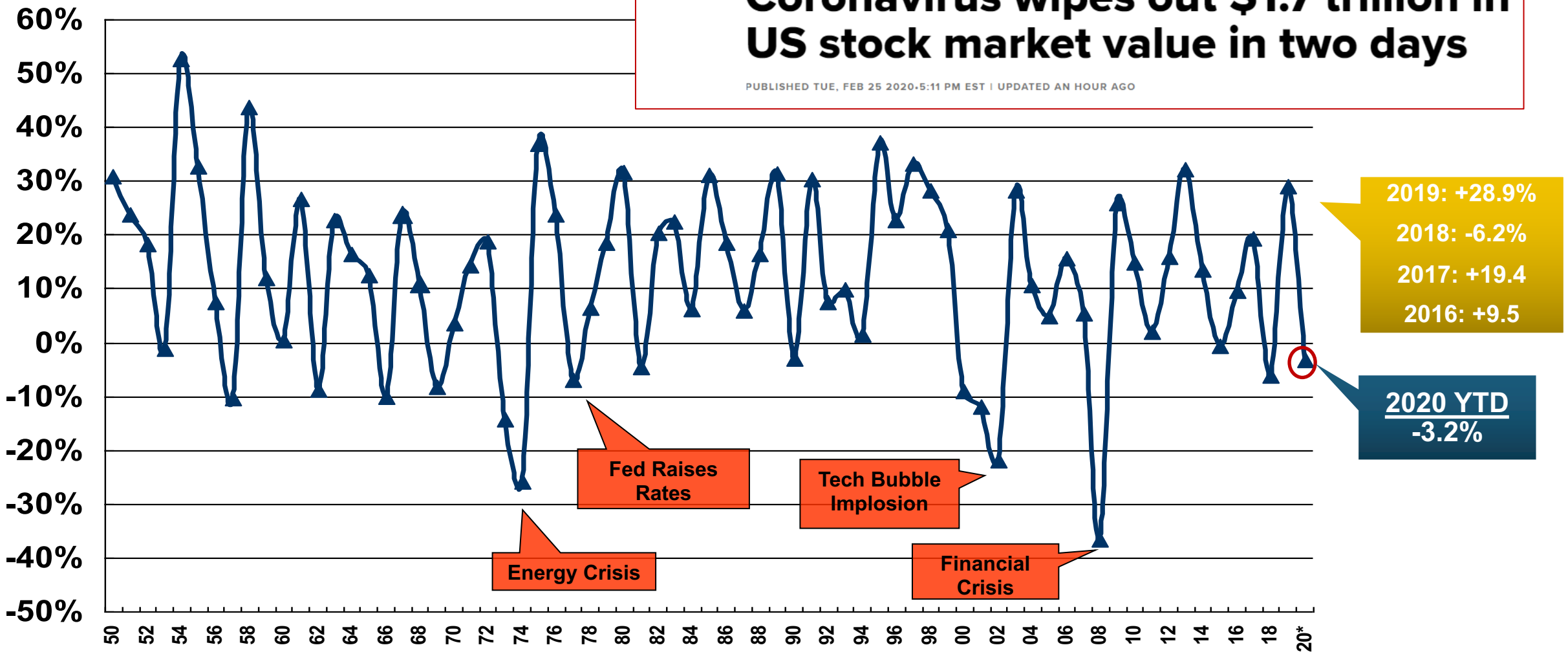
#7
INVESTMENTS

Investment Performance Is a Key Driver of Insurer Profitability

Persistently Low (and Falling) Interest Rates, Stock Market Volatility Are Concerns

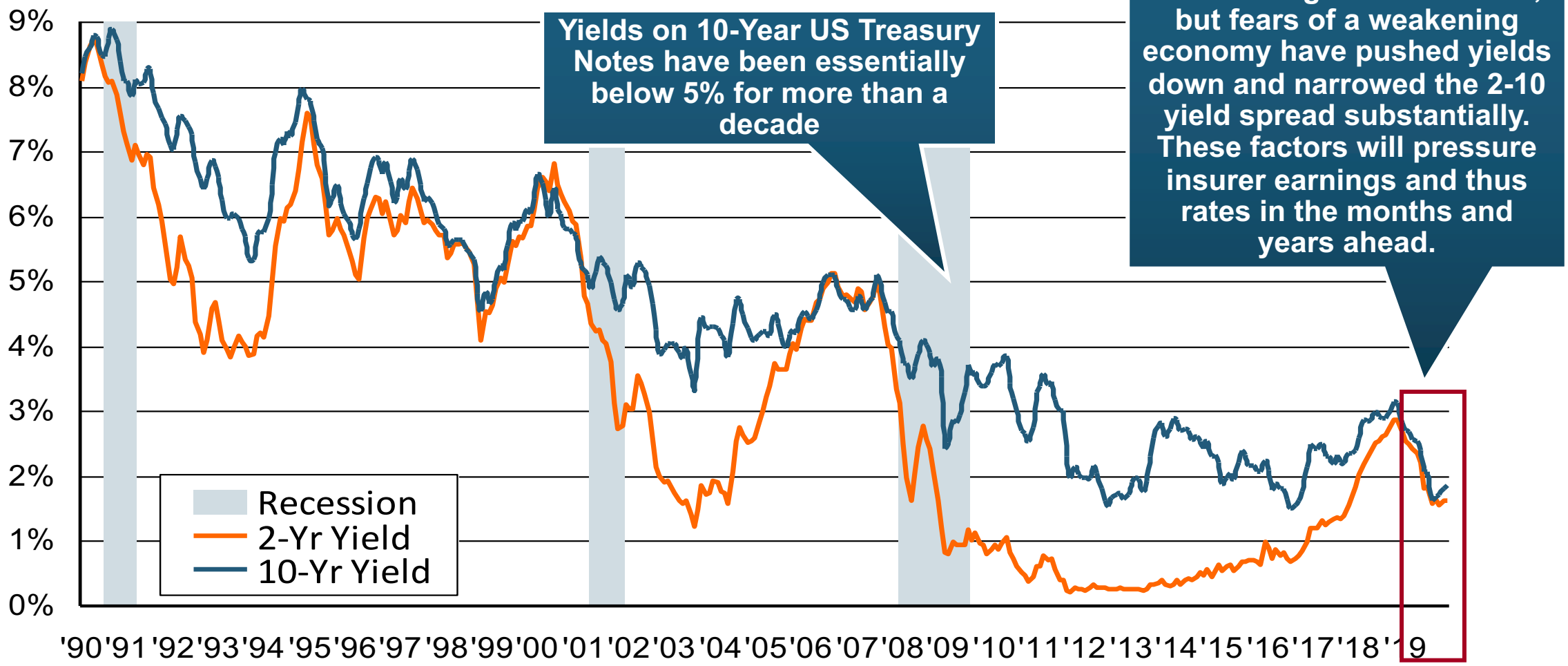
S&P 500 Index Returns, 1950–2020*

Annual Return



,
*Through Feb. 25, 2020.
Source: NYU Stern School of Business: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html; Center for Risk and Uncertainty Management, University of South Carolina

US Treasury Security Yields: A Long Downward Trend, 1990–2019*

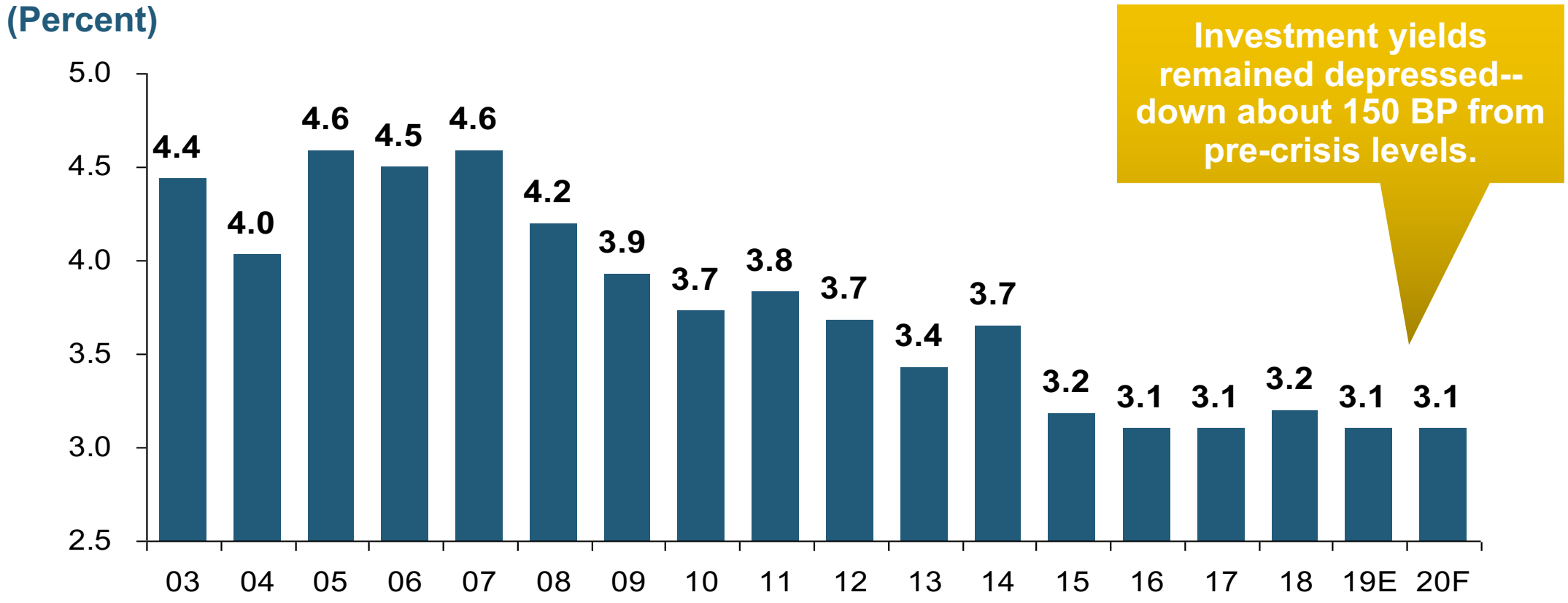


Since roughly 80% of P/C bond/cash investments are in 10-year or shorter durations, most P/C insurer portfolios will have low-yielding bonds for years to come.

*Monthly, constant maturity, nominal rates, through Dec. 2019.

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

Net Investment Yield on Property/Casualty Insurance Invested Assets, 2007–2020F*



The yield on invested assets remains low relative to pre-crisis yields. Fed rate increases beginning in late 2015 through 2018 halted the slide in yields, but rate cuts in 2019 will preclude future gains

Sources: NAIC data, sourced from S&P Global Market Intelligence; 2017-19 figures are from ISO. 2020F is from the Risk and Uncertainty Management Center, Univ. of South Carolina.

