

**AON**

# Minneapolis CAS Annual Meeting 2022

State of Commercial Auto

Presenter:

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Aon Reinsurance Solutions

November 8, 2022

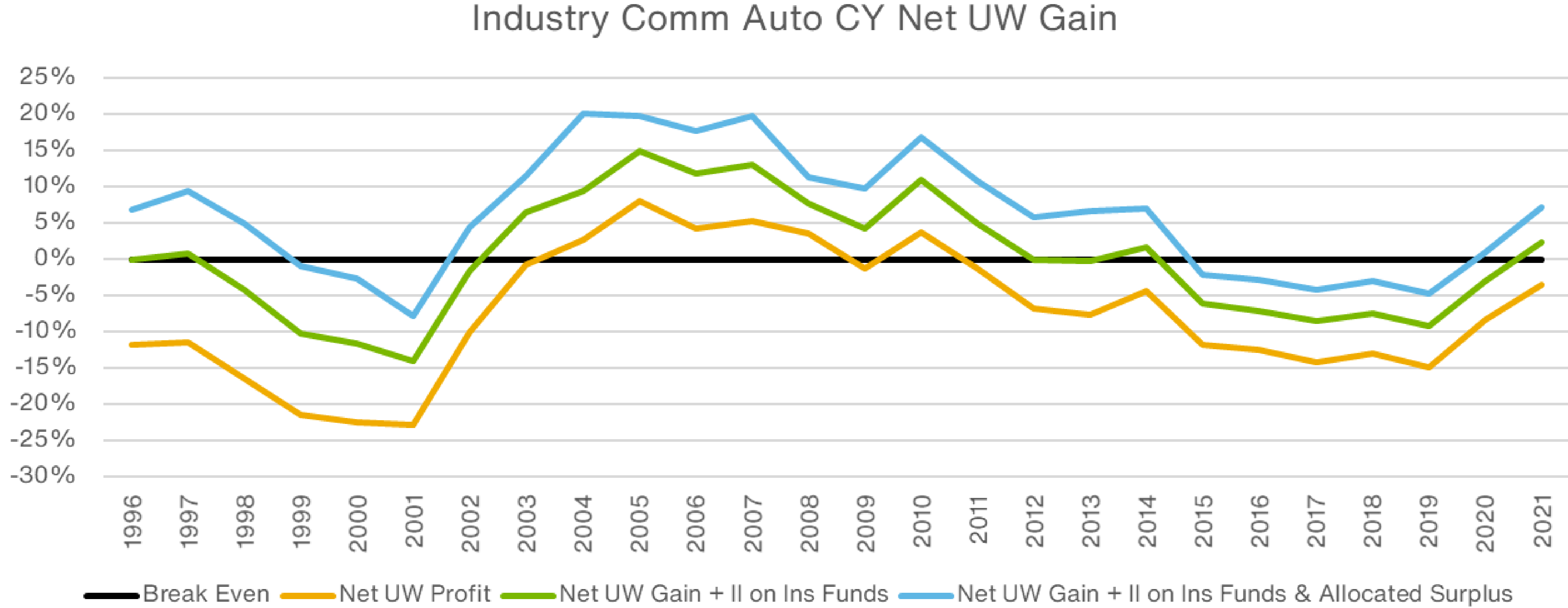
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# When was the last time Commercial Auto Liability turned a Profit?

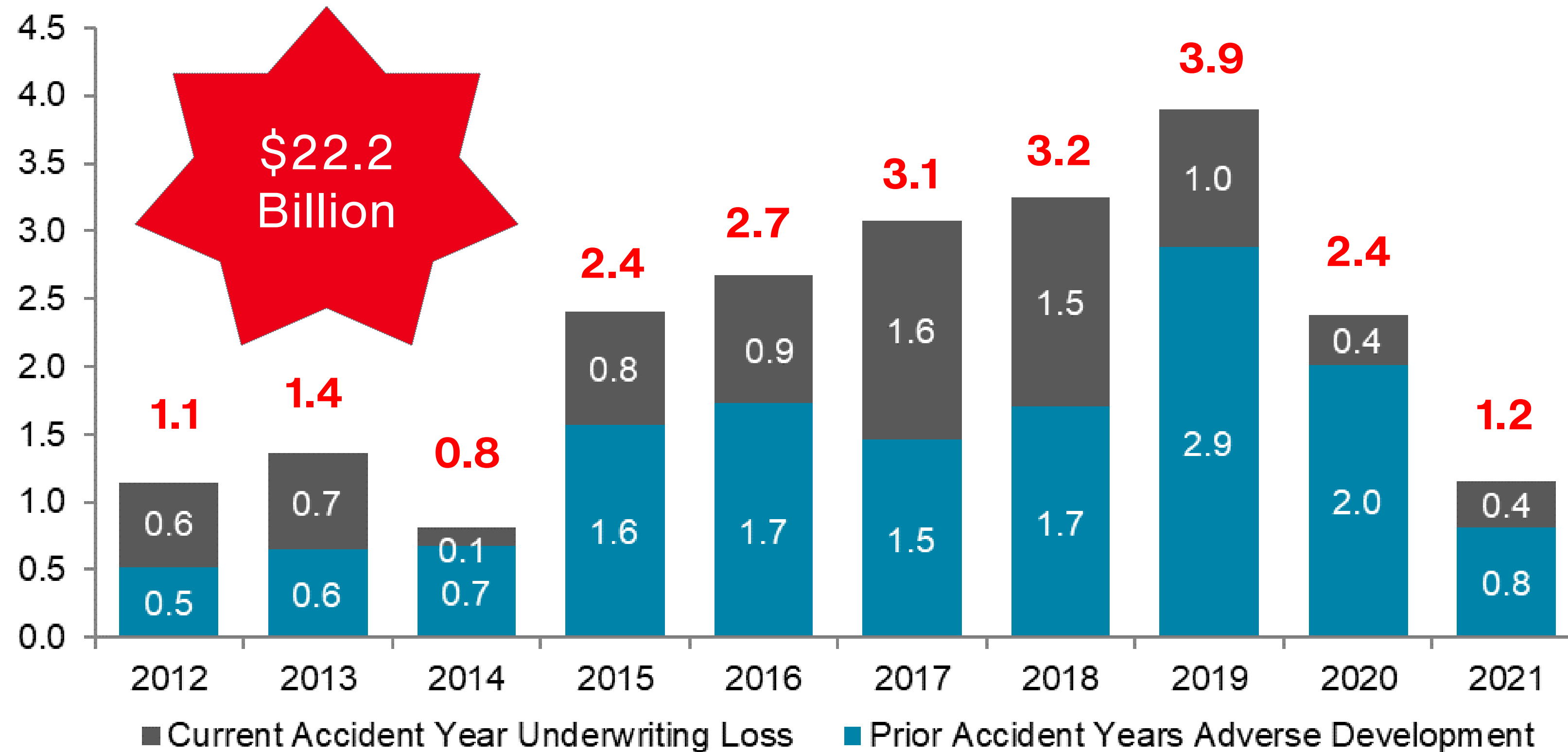
The line has benefited from decadal shocks



