1995 VALUATION ACTUARY
SYMPOSIUM PROCEEDINGS

SESSION 17

Life Valuation Issues -- XXX/Regulation 147

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LIFE VALUATION ISSUES -- XXX/REGULATION 147

MR. BRIAN KAVANAGH: This presentation will cover differences in Regulation XXX and Regulation 147, possible new XXX designs, and consumer reaction to NAIC's adoption of XXX.

Regulation XXX has options, exemptions, and strategies. Provisions may apply at the policy, plan, or company level. It is complex. Postissue guarantees require recasting of reserves, so XXX is dynamic. At the policy level, there is inconstancy. Assumptions that produce the best reserve results at one valuation may not do the same at a subsequent valuation. The main innovations in XXX are the introduction of the contract segmentation method, which divides a policy into discreet segments, and the definition of secondary guarantees for universal life (UL) policies. Many new concepts have been introduced in XXX, and it will be years before there is a consensus on how all the provisions are to be interpreted and applied in practice.

There are some main components to XXX. New select factors (NSFs) are introduced that can be applied to the 1980 Commissioners Standard Ordinary (CSO) tables when certain criteria are met. It is not a new mortality table in the traditional sense.

Regarding valuation of nonlevel premium plans, the contract segmentation method is required as an additional test to eliminate unitary method manipulation of statutory reserves for nonlevel premium plans.

UL plans with secondary guarantees are required to be tested as term plans to determine minimum statutory reserves.

There are exemptions to the main components. Reentries are exempted when the original issue date is before the regulation's effective date provided the amount of insurance is not increased and the gross premium rates are guaranteed in the original policy. Variable life and variable UL exemptions may not survive into state versions. New York's Regulation 147 is expected to be amended in this

way in 1996. Group insurance is exempted when there are no gross premium guarantees for longer than a year.

Let's discuss the unitary method. The unitary method is specified ambiguously in the 1980 Standard Valuation Law, and unfortunately, in Regulation XXX as well. Guideline XXI interprets the ambiguities. A fraction is calculated equal to the present value of benefits divided by the present value of contract premiums excluding first-year premiums and benefits. The expense allowance is this fraction applied to the second-year contract premium less a one-year term premium for first-year benefits. Valuation premiums, based on the Commissioners Reserve Valuation Method (CRVM) are calculated as a constant percent of contract premiums such that at issue their present value equals present value of benefits plus the expense allowance. The first-year valuation premium is the constant percent times the first-year contract premium. It is not the one-year term premium for first year's benefits.

In the contract segmentation method, a new segment starts when the ratio of the guaranteed gross premium over the prior year exceeds the corresponding deficiency reserve valuation mortality ratio. Valuation ratios can be varied by plus or minus 1% in any year. This leeway is a useful strategy that can shorten or lengthen segments. Within each segment, valuation premiums are determined using the unitary method except there is no expense allowance in any segment after the first. This restriction may be questioned by the Internal Revenue Service (IRS). Valuation premiums may be modified within each segment by using the cash value or nonnegative unitary reserves at the end of a segment as an endowment with the corresponding value from the end of any prior segment as a single premium.

Here are some segmentation features. Using unitary reserves as single premiums and endowments can only increase statutory reserves since negative unitary reserves are excluded. Policy fees are to be included in all calculations unless they are level and coterminous with the gross-premium-paying period. Coterminous level policy fees are to be excluded in determining segments, may be excluded in determining basic reserves, and independently, may be excluded in determining deficiency reserves. Coterminous level policy fees are included when gross premium increases cause basic valuation

premiums to increase at early durations and reduce at later durations. Basic reserves, which equal the accumulation of valuation premiums less costs of insurance, are increased.

There are some expense allowance variations. Maximum expense allowance is the net level annual premium on a 19 level pay whole life policy issued at one year older. Under Actuarial Guideline XVII, expense allowances may be calculated using the same commutation functions used for reserves. Under Actuarial Guideline XXI, for issues after 1986, a negative expense allowance may be set to zero. First-year instead of second-year contract premium is usually used to determine the expense allowance although there is no logical basis for this.

