

NOVA SCOTIA RISK SHARING POOL

MARCH 2022 OPERATIONAL REPORT

ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS**RSP NOVA SCOTIA****OPERATIONAL REPORT****MARCH 2022**

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1 Summary

Note to members: this is the quarterly Actuarial Highlights we will release going forward to replace the monthly Actuarial Highlights. The next report will be available for reporting month May 2022 in July 2022, in line with the valuation implementation schedule. Please contact us with any questions or concerns in regards to this matter.

1.1 Valuation Schedule (Fiscal Year 2022)

The March 2022 Operational Report incorporates the results of an updated valuation (as at December 31, 2021) – the impact of the implementation of the valuation is discussed in section 1.2. The following table summarizes the valuation implementations scheduled for fiscal year 2022.

NOVA SCOTIA RISK SHARING POOL FISCAL YEAR 2021 – SCHEDULE OF VALUATIONS			
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes
Sep 30, 2021 (completed)	0.19% mfad ¹ 25 bp	Oct. 2021	update valuation (roll-forward): accident year 2021 loss ratio <u>decreased</u> 0.8 points to 77.4%; discount rate increased by 10 basis point; no change to selected margins for adverse deviations
Dec. 31, 2021 (completed)	0.76% mfad 25 bp	Mar. 2022	update valuation: accident year 2021 loss ratio no change at 77.4% and accident year 2022 loss ratio <u>increased</u> 0.8 points to 94.7%; discount rate <u>increased</u> 25 basis points; no change to selected margins for adverse deviations
Mar. 31, 2022	% mfad -- bp	May. 2022	update valuation (roll-forward):
Jun. 30, 2022	% mfad -- bp	Aug. 2022	update valuation:
Sep. 30, 2022	% mfad -- bp	Oct. 2022	update valuation (roll-forward):

Under the proposed schedule for fiscal year 2022, the off-half valuation quarters ending March 31, 2022 and September 30, 2022 would not reflect a full valuation update of assumptions, but would rather roll-forward key assumptions from the previous valuation.

1.2 New Valuation

A valuation of the Nova Scotia Risk Sharing Pool (“RSP”) as at December 31, 2021 has been completed since last month’s Operational Report and the results of that valuation have been incorporated into

¹ The selected interest rate margin is limited to reducing the selected discount rate to 0%; the approach is that if the net impact is negative, the discount rate will be capped at 0%.

this month's Report. The valuation was completed by the Facility Association's internal actuarial group in conjunction with, and approved by, the Appointed Actuary, under the hybrid model for actuarial services.

The valuation implementation impact is summarized in the following two tables, where the abbreviations PAYs refers to prior accident years, CAY refers to the current accident year (2022), and Prem Def refers to premium deficiency / deferred acquisition costs impacts.

Summary of Impact (\$000s) of Implementing Result of Valuation as at Dec. 31, 2021²

NS	unfav / (fav) for the month and ytd					
	IMPACT in \$000s from changes in:					
	ulsts & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
	[1]	[2]	[3]	[4]	[5]	[6]
PAYs	(1,390)	(185)	(1,575)	(262)	-	(1,837)
CAY	63	(34)	29	(33)	-	(4)
Prem Def	81	(34)	47	(53)	-	(6)
TOTAL	(1,246)	(253)	(1,499)	(348)	-	(1,847)

As indicated in the preceding table, the incorporation of the new valuation had an estimated **\$1.9 million favourable impact** on the month's net result from operations, subtracting an estimated 22.0 points (see following table) from the **year-to-date Combined Operating Ratio** to end at 84.9%. The favourable valuation impact is driven by the reduction in prior year nominal ultimate losses and the increase in discounting.

Summary of Impact (% YTD EP) of Implementing Result of Valuation as at Dec. 31, 2021

NS	ytd EP 8,413 (actual)					
	IMPACT unfav / (fav) as % ytd EP from changes in:					
	ulsts & payout patterns			dsct rate	margins	
	Nominal	apv adj.	sub-tot	apv adj.	apv adj.	TOTAL
	[1]	[2]	[3]	[4]	[5]	[6]
PAYs	(16.5%)	(2.2%)	(18.7%)	(3.1%)	-	(21.8%)
CAY	0.7%	(0.4%)	0.3%	(0.4%)	-	-
Prem Def	1.0%	(0.4%)	0.6%	(0.6%)	-	(0.1%)
TOTAL	(14.8%)	(3.0%)	(17.8%)	(4.1%)	-	(22.0%)

The impact of the **nominal changes** is shown in column [1] of the two preceding summary tables. The change in the selected nominal ultimates was **favourable by \$1.2 million** overall. This reflects the impact attributable to the changes in the selected ultimate loss ratios (i.e. for each accident year, it is the product of life-to-date earned premium for the accident year and the change in the selected

²In these tables, "PAYs" refers to prior accident years, "CAY" refers to the current accident year, and "Prem Def" refers to the provision for premium deficiency or the deferred policy acquisition asset (as applicable). "Nominal" refers to changes excluding any actuarial present value adjustments, whereas "apv adj." refers to actuarial present value adjustments.

The columns under the heading "ulsts & payout patterns" reflect the impact of changes in the valuation selected ultimates and claims payment patterns (i.e. based on unchanged selection of discount rates and margins for adverse deviation). The column "dsct rate" reflects the impact of the change in the selected discount rate and the column "margins" reflects the impact of any changes in selected margins for adverse deviations.

ultimate loss ratio).

The **PAYs** overall showed a **\$1.4 million unfavourable** nominal variance or 2.3% of the PAYs nominal unpaid balance of \$61.1 million determined at the end of last month (February 2022), due to changes in valuation method selection resulting in favourable impacts as we recognize more of the favourable loss experience from the 2019-2020 period.

The CAY and premium deficiency impacts are a result of the change in the selected loss ratio for accident year **2022** (increased 0.8 points to 94.7%). This is a minimal change caused by the valuation expected loss ratio update, which incorporates updated loss and premium trends and updated prior year ultimate loss ratios. Please note that the 2022 accident year loss ratio is expected to increase in 2022 compared to 2021 as the new RSP harmonization rules come into effect, allowing companies to select up to 5% of their personal passenger automobile to cede to the pool at their discretion.

The impacts related to actuarial present value (“apv”) adjustments are split into the impact prior to any change in the selected discount rate and selected margins for adverse deviations or “MfADs” (at the level they were selected i.e. coverage and accident half-year), the impact of then updating the discount rate, and finally the impact of any changes to the MfADs (at the level they were selected). The changes in actuarial present value adjustments are shown in the preceding summary tables in columns [2], [4], and [5].

Column [2] recognizes that changing the nominal selections also changed the unpaid estimates (including changes to the relative mix by government line, which had an impact on the weighted-average MfADs). It also reflects the fact that we updated the projected emergence of claims payments, resulting in a change in the projected cash flows. These changes generated a favourable change of \$253 thousand in the actuarial present value adjustments, prior to any changes in the selected discount rate and/or MfADs.

