

ONTARIO RISK SHARING POOL OCTOBER 2019 OPERATIONAL REPORT ACTUARIAL HIGHLIGHTS

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ACTUARIAL HIGHLIGHTS

RSP ONTARIO

OPERATIONAL REPORT OCTOBER 2019

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1 Summary

Key Points

- (a) The 2019 Q3 valuation was completed and implemented into the results this month, with a \$9.8 million favourable impact, or 0.7% of beginning policy liabilities (policy liabilities ended at \$1,335 million) and 3.4 points of year-to-date earned premium; and
- (b) Transfer counts and associated premium were higher-than-expected during the month (counts were up 65% vs the 28% increase expected; written premium was up 90% vs the 32% increase expected).

1.1 Valuation Schedule (Fiscal Year 2019)

The October 2019 Operational Report incorporates the results of an updated valuation (as at September 30, 2019) – the impact of the implementation of the valuation is discussed in section 1.2. The table below summarizes the implemented valuations and future scheduled valuations for fiscal year 2019.

	ONTARIO RISK SHARING POOL FISCAL YEAR 2019 – SCHEDULE OF VALUATIONS					
Valuation Date	Discount Rate (per annum)	Operational Report	Description of Changes			
Sep. 30, 2018 (completed)	2.22% mfad 25 bp	Oct. 2018	updated valuation (roll forward): accident year 2018 loss ratio <u>in</u> creased 0.5 points to 127.0%; discount rate <u>in</u> creased 39 basis points; selected margins for adverse deviations were updated			
Dec. 31, 2018 (completed)	1.88% mfad 25 bp	Mar. 2019	updated valuation: accident year 2019 loss ratio 127.1%; discount rate <u>de</u> creased 34 basis points; no change to selected margins for adverse deviations			
Mar. 31, 2019 (completed)	1.43% mfad 25 bp	May 2019	updated valuation (roll forward): accident year 2019 loss ratio <u>in</u> creased 0.5 points to 127.6%; discount rate <u>de</u> creased 45 basis points; no change to selected margins for adverse deviations			
Jun. 30, 2019 (completed)	1.40% mfad 25 bp	Aug. 2019	updated valuation: accident year 2019 loss ratio decreased 4.6 points to 123.0%; discount rate decreased 3 basis points; selected margins for adverse deviations were updated			
Sep. 30, 2019 (completed)	1.41% mfad 25 bp	Oct. 2019	update valuation (roll forward): accident year 2019 loss ratio <u>de</u> creased 0.7 points to 122.3%; discount rate <u>in</u> creased 1 basis point; no change to selected margins for adverse deviations			

Under the proposed schedule for fiscal year 2019, the "off-half" valuation quarters ending March 31, 2019 and September 30, 2019 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 Ontario Risk Sharing Pool ("RSP") as at Sep. 30, 2019 has been completed since last month's Operational Report and the results of that valuation have been incorporated into this month's Report. The valuation was completed by the Facility Association's internal actuarial group in conjunction with, and approved by, the interim Appointed Actuary, under the hybrid model for actuarial services. Additional detail will be provided in an "Actuarial Highlights – Quarterly Valuation" report which we anticipate will be posted to the FA website in December 2019.

The valuation implementation impact is summarized in the tables below and on the next page, where abbreviations PAYs refers to prior accident years, CAY refers to the current accident year (2019), and Prem Def refers to premium deficiency / deferred acquisition costs impacts.

Summary of Impact (\$000s) of Implementing Result of Valuation as at Sep. 30, 2019¹

Ontario	unfav / (fav) for the month and ytd						
	IMPACT in \$000s from changes in:						
	ults &	payout pat	terns	dsct rate	margins		
	Nominal apv adj. sub-tot			apv adj.	apv adj.	TOTAL	
	[1] [2] [3]		[4]	[5]	[6]		
PAYs	(5,412)	(235)	(5,647)	(345)	-	(5,992)	
CAY	(2,060)	(459)	(2,519)	(43)	-	(2,562)	
Prem Def	(427)	(786)	(1,213)	-	-	(1,213)	
TOTAL	(7,899)	(1,480)	(9,379)	(388)	-	(9,767)	

As indicated in the table above, the incorporation of the new valuation had an estimated \$9.8 million favourable impact on the month's net result from operations, subtracting an estimated 3.4 points (see table at the top of the next page) to the year-to-date Combined Operating Ratio to end at 143.8%.

Summary of Impact (% YTD EP) of Implementing Result of Valuation as at Sep. 30, 2019

Ontario	ytd EP	290,764	(actual)			
	IM	PACT unfav	/ (fav) as %	6 ytd EP fro	m changes	in:
	ults &	payout pat	terns	dsct rate	margins	
	Nominal	Nominal apv adj. sub-tot		apv adj.	apv adj.	TOTAL
	[1]	[2]	[3]	[4]	[5]	[6]
PAYs	(1.9%)	(0.1%)	(1.9%)	(0.1%)	-	(2.1%)
CAY	(0.7%)	(0.2%)	(0.9%)	-	-	(0.9%)
Prem Def	(0.1%)	(0.3%)	(0.4%)	-	-	(0.4%)
TOTAL	(2.7%)	(0.5%)	(3.2%)	(0.1%)	-	(3.4%)
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¹In 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 "ults & 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.



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 \$7.9 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 ultimate loss ratio).

The **PAYs** overall showed a **\$5.4 million favourable** nominal variance or 0.7% of the PAYs nominal unpaid balance of \$728.6 million determined at the end of last month beginning, driven by favourable claims development and updates to a priori loss ratios to include more recent data and updated trends. While the valuation implementation impact does differ from the valuation changes themselves (as they apply to different periods), the valuation result by government line provides insight into the relative PAYs nominal changes. As per below, the primary changes were in relation to accident benefits across accident years.

Valuation as at Sep. 30, 2019 – PAYs Nominal Changes by Government Line

Ontario RSP - valuation changes in selected ultimate

(favourable) / unfavourable during Quarter

Assidont Voor	Third Party	hird Party Accident		Total
Accident Year	Liability	Benefits	Coverages	Total
2014 & Prior	(431)	(4,227)	57	(4,601)
2015	950	2,136	100	3,186
2016	189	(1,252)	165	(898)
2017	826	(1,836)	350	(660)
2018	239	(3,027)	312	(2,476)
TOTAL	1,773	(8,206)	984	(5,449)

The CAY and premium deficiency impacts are a result of the change in the selected loss ratios for accident year **2019** (decreased 0.7 points to **122.3%**); there was no change for accident year **2020** (left at **125.2%**).

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 summary tables on the two previous pages 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 \$1.5 million 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 September 2019.



Column [4] accounts for the change in the **discount rate** selected (<u>in</u>creased 1 basis point to **1.41%**), indicating a favourable impact of \$0.4 million. The impact *related only to claims liabilities* (i.e. PAYs plus CAY) was \$0.4 million at October 2019 (projected \$0.4 million impact at December 31, 2019) – this compares to the \$0.3 million change one would estimate as the impact by interpolation using the interest rate sensitivity table provided in last month's 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 noted above and outlined in section 1.4.

1.3 Appointed Actuary and Hybrid Actuarial Services Model

Liam McFarlane of Ernst & Young LLP was Facility Association's Appointed Actuary (effective as of June 1, 2013). Mr. McFarlane has resigned his Appointment to take on a role at a different organization. Mr. Cosimo Pantaleo of Ernst & Young LLP has assumed the Appointed Actuary's role (effective as of October 24, 2019), pending formal appointment by the Facility Association Board (expected at its December 12, 2019 meeting).

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 / Regulation²

There have been no changes in these descriptions since last month's Highlights, other than updated references to reflect the new valuation.

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 changes are provided below.

Ontario Bill 15 (Fighting Fraud and Reducing Automobile Insurance Rates Act, 2014) was introduced into the Legislature by the Minister of Finance on July 15, 2014 and received Royal Assent on November 20, 2014. Bill 15 includes various amendments and provisions such as moving the Ontario Automobile Dispute Resolution System (DRS) for statutory accident benefits from the Financial Services Commission of Ontario to the Ministry of the Attorney General (Licence Appeal Tribunal), regulation of the Tow and Storage Industry (amendments to the Consumer Protection Act and Repair and Storage Liens Act), regulations related to licensing of insurance agents and adjusters, changes the applicable interest rate applied to overdue payments in the Statutory Accident Benefits Schedule (SABS), and changes to the prejudgment interest rate on general damages for non-pecuniary loss from the rate as set out in the Courts of Justice Act to rates linked to market conditions.

