July 22, 2024

Alberta Automobile Insurance Rate Board
2440 Canadian Western Bank Place
10303 Jasper Avenue
Edmonton, AB T5J 3N6

Delivered via email: airb@gov.ab.ca

Attention: Mr. Jamie Hotte, FCIP, Chair

RE: FA Written Submission in regards to the Alberta Automobile Insurance Rate Board's Annual Review of Automobile Insurance Loss Experience: AIRB Draft Review of 2023-H2 Industry PPV and CV Experience

Dear Mr. Hotte,

Please find enclosed Facility Association's (FA) submission to the Alberta Automobile Insurance Rate Board's Annual Review of Automobile Insurance Loss Experience. Our submission is in two parts. The first section provides FA's perspective on the current state of the insurance market in the province. The second section, addresses the draft Oliver Wyman ("OW") report entitled "*Annual Review of Industry Experience – Preliminary Report as of December 31, 2023 Private Passenger Vehicles*" dated June 12, 2024 and "*Annual Review of Industry Experience – Preliminary Report as of December 31, 2023 Commercial Vehicles*" dated June 12, 2024 ("OW Reports").

Sincerely,

Philippe Gosselin
VP Actuarial & CRO

Encl.

c.c.: Karen Dyberg, Facility Association Board Chair
Saskia Matheson, Facility Association President & CEO

INTRODUCTION

FA's purpose is to ensure the availability of Automobile Insurance, and it is our continued position that this is best achieved through the availability of automobile insurance in the voluntary market in Alberta, providing consumers a choice in terms of both insurance provider and type and amount of coverage available[1]. We believe this aligns with the Alberta Automobile Insurance Rate Board ("AIRB") vision of fostering an efficient and effective automobile insurance market with fair and predictable rates. Availability, and a sustainable market with access for Albertans to the automobile insurance they need is the focus of our submission.

We continue to be concerned with potential availability issues in Alberta. We note that, except for 2020 to 2022H1, the OW estimates of PPV loss ratios (indemnity, ALAE, and ULAE) have persisted at only a marginal improvement from their peak in 2016, and have remained well above the 65% level we estimate would be consistent with the proposed benchmarks as per the OW Reports. This long-term high loss ratio environment since 2014 is confirmed in the OW report (please see the OW PPV Report Figure 6 on page 17). The lower loss ratios of 2020 to 2022H1 cannot be expected to continue as the pandemic restrictions and their economic impact recede.

While it was reasonable at the time to assume that the introduction of reforms in the last quarter of 2020 would have positively impacted the experience for 2020 to 2022H1, an accurate delineation of what resulted from product reform, and what resulted from the temporary impact of the pandemic and its economic consequences remains unclear.

It is challenging to promote both fairness and predictability in automobile insurance rates at a time when the underlying costs of benefits provided by the insurance product are very difficult to predict, as stated in several passages of the OW Reports. In light of this, we believe it is important to reiterate our longstanding position that the AIRB should use the benchmarking exercise to inform its considerations of rate filings, rather than to set specific targets, caps, or floors with respect to any one particular assumption. We appreciate that the AIRB has in fact moved to this approach in a number of rate filing aspects, and we urge the Board to continue.

This approach opens the opportunity for insurers to reflect their own experience, and their own assessment of future costs in providing their product/ service to the consumer. Opening this door further would allow insurers to set their rates based on their assessment of the competitive market in which they operate. It is our view that this approach results in the greatest consumer choice in both providers and products, while maintaining fairness to all parties in a healthy competitive market.

In contrast, setting specific values, floors or caps adversely impacts availability of voluntary automobile insurance, to the extent that capital providers in the voluntary market take an adverse view of their ability to charge rates that they have assessed relative to the future costs and risk of providing insurance. In recent years, the Board has taken important positive actions, such as the filing guidelines which permits the 'file and use filing'.

[1] Consumers in Alberta are required to purchase $200,000 of third party liability protection. However, it is clear that consumers see value in broader insurance coverage to protect them and their financial wellbeing, as only 0.1% of individually-rated private passenger vehicles were insured for the required minimum third party liability limit, according to 2023 data found in GISA industry data (the AUTO7501). Further, 74% purchased protection for their vehicle against collision/upset, and 83% purchased protection for their vehicle against theft and non-collision damage. We believe these statistics show a clear consumer appetite in the province for automobile insurance across many of the perils to which owning or operating an automobile exposes consumers.

The current filing guideline effective July 8, 2024 simplifies the list of changes permitted under file and use, which allows insurers to '*propose any change provided it meets the rate approval and consumer impact thresholds*'. This is greatly appreciated as it provides insurers with an efficient method to address their rate needs, which is especially essential after the rate pause period in 2023 for PPV.

However, due to Ministerial Order 38/2023, '*the AIRB may not approve any change to an insurer's rating program for PPV resulting in a rate increase of more than the Alberta Consumer Price Index (as of each September) for any individual policyholder meeting the definition of a "good driver"*'.

This restriction has impacts on the voluntary market, and raises concerns on profitability and availability.

While we realize these matters may not be within the AIRB's jurisdiction, there is an even greater need to respect the diversity of approaches in the market and, we would respectfully request the AIRB to consider expanding the areas where it permits flexibility for companies when selecting assumptions supporting their rate applications, including:

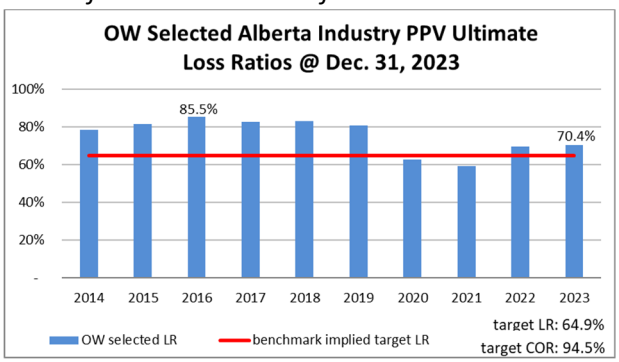
- Selection of industry ultimate claim counts and amounts supporting their analyses (including trend analyses);
- Selection of trend models (including the underlying methodology and approach) and associated estimates of trends or other changes to claims metrics;
- Operational expenses; and
- Profit provisions (in terms of both the metric to use, and the level to target).

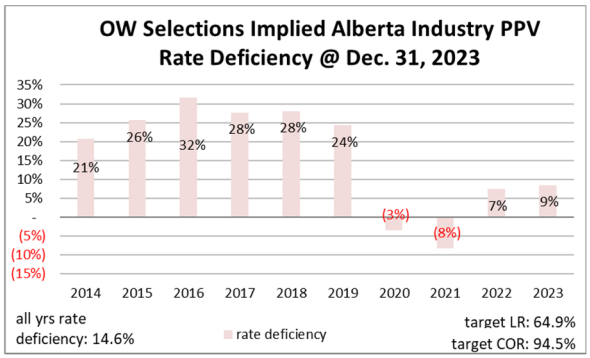
We believe it is important to protect the foundation for a flexible future system, where insurers would be able to include their best estimates of future costs based on their own assumptions, judged by the AIRB on their own merit and the basis of reasonableness, considering prediction uncertainty.

In considering these areas of potential flexibility, it is important to recognize the extent of the current estimated rate deficiency in the province. Based on our interpretation, the proposed benchmark assumptions would indicate a target indemnity and claims expense ratios of approximately 65% for both PPV and CV. The charts below summarize the estimated rate deficiencies for PPV and CV, by accident year, relative to this target level.

