

Public Utilities Board (PUB)

**2026 GRA Intervener Evidence Information Requests to
Consumers' Coalition (CC)**

September 29, 2025

PUB (CC) 1

Part and Chapter:	Oliver Wyman Actuarial Evidence Section 4.2	Page No.:	10
PUB Approved Issue No:	10. Claims Forecasting		
Topic:	Claims Forecasting		
Sub Topic:	Work from home		

Preamble to IR (If Any):

The report states:

We recommend the continued use of their previous methodology, which includes an explanatory variable based on verifiable third-party collected data.

In the 2025 GRA, MPI used Google's COVID-19 Community Mobility Report for up to October 15, 2022 and then used a Manitoba Commuter Behaviour Survey to adjust the Google mobility level in 2022 of -16.48 to -14.79 for 2023, and then applied a 0.74% increase to loss cost over the 2023 loss cost levels for accident years 2024 and subsequent for coverages where mobility is a significant parameter in trending analysis.

PUB (MPI) 1-55 d) requested MPI to use the 2025 GRA selected Work from Home adjustments to provide an alternative rate indication, resulting in an indicated rate change of 0.27% as shown in Figure PUB 1-55d 1.

In 2026 GRA Part XI – EAR Attachment A, Appendix C Sheet 10 shows a cumulative development factor of 3.046 for 6 month claim counts with payment to develop to ultimate values for Collision.

Question:

- a) Please confirm that although the OW report recommends the continued use of MPI's previous methodology, the OW report does not use all of MPI's previous methodology, in that it assumes that there is a return to normal for accident years 2024 and subsequent.

- b) If Oliver Wyman had used the 2025 GRA selected Work from Home adjustments, including the adjustments for accident years 2024 and subsequent, either confirm that the rate indication of 0.27% as shown in PUB (MPI) 1-55d would be a reasonable estimate or provide alternative estimates, including trending and rate indications.
- c) Please explain why Oliver Wyman assumed a return to normal for accident years 2024 and subsequent.
- d) Did Oliver Wyman consider looking at annual fuel sales versus HTA units to see if Manitoba drivers have returned to consuming the same amount of fuel and hence driving about the same amount as they did prior to the pandemic?
- e) Given the substantial claim development factor of 3.046 applied to the September 30, 2024 Collision claim count for the 2024/25 accident year, please provide an alternative recommendation for mobility factors, without consideration of the 2024 accident year projected frequency. Based on this alternative recommendation of mobility factors, please provide an alternative rate indication, including trending analysis.

Rationale for Question:

To better understand the work from home adjustments and their impact on the rate indication.

RESPONSE:

- a) We recommend the continued use of MPI's previous methodology, which incorporated an explanatory variable based on verifiable third-party collected data, as the framework to determine the mobility parameter adjustments. However we incorporate the assumption of a return to normal for accident years 2024 and beyond.
- b) Our mobility parameter is tied to our trend assumptions which we discuss in e). We provide the resulting rate indication estimates based on our revised trend models subject to the requested modifications in our response to part e) and include all other alternate assumptions in our report. The overall rate indication would be +5.01%, an increase of 2.94 percentage points from MPI's calculated rate indication and 2.13 percentage points from our alternative rate indication.

- c) In May 2023, the World Health Organization (WHO) determined that COVID-19 no longer constituted a public health emergency. Prior to that, Google had stopped collecting mobility data to update their Community Mobility Reports.

We also noted through visual inspection that 2024 frequency was near levels implied by pre-pandemic patterns.

These factors were the basis of our conclusion that COVID-19 was no longer a factor in accident year 2024.

- d) We did not examine annual fuel sales versus HTA units during our review. However, we note from Statistics Canada,
- net (of tax remitted) gasoline sales dropped in 2020 coincident with the COVID pandemic and has returned to pre-COVID levels as of 2024.¹

This along with the signal from WHO and Google paint a picture in which Manitoba drivers have largely returned to pre-pandemic levels of travel.

- e) For all coverages that include a mobility variable, we present an alternative trend model excluding 2024. We note this methodology assumes that the 2024 frequency level and future frequency levels are at the 2023 level, as we do not apply any future work from home adjustments. We note in the 2025 GRA, MPI applied a 1.0074 factor to adjust the 2023 frequency level to the future frequency level. We apply this adjustment factor as a future work from home adjustment factor to account for the expected increase in mobility from the 2023 frequency level.

¹

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2310006601&pickMembers%5B0%5D=1.8&cubeTimeFrame.startYear=2016&cubeTimeFrame.endYear=2024&referencePeriods=20160101%2C20240101>

Figure 1: Accident Benefits - Weekly Indemnity

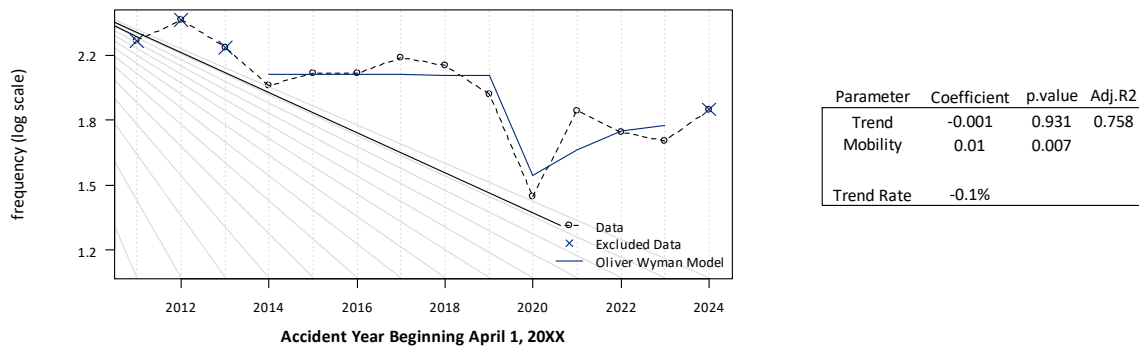


Figure 2: Accident Benefits - Other (Indexed)

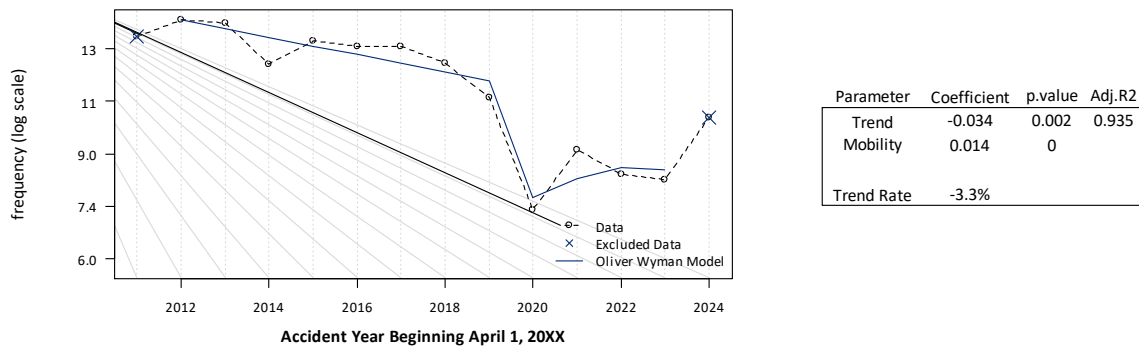


Figure 3: Accident Benefits - Other (Non-Indexed)

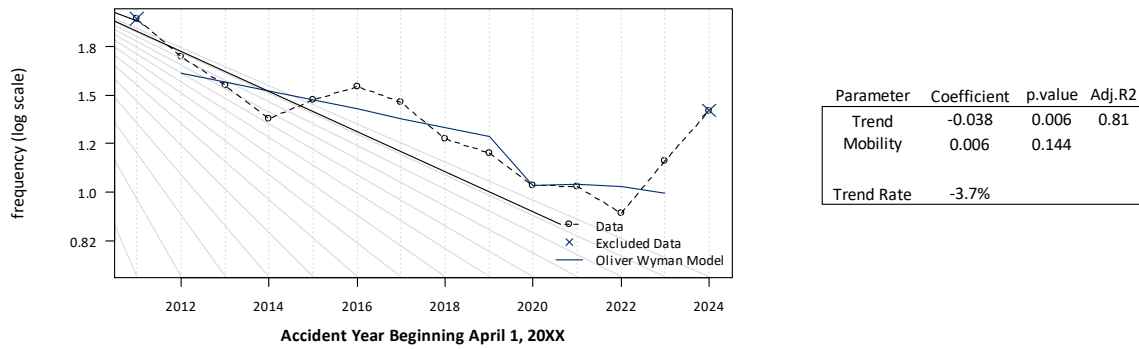
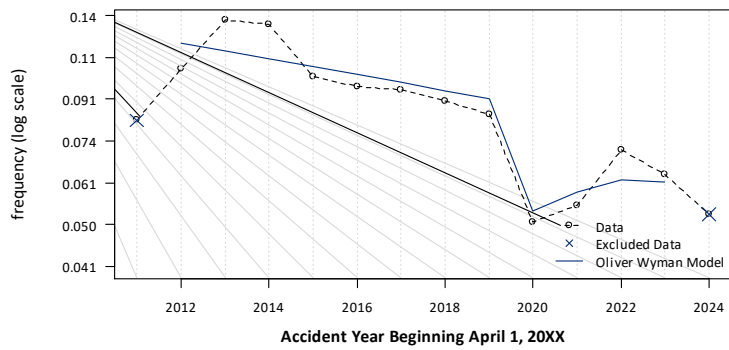
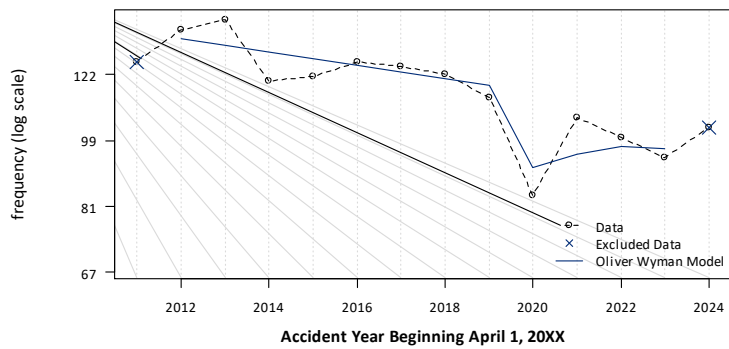


Figure 4: Bodily Injury



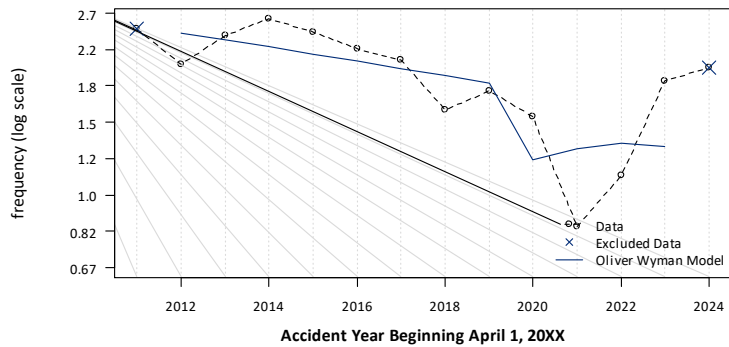
Parameter	Coefficient	p.value	Adj.R2
Trend	-0.038	0.018	0.877
Mobility	0.017	0.004	
Trend Rate	-3.7%		

Figure 5: Collision



Parameter	Coefficient	p.value	Adj.R2
Trend	-0.02	0.035	0.816
Mobility	0.008	0.018	
Trend Rate	-2.0%		

Figure 6: Comprehensive - Hail



Parameter	Coefficient	p.value	Adj.R2
Trend	-0.039	0.203	0.502
Mobility	0.013	0.208	
Trend Rate	-3.9%		