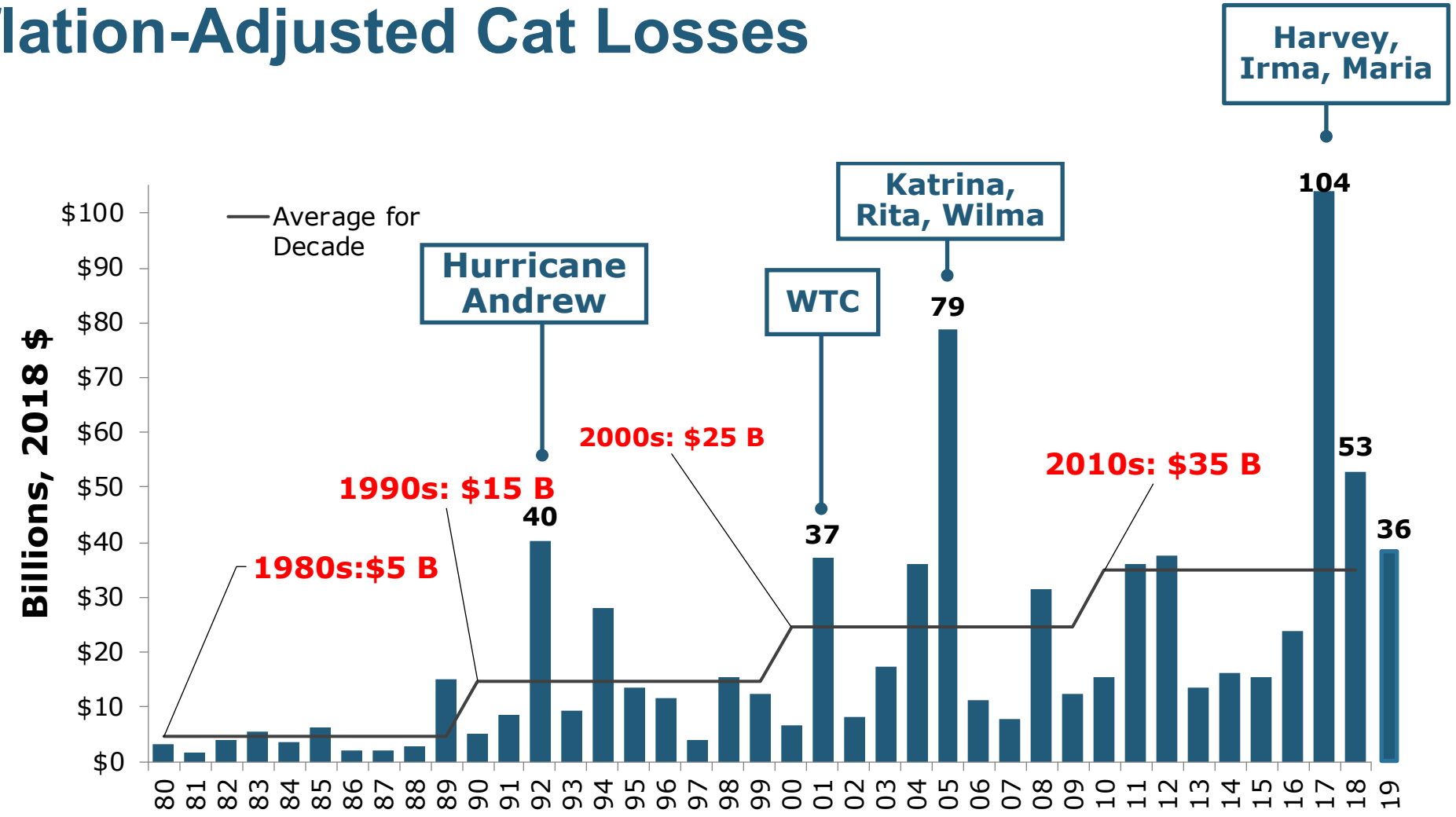
#6
CATASTROPHE LOSSES

CAT Losses for the Decade Just Ended Were Up Materially—Costliest Ever

Primary, Reinsurance and Retro Markets All Impacted and Are Pressuring Rates

25

U.S. Inflation-Adjusted Cat Losses

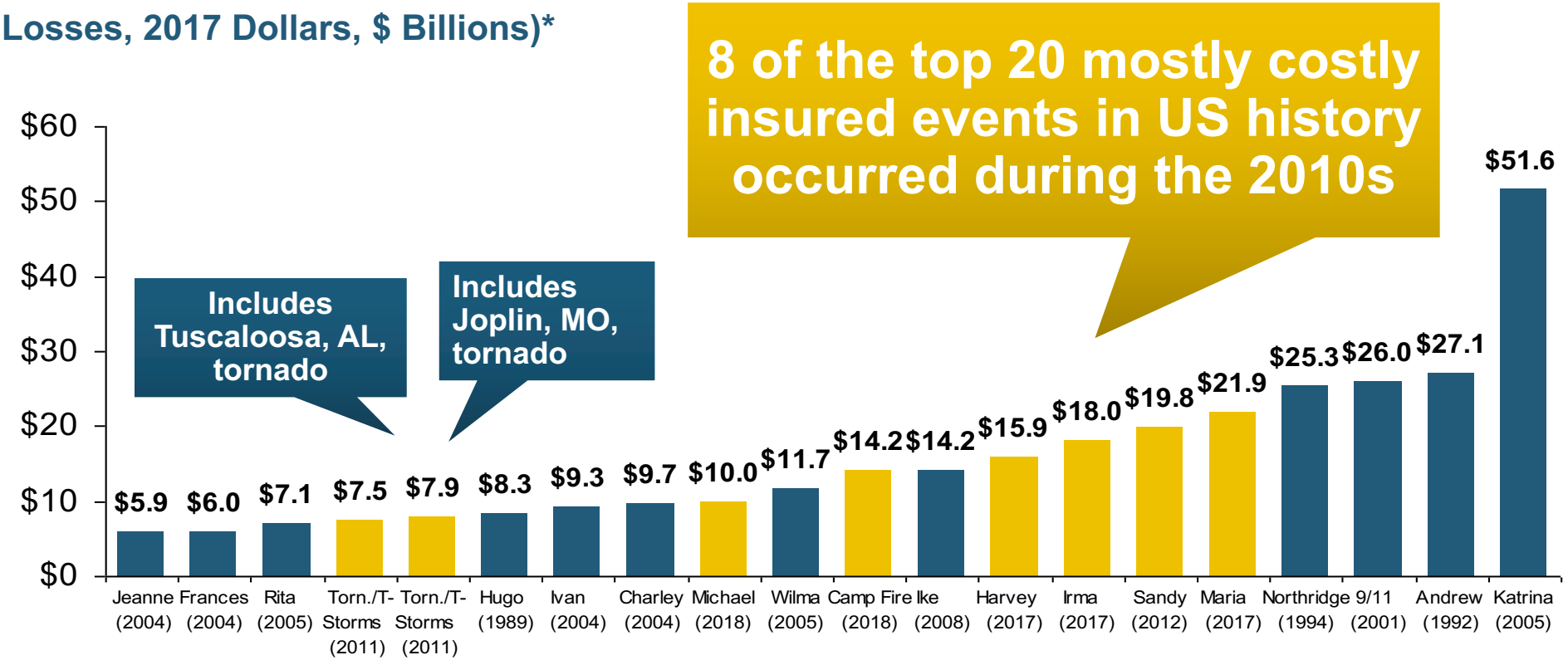


2018 – Third worst year for U.S. Insured Catastrophe Losses.
Average Insured Loss per Year for 1980-2019 is $19.8 B.

Sources: Property Claims Service, a Verisk Analytics business; Insurance Information Institute.

Top 20 Most Costly Disasters in U.S. History—Katrina Still Ranks #1

(Insured Losses, 2017 Dollars, $ Billions)*

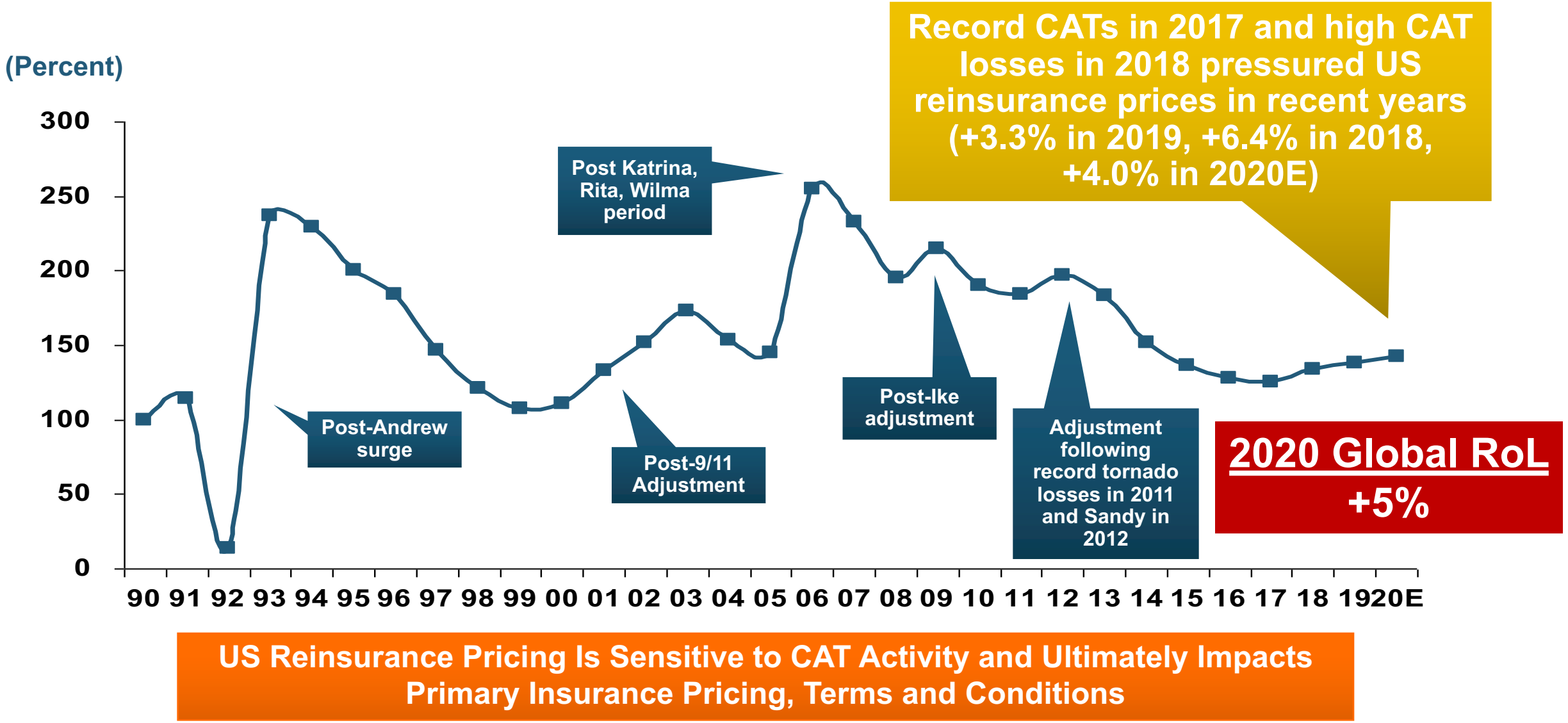


17 of the 20 Most Expensive Insurance Events in US History Have Occurred Since 2004

*Estimated.

Sources: PCS, RMS, Karen Clark & Co; USC Center for Risk and Uncertainty Management adjustments to 2017 dollars using the CPI.

US Property Catastrophe Rate-on-Line Index: 1990 – 2020E*



US Reinsurance Pricing Is Sensitive to CAT Activity and Ultimately Impacts Primary Insurance Pricing, Terms and Conditions

*As of January 1 each year.

