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November 7, 2019

Oliver Wyman
120 Bremner Boulevard, Suite 800,
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Attention: Paula Elliott

RE: FA NL **Taxi Automobile Rate Application – Category 2** – Response to email October 31, 2019

Dear Ms. Elliott,

Facility Association (FA) received questions in regard to FA Newfoundland and Labrador Taxi Rate Filing in 2019. Our responses to the questions are provided on the pages that follow.

Best regards

Liqing Yang, FCIA, FCAS
Pricing Actuary

Loss Trends

OW Question 1 *In Provide alternate rate indications (relative to the proposed +3.9% indication) substituting the Board's Guideline loss trend rates as of June 30, 2018, and no other changes in assumptions.*

FA Response to OW Question 1

During our review of PPV IR#2 question 1, we discovered that there was an error in our original estimate of the alternative indication for accident benefits when used the Board's Guideline loss cost trend rates. The Board's Guideline loss cost trend rate for accident benefits is on total coverage level, but FA's indemnity for accident benefits is recorded on sub-coverage (ME, DI, DB, FU and SU) level. As a result, our alternative indications for IR#1 question 2 didn't include the loss cost trend rate of +8.5% to accident benefit sub-coverages.

The table below provides the corrected alternative indications using the Board Guideline loss cost trend rates as of December 31, 2018 (IR#1 question 2).

NL TX alternative indications using the Board's Guideline loss trend rates as of December 31, 2018, no other change

	Per Submitted Filing		OW IR#1 Que 2 - corrected
Coverage	FA actuarial assumps @ 12% ROE FA Best Estimate [1]	mgmt assumps @ 0% ROE & 2.8% RoI Proposed Rate Change [2]	mgmt assumps @ 0% ROE & 2.8% RoI + alternative LC Trends - PUB guideline trends at 2018H2 [3]
Bodily Injury	20.3%	3.7%	(2.6%)
Property Damage	20.3%	3.7%	(2.6%)
DCPD	20.3%	3.7%	(2.6%)
Third Party Liability	20.3%	3.7%	(2.6%)
Accident Benefits	21.3%	5.3%	27.7%
Uninsured Automobile	25.5%	9.0%	23.8%
Underinsured Motorist	-	-	-
Collision	16.3%	3.4%	16.4%
Comp	17.7%	0.8%	3.9%
Specified Perils	5.0%	0.8%	(1.7%)
All Perils	n/a	n/a	n/a
Total	**20.3%**	**3.9%**	**0.4%**

The table at the top of the next page provides the alternative indications using the Board Guideline loss cost trend rates as of June 30, 2018.

NL TX alternative indications substituting the Board's Guideline loss trend rates as of June 30, 2018, no other change

	Per Submitted Filing		OW IR#2 Que 1
Coverage	FA actuarial assumps @ 12% ROE FA Best Estimate [1]	mgmt assumps @ 0% ROE & 2.8% RoI Proposed Rate Change [2]	mgmt assumps @ 0% ROE & 2.8% RoI + alternative LC Trends - PUB guideline trends at 2018H1 [3]
Bodily Injury	20.3%	3.7%	(0.9%)
Property Damage	20.3%	3.7%	(0.9%)
DCPD	20.3%	3.7%	(0.9%)
Third Party Liability	20.3%	3.7%	(0.9%)
Accident Benefits	21.3%	5.3%	23.3%
Uninsured Automobile	25.5%	9.0%	21.2%
Underinsured Motorist	-	-	-
Collision	16.3%	3.4%	13.6%
Comp	17.7%	0.8%	2.2%
Specified Perils	5.0%	0.8%	(2.5%)
All Perils	n/a	n/a	n/a
Total	**20.3%**	**3.9%**	**1.4%**

Bodily Injury

OW Question 2 (**consistent 2 parts**) *We observe that bodily injury frequency appears to be decreasing at a faster rate over the most recent accident half years.*

1. *Does FA directly (or indirectly) consider this change in frequency in their modeling process?*

FA Response to OW Question 2.1.

This was considered – the FA process considers a multitude of period structures. Given the general recent issues related to claim count reporting, and this seems to be supported by similar (but opposite) severity changes for the more recent accident halfs. At the current time, we do not believe there to be sufficient evidence to suggest loss costs for bodily injury are decreasing in a manner different from that which we have modeled.

OW Question 2 (continued)

2. *Provide ta frequency model which includes only data points subsequent to 2005 H1.*

FA Response to OW Question 2.2

The charts below show the FA selected BI frequency model and the alternative model which includes only data points subsequent to 2005 H1. As these two models do not model the same data, we do not believe direct fit comparisons to be valid.