Figure 7: Property Damage - Loss of Use

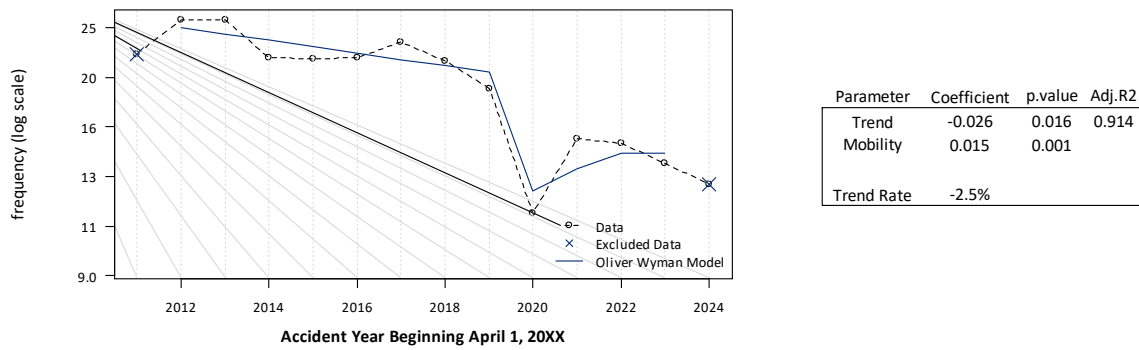


Figure 8 Property Damage - Deductible Transfer

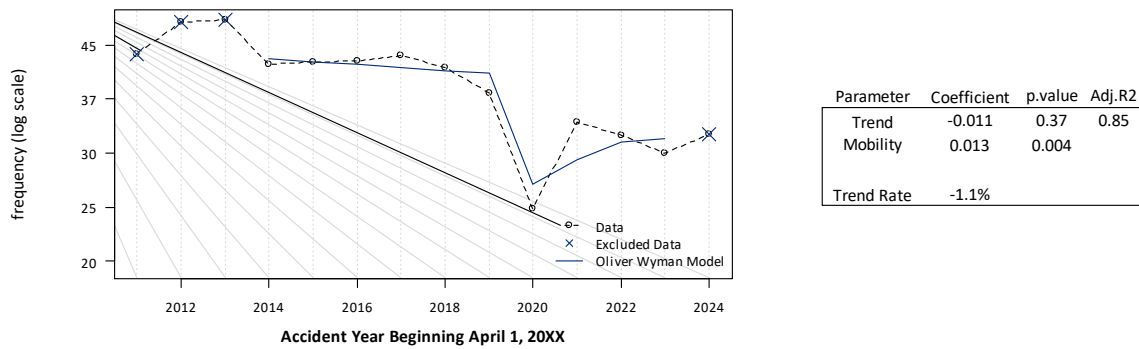
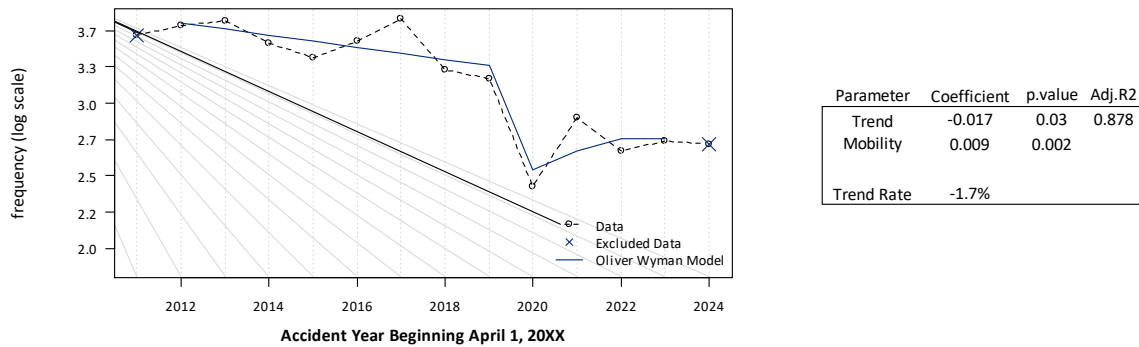


Figure 9: Property Damage - Other



We present the estimated impact on the overall rate level indication in the table below. We note the estimated impact includes both the impact of a change between the MPI selected trend and model trend, as well as a change in the implied work from home adjustment factors. We include the estimated impact on the overall rate level indication from our report, and then take the difference between the two estimated impacts to isolate the impact of excluding 2024 on the overall rate level indication.

Coverage	Original Estimated Impact on Overall Rate Level Indication	Alternate Estimated Impact on Overall Rate Level Indication	Impact of Excluding 2024 on Overall Rate Level Indication
Accident Benefits – Weekly Indemnity	+0.32 p.p.	+0.80 p.p.	0.48 p.p.
Accident Benefits – Other (Indexed)	+0.30 p.p.	+0.27 p.p.	-0.03 p.p.
Accident Benefits – Other (Non-Indexed)	-0.11 p.p.	-0.52 p.p.	-0.41 p.p.
Collision	+1.35 p.p.	+2.74 p.p.	+1.39 p.p.
Comprehensive - Hail	+0.03 p.p.	+0.01 p.p.	-0.02 p.p.
Property Damage – Loss of Use	+0.00 p.p.	+0.18 p.p.	+0.18 p.p.
Property Damage – Deductible Transfer	+0.12 p.p.	+0.46 p.p.	+0.34 p.p.
Property Damage - Other	+0.06 p.p.	+0.25 p.p.	+0.19 p.p.
Total	+2.06 p.p.	+4.21 p.p.	+2.15 p.p.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

PUB (CC) 2

Part and Chapter:	Oliver Wyman Actuarial Evidence Section 7 Vehicle Rate Groups	Page No.:	62
PUB Approved Issue No:	2b. Ratemaking methodology		
Topic:	Rate groups		
Sub Topic:	Rate group capping		

Preamble to IR (If Any):

Oliver Wyman found the rate group movement cap of +5 to be excessive, given the average premium increase that would be experienced for vehicles with rate group movements of +4 and +5. Oliver Wyman recommend a phase-in of the change in maximum rate group movement to limit dislocation.

PUB (MPI) 1-2 provided the following alternative rate indications:

- a) Deductible remains at \$750 and rate groups remain at a maximum of 41: +8.26%
- b) Deductible moves to \$1000 and rate groups remain at a maximum of 41: +5.23% (3.03% of overall increase is removed due to reduction in coverage)
- c) Deductible moves to \$1,000 and rate groups 42 through 45 added, subjected to a capping of a maximum increase of +1 per year: +4.52% (0.71% of overall increase is transferred to vehicles with rate group increases)
- d) Deductible moves to \$1,000 and rate groups 42 through 45 added, subject to a capping of a maximum increase of +2 per year: +3.79% (1.44% of overall increase is transferred to vehicles with rate group increases)

GRA as filed with deductible moves to \$1,000 and rate groups 42 through 45 added, subject to a capping of a maximum increase of +5 per year: +2.07% (3.16% of overall increase is transferred to vehicles with rate group increases)

Question:

Given the observed trade-off between the overall rate increase, borne by all policyholders, and the rate group premium increase, borne by policyholders with higher rate group vehicles, please provide a recommended cap, and include any reasoning underlying this recommendation.

Rationale for Question:

To better understand Oliver Wyman's recommendation with regards to the rate group cap.

RESPONSE:

We would like to clarify that the rate group premium increase is contained entirely by vehicles that will be assigned to rate group 42 – 45. The rate group movement up to +5 is entirely off balanced for vehicles with rate group 0 – 41.

In the 2026 GRA, Part VIII – Risk Classification, RC.7 Rate Group Assignment Impacts, MPI states:

MPI re-rates all applicable vehicles using the updated rate groups and existing premium structure. This approach isolates the effect of rate group changes by holding premiums constant, enabling MPI to assess changes in overall revenue purely attributable to the updated rate group mapping.

For newly introduced rate groups that do not yet have established premiums (e.g., rate groups above 41), MPI caps the rate group at 41 during this analysis.

Changes to rate group assignments from updated CLEAR rate groups result in changes to overall revenues. Offset adjustments are applied to ensure revenue neutrality.

Additionally, in the 2026 GRA, Part VIII – Risk Classification, RC 8.1 Rate Line Relativity Analytical Process,

Similar to last year, the new rate groups (42 to 45) are not revenue neutralized. The additional premium generated from the new rate groups helps offset a portion of the overall rate requirement.

Lastly, in the 2026 GRA, Part VIII – Risk Classification, RC 8.3 Combined Changes of Vehicle Rate Group and Rate Line Changes,

To ensure revenue neutrality before the impact of rate group expansion, from 0 to 41 to 0 to 45, combined offset adjustments are applied to offset changes in total revenue resulting from both rate group and rate line relativity changes. MPI determines these combined offset adjustments for each respective vehicle type. Appendix 1 – Offsets lists the Rate group, Rate Line and Combined Offsets.

Please note, in the 2026 GRA, due to the expansion of rate groups, the offset calculation was adjusted as follows:

- 1. The offset was calculated using the standard methodology with rate groups capped at 41; and*
- 2. The additional premium anticipated from vehicles transitioning to rate groups 42 to 45 was not adjusted for revenue neutrality, resulting in an expected increase in premium revenue from these rate groups, which is considered as additional drift.*

This approach ensured consistent premiums for vehicles in rate groups 41 and below, mirroring the original methodology, while allowing premium increases from the expanded rate group structure to affect vehicles within rate groups 42 to 45.

MPI does not provide evidence to suggest the proposed rate group movement cap change is not off balanced, while the rate group expansion from 41 to 45 is explicitly stated not to be off balanced. This means, while an individual consumer with a vehicle rate group less than or equal to 41 may see a significant premium increase due to their rate group movement, the overall premium change for rate groups 0 – 41 is 0.0%.

The premium transfer from overall base rate increase to rate group is due to (i) MPI not repeating the exercise quoted above for rate group movements of +1 and +2 when responding to PUB (MPI) 1-2 and (ii) rate groups currently capped at 41 are not able to jump to 45 immediately.

We do not recommend a specific rate group movement as this should consider business and consumer impacts is not an actuarial assumption. We suggest PUB consider alternatives that provide a more acceptable level of dislocation for the consumer.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

PUB (CC) 3

Part and Chapter:	Oliver Wyman Actuarial Evidence Section 5 Merit Rating (DSR)	Page No.:	60
PUB Approved Issue No:	12. Driver Safety Rating		
Topic:	Driver Safety Rating		
Sub Topic:			

Preamble to IR (If Any):

Oliver Wyman continues to recommend MPI adopt a categorical variable approach to calculate the relativities for Driver Safety Rating. In the 2026 GRA, Figure RC App 6-1 shows the balanced relativity and the fitted relativity by DSR level. The generally downward slope with an increase in the DSR level has the following exceptions where the balanced relativity increases:

- A) 4-5
- B) 9-10
- C) 12-15

Question:

- a) Please indicate if Oliver Wyman recommends that the DSR levels should move in a continuously downward direction with increases in DSR?
- b) Please indicate how Oliver Wyman would reflect the increased relativities observed in the selection of relativities.

Rationale for Question:

To understand what Oliver Wyman is recommending for the DSR relativities.

RESPONSE:

- a) Based on the intention of the DSR and what it represents, we believe DSR discounts should not reverse (decrease) as the DSR increases.

- b) MPI could address such reversals through manual smoothing. As noted our suggested approach allows for *manual* smoothing with could be used to address unreasonable *indicated* responses. We do not believe that it is reasonable to use models where DSR is viewed as a numerical variable for smoothing.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

PUB (CC) 4

Part and Chapter:	Oliver Wyman Actuarial Evidence Section 4.4	Page No.:	17
PUB Approved Issue No:	10. Claims Forecasting		
Topic:	Accident Benefits Other Indexed		
Sub Topic:	Accident year weights		

Preamble to IR (If Any):

Oliver Wyman observed that the adjusted estimates for accident years 2020/21 and 2021/22 are outliers and subject to additional uncertainty, as these periods were significantly affected by the COVID-19 pandemic. Therefore, Oliver Wyman recommends weights of 12.5%, 12.5%, 25%, 25%, and 25% for accident years 2020/21 through 2024/25 respectively, resulting in a decrease in the required rate indication of 0.27%

Question:

- a) What criteria did Oliver Wyman use for outlier?
- b) Please demonstrate that the two accident years were quantitatively determined to be outliers?
- c) Were there outliers for any other coverages? If so, why did Oliver Wyman not recommend adjusting the weighting for them?

Rationale for Question:

To better understand the adjustments to the accident year weights.

RESPONSE:

- a) We would like to clarify that we use the plain-English definition rather than the statistical definition when using the term "outlier."

There may be compounding effects to MPI's adjustments during this period causing the adjusted ultimate loss costs of these periods to appear inconsistent with the experience in other accident periods. When looking at the 2024 and 2025 GRAs, we do not see the same concerns of inflated adjusted ultimate loss cost for accident years 2020 and 2021 to the same extent as the 2026 GRA. Accident years 2022 and 2023 appear to be consistent across the GRAs. We note the change in the COVID-adjustment in the 2026 GRA.

The adjusted ultimate loss cost is the starting point for future projections used in the rate indication. Giving equal weight to all years would result in 40% of the weight for future estimated loss cost being attributed to estimates that appear inconsistent with recent loss costs.

We reproduce Figure 7 of our 2026 GRA report and include the corresponding figures from the 2025 and 2024 GRA here for comparison. We note the horizontal red line in each figure represents the weighted average of the recent five years of adjusted ultimate loss cost (red dots) and the starting point of the future projections. As seen in the 2025 and 2024 GRA figures (second and third figures) the adjusted ultimate losses are reasonably well scattered around the horizontal red line, However in the 2026 GRA (first figure) there is a significant delta between accident years 2020, 2021 and 2022 to 2024 resulting in the horizontal red line being pulled up by the 40% weight on accident years 2020 and 2021 to a level that is not reflective of the most recent years.