Source: Guy Carpenter; Artimes.bm accessed at: http://www.artemis.bm/us-property-cat-rate-on-line-index

#5
THE ECONOMY

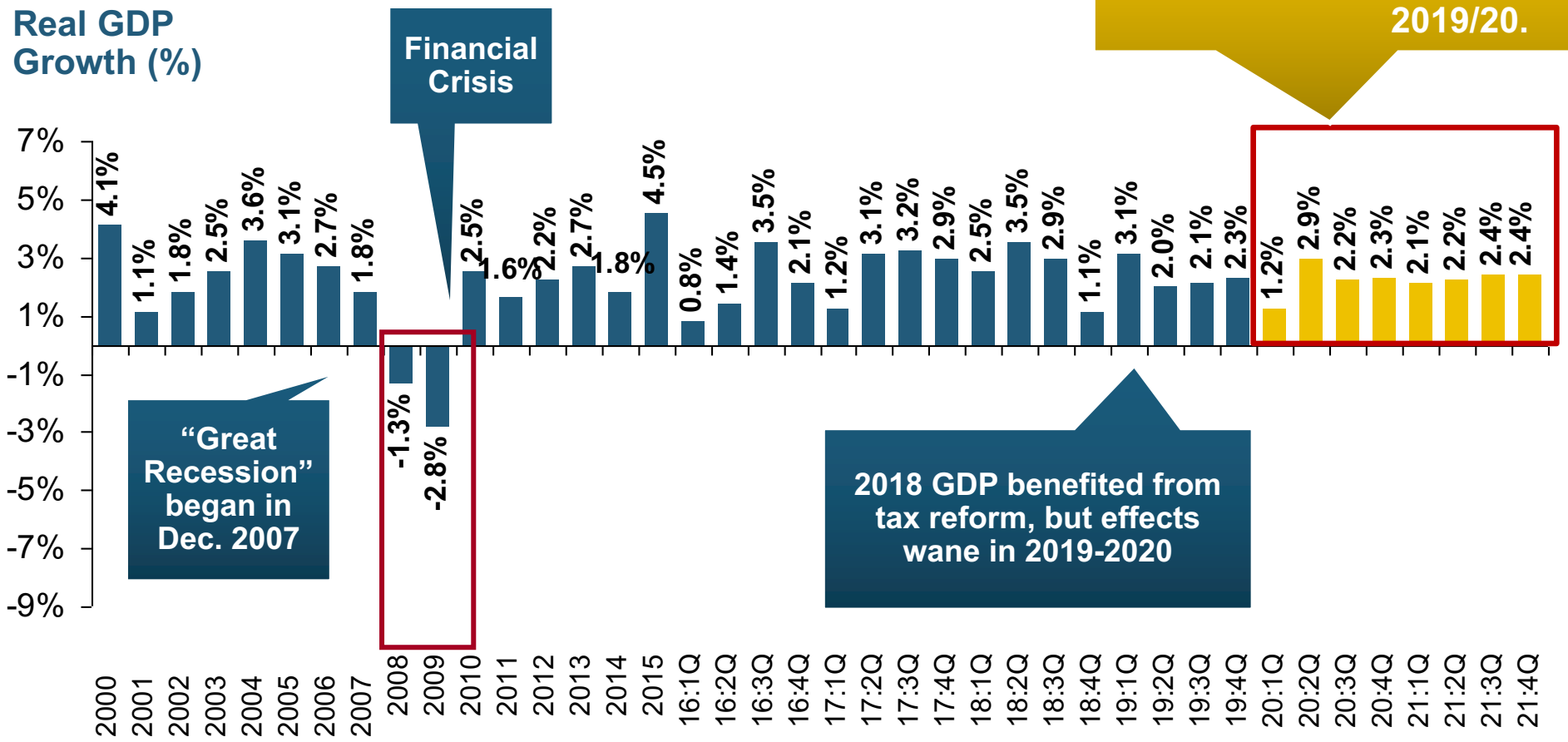
The Strength of the Economy Has Always Influenced Growth in Insurers' Exposure Base Across Most Lines

The Links Between the Economy and the P/C Insurance Industry Are Strengthening

Politics and Economics Are Inextricably Linked As Well

US Real GDP Growth*

Tax cuts help jolt growth from early 2018 to Q1 2019, but effects eventually waned. Trade war, weaker global growth are adversely affecting US GDP growth in 2019/20.



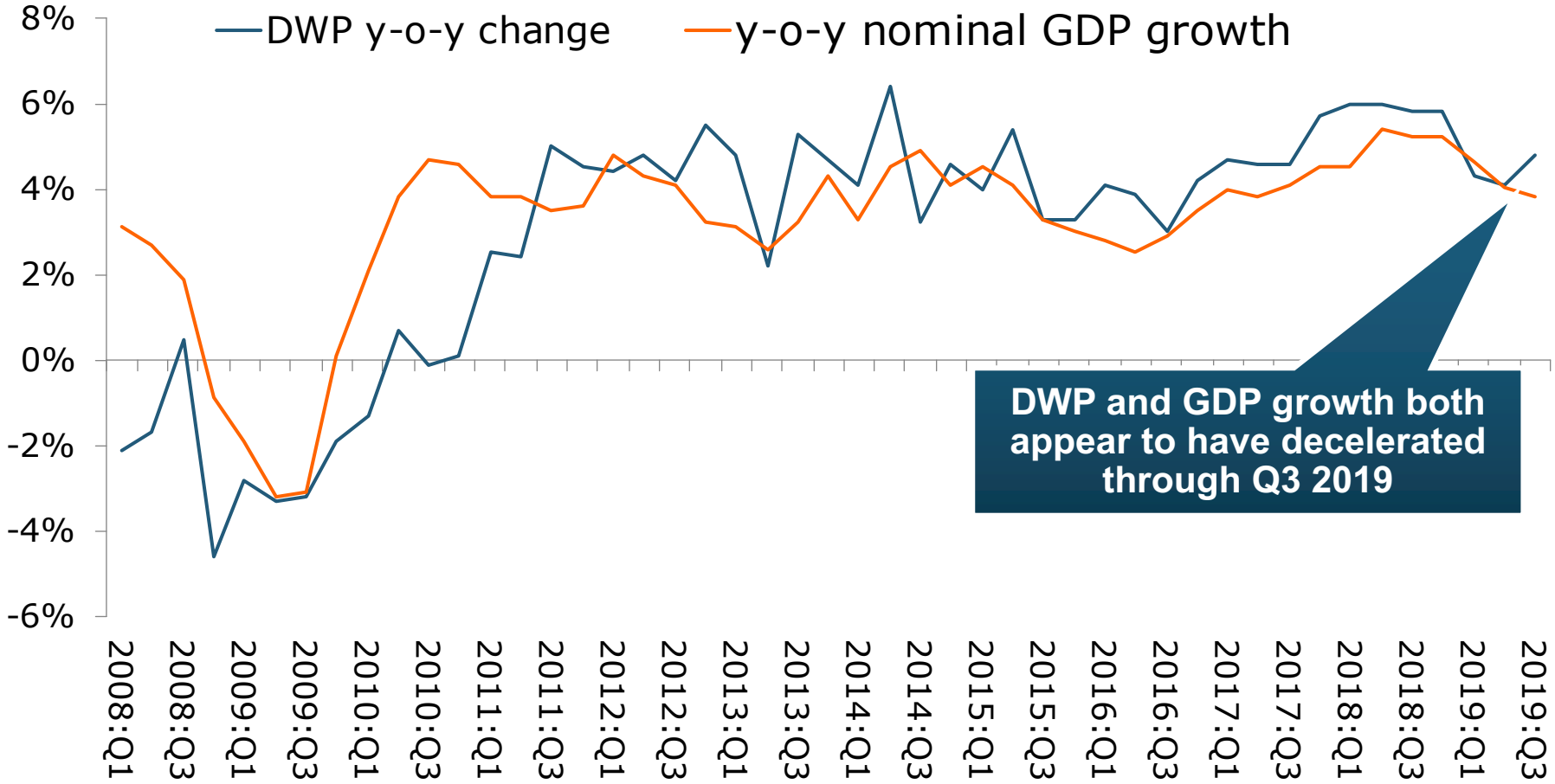
Demand for Insurance Should Increase in 2019 as GDP Growth Continues at a Steady Pace and Gradually Benefits the Economy Broadly

* Estimates/Forecasts from Wells Fargo Securities.

Source: US Department of Commerce, Wells Fargo Securities 1/20; Center for Risk and Uncertainty Management, University of South Carolina.

The Economy Drives P/C Insurance Industry Premiums: 2006:Q1–2019:Q3

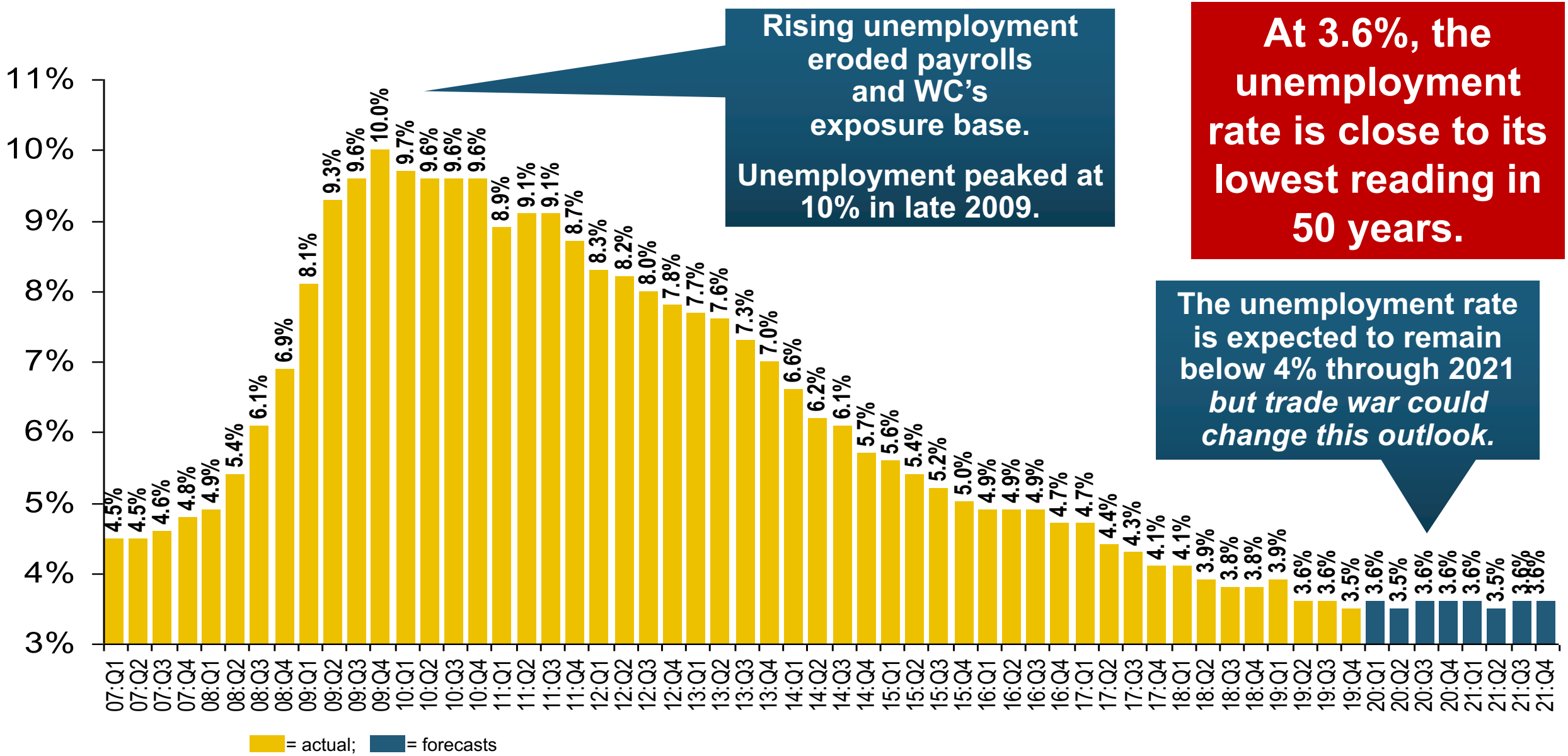
Direct Premium Growth (All P/C Lines) vs. Nominal GDP: Quarterly Y-o-Y Pct. Change



Direct written premiums track nominal GDP fairly tightly over time, suggesting the P/C insurance industry's growth prospects inextricably linked to economic performance.