Industry NL CV June 30, 2018 – BI Frequency

BI Freq (FA f0a) – basis of FA selection

Final period trend: -4.0% +/-0.5%

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	F	Significance F
Regression	1	2.2220	2.2220	61.5528	0.0%
Residual	38	1.3718	0.0361		
Total	39	3.5937			

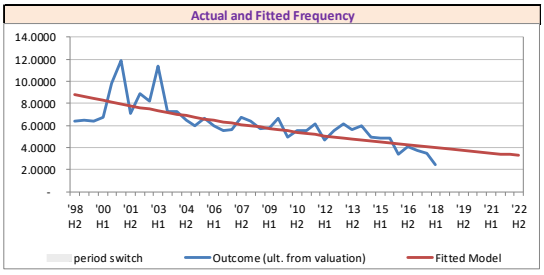
FITTED TREND STRUCTURE REGRESSION STATISTICS

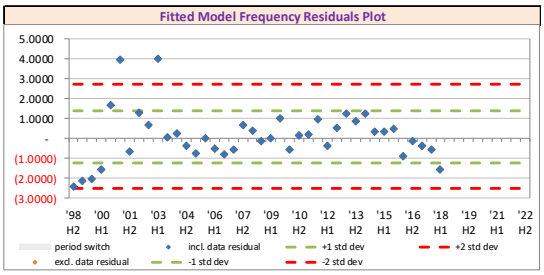
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.7863	0.6183	0.6082	0.1900	40	-	2

Runs-Test Result: 1.7611 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	83.795	10.454	8.015	0.0%	62.632	104.958	83.795
Season	-	-	-	n/a	-	-	-
All Years	(0.041)	0.005	(7.846)	0.0%	(0.051)	(0.030)	(0.041)
Scalar 1	-	-	-	n/a	-	-	-
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





BI Freq (OW Q2.2) – alternative

Final period trend: -4.8% +/-0.8%

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	F	Significance F
Regression	1	0.8720	0.8720	34.9330	0.0%
Residual	24	0.5991	0.0250		
Total	25	1.4711			

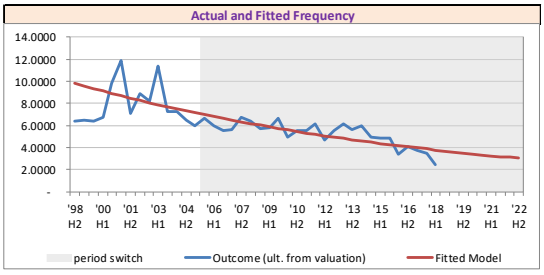
FITTED TREND STRUCTURE REGRESSION STATISTICS

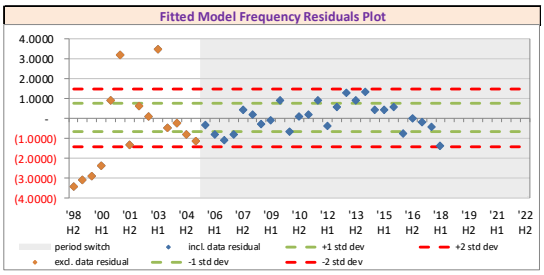
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.7699	0.5928	0.5758	0.1580	26	14	2

Runs-Test Result: 2.7857 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. 95% Lower	C.I. 95% Upper	Selected Coeff.
	1	2					
Intercept	99.896	16.625	6.009	0.0%	65.584	134.208	99.896
Season	-	-	-	n/a	-	-	-
All Years	(0.049)	0.008	(5.910)	0.0%	(0.066)	(0.032)	(0.049)
Scalar 1	-	-	-	n/a	-	-	-
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





OW Question 3 *Provide a model and all relevant statistics for a bodily injury severity model analogous to FA's severity model, however excluding the unusually high 2016-1 observation and immature 2018-1 observation.*

FA Response to OW Question 3

The charts at the top of the next page show the FA selected BI severity model and the alternative model as directed. As the associated trend coefficient estimate in the model without exclusions (+3.9%) falls within a standard error of the coefficient estimate with exclusions (+3.2% +/- 0.8%), we would view the exclusions as not statistically influential and therefore we would conclude that they should not be excluded from the data set modeled.

Industry NL CV June 30, 2018 – BI Severity

BI Sev (FA s0a) – basis of FA selection

Final period trend: +4.0% +/-0.8%

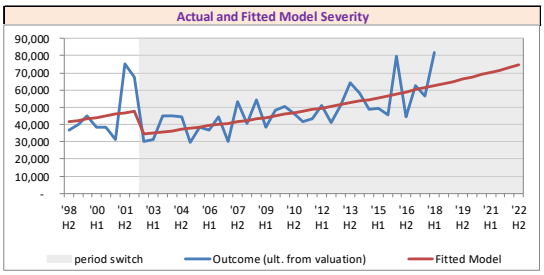
FITTED TREND STRUCTURE ANOVA					
	df	SS	Mean SS	F	Significance F
Regression	2	1.0531	0.5265	12.9137	0.0%
Residual	37	1.5086	0.0408		
Total	39	2.5617			