 $^{^2}$ This url to a pdf is to a helpful guide on how bills become laws: https://www.ola.org/sites/default/files/common/how-bills-become-law-en.pdf.



Ontario Bill 91 (Building Ontario Up Act (Budget Measures), 2015) was introduced into the Legislature by the Minister of Finance on April 23, 2015 and received Royal Assent on June 4, 2015. Bill 91 announced a number of amendments to regulations made under the Insurance Act, including: updating the Catastrophic Impairment Definition and changes to the standard benefit level under the Statutory Accident Benefits Schedule (SABS); restrictions on insurance premium increases and lowering of the maximum interest rate charged on monthly auto insurance premium payments; and adjustments to the monetary threshold beyond which the tort deductible does not apply to reflect inflation (adjustments to reflect inflation in the associated tort deductible were undertaken via an update to regulation 461/96). On August 26, 2015, the Ontario government filed Ontario regulations 250/15 and 251/15 implementing reforms set out in Bill 91. With the most recent valuation (September 30, 2019), reform adjustments (originally introduced with the September 30, 2015 valuation) specifically related to changes to the SABS impacting the bodily injury and accident benefits coverages, were included with the updated industry trend analysis (completed using industry data as at December 31, 2018), impacting the selection of ultimates.

1.5 Harmonized Sales Tax Class Action - Ontario

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

Since the end of October 2018, class action lawsuits have been brought against multiple insurers related to HST and limits / sub-limits of benefits per the Statutory Accident Benefits Schedule and FSCO's Professional Services Guideline as part of claims settlement practices in Ontario.

At the current time, no adjustments have been made to our valuation estimates, but in conjunction with FA's Appointed Actuary, FA management continues to review and consider the implications of the potential outcomes related to the class action lawsuits. Please contact Shawn Doherty at sdoherty@facilityassociation.com if you need further information.

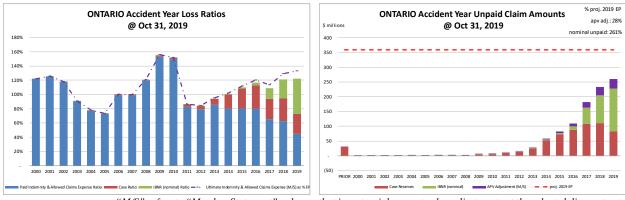
1.6 Current Provision Summary

The charts at the top of the next page show the current levels of claim liabilities³ booked by accident year⁴. 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 2019 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.

⁴The loss ratio chart has been limited to show the most recent 20 accident years; the unpaid provision chart has been limited to show the most recent 20 accident years, and show all accident years older than 20 years collectively as "PRIOR".





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

The current actuarial present value adjustments provision for claims liabilities (\$101.4 million – see table below) represents 28% of the earned premium projected for the full year 2019 (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.

claim liabilities (\$000s)		
	amt	%
case	610,618	59.0%
ibnr	323,053	31.2%
M/S apv adjust.	101,381	9.8%
M/S total	1,035,052	100.0%

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 74% of the IBNR balance relates to accident years 2018 and 2019 (see Exhibit B). Approximately 84% of the M/S total claim

liabilities are related to accident years 2015-2019 inclusive (i.e. the most recent 5 accident years), and approximately 5% is related to accident years 2009 and prior (i.e. prior to the most recent 10 accident years).

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

premium liabilities (\$000s)			policy liabilities (\$00	0s)	
	amt	%		amt	%
unearned prem	218,535	72.7%	claim	933,671	69.9%
prem def/(dpac)	53,753	17.9%	premium	272,288	20.4%
M/S apv adjust.	28,148	9.4%	M/S apv adjust.	129,529	9.7%
M/S total	300,436	100.0%	M/S total	1,335,488	100.0%

2 Activity During the Month of October 2019

2.1 Recorded Premium and Claims Activity

The table at the top of the next page summarizes the extent to which premiums and claims amounts recorded during the month differ from projections reflected in the prior month's Operational Report⁵.

⁵There may be rounding differences in values in this document compared with the associated Bulletin and/or Operational Report.



Table 01	Earned Premium		Paid Indemnity & Allowed Claims Expense		Case increase / (decrease)		Recorded increase / (decrease)	
Accident Year	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
Prior	(2)	(2)	10,168	(331)	(10,684)	(1,066)	(516)	(1,397)
2017	(10)	(10)	3,086	(251)	387	765	3,473	514
2018	(85)	(85)	4,332	98	(1,965)	(693)	2,367	(595)
2019	32,804	306	20,671	4,128	10,055	238	30,726	4,366
TOTAL	32,708	209	38,257	3,644	(2,207)	(756)	36,050	2,888

(Recorded transaction amounts exclude IBNR & other actuarial provisions)

It is unusual to see actual earned premium transactions affecting prior accident years by this time in the calendar year – the prior accident years changes in the month reflect activity undertaken by a member reflecting recent audit findings.

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). Each month, the projection variances are reviewed for signs of projection bias and to identify potential ways to reduce the level of the variance. Commentary from our review is provided in the sub-sections that follow.

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

The charts below show actual **earned premium**⁶ 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.

Ontario 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 (note the different scales in the charts above), although relatively high levels generally occur at the beginning of each year.

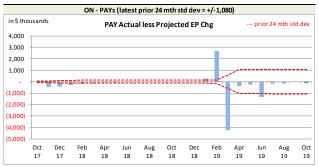
The associated variance between the actual changes and the projections from the previous month are shown in the charts below. **Earned premium** change projections are all attributed to the current accident year as the projection upload does not accept **earned premium** changes for other accident years. We do not see this limitation as being significant for our purposes, but it does mean that the

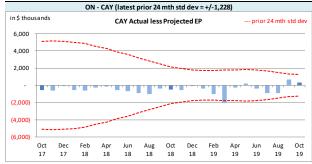
⁶Premium is earned on a daily basis based on the transaction term measured in days. As a result, months with 31 days earned relatively more than those with 30 days, and February earns the least.



actual less projection variance will equal the actual **earned premium** change in relation to prior accident years.

Ontario RSP Actual vs. Projected Summary: Earned Premium Variances by Calendar Month





On Latest \$ thousands				
Earned Premium	PAYs	CAY		
Mthly Avg EP Chg (prior 24 mths)	(228)	29,553		
std dev	1,080	1,228		
A-P <> std dev	9	1		
% <> std dev	36.0%	4.0%		
norm <> std dev	31.7%	31.7%		
performance vs 24-mth avg:	no better	better		

We project **earned premium** changes from known unearned premium and projected written premium levels, but upload the total projections as current accident year (CAY). This process has generated prior accident years' (PAYs) bias⁷, 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 bias⁸, with actuals being generally lower than projected, and while we modified our projections processes in response, bias still exists. Over time, we may consider other projection approaches to narrow monthly variance levels further, but it is not currently deemed a priority. Readers will also note the significant widening then tapering of the CAY standard deviation band, reflecting significant volume changes and the impact as those changes were earned.

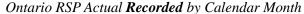
2.1.b AvsP: Recorded Indemnity & Allowed Claims Expense

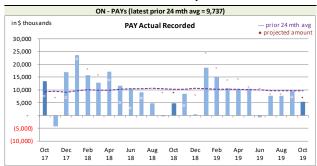
The charts at the top of the next page show actual **recorded** activity (**paid** and **case reserve** changes), in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

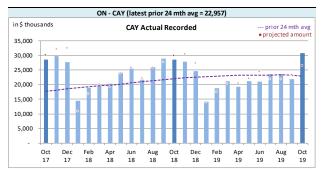
⁷The PAYs' variances will show bias as the projection upload forces all earned premium projections to be attributed to the CAY.

⁸We 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 October 2019 has only 3 months where the actuals were higher than projected, and as the 95% confidence range is 8 to 17, bias continues to be indicated.



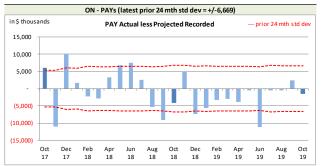


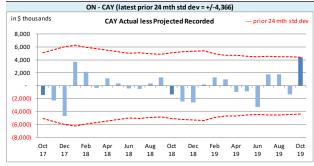




Recorded activity variances from the previous month's projections are shown in the charts below, including the "prior 24-month standard deviation" levels to show how the variances from projection compare with historical standard deviations.

