Pandemics, Politics & P/C Insurance
The Indelible Legacy of COVID-19

Casualty Actuarial Society Ratemaking Seminar
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Pandemics & P/C Insurance: Outline

- P/C Financial Overview & Outlook Amid the COVID-19 Pandemic
- COVID-19: Actual vs. Expected Impacts on Key Lines
- Investment Market Issues: Volatility Rules, Low Interest Rates are Back
- The Economy and COVID-19: Overview & Outlook
- CAT Loss Update
- Commercial Lines Rate Trends
- COVID-19 Litigation Trends
- Summary and Q&A

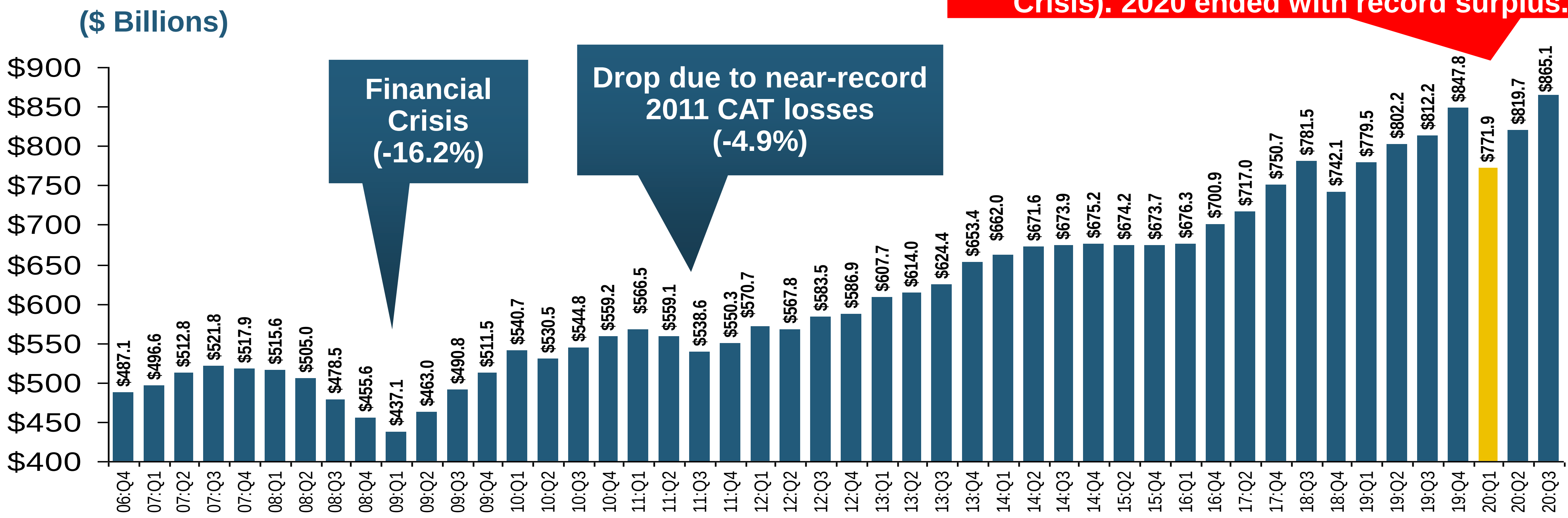
P/C Insurance Industry: Financial Overview Amid the COVID-19 Pandemic

The P/C Insurance Industry Entered the COVID-19 Pandemic from a Position of Financial Strength

Economic, Financial Market, Regulatory and Tort Risks Are Major Challenges Going Forward

Policyholder Surplus (Capacity), 2006:Q4–2020:Q3

The P/C insurance industry entered the COVID-19 pandemic from a position strength and was able to withstand the 9.0% surplus decline in Q1 2020 (far less than during the Financial Crisis). 2020 ended with record surplus.

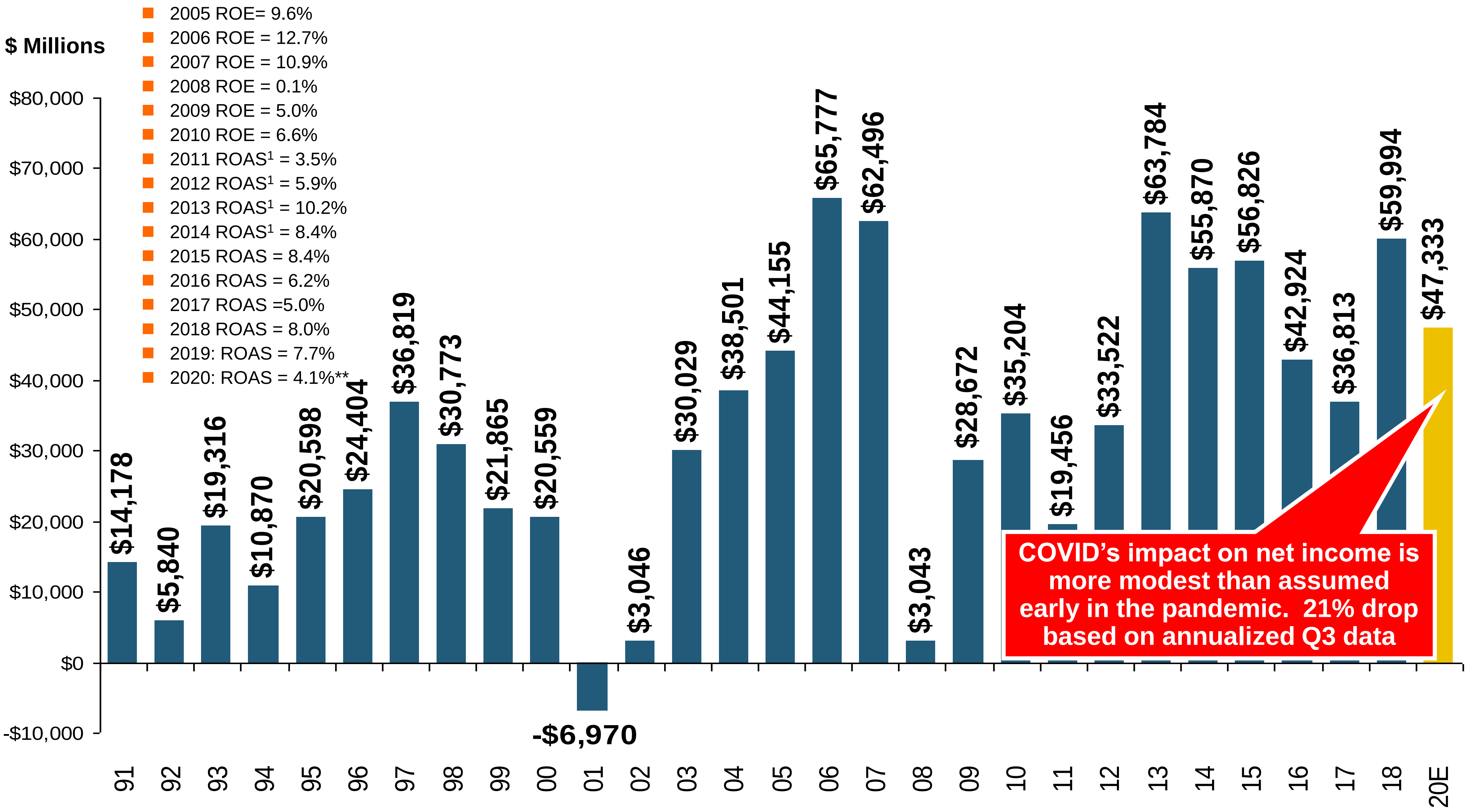


2010:Q1 data includes $22.5B of paid-in capital from a holding company parent for one insurer's investment in a non-insurance business.

Policyholder Surplus is the industry's financial cushion against large insured events, periods of economic stress and financial market volatility. It is also a source of capital to underwrite new risks.

Sources: ISO, A.M .Best; Risk and Uncertainty Management Center, University of South Carolina.

P/C Industry Net Income After Taxes, 1991–2020E*

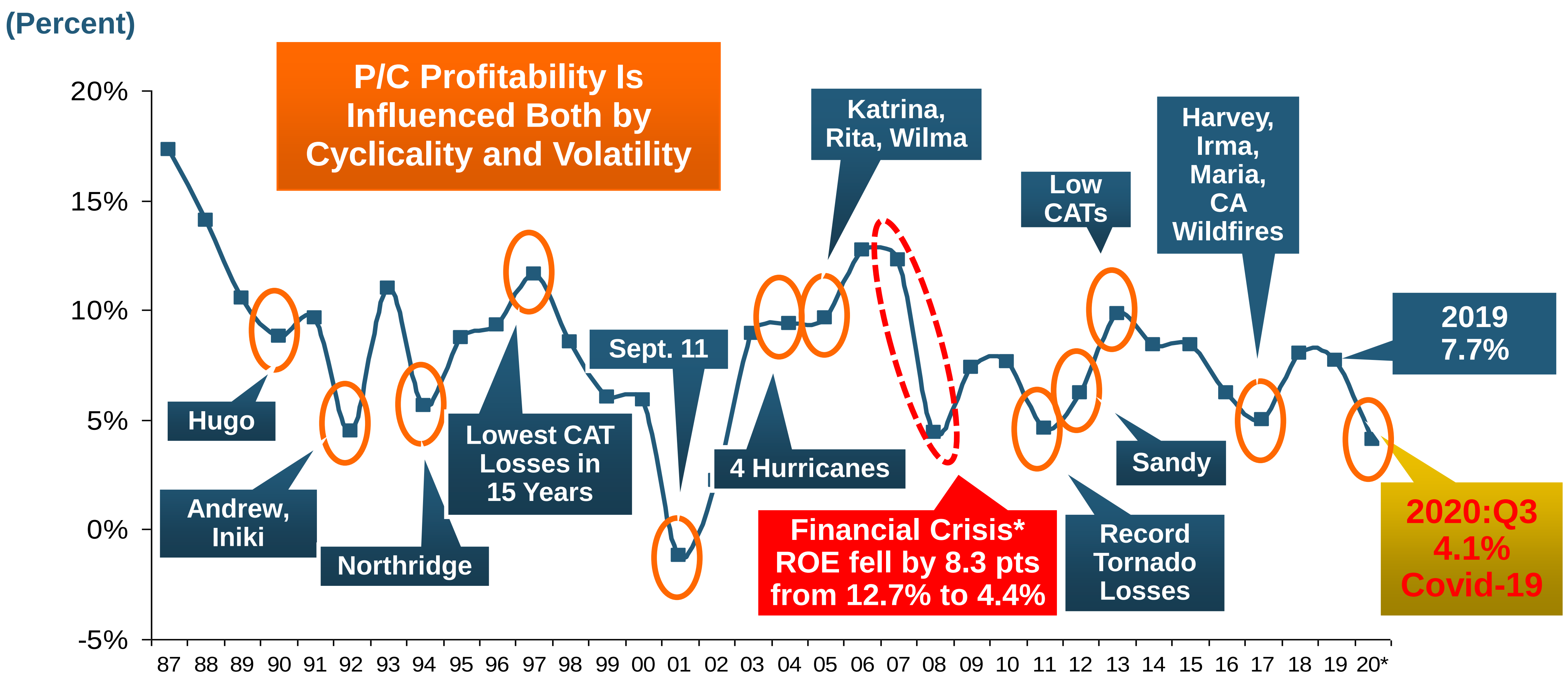


*2020 estimate based on annualized actual Q3:20 figure of $35.5B. ROE figures are GAAP; [1]Return on avg. surplus. Excludes Mortgage & Financial Guaranty insurers for years (2009-2014).

**Through Q3 2020. A,M, Best estimate for 2020 is $48.8B (as of 2/25/21).

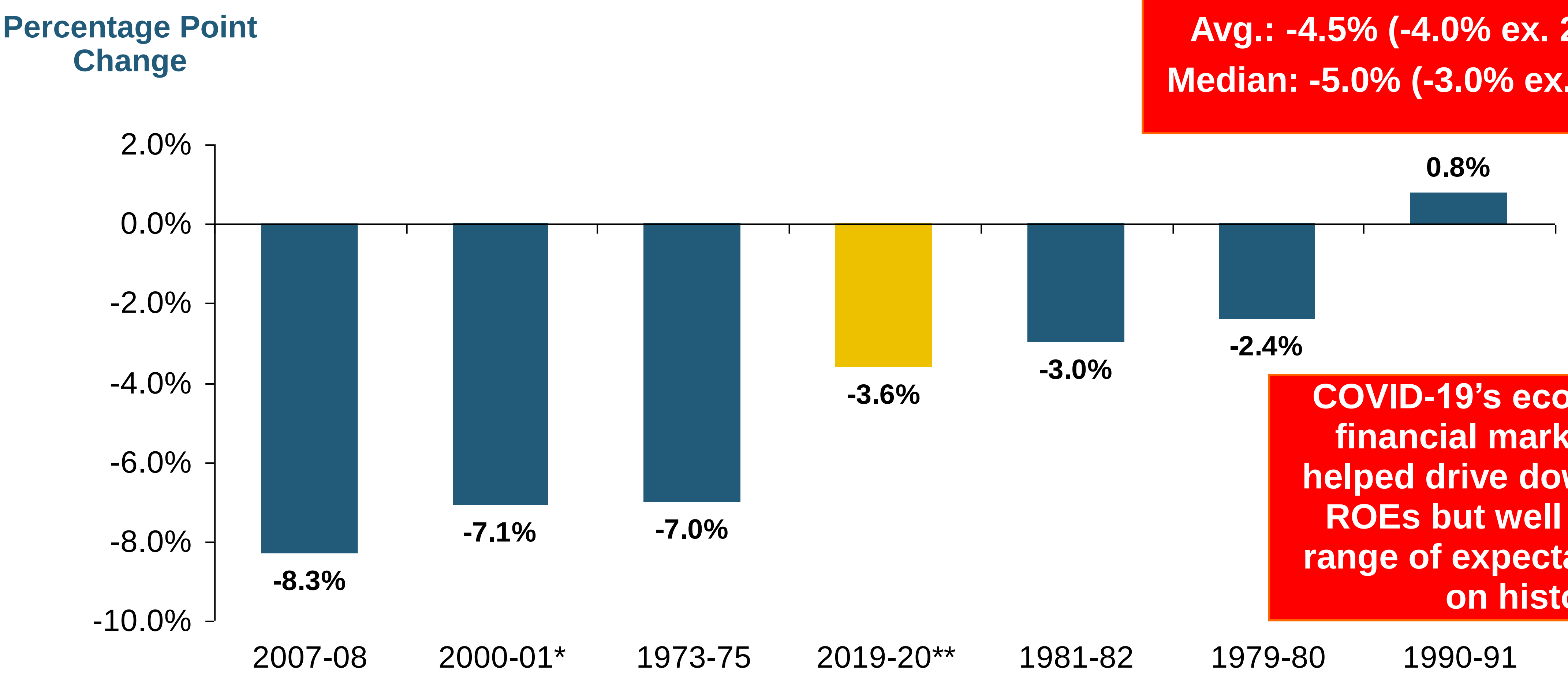
Sources: A.M. Best, ISO.

ROE: Property/Casualty Insurance by Major Event, 1987–2020:Q3*



*Excludes Mortgage & Financial Guarantee in 2008 – 2014. 2020:H1 estimate is based on actual Q1 2020 figure of 8.8%.
Sources: ISO, *Fortune*; USC RUM Center.

Percentage Point Change in P/C ROEs During Past Economic Downturns: 1971 - Present



Change in P/C ROE During Past Economic Downturns (pre-Covid)

Avg.: -4.5% (-4.0% ex. 2000-01)

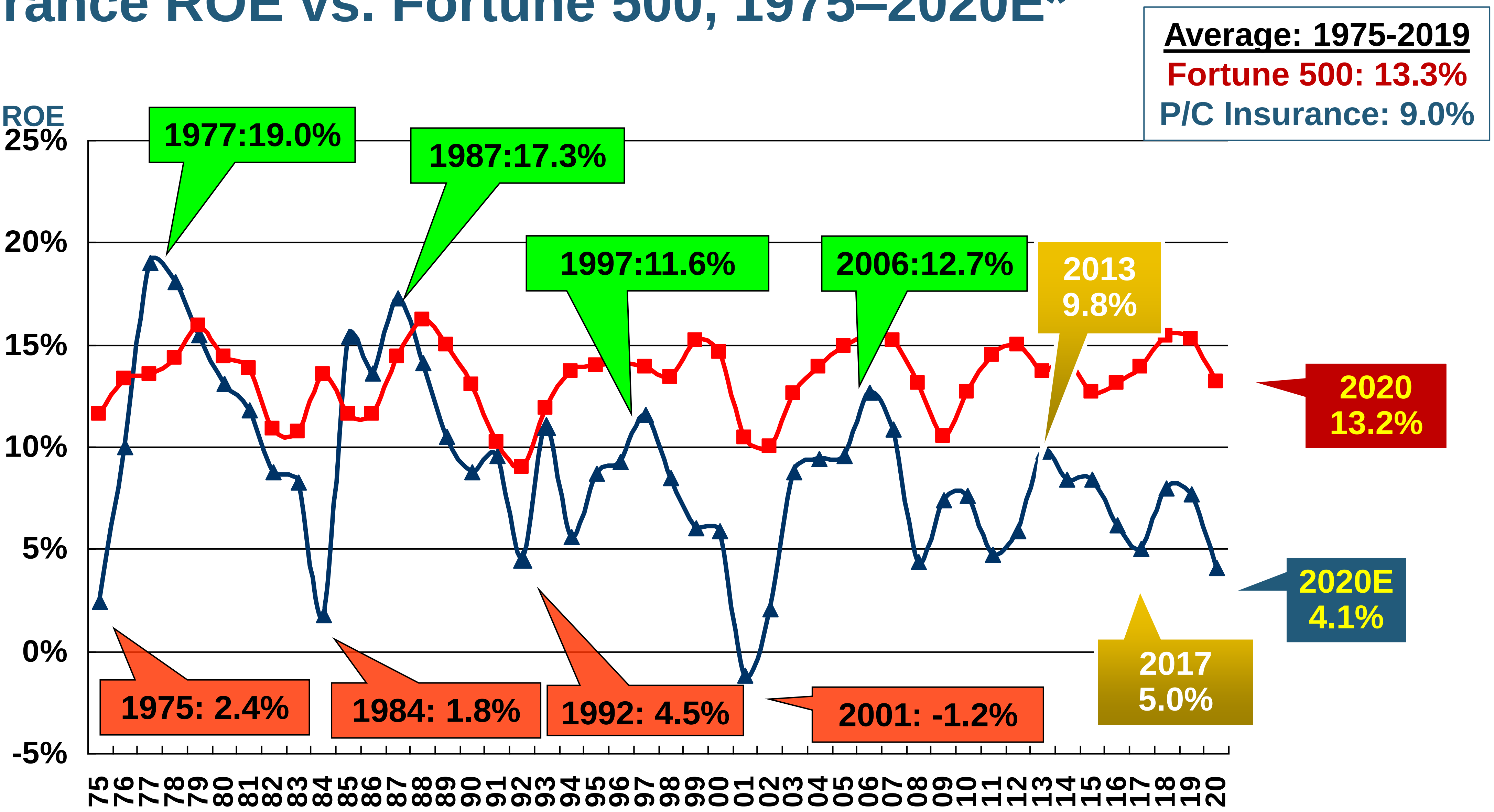
Median: -5.0% (-3.0% ex. 2000-01)

COVID-19's economic and financial market impact helped drive down industry ROEs but well within the range of expectation based on history

*2000-2001 decline impacted by 9/11 losses.
**As of Q3 2020 vs. annualized Q3 2019 figure

Source: USC Center for Risk and Uncertainty Management.