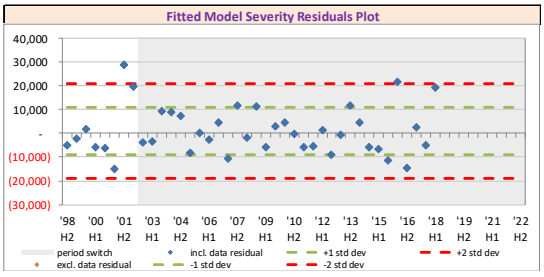
FITTED TREND STRUCTURE REGRESSION STATISTICS						
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.6412	**0.4111**	**0.3793**	0.2019	40	-	3

Runs-Test Result: 1.8941 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	(66.956)	15.350	(4.362)	0.0%	(98.059)	(35.853)	(66.956)
Season	-	-	-	n/a	-	-	-
All Years	0.039	0.008	5.059	0.0%	0.023	0.054	0.039
Scalar 1	(0.350)	0.111	(3.159)	0.3%	(0.574)	(0.125)	(0.350)
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





BI Sev (OW Q3) – alternative

Final period trend: +3.2% +/-0.8%

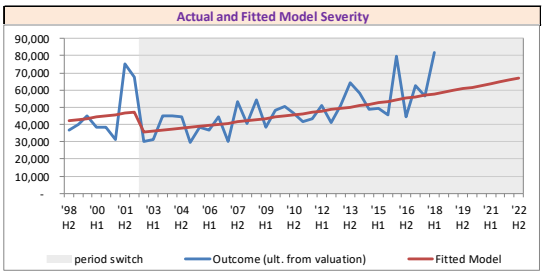
FITTED TREND STRUCTURE ANOVA					
	df	SS	Mean SS	F	Significance F
Regression	2	0.5976	0.2988	8.0969	0.1%
Residual	35	1.2916	0.0369		
Total	37	1.8892			

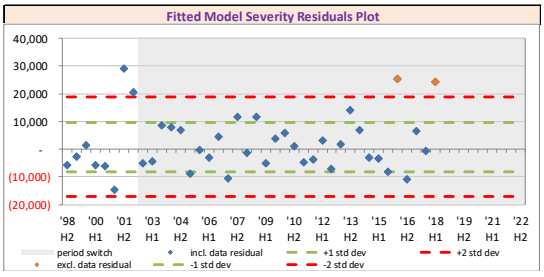
FITTED TREND STRUCTURE REGRESSION STATISTICS						
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.5624	**0.3163**	**0.2773**	0.1921	38	2	3

Runs-Test Result: 0.5110 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	(52.784)	15.777	(3.346)	0.2%	(84.814)	(20.754)	(52.784)
Season	-	-	-	n/a	-	-	-
All Years	0.032	0.008	4.024	0.0%	0.016	0.048	0.032
Scalar 1	(0.302)	0.107	(2.813)	0.8%	(0.520)	(0.084)	(0.302)
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





Accident Benefits

OW Question 4 (consistent 2 parts) *We observe an accident benefits severity trend model that would benefit from a trend parameter rather than a scalar.*

1. *Does FA consider using a trend parameter beginning 2011 H2 instead of the scalar parameter utilize in the selected model?*

FA Response to OW Question 4.1.

As part of our usual process, our previous model structure has all parameters re-set and optimized via our model 1 family. The optimization process involves removing parameters one at a time based on the size of p-values (largest removed) until all remaining model parameters have p-values less than or equal to 5%. This process led to the removal of the trend parameter, leaving the scalar.

OW Question 4 (continued)

2. *Provide the indicated trends and all relevant statistics for an accident benefits severity model with a trend parameter at 2011 H2 (with no scalar parameters).*

FA Response to OW Question 4.2

The charts at the top of the next page show the FA selected Accident Benefit severity model and the alternative model with a trend parameter at 2011 H2 (with no scalar parameters).

Industry NL CV June 30, 2018 – Accident Benefit Severity

AccBen Sev (FA s1a) – basis of FA selection

Final period trend: 0.0% +/-n/a

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	F	Significance F
Regression	1	4.6895	4.6895	22.4703	0.0%
Residual	38	7.9305	0.2087		
Total	39	12.6201			

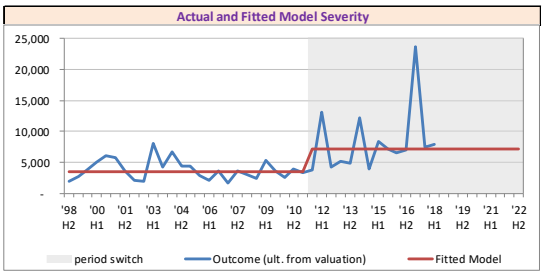
FITTED TREND STRUCTURE REGRESSION STATISTICS

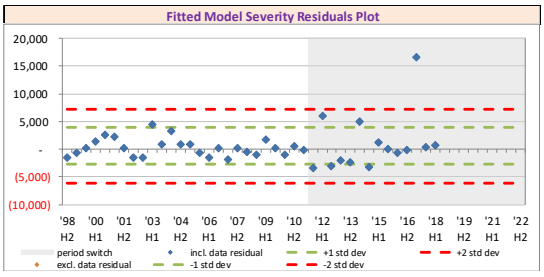
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.6096	0.3716	0.3551	0.4568	40	-	2