Ontario RSP Actual vs Projected Summary: Recorded Variances by Calendar Month





On Latest \$ thousands					
Recorded	PAYs	CAY			
Mthly Avg Recorded (prior 24 mths)	9,737	22,957			
std dev	6,669	4,366			
A-P <> std dev	8	-			
% <> std dev	32.0%	0.0%			
norm <> std dev	31.7%	31.7%			
performance vs 24-mth avg:	no better	better			

With respect to **recorded** indemnity & allowed claims expense, 32% of the prior accident years' (PAYs) variances over the last 25 calendar months have fallen outside of one standard deviation of the actual **recorded** amounts (see table on left), suggesting the projection process has performed no better 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 (9 of 25 variances were positive), but on a lagging 12-month basis, bias is indicated (2 of latest 12 variances have been positive and we have made some adjustments to address this).

The current accident year (CAY) **recorded** variances (right lower chart above) fell outside of one standard deviation 0% of the time over the last 25 calendar months suggesting that the projection process has performed 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 (12 of 25 variances were 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, additional charts below related to levels influencing **recorded** activity. Note in particular the reduction in the level of PAY beginning IBNR over the months, as a response to valuations and showing up as a beginning IBNR change one month after a valuation is implemented (i.e. April, June, September, and November).





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

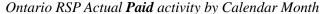
- to offset actual **recorded** activity (through loss ratio matching);
- the annual switchover as a CAY becomes a PAY (occurs in January); and
- when a new valuation is implemented, where the valuation resulted in changes to the selection of PAYs' ultimates (will show up as a beginning IBNR change one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

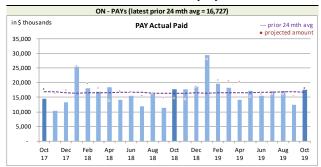
2.1.c AvsP: Paid Indemnity & Allowed Claims Expense

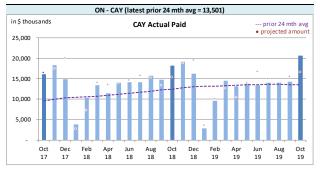
The charts at the top of the next page show actual **paid** activity in each of the most recent 25 calendar months, along with a "prior 24-month average" to show how each month's actual compares with the average amount of the preceding 24 calendar months.

⁹Our 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.



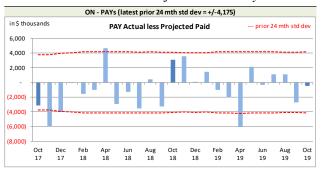


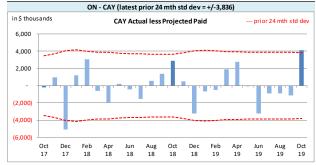




Paid activity variances from the previous month's projections are shown in the charts below, including the "prior 24-month standard deviation" levels to show how the variances from projection compare with historical standard deviations.

Ontario RSP Actual vs Projected Summary: Paid Variances by Calendar Month





On Latest :	On Latest \$ thousands					
Paid	PAYs	CAY				
Mthly Avg Paid (prior 24 mths)	16,727	13,501				
std dev	4,175	3,836				
A-P <> std dev	3	2				
% <> std dev	12.0%	8.0%				
norm <> std dev	31.7%	31.7%				
performance vs 24-mth avg:	better	better				

With respect to **paid** indemnity & allowed claims expense, 12% 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 table on 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 not been indicated at a 95% confidence level on a rolling 25-month basis (9 of 25 variances are positive).

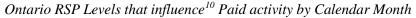
The current accident year (CAY) **paid** variances fell outside of one standard deviation 8% of the time over the last 25 calendar months (see table above), suggesting the projection process has performed better than simply projecting the prior 24-month average amount. Bias has not been indicated at a 95% confidence level on a rolling 25-month basis (11 of 25 variances are positive).

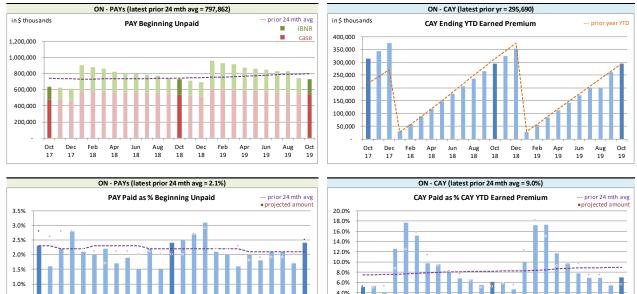
CAY **paid** variances were outside of the one standard deviation band this month. The activity was reviewed and verified, with the variance level attributed to process variance.

We have included, for reference, additional charts at the top of the next page related to levels influencing **paid** activity.



0.5%





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 chart above) occur for several possible reasons:

2.0%

- 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) is used to determine the month's IBNR¹¹, and factors are 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 projections and actuals were based on the applicable valuation.

The table at the top of the next page summarizes variances in provisions included in this month's

¹⁰Our 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.

¹¹For ease of discussion, "IBNR" is used in place of "provisions for incurred but not recorded (IBNR) and development".



Operational Report and the associated one-month projections from last month's Report.

Ontario RSP Actual vs Projected Summary: IBNR and APV Amounts (\$ thousands)

Table 02			actuarial present value adjustments			nents			
	IDI	NR	Discount	A mount	Provisions	for Adverse	IBNR + actuarial present		
	IDI	NK	Discount	Amount	Deviations		value adj	value adjustments	
Accident	Actual	Actual less	Actual	Actual less	Actual	Actual less	Actual	Actual less	
Year	Actual	Projected	Actual	Projected	Actual Projected		Actual	Projected	
Prior	28,107	(1,164)	(13,859)	114	37,108	(339)	51,356	(1,389)	
2017	54,956	(1,273)	(5,869)	18	24,552	(76)	73,639	(1,331)	
2018	94,146	(1,616)	(8,411)	94	35,667	(401)	121,402	(1,923)	
2019	145,844	(6,050)	(9,812)	250	42,005	(1,284)	178,037	(7,084)	
TOTAL	323,053	(10,103)	(37,951)	476	139,332	(2,100)	424,434	(11,727)	

The IBNR provision is \$10.1 million lower than projected from last month, counterbalancing the recorded claims activity and adjusting for the earned premium variance impacts indicated in section 2.1, and due to the valuation implementation.

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)

The variances associated with (ii) above are discussed in sections 2.1.a and 2.1.b.

The table below summarizes the variances in the provisions for premium deficiency liability / (deferred policy acquisition cost asset) included in this month's Operational Report and the one-month projections from last month's Report. This RSP is in a premium deficiency position (shown as a positive amount) prior to and after actuarial present value adjustments. Actuarial present value adjustments increase the liability value as the adjustments increase the expected future policy obligations (costs) associated with the unearned premium. The variances noted are mainly driven by the unearned premium variance, and due to the valuation implementation.

Ontario RSP Actual vs Projected Summary: Premium Deficiency / (DPAC) Amounts (\$ thousands)

Table 03	Premium Deficiency / (Deferred Policy Acquisition Costs)		actuarial present value adjustments		Premium Deficiency / (DPAC) including actuarial present value adjustments	
	Actual	Actual less Projected	Actual	Actual less Projected	Actual	Actual less Projected
balance:	53,753	3,297	28,148	1,200	81,901	4,497
balance as % unearned premium:	24.6%	(0.2%)	12.9%	(0.3%)	37.5%	(0.5%)

actual unearned premium: 218,535 less projected: 14,985



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 loss¹² 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 table below summarizes the calendar year-to-date results for indemnity & allowed claims expenses ¹³, including IBNR.

In calculating the amounts as percentages of earned premium, the calendar year-to-date earned premium has been used, which includes 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 123.8% rather than 122.3% (the valuation ultimate ratio for accident year 2019), 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 Ontario RSP Summary of Operations due to rounding.)

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

Table 04	YTD Nomina	l Values	YTD actuarial pr adjustm		YTD Total		Change from P YTD	
	Amount	% EP			Amount	% EP	Amount	LR pts
PAYs	(78,855)	(27.1%)	(12,935)	(4.4%)	(91,790)	(31.6%)	(7,788)	1.0%
CAY	359,969	123.8%	32,193	11.1%	392,162	134.9%	40,582	(1.3%)
TOTAL	281,114	96.7%	19,258	6.6%	300,372	103.3%	32,794	(0.4%)

("% EP" based on 2019 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 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 valuation implementation.

¹²"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).

¹³Allowed 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.



