Article from

Product Matters

July 2016
Issue 104

2017 CSO Implementation: Product implications and considerations

By Mary Bahna-Nolan

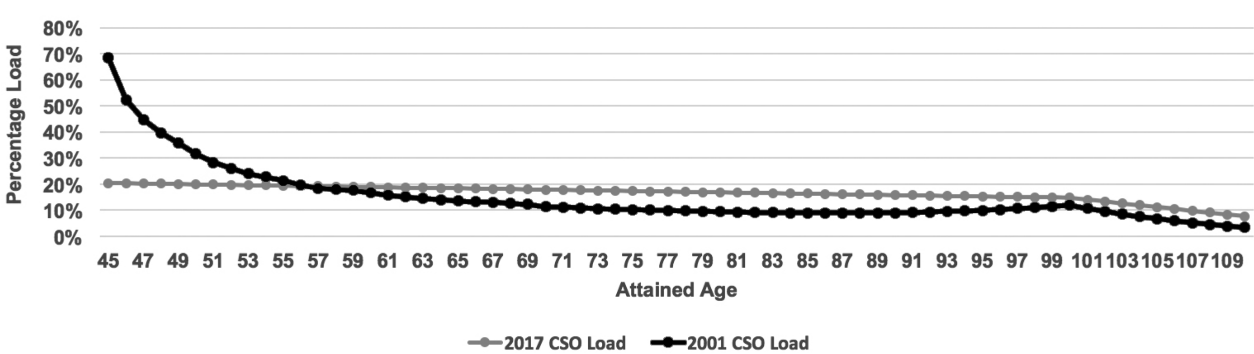
In December 2015, the NAIC adopted the 2017 Commissioners' Standard Ordinary Table (2017 CSO) and the corresponding 2017 CSO Preferred Structure Tables. The adoption was via adoption of a series of amendments to the Valuation Manual, including sections VM-00, VM-02, VM-20, VM-A and VM-M.

As with prior CSO tables, the CSO is the table loaded with a margin to be used in determining Net Premium Reserves, Tax Reserves, and non-forfeiture; it is also the basis for 7702 and 7702A and is often considered the cap for universal life cost of insurance charges. While there are many similarities between the 2017 CSO and the 2001 CSO, there are a few primary differences.

1. Unlike prior versions of the CSO that used a loading formula divided by the expectancy of life, the 2017 CSO uses a flat percentage load that grades down by attained age. This results in a percentage load that decreases by age and an absolute load that generally increases by age. This compares to a load pattern in the 2001 CSO Table, which was highest in the early durations of the select period. The table below compares the percentage loads from the 2017 CSO and the 2001 CSO for Male, NS, Issue Age 45.[1]
2. The preferred structure tables were developed from first principles in which the unloaded tables were developed and then the load applied to each. This differs from the development of the 2001 CSO Preferred Structure Tables which were developed subsequent to the development of the 2001 CSO NS/SM tables.

   In the development of the 2001 CSO Preferred Structure Tables, the unloaded VBT tables utilizing the three non-smoker and two smoker class system were developed after the 2001

Comparison of Percentage Loads
Issue Age 45, Male, NS



CSO and 2001 VBT NS/SM distinct tables. A conservation of total deaths approach was used to determine the residual standard class mortality and to ensure that the preferred structure tables aggregated back to the SM/NS distinct VBT tables. For the 2017 CSO Preferred Structure Tables, a first principles approach was used to develop all the tables and then tested to make sure that they overall aggregated back to the smoker/nonsmoker distinct tables.

