

## *Educational Note*

# Consideration of Future Income Taxes in the Valuation of Policy Liabilities

Committee on Property and Casualty Insurance  
Financial Reporting

July 2005

Document 205048

*Ce document est disponible en français*  
© 2005 Canadian Institute of Actuaries

*Educational Notes do not constitute standards of practice. They are intended to assist actuaries in applying standards of practice in respect of specific matters. Responsibility for the manner of application of standards in specific circumstances remains that of the practitioner.*

## Memorandum

**To:** All Fellows, Affiliates, Associates and Correspondents of the Canadian Institute of Actuaries practising in Property and Casualty Insurance

**From:** Elaine Lajeunesse, Chairperson  
Committee on Property and Casualty Insurance Financial Reporting

**Date:** June 27, 2005

**Subject:** **Educational Note: Consideration of Future Income Taxes in the Valuation of Policy Liabilities**

---

Please find enclosed a new educational note entitled, "Consideration of Future Income Taxes in the Valuation of Policy Liabilities", which has been prepared by the Committee on Property and Casualty Insurance Financial Reporting. The purpose of this note is to provide guidance to actuaries in valuing the impact of future income taxes on policy liabilities of Property and Casualty insurers.

Tax specialists from the industry were consulted regarding the basis for determination of the asset for Future Income Taxes for balance sheet purposes.

In accordance with the Institute's policy for Due Process, this educational note has been approved by the Committee on Property and Casualty Insurance Financial Reporting, and has received final approval for distribution by the Practice Standards Council.

Educational notes are covered under Section 1220 of the Standards of Practice. Section 1220 prescribes that "*The actuary should be familiar with relevant educational notes and other designated educational material.*" It further explains that a "*practice which the notes describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation.*" As well, "*educational notes are intended to illustrate the application (but not necessarily the only application) of the standards, so there should be no conflict between them.*"

All questions and comments should be addressed to Claudette Cantin at her *Yearbook* Address.

EL

## CONSIDERATION OF FUTURE INCOME TAXES IN THE VALUATION OF POLICY LIABILITIES

### Background

Please refer to two sections of the Standards of Practice (SOP) as follows:

**Section 2130.15:** *The insurer's accounting policy may report amounts related to the relevant policies and the assets which support their policy liabilities, such as [...] future tax liabilities and assets (for example, those in connection with the timing differences between accounting and tax liabilities).*

**Section 2210.02:** *Notwithstanding Section 2100 and this Section 2200, until standards have been developed, the actuary may ignore taxes in determining policy liabilities for property and casualty insurance.*

The Practice Standards Council ("PSC") requested that the Committee on Property and Casualty Insurance Financial Reporting ("the Committee") develop a standard of practice addressing the consideration of future income tax for property and casualty companies, with a view to removing the above-noted exception. As illustrated below, however, income tax is unlikely to be a significant consideration for the valuation of property and casualty companies. Accordingly, the Committee intends to provide guidance to members by way of this educational note, rather than a standard of practice. Following the publication of this educational note, the PSC will remove the above-noted exception.

### ASSET FOR FUTURE INCOME TAXES RELATED TO POLICY LIABILITIES

As detailed in Part XIV of Canadian Income Tax Regulations, the income tax deduction in respect of an insurer's claim liabilities is equal to 95% of the lesser of the *reported reserve* and *claim liability*. As defined in Regulation 1408, *reported reserve* refers to the amount of the net claim liabilities carried by the insurer, and recorded in the insurer's Annual Statement. *Claim liability* refers to the net claim liabilities determined in accordance with accepted actuarial practice (i.e., discounted to reflect the time value of money, and including explicit provisions for adverse deviations). *Reported reserve* and *claim liability* are net of amounts recoverable from reinsurers, and net of amounts recoverable in respect of salvage and subrogation.

By definition, then, the income tax deduction in respect of an insurer's claim liabilities is less than the amount of the claim liabilities recorded in the Annual Statement. This creates a "future tax temporary difference" that gives rise to an asset for Future Income Taxes. This asset for Future Income Taxes represents the prepayment of tax as a result of the liability deducted for tax purposes being less than the amount reported on the balance sheet.

Where the effect of discounting this asset for Future Income Taxes (i.e., the asset for Future Income Taxes related directly to the amount of the policy liabilities) is material, the actuary's estimate of the policy liabilities should be reduced accordingly.

## EFFECT OF DISCOUNTING THE ASSET FOR FUTURE INCOME TAXES

The discussion that follows is limited to the portion of the asset for Future Income Taxes directly related to claim liabilities. A similar approach would be applied in the event that a portion of the asset for Future Income Taxes relates directly to premium liabilities.

It is anticipated that in most cases the effect of discounting the asset for Future Income Taxes would not be material to the valuation of a property and casualty insurer. In order to assess the appropriateness of that assumption, a reasonable approximation of the balance sheet effect can be derived as follows:

Estimated Effect of Discounting the Asset for Future Income Taxes	=	$[Reported Reserve^1 - 95\% \times (\text{lesser of } Reported Reserve^1 \text{ and } Claim Liability^1)]$
	x	Future Income Tax Rate
	x	$(1 - \text{Present Value Factor}^2)$

Note:

1. As per Canadian Income Tax Regulation 1408:

*Reported Reserve* = net claims liabilities amount carried in the balance sheet

*Claim Liability* = net claims liabilities calculated in accordance with accepted actuarial practice.

2. The present value factor referred to above is intended to reflect the time value of money based on the selected rate of return net of the margin for investment return rate. A reasonable approximation of the present value factor can be computed from the estimated claim liabilities, as illustrated in the attached examples.

