Case Studies in Professionalism

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The views in this presentation are not the views of the CAS,

…or even necessarily the views of the presenters themselves.

In some cases we will take viewpoints to stimulate discussion.

Organization of Presentation

- Background material
- Case Study #1 – Statement of Actuarial Opinion
- Case Study #2 – Discounting of P&C Reserves Outside of an Insurance Company

Actuarial Trinity of ASOPs

These three ASOPs apply to the vast majority of actuarial work products:

- ASOP No. 1 *Introductory Actuarial Standard Practice*
  March 2013
- ASOP No. 23 *Data Quality*
  May 2011
- ASOP No. 41 *Actuarial Communications*
  December 2010

ASOP No. 1 *Introductory Actuarial Standard of Practice*

With the most recent update, the ASOP clarified how the words “must” and “should” are to be interpreted within ASOPs.

- “Must” - *ASB does not anticipate that the actuary will have any reasonable alternative but to follow a particular course of action.*

- “Should” - *indicates what is normally the appropriate practice for an actuary to follow when rendering actuarial services.*

Failure to follow a course of action denoted by either the term “must” or “should” constitutes a ***deviation*** *from the guidance of the ASOP. In either event, the actuary is directed to ASOP No. 41, Actuarial Communications.*

ASOP No. 1 *Introductory Actuarial Standard of Practice*

Also discusses the phrase “should consider” and the word “may” within an ASOP context

- “Should consider” - *is often used to suggest potential courses of action… failure to take this action is not a deviation from the guidance in the standard.* A similar phrase would be “should take into account”.
- “May” - *means that the course of action described is one that would be considered reasonable and appropriate in many circumstances.* Failure to comply is not a deviation from the guidance.

ASOP No. 1 *Introductory Actuarial Standard of Practice*

4.2 Actuaries should take a good faith approach in complying with ASOPs, exercising good judgment and professional integrity. It is not appropriate for users of ASOPs to make a ***strained interpretation*** *of the provisions of an ASOP.*

What is a "strained interpretation"?

An appropriate definition may be "Common sense and logic had to be stretched as well as the norms of interpretation in order to arrive at a particular decision."

In my opinion, *strained interpretation* can apply either to a) the situation where a provision would not apply or b) the situation where it would apply.

ASOP No. 41 *Actuarial Communications*

- “Should consider” – six (6) times
- “Should” – forty-three (43) times – excluding “should consider”
- “Must” – shows up only twice, one of which is pretty weak

4.4 Deviation from the Guidance of an ASOP—If, in the actuary’s professional judgment, the actuary has deviated materially from the guidance set forth in an applicable ASOP, other than as covered under sections 4.2 [required by law] *or 4.3* [reliance on another] *of this standard, the actuary can still comply with that ASOP by providing an appropriate statement in the actuarial communication with respect to the nature, rationale, and effect of such deviation.*

ASOP No. 41 *Actuarial Communications*

Another very important provision of ASOP 41 addresses the situation where the actuary is provided a key assumption from another party.

3.4.2.b.2 If the assumption or method significantly conflicts with what, in the actuary's professional judgment, would be reasonable for the purpose of the assignment, the actuary <u>must</u> disclose that fact and the additional information specified in section 4.3;

This is the perfect place to apply "strained interpretation".

Additional Readings

- *Why an Actuary Must/Should Read ASOP No. 1*

  May / June 2015 Contingencies

  Allan W. Ryan
- *Must or Should? Read ASOP No. 1*

  Nov / Dec 2015 Contingencies

  Kathy Riley
- *Whose Assumptions Are They?*

  July / August 2016 Contingencies

  David F. Ogden

Case Study #1

- **New Ways Medical Professional Insurance Co.**
  - **Actuarial Statement of Opinion on Reserves**

Case Study #1

- **New Ways Medical Professional Insurance Co.**
  - **New carrier; first policy written in 2011.**
  - **Formed to use new technologies for marketing and underwriting to gain an edge over competitors.**
  - **Writing in 8 states.**
  - **Physician policies only. Claims made only.**
  - **Capitalized with surplus of $20,000,000.**

Case Study #1 – Exhibit 1

New Ways Medical Professional Insurance

Net Reserve Summary

	Indicated in ($000)				Carried on Financial Statements in ($000)		
Line	**Case Reserves**	**IBNR Reserves**	**Total Reserves**		**Case Reserves**	**IBNR Reserves**	**Total Reserves**
Med Prof Liability - CM	14,287	8,394	22,681		14,287	8,394	22,681
DD&R and ULAE			500	*			500
Total			**23,181**				**23,181**

*All parties agree this is a reasonable value.