P/C Insurance ROE vs. Fortune 500, 1975–2020E*

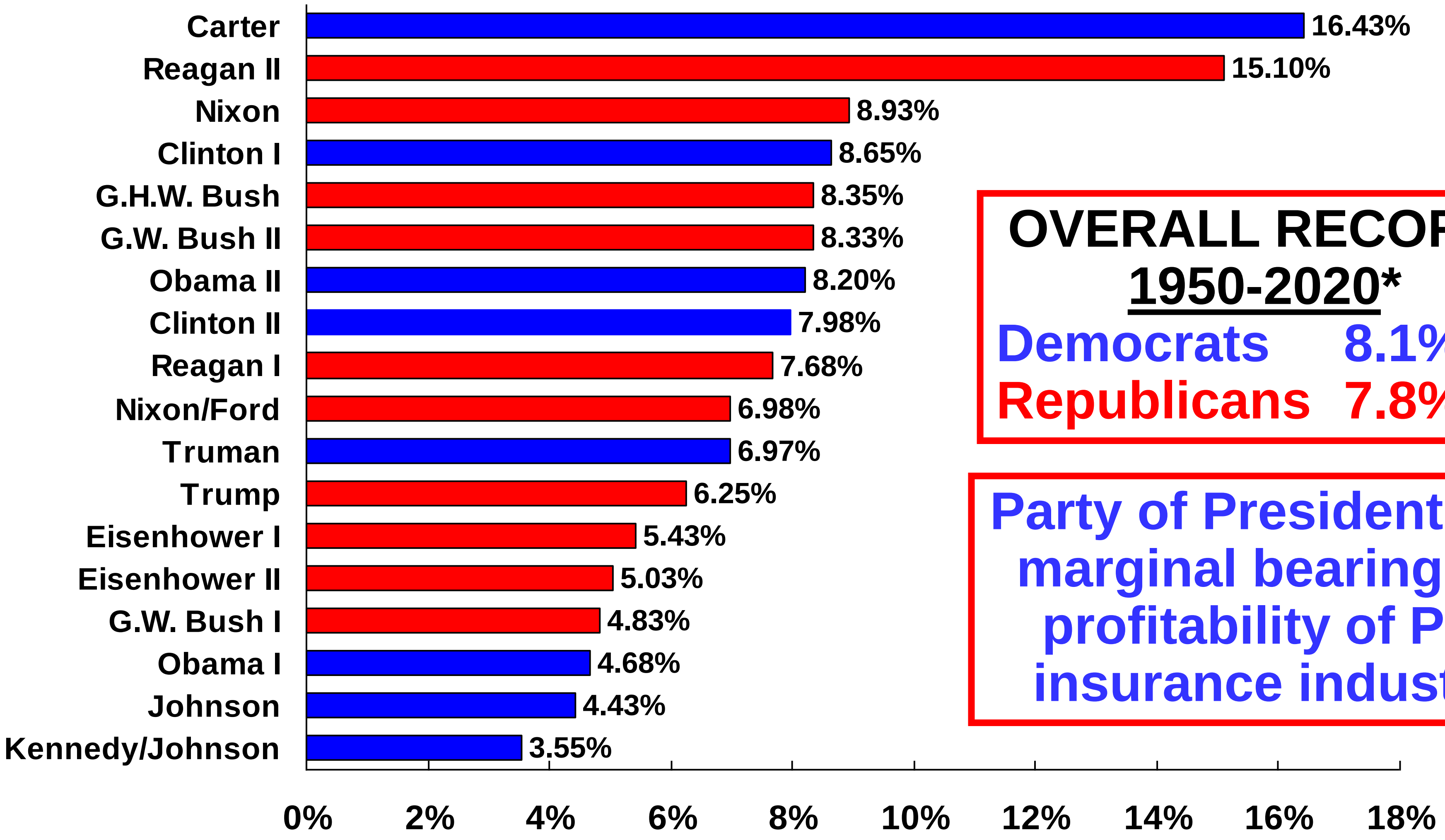


*2020 Fortune 500 figure is an estimate. P/C figure is actual through Q3 2020.
Profitability = P/C insurer ROEs. 2011-20 figures are estimates based on ROAS data. Note: Data for 2008-2014 exclude mortgage and financial guaranty insurers.
Source: NAIC, ISO, *Fortune*.

Profitability & Politics

How Is Profitability Affected by the President's Political Party?

P/C Insurance Industry ROE by Presidential Administration, 1950-2020*



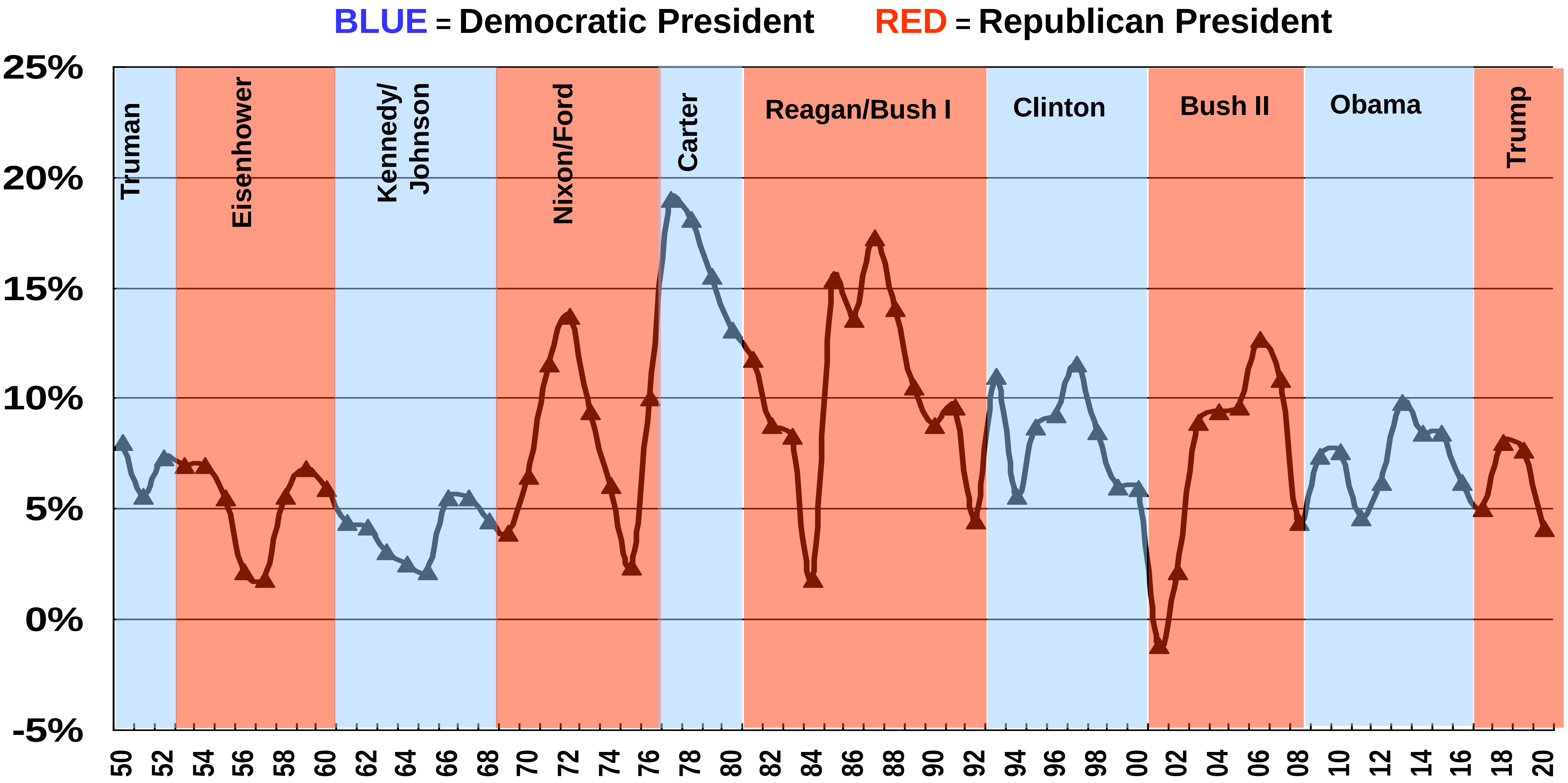
OVERALL RECORD:
1950-2020*

Democrats 8.1%
Republicans 7.8%

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

*Trump figure is 2017-2020:Q3 average. ROEs for the years 2008-2014 exclude mortgage and financial guaranty segments.
Source: Risk and Uncertainty Management Center, University of South Carolina.

P/C insurance Industry ROE by Presidential Party Affiliation, 1950- 2020*



*2020 figure is through Q3. ROEs for the years 2008-2014 exclude mortgage and financial guaranty segments.
Source: Risk and Uncertainty Management Center, University of South Carolina.

Growth and Underwriting Performance

COVID-19 Has Had a Mixed Impact on the P/C Insurance Industry

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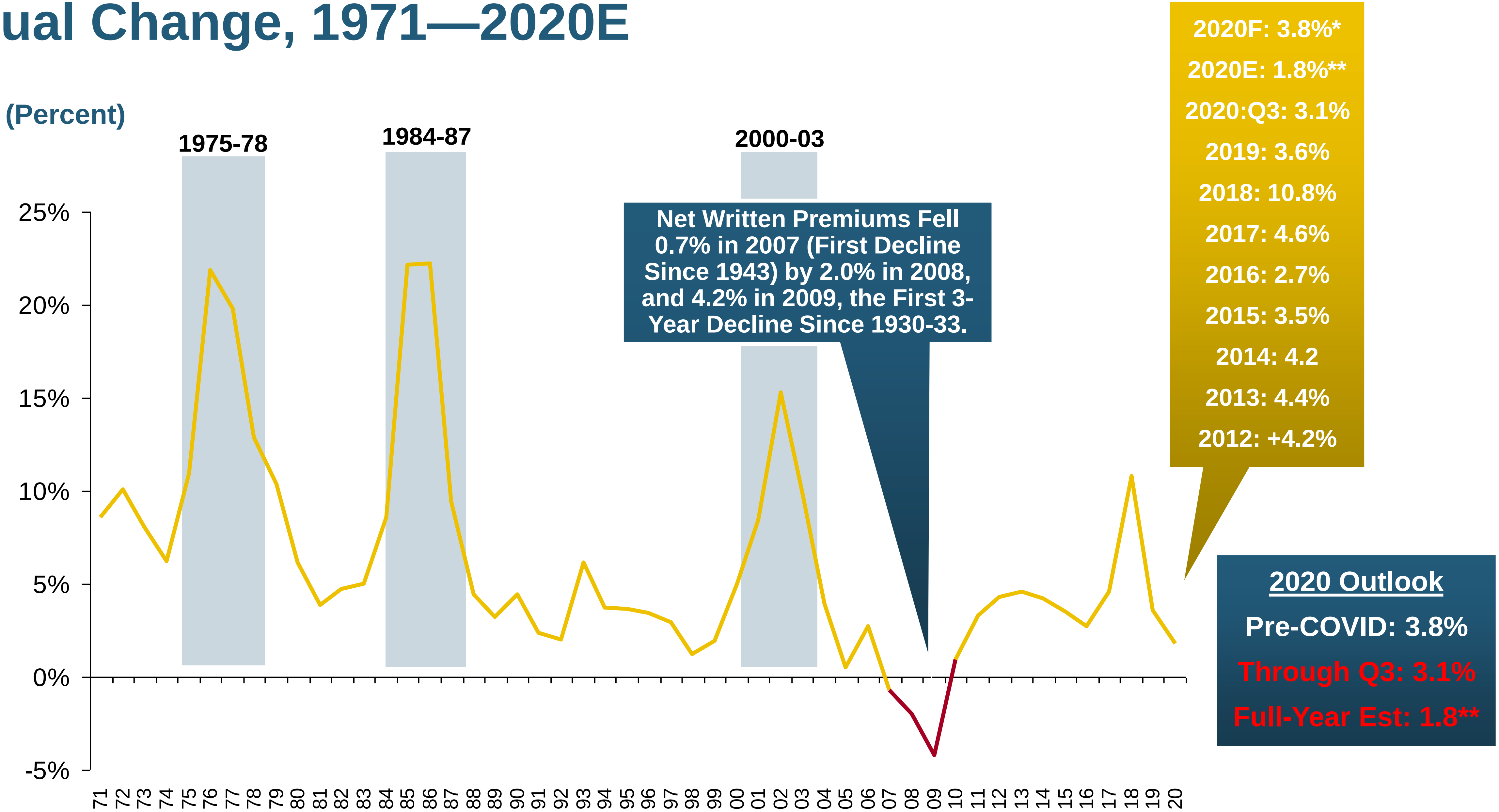
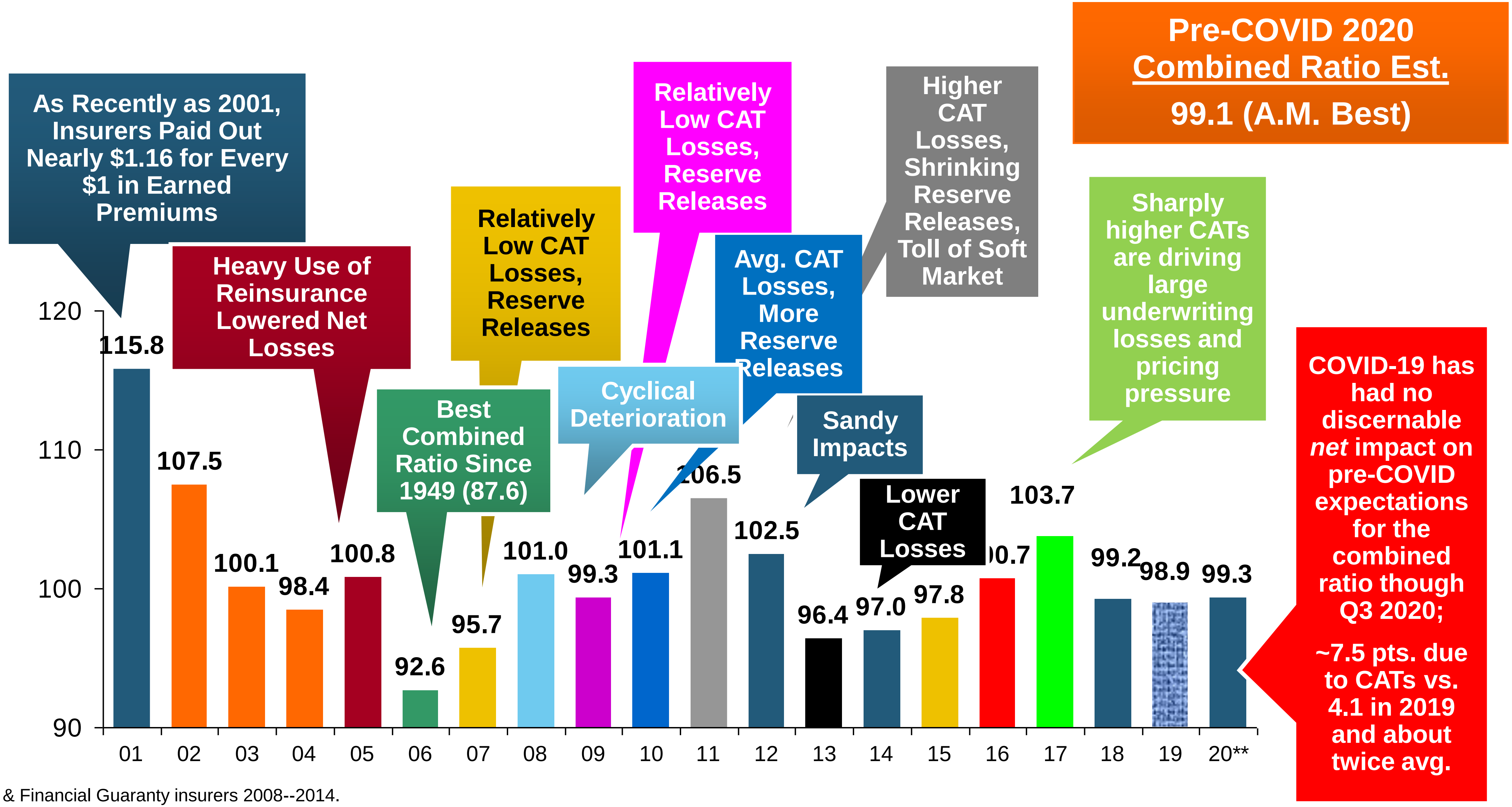
Net Premium Growth (All P/C Lines): Annual Change, 1971—2020E



* **Pre/Post-COVID-19 forecast from A.M. Best Review & Preview (Feb. 2020, 2021). NOTE: Shaded areas denote "hard market" periods
Sources: A.M. Best (1971-2013, 2020F), ISO (2014-19); Risk & Uncertainty Management Center, Univ. of South Carolina .

P/C Insurance Industry Combined Ratio, 2001–2020E**



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

**Estimate from A.M. Best Review and Preview (Feb. 2021). Actual though first 9 months 2020 was 98.7.

Sources: A.M. Best, ISO (2014-2019).

How Have Actual Results Differed from Reality?

A Review of Early Predictions of COVID's Impact on Insurers

US P/C Results Have Generally Been Better than Anticipated

Potential Impacts of COVID-19 on *Written Premium* in 2020, by Key Line

Line	Estimated Premium Impact
Workers Compensation	12.5% to 25% reduction in premium written in 2020 ***(equates to $5.9B to $11.75B DWP)***
Business Interruption & Contingency	7% to 13% reduction in premium volume (US & UK)
General Liability*	$1.5B to $6.3B premium reduction in US
Personal Auto	~$10B in refunds, rebates (equates to ~4% of DWP)
Personal Travel Insurance	29% to 78% reduction in premium written (US & UK)
Personal/Comm. Motor	~10% reduction in US; 0% to 11% reduction in UK
Marine/Aviation/Transport	$0.7B-$1.5B (US); $0.6 - $1.2B (UK)

APRIL/MAY 2020 ESTIMATES

*Includes nursing home professional liability.

Source: Derived from Willis Towers Watson, *Scenario Analysis of COVID-19 Pandemic* (Fig.11, 14), May 2020. and other sources; Risk and Uncertainty Management Center, University of South Carolina.