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 presented in section 6, Exhibit B, refer to the estimates derived on the basis of various actuarial methodologies applied to the experience of the Ontario Risk Sharing Pool for the purposes of the most recent quarterly valuation. As discussed in section 3, IBNR 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			Amoun	ts in \$000s		
BNR + M/S actuarial present value adjustments	Accident Year	Actual	Actual Oct. 2019	Projected Nov. 2019	Projected Dec. 2019	Projected Dec. 2020
value adjustments		Sep. 2019				
	prior	1,414	1,829	1,772	1,718	1,556
	2000	14	14	14	13	12
	2001	48	48	47	46	38
	2002	70	70	68	65	51
	2003	153	122	120	114	86
	2004	283	283	279	267	206
	2005	304	304	300	286	221
	2006	434	594	587	559	432
	2007	738	521	514	490	377
	2008	1,385	1,138	1,127	1,071	822
	2009	1,810	1,896	1,874	1,783	1,354
	2010	2,649	2,626	2,596	2,471	1,836
	2011	2,240	1,084	1,065	1,021	681
	2012	3,535	1,331	1,305	1,252	868
	2013	3,582	3,673	3,607	3,454	2,440
discount rate	2014	5,525	4,942	4,822	4,648	3,010
1.41%	2015	4,668	9,962	9,573	9,234	6,460
	2016	25,496	20,919	20,061	19,241	12,556
interest rate margin	2017	78,312	73,639	70,517	67,358	42,012
25 basis pts	2018	126,849	121,402	116,150	111,143	70,238
·	2019	168,181	178,037	192,298	206,813	133,608
	TOTAL	427,690	424,434	428,696	433,047	538,297
	Change		(3,256)	4,262	4,351	

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



EXHIBIT B

IBNR

TABLE EXHIBIT B				Amount	s in \$000s		
IBNR	Ultimate	Accident	Actual	Actual	Projected	Projected	Projected
	Loss Ratio	Year	Sep. 2019	Oct. 2019	Nov. 2019	Dec. 2019	Dec. 2020
	-	prior	(450)	(37)	(38)	(37)	(34)
	122.0%	2000	13	13	13	12	11
	125.8%	2001	9	9	9	9	9
	117.9%	2002	63	63	62	59	45
	90.7%	2003	130	99	98	93	69
	77.7%	2004	227	227	225	214	162
	73.6%	2005	291	291	288	274	209
	100.4%	2006	364	522	517	491	372
	99.9%	2007	677	467	462	439	332
	120.7%	2008	1,336	1,097	1,086	1,032	786
	155.6%	2009	1,685	1,781	1,763	1,675	1,271
	152.0%	2010	2,443	2,432	2,408	2,288	1,739
	86.3%	2011	1,846	716	709	674	512
	84.1%	2012	2,804	692	685	651	496
	94.5%	2013	2,047	2,266	2,243	2,131	1,621
	100.5%	2014	1,819	1,474	1,459	1,386	1,054
	109.7%	2015	(716)	4,471	4,247	4,120	3,131
	116.7%	2016	15,564	11,524	10,948	10,401	6,164
	108.7%	2017	59,188	54,956	52,208	49,598	28,217
	121.2%	2018	98,724	94,146	89,439	84,967	49,377
	122.3%	2019	138,281	145,844	156,892	168,114	102,949
		TOTAL	326,345	323,053	325,723	328,591	409,151
		Change		(3,292)	2,670	2,868	

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



EXHIBIT C

Premium Liabilities

TABLE EXHIBIT C		Amoun	ts in \$000s		
Premium Liabilities	Actual Sep. 2019	Actual Oct. 2019	Projected Nov. 2019	Projected Dec. 2019	Projected Dec. 2020
(1) unearned premium (UP)	201,939	218,535	216,012	207,416	244,276
FOR MEMBER SHARING					
(2) expected future costs ratio {% of (1)}	137.7%	137.5%	137.9%	138.4%	142.2%
(3) expected future costs {(1) x (2)}	278,103	300,436	297,883	287,028	347,425
(4) premium deficiency / (deferred policy					
acquisition cost)	76,164	81,901	81,871	79,612	103,149
Excluding Actuarial Present Value Adjustments					
(5) expected future costs ratio {% of (1)}	124.5%	124.6%	125.0%	125.4%	128.9%
(6) expected future costs {(1) x (5)}	251,427	272,288	269,978	260,140	314,873
(7) premium deficiency / (deferred policy					
acquisition cost)	49,488	53,753	53,966	52,724	70,597



EXHIBIT D

Projected Year-end Policy Liabilities

The table below presents the projected policy liabilities as at December 31, 2019, broken down by component.

	Projected Balances as at Dec. 31, 2019 (\$000s)									
ending 2019	-	nominal values	;		actu	arial present val	ue adjustments	(apvs)		
Acc Yr	Case	IBNR	Total Unpaid	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL
prior	27,759	(37)	27,722	(1,092)	175	2,781	(109)	2,672	1,755	29,477
2000	-	12	12	-	-	1	-	1	1	13
2001	623	9	632	(28)	5	63	(3)	60	37	669
2002	58	59	117	(6)	1	12	(1)	11	6	123
2003	330	93	423	(23)	4	42	(2)	40	21	444
2004	987	214	1,201	(73)	13	120	(7)	113	53	1,254
2005	49	274	323	(22)	4	32	(2)	30	12	335
2006	1,798	491	2,289	(174)	30	229	(17)	212	68	2,357
2007	1,675	439	2,114	(173)	30	211	(17)	194	51	2,165
2008	1,002	1,032	2,034	(177)	31	203	(18)	185	39	2,073
2009	4,256	1,675	5,931	(522)	89	593	(52)	541	108	6,039
2010	5,036	2,288	7,324	(593)	103	732	(59)	673	183	7,507
2011	8,621	674	9,295	(632)	112	930	(63)	867	347	9,642
2012	13,051	651	13,702	(836)	151	1,370	(84)	1,286	601	14,303
2013	23,423	2,131	25,554	(1,329)	230	2,555	(133)	2,422	1,323	26,877
2014	50,317	1,386	51,703	(2,016)	310	5,170	(202)	4,968	3,262	54,965
2015	68,107	4,120	72,227	(2,311)	433	7,223	(231)	6,992	5,114	77,341
2016	83,637	10,401	94,038	(3,009)	470	11,755	(376)	11,379	8,840	102,878
2017	105,376	49,598	154,974	(5,579)	930	23,246	(837)	22,409	17,760	172,734
2018	112,046	84,967	197,013	(8,078)	1,379	34,280	(1,405)	32,875	26,176	223,189
PAYs (sub-total):	508,151	160,477	668,628	(26,673)	4,500	91,548	(3,618)	87,930	65,757	734,385
CAY (2019)	106,177	168,114	274,291	(11,795)	2,194	50,470	(2,170)	48,300	38,699	312,990
claims liabilities:	614,328	328,591	942,919	(38,468)	6,694	142,018	(5,788)	136,230	104,456	1,047,375
	Unearned Premium	Premium Deficiency / (DPAC)	Total Provision	discount	investment PfAD	nominal development PfAD	development PfAD discount	development PfAD	Total apvs	TOTAL*
premium liabilities:	207,416	52,724	260,140	(8,570)	1,558	35,057	(1,157)	33,900	26,888	287,028
						*	Total may not be s	um of parts, as ap	ovs apply to future	costs within UPR
policy liabilities:			1,203,059	(47,038)	8,252	177,075	(6,945)	170,130	131,344	1,334,403



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, 2019 from the valuation), followed by the selected discount rate and the associated margin for investment income.

Selected Claims Development MfADs (Sep. 30,

		2019)						
Accident	Third Party	Accident	Other	Total				
Year	Liability	Benefits	Coverages	TOtal				
	Margins	Margins	Margins	Margins				
1993	10.0%	10.0%	10.0%	10.0%				
1994	10.0%	10.0%	10.0%	10.0%				
1995	10.0%	10.0%	10.0%	10.0%				
1996	10.0%	10.0%	10.0%	10.0%				
1997	10.0%	10.0%	10.0%	10.0%				
1998	10.0%	10.0%	10.0%	10.0%				
1999	10.0%	10.0%	10.0%	10.0%				
2000	10.0%	10.0%	10.0%	10.0%				
2001	10.0%	10.0%	10.0%	10.0%				
2002	10.0%	10.0%	10.0%	10.0%				
2003	10.0%	10.0%	10.0%	10.0%				
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%	9.7%	10.0%				
2015	10.0%	10.0%	9.9%	10.0%				
2016	12.5%	12.5%	11.9%	12.5%				
2017	15.0%	15.0%	15.0%	15.0%				
2018	17.4%	17.5%	15.1%	17.4%				
2019	18.1%	20.0%	6.0%	18.4%				
2020	12.9%	20.0%	5.2%	13.5%				
prem liab	12.9%	20.0%	5.2%	13.5%				

discount rate: 1.41% margin (basis points): 25



EXHIBIT F

Interest Rate Sensitivity

The tables below present sensitivity to the member statement claims liability as projected to Dec. 31, 2019 from the latest valuation date (projections in exhibits A to D are to Dec. 31, 2019, and are based on more up-to-date information). We have included the most recent valuation selection (1.41%), the prior valuation assumption (1.40%) and the prior fiscal year end valuation assumption (2.22%) for comparative purposes. A 25 basis point margin for investment return adverse deviation is used in all scenarios presented.