Base NSFs were developed from the Society of Actuaries' data from 1983 to 1986, split by sex and smoking status but not by type of underwriting, e.g., preferred nonsmoker. The effect of the growing use of blood tests to screen for AIDS, which screens out many other ailments, is not reflected. Because of possible mortality antiselection after a premium increase sufficient to terminate a segment, NSFs may not be used beyond the first segment. A total of 150% of base NSFs can be used for basic reserves and 120% for deficiency reserves. Resulting factors are not to be rounded and are maximized at 100. Resulting factors may be graded linearly for the last five years. Resulting mortality for deficiency testing at early durations is still about twice contemporary pricing mortality for the best underwriting class, thus it's conservative.

Regarding basic reserves, the same mortality including any NSFs limitation must be used for unitary reserves as used for segmented reserves. Basic reserves are the present value of benefits less the present value of valuation premiums until expiry. Statutory basic reserves are the higher of segmented and unitary reserves but not less than the cost of insurance for any unearned coverage.

As far as deficiency reserves, deficiency plus basic reserves are calculated in the same manner as basic reserves replacing deficient valuation premiums with gross premiums but using deficiency mortality and interest assumptions. Deficiency reserves are the excess over the basic reserves if positive. Calculations use the same method, segments, and NSF limitation used in basic reserves. The segmented method must be used when the unitary method gives the same basic reserves. Deficiency

testing should only occur if there are future deficient gross premiums at valuation since deficiency valuation assumptions can produce higher reserves even without any gross premium deficiencies. There is a deficiency exemption for the first segment when it is five years or less. It is only for deficiencies that occur in the first segment.' All deficiencies that occur after such a first segment must be taken into account. Annual actuarial opinion is required for the exemption. Statutory reserves are the sum of basic reserves and deficiency reserves. In no event may this sum plus any reserves held for supplemental benefits be less than the total cash surrender value.

Let's turn to unusual cash values. Based on guarantees at issue, an unusual cash value occurs when an increase in cash value from prior year-end to current year-end is greater than 110% of gross premium plus 110% of interest plus 5% of first-year surrender charge, if any. Interest is the annual nonforfeiture rate times the sum of prior cash value and gross premium. The contract from issue until expiry is broken down into periods between unusual cash values. Cash values at the end of a period are used as endowments and cash values from any prior period are used as single premiums. Using periods as segments, the segmented method including the expense allowance limitation is applied. Basic reserve assumptions are used. There is no related deficiency test. Regarding UL, apply this test only if there are guaranteed cash values given in the policy. This test would not normally apply to flexible UL.

Now consider the yearly renewable term (YRT) reinsurance option. Both current and guaranteed YRT rates must be independent of the policy's gross premiums and plan of insurance and must be for mortality risk only. The contract is broken down into one-year periods. Basic reserves are the cost of insurance for the balance of policy year. Deficiency reserves are the present value of positive differences between valuation premiums and guaranteed YRT premiums. Maximum interest rate is to be used. NSFs cannot be used. Unless otherwise approved, all qualifying policies must use this method when elected.

Also consider the annual renewal term (ART) option. Both current and guaranteed gross premiums must depend on attained age. Policies subsequently qualify when the nonqualifying period for all issues is level or terminates at a common age. The contract period is broken down into one-year

periods. Basic reserves are the cost of insurance for the balance of the policy year. Deficiency reserves are the present value of the positive differences between valuation premiums and guaranteed gross premiums. The maximum interest rate is to be used. NSFs cannot be used. Unless otherwise approved, all qualifying policies must use this method when elected.

There is a unitary exemption. No unitary testing is required when n is constant, premiums within each n period are level, no deficiencies exist, and there are no cash values. No unitary testing is required when, during the juvenile period, which must end not later than age 25, premiums and death benefits are level. There are no cash values and, after the juvenile period, premiums are level during the premium-paying period, and the death benefit is level until the end of contract period.

Let's discuss UL secondary guarantees. Secondary guarantees exist when, at any time after five years, specified premiums given in the policy keep a policy in force when it would otherwise lapse or a minimum premium is less than a one-year valuation premium. A minimum premium is the least premium needed to keep a policy in force assuming zero account value at the start and end of a policy year. Valuation premiums cannot be based on NSFs. The guaranteed period is to the end of the specified premium period or, if later, the last year that a deficient minimum premium occurs. Guaranteed gross premiums to be tested are specified premiums, if any, otherwise test minimum premiums. Statutory reserves are segmented statutory reserves for the guaranteed period if greater than those required under the UL model regulation. Guarantees made after issue must be assumed to have been made at issue. Perhaps it's inadvertent, but there is no reference to postissue guarantees for policies other than UL.

