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TAXES AND PROFIT DISCOUNTING

by Douglas A. Eckley

The question can be put simply: should statutory profits be discounted at an after-tax rate, or at a pre-tax rate? Beyond the pedantic answer, "yes", there are some hair-raising complications.

Imagine that statutory profits have been projected for each of the next thirty years. This may have been done for a block of in-force, a company, or per-thousand-of-face-amount for a new product. Now the profit stream is to be discounted to a present value.

Why After-Tax?

One strong argument for using an after-tax rate takes the "reductio ad absurdum" form. If profits were being accumulated, rather than discounted, an after-tax rate would be used, because tax would have to be paid on the investment income generated as the company reinvested the profits. Assume for the sake of argument that the profit stream is negative in the first year, positive thereafter, and non-decreasing. Further, assume that the accumulation at the after-tax rate is zero after ten years. If the same ten years of profits are discounted at the higher pre-tax rate, then the present value will be negative. The absurdity is that the stream breaks even, yet has negative value. The conclusion—profits must be discounted at the after-tax rate.

Why Pre-Tax?

But there's a strong argument for the opposite view which also takes the "reductio ad absurdum" form. Compare two products, similar in every respect except that one has lower reserve requirements than the other in every year until the last (when reserves naturally become zero). The low-reserve product should produce an equal or higher present value of profits because of earlier availability of profits. (Higher reserves defer taxes also, but

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TO PROSPECTIVE ENROLLED ACTUARIES

If you are unhappy that the transitional period, within which credit will be granted for the first part of exam EA-1, extends only through 1985, please write to the Joint Board for Enrollment of Actuaries, 1725 Eye Street, Suite 1103, Washington, DC 20006. It may not be too late to persuade the Joint Board to lengthen this, if enough of us show that we are interested.

Ed. Note: This notice is displayed at the request of a displeased student who found out for himself that the Joint Board IS INTERESTED in hearing views on appropriateness of their announced transition rule.

MORE ON GAAP FOR MUTUALS

by Donald D. Cody

Daniel F. Case's article (Dec. 1983 issue) prompts me to discuss how statutory financials would differ from a reasonable GAAP for Mutuals structure, if the latter were ever imposed. Background may be found in my paper, TSA XXXIII (1981) 313-366, "An Expanded Financial Structure for Ordinary Dividends", in Thomas G. Kabele's brilliant discussion of it, and in my subsequent TSA XXXV (1983) preprinted September 2, 1983 "The Generalized Ordinary Dividend Formula Under TEFRA".

The generalized dividend formula explicitly contains all factors of the mutual company financial mechanism; all Contribution Principle formulas are approximations of it. It is practicable, and in use in at least one company. It provides an exact answer to the GAAP-for-Mutuals question, if indeed there should be such a question.

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A FAIRY TALE

by David H. Raymond

Once upon a time there were two persons, identical except for one minor difference—Fanatica Feminista was female; Machismo Maximo was male.

Fanny and Macho took identical jobs at World Wide Widget Works on the same day. Each contributed 3% of salary to WWW's thrift plan, which accumulated to \$100,000: \$20,000 of contributions and \$80,000 of investment income. Reaching age 65, each had two options:

To take the \$100,000 in cash, or

To take a life annuity worth \$100,000 from Actuarially Equitable Annuity Company.

Actuarially Equitable, using the 1983 Individual Annuity Mortality Tables which showed Fanny's life expectancy to be 21% greater than Macho's, offered Fanny \$907.45 per month and Macho \$986.38 per month, 9% more—these weren't 21% different because of the impact of interest, at 9% p.a. on the calculations. After taxes at 20% these annuities would yield \$744.29 monthly to Fanny, \$811.40 to Macho.

Fanny was unhappy. She was glad to have 21% greater life expectancy than Macho, but was unwilling to acknowledge the implication for her annuity benefit. She demanded that Big Brother do something about her unhappiness. Big Brother, whose preference for political over actuarial considerations had already been demonstrated by the condition of his social security system, told WWW that if annuities were offered they must provide identical monthly payments.

WWW, not prepared to pay an extra 9% for all its female employees, and fearing that if it did, Macho would

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More on GAAP

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To return briefly to Mr. Case's article—it seems satisfactory to state that mutual statutory financials are based on "accounting practices prescribed or permitted by the State of domicile, which are considered generally accepted accounting principles for mutual life insurance companies". Thus, his question whether such financials conform to all-industry GAAP should not be central.

