November 14, 2018

Stephen Cavanagh
Chair, Civil Rules Subcommittee
Review of Rules 53.09 and 53.10
Cavanagh LLP
400 – 411 Roosevelt Avenue
Ottawa, Ontario
K2A 3X9

Dear Mr. Cavanagh,

Thank you for your letter of May 17, 2018 to Michel Simard, and your invitation to the Canadian Institute of Actuaries (CIA) to provide input to the quadrennial review of the discount rates mandated under Rules 53.09 and 53.10.

Our submission is attached. Our key recommendations are as follows:

1. That the current two-tier structure of the discount rate be maintained, with the second rate in the structure remaining fixed at a real rate of 2.50%.
2. That the review interval for the mandated discount remain at four years.
3. That the discount rate be fixed without assumptions as to how claimants invest damages awards.
4. That the prejudgment interest rate for non-pecuniary damages on other than motor vehicle accidents be made consistent with pecuniary damages and with non-pecuniary damages on motor vehicle accidents.

Thank you for taking the time to review our submission. If you have any questions, please do not hesitate to contact Chris Fievoli, the CIA's resident actuary, at (613) 656-1927 or chris.fievoli@cia-ica.ca.

Yours truly,

[original signature on file]

John Dark, FCIA
CIA President

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Submission of the Canadian Institute of Actuaries to the Civil Rules Subcommittee for the Quadrennial Review of Rules 53.09 and 53.10 per s. 66(4) of the Courts of Justice Act.

I. Introduction

The Canadian Institute of Actuaries (CIA) is the national, bilingual organization and voice of the actuarial profession in Canada. Its members are dedicated to providing actuarial services and advice of the highest quality. The Institute holds the duty of the profession to the public above the needs of the profession and its members.

We serve both the public interest and our members by

- Establishing and maintaining professional guidance, quality education, validation of eligibility, and continuing professional development requirements;
- Conducting relevant research;
- Maintaining a code of conduct and a disciplinary process of the highest standard; and
- Making meaningful and timely contributions to public policy.

With regard to the issue at hand, our goals are to make a meaningful and timely contribution to public policy, and to provide relevant research in support of government decisions.

II. Terminology

To actuaries, the word "prescribed" has two possible meanings. Discount rates are *prescribed* by legislation. Other actuarial assumptions may be *prescribed* by the CIA Standards of Practice. To avoid confusion, actuaries generally refer to assumptions being *mandated* when prescribed by legislation and *prescribed* when prescribed by their professional standards of practice. We have adopted this convention in this submission, and therefore refer to mandated discount rates.

"Nominal" rates refer to the rates of return on investments.

"Real" rates refer to the difference between the investment rate of interest and the rate of increase in earnings and/or price inflation.

III. Actuaries' Contribution to the Civil Litigation Process

Actuaries apply their specialized knowledge in mathematics of finance, statistics, contingencies, and risk theory to problems faced by pension plans, government regulators, insurance companies and other financial institutions, social programs, and individuals.

Of specific relevance here, actuaries regularly play a key role in civil litigation by assisting counsel in the quantification of pecuniary damages. We assist the parties and the court by opining on the value of pecuniary losses resulting from matters such as bodily injury, death, or wrongful dismissal. We determine the present value of lost past and future earnings, lost pension and other benefits, lost valuable services, and the cost of future care. In serving as expert witnesses, actuaries' professional standards of practice require us to act in an independent, unbiased, non-partisan manner.

In determining the lump sum present value of losses, the actuary must make assumptions concerning expected mortality and disability patterns and future economic conditions, and sometimes also concerning future earnings levels and future pension accruals.

Professional standards of practice require that the actuary comply with any applicable laws and regulations. For this reason, the actuary will use legally-mandated assumptions where they exist. In the absence of mandated assumptions, the actuary will determine and use assumptions that are, in the opinion of the actuary, appropriate for the matter at hand.

IV. Evolution of the Economic Environment

The CIA, in the course of its regular activities, observes key economic factors and produces an annual Report on Canadian Economic Statistics. In the early 1980s, when many of Canada's mandated discount rates were developed, both nominal rates of return and inflation rates were much higher than today.

Table 1 below presents nominal long-term Government of Canada bond yields, in column [2], and annual changes in the consumer price index (CPI) in column [3]. The "real" bond yield, in column [4], is shown as the bond yield adjusted for the change in the CPI. Column [5] shows the real bond yield, averaged over the previous 15 years.

For more than 25 years, inflation rates have been low and relatively stable. In 1991, Canada became the second country in the world (after New Zealand) to adopt an inflation-targeting framework for its central bank monetary policy. The framework has been reviewed and renewed on a regular basis, most recently in 2016. The next review will occur in 2021. Since 1995, the Bank of Canada's goal has been to keep the CPI close to 2% and within the control range of 1% to 3%. For the most part, that has been achieved on a consistent basis. Nominal interest rates have also decreased materially since the early 1980s. For example, the Government of Canada benchmark long-term bond yield (series V122544) was only 2.4% in September 2018.

V. Considerations Other than Actuarial/Economic Factors

The determination of the mandated discount rate is influenced both by technical actuarial/economic analysis and a number of other considerations, such as the following:

- Equity between the parties;
- Protection of the interests of possibly financially unsophisticated plaintiffs/victims;
- Control of insurance claims costs;
- Recognition (or not) of potential future "productivity" effects; and
- Recognition (or not) of investment management costs.

Such considerations are valid reasons for diverging from an unbiased estimate of future real returns—the "actuarially or economically correct" rate.

