

**2013/14 GENERAL RATE APPLICATION**  
**REBUTTAL EVIDENCE OF SIMPSON PRESENTATION**  
**LUKE JOHNSTON**

**Evidence of Simpson:** Slide 7 of Professor Simpson's presentation shows the mean and standard deviation of 4 year cumulative returns on the TSX for pre-1956 and 1956-and-after. Professor Simpson indicates that the standard deviation, or variability, of equity returns is completely different between these two periods, therefore, using all historical period TSX periods in the DCAT analysis is flawed. Do you want to comment on this?

**Response of MPI:** As I've stated at the hearings, I believe that it is appropriate to examine all historical periods when determining the expected variability of equity returns. Professor Simpson continues to reference the pre-1956 and post-1956 periods as the key turning point where equity risk changed. Professor Simpson believes that the pre-1956 equity data carries no weight in the analysis of equity risk because of changes to modern economic stabilization policies, which (according to his evidence) significantly changed the level of equity risk. I fully understand Professor Simpson's evidence. And I see how the Board could look at the two extremes in Professor Simpson's slides and have concerns about these differences. I also agree that it is reasonable to think that recent events could carry more weight in the equity analysis than older events.

To further assist the Board, I have prepared a table (shown on the following page), very similar to Professor Simpson's on slide 7 of his presentation, which shows the mean and standard deviation of 4 year cumulative equity returns using a full range of look back periods; not just pre and post 1956. In other words, I've shown the Board the means and standard deviations that would have been calculated using periods of various length ranging from about 92 years (i.e. 1919 to present) to 12 years (i.e. 1999 to present). I've also included Professor Simpson's calculation using data from 1956 to present.

**Four Year Cumulative S&P/TSX Returns\***

Historical Period	Mean	Standard Deviation
1919 to present	25.1%	41.9%
1929 to present	23.7%	38.1%
1939 to present	29.2%	33.1%
1949 to present	26.3%	31.2%
<b>1956 to present**</b>	<b>25.1%</b>	<b>31.3%</b>
1959 to present	24.9%	31.8%
1969 to present	25.8%	34.7%
1979 to present	25.7%	31.7%
1989 to present	26.7%	34.0%
1999 to present	19.4%	38.6%

\* Monthly S&P/TSX Composite Returns from 1919 to March 1, 2012 – Source Bloomberg

\*\* From slide 7 of Professor Simpson's presentation (CAC Exhibit 11).

As shown in the table above, the mean and standard deviations of 4 year equity returns are very consistent over time *regardless* of the look-back period. In fact, the standard deviation has actually *increased* if only the last several decades are considered. You'll also note that the mean and standard deviation from using 1919-to-present shows minimal difference between the more recent historical periods.

It is clear from the CAC evidence and the data I've provided the Board that a 40% decline in equities over a 4 year period has not occurred in the recent past. But as far as the validity of the mean/standard deviation argument from Professor Simpson's slides, I see very little difference in the variability of equity returns regardless of the look back period I used.

**Evidence of Simpson: Professor Simpson provides slide 8 that suggests that the estimated impact from a 4 year equity decline of 20% is \$100M. Can you validate these calculations?**

**Response of MPI:** Professor Simpson spoke of some 'rougher, back of envelope' calculations on the DCAT. Perhaps I can assist the Board using a more sophisticated calculation.

I would ask the Board to please turn to AI.9. Second page into that document you will see a table called investment allocation. In 2013/14 you will note that the Basic line of business expects to earn \$23.9 million in investment income from equities. Following along to the next page, you'll see that the Basic line of business is expecting \$25.9M, \$28.3M, \$30.3M of equity investment income in 2014/15 to 2016/17. The total of these figures is \$108.4M. So if the Corporation had four year equity returns of 0% (not -20%, but 0%) Basic would lose \$108M

relative to budget. The Board will note that this figure is already greater than the \$100M presented from Professor Simpson.

The beginning of year balance for the 2013/14 Basic equity portfolio is estimated at \$372.7M (see page 20 of the Amended DCAT report, AI.11 Part 2). Let's assume that a 20% decline occurs on the equity assets of \$372.7M. My calculations indicate that -20% of \$372.7 is roughly -\$75M. Let's say it is reasonable to assume that this decline is recognized through the income statement over the next two to four years.

So, the Corporation has lost \$108M in expected investment income plus another \$75M in recognized losses for a total of \$183M over 4 years - a very significant amount! An amount much larger than \$100M!

In light of this information, I am not sure what to make of Professor Simpson's \$100M calculations. Because we have budgeted investment income, a 20% equity decline scenario is not simply half of a 40% equity decline scenario. So Professor Simpson's linear interpolation method is not appropriate in this case.