Runs-Test Result: 0.0997 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	8.156	0.090	91.038	0.0%	7.975	8.338	8.156
Season	-	-	-	n/a	-	-	-
All Years	-	-	-	n/a	-	-	-
Scalar 1	0.718	0.151	4.740	0.0%	0.411	1.024	0.718
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





AccBen Sev (OW Q4.2) – alternative

Final period trend: +18.4% +/-3.5%

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	F	Significance F
Regression	1	4.8007	4.8007	23.3299	0.0%
Residual	38	7.8194	0.2058		
Total	39	12.6201			

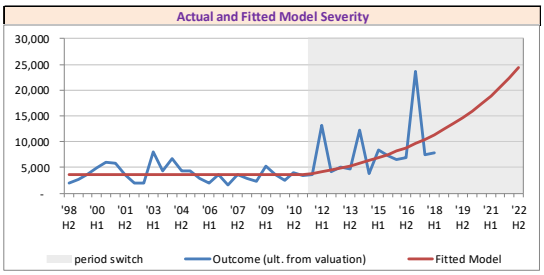
FITTED TREND STRUCTURE REGRESSION STATISTICS

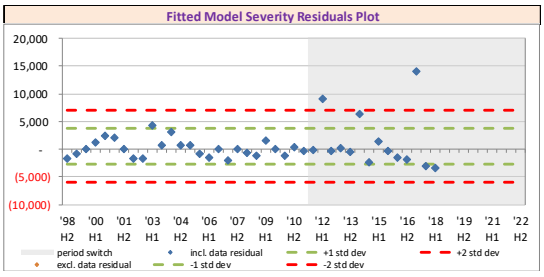
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.6168	0.3804	0.3641	0.4536	40	-	2

Runs-Test Result: 0.2326 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	8.201	0.084	98.169	0.0%	8.032	8.370	8.201
Season	-	-	-	n/a	-	-	-
All Years	-	-	-	n/a	-	-	-
Scalar 1	-	-	-	n/a	-	-	-
Trend 1	0.169	0.035	4.830	0.0%	0.098	0.240	0.169
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-



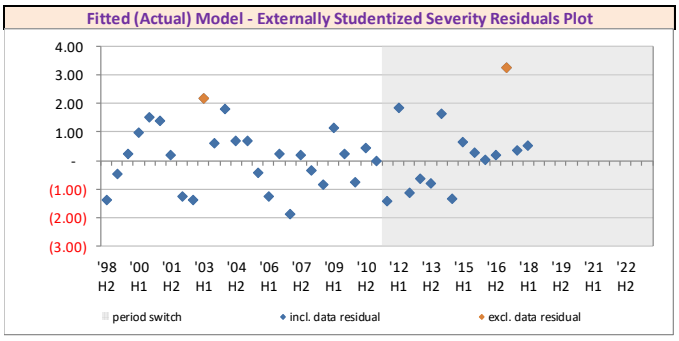


OW Question 5 (**consistent 2 parts**) *We observe three unusually high accident benefits severity observations: 2012 H1, 2014 H1 and 2017 H2.*

1. *Does FA consider these observations potential outliers?*

FA Response to OW Question 5.1.

Our trend analysis includes residual analysis to identify outliers for testing for influence. We identify such data points based on the absolute size of the externally-studentized residuals, and define outliers as data points where the externally studentized residual is more than two standard errors from 0. That is, we do not attempt to identify outliers prior to modeling – by our definition of outliers, a model must first be applied prior to outliers being identified. Outlier influence is assessed by comparing the trend coefficient estimates (one standard error) range with the same parameter's coefficient estimate for the model with the outlier s data point included. If the later estimate is not within the range from the model where the data point was excluded, the data point is viewed as influential and a decision is made on how to handle (we generally would select the model with it excluded – in certain circumstances we do not). Where a data point's exclusion is not viewed as influential, we would select the model with it included. This process is complete sequentially. Specifically, we would test the largest outlier first, then test the largest outlier based on the model with the first outlier removed and so on. We do not identify, for example, two outliers from a single model and then test their exclusions' impacts at the same time – we would do one, and if the other was the largest outlier from that model, we would then test it from that model.



Based on the Studentized Severity Residuals plot (right chart), the 2017H1 and 2003H1 were deemed to be the first two influential outliers and a models excluding these outliers (FA s2c) were tested but the model results were not statistically significantly different to the FA selected model result. Specifically, the model with the two exclusions estimates the scalar coefficient at 0.659 +/- 0.136, and the original FA model has the scalar coefficient estimate at 0.718, which falls within the range indicated. As such, we would not view these outliers as influential.

The charts at the top of the next page show the FA selected Accident Benefit severity model and the alternative model excluding the first two influential outliers of 2017 H1 and 2003 H1. In our view, it is not appropriate to compare fit metrics directly on two different data sets, and excluding data points then effectively creates a different data set.