Source: Annual Statement

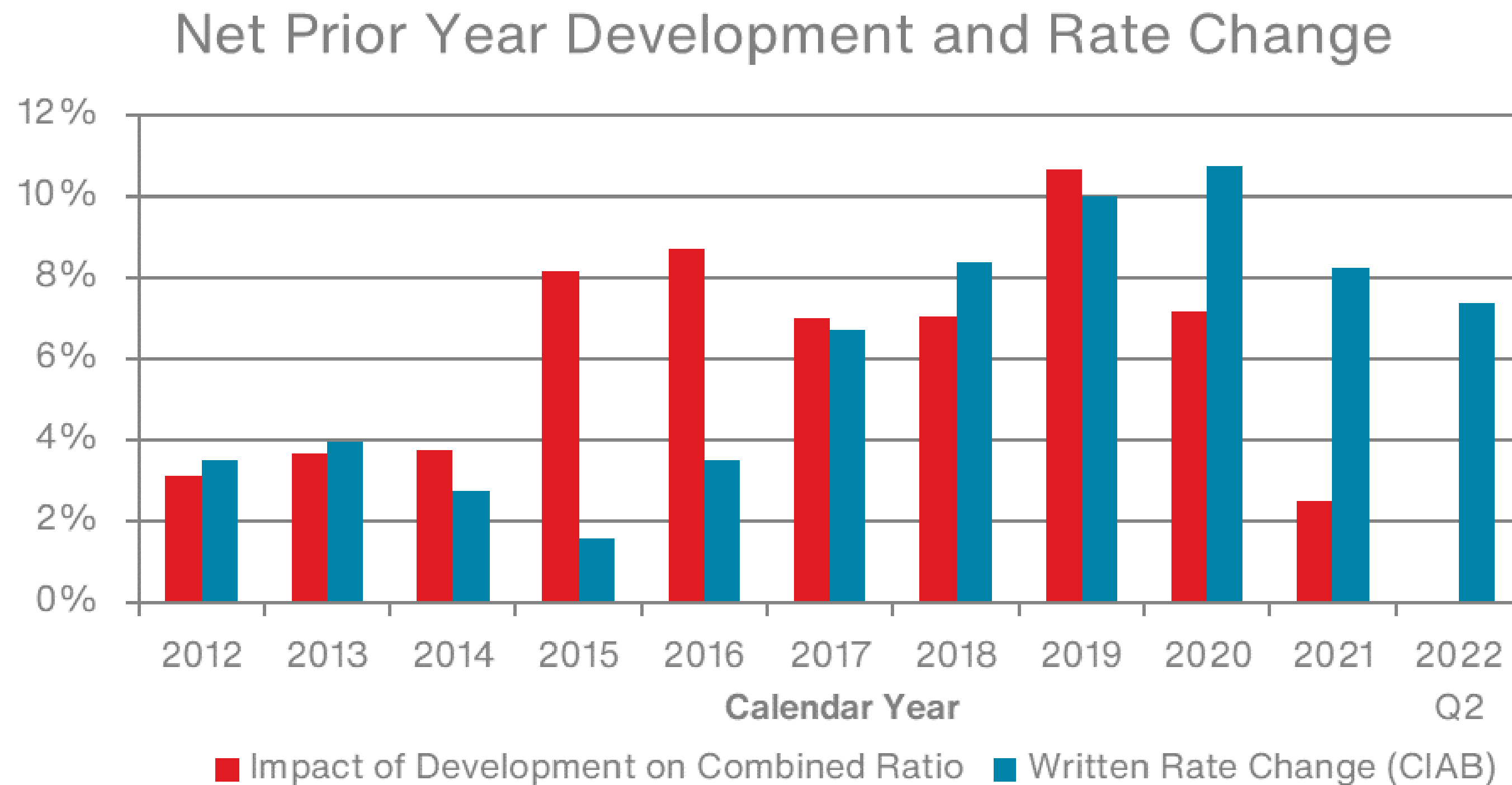
# Continued Net Underwriting Losses in Commercial Auto Liability

