**Summary of the Draft Educational Note on Discount Rates**

**Issued by the Canadian Institute of Actuaries**

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| **Summary*** The guidance is aimed at Canadian actuaries but may be of interest outside Canada.
* The first part of the note covers how actuaries might set the “risk-free” curve for discount rates. Much of this material will be familiar to UK actuaries – the guidance suggests setting a curve based on liquid risk-free assets, setting a last liquid point and an ultimate rate after the last liquid point. The ultimate rate is increased for illiquidity (this is different to the way Solvency II works).
* The illiquidity premium suggested by the CIA differs for “liquid” and “illiquid” insurance contracts:
	+ For liquid contracts, the liquidity premium is 90% of the spread of provincial government bonds over federal government bonds.
	+ For illiquid contracts, the liquidity premium is set at 75% of the spread on investment grade Canadian corporate bonds over federal government bonds, with an additional 50bps adjustment as illiquid insurance contracts are more illiquid than corporate bonds (this adjustment is for the more illiquid insurance contracts – the Excel template provided by the CIA has an addition of 15bps).
* Actuaries for Canadian insurers would need to compare their own basis and this basis, disclosing the difference to the regulator.
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In June 2020, the Canadian Institute of Actuaries (CIA) issued draft guidance to Canadian actuaries setting discount rates for IFRS 17, at <https://cia-ica.ca/docs/default-source/2020/220079e.pdf> . This follows other guidance issued to Canadian actuaries responsible for IFRS 17 calculations. This guidance is not a standard of practice and is not binding but is intended to illustrate how the Canadian standards of practice might be applied.

Whilst the guidance is aimed at actuaries setting IFRS 17 liabilities for the Canadian market, it may still be useful for actuaries in other jurisdictions, as many of the same principles will apply, although actuaries will wish to form their own views.

This note reviews and summarises the guidance issued to Canadian actuaries. The Canadian Institute has set out an approach that actuaries can use to test curves beyond the last liquid point.

***“Developing the Discount Curve”***

The first chapter concentrates on aspects where actuaries need to use judgement when setting discount rates, including considering how to determine the last liquid point for a risk-free curve, what the ultimate forward rate might be and how to set illiquidity premia.

*Establishing the last liquid point on the yield curve*

The CIA guidance suggests that the last liquid point is 30 years for the Canadian government bond market. The starting point was to consider the method used in Europe, by EIOPA to determine whether a market is liquid beyond a certain point – where the outstanding par maturities fall below 6% of the total, the market is deemed to be illiquid. The CIA then considered bid-ask spreads, volumes, trade sizes and the impact of trades in addition to the EIOPA methodology.

*Setting an ultimate risk-free rate*

Several possible methods for setting the ultimate rate were considered:

* Long-term average government bond rates
* Real interest rates combined with an inflation target
* Real GDP growth with an inflation expectation

The CIA determined that a rate between 3.5% and 5.0% would be suitable for the Canadian market (the current European rate is 3.75%), reached at year 70.

*Splining the yield curve*

Some form of interpolation is required to join the market data up into a single yield curve. The guidance discusses the advantages and disadvantages of several techniques, including whether they are straightforward to implement, stability of the results and so on.

*Illiquidity premia*

The CIA recommends that actuaries determine whether an insurance liability is illiquid or not. This is used to determine an additional illiquidity premium adjustment for liabilities (“*constant*” below).

* Whether the policyholder can exit the contract. Where there is no right to exit, the contract will be more illiquid, but for contracts that can be exited, actuaries should consider whether the contract has any inherent value being lost on exit. Where the loss is lower the contract may be more liquid.
* What exit costs or surrender charges the contract might have. The higher the exit or surrender charges, the more illiquid the contract might be.
* Any features that are valuable to the policyholder – for example, whether a term insurance contract can be rolled into a new contract with no underwriting.
* Whether there are any levels of guarantee (for example, a minimum interest rate guarantee)

The guidance then goes on to discuss top down and bottom up approaches.

For the top down approach, the CIA sets out the advantages and disadvantages of using a reference portfolio based on assets held by the insurer versus a bespoke portfolio but does not preclude either approach.