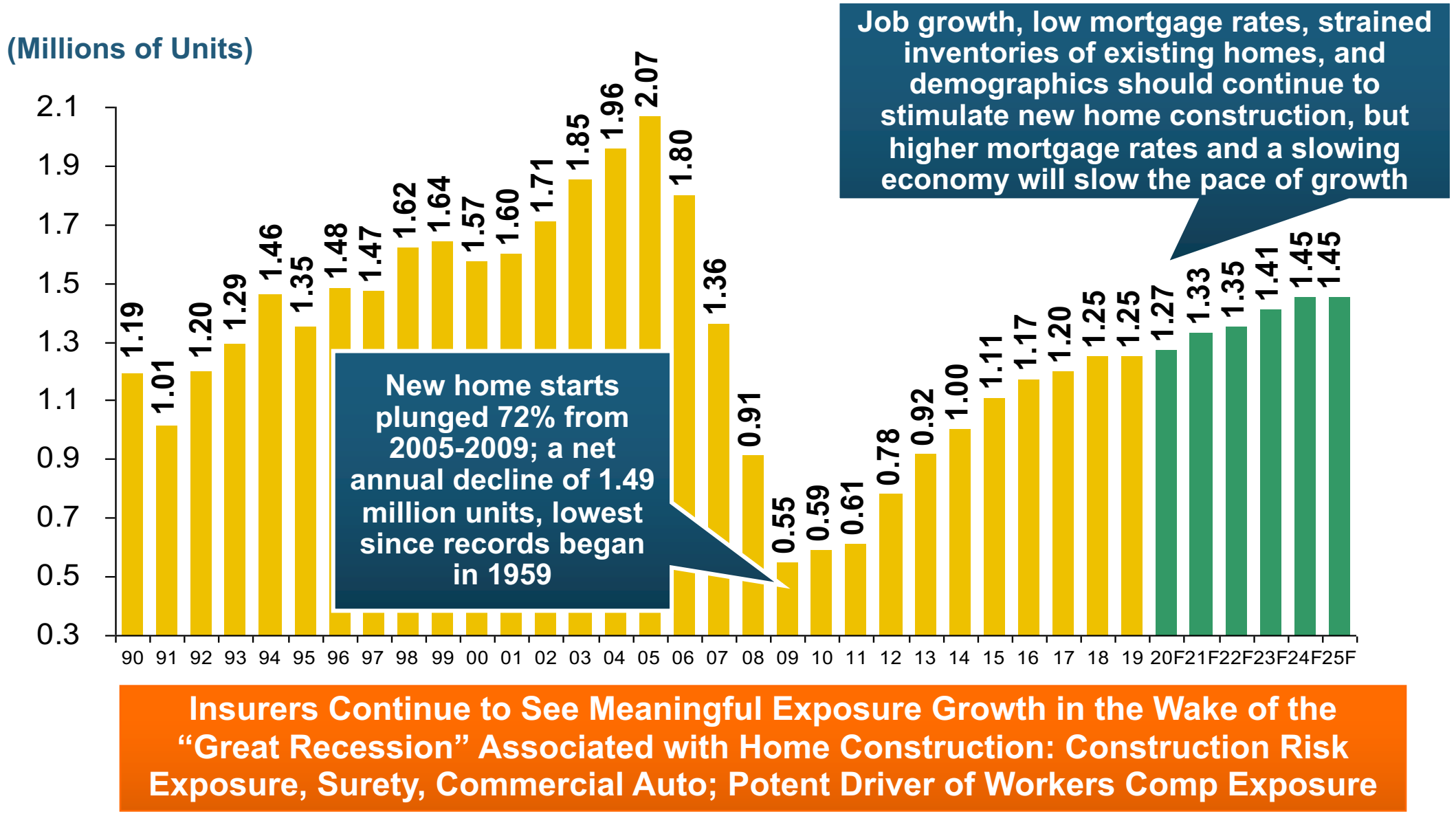
Sources: SNL Financial; U.S. Commerce Dept., Bureau of Economic Analysis; ISO; I.I.I.; Risk and Uncertainty Management Center, University of South Carolina.

US Unemployment Rate Forecast: 2007:Q1–2021:Q4



Sources: US Bureau of Labor Statistics; Wells Fargo Securities (1/20 edition); Risk and Uncertainty Management Center, University of South Carolina.

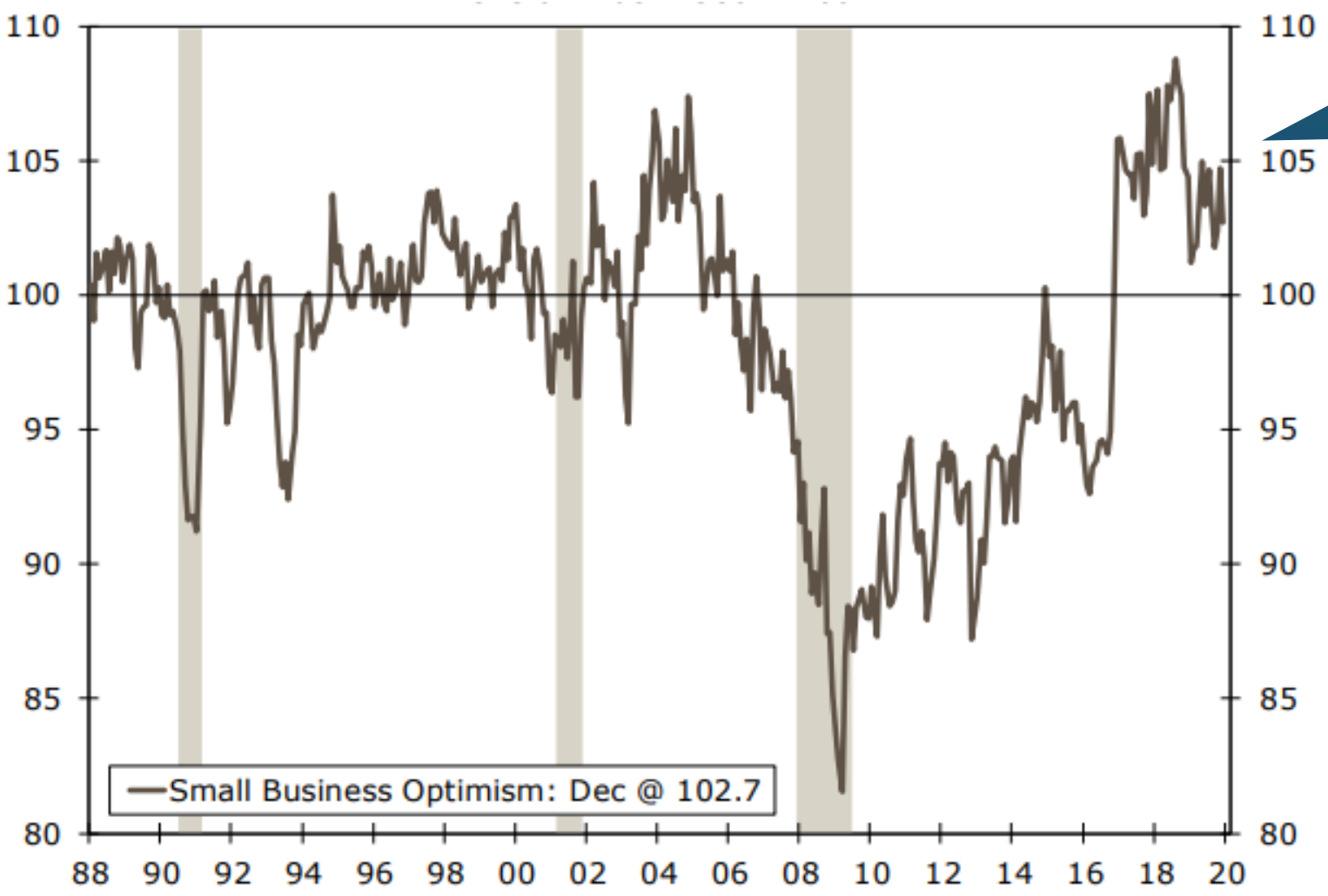
New Private Housing Starts, 1990-2025F



Insurers Continue to See Meaningful Exposure Growth in the Wake of the "Great Recession" Associated with Home Construction: Construction Risk Exposure, Surety, Commercial Auto; Potent Driver of Workers Comp Exposure

Source: U.S. Department of Commerce; Wells Fargo Securities (1/20 for 2020-21F), Blue Chip Economic Indicators (3/19 for 2022-25F); University. of South Carolina, Center for Risk and Uncertainty Management..

NFIB Small Business Optimism Index: Jan. 1988–Dec. 2019



Small Business Optimism weakened in 2019 on fears of greater economic uncertainty (esp. trade war fears). Tax reform, reduced regulations and strong sales have driven investment, hiring and exposures.

Trade wars and associated uncertainty introduced significant uncertainty in to the markets in 2019. Corona Virus could have a more limited impact in 2020

Outlook: Small businesses are cautiously optimistic about the future

Source: National Federal of Independent Business; Wells Fargo Research.

#4
POLITICS & REGULATION

Politics and Insurance: A Difficult History, A Challenging and Uncertain Future

35

What Will Happen in 2020?

Source: National Association of Mutual Insurance Companies (NAMIC), Jan. 2020.

Trumponomics: The Essential Elements

- **6 Elements**
  - Tax Reform
  - Deregulation
  - Infrastructure Investment
  - Healthcare
  - Trade
  - Immigration Reform/Enforcement
- **Most of these have direct impacts for insurers**

Insurance Lobbyist View on Outcome of 2020 Election

GOP LED STATUS QUO

White House: Republican
Senate: Republican
House: Democratic
Likelihood: 40 percent

DEMOCRAT DIVIDED GOV

White House: Democrat
Senate: Republican
House: Democrat
Likelihood: 35 percent

DEMOCRAT SWEEP

White House: Democratic
Senate: Democratic
House: Democratic
Likelihood: Five Percent

GOP SWEEP

White House: Republican
Senate: Republican
House: Republican
Likelihood: 20 percent

Source: National Association of Mutual Insurance Companies (NAMIC), Jan. 2020.