Table 1: Government of Canada Bond Yields and Total CPI

[1] Year	[2] Long-Term Government of Canada Bond Yield[1]	[3] Yr-over-Yr Increase in the Total CPI[2]	[4] Real Return[3]	[5] 15-Year Real Return[4]
1977	9.22%	9.40%	-0.16%	
1978	9.95%	8.60%	1.24%	
1979	11.60%	9.76%	1.68%	
1980	13.04%	11.06%	1.78%	
1981	15.52%	12.12%	3.03%	
1982	11.92%	9.27%	2.43%	
1983	12.29%	4.59%	7.36%	
1984	11.99%	3.72%	7.97%	
1985	9.99%	4.40%	5.35%	
1986	8.90%	4.21%	4.50%	
1987	10.29%	4.19%	5.85%	
1988	10.00%	3.88%	5.89%	
1989	9.37%	5.26%	3.90%	
1990	10.40%	4.99%	5.15%	
1991	9.00%	3.75%	5.06%	4.05%
1992	8.36%	2.17%	6.06%	4.47%
1993	7.28%	1.65%	5.54%	4.76%
1994	9.13%	0.23%	8.88%	5.23%
1995	7.63%	1.74%	5.79%	5.51%
1996	7.09%	2.16%	4.83%	5.63%
1997	5.95%	0.78%	5.13%	5.81%
1998	5.23%	1.00%	4.19%	5.60%
1999	6.23%	2.63%	3.51%	5.30%
2000	5.56%	3.20%	2.29%	5.10%

[1] Bank of Canada benchmark yield for long-term Government of Canada bonds (series V122544) as of December of each year shown (as of September 2018; December is not yet available).

[2] Average Pct Increase in total CPI for each calendar year (Sept. 2017 to Sept. 2018; December is not yet available).

[3] $\{1 + [2]\}/\{1 + [3]\} - 1$

[4] $(\{1 + [4]_{(Year-14)}\} \times \{1 + [4]_{(Year-13)}\} \times \ldots \times \{1 + [4]_{Year}\})^{(1/15)} - 1$

2001	5.69%	0.72%	4.93%	5.12%
2002	5.42%	3.80%	1.56%	4.83%
2003	5.20%	2.08%	3.06%	4.64%
2004	4.92%	2.13%	2.73%	4.57%
2005	4.02%	2.09%	1.89%	4.35%
2006	4.10%	1.67%	2.39%	4.17%
2007	4.18%	2.38%	1.76%	3.88%
2008	3.45%	1.16%	2.26%	3.66%
2009	4.07%	1.32%	2.71%	3.26%
2010	3.54%	2.35%	1.16%	2.95%
2011	2.50%	2.30%	0.20%	2.64%
2012	2.37%	0.83%	1.53%	2.40%
2013	3.20%	1.24%	1.94%	2.26%
2014	2.33%	1.47%	0.85%	2.08%
2015	2.16%	1.61%	0.54%	1.96%
2016	2.34%	1.50%	0.83%	1.69%
2017	2.20%	1.87%	0.32%	1.61%
2018	2.40%	2.20%	0.20%	1.42%

VI. How the Ontario Mandated Discount Rate is Applied in Practice

The Ontario mandated discount rate is composed of two tiers, illustrated below for trials beginning in 2018.

The first tier, based on an adjusted yield on Government of Canada real return bonds from the six months March through August of 2017, is a real discount rate of 0.10% for trials commenced in 2018. The second tier, which is constant regardless of the year in which the trial begins, is 2.50%.

The first tier is responsive to economic conditions near the time of trial. The second tier brings stability by anticipating a reversion during the years after trial to a long-term real discount rate of 2.50%.

Table 2 below illustrates how this rule is applied with respect to payments made in a given calendar year. For payments made any time through the first 15 years after trial, the real discount rate is 0.10%. For payments made in any subsequent years, the annual real discount rate is a blend of 0.10% for the first 15 years after the beginning of trial, and 2.50% for each year subsequent to the first 15 years.

Table 2: Ontario Mandated Real Discount Rate by Year of Payment, Trials Beginning in 2018

[1] Payment Year	[2] Years since Trial Began	[3] Blended Discount Rate for Payments Made in Year [1][5]
2018	1	0.10%
2019	2	0.10%
2020	3	0.10%
2021	4	0.10%
2022	5	0.10%
2023	6	0.10%
2024	7	0.10%
2025	8	0.10%
2026	9	0.10%
2027	10	0.10%
2028	11	0.10%
2029	12	0.10%
2030	13	0.10%
2031	14	0.10%
2032	15	0.10%
2033	16	0.25%
2034	17	0.38%
2035	18	0.50%
2036	19	0.60%
2037	20	0.69%

[1] Payment Year	[2] Years since Trial Began	[3] Blended Discount Rate for Payments Made in Year [1][5]
2038	21	0.78%
2039	22	0.86%
2040	23	0.93%
2041	24	0.99%
2042	25	1.05%
2043	26	1.11%
2044	27	1.16%
2045	28	1.21%
2046	29	1.25%
2047	30	1.29%
2048	31	1.33%
2049	32	1.37%
2050	33	1.40%
2051	34	1.43%
2052	35	1.46%
2053	36	1.49%
2054	37	1.52%
2055	38	1.55%
2056	39	1.57%
2057	40	1.59%

[5] Blended discount rate = $[(1.0010)^{(\text{lesser of [2] and 15})} \times (1.0250)^{([2] - \text{lesser of [2] and 15})}]^{(1/[2])} - 1$

VII. Considerations Related to the Discount Rate (Rule 53.09(1))

A. *Consideration 1: Two-Tiered Approach*

Should the current "two-tiered" approach to the Rule 53.09(1) discount rate be maintained (i.e., one rate for the first 15 years and another rate thereafter)?

Section VI above points out that the calculation of the discount rate blends one component that is responsive to current economic conditions with a second component that anticipates a reversion to a long-term average.

Column [4] of table 1 shows that real interest rates can increase to a level higher than average, and persist at that level for a number of years. Then, rates can quickly change to a level below average, and remain at that level for a number of years. This suggests the value of reflecting current economic conditions that last for several years, while also anticipating an eventual shift that evens out such current conditions.

The two-tiered approach now in place applies the more responsive component to nearer-term losses, while limiting the stabilizing component to losses that are paid out over a longer period.

An alternative to the current approach might be to use a single rate, blending responsiveness and stability, to all losses regardless of their time frame from trial. Such an approach would have the advantage of being simpler than the current method and easier for the public to understand.

The current two-tiered approach, by contrast, has the advantage of applying the current economic conditions embedded in the first rate to the portion of loss that resides in approximately the same economic conditions. The current approach confines the stable component in the second rate to those losses where there is a greater passage of time since trial, and thus a greater likelihood that economic conditions will have reverted to their long-term average.

The more precise matching in the two-tiered approach comes at the cost of greater complexity in the calculation. However, participants in the civil justice system in Ontario are accustomed to this level of complexity, as it has been in place since 1999.

In light of the advantage of more precise matching, balanced by a level of complexity that is currently accepted by participants in the civil justice system, it is our opinion that the current two-tier approach be continued.

