

Article Title: ARCHIVE | Criteria | Insurance | Life: Static Capital Charges For Variable Annuities With Living And Death Benefits Revised Data: (EDITOR'S NOTE: — This criteria article is no longer current. It has been superseded by the article titled, "Refined Methodology And Assumptions For Analyzing Insurer Capital Adequacy Using The Risk-Based Insurance Capital Model," published June 7, 2010 (paragraphs 180-186). The original version of this article contained incorrect figures for several conditional tail expectations (CTE) levels. A corrected version follows.) Standard & Poor's Ratings Services has revised its static-risk capital charges for variable annuities with living and death benefit riders. These charges apply to U.S. insurance companies where criteria on C-3 Phase II (variable annuity interest rate risk) cannot reasonably be applied. The revised static living and death benefit risk charges are now the default capital charge for living and death benefit risk. However, we will review each insurer's C-3 Phase II survey submission, and we will replace the new default static risk charges if we consider the stochastic survey results to be reasonable. The new static charges will apply to both the current and revised capital models, which we are running concurrently in 2007. Revised Static Risk Charges Previous static risk capital charges for variable annuities with living benefits were based on estimates derived from limited data and are now outdated. Under the previous criteria, static capital charges for living benefits were a) 1% of variable annuity account balances that are out of the money or b) 2% of variable annuity account balances that are in the money. Standard & Poor's continues to believe stochastic risk-based capital is the best approach to capture this risk, and we will continue to incorporate it as appropriate. However, our broad adoption of stochastic modeling associated with C-3 Phase II has been problematic for a variety of reasons, including the broader industry-implementation issues associated with the NAIC's requirement. Standard & Poor's has refined its static capital charges for variable annuities with living and death benefit riders with information available through the requirements associated with NAIC C-3 Phase II and related actuarial analysis. Deterministic scenarios have been generated to represent the various at-the-money risks associated with guaranteed minimum benefits such as with associated accumulation, income, and withdrawal riders. The prior factors did not differentiate by various riders but were solely based on riders being in or out of the money. The degree to which riders are in the money will be reflected in the reserve base as reserving standards evolve. As with other factors in the revised capital model, the risk charges have been calibrated with confidence intervals associated with target rating levels ('AAA', 'AA', etc.). The factors associated with 'BBB' will be applied under the current model. Generally, the revised static charges will result in higher capital requirements than under the previous criteria. We understand that these new static factors will not represent every company's risk given different product designs and varying market conditions. However, Standard & Poor's believes these new estimates reflect typical risks. Company-specific exceptions to these revised static capital charges will not generally be made, as we believe the best way to capture company-specific risk is through the required stochastic modeling that each insurer performs for its liabilities. Development Of Revised Static Charges The revised static risk charges were developed following a review of a series of more than 150 stress tests. The stress tests were applied to a static model of variable annuity benefits and considered a range of specific product designs, annuitant ages, option exercise levels, mortality levels, and annual withdrawal/surrender levels. For these stress tests, we assumed business to be hedged with a program that was 75% effective, meaning that when a loss event occurred, a hedge gain was assumed to offset 75% of the loss cost (50% for the more complex guaranteed minimum income benefit) of the annuity excess benefit costs. We gave the hedging offset a haircut of 50%, which is consistent with criteria for the stochastic-based program. Companies without hedge programs will not receive the hedge offset. The stress tests were based on the same scenarios that are the basis for the asset-related charges in the revised capital model for equities. Similar scenarios were developed for interest rate and corporate bond fund experience. Policyholder funds were assumed to be invested in a stock/bond mix with no rebalancing. Clearly, these tests do not accurately represent any specific company's book of business. However, by using these tests, Standard & Poor's has estimated a range of relative risk levels for the various benefit types that are reflected in the revised static charges by benefit type. Stochastic Risk Modeling Stochastic modeling continues to be the preferred method by which Standard & Poor's would like to reflect the living and death benefit risk in its capital model. The capital required will be based on the difference of the total assets required (TAR) at various conditional tail expectations (CTE) levels minus

the reserves held, and it allows 50% credit for the value of hedging. The CTE-based data should be based on the American Academy of Actuaries prepackaged scenarios to ensure reasonably comparable results. For hedging credit, companies must use clearly defined hedging strategies. It is understood that insurers will be incorporating statistical compression techniques to reduce the tremendous burden of running 10,000 scenarios. However, insurers modeling fewer than 1,000 stochastic scenarios will need to provide an explanation to support the robustness of their modeling. The number of indices used in the replication of mutual funds will also be a qualitative consideration. Upon C-3 Phase II adoption, the NAIC agreed with the American Council of Life Insurers' recommendation on allowing insurers to optionally employ smoothing and transition rules. The optional transition rules were designed to ease the potential immediate impact of C-3 Phase II, though once elected, the smoothing rules become required. Standard & Poor's is not using the mechanical phase-in; either the revised static risk charges or stochastic C-3 Phase II results will be incorporated into the capital model. Standard & Poor's will use the information from the survey (described below) to determine a capital level that is equivalent to the other factors in the revised capital model. Capital needs for variable annuities under the revised model are based on CTE results. As a result, CTE(90), CTE(95), CTE(98), and CTE (99.5) correlate with 'BBB', 'A', 'AA', and 'AAA' capital requirements, respectively. The current capital model will use the CTE(90) results. The capital charge will allow credit for 50% of the benefit of the hedge program. In other words, if a company's variable annuity capital at a given CTE level was \$100 million without hedging and \$50 million with hedging, Standard & Poor's would require \$75 million to be held in capital for a given ratings target. However, the calculated result will have a floor risk charge of zero and not allow a capital credit to be generated. Another divergence from regulatory adoption is that an adjustment will be made to reflect the fact that reserves held for variable annuity benefits, in addition to cash surrender values, are not usually available to a company in a stress situation. The initial credit associated with hedging programs might be adjusted as Standard & Poor's gains comfort with each insurer's specific hedge programs and broader ERM. It is also conceivable that Standard & Poor's will allow scenarios other than the prepackaged versions, but a deeper, company-specific review will be required.

Annual Insurance Survey The annual insurance survey used to support Standard & Poor's insurance models has been modified from last year's request with input from both clients and leading actuarial consulting firms. We are requesting total variable annuity account values, required reserves, TAR under C-3 Phase II, and the New York Insurance Department-based deterministic standard scenario. In addition, similar information is requested by living and death benefit rider. The revised static risk charges will depend on the account values by rider. It is understood that the stochastic modeling is done on an aggregated basis and not by rider. However, Standard & Poor's is requesting estimates by rider to better understand the risk distribution. The number of scenarios modeled will also be requested and will contribute to the consideration of incorporating stochastic risk results from C-3 Phase II in lieu of the revised static variable annuity risk charges or the deterministic standard scenario.

Revised Static Capital Charges For Variable Annuities With Living And Death Benefit Riders (%)	AAA	AA	A	BBB	Return of premium	death benefits
0.77	0.56	0.42	0.18	Death benefits enhanced*	3.99	3.37
2.85	1.61	Withdrawal benefits	5.52	3.46	2.73	1.37
Accumulation benefits	2.29	1.66	1.24	0.52	Income benefits	2.67
2.11	1.62	0.71	Others	3.05	2.23	1.77
0.88	*Roll-up or ratchet.					