#3
GROWTH

Profitable Growth is the Key to Long-Run Success

39

Net Premium Growth (All P/C Lines): Annual Change, 1971—2019F

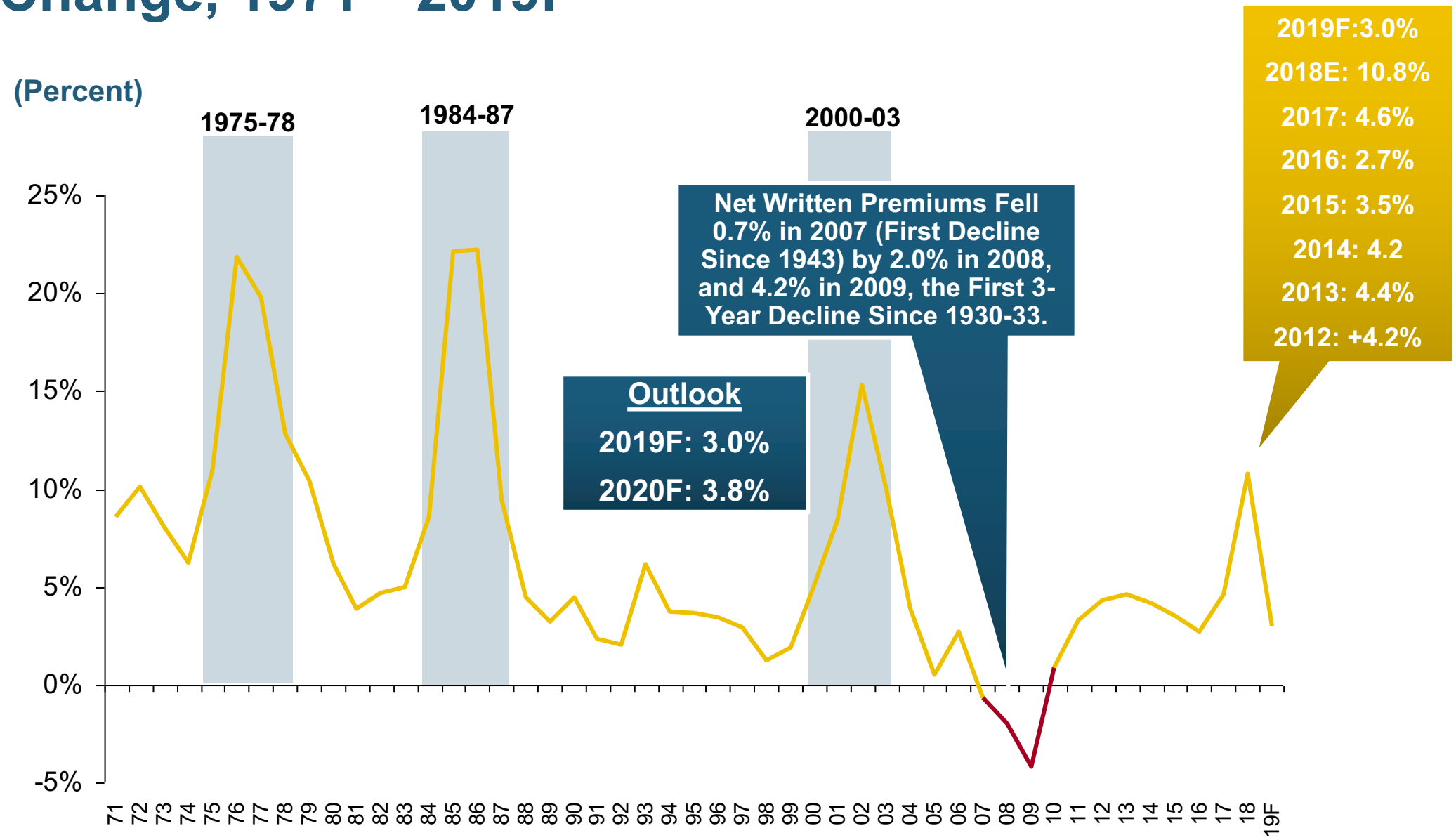
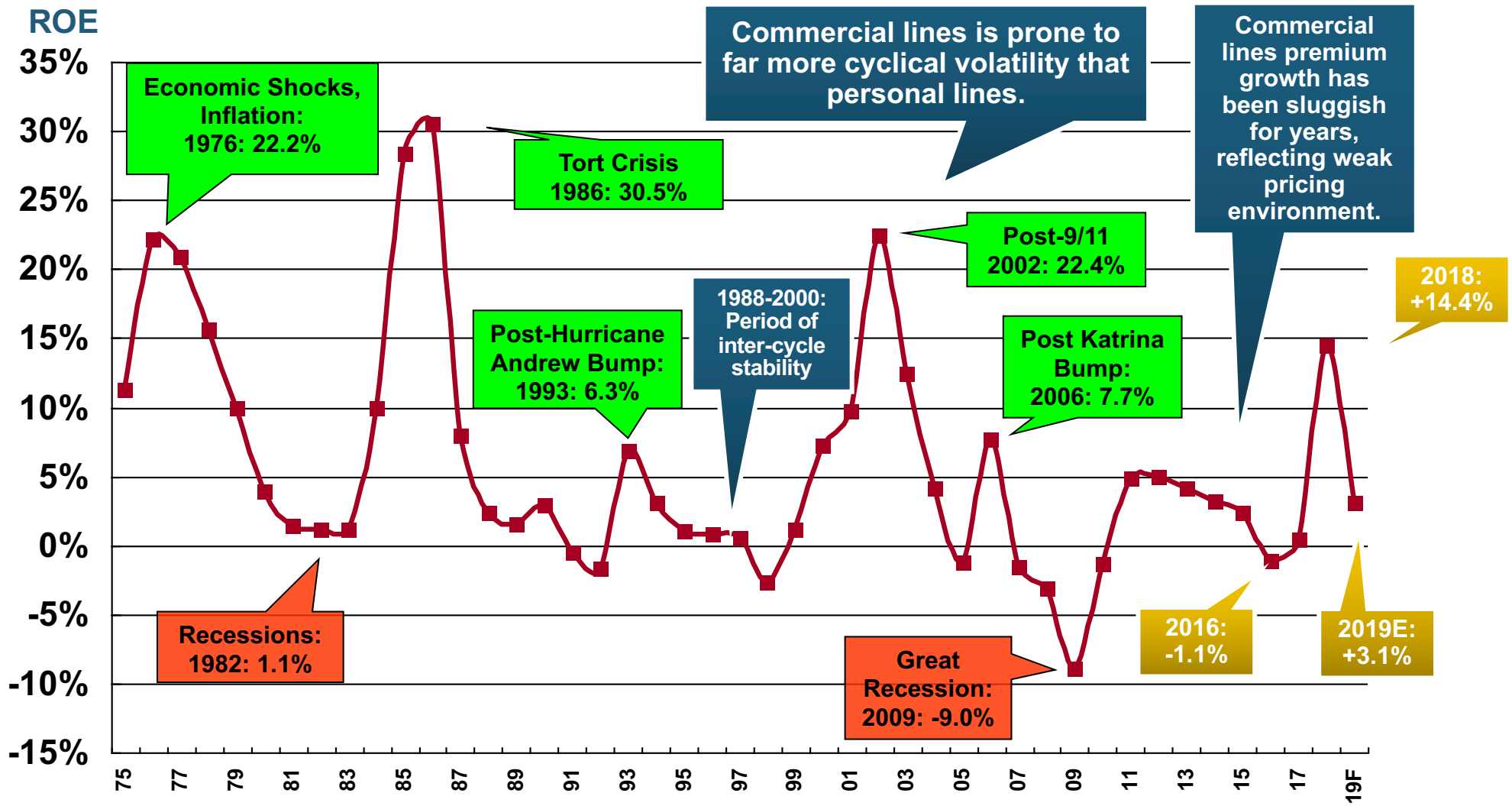


*Figure is actual 2018:9M vs. 2017:9M change adjusted for affects of the TCJA of 2017. Shaded areas denote "hard market" periods
Sources: A.M. Best (1971-2013, 2020F), ISO (2014-19); Risk & Uncertainty Management Center, Univ. of South Carolina estimate for 2019.

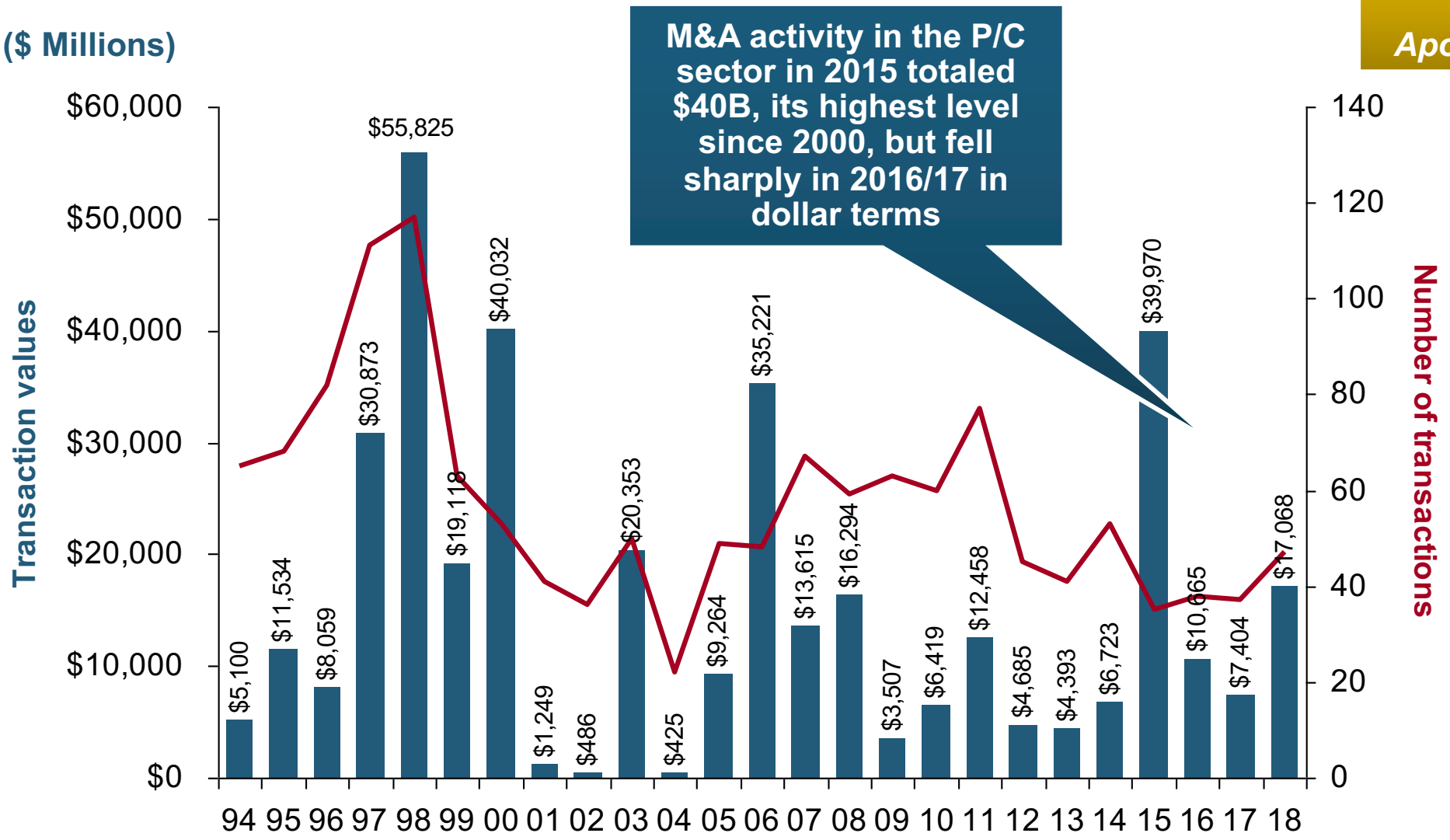
Commercial Lines NPW Premium Growth: 1975 – 2019F



Note: Data include state funds beginning in 1998.
Source: A.M. Best; Insurance Information Institute; Univ. of South Carolina Center for Risk and Uncertainty Management, ISO.