B. *Consideration 2: Fixed Second Rate*

If the two-tiered approach is to continue, should the second rate be a fixed one (as it is at present) or should it be a calculated value, as is the rate for the first 15 years? If the former, what should that rate be and why? If the latter, what should the calculation be and why?

As mentioned in section VI, the argument for keeping the second rate fixed is that it provides stability to balance the responsiveness of the first rate. An argument for this element of stability is the expectation that economic conditions will revert to historical norms.

Table 1 shows that real rates of return go through cycles that differ from the long-term average, but can last for more than a decade. The length of these cycles is a point in favour of a more responsive rate, similar to the first rate in the two-tier approach. However, the existence of the cycles argues for the component of reversion to historic norms.

Table 1 shows that real interest rates have declined to levels well below the second rate of 2.50% in recent years, and have remained so for almost a decade. However, during a previous period beginning in 1983 and lasting 15 years, real interest rates were well above 2.50%. Thus, reversals in persistent real interest rates toward a historic norm have a precedent, suggesting that a decision to depart from historical norms should be made cautiously.

While monetary policy has been supportive of low real interest rates since 2008, the Bank of Canada has increased its bank rate sharply since June 2017, from 0.75% to its current level of 1.75% beginning in July 2018. The current level is its highest since December 2008. This may be an indication of a reversion to historical norms.

Table 2 shows that even with the effect of the second rate, the discount rate for payments up to 40 years after trial is well below the second rate of 2.50%.

For these reasons, it is our opinion that the second rate of 2.50% in the current two-tiered structure appears reasonable (based on the example above) and could remain for this review.

C. *Consideration 3: Length of Review Period*

At present, the Courts of Justice Act provides for a review of the discount rate (as well as gross-up and prejudgment interest for non-pecuniary damages) at least every four years. Is that an appropriate review period?

Prior to 2017, the UK discount rate had last been changed in 2001. The UK Government Actuary's Department reported that in the 2017 UK consultation, there was "general agreement that reviews should occur more frequently than previously and with greater predictability"[6]. As a result, the UK government set out a requirement to review the rate every three years. The Ontario interval of four years is comparable to the three-year interval adopted in the UK.

The UK consultation identified that shifts in the discount rate can be a significant risk to liability insurance companies in the interim after they set the premium for insurance coverage. This risk arises because it is the future discount rate at the beginning of trial that determines the value of damages awards covered by the policy, rather than the discount rate that is in force when the premium is set for the insurance policy.[7] Thus, if changes in the discount rate are to occur, more frequent changes create less risk for insurance companies.

Part of the reason for the substantial change in the UK discount rate in 2017 is that the 16-year interval since the previous change was long enough to allow for significant changes in the economic environment. With a more frequent review process, the discount rate in effect at the

[6] Government Actuary's Department, Technical Bulletin, Personal Injury Discount Rate (Sept. 7, 2017).
[7] Thomas, Justin and Parmar, Amit, "How Many Sides to Your Triangle?" *The Actuary* (Sept. 6, 2018).

time that liability insurance policies are priced will reflect more current conditions at the time of trial.

Another factor cited by the UK consultation is that regular reviews, at a reasonable frequency, can reduce adverse litigation behaviour and delays in settlement.

As discussed in section VII, consideration 2 above, the decision to depart from the assumption of a reversion to historical norms in the second interest rate of the two-tier structure should be made cautiously. Given persistent low real interest rates, coupled with recent reversal in the direction of bank rate changes by the Bank of Canada, the next review in four years will be an opportune time to determine whether real interest rates are reverting to historic norms.

In light of the considerations above, it is our view that the four-year interval currently in place in Ontario is an appropriate review period.

D. *Consideration 4: Discount Rate and How Claimants Actually Invest*

Should subrule 53.09(1) be based on how recipients of awards of damages for future losses will actually invest the awards or on some rate considered to reflect the desired level of risk? If the former, we would be interested in suggestions as to what the chosen rate should be and why. This debate took place in the UK as well: whether the discount rate should assume actual investment by award recipients in certain types of investments (there, the alternatives were "very low risk" and "low risk.") Or should the discount rate be fixed without any assumptions as to how awards will actually be invested?

1. *The Objective of the Award of Damages*

According to The UK consultation, "the object of the award of damages for future expenditure is to place the injured party as nearly as possible in the same financial position as he or she would have been in but for the accident"[8]. In short, the injured party is to be "made whole" as nearly possible.

The calibration of the discount rate, as applied by the courts, should thus be crafted to meet this objective. The fixing of the discount rate without assumptions as to how awards will actually be invested is more aligned to this objective than a discount rate that takes investment practices into account.

2. *The Dynamics Over Time of the Investment and Withdrawal of the Award*

A 1983 US case states with clarity the dynamics of the process by which the damages award is invested, and the justification for discounting the award:

> Exact actuarial computation should result in a lump-sum, present-value award which if prudently invested will provide the beneficiaries with an investment return allowing them to regularly withdraw matching support money so that, by reinvesting the surplus earnings during the earlier years of the expected support period, they may maintain the

[8] Government Actuary's Department, Technical Bulletin, Personal Injury Discount Rate (Sept. 7, 2017).

anticipated future support level throughout the period and, upon the last withdrawal, have depleted both principal and interest.[9]

3. *Why Some Investment Strategies Provide a Higher Expected Return*

The UK consultation reports that "claimants are advised to, and are investing in, assets with a higher expected return" than the basis previously used as the basis of the discount rate.

Among investment strategies considered optimal, the sole reason that some investment strategies offer a higher return is that the investor takes on a greater likelihood of the return not achieving its expected level.[10] For example, in Canada, bonds that are subject to higher credit risk (such as provincial bonds or corporate bonds) offer higher expected returns than Government of Canada bonds. Equities offer a higher expected return than fixed income investments, to compensate for the possibility that dividends may not be paid or that the price of the equity may decline.

The "higher expected return" investment strategies being employed by claimants are thus subject to the possibility that the actual investment yield may not meet the expected yield. This creates a hazard that the damages award so invested may not make the claimant whole.

4. *Constraints on the Investment Yield Arising from Uncertainty in Timing and Amount of Expenditures*

Most of the expenditures that are funded by damages awards, especially for future care, are uncertain in timing and amount. The actual investment yield may fall short of expected yield where expenditures are earlier or larger than anticipated, requiring the claimant to liquidate part of the invested award at a possibly inopportune time.