Updated projected cash flows were reviewed against the selected risk-free yield curve, derived from Government of Canada benchmark bond yields monthly series using values for December 2021. Column [4] accounts for the change in the **discount rate** selected (increased 25 basis points to **1.03%**), indicating an unfavourable impact of \$348 thousand. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$295 thousand at March 2022 – this compares to the \$440 thousand change one would estimate as the impact by interpolation using the interest rate sensitivity table provided in the previous Actuarial Highlights.

Column [5] accounts for any changes to selected MfADs. The selected **investment rate MfAD** was **left unchanged at 25 basis points** and the selected **claims development MfADs** at the coverage and accident year level were also left unchanged (as per our usual practice, development margins are reviewed with the June 30 valuation).

Consideration was given to recent legal decisions and changes in legislation / regulation as outlined in section 1.4.

1.3 Appointed Actuary and Hybrid Actuarial Services Model

The Annual General Meeting of the members of Facility Association (“FA”) appointed Mr. Cosimo

Pantaleo as the Appointed Actuary at its meeting on March 4, 2021.

Facility Association operates under a hybrid model in relation to the management and provision of actuarial services. Under this model, actuarial services are performed by both Facility Association's internal staff and its external actuarial consulting firm. The hybrid model approach maximizes the efficiency of resource allocation while providing access to additional expertise and capacity as needed.

1.4 Consideration of Recent Legal Decisions and Changes in Legislation / Regulation

There have been no changes in these descriptions since last Highlights.

Consideration and assessment of potential impacts of legal decisions and changes in legislation / regulation constitutes a regular part of the valuation process. Descriptions of some of the more recent (i.e. within the last five years) changes are provided below.

The **Nova Scotia Court of Appeal** confirmed, in a unanimous decision released on **January 18, 2019** in relation to **Sparks v Holland (2019 NSCA 3)**, that future Canada Pension Plan (CPP) disability benefits are deductible from future income loss awards in motor-vehicle accident claims in that province. Sparks sustained injuries as a result of a motor vehicle accident in Nova Scotia and sought damages for personal injuries and loss of income. The decision supported an earlier decision (*Tibbets v Murphy*, 2017 NSCA 35) that both past and future CPP disability benefits are deductible under section 133A of the Insurance Act. At the current time, no adjustments have been made to our valuation estimates as a result of this decision, and at this point we do not believe this judgment will have a further impact on our valuation results.

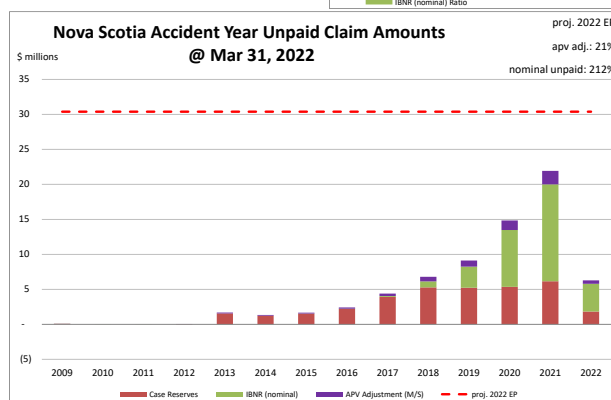
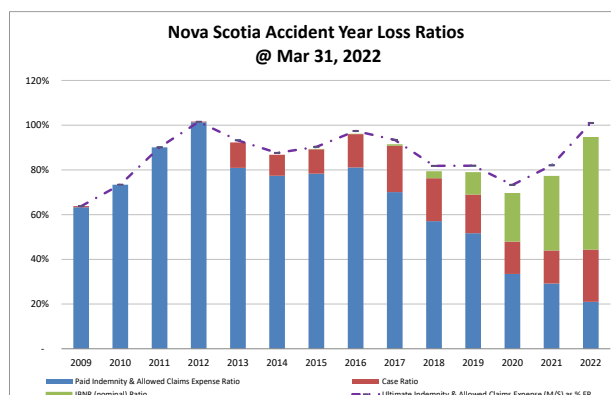
1.5 Current Provision Summary

The following charts show the current levels of claim liabilities³ booked by accident year. The left chart displays life-to-date payments, case reserves, IBNR, and the total including actuarial present value adjustments against accident year earned premium. The right chart shows the associated dollar amounts for the components of the claim liabilities and the current projected amount of 2021 full year earned premium (the red hash-mark line) to provide some perspective.

³Claim liabilities refer to provision for unpaid indemnity and allowed claims expenses. Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this discussion.

claim liabilities (\$000s)

	amt	%
case	34,467	48.8%
ibnr	29,966	42.4%
M/S apv adjust.	6,220	8.8%
M/S total	70,653	100.0%



"M/S" refers to "Member Statement" values – that is, actuarial present value adjustments at the selected discount rate.

The current actuarial present value adjustments balance (\$6.2 million – see the following table) represents 21% of the earned premium projected for the full year 2022 (see the upper right corner of the right chart above). If our current estimates of the nominal unpaid amounts prove to match actual claims payments, the actuarial present value adjustments will be released into the net operating result over future periods.

The table to the left breaks down the Member Statement (M/S) claim liabilities total into component parts, showing that the majority of the claim liabilities for this RSP is in case reserves. Approximately 59% of the IBNR balance relates to accident years 2021 and 2022 (see Exhibit B). Approximately 84% of the M/S total claim liabilities are related to accident years 2018-2022 inclusive (i.e. the most recent 5 accident years), and just over 0% is related to accident years 2012 and prior (i.e. prior to the most recent 10 accident years).

The following tables summarize the premium liabilities and the total policy liabilities.

premium liabilities (\$000s)

	amt	%
unearned prem	10,752	96.6%
prem def/(dpac)	(416)	(3.7%)
M/S apv adjust.	792	7.1%
M/S total	11,128	100.0%

policy liabilities (\$000s)

	amt	%
claim	64,433	78.8%
premium	10,336	12.6%
M/S apv adjust.	7,012	8.6%
M/S total	81,781	100.0%

2 Activity since previous valuation implementation

2.1 Recorded Premium and Claims Activity

The following table summarizes the extent to which premiums and claims amounts recorded since the prior implementation differ from the prior projection.

Nova Scotia RSP Actual vs Projected Summary: Recorded Transaction Amounts (\$ thousands)

AY Group	Share Year	Share Month	Actual Earned Premium (000s)	Actual minus Projected Earned Premium (000s)	Actual Paid Claims (000s)	Actual minus Projected Paid Claims (000s)	Actual Recorded Claims (000s)	Actual minus Projected Recorded Claims (000s)
PAY	2021	November	(5)	(5)	634	8	(139)	(617)
		December	(1)	(1)	512	(414)	726	278
	2022	January	(10)	(10)	1,266	630	792	307
		February	(8)	(8)	977	193	91	(371)
		March	(9)	(9)	1,107	315	890	318
PAY Total			(33)	(33)	4,496	732	2,360	(85)
CAY	2021	November	2,829	(1,383)	929	145	1,076	(1,379)
		December	2,947	(56)	1,193	175	1,987	822
	2022	January	2,840	(382)	60	(182)	652	(256)
		February	2,452	(575)	736	(190)	1,314	(133)
		March	2,564	(738)	853	(126)	1,522	187
CAY Total			13,632	(3,134)	3,771	(178)	6,551	(759)
Grand Total			13,599	(3,167)	8,267	554	8,911	(844)

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

Claims transaction activity is generally volatile and changes from one month to the next are anticipated due to this natural “process variance” (i.e. random variation), and this is particularly true where volumes are low as found in this RSP. Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of the variance. The variances are also reviewed as part of the quarterly valuation process, as an indicator of changes in the claims development process or potential bias in ultimate claims estimates.

