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Impact on Term Product Pricing from IFRS 4 Phase II (Revised Exposure Draft)¹

Reinsurance Contract Treatment

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Reinsurance contracts can be important for a direct life insurance company; they are used to transfer risks to reinsurers and improve profitability. Under US GAAP and Canadian GAAP (CGAAP), the cash flow and liabilities used in a pricing profit test are all net of reinsurance. The reinsurance contract liability and its profit do not need to be studied separately since net cash flow is sufficient for all pricing tasks.

However, International Financial Reporting Standard (IFRS) 4 (Exposure Draft June 2013) requires the direct insurance contract and reinsurance contract to be measured separately. If there is a loss on the direct insurance contract at inception, the loss should be recognized immediately; if there is a gain on the direct insurance contract, the gain must be set up as a contractual service margin (CSM) component in the liability and amortized through the coverage period of the contract. However, both the gain and loss on the reinsurance contract at inception must be amortized, unless the reinsurance coverage is related to events that have occurred before purchasing the reinsurance contract.²

IFRS 4 also requires that the direct contract revenue, the claim amount recoverable from the reinsurance contract, and the revenue ceded to the reinsurers should all be presented in the income statement. The components of the direct and the ceded revenue, including the direct insurance contract CSM released and the reinsurance contract CSM released, must be disclosed.

IFRS 4 will possibly change how the reinsurance treaties are used in product design and pricing. In this article, the profit metrics of a simplified 10-year term product under CGAAP and IFRS 4 are compared. In particular, two scenarios in which the reinsurers reduce the premium and the direct insurers assume a lower mortality rate are studied.

IMPACT ON TERM LIFE PRODUCT PRICING

The reinsurance treaties are very important for term product pricing under CGAAP. They can significantly

lower the required capital and provide the first-year expense allowance to mitigate new business strain thereby increasing the internal rate of return (IRR) (the earlier the gain is recognized, the higher the IRR will be). In addition, the direct insurers can obtain higher profit margins if the expected recovery from the reinsurance contract is greater than the ceded premium. As the direct insurers use IRR as the most important profit metric, the reinsurance contract plays a key role in reducing the required capital in order to boost IRR.

Let us look at a simplified 10-year term life insurance product pricing under CGAAP and IFRS 4. The product features and the main assumptions of this product are listed below:

- Ten-year term, age 40, male non-smoker.
- Face amount: 300,000.
- Annual premium: \$1.3 per 1,000 face amount.
- Investment yield: 5 percent.
- CGAAP valuation discount rate: 4.5 percent. IFRS 4 discount rate is set to 4.5 percent as well in order to study the impact solely from the reinsurance contract.
- Pricing mortality rate: 70 percent “CIA 8692” mortality table.
- Valuation mortality rate: 70 percent “CIA 8692” plus $15/e_x$.
- Eighty-five percent of the death benefit is ceded through the yearly renewable term (YRT) treaty. The YRT premium is 70 percent “CIA 8692” mortality table and 100 percent of the first-year policy premium is given to the insurer as the expense allowance.
- Tax rate on book profit and investment income on surplus: 25 percent.

The policy premium method (PPM) is used as a proxy for the CGAAP Canadian asset liability method (CALM) reserve in this study. The PPM reserves are calculated as the present value of future liability cash flows projected using the valuation assumptions. The best-estimate liability (BEL)³ component plus the risk adjustment component of the IFRS 4 liability is assumed to equal the PPM reserve.

The required capital formula is assumed to be the same under the two sets of financials (i.e., CGAAP and

Table 1: Profit Metrics under CGAAP and IFRS 4

	CGAAP Gross	CGAAP Net	IFRS 4
PV of CTFS ⁴ per 1,000 Face Amount (5% discount rate)	-0.14	0.23	0.23
After-Tax Profit Margin	-1.6%	2.7%	2.7%
After-Tax IRR	4.2%	10.9%	6.8%

IFRS 4). The minimum continuing capital and surplus requirements (MCCSR) formula is used. The insurer targets its capital to be 180 percent of the minimum required capital.

Since the main risk component of statutory required capital for term life products is the mortality risk component, and this component depends on the net amount at risk (NAAR), the expected next year claims, and the face amount, the difference in this component for the CGAAP and IFRS 4 financials would be very small. Therefore, the CGAAP and IFRS 4 financials have a very similar amount of required capital in this study.