There are questions about UL-specified premiums. Specified premiums that guarantee a policy will remain in force when the policy would otherwise lapse. Is the period to be tested until the end of the specified premium period stated in the policy, as New York interprets, or until the last year that a policy is prevented from lapsing during that period? When specified premiums are discontinued but the policy doesn't lapse, does the secondary guarantee still exist? If the secondary guarantee continues, reserves may increase while the present value of liabilities decrease. If it ends, does the secondary guarantee restart when all required specified premiums are subsequently paid? Does the

guarantee period end if favorable current experience subsequently makes the secondary guarantee unnecessary to keep a policy in force? How will policy changes affect secondary guarantees? Policy language should clearly spell out when the guarantee period ends.

Let's turn to the causes of UL-deficient minimum premiums. Many companies base their monthly cost of insurance charges on one-twelfth of the 1980 CSO rates. This will create deficient minimum premiums at older ages, usually starting around age 90. For example, at age 99, assuming one-twelfth die each month, 35% will survive until the end of the year, whereas valuation mortality assumes no one survives. Many companies declare cost-of-insurance charges, expenses charges, or interest credits at the start of each policy year. This is a postissue guarantee that may create deficient minimum premiums. Guaranteed return of any charges will most likely create deficient minimum premiums in the return years.

There are some tax considerations. Before a new mortality table can be used, it must be adopted in 26 states. However, the introduction of NSFs may not constitute a new mortality table. As the IRS does not permit the use of select factors until the issue is clarified, it may be advisable to use the ultimate 1980 CSO tables to determine segments and tax reserves. Tax reserves are required to be determined using the CRVM method adopted by the NAIC. It is not necessary for any state to adopt. Regulation XXX should be the basis for determining tax liabilities for 1995. The IRS may hold that, since the regulation is introducing a new mortality table, it must be adopted by 26 states before it can be used to calculate tax reserves. It may be advisable to establish basic unitary reserves that are close to segmented basic reserves as the IRS may rule that the segmented method is not acceptable for tax reserves.

Let's discuss the differences in Regulation 147. New York's Regulation 147 differs from Regulation XXX in significant ways. In the expected 1996 amendments to Regulation 147, these differences may be reconciled.

The valuation ratio is based on basic mortality. In the year after the premature ending of NSFs, when elected, the valuation ratio must still use NSFs in both the numerator and denominator. Regulation

XXX has no such requirement although this can result in a non-unique solution to the length of the first segment as in Table 1.

TABLE 1

Segment Determination
Male 45 -- Nonsmoker

Policy Duration	Gross Premium	GP Ratio	Unadj. Def. Mort.	Unadj. VP Ratio	Adj. Def. Mort.	Adj. VP Ratio
1	2.33	N/A	1.00	N/A	1.00	N/A
2	2.33	1.00	1.46	1.47	1.46	1.47
3	2.33	1.00	1.91	1.30	1.91	1.30
4	2.33	1.00	2.26	1.19	2.26	1.19
5	2.33	1.00	2.56	1.13	2.56	1.13
6	2.60	**1.12**	2.83	**1.10**	4.91	**1.92**
7	2.90	1.12	3.08	1.09	5.35	1.09
8	3.01	1.04	3.31	1.07	5.86	1.10
9	3.25	1.08	3.63	1.10	6.43	1.10
10	3.50	1.08	4.00	1.10	7.09	1.10

Using NSFs for 15 years gives a first segment length of five years. Adjusting valuation mortality to discontinue use of the NSFs after five years results in a six-year first segment. This can easily happen as the new numerator in the sixth year valuation ratio can easily double. Using NSFs for six years will again result in a first segment length of five years.