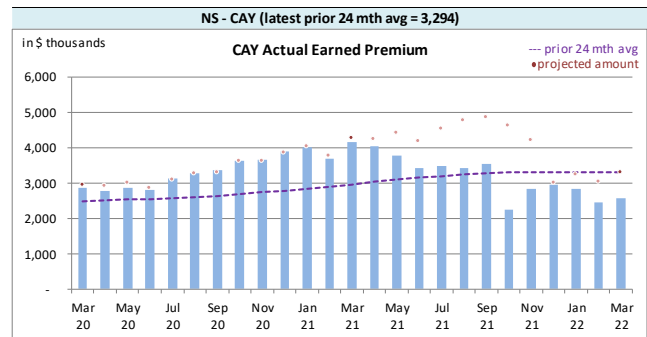
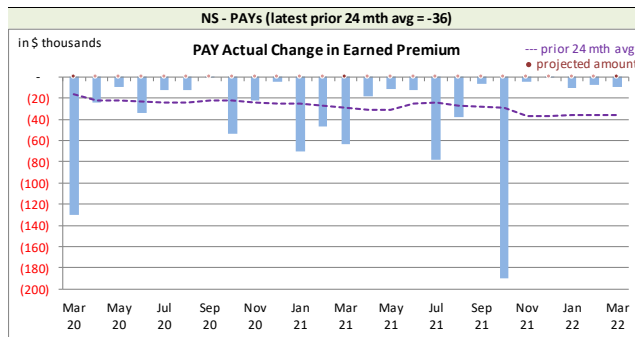
More detailed analysis and commentary on actual vs. projected for the most recent reporting months is provided below.

2.1.a Actual vs. Projected (AvsP): Earned Premium

The following charts show actual **earned premium**⁴ activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

⁴Premium is earned on a daily basis based on the transaction term measured in days. As a result, months with 31 days earned relatively more than those with 30 days, and February earns the least.

Nova Scotia RSP Actual **Earned Premium** by Calendar Month



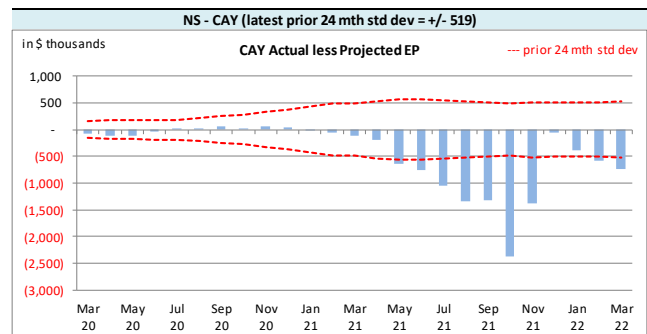
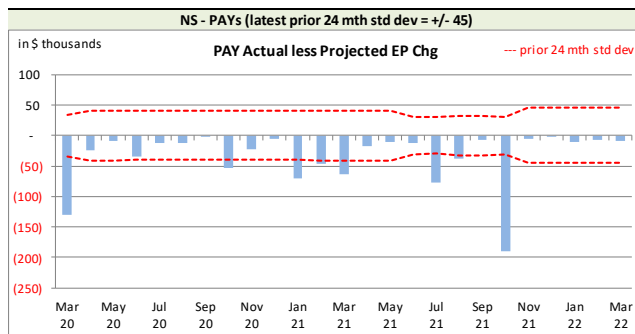
Earned premium changes during a given calendar month in relation to prior accident years tend to be at modest levels, although relatively high levels generally occur at the beginning of each year.

On Latest \$ thousands			
	Earned Premium	PAYs	CAY
Mthly Avg EP Chg (prior 24 mths)		(36)	3,294
std dev		45	519
A-P <> std dev		8	9
% <> std dev		32.0%	36.0%
norm <> std dev		31.7%	31.7%
performance vs 24-mth avg:	no better	no better	

The associated variance between the actual changes and the projections from the previous month are shown in the following charts. **Earned premium** change projections are all attributed to the current accident year as the projection upload does not accept **earned premium** changes for other accident years. We do not see this limitation

as being significant for our purposes, but it does mean that the actual less projection variance will equal the actual **earned premium** change in relation to prior accident years.

Nova Scotia RSP Actual vs. Projected Summary: **Earned Premium** Variances by Calendar Month



We project **earned premium** changes from known unearned premium balances and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁵, with actuals generally lower than projected, although the magnitude is not high relative to monthly premium. In addition to the PAYs' bias, the CAY has also shown bias⁶, with actuals being generally lower than projected, and while we modified our

⁵The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

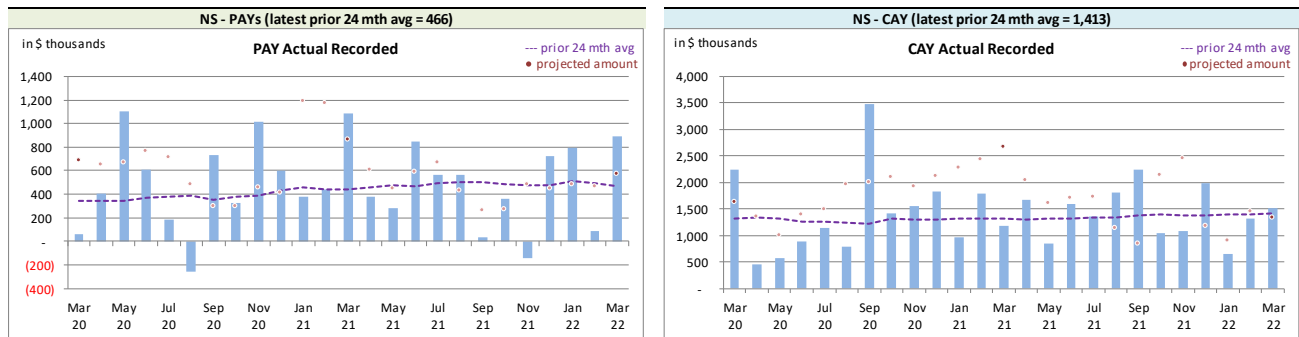
⁶We measure bias based on a 95% confidence range for a binominal distribution with trials based on the range being considered (25 in this case) and 50% probability of success. The rolling 25-month CAY variances at March 2022 has only 7 months where the actuals were higher than projected, and as the 95% confidence range is 8 to 17, bias continues to be indicated.

projections processes in response, bias still exists. Over time, we may consider other projection approaches to address the bias issue, but it is not currently deemed as priority.