It is important to note that these are not estimates of actual hindsight rate deficiencies, nor do they represent FA models of required profitability. This is rather the estimated rate deficiency when applying the OW benchmark assumptions per the current preliminary benchmark reports. We have not attempted to put claims or premium amounts "on-level" (i.e. adjusted claims for trends/reforms over time; adjusted premium levels for premium trend and rate changes).

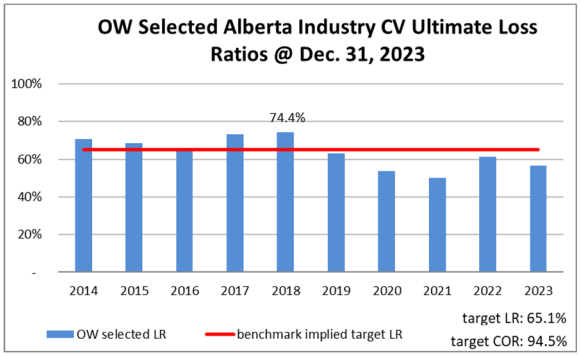
*Industry Alberta **PPV** @ December 31, 2023 - OW selected indemnity, ALAE, ULAE LRs and implied rate deficiencies on basis of OW selected current benchmarks*

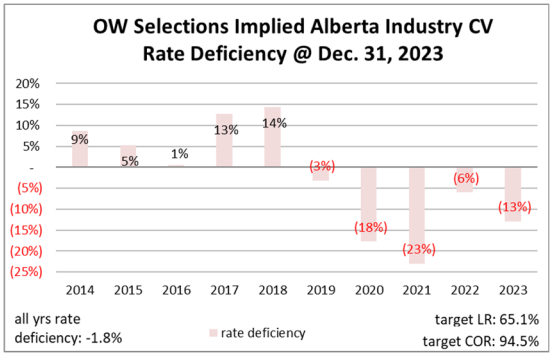




For PPV, if we exclude 2020 to 2022H1, the weighted average rate deficiency is 23.1% or **greater than $6.2 billion in PPV premium shortfall over that 7.5-year period**. If we were to include 2020 to 2022H1, the weighted average rate deficiency would decrease to 14.6% or **greater than $5.5 billion in PPV premium shortfall over that 10-year period.** Thus even with the full impact of the reduced claims from the pandemic on costs, there remains a significant shortfall in the long-term industry's profitability[2].

*Industry Alberta **CV** @ December 31, 2023 - OW selected indemnity, ALAE, ULAE LRs and implied rate deficiencies on basis of OW selected current benchmarks*





While the Alberta industry CV average premium redundancy over the decade is not as significant (-1.8%), experience prior to COVID-19 from 2014 to 2019 saw deficiency ranging from -3% to +14% with a weighted average rate deficiency of 6.3% or greater than $185 million in CV premium shortfall over that 6-years period.

Also of note is that since 2016, the industry CV written exposure has been decreasing steadily, while the FARM CV written exposure and market share has been steadily increasing. Indeed, FARM market share has more than doubled in this time frame, increasing from 1.2% in 2016 to 3.3% in 2021 and small decrease to 3.1% in 2022 (FARM CV written exposure increased to 9,888 in 2023 from 9,302 in 2022, 2023 industry AIX data is not available at this time). The continued increase of the FARM CV written exposure and FARM CV market share up to 2021 points to a divergent view in the industry around the projected profitability of this sector, and we are concerned for future availability in Alberta for commercial vehicles.

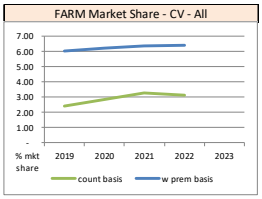
[2] OW PPV Report Table 6 on page 27 shows the profit since 2014, the profit provision for the most years were negative or less than 2%, except 2020, 2021 and 2023.

While we appreciate that the Board intends to review commercial benchmarks separately, the PPV and CV markets exist in close proximity, and the health of one will impact the overall health of the other. Thus for its own sake, as well as its influence on the automobile insurance market overall, we would recommend the Board to consider the growth in FA's market share, and the pressure on FA's CV loss ratio into consideration when reviewing the CV benchmark loss cost trends.

The chart below shows the Alberta CV FARM market share since 2019[3].

Written Premium is in $000s

		FARM AB - CV - All			Industry AB - CV - All			FARM Market Share / AWP Comparison		
Commercial Vehicles	Year	Written Exposure (excl trailers) - policy	Written Premium	Average Written Premium	Written Exposure (excl trailers) - policy	Written Premium	Average Written Premium	FARM Market Share (veh counts)	FARM Market Share (w prem)	FARM / Industry AWP
CV	2019	7,898	37,921	4,802	330,467	631,058	1,910	2.39	6.01	251
CV	2020	8,333	42,162	5,060	295,476	678,318	2,296	2.82	6.22	220
CV	2021	9,299	45,484	4,891	285,834	719,074	2,516	3.25	6.33	194
CV	2022	9,302	48,221	5,184	296,094	752,899	2,543	3.14	6.40	204
CV	2023	9,888	52,994	5,359	-	-	n/a			n/a
	Total	44,719	226,781	5,071	1,207,871	2,781,349	2,303	3.70	8.15	220

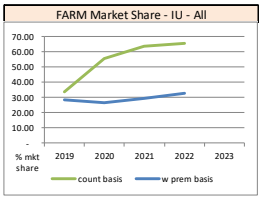


CV trend also applies to Interurban, and thus we also need to consider the significant increase of FARM IU written premium. Please note that FARM IU market share is best to be evaluated based on written premium instead of exposures due to most of the industry writing blanket fleet since 2017, and thus there are discrepancies with reported vehicle counts. Please also note that the 2023 industry AIX data is not available at this time, the FARM IU written premium decreased from 85 million in 2022 to 75 million in 2023. We believe the reduction of FARM IU book is a result of FA's rate actions, namely the Canadian Mileage Rating Matrix introduced effective October 1, 2022, which enables charging premiums more accurately based on where the vehicles operate rather than where they are registered, and base rates and rule changes on fleet business.

The chart below shows the Alberta IU FARM market share since 2019[4].

Written Premium is in $000s

		FARM AB - IU - All			Industry AB - IU - All			FARM Market Share / AWP Comparison		
Interurban	Year	Written Exposure (excl trailers) - policy	Written Premium	Average Written Premium	Written Exposure (excl trailers) - policy	Written Premium	Average Written Premium	FARM Market Share (veh counts)	FARM Market Share (w prem)	FARM / Industry AWP
IU	2019	4,933	54,456	11,038	14,763	191,456	12,969	33.42	28.44	85
IU	2020	5,438	50,394	9,268	9,790	189,002	19,306	55.55	26.66	48
IU	2021	7,702	67,934	8,820	12,083	229,652	19,006	63.74	29.58	46
IU	2022	9,066	85,347	9,414	13,883	260,708	18,779	65.31	32.74	50
IU	2023	7,673	74,989	9,773	-	-	n/a			n/a
	Total	34,812	333,121	9,569	50,518	870,818	17,238	68.91	38.25	56



[3] The 2023 industry data is not available at the time of this submission.

[4] The 2023 industry data is not available at the time of this submission.