Case Study #1 – Exhibit 2

New Ways Medical Professional Insurance

Summary of Indications and Selections

Year	NPE	B-F Paid	BF Rept	Dev. Paid	Dev. Rept	Selected*	Ultimate L+ALE Ratio	Case	IBNR
2011	1,253,787	1,033,640	1,034,714	1,071,649	1,041,174	1,045,294	83%	98,475	33,852
2012	5,445,809	4,133,201	4,131,178	4,352,622	4,167,727	4,196,182	77%	747,485	271,031
2013	11,805,078	8,825,553	9,428,959	9,821,838	9,679,327	9,438,919	80%	3,203,856	967,650
2014	15,430,502	14,362,115	15,392,609	24,255,583	17,382,007	14,877,362	96%	5,291,922	2,198,684
2015	16,166,770	11,154,802	12,470,229	15,741,838	14,691,913	11,812,516	73%	4,945,334	4,922,847
TOTAL								14,287,071	8,394,064
						Projected 2016 Premium:	**20,000,000**		
						Projected 2016 Loss+ALE using industry L/R :	**13,000,000**		

* Selected is average of all indications except latest two years where it is average of B-F indications.

Case Study #1 – Exhibit 3

New Ways Medical Professional Insurance

B-F Analysis

Industry Loss and ALE Ratio: 65%

Year	Paid	Rept	Pd LDF	Rpt LDF	% Unpaid	% Unrep	NPE	BF Unpaid	BF Unrept	Ult Paid	Ult Rept
			Interpolated								
2011	912,967	1,011,442	1.174	1.029	0.148	0.029	1,253,787	120,673	23,272	1,033,640	1,034,714
2012	3,177,666	3,925,151	1.370	1.062	0.270	0.058	5,445,809	955,534	206,027	4,133,201	4,131,178
2013	5,267,413	8,471,269	1.865	1.143	0.464	0.125	11,805,078	3,558,139	957,690	8,825,553	9,428,959
2014	7,386,756	12,678,678	3.284	1.371	0.695	0.271	15,430,502	6,975,359	2,713,931	14,362,115	15,392,609
2015	1,944,335	6,889,669	8.096	2.132	0.876	0.531	16,166,770	9,210,467	5,580,560	11,154,802	12,470,229

Case Study #1 – Exhibit 4

New Ways Medical Professional Insurance

Analysis of Reported and Paid Loss and ALE

	Values at 4/30/2016		Interpolated			
Year	**Paid**	**Rept**	**Pd LDF**	**Rpt LDF**	**Ult Paid**	**Ult Rept**
2011	912,967	1,011,442	1.174	1.029	1,071,649	1,041,174
2012	3,177,666	3,925,151	1.370	1.062	4,352,622	4,167,727
2013	5,267,413	8,471,269	1.865	1.143	9,821,838	9,679,327
2014	7,386,756	12,678,678	3.284	1.371	24,255,583	17,382,007
2015	1,944,335	6,889,669	8.096	2.132	15,741,838	14,691,913

Case Study #1 – Exhibit 5

New Ways Medical Professional Insurance

Loss Development (net of reinsurance and sal/sub)

Reported Loss + ALE											**Values at**
R Year	**12**	**24**	**36**	**48**	**60**	**72**	**84**	**96**	**108**		**4/30/2016**
2011		800,378	807,513	875,153	979,217						1,011,442
2012	1,004,588	2,403,282	2,440,787	3,507,581							3,925,151
2013	2,712,189	5,793,674	7,235,573								8,471,269
2014	6,893,582	10,700,177									12,678,678
2015	4,602,162										6,889,669
R Year	12	24	36	48	60	72	84	96	108		
2011		1.009	1.084	1.119							
2012	2.392	1.016	1.437								
2013	2.136	1.249									
2014	1.552										
3 yr wtd	1.781	1.165	1.349	1.119							
3 yr unwtd	2.027	1.091	1.260	1.119					Tail		
Benchmark	2.600	1.250	1.150	1.050	1.020	1.010	1.000	1.000	1.000		
Selected	**1.850**	**1.150**	**1.150**	**1.060**	**1.020**	**1.010**	**1.000**	**1.000**	**1.000**		
to ult:	2.672	1.444	1.256	1.092	1.030	1.010	1.000	1.000	1.000		

All parties agree the development factor selections are reasonable.