Industry NL CV June 30, 2018 – Accident Benefit Severity

AccBen Sev (FA s1a) – basis of FA selection

Final period trend: 0.0% +/-n/a

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	F	Significance F
Regression	1	4.6895	4.6895	22.4703	0.0%
Residual	38	7.9305	0.2087		
Total	39	12.6201			

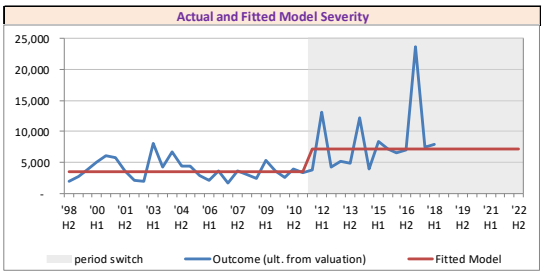
FITTED TREND STRUCTURE REGRESSION STATISTICS

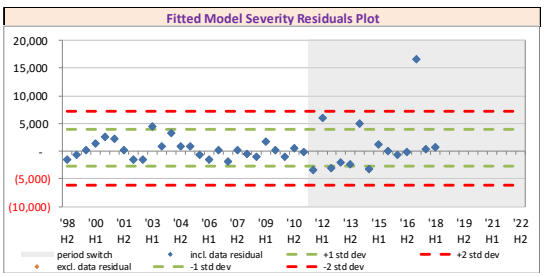
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.6096	0.3716	0.3551	0.4568	40	-	2

Runs-Test Result: 0.0997 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	8.156	0.090	91.038	0.0%	7.975	8.338	8.156
Season	-	-	-	n/a	-	-	-
All Years	-	-	-	n/a	-	-	-
Scalar 1	0.718	0.151	4.740	0.0%	0.411	1.024	0.718
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





AccBen Sev (FA s1c – OW Q5.1) – alternative

Final period trend: 0.0% +/-n/a

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	F	Significance F
Regression	1	3.7126	3.7126	23.5968	0.0%
Residual	36	5.6641	0.1573		
Total	37	9.3767			

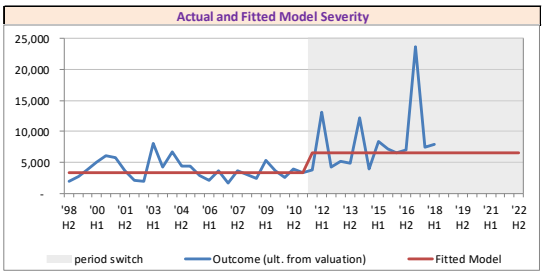
FITTED TREND STRUCTURE REGRESSION STATISTICS

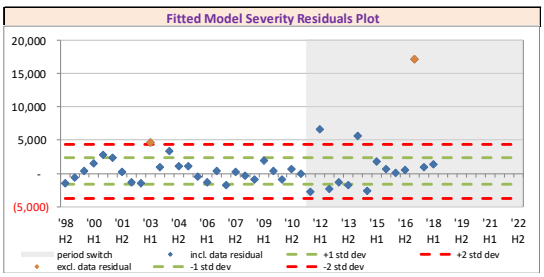
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.6292	0.3959	0.3792	0.3967	38	2	2

Runs-Test Result: 0.5836 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	8.123	0.079	102.395	0.0%	7.962	8.284	8.123
Season	-	-	-	n/a	-	-	-
All Years	-	-	-	n/a	-	-	-
Scalar 1	0.659	0.136	4.858	0.0%	0.384	0.934	0.659
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





OW Question 5 (continued)

2. *Provide the indicated trends and all relevant statistics for an accident benefits severity model with a trend parameter at 2011 H2 (with no scalar parameters) and excludes 2012 H1, 2014 H1 and 2017 H1.*

FA Response to OW Question 5.2

The charts below the FA selected Accident Benefit severity model and the alternative model with a trend parameter at 2011 H2 (with no scalar parameters) and excludes 2012 H1, 2014 H1 and 2017 H1.

Industry NL CV June 30, 2018 – Accident Benefit Severity

AccBen Sev (FA s1a) – basis of FA selection

Final period trend: 0.0% +/-n/a

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	F	Significance F
Regression	1	4.6895	4.6895	22.4703	0.0%
Residual	38	7.9305	0.2087		
Total	39	12.6201			

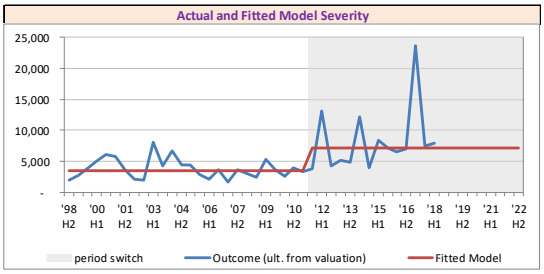
FITTED TREND STRUCTURE REGRESSION STATISTICS

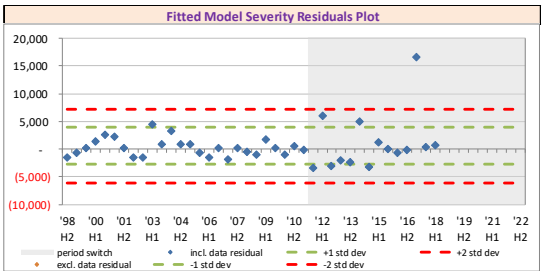
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.6096	**0.3716**	**0.3551**	0.4568	40	-	2