Potential Impacts of COVID-19 on *LOSSES* in 2020, by Key Line

APRIL/MAY 2020 ESTIMATES

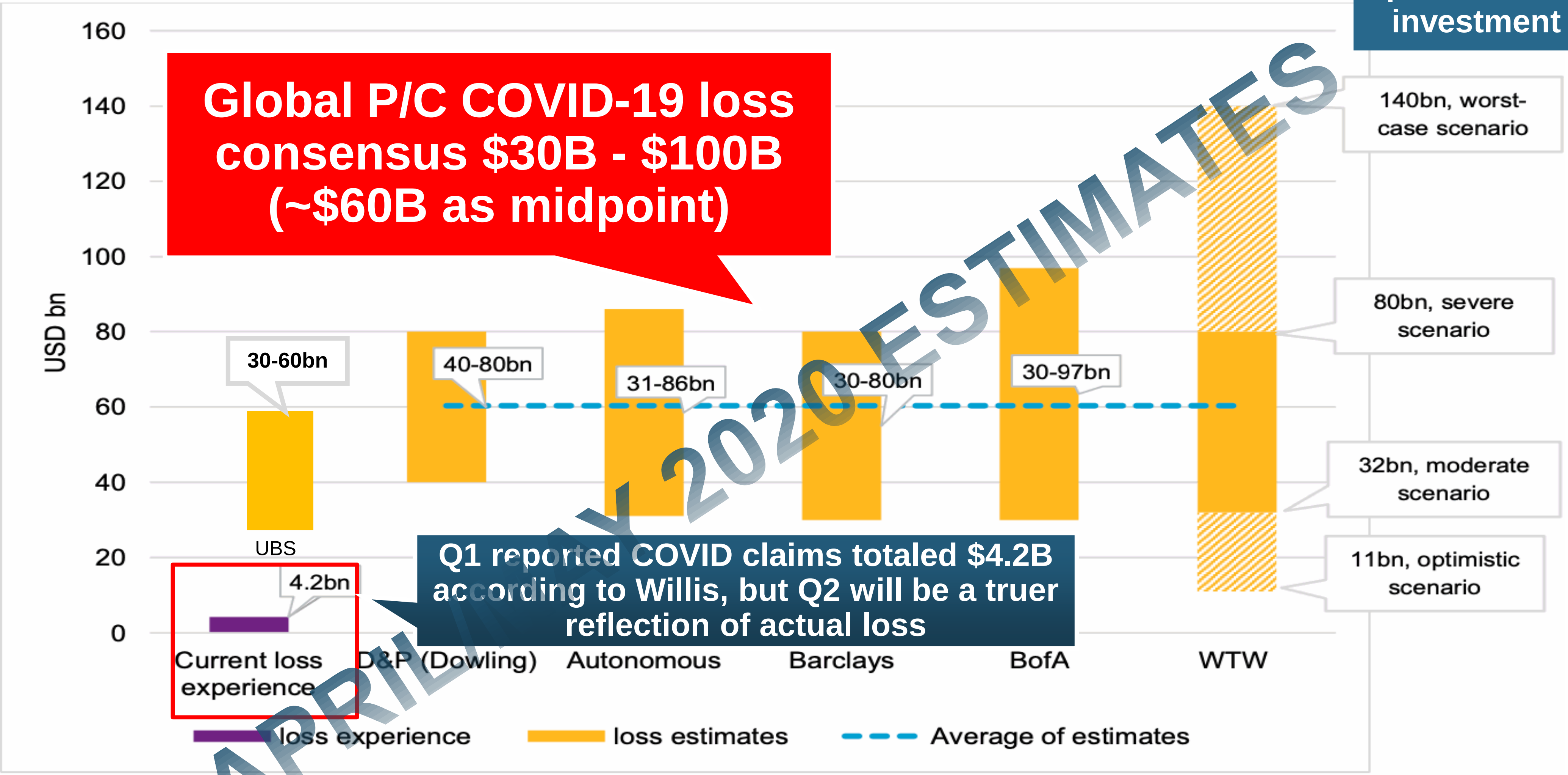
Line	Estimated Loss Impact
Workers Compensation	$0.2B - $92B ***(depends on severity of pandemic and "presumption" determination)***
Business Interruption & Contingency	$2B - $22B (US); $1.1B - $13.9B (UK)
General Liability*	$0.7B to $27B loss across US & Bermuda markets
Personal/Comm. Motor	$26B - $57B reduction in personal auto and $4.2B - $9.4B commercial (US); $1 - $7B overall reduction in UK
Mortgage	$0 - $1.7B loss across US & Bermuda markets
D&O	$0.6 - $4.0 loss across US & Bermuda markets
Marine/Aviation/Transport	$0.3B-$1.3B reduction (US); $0.6 - $1.1B (UK)

*Includes nursing home professional liability.

Source: Derived from Willis Towers Watson, *Scenario Analysis of COVID-19 Pandemic* (Fig.11, 14), May 2020. and other sources; Risk and Uncertainty Management Center, University of South Carolina.

COVID-19 Announced Losses vs. Top-Down Industry Estimates (as of May 12, 2020)

Lloyd's: Says its own p/c claims could reach $4.3B by June 30. Estimates global p/c losses at $107B; Global investment losses = $96B*



*Lloyd's CEO John Neil appearance on CNBC, May 14, 2020: https://www.cnbc.com/2020/05/14/lloyds-of-london-coronavirus-will-be-largest-loss-on-record-for-insurers.html

Sources: Company disclosures, Dowling & Partners, Barclays Research, Autonomous Research, BofA Global Research, UBS Securities, Willis Towers Watson from Artemis.bm accessed at https://www.artemis.bm/news/consensus-emerging-on-30bn-to-100bn-covid-19-industry-loss-willis-re/; Risk and Uncertainty Management Center, University of South Carolina.

Reasons Why P/C Insurance Worst-Case COVID Scenarios Failed to Materialize (*So Far*)

- **Economic Recovery Proceeding More Quickly than Anticipated**
- **Rapid Financial Market Recovery (*and then some…*)**
- **Massive Government Stimulus and Accommodative Fed Policy**
- **Worst-Case Epidemiological Outcome Avoided**
- **Record Pace of Vaccine Development**
- **Employers Did a Reasonably Good Job Protecting Workers from Exposure**
- **Many States Did Not Repeat Spring 2020 Lockdowns**
- **Litigation Outcomes Generally Favor Insurers**
- **WC Presumption Expansions Did Not Lead to Explosion in Claims**
- **Offsetting Exposure Reductions in Many Lines**

BUT…
There Is No Questions that the Economic Consequences of COVID Are Massive and Ongoing

The Economic Costs of COVID Vastly Outstrip the Insured Loss Component

Viral Outbreaks Are Not An Insurable Risk

Pandemics are frequent, severe, and widespread (7 pandemics with multi-billion$ economic losses in just the last 18 years)

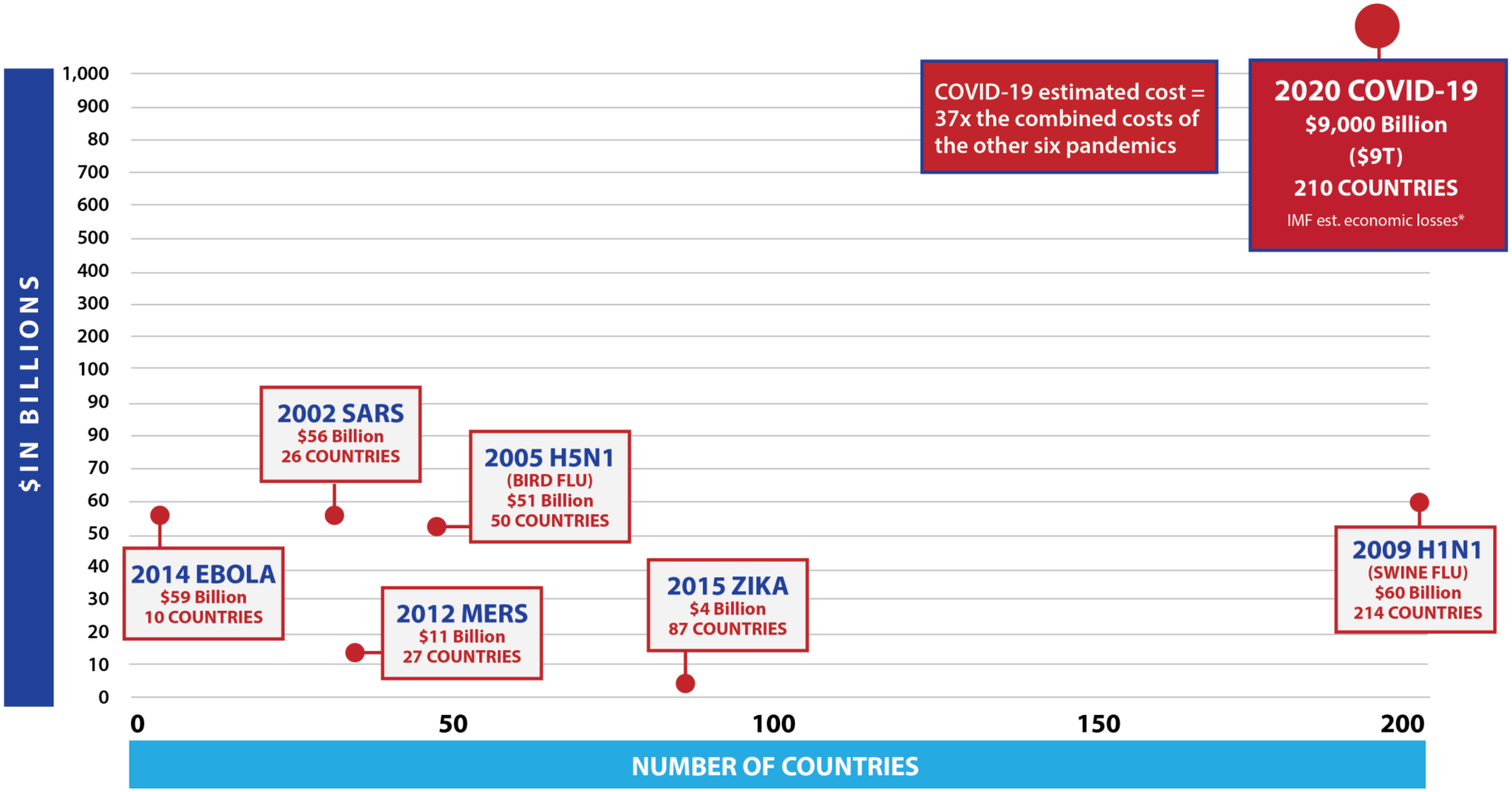
For Reference

2005 Katrina $58 Billion

2001 9/11 $48 Billion

(insured losses)

Economic Losses from Pandemics

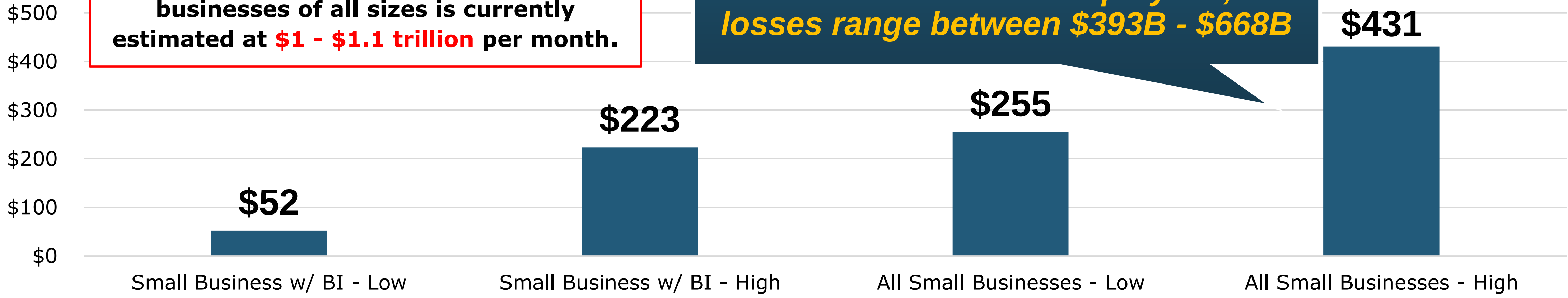


*Sources: APCIA using published reports, including IMF, World Bank, Learnbonds.com; APCIA adjustment to 2020 USD

Estimated Monthly U.S. Business Interruption Coronavirus Losses for Small Business—Potential Range (<100 Employees; $Bill)

Monthly BI losses for small business vary widely depending on underlying assumptions but expansive legislation would result in higher estimates; *For all businesses <500 employees, BI losses range between $393B - $668B*

The potential for such losses for all businesses of all sizes is currently estimated at $1 - $1.1 trillion per month.



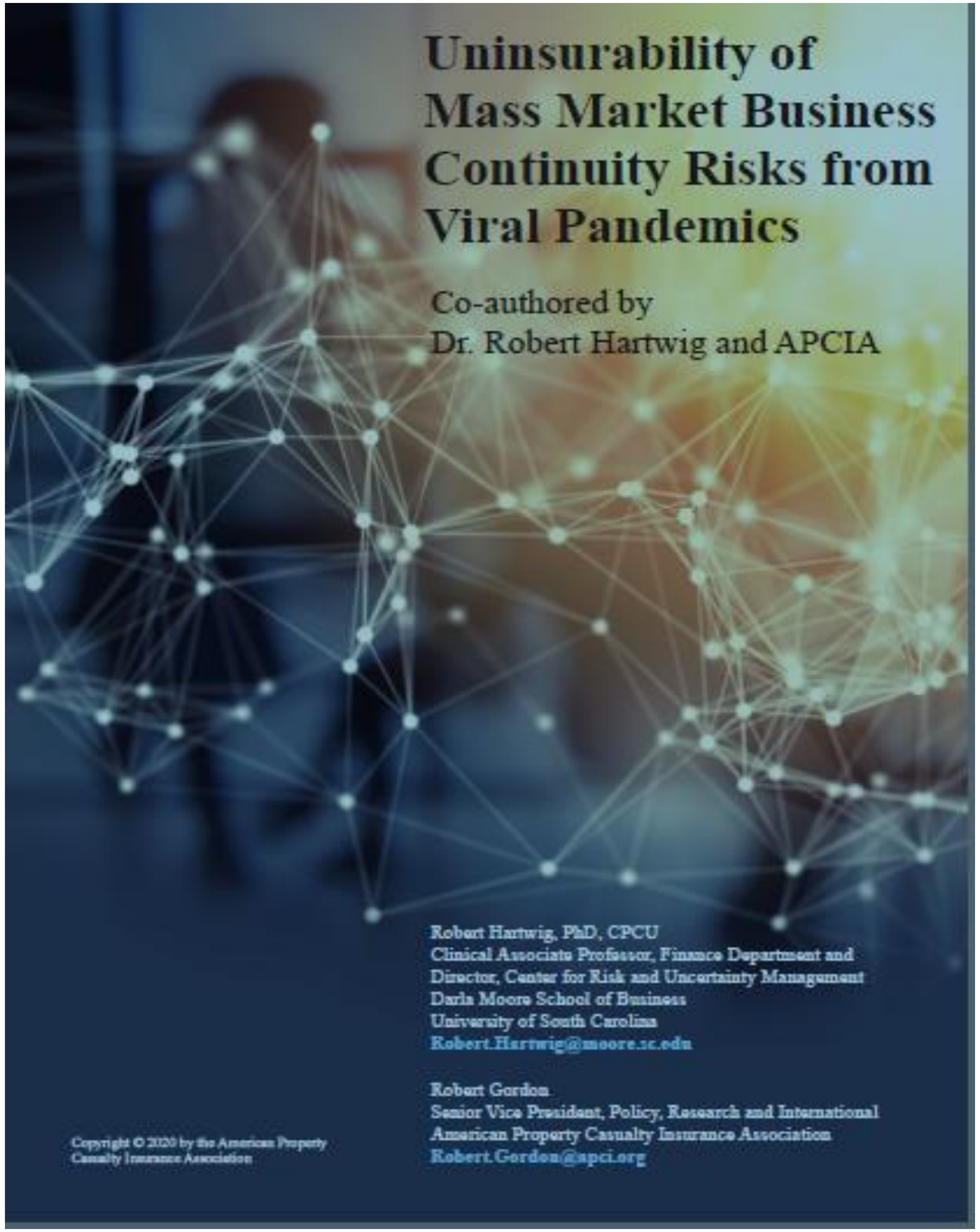
Small Business w/ BI - Low	Small Business w/ BI - High	All Small Businesses - Low	All Small Businesses - High
60% Businesses impacted* 10% of Payroll for additional expenses 33.3% Have BI coverage 50% Have BI payroll/benefits coverage	90% Businesses impacted* 30% of Payroll for additional expenses 60% Have BI coverage 80% Have BI payroll/benefits coverage	60% Businesses Impacted* 10% of Payroll for additional expenses	90% Businesses impacted* 30% of Payroll for additional expenses

* Businesses impacted: Proportion of businesses completely or substantially closed related to coronavirus
Assumptions: Losses if standard insurance policy exclusions for viruses/pandemics are voided and physical loss/damage requirement is stricken; three main coverages - profit lost, payroll/benefits, additional expenses; average annual $2m revenue and 7% profit margin; non-wage benefits of small businesses are 25% less than that for average US businesses

Source: APCIA, April 2020.

Paper on Insurability of Pandemic Risk

- **Large scale business continuity risks from pandemics are generally note insurable in the private sector**
- **Business continuity risks are largely undiversifiable within private insurance markets and are highly correlated with other risks (e.g., investment risks)**
- **Large scale business continuity losses pose a potentially systemic risk to the industry and overall economy**
- **Import role for government**



Download at: https://www.uscriskcenter.com/wp-content/uploads/2020/05/Uninsurability-of-Pandemic-Risk-White-Paper-Hartwig-APCIA-FINAL-WORD.pdf

Government Mandated Business Closures Were the Real Black Swan, Not the Coronavirus

- The US (and world) has endured several other major infectious disease outbreaks killing 100,000+ Americans without shutting down the economy
    - Hong Kong Flu (1968-70)
    - Asian Flu (1957-58)

- It is the reaction to the virus that is unprecedented and represents the *true* Black Swan event
- The ramifications of this decision will be consequential for a generation (e.g., $4 trill. in debt)

Sources: CDC; Risk and Uncertainty Management Center, University of South Carolina

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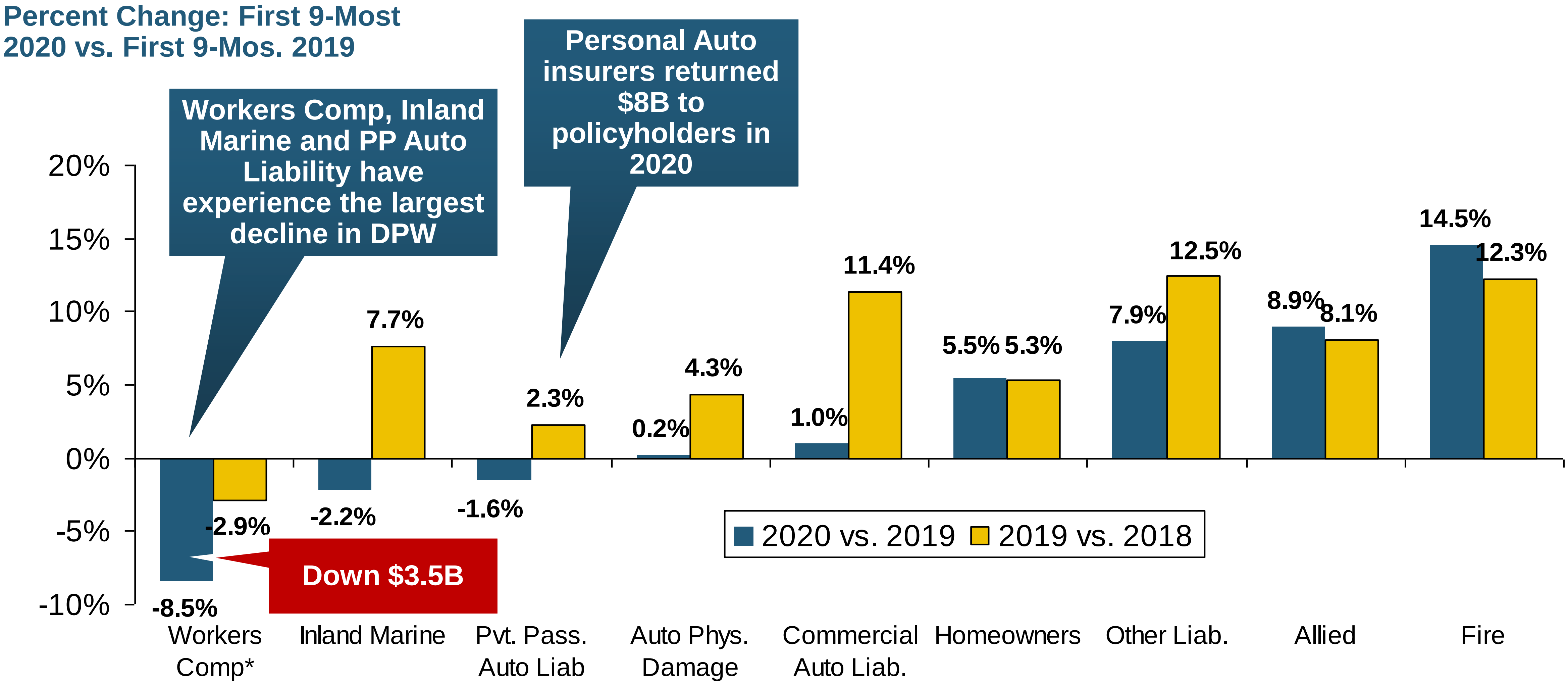
COVID-19: Impacts on Premiums and Claims