5. *Calibration of the Discount Rate by the Courts, and the Investment Strategy Chosen by the Claimant, as Two Separate Processes*

We suggest that the calibration of the discount rate and the investment strategy chosen by the claimant for the proceeds of the award be considered two separate processes. The selection of the discount rate is a process performed by the courts, and the consequences are borne by other parties, i.e., the claimant and the defendant (and the defendant's insurer). The investment strategy applied to a lump-sum award, on the other hand, is a choice made by the claimant for which the claimant alone bears the rewards and offsetting risks.[11]

6. *Discount Rate Practices in Three Jurisdictions*

In the UK, prior to 2018, the discount rate has been based on index-linked gilts (ILGs), UK government bonds where payments increase in line with inflation (although the rate had not been brought up to date between 2001 and 2017). In Ontario, the first rate for the two-tiered rate is based on Government of Canada real return bonds. The expected yield on both these

[9] *Canavin v. Southwest Airlines* (1983) 148 Cal. App. 3d 512, 521 [196 Cal. Rptr. 82].
[10] Markowitz, Harry. *Portfolio Selection*; The Journal of Finance, Vol. 7, No. 1. (Mar., 1952), 77–91.
[11] The claimant bears the majority of the consequences. The exception is where public assistance programs may bear consequences where the funds are dissipated through the choices of the claimant.

investments is reduced in return for two levels of protection provided to the bondholder: a very low credit risk, and the adjustment of the yield in response to inflation.

In the US, the US Supreme Court stated in a seminal case on discount rates in federal cases, *Jones & Laughlin Steel Corp v. Pfeifer*, that the appropriate discount rate is to reflect the "safest available investment"[12]. In practice, this has been implemented by basing the discount rate on the yield on US Treasury bonds.

In 2018, the UK departed from the practice of basing the discount rate on ILGs, with its *Civil Liability Bill*. The bill has changed the basis from "very low risk" investments such as ILGs to a portfolio of "low-risk" investments. The bill is intended to "better reflect evidence of actual investment habits".

7. *The Consequence to the Claimant of a Discount Rate at the Higher Expected Return*

Where the discount rate is calibrated by the courts at the higher expected return offered by an investment strategy with higher risk (i.e., with more uncertainty in the investment return), the claimant who chooses to invest in a strategy with lower risk (thus at a return lower than the discount rate) will not be made whole. Thus, the claimant who wishes to have the opportunity to be made whole is compelled, by the court's decision, to assume the same level of uncertainty in the investment return as reflected in the discount rate. However, because of the uncertainty in the claimant's investment return, following this strategy, the actual return may not meet the expected return. This introduces the possibility that the damages award plus the actual investment proceeds will fall short of making the claimant whole.

8. *The Preferences of Claimants by Degree of Aversion to Risk*

Any discount rate will be a balance between the varying preferences within the universe of claimants. Following the preferences of the most risk-averse will generate larger damages to the benefit of all claimants, but at a cost to insurers and to all policyholders. The converse is also true, that setting the discount rate according to the preferences of those willing to accept more risk will benefit all policyholders, while subjecting all claimants to greater risk of a shortfall.

According to utility theory, as employed by actuaries in explaining the demand for insurance, a risk-averse claimant will perceive more hardship from a shortfall arising from a lower-than-expected rate of return than will perceive a benefit from a windfall of the same magnitude arising from a higher-than-expected rate of return[13]. This would suggest that risk-averse claimants would be expected to opt for less uncertainty in their investment of damages awards. That claimants in the UK consultation are opting for higher-return assets might suggest that claimants are not risk averse. Or it may imply that such claimants are seeking protection against unanticipated inflation (although ILGs provide protection against inflation).

[12] *Jones & Laughlin Steel Corp. v. Pfeifer*, 462 U.S. 523 (1983).

[13] Bowers, N.L., Gerber, H.U., Hickman, J.C., Jones, D.A. and Nesbitt, C.J., *Actuarial Mathematics*, Society of Actuaries (1986).

Another possibility is that claimants are not being informed of the risks they are undertaking with higher-return investment strategies.

9. *Whether Riskier Assets Are Worth More at the Time of Investment*

Financial theory argues that an investor can anticipate earning a higher expected yield by assuming the risk that the yield falls below that expected. This appears to have led to the conclusion in the UK that where a claimant invests an award in a "low-risk" portfolio in place of a "very low risk" portfolio, that a smaller damages award will suffice to make the claimant whole.

However, in taking on the possibility that the yield will fall below expected, the claimant also accepts the possibility that the proceeds of the damages award will be insufficient. Valuation professionals who put a value on assets with risk recognize this possibility when placing a value on the increase in yield on such assets. The valuator thus offsets the increased expected yield on assets with risk, either by applying an increased discount rate to the expected investment yield, or by decreasing the expected investment income for possible investment losses.

10. *Risk Already Present But for the Accident*

The UK consultation identified the objective of an award of damages, i.e., to put the injured claimant in the same financial position but for the accident. However, it must be recognized that but for the accident, the claimant already faced risks. One reason to allow risk (investment or otherwise) into the calculation of the damages award is to recognize that the damages award should not provide a more secure outcome than would have been enjoyed by the claimant but for the injury.

However, the calculation of the damages award explicitly accounts for contingencies that would have been faced by the claimant but for the occurrence of the accident. Such contingencies include death and disability. And frequently, where the claimant's employment prospects before the accident are precarious, the calculation of damages will reflect that uncertainty. The presence of such explicit contingencies in the damages calculation argues for including less remaining risk in the discount rate.

11. *Bias in the Mortality Rate*

The courts currently accept, as the measure of mortality, the most current life tables for Canada, as published by Statistics Canada[14]. These statistics measure mortality at the most current period (currently 2014 to 2016), and do not project expected mortality improvement. To the extent that a claimant's expected mortality improves in line with mortality projections, the damages calculation is biased toward being insufficient for the claimant's life expectancy. While this is a factor separate from the discount rate, it is a factor that impedes the claimant being made whole.

[14] Life Tables, Canada Provinces and Territories, Statistics Canada, www.150statcan.gc.ca/en/catalogue/84-537-X.