Case Study #1 – Exhibit 6

New Ways Medical Professional Insurance

Loss Development (net of reinsurance and sal/sub)

Paid Loss + ALE										**Values at**
Year	**12**	**24**	**36**	**48**	**60**	**72**	**84**	**96**	**108**	**4/30/2016**
2011		656,407	785,250	875,153	879,217					912,967
2012	268,953	1,545,580	2,936,434	3,058,830						3,177,666
2013	637,417	1,877,334	4,015,425							5,267,413
2014	1,323,627	4,911,954								7,386,756
2015	1,103,185									1,944,335
Year	12	24	36	48	60	72	84	96	108	
2011		1.196	1.114	1.005						
2012	5.747	1.900	1.042							
2013	2.945	2.139								
2014	3.711									
3 yr wtd	3.738	1.897	1.057	1.005						
3 yr unwtd	4.134	1.745	1.078	1.005					Tail	
Benchmark	3.000	2.000	1.500	1.250	1.120	1.060	1.030	1.015	1.015	
Selected	**4.000**	**2.000**	**1.300**	**1.150**	**1.120**	**1.060**	**1.030**	**1.015**	**1.015**	
to ult:	15.067	3.767	1.883	1.449	1.260	1.125	1.061	1.030		

All parties agree the development factor selections are reasonable.

Case Study #1 – Defense of Analysis

- ASOP 43 refers to CAS SOP in the appendix: CAS SOP on reserves states (under "Credibility") "Where a very small group of claims is involved, use of external information such as industry aggregates may be necessary."
- The use of industry loss ratio is fully disclosed, in accordance with ASOP 36.
- There has been no disagreement with the use of industry loss development factors to supplement history.
- It is not a deviation from any standard to use industry loss ratio.

Case Study #1 – Critique of Analysis

- The point of contention is limited to the selection of the *a priori* loss ratio used in the Bornhuetter-Ferguson methods.
- Using a Cape-Cod method or the Benktander method (or a simply an *a priori* consistent with historical results), produces reserves that are \$3.2 - \$4.0 million higher. This translates to a 16% - 20% reduction in surplus.
- ASOP 43- *Property/Casualty Unpaid Claim Estimates*

  3.6.2 ASSUMPTIONS

  The actuary should consider the reasonableness of the assumptions underlying each method or model used. Assumptions generally involve significant professional judgment as to the appropriateness of the methods and models used and the parameters underlying the application of such methods and models. ... The actuary should use assumptions that, in the actuary's professional judgment, have no known significant bias to underestimation or overestimation of the identified intended measure and are not internally inconsistent.

Pause for group discussions

Case Study #2 – Discounting P&C Reserves

Background

- Corporation – not an insurance company, RRG or captive; but self-insured
- Self-insured coverage is workers compensation
- Limit of liability per claim is $1 million
- Total reserves are $450 million
- Purpose of discounting is to record a lower amount on the balance sheet

Point of contention

- Appropriate discount rate

Financials – Balance Sheet

BALANCE SHEET	Year End
(in millions)	2015
ASSETS	
Cash and cash equivalents	$ 78.4
Trade accounts receivable	940.8
Prepaid expenses	98.6
Deferred income taxes, net	83.8
Other assets	40.9
Other investments	56.2
Property, plant and equipment	109.9
Other intangible assets	169.5
Goodwill	1,360.3
Total assets	$ 2,938.4
LIABILITIES AND STOCKHOLDERS' EQUITY	
Trade accounts payable	$ 283.2
Accrued compensation	187.2
Income and other taxes payable	178.6
Other accrued liabilities	195.6
Line of credit	202.8
Insurance claims	450.0
Total liabilities	1,497.4
Total stockholders' equity	1,441.0
Total liabilities and stockholders' equity	$ 2,938.4

Other Investments includes investments in nonconsolidated affiliates and investments in auction rate securities.