Economically Sensitive Commercial Lines Were Most Impacted in Terms of Growth

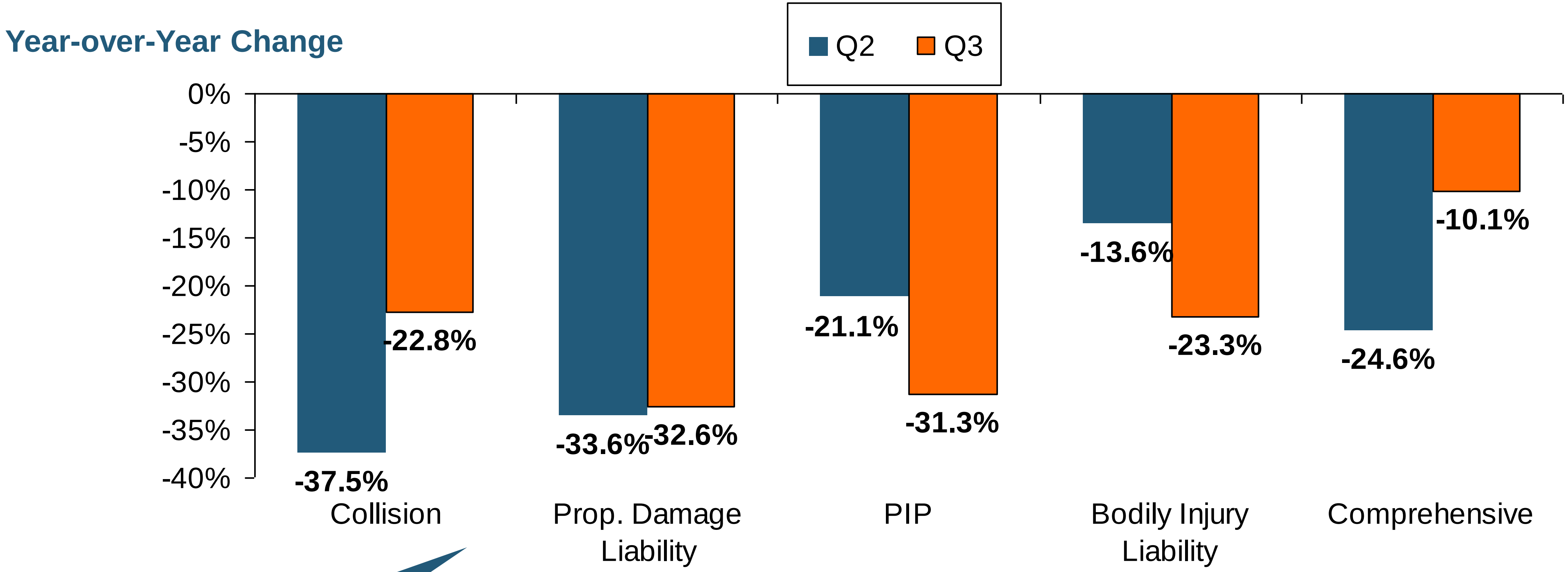
Auto Claims Plunged During the Early Stage of COVID—Will Claims Spike as the Economy Recovers?

COVID's Impact on DPW Growth for Largest P/C Lines: First 9-Mos. 2020 and 2019 vs. Same Period Previous Year



Source: A.M. Best, First Look: *9-Month 2020 P/C Financial Results*; Risk and Uncertainty Management Center, Univ. of South Carolina.

Personal Auto Claim Frequency Trends Significantly Impacted by COVID: Q2 and Q3 2020 vs. Q2 and Q3 2019



Collision and PD Liability claims plunged by more than 1/3

Auto Claims Fell Sharply at the Height of the Pandemic, at least through Q3 2020

Source: ISO/PCI *Fast Track* data for Q3 2020; Risk and Uncertainty Management Center, Univ. of South Carolina.

Catastrophe Loss Update:
Major Driver of Rate Pressure

The 2020s Got Off to an Ominous Start

CAT Losses for the 2010s Were Up Materially—Costliest Ever

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

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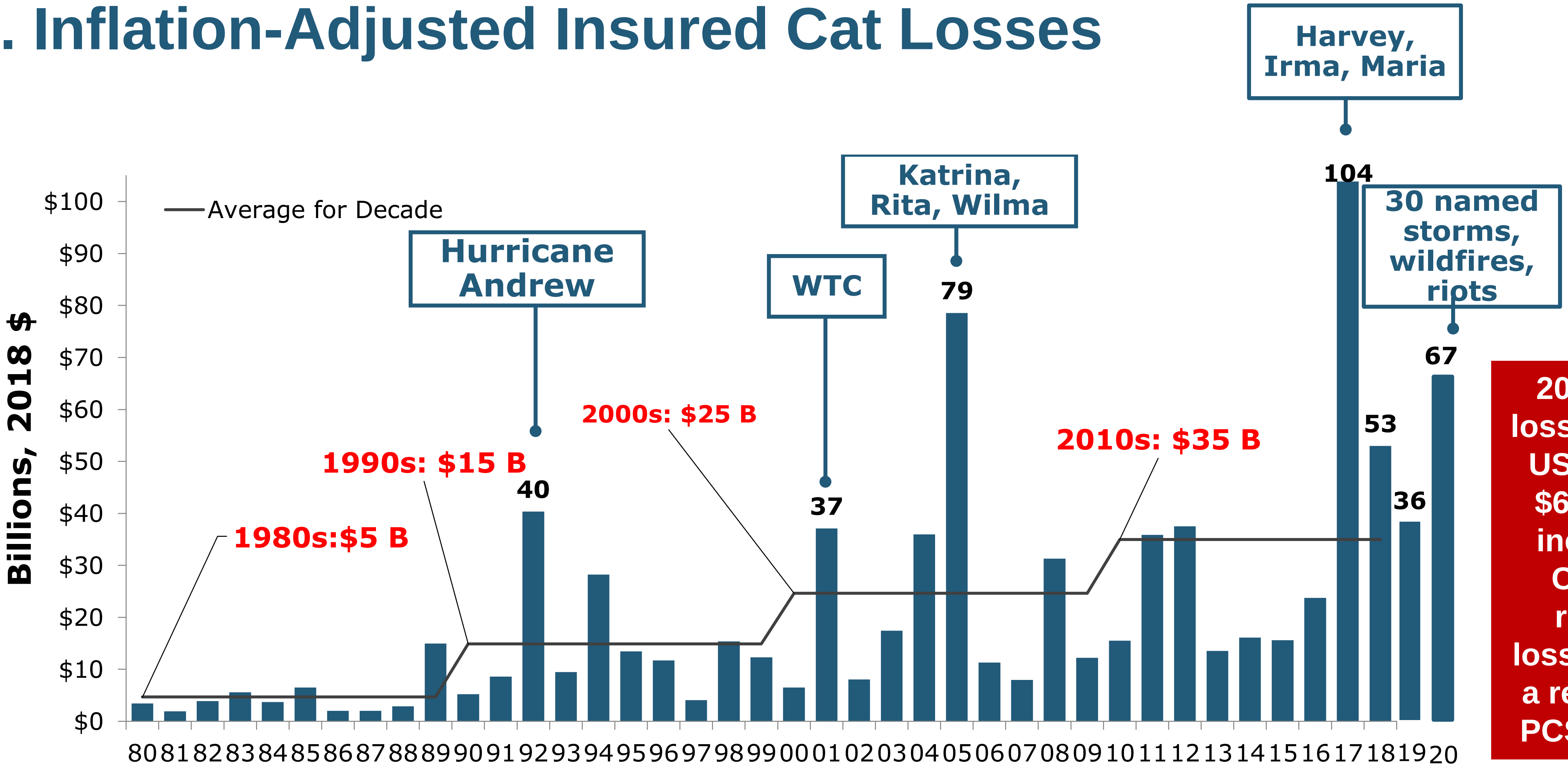
2020 U.S. Insured Catastrophe Highlights

- $67B in insured nat CAT losses—(3rd costliest year ever behind 2017, 2005)
- 71 designated PCS CATs, the most in PCS's 72-year history
- 10 declared hurricane/TS events, a PCS record (30 named storms in 2020)
  - ~$26B insured losses in North America
- 17 declared wildfire events, a new record (6 events in 2017 = previous record)
  - ~$11B insured
- ~5 million CAT claims
- 18 PCS events with insured losses > $1B, a new record
- ~$1.5B in insured riot losses + other unusual manmade events (Nashville)

February 2021 winter storm and extreme cold in the south caused an estimated $10B - $20B in insured losses

U.S. Inflation-Adjusted Insured Cat Losses



2020 CAT losses in the US totaled $67B (not including COVID-related losses) from a record 71 PCS events

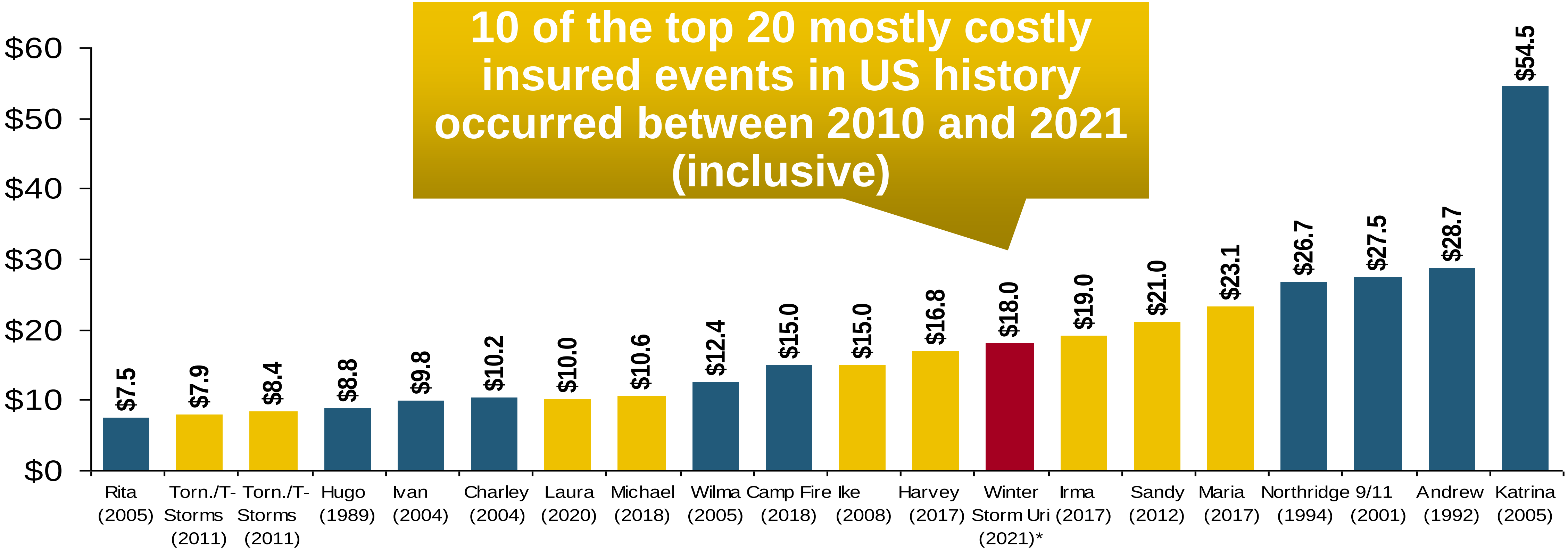
Average Insured Loss per Year for 1980-2020 is $22.2 Billion

2021 is off to an ominous start with ~$18B in estimated insured losses from Winter Storm Uri

Sources: Property Claims Service, a Verisk Analytics business (1980-2019); 2020 figure from Munich Re; Insurance Information Institute; University of South Carolina, Risk & Uncertainty Management Center.

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

(Insured Losses, 2020 Dollars, $ Billions)*

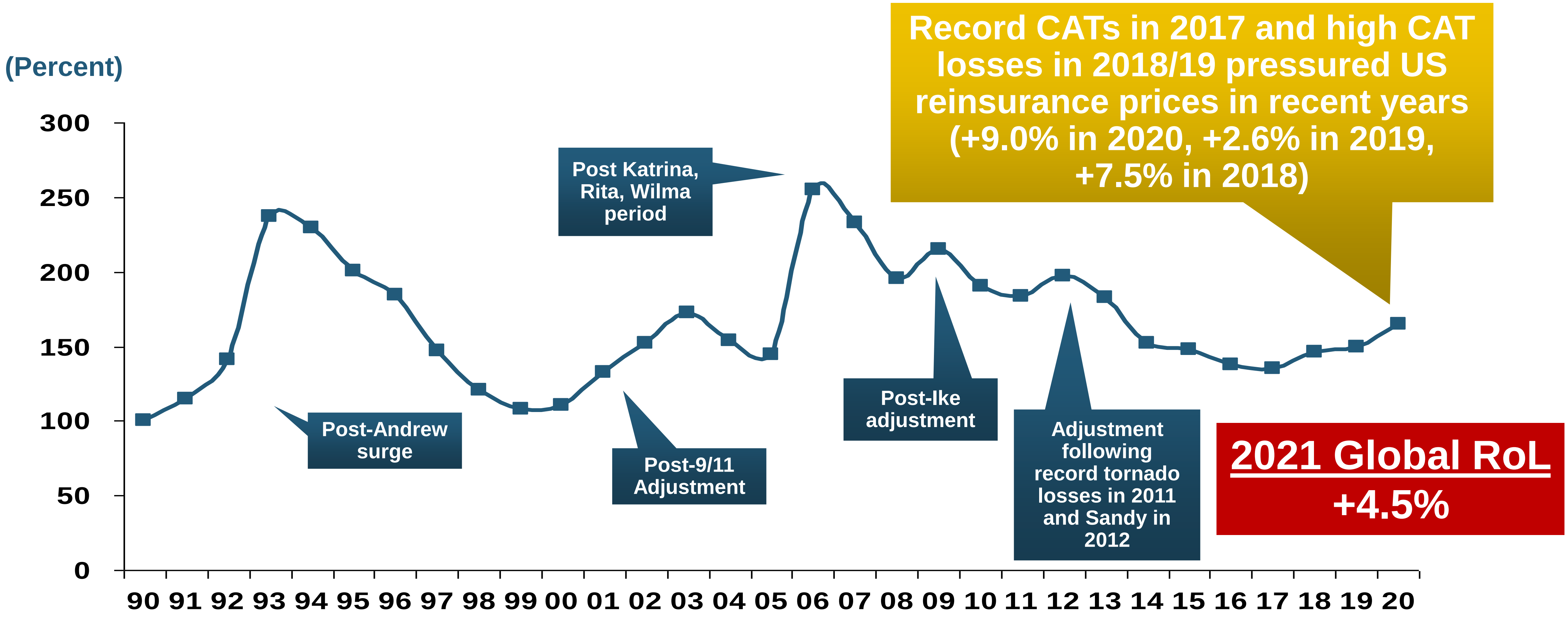


17 of the 20 Most Expensive Insurance Events in US History Have Occurred Since 2004

*Estimated (in 2021 dollars)

Sources: PCS, RMS, Karen Clark & Co; USC Center for Risk and Uncertainty Management adjustments to 2020 dollars using the CPI.

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



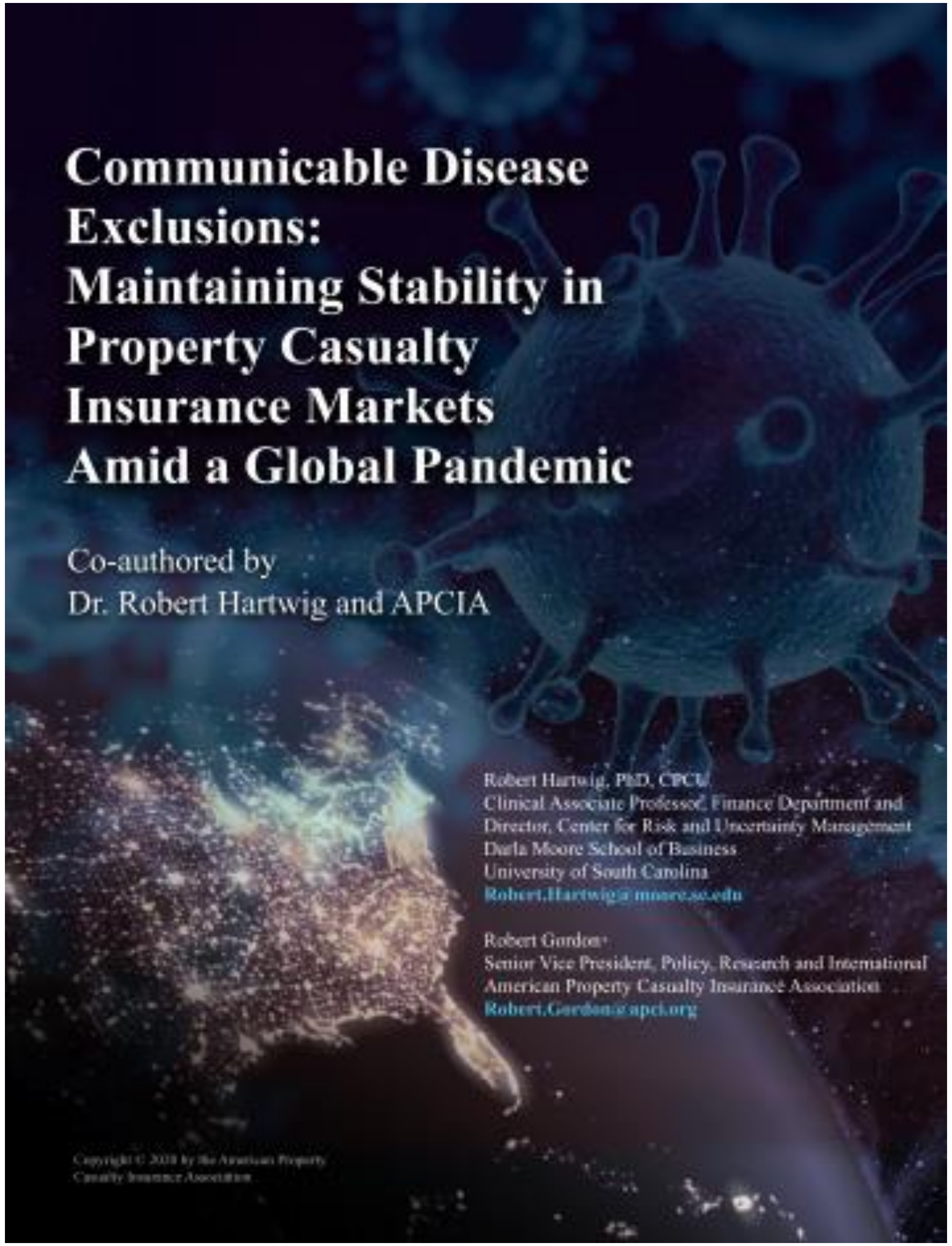
US Reinsurance Pricing Is Sensitive to CAT Activity and Ultimately Impacts Primary Insurance Pricing, Terms and Conditions.