12. *The Role of Investment Management Expenses*

Where a discount rate is based on the return on assets without risk, relatively little investment expertise is required to achieve an investment return equal to the discount rate. Thus, the discount rate so chosen is not reduced for investment management costs. By contrast, the discount rate implemented in 2018 in the UK allows for investment management expenses, recognizing the need for many claimants to obtain investment expertise to manage a portfolio with risk. These expenses narrow the spread between a discount rate based on "very low risk" and that based on "low risk."

13. *The Analogy of Canadian Insurance Company Valuation of Claims Payments*

When a judgment for damages is made (or a settlement in lieu of judgment), the claimant assumes the financial risks of his or her future health and earnings trajectory in exchange for a fixed sum of money. Such a transaction is similar to the transfer of financial risk in exchange for money that occurs where an insurance company accepts a policyholder's risk in exchange for a fixed premium. For that reason, insurer practices in calibrating their discount rates may provide insight into the question of whether claimant discount rates should be based on how claimants actually invest their funds.

For the interval between the collection of premium and the payment of claim amounts, property/casualty insurance companies must place a discounted value on the cost of such claims. Under accepted actuarial practice in Canada, this is done both for ratemaking and for financial reporting of claims liabilities.

For both ratemaking and financial reporting, current practice is to discount at rates that reflect how the insurers actually invest, including any incremental returns that arise from accepting investment risk. However, the existence of this practice does not necessarily imply that it is appropriate for claimants.

First, the insurer is required to carry capital, i.e., assets in excess of the projected liabilities, including those for claims. Thus, a shortfall in the return below the expected yield due to investment risk will be provided for by the capital. Second, insurers have greater capacity than claimants to diversify in order to be less exposed to random fluctuations in investment yields. Third, in ratemaking, the Financial Services Commission of Ontario (FSCO) permits the insurer to propose rates that provide a profit margin (including the cost of carrying capital), to compensate the insurer for accepting risk. A claimant, by contrast, is not paid compensation for accepting the risks of outliving the damages award and facing unanticipated inflation. Fourth, insurer financial reporting practice in Canada is slated to move in 2021 to valuing claims liabilities at a discount rate not based on actual investment practice of the insurer.

a) Ratemaking Practice

In its filing guidelines[15], FSCO specifies that "all costs, including expected claims costs, must be discounted to reflect the investment income on policyholder supplied funds, before the inclusion of the underwriting profit provision". Further, FSCO specifies that "Insurers must

[15] Private Passenger Automobile Filing Guidelines – Major, Financial Services Commission of Ontario (October 2016), 18.

provide the basis for the selected investment return assumption in discounting, and compare it with the actual investment returns earned in the recent past." However, the filing guidelines also provide for an allowance for profit, thus allowing for compensation for the taking of investment risk.

b) Current Practice for Financial Reporting

Since 2002, Canadian insurance companies have been required to discount their claims liabilities for financial reporting purposes.

The discount rate for this purpose is based on the "expected investment return rate . . . to be earned on the assets . . . that support the insurance contract liabilities"[16]. Thus, for property/casualty insurance companies, the discount rate is determined based on its actual investment practices, including increased expected yield earned through the assumption of investment risk.

However, note that there are practices required by the CIA that reduce the discount rate from the expected return on an actual investment portfolio toward the yield of a notional portfolio with less risk. The first is following the actuarial standards of practice for discounting, which require that the investment return on the company's actual assets be reduced by a margin for adverse deviation (MfAD). Specifically, the standard states "the margin for adverse deviations for investment return rate would be a deduction from the expected investment return rate per year."[17] Factors that contribute to the selection of a larger MfAD to be deducted include

- Low quality of assets;
- High reliance on capital gains;
- High capital losses;
- High asset default risk;
- Significant asset valuation issues;
- Significant mismatch of asset and liability cash flows; and
- Recessionary current economic conditions[18].

These factors correlate with higher-risk investments, thus reducing from the discount rate at least part of the additional expected return available from such assets.

The return from expected returns based on actual investments with risk is further reduced by an allowance for investment expenses[19], Such expenses are primarily necessitated by an

[16] Revised Educational Note: Discounting and Cash Flow Considerations for P&C Insurers, document 216058, Canadian Institute of Actuaries, Committee on Property and Casualty Insurance Financial Reporting (May 2016), 9.
[17] Standards of Practice, Insurance, section 2250, subsection 2250.06. Canadian Institute of Actuaries.
[18] Educational Note: Margins for Adverse Deviations for Property and Casualty Insurance, document 209138, Canadian Institute of Actuaries, Committee on Property and Casualty Insurance Financial Reporting (December 2009), 13.
[19] Revised Educational Note: Discounting and Cash Flow Considerations for P&C Insurers, document 216058, Canadian Institute of Actuaries, Committee on Property and Casualty Insurance Financial Reporting (May 2016), 15.

actively managed investment portfolio that seeks additional return while mitigating risks. A low-risk investment strategy, in Government of Canada bonds, for example, will require substantially less in these expenses. As a result, investment expenses narrow the gap between the discount rate assuming investment risk and a discount rate based on lower-risk investments.

c) Upcoming Change in Financial Reporting – Away from Actual Investments

Effective in 2021, insurance companies in Canada will cease the practice of basing their discount rate on their actual asset portfolio. At that time, they will be required to report their financial results in accordance with the International Financial Reporting Standard (IFRS) 17. Under IFRS 17 the discount rate will be based on a risk-free rate, and will not increase the discount rate for any investment risk (such as credit risk) within the portfolio of assets[20].

IFRS 17 decouples the insurance company's investment practices with the valuation of future claims expenditure. In that regard, it follows the suggestion we made that the calculation of damages (to make the claimant whole to the extent possible) be considered a separate process from the claimant's investment of the damages award.

E. *Consideration 5: Basis for Measuring Inflation*

At present, the discount rate for the first 15 years is established using an average rate of return of Government of Canada real return bonds. That rate, in turn, is established using the Consumer Price Index as the basis for measuring inflation. We are interested in receiving input with respect to each component of the present formula, to ensure that the most appropriate measurements are being employed.

The Consumer Price Index includes the following items, with weight given to each item according to the column on the ride hand side[21].