SPECIFIC COMMENTS REGARDING THE ANNUAL REVIEW OF INDUSTRY EXPERIENCE

This document represents the Facility Association ("FA") written submission to the Alberta Automobile Insurance Rate Board ("AIRB") with respect to the Oliver Wyman reports entitled "*Annual Review of Industry Experience – Preliminary Report as of December 31, 2023 Private Passenger Vehicles*" dated June 12, 2024 and "*Annual Review of Industry Experience – Preliminary Report as of December 31, 2023 Commercial Vehicles*" dated June 12, 2024 ("OW Reports").

We appreciate the opportunity to provide feedback, and we have focused our comments on the following areas:

- Selection of ultimates and valuation methodologies;
- Use of indemnity + ALAE + ULAE vs use of indemnity alone;
- Reforms and Impact;
- Post-Pandemic Frequency Level and New Normal Factors;
- Consistency and transparency of trends selection approach; and
- Selection of loss trend rates and Uncertainty

Summary of Selection

Our position has not changed that:

> For each coverage, there are many possible models for frequency, severity, and loss costs that are valid and reasonable. The ultimate selection of models by insurers in developing their rates is a matter of judgment and interpretation that can differ among actuaries even when modeling the same data. Differences should be expected and be seen as healthy in a competitive environment. It is the nature of the actuarial science.
>
> Specifically, we feel it is important for the Board to consider that valid differences in actuarial judgment and opinion can lead to different selections of ultimates, and different trend results. Indeed, different models can fit actual results equally well, and yet, due to their structure (i.e. the selected parameters included in each), result in divergent forecasts.
>
> We also believe the Board should allow the applicant to set their prices and market share on their views of ultimates and their selections of models describing frequency/severity/loss costs over time and as projected into the future. The rate review process should focus on whether the filing insurer's process to arrive at their forecast was reasonable (and consistent with the insurer's previous views / process / approach unless an explanation is provided as to what has changed and why). If so satisfied, we believe the Board should accept the filing insurer's view, even if it differs from the view of the Board's actuary.
>
> Forcing all participants in the insurance market place to adopt a single view introduces systemic risk and potentially detracts from the competitive marketplace should certain participants reduce their risk appetite where they do not agree with the imposed view. This can lead to an overly prescriptive regulatory environment, which we believe is not the intention of the Board.

1. Selection of ultimates and valuation methodologies

For all coverages, the OW selection of ultimates (counts / amounts) is based on the selection of loss development factors (chain ladder method) using industry data through December 31, 2023.

Once again, our position has not changed that we believe it is uncommon practice in Canada for a valuation actuary to rely on a single valuation **methodology in completing a valuation** as this introduces significant model risk (the risk that the model employed is not appropriate or has significant shortcomings for the experience being projected). To minimize model risk it is common to employ different models.

The selection of ultimates is a critical and foundational input of the loss trend analysis and this is acknowledged in the OW Report when they mentioned that "*We note that the selection of development factors influences the selected loss trend rates*". We believe there are a number of factors contributing to the uncertainty in estimating Alberta Industry ultimates and that the "range of reasonable" valuation estimates is wide which subsequently leads to a wide range of reasonable trend estimates.

As an example, we believe that the Covid pandemic and the current macroeconomic environment are affecting claims development pattern and therefore, the loss development method would be unduly affected.

As the AIRB's vision is for fair and predictable rates, the accuracy of the predictions used for setting benchmarks should be assessed as part of the annual process.

2. Use of indemnity + ALAE + ULAE vs use of indemnity alone

OW uses indemnity plus allocated loss adjustment expense (ALAE) plus unallocated loss adjustment expense (ULAE)[5] as the basis for loss amounts in their trend analysis.

Even though we understand that the combined indemnity and expense data is the norm in the industry, we would like to emphasize that the indemnity and expense data, as well as the underlying development and trend may be significantly different. Consequently, we should consider this if the analysis is based on the combination of both.

If the objective is to minimize any impacts or distortions in the data that may arise from insurers changing their mix of ULAE and ALAE over time, this can be achieved by modeling indemnity only data and recognizing that individual insurers are in a much better position to make direct adjustments for any shifts in their usage of ULAE vs ALAE over time, as they deem appropriate.

FA is analyzing the Alberta Industry PPV and CV trends on an indemnity basis only and as explained above, this could result in different selections than those made by OW.

3. Reforms and Impact

The OW PPV Report stated "*In this review, we consider the data that has emerged since these reforms were implemented and estimate the actual impact of these reforms to the extent possible – as a preliminary assessment"* and included estimated -11.1% actual impact on bodily injury loss cost and +13.5% on accident benefits severity.

The current FA's trend analysis based on PPV & CV Industry Experience as of December 31, 2023 also estimates the actual reform impacts based on the data that has emerged since these reforms were

[5] GISA published ULAE factors have been used.

implemented, where the FA's bodily injury and accident benefit severity models indicate that the 2020 reform scalar change is not statistically significant.

We agree with OW's statement "*Due to the comingling effect of COVID-19 and the reforms during same period, there is some uncertainty in the estimate the impact of each (the reform and COVID-19) on bodily injury or accident benefits claims frequency*" and "*We expect a more accurate assessment of the 2020 reforms and new normal parameters as more data emerges*.", we believe the current FA's approach to estimate the reform impact on claims is reasonable, with more data emerging, the more accurate impacts of COVID-19, 2020 reform, and post pandemic claims level would be estimated.

In 2020, Bill 41 amended the *Insurance Act* of Alberta to change the prejudgment interest (PJI) on general damages from a flat 4% to now having its rate tied to the PJI prescribed by the regulation, which follows changes in bank rates. At the time of the amendment, PJI was 1.5%, dropping over the next two years closed to 0%, thus lowering insurer's exposure to PJI. However, in 2023 the PJI rate jumped significantly, effectively undoing any benefit Bill 41 provided to insurers regarding PJI. With the rate now subject to the adjustments under the Regulation, high interest rate environment in recent years maintained by the Bank of Canada results in Bill 41's amendments continuing to cause higher exposure to insurers on PJI for general damages, which is the opposite of what Bill 41 intended. While there's an expectation of interest rate decrease in the upcoming future, this needs to be monitored closely as it affects various actuarial assumptions.

We agree that rather than having a prescribed benchmark for reform adjustment factor, each insurer should have the ability to determine the appropriate adjustment factor based on emerging data with actuarially sound methods.

4. Post-Pandemic Frequency Level and Combined New Normal Factors

The OW report states: "*Insurers may find it appropriate to include an adjustment to the frequency level assumed in the rate application to reflect the new normal in the post pandemic era"* and *"Insurers should consider the degree to which the post-pandemic "new-normal" is expected to impact claim cost during the proposed rate program"*.

OW presents "Combined New Normal Factor" when applied to historical experience period data, would adjust that experience data for the combination of (1) unwinding the influence of the COVID-19 pandemic, (2) to the cost level under Bill 41 and introduction of DCPD and (3) "new normal" of the post-pandemic era (see summary tables below from OW PPV Report page 90 to 93, and OW CV Report page 63 to 66).