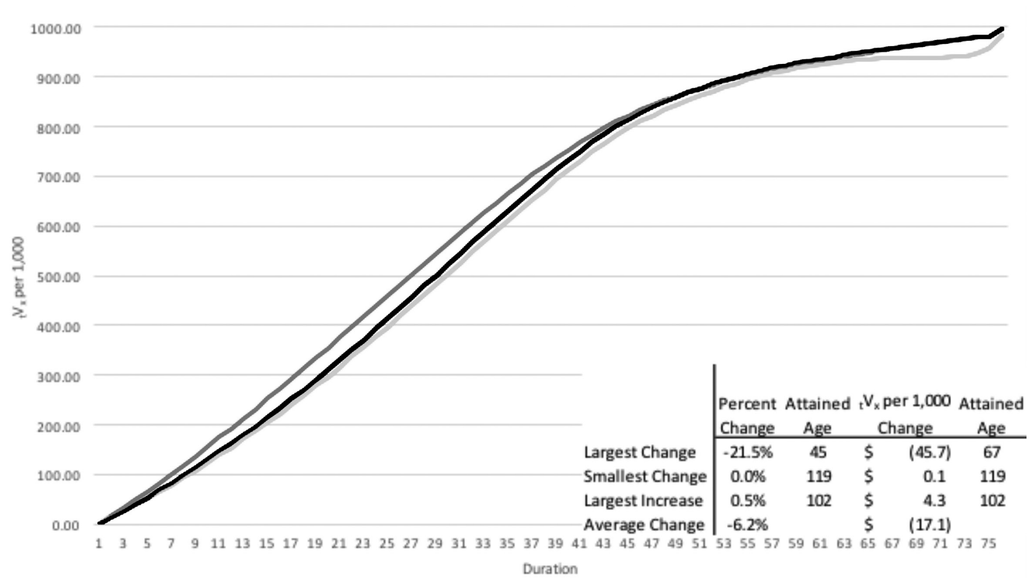
The difference in the approaches to develop the preferred structure tables resulted in a residual standard class (both smoker and non-smoker) which was much higher in the 2001 CSO than what is observed in the 2017 CSO.

3. The select period varies between the smoker and non-smoker tables, with a shorter select period (20 years versus 25 years) for the 2017 CSO Smoker tables. In addition, the select period and resulting ultimate mortality rates for the Composite (i.e., uni-smoke) tables is different from either the smoker or non-smoker distinct select period. Also, the composite ultimate mortality rates are, at certain younger ages, in excess of the smoker ultimate mortality rates. This was not a desired outcome of the Joint American Academy of Actuaries' Life Experience Committee and Society of Actuaries' Preferred Mortality Oversight Group CSO Subgroup (The Joint Committee) that developed the CSO tables and is a function of the underlying 2015 VBT Composite tables. The relationship of the Composite tables to the smoker/nonsmoker distinct tables is currently being revisited by the Joint Committee.

The Joint Committee performed analysis of the reserve impact for the 2017 CSO relative to reserves determined under the 2001 CSO for select issue ages and risk classes for both a whole life plan and a typical 20-year level term plan. In addition, the SOA sponsored an Impact Study, which was led by Milliman USA. The Impact Study further tested the reserve and nonforfeiture impact of various plans under current and PBR/VM-20 reserve methodology. The findings of the Impact Study with respect to reserve impacts were consistent with those from the Joint Committee. The final report on the Impact Study can be found here: *http://www.soa.org/Research/Research-Projects/Life-Insurance/research-cso-impact-study.aspx*.

Both the analysis performed by the Joint Committee and in the Impact Study demonstrated that the reserve impact of the new table varies considerably by product. For whole life plans, the CRVM reserves reduce some but not significantly with the new tables. For the WL plans, this is mostly driven by the cash value floor. As shown in the graph below, the average reserve change for a male, non-smoker, issue age 40 was just over 6 percent, with the largest reserve change at the beginning of the projection period. On average, the whole life reserve reduction ranged between 3 percent and 9 percent. Overall, mean reserves for whole life plans will experience a small decrease in the mean reserves but it is not significant and wears off over time. The Impact Study showed Whole Life reserves reduced 6 percent to 10 percent in the early durations (i.e., by duration five) but the reduction graded off to an immaterial difference by the end of the projection period.

CRVM Whole Life Mean Reserves
Ultimate Table, 3.5 Interest Rate Fully Continuous
Male, Non Smoker, Issue Age 45