Table 3: Weights of Items in the Consumer Price Index

All Items	100.0
Food	15.99
Shelter	27.49
Household operations, furnishings, and equipment	11.55
Clothing and footwear	5.31
Transportation	20.60
Health and personal care	4.95
Recreation, education, and reading	11.20
Alcoholic beverages and tobacco products	2.91

[20] Draft Educational Note: Comparison of IFRS 17 to Current CIA Standards of Practice, document 218117, Canadian Institute of Actuaries, Committee on International Insurance Accounting (September 2018), 22.
[21] Updating the Consumer Price Index Basket, Statistics Canada (October 7, 2016).

With respect to lost earning capacity, the items in the CPI basket are only indirectly tied to inflation in earnings, to the extent that individuals bargain for increases in earnings to keep up with inflation in their consumption of the items in the CPI basket.

Table 4 below shows that the average annual increase in the average weekly wage from 2002 through 2018 is 2.60%, while the corresponding average annual increase in the CPI is only 1.88%. One possible factor in this discrepancy is that increases in productivity allow for non-inflationary increases in wages.

Table 4: Comparison of Annual Increases in CPI and Average Weekly Wages

Year	Yr-over-Yr Pct Increase in CPI[22]	Yr-over-Yr Pct Increase in Average Weekly Wage[23]
2002	3.80%	1.33%
2003	2.08%	2.68%
2004	2.13%	2.51%
2005	2.09%	3.99%
2006	1.67%	2.58%
2007	2.38%	4.91%
2008	1.16%	3.70%
2009	1.32%	2.01%
2010	2.35%	1.72%
2011	2.30%	2.95%
2012	0.83%	2.50%
2013	1.24%	1.99%
2014	1.47%	2.04%
2015	1.61%	2.89%
2016	1.50%	1.37%
2017	1.87%	2.82%
2018	2.20%	2.24%
Average 2002–2018	1.88%	2.60%

[22] Average Pct Increase in total CPI for each calendar year (Sept. 2017 to Sept. 2018; Dec. is not yet available).

[23] Average Pct Increase in Avg Weekly Wage for each calendar year (Sept. 2017 to Sept. 2018; Dec. is not yet available). Statistics Canada, Table 14-10-0320-01.

The future cost of care includes many items that are also more directly related to wage inflation than the goods in the CPI basket.

There is not, at present, an accepted measure for the future cost of care. Thus, historically, the CPI has been used as a proxy for such costs. Further, the applicability of any proxy for inflation will vary from claimant to claimant and their individual needs.

The subcommittee may wish to consider whether to mandate an alternative to the "real" (i.e., net of inflation) discount rate. The alternative could be to mandate a nominal discount rate and possibly to mandate a separate inflation assumption. Inflation in lost claimant earnings often differs from price inflation in medical items and other costs of care. The divergence is greater, with respect to sufficiency of the damages award, where changes in technology and healthcare practice lead to changes in the number of units of healthcare consumed (the "utilization rate"). And as noted below, some items of damages, such as the loss of non-indexed pensions, do not increase with inflation.

F. *Consideration 6: Adjustment to Discount Rate for First 15 Years*

At present, an adjustment is made to the discount rate used for the first 15 years. The rate derived from the formula set out in Rule 53.09(1) is reduced by ½%, rounded to the nearest 1/10%. (Prior to 2013, the reduction was 1%, rounded to the nearest ¼%.) Should the existing approach be continued or modified in some way?

1. *An Argument in Favour of the Adjustment*

The first rate in the two-tier is based on a long-term rate for Government of Canada real return bonds. The benchmark bond on which this rate is based matures in 2044; thus, having a term to maturity of more than 25 years.

At most times, the annual interest rates available in the market for such investments will increase with the amount of time until maturity of the bond; that is, until the invested cash is returned to the claimant. For example, at December 2017, the benchmark bond yield for Government of Canada two-year bonds was 1.66%. The corresponding yield for five-year bonds was 1.82%, for 10-year bonds was 1.98%, and for long-term (30-year) bonds was 2.20%.

This increase in market interest rates by the duration of the bond is termed the "yield curve."

Each business day, the Bank of Canada publishes yield curves, based on market prices for Government of Canada bonds[24]. Figure 1 below illustrates the daily rates, averaged over five-year periods, published by the Bank of Canada[25]. For example, for 2013 to 2018, the curve is an average of the daily rates from early October 2013 through early October 2018. And for 2008 to 2013, the curve is an average of daily rates from early October 2008 through early October 2013.

[24] These yield curves are for "zero-coupon" bonds, which pay the bondholder only the face value of the bond at its date of maturity. Such bonds do not make payments of interest prior to the maturity of the bond. Rather, the interest yield to the bondholder is achieved by the bondholder paying a price discounted below the face value to purchase the bond. By making only one payment to the bondholder, such bonds make clear the relationship of interest rates to the time horizon to bond maturity.