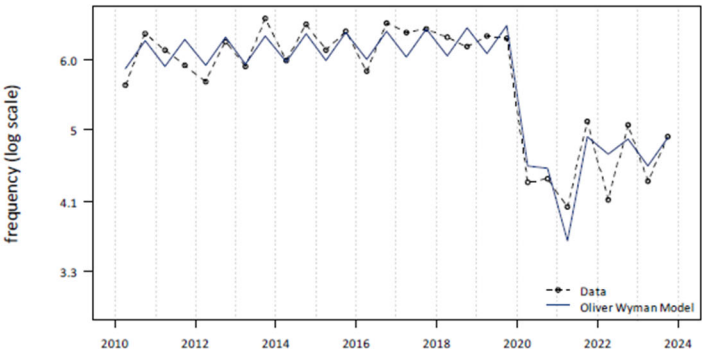
	PPV Combined New Normal Factors			
Accident Semester	BI	PD & DCPD	AccBen	CL
201901	0.712	1.000	0.859	0.618
201902	0.712	1.000	0.859	0.618
202001	0.985	1.409	1.229	0.910
202002	1.076	1.503	1.314	0.978
202101	1.227	1.628	1.429	1.070
202102	0.987	1.294	1.124	0.826
202201	0.963	1.259	1.093	0.801
202202	1.000	1.000	1.000	1.000
202301	1.000	1.000	1.000	1.000
202302	1.000	1.000	1.000	1.000

	CV Combined New Normal Factors			
Accident Semester	BI	PD & DCPD	AccBen	CL
201901	0.891	0.795	1.326	0.685
201902	0.891	0.795	1.326	0.685
202001	1.074	1.099	1.682	0.873
202002	1.155	1.168	1.596	0.913
202101	1.304	1.260	1.403	0.966
202102	1.150	1.014	1.196	0.821
202201	1.134	0.988	1.174	0.806
202202	1.000	1.000	1.000	1.000
202301	1.000	1.000	1.000	1.000
202302	1.000	1.000	1.000	1.000

As OW Report provides "Combined New Normal Factors" that reflect the influence of COVID-19, the November 2020 reforms, and the post-pandemic new normal, but has not provided additional information on how the factors were derived, we focus on testing OW PPV models for BI, Accident Benefit, and Collision to gain more insight on the Combined New Normal Factors based on FA data set.

BI Frequency - OW Figure 14 and model outputs Based on FA's data set - 2010-H1 to 2023-H2 data

Figure 14: Bodily Injury - Fitted Frequency, Severity and Loss Cost



Parameter	Coefficient	p.value	Adj.R2
Trend	0.005	0.278	0.896
Mobility	0.014	0	
Seasonality	0.077	0.001	
New Normal Scalar	-0.252	0.001	
2020 Reform Scalar	-0.082	0.13	
Trend Rate	+0.5%		

Model Output – OW PPV BI Frequency Model (with time, seasonality, mobility[6], 2020 Reform Scalar, and New Normal Scalar) applied to FA BI data set - based on 2010-H1 to 2023-H2 data.

FITTED TREND STRUCTURE REGRESSION STATISTICS - FREQUENCY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9566	0.9152	0.8959	0.0552	28	12	6

Runs-Test Result: 1.8479 RESIDUALS RUNS RANDOM ; residuals normal

parameters with p-value >5%: 2 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.	
	1	2						
Intercept	(7.383)	8.378	(0.881)	38.8%	(24.758)	9.993	(7.383)	6
Season	0.077	0.021	3.644	0.1%	0.033	0.121	0.077	5
All Years	0.005	0.004	1.095	28.5%	(0.004)	0.013	0.005	4
Scalar 1	0.014	0.002	7.521	0.0%	0.010	0.018	0.014	3
Trend 1	-	-	-	n/a	-	-	-	0
Scalar 2	(0.084)	0.052	(1.604)	12.3%	(0.193)	0.025	(0.084)	2
Trend 2	-	-	-	n/a	-	-	-	0
Scalar 3	(0.253)	0.064	(3.961)	0.1%	(0.386)	(0.121)	(0.253)	1
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - FREQUENCY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9566	0.9152	0.8959	0.0552	28	12	6

Runs-Test Result: 1.8479 RESIDUALS RUNS RANDOM ; residuals normal

	Fitted Annual	Previous Selected	Selected Annual	selected = fitted	
past	0.5%	0.0%	0.5%	'22H1	=> last period in "past"
future	0.5%	0.0%	0.5%		

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.
All Yrs or AY	0.005	0.004	1.095	28.5%	(0.004)	0.013	0.005
AY+1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

The model outputs based on FA BI data set are consistent with the results from OW report figure 14 (see above). As both OW and FA models outputs indicate the All Years Trend and 2020 Reform Scalar 2 are not statistically significant, they should be removed from the models. The valid model outputs based on FA BI data set are provided below.

[6] Include mobility variables of -22.16, -26.32, -31.49, -16.63, and -14.90 for 2020-H1 to 2022-H1 from 2023 OW report.

FITTED TREND STRUCTURE REGRESSION STATISTICS - FREQUENCY						
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9504	0.9033	0.8912	0.0564	28	12	4

Runs-Test Result: 1.1439 RESIDUALS RUNS RANDOM ; residuals normal

parameters with p-value >5%: 0 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.	
	1	2						
Intercept	1.794	0.017	108.542	0.0%	1.759	1.828	1.794	4
Season	0.079	0.022	3.652	0.1%	0.034	0.123	0.079	3
All Years	-	-	-	n/a	-	-	-	0
Scalar 1	0.015	0.001	12.733	0.0%	0.013	0.018	0.015	2
Trend 1	-	-	-	n/a	-	-	-	0
Scalar 2	-	-	-	n/a	-	-	-	0
Trend 2	-	-	-	n/a	-	-	-	0
Scalar 3	(0.299)	0.035	(8.539)	0.0%	(0.372)	(0.227)	(0.299)	1
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

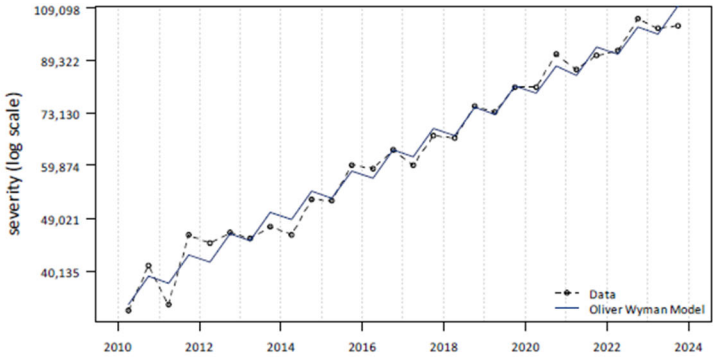
SELECTED TREND STRUCTURE REGRESSION STATISTICS - FREQUENCY						
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9504	0.9033	0.8912	0.0564	28	12	4

Runs-Test Result: 1.1439 RESIDUALS RUNS RANDOM ; residuals normal

	Fitted Annual	Previous Selected	Selected Annual	selected = fitted	
past	0.0%	0.0%	0.0%	'22H1	=> last period in "past"
future	0.0%	0.0%	0.0%		

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.
All Yrs or AY	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

BI Severity - OW Figure 14 and model outputs based on FA's data set - 2010-H1 to 2023-H2 data



Parameter	Coefficient	p.value	Adj.R2
Trend	0.08	0	0.984
Seasonality	0.067	0	
2020 Reform Scalar	-0.012	0.669	
Trend Rate	+8.3%		

Model Output – OW PPV BI Severity Model (with time, seasonality, and 2020 Reform Scalar) applied to FA BI data set - based on 2010-H1 to 2023-H2 data.

FITTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY						
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9935	0.9871	0.9855	0.0401	28	12	4

Runs-Test Result: 0.9807 RESIDUALS RUNS RANDOM ; residuals normal

parameters with p-value >5%: 1 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.	
	1	2						
Intercept	(156.278)	5.645	(27.686)	0.0%	(167.928)	(144.628)	(156.278)	4
Season	0.070	0.015	4.572	0.0%	0.038	0.101	0.070	3
All Years	0.083	0.003	29.579	0.0%	0.077	0.089	0.083	2
Scalar 1	(0.046)	0.028	(1.650)	11.2%	(0.103)	0.011	(0.046)	1
Trend 1	-	-	-	n/a	-	-	-	0
Scalar 2	-	-	-	n/a	-	-	-	0
Trend 2	-	-	-	n/a	-	-	-	0
Scalar 3	-	-	-	n/a	-	-	-	0
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY						
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9935	0.9871	0.9855	0.0401	28	12	4

Runs-Test Result: 0.9807 RESIDUALS RUNS RANDOM ; residuals normal

	Fitted Annual	Previous Selected	Selected Annual	selected = fitted	
past	8.6%	9.4%	8.6%	'20H2	=> last period in "past"
future	8.6%	9.4%	8.6%		

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.
All Yrs or AY	0.083	0.003	29.579	0.0%	0.077	0.089	0.083
AY+1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

The model outputs based on FA BI data set are consistent with the results from OW report figure 14 (see above). As both OW and FA models outputs indicate 2020 Reform Scalar 1 is not statistically significant, it should be removed from the models. The valid model outputs based on FA BI data set are provided below.

FITTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9928	0.9856	0.9845	0.0415	28	12	3

Runs-Test Result: 1.3050 RESIDUALS RUNS RANDOM ; residuals normal

parameters with p-value >5%: 0 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. Lower	95% Upper	Selected Coeff.	
	1	2						
Intercept	(149.385)	3.924	(38.068)	0.0%	(157.467)	(141.303)	(149.385)	3
Season	0.070	0.016	4.464	0.0%	0.038	0.103	0.070	2
All Years	0.079	0.002	40.821	0.0%	0.075	0.083	0.079	1
Scalar 1	-	-	-	n/a	-	-	-	0
Trend 1	-	-	-	n/a	-	-	-	0
Scalar 2	-	-	-	n/a	-	-	-	0
Trend 2	-	-	-	n/a	-	-	-	0
Scalar 3	-	-	-	n/a	-	-	-	0
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9928	0.9856	0.9845	0.0415	28	12	3

Runs-Test Result: 1.3050 RESIDUALS RUNS RANDOM ; residuals normal

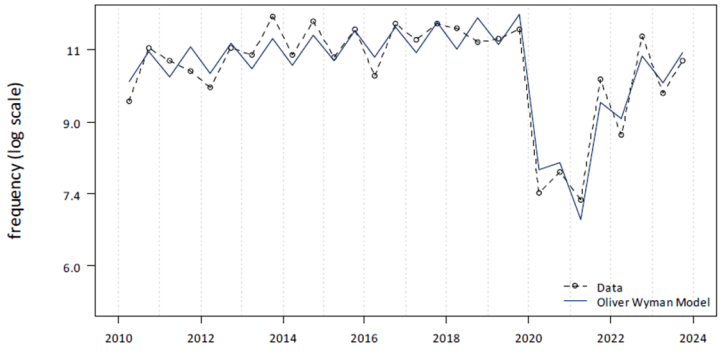
	Fitted Annual	Previous Selected	Selected Annual	selected = fitted	
past	8.3%	9.4%	8.3%	'23H2	=> last period in "past"
future	8.3%	9.4%	8.3%		

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. Lower	95% Upper	Selected Coeff.
All Yrs or AY	0.079	0.002	40.821	0.0%	0.075	0.083	0.079
AY+1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

OW BI frequency and severity models both indicate the 2020 reform scalar is not statistically significant and should be removed from the models. The valid models would result in an estimated 0.0% 2020 reform scalar change and that is consistent with FA's estimated 2020 reform impact on BI claims.

Accident Benefit Frequency - OW Figure 18 and model outputs based on FA's data set - 2010-H1 to 2023-H2 data

Figure 18: Accident Benefits Total - Fitted Frequency, Severity and Loss Cost



Parameter	Coefficient	p.value	Adj.R2
Trend	0.011	0.003	0.886
Mobility	0.016	0	
Seasonality	0.078	0	
New Normal Scalar	-0.15	0.001	
Trend Rate	+1.1%		

Model Output – OW PPV AccBen Frequency Model (with time, seasonality, mobility[7], and New Normal Scalar) applied to FA AccBen data set - based on 2010-H1 to 2023-H2 data

FITTED TREND STRUCTURE REGRESSION STATISTICS - FREQUENCY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9497	0.9020	0.8849	0.0474	28	12	5

Runs-Test Result: 0.7739 RESIDUALS RUNS RANDOM ; residuals normal

parameters with p-value >5%: 0 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. Lower	95% Upper	Selected Coeff.	
	1	2						
Intercept	(20.469)	6.962	(2.940)	0.7%	(34.871)	(6.067)	(20.469)	5
Season	0.078	0.018	4.302	0.0%	0.040	0.116	0.078	4
All Years	0.011	0.003	3.280	0.3%	0.004	0.018	0.011	3
Scalar 1	0.016	0.001	11.985	0.0%	0.013	0.019	0.016	2
Trend 1	-	-	-	n/a	-	-	-	0
Scalar 2	(0.152)	0.041	(3.753)	0.1%	(0.236)	(0.068)	(0.152)	1
Trend 2	-	-	-	n/a	-	-	-	0
Scalar 3	-	-	-	n/a	-	-	-	0
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - FREQUENCY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9497	0.9020	0.8849	0.0474	28	12	5

Runs-Test Result: 0.7739 RESIDUALS RUNS RANDOM ; residuals normal

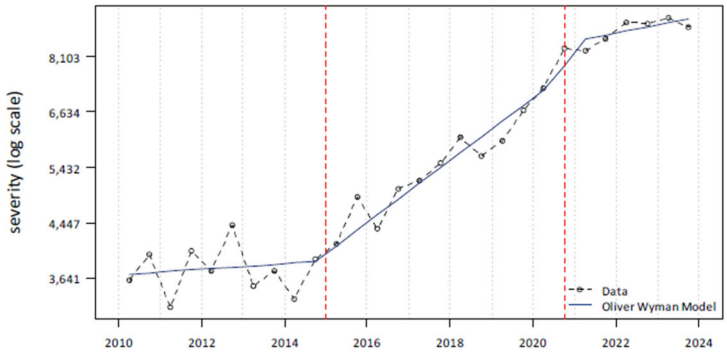
	Fitted Annual	Previous Selected	Selected Annual	selected = fitted	
past	1.1%	1.2%	1.1%	'22H2	=> last period in "past"
future	1.1%	1.2%	1.1%		

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. Lower	95% Upper	Selected Coeff.
All Yrs or AY	0.011	0.003	3.280	0.3%	0.004	0.018	0.011
AY+1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

[7] Include mobility variables of -22.16, -26.32, -31.49, -16.63, and -14.90 for 2020-H1 to 2022-H1 from 2023 OW report.