U.S. INSURANCE MERGERS AND ACQUISITIONS, P/C SECTOR, 1994-2018 (1)

Major 2018 Deals:
AIG/Validus: $5.56B
Axa/XL: $15.3B
Apollo/Aspen: $2.6B



(1) Includes transactions where a U.S. company was the acquirer and/or the target.

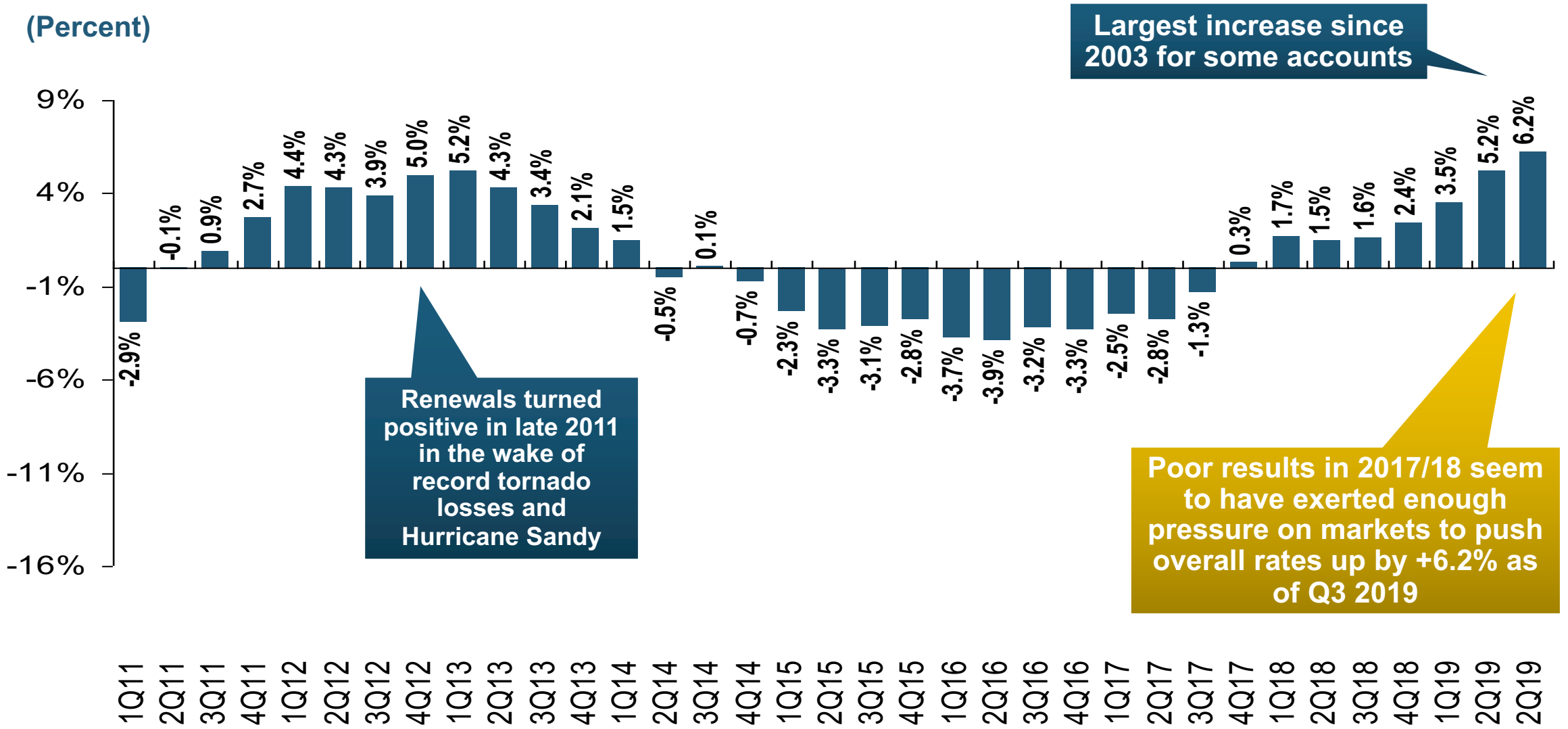
Source: Conning proprietary database.

#2
RATE ADEQUACY

Pricing Pressures Are Intense but Rational

43

CIAB: Average Commercial Rate Change, All Lines, 2011:Q1–2019:Q3*

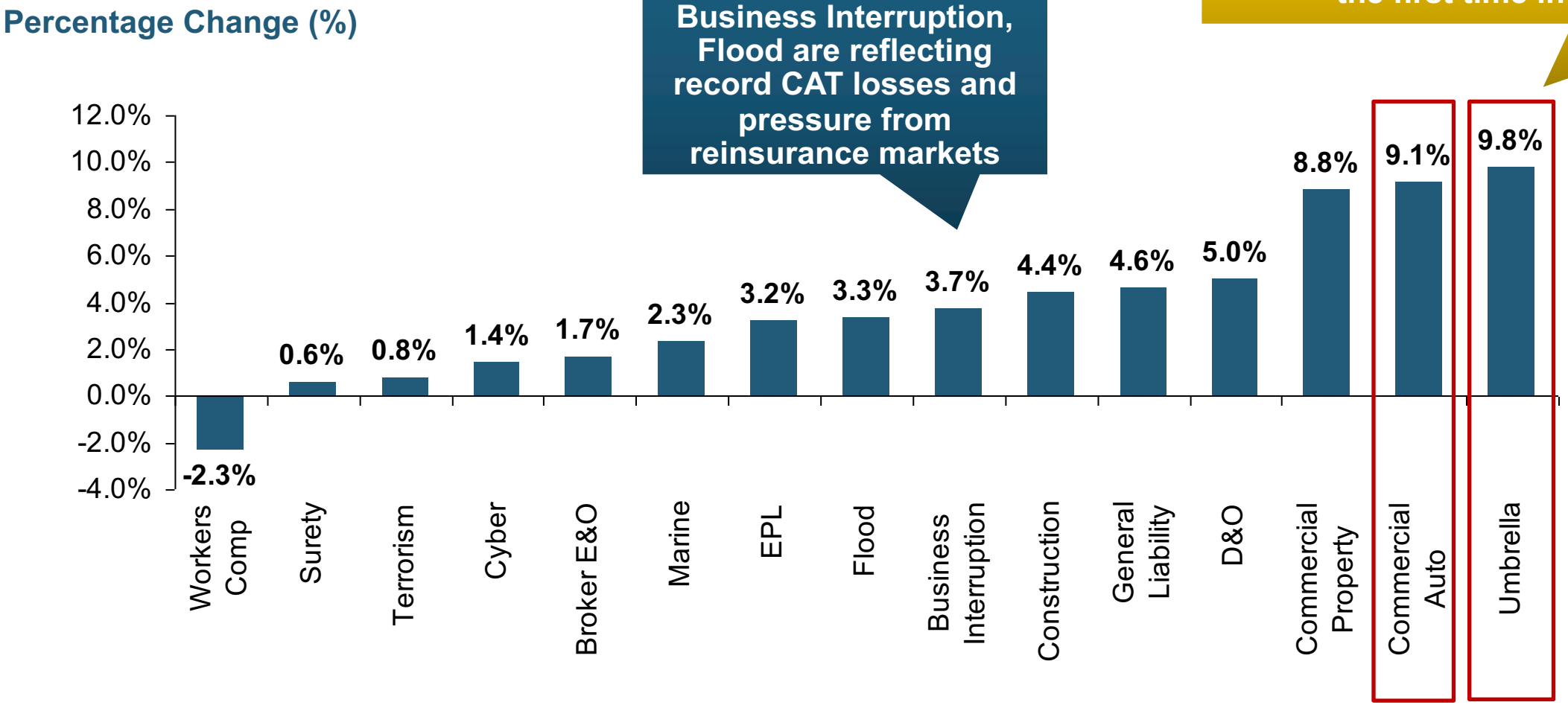


*Latest available.
Note: CIAB data cited here are based on a survey. Rate changes earned by individual insurers can and do vary, potentially substantially.
Source: Council of Insurance Agents & Brokers; Center for Risk and Uncertainty Management, Univ. of South Carolina.

Change in Commercial Rate Renewals, by Line: 2019:Q3

Umbrella now leads all major commercial lines in terms of rate gains, exceeding Commercial Auto and CP for the first time in Q3 2019

Commercial Property, Business Interruption, Flood are reflecting record CAT losses and pressure from reinsurance markets



Note: CIAB data cited here are based on a survey. Rate changes earned by individual insurers can and do vary, potentially substantially.

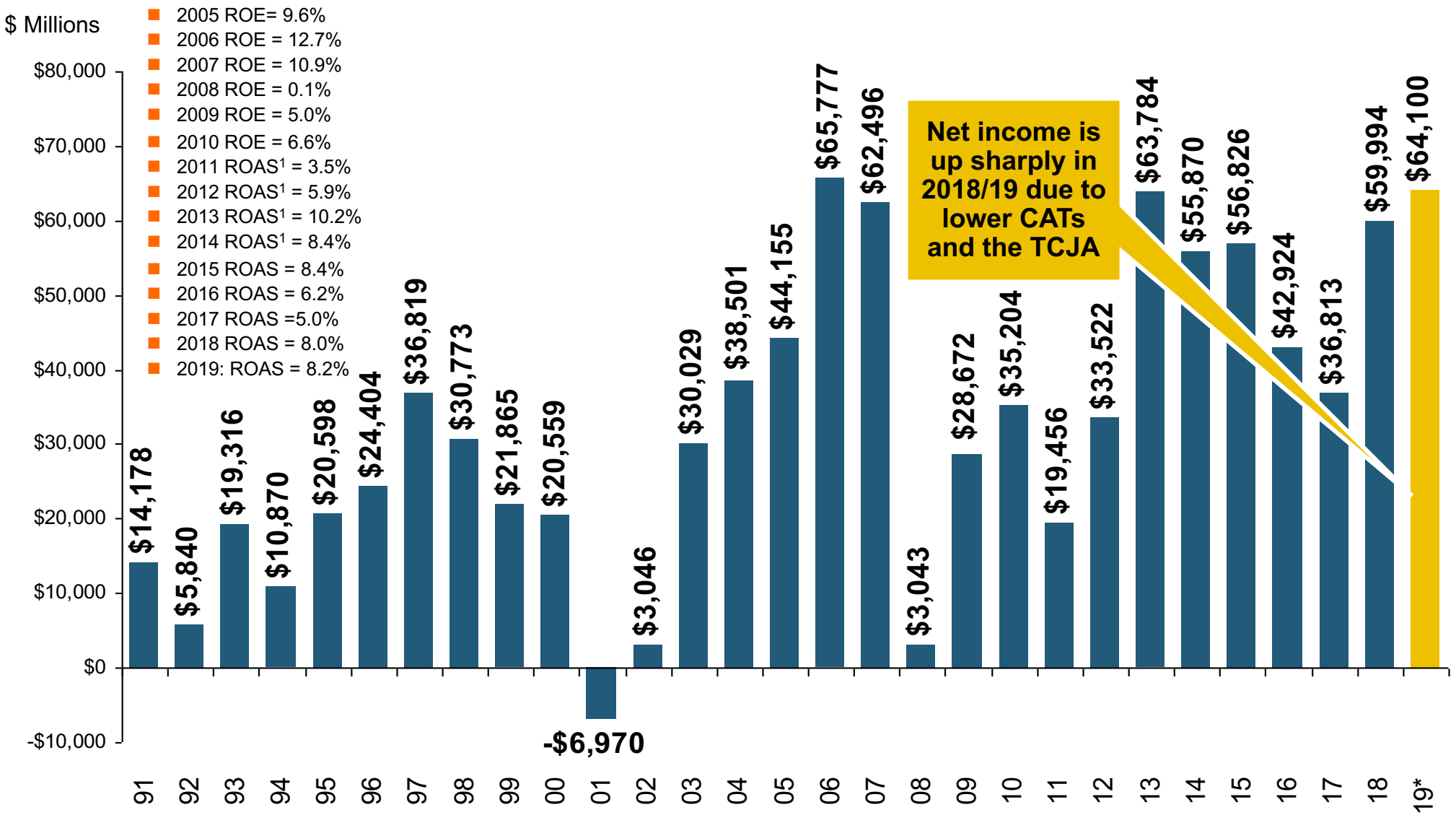
Source: Council of Insurance Agents and Brokers; USC Center for Risk and Uncertainty Management.