[25] https://www.bankofcanada.ca/rates/interest-rates/bond-yield-curves/

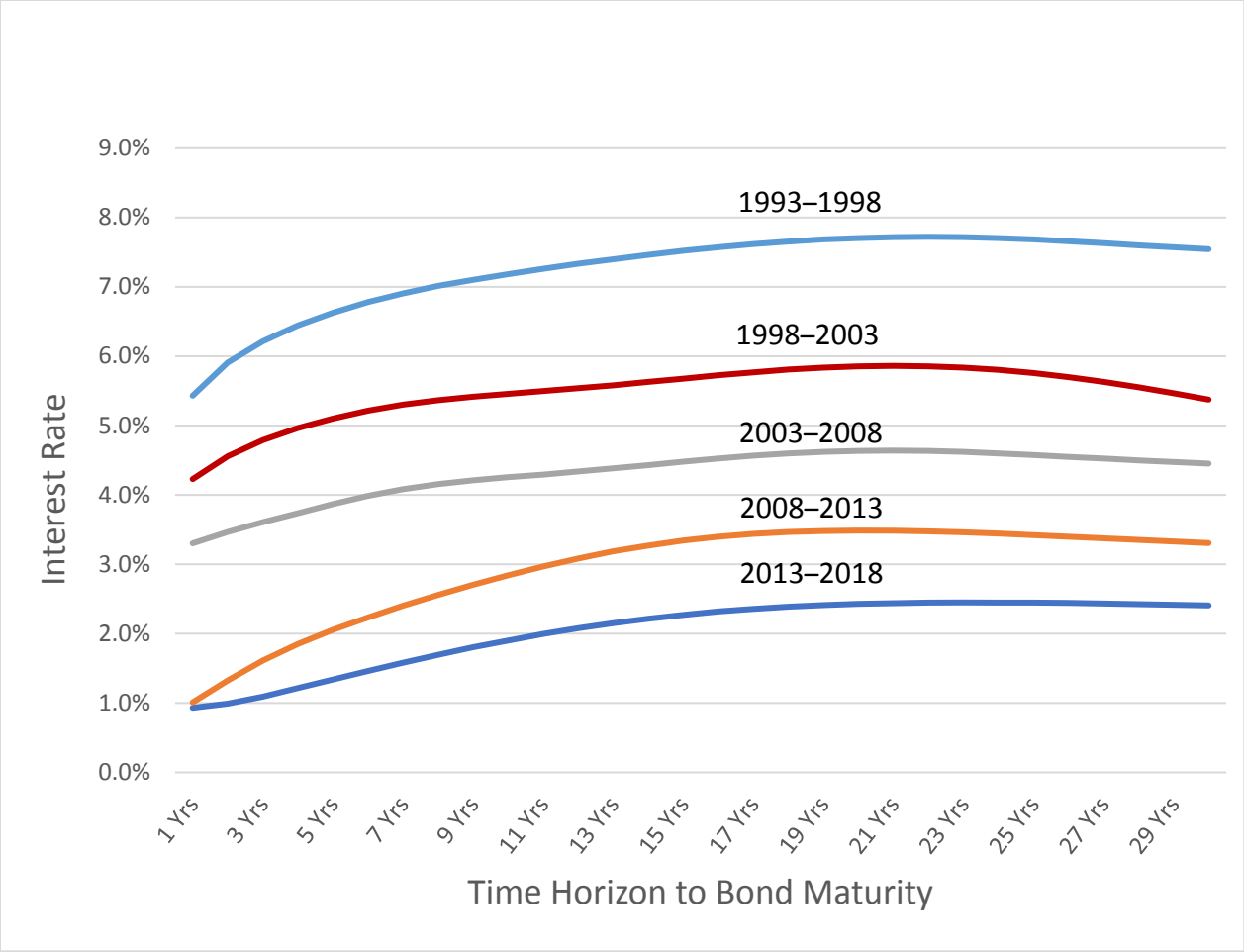
It can be seen on figure 1 below that interest rates vary substantially between the five-year periods. But regardless of the differing levels of interest rates, the yield curve persists, as the daily rates are generally higher for bonds with a longer time horizon to maturity.

Since the interest rate generally increases with the time horizon to maturity, the claimant has the opportunity to earn more interest per year, where the claimant's costs are further in the future. This opportunity argues for a higher discount rate for payments made further from the time of trial.

Table 2 above shows that the current discount rate increases by year of payment. However, part of that increase is due to current long-term real interest rates being less than 2.50%, the second rate in the two-tier structure. In a market seen as recently as 2009 (i.e., where long-term real returns are greater than 2.50%), the adjustment would be necessary for the table 2 rates to rise with year of payment, in accordance with the shape of the yield curve.

More analysis is needed to determine the precise magnitude of the adjustment to meet the yield curve. But the adjustment now in use does support the table 2 rates being consistent with the general shape of the yield curve.

Figure 1: Averages of Daily Yield Curves, Zero-Coupon Government of Canada Bonds



2. *An Argument Against the Adjustment*

An argument against the adjustment is that the yield on Government of Canada real return bonds is already very low, reduced in return for two levels of protection provided to the bondholder: the very low credit risk of Government of Canada bonds, and indexing against inflation. This suggests against reducing the return by an additional ½%.

Further, the inflation protection is superfluous for some items of damages that are not subject to inflation, including the replacement of lost income from non-indexed pensions and long-term disability benefits.

Column [5] of table 1 shows that the real rate of return, averaged over the 15 years ending 2018, of 1.42% is significantly higher than the discount rate of 0.10% for the first 15 years for trials beginning in 2018. If the next 15 years are similar to the previous 15 years, the adjustment has further reduced an already low discount rate.

G. *Consideration 7: Floor of Zero for First 15 Years*

The Ontario discount rate cannot now be less than zero for the first 15 years. In light of the UK experience, where the rate set in 2017 was a negative number, we are going to revisit this issue.

A negative rate is defensible theoretically when inflation is expected to exceed nominal rates. However, it is difficult for the public to comprehend such a situation. An extended period of negative yields on real return bonds or other fixed-income investments results in more public acceptance of a negative discount rate.

The CIA does not have a position for or against the floor of zero on the real discount rate.

H. *Consideration 8: Different Discount Rates for Different Types of Damages*

Should there be any explicit differentiation for the discount rate to be used for different types of damages? (For instance, should the treatment of future care costs be any different from that of future income losses?)

In British Columbia, a discount rate of 1.5% is used for future income losses, while a discount rate of 2.0% is used for all other future damages.

However, as mentioned above in section VII, consideration 5, the future cost of care includes many items that are related to wage inflation, rather than the purchase of goods. This reduces any justification for having a separate discount rate. Further, a separate discount rate has the disadvantage of adding complexity to the calculation and to the communication of the result.

I. *Consideration 9: Second Real Discount Rate of 2.50%*

The rate of 2.5% that is now employed for periods of longer than 15 years has been in use for a long time in Ontario. Former Rule 267a, which established the 2.5% rate, was enacted on October 1, 1980, to represent "the difference between estimated investment and price inflation rates is 2 ½% per year." That rate, in turn, was derived from an historical analysis of the rate of return of low-risk, Government of Canada bonds from 1930 to 1979. We would be interested in knowing whether the assumptions underlying the adoption of that rate now need to be re-examined.

As outlined for section VII, consideration 2 above, it is recommended that the second real discount rate in the two-tier structure remain at 2.50% in the 2018 review.

J. *Consideration 10: Judicial Discretion to Depart from Statutory Rate*

The decision to specify a discount rate in the Rules of Civil Procedure was taken, in the first place, to try to reduce the need for expert evidence at trial. We would like to hear from stakeholders with respect to the extent to which there should still be judicial discretion to depart from the statutory rate, in what circumstances and on what basis.

The standardized discount rate has the benefit of reducing the amount of contention in the resolution of the dispute (even if expert involvement is still necessary for other aspects of the damages calculation). Further, for two claimants in similar positions, the damages result for the two should be similar, and not contingent on the skill of the expert witness.

