Accounting and Reserving

The following example concerns two insurance companies, Primary and Re. Primary has been writing a book of business for the past three years, and ceding a portion of it to Re. We will assume that all Primary policies have an effective date of January 1, so that policy and accident years are the same. We will further suppose, after three years, that losses have developed as follows:

Primary:

			@ 12 mos	@24 mos	@36 mos
Paid losses	Gross	2013	1000	2000	2500
		2014	1000	2000	
		2015	1000		
	Ceded	2013	500	1000	1250
		2014	500	1000	
		2015	500		
	Net	2013	500	1000	1250
		2014	500	1000	
		2015	500		
			@ 12 mos	@24 mos	@36 mos
Reserves	Gross	2013	2000	1500	1000
(case+IBNR)		2014	2000	1500	
		2015	2000		
	Ceded	2013	1000	750	500
		2014	1000	750	
		2015	1000		
	Net	2013	1000	750	500
		2014	1000	750	
		2015	1000		
			@ 12 mos	@24 mos	@36 mos
Ultimate loss	Gross	2013	3000	3500	3500
		2014	3000	3500	
		2015	3000		
	Ceded	2013	1500	1750	1750
		2014	1500	1750	
		2015	1500		
	Net	2013	1500	1750	1750
		2014	1500	1750	
		2015	1500		

Note that this example follows the SAP convention of offsetting ceded recoverables against losses.

Now we will examine how Re accounts for its portion (the portion ceded by Primary) of the same book of business. We will assume, somewhat simplistically, that Re consistently reserves its portion of the book at 10% higher than Primary. This may be because of differences of opinion about the future of the claims outstanding, or it may simply reflect differences in reserving philosophy or methodology.

Re:

			@ 12 mos	@24 mos	@36 mos
Paid losses	Gross	2013	500	1000	1250
		2014	500	1000	
		2015	500		
			@ 12 mos	@24 mos	@36 mos
Reserves	Gross	2013	1100	825	550
(case+IBNR)		2014	1100	825	
		2015	1100		
			@ 12 mos	@24 mos	@36 mos
Ultimate loss	Gross	2013	1600	1825	1800
		2014	1600	1825	
		2015	1600		

Now we will suppose, at the end of the year 2015, that Primary and Re choose to negotiate a commutation applying to all claims within the 2013 policy year. As seen above, Primary believes that future reimbursement from Re will equal 500. Re believes that its future payments to Primary, for the 2013 policy year, will equal 550. The commutation price negotiated between Primary and Re will quite possibly be lower than either number, because of the time value of money.

We will suppose the parties agree on a price of 400. Note that Primary is considered the buyer in this transaction, and Re the seller, even though money moves from Re to Primary, because the item being sold is a liability (responsibility for future claim payments). We will assume this transaction closes before the end of 2015, and reexamine each company's triangles thereafter.

For clarity we will show the original triangles without the commutation, copied from above, alongside the adjusted triangles after the commutation, side by side:

Primary without commutation:

			@ 12 mos	@24 mos	@36 mos
Paid losses	Gross	2013	1000	2000	2500
		2014	1000	2000	
		2015	1000		
	Ceded	2013	500	1000	1250
		2014	500	1000	
		2015	500		
	Net	2013	500	1000	1250
		2014	500	1000	
		2015	500		
			@ 12 mos	**@24 mos**	**@36 mos**
Reserves	Gross	2013	2000	1500	1000
(case+IBNR)		2014	2000	1500	
		2015	2000		
	Ceded	2013	1000	750	500
		2014	1000	750	
		2015	1000		
	Net	2013	1000	750	500
		2014	1000	750	
		2015	1000		
			@ 12 mos	**@24 mos**	**@36 mos**
Ultimate loss	Gross	2013	3000	3500	3500
		2014	3000	3500	
		2015	3000		
	Ceded	2013	1500	1750	1750
		2014	1500	1750	
		2015	1500		
	Net	2013	1500	1750	1750
		2014	1500	1750	
		2015	1500		

Primary with commutation:

			@ 12 mos	@24 mos	@36 mos
Paid losses	Gross	2013	1000	2000	2500
		2014	1000	2000	
		2015	1000		
	Ceded	2013	500	1000	1650
		2014	500	1000	
		2015	500		
	Net	2013	500	1000	850
		2014	500	1000	
		2015	500		
			@ 12 mos	**@24 mos**	**@36 mos**
Reserves	Gross	2013	2000	1500	1000
(case+IBNR)		2014	2000	1500	
		2015	2000		
	Ceded	2013	1000	750	0
		2014	1000	750	
		2015	1000		
	Net	2013	1000	750	1000
		2014	1000	750	
		2015	1000		
			@ 12 mos	**@24 mos**	**@36 mos**
Ultimate loss	Gross	2013	3000	3500	3500
		2014	3000	3500	
		2015	3000		
	Ceded	2013	1500	1750	1650
		2014	1500	1750	
		2015	1500		
	Net	2013	1500	1750	1850
		2014	1500	1750	
		2015	1500		

Re without commutation:

			@ 12 mos	@24 mos	@36 mos
Paid losses	Gross	2013	500	1000	1250
		2014	500	1000	
		2015	500		
			@ 12 mos	**@24 mos**	**@36 mos**
Reserves	Gross	2013	1100	825	550
(case+IBNR)		2014	1100	825	
		2015	1100		
			@ 12 mos	**@24 mos**	**@36 mos**
Ultimate loss	Gross	2013	1600	1825	1800
		2014	1600	1825	
		2015	1600		