#1
PROFITABILITY

Above All Else, Insurers Need Consistent Profitability Over the Long-Run

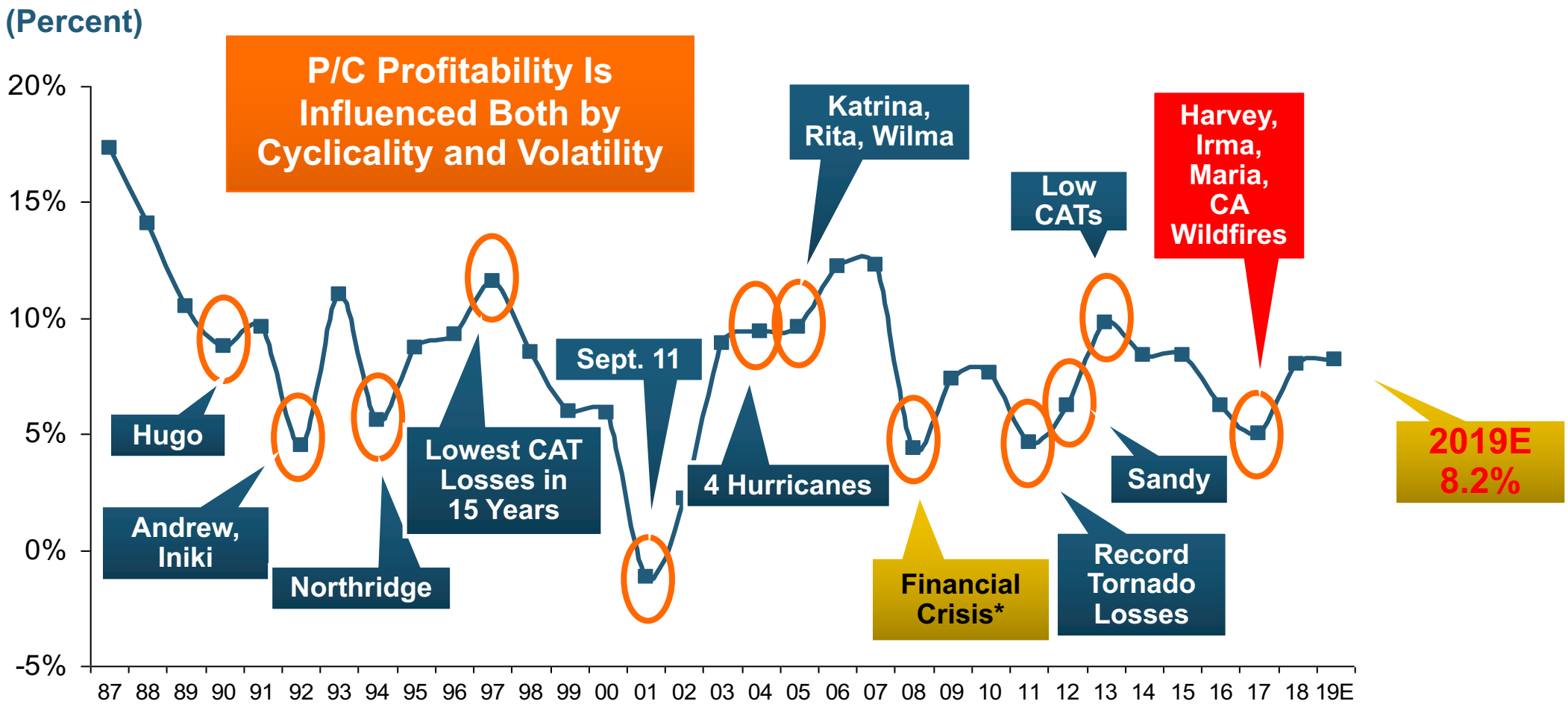
46

P/C Industry Net Income After Taxes, 1991–2019F*



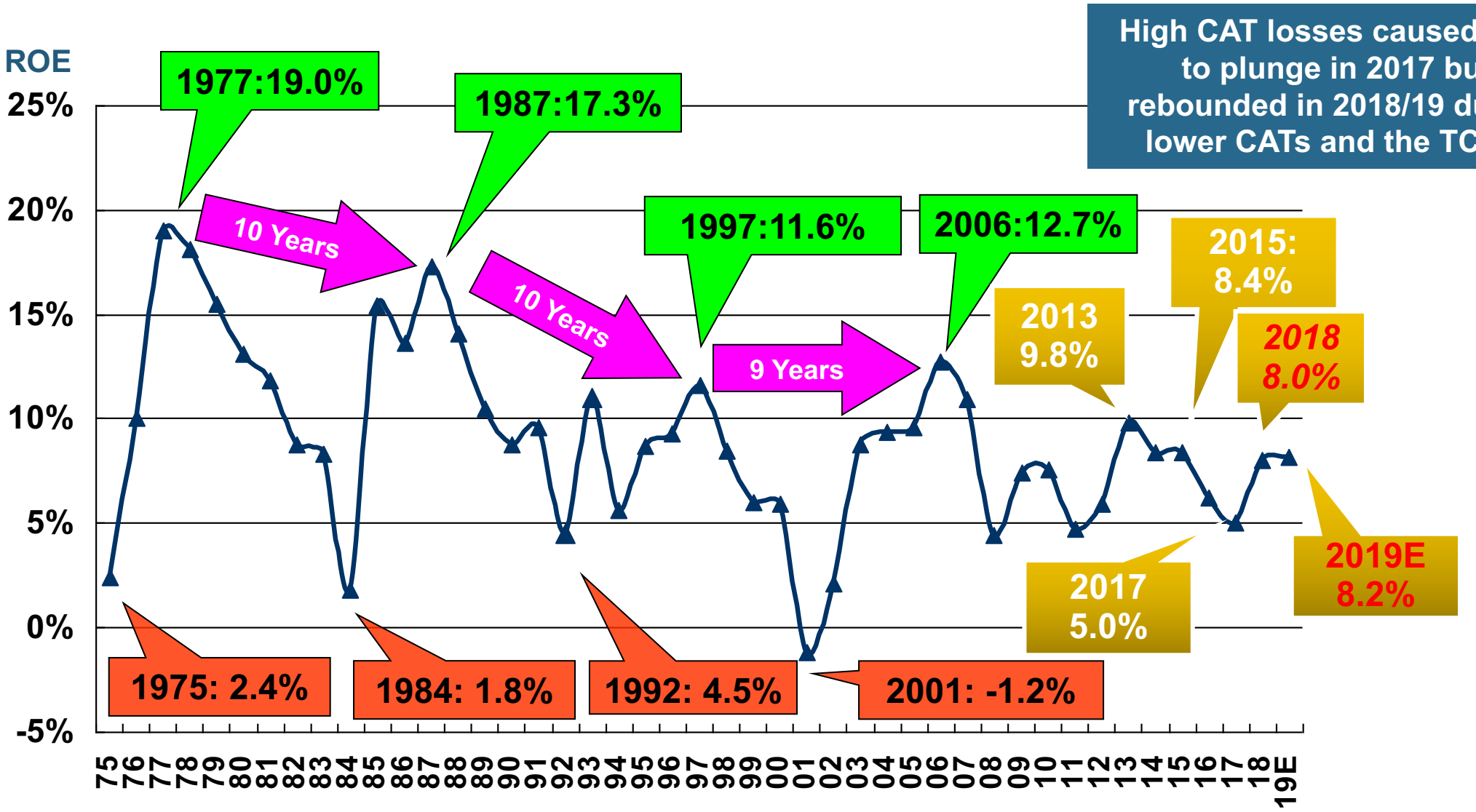
*2019 estimate based on annualized actual Q3:19 figure of $48.075B. ROE figures are GAAP; [1]Return on avg. surplus. Excludes Mortgage & Financial Guaranty insurers for years (2009-2014).
Sources: A.M. Best, ISO.

ROE: Property/Casualty Insurance by Major Event, 1987–2019E



*Excludes Mortgage & Financial Guarantee in 2008 – 2014.
Sources: ISO, *Fortune*; A.M. Best (2018E-2019F); USC RUM Center.

