

Article Title: ARCHIVE | Criteria | Insurance | Life: Capitalization Data: (EDITOR'S NOTE: —This article is no longer current. It has been superseded by "Analysis Of Insurer Capital Adequacy," which was published on April 22, 2009.) Standard & Poor's Ratings Services capital adequacy model plays a significant role in its assessment of the capital strength of a life insurer. The model produces a capital adequacy ratio that compares adjusted capital and surplus (excluding realistic expectations of potential investment losses) with a base level of surplus appropriate to support liabilities at a secure rating level ('BBB' or better). Standard & Poor's standards for extremely strong, very strong, strong, good, adequate, and marginal capital strength are based on this ratio. To be secure ('BBB' or higher), the capital adequacy ratio must be at least 100%. The capital adequacy ratio is only a starting point for judging capital adequacy. Qualitative and quantitative enhancements are applied as warranted to derive a more complete picture of an insurer's capital position. The analyst plays a critical role in adjusting the model to best assess risks that are unique to a company while maintaining a standard of comparability between companies. How the Model Works The numerator of the capital adequacy ratio is total adjusted capital (TAC) minus realistic expectations of potential investment losses under stress scenarios. The total asset risk (C-1) charge is adjusted by a portfolio size factor and for any single-issuer concentration risk. The denominator of the ratio is derived by going through the same process for liabilities: applying risk factors to each type of liability (C-2 and C-3 risks). The last ingredient in the denominator is a general business risk charge (C-4) that is assessed against U.S. premiums or separate account liabilities. The ranges of capital adequacy consistent with certain rating levels are shown in Table 1.

CAPITAL ADEQUACY RATIO	INDICATIVE RATING LEVEL	ASSESSMENT OF CAPITAL ADEQUACY
Less than 100%	BB or lower	Various
100%-125%	BBB	Good
125%-150%	A	Strong
150%-175%	AA	Very strong
More than 175%	AAA	Extremely strong

Determining TAC TAC is statutory capital and surplus plus the asset valuation reserve, voluntary reserves, and 50% of the policyholder dividend liability. All of the components of the TAC are based on statutory accounting values. Since January 2003, goodwill has been excluded from the calculation of the TAC. Goodwill has been increasingly viewed as a very soft form of capital, and given the spate of write-downs Standard & Poor's has seen, it has been unreliable as a cushion to absorb long-term risks. As a result, goodwill is not an appropriate loss-absorption asset. The goodwill embedded in statutory capital and surplus is limited in the U.S. by regulators, and it is substantially lower than the GAAP value of goodwill. Analysts may add to or subtract from TAC to include items—such as surplus notes—that meet Standard & Poor's criteria as capital. If surplus notes (or other hybrid instruments being given equity credit) constitute more than 15% of total capital, Standard & Poor's will give less equity credit for the note, in most cases treating the excess as debt. Surplus notes (or other hybrid instruments being given equity credit) are amortized at 20% per year beginning 10 years prior to maturity or potential call by the holder. As a result, these instruments have no equity credit by the fifth year prior to maturity. Evaluating Asset Risks Standard & Poor's looks at the quality of an insurer's investment portfolio to establish a reasonable estimate of expected losses over several years under stress scenarios. The present value of these anticipated losses is charged against surplus, but Standard & Poor's also adjusts for any explicit statutory loss reserves that an insurer might have already set aside. Bonds. The C-1 capital charges for credit defaults of fixed-income bonds and preferred stocks are calculated based on long-term assumptions for stress default probabilities, discount rates, and recovery rates. Charges for credit risks vary with the credit rating on the bond. Gross default losses are assumed to occur over 10 years and are given a present value at a 6% discount rate, starting in Year 2 (no discount is given in Year 1). These gross charges are adjusted for the assumed recovery rate. The recovery rates vary with credit ratings on the bonds. At the analyst's discretion, additional charges could be applied to collateralized bond obligations. These charges are based on the ratings on the tranches, provided the company retains less risk than it would by holding the underlying securities. In addition, analytical judgment is used in determining appropriate charges for bonds of a parent or affiliate company. Standard & Poor's model incorporates charges for interest rate risk associated with bonds, particularly MBS, but also including other negatively convex securities—such as callable corporates and ABS. Relative to a life insurer's positively convex liabilities, these negatively convex assets can create, and have created, shortfalls that Standard & Poor's tries to capture in the capital model. The stress scenarios used in testing these