Where a top down approach is used the CIA sets out two potential methods for removing the impact of credit risk from the yield for the reference portfolio:

* Using historic data, where expected credit losses are set equal to:

$$Probability of default×Loss given default×Exposure at default$$

This would then be increased to reflect unexpected credit losses. The guidance suggests possible approaches as:

* + A fixed margin of 100% of expected defaults
	+ Considering the amount of capital Canadian insurers need to hold against corporate bonds (the “Life Insurance Capital Adequacy Test”). The guidance sets out specific parameters.
	+ Considering the cost of capital approach under Basel III.
* Using Credit Default Swaps (CDS). The guidance highlights that as the Canadian CDS market is small it would be difficult to extract the credit component, and actuaries are recommended not to rely solely on Canadian CDS data. The guidance sets out how actuaries might adjust US CDS data to calculate the impact of credit risk.

The guidance discusses how actuaries might extract the liquidity premium for assets other than corporate bonds, for example, property.

The guidance also covers how actuaries might set a bottom up discount rate, suggesting that the liquidity premium could be set using a hybrid between the top down and bottom up approaches, based on a defined asset portfolio:

$$Liqudity premium=r ×Asset spread+constant$$

Where:

Asset spread is the spread over risk-free rates measured on a defined portfolio; and

$$r=\frac{Asset spread- \left(expected loss+unexpected loss\right)}{Asset spread}$$

The guidance suggests that, as credit risk typically accounts for 15% to 40% of the asset spread (using the techniques for the top down approach discussed above), a suitable value for *r* might be 60% to 85%, with the higher value being more appropriate in a liquidity crisis event, whilst the minimum would be appropriate where credit risk has significantly increased. Under normal circumstances a value close to the mid-point would be appropriate.

The “constant” would be set by considering whether the insurance contracts are more or less liquid than the reference portfolio:

* For highly liquid amounts i.e. an amount on deposit, the reference portfolio would be for cash assets and the liquidity would be similar. No adjustment needs to be made.
* For highly illiquid cash flows (i.e. whole of life contracts), no adjustment would be required where the reference portfolio was also for illiquid assets (such as private debt or mortgages). Where the reference portfolio is based on more liquid assets such as investment grade corporate bonds, an adjustment of 50bps (this was set by considering the difference between private placements / mortgages with investment grade corporate bonds).
* For even more illiquid liabilities (say, whole of life with no surrender value), a higher adjustment may be more appropriate. The guidance suggests that actuaries should consider how the contracts are priced, as well as being aware of the implications of setting a discount rate that “creates a negative bias in investment results” i.e. if a higher rate is used for liabilities than can be earned on the assets, this would lead to losses going forward, which may be inappropriate

The 50bps addition would not necessarily be applied to all insurance contracts, only for contracts that are more illiquid than investment grade corporate bonds.

The guidance suggests that setting a bottom up discount rate based on covered bonds or mortgage backed securities is not appropriate, but this is due to limitations in the Canadian market (i.e. covered bonds are typically denominated in Euro, whilst mortgage backed securities only have a published spread over government bonds at issue).

The guidance also discusses whether to adjust the ultimate rate for illiquidity and suggests a 70bp adjustment for liquid insurance contracts and 150bps for illiquid insurance contracts (for Solvency II there is no illiquidity adjustment beyond the last liquid point)

 ***“Reference Curves”***

The guidance also sets out “reference curves”. As IFRS 17 is principles-based companies could develop diverging practices. The CIA guidance sets out “reference curves” to facilitate comparisons between different companies, and a comparison might be provided to the regulator (in the Canadian market the IFRS balance sheet forms part of the regulatory capital requirements) setting out the values using the reference curves alongside those developed by the company itself, **for liabilities beyond the last liquid point**.

The “reference curves” are:

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| **Liability** | **Currency** | **Last liquid point (years)** | **Risk-free rate** | **Liquidity premium** | **Ultimate rate (spot rate)** |
| Liquid | CAD | 30 | Canadian gov. bonds | 90% of provincial gov. bond spread over Canada Gov. | 4% + 0.7%(reached at year 70) |
| Illiquid | CAD | 30 | Canadian gov. bonds | 75% of IG bonds over Canada Gov. + 0.5% | 4% + 1.5% (reached at year 70) |