*As of January 1 each year.

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

Paper on Communicable Disease Exclusions and Market Stability

- **CD exclusions are becoming more commonplace in reinsurance treaties**
- **Regulators are generally not approving primary insurers filings for exclusions in underlying primary policies**
- **Paper addresses the global factors (e.g., accumulation risk, risk aversion, uninsurability) driving the exclusions**
- **Also addresses market consequences if misalignment persists**



Download at: https://www.uscriskcenter.com/wp-content/uploads/2020/08/CD_Exclusion_Whitepaper-Aug-2020-No-Typo.pdf

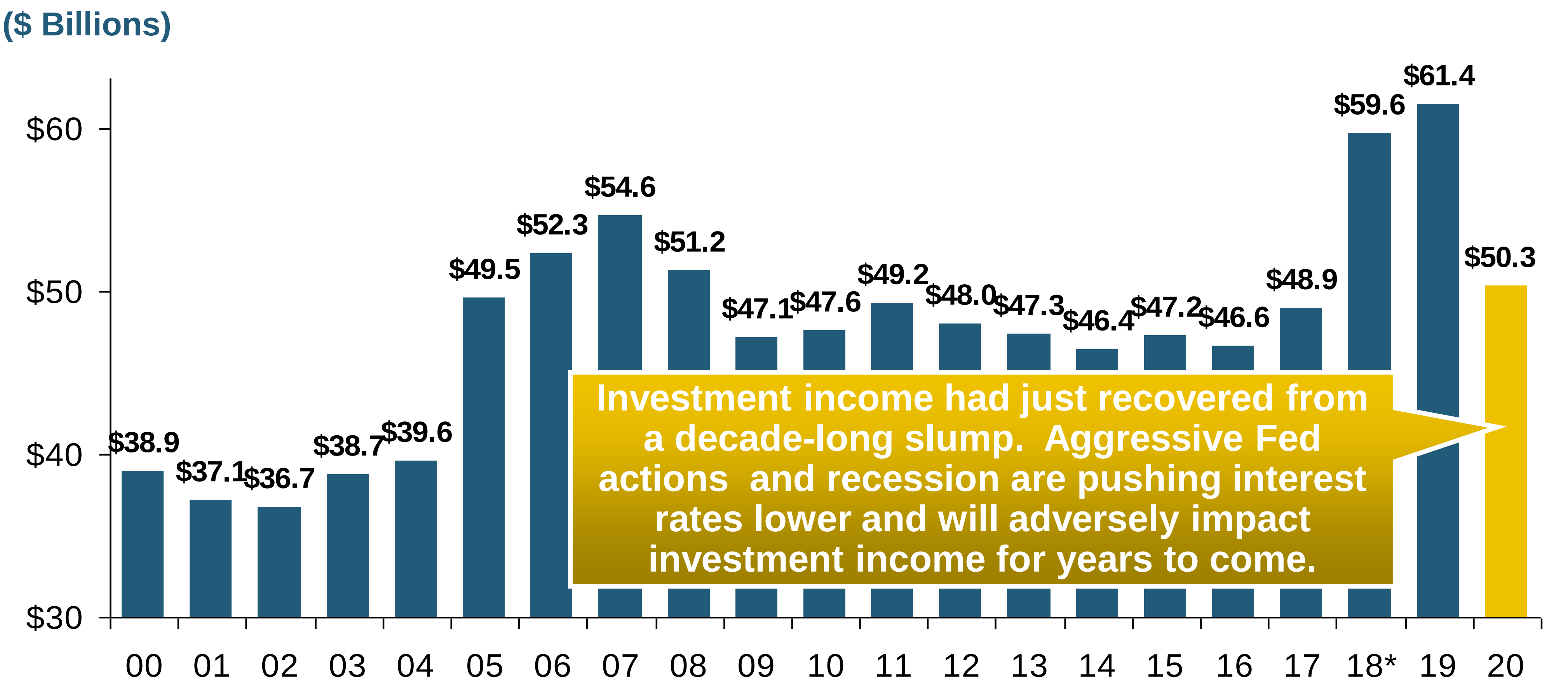
INVESTMENTS:
THE NEW REALITY

Investment Performance Is a Key Driver of Insurer Profitability

Aggressive Rate Cuts Will Adversely Impact Invest Insurer Earnings

Financial Crisis *Déjà Vu*?

Property/Casualty Insurance Industry Investment Income: 2000–2020E

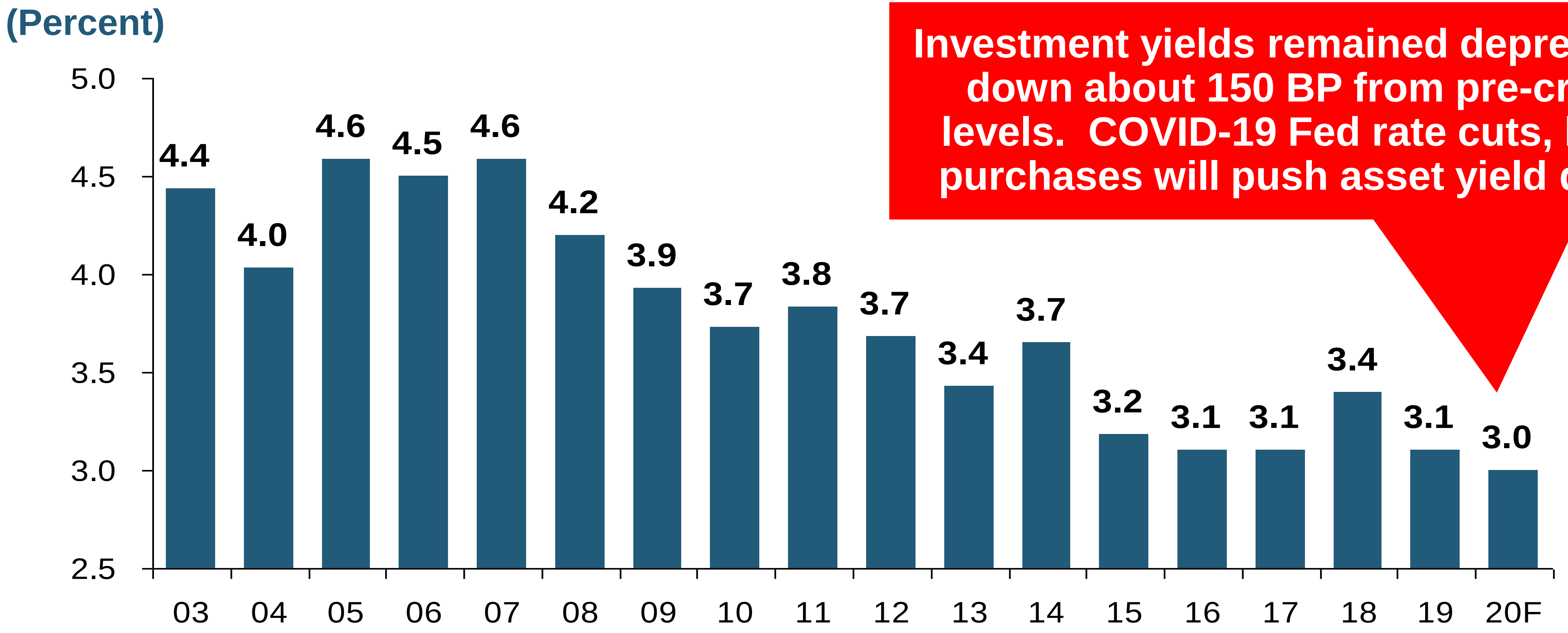


Due to persistently low interest rates, investment income remained below pre-crisis levels for a decade. Lower interest rates post-COVID will drive investment income down once again.

*2020 figure is annualized based on YTD Q3 actual of $37.7B. 2018-19 figures are distorted by provisions of the TCJA of 2017. Increase reflects such items as dividends from foreign subsidiaries.

[1] Investment gains consist primarily of interest and stock dividends. Sources: ISO; University of South Carolina, Center for Risk and Uncertainty Management.

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



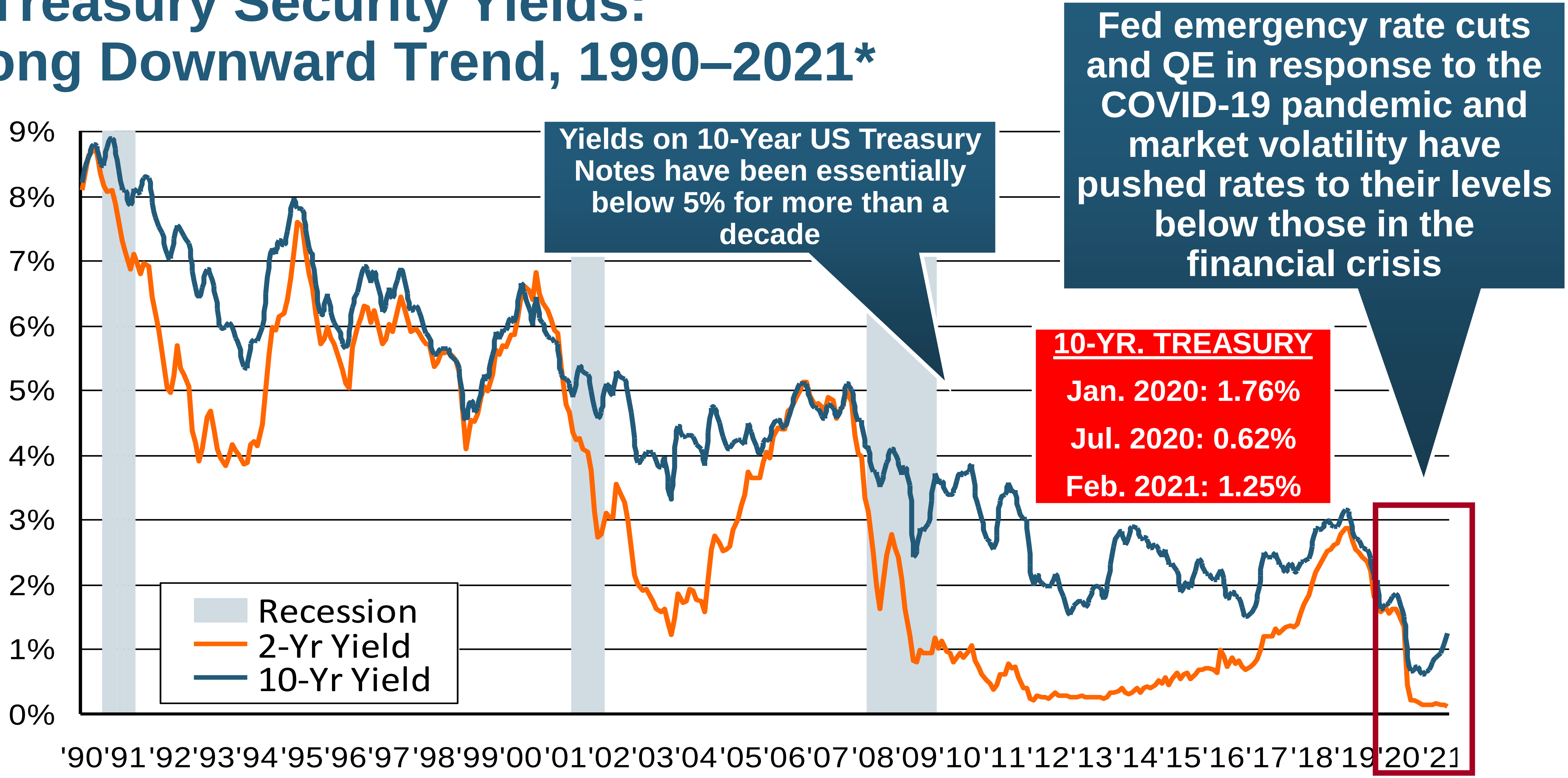
Investment yields remained depressed--down about 150 BP from pre-crisis levels. COVID-19 Fed rate cuts, bond purchases will push asset yield down

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 2019/2020 will preclude future gains

Average: 1960-2019 = 4.9%
Low: 2.8% (1961)
High: 8.2% (1984/85)

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.

US Treasury Security Yields: A Long Downward Trend, 1990–2021*

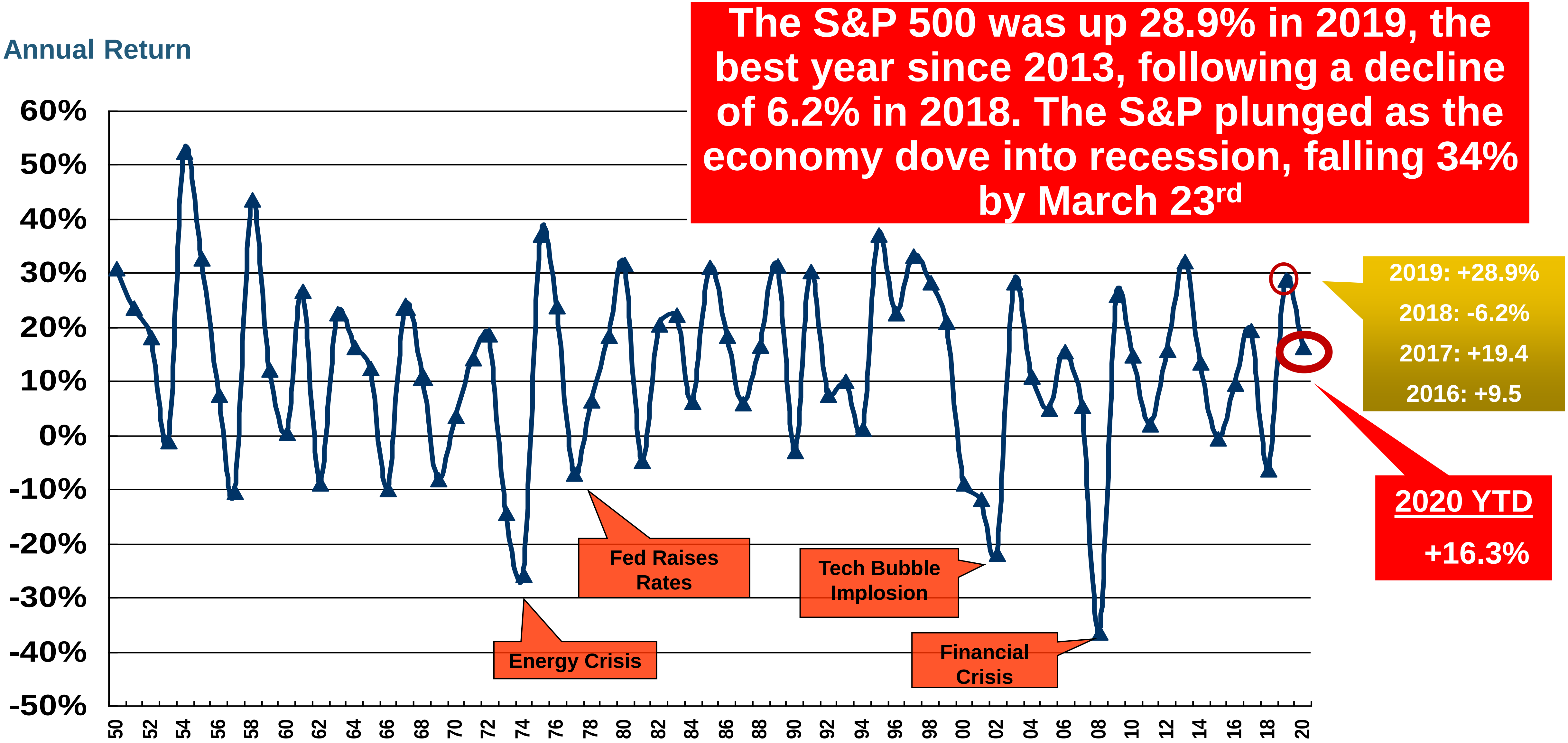


Since roughly 80% of P/C bond/cash investments are in 10-year or shorter durations, most P/C insurer portfolios will have low-yielding bonds for many years to come.

*Monthly, constant maturity, nominal rates, through Feb. 2021.

Sources: Federal Reserve Bank at http://www.federalreserve.gov/releases/h15/data.htm. National Bureau of Economic Research (recession dates); Risk and Uncertainty Management Center, University of South Carolina.

S&P 500 Index Returns, 1950–2020*



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*Through Dec. 31, 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

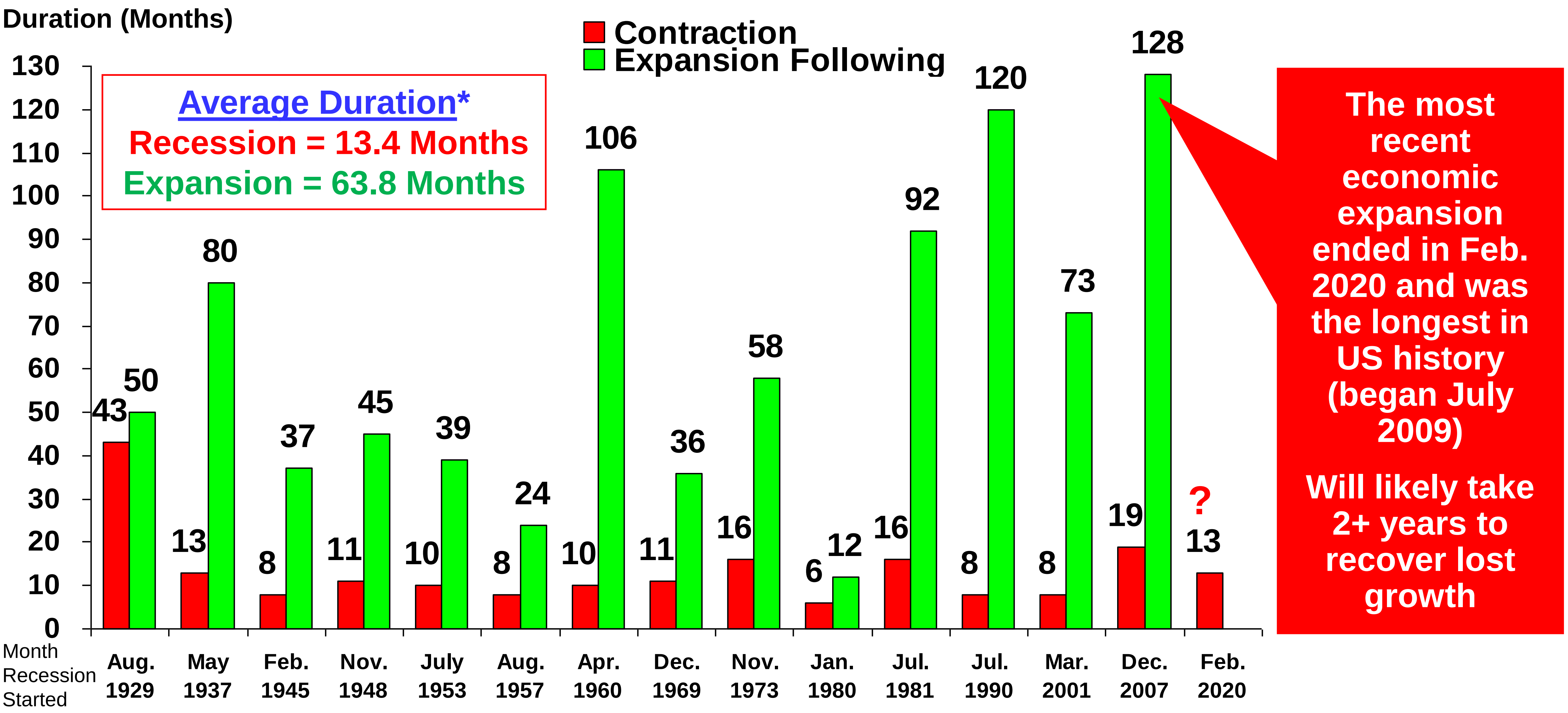
THE ECONOMY

COVID-19 Pandemic Will Directly and Severely Impact Growth As Exposure Growth Rapidly Shrinks