## Industry Commercial Auto Liability Calendar Year Net Underwriting Loss



# Adverse Development: Deterioration Starting in 2012

## Rate Change has been Slow to Catch Up to Loss Trends

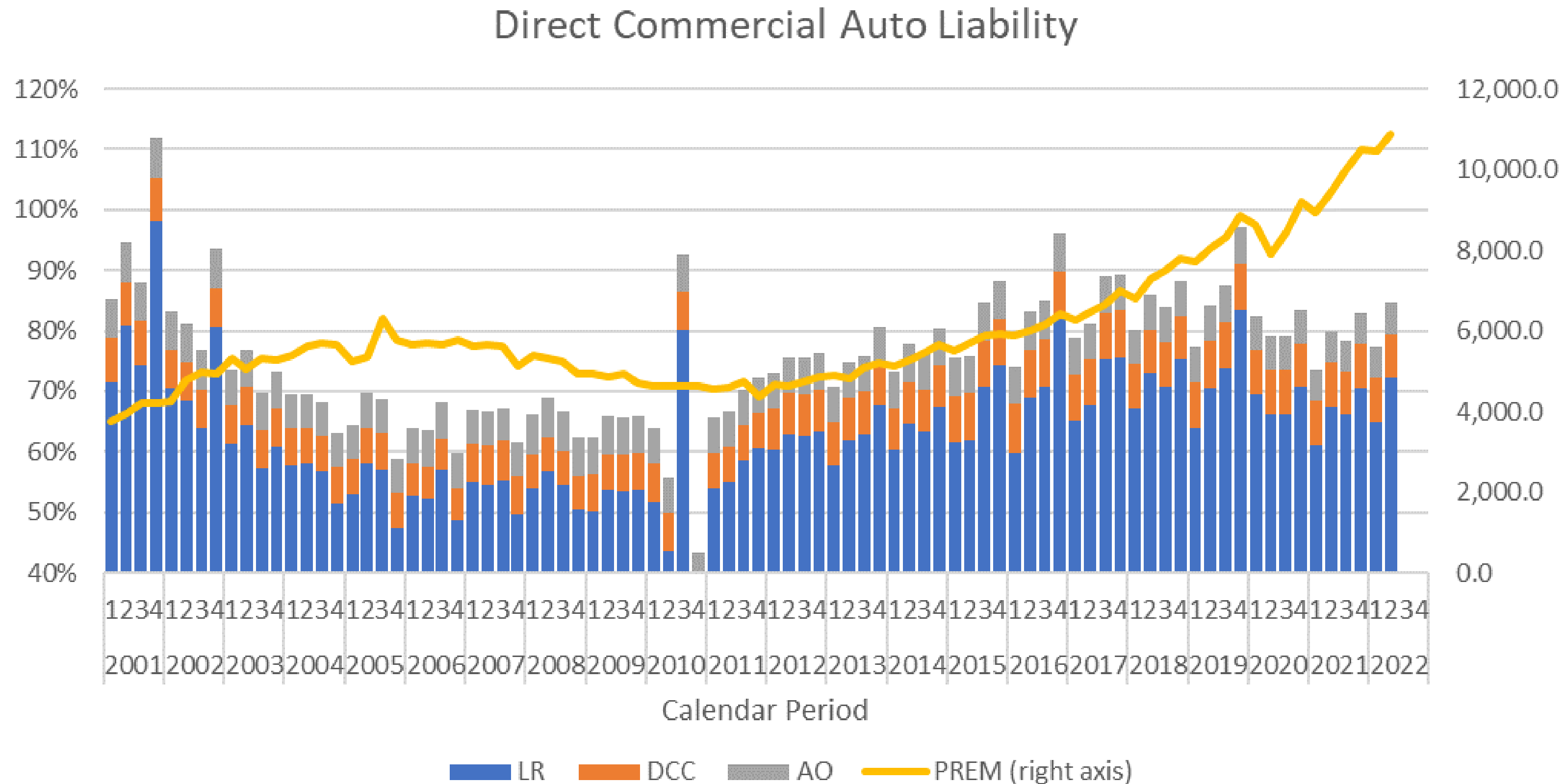


- Loss trends (proxy by adverse development) outpace premium trends in 2015 & 2016 deteriorating loss ratios
- Premium trends outpace loss trends (adverse development) in 2020 & 2021 (and perhaps 2022?)
- There is an inherent lag between the loss trend (prior years) and premium trend (earned in future year)

Source: Annual Statement and Council of Insurance Agents and Brokers (CIAB)

# The Impact of More Premium on Commercial Auto Results

## Includes a Peek at CY 2022



- CY 2001 to CY 2005 show LR improvement as more premium added to the line
- CY 2006 to 2010 remarkably steady LRs despite lower premium volumes
- CY 2011 to CY 2019 show steadily increasing LRs despite increasing premiums
- CY 2020 to CY 2022 show moderation of LRs as premiums continue to grow
- What is the impact of Covid?

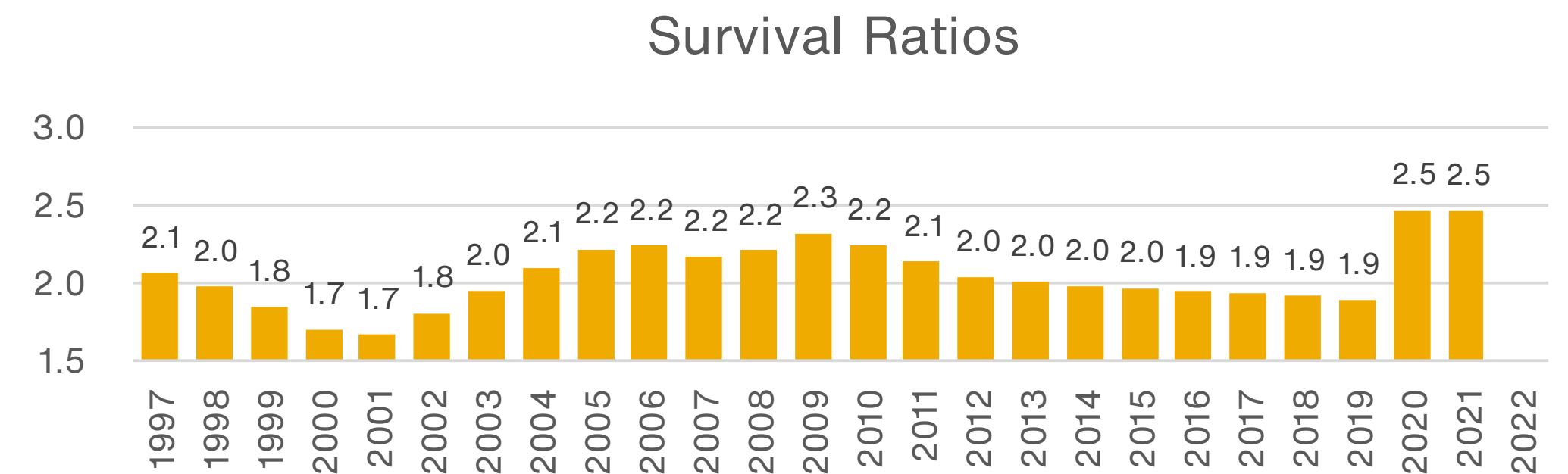
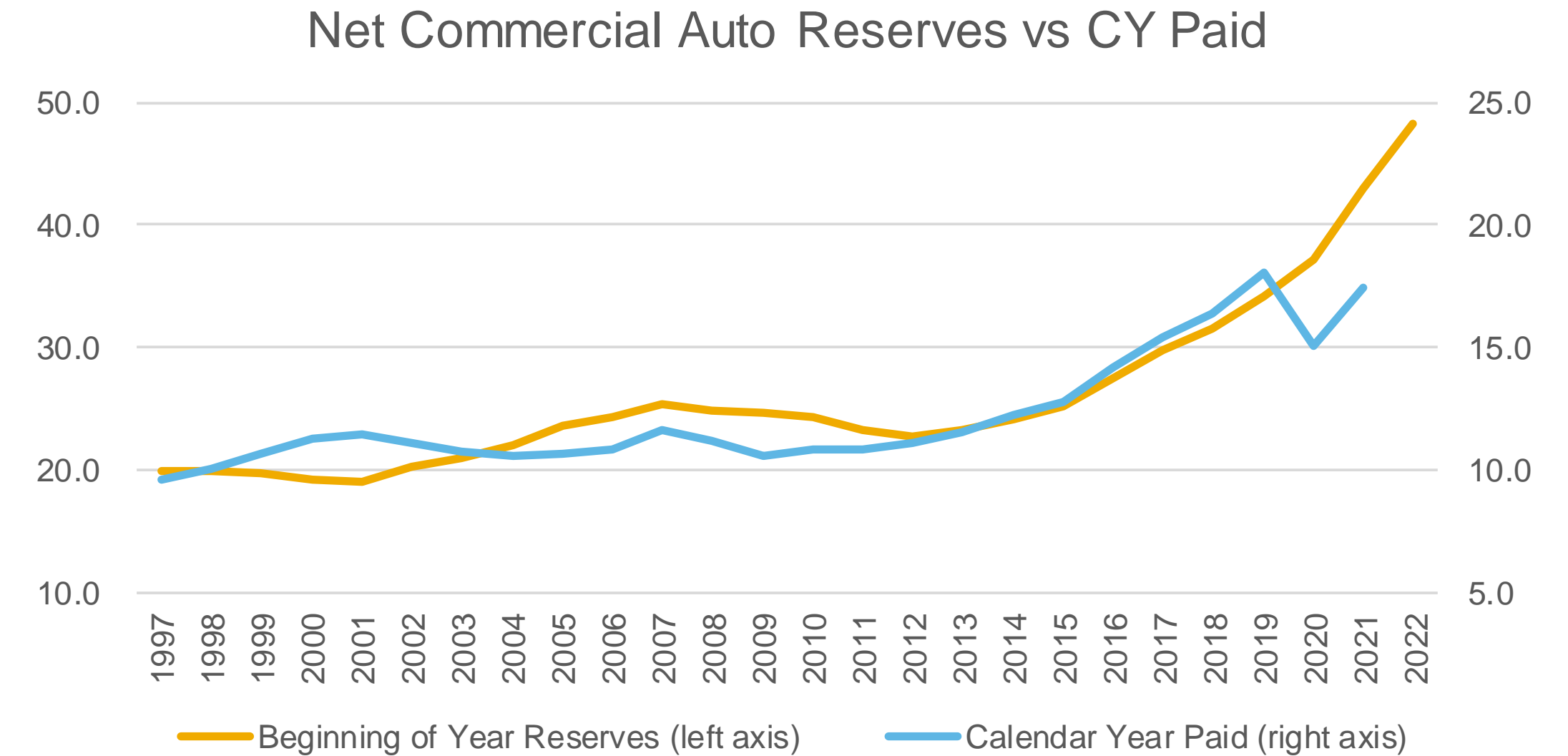
LR: Calendar Year Loss and LAE Ratio