securities depend on the interest rates at year end and applied volatilities. In most cases, Standard & Poor's bases these charges on modeling and testing of the insurer's actual portfolio. If modeling or other means of testing the underlying interest rate optionality of an asset class is not practical, Standard & Poor's assesses a charge of 5.0% for MBS and callable bonds, 2%-4% for home equity and manufactured housing ABS, and 1% for other ABS. For non-U.S. insurance companies that prepare GAAP financial statements, bonds are charged for volatility risk wherever credit is given for unrealized gains or losses. The charges are made against the bonds' full market value, with the charge varying according to the period remaining to maturity. The charges are generally consistent with an immediate 100 bp increase in interest rates (bonds with periods to maturity of up to one year are charged at 1%, one to five years at 4%, five to 10 years at 6%, and more than 10 years at 8%). Preferred stock. Preferred stock is treated similarly to bonds except that no recovery is expected in the event of default. Federal Home Loan Bank stocks are classified as common stocks in the annual statements of insurance companies. As a result, the C-1 (asset risk) capital charges for this type of investment had been 15%. Standard & Poor's will reclassify FHLB common stock into preferred stock and apply the corresponding C-1 charge for NAIC 1 preferred stocks: 101 bps. FHLB is a government-sponsored entity and is rated 'AAA'. It is organized into 12 regional banks that are committed to supplying low-cost funds to financial institution members that engage in mortgage lending. Only eligible financial institutions can become members of the FHLB and can purchase FHLB common stock. Members are required to hold a minimum amount of stock based on their size, value of mortgage-related investments, and amount of outstanding advances. FHLB common stock has a fixed par value for which members can redeem their stock value. The FHLB consistently pays quarterly dividends on the common stock, and the fixed par value eliminates price volatility in the stock. Therefore, Standard & Poor's recognizes that it behaves more like a bond or preferred stock, and it has a lower risk than equity. Equity assets. Standard & Poor's analysis of stock-market movements indicates that a 15% risk factor is appropriate for unaffiliated common stock holdings. This is one standard deviation in the S&P 500 Stock Index year-to-year change, as calculated since 1945. Commercial and agricultural mortgages. Separate charges are applied to performing and problem loans. The factor for performing commercial and agricultural mortgages is 0.02x an experience adjustment factor, but the minimum factor applied to performing mortgages is 0.01x regardless of experience. The experience adjustment factor is the ratio of the company's problem mortgages to the industry average and is applicable only if the company has a seasoned portfolio of mortgage investments. The factor for performing commercial and agricultural mortgages was derived as an estimate of the present value of the incidence of default, offset by expected recoveries. Problem mortgages include those that are foreclosed, in the process of foreclosure, are 30 days overdue, and that have been restructured or modified. A watch list initially totaling the larger of the company watch list or 33% of actual problem mortgages is calculated as a starting point then adjusted as necessary to reflect an individual portfolio's strengths or weaknesses. A separate charge is applied to actual problem loans plus the watch list: a 6% annual charge applied for three years and given a present value at a 6% discount rate starting in year two (no discount is given in Year 1). Mortgage data is extracted from each insurer's response to Standard & Poor's periodic real estate and mortgage questionnaire. Mortgages currently issued by insurers could carry inherent default rates closer to 18%. The 2% factor reflects a conservative assumption that over the long term, problem mortgages will be 18% of the average company's portfolio. Similarly, the average watch list for companies with interactive financial strength ratings was about 17% of problem mortgages in recent years, but Standard & Poor's believes 33% more accurately reflects what watch list mortgages will be in the long term. Affiliated common stock. Common stock of a parent is assessed a 100% charge. Insurance subsidiaries are analyzed to determine whether they are strategically important; if so, their assets and liabilities are consolidated into the parent company's capital model. When such risk charges are assessed, the 15% factor for common stocks does not apply, full equity credit is given for the affiliate's stock, and adjustments are made to the parent's TAC to reflect the subsidiaries' asset valuation reserve and policyholder dividend liability. The treatment of affiliates deemed not strategically important involves a C-1 charge. If a stand-alone rating exists, this charge is the capital deemed necessary for the ratings; otherwise, the charge is at the 'BBB' level. The analyst consults with other departments within Standard & Poor's to determine the appropriate capitalization levels for