Figure 10: Accident Benefits - Other (Indexed) MPI Loss Cost Projection, 2026 GRA

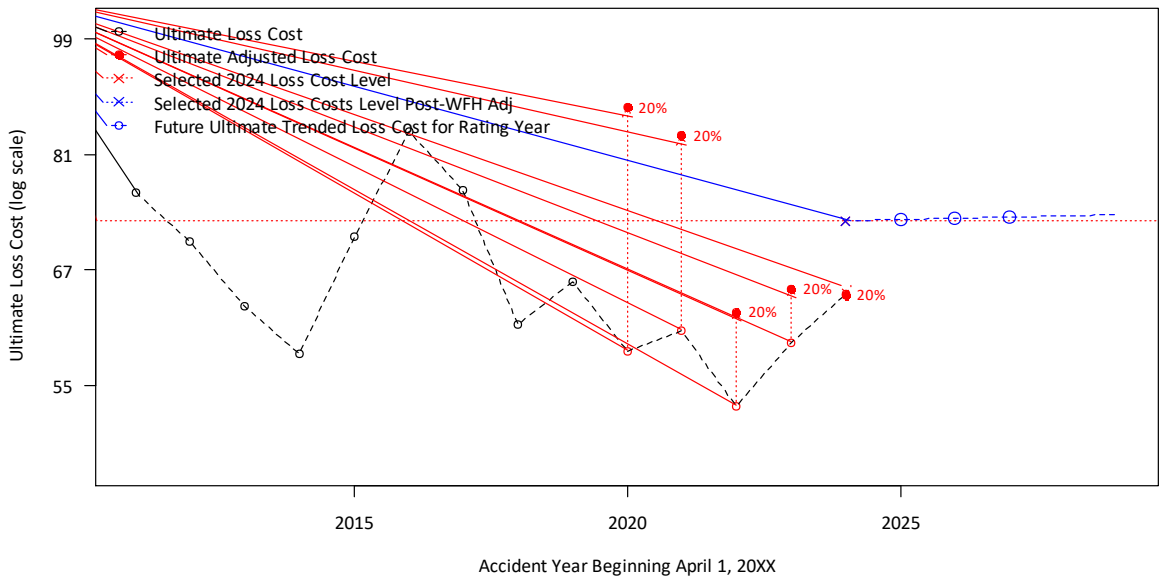


Figure 11: Accident Benefits - Other (Indexed) MPI Loss Cost Projection, 2025 GRA

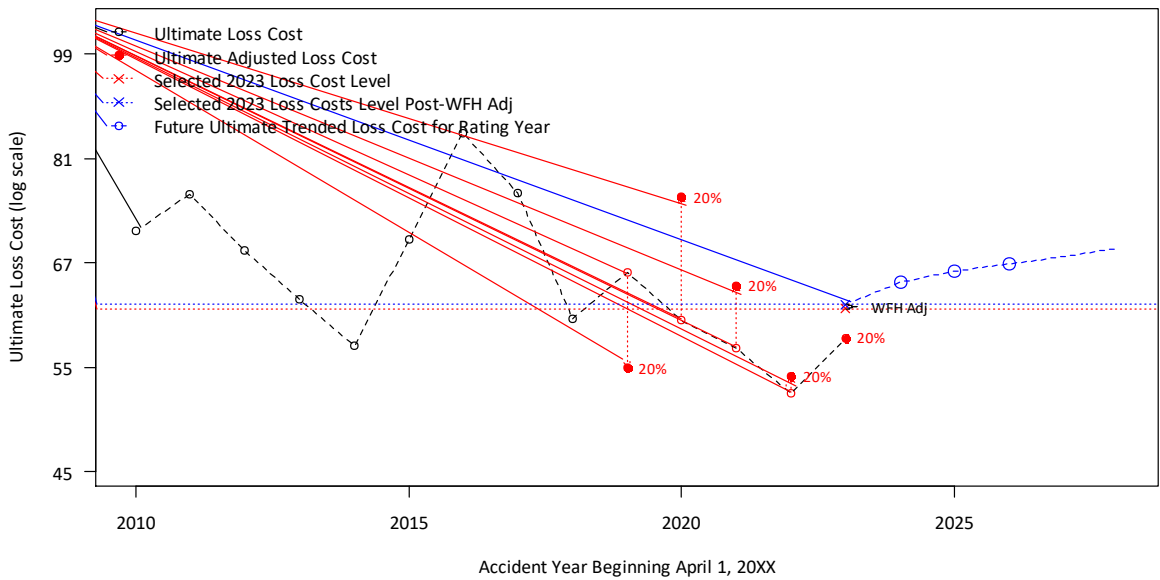
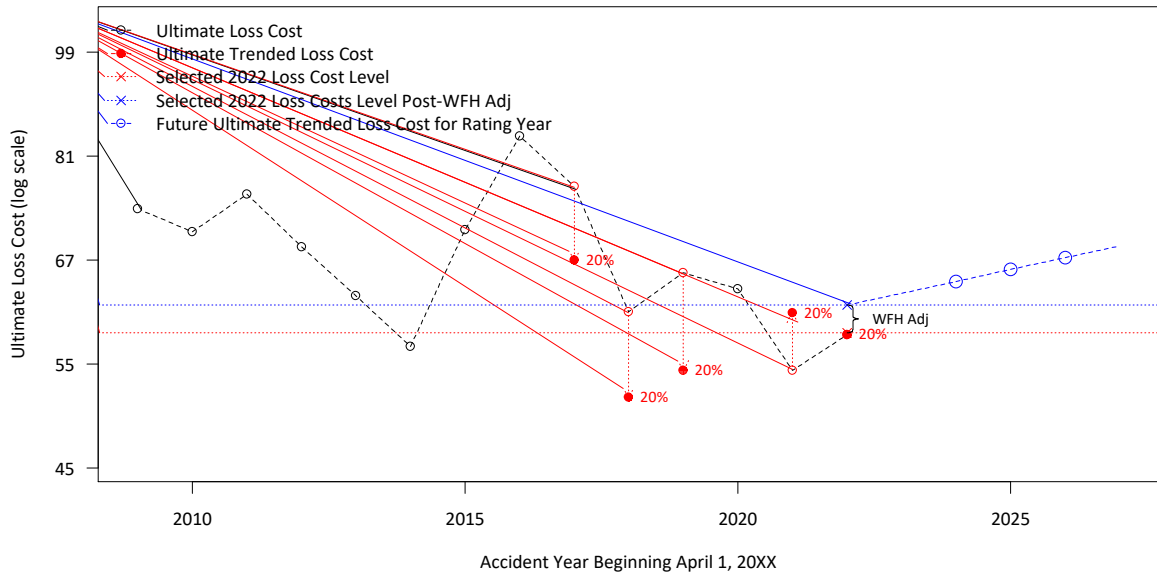


Figure 12: Accident Benefits - Other (Indexed) MPI Loss Cost Projection (2024 GRA)



a) See response to question a) above.

b) When reviewing the other coverages, we did not find identify outliers in the adjusted loss cost estimates.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

PUB (CC) 5

Part and Chapter:	Oliver Wyman Actuarial Evidence Section 4	Page No.:	various
PUB Approved Issue No:	10. Claims Forecasting		
Topic:	Loss Cost Projections		
Sub Topic:			

Preamble to IR (If Any):

In the report, Oliver Wyman provides a graph of MPI's loss cost projection by coverage, but there is no graph showing the Oliver Wyman projection.

In the report, Oliver Wyman provides a Pure Premium summary by coverage, showing the MPI estimates, but not comparing to the Oliver Wyman projection.

Question:

- a) For each coverage in which Oliver Wyman has proposed alternative assumptions, please provide a graph comparing the MPI loss cost projection to the Oliver Wyman loss cost projection.
- b) Please provide the values in Excel.
- c) Please provide pure premium summaries with a column added showing the Oliver Wyman estimates.

Rationale for Question:

To better understand the Oliver Wyman projections.

RESPONSE:

a) We reproduce the MPI loss cost projection figures for each coverage where we propose an alternative below for Oliver Wyman’s loss cost projections.