Runs-Test Result: 0.0997 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	8.156	0.090	91.038	0.0%	7.975	8.338	8.156
Season	-	-	-	n/a	-	-	-
All Years	-	-	-	n/a	-	-	-
Scalar 1	0.718	0.151	4.740	0.0%	0.411	1.024	0.718
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





AccBen Sev (OW Q5.2) – alternative

Final period trend: +14.3% +/-3.1%

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	F	Significance F
Regression	1	2.5820	2.5820	19.1253	0.0%
Residual	35	4.7252	0.1350		
Total	36	7.3073			

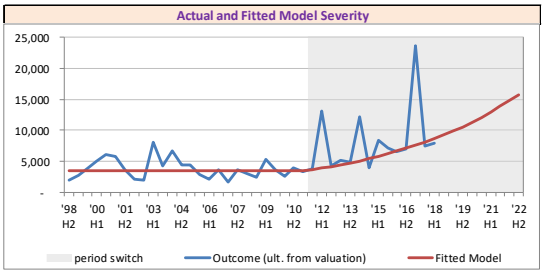
FITTED TREND STRUCTURE REGRESSION STATISTICS

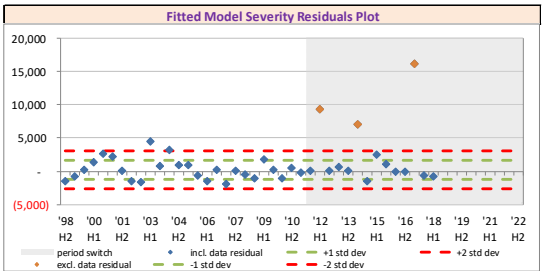
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.5944	**0.3534**	**0.3349**	0.3674	37	3	2

Runs-Test Result: 0.5836 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	8.163	0.069	118.723	0.0%	8.023	8.302	8.163
Season	-	-	-	n/a	-	-	-
All Years	-	-	-	n/a	-	-	-
Scalar 1	-	-	-	n/a	-	-	-
Trend 1	0.134	0.031	4.373	0.0%	0.072	0.196	0.134
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





Collision

OW Question 6 (**consistent 2 parts**) *It is our understanding FA has 0.0% frequency and severity trends as it is unable to discern a trend rate. In contrast, we observe measureable trends for collision frequency and severity data. Specifically, severity appears to have been increasing over the most recent eight years, and frequency decreasing.*

1. *Provide the indicated trends and all relevant model statistics for a collision severity model fitted to observations between 2010 H1 and 2018 H1 only.*

FA Response to OW Question 6.1.

The charts at the top of the next page show the FA selected collision severity model and the requested alternative model.

Industry NL CV June 30, 2018 – Collision Severity

CL Sev (FA s1a) – basis of FA selection

Final period trend: 0.0% +/-n/a

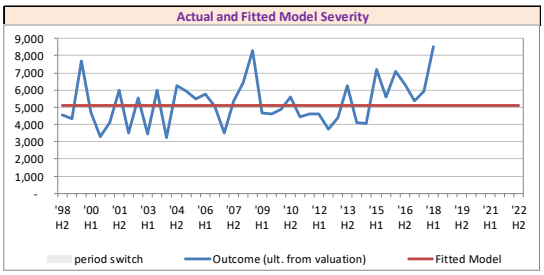
FITTED TREND STRUCTURE ANOVA					
	df	SS	Mean SS	F	Significance F
Regression	-	-	#DIV/0!	#DIV/0!	#DIV/0!
Residual	39	2.4303	0.0623		
Total	39	2.4303			

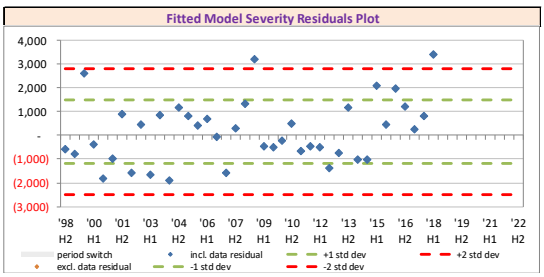
FITTED TREND STRUCTURE REGRESSION STATISTICS						
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
-	-	-	0.2496	40	-	1

Runs-Test Result: 0.8220 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	8.539	0.040	214.574	0.0%	8.458	8.619	8.539
Season	-	-	-	n/a	-	-	-
All Years	-	-	-	n/a	-	-	-
Scalar 1	-	-	-	n/a	-	-	-
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