Financials – Income Statement

	Year End
($ in millions)	2015
Revenues	$ 6,589.8
Expenses	
Operating	5,493.6
Selling, general and administrative	474.3
Amortization of intangible assets	30.4
Total expenses	6,268.0
Operating profit	321.8
Income from unconsolidated affiliates	9.8
Interest expense	(13.5)
Income from continuing operations before income taxes	318.0
Provision for income taxes	(80.4)
Income from continuing operations	237.7
Income from discontinued operations operations	30.8
Net income	$ 268.4
Other comprehensive income	
Foreign currency conversion	(2.9)
Other	(0.1)
Comprehensive Income	$ 265.4

Other includes returns from invested assets.

Financials

In summary, the Balance Sheet and Income Statements demonstrate that this company does not hold any meaningful amount of assets that are generating investment income.

- There is a very small amount of invested assets as shown on the Balance Sheet.
- The Income Statement shows that the company is deriving no appreciable investment income. In fact, the company has interest expense that would eclipse any investment income.

Applicable ASOP

ASOP No. 20 *Discounting of Property/Casualty Unpaid Claim Estimates*

Scope

- Applies when estimating discounted unpaid claims for all classes of entities, including **self-insureds**, insurance companies, reinsurers, and governmental entities.
- This standard does not address the appropriateness of using discounted unpaid claim estimates in specific contexts.

The key word here is “context”

- 3.1 APPROPRIATENESS IN CONTEXT

  The actuary should be aware of the **context** in which the discounted unpaid claim estimate is to be used. The actuary should use a methodology and assumptions in the discounting process that are appropriate for that **context**.

- 3.4.1 DISCOUNT RATE BASIS

  Discounted unpaid claim estimates may be used in a variety of **contexts** and the appropriate selected discount rates are a function of the **context**.

Conclusion

- Discounting is based on the concept of the Time Value of Money, which states that a dollar today is worth more than a dollar tomorrow – provided that the money generates interest.
- The assets supporting the reserve liabilities do not generate investment income.
- This is not an exercise to determine a fair market value of the liabilities; the purpose is to support a lower number on the balance sheet.
- The appropriate discount rate should be 0%.

Case Study #2 – The Empire Strikes Back

- ASOP 41 - 3.4.4(b) gives the actuary the opportunity to disclose their disagreement with the discount rate.
- While there is a familiarity and “neatness” to using the yield on a bond portfolio as an appropriate discount rate, there is nothing in the ASOPs that require such.
- In this context, the company itself could be regarded as the “investment”, and it puts out sufficient cash flows to meet obligations.
- The driving question here is whether the company financial statements provide an accurate reflection of its value – if the company were to be acquired (which is the ultimate measure of its value), the acquirer would discount the cash flows.
- If I were concerned about the company’s ability to continue as an ongoing enterprise, then I might agree that they should not discount due to the need for a risk margin.

Pause for group discussions

Bonus (Time Allowing)

ASOP No. 41 *Actuarial Communications*

- *1.2 Scope—This standard applies to actuaries issuing actuarial communications within any practice area. This standard does not apply to communications that do not include an actuarial opinion or other actuarial findings (for example, this standard does not apply to brochures, fee quotes, or invoices)…*

- *3.2 Actuarial Report—The actuary should complete an actuarial report if the actuary intends the actuarial findings to be relied upon by any intended user…*

Bonus (Time Allowing)

Situation: Tom is a company actuary. Bob, in Underwriting, asks Tom what does he think the industry loss ratio for Medical Malpractice will be next year in Texas. The exchange of information is in an e-mail.

Questions:

- Does Tom need to write a report with his response? (*3.2 Actuarial Report)*
- If so, does Tom need to explain to Bob who he is and that they work for the same company? (*3.1.4 Identification of Responsible Actuary*)
- Does Tom need to explain that the data he used to arrive at his estimate is a combination of A.M. Best, various annual statements and industry articles? (*3.4.3 Reliance on Other Sources for Data and Other Information*)

Questions and Discussion