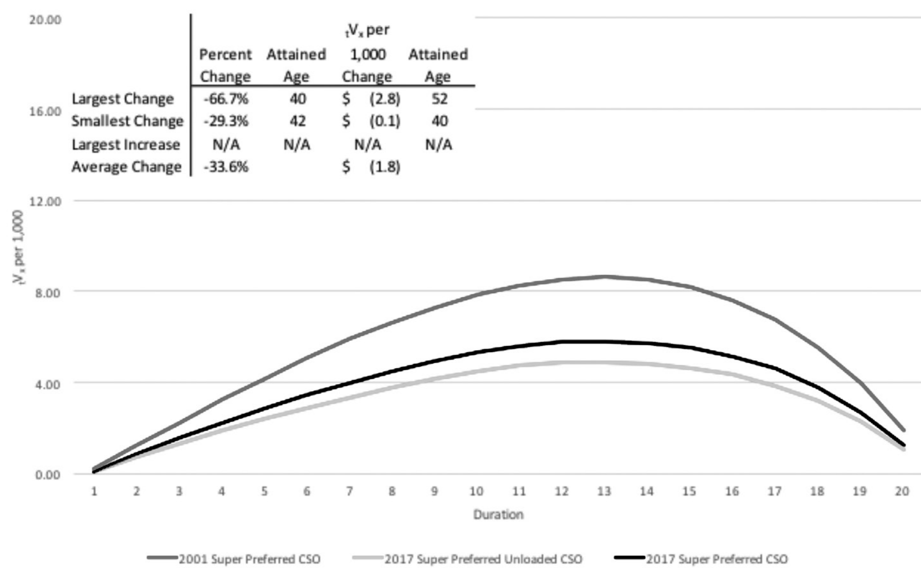


	Percent Change	Attained Age	$_tV_x$ per 1,000 Change	Attained Age
Largest Change	-21.5%	45	$ (45.7)	67
Smallest Change	0.0%	119	$ 0.1	119
Largest Increase	0.5%	102	$ 4.3	102
Average Change	-6.2%		$ (17.1)	

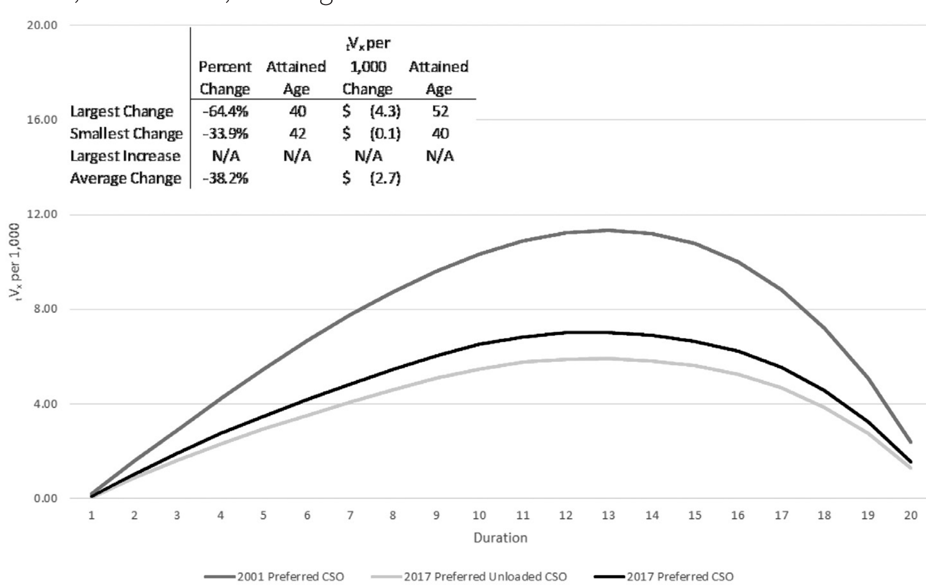
The comparative graphs are excerpted from the "Report on the 2017 CSO and 2017 CSO Preferred Structure Table Development" issued by the Joint Committee. In analyzing the results, one should focus on both the percentage change as well as the dollar amount of change in the reserves to understand the overall magnitude of any change.

For level term plans, the reduction in the CRVM XXX Reserve was much more pronounced and varied by risk class. In general, the average reduction in reserves ranges from 25 percent to 45 percent for NS risks and approximately 5 percent to 36 percent for smoker risks. As noted above, the largest reductions were observed for the residual standard classes and younger ages (between 30 and 50). These reserve changes were consistent with those observed in the Impact Study, which showed level term reserves reduced across all durations anywhere from 30 percent to nearly 50 percent, depending on risk class structure.