Figure 13: Accident Benefits - Weekly Indemnity OW Loss Cost Projection

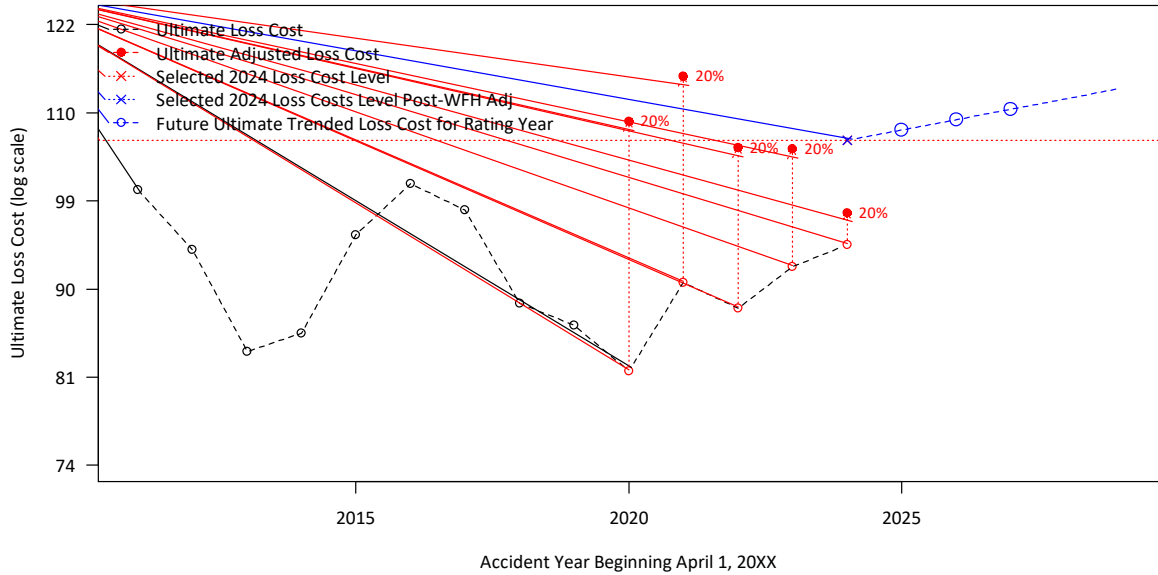


Figure 14: Accident Benefits – Other (Indexed) OW Loss Cost Projection

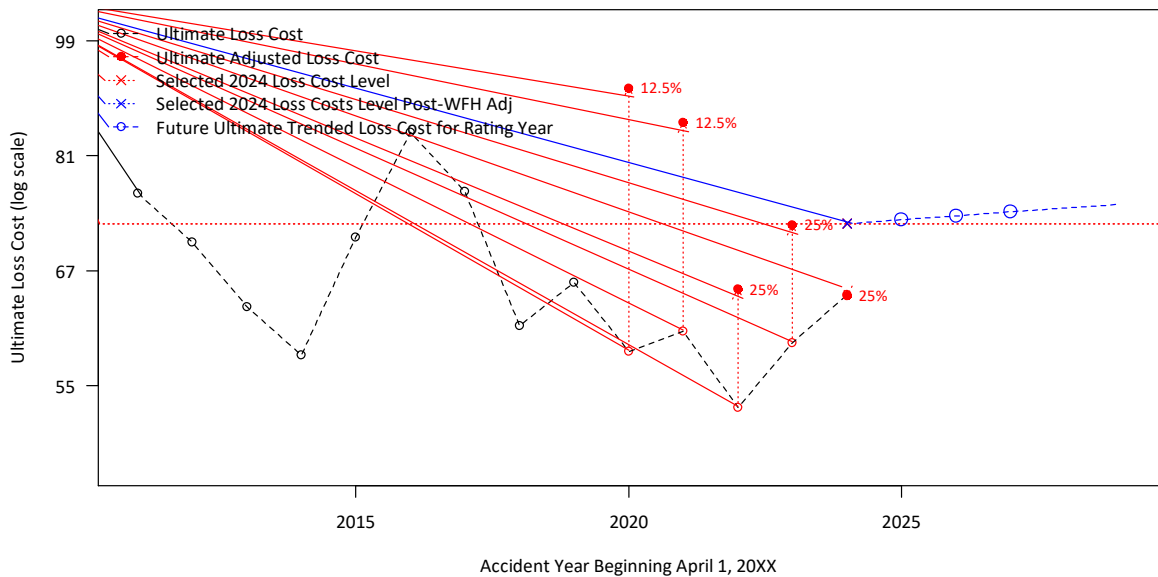


Figure 15: Accident Benefits – Other (Non-Indexed) OW Loss Cost Projection

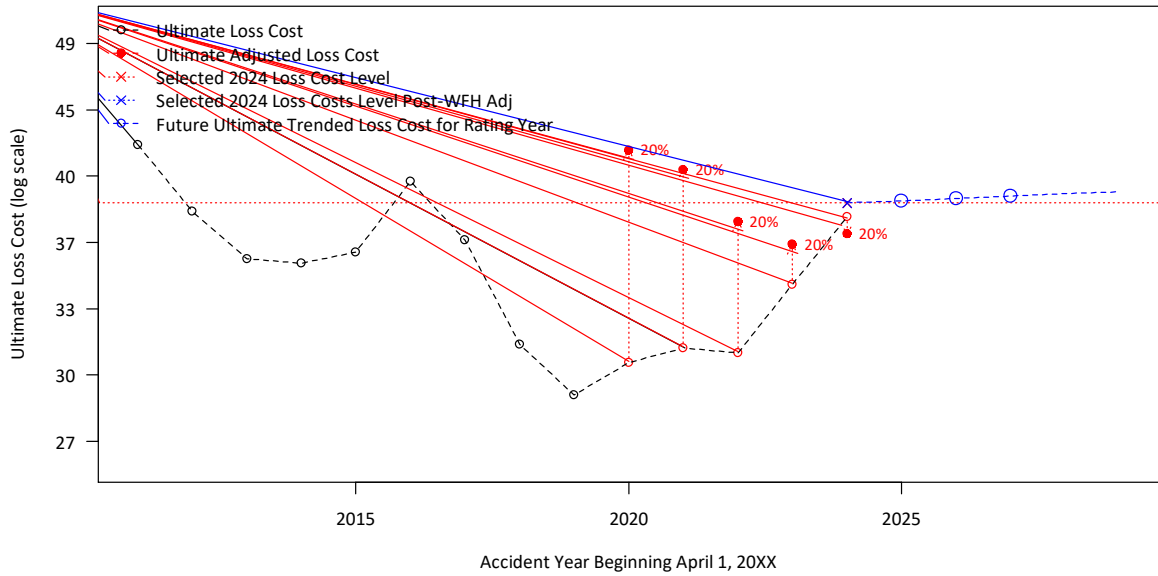


Figure 16: Collision OW Loss Cost Projection

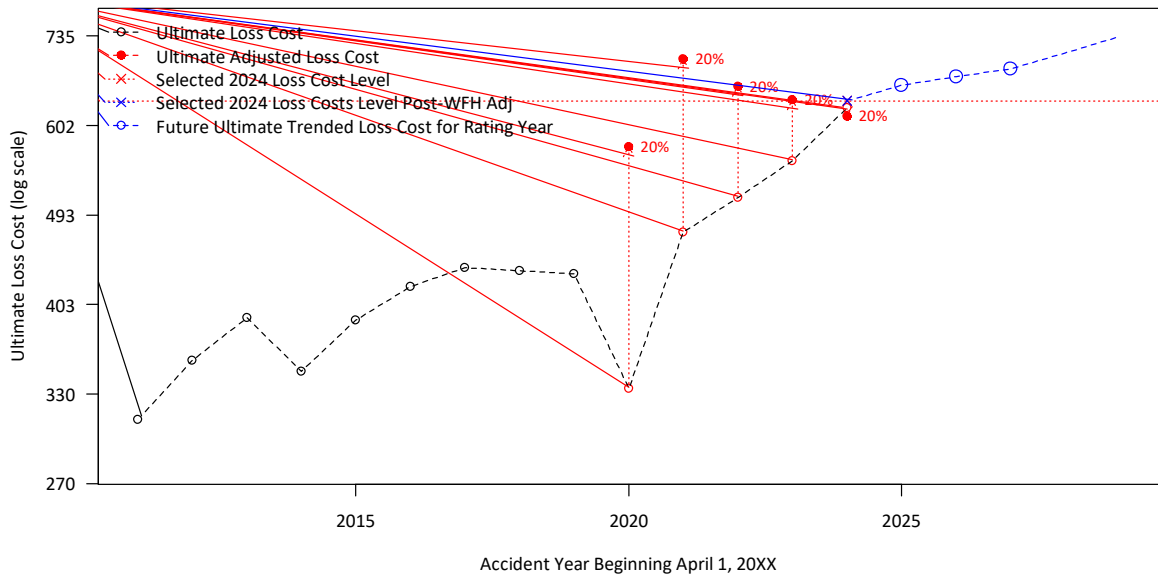


Figure 17: Comprehensive - Hail OW Loss Cost Projection

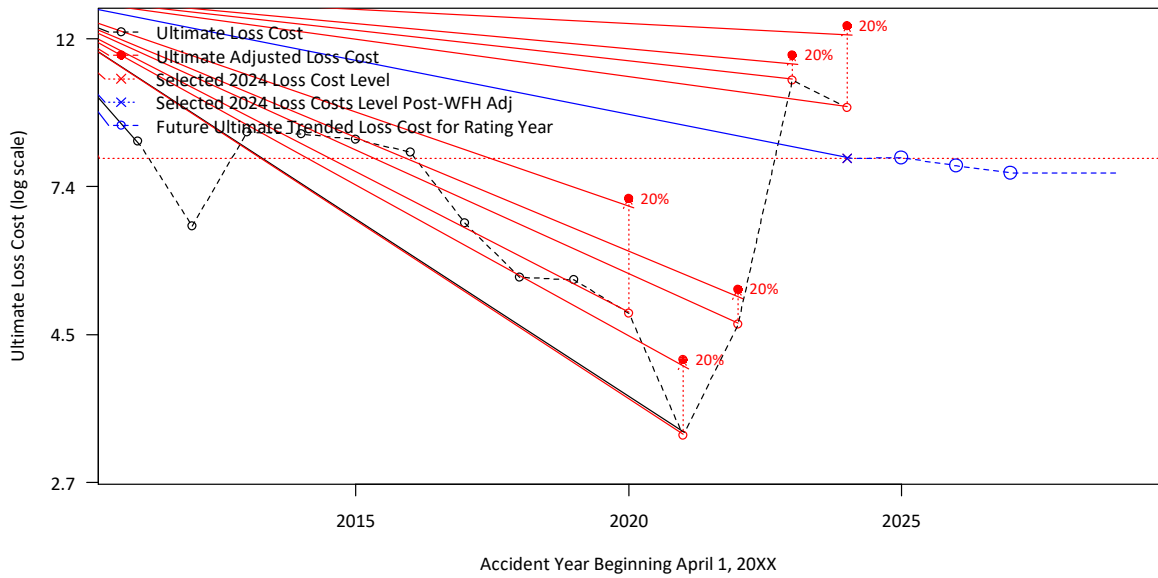


Figure 18: Comprehensive - Theft OW Loss Cost Projection

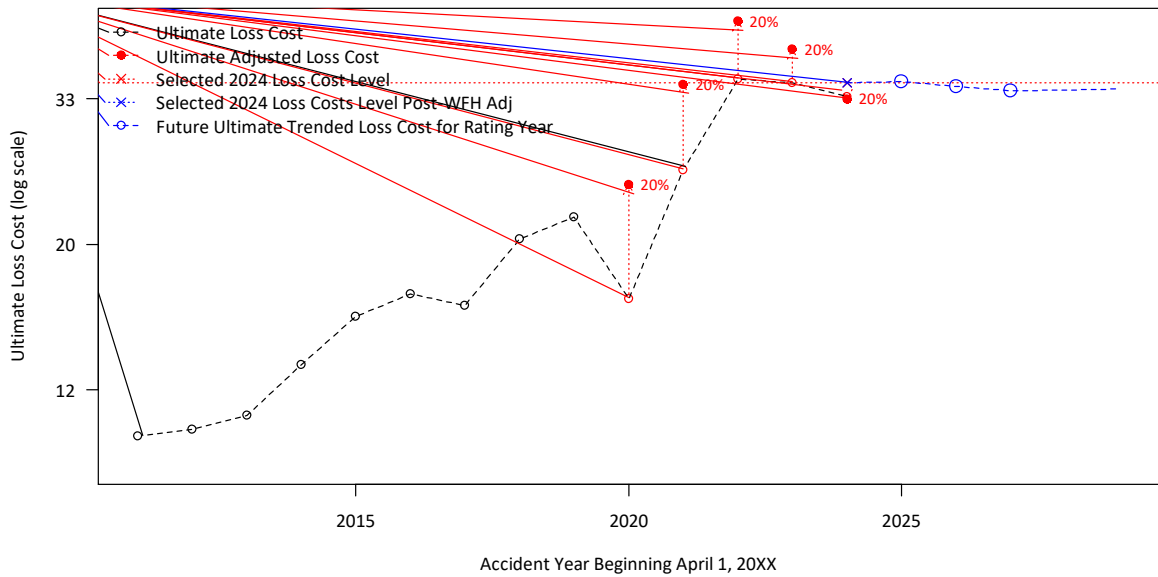


Figure 19: Comprehensive - Vandalism OW Loss Cost Projection

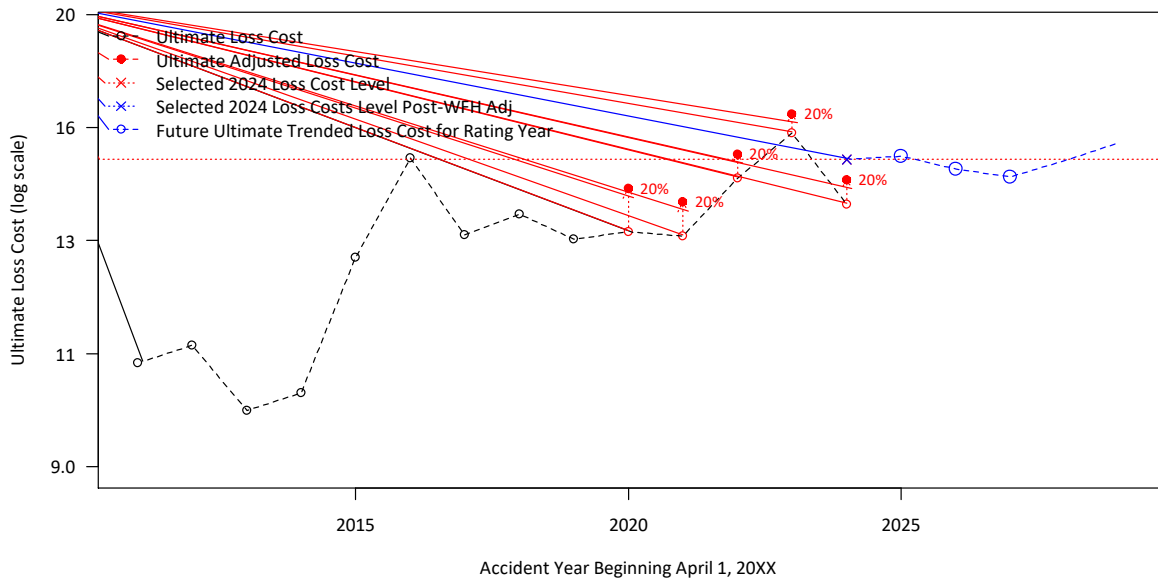


Figure 20: Property Damage – Third Party Deductible Transfer OW Loss Cost Projection

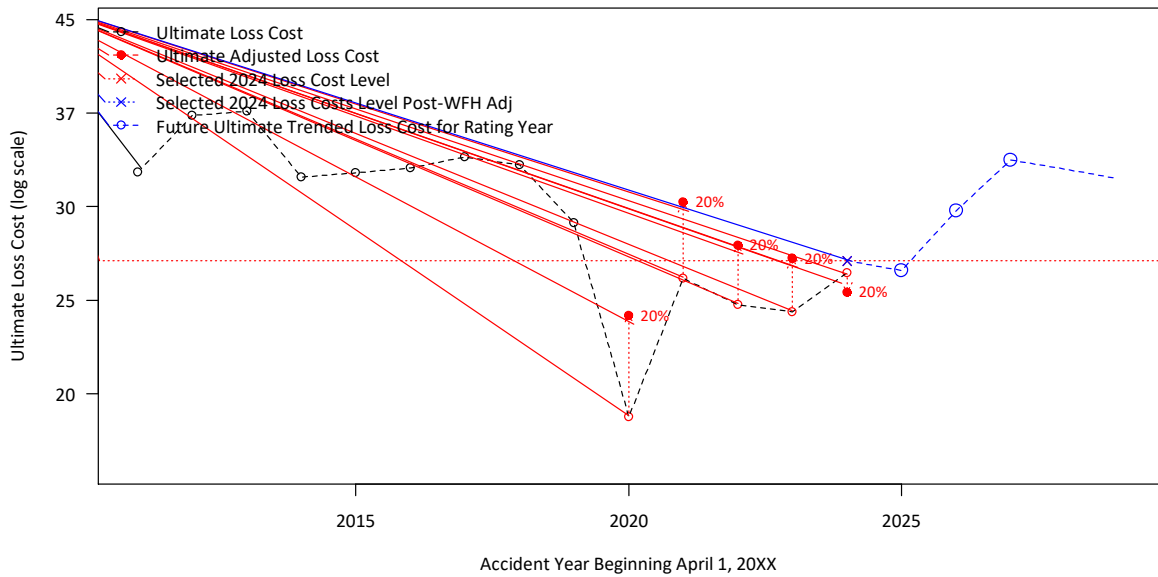
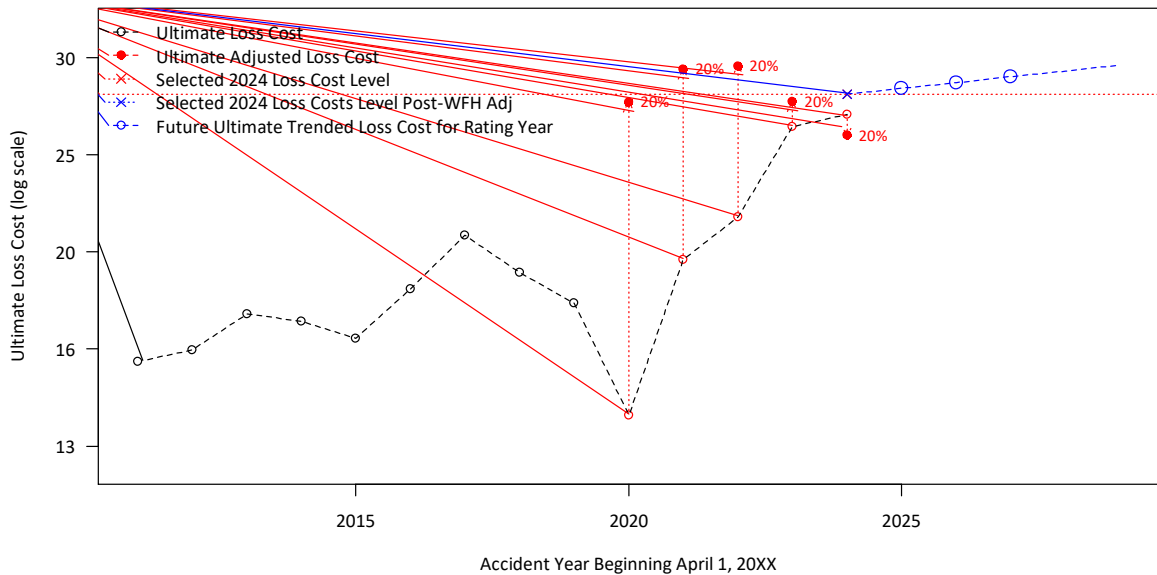


Figure 21: Property Damage - Other OW Loss Cost Projection



b) See attached [PUB \(CC\) 1-5b.xlsx](#)

c) We reproduce the pure premium summary tables for each coverage where we propose an alternative below and include the Oliver Wyman estimates in the adjacent column.

