Commercial Auto Liability Ultimate Development

Industry Aggregate

Adverse development in commercial auto liability has been remarkably persistent in recent years.

Consider the industry aggregate ultimate loss ratio triangle below (based on Schedule P, Part 2). The loss ratios in this triangle are colored red when they develop adversely and green when they develop favorably. Notice anything unusual?

Ultimate Loss & DCC Ratios
Evaluated through December 31, 2024

Accident Year	Maturity (Age in Months) 12	24	36	48	60	72	84	96	108	120
2015	66.2%	70.1%	72.8%	74.8%	76.1%	76.5%	76.8%	77.0%	77.2%	77.2%
2016	69.4%	72.3%	75.4%	78.2%	78.9%	79.2%	79.8%	80.1%	80.2%	
2017	70.8%	73.1%	76.4%	77.9%	78.6%	79.6%	80.3%	80.8%		
2018	69.8%	73.2%	76.0%	77.3%	78.9%	80.1%	81.3%			
2019	71.0%	74.2%	76.0%	79.1%	81.3%	82.4%				
2020	65.7%	64.4%	64.8%	65.7%	66.7%					
2021	67.8%	68.7%	70.6%	73.0%						
2022	69.9%	72.4%	75.4%							
2023	74.1%	75.9%								
2024	74.1%									

Initial ultimate loss ratio selections (based on carried loss reserves 12 months after the beginning of the respective accident year)

The triangle below presents the corresponding **ultimate loss development factors (LDFs)**. In a perfect world, the LDFs in each column would be randomly distributed around an average of 1.000. However, the averages for each column are consistently greater than one. What underlies this bias?

Ultimate Loss Development Factors

Accident Year	Age-to-Age Factors 12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - Ult
2015	1.059	1.038	1.027	1.018	1.006	1.003	1.003	1.002	1.001	
2016	1.042	1.042	1.037	1.009	1.004	1.007	1.004	1.002		
2017	1.032	1.045	1.020	1.009	1.013	1.009	1.007			
2018	1.048	1.038	1.017	1.021	1.015	1.015				
2019	1.045	1.025	1.040	1.029	1.013					
2020	0.979	1.007	1.015	1.014						
2021	1.014	1.027	1.034							
2022	1.036	1.042								
2023	1.024									
All-Year Avg	1.031	1.033	1.027	1.017	1.010	1.009	1.004	1.002	1.001	*1.000*

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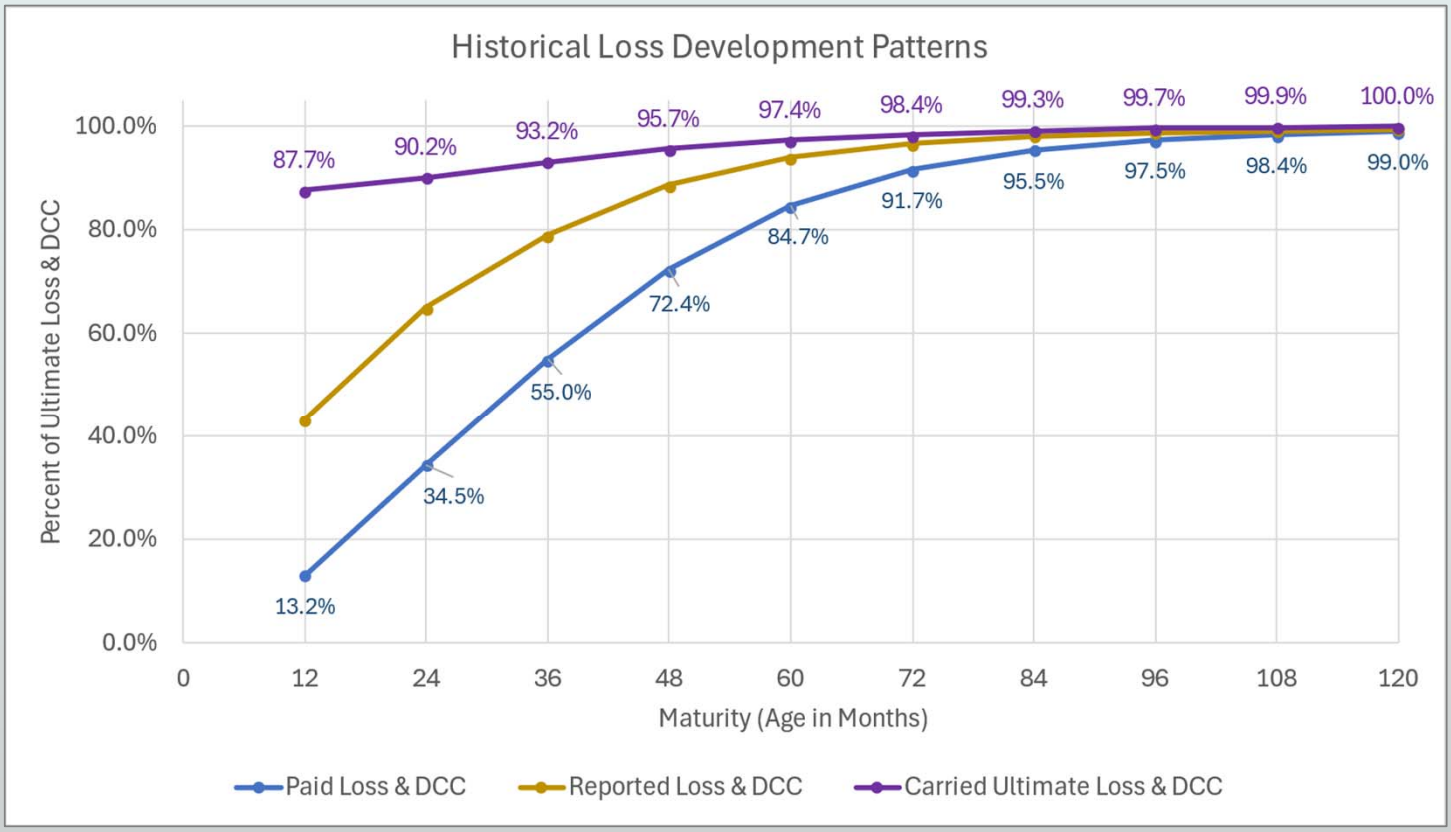
Consider the average paid, reported, and ultimate development patterns selected based on industry aggregate data for commercial auto liability (through year-end 2024).