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

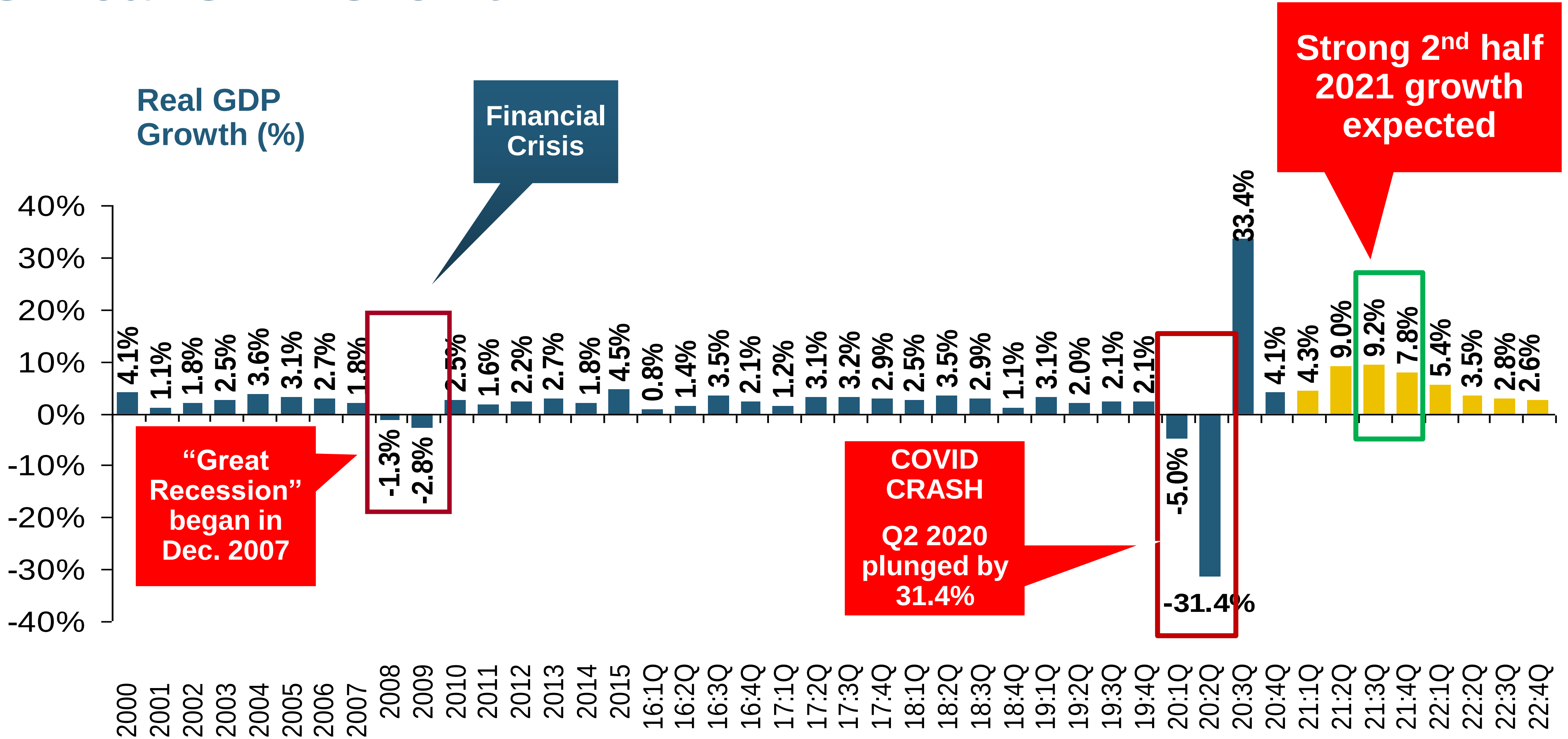
Length of US Business Cycles, 1929-Present*



* Excludes current COVID-19 recession which began in Feb. 2020 but with an indeterminate end.

Sources: National Bureau of Economic Research; Risk and Uncertainty Management Center, University of South Carolina.

US Real GDP Growth*

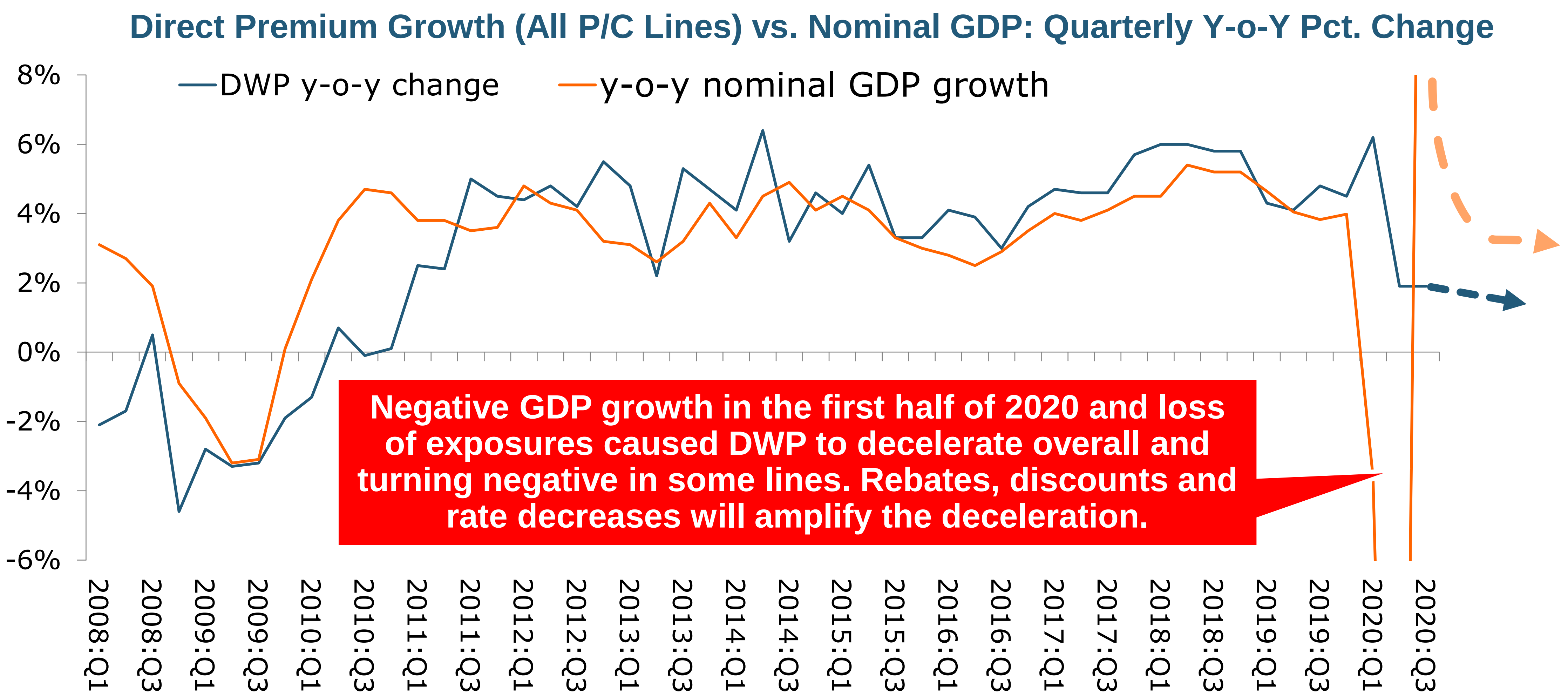


Demand for Insurance Will Increase Materially in H2 2021—Particularly in Economically Sensitive Commercially Lines Such as WC

* Estimates/Forecasts from Wells Fargo Securities.

Source: US Department of Commerce, Wells Fargo Securities 3/21; Center for Risk and Uncertainty Management, University of South Carolina.

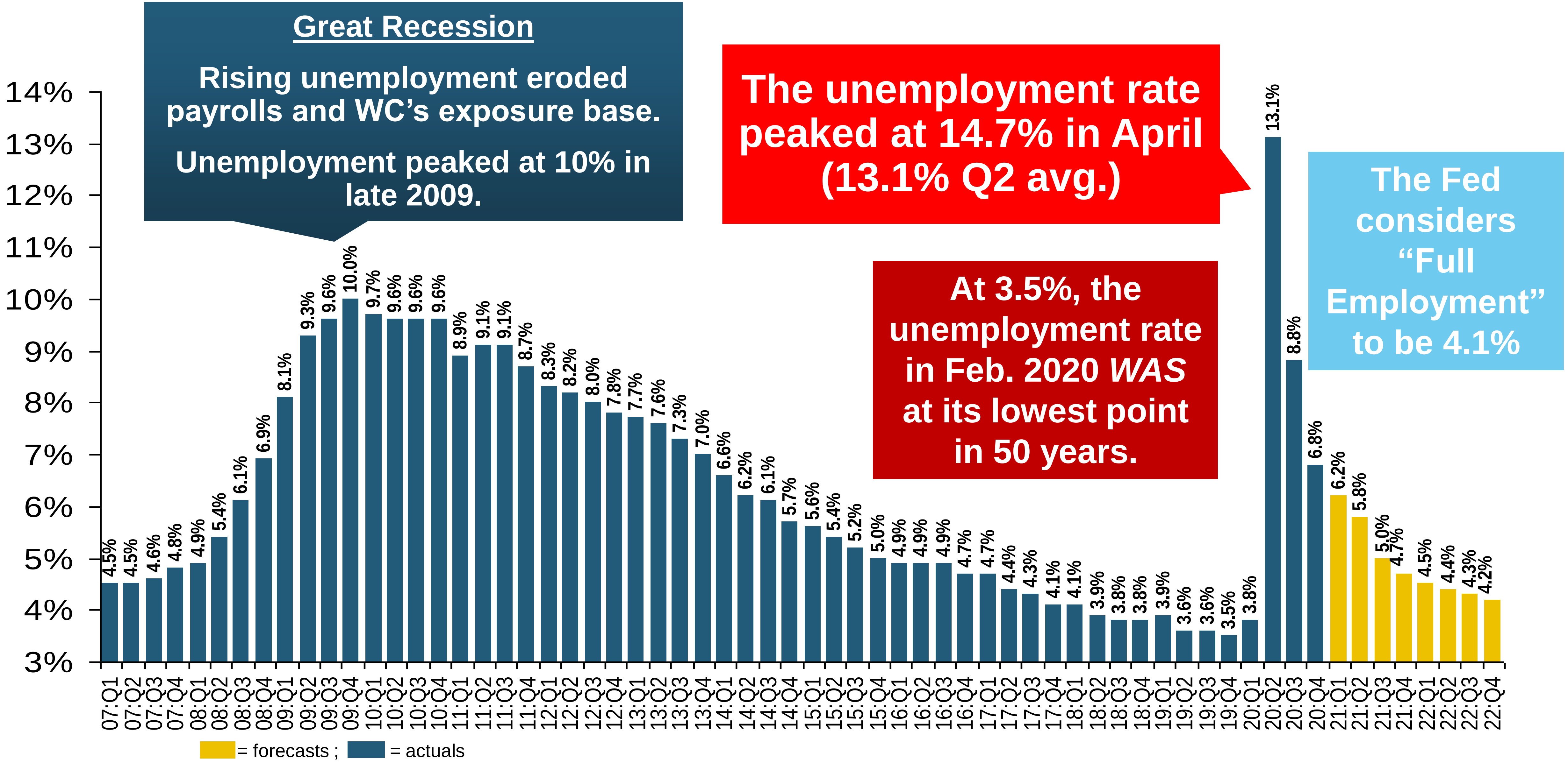
The Economy Drives P/C Insurance Industry Premiums: 2006:Q1–2020:Q3*



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

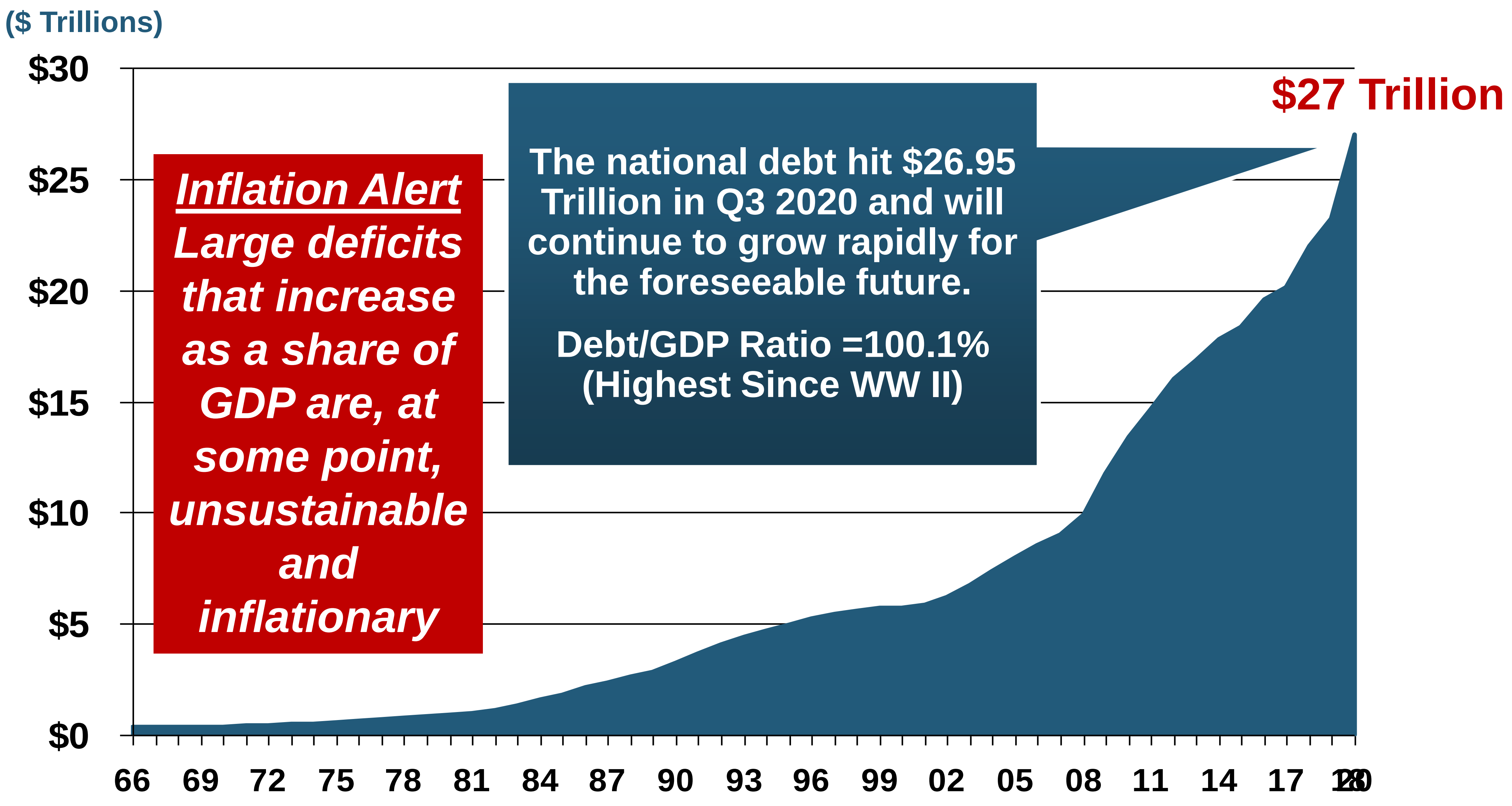
Sources: SNL Financial; U.S. Commerce Dept., Bureau of Economic Analysis; ISO; I.I.I.; Risk and Uncertainty Management Center, University of South Carolina.

US Unemployment Rate Forecast: 2007:Q1–2022:Q4



Sources: US Bureau of Labor Statistics; Wells Fargo Securities (3/21 edition); Risk and Uncertainty Management Center, University of South Carolina.

U.S. National Debt, 1966 – 2020:Q3

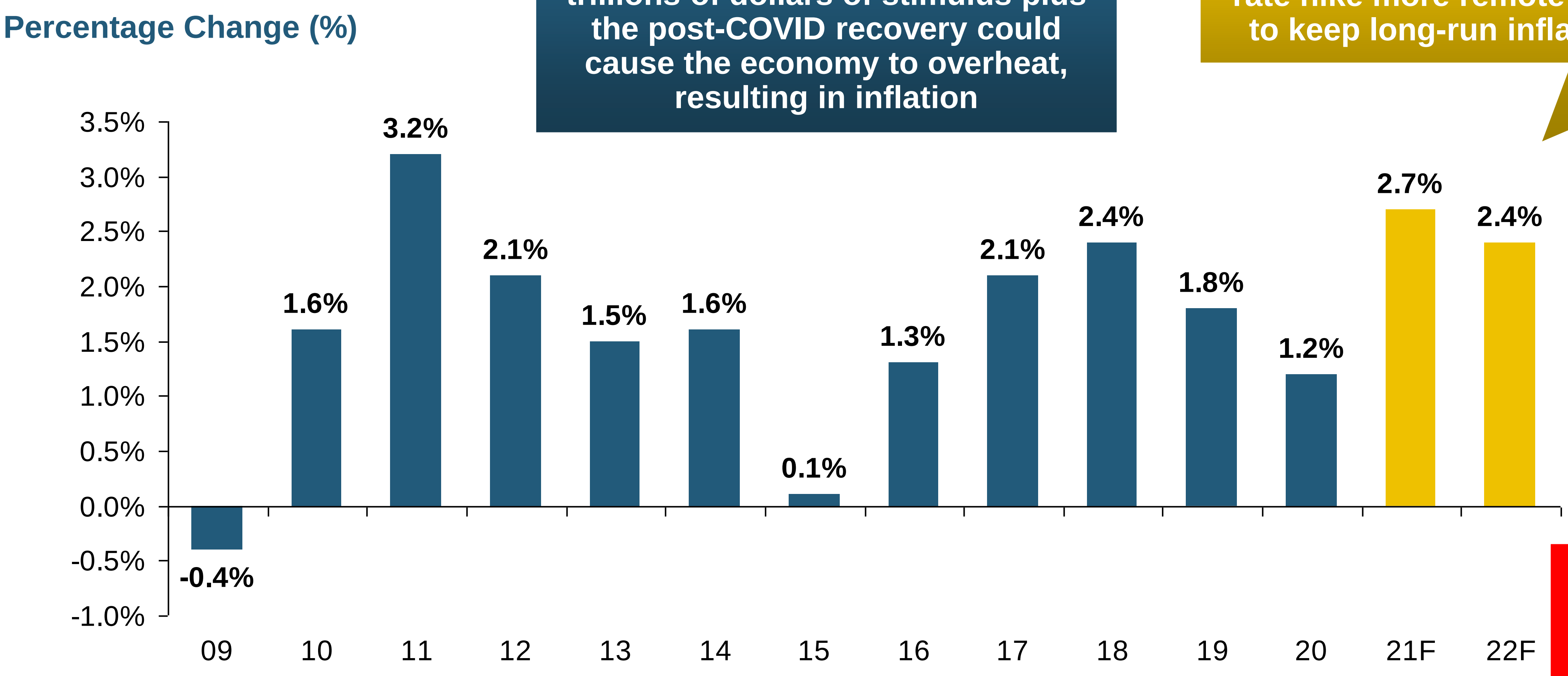


Source: Congressional Budget Office; Federal Reserve Bank of St. Louis: https://fred.stlouisfed.org/series/GFDEGDQ188S