CL Sev (OW Q6.1) – alternative

Final period trend: +5.6% +/-1.9%

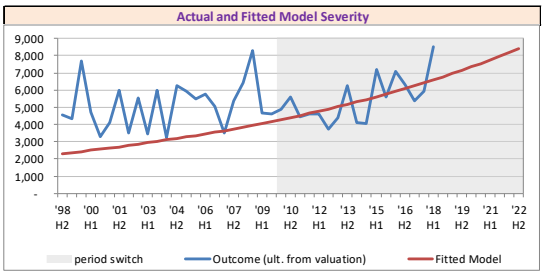
FITTED TREND STRUCTURE ANOVA					
	df	SS	Mean SS	F	Significance F
Regression	1	0.2978	0.2978	8.1630	1.2%
Residual	15	0.5473	0.0365		
Total	16	0.8451			

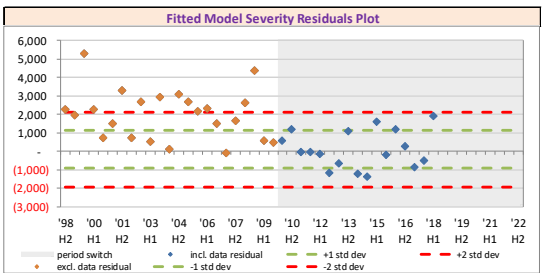
FITTED TREND STRUCTURE REGRESSION STATISTICS						
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.5936	0.3524	0.3092	0.1910	17	23	2

Runs-Test Result: 3.1138 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. 95% Lower	C.I. 95% Upper	Selected Coeff.
	1	2					
Intercept	(100.261)	38.095	(2.632)	1.9%	(181.458)	(19.064)	(100.261)
Season	-	-	-	n/a	-	-	-
All Years	0.054	0.019	2.857	1.2%	0.014	0.094	0.054
Scalar 1	-	-	-	n/a	-	-	-
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





OW Question 6 (continued)

2. *Provide the indicated trends and all relevant model statistics for a frequency model fitted to observations between 2010 H1 and 2018 H1 only.*

FA Response to OW Question 6.2

The charts below show the FA selected Collision frequency model and the requested alternative model.

Industry NL CV June 30, 2018 – Collision Frequency

CL Freq (FA f0a) – basis of FA selection

Final period trend: 0.0% +/-n/a

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	Significance F	F
Regression	-	-	#DIV/0!	#DIV/0!	#DIV/0!
Residual	39	1.3505	0.0346		
Total	39	1.3505			

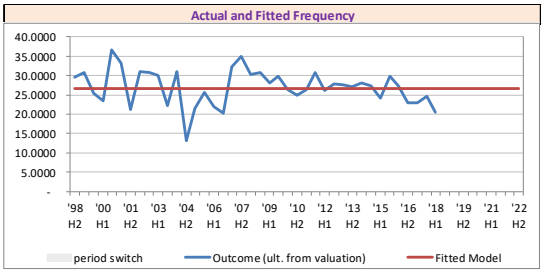
FITTED TREND STRUCTURE REGRESSION STATISTICS

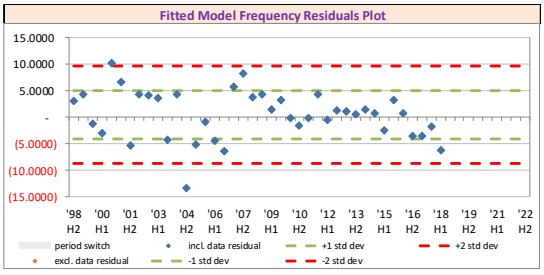
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
-	-	-	0.1861	40	-	1

Runs-Test Result: 1.4289 RESIDUALS RUNS RANDOM ; resids NOT 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	3.279	0.030	110.723	0.0%	3.219	3.339	3.279
Season	-	-	-	n/a	-	-	-
All Years	-	-	-	n/a	-	-	-
Scalar 1	-	-	-	n/a	-	-	-
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





CL Freq (OW Q6.2) – alternative

Final period trend: -2.1% +/-0.9%

FITTED TREND STRUCTURE ANOVA

	df	SS	Mean SS	Significance F	F
Regression	1	0.0449	0.0449	5.4373	3.4%
Residual	15	0.1237	0.0082		
Total	16	0.1686			

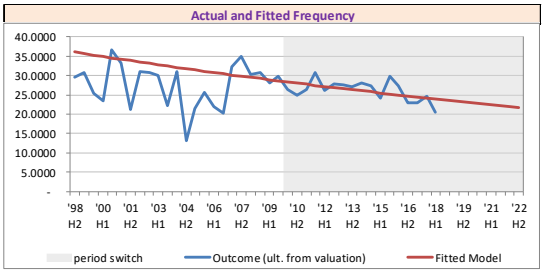
FITTED TREND STRUCTURE REGRESSION STATISTICS

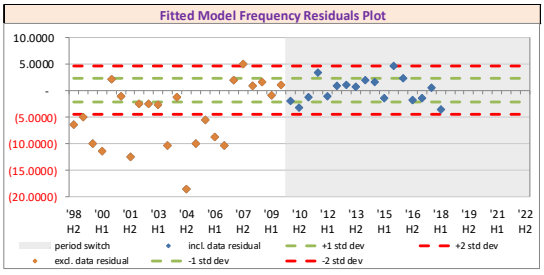
Multiple R	R^2	Adjusted R^2	S.E. of Estimate	# of Obs. n	# of Obs. Excluded	# parameters p
0.5158	**0.2660**	**0.2171**	0.0908	17	23	2