noninsurance subsidiaries. Real estate. Standard & Poor's applies an 18% risk factor to this asset class, reflecting its opinion that real estate, on average, presents a greater risk than common stock. Schedule BA invested assets, including bonds, mortgages, real estate, and common stock. Given the range of assets in this schedule, including high-risk assets, Standard & Poor's, at the analyst's discretion, may apply the charges that reflect the asset type and charges assessed against similar assets in the model. However, given the higher risk of these classified assets, Standard & Poor's may choose to apply a 20%-50% charge to reflect the higher risk inherent in these assets. Other invested assets. For all other classes of invested assets—including collateral loans, write-ins, and off-balance-sheet items—Standard & Poor's assesses a charge of 5.0%. For companies that employ a hedge fund-of-fund investment strategy, Standard & Poor's acknowledges that the default capital charge—20%-50%—might not reflect the reduced volatility of a fund-of-fund investment strategy. As an alternative to the general capital charge, Standard & Poor's has developed a tailored analytical approach for forecasting the likely volatility for any hedge fund-of-fund investment strategy. For fund-of-fund investment strategies that are analyzed under this enhanced analytic approach, Standard & Poor's will use a volatility charge that reflects the risk-mitigating techniques employed by the fund manager, at a 'BBB' level of confidence, using a one-year time horizon. Surplus in nonguaranteed separate accounts. This item is assessed a 10% charge; the factor may be adjusted to reflect the actual risk of the underlying assets. This item includes the expense allowance transfers related to nonguaranteed separate accounts. For nonguaranteed separate accounts, a charge of 2% of the Commissioners' Reserve Valuation Method or the Commissioners' Annuity Reserve Valuation Method expense allowance is applied if the current surrender charge is based on fund contributions, which occurs only with those contracts where the fund balance exceeds the sum of premiums minus withdrawals; otherwise, the charge is 10%. Assets in separate accounts with guarantees. The charges used depend on the nature of the underlying assets and should correspond to the charges that would be made if the assets' supporting guaranteed liabilities were in the general account. Mandatorily convertible securities. For securities that are mandatorily convertible into a different type of security at prices different from the market prices at the time of conversion, the risk charge should equal the statement value multiplied by the factor appropriate to the securities in the absence of the conversion features or the factor appropriate to the security as a result of the conversion, whichever is higher. Reinsurance recoverables. Credit risk reflects the collectibility risk associated with certain assets or receivables on the balance sheet. The risk inherent in reinsurance recoverables is important for certain life insurance companies. Standard & Poor's can draw on its worldwide experience and its ratings on domestic and international reinsurance companies to derive the factor for this risk analysis. Specifically, Standard & Poor's determines the default rate of reinsurance companies by rating category to determine the appropriate charge for each rating. This charge is then applied to the recoverables (paid and unpaid losses) from reinsurers that fall into the specific rating category to derive a total charge. Reinsurers under some form of regulatory control are deemed to be similar to a 'CCC' reinsurer; reinsurers that are not rated are deemed to be similar to 'B' reinsurers. In addition, a concentration charge will be applied based on the same methodology used for other asset risk exposures (see the Concentration Risk section). Corporate-owned life insurance (COLI). COLI assets are identified through company private records and classified by the NAIC rating on the insurance carriers. The asset default charges applied to this asset class are the same as those applied to bond securities (see Table 3). Standard & Poor's views this asset class as an offset to certain employee benefits. Therefore, a limit of 25% of TAC is established as a maximum credit to capital. In addition, a single-entity aggregate exposure (including all securities and COLI assets related to this counterparty) is limited to 10% of total adjusted surplus because of concentration risk. In addition, the COLI policies should: Require positive written consent for all individuals covered under the insurance program. Only insure at most the top 35% of employees (sorted by total compensation and in no case any individual who is not an appointed officer or management level employee with the company. Not use borrowed funds for premiums. The source of funds for all policies will be cash provided by the insurance company's surplus. A failure to comply with these criteria or limits could result in an adjustment to the reported capital and surplus. Modified coinsurance and funds-withheld reinsurance. For all modified coinsurance and other reinsurance transactions with funds withheld in which the default risk is transferred, the transferred

funds will be recognized by reducing the C-1 risk charge for the ceding company and increasing the C-1 risk charge for the assuming company in accordance with the assets ceded/assumed. Receivables from parents. Any security or loan held from a parent or an affiliate should be written off or receive a 100% capital charge. If the receivable is in the nature of a loan, cash advance, or other funding activity, it will be written off as well. If the receivable is for services rendered as opposed to a funding of a parent or affiliate, it will be viewed as part of ongoing business and not a funding activity and thus will not be written off. Offsetting receivables are more complex and require judgment as to what created the receivable. Reinsurance receivables are an important, ongoing part of the business and serve an important risk-management function, so Standard & Poor's would not recommend writing those off.

**Size factor.** Standard & Poor's incorporates a size factor based on total invested assets, which is multiplied against the insurer's total asset default risk charge (subject to a minimum level of 1x), meaning the largest insurers would still be subject to the full asset charges determined by Standard & Poor's.

**Concentration risk.** All assets with credit risk associated with a single issuer are aggregated to assess concentration risk. Graded charges are assessed when single-issuer concentrations exceed 15% of TAC for investment-grade bonds or 10% for other types of assets (including reinsurance recoverables).

**Table 2 Size Factors**

SIZE FACTOR	FACTORS	AMOUNT	FACTOR MULTIPLIED BY
A. Total invested assets	1,000.0	a. First \$100 million	2.5 100.0 250.0
		b. Next \$100 million	1.5 100.0 150.0
		c. Amount over \$200 million	0.8 800.0 640.0
B. Weighted total (sum of lines a, b, and c)	1,040.0	C. Size factor—(Line B/Line A) or 1, whichever is higher	1.0
D. Required capital for asset risk (C-1)	100.0	Total required capital for asset risk adjusted by size factor (Line C multiplied by Line D)	104.0

