Article Title: ARCHIVE | Criteria | Insurance | Property/Casualty: Standard & Poor's Property/Casualty Capital Adequacy Model Data: (EDITOR'S NOTE: —This article is no longer current. It has been superseded by an article titled "Analysis Of Insurer Capital Adequacy," which was published on April 22, 2009.) Standard & Poor's capital adequacy model is a significant part of the analysis of the capital strength of a property/casualty (P/C) insurer or reinsurer. The model compares total adjusted capital minus realistic expectations of potential investment losses and credit losses against a base level of surplus appropriate to support ongoing business activities at a secure rating level (`BBB'). This calculation produces a "capital adequacy ratio." An insurer's capital strength is viewed as adequate if its capital adequacy ratio is at least 100%. Various levels of the ratio above 100% correspond to Standard & Poor's standards for good, excellent, and superior capital strength. It is important to note that the capital adequacy ratio is only a reference point for judging the adequacy of capital. 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 those risks that are unique to any given company, while still maintaining a standard of comparability among companies. Standard & Poor's capital adequacy ratio TOTAL ADJUSTED CAPITAL - ASSET-RELATED RISK CHARGES (`C-1') - CREDIT-RELATEDRISK CHARGES (`C-2') Underwriting risk (`C-3') + Reserve risk (`C-4')+ Other business risk (`C-5') HOW THE MODEL WORKS The numerator of the capital adequacy ratio is total adjusted capital minus realistic expectations of potential investment losses and credit losses. The total `C-1' asset-risk charge is adjusted by multiplying by a portfolio size factor and adjusting for any single issuer concentration risk. The `C-2' credit risk reflects the collectibility risk associated with certain assets or receivables on the balance sheet. The denominator of the ratio reflects those costs that are associated with doing business. The `C-3' risk charge or underwriting risk is designed to reflect the risks associated with the lines of business a company is writing today and in the future. The `C-4' risk charge or reserve risk reflects the risk today for business written in the past based on loss reserves. The last ingredient in the denominator, the `C-5' risk charge, is for other business risks that the company is subject to. (See below for further discussion of these charges.) Assessment of capital adequacy CAPITAL ADEQUACY RATIO ASSESSMENT OF CAPITAL ADEQUACY Below 100% Vulnerable 100%-124% Adequate 125%-149% Good 150%-174% Excellent 175% and above Superior DETERMINATION OF TOTAL ADJUSTED CAPITAL Total adjusted capital is reported statutory surplus adjusted for certain items that affect the quality of that surplus. By far, the largest liability on the balance sheet is loss and loss adjustment expense reserves. Standard & Poor's does its own analysis of loss reserves using various actuarially accepted methods. The result of the methods is combined with analytical judgment to draw a conclusion about the adequacy of a company's reserves. As any deficiency or redundancy affects the quality of capital, the amount of the deficiency/redundancy will be subtracted/added to capital. After reserves are adjusted to adequate levels, included is an adjustment for the effects of the time value of money. This realigns writers of long-tailed business with writers of short-tailed business to the timing of payments of losses and associated capital needs. Lastly, surplus is adjusted for anything that has not already been considered that will improve or impair the level of available capital, i.e., surplus notes, extraordinary necessity for environmental reserves, etc. EVALUATION OF ASSET RISKS Standard & Poor's looks at the quality of an insurer's investment portfolio to establish a reasonable estimate of expected losses over a period of several years. The present value of these anticipated losses are charged against surplus. Total adjusted capital Total adjusted capital = Statutory surplus +/- Loss reserve deficiency + Time value of money +/- Other Bonds--The charges used for credit risk vary with the credit rating of the bond. Expected default losses are assumed to occur over a period of 10 years and are present valued. The charges are adjusted for an assumed 50% recovery rate. The default and recovery expectations are based on Standard & Poor's analysis of default trends and findings by other studies. Analytical judgment is used in determining appropriate charges for bonds of a parent or