2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

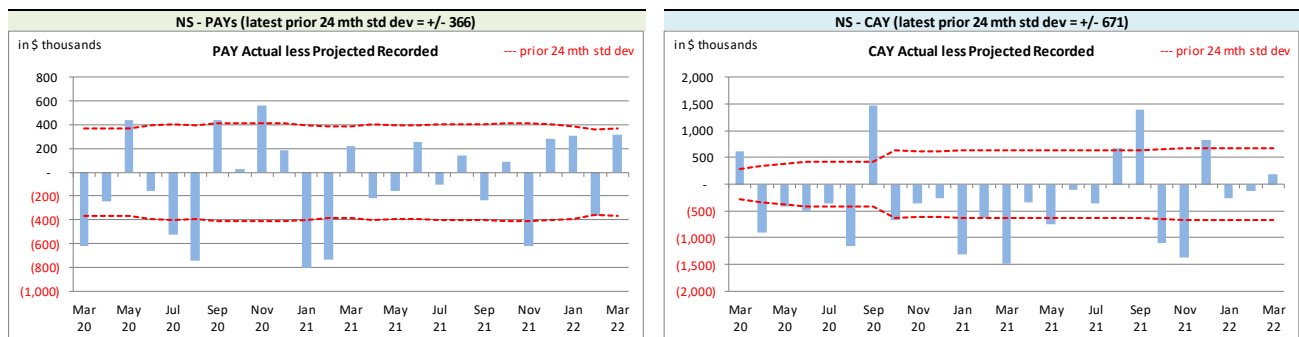
The following charts show actual **recorded** activity (**paid** and case reserve changes), in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

*Nova Scotia RSP Actual **Recorded** by Calendar Month*



Recorded activity variances from the previous month’s projections are shown in the following charts, including the “prior 24-month standard deviation” levels to show how the variances from projection compare with historical standard deviations.

*Nova Scotia RSP Actual vs Projected Summary: **Recorded** Variances by Calendar Month*



On Latest \$ thousands		
	Recorded	
	PAYs	CAY
Mthly Avg Recorded (prior 24 mths)	466	1,413
std dev	366	671
A-P <> std dev	10	16
% <> std dev	40.0%	64.0%
norm <> std dev	31.7%	31.7%
performance vs 24-mth avg:	worse	worse

With respect to **recorded** indemnity & allowed claims expense activity, caution must be exercised in reviewing the variances as this is a small pool and single claim transactions that are normal course for the business may look unusual and generate relatively significant variances that in nominal value terms are not that significant in relative or

overall terms. That said, 40% of prior accident years’ (PAYs) **recorded** variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **recorded** amounts (see the preceding table), suggesting the projection process has performed worse than simply projecting the prior 24-month average amount (assuming it follows a normal distribution). Bias has

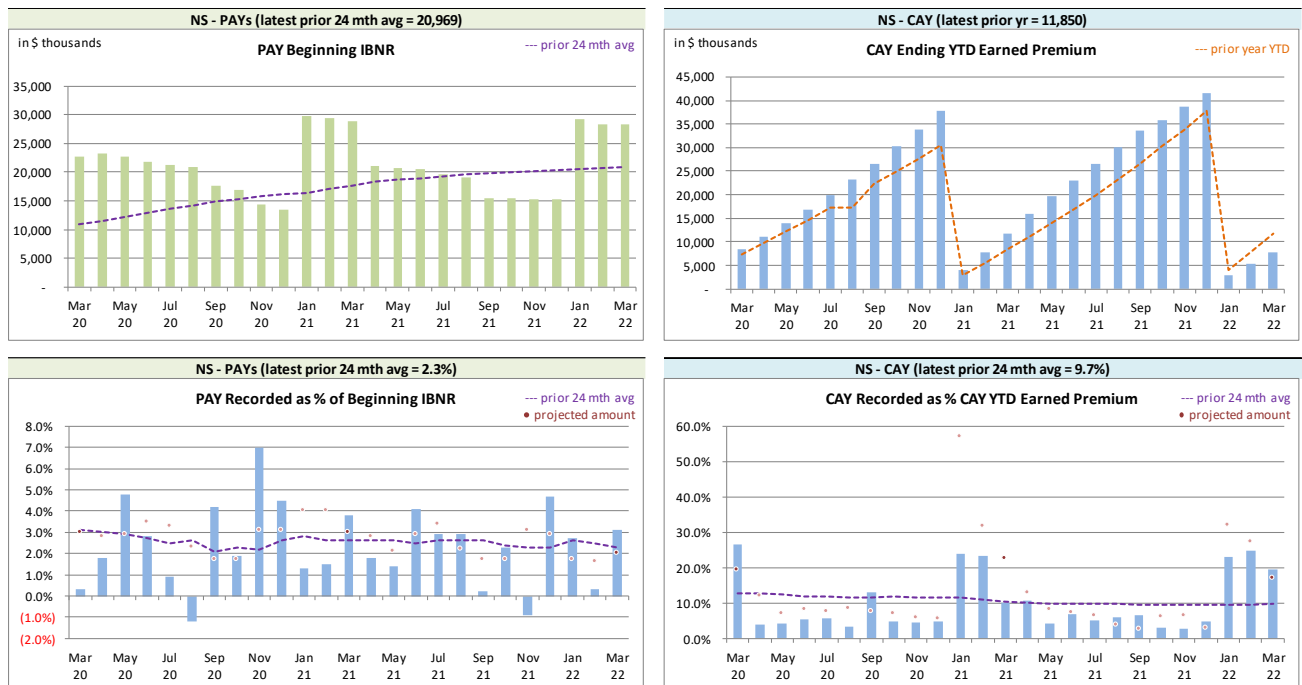
not been indicated at a 95% confidence level on a rolling 25-month basis (12 of 25 variances are positive).

The current accident year (CAY) **recorded** variances fell outside of one standard deviation 64% of the time over the last 25 calendar months (see preceding table on the left), suggesting that the projection process has performed worse than simply projecting the prior 24-month average amount. We are considering ways to improve our projection process as a result, but efforts so far have fallen short. Bias has been indicated at a 95% confidence level on a rolling 25-month basis (6 of 25 variances are positive).

The method for establishing IBNR adjusts automatically for changes in **earned premium** and **recorded** claims activity level (see sections 2.2 and 3).

We have included, for reference, the following charts related to levels influencing **recorded** activity. Note in particular the increase in the level of PAY beginning IBNR. Part of this will be as a response to valuations and showing up as a beginning IBNR change one month after the valuation is implemented (i.e. April, June, September, and November), and part will also reflect the maturity level of the RSP.