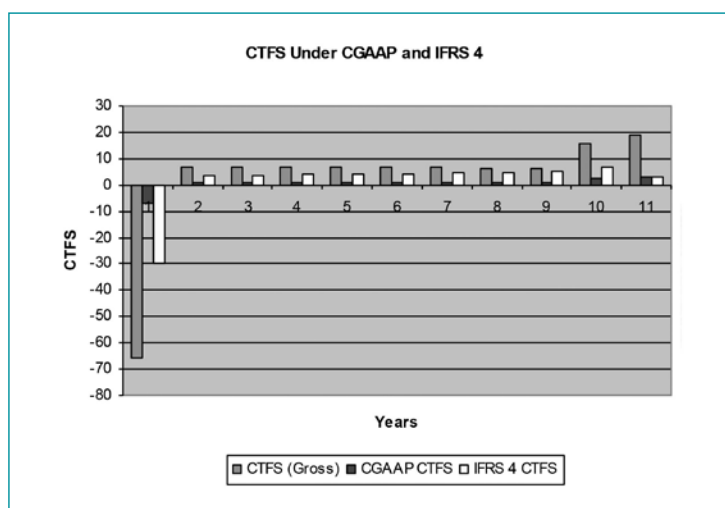
The test results in Table 1 show that both the profit margin and IRR can be significantly increased by using this reinsurance treaty under the CGAAP accounting basis.

The after-tax profit margin (ATPM) increased from -1.6 percent to 2.7 percent, because the expected reinsurance recoverable is greater than the reinsurance premium paid. The required capital for the first year has been reduced from \$3.6 per 1,000 face amount to \$0.5 per 1,000 face amount, since 85 percent of the mortality risk is transferred to the reinsurer. Therefore the after-tax IRR (AT-IRR) increased from 4.2 percent to 10.9 percent.

However, the direct insurance contract is onerous under the IFRS 4 accounting basis, which means the loss at inception of \$2.7 per 1,000 face amount must be recognized immediately. The gain from the reinsurance contract of \$2.5 per 1,000 face amount must be amortized through the 10-year coverage period as a CSM. The large CSM held in the reinsurance contract liability worsens the new business strain, and decreases the AT-IRR from 10.9 percent to 6.8 percent.

Graph 1 illustrates the patterns of contribution to free surplus (CTFS) under CGAAP financials and IFRS 4 financials, as well as the CTFS pattern if there were no reinsurance.

Graph 1: Profit (Contribution to Free Surplus) Pattern under CGAAP and IFRS 4



How can pricing actuaries improve the product profitability without hiking up the policy premium? Today pricing actuaries can shop the reinsurance market to find the lowest reinsurance premium. Can insurers still use this method in the IFRS 4 world?

Let's assume that the insurer has negotiated with a reinsurer and lowered the reinsurance premium by 7 percent. The results of the profit tests on the CGAAP financials and IFRS 4 financials are in Table 2.

The CGAAP and IFRS 4 profit margins are the same, both increasing significantly from 2.7 percent to 4.8 percent. However, although the CGAAP AT-IRR jumped from 10.9 percent to 19.1 percent, there is only a moderate rise in the IFRS 4 AT-IRR of 1.5 percent (from 6.8 percent to 8.3 percent).

Why doesn't the lower reinsurance premium for this sample product effectively boost the IFRS 4 AT-IRR? It is due to the reinsurance CSM. The lower the reinsurance price, the higher the reinsurance CSM the insurer

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Table 2: Profit Metrics of 100 Percent and 93 Percent Reinsurance Premiums under CGAAP and IFRS 4

	CGAAP		IFRS 4	
	100% Ceding Premium	93% Ceding Premium	100% Ceding Premium	93% Ceding Premium
PV of CTFS per 1,000 Face Amount (5% discount rate)	0.23	0.41	0.23	0.41
After-Tax Profit Margin	2.7%	4.8%	2.7%	4.8%
After-Tax IRR	10.9%	19.1%	6.8%	8.3%

Table 3: New Business Strain and Its Components under CGAAP and IFRS 4 (all the numbers are in per 1,000 face amount)

Components of New Business Strain	CGAAP 100% Reinsurance Premium	CGAAP 93% Reinsurance Premium	IFRS 4 100% Reinsurance Premium	IFRS 4 93% Reinsurance Premium
BEL at Year-End	-1.66	-1.91	-1.66	-1.91
CSM at Year-End	0.00	0.00	2.42	2.65
Statutory Req. Capital	0.53	0.53	0.53	0.53
Net Cash Flow plus Tax	1.70	1.77	1.14	1.15
New Business Strain	-0.57	-0.39	-2.43	-2.42

must hold due to the larger profit from the reinsurance contract at inception.

Table 3 above and Graph 2 on page 11 illustrate the components of the new business strain under CGAAP and IFRS 4.

Observations:

- The lower reinsurance premium mitigates new business strain under CGAAP—the new business strain is reduced by over 30 percent; however, it cannot mitigate the new business strain under IFRS 4.
- Under CGAAP, the profit obtained with the lower reinsurance premium is recognized at inception and decreases the new business strain. Under IFRS 4, the profit obtained with the lower reinsurance premium cannot be recognized at inception. The larger reinsurance CSM offsets the increase in the negative BEL.
- The CSM is the biggest component of new business strain; it is much greater than the statutory required capital for this sample term 10 product.