Table 1: Accident Benefits – Weekly Indemnity Pure Premium Summary

Metric	MPI Value	OW Alternate	Reference
A 2024/25 Loss Cost	102.74	106.54	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	-	-	
C Future Trend Factor	1.023	1.029	Part VII - CF Appendix 4, Table 1
D HTA Units	1,010,008	1,010,008	Wgt avg of 2025/26 and 2026/27 HTA Units
E Deductible Change	1.000	1.000	
F Projected Losses	106,144	110,709	$(A + B) \times C \times D \times E$
G Enhancements (000)	1,584	1,584	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.81	0.81	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	64.12	66.83	$(F + G) \times H / I$

Table 2: Accident Benefits – Other (Indexed) Pure Premium Summary

Metric	MPI Value	OW	Reference
		Alternate	
A 2024/25 Loss Cost	72.59	72.39	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	-	-	
C Future Trend Factor	1.005	1.016	Part VII - CF Appendix 4, Table 1
D HTA Units	1,010,115	1,010,115	Wgt avg of 2025/26 and 2026/27 HTA Units
E Deductible Change	1.000	1.000	
F Projected Losses	73,687	74,328	$(A + B) \times C \times D \times E$
G Enhancements (000)	5,157	5,157	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.88	0.88	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	50.95	51.37	$(F + G) \times H / I$

Table 3: Accident Benefits – Other (Non-Indexed) Pure Premium Summary

Metric	MPI Value	OW	Reference
		Alternate	
A 2024/25 Loss Cost	35.96	38.84	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	-	-	
C Future Trend Factor	1.125	1.008	Part VII - CF Appendix 4, Table 1
D HTA Units	1,010,356	1,010,356	Wgt avg of 2025/26 and 2026/27 HTA Units
E Deductible Change	1.000	1.000	
F Projected Losses	40,867	39,574	$(A + B) \times C \times D \times E$
G Enhancements (000)	-	-	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.92	0.92	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	27.62	26.75	$(F + G) \times H / I$

Table 4: Collision Pure Premium Summary

Metric	MPI Value	OW	Reference
		Alternate	
A 2024/25 Loss Cost	624.50	636.05	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	1.39	1.39	
C Future Trend Factor	1.080	1.086	Part VII - CF Appendix 4, Table 1
D HTA Units	1,009,442	1,009,442	Wgt avg of 2025/26 and 2026/27 HTA Units

Metric	MPI Value	OW	Reference
		Alternate	
E Deductible Change	0.965	0.965	
F Projected Losses	658,326	674,201	$(A + B) \times C \times D \times E$
G Enhancements (000)	-	-	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.99	0.99	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	480.01	491.58	$(F + G) \times H / I$

Table 5: Comprehensive - Hail Pure Premium Summary

Metric	MPI Value	OW	Reference
		Alternate	
A 2024/25 Loss Cost	7.83	8.13	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	0.01	0.01	
C Future Trend Factor	1.000	1.000	Part VII - CF Appendix 4, Table 1
D HTA Units	1,011,555	1,011,555	Wgt avg of 2025/26 and 2026/27 HTA Units
E Deductible Change	0.936	0.936	
F Projected Losses	7,423	7,705	$(A + B) \times C \times D \times E$
G Enhancements (000)	-	-	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.99	0.99	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	5.38	5.58	$(F + G) \times H / I$

Table 6: Comprehensive - Theft Pure Premium Summary

Metric	MPI Value	OW	Reference
		Alternate	
A 2024/25 Loss Cost	34.99	34.99	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	0.17	0.17	
C Future Trend Factor	1.279	1.000	Part VII - CF Appendix 4, Table 1
D HTA Units	1,011,555	1,011,555	Wgt avg of 2025/26 and 2026/27 HTA Units
E Deductible Change	0.949	0.948	
F Projected Losses	43,195	33,727	$(A + B) \times C \times D \times E$
G Enhancements (000)	-	-	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.99	0.99	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	31.31	24.44	$(F + G) \times H / I$

Table 7: Comprehensive - Vandalism Pure Premium Summary

Metric	MPI Value	OW	Reference
		Alternate	
A 2024/25 Loss Cost	15.54	15.34	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	0.01	0.01	
C Future Trend Factor	1.066	1.048	Part VII - CF Appendix 4, Table 1
D HTA Units	1,011,555	1,011,555	Wgt avg of 2025/26 and 2026/27 HTA Units
E Deductible Change	0.917	0.917	
F Projected Losses	15,374	14,920	$(A + B) \times C \times D \times E$
G Enhancements (000)	-	-	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.99	0.99	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	11.14	10.81	$(F + G) \times H / I$

Table 8: Property Damage – Third Party Deductible Transfer Pure Premium Summary

Metric	MPI Value	OW	Reference
		Alternate	
A 2024/25 Loss Cost	25.90	26.68	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	-	-	
C Future Trend Factor	0.939	0.953	Part VII - CF Appendix 4, Table 1
D HTA Units	1,009,436	1,009,436	Wgt avg of 2025/26 and 2026/27 HTA Units
E Deductible Change	1.261	1.261	
F Projected Losses	30,941	32,368	$(A + B) \times C \times D \times E$
G Enhancements (000)	-	-	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.98	0.98	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	22.27	23.29	$(F + G) \times H / I$

Table 9: Property Damage - Other Pure Premium Summary

Metric	MPI Value	OW	Reference
		Alternate	
A 2024/25 Loss Cost	27.34	27.80	Part VII - CF Appendix 4, Table 3
B CERP Adjustment	-	-	
C Future Trend Factor	1.022	1.029	Part VII - CF Appendix 4, Table 1
D HTA Units	1,009,436	1,009,436	Wgt avg of 2025/26 and 2026/27 HTA Units

Metric	MPI Value	OW	Reference
		Alternate	
E Deductible Change	1.036	1.036	
F Projected Losses	29,215	29,920	$(A + B) \times C \times D \times E$
G Enhancements (000)	-	-	Part VII - CF Appendix 4o, Table 1
H Discount Factor	0.98	0.98	Per Part VIII - RI Appendix 2, Table 1
I All Units	1,359,973	1,359,973	2026/27 rating year units
J Pure Premium	21.02	21.53	$(F + G) \times H / I$

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

PUB (CC) 6

Part and Chapter:	Oliver Wyman Actuarial Evidence Section 4.11	Page No.:	
PUB Approved Issue No:	10. Claims Forecasting		
Topic:	Comprehensive Theft		
Sub Topic:			

Preamble to IR (If Any):

Oliver Wyman considered a 0.00% future loss cost trend to be more reasonable than the +10.31% future trend rate selected by MPI for comprehensive theft, with indicated frequency trends of 4-5% and severity trends of 5-6% (MPI selected trend based on the loss cost model, and not the frequency or severity models)

For Collision future severity trend, Oliver Wyman accepted MPI's estimate of 5.49% per annum.

Oliver Wyman found MPI's comprehensive fire loss cost projections to be reasonable, which include a future severity trend of 5.10%.

Question:

Please explain why a +5.49% future severity trend for Collision, and a +5.10% future severity trend for Comprehensive Fire are considered reasonable, but a 0% future loss cost trend is considered more reasonable for Comprehensive Theft

Rationale for Question:

To better understand the Oliver Wyman projections.

RESPONSE:

When looking at the collision model, the loss cost does not exhibit a potential change in pattern to suggest a different future trend may be more appropriate.

Comprehensive fire loss cost also does not exhibit a potential change in pattern based on the most recent accident years.

In contrast, comprehensive theft has been slightly decreasing since 2022. Which we view as potential signs of a new trend pattern emerging.

Moreover, given the national media attention given to vehicle thefts in recent years, it is likely that drivers have become more cautious and aware of potential theft risk and have taken steps to mitigate this risk through installation of alarm systems, theft deterrent devices, GPS trackers, and situational awareness. Auto manufacturers are also starting to implement more robust security features and efforts from law enforcement in identifying and arresting individuals in connection with stolen vehicle operations or recovering stolen vehicles may also aid in addressing the theft issue. We believe the theft data may be reflecting the emergence of these actions and believe it would appropriate to give weight to this idea given the theft loss cost data since accident year 2022.

RATIONALE FOR REFUSAL TO FULLY ANSWER THE QUESTION:

PUB (CC) 7

Part and Chapter:	CC-07 - V. Viola Performance Attribution Report Sept. 2025	Page #:	3-4, 15
PUB Approved Issue Number:	8. Performance of the Investment Portfolio		
Topic:	Attribution Models		
Subtopic:	Tracking error		

Preamble (if any):

The Performance Attribution Report highlights MPI's investment performance through alpha, it also notes that a full risk analysis, including a discussion of tracking error, was not within the scope of the report. It is important that we understand how MPI's investment decisions align with their risk appetite and how they manage the volatility within their investment mandates.

Question:

- a) What specific best practices and/or risk management policies should MPI implement to actively manage and reduce their portfolios' tracking errors?
- b) How would monitoring of the tracking error help the Board better evaluate MPI's performance on a risk-adjusted basis?

Rationale for Question:

To understand best practices in reducing tracking error.

Response:a) **Overview**

It is important to note that active risk (also called tracking error²) is a "**desirable**" risk for asset managers where there is confidence that the asset manager has both sufficient

² Tracking error is a metric of active risk, as quantified by the standard deviation of the value added (alpha). Value at risk is another measure of active risk.

active management skill and sufficient opportunities to outperform the passive (benchmark) alternative, net of the incremental costs associated with active management (e.g., external managers' fees related to active management). Unlike other types of risks – such as operational risks – which may require risk “mitigation” or reduction, active risks may actually be too **low** rather than being too **high**. (In my experience, asset managers are more likely to take insufficient active risk at the total portfolio level because the Information Ratio (IR = value added/tracking error) assumptions that are generally used by asset managers are not as conservative as they ought to be. (i.e., More modest IR assumptions should be used in many cases.)

Best Practice #1: Setting Active Risk “Targets”

Best practices should reflect key principles and beliefs. For example, if we believe that **active risk is a “good” (i.e., resource), and not necessarily a “bad” per se, then we may conclude that active risk should be “budgeted” – just like any scarce resource. This means establishing a total portfolio active risk “target”, along with a breakdown or attribution of the active risk targets below the total portfolio (e.g., by asset class, and possibly manager).**

In the same way that surplus risk (e.g., primary market risk) is optimized in Asset/Liability (A/L) Studies, active risk should also be optimized. In A/L Studies, we select the policy asset allocation, given key capital market assumptions (e.g., return volatilities). In the case of active risk optimizations, the goal is to achieve a total portfolio value added target by choosing the active risk (tracking error) to take. This active risk needs to be both: i) effective (i.e., consistent with the value added goal, net of relevant costs); and ii) efficient (i.e., allocated across asset classes/strategies and managers by considering the marginal costs, marginal risks, and marginal value added across the total portfolio).

The main difference between A/L optimizations and active risk optimizations is that in the A/L case the volatilities are given, and we solve for the optimal policy asset mix. In the case of active management, it's the reverse – i.e., the policy asset mix is given, and we solve for the optimal risk (tracking error) allocation. Active strategies can relate to security/sector/currency selection decisions in different asset classes (e.g., equity and bonds) as well as tactical asset allocation (TAA) across asset classes.

Below we describe what is meant by: i) risk “effectiveness”; and ii) risk “efficiency”.