Now let's turn to reserves for Regulation 147. Cash values are not specified for use as single premiums or endowments in determining segmented valuation premiums. Unitary reserves may be used but are specified as basic unitary reserves. Deficiency reserves are the higher of segmented or unitary deficiency reserves irrespective of the method used to determine basic reserves. Reserve minimums, when unusual cash values occur, must not be less than those required by Section 4217(c)(6)(A) of New York Insurance Laws. Reserves for all in-force policies need to comply; however, segmentation testing for any policy and secondary guarantee testing for any UL policy is not required when issued before 1994. There is no reference to postissue guarantees; however, by administrative ruling, they are to be considered to have been made at issue for all policies.

Regarding Regulation 147 UL secondary guarantees, separate tests are required for both specified premiums and deficient minimum premiums. Unitary testing is required in addition to segmented testing. When deficient minimum premiums occur, testing is done until the end of the contract period and not just until the year the last deficient minimum premium occurs.

For Regulation 147, NSFs are rounded to the nearest percent. Subject to department approval, alternative select factors can be used if they are not less than regular NSFs and do not decrease with duration. No actuarial opinion is required for the first segment deficiency exemption. The ART option applies only if a policy qualifies from issue. New York would probably not object if a company uses the NAIC version.

As far as Regulation 147, there are other expected amendments. The California method as an acceptable alternative basic reserve method for UL policies is expected to be removed. The variable life and variable UL exemption is expected to be removed.

We will now turn our attention to product development. Currently, reserves are of minor importance in product design. Regulation XXX makes establishing statutory reserves the key element in product design. The major task is to design products that do not create unaffordable deficiency or basic reserves, and to the extent possible, maximize tax reserves. Product actuaries must have a thorough understanding of the regulation. It cannot be left to valuation actuaries who tend to react instead of initiate new approaches.

It is necessary to use every exemption, option and strategy provided for in the regulation's provisions in the design process.

The term marketplace is expected to split into three main variations. Exemption from deficiency reserves will make five-year rate guarantees popular and very competitive. Required actuarial justification may temper this competitiveness. Some companies will continue their existing plans and issue level term policies with deficient guaranteed premiums. Deficiency reserves may be funded directly out of surplus or indirectly through purchases from surplus of financial reinsurance, either

of which may result in higher current premiums. The most likely response will be to establish nondeficient guaranteed rates. Current rates may remain unchanged or, if anything, lower since less margins are required when rates are not guaranteed. Use of the NSFs for the full 15 years is required to keep nondeficient guarantees at a minimum. Increases, if any, in guaranteed gross premium rates during the first 15 years may be restricted so that the first segment does not end prematurely.

In Table 2, variation (4) seems superior to the other three and may become the dominant design. Statutory profits can emerge within five years. Although variation (2) has the best guarantee, the additional cost may make this plan less attractive. There are moderate increases in guaranteed gross premiums after the first five years.

There are innovative guarantees that can be made. Divergence of guaranteed and current rates will cause consumer concerns that rates may be substantially increased without notice. This could be countered by introducing guarantees that address these concerns. Adequate notice could be given to insureds when an increase will take place. To a degree, this occurs in UL policies when a company guarantees cost-of-insurance charges or interest credits at the start of each policy year. Any single yearly increase could be guaranteed not to exceed a given maximum. Some regulators may view such guarantees as postissue guarantees and therefore must be assumed to be have been made at issue. If anything, regulators should encourage this type of consumer protection rather than discourage it through additional reserve requirements. In the post-Regulation XXX environment, without some form of continuing short-term assurances, healthy insureds will switch their insurance more frequently. Eventually, remaining insureds will have higher mortality, perhaps forcing premium increases. Every reasonable attempt should be made to avoid this scenario.

Companies should act now. New requirements and approaches will lengthen the development cycle. It will take time for reviewers to become familiar with the new regulations and process the expected additional filings. In-house systems upgrades may take years. New marketing approaches will need to be created. Tax planning has to start at the product development stage even for products that will be sold before Regulation XXX is adopted at the state level.