\$ Format: \$000s

Curr - 100 bp Curr - 50 bp Curr val assumption Curr + 150bp Curr + 15		Actuar	rial Present Va	lue of Provision	ons at Various	Discount Rate	s - Dec. 31, 20	19 projected l	Jnpaid
Description 31,554 31,099 30,655 30,226 29,803 29,394 30,665 2003 411 402 395 387 380 373 395 395 2004 1,285 1,256 1,229 1,203 1,177 1,152 1,230 2005 317 309 301 294 287 280 302 2005 2,508 2,438 2,372 2,309 2,247 2,188 2,274 2,274 2,285 2,268 2,202 2,141 2,337 2008 2,292 2,219 2,149 2,083 2,020 1,960 2,151 2005 2005 7,120 6,889 6,670 6,644 6,625 6,079 6,675 2010 8,442 8,094 7,899 7,638 7,425 7,226 7,865 2011 9,568 9,329 9,104 8,892 8,690 8,498 9,110 2012 14,768 14,439 14,127 13,834 13,553 13,288 14,135 2013 26,901 26,390 25,905 25,449 25,008 24,594 25,918 2014 51,022 50,284 49,585 48,919 48,278 47,671 49,600 2015 77,322 76,434 75,583 74,772 73,982 73,234 75,608 2017 179,004 176,706 174,460 172,331 170,127 168,204 174,503 2019 315,108 310,234 305,517 300,998 296,608 292,333 305,661 105,083 10,0349 30,055,17 300,998 296,608 292,333 305,661 1016,080 41,052,268 1,037,052 1,022,484 1,008,296 994,605 1,037,455 1014 31,012 15,216 104,568 (28,756) (42,387) 403	AY	0.41%	0.91%	1.41%	1.91%	2.41%	2.91%	1.40%	2.22%
2003	2002 &								
2004 1,285 1,256 1,29	prior	31,554	31,099	30,655	30,226	29,803	29,394	30,665	29,964
2005 317 309 301 294 287 280 302 2006 2,508 2,438 2,372 2,309 2,247 2,188 2,373 2008 2,292 2,219 2,149 2,083 2,020 1,960 2,151 2009 7,120 6,889 6,670 6,464 6,265 6,079 6,675 2,001 3,342 8,894 6,789 7,638 7,425 7,226 7,265 2011 9,568 9,329 9,104 8,892 8,690 8,498 9,110 2012 14,768 14,439 14,127 13,834 13,553 13,288 14,135 2013 26,901 26,390 25,905 25,449 25,008 24,594 25,918 2014 51,022 50,284 49,585 48,919 48,278 47,671 49,600 2015 77,322 76,434 75,583 74,772 73,992 73,224 75,608 2016 105,083 103,866 102,692 101,558 100,459 99,403 102,717 2017 179,004 176,706 174,460 172,331 170,217 168,204 74,530 2018 232,978 229,473 226,144 222,585 219,695 216,647 226,182 2019 315,108 310,234 305,517 300,998 296,608 293,333 305,661 30,086 20,077,552 1,022,884 1,008,296 994,665 1,037,455 2016 22,978 2016 23,078 25,268 1,037,052 1,022,884 1,008,296 994,665 1,037,455 2016 22,978 2016 23,078	2003	411	402	395	387	380	373	395	382
2006 2,508 2,438 2,372 2,309 2,247 2,188 2,374 2007 2,481 2,407 2,335 2,268 2,202 2,141 2,337 2,009 7,120 6,889 6,670 6,644 6,265 6,079 6,675 2010 8,342 8,094 7,859 7,633 7,425 7,226 7,865 2011 9,568 9,329 9,104 8,892 8,690 8,498 9,110 2012 14,768 14,439 14,127 13,834 13,553 13,288 14,135 2013 26,901 26,390 25,905 25,449 25,008 24,594 25,918 2014 51,022 50,284 40,585 48,919 48,278 47,671 49,600 2015 77,322 76,434 75,583 74,772 73,982 73,234 75,608 232,978 229,473 226,114 222,859 219,695 216,647 226,182 2019 315,108 310,236 1,03,661 10,508 310,236 1,03,517 300,998 296,608 292,333 305,661 3014 31,012 15,216 -	2004	1,285	1,256	1,229	1,203	1,177	1,152	1,230	1,187
2007	2005	317	309	301	294	287	280	302	290
2008 2,292 2,219 2,149 2,083 2,020 1,960 2,151 2009 7,120 6,889 6,670 6,644 6,265 6,079 6,675 2010 8,342 8,094 7,859 7,638 7,425 7,226 7,865 2011 9,568 9,329 9,104 8,892 8,690 8,498 9,110 2012 14,768 14,439 14,127 13,834 13,553 13,288 14,135 2013 26,901 26,390 25,905 25,449 25,008 24,594 25,918 2014 51,022 50,284 49,585 48,919 48,278 47,671 49,600 2015 77,322 76,434 75,583 74,772 73,982 73,234 75,608 2016 105,083 103,866 102,692 101,558 100,459 99,403 102,717 2017 179,004 176,706 174,460 172,331 170,217 168,204 174,530 2018 232,978 229,473 226,114 222,2859 219,695 216,647 226,182 2019 315,108 310,234 305,517 300,998 296,608 292,333 305,661 305,866 1,037,052 1,022,484 1,008,296 994,665 1,037,45	2006	2,508	2,438	2,372	2,309	2,247	2,188	2,374	2,270
2009	2007	2,481	2,407	2,335	2,268	2,202	2,141	2,337	2,227
2010	2008	2,292	2,219	2,149	2,083	2,020	1,960	2,151	2,044
2011	2009	7,120	6,889	6,670	6,464	6,265	6,079	6,675	6,340
2012	2010	8,342	8,094	7,859	7,638	7,425	7,226	7,865	7,505
2013 26,901 26,390 25,905 25,449 25,008 24,594 25,918 2014 51,022 50,284 49,585 48,919 48,278 47,671 49,600 49,600 49,600 49,585 48,919 48,278 47,671 49,600 49,60	2011	9,568	9,329	9,104	8,892	8,690	8,498	9,110	8,765
2014 51,022 50,284 49,585 48,919 48,278 47,671 49,600 2015 77,322 76,434 75,583 74,772 73,982 73,234 75,608 2016 105,083 103,886 102,692 101,558 100,459 99,403 102,717 2017 179,004 176,706 174,460 172,331 170,217 168,204 174,530 2018 332,978 229,473 226,114 222,859 219,695 216,647 226,182 2019 315,108 310,234 305,517 300,998 296,608 292,333 305,661 305,661 1,068,064 1,052,268 1,037,052 1,022,444 1,008,296 994,665 1,037,455 2017 2018 2019	2012	14,768	14,439	14,127		13,553	13,288	14,135	13,658
2015	2013	26,901	26,390	25,905	25,449	25,008	24,594	25,918	25,173
2016 105,083 103,866 102,692 101,558 100,459 99,403 102,717	2014	51,022	50,284	49,585	48,919	48,278	47,671	49,600	48,516
179,004	2015	77,322	76,434		74,772	73,982	73,234	75,608	74,280
2018 232,978 229,473 226,114 222,859 219,695 216,647 226,182									100,875
Total 315,108 310,234 305,517 300,998 296,608 292,333 305,661 Total 1,068,064 1,052,268 1,037,052 1,022,484 1,008,296 994,665 1,037,455 1,	2017	179,004		174,460	172,331	170,217	168,204	174,530	171,023
Total 1,068,064 1,052,268 1,037,052 1,022,484 1,008,296 994,665 1,037,455	2018	232,978	229,473	226,114	222,859	219,695	216,647	226,182	220,888
Curr - 100 bp Curr - 50 bp Curr val assumption Curr + 150bp Curr + 15									298,263
Dollar Impact Relative to Valuation Assumption AY	Total	1,068,064	1,052,268	1,037,052	1,022,484	1,008,296	994,665	1,037,455	1,013,650
Dollar Impact Relative to Valuation Assumption 1.40% 1.91% 2.41% 2.91% 1.40% 1.40% 1.91% 2.41% 2.91% 1.40% 1.40% 1.41% 1.91% 2.41% 2.91% 1.40% 1.41% 1.91% 2.41% 2.91% 1.40% 1.40% 1.40% 1.41% 1.91% 2.41% 2.91% 1.40% 1.40% 1.40% 1.40% 1.41% 1.91% 2.41% 2.91% 1.40% 1.4		curr - 100 bp	curr - 50 bp	curr val	curr + 50bp	curr + 100bp	curr + 150bp	prior val	prior fyr end
AY 0.41% 0.91% 1.41% 1.91% 2.41% 2.91% 1.40% Total 31,012 15,216 - (14,568) (28,756) (42,387) 403 Curr - 100 bp curr - 50 bp curr + 50 bp curr + 100 bp curr + 150 bp prior val AY 0.41% 0.91% 1.41% 1.91% 2.41% 2.91% 1.40% 2002 & prior 2.9% 1.4% - (1.4%) (2.8%) (4.1%) 0.0% 2003 4.1% 1.8% - (2.0%) (3.8%) (5.6%) - 2004 4.6% 2.2% - (2.1%) (4.2%) (6.3%) 0.1% 2005 5.3% 2.7% - (2.3%) (4.7%) (7.0%) 0.3% 2006 5.7% 2.8% - (2.7%) (5.3%) (7.8%) 0.1% 2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% <td< td=""><td></td><td></td><td></td><td>assumption</td><td></td><td></td><td></td><td>assumption</td><td>assumption</td></td<>				assumption				assumption	assumption
AY									
Total				Dollar Imp	act Relative t	o Valuation As	sumption		