Nova Scotia RSP Levels that influence⁷ Recorded activity by Calendar Month



We track PAY beginning IBNR as **recorded** activity comes out of IBNR. Changes in the PAY beginning IBNR (see upper left of the preceding group of charts) occur for several possible reasons:

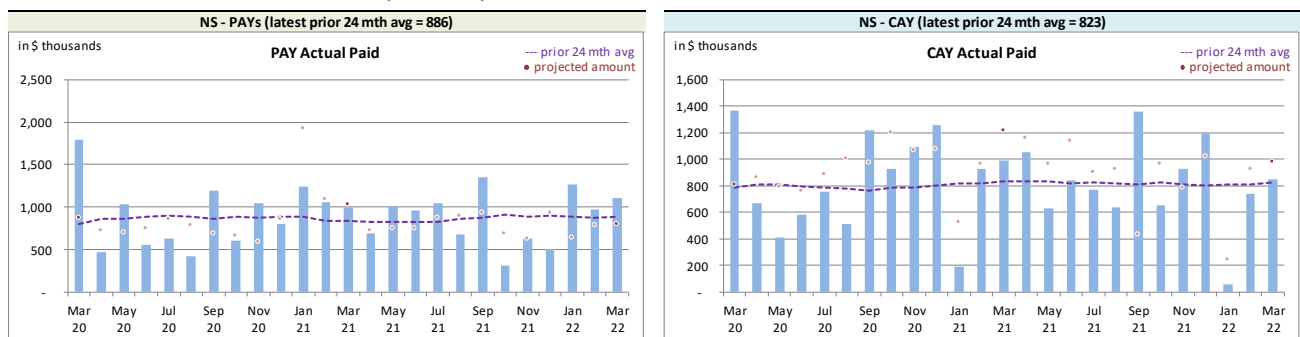
⁷Our recorded activity projections for the prior accident years are based on selected ratios of recorded activity to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date IBNR to year-to-date selected ultimate (i.e. selected LR x earned premium), deriving year-to-date recorded as selected ultimate less IBNR. In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.

- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a CAY becomes a PAY (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of PAYs' ultimates (will show up as a beginning IBNR change one month after the valuation is implemented, i.e. the change will generally show in April, June, September, and November).

2.1.c AvsP: Paid Indemnity & Allowed Claims Expense

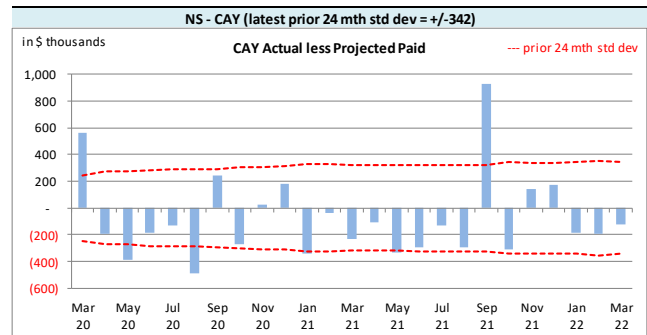
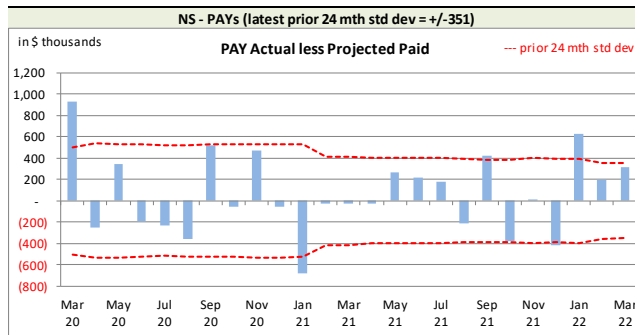
The following charts show actual **paid** activity in each of the most recent 25 calendar months, along with a “prior 24-month average” to show how each month’s actual compares with the average amount of the preceding 24 calendar months.

*Nova Scotia RSP Actual **Paid** by activity Calendar Month*



Paid activity variances from the previous month’s projections are shown in the following charts, including the “prior 24-month standard deviation” levels to show how the variances from projection compare with historical standard deviations.

Nova Scotia RSP Actual vs Projected Summary: **Paid** Variances by Calendar Month



On Latest \$ thousands			
	Paid	PAYs	CAY
Mthly Avg Paid (prior 24 mths)		886	823
std dev		351	342
A-P <> std dev		5	6
% <> std dev		20.0%	24.0%
norm <> std dev		31.7%	31.7%
performance vs 24-mth avg:		better	better

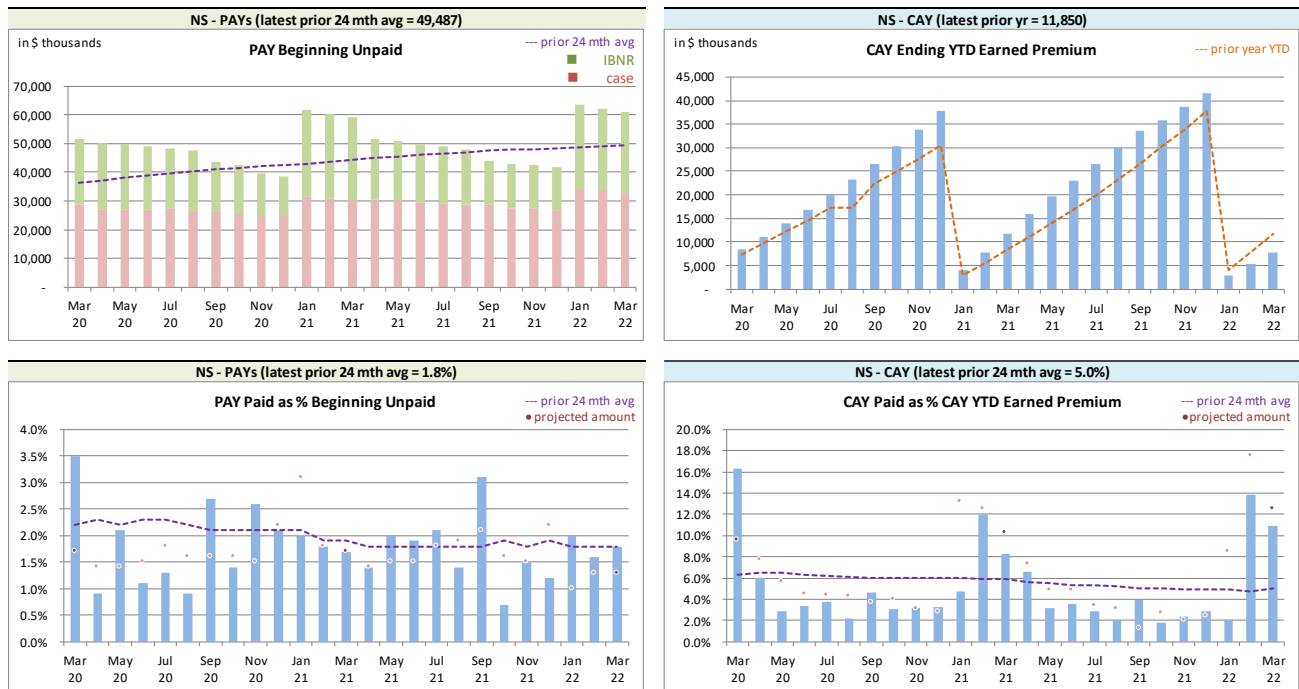
With respect to **paid** indemnity & allowed claims expense activity, caution must be exercised in reviewing the variances as this is a small pool and single claim transactions that are normal course for the business may look unusual and generate relatively significant variances that in nominal value terms are not that significant in relative or

overall terms. That said, 20% of the prior accident years' (PAYs) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **paid** amounts (see preceding table on the left), suggesting the projection process has performed better than simply projecting the prior 24-month average amount (assuming it follows a normal distribution). Bias has been indicated at a 95% confidence level on a rolling 25-month basis (12 of 25 variances are positive).