TABLE 2

Rate/Reserves
Male 45 -- Nonsmoker

Dur.	Rate 1	Res. 1	Rate 2	Res. 2	Rate 3	Res. 3	Rate 4	Res. 4
1	2.33	0.00	2.80	7.24	3.48	-0.00	2.33	0.00
2	2.33	0.71	2.80	9.03	3.48	2.72	2.33	1.21
3	2.33	0.89	2.80	10.47	3.48	5.01	2.33	1.92
4	2.33	0.64	2.80	11.63	3.48	6.97	2.33	2.23
5	2.33	0.00	2.80	12.55	3.48	8.65	2.33	2.18
6	7.13	2.55	2.80	13.24	3.48	10.09	2.57	2.11
7	7.13	4.78	2.80	13.72	3.48	11.28	2.80	2.01
8	7.13	6.62	2.80	14.00	3.48	12.25	3.01	1.91
9	7.13	7.98	2.80	13.98	3.48	12.87	3.30	1.78
10	7.13	8.75	2.80	13.58	3.48	13.06	3.64	1.62
11	7.13	8.84	2.80	12.58	3.48	12.51	4.18	1.42
12	7.13	8.12	2.80	11.09	3.48	11.09	4.80	1.16
13	7.13	6.50	2.80	8.66	3.48	8.66	5.49	0.85
14	7.13	3.85	2.80	5.04	3.48	5.04	6.26	0.46
15	7.13	0.00	2.80	0.00	3.48	0.00	7.13	0.00
Index	5.13		2.80		3.48		3.37	

1 -- Five-year level then ten-year level -- nondeficient.
2 -- Level deficient -- increased by 20% for deficiency
3 -- Level nondeficient
4 -- Five-year level then ART -- nondeficient

Let's discuss consumer reaction. Anticipating premium increases for term and term-like products with long guarantees, special interest groups have attacked the industry. Governors, insurance commissioners, federal politicians and agencies have been lobbied in an attempt to prevent Regulation XXX from becoming the new reserve standard.

Consider the lobby position, which asserts that the need for higher reserves has not been demonstrated. Also, the lobby asserts that companies will increase currents rates even when such increases are not needed. For example, towards the end of a long term, the current rates could be increased and would still be less than new issue rates. Even healthy insureds would have no

alternative but to accept increases. Such policies without guarantees are by definition "defective." The lobby position also asserts that bad investments, not mortality losses, cause companies to fail.

There is need for regulation due to unitary manipulation. The unitary method, which is employed by some major term writers, is the main target of the regulation. For each policy, it assumes that valuation premiums are a uniform percentage of gross premiums. This percent can be set at any level by adjusting gross premiums, especially at later durations where premium levels are of minor importance. When the percent is adjusted to be less than 100%, no deficiencies will occur no matter how low initial premiums are. Later gross premiums can be made sufficiently high and early valuation premiums are lower than costs of insurance. This will result in the basic reserves being negative, at least during this period. In practice many companies hold $1/2\ c_x$, the cost of insurance for half a year.

Consider unitary reserves that are based on NSFs. In Table 3, after ten years, segmented reserves are $54.24 using NSFs. The $1/2\ c_x$ reserve is $3.05.

TABLE 3

Need due to Unitary Manipulation
Male Preferred Nonsmoker -- Age 45
20-Year Level Term
Statutory Mean Reserves

GP 1st 20 Yrs. Thereafter	Unitary - Old Sel. Level $3.00 None	1/2 cx - Old Sel. Level $3.00 Twice 1980 CSO	Segment - NSFs Level $3.00 Not Applicable
1	50.98	0.95	31.72
5	62.23	1.74	43.42
10	68.97	3.05	54.24
15	56.66	5.49	55.01
20	9.10	9.10	9.10

Now consider unitary reserves that are based on pricing mortality. In Table 4, when reserves are based on today's typical aggressive preferred pricing mortality, reserves needed in the tenth year would still be $15.53.

Not setting up needed reserves, creates early statutory profits followed by later losses. Based on Table 4, a company during the first ten years should be setting aside an amount at least equal to 50% of collected premiums instead of 10%, the amount of 1/2 c_x. The deficit of 40% is being applied to commissions, profits, and expenses instead of reserves. Competition has driven premium rates down to the point that later losses would exceed early profits if policies remain in force. That is, policies are lapse supported. It may not be possible to illustrate lapse-supported policies under the proposed model regulation on illustrations that were recently adopted by the NAIC Life Insurance (A) Committee and will be effective January 1, 1997. Early statutory profits allow for unreasonably high commission rates. Longer guarantees with corresponding higher gross premiums further increase commissions. There is an incentive for agents to sell longer guarantees even when they are not needed. The only effective way to correct the situation is to require reserves greater than 1/2 c_x. The method devised to do this is the segmented method.