Still, there remain situations where judicial discretion to depart from the statutory rate would be preferred. One example is compensating for lost wages where one individual is in a declining industry with few productivity gains, compared to an individual in a growth industry.

Where the mandated discount rate departs from a discount rate consistent with accepted actuarial practice (for example, where the mandated discount rate is inconsistent with earnings in a declining or growing industry, the standards of practice of the CIA specify that "the actuary should comply with the law, but should report the conflict and, if practical, useful, and appropriate under the terms of the engagement, report the result of applying accepted actuarial practice"[26].

[26] Standards of Practice, general, section 1210, subsection 1210.01. Canadian Institute of Actuaries.

K. *Consideration 11: Use of Periodic Payments*

At present, damages for future losses are discounted to present value using the discount rate set out in Rule 53.09(1). Sections 116 and 166.1 of the Courts of Justice Act provide for periodic payments of damages to be made in some circumstances. It is not within the power of the Civil Rules Committee to make any changes to the Courts of Justice Act. However, we recognize that our review of the discount rate is occurring as some other jurisdictions have begun to look at expanding the use of periodic payment of damages. (In Ireland, for example, the Civil Liability Act 1961 was amended last year to give that country's courts the power to award damages by way of periodic payment orders where appropriate having regard to the best interests of the plaintiff and all the circumstances of the case.) Recognizing that any changes would have to be made by the legislature, we would be interested in knowing whether stakeholders favour the expansion of the use of periodic payments of damages and if so, what form such a system should take.

As cited in the UK consultation, "when compensation is paid as a lump sum, the claimant takes on much of the associated risk. Risks that could lead to them running out of the money include: the risk that they live longer than expected, that costs rise faster than anticipated or that investment returns are lower than assumed"[27].

Periodic payments of damages, as ordered by the courts in the UK, have the advantage for the claimant of eliminating these three risks to making the claimant whole, since the periodic payments occur while the claimant survives, are indexed for inflation, and are provided at periodic intervals without the claimant needing to invest the funds for the interval between the award and the payment. These risks instead are borne by the defendant, or more likely the defendant's insurer.

Note that periodic payments will not eliminate all risk to the claimant. For example, there is the possibility that the future care needs differ from those that were recognized in the damages award. The claimant would also face the possibility that inflation on future care items may exceed that of the inflation adjustment applied to the periodic payments.

The appetite for private insurers to provide periodic payment protection on a case-by-case basis appears to be limited (even where inflation protection is not provided). Thus, the market for providers of structured settlements in Ontario has become concentrated, with only three life insurance companies currently in the market: Sun Life Financial, BMO Insurance, and Canada Life.

A broader market exists where periodic payments have been mandated by the automobile insurance system. An example is the provision of periodic income replacement benefits in Ontario, as part of the no-fault accident benefits coverage.

The report on medical liability of the Hon. Stephen Goudge proposed a government entity to "hold the funds for future costs and administer the periodic payments required in these

[27] Government Actuary's Department, Technical Bulletin, Personal Injury Discount Rate (Sept. 7, 2017).

cases."[28] Mr. Goudge has proposed that an advisory committee consider whether the discount rate should reflect the investment experience of that government entity. This matter revisits the question, considered above in section VII, consideration 4, of whether the discount rate should reflect how damages awards are actually invested.

The description of the entity's role in Mr. Goudge's report leaves open the precise mandate of such an entity. The initial description, i.e., "to hold the funds for future costs and administer the periodic payments required in these cases", suggests that the entity might provide investment management and administrative services only, without providing a commitment to the price for structured settlements. With regard to such services, the report states that "management fees would be eliminated" for the users of the entity.

Later, though, the report states that an advantage of such an entity is that "experience surpluses and deficits could more easily be absorbed, with surpluses being returned to the government entity". This leaves open the possibility that the entity would provide a guarantee of the investment return on structured settlements.

To the extent that the entity is mandated to provide a guarantee of an investment return for a given structured settlement, it would be reasonable that the discount rate on the structured settlement payments would be based on the entity's own experience. To the extent that the entity does not provide such a guarantee, the entity's investment experience would be expected to have a more limited, if any, influence on the discount rate. However, if such an entity provides its services at no management fee, that could be a factor in the discount rate.

If the entity is mandated to provide structured settlements as an insurer, it is seen above in section VII, consideration 4, section 12 that there is precedent for insurance companies in Canada to reflect their actual investment performance in the discounting of claims costs for both ratemaking and financial reporting purposes.

VIII. Considerations Related to Gross up (Rule 53.09(2))

It is our subcommittee's preliminary impression that in practice, gross up has become an issue of less importance. However, the subrule does still exist. We would like to know whether stakeholders feel that the Rule should be modified in any way and if so, what those changes should be.

We do not suggest any changes to the Rule.

[28] Goudge, Hon. Stephen, Report to Ontario Ministry of Health and Long Term Care Re: Medical Liability Review (Dec. 29, 2017).

IX. Prejudgment Interest Rate for Non-Pecuniary Damages (Rule 53.10)

A. *Consideration 1: Separate Rate for PJI on Non-Pecuniary Damages*

Should there continue to be a rate specified by the Rules for interest on non-pecuniary general damages, apart from the "prejudgment interest rate" calculation applicable to other types of damages and that is calculated in the manner set out in s. 127(1) of the Courts of Justice Act?

The decline in interest rates and inflation in recent years has had the result that the separate prejudgment interest rate on non-pecuniary general damages is an outlier from that for other types of damages. Further, this separate rate ceased to apply to motor vehicle accidents in 2015, thus making the class of cases subject to this interest rate even more exceptional.

B. *Consideration 2: Fixed or Floating PJI Rate*

If so, should the rate be fixed, as it is now, or should it be a floating rate, tied, in some way, to market conditions?

As is seen above, market conditions fluctuate significantly over time. As a result, a fixed interest rate will become unbalanced relative to other economic markers.

We recommend a floating rate tied to market conditions.

C. *Consideration 3: Magnitude of Fixed Rate*

If it is to be a fixed rate, what should that rate be?

We recommend that it not be a fixed rate.

D. *Consideration 4: Method for Floating Rate*

If it is to be a floating rate, how should that rate be calculated?

The formula that applies to PJI for pecuniary loss and MVA non-pecuniary loss seems a reasonable approach.