- i. Active Risk Effectiveness:** If the total value added target is 100 bps (gross of costs) and the total portfolio IR assumption is ~ 0.40 (“top third” performance), then the total portfolio’s active risk target should be 250 bps ($100 \text{ bps} \div 0.40$) as shown below.

$$\begin{aligned} \text{Value Added} &= \text{Total Risk Target} \times \text{Value Added/Risk} \\ 100 \text{ bps} &= 250 \text{ bps} \times 0.40 \end{aligned}$$

If a higher IR assumption is assumed – such as top quartile (IR ~ 0.67) – then the total portfolio can take less risk (150 bps rather than 250 bps) because this higher-performing fund translates risk into value added at a higher rate (IR), as shown below.

$$\begin{aligned} \text{Value Added} &= \text{Total Risk Target} \times \text{Value Added/Risk} \\ 100 \text{ bps} &= 150 \text{ bps} \times 0.67 \end{aligned}$$

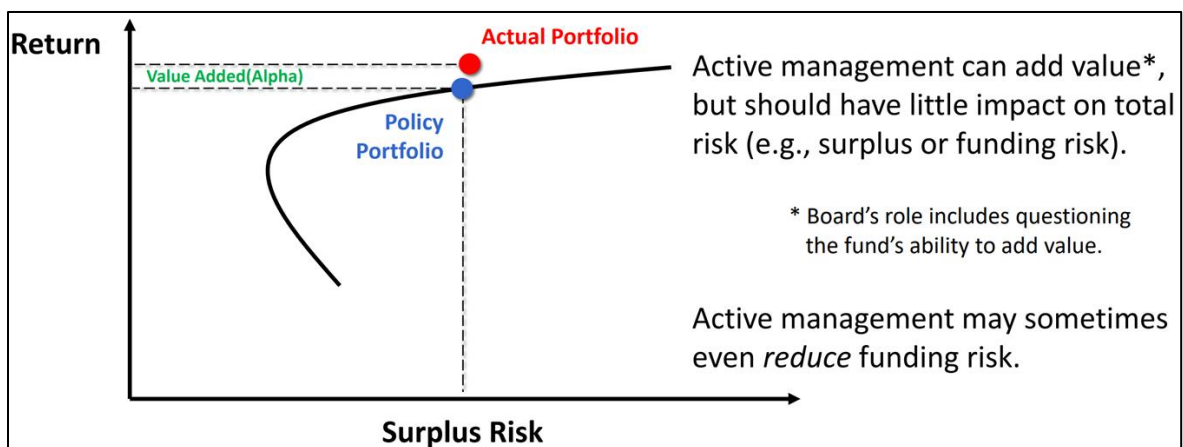
- ii. Active Risk Efficiency:** We can show that the optimal allocation of risk to an asset class (e.g., equities) is inversely proportional to its policy weight if: i) Information Ratios (IRs) are the same for all asset classes (“naïve/neutral” views); and ii) the value added across asset classes is uncorrelated (a reasonable assumption). In other words, an asset class with a lower policy weight should be more active (take more tracking error vs its benchmark) – other things equal. Other things, of course, are not usually equal. For example, IR assumptions should differ across asset classes because of differences in: i) market efficiency; ii) breadth of opportunities to add value; and/or iii) skill.

Determining reasonable assumptions about asset class IRs may be challenging, but making these assumptions explicit allows stakeholders to assess the appropriateness of the active management strategy.

Best Practice #2: Setting Active Risk Limits

A second best practice is to set one or more risk limits for active risk. The tolerance for active risk could reflect, at least in part, the impact that active management is expected

to have on the primary market risk (assumed to be surplus risk, or the risk that assets grow slower than the liabilities). The image below shows the surplus risk of the policy portfolio (where there is no active management) and the actual portfolio. The actual portfolio has a positive value added expected – on average – as shown by the vertical difference between the two portfolio “dots”. The impact on surplus risk, from active management, is generally small – as shown by the small difference in surplus risk (horizontally). This means – other things equal – that funds should generally have a higher tolerance for active risk if active risk is a secondary risk and the primary risk is surplus risk. (The same conclusion would be reached if a fund defined its primary risk in asset-only terms, ignoring the liabilities, because it generally takes a large amount of active risk to materially change the primary risk. This is less true for portfolios where the primary risk is lower, such as Basic. It would take less active risk to materially impact Basic, given its low level of surplus risk.)



Risk Management Policies

There are many potential standards that can be used to inform the risk management policies implemented by an investment organization, such as MPI.

A complete and comprehensive summary of what policies MPI should implement related to its active risk management would be a large undertaking – potentially covering risk measurement, risk management, and risk oversight. Here we offer three concepts to consider, where MPI might consider making these parameters explicit:

- **Risk appetite***: the amount and type of risk that MPI is able and willing to accept;
- **Risk tolerance***: the variation in outcomes that MPI can accept for a given risk, which may differ for different risks but should be clearly understood; and
- **Risk limits**: thresholds that should not be exceeded, based on MPI's risk appetite.

* *Appetite reflects the willingness to take on risk; tolerance reflects the ability to handle risk.*

One recently published standard related to investment risk is the *Guideline for Risk Management for Plan Administrators*, published by The Canadian Association of Pension Supervisory Authorities (CAPSA). This Guideline lists a few practices that certain defined benefit pension plans should follow. (The EFB or pension portfolio represents ~ 20% of MPI's assets.)³

The 10 items listed below, extracted from the CAPSA Guideline, describe **some** of the required practices for funds that adhere to the CAPSA Guideline. (These may be relevant to MPI's active management program, and again, this is not a complete list.)

1. **Risk Framework:** ... administrator should create a risk management framework to identify, evaluate, manage, and monitor material risks. ... administrator should review the ... framework regularly.
2. **Risk Identification:** Identifying the categories and level of investment risk that the ... administrator is willing or expected to take ... ensures that the ... SIP&P ... and ... strategies are consistent with ... objectives and overall risk appetite ...
3. **Risk Appetite, Risk Tolerance, and Risk Limits:** ... administrator should ... establish, in ... a written statement, an overall risk appetite, risk tolerance, and risk limits, and incorporate these into ... frameworks ...
4. **Risk Interactions:** Risk identification should ... examine the interaction between different risks and consider their interconnectedness.
5. **Risk Evaluation and Prioritization:** ... administrators should develop a process ... for evaluating and prioritizing the risks according to the overall threat ... and ... potential impact ...
6. **Risk Separation and Combination:** Risks should be considered separately and in combination.
7. **Risk Decisions:** ... administrator should determine the remaining (residual) risk, if any, based on their risk limits and decide whether to: accept the residual risk; avoid the risk; respond ... by implementing further mitigation measures; or transfer some or all of the risk ...
8. **Risk-based Limits:** Risk-based sensitivity limits ... link ... portfolio sensitivities to changes in key risk factors (e.g., market risk, interest rate

³ MPI confirmed in its response to CC(MPI) 1-81 that it is not required to follow the CAPSA guidelines.

risk, etc.). However, portfolio limits may be sufficient for plans with less complex ... strategies.

9. **Review:** Sensitivity limits should be reviewed periodically to ensure ... thresholds remain appropriate and provide for diversification and correlation among ... risk factors. Sensitivity limits should be consistent and applicable at different levels of authority ...
10. **Alternative Investments:** ... alternative investments, including private market equity and debt securities, derivatives and real assets transacted over-the counter, are ... vulnerable to misvaluation risk.

- b) The monitoring of tracking error is a leading practice. Such risk monitoring by the PUB and other stakeholders would enable them to better evaluate MPI's past performance relative to benchmark (value added) by measuring it on a risk-adjusted basis. The Information Ratio (IR), which measures the ratio of value added to tracking error, is an important metric. On a forward-looking basis, expected IRs are a key input in deciding how much risk to take, and where it is best taken (e.g., which asset classes). The higher the realized IR, other things equal, the more likely past performance is the result of skill rather than luck or randomness.

Some important questions that could be answered by monitoring tracking error are below.

1. **Tracking Error Level:** Is the level of tracking error too high, too low, or about right? This assessment should consider:
 - a. the total portfolio value added objective, gross and net of fees and other relevant costs;
 - b. the presumed skill at these levels:
 - i. total portfolio;
 - ii. asset class; and
 - iii. individual manager;
 - c. market opportunities to add value, based on assessments of:
 - i. market efficiency; and
 - ii. breadth;
 - d. correlation of the value added (not returns) across asset classes/strategies, and managers; and
 - e. the asset allocation policy (i.e., asset class benchmark weights).
2. **Tracking Error Allocation (Mix):** Is the total portfolio's tracking error too concentrated in certain asset classes or managers, or is the allocation of risk across the portfolio "optimal", given expected IRs and other key assumptions?
3. **Interaction with Surplus Risk:** Is the value added relative to benchmarks uncorrelated with the passive returns, or does the active risk – a secondary risk – increase (or decrease) surplus risk – the primary risk – more (or less) than expected?

Rationale for Refusal to Fully Answer the Question:

PUB (CC) 8

Part and Chapter:	CC-07 - V. Viola Performance Attribution Report Sept. 2025	Page #:	4
PUB Approved Issue Number:	8. Performance of the Investment Portfolio		
Topic:	Attribution Models		
Subtopic:	Risk Analysis		

Preamble (if any):

The Performance Attribution Report highlights the performance of the MPI portfolios of Basic Claims, RSR, and EFB Portfolio, respectively.

Question:

Please file a copy of the Excel working papers used in the evidence, with formulas intact.

Rationale for Question:

To review and assess the evidence.

Response:

The Excel file used in preparing Mr. Viola's report is attached with formulas intact. Please see *Attachment 1* to this response. The first tab (Help, in yellow) provides an overview of the contents of each tab.

Rationale for Refusal to Fully Answer the Question:

PUB (CC) 9

Part and Chapter:	CC-07 - V. Viola Performance Attribution Report Sept. 2025	Page #:	8
PUB Approved Issue Number:	8. Performance of the Investment Portfolio		
Topic:	Attribution Models		
Subtopic:	Risk Analysis		

Preamble (if any):

In evaluating the performance in 2024, the Performance Attribution Report references “troughing” which reflects an underperformance across all portfolios.

Question:

- a) Please elaborate on the specific asset allocation and overall security selection decisions that may have driven the underperformance?
- b) What are the key lessons MPI should take away from this period in ensuring its attribution framework and investment management best practices are robust and transparent?

Rationale for Question:

To understand the proposed use of attribution models for evaluation of Investment performance

Response:

- a) The asset allocation and security selection decisions that may have driven the underperformance in the three portfolios (Basic, RSR, and EFB) in 2024 are below.

The different performances across the three portfolios reflect various considerations, including differences in the asset mixes. e.g., The Basic Claims portfolio has only fixed

income asset classes and no equities, while both the RSR and EFB portfolios have equities as well as fixed income. (Equities are more volatile than fixed income.) Also, the benchmark returns of the asset classes within Basic are more highly correlated, since the asset classes in Basic include only fixed income asset classes and the returns on these different categories of bonds are highly correlated, unlike the broader asset classes in the RSR and EFB portfolios (i.e., equity and fixed income returns in the RSR and EFB portfolios are less correlated).

Basic Claims Portfolio

The Basic Claims portfolio underperformed by 52 bps. The attribution is below.

Basic												
Security/Sector Selection	Security/Sector Selection			Asset Allocation			Joint			Estimated	Reported	Adjustment
	w_B	α	$w_B \times \alpha$	r_B	Δw	$r_B \times \Delta w$	α	Δw	$\alpha \times \Delta w$			
BONDS - CORP	28%	0.41%	0.11%	5.56%	-0.07%	0.00%	0.41%	-0.07%	0.00%			
BONDS - GOVT	37%	-1.37%	-0.51%	1.21%	-1.19%	-0.01%	-1.37%	-1.19%	0.02%			
BONDS - NON MKTABLE	20%	-0.34%	-0.07%	1.22%	-0.33%	0.00%	-0.34%	-0.33%	0.00%			
BONDS - REAL RETURN	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
COMMERCIAL MORTGAGE FUND	5%	-0.84%	-0.04%	2.00%	0.05%	0.00%	-0.84%	0.05%	0.00%			
FLOATING RATE NOTES	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
REAL ESTATE-POOLED	10%	-0.45%	-0.05%	0.17%	-0.03%	0.00%	-0.45%	-0.03%	0.00%			
SHORT TERM	0%	0.56%	0.00%	4.79%	1.57%	0.08%	0.56%	1.57%	0.01%			
Total	100%		-0.55%		0.00%	0.05%		0.00%	0.03%			
			SS			AA			Joint	Adjustment	Total	
			105%			-10%			-5%	11%	100.00%	

Security Selection: 51 bps (97%) of the 52 bps underperformance came from security selection decisions in BONDS – GOVT, where the asset class underperformed the benchmark by 137 bps.

The -51 bps contribution to underperformance reflects the product of the 137 bps underperformance and benchmark weight of 37% (i.e., -51 bps = 37% x -137 bps).

Asset allocation: Asset allocation effects were small, reflecting small deviations (Δw) from the benchmark weights.

RSR Portfolio

The RSR portfolio underperformed by 268 bps. The attribution is below.

RSR										
	Security/Sector Selection			Asset Allocation			Joint			
	w_B	α	$w_B \times \alpha$	r_B	Δw	$r_B \times \Delta w$	α	Δw	$\alpha \times \Delta w$	
BONDS - GOVT	22%	-0.09%	-0.02%	2.71%	-0.33%	-0.01%	-0.09%	-0.33%	0.00%	
EQUITIES	28%	-6.30%	-1.76%	18.25%	0.34%	0.06%	-6.30%	0.34%	-0.02%	
FLOATING RATE NOTES	0%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
INFRASTRUCTURES	11%	-5.29%	-0.58%	7.09%	-0.36%	-0.03%	-5.29%	-0.36%	0.02%	
PRIVATE DEBTS	23%	0.24%	0.05%	5.61%	-4.02%	-0.23%	0.24%	-4.02%	-0.01%	
REAL ESTATE-POOLED	16%	1.24%	0.20%	0.15%	0.81%	0.00%	1.24%	0.81%	0.01%	
SHORT TERM	0%	-0.18%	0.00%	4.91%	3.56%	0.17%	-0.18%	3.56%	-0.01%	
Total	100%		-2.11%		0.00%	-0.02%		0.00%	-0.01%	
										Estimated Reported Adjustment
										-2.14% -2.68% -0.53%
			SS		AA		Joint	Adjustment	Total	
			79%		1%		0%	20%	100.00%	

Security Selection: 176 bps (66%) of the 268 bps underperformance came from security selection decisions in EQUITIES, where the asset class underperformed the benchmark by 630 bps.