affiliate. In the absence of the information necessary to make this judgment, these bonds are assessed a risk charge of 100% of their carrying value. Standard & Poor's model also incorporates charges for interest rate risk associated with bonds, particularly mortgage-backed securities. Mortgages--Typically, inves for P/C companies is minimal, if any. Thus Standard & Poor's has applied a flat charge of 4% for the risk associated with foreclosure, delinquencies, or restructurings. If a company has a significant holding of mortgages, it will be required to complete Standard & Poor's mortgage survey. Based on the information provided, a more detailed analysis will be performed to assess the quality of the portfolio and an appropriate charge will be applied. Unaffiliated common stock--Standard & Poor's analysis of stock market movements indicates that a 15% risk factor is appropriate for unaffiliated stock holdings. This represents one standard deviation in the S&P; 500 Stock Index year-to-year change as calculated since 1945. Unaffiliated preferred stock-- Preferred stocks in the P/C annual statement are not reported by NAIC class. Therefore it is not possible to assess a charge based on the rating of the issue. The charge of 6% for all preferred stock reflects the average credit quality of the preferred stock portfolios held by insurance companies. However, as opposed to the default charge used for bonds, no recovery is included due to the nature of preferred stock instruments. Asset Default/Loss-Risk Factors ASSET CLASS RATING INCIDENCE OF DEFAULT ASSUMPTION 50% RECOVERY RATE/8% DISCOUNT RATE NET FACTOR Bonds Exempt obligations 0% 0.0000 A or higher (Class 1) 1.15% gross charge 0.115% evenly over 10 years 0.0042 BBB (Class 2) 9% gross charge 0.9% evenly over 10 years 0.0326 BB (Class 3) 20% gross charge 2.4% years 1-5; 1.6% years 6-10 0.0752 B (Class 4) 35% gross charge 5% years 1-5; 2% years 6-10 0.1372 C (Class 5) 50% gross charge 8% years 1-5; 2% years 6-10 0.2018 Class 6 30% net charge 0.3000 Mortgages 0.0400 Unaffiliated common stock 15% 0.1500 Unaffiliated preferred stock 6% 0.0600 Affiliated common and preferred stock Insurance Treated as a line of business 1.0000 Noninsurance Charges vary with subsidiary Real estate 18% 0.1800 Schedule BA 20% 0.20 Schedule BAcharacterized as bonds,preferred and common stocks Schedule BA mortgage loans and real estate 30% 0.3000 Other Schedule BA assets 20% 0.2000 Cash and short-term investments 0.3% 0.0030 All other assetsincl. write-ins,collateral loans,and off-balance-sheet items Concentration risks from single issuer: Charges are graded based on the percentage of total adjusted capital above 15% for investment-grade bonds,10% of adjusted capital for other investments (combine all investments in a single issuer). Asset size factors: Multiply asset charges by asset size factor (min. asset size factor = 1): Size Factor = Total weighted dollar amount divided by total invested assets. Size Factor = [(1st $100 million inv. assets x 2.5)+(next $100 million x 1.5)+(over $200 million 0.8)]/[total inv. assets]. Affiliated common and preferred stock--To analyze the risk associated with the components of a group, an analyst must first assess the various operating components and divide them up into either insurance or noninsurance entities and, within those two categories, then decide if they are either "core," "strategic," or "other" to the ultimate group. Only insurance entities that are deemed to be either "core" or "strategic" will have their assets and liabilities fully consolidated/combined as part of the group, in which case the various charges relating to them will be determined using this model. Minority interests, where they exist for "core" or "strategic" insurance entities will receive full credit as being capital. All other entities within the group, i.e., "other" categorized insurance and all noninsurance members will have their assets and liabilities de-consolidated from the group. A charge against the group's capital will then be applied for these entities in an amount sufficient to support their assets and liabilities at either their rated level, if a stand-alone rating exists, or at the `BBB' level, where it does not. In this regard, analysts will consult with other departments within Standard & Poor's to determine the appropriate capitalization levels. In cases where capital requirements cannot be determined, the "default" charge will be equal to the entity's historical book value on the group's accounts. The presumption in the latter case is that whatever capital is invested