U.S. Inflation Rate: 2009-2022F*

There's a great deal of concern that trillions of dollars of stimulus plus the post-COVID recovery could cause the economy to overheat, resulting in inflation

Inflation is expected to accelerate sharply in 2021—though diminish thereafter—making the case for a Fed rate hike more remote (Fed is looking to keep long-run inflation rate ~2%)



Insurer Concerns About Inflation

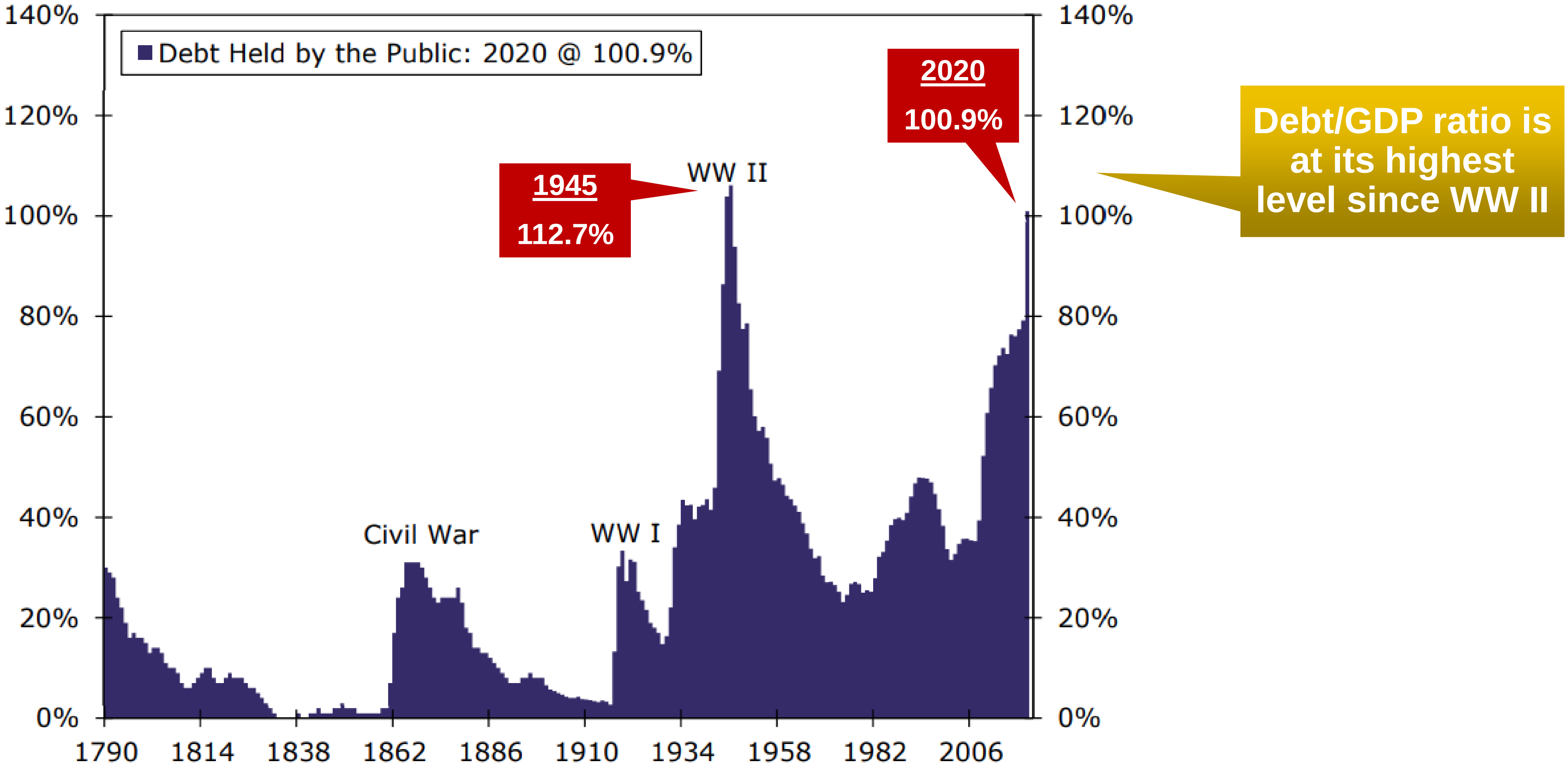
Rate Inadequacy

Reserve Inadequacy

*Annual change in Consumer Price Index for All Urban Consumers (CPI-U).

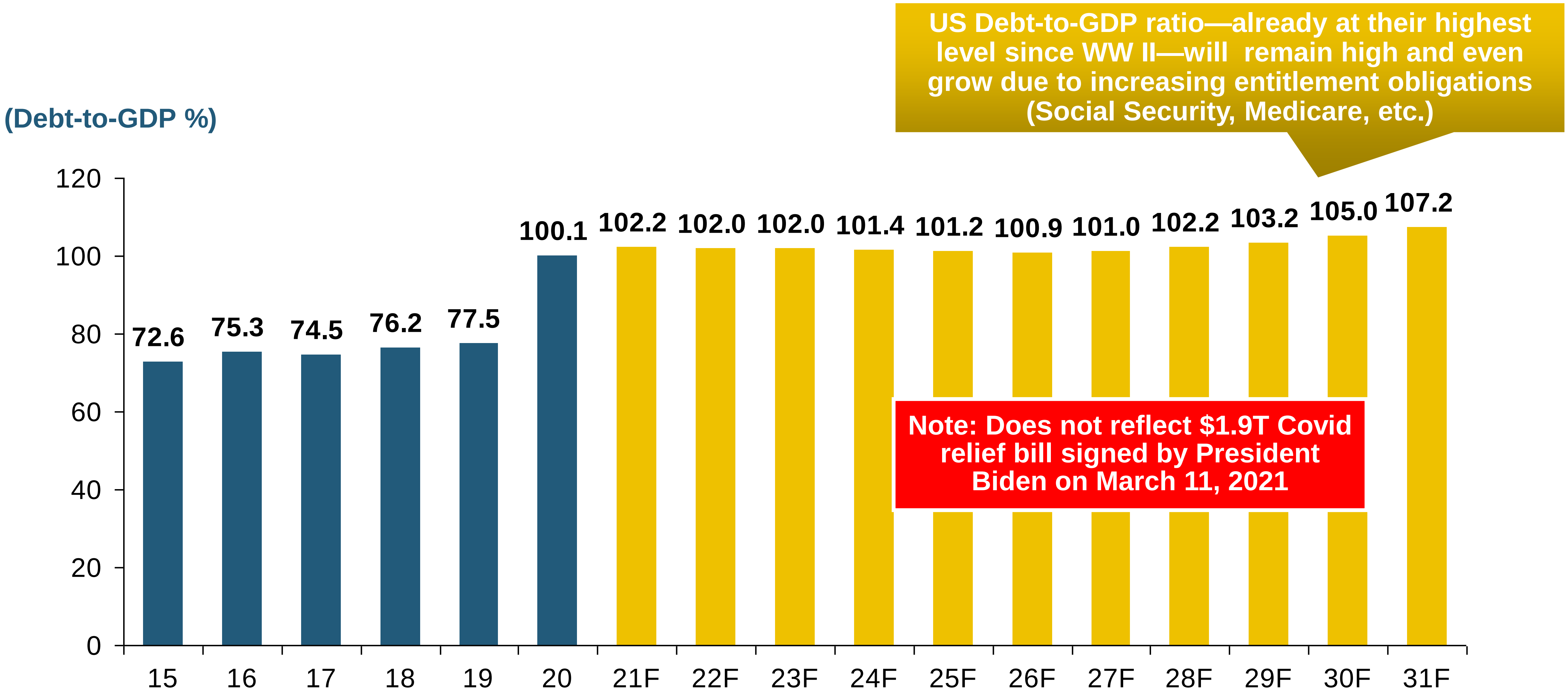
Source: U.S. Bureau of Labor Statistics; Wells Fargo Securities (3/21); USC Center for Risk and Uncertainty Management.

Debt Held by the Public as a Percent of GDP: 1790 – 2020



Source: Congressional Budget Office; Wells Fargo Securities (3/21); Risk and Uncertainty Management Center, University of South Carolina.

Debt Held by the Public as a Percentage of GDP: 2015-2031F*



Source: Congressional Budget Office (Feb. 2021); USC Center for Risk and Uncertainty Management.

Global Economic Outlook

Geopolitical Instability, Trade Disputes and Fragile Supply Chains Will Present Additional Challenges

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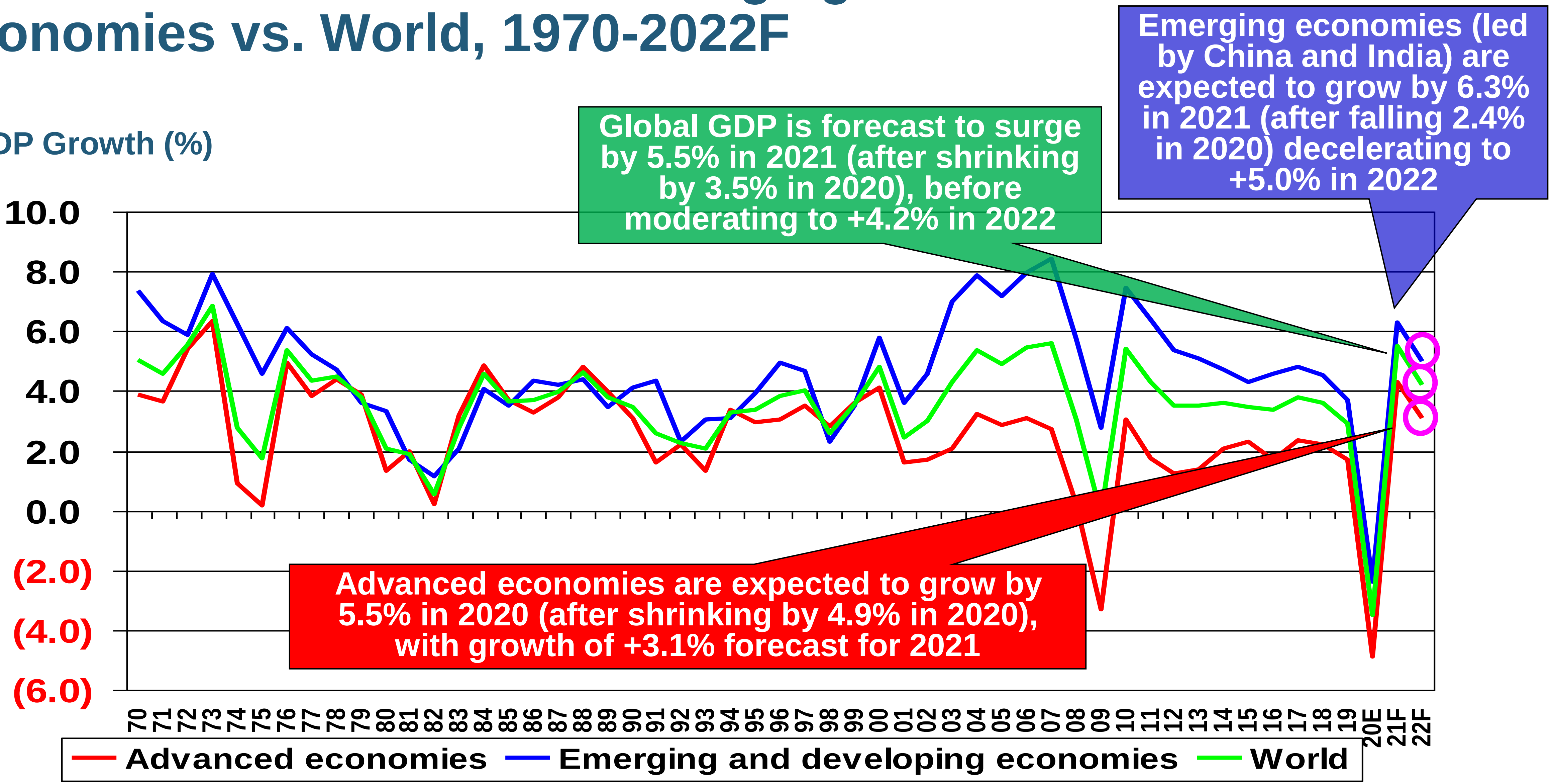
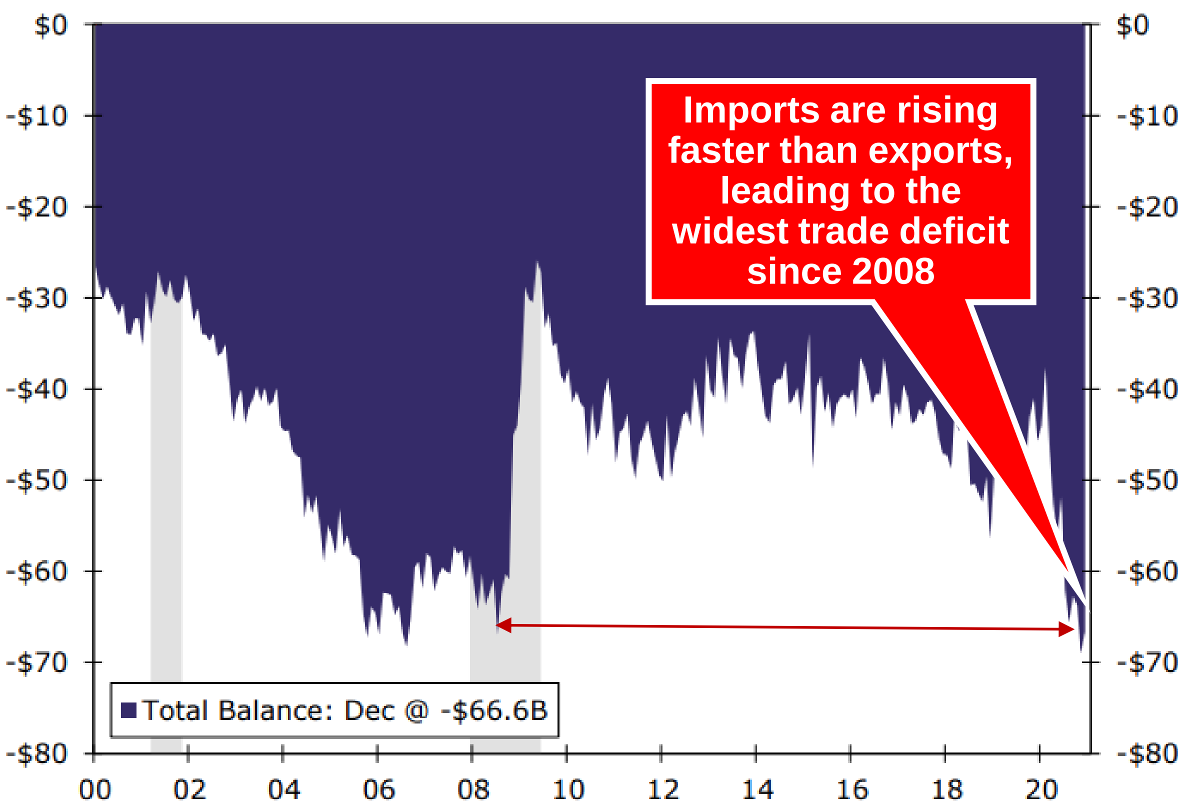
GDP Growth: Advanced & Emerging Economies vs. World, 1970-2022F



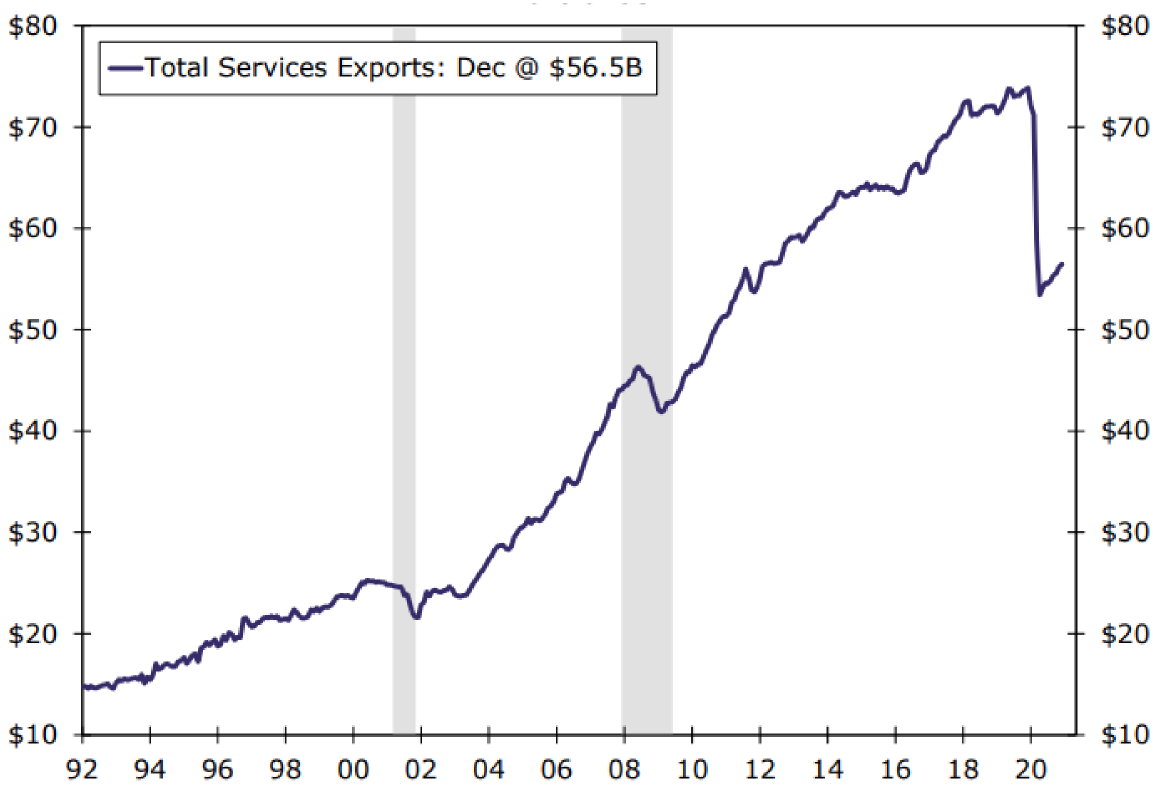
Source: International Monetary Fund, *World Economic Outlook*, Jan. 2021; Univ. of South Carolina, Risk and Uncertainty Management Center.

Surging Trade Deficit as Trade Flows Begin Slow Recovery

Trade Balance in Goods & Services



US Exports



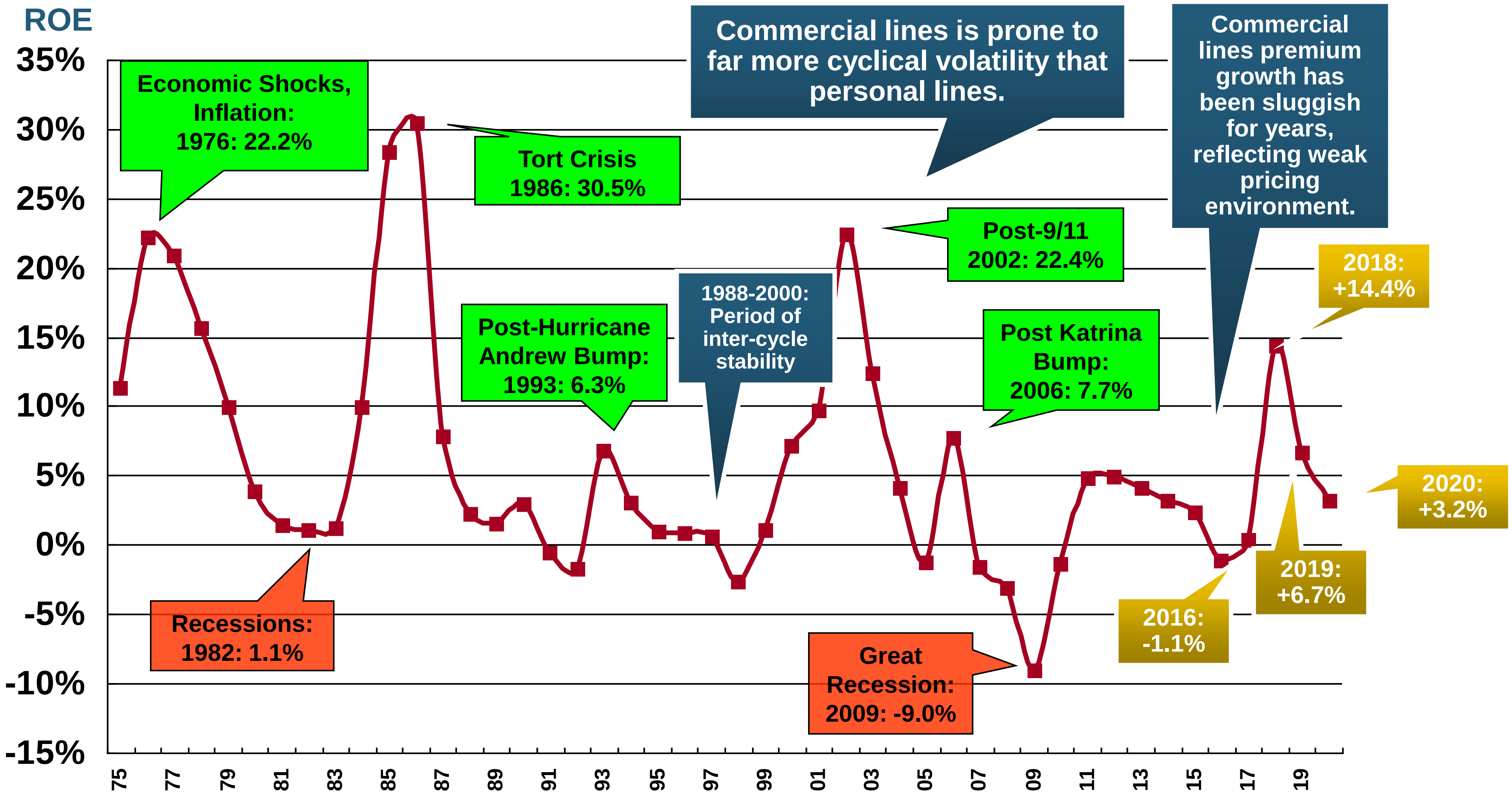
Imports are booming while exports are lagging resulting in a massive expansion of the US trade deficit. US multi-nationals are hurt by relatively weak recoveries with many major trading partners as well as still-simmering trade disputes

Sources: Wells Fargo Securities (2/21), US Commerce Dept.; Risk and Uncertainty Management Center, University of South Carolina

Commercial Lines Growth, Underwriting Performance & Pricing Cyclicality

Pricing Pressures Are Intensifying

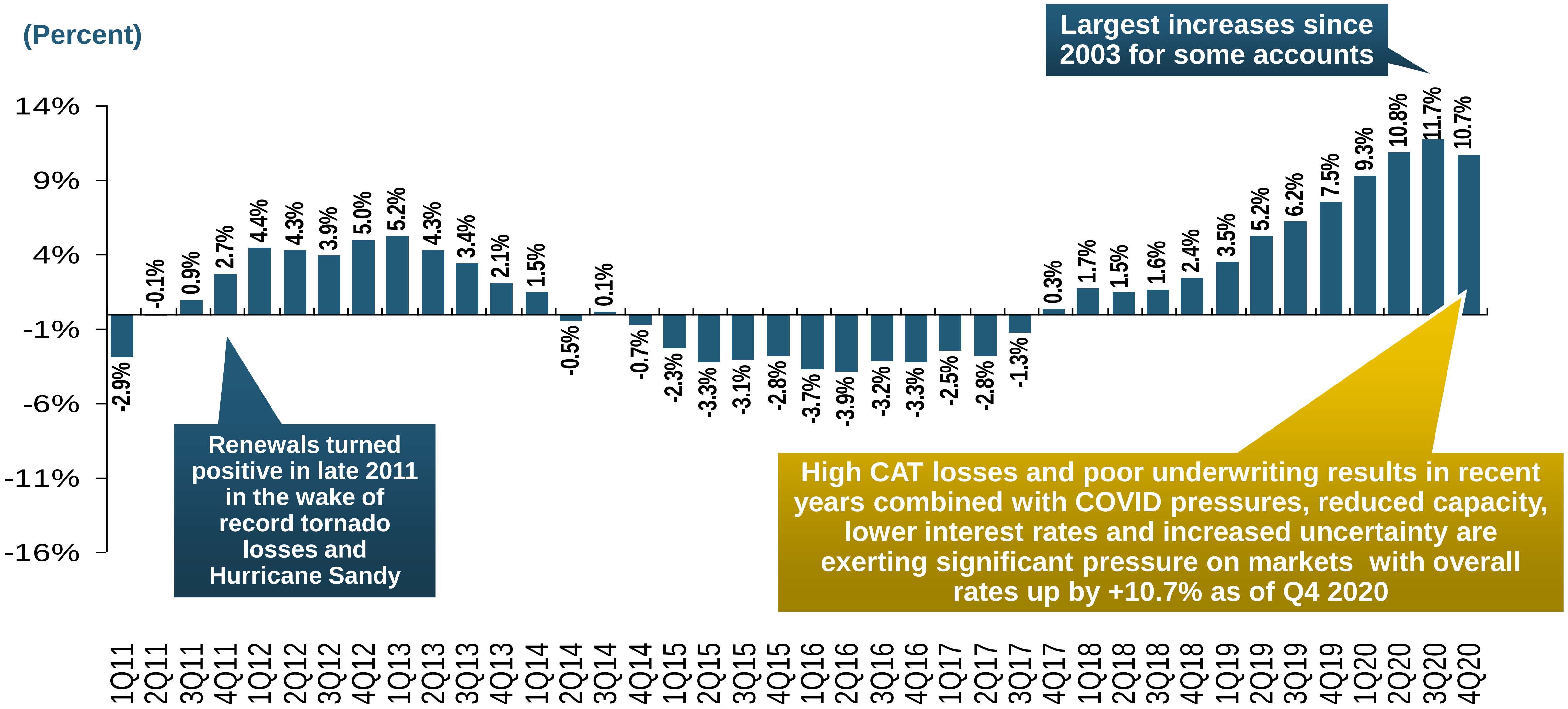
Commercial Lines NPW Premium Growth: 1975 – 2020E



Note: Data include state funds beginning in 1998.

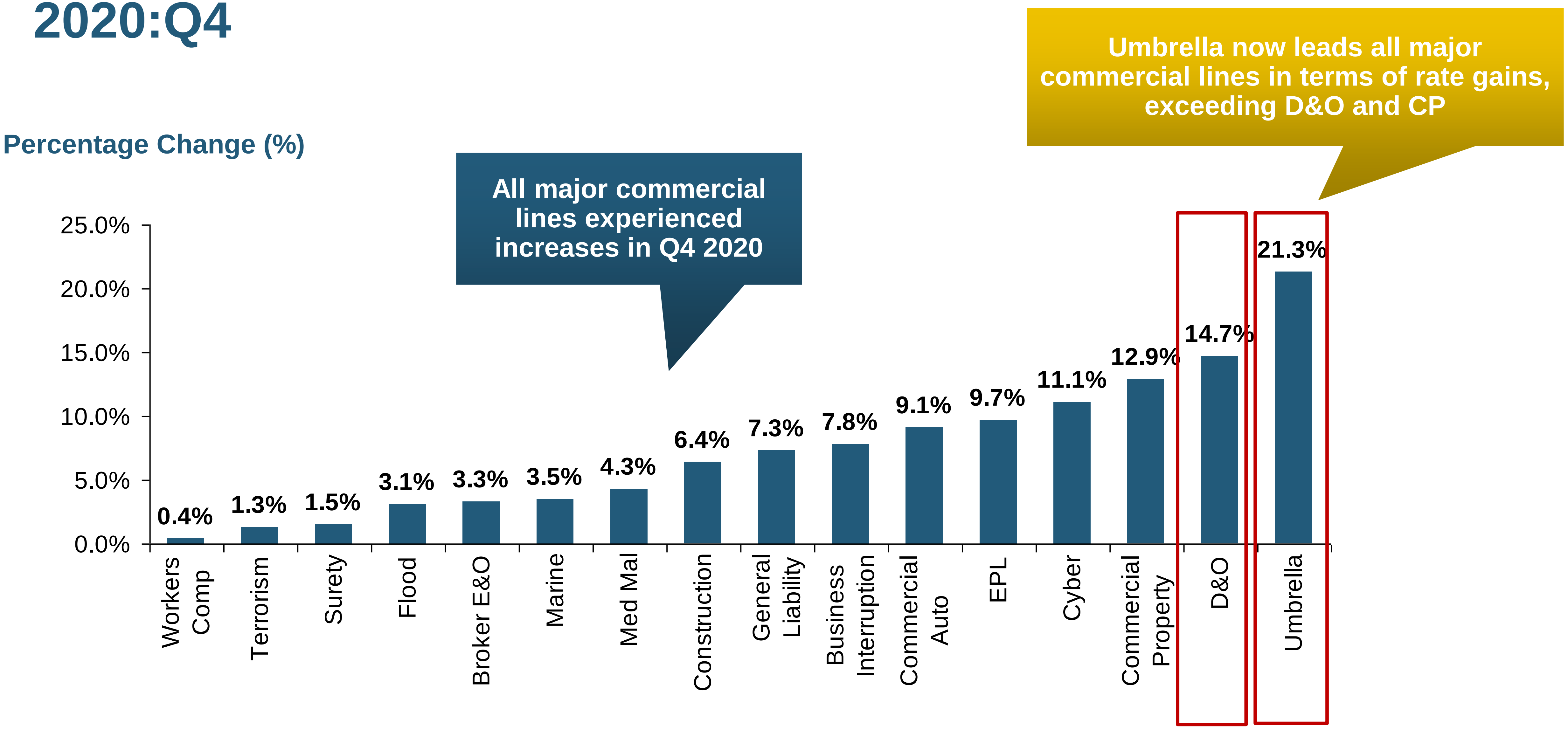
Source: A.M. Best; Insurance Information Institute; Univ. of South Carolina Center for Risk and Uncertainty Management, ISO.

CIAB: Average Commercial Rate Change, All Lines, 2011:Q1–2020:Q4*



*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: 2020:Q4



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.

COVID-19 Litigation Trends

Court Decisions Have Largely Favored Insurers, but Concerns Remain

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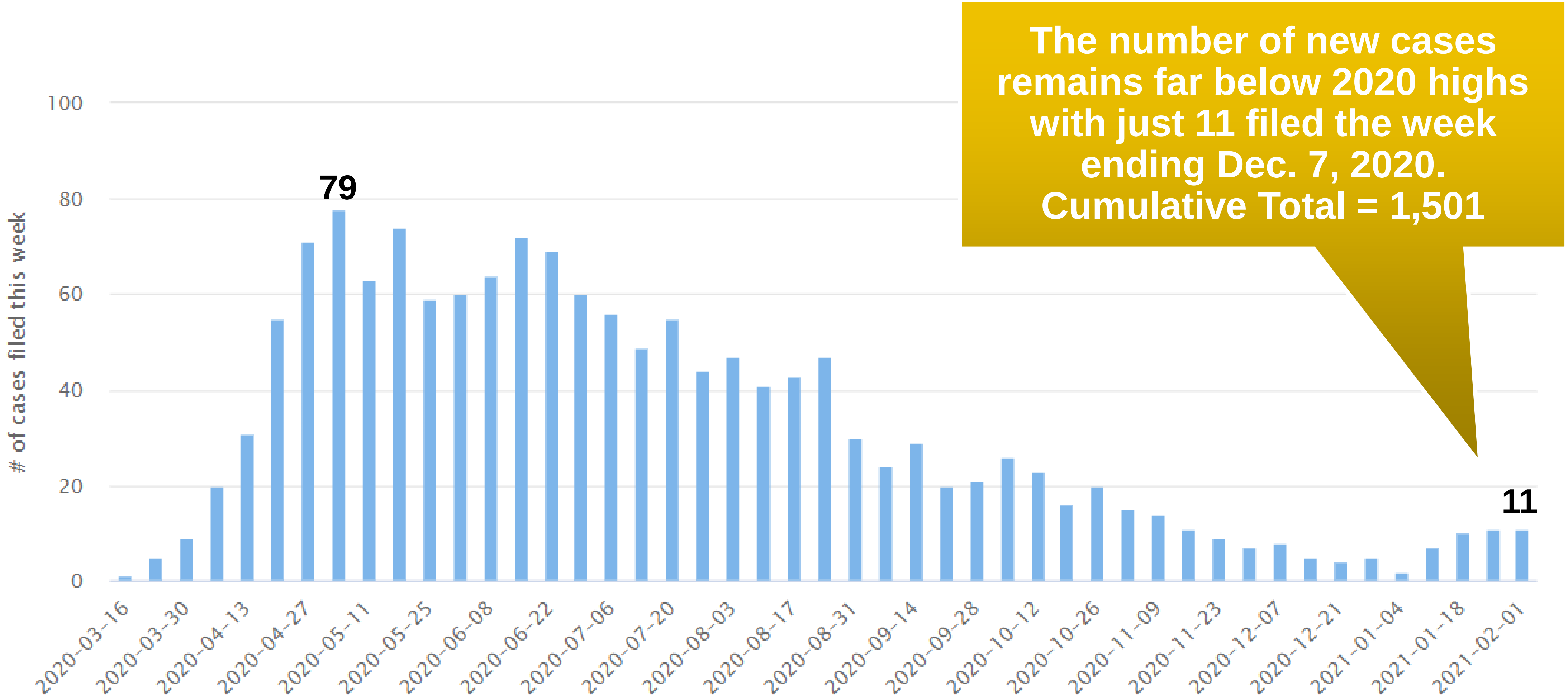
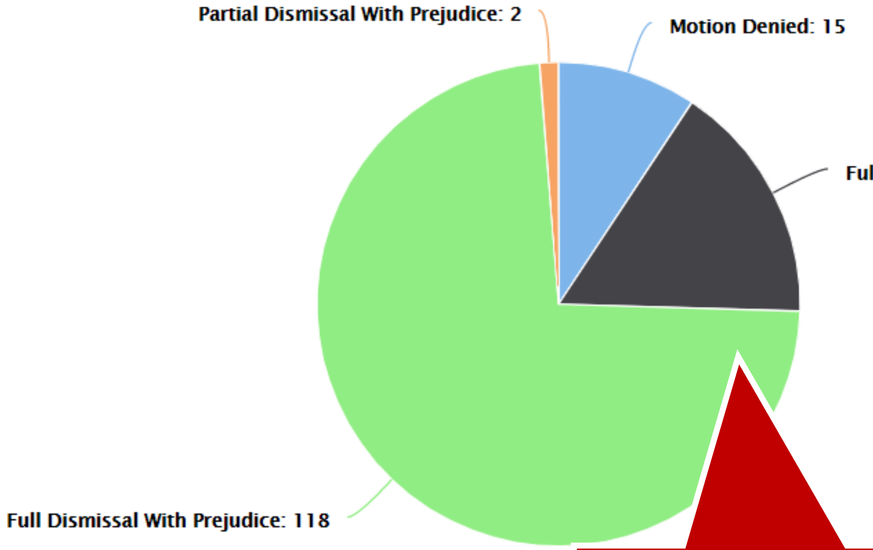
Weekly Number of COVID-Related Lawsuits Filed:
(Weeks Ending Mar. 16, 2020 to Feb. 1, 2021) [Latest Available]



Source: Covid Coverage Litigation Tracker, University of Pennsylvania School of Law. Accessed 3/11/21 at: https://cclt.law.upenn.edu

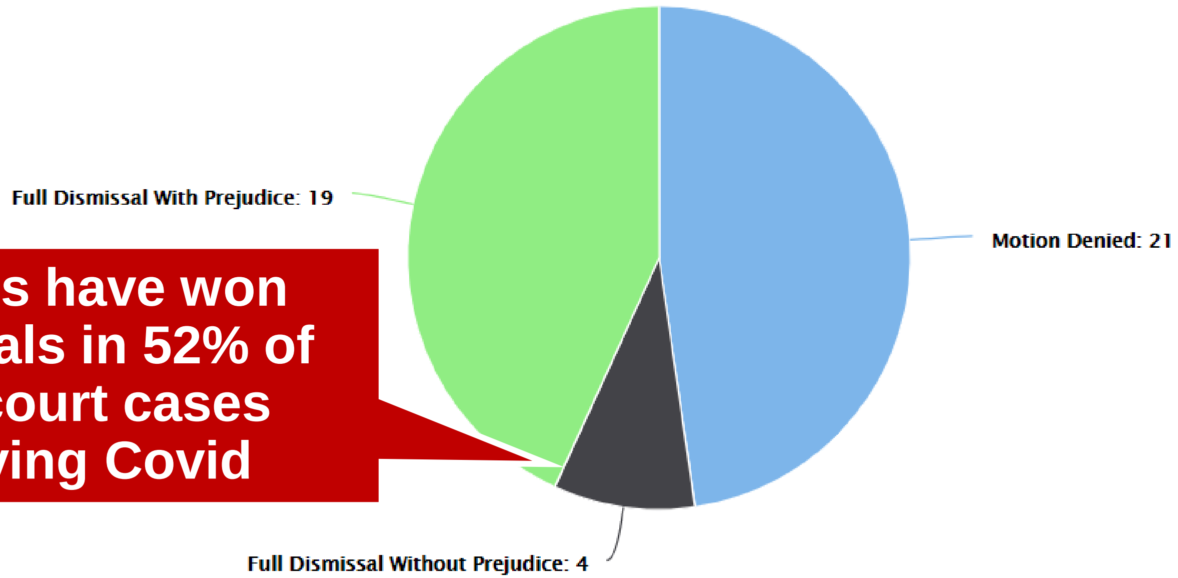
COVID Litigation: Merits Rulings on Motions to Dismiss: Federal vs. State Courts *(Total through Feb. 1, 2021) [Latest Available]*

Federal Courts



Insurers have won dismissals in 91% of federal court cases involving Covid

State Courts



Insurers have won dismissals in 52% of state court cases involving Covid

Source: Covid Coverage Litigation Tracker, University of Pennsylvania School of Law. Accessed 3/11/21 at: https://cclt.law.upenn.edu

SUMMARY

- **The P/C Insurance Industry Remains Strong, Stable, Sound and Secure**

- **Worst-Case Scenarios Have, So Far, Been Averted**

- **An Anticipated Acceleration in the Economic Recovery in the Second Half of 2021 Should Help Restore Most P/C Exposures to Pre-Pandemic Levels by early-2022 or sooner**

- **Asset Price Volatility Will Persist and Low Interest Rates Will Pressure Investment Earnings for Years**

- **COVID-19 Exposures Are Manageable with Headline Risk on BI and WC Issues; Overall tort environment remains challenging**

QUESTIONS?

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Thank you for your time and your attention!

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Download at www.uscriskcenter.com