The model outputs based on FA AccBen data set are consistent with the results from OW report figure 18 (see above).

Accident Benefit Severity - OW Figure 18 and model outputs based on FA's data set - 2010-H1 to 2023-H2 data



Parameter	Coefficient	p.value	Adj.R2
Trend	0.01	0.436	0.961
2015 Trend Change	0.103	0	
2020 Reform Scalar	0.127	0.131	
2020 Trend Change	-0.084	0.02	
Trend Rate (Period 1)	+1.0%		
Trend Rate (Period 2)	+11.9%		
Trend Rate (Period 3)	+3.0%		

Model Output – OW PPV AccBen Severity Model (with time, 2015 Trend Change, 2020 Reform Scalar, and 2020 Trend Change) applied to FA AccBen data set - based on 2010-H1 to 2023-H2 data

FITTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9817	**0.9637**	**0.9574**	0.0733	28	12	5

Runs-Test Result: 0.6904 RESIDUALS RUNS RANDOM ; residuals normal

parameters with p-value >5%: 3 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.	
	1	2						
Intercept	(16.380)	26.639	(0.615)	54.5%	(71.486)	38.727	(16.380)	5
Season	-	-	-	n/a	-	-	-	0
All Years	0.012	0.013	0.917	36.9%	(0.015)	0.040	0.012	4
Scalar 1	-	-	-	n/a	-	-	-	0
Trend 1	0.101	0.021	4.841	0.0%	0.058	0.144	0.101	3
Scalar 2	0.090	0.084	1.065	29.8%	(0.085)	0.265	0.090	2
Trend 2	(0.071)	0.035	(2.031)	5.4%	(0.144)	0.001	(0.071)	1
Scalar 3	-	-	-	n/a	-	-	-	0
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9817	**0.9637**	**0.9574**	0.0733	28	12	5

Runs-Test Result: 0.6904 RESIDUALS RUNS RANDOM ; residuals normal

	Fitted Annual	Previous Selected	Selected Annual	selected = fitted
Period 1	**1.2%**	1.2%	**1.2%**	'20H2 => last period in "past"
Period 2	**12.0%**	11.6%	**12.0%**	
Period 3	**4.3%**	11.6%	**4.3%**	

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.
All Yrs or AY	0.012	0.013	0.917	36.9%	(0.015)	0.040	0.012
AY+1	0.113	0.010	11.211	0.0%	0.092	0.134	0.113
AY+1+2	0.042	0.034	1.233	23.0%	(0.029)	0.113	0.042
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

The model outputs based on FA AccBen data set are consistent with the results from OW report figure 18 (see above). As both OW and FA models outputs indicate All Years Trend and 2020 Reform Scalar 2 are not statistically significant, they should be removed from the models. The valid model outputs based on FA Accident benefit data set are provided below.

FITTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9803	**0.9610**	**0.9579**	0.0729	28	12	3

Runs-Test Result: 1.3640 RESIDUALS RUNS RANDOM ; residuals normal

parameters with p-value >5%: 0 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.	
	1	2						
Intercept	8.041	0.020	393.386	0.0%	7.998	8.083	8.041	3
Season	-	-	-	n/a	-	-	-	0
All Years	-	-	-	n/a	-	-	-	0
Scalar 1	-	-	-	n/a	-	-	-	0
Trend 1	0.122	0.007	17.238	0.0%	0.108	0.137	0.122	2
Scalar 2	-	-	-	n/a	-	-	-	0
Trend 2	(0.054)	0.025	(2.152)	4.1%	(0.105)	(0.002)	(0.054)	1
Scalar 3	-	-	-	n/a	-	-	-	0
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9803	**0.9610**	**0.9579**	0.0729	28	12	3

Runs-Test Result: 1.3640 RESIDUALS RUNS RANDOM ; residuals normal

	Fitted Annual	Previous Selected	Selected Annual	selected = fitted
Period 1	**0.0%**	1.2%	**0.0%**	'20H2 => last period in "past"
Period 2	**13.0%**	11.6%	**13.0%**	
Period 3	**7.1%**	11.6%	**7.1%**	

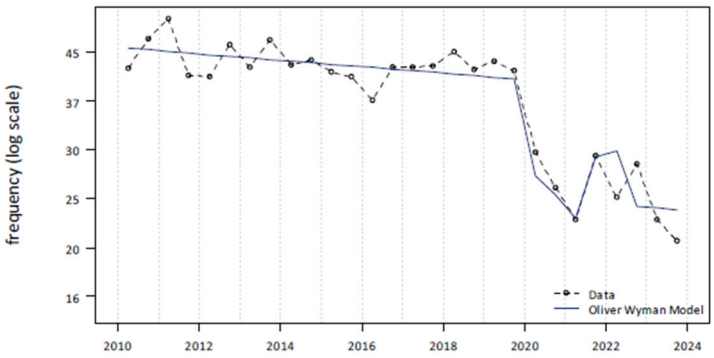
Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.
All Yrs or AY	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1	0.122	0.007	17.238	0.0%	0.108	0.137	0.122
AY+1+2	0.069	0.020	3.459	0.2%	0.028	0.110	0.069
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

OW Accident Benefit frequency and severity models both indicate the 2020 reform scalar is not statistically significant (OW AccBen frequency does not include 2020 reform scalar parameter) and

should be removed from the models. The valid models would result an estimated 0.0% 2020 reform scalar change and that is consistent with FA's estimated 2020 reform impact on Accident Benefit claims.

Collision Frequency - OW Figure 20 and model outputs based on FA's data set - 2010-H1 to 2023-H2 data

Figure 20: Collision - Fitted Frequency, Severity and Loss Cost



Parameter	Coefficient	p.value	Adj.R2
Trend	-0.013	0.05	0.887
Mobility	0.017	0	
New Normal	-0.482	0	
Trend Rate	-1.3%		

Model Output – OW PPV CL Frequency Model (with time, mobility[8], and New Normal Scalar) applied to FA CL data set - based on 2010-H1 to 2023-H2 data

FITTED TREND STRUCTURE REGRESSION STATISTICS - FREQUENCY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9360	**0.8761**	**0.8606**	0.0953	28	12	4

Runs-Test Result: 1.1439 RESIDUALS RUNS RANDOM ; residuals normal

parameters with p-value >5%: 1 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.	
	1	2						
Intercept	36.931	13.614	2.713	1.2%	8.834	65.029	36.931	4
Season	-	-	-	n/a	-	-	-	0
All Years	(0.016)	0.007	(2.438)	2.3%	(0.030)	(0.003)	(0.016)	3
Scalar 1	0.004	0.002	1.761	9.1%	(0.001)	0.009	0.004	2
Trend 1	-	-	-	n/a	-	-	-	0
Scalar 2	(0.360)	0.068	(5.290)	0.0%	(0.501)	(0.220)	(0.360)	1
Trend 2	-	-	-	n/a	-	-	-	0
Scalar 3	-	-	-	n/a	-	-	-	0
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - FREQUENCY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9360	**0.8761**	**0.8606**	0.0953	28	12	4