Mutual companies are different from stock companies. This difference cannot be convincingly demonstrated by philosophies like "zero earnings", which are debatable, or by scenarios like "going out of business", which are unrealistic, or by other such arguments. The difference for these purposes is epitomized by the fact that mutuals must pay policyholder dividends based on the Contribution Principle, the precise expression of which is the generalized dividend formula. Analysis of this difference discloses the following:

1. The release-from-risk mechanism imbedded in the GAAP adjusted reserves in stock companies lies elsewhere in the mutual company financial structure. For mutuals the release-from-risk mechanism is imbedded in the policyholder dividends.
2. If Formula (4) for the generalized dividend on page 319 of my 1981 paper (or the "New Formula (4)" of my 1983 paper) is solved for V_{n-1} and applied recursively to V_n in the formula, one proves that the statutory reserve (V_{n-1}) exactly equals (a) the GAAP benefit reserve providing for contract obligations, renewal expenses, and dividends as benefits, with the GAAP net benefit premium equal to gross premium less the charge for amortization of acquisition expenses, plus (b) the present value of profit charges, with all items after FIT. The GAAP basis here sets total GAAP net premium equal to the gross premium. The GAAP benefit reserve and GAAP net benefit premium incorporate the unknown future generalized dividends and the unknown future mortality, lapse, FIT and investment income rates. The unamort-

EXAM STATISTICS

	Part 1				
	Passed	G.R.E. Credit	Total	New Associates	New Fellows
1980—May	664	40	704	393	186
—Nov.	586	30	616	277	226
—Total	1250	70	1320	670	412
1981—May	641	32	673	212	87
—Nov.	584	23	607	230	178
—Total	1225	55	1280	442	265
1982—May	667	43	710	225	146
—Nov.	670	28	698	197	118
—Total	1337	71	1408	422	264
1983—May	813	36	849	187	160
—Nov.	699	24	723	167	51
—Total	1512	60	1572	354	211

The upward trend in numbers of Part 1 passers that started in 1982, continued in 1983. The number of Fellows in the Class of 1983 (211) is the smallest since 1974 (see 1984 Yearbook, p. 84). The number of New Associates by examination in 1983 (354) is the lowest since 1976, when it also was 354.

ized acquisition expense asset likewise incorporates the unknown future mortality, lapse, FIT and investment income rates, since the generalized dividend is assumed to have a "floating" acquisition expense amortization charge which assures that the unamortized acquisition expenses are kept on target, as determined at issue, by recognizing the effects of the changing rates, as discussed in my 1983 paper.

3. The conclusion from all this is that in a mutual company with a precise generalized dividend formula, the statutory reserve is already a GAAP benefit reserve including provision for FIT and profit charges. Also, the statutory financials can be easily converted to full going-concern GAAP-type financials for management use by adding a deferred acquisition expense asset (available in the generalized dividend financial structure), plus, of course, other items, like prepaid development expenses (available in the expense matrices), moving MSVR into surplus, and similar GAAP-type changes.

But the important point is that the statutory reserves need not be

adjusted, since the dividend design assures that they already are GAAP adjusted benefit reserves!

4. Several features deserve detailed comment:

(a) The actuarial factors in the above GAAP structure (mortality, lapse, FIT, investment income) are not loaded, but are the actual rates as they appear in the future. The dividend itself is a complete pass-through of experience in the future and thus loadings are unnecessary. What a distinct improvement over stock company GAAP with its arbitrary confusing loadings!

(b) Although stock company GAAP stipulates profit as a flat percent of premium (revenues) when expected experience is exactly realized, the loadings in the expected experience cause profit to emerge in fact increasingly with duration, due largely to the margins in expected interest rate. The generalized dividend has an explicit profit factor, which I believe should be predominantly a percent of reserve, but can be otherwise designed.

(c) While a mutual with a full blown generalized dividend formula would precisely realize the relationships in (1), (2) and (3) above, a company with a well designed traditional 3-factor dividend formula is likely to have financials differing in no material manner. Similar non-material variations also arise from lags and estimates of experience in the generalized dividend formula, the effects of which should average out over several years.

(d) Mutual company surplus does not provide for dividends; as proved, the statutory reserve makes this provision. However, variations from the precise generalized dividend formula, as noted in (c), do have an effect on surplus, which should average out.

5. All-industry GAAP has been adapted to stock life insurance companies. If all-industry GAAP is ever adapted to mutual life insurance companies, the adaptation should recognize as the central consideration the predominance of dividends on the Contribution Principle. □