The first example attached to this educational note is based on a situation where the *Reported Reserve* is equal to the *Claim Liability*. The asset for Future Income Taxes, and the effect of discounting that asset, would be higher if the *Reported Reserve* exceeded the *Claim Liability*, as illustrated in the second example.

The effect on an insurer's income statement of discounting the asset for Future Income Taxes would be computed as the change in the balance sheet effect, as described above.

## OTHER ASSETS FOR FUTURE INCOME TAXES OR LIABILITIES

The asset for Future Income Taxes and liabilities of property and casualty companies may include other components besides those relating directly to the amount of the policy liabilities. To the extent that they do not relate to the policy liabilities, the estimation of such other assets for Future Income Taxes or liabilities would not fall within the scope of the actuary's valuation of the policy liabilities.

**Estimated Effect of Discounting the Asset for Future Income Taxes**  
**XYZ Property and Casualty Insurer**  
**Example #1 - Reported Reserve = Claim Liability**

(1) Actuary's Estimates		
(a) Undiscounted Estimate		1,046,000
(b) Discounted Estimate Excluding PfADs <sup>1</sup>	987,000	
(c) PfAD – Investment Return Rate	1,000	
(d) PfAD – Claims Development	10,000	
(e) PfAD – Reinsurance Recovery	<u>2,000</u>	
(f) Discounted Including PfADs		1,000,000
(2) Income Tax Amounts		
(a) <i>Reported Reserve</i>		1,000,000
(b) <i>Claim Liability</i>		1,000,000
(3) Future Income Tax Rate		36%
(4) Present Value Factor = [(1b)+(1c)]/(1a)		0.9446

Estimated Effect of Discounting the Asset for Future Income Taxes	=	$[1,000,000 - (95\% \times 1,000,000)] \times 36\% \times [1.0 - 0.9446] = \$997$
Estimated Effect As a % of Actuary's Estimate	=	$[997 / 1,000,000] = 0.10\%$

Although the figures used in this example are for illustrative purposes only, the following table may be helpful in assessing the sensitivity of the result to certain key assumptions, namely the discount rate and duration of the liabilities.

	Present Value Factor		Estimated Effect of Discounting <sup>3</sup>	
Discount Rate <sup>2</sup>	4-Year Payout <sup>4</sup>	10-Year Payout <sup>5</sup>	4-Year Payout <sup>4</sup>	10-Year Payout <sup>5</sup>
3% per annum	0.9712	0.9211	0.05%	0.14%
6% per annum	0.9446	0.8538	0.10%	0.26%
10% per annum	0.9121	0.7781	0.16%	0.40%

## Notes:

1. PfAD: Provision for Adverse Deviations.
2. The selected discount rates have been reduced by an investment return rate PfAD.
3. The estimated effect of discounting the asset for Future Income Taxes is expressed as a percentage of the actuary's estimate of the net claim liabilities discounted in accordance with accepted actuarial practice, and including explicit provisions for adverse deviations.
4. The selected 4-year payout (70/15/10/5) results in an average duration of about 1 year.
5. The selected 10-year payout (25/20/15/12.5/10/7/5/2.5/2/1) results in an average duration of about 2.85 years.

**Estimated Effect of Discounting the Asset for Future Income Taxes**  
**XYZ Property and Casualty Insurer**  
**Example #2 - Reported Reserve > Claim Liability**

(1) Actuary's Estimates		
(a) Undiscounted Estimate		1,046,000
(b) Discounted Estimate Excluding PfADs <sup>1</sup>	987,000	
(c) PfAD – Investment Return Rate	1,000	
(d) PfAD – Claims Development	10,000	
(e) PfAD – Reinsurance Recovery	<u>2,000</u>	
(f) Discounted Including PfADs		1,000,000
(2) Income Tax Amounts		
(a) <i>Reported Reserve</i>		1,078,000
(b) <i>Claim Liability</i>		1,000,000
(3) Future Income Tax Rate		36%
(4) Present Value Factor = [(1b)+(1c)]/(1a)		0.9446

Estimated Effect of Discounting the Asset for Future Income Taxes	= [1,078,000 – (95% x 1,000,000)] x 36% x [1.0 - 0.9446] = \$2,553
Estimated Effect As a % of Actuary's Estimate	= [2,553 / 1,000,000] = 0.26%

Although the figures used in this example are for illustrative purposes only, the following table may be helpful in assessing the sensitivity of the result to certain key assumptions, namely the discount rate and duration of the liabilities.

	Present Value Factor		Estimated Effect of Discounting <sup>3</sup>	
Discount Rate <sup>2</sup>	4-Year Payout <sup>4</sup>	10-Year Payout <sup>5</sup>	4-Year Payout <sup>4</sup>	10-Year Payout <sup>5</sup>
3% per annum	0.9712	0.9211	0.13%	0.36%
6% per annum	0.9446	0.8538	0.26%	0.67%
10% per annum	0.9121	0.7781	0.41%	1.02%

## Notes:

1. PfAD: Provision for Adverse Deviations
2. The selected discount rates have been reduced by an investment return rate PfAD.
3. The estimated effect of discounting the asset for Future Income Taxes is expressed as a percentage of the actuary's estimate of the net claim liabilities discounted in accordance with accepted actuarial practice, and including explicit provisions for adverse deviations.
4. The selected 4-year payout (70/15/10/5) results in an average duration of about 1 year.
5. The selected 10-year payout (25/20/15/12.5/10/7/5/2.5/2/1) results in an average duration of about 2.85 years.