<table>
<tr><th colspan="3">General</th></tr>
<tr><td>Notation</td><td colspan="2">• Superscript: AC/BC → After commutation/Before commutation
• QS → Quota Share</td></tr>
<tr><td rowspan="3">Commutation Price</td><td colspan="2">$\text{Ultimate}^{\text{AC}}_{\text{Reinsurer}} - \text{Paid}^{\text{BC}}_{\text{Reinsurer}}$</td></tr>
<tr><td colspan="2">• $\text{Ultimate}^{\text{AC}}_{\text{Reinsurer}} = \left(\text{Ultimate}^{\text{BC}}_{\text{Reinsurer}}\right)(1 + \text{Given Increase in Ultimate \%})$
• $\text{Ultimate}^{\text{BC}}_{\text{Reinsurer}} = \text{Paid}^{\text{BC}}_{\text{Reinsurer}} + \text{Reserves}^{\text{BC}}_{\text{Reinsurer}}$
• $\text{Reserves}^{\text{BC}}_{\text{Reinsurer}} = \left(\text{Reserves}^{\text{BC}}_{\text{Primary}}\right)(\text{QS \%})(1 + \text{Given increase in reserve \%})$</td></tr>
<tr><td colspan="2">• $\text{Paid}^{\text{BC}}_{\text{Reinsurer}} = \left(\text{Paid}^{\text{BC}}_{\text{Primary}}\right)(\text{QS \%})$
• Note: All paid, reserve and ultimate terms above are on a gross basis</td></tr>
<tr><td rowspan="2">Change in taxable income after commutation</td><td>Primary</td><td>$\text{Price} - \text{Undiscounted Ceded Reserves}_{\text{Primary}} * \text{Discount Factor}_{\text{Primary}}$</td></tr>
<tr><td>Reinsurer</td><td>$\text{Undiscounted Assumed Reserves}_{\text{Reinsurer}} * \text{Discount Factor}_{\text{Reinsurer}} - \text{Price}$</td></tr>
<tr><td rowspan="3">Mutually Beneficial Commutation Price</td><td>Primary</td><td>$\text{Price} - (\text{Economic Discounted Ceded Reserves})^{\text{BC}}_{\text{Primary}} + (\text{Tax Benefit})_{\text{Primary}} > 0$
• Note: $(\text{Tax Benefit})_{\text{Primary}} = (\text{Tax Rate})_{\text{Primary}} * (\text{Decrease in taxable income})_{\text{Primary}}$</td></tr>
<tr><td>Reinsurer</td><td>$(\text{Economic Discounted Gross Reserves})^{\text{BC}}_{\text{Reinsurer}} + (\text{Tax Benefit})_{\text{Reinsurer}} - \text{Price} > 0$
• Note: $(\text{Tax Benefit})_{\text{Reinsurer}} = (\text{Tax Rate})_{\text{Reinsurer}} * (\text{Decrease in taxable income})_{\text{Reinsurer}}$</td></tr>
<tr><td colspan="2">• Note: After solving the above formulas for price, the mutually beneficial price is the overlap</td></tr>
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