The current accident year (CAY) **paid** variances fell outside of one standard deviation 24% of the time over the last 25 calendar months (see the preceding table), suggesting that the projection process has performed no better than simply projecting the prior 24-month average amount. Bias has not been indicated at a 95% confidence level on a rolling 25-month basis (7 of 25 variances are positive).

We have included, for reference, the following charts related to levels influencing **paid** activity. Both case and IBNR increases contribute to the increase of PAY beginning unpaid. This is somewhat expected, given the maturity level of the RSP.

Nova Scotia RSP Levels that influence⁸ Paid activity by Calendar Month



We track the PAY beginning unpaid balance (case and IBNR) as **paid** activity comes out of the unpaid balance. Changes in the PAY beginning unpaid balance (see upper left of the preceding group of charts) occur for several possible reasons:

- to offset actual **paid** activity (may reduce case or IBNR or both);
- the annual switchover as a CAY becomes a PAY (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of PAYs' ultimates (will show up as a beginning unpaid balance change one month after the valuation is implemented, i.e. the change will generally show in April, June, September, and November).

2.2 Actuarial Provisions

An ultimate loss ratio matching method (described in section 3) was used to determine the month's IBNR⁹, and factors were applied to the nominal unpaid claims liability (case plus IBNR) to determine the discount amount (shown as a negative value to indicate its impact of reducing the liability) and the Provisions for Adverse Deviations. The loss ratios and the factors used to determine the current month's provisions and projections were based on the applicable valuation.

⁸Our paid projections for the prior accident years are based on selected ratios of paid to beginning unpaid balances, whereas the current accident year projections are based on selected ratios of year-to-date paid to year-to-date selected ultimate indemnity (i.e. selected LR x earned premium). In both cases, the ratio selection is based on our review of the more recent recorded activity and recent AvsP analyses.

⁹For ease of discussion, "IBNR" is used in place of "provisions for incurred but not recorded (IBNR) and development".

Exhibit G shows the accident year IBNR amount change from last month to this month broken down into:

- (i) the change projected last month;
- (ii) the additional change due to variances in earned premium (because we apply a loss ratio to earned premium in determining ultimate level) and/or recorded claims (as IBNR is calculated as ultimate less recorded) differences; and
- (iii) the additional change due to valuation implementation impacts (as applicable)

3 Ultimate Loss Ratio Matching Method

An “ultimate loss ratio matching method” continues to be applied to the current month and two projected months shown in the Operational Reports, with IBNR determined by accident year as follows:

- (a) Earned premium to-date
- (b) Ultimate loss¹⁰ ratio per latest valuation
- (c) Estimated ultimate incurred = (a) x (b)
- (d) Recorded indemnity & allowed claims expense to-date
- (e) IBNR = (c) – (d)

4 Calendar Year-to-Date Results

The following table summarizes the calendar year-to-date results for indemnity & allowed claims expenses¹¹, including IBNR.

In calculating the amounts as percentages of earned premium, the calendar year-to-date earned premium has been used, which includes not only the earned premium associated with the current accident year, but also earned premium adjustments related to prior accident years. Specifically, the current accident year (CAY) ratio in the table is 95.0% rather than 94.7% (the valuation ultimate ratio for accident year 2022), as the calendar year-to-date earned premium includes prior accident year earned premium adjustments. (Note that the ratios in this table may differ slightly from those shown in the Nova Scotia RSP Summary of Operations due to rounding.)

¹⁰“Loss” here refers to indemnity and allowed claims expenses, but does not include the claims expense allowance included in member company overall expense allowances (“Expense Allowance” in the Operational Report).

¹¹Allowed claims expenses are first party legal and other expenses as listed in the RSP Claims Guide. Claims expenses paid through the member company expense allowance are NOT included in this analysis.

Nova Scotia RSP Calendar Year-to-Date Indemnity & Allowed Claims Expense Summary (\$ thousands)

Table 04	YTD Nominal Values		YTD actuarial present value adjustment		YTD Total		Change from Prior Month YTD	
	Amount	% EP	Amount	% EP	Amount	% EP	Amount	LR pts
PAYs	(1,411)	(18.0%)	(785)	(10.0%)	(2,196)	(28.0%)	(1,953)	(23.4%)
CAY	7,440	95.0%	496	6.3%	7,936	101.4%	2,556	(0.6%)
TOTAL	6,029	77.0%	(289)	(3.7%)	5,740	73.3%	602	(24.1%)

("% EP" based on 2020 calendar year-to-date earned premium; ratios may not total due to rounding)

In general, prior accident years (PAYs) changes from last month are due to the release of the actuarial present value adjustments with claims payments, except when valuations are implemented. The loss ratio change year-to-date in Table 04 reflects not only changes in the prior accident year levels, but also the increase in the calendar year-to-date earned premium with an additional month's earned premium, and due to the impact of valuation implementation.

For the current accident year (CAY), changes in the year-to-date total reflects the additional month's exposure and regular changes to actuarial present value adjustments as the year ages, and due to the impact of valuation implementation.

5 Current Operational Report – Additional Exhibits

Section 6 provides exhibits pertaining to the actuarial provisions reflected in the current month's Operational Report.

IBNR (including actuarial present value adjustments) presented in section 6, Exhibit A, were derived on a discounted basis, and therefore reflect the time value of money and include an explicit provision for adverse deviations in accordance with accepted actuarial practice in Canada.

IBNR presented in section 6, Exhibit B, does NOT include any actuarial present value adjustments. The "Total IBNR" from this exhibit is shown in the Operational Report as "Undiscounted IBNR".

The ultimate loss ratios detailed in section 6, Exhibit B, refer to the estimates derived on the basis of various actuarial methodologies applied to the experience of the Nova Scotia Risk Sharing Pool for the purposes of the most recent quarterly valuation. As discussed in section 3, IBNR reflected in the current month's Operational Report was derived as the difference between the estimated ultimate for the claims amount (i.e. earned premium x ultimate loss ratio) and the associated current recorded amounts (life-to-date payments plus current case reserves).

6 EXHIBITS

The exhibits listed below are provided on the pages that follow:

EXHIBIT A	IBNR for Member Sharing – includes Actuarial Present Value Adjustments
EXHIBIT B	IBNR
EXHIBIT C	Premium Liabilities
EXHIBIT D	Projected Year-end Policy Liabilities
EXHIBIT E	Discount Rate & Margins for Adverse Deviations
EXHIBIT F	Interest Rate Sensitivity
EXHIBIT G	Components of IBNR Change During Month