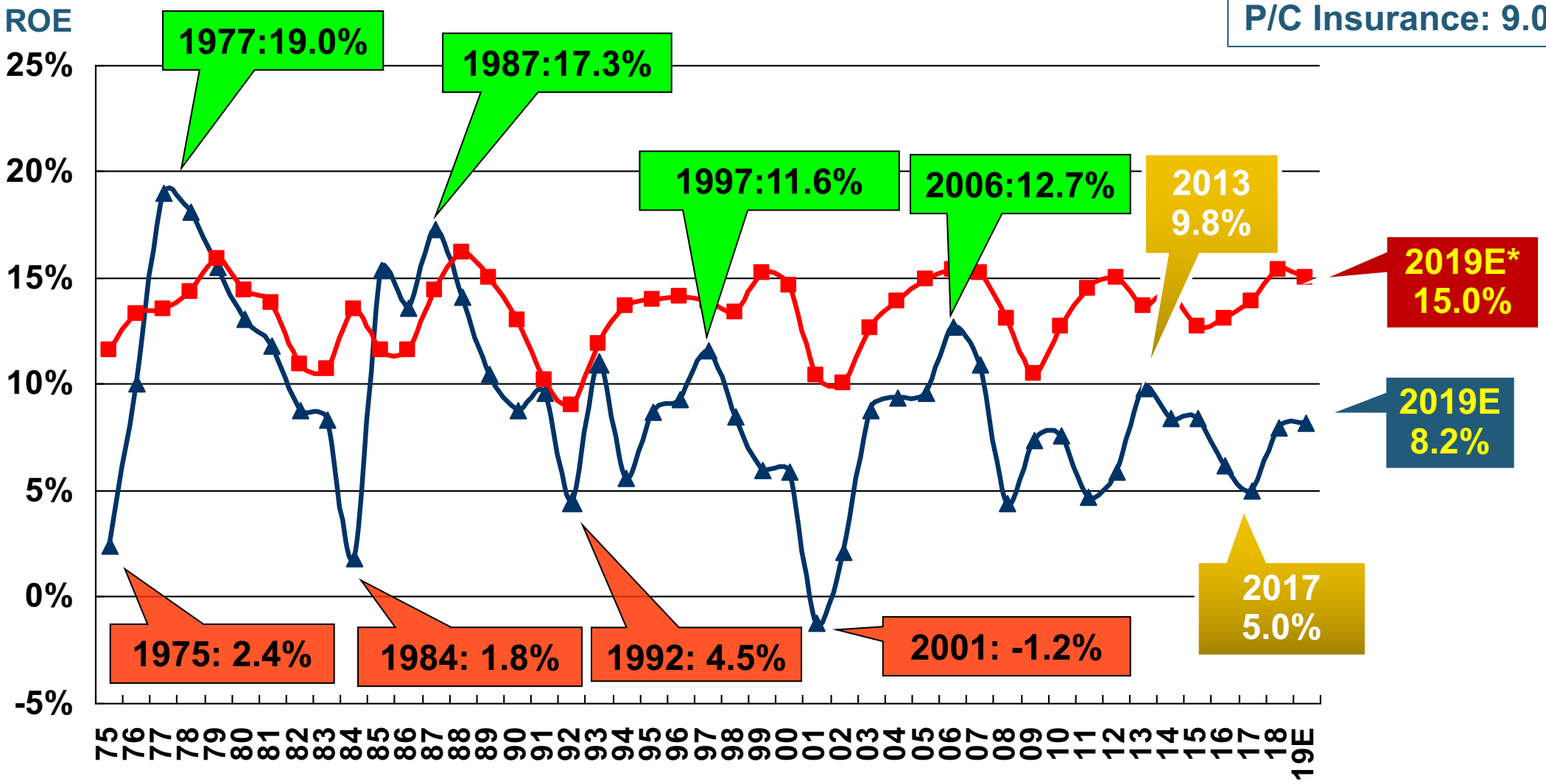
Profitability Peaks & Troughs in the P/C Insurance Industry, 1975 – 2019E



Profitability = P/C insurer ROEs. 2011-18 figures are estimates based on ROAS data. Note: Data for 2008-2014 exclude mortgage and financial guaranty insurers.
Source: NAIC, ISO, A.M. Best, USC RUM Center.

P/C Insurance ROE vs. Fortune 500, 1975–2019E*

Average: 1975-2018
Fortune 500: 13.3%
P/C Insurance: 9.0%



*2018 Fortune 500 figure is an estimate.
Profitability = P/C insurer ROEs. 2011-18 figures are estimates based on ROAS data. Note: Data for 2008-2014 exclude mortgage and financial guaranty insurers.
Source: NAIC, ISO, *Fortune*.

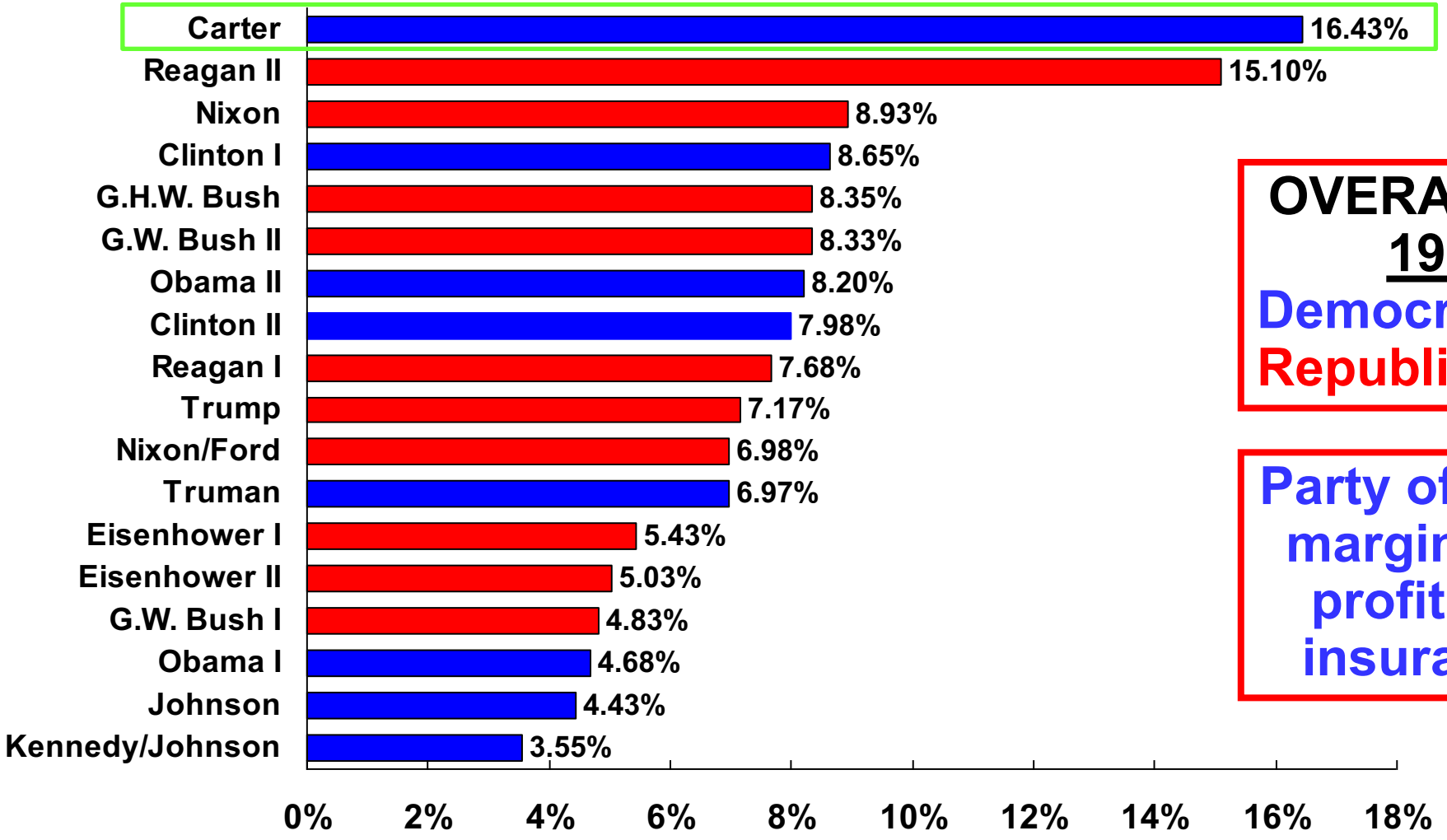
Professor Hartwig's Presidential Insurance Quiz!

Q1: Since 1950, under which President was the US P/C insurance industry the most profitable (in terms of ROE)?

Q2: Since 1950, under which political party has the US P/C insurance industry been the most profitable, on average (in terms of ROE)?

51

P/C Insurance Industry ROE by Presidential Administration, 1950-2019*



OVERALL RECORD: 1950-2019*

Democrats 7.61%

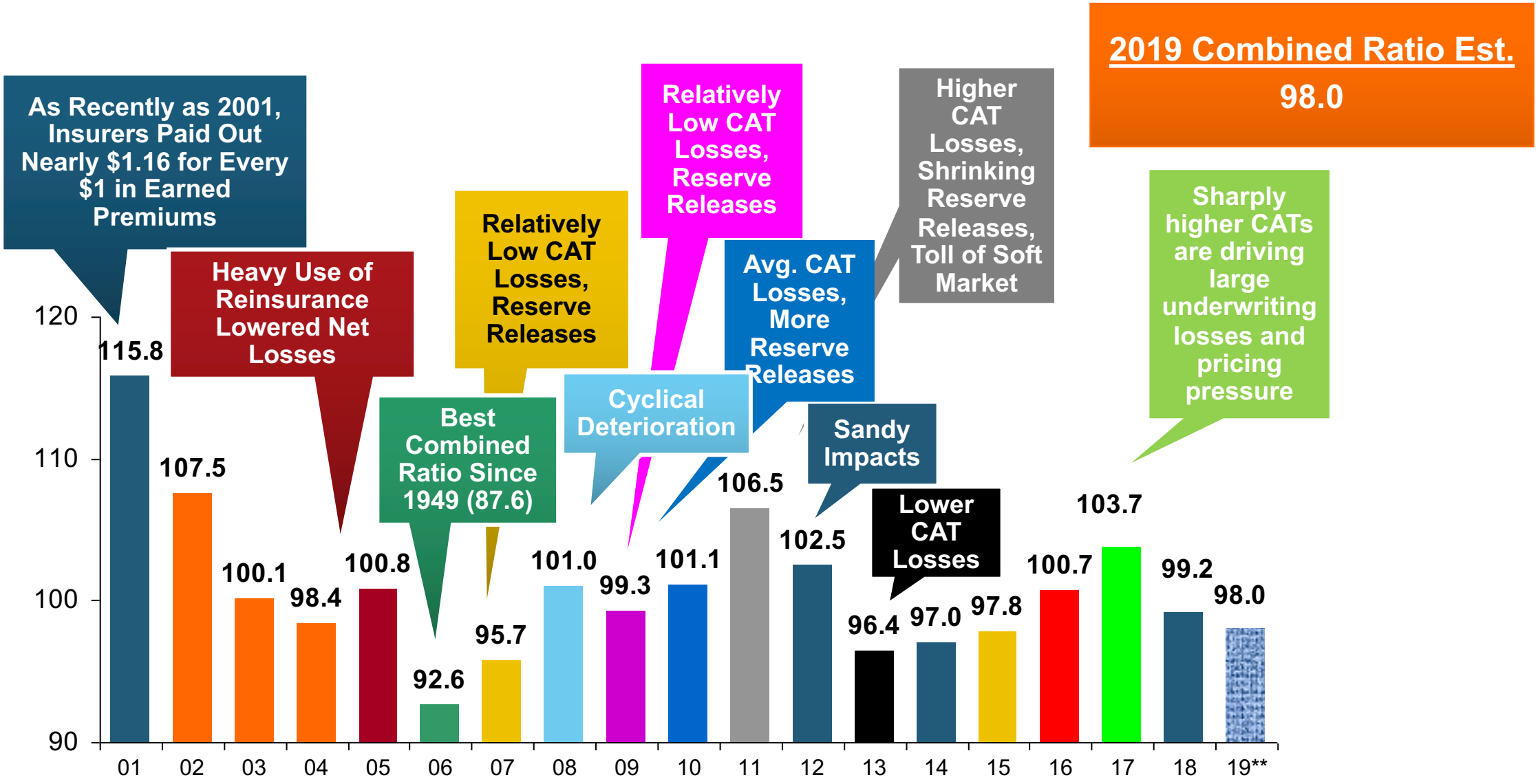
Republicans 7.75%

Party of President has marginal bearing on profitability of P/C insurance industry

*Truman administration ROE of 6.97% based on 3 years only, 1950-52.

Source: University of South Carolina, Risk and Uncertainty Management Center.

P/C Insurance Industry Combined Ratio, 2001–2019E*



* Excludes Mortgage & Financial Guaranty insurers 2008--2014.
**Actual through Q3 2019 was 97.8
Sources: A.M. Best, ISO (2014-2019).

Questions?

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Thank you for your time and your attention!

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