Runs-Test Result: 1.1439 RESIDUALS RUNS RANDOM ; residuals normal

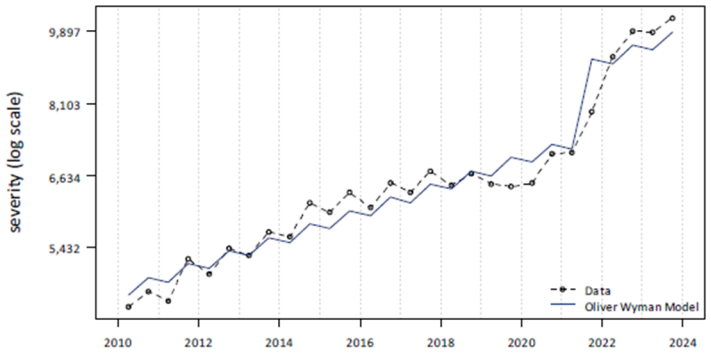
	Fitted Annual	Previous Selected	Selected Annual	selected = fitted
past	(1.6%)	(1.1%)	(1.6%)	'22H1 => last period in "past"
future	(1.6%)	(1.1%)	(1.6%)	

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. 95% Lower	C.I. 95% Upper	Selected Coeff.
All Yrs or AY	(0.016)	0.007	(2.438)	2.3%	(0.030)	(0.003)	(0.016)
AY+1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

The model outputs based on FA CL data set are consistent with the results from OW report figure 20 (see above). However, the model output based on FA CL data set indicates that the mobility parameter is not statistically significant and should be removed from the model.

[8] Include mobility variables of -22.16, -26.32, -31.49, -16.63, and -14.90 for 2020-H1 to 2022-H1 from 2023 OW report.

Collision Severity - OW Figure 20 and model outputs based on FA's data set - 2010-H1 to 2023-H2 data



Parameter	Coefficient	p.value	Adj.R2
Trend	0.037	0	0.951
Seasonality	0.032	0.099	
Inflation Scalar	0.2	0	
Trend Rate	+3.8%		

Model Output – OW PPV CL Severity Model (with time, seasonality, and inflation scalar at 2021-H2) applied to FA CL data set - based on 2010-H1 to 2023-H2 data

FITTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9737	0.9482	0.9417	0.0541	28	12	4

Runs-Test Result: 4.7518 RESIDUALS RUNS NOT RANDOM; Residuals NOT normal

parameters with p-value >5%: 1 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. Lower	95% Upper	Selected Coeff.	
	1	2						
Intercept	(68.493)	6.824	(10.037)	0.0%	(82.577)	(54.409)	(68.493)	4
Season	0.034	0.021	1.654	11.1%	(0.008)	0.076	0.034	3
All Years	0.038	0.003	11.289	0.0%	0.031	0.045	0.038	2
Scalar 1	0.198	0.036	5.524	0.0%	0.124	0.272	0.198	1
Trend 1	-	-	-	n/a	-	-	-	0
Scalar 2	-	-	-	n/a	-	-	-	0
Trend 2	-	-	-	n/a	-	-	-	0
Scalar 3	-	-	-	n/a	-	-	-	0
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9737	0.9482	0.9417	0.0541	28	12	4

Runs-Test Result: 4.7518 RESIDUALS RUNS NOT RANDOM; Residuals NOT normal

	Fitted Annual	Previous Selected	Selected Annual	selected = fitted
past	3.9%	4.5%	3.9%	'21H1 => last period in "past"
future	3.9%	4.5%	3.9%	

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. Lower	95% Upper	Selected Coeff.
All Yrs or AY	0.038	0.003	11.289	0.0%	0.031	0.045	0.038
AY+1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

The model outputs based on FA CL data set are consistent with the results from OW report figure 20 (see above). As both OW and FA models outputs indicate seasonality is not statistically significant, it should be removed from the models. The valid model outputs based on FA CL data set are provided below.

FITTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9707	0.9423	0.9377	0.0560	28	12	3

Runs-Test Result: 3.4524 RESIDUALS RUNS NOT RANDOM; Residuals normal

parameters with p-value >5%: 0 (intercept specifically not included)

	Coefficients	S.E.	t-Stat	p-value	C.I. Lower	95% Upper	Selected Coeff.	
	1	2						
Intercept	(68.477)	7.057	(9.704)	0.0%	(83.011)	(53.943)	(68.477)	3
Season	-	-	-	n/a	-	-	-	0
All Years	0.038	0.004	10.917	0.0%	0.031	0.045	0.038	2
Scalar 1	0.202	0.037	5.467	0.0%	0.126	0.278	0.202	1
Trend 1	-	-	-	n/a	-	-	-	0
Scalar 2	-	-	-	n/a	-	-	-	0
Trend 2	-	-	-	n/a	-	-	-	0
Scalar 3	-	-	-	n/a	-	-	-	0
Trend 3	-	-	-	n/a	-	-	-	0
Scalar 4	-	-	-	n/a	-	-	-	0
Trend 4	-	-	-	n/a	-	-	-	0

SELECTED TREND STRUCTURE REGRESSION STATISTICS - SEVERITY

Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.9707	0.9423	0.9377	0.0560	28	12	3

Runs-Test Result: 3.4524 RESIDUALS RUNS NOT RANDOM; Residuals normal

	Fitted Annual	Previous Selected	Selected Annual	selected = fitted
past	3.9%	4.5%	3.9%	'21H1 => last period in "past"
future	3.9%	4.5%	3.9%	

Cumulative Trends (summed coefficients)	fitted coeff	S.E.	t-Stat	p-value	C.I. Lower	95% Upper	Selected Coeff.
All Yrs or AY	0.038	0.004	10.917	0.0%	0.031	0.045	0.038
AY+1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AY+1+2+3+4	n/a	n/a	n/a	n/a	n/a	n/a	n/a

OW CL severity model indicates a +22.1% annual inflation scalar change at 2021-H2.

While we agree that the adjustment factors are necessary to account for the uncertainties as OW described, it is difficult to evaluate the reasonableness of these Combined New Normal Factors without the analysis behind the derivation of these factors.

As these Combined New Normal Factors have changed from the previous Semi-Annual Review to the current Annual Review (see tables below), it would have been helpful to have a bridging analysis from using those Factors in the last Semi-Annual Review to using those factors in the current Annual Review to evaluate the volatility and appropriateness of these Combined New Normal Factors.

From 2023H1 OW PPV Report

Accident	Combined New Normal Factor			
Semester	BI	PD & DCPD	AccBen	Collision
201801	0.7432	0.9590	0.8730	0.6170
201802	0.7432	0.9590	0.8730	0.6170
201901	0.7432	0.9590	0.8730	0.6170
201902	0.7432	0.9590	0.8730	0.6170
202001	1.0476	1.3710	1.2610	0.9090
202002	1.1354	1.4660	1.3500	0.9780
202101	1.2714	1.5930	1.4700	1.0700
202102	1.0100	1.2540	1.1500	0.8250
202201	0.9832	1.2190	1.1180	0.8010
202202	1.0000	1.0000	1.0000	1.0000
202301	1.0000	1.0000	1.0000	1.0000

From 2023H2 OW PPV Report

	PPV Combined New Normal Factors			
Accident Semester	BI	PD & DCPD	AccBen	CL
201901	0.712	1.000	0.859	0.618
201902	0.712	1.000	0.859	0.618
202001	0.985	1.409	1.229	0.910
202002	1.076	1.503	1.314	0.978
202101	1.227	1.628	1.429	1.070
202102	0.987	1.294	1.124	0.826
202201	0.963	1.259	1.093	0.801
202202	1.000	1.000	1.000	1.000
202301	1.000	1.000	1.000	1.000
202302	1.000	1.000	1.000	1.000

On page 26, OW states: "*Therefore, we include a mobility parameter for the observations in our regression models for the coverages that experienced a significant reduction in claims frequency coincident with COVID-19 pandemic*." We continue to question the usage of the mobility parameter similar to our past written submissions.