**Table 3 Asset Default/Loss-Risk Factors (C-1)**

RATING	DISCOUNT RATE	RECOVERY RATE
INCIDENT DEFAULT ASSUMPTION	FACTOR	BONDS
Exempt obligations	0	0.0000 'A' or higher
0.060	0.500	0.130% evenly over 10 years (1.30% gross charge)
0.0051	'BBB'	0.060 0.450 0.911%
0.0391	'BB'	0.060 0.400 2.4% years one to five; 1.6% years six to 10 (20% gross charge)
0.0936	'B'	0.060 0.400 5% years one to five; 2% years six to 10 (35% gross charge)
0.1740	'CCC'	0.060 0.350 8% years one to five; 2% years six to 10 (50% gross charge)
0.2756	In or near default	0.3000
PREFERRED STOCKS	Exempt obligations	0.0000 'A' or higher
0.060	0.0101 'BBB'	0.060 0.000 0.0711 'BB'
0.060	0.000	0.1560 'B'
0.060	0.000	0.2900 'CCC'
0.060	0.4239	In or near default
0.6000	RATING	INCIDENCE OF DEFAULT ASSUMPTION
FACTOR	INTEREST RATE RISK	Assessed for mortgage-backed securities, callable corporates, and other securities, determined individually for each portfolio
Default factor	0.05	for mortgage-backed securities, 0.020 for home equity, and 0.010 for asset-backed securities
COMMERCIAL/FARM MORTGAGES	Problem	18% gross charge, 6% years one to three, 8% discount rate
0.1700	0.02x experience adjustment factor	Performing 2% on average, adjusted for experience relative to industry experience. Adjustment factor equals company problem mortgage percentage divided by 14%
0.5	minimum experience adjustment factor	INSURED MORTGAGES
In good standing	0.001	90 days overdue
0.002	RESIDENTIAL MORTGAGES	In good standing
0.005	90 days overdue	0.010
DUE AND UNPAID TAXES	On overdue (90 days) mortgages and mortgages in foreclosure	1.000
COMMON STOCK	Nonaffiliated	0.150
Affiliated Parent: exclude insurance subsidiary, consolidate all others:	100% (analyst may adjust)	1.000
REAL ESTATE	Investment	0.180
Foreclosed encumbrances	0.150	Property used to deliver health care
0.100	SCHEDULE BA	Bonds, preferred, or common
Use the factor for the asset category	Schedule BA mortgages and real estate	0.200
Other Schedule BA assets	0.300	CORPORATE-OWNED LIFE INSURANCE (COLI) ASSETS
General account COLI with insurance provider rated NAIC 1	0.51% x the COLI Asset	General account COLI with insurance provider rated NAIC 1
3.91% x the COLI Asset	Separate account COLI	Look through to measure the guarantees otherwise default to NAIC 2 charge.
OTHER ASSETS	Surplus in nonguaranteed separate accounts	0.100
ASSETS IN SEPARATE ACCOUNTS	BACKING GUARANTEED SEPARATE ACCOUNTS	LIABILITIES: PRO FORMA TREATMENT FOR ASSETS AS IF IN GENERAL ACCOUNT
The Commissioners' Reserve Valuation Method (CRVM) or the Commissioners' Annuity Reserve Valuation Method (CARVM)	expense allowance transfers related to nonguaranteed separate accounts. The charge will be 10% if the current surrender charge is based on the fund balance and 2% of the CRVM or CARVM expense allowance if the current surrender charge is based on fund contributions, applying only to those contracts where the fund balance exceeds the sum of premiums less withdrawals;	