Source: Annual Statement and Quarterly Statement

# Simple Adequacy Measure: Survival Ratios

## Clear Interruption in 2020

- Traditionally lower survival ratios signal less adequate reserves and larger survival ratios signal stronger reserves
- Looking at 2020 and 2021, there is a bigger “bank” of reserves than ever before, but
- What is the impact of Covid in survival ratios for those years?

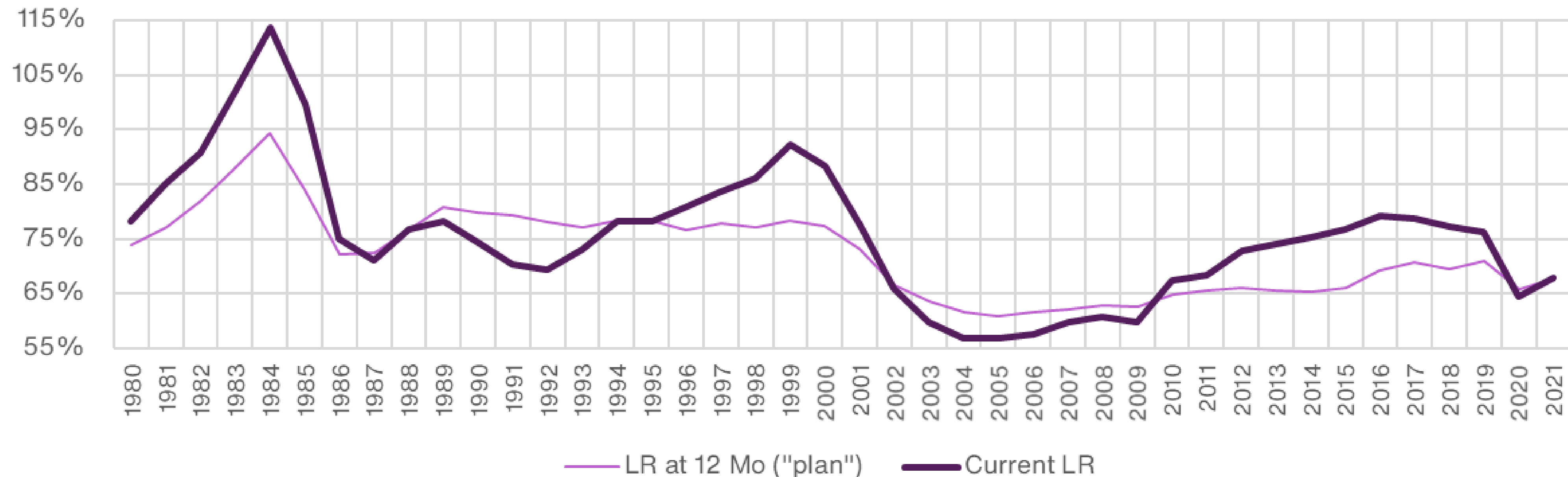


Survival Ratio: Beginning CY Reserves / CY Payments  
Source: Annual Statement

# Accident Year View

## Cycles of Developing Better than and Worse than Plan

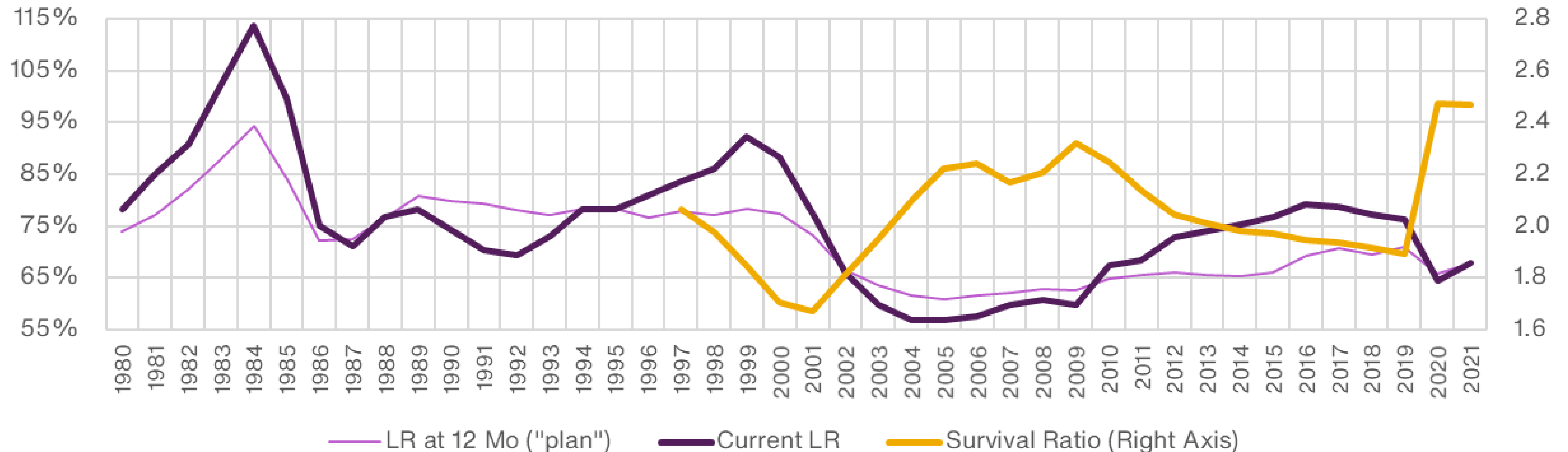
Commercial Auto Net AY Loss + DCC Ratios



- Clear cycles of accident years developing better than plan or worse than plan
  - Historical cycles have been between 7 to 10 years
- Is the line of business near an inflection point?