Also, to my knowledge, Professor Simpson has not considered the implications of his equity assumptions on the DCAT combined scenario, which includes both claims costs and equity variability. As per page 25 of the amended DCAT, the Corporation modeled an \$87 million claims impact in the High Loss Ratio scenario. I do not believe that Professor Simpson has considered the possibility of including an adverse claims incurred impact (say \$50 to \$60 million) in addition to the impact of an equity decline? (subject of course to the plausibility rules of the DCAT report)

Finally, a full DCAT review of this scenario would include the consideration of management and regulatory action. I did not see any assumptions presented by Professor Simpson in this regard. These assumptions are obviously very important in terms of how the Board responds to a \$183M loss. I would strongly recommend that the Board does not consider 'rougher, back of envelope' calculations for determining the appropriate RSR target.

**Evidence of Simpson: Professor Simpson proposed a DCAT number of \$100m that would be appropriate, in light of the \$81M to \$162M target. He also indicated it might result in a surcharge if a particular adverse scenario occurred. Can you explain how Professor Simpson's 20% decline in equities would impact policyholders if the proposed RSR target adopted was based on his \$100M DCAT?**

In the table below I have put together a hypothetical scenario assuming Professor Simpson's equity decline of 20% and a \$100M RSR target. The scenario is based on the following key assumptions:

- Other than equity variability, all forecasts will, on average, have no deviation to the budget over the four year period.
- The 2012/13 ending RSR balance is \$100 million (Simpson’s target)
- The four year cumulative return on equities is -20% from 2013/14 to 2016/17.
- The 20% equity decline occurs in 2013/14 and is fully realized in the first two fiscal years (2/3 realized in year one and 1/3 realized in year two)
- The equity returns in 2014/15 to 2016/17 are 0% (i.e. such that the cumulative four year equity return is -20%).
- Equity investment income is per AI.9 of the 2013 GRA.
- The Corporation would continue to forecast approximately 6.1% equity returns throughout the forecast period based on the long term experience of equity returns.
- If the RSR is below the \$100 million target at the time of a given GRA hearing, the Board will order a surcharge to return the RSR to \$100 million over the rate setting period.

**Impact of a Four Year Cumulative 20% Decline in Equities given a starting RSR Balance of \$100 Million.**

Fiscal Year	Stock Return	Loss of Equity Value	Loss of Investment Income	Impact of Surcharges	Ending RSR Balance
2012/13					<b>\$100M Simpson Calculation</b>
2013/14	-20%	$-\$75M \times (2/3) = -\$50M$	-\$24M	\$0	\$26M
Regulatory Action: None. 2013/14 rates have already been approved by the Board.					
2014/15	0%	$-\$75M \times 1/3 = -\$25M$	-\$26M	\$0	-\$25M
Regulatory Action: Order 15.6% rate surcharge to produce \$125 million in profits over the policy period to bring RSR to Simpson Target of \$100 million.					
2015/16	0%	\$0	-\$28M	$\$125M/2 = \$62.5M$	\$9.5M
Regulatory Action: Order 7.25% rate surcharge to produce \$58 million in profits over the policy period to bring RSR back to Simpson Target of \$100 million.					
2016/17	0%	\$0	-\$30M	$\$125M/2 + \$58M/2 = \$91.5M$	\$71M
2017/18	6.1%	\$0	\$0	$\$58M/2 = \$29M$	<b>\$100M Simpson Target</b>

This scenario generates over 22% in surcharges, but Professor Simpson 'wasn't troubled by it'. What is troubling is that this scenario includes only a 20% equity decline! I have presented evidence that, in my opinion, indicates that much larger equity declines are plausible at the 1 in 40 year risk tolerance level.

There has been absolutely no evidence presented to this Board that the \$100M RSR target proposed by Professor Simpson is suitable for 'protecting ratepayers'. I am recommending a minimum of \$200M in the 2012 DCAT report. The assumptions used in my DCAT analysis are, contrary to Professor Simpson's evidence, clearly laid out and transparent for the Board's consideration. Based on the above example, if Professor Simpson believes that (i) we do in fact need an RSR based on the stated purpose of the RSR and (ii) his equity scenarios are valid; then he should be requesting a minimum RSR balance much higher than \$100M.

**Further expanding on Professor Simpson's suggested \$100M RSR, which does not include any losses to equity investment income, I note that in regards to the significant decline in equity returns that occurred in 2008/09 and after, Professor Simpson said "over time, and it – it rebuilt pretty fast once stocks recovered; at least my pension fund did". Have MPI's equity recovered since 2008/09?**

As per the Corporation's response to undertaking 16 and 17, page 2, the Corporation's equity investment income has been \$150M under budget over the last 4 years, including \$33.6M under budget in 2011/12. These results are not what I would call a recovery.

I will also note that, unlike Professor Simpson, the Corporation does not (in general) get to keep the equity returns from 'the good years' to offset the 'bad years'. The Corporation expects that favourable equity returns will be rebated to policyholders to the extent that this favourable experience increases the RSR balance significantly above the Board's target. In order for the Corporation to adequately protect these same ratepayers from significant downside equity risk, the Corporation requires an adequate RSR. Based on my evidence, I believe a DCAT based RSR target of \$200M is required to protected ratepayers as per the stated purpose of the RSR.