Runs-Test Result: 3.2558 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. 95% Lower	C.I. 95% Upper	Selected Coeff.
	1	2					
Intercept	45.497	18.114	2.512	2.4%	6.889	84.106	45.497
Season	-	-	-	n/a	-	-	-
All Years	(0.021)	0.009	(2.332)	3.4%	(0.040)	(0.002)	(0.021)
Scalar 1	-	-	-	n/a	-	-	-
Trend 1	-	-	-	n/a	-	-	-
Scalar 2	-	-	-	n/a	-	-	-
Trend 2	-	-	-	n/a	-	-	-
Scalar 3	-	-	-	n/a	-	-	-
Trend 3	-	-	-	n/a	-	-	-
Scalar 4	-	-	-	n/a	-	-	-
Trend 4	-	-	-	n/a	-	-	-





Summary

OW Question 7 *Provide the rate indications based on the following combination of alternative assumptions, and no other changes in assumptions, relative to the +3.9% rate indication based on a 0.0% cost of capital and 2.8% ROI:*

- *Board Guideline CV loss trend rates as of June 30, 2018;*
- *As per prior IR#1 Q5 – use of the Board approved credibility weighted loss ratio for the complement of credibility instead of FA's loss ratio;*
- *As per prior IR# Q1b – use of a net finance fee provision of 0.75%*

Include a complete set of supporting exhibits with an excel file for the calculations similar to that provided with application.

FA Response to OW Question 7

The table below provides the alternative indications based on the above alternative assumptions, no other changes in assumptions. The supporting exhibits with an excel file for the calculations is attached as "*FA NL 2019 Q2 TX indications - coverage v02 (IR#2 Q7).xlsx*".

NL TX alternative indications based on the Board's LC trend rates at 2018H1, Board's loss ratio as complement of credibility, and a net finance fee provision of 0.75%, no other changes in assumptions

	Per Submitted Filing		OW IR#2 Que 7
Coverage	FA actuarial assumps @ 12% ROE FA Best Estimate [1]	mgmt assumps @ 0% ROE & 2.8% RoI Proposed Rate Change [2]	mgmt assumps @ 0% ROE & 2.8% RoI + alternative PUB Trends at 2018H1 & PUB LR as complement of credibility & net 0.75% finance fee revenue [3]
Bodily Injury	20.3%	3.7%	(4.4%)
Property Damage	20.3%	3.7%	(4.4%)
DCPD	20.3%	3.7%	(4.4%)
Third Party Liability	20.3%	3.7%	(4.4%)
Accident Benefits	21.3%	5.3%	18.7%
Uninsured Automobile	25.5%	9.0%	12.2%
Underinsured Motorist	-	-	-
Collision	16.3%	3.4%	14.6%
Comp	17.7%	0.8%	1.6%
Specified Perils	5.0%	0.8%	(7.0%)
All Perils	n/a	n/a	n/a
Total	**20.3%**	**3.9%**	**(2.1%)**

The table below provides the corrected alternative indications for IR#1 question 4 which based on the Board's LC trend rates as of December 31, 2018, the Board approved credibility weighted loss ratio for the complement of credibility, and a net finance fee provision of 0.75%, no other changes in assumptions.

NL TX alternative indications based on the Board's LC trend rates at 2018H2, Board's loss ratio as complement of credibility, and a net finance fee provision of 0.75%, no other changes in assumptions

	Per Submitted Filing		OW IR#1 Que 4 - corrected
Coverage	FA actuarial assumps @ 12% ROE FA Best Estimate [1]	mgmt assumps @ 0% ROE & 2.8% RoI Proposed Rate Change [2]	mgmt assumps @ 0% ROE & 2.8% RoI + alternative complement of credibility & 0.75% finance fee revenue & PUB Trends at 2018H2 [3]
Bodily Injury	20.3%	3.7%	(6.1%)
Property Damage	20.3%	3.7%	(6.1%)
DCPD	20.3%	3.7%	(6.1%)
Third Party Liability	20.3%	3.7%	(6.1%)
Accident Benefits	21.3%	5.3%	23.0%
Uninsured Automobile	25.5%	9.0%	14.7%
Underinsured Motorist	-	-	-
Collision	16.3%	3.4%	17.2%
Comp	17.7%	0.8%	3.2%
Specified Perils	5.0%	0.8%	(6.0%)
All Perils	n/a	n/a	n/a
Total	**20.3%**	**3.9%**	**(3.2%)**