Curr - 100 bp Curr - 50 bp Curr val assumption Curr + 50bp Curr + 100bp Curr + 150bp prior val assumption assumption assumption assumption AY	AY	0.419/	0.91%	1 41%	1 91%	2 41%	2.91%	1.40%	2.22%
AY				21 12/0					•
Percentage Impact Relative to Valuation Assumption	Total	31,012	15,216	-	(14,568)			403	(23,402)
AY 0.41% 0.91% 1.41% 1.91% 2.41% 2.91% 1.40% 2002 & prior 2.9% 1.4% - (1.4%) (2.8%) (4.1%) 0.0% 2003 4.1% 1.8% - (2.0%) (3.8%) (5.6%) - 2004 4.6% 2.2% - (2.1%) (4.2%) (6.3%) 0.1% 2005 5.3% 2.7% - (2.3%) (4.7%) (7.0%) 0.3% 2006 5.7% 2.8% - (2.7%) (5.3%) (7.8%) 0.1% 2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% 2008 6.7% 3.3% - (3.1%) (6.0%) (8.8%) 0.1% 2010 6.1% 3.0% - (2.8%) (5.5%) (8.1%) 0.1% 2011 5.1% 2.5% - (2.3%) (4.5%) (6.7%) 0.1% 2012 4.5%	Total	31,012	15,216	curr val	(14,568) curr + 50bp	(28,756)	(42,387)	403 prior val	(23,402) prior fyr end
AY 0.41% 0.91% 1.41% 1.91% 2.41% 2.91% 1.40% 2002 & prior 2.9% 1.4% - (1.4%) (2.8%) (4.1%) 0.0% 2003 4.1% 1.8% - (2.0%) (3.8%) (5.6%) - 2004 4.6% 2.2% - (2.1%) (4.2%) (6.3%) 0.1% 2005 5.3% 2.7% - (2.3%) (4.7%) (7.0%) 0.3% 2006 5.7% 2.8% - (2.7%) (5.3%) (7.8%) 0.1% 2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% 2008 6.7% 3.3% - (3.1%) (6.0%) (8.8%) 0.1% 2010 6.1% 3.0% - (2.8%) (5.5%) (8.1%) 0.1% 2011 5.1% 2.5% - (2.3%) (4.5%) (6.7%) 0.1% 2012 4.5%	Total	31,012	15,216	curr val	(14,568) curr + 50bp	(28,756)	(42,387)	403 prior val	(23,402)
Description	Total	31,012	15,216	curr val assumption	(14,568) curr + 50bp	(28,756) curr + 100bp	(42,387) curr + 150bp	403 prior val	(23,402) prior fyr end
prior 2.9% 1.4% - (1.4%) (2.8%) (4.1%) 0.0% 2003 4.1% 1.8% - (2.0%) (3.8%) (5.6%) - 2004 4.6% 2.2% - (2.1%) (4.2%) (6.3%) 0.1% 2005 5.3% 2.7% - (2.3%) (4.7%) (7.0%) 0.3% 2006 5.7% 2.8% - (2.7%) (5.3%) (7.8%) 0.1% 2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% 2008 6.7% 3.3% - (3.1%) (6.0%) (8.8%) 0.1% 2010 6.1% 3.0% - (2.8%) (5.5%) (8.1%) 0.1% 2011 5.1% 2.5% - (2.3%) (4.5%) (6.7%) 0.1% 2012 4.5% 2.2% - (2.1%) (4.1%) (5.9%) 0.1% 2013 3.8% 1		31,012 curr - 100 bp	15,216 curr - 50 bp	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ	(28,756) curr + 100bp e to Valuation	(42,387) curr + 150bp Assumption	403 prior val assumption	(23,402) prior fyr end assumption
2003 4.1% 1.8% - (2.0%) (3.8%) (5.6%) - 2004 4.6% 2.2% - (2.1%) (4.2%) (6.3%) 0.1% 2005 5.3% 2.7% - (2.3%) (4.7%) (7.0%) 0.3% 2006 5.7% 2.8% - (2.7%) (5.3%) (7.8%) 0.1% 2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% 2008 6.7% 3.3% - (3.1%) (6.0%) (8.8%) 0.1% 2009 6.7% 3.3% - (3.1%) (6.1%) (8.9%) 0.1% 2010 6.1% 3.0% - (2.8%) (5.5%) (8.1%) 0.1% 2011 5.1% 2.5% - (2.3%) (4.5%) (6.7%) 0.1% 2012 4.5% 2.2% - (2.1%) (4.1%) (5.9%) 0.1% 2013 3.8% 1.	AY	31,012 curr - 100 bp	15,216 curr - 50 bp	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ	(28,756) curr + 100bp e to Valuation	(42,387) curr + 150bp Assumption	403 prior val assumption	(23,402) prior fyr end
2004 4.6% 2.2% - (2.1%) (4.2%) (6.3%) 0.1% 2005 5.3% 2.7% - (2.3%) (4.7%) (7.0%) 0.3% 2006 5.7% 2.8% - (2.7%) (5.3%) (7.8%) 0.1% 2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% 2008 6.7% 3.3% - (3.1%) (6.0%) (8.8%) 0.1% 2009 6.7% 3.3% - (3.1%) (6.1%) (8.9%) 0.1% 2010 6.1% 3.0% - (2.8%) (5.5%) (8.1%) 0.1% 2011 5.1% 2.5% - (2.3%) (4.5%) (6.7%) 0.1% 2012 4.5% 2.2% - (2.1%) (4.1%) (5.9%) 0.1% 2013 3.8% 1.9% - (1.8%) (3.5%) (5.1%) 0.1% 2014 2.9% <td< td=""><td>AY 2002 &</td><td>31,012 curr - 100 bp</td><td>15,216 curr - 50 bp</td><td>curr val assumption Percentage I</td><td>(14,568) curr + 50bp mpact Relativ 1.91%</td><td>(28,756) curr + 100bp e to Valuation 2.41%</td><td>(42,387) curr + 150bp Assumption 2.91%</td><td>403 prior val assumption 1.40%</td><td>(23,402) prior fyr end assumption 2.22%</td></td<>	AY 2002 &	31,012 curr - 100 bp	15,216 curr - 50 bp	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ 1.91%	(28,756) curr + 100bp e to Valuation 2.41%	(42,387) curr + 150bp Assumption 2.91%	403 prior val assumption 1.40%	(23,402) prior fyr end assumption 2.22%
2005 5.3% 2.7% - (2.3%) (4.7%) (7.0%) 0.3% 2006 5.7% 2.8% - (2.7%) (5.3%) (7.8%) 0.1% 2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% 2008 6.7% 3.3% - (3.1%) (6.0%) (8.8%) 0.1% 2009 6.7% 3.3% - (3.1%) (6.1%) (8.9%) 0.1% 2010 6.1% 3.0% - (2.8%) (5.5%) (8.1%) 0.1% 2011 5.1% 2.5% - (2.3%) (4.5%) (6.7%) 0.1% 2012 4.5% 2.2% - (2.1%) (4.1%) (5.9%) 0.1% 2013 3.8% 1.9% - (1.8%) (3.5%) (5.1%) 0.1% 2014 2.9% 1.4% - (1.3%) (2.6%) (3.9%) 0.0% 2015 2.3% <td< td=""><td>AY 2002 & prior</td><td>31,012 curr - 100 bp 0.41%</td><td>15,216 curr - 50 bp 0.91%</td><td>curr val assumption Percentage I</td><td>(14,568) curr + 50bp mpact Relativ 1.91% (1.4%)</td><td>(28,756) curr + 100bp e to Valuation 2.41% (2.8%)</td><td>(42,387) curr + 150bp Assumption 2.91% (4.1%)</td><td>403 prior val assumption 1.40%</td><td>(23,402) prior fyr end assumption 2.22% (2.3%)</td></td<>	AY 2002 & prior	31,012 curr - 100 bp 0.41%	15,216 curr - 50 bp 0.91%	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ 1.91% (1.4%)	(28,756) curr + 100bp e to Valuation 2.41% (2.8%)	(42,387) curr + 150bp Assumption 2.91% (4.1%)	403 prior val assumption 1.40%	(23,402) prior fyr end assumption 2.22% (2.3%)
2006 5.7% 2.8% - (2.7%) (5.3%) (7.8%) 0.1% 2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% 2008 6.7% 3.3% - (3.1%) (6.0%) (8.8%) 0.1% 2009 6.7% 3.3% - (3.1%) (6.1%) (8.9%) 0.1% 2010 6.1% 3.0% - (2.8%) (5.5%) (8.1%) 0.1% 2011 5.1% 2.5% - (2.3%) (4.5%) (6.7%) 0.1% 2012 4.5% 2.2% - (2.1%) (4.1%) (5.9%) 0.1% 2013 3.8% 1.9% - (1.8%) (3.5%) (5.1%) 0.1% 2014 2.9% 1.4% - (1.3%) (2.6%) (3.9%) 0.0% 2015 2.3% 1.1% - (1.1%) (2.1%) (3.1%) 0.0% 2016 2.3% <td< td=""><td>AY 2002 & prior 2003</td><td>31,012 curr - 100 bp 0.41% 2.9% 4.1%</td><td>15,216 curr - 50 bp 0.91% 1.4% 1.8%</td><td>curr val assumption Percentage I</td><td>(14,568) curr + 50bp mpact Relativ 1.91% (1.4%) (2.0%)</td><td>(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%)</td><td>(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%)</td><td>403 prior val assumption 1.40% 0.0%</td><td>(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%)</td></td<>	AY 2002 & prior 2003	31,012 curr - 100 bp 0.41% 2.9% 4.1%	15,216 curr - 50 bp 0.91% 1.4% 1.8%	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ 1.91% (1.4%) (2.0%)	(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%)	(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%)	403 prior val assumption 1.40% 0.0%	(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%)