EXHIBIT A

IBNR for Member Sharing – includes Actuarial Present Value Adjustments

TABLE EXHIBIT A

		Amounts in \$000s							
IBNR + M/S actuarial present value adjustments	Accident Year	Actual Feb. 2022	Actual Mar. 2022	Projected Apr. 2022	Projected May. 2022	Projected Jun. 2022	Projected Jul. 2022	Projected Aug. 2022	Projected Dec. 2022
	2009	12	12	12	12	11	11	11	9
	2010	4	4	4	4	3	3	3	2
	2011	4	4	4	4	3	3	3	2
	2012	11	(4)	(4)	(4)	(3)	(3)	(3)	(1)
	2013	123	126	125	124	124	118	116	113
	2014	125	103	101	101	101	96	96	92
	2015	106	155	155	153	148	143	142	126
	2016	231	216	215	213	207	200	198	180
discount rate	2017	733	483	478	474	449	435	431	363
1.03%	2018	1,785	1,521	1,477	1,370	1,269	1,125	1,111	888
	2019	4,299	3,879	3,838	3,649	3,424	3,337	3,119	2,694
interest rate margin	2020	10,985	9,471	9,078	8,955	8,758	8,470	8,358	7,006
25 basis pts	2021	16,167	15,772	15,608	15,213	15,057	14,904	14,626	13,714
	2022	3,414	4,448	6,137	6,722	7,047	7,231	7,251	7,492
	TOTAL	37,995	36,186	37,224	36,986	36,594	36,069	35,458	32,677
	Change		(1,809)	1,038	(238)	(392)	(525)	(611)	

Please see Exhibit G, page 1 for Components of Change during Current Month

EXHIBIT B

IBNR

TABLE EXHIBIT B

Amounts in \$000s

IBNR

Ultimate Loss Ratio	Accident Year	Actual Feb. 2022	Actual Mar. 2022	Projected Apr. 2022	Projected May. 2022	Projected Jun. 2022	Projected Jul. 2022	Projected Aug. 2022	Projected Dec. 2022
63.8%	2009	5	5	5	5	4	4	4	3
73.4%	2010	4	4	4	4	3	3	3	2
90.1%	2011	4	4	4	4	3	3	3	2
101.5%	2012	7	(6)	(6)	(6)	(5)	(5)	(5)	(3)
92.2%	2013	(16)	(6)	(6)	(6)	(5)	(5)	(5)	(3)
86.8%	2014	10	(4)	(4)	(4)	(3)	(3)	(3)	(2)
89.4%	2015	(33)	26	26	26	22	22	22	13
96.1%	2016	30	25	25	25	21	21	21	12
91.6%	2017	327	136	135	134	112	111	110	60
79.4%	2018	1,076	857	820	720	636	501	493	351
79.0%	2019	3,350	3,016	2,986	2,810	2,594	2,516	2,305	1,932
69.7%	2020	9,432	8,114	7,733	7,625	7,442	7,167	7,074	5,810
77.4%	2021	14,108	13,847	13,709	13,339	13,206	13,074	12,813	11,986
94.7%	2022	3,004	3,952	5,467	5,911	6,110	6,172	6,080	5,761
	TOTAL	31,304	29,966	30,894	30,583	30,136	29,577	28,911	25,921
	Change		(1,338)	928	(311)	(447)	(559)	(666)	

Please see Exhibit G, page 2 for Components of Change during Current Month

EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C

Premium Liabilities	Amounts in \$000s							
	Actual Feb. 2022	Actual Mar. 2022	Projected Apr. 2022	Projected May. 2022	Projected Jun. 2022	Projected Jul. 2022	Projected Aug. 2022	Projected Dec. 2022
(1) unearned premium (UP)	12,221	10,752	10,866	11,199	12,553	14,118	15,629	17,091
FOR MEMBER SHARING								
(2) expected future costs ratio {% of (1)}	103.4%	103.5%	104.1%	105.0%	105.7%	106.3%	106.9%	109.4%
(3) expected future costs {(1) x (2)}	12,633	11,128	11,311	11,761	13,265	15,010	16,711	18,699
(4) premium deficiency / (deferred policy acquisition cost)	412	376	445	562	712	892	1,082	1,608
Excluding Actuarial Present Value Adjustments								
(5) expected future costs ratio {% of (1)}	95.2%	96.1%	96.7%	97.5%	98.2%	98.8%	99.3%	101.6%
(6) expected future costs {(1) x (5)}	11,636	10,336	10,507	10,924	12,322	13,943	15,523	17,368
(7) premium deficiency / (deferred policy acquisition cost)	(585)	(416)	(359)	(275)	(231)	(175)	(106)	277

EXHIBIT D

Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2022, broken down by component.

Nova Scotia	Projected Balances as at Dec. 31, 2022 (\$000s)									
ending 2022	nominal values			actuarial present value adjustments (apvs)						
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL
2009	58	3	61	-	-	6	-	6	6	67
2010	2	2	4	-	-	-	-	-	-	4
2011	2	2	4	-	-	-	-	-	-	4
2012	32	(3)	29	(1)	-	3	-	3	2	31
2013	1,367	(3)	1,364	(24)	6	136	(2)	134	116	1,480
2014	1,079	(2)	1,077	(16)	4	108	(2)	106	94	1,171
2015	1,343	13	1,356	(26)	6	136	(3)	133	113	1,469
2016	1,937	12	1,949	(32)	8	195	(3)	192	168	2,117
2017	3,486	60	3,546	(60)	14	355	(6)	349	303	3,849
2018	4,613	351	4,964	(90)	22	616	(11)	605	537	5,501
2019	5,380	1,932	7,312	(161)	38	905	(20)	885	762	8,074
2020	6,063	5,810	11,873	(309)	74	1,469	(38)	1,431	1,196	13,069
2021	5,982	11,986	17,968	(545)	129	2,211	(67)	2,144	1,728	19,696
PAYs (sub-total):	31,343	20,160	51,503	(1,264)	301	6,140	(152)	5,988	5,025	56,528
CAY (2022)	14,402	5,761	20,163	(609)	144	2,264	(68)	2,196	1,731	21,894
claims liabilities:	45,745	25,921	71,666	(1,873)	445	8,404	(220)	8,184	6,756	78,422
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	17,091	277	17,368	(506)	120	1,769	(52)	1,717	1,331	18,699
*Total may not be sum of parts, as apvs apply to future costs within UPR										
policy liabilities:			89,034	(2,379)	565	10,173	(272)	9,901	8,087	97,121

EXHIBIT E

Discount Rate & Margins for Adverse Deviations

The tables below present selected margins for adverse development by coverage (the total is a weighted average, based on the unpaid claims projection for December 31, 2022 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Accident Year	Selected Claims Development MfADs			
	Third Party Liability	Accident Benefits	Other Coverages	Total
	Margins	Margins	Margins	Margins
2004	10.0%	10.0%	10.0%	10.0%
2005	10.0%	10.0%	10.0%	10.0%
2006	10.0%	10.0%	10.0%	10.0%
2007	10.0%	10.0%	10.0%	10.0%
2008	10.0%	10.0%	10.0%	10.0%
2009	10.0%	10.0%	10.0%	10.0%
2010	10.0%	10.0%	10.0%	10.0%
2011	10.0%	10.0%	10.0%	10.0%
2012	10.0%	10.0%	10.0%	10.0%
2013	10.0%	10.0%	10.0%	10.0%
2014	10.0%	10.0%	10.0%	10.0%
2015	10.0%	10.0%	10.0%	10.0%
2016	10.0%	10.0%	10.0%	10.0%
2017	10.0%	10.0%	10.0%	10.0%
2018	12.5%	10.0%	12.5%	12.4%
2019	12.5%	10.0%	12.5%	12.4%
2020	12.5%	10.0%	12.5%	12.4%
2021	12.5%	10.0%	12.5%	12.3%
2022	12.3%	10.0%	5.2%	11.2%
prem liab	12.0%	10.0%	5.2%	10.3%

discount rate: 1.03%
margin (basis points): 25

*prem liabilities as at 2021m12

EXHIBIT F

Interest Rate Sensitivity

The tables below present sensitivity to the member statement claims liability as projected to Dec. 31, 2022 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2022, and are based on more up-to-date information). We have included the most recent valuation selection (1.03%), the prior valuation assumption (0.78%) and the prior fiscal year end valuation assumption (0.19%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