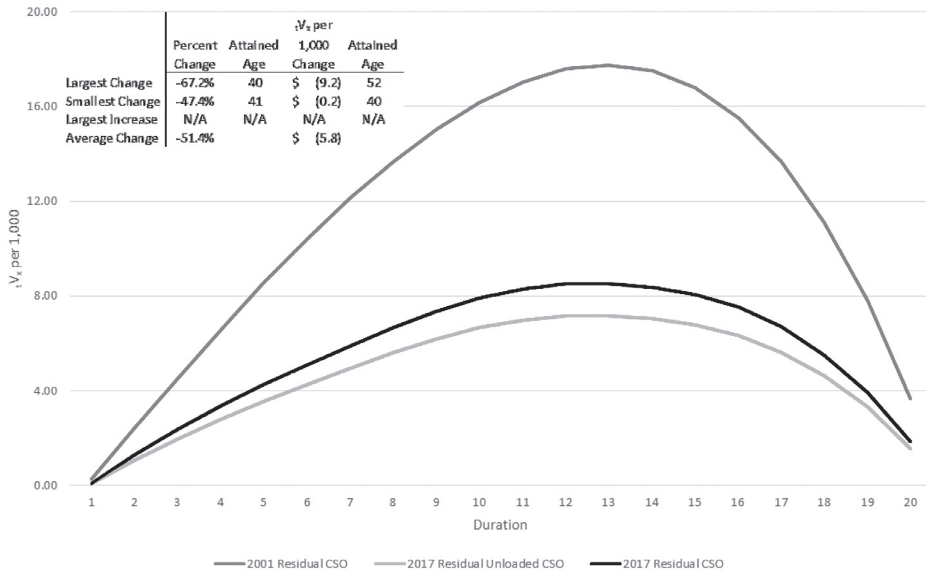
Regulation XXX LT20 Mean reserves
Super Preferred Select & Ultimate Table, 4.5% Interest Rate, Fully Continuous
Female, Nonsmoker, Issue Age 40



Regulation XXX LT20 Mean reserves
Preferred Select & Ultimate Table, 4.5% Interest Rate, Fully Continuous
Female, Nonsmoker, Issue Age 40



Regulation XXX LT20 Mean Reserves
Residual Standard Select & Ultimate Table, 4,5% Interest Rate, Fully Continuous
Female, Nonsmoker, Issue Age 40

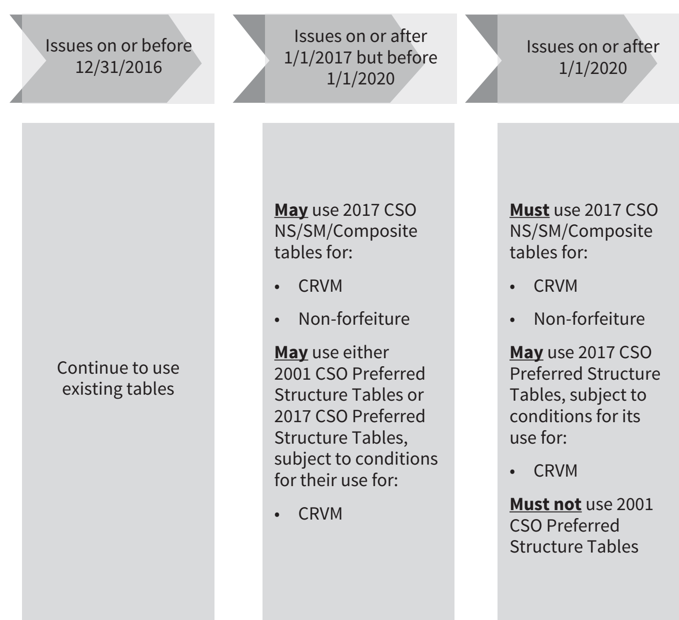


The Joint Committee did not test ULSG reserves but they were tested via the SOA Impact Study. ULSG reserves reduced 6 percent to 11 percent in the early durations with the differential reducing over time, but at a much more gradual pace than with the whole life plans.

In addition to variation by product, the Impact Study also showed the change in reserves via implementation of the 2017 CSO varied by duration, by age and by risk class as follows:

- The new table reduced reserves for male risks more than for female risks;
- The new table reduced reserves for non-tobacco/nonsmoker risks more than for tobacco/smoker risks;
- The 2017 CSO reduced reserves for younger ages more than for older issue ages (55 and above);
- The 2017 CSO reduced reserves for the residual classes in a multi-class structure more than for the preferred and super preferred classes; and
- Net premium reserves determined using the ultimate form of the table were generally lower than those determined using the select and ultimate form.

A company has the option to delay implementation of the 2017 CSO up to three years but must implement for issues on or after 1/1/2020. A company may defer implementation of PBR but still adopt use of the 2017 CSO within the transition period or vice versa. This is true for statutory reserves and non-forfeiture and tax. In order to use the 2017 CSO Preferred Structure Tables, a company will need to meet similar qualification tests to those in place for use of the 2001 CSO. These tables are not able to be used for non-forfeiture.



Transition rules also apply for tax reserves in which there is a three-year transition period to adopt the use of the Prevailing Industry Table. The Prevailing Industry Table becomes effecting beginning for issues on or after January 1 of the year following adoption of the NAIC CSO table in at least 26 states. Since over 26 states have adopted the Valuation Manual, they have also de facto adopted the 2017 CSO. Once the Valuation Manual becomes operative, it is believed that triggers the 2017 CSO table as the Prevailing Industry Table for determination of tax reserves and 7702/7702A and the start of the three-year transition period.