Is it reasonable to expect current carried ultimate losses to develop upward as observed historically?



The historical carried loss reserve deficiency can be represented as a portion of year-end 2024 carried loss reserves. This approach, presented in the table below, uses the paid and ultimate development patterns selected based on historical averages.

Note that the historical reserve deficiency (as a percent of year-end 2024 carried loss reserves) is generally around 15% at each maturity. Does this suggest the presence of a systemic influence that affects loss reserve adequacy? Are year-end 2024 loss reserves likewise deficient by 15%?

		Maturity (Age in Months)									
	Formula	12	24	36	48	60	72	84	96	108	120
Percent of YE2024 Ultimate Paid Loss	**A**	13.2%	34.5%	55.0%	72.4%	84.7%	91.7%	95.5%	97.5%	98.4%	99.0%
Carried Ultimate Loss	**B**	87.7%	90.2%	93.2%	95.7%	97.4%	98.4%	99.3%	99.7%	99.9%	100.0%
Percent of YE2024 Ultimate Loss Reserves	**C = 1 - A**	86.8%	65.5%	45.0%	27.6%	15.3%	8.3%	4.5%	2.5%	1.6%	1.0%
Carried Reserve Deficiency	**D = 1 - B**	12.3%	9.8%	6.8%	4.3%	2.6%	1.6%	0.7%	0.3%	0.1%	0.0%
Percent of YE2024 Loss Reserves Carried Reserve Deficiency	**E = D / C**	14.2%	14.9%	15.2%	15.5%	17.1%	19.3%	15.6%	11.8%	6.2%	0.0%

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The key question here is: **will current carried ultimate losses develop in a predictable manner?**

To answer this question, we need to understand the reasons why historical ultimates developed as they did. Below is the beginning of a list of possible explanations. Since this is an industry aggregate, there are likely many factors which contribute to the overall pattern of ultimate development.

Possible Reasons for Historical Development of Carried Ultimate Loss

Intentional Reasons

- Deliberate understatement of loss reserves

Unintentional Reasons

- Unanticipated inflation / effects of inflation
- Unexpected rise in costs due to effectiveness of plaintiff litigation
- Social inflation
- Unrecognized bias in actuarial methodology
- Unrecognized bias in actuarial judgment
- Indirect effects from response to Covid
- Random volatility

Unknown Reasons

What reasons do you believe explain the pattern observed in commercial auto liability? What reasons would you add?

Do you believe it is reasonable to assume that the carried loss reserves as of year-end 2024 are deficient? Why or why not?

Find the article here:
https://archeractuarial.com/2025/04/01/adverse-development-in-commercial-auto-liability/