otherwise the charge is 10% 0.100/0.020 Cash, short-term investments, and nongovernment money market funds not qualifying for Schedule DA treatment 0.003 Premium notes, collateral loans, and write-ins 0.050 Net reinsurance recoverables Based on the credit rating on the underlying reinsurer Noncontrolled assets 0.010 OFF-BALANCE-SHEET ITEMS Long-term leases Present value, discounted at 6% 0.050 Multiply asset charges by asset size factor (minimum asset size factor = 1). Size factor = total weighted dollar amount divided by total invested assets. Size factor = ((first \$100 million invested assets x 2.5) plus (next \$100 million x 1.5) plus (amount above \$200 million x 0.8))/total invested assets. Table 4 Single-Issuer Concentration PERCENTAGE OF TOTAL ADJUSTED CAPITAL FACTOR (MAXIMUM TOTAL CHARGE: 1.0) 10%-25% (15%-25%) 0.20 plus base asset factor 26%-50% 0.40 plus base 51%-75% 0.60 plus base 76%-100% 0.80 plus base More than 100% 1 Table 5 C-1 Risk Charges for Reinsurance Recoverables RATINGS PRE-SET CHARGE APPLIED TO RECOVERABLES (%) AAA 0.49 AA 1.18 A 1.91 BBB 4.74 BB 9.62 B 23.82 CCC 49.72 NR 25.00 R 50.00 Evaluating Liability Risks The factors applied to liabilities reflect Standard & Poor's assumptions about the threshold level of capital necessary to absorb (in aggregate) mortality, morbidity, lapsation, expense, and interest rate-mismatch risks for securely rated companies (see Tables 6 and 7). Table 6 Insurance Risk (C-2) INDIVIDUAL AND INDUSTRIAL GROUP AND CREDIT LIFE INSURANCE NET AMOUNT AT RISK First \$500 million 0.0020 0.0016 Next \$4.5 billion 0.0013 0.0011 Next \$20 billion 0.0010 0.0008 More than \$25 billion 0.0008 0.0007 NONGUARANTEED SEPARATE ACCOUNT LIABILITIES First \$5 billion of reserves 0.0025 \$5 billion-\$25 billion of reserves 0.0010 More than \$25 billion of reserves 0.0006 Table 7 Health Insurance—Liability Risk Factors (Comprehensive Medical and Hospital or Medical Only) FACTOR TRADITIONAL INDEMNITY Earned premium first \$25 million 0.1700 Earned premium more than \$25 million 0.1000 INDEMNITY WITH RETROSPECTIVE EXPERIENCE RATING Earned premium 0.1000 CONTRACTUAL FEES Earned premium first \$25 million 0.1400 Earned premium more than \$25 million 0.0850 BONUS/WITHHOLD ARRANGEMENTS Earned premium first \$25 million 0.1300 Earned premium more than \$25 million 0.0750 CAPITATION Earned premium first \$25 million 0.0750 Earned premium more than \$25 million 0.0500 NONCONTINGENT SALARIES Earned premium first \$25 million 0.0550 Earned premium more than \$25 million 0.0360 ADMINISTRATIVE SERVICES ONLY CONTRACTS Premium equivalent first \$500 million 0.0200 Premium equivalent more than \$500 million 0.0075 STOP LOSS Earned premium 0.3300 FEDERAL EMPLOYEE HEALTH BENEFIT PROGRAM Earned premium 0.0400 MEDICARE SUPPLEMENT Earned premium first \$25 million 0.1200 Earned premium more than \$25 million 0.0800 DENTAL Earned premium first \$25 million 0.1000 Earned premium more than \$25 million 0.0700 HOSPITAL INDEMNITY, ACCIDENTAL DEATH AND DISMEMBERMENT, AND OTHER LIMITED BENEFITS NOT ANTICIPATING RATE INCREASES Earned premium 0.0800 OTHER LIMITED BENEFITS ANTICIPATING RATE INCREASES Earned premium 0.1200 NONCANCELLABLE INDIVIDUAL DISABILITY INSURANCE PRODUCTS Earned premium first \$50 million 0.4500 Earned premium more than \$50 million 0.1800 OTHER INDIVIDUAL DISABILITY Earned premium first \$50 million 0.3000 Earned premium more than \$50 million 0.0900 GROUP LONG-TERM Earned premium first \$50 million 0.1800 Earned premium more than \$50 million 0.0400 GROUP SHORT-TERM Earned premium first \$50 million 0.0600 Earned premium more than \$50 million 0.0400 CREDIT—MONTHLY OUTSTANDING BALANCE Earned premium first \$50 million 0.2500 Earned premium more than \$50 million 0.0400 CREDIT—SINGLE PREMIUM WITH UNEARNED PREMIUM RESERVE Earned premium first \$50 million 0.1200 Earned premium more than \$50 million 0.0400 CREDIT-SINGLE PREMIUM WITHOUT UNEARNED PREMIUM RESERVE Earned premium first \$50 million 0.1800 Earned premium more than \$50 million 0.0400 CLAIM RESERVES Exhibit 9 individual and group and credit claim reserves 0.0500 For traditional indemnity through stop loss, add 2.4% to base factors if rates are guaranteed for 15-36 months; add 6.4% if rates are guaranteed for more than 36 months. Life and health. For the most part, Standard & Poor's evaluation of C-2 risks for life insurance (mortality, expense, persistency, and other pricing risks) is similar to the NAIC's approach, though most of Standard & Poor's factors are more conservative to reflect capital deemed necessary for 'BBB' risk-based capital. In the health insurance line, Standard & Poor's incorporates liability factors that recognize differences in risk by product (for example, the degree of managed care inherent in medical products). No credit is applied for the premium stabilization reserve. The disability insurance factors