So what are some of the considerations for a company to determine whether implementing the new CSO table makes sense?

1. FINANCIAL SOLUTIONS

A company may have structured financial solutions in place which remove some of the redundancy in the term and/or ULSG statutory reserves over what companies believe to be a more economic reserve. Many of these structures are also subject to AG48. The new table goes a long way to reduce the perceived conservatism in the 2001 CSO table; however, for many companies, there will continue to be redundancy in the net premium reserves determined with the 2017 CSO. New issues from 1/1/2017 may still benefit from some form of financed or structured solution with the 2017 CSO, though the cost to finance will be less due to a lower level or expected redundancy. For some companies, the reduction in the tax reserves with use of the 2017 CSO could alter the attractiveness of certain financing structures. Therefore, deferral of the 2017 CSO may be beneficial under certain structures, even with the increased financing costs.

2. COMPLIANCE FOR USE OF THE 2017 PREFERRED STRUCTURE TABLES

As with the 2001 CSO Preferred Structure Tables, a company must demonstrate they meet the qualification test for use of the preferred tables as outlined in VM-20, §3.C.1.e. For use of both the preferred nonsmoker and preferred smoker tables, the appointed actuary must annually certify (other than the residual standard class tables) to the following:

(a) The present value of death benefits over the next ten years after the valuation date, using the anticipated mortality experience without recognition of mortality improvement beyond the valuation date for each class, is less than the present value of death benefits using the valuation basic table corresponding to the valuation table being used for that class.

(b) The present value of death benefits over the future life of the contracts, using anticipated mortality experience without recognition of mortality improvement beyond the valuation date for each class, is less than the present value of death benefits using the valuation basic table corresponding to the valuation table being used for that class.

The qualification tests are essentially the same as with the 2001 CSO Preferred Structure Tables where a company must demonstrate their best estimate mortality assumption is less than the unloaded mortality underlying the 2017 CSO. The underlying mortality is much lower than the 2001 VBT, with a significantly higher exposure amount for preferred mortality, female, older age and higher face amount risks. This could make it more difficult for companies to qualify for use of the preferred structure tables, or at least for the best preferred class.

3. OTHER CONSIDERATIONS FOR PRICING

a. **Interaction with PBR by product:** Companies will need to evaluate the timing and implementation of PBR and the 2017 CSO tables together for each product. While they can be implemented at different times within the three-year transition period, there are development, administrative and filing costs associated with revisions to the policy form. For certain products, such as whole life, there may not be enough of a reduction in the reserves with the new CSO table to justify early adoption.

b. **Impact to maximum cost of insurance charges in various universal life contracts:** Companies often align their maximum guaranteed cost of insurance charges with the CSO rates corresponding to the reserving and non-forfeiture basis in the policy form. Companies should consider re-evaluating whether the new CSO rates provide sufficient margin or buffer for adverse experience. In the margin analysis the Joint Committee performed, the margin was sufficient to cover mortality for 70.6 percent of the contributing companies in aggregate. This varied significantly by age group, gender and smoking status.

c. **Approach for SI/GI products:** Currently, simplified issue and guaranteed issue products use the 2001 CSO for reserves. While there are new valuation tables currently in development for the guaranteed issue and simplified issue plans, it is unclear if they will be in place for issues on 1/1/2017. Given the reduction in mortality and change in the loading structure between the 2017 CSO and 2001 CSO table, the 2017 CSO may not result in adequate reserves for products with less underwriting than what underlies the contributing data to the 2017 CSO. This is an area currently under discussion with the NAIC Life Actuarial Task Force, specifically for simplified issue products where development of a one-size-fits all table is difficult.

Given the above, there are many considerations for a company to evaluate in determining when to implement the 2017 CSO. While reserves are typically lower under the 2017 CSO, it may not always be in a company's best interest to adopt immediately. Product segment, age mix, implementation timeframes and costs, interaction with tax reserves, non-forfeiture and principles based reserves should all be considered. We can likely expect market disruption over the three-year transition period to adopt both the 2017 CSO tables and PBR. ■

ENDNOTES

1 Joint American Academy of Actuaries' Life Experience Committee and Society of Actuaries Preferred Mortality Oversight Group CSO Subgoup, 2015

Mary Bahna-Nolan, FSA, MAAA, CERA, is executive vice president and head of Life R&D at SCOR Global Life in Chicago. She can be reached at *mbahna-nolan@scor.com*.