AY	Actuarial Present Value of Provisions at Various Discount Rates - Dec. 31, 2022 projected Unpaid							
	0.03%	0.53%	1.03%	1.53%	2.03%	2.53%	0.78%	0.19%
2004 & prior	-	-	-	-	-	-	-	-
2004	-	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-
2009	33	33	33	33	32	32	33	33
2010	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-
2012	22	22	22	22	22	21	22	22
2013	712	708	702	696	690	684	705	712
2014	609	607	602	598	593	589	604	609
2015	953	947	939	930	922	913	943	953
2016	1,339	1,332	1,321	1,311	1,301	1,291	1,327	1,338
2017	2,944	2,930	2,906	2,882	2,859	2,837	2,918	2,944
2018	5,152	5,124	5,079	5,034	4,991	4,948	5,101	5,150
2019	7,567	7,517	7,436	7,358	7,281	7,205	7,476	7,564
2020	12,830	12,730	12,568	12,410	12,256	12,106	12,648	12,824
2021	20,201	20,016	19,720	19,431	19,150	18,876	19,867	20,190
2022	25,478	25,244	24,868	24,503	24,148	23,803	25,054	25,464
Total	77,839	77,209	76,195	75,207	74,244	73,306	76,699	77,803
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Dollar Impact Relative to Valuation Assumption							
	0.03%	0.53%	1.03%	1.53%	2.03%	2.53%	0.78%	0.19%
Total	1,644	1,015	-	(988)	(1,951)	(2,889)	504	1,608
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

AY	Percentage Impact Relative to Valuation Assumption							
	0.03%	0.53%	1.03%	1.53%	2.03%	2.53%	0.78%	0.19%
2004 & prior	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2004	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2005	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2006	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2007	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2008	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2009	0.3%	0.2%	0.0%	-0.2%	-0.4%	-0.6%	0.1%	0.3%
2010	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2011	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2012	1.5%	1.0%	0.0%	-0.9%	-1.9%	-2.8%	0.5%	1.5%
2013	1.4%	0.9%	0.0%	-0.9%	-1.7%	-2.5%	0.4%	1.4%
2014	1.2%	0.7%	0.0%	-0.7%	-1.5%	-2.2%	0.4%	1.2%
2015	1.5%	0.9%	0.0%	-0.9%	-1.8%	-2.7%	0.5%	1.5%
2016	1.3%	0.8%	0.0%	-0.8%	-1.6%	-2.3%	0.4%	1.3%
2017	1.3%	0.8%	0.0%	-0.8%	-1.6%	-2.4%	0.4%	1.3%
2018	1.4%	0.9%	0.0%	-0.9%	-1.7%	-2.6%	0.4%	1.4%
2019	1.8%	1.1%	0.0%	-1.1%	-2.1%	-3.1%	0.5%	1.7%
2020	2.1%	1.3%	0.0%	-1.3%	-2.5%	-3.7%	0.6%	2.0%
2021	2.4%	1.5%	0.0%	-1.5%	-2.9%	-4.3%	0.7%	2.4%
2022	2.5%	1.5%	0.0%	-1.5%	-2.9%	-4.3%	0.8%	2.4%
Total	2.2%	1.3%	0.0%	-1.3%	-2.6%	-3.8%	0.7%	2.1%
	curr - 100 bp	curr - 50 bp	curr val assumption	curr + 50bp	curr + 100bp	curr + 150bp	prior val assumption	prior fyr end assumption

EXHIBIT G

Page 1 of 2

Components of Member Statement IBNR (i.e. “Discounted”) Change
(November 2021 to March 2022)

RSP Nova Scotia
AccountCode Desc IBNR - Discounted

M/S IBNR - in \$000s

AccYear	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
prior	-	-	-	-	-	-	-
2001	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	-
2004	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-
2007	(1)	-	-	-	-	-	(1)
2008	(3)	-	-	-	-	-	(3)
2009	12	-	-	-	-	-	12
2010	4	-	-	-	-	-	4
2011	4	-	-	-	-	-	4
2012	8	-	2	(15)	(13)	(162.5%)	(4)
2013	140	(7)	(11)	6	(12)	(8.6%)	126
2014	108	(6)	23	(21)	(4)	(3.7%)	103
2015	113	(3)	10	33	40	35.4%	155
2016	211	(14)	30	(9)	7	3.3%	216
2017	777	(101)	71	(268)	(298)	(38.4%)	483
2018	1,937	(195)	(144)	(87)	(426)	(22.0%)	1,521
2019	4,958	(485)	(301)	(318)	(1,104)	(22.3%)	3,879
2020	11,282	(1,145)	381	(1,083)	(1,847)	(16.4%)	9,471
2021	15,119	1,465	(776)	(75)	614	4.1%	15,660
2022	-	5,947	(1,495)	(4)	4,448	-	4,448
Grand Total	34,669	5,456	(2,210)	(1,841)	1,405	4.1%	36,074

EXHIBIT G

Page 2 of 2

Components of IBNR (i.e. “Undiscounted”) Change
(November 2021 to March 2022)

RSP Nova Scotia
AccountCode Desc IBNR - Undiscounted

IBNR - in \$000s

AccYear	Sum of Prior Month Actual Amount	Sum of Projected Change	Sum of Change Due to AvsP Variances	Sum of Change Due to Valuation Implementation	Sum of Total Change	Sum of % Total Change	Sum of Current Month Final Amount
prior	-	-	-	-	-	-	-
2001	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	-
2004	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-
2007	(1)	-	-	-	-	-	(1)
2008	(3)	-	-	-	-	-	(3)
2009	5	-	-	-	-	-	5
2010	4	-	-	-	-	-	4
2011	4	-	-	-	-	-	4
2012	5	-	2	(13)	(11)	(220.0%)	(6)
2013	(3)	1	(17)	13	(3)	100.0%	(6)
2014	(8)	(1)	18	(13)	4	(50.0%)	(4)
2015	(29)	4	9	42	55	(189.7%)	26
2016	1	(3)	27	-	24	2,400.0%	25
2017	358	(58)	63	(227)	(222)	(62.0%)	136
2018	1,166	(139)	(115)	(55)	(309)	(26.5%)	857
2019	3,983	(416)	(309)	(242)	(967)	(24.3%)	3,016
2020	9,711	(1,047)	345	(895)	(1,597)	(16.4%)	8,114
2021	13,188	1,179	(520)	-	659	5.0%	13,847
2022	-	5,279	(1,390)	63	3,952	-	3,952
Grand Total	28,381	4,799	(1,887)	(1,327)	1,585	5.6%	29,966