2007 6.3% 3.1% - (2.9%) (5.7%) (8.3%) 0.1% 2008 6.7% 3.3% - (3.1%) (6.0%) (8.8%) 0.1% 2009 6.7% 3.3% - (3.1%) (6.1%) (8.9%) 0.1% 2010 6.1% 3.0% - (2.8%) (5.5%) (8.1%) 0.1% 2011 5.1% 2.5% - (2.3%) (4.5%) (6.7%) 0.1% 2012 4.5% 2.2% - (2.1%) (4.1%) (5.9%) 0.1% 2013 3.8% 1.9% - (1.8%) (3.5%) (5.1%) 0.1% 2014 2.9% 1.4% - (1.3%) (2.6%) (3.9%) 0.0% 2015 2.3% 1.1% - (1.1%) (2.1%) (3.1%) 0.0% 2016 2.3% 1.1% - (1.1%) (2.2%) (3.2%) 0.0% 2017 2.6% <td< td=""><td>AY 2002 & prior 2003 2004</td><td>31,012 curr - 100 bp 0.41% 2.9% 4.1% 4.6%</td><td>15,216 curr - 50 bp 0.91% 1.4% 1.8% 2.2%</td><td>curr val assumption Percentage I</td><td>(14,568) curr + 50bp mpact Relativ 1.91% (1.4%) (2.0%) (2.1%)</td><td>(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%) (4.2%)</td><td>(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%) (6.3%)</td><td>403 prior val assumption 1.40% 0.0%</td><td>(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%) (3.4%)</td></td<>	AY 2002 & prior 2003 2004	31,012 curr - 100 bp 0.41% 2.9% 4.1% 4.6%	15,216 curr - 50 bp 0.91% 1.4% 1.8% 2.2%	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ 1.91% (1.4%) (2.0%) (2.1%)	(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%) (4.2%)	(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%) (6.3%)	403 prior val assumption 1.40% 0.0%	(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%) (3.4%)
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2009 6.7% 3.3% - (3.1%) (6.1%) (8.9%) 0.1%	AY 2002 & prior 2003 2004 2005 2006	31,012 curr - 100 bp 0.41% 2.9% 4.1% 4.6% 5.3% 5.7%	15,216 curr - 50 bp 0.91% 1.4% 1.8% 2.2% 2.7% 2.8%	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ 1.91% (1.4%) (2.0%) (2.1%) (2.3%) (2.7%)	(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%) (4.2%) (4.7%) (5.3%)	(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%) (6.3%) (7.0%) (7.8%)	403 prior val assumption 1.40% 0.0% - 0.11% 0.3% 0.196	(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%) (3.4%) (4.3%)
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Total 3.0% 1.5% - (1.4%) (2.8%) (4.1%) 0.0% curr - 100 bp curr - 50 bp curr val curr + 50 bp curr + 100 bp curr + 150 bp prior val prior val	2002 & prior 2003 2004 2005 2006 2007 2008 2010 2011 2012 2013 2014 2015 2016 2017	31,012 curr - 100 bp 0.41% 2.9% 4.1% 4.6% 5.3% 6.7% 6.7% 6.1% 1.9% 2.9% 2.3% 2.3% 2.3%	15,216 curr - 50 bp 0.91% 1.4% 1.8% 2.2% 2.7% 2.8% 3.3% 3.3% 3.0% 2.5% 2.2% 1.4% 1.1% 1.1%	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ 1.91% (1.4%) (2.0%) (2.1%) (2.3%) (2.7%) (3.1%) (2.8%) (2.3%) (1.1%) (1.3%) (1.1%) (1.1%) (1.1%)	(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%) (4.2%) (4.7%) (5.3%) (6.0%) (6.1%) (4.5%) (4.1%) (2.6%) (2.1%) (2.2%) (2.4%)	(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%) (6.3%) (7.0%) (8.3%) (8.9%) (8.1%) (5.9%) (5.1%) (3.9%) (3.1%) (3.2%) (3.6%)	403 prior val assumption 1.40% 0.0%	(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%) (3.4%) (4.3%) (4.5%) (4.9%) (4.5%) (2.2%) (1.7%) (1.8%) (2.0%)
curr - 100 bp curr - 50 bp curr val curr + 50 bp curr + 100 bp curr + 150 bp prior val prior	AY 2002 & prior 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018	31,012 curr - 100 bp 0.41% 2.9% 4.1% 4.6% 5.3% 5.7% 6.7% 6.1% 4.5% 3.8% 2.9% 2.3% 2.3% 2.6% 3.0%	15,216 curr - 50 bp 0.91% 1.4% 1.8% 2.2% 3.1% 3.3% 3.3% 3.0% 2.5% 2.2% 1.9% 1.1% 1.1% 1.3% 1.5%	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ (1.91% (2.0%) (2.1%) (2.3%) (2.9%) (3.1%) (3.1%) (2.8%) (1.1%) (1.1%) (1.1%) (1.1%) (1.2%) (1.4%)	(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%) (4.2%) (5.3%) (5.7%) (6.0%) (6.1%) (5.5%) (4.1%) (2.5%) (2.1%) (2.2%) (2.2%) (2.8%)	(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%) (7.0%) (7.8%) (8.3%) (8.9%) (6.7%) (5.9%) (5.1%) (3.9%) (3.1%) (3.2%) (3.6%) (4.2%)	403 prior val assumption 1.40% 0.0% - 0.19% 0.19% 0.19% 0.19% 0.19% 0.19% 0.0% 0.0% 0.0% 0.0% 0.0%	(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%) (3.4%) (4.5%) (4.9%) (4.9%) (2.2%) (1.7%) (1.8%) (2.0%) (2.3%)
	2002 & prior 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019	31,012 curr - 100 bp 0.41% 2.9% 4.1% 4.6% 5.3% 6.7% 6.7% 6.1% 4.5% 3.8% 2.9% 2.3% 2.3% 2.3% 3.0% 3.1%	15,216 curr - 50 bp 0.91% 1.4% 1.8% 2.2% 3.1% 3.3% 3.3% 2.5% 2.2% 1.9% 1.1% 1.1% 1.1% 1.1% 1.5% 1.5%	curr val assumption Percentage I	(14,568) curr + 50bp mpact Relativ (1.4%) (2.0%) (2.1%) (2.3%) (2.9%) (3.19) (2.3%) (2.8%) (2.1%) (1.1%) (1.1%) (1.1%) (1.2%) (1.2%) (1.1%) (1.2%) (1.5%)	(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%) (4.2%) (5.3%) (5.7%) (6.0%) (6.1%) (2.5%) (4.1%) (2.6%) (2.1%) (2.2%) (2.4%) (2.8%) (2.9%)	(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%) (6.3%) (8.8%) (8.9%) (6.7%) (5.9%) (5.1%) (3.1%) (3.2%) (3.2%) (3.3%) (4.2%) (4.3%)	403 prior val assumption 1.40% 0.0% - 0.1% 0.1% 0.1% 0.1% 0.1% 0.1% 0.1% 0.0% 0.0	(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%) (3.4%) (4.5%) (4.9%) (4.9%) (2.8%) (2.2%) (1.7%) (1.8%) (2.0%) (2.0%) (2.3%)
	2002 & prior 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019	31,012 curr - 100 bp 0.41% 2.9% 4.1% 4.6% 5.3% 6.7% 6.1% 5.1% 4.5% 3.8% 2.9% 2.3% 2.3% 2.3% 3.0%	15,216 curr - 50 bp 0.91% 1.4% 1.8% 2.2% 3.1% 3.3% 3.3% 2.5% 2.2% 1.9% 1.1% 1.1% 1.1% 1.5% 1.5%	curr val assumption Percentage I 1.41%	(14,568) curr + 50bp mpact Relativ (1.4%) (2.0%) (2.1%) (2.3%) (2.3%) (2.8%) (2.3%) (2.1%) (1.1%) (1.1%) (1.1%) (1.1%) (1.4%) (1.4%)	(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%) (4.2%) (5.7%) (6.0%) (6.1%) (5.5%) (4.1%) (2.6%) (2.1%) (2.2%) (2.2%) (2.8%) (2.8%) (2.8%)	(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%) (6.3%) (7.0%) (8.8%) (8.9%) (8.1%) (5.9%) (5.1%) (3.1%) (3.2%) (3.2%) (4.2%) (4.3%)	403 prior val assumption 1.40% 0.0% 0.1% 0.1% 0.19 0.19 0.19 0.19 0.19 0.00% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%) (3.4%) (4.5%) (4.9%) (4.9%) (4.5%) (2.5%) (2.2%) (1.7%) (1.8%) (2.0%) (2.3%) (2.3%)
t assumption (assumption (assumption)	2002 & prior 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019	31,012 curr - 100 bp 0.41% 2.9% 4.1% 4.6% 5.3% 6.7% 6.1% 5.1% 4.5% 3.8% 2.9% 2.3% 2.3% 2.3% 3.0%	15,216 curr - 50 bp 0.91% 1.4% 1.8% 2.2% 3.1% 3.3% 3.3% 2.5% 2.2% 1.9% 1.1% 1.1% 1.1% 1.5% 1.5%	curr val assumption Percentage I 1.41%	(14,568) curr + 50bp mpact Relativ (1.4%) (2.0%) (2.1%) (2.3%) (2.3%) (3.1%) (2.8%) (2.1%) (1.1%) (1.1%) (1.1%) (1.2%) (1.4%) (1.4%) (1.5%) (1.5%) curr + 50bp	(28,756) curr + 100bp e to Valuation 2.41% (2.8%) (3.8%) (4.2%) (5.7%) (6.0%) (6.1%) (5.5%) (4.1%) (2.6%) (2.1%) (2.2%) (2.2%) (2.8%) (2.8%) (2.8%)	(42,387) curr + 150bp Assumption 2.91% (4.1%) (5.6%) (6.3%) (7.0%) (8.8%) (8.9%) (8.1%) (5.9%) (5.1%) (3.1%) (3.2%) (3.2%) (4.2%) (4.3%)	403 prior val assumption 1.40% 0.0% 0.1% 0.1% 0.1% 0.1% 0.1% 0.0% 0.0	(23,402) prior fyr end assumption 2.22% (2.3%) (3.3%) (3.4%) (4.43%) (4.5%) (4.9%) (4.5%) (2.8%) (2.2%) (1.7%) (2.3%) (2.3%) (2.3%) prior fyr end