were determined from an extensive, detailed study of disability claims for 1983-1998 by the Academy of Actuaries and approved by the NAIC. The study showed that the group coverage has a lower risk because of the ability to re-price or cancel the policies. Standard & Poor's risk factors are about a 25% surcharge to the corresponding NAIC charges. These factors are higher for the riskier products than for the previous products, particularly noncancellable individual disability insurance, and for smaller companies. Meanwhile, for companies with more than \$100 million of annual premium, the other individual charge will decrease. Also, the factors are lower for less-risky coverages, such as credit and group long-term disability and, particularly, short-term disability. Annuities. Standard & Poor's capital adequacy model does not apply a C-2 liability risk charge to annuities products because most of the risks are reflected in the asset/liability management risk charges. Separate accounts with guarantees. Standard & Poor's charges depend on the type of guarantee and should correspond to the charges that would be made if these liabilities were in the general account. Separate account nonguaranteed liabilities. Separate account nonguaranteed liabilities receive a C-2 risk charge that is intended to cover a multitude of risks, including expense risk, administration risk, regulatory risk, and litigation risk. With the introduction of the NAIC's C-1 charge on nonguaranteed separate account surplus into Standard & Poor's capital model in 1998, Standard & Poor's recognized that the C-1 charge included items that were part of the C-2 charges. In 2001, Standard & Poor's revised the sliding scale used to calculate C-2 charges for separate account nonguaranteed liabilities. The revision was based on the assumption that larger-size blocks of separate account nonguaranteed liabilities contain economies of scale that tend to offset expense-related items associated with C-2 risk charges (see Table 8). Reinsurance assumed. For companies that assume life reinsurance, Standard & Poor's generally applies the same standard applicable factors, reflecting its opinion that although the reinsurance company has less control over the risk than the issuing company, it tends to have a more diversified portfolio of liability risks. Reinsurance of Workers' Compensation Carve-Out Business Standard & Poor's is adopting the methodology proposed by the American Academy of Actuaries on capital requirements for the life insurance companies that write reinsurance of workers' compensation carve-out business. Standard & Poor's is implementing the same approach used to calculate the risk-based capital for property/casualty companies that participate in this business. Evaluating Asset/Liability Mismatch Risk Annuities. Annuity lines are classified as low, medium, or high risk and are assessed charges of 1%, 2%, and 3%, respectively. The medium-risk category includes annuity reserves with surrender charges and structured settlements. Standard & Poor's assumes the surrender charges on an insurer's block of annuities are fairly evenly distributed. Model adjustments might be appropriate when this assumption is not valid. Other products viewed as medium-risk include annuity reserves that cannot be withdrawn, annuity reserves with market-value adjustments and rates guaranteed for more than one year, and GICs. The high-risk category includes single-premium immediate annuities, which are often long-tail liabilities that can present difficult asset/liability management challenges. Standard & Poor's capital model does not include any reduction in its risk factors based on the company's having an unqualified actuarial opinion on the appropriateness of the asset/liability management process. The NAIC created a simplified approach to capture the guaranteed living benefit option offered with many variable annuities. Standard & Poor's has adopted the NAIC approach to capture the underlying risk for this option. The C-2 factors are: 1% of the reserves on guaranteed living benefits options contracts with fund balances at or more than the guaranteed amount as prescribed by the NAIC risk-based capital. 2% of the reserves on guaranteed living benefits options contracts with fund balances below the guaranteed amount as prescribed by the NAIC risk-based capital. Synthetic GICs. Standard & Poor's created a new set of factors based on total amount of assets related to synthetic GICs. The scale is based on a company's ability to achieve efficiencies in controlling its expenses and risks because of economies of scale and diversification of managers and plans. These factors are classified as C-3 because of the disintermediation risks and interest rate risk (although minimal) but include operational risk as well. These are Standard & Poor's usual charges for those companies that are managing the business to a very low loss potential. To the extent that the management's wrapping stable value funds take on significant asset risk (including both credit and interest rate risk), disintermediation risk, or have the potential for volatile cash flows, the charges will be adjusted upward. The factors are illustrated in Table 9. Modified coinsurance and funds withheld reinsurance. For all modified coinsurance and other

reinsurance transactions with funds withheld in which the mortality, morbidity, and interest rate risks are transferred, the transferred risk will be recognized by reducing the C-2 and C-3 risk charges for the ceding company and increasing the C-2 and C-3 risk charges for the assuming company in accordance with the liabilities ceded/assumed. General business risk factor. The model incorporates a charge for general business risk that is based on the company's premiums written (excluding premiums or deposits related to separate account products) in the U.S. and separate account liabilities as reported in the annual statutory statement. Standard & Poor's uses this measurement as a proxy for business risk, mirroring the NAIC's approach. Table 8 Interest-Rate Risk (C-3) Factors FACTOR LOW-RISK CATEGORY Life insurance reserves net of reinsurance and policy loans 0.0050 Separate account assets with guarantees 0.0100 SYNTHETIC GIC (AMOUNT OF WRAPPED ASSETS) First \$500 million 0.0035 Next \$1 billion 0.0030 More than \$1.5 billion 0.0020 MEDIUM-RISK CATEGORY Annuity reserves not withdrawable (excluding structured settlements) 0.0200 Annuity reserves with surrender charges 0.0200 Exhibit 10 reserves not captured elsewhere 0.0200 GICs or annuity reserves with market value adjustment and crediting rate guaranteed for more than one year 0.0200 Structured settlements 0.0200 HIGH-RISK CATEGORY Annuity reserves with no surrender charges 0.0300 Single-premium individual annuities (such as pension closeouts) 0.0300 Table 9 Business Risk Factors (C-4) PREMIUMS SUBJECT TO GUARANTY FUND ASSESSMENT FACTOR U.S. life and annuity premiums (excluding separate account deposits) 0.0200 U.S. accident and health premiums 0.0050 U.S. separate account liabilities 0.0005