TABLE 4

Unitary Manipulation
Male Preferred Nonsmoker -- Age 45
20-Year Level Term
Statutory Reserves Based on Pricing Mortality

Policy Year	Pricing Mortality Rate	Mean Reserves	1/2 cx 1980 CSO Select
1	0.40	0.19	0.95
5	1.12	7.73	1.74
10	1.93	15.53	3.05
15	4.17	17.63	5.49
20	8.15	3.90	9.10
20-Year Average		11.24	3.88

Remember that adequate reserves protect insureds. Lapse-supported policies eventually make policy terminations through lapses or replacements beneficial to the company. Policy replacement, usually at higher premiums, is in an agent's best interests as new first-year commissions are payable. (New York would like to limit commissions on replacements.) To benefit, an insured would have to die

while a replacement policy is in force, after the select period on the original policy has ended and before the end of the select period on the new policy. When companies and agents get a bigger share of the premium dollar, insureds, as a class, are the losers. Big losers are insureds who pay for long guarantees they do not need or unhealthy insureds who are forced to continue their insurance after the select period at prohibitive premiums. If lapses are less than expected, losses will eventually develop since adequate reserves have not been set aside to meet claims. Deficits will have to be paid out of surplus weakening a company's financial strength to everyone's detriment. Alternatively, a company could increase charges or lower credits to all insureds, even those who did not buy lapse-supported policies.

In the post-Regulation XXX environment, policies will require appropriate reserves for long guarantees. Setting aside reserves will reduce the amount available for commissions. Companies will have less justification to raise rates when reserves are available to help meet claims. There will be less incentive for switching. Adequate reserves will make products self supporting. Potential insolvencies will be reduced. As is already happening in New York, a greater variety of multifeatured products at lower current costs will be on the market. There will be more equity between insureds with different types of policies as the need to support inadequately reserved plans decrease. If long, low-cost guarantees are needed, costs of insurance may be higher. For an insured to lose, current rates would have to be increased above their projected level. From a practical standpoint, this could occur toward the end of a long, level-premium term segment when healthy insureds could not replace policies at lower premiums.

Companies should act prudently. It is usually not in a company's best interest to unnecessarily increase premiums as lapses occur among healthy lives and mortality experience deteriorates. Many companies have spent considerable time and money to gain a reputation for fair dealing with insureds. They are not likely to change this for minor interim gains. A company may have to justify premium increases in certain states. Unjustified increases would undoubtedly cause class-action suits. Even justified increases, as is happening today due to "vanishing premiums" not performing as projected, may be challenged.

There are a number of causes of insolvencies. Companies fail when their assets cannot pay current or fund future benefits. When premium income is not set aside to meet expected liabilities, the danger of this occurring is greatly increased. There is a correlation between defectively designed policies and bad investment judgment. Companies facing potential losses may look to improving investment return as a solution to avoid future financial problems. Trying to maximize investment returns has caused recent life company failures. An exact parallel can be observed in the accident and health industry where companies offered policies with optimistic premium guarantees and were not required to set aside adequate reserves. As claims predictably increased, reserves were not available to cover emerging deficits. Failures resulted. Unlike the situation in the accident and health industry, the growth of low-priced, long-guaranteed, inadequately reserved insurance is relatively recent. The first ten years can be very deceptive as premiums are diverted to profits and expenses instead of being retained as reserves. It is too early to tell how many failures may result. The industry has taken corrective action to reduce the possibility of failures due to investment losses. It is time to do the same to prevent future failures due to inadequate reserving practices.

States need to adopt the NAIC version of Regulation XXX as soon as possible to give companies adequate time to prepare. A state version, which requires more statutory reserves than the NAIC model, will cause unnecessary problems. Companies would have to comply with that standard nationwide unless they have sufficient surplus to support the additional strain or withdraw from that state. Due to lobbying by interest groups, it is likely that most major states will delay the effective date of the regulation until January 1, 1997.