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Components of Member Statement IBNR (i.e. "Discounted") Change During Month

RSP	Ontario
AccountCode Desc	IBNR - Discounted

	Values						
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	1,414	(53)	(46)	514	415	29.3%	1,829
2000	14	-	-	-	-	-	14
2001	48	(1)	1	-	-	-	48
2002	70	(2)	2	-	-	-	70
2003	153	(2)	(29)	-	(31)	(20.3%)	122
2004	283	(3)	3	-	-	-	283
2005	304	(4)	4	-	-	-	304
2006	434	(7)	-	167	160	36.9%	594
2007	738	(8)	(22)	(187)	(217)	(29.4%)	521
2008	1,385	(14)	(10)	(223)	(247)	(17.8%)	1,138
2009	1,810	(21)	107	-	86	4.8%	1,896
2010	2,649	(28)	5	-	(23)	(0.9%)	2,626
2011	2,240	(30)	(255)	(871)	(1,156)	(51.6%)	1,084
2012	3,535	(50)	(260)	(1,894)	(2,204)	(62.3%)	1,331
2013	3,582	(66)	1,134	(977)	91	2.5%	3,673
2014	5,525	(129)	1,041	(1,495)	(583)	(10.6%)	4,942
2015	4,668	(111)	2,031	3,374	5,294	113.4%	9,962
2016	25,496	(1,074)	(2,326)	(1,177)	(4,577)	(18.0%)	20,919
2017	78,312	(3,342)	(495)	(836)	(4,673)	(6.0%)	73,639
2018	126,849	(3,524)	464	(2,387)	(5,447)	(4.3%)	121,402
2019	168,181	16,940	(4,522)	(2,562)	9,856	5.9%	178,037
Grand Total	427,690	8,471	(3,173)	(8,554)	(3,256)	(0.8%)	424,434



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Components of IBNR (i.e. "Undiscounted") Change During Month

RSP
AccountCode Desc

	Values						
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	(450)	3	(94)	504	413	(91.8%)	(37)
2000	13	-	-	-	-	-	13
2001	9	-	-	-	-	-	9
2002	63	(1)	1	-	-	-	63
2003	130	(1)	(30)	-	(31)	(23.8%)	99
2004	227	(2)	2	-	-	-	227
2005	291	(3)	3	-	-	-	291
2006	364	(4)	(2)	164	158	43.4%	522
2007	677	(7)	(22)	(181)	(210)	(31.0%)	467
2008	1,336	(13)	(12)	(214)	(239)	(17.9%)	1,097
2009	1,685	(17)	113	-	96	5.7%	1,781
2010	2,443	(24)	13	-	(11)	(0.5%)	2,432
2011	1,846	(18)	(272)	(840)	(1,130)	(61.2%)	716
2012	2,804	(28)	(272)	(1,812)	(2,112)	(75.3%)	692
2013	2,047	(20)	1,136	(897)	219	10.7%	2,266
2014	1,819	(18)	1,028	(1,355)	(345)	(19.0%)	1,474
2015	(716)	50	1,986	3,151	5,187	(724.4%)	4,471
2016	15,564	(778)	(2,186)	(1,076)	(4,040)	(26.0%)	11,524
2017	59,188	(2,959)	(524)	(749)	(4,232)	(7.2%)	54,956
2018	98,724	(2,962)	491	(2,107)	(4,578)	(4.6%)	94,146
2019	138,281	13,613	(3,990)	(2,060)	7,563	5.5%	145,844
Grand Total	326,345	6,811	(2,631)	(7,472)	(3,292)	(1.0%)	323,053