How Standard & Poor's Looks at Convexity Risk In the 1990s, life insurers shifted from credit risk to option risk. This was partially because of the performance and liquidity issues for commercial mortgages that surfaced in the real estate downturn and credit-quality concerns brought on by deterioration in credit of high-yield bonds. Another reason was that insurers were trying to maximize their NAIC risk-based capital ratio, which does not have an explicit charge for convexity (i.e., option risk). In fact, interest rate risk was largely ignored by the insurance industry, swept under the carpet of book-value accounting. Standard & Poor's risk-based capital model captures both asset and liability risks undertaken by life insurance companies. On the asset side, Standard & Poor's capital model has historically charged insurers for credit risk in their bond portfolios, underwriting risk for commercial mortgages and real estate, and market risk for stock equities. In 1994, Standard & Poor's began analyzing insurers' investment portfolios to look at the inherent convexity risk and has now more clearly defined its approach to this category of asset risk. In the model, capital is charged for potential credit defaults based on Standard & Poor's credit default matrices, which show the probability of bonds defaulting. The charge provides a capital cushion for bond defaults. The capital required for option risk is allocated for potential interest rate volatility. Clearly, some change in interest rates is inevitable over the average life of an investment. More importantly, the level of capital will be specific to a company's overall mortgage portfolio. Not all planned amortization class bonds and secondaries are the same, nor are all companies' risk appetites alike. Methodology: Standard & Poor's convexity risk test. Standard & Poor's has adopted a portion of its financial product capital model as a new methodology to calculate the convexity or gamma risk when applying its risk-based capital adequacy model to U.S. life insurance companies. The methodology will only be applied to portfolios of MBS (including collateralized mortgage obligations and pass-throughs), callable corporate bonds, and related hedge instruments. The goal of this methodology is to extract the option risk in MBS by stressing interest rates. Standard & Poor's is looking to isolate the prepayment and extension risks of these assets, i.e., the unpredictability caused by rate swings that might or might not occur. It is assumed for purposes of this calculation that an insurer's assets are matched to its liabilities. However, this assumption is not made across the overall rating process. The asset/liability management part of the rating process separately addresses the duration mismatch risk component and the asset and liability fit. Standard & Poor's methodology typically applies parallel rate swings to the mortgage-backed portfolio, though the magnitude of the shifts can vary from year to year, depending on year-end yield curves and applied volatilities. Standard & Poor's is requiring insurers to model their mortgage-backed and callable bond portfolios separately. The potential for rate swings and shortening or lengthening of mortgage-backed assets is the reason investors are paid additional spread relative to the rating. Whether the performance of these assets exceeds those of a more predictable nature will depend on how much interest rates move. As with credit risk, it might be possible for insurers to pass some of this

risk to policyholders, but Standard & Poor's believes the competitive environment limits an insurer's ability to do so. The relatively low level of interest rates could also limit insurers' ability to pass this risk along because they might be bumping up against an acceptable lower threshold (1.5%-5%). Standard & Poor's is looking for a capital cushion to offset this reinvestment risk. If the liability allows rates to reset, the cushion is to give insurers time to lower crediting rates gradually and not incur increased lapses. To determine Standard & Poor's capital charge, the MBS (or callable bond) portfolio will be modeled in aggregate, thereby giving credit for assets that work well together. Standard & Poor's analysis focuses on the overall portfolio effect. This is a different approach from the NAIC's flux, which looks at assets individually. It is important to look at the effect this charge has on Standard & Poor's view of the capital base, though this is not the sole determinant of how option risk might affect a rating on an insurer, and mortgage-backed interest rate risk is only one component of the overall financial strength rating process for insurance companies. Moreover, this risk must be considered in the context of each company's liability structure. The nature of the liabilities will help determine the relative extent to which the risk will likely be absorbed by either the insurer or policyholders. It will also put in a broader context whether an increase or decrease in interest rates will likely be more damaging to an insurer at any point in time. Standard & Poor's does believe a level of protection is needed for the variance in performance that can occur in this asset class. CMBS are assumed to have positive convex characteristics. Standard & Poor's believes that CMBS behave similar to noncallable bonds in terms of interest rate movements. Therefore, no convexity risk charge is applied to CMBS in the model. ABS have a 2% convexity risk charge for home equity and manufacturing house securities. For all other ABS, the convexity risk charge is 1%. All the convexity risk charges are allocated to C-1 in the capital model. For a full description of the methodology used by Standard & Poor's to calculate the capital requirement for convexity risk, please refer to the Feb. 7, 2003, article titled "New Methodology for Calculating the Convexity Risk in U.S. Life Insurer Risk-Adjusted Capital Adequacy Model." This article is available on RatingsDirect, Standard & Poor's Web-based credit research and analysis system. The report can also be found on Standard & Poor's public Web site at [www.standardandpoors.com](http://www.standardandpoors.com); click on Credit Ratings Criteria in the left navigation bar and the search under Financials. NAIC risk-based capital cash flow test. In general, the NAIC is now requiring that some companies do additional cash flow scenario testing of certain products (mainly single-premium life, some equity index, and various annuity products). Those companies can choose between doing a set of 12 or 50 interest-rate-generated scenarios. A methodology for the cash flow test is selected by the company based on aggregate surplus, or surplus by product or line of business. For any of those methods, however, the worst negative surplus year in each scenario is discounted to calculate the present value. All the scenarios' present values are then ranked from higher levels to lower levels. The C-3 added exposure measure is 100% of the weighted average of these present values. The NAIC provides a rule for the weights used in this calculation. Standard & Poor's has always used more conservative C-3 risk charges than the NAIC. After careful analysis of the NAIC's newly adopted method, Standard & Poor's has decided not to adopt the C-3 cash flow test I but instead to monitor the effects that the new NAIC C-3 risk charges will have on an insurance company's NAIC risk-based capital. More specifically, Standard & Poor's will request that companies provide it with the NAIC risk-based capital C-3 pages and the new C-3 cash flow test worksheet as part of the Standard & Poor's annual life insurance rating survey. Based on its review of this information, Standard & Poor's may require certain companies to hold additional capital for C-3 risk. This would be based on Standard & Poor's assessment of the relative magnitude of any additional NAIC-based C-3 risk charges because of the NAIC's new method as well as conversations with the company to better understand the reasons for the increased risk charges. For the companies that do not comply with this request, Standard & Poor's may add an additional 1% C-3 charge to the existing charges. Standard & Poor's will monitor the company's additional NAIC-based C-3 charges from the cash flow test results (if applicable), considering changes to its existing C-3 risk charges based on completion of the review of this newly adopted NAIC methodology. The same approach will be implemented for the final proposal of the NAIC C-3 cash flow test phase II. Large subsidiary/affiliate capital charge. If large subsidiaries/affiliates constitute more than 10% of TAC and are viewed as nonstrategic in Standard & Poor's group ratings methodology, Standard & Poor's will apply its equity volatility charge (as applicable in that market) plus a 15% concentration