We would appreciate if OW provides more detailed information associated with the calculation of the Combined New Normal Factors and how they interact with mobility parameters.

5. Consistency and Transparency of Trends Selection Approach

We notice inconsistency and general lack of explanation in trends selection approach with regards to choosing between combined frequency and severity model versus direct loss cost model among various coverages.

For PPV Bodily Injury, it is noted that *"Due to the superior fit, we base our selection on the direct loss cost model"*, with combined frequency and severity model having an adjusted R-squared of 0.955, with annual loss cost trend of +8.8%, versus direct loss cost model having an adjusted R-squared of 0.960, with annual loss cost trend of +8.7%.

For PPV Collision, the combined frequency and severity model results in an adjusted R-squared of 0.630, with annual loss cost trend of +2.4%, versus direct loss cost model with an adjusted R-squared of 0.748, with annual loss cost trend of +3.0%. While the direct loss cost model results in a superior fit similar to Bodily Injury at an even greater magnitude in difference of adjusted R-squared, 0.748 vs 0.630 for Collision compared to 0.960 vs 0.955 for Bodily Injury, the combined frequency and severity models with an inferior fit was chosen without any rationale in the report, with only a statement of *"We base our selection on the combined frequency and severity model"*.

Similar observation of inconsistency for trends selection across coverages is present in the CV report as well.

It would be helpful to clearly document rationale and reasons in the selection approach, especially when different approaches are used for different coverages, with the same metric being used for selection justification for one coverage while seemingly being ignored in another, in order to avoid any unconscious bias in selecting assumptions to achieve predetermined results.

6. Selection of Trends Rates and Uncertainties

Since we have completed our own trend analysis using PPV & CV Industry Experience as of December 31, 2023, we would like to provide the Board with a summary of our selections of the past and future trends and how they compared with the preliminary selections from the OW PPV Report. Please note that our areas of focus detailed above can partially explain the differences between the two sets of selections.

Alberta Industry PPV Trends as at December 31, 2023[9]

	Alberta PPV Loss Cost Trend - FA as at:2023-12		Alberta PPV Loss Cost Trend - OW as at:2023-12		Alberta PPV Loss Cost Trend Difference between FA and OW	
Coverage	past trend	future Trend	past trend	future Trend	past trend	future Trend
BI	**8.7%**	**8.7%**	**8.7%**	**8.7%**	-	-
PD	**2.6%**	**2.6%**	**1.6%**	**1.6%**	**1.0%**	**1.0%**
AccBen (indivis)	**12.3%**	**12.3%**	**13.2%**	**4.1%**	**(0.9%)**	**8.2%**
UM	-	-	**4.4%**	**4.4%**	**(4.4%)**	**(4.4%)**
CL	**3.2%**	**3.2%**	**2.4%**	**2.4%**	**0.8%**	**0.8%**
CM	**4.0%**	**4.0%**	**3.6%**	**3.6%**	**0.4%**	**0.4%**
SP	**4.7%**	**4.7%**	**3.7%**	**3.7%**	**1.0%**	**1.0%**
AP	**0.8%**	**0.8%**	**2.7%**	**2.7%**	**(1.9%)**	**(1.9%)**

Note: the past and future trends cut-off date between FA and OW may be different.

Alberta Industry CV Trends as at December 31, 2023[10]

	Alberta CV Loss Cost Trend - FA as at:2023-12		Alberta CV Loss Cost Trend - OW as at:2023-12		Alberta CV Loss Cost Trend Difference between FA and OW	
Coverage	past	future Trend	past	future Trend	past	future Trend
BI	**8.7%**	**8.7%**	**7.0%**	**7.0%**	**1.7%**	**1.7%**
PD	**0.8%**	**0.8%**	**(0.3%)**	**(0.3%)**	**1.1%**	**1.1%**
DCPD	**1.8%**	**1.8%**	-	-	**1.8%**	**1.8%**
AccBen (indivis)	**9.6%**	**9.6%**	**2.9%**	**2.9%**	**6.7%**	**6.7%**
UM	-	-	**7.7%**	**7.7%**	**(7.7%)**	**(7.7%)**
CL	**0.3%**	**0.3%**	**(0.2%)**	**(0.2%)**	**0.5%**	**0.5%**
CM	**4.0%**	**4.0%**	**3.7%**	**3.7%**	**0.3%**	**0.3%**
SP	**4.4%**	**4.4%**	**3.7%**	**3.7%**	**0.7%**	**0.7%**
AP	**2.8%**	**2.8%**	**1.0%**	**1.0%**	**1.8%**	**1.8%**

Note: the past and future trends cut-off date between FA and AIRB may be different

The OW PPV preliminary loss cost trends are generally in line with the loss cost trends estimated for indemnity as per FA's own modeling of the Alberta industry experience as at December 31, 2023, neither consistently higher nor lower by coverage (i.e. OW is higher for some coverages, lower for

[9] OW PPV Report indicates a claim level increase at 2021-2 coincident with the rise in inflation for PD (+15.2%), DCPD (+15.2%), and CL (+22.1%).

[10] OW PPV Report indicates a claim level increase at 2021-2 coincident with the rise in inflation for PD (+38.7%), DCPD (+38.7%), CL (+36.4%), and CM (+11.4%).

others), except UM due to low claim counts and AccBen future trend due to OW models estimating an +13.5% 2020 reform impact while FA models estimating no 2020 reform impact.

The OW CV Report estimated loss cost trends are generally lower than FA estimated loss cost trends for indemnity as per FA's own modeling of the Alberta industry experience as at December 31, 2023, except UM due to low claim counts.

Both OW PPV and CV report indicate a claim level increase at 2021-2 coincident with the rise in inflation for the physical damage coverages (see the footnotes 6 and 7).

We estimate that the OW future trend selections at the coverage level will translate to an overall loss cost future trend rate of 5.2% for private passenger vehicles and 3.2% for commercial vehicles, while the FA estimated overall loss cost future trend rate is 6.1% for private passenger vehicles and 4.4% for commercial vehicles.

We agree with OW statement that "*The recent claim experience is exceptional due to the COVID-19 pandemic, the introduction of reforms in the last quarter of 2020, and the recent rise in inflation. Uncertainty surrounding future inflation adds uncertainty around selecting an appropriate future trends rate*."

Finally, we appreciate the OW Report's mention regarding heightened uncertainty due to COVID 19, Bill 41 Reforms and rising inflation as well as OW's recommendation that on OW PPV Report page 4:

> "*…when selecting the future trend rate, we suggest consideration of:*
>
> - *The correlation of the historical CPI index with historical claim cost changes; and any recent changes to the CPI – stabilizing, rising or falling.*
> - *The actual change in claim costs data that has emerged during the recent high inflationary period.*
> - *The anticipated future CPI during the rating program period given the Federal Government's actions to curb inflation through higher interest rates.*
> - *The impact of economic conditions and general high inflation on vehicle usages."*

As such, the projection of future rate needs is subject to considerable uncertainty and the AIRB should consider this when review individual rate filings.

Any questions related to this submission may be directed to Philippe Gosselin by email at pgosselin@facilityassociation.com or by phone at 416-644-4968.