in the entity is what management deems to be required and, as such, is unavailable, under normal circumstances, to support the group's needs. Credit risk factors Reinsurance recoverables RATING FACTOR AAA 0.005 AA 0.012 A 0.019 BBB 0.047 BB 0.096 B 0.238 CCC 0.497 U 0.250 S 0.500 N.R. 0.250 R 0.500 Premiums and agents' balances in course of collection 0.020 Premiums,agents' balances and installments booked,not yet due 0.020 Accrued retrospective premiums 0.020 Federal income tax recoverable 0.050 Interest,dividends,and real estate income due and accrued 0.010 Receivables from parent,subsidiaries,and affiliates 0.050 Amounts receivable relating to uninsured A&H; plans 0.050 Aggregate write-ins for other than invested assets 0.050 A&H--Accident; and health. N.R.--Not rated. Common stock of a parent is assessed a 100% charge. For insurance affiliates, Standard & Poor's consolidates the affiliate's assets, underwriting, and reserve exposures into the model. For noninsurance affiliates, if the company is not a core or strategically important operation, the asset charge would be an amount equivalent to `BBB' capital, unless it has its own higher rating. In that case, the charge would be for capital at the appropriate higher rating level. If the subsidiary is core or strategically important, the charge is dependent on the subsidiary's rating. If the subsidiary has its own stand-alone rating, the charge will be equivalent to the capital needed to maintain its rating. If the subsidiary has a supported rating, the charge is dependent on the group's rating and the capital necessary to maintain that rating. If the subsidiary does not have a rating, since the subsidiary most likely benefits from the parent's rating, the charge is be based on the capital necessary to maintain a `BBB' rating plus any additional capital necessary to maintain the parent's rating. Real estate--Standard & Poor's believes that this asset class on average poses a greater risk than common stock and should be assessed using a risk factor slightly greater than problem mortgages. Therefore, Standard & Poor's has chosen to apply an 18% risk factor to this asset class. Schedule BA--Given the range of asset types in this schedule, including some high-risk assets, Standard & Poor's has adopted charges that reflect the asset type and the charges assessed against similar assets in the model. 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%. Concentration risk--This adjustment is for single issuer concentrations above 15% of total adjusted capital for investment-grade bonds and 10% for other types of assets. Assets associated with a single issuer that exceed the applicable concentration are assessed a graded charge based on the size of the concentration. All assets of a single issuer-bearing credit risk are aggregated for this assessment. Size factor--Incorporated in the `C-1' charge is a "size factor." This incorporates the risk associated with the size of a company's portfolio, i.e., the larger the portfolio, the more likely it is diversified and able to withstand various risks. The factor is based on total invested assets and is multiplied against the total asset default risk charge for the insurer, subject to a minimum of 1 times. This means that the largest insurers would still be subject to the full asset charges determined in the model, but would not be subject to a surcharge for the size of its portfolio. Smaller insurers would also be subject to the full asset charges determined in the model, but would also be subject to a surcharge due to the lack of diversification in their portfolio. EVALUATION OF CREDIT RISKS Credit risk reflects the collectibility risk associated with certain assets or receivables on the balance sheet. The risk inherent in reinsurance recoverables is by far the largest one for P/C companies. The analysis of this risk is an area from which Standard & Poor's can draw upon its experience worldwide to derive the factor. By using the Standard & Poor's ratings on domestic and international reinsurance companies, the credit risk can be better assessed. With this information, Standard & Poor's analyzed the default rate of reinsurance companies by rating category to derive the appropriate charge by rating. This charge is then applied to the recoverables from reinsurers falling into the specific rating category to derive a total charge. Reinsurers, under some form of regulatory control, were deemed to be similar to a `CCC' reinsurer, and reinsurers that do not have a rating are deemed to be similar to `B' reinsurers. A charge is assessed for other