The test shows that the IRR under IFRS 4 would improve, but not significantly, from a reinsurance premium decrease, if the direct contract is onerous.

PROFIT METRICS FOR THE LOWER EXPECTED MORTALITY SCENARIO

Finally, let's study a hypothetical situation where the direct insurer decides to reduce the mortality assumption based on its good historical mortality experience. The mortality assumption is reduced to 52.5 percent of the "CIA 8692" mortality table, while the reinsurance YRT premium is still 70 percent of "CIA 8692" mortality table, which reflects the profit required by the reinsurer and also the reinsurance market reality.

The reinsurance premium is higher than the insurer's best-estimate mortality rate, so that the insurer cedes profit to the reinsurer to mitigate mortality risk and reduce the statutory required capital. The reinsurance premium is still lower than the insurer's padded mortality rate though.

Table 4: Profit Metrics for the Lowered Mortality Assumption

	No Reins. CGAAP & IFRS 4	CGAAP Reinsured	IFRS 4 Reinsured
PV of CTFS per 1,000 Face Amount (5% discount rate)	0.67	0.35	0.35
After-Tax Profit Margin	7.7%	4.1%	4.1%
After-Tax IRR	7.2%	16.4%	9.4%

With the lower best-estimate mortality rate, the gross contract is still onerous although the loss at inception is reduced drastically. The reinsurance contract still brings profit to the direct insurer at inception under the valuation assumptions. Thus, the reinsurance CSM should be set up at inception and amortized through the coverage period.

The profit metrics under this scenario are displayed in Table 4 below. It demonstrates that:

- Under the CGAAP financials, the reinsurance treaty can effectively increase the AT-IRR although it lowers the profit margin because it helps mitigate new business strain significantly. Even though the insurer loses almost half of its profit margin, the AT-IRR has more than doubled.
- Under IFRS 4, the large new business strain caused by the reinsurance CSM makes the reinsurance no longer able to effectively boost the AT-IRR. The gain in IRR is only 2.2 percent after ceding almost half of profit to the reinsurer.

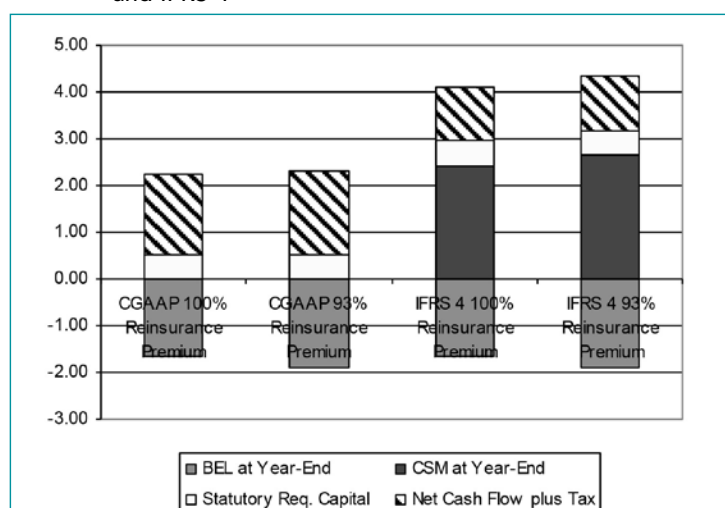
CONCLUSION

Since the profit from the reinsurance contracts cannot be recognized at inception under the IFRS 4 Exposure Draft of June 2013, the role reinsurance contracts play in term life product pricing may be changed.

The studies conducted on the simplified term life insurance product and under several hypothetical scenarios show that:

- If the insurance contract is onerous, the AT-IRR may decrease under the IFRS 4 financials as profit is deferred.
- Under IFRS 4, once the direct insurance contract becomes onerous, choosing less expensive reinsurance treaties to boost IRR may not be as effective as it is under CGAAP.

Graph 2: The New Business Strain Components under CGAAP and IFRS 4



- Under IFRS 4, if a reinsurance treaty cannot increase profit margins, and the direct insurer has to hold a large reinsurance CSM in reserve, AT-IRR could only be moderately increased while ceding considerable profit.

The views expressed herein are those of the authors and do not necessarily reflect the views of their employers. ■

ENDNOTES

¹ IFRS 4 Phase II Revised Exposure Draft issued by the International Accounting Standards Board (IASB) on June 2013 is also known as IFRS—Insurance Contracts Revised Exposure Draft.

² For more information refer to Paragraph 41 of IFRS—Insurance Contracts Revised Exposure Draft.

³ IFRS 4 BEL is the present value of the best estimate fulfillment cash flows for an insurance contract.

⁴ CTFS: contribution to free surplus.