charge on the total subsidiary investment in a capital model. In the U.S., this means the charge will be 15% equity volatility charge plus 15% concentration charge, equaling a 30% charge on the entire investment in the subsidiary/affiliate. Note that this total charge is a minimum charge, and the analyst can increase the charge if it is believed that there is greater-than-normal volatility in the subsidiary holding, the holding is overvalued, or the holding is expected to devalue significantly. Capital Credit for Subsidiaries with Publicly Traded Minority Interests Because of several insurers recently deciding to partially spin off subsidiaries, Standard & Poor's has adopted an approach for capital credit for subsidiaries and strategic affiliations with publicly traded minority interests. This approach will apply to subsidiaries and affiliates that are considered core or strategically important based on Standard & Poor's group ratings criteria. Subsidiaries and affiliates considered nonstrategic based on Standard & Poor's group ratings criteria are excluded. Companies that are considered nonstrategic and that have publicly traded minority interests will be included at full market value, just as any other equity investment would be. These investments would be subject to Standard & Poor's capital charge for market volatility (typically 15% globally) and would be subject to Standard & Poor's concentration risk charges if the investment constituted more than 15% of group capital. Standard & Poor's permits capital credit to be given in any group capital model under the following guidelines: Capital credit for the market value of a subsidiary or strategic affiliate can only be given if there is a public valuation of shares of the subsidiary. There must be sufficient outstanding shares to constitute a liquid market for the stock with a credible share price (that is, there are a sufficient number of bids or offers to develop a market price). Capital credit for the excess of market value over book value of the subsidiary or strategic affiliate will not exceed credit given by the regulators in the jurisdiction of the parent insurer's domicile (this applies only if regulatory capital guidelines exist). Capital credit for the excess-of-market value over book value of the subsidiary or strategic affiliate will not exceed 25% of the difference between market value over book value. Capital credit for the excess-of-market value over book value of the subsidiary or strategic affiliate will not exceed 10% of TAC (including this capital credit) in the group capital model. Adjustments to the Model Standard & Poor's capital adequacy model creates a reasonably consistent initial approach to measuring insurers' capital adequacy. Still, results are primarily guideposts, not absolute benchmarks by which to gauge capital adequacy. A vital part of the assessment of capital adequacy incorporates adjustments—both qualitative and quantitative—to the model. These adjustments may consider: A company's ability to generate capital internally and self-fund growth through statutory earnings. All else being equal, Standard & Poor's views companies with long track records of consistently good earnings as having a stronger capacity for reliable surplus development than companies with more volatile performance. Standard & Poor's also considers an insurer's prospective growth plans in conjunction with management's commitment to maintaining or enhancing surplus adequacy or running a leaner capital structure. Capital needs of a parent, affiliate, or subsidiaries. Standard & Poor's considers potential calls on capital by affiliates that might look to the rated entity for future capital support or by a parent's potentially increasingly aggressive appetite for dividends. Conversely, a parent's, subsidiary's, or affiliate's ability to provide future surplus support could have a positive effect on how Standard & Poor's views an insurer's capital strength. Quality of asset/liability management techniques. Standard & Poor's views companies willing to accept incremental risk less favorably than those adhering to more prudent practices. A company's demonstrated understanding of the risks undertaken also influences the assessment. Amount of reinsurance. Standard & Poor's takes into account any use of reinsurance to support aggressive growth and reported capital strength, along with the expected timing of treaty recapture and quality of assuming reinsurers. Other contingent liabilities. Bond guarantees or similar contingent liabilities that could warrant a charge against capital are also considered. Although considerable attention is focused on risk-based capital ratios, Standard & Poor's assessment of capital adequacy is only one of many factors used in arriving at the financial strength rating on a company. The rating process will continue to be based on the belief that the capital adequacy ratio is not a substitute for a broad-based analysis of insurer credit quality. Strength or weakness in other key areas—such as a company's management and corporate strategy, business profile, operating performance, liquidity, and financial flexibility—can more than offset relative strength or weakness in capital adequacy.