Re with commutation:

			@ 12 mos	@24 mos	@36 mos
Paid losses	Gross	2013	500	1000	1650
		2014	500	1000	
		2015	500		
			@ 12 mos	**@24 mos**	**@36 mos**
Reserves	Gross	2013	1100	825	0
(case+IBNR)		2014	1100	825	
		2015	1100		
			@ 12 mos	**@24 mos**	**@36 mos**
Ultimate loss	Gross	2013	1600	1825	1650
		2014	1600	1825	
		2015	1600		

Primary's gross paid losses and reserves are unchanged, as the decision to commute the claims should not affect Primary's assessment of what the gross ultimate cost of these claims will be. The commutation payment is booked as a recovery of paid losses, and ceded reserve recoverables for 2013 are set to zero.

Re experiences the commutation as an increase in paid loss, with reserves again set to zero. Re's ultimate losses decline to the extent that the commutation payment (400) was less than Re's previously booked loss reserves (550).

Note that the commutation is severely distorting to Primary's ceded and net loss triangles. Primary shows downward development in 2013 net paid losses, which would be very unusual in the absence of a commutation. Primary's ceded 2013 reserves drop to zero, and 2013 net incurred (ultimate) losses develop upward (from 1,750 to 1,850) even though there has been no change in Primary's estimate of gross ultimate loss (which remains at 3,500).

Re's loss triangles also show the effects of the commutation. Re's 2013 paid losses ratchet sharply upward between 24 and 36 months. Re's 2013 incurred (ultimate) loss develops downward, not due to any change in estimates of the ultimate number or severity of 2013 claims but only due to the commutation price (400) being lower than previously booked loss reserves (550).

Distortions to net incurred loss will show up in the loss triangles in Schedule P, Part 2 of each company's Annual Statement. Distortions to net paid loss will show up in Schedule P, Part 3.

In addition, a commutation will distort the claim closure rates in Part 5 of the reinsurer's Schedule P, since from the reinsurer's standpoint a commuted claim is considered to be closed.

Actuaries must take such distortions into account when calculating loss development factors, when assessing reserve adequacy, or when using Schedule P to review claim severity or closure trends. For this reason, commutations must be disclosed by the ceding (buying) company in Section E of the reinsurance note in the Note to Financial Statements. The disclosure must include a list of reinsurers and the amount of loss, loss adjustment expense, and earned premium commuted from each to the ceding company during the year.

The disclosure, however, does not break down the amounts commuted by accident year or line of business, and therefore will not suffice to properly adjust loss triangles. Actuaries will require more detailed internal information if and when they need to do so. Also, there is no disclosure requirement for the reinsuring (selling) company.

Consider also the effect of the commutation on Primary and Re's statutory income statements and statutory surplus. Primary has replaced an offset to liabilities booked at 500 with an asset (cash) of 400. This results in a drop of 100 in pretax income and a drop of 100 in statutory surplus (assuming the recoverables were authorized or secured and counted in statutory surplus). Re has replaced a liability of 550 with a cash payment of 400. This results in an increase of 150 in pretax income and in statutory surplus. (Tax considerations will likely have further effects on statutory surplus.)

Finally, consider that this example has been simplistic in that it involved the commutation of an entire policy year within an entire book, and examined the impact on that book as a whole. In practice, commutations may cut across lines of business and policy years. Statutory accounting principles require that "commuted balances shall be written off through the accounts, exhibits, and schedules in which they were originally recorded"[2].

In practice, this means that the single commutation price may need to be allocated among multiple lines and multiple years, and ultimately down to individual policies so that insurers can make an accurate assessment of profitability among various cuts of their book. This can be especially challenging when excess of loss reinsurance is being commuted, since the commutation payment should logically be applied only to those claims—some known and some still unknown—which ultimately pierce the excess layer.

Accounting and Taxation

For tax purposes, unpaid losses are valued on a discounted basis, as discussed elsewhere in the syllabus.[3] Companies determine the appropriate discount factor by accident year and line of business, by using either their own or IRS payment patterns and IRS published discount rates.

In the case of a commutation, note that the buying and selling company need not, and probably will not, have applied the same discount factor to the relevant unpaid losses. First, in the case of nonproportional reinsurance, the reserves will be classified according to the originating line of business by the ceding (buying) entity, but as "nonproportional assumed liability" reinsurance by the reinsuring (selling) entity.

In the case of quota share (proportional) reinsurance, the ceding and reinsuring entities will classify the business the same. However, one company may elect to use its own historical payment patterns, and the other may use IRS payment patterns. Or, both companies may use their own payment patterns, which will inevitably be different.

For our example, we will assume that Primary applies a discount factor of 0.875, and Re applies a discount factor of 0.85. We will further assume that both companies are facing an effective marginal tax rate of 35%, although tax rates also need not be equal, as there are a myriad of factors that may influence a company's marginal tax rate.

[2] National Association of Insurance Commissioners, *Accounting Practices and Procedures Manual*, 2012, Statement of Statutory Accounting Principles 62R, "Property and Casualty Reinsurance," paragraph 63.
[3] Odomirok, K.C.; McFarlane, L.M.; Kennedy, G.L; and Brenden, J., *Financial Reporting Through the Lens of a Property/Casualty Actuary*, Casualty Actuarial Society, 2012, pages 248-251