58 bps (22%) of the 268 bps underperformance came from INFRASTRUCTURE, where the asset class underperformed the benchmark by 529 bps.

Asset Allocation: Asset allocation effects were small. The cost of being 4.0% underweight in PRIVATE DEBTS was largely offset by the benefit of being 3.6% overweight in SHORT TERM.

EFB Portfolio

The EFB portfolio underperformed by 300 bps. The reasons for the underperformance are similar to those noted above for the RSR portfolio. The attribution is below.

EFB										
	Security/Sector Selection			Asset Allocation			Joint			
	w_B	α	$w_B \times \alpha$	r_B	Δw	$r_B \times \Delta w$	α	Δw	$\alpha \times \Delta w$	
BONDS - CORP	16%	0.73%	0.12%	6.05%	-2.86%	-0.17%	0.73%	-2.86%	-0.02%	
EQUITIES	34%	-5.94%	-2.02%	18.44%	2.66%	0.49%	-5.94%	2.66%	-0.16%	
INFRASTRUCTURES	23%	-6.38%	-1.47%	7.13%	-0.54%	-0.04%	-6.38%	-0.54%	0.03%	
PRIVATE DEBTS	17%	3.04%	0.52%	1.30%	0.87%	0.01%	3.04%	0.87%	0.03%	
REAL ESTATE-POOLED	10%	0.46%	0.05%	0.16%	-0.16%	0.00%	0.46%	-0.16%	0.00%	
SHORT TERM	0%	-0.50%	0.00%	4.93%	0.02%	0.00%	-0.50%	0.02%	0.00%	
Total	100%		-2.81%		0.00%	0.29%		0.00%	-0.12%	
										Estimated Reported Adjustment
										-2.64% -3.00% -0.36%
			SS		AA		Joint	Adjustment	Total	
			94%		-10%		4%	12%	100.00%	

Security Selection: 202 bps (67%) of the 300 bps underperformance came from security selection decisions in EQUITIES, where the asset class underperformed the benchmark by 594 bps.

147 bps (49%) of the underperformance came from INFRASTRUCTURE, where the asset class underperformed the benchmark by 638 bps.

Asset Allocation: Asset allocation effects were positive, but small. The benefit of being 2.7% overweight in EQUITIES (which outperformed other asset classes) offset the cost of being 2.9% underweight in BONDS - CORP.

- b) The 2024 Fiscal Year was a period of underperformance relative to benchmark in all three portfolios – Basic Claims, RSR, and EFB. However, it is important to remember that the performance – whether it is positive or negative – in any single year is less informative than the longer-term trend (e.g., 4+ years).

The illustrative attribution reporting in the paper did not look more deeply at the “quality” or reliability of the value added metrics themselves, which depends on the appropriateness of the benchmarks assigned and MPI’s valuation practices (which impact actual returns) related to private market assets (e.g., private real estate and private infrastructure).

Rationale for Refusal to Fully Answer the Question:

PUB (CC) 10

Part and Chapter:	CC-07 - V. Viola Performance Attribution Report Sept. 2025	Page #:	9
PUB Approved Issue Number:	8. Performance of the Investment Portfolio		
Topic:	Attribution Models		
Subtopic:	Risk Analysis		

Preamble (if any):

The attribution table includes adjustments [residuals] for each period, which the Performance Attribution Report, attributes to the use of a simplified model. The residual adjustments are higher in the RSR and EFB portfolios, which raises concerns that the simplified approach that MPI uses does not fully capture the performance drivers of portfolios.

Question:

- a) Please explain what factors may lead to the residual adjustments [unexplained variances] being materially higher for the RSR portfolio and EFB portfolio compared to the Claims portfolio.
- b) Please explain why the relative residual adjustment for the RSR portfolio is double that of the EFB portfolio.
- c) Please explain how more frequent (monthly) measurements would address the residual effect.
- d) Please provide an illustrative example of how using monthly data might eliminate or reduce residual adjustments.
- e) What steps should MPI take to adopt a best-in-class framework, such as the Brinson-Fachler model, and how would implementing this methodology help MPI better understand and manage both the attribution error and the portfolio overall tracking error and residual risk?

Rationale for Question:

To understand the proposed use of attribution models for evaluation of investment performance.

Response:

- a) The table below summarizes the factors that may cause the residual adjustments (unexplained variances) to be higher for the RSR portfolio and EFB portfolio compared to the Basic Claims portfolio. These adjustments arise because the “true” market value weights vary within a period (e.g., year, quarter, or month) but the performance attribution approach illustrated in the Performance Attribution paper used a single set of year-end weights (i.e., they were very infrequent) and did not “continuously rebalance” throughout each measurement period.

These factors, described below, include: Policy Asset Mix; Benchmark Portfolio Volatilities; Asset Class Correlations; and Active Share⁴.

Factor	Impact
Policy Asset Mix	RSR and EFB portfolios have more equities, which are more volatile than bonds.
Benchmark Portfolio Volatilities	
Asset Class Correlations	RSR and EFB portfolios include assets (e.g., equities) whose returns are less correlated with fixed income.
Active Share (Tactical Asset Allocation + Asset Mix Drift)	RSR and EFB portfolios will tend to have more asset mix “drift” within a period (and therefore more asset allocation effects, other things equal), given: <ul style="list-style-type: none"> - the higher allocation to private market assets (whose valuations are updated with a lag and which do not accurately measure the true market values); and

⁴ Active share, measured at the **asset class** (not security) level, is the sum of absolute differences between a portfolio’s asset class weights and the weights of its benchmark, all divided by two. (A portfolio that has no deviation from its benchmark weight has an active share of 0%.)

	- larger range in asset class returns (i.e., equities vs bonds performance).
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b) The relative residual adjustment for the RSR portfolio is generally bigger than the EFB portfolio because the asset allocation (AA) effect is generally a larger component of the value added in the RSR portfolio, as shown below.

	RSR			EFB			RSR/EFB Ratio
	AA	Alpha	AA/Alpha	AA	Alpha	AA/Alpha	
2022	1.42%	1.63%	87%	1.31%	1.81%	73%	1.2
2023	0.70%	0.61%	115%	1.31%	2.24%	58%	2.0
2024	-0.02%	-2.68%	1%	0.29%	-3.00%	-10%	-0.1
2025	-0.19%	0.89%	-22%	0.16%	3.57%	4%	-5.1
Average	0.48%	0.11%	45%	0.77%	1.16%	31%	1.4

e.g., The RSR’s AA effect in 2022 was 142 bps, representing 87% of the value added or alpha. In that year, the EFB’s AA effect was 131 bps, representing only 73% of the EFB’s alpha. The RSR’s AA effect was therefore 20% higher than the ratio for EFB in 2022 (1.2 = 87%/73%). The bottom line shows that, on average, the RSR’s AA effect has been 40% higher than the EFB’s AA effect over the 4-year period.

For completeness, the table below summarizes various metrics that might help explain the difference in the size of the adjustments over the 4-year period for the RSR and EFB portfolios. These include the standard deviation and range in benchmark returns in each period for the various asset classes (market factor), benchmark allocation to private assets (Infrastructure, Real Estate, and Private Debt), and asset allocation positioning (active share).

2022	RSR		EFB	RSR/EFB Ratio	2024	RSR		EFB	RSR/EFB Ratio
	RSR	EFB				RSR	EFB		
SS	1.22%	0.95%			SS	-2.11%	-2.31%		
AA	1.42%	1.31%			AA	-0.02%	0.29%		
Joint	0.27%	0.12%			Joint	-0.01%	-0.12%		
Sub-total	2.92%	2.38%			Sub-total	-2.14%	-2.64%		
Adjustment	-1.29%	-0.57%			Adjustment	-0.53%	-0.36%		
Alpha	1.63%	1.81%			Alpha	-2.68%	-3.00%		
Adjustment/Alpha	-79%	-31%		2.5	Adjustment/Alpha	20%	12%		1.7
AA/Alpha	87%	73%		1.2	AA/Alpha	1%	-10%		-0.1
INF + RE + PD	35%	45%		0.8	INF + RE + PD	50%	50%		1.0
SD of Bench Returns	7%	8%		0.9	SD of Bench Returns	6%	7%		1.0
Range of Bench Returns	17%	17%		1.0	Range of Bench Returns	18%	18%		1.0
Active Share	11%	8%		1.3	Active Share	2%	4%		0.5

2023	RSR		EFB	RSR/EFB Ratio	2025	RSR		EFB	RSR/EFB Ratio
	RSR	EFB				RSR	EFB		
SS	1.80%	2.12%			SS	0.79%	3.58%		
AA	0.70%	1.31%			AA	-0.19%	0.16%		
Joint	-0.78%	-0.77%			Joint	-0.11%	0.14%		
Sub-total	1.73%	2.66%			Sub-total	0.49%	3.87%		
Adjustment	-1.11%	-0.42%			Adjustment	0.40%	-0.29%		
Alpha	0.61%	2.24%			Alpha	0.89%	3.57%		
Adjustment/Alpha	-182%	-19%		9.8	Adjustment/Alpha	45%	-8%		-5.5
AA/Alpha	115%	58%		2.0	AA/Alpha	-22%	4%		-5.1
INF + RE + PD	35%	45%		0.8	INF + RE + PD	50%	50%		1.0
SD of Bench Returns	3%	6%		0.6	SD of Bench Returns	4%	4%		1.0
Range of Bench Returns	10%	16%		0.6	Range of Bench Returns	11%	11%		1.0
Active Share	8%	10%		0.7	Active Share	2%	4%		0.4

- c) More frequent (e.g., monthly) measurements would address the residual effect, in part, by reducing the difference between the actual portfolio weights used in the attribution approach and the “true” weights within the period. The response to question d), below, provides an example.
- d) As requested, this response provides an *illustrative example* of concepts explained elsewhere in these responses and in Mr. Viola’s report.

The illustrative example below explains how using monthly data might reduce – but not completely eliminate – residual adjustments. In developing this response, we asked ChatGPT the following question:

Explain how increasing the frequency (e.g., from annual to monthly) can reduce the mismatch between i) the additive performance attribution component effects and ii) the reported total value added when explaining the value added relative to a benchmark in terms of asset allocation effects, security selection effects, and possibly other effects. Include a simple example to show the reduced mismatch when increasing the frequency from annual to monthly.

The response from ChatGPT, which Mr. Viola has reviewed and adopted as accurate and reliable, consistent with his duties as an independent expert, is summarized in the box below. The ChatGPT response clearly explains why residual adjustments fall with increased measurement frequency.

You’re asking about one of the subtle but very practical issues in performance attribution: why higher-frequency attribution (monthly vs. annual) tends to shrink the “residual” mismatch between the **additive attribution components** (allocation, selection, interaction, etc.) and the **reported total value-added**.

Why frequency matters

1. **Attribution is additive, but returns compound.**
Active return over a year is not exactly equal to the sum of the month-by-month active returns, because compounding introduces interaction terms across time.
2. **Shorter periods reduce compounding distortion.**
When you break the year into smaller chunks (e.g., months), the

return differences between portfolio and benchmark each month are smaller, so the *cross-terms* from compounding are also smaller. That makes the sum of additive effects over months much closer to the reported total active return for the year.

3. **Residual shrinks as horizon shrinks.**

The difference between arithmetic summing and geometric compounding is approximately proportional to the *square* of the return differences. With smaller, more frequent periods, the return differences are smaller in magnitude, so the mismatch shrinks.

Example: Annual vs. Monthly

Let's take a very simple case — a portfolio and a benchmark over one year.

Portfolio monthly returns: +2% each month

Benchmark monthly returns: +1% each month

Step 1: Compute total active return (reported)

- Benchmark total return = $(1.01)^{12} - 1 = 12.68\%$
- Portfolio total return = $(1.02)^{12} - 1 = 26.82\%$
- **Total active return = 26.82% - 12.68% = 14.14%**

This is what the client sees: +14.14%.

Step 2: Annual attribution (one-period)

Suppose we try to do a one-period attribution using annual returns:

- Annual benchmark return = 12.68%
- Annual portfolio return = 26.82%
- "One-period active return" = 14.14%

If we now try to attribute this additively across allocation/selection etc., we're using big numbers (12.68% vs 26.82%). Because the Brinson formulas are linear, they don't naturally reconcile with the compounded annual total, so a **residual** will appear unless you explicitly include geometric adjustments.

Step 3: Monthly attribution (12 periods)

Now compute month by month:

- Each month: Portfolio active return = 2% - 1% = 1.00%
- Sum of 12 monthly active returns (arithmetic addition) = 12.00%

Compare:

- Reported total active return = 14.14%
- Sum of monthly arithmetic actives = 12.00%
- **Residual = 2.14%**

Notice the mismatch (2.14%) is much smaller than if we tried to attribute directly at the annual level (where the residual would be the full geometric effect, hidden inside the 14.14%).