# Accident Year View with Survival Ratios

Commercial Auto Net AY Loss + DCC Ratios



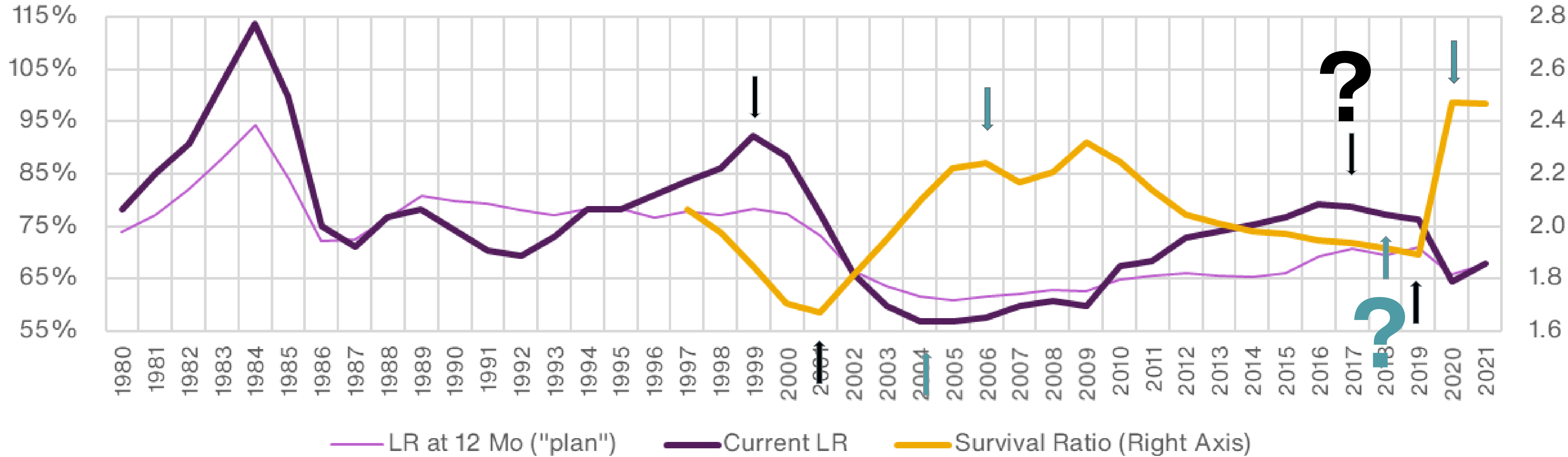
- Survival ratio inflections have historically signaled inflection points in the cycle of development (albeit lagged)
  - Peak valleys in survival ratios have historically aligned to peak heights of Loss + DCC ratios (lagged two years) and vice versa

Source: Annual Statement

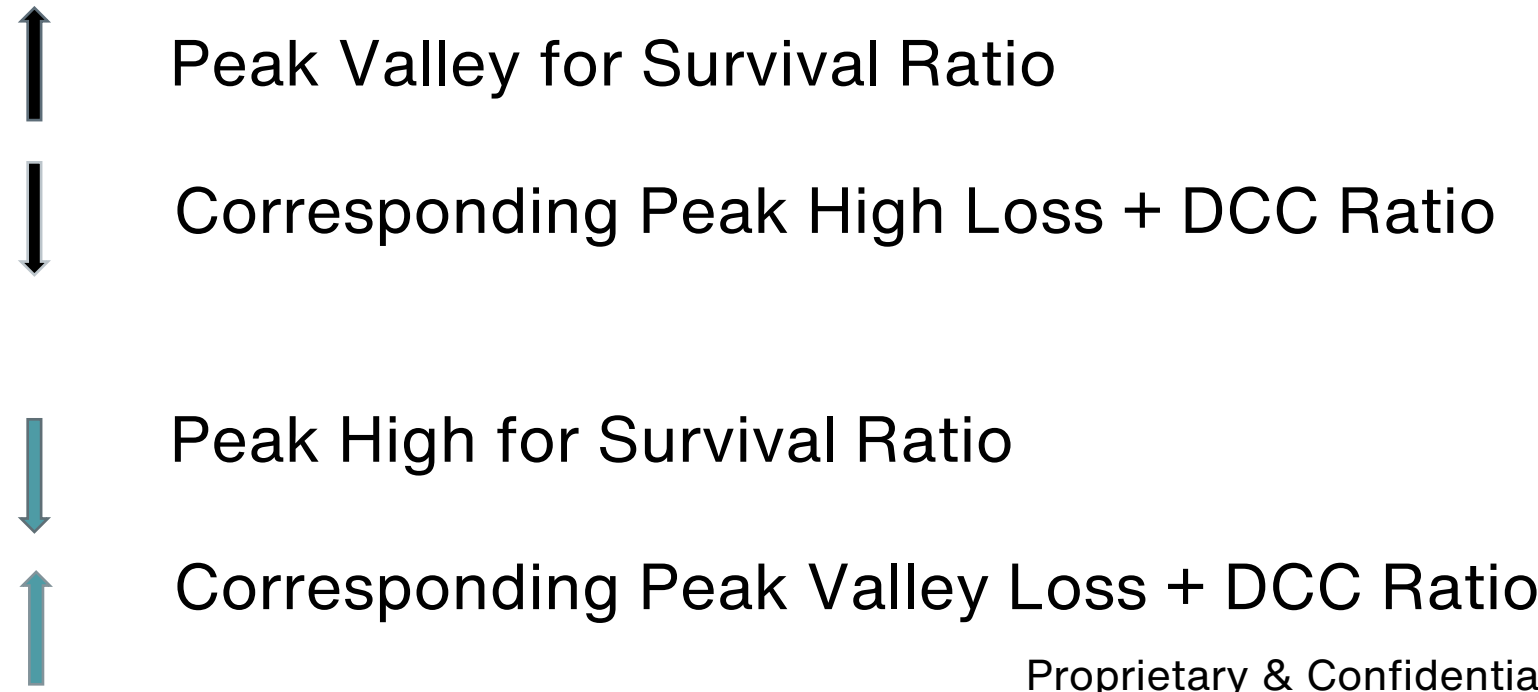


# Accident Year View with Survival Ratios

Commercial Auto Net AY Loss + DCC Ratios



- Implications of survival ratios
  - For the last cycle, was AY 2017 the “worst of it?”
  - What about AY 2018? (!!)
- Covid may have changed the game with these measures



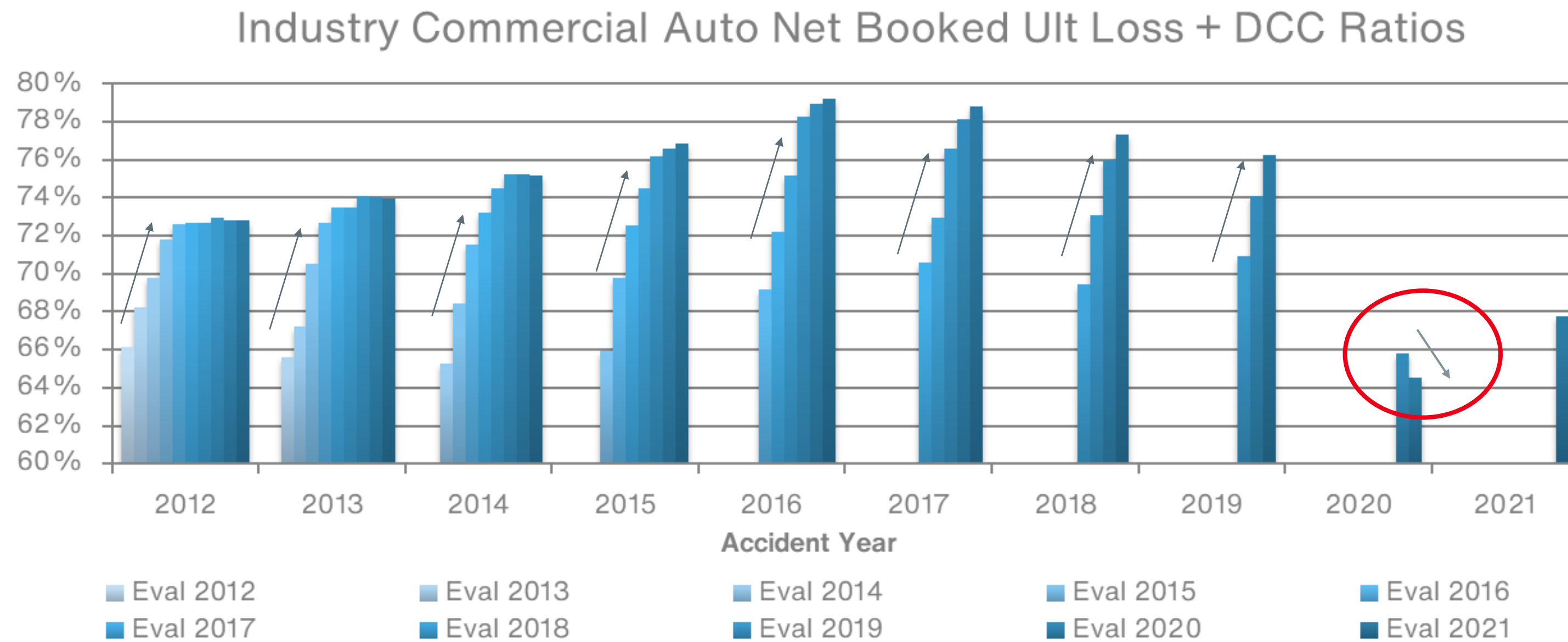
Source: Annual Statement





# Accident Year Booked Loss + DCC Ratios

## Direction of Development for an AY at 24 Months Rarely Changes in Subsequent Periods



- Recent history of accident years developing adversely came to a stop with AY 2020 in CY 2021
- Historical context:
  - For the **26** AYs 1988 to 2013 (full ten years of observable emergence), **16** AYs of the **26** AYs developed favorably at 24 months
  - Of these **16** AYs with favorable emergence at 24 months, **14** AYs had ultimate LR (@ 10 YRs) < plan (or 87.5%)
  - The **2** AYs with favorable emergence at 24 months, but ultimate LR > plan were AY 1988 and AY 2001 (inflection points of prior cycles)

→ How should AY 2020 have developed given impact of Covid??

Source: Annual Statement



# Implied Loss Ratios with Limited Degrees of Freedom

$$LR_{Year\ 1} = LR_{Year\ 0} \times (1 + \Delta frequency) \times (1 + \Delta severity) / (1 + \Delta rates)$$

- This approach “rolls forward” prior AY LRs into current AY by only adjusting for changes in premium rates, frequency and severity
- With changes in premium rates and frequency directly measurable at the end of the target year (more or less), either severity can be imputed from the target year LR input or the target year LR can be imputed from the severity input

	AY 2021	AY 2020	AY 2019	AY 2018	AY 2017
<b>Frequency Proxy</b>					
Crashes (000)		5,251	6,756	6,735	6,453
Vehicles (000)		297,644	299,267	297,036	290,336
Crash Rate		1.76%	2.26%	2.27%	2.22%
<b><i>change in Crash Rate</i></b>	<b>11.7%</b>	<b>-21.9%</b>	<b>-0.4%</b>	<b>2.0%</b>	
<b>Rate Change</b>					
	<b>9.5%</b>	<b>10.4%</b>	<b>9.2%</b>	<b>7.5%</b>	

LR: Accident Year Loss and DCC Ratio

A sample of 11 states' crashes and 3 states' registrations were used to measure 2021 frequency estimate

Source: CIAB and National Highway Transportation Safety Administration (NHTSA)



# Implied Severities with Booked Loss Ratio Inputs

$$LR_{Year\ 1} = LR_{Year\ 0} \times (1 + \Delta frequency) \times (1 + \Delta severity) / (1 + \Delta rates)$$

Industry Commercial Auto Liability Net	Target Accident Year			
	AY 2021	AY 2020	AY 2019	AY 2018
Prior AY LR Booked 12/2021	64.5%	76.2%	77.3%	78.8%
Earned rate change during target year	9.5%	10.4%	9.2%	7.5%
Change in frequency during target year (proxy)	11.7%	-21.9%	-0.4%	2.0%
<b>"A priori" target year LR assuming zero severity change</b>	<b>65.8%</b>	<b>54.0%</b>	<b>70.5%</b>	<b>74.7%</b>
Target AY Booked LR	67.8%	64.5%	76.2%	77.3%
<b>Implied severity trend</b>	<b>2.9%</b>	<b>19.5%</b>	<b>8.1%</b>	<b>3.5%</b>

- Are the implied severities reasonable?
- What is the implication?

LR: Accident Year Loss and DCC Ratio

Source: Annual Statement, CIAB and NHTSA



# Implied Ultimate LRs with Selected Severities

$$LR_{Year\ 1} = LR_{Year\ 0} \times (1 + \Delta frequency) \times (1 + \Delta severity) / (1 + \Delta rates)$$

Industry Commercial Auto Liability Net	Target Accident Year			
	AY 2021	AY 2020	AY 2019	AY 2018
Prior AY LR (Booked for 2018 to 2020)	<b>58.3%</b>	76.2%	77.3%	78.8%
Earned rate change during target year	9.5%	10.4%	9.2%	7.5%
Change in frequency during target year (proxy)	11.7%	-21.9%	-0.4%	2.0%
<b>"A priori" target year LR assuming zero severity change</b>	<b>59.5%</b>	<b>54.0%</b>	<b>70.5%</b>	<b>74.7%</b>
Target AY Implied Ultimate	<b>64.3%</b>	<b>58.3%</b>	<b>76.2%</b>	<b>77.3%</b>
Implied severity trend	8.1%	8.1%	8.1%	3.5%

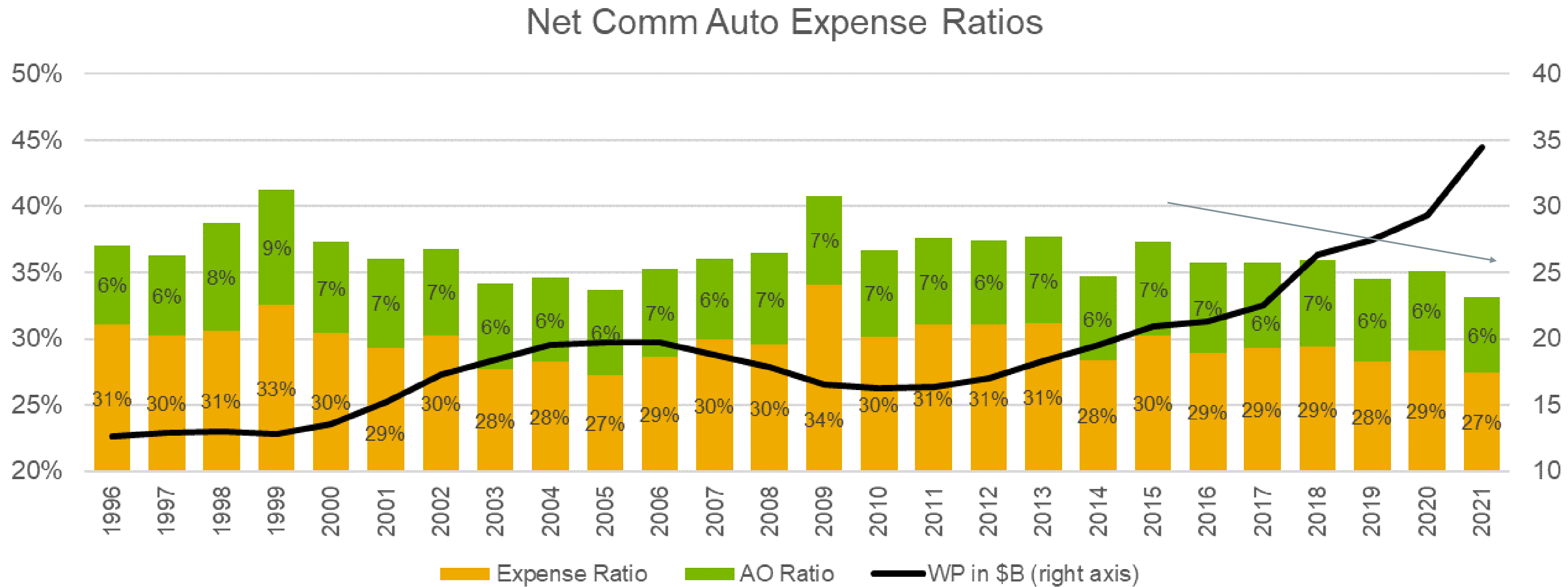
- This table uses AY 2019 severity trend for 2020 and 2021
- How reasonable is this approach and the underlying assumptions? How does Covid impact this kind of analysis?

LR: Accident Year Loss and DCC Ratio

Source: Annual Statement, CIAB and NHTSA



# Commercial Auto Net Expenses



- Expense Ratios have unsurprisingly improved as premium levels increase
- CY 2015 AO + expense ratio = 37.3%
- CY 2021 AO + expense ratio = 33.1%

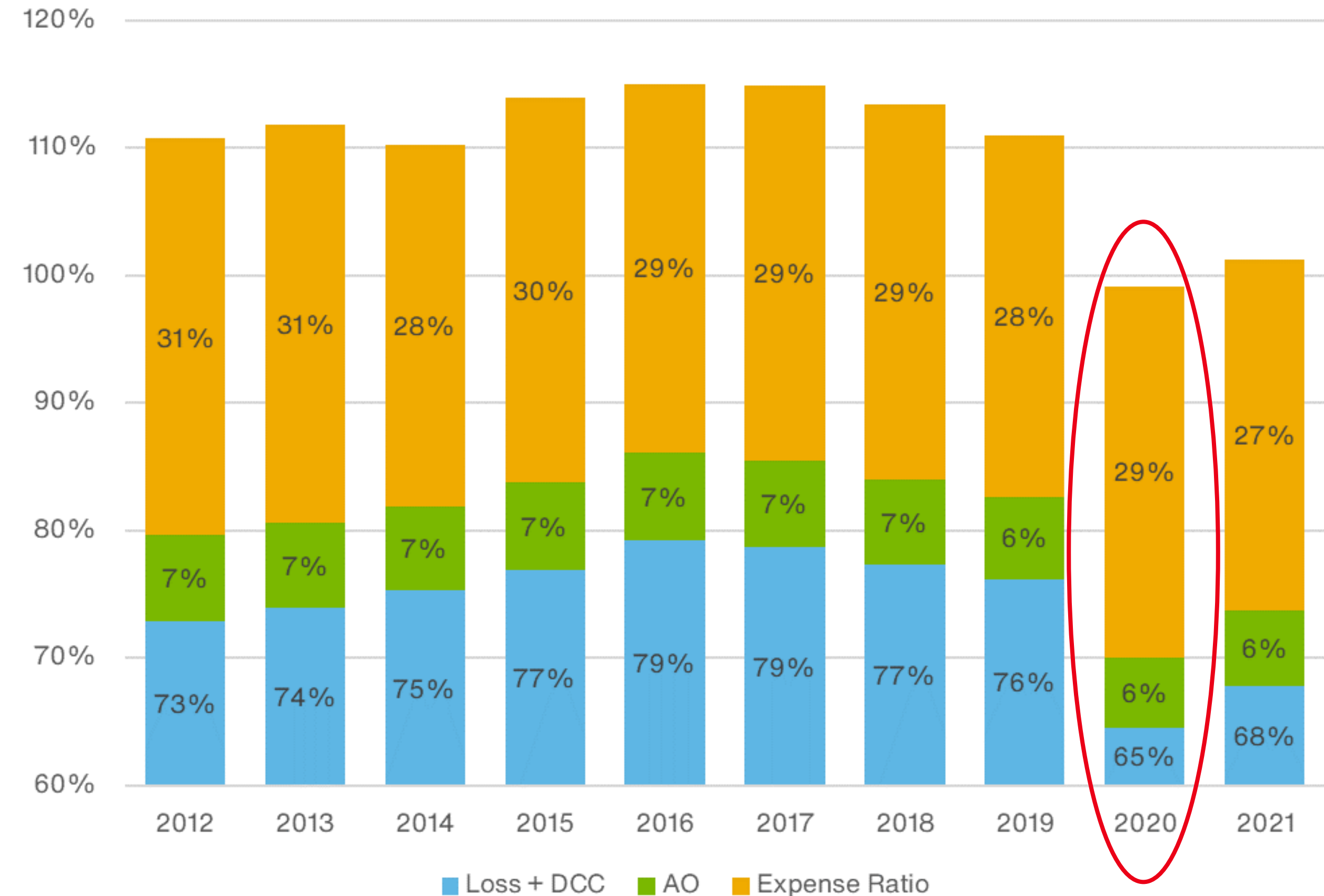
Source: Annual Statement



# Putting it All Together

- Its likely that the industry net comm auto Loss+DCC ratio for AY 2020 will be less than the current estimate (24 month age) of 64.5%
  - The industry commercial auto AY 2020 could ultimately have a L+DCC ratio of ~ 60% (!)
- With expense ratios trending downward, the commercial auto combined ratio for AY 2020 is less than 100%
- At this point in the cycle, if premium rates continue to match or outpace pure premium trend, there will be lift for the line
- The biggest caveat with speculating on the future of commercial auto is the volatility of loss trends
- There can be big swings in trends YOY

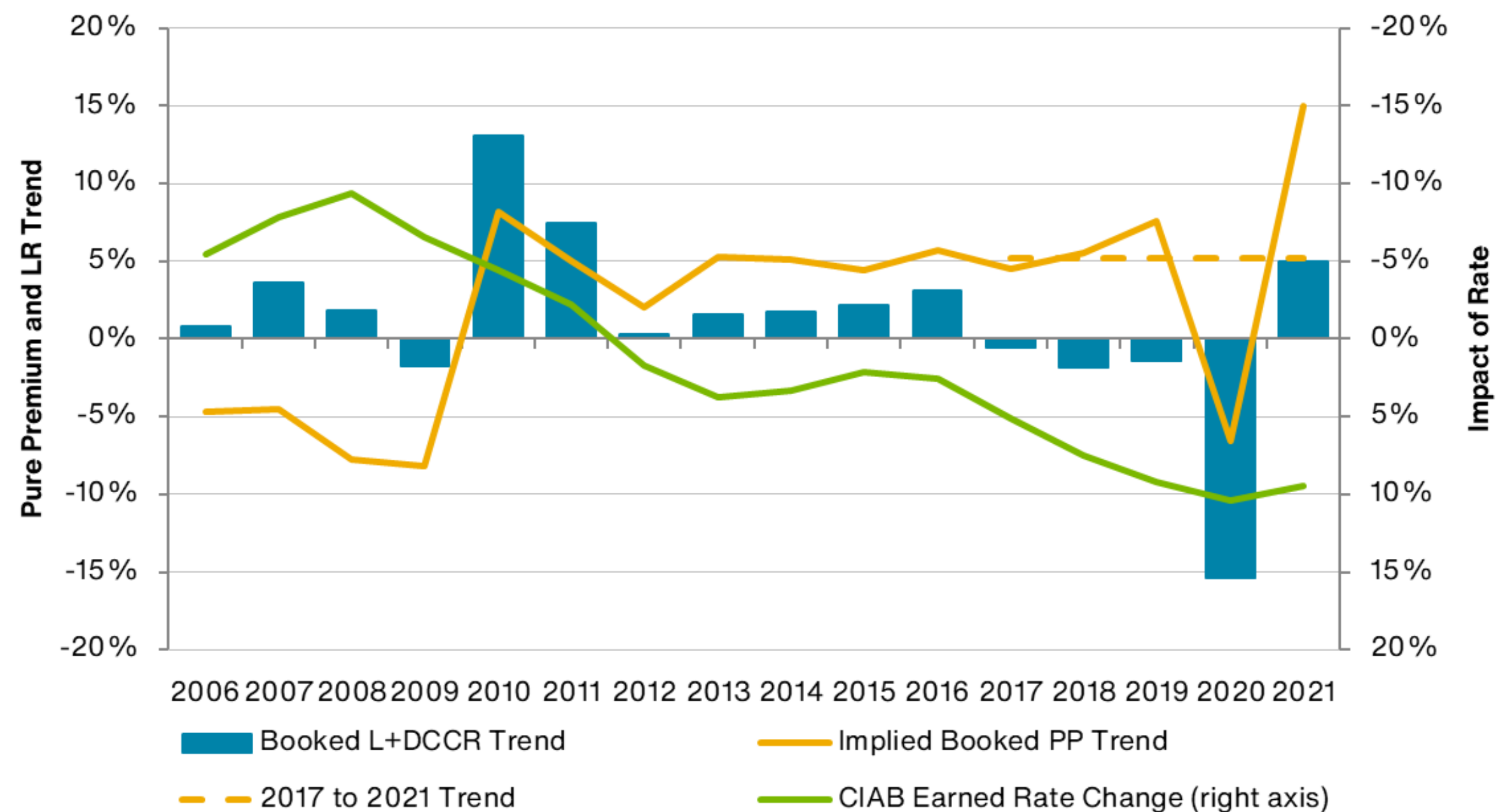
Booked Commercial Auto AY Combined Ratios



Source: Annual Statement and Speculation of the Presenter

# Parting Thoughts: Volatility of Commercial Auto Loss Trends

## Industry Commercial Auto Liability Net Loss Ratio Trends



Source: Annual Statement and CIAB

- A challenging dynamic of commercial auto liability is the potential for (isolated?) large swings in trend rates
- Accompanying graph shows changes in booked loss + DCC ratios (bars) and rate change (green line)
- Booked pure premium trend (yellow line) is imputed from the other series (two degrees of freedom)
- Pure premium trend line shows some infrequent, yet significant changes in YOY trend rates:
  - 2009 to 2010: increase of **16 points**
  - 2019 to 2020: decrease of **14 points**
  - 2020 to 2021: increase of **22 points**
  - These extreme changes in pure premium trend tend to be frequency driven
- Note also that big increases in trend have generally arisen when the prior year trend is sharply negative



**AON**

**Thank You**

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