If you went to **daily attribution**, the per-day return differences might be ~0.05% instead of 1%. Then the residual after compounding could shrink to just a few basis points over the year.

Intuition

- At **annual frequency**, compounding and cross-effects are large → attribution mismatch is large.
- At **monthly frequency**, the mismatch shrinks because returns are smaller and compounding distortions are reduced.
- At **daily frequency**, the mismatch becomes almost negligible, since the sum of tiny daily actives very nearly equals the compounded total active return.

✅ **Takeaway:** Increasing the frequency of attribution reduces the size of the residual mismatch between additive attribution components and the reported total value-added, because it minimizes compounding distortions.

The Consumers Coalition confirms that the use of generative artificial intelligence in the preparation of the illustrative example provided in this response complies with both the Manitoba Court of King's Bench Practice Direction on the Use of Artificial Intelligence in Court Submissions (23 June 2023)⁵ and the Law Society of Manitoba's Guidelines for the use of generative artificial intelligence in the practice of law (April 2024).⁶

⁵ https://www.manitobacourts.mb.ca/site/assets/files/2045/practice_direction_-_use_of_artificial_intelligence_in_court_submissions.pdf

⁶ <https://educationcentre.lawsociety.mb.ca/wp-content/uploads/sites/2/2024/04/Generative-Artificial-Intelligence-Guidelines-for-Use-in-the-Practice-of-Law.pdf>

- e) A decision by MPI to adopt any framework – whether the framework relates to performance attribution or risk – should consider the net benefits of doing so. This means taking into consideration such factors as the costs (and risks) of implementing and maintaining such frameworks, and not just the expected benefits. The first step, then, is for MPI to consider the costs and risks of adopting more robust approaches.

As noted by CAPSA, for example, in its recently published Guideline related to risks, some concepts may not be applicable or feasible for all organizations and that applications may differ from one organization to another. CAPSA also encourages Plan administrators to adapt their risk management practices to reflect the plan's investment beliefs, specific circumstances, and risks.

Another important thing to note is that there are diminishing returns to implementing increasingly robust approaches. Another way of saying this is that the biggest benefits may come from the initial adoption of an approach that is "good enough" to satisfy its purpose, while being affordable.

Different approaches are likely to provide broadly similar insights, provided each approach that is considered is reasonably robust.

Rationale for Refusal to Fully Answer the Question:

PUB (CC) 11

Part and Chapter:	CC-07 - V. Viola Performance Attribution Report Sept. 2025	Page #:	11
PUB Approved Issue Number:	8. Performance of the Investment Portfolio		
Topic:	Attribution Models		
Subtopic:	Return		

Preamble (if any):

The Performance Attribution Report speaks to the Basic Claims Portfolio for 2022, noting that security selection accounted for 90% of the outperformance while asset allocation contributed only 4%.

Question:

Please explain why the asset allocation contribution for the Basic Claims Portfolio was so low in 2022. Was this result due to a specific investment strategy or market conditions?

Rationale for Question:

To understand Basic portfolio performance underlying causes.

Response:

The **asset allocation** contribution for the Basic Claims Portfolio was proportionately lower in 2022 (4% of the value added) compared to other effects (e.g., security selection) because the **security selection effect was particularly larger** that year. This can be seen in the summary table below and the detailed table that follows.

The first two columns in the summary table below show the market conditions, as measured by the standard deviation (SD) and range of **benchmark** returns in 2022 and the subsequent years.

The asset mix positioning, as measured by active share, is shown in the third column.

While the first two columns show reasonably stable return ranges (best vs worst performing asset classes), the active share (third column) shows that the deviations vs the benchmark weights were highest in 2022 and that they generally fell over time.

The right panel (Performance Attribution) shows the asset allocation effect **falling in absolute terms** (from 14 bps in 2022 to 1 bp in 2025), which is consistent with a falling active share trend.

Summary

	Market Returns		Positioning	Performance Attribution				
	SD of Bench Returns	Range of Bench Returns	Active Share	Asset Allocation	Security/Sector Selection	Joint	Adjustment	Alpha
2022	2.6%	5.5%	10.6%	0.14%	2.92%	0.18%	-0.03%	3.22%
2023	3.0%	6.3%	7.6%	0.14%	0.90%	0.19%	0.06%	1.30%
2024	2.2%	5.6%	1.6%	0.05%	-0.55%	0.03%	-0.06%	0.52%
2025	2.7%	7.0%	1.8%	0.01%	-0.24%	0.00%	-0.07%	0.29%

While the active share was high in 2022, as shown in the Δw column of the detailed table below, the large underweight in BONDS – GOVT (~ -11%) had very similar **benchmark** returns as the overweighted asset classes, which were: i) BONDS – CORP (~ +4% overweight); and ii) BONDS – NON MKTABLE (~ +4% overweight). These asset allocation effects were largely offsetting, resulting in a small total asset allocation effect from these deviations in 2022 (+14 bps).

Details

	Security/Sector Selection			Asset Allocation			Joint			Adjustment	Alpha Reported
	w_s	α	$w_s \times \alpha$	r_s	Δw	$r_s \times \Delta w$	α	Δw	$\alpha \times \Delta w$		
2022											
BONDS - CORP	20.00%	0.39%	0.08%	-5.26%	3.76%	-0.20%	0.39%	3.76%	0.01%		
BONDS - GOVT	60.00%	-1.76%	1.06%	-4.90%	-10.60%	0.52%	1.76%	-10.60%	-0.19%		
BONDS - NON MKTABLE	20.00%	8.93%	1.79%	-4.68%	4.02%	-0.19%	8.93%	4.02%	0.36%		
BONDS - REAL RETURN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
COMMERCIAL MORTGAGE FUND	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
FLOATING RATE NOTES	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
REAL ESTATE-POOLED	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
SHORT TERM	0.00%	-0.18%	0.00%	0.27%	2.81%	0.01%	-0.18%	2.81%	-0.01%		
Total	100.00%		2.92%		0.00%	0.14%		0.00%	0.18%	-0.03%	3.22%
2023											
BONDS - CORP	20.00%	0.14%	0.03%	-2.71%	4.40%	-0.12%	0.14%	4.40%	0.01%		
BONDS - GOVT	60.00%	-1.13%	-0.68%	-3.26%	-7.63%	0.25%	-1.13%	-7.63%	0.09%		
BONDS - NON MKTABLE	20.00%	7.78%	1.56%	-3.61%	1.18%	-0.04%	7.78%	1.18%	0.09%		
BONDS - REAL RETURN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
COMMERCIAL MORTGAGE FUND	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
FLOATING RATE NOTES	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
REAL ESTATE-POOLED	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
SHORT TERM	0.00%	0.01%	0.00%	2.72%	2.04%	0.06%	0.01%	2.04%	0.00%		
Total	100.00%		0.90%		0.00%	0.14%		0.00%	0.19%	0.06%	1.30%
2024											
BONDS - CORP	28.00%	0.41%	0.11%	5.56%	-0.07%	0.00%	0.41%	-0.07%	0.00%		
BONDS - GOVT	37.00%	-1.37%	-0.51%	1.21%	-1.19%	-0.01%	-1.37%	-1.19%	0.02%		
BONDS - NON MKTABLE	20.00%	-0.34%	-0.07%	1.22%	-0.33%	0.00%	-0.34%	-0.33%	0.00%		
BONDS - REAL RETURN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
COMMERCIAL MORTGAGE FUND	5.00%	-0.84%	-0.04%	2.00%	0.05%	0.00%	-0.84%	0.05%	0.00%		
FLOATING RATE NOTES	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
REAL ESTATE-POOLED	10.00%	-0.45%	-0.05%	0.17%	-0.03%	0.00%	-0.45%	-0.03%	0.00%		
SHORT TERM	0.00%	0.56%	0.00%	4.79%	1.57%	0.08%	0.56%	1.57%	0.01%		
Total	100.00%		-0.55%		0.00%	0.05%		0.00%	0.03%	-0.06%	-0.52%
2025											
BONDS - CORP	28.00%	0.32%	0.09%	9.83%	1.02%	0.10%	0.32%	1.02%	0.00%		
BONDS - GOVT	35.00%	-1.09%	-0.38%	9.05%	-0.51%	-0.05%	-1.09%	-0.51%	0.01%		
BONDS - NON MKTABLE	18.00%	1.40%	0.25%	7.50%	-0.93%	-0.07%	1.40%	-0.93%	-0.01%		
BONDS - REAL RETURN	4.00%	0.68%	0.03%	9.34%	-0.01%	0.00%	0.68%	-0.01%	0.00%		
COMMERCIAL MORTGAGE FUND	5.00%	0.28%	0.01%	8.26%	0.04%	0.00%	0.28%	0.04%	0.00%		
FLOATING RATE NOTES	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
REAL ESTATE-POOLED	10.00%	-2.37%	-0.24%	2.79%	-0.40%	-0.01%	-2.37%	-0.40%	0.01%		
SHORT TERM	0.00%	-0.08%	0.00%	4.57%	0.78%	0.04%	-0.08%	0.78%	0.00%		
Total	100.00%		-0.24%		0.00%	0.01%		0.00%	0.00%	-0.07%	-0.29%

Rationale for Refusal to Fully Answer the Question:

PUB (CC) 12

Part and Chapter:	CC-07 - V. Viola Performance Attribution Report Sept. 2025	Page #:	15
PUB Approved Issue Number:	8. Performance of the Investment Portfolio		
Topic:	Attribution Models		
Subtopic:	Risk Analysis		

Preamble (if any):

Modern portfolio theory requires that return analysis be conjoined with risk analysis. While this report focuses only on alpha, robust models would integrate tracking error and other risk measures to provide a more comprehensive evaluation.

Question:

- a) Please describe how the risk analysis would be incorporated in the attribution model and interact with the results and describe how MPI should utilize the results.
- b) Please list the robust models that Mr. Viola is aware of that should be considered in evaluation of investment performance.
- c) Please indicate what would be considered an appropriate reporting cadence for performance measurement utilizing the attribution process.
- d) As a best practice, how should MPI integrate risk analysis with its performance attribution, and what specific risk tolerance policies are recommended to govern acceptable tracking error levels in their portfolios?

Rationale for Question:

To understand the proposed use of attribution models for evaluation of investment performance

Response:

- a) Active risk analysis should be integrated with the value added analysis by comparing realized IRs with expected or target IRs at appropriate levels, such as: total portfolio; asset class; and manager.

MPI and other stakeholders could use these results to inform their confidence about the sources of risk-adjusted returns (e.g., skill vs luck or randomness) and the “quality” or reliability of the various metrics (e.g., related to private market valuations and their corresponding returns, as well as the quality of private market benchmarks).

For context, stakeholders could use a set of “IR Standards” to help inform their assessments of past performance. The table below, for example, shows the IRs that are consistent with various percentile performances, where IRs are expressed before costs (gross) and the median value added is assumed to be zero. (Another assumption is that value added is normally distributed around the mean/median return of 0% before costs.)

The final column shows the total portfolio risk target for a fund that seeks 100 bps of value added (gross) at the total portfolio level. e.g., A Top Quartile fund that seeks 100 bps of value added should take an average of 150 bps of tracking error.

Performance	Outperform Comparable Peers⁷	IR	Total Portfolio Risk Target
Top Decile	90%	~ 1.30	~ 75 bps
Top Quartile	75%	~ 0.67	~ 150 bps
Top Third	67%	~ 0.40	~ 250 bps
Median	50%	0.00	n/a

- b) Mr. Viola implemented the performance attribution system when he was an analyst at Ontario Teachers' Pension Plan in the early 1990s. The principles underlying that work remain relevant and applicable today and have informed Mr. Viola's report and these Information Request responses. However, Mr. Viola's professional practice today does not involve hands-on preparation of performance attribution reporting or assessment of such reports. A comprehensive response to this question would require Mr. Viola to undertake additional research to identify and assess specific models that are on the market today. This would require additional research which is outside the scope of Mr. Viola's engagement with the Consumers Coalition in this process.
- c) An appropriate reporting cadence for performance attribution is to match the frequency of the performance (value added) reporting. i.e., If value added is reported quarterly (though measured monthly), then attribution of that value added should match that time frame as well (measure monthly, report quarterly).
- d) As a best practice, MPI should integrate its active risk analysis with its value added analysis (including attribution). For example, MPI could compare its realized value added (alpha), tracking error, and realized IRs (alpha/tracking error) to any targets, expectations, and limits that may have been set in

⁷ e.g., A top decile (10%) fund outperforms a "comparable peer" 90% of the time (90% = 100 - 10%). A "comparable peer" is a fund that has the same constraints, asset mix, etc. The IRs shown here are consistent with a normal distribution that has a mean value added of 0% before fees. The IRs could be described as "z-scores" in a statistical sense. (When implementing an approach such as this, some rounding of IRs may be used to simplify calculations and/or address certain issues - such as "fat tails".)

advance. (A total portfolio risk target and/or limit might be approved by the MPI Board, say, while any targets at the asset class levels might be developed by Management and simply disclosed to the MPI Board via regular reporting, including sufficient transparency related to the methods used for aggregating and measuring risks).

The specific active risk tolerance policy that could be implemented to govern the acceptable tracking error levels in the portfolio should focus on the total portfolio primarily, but also include transparency at the asset class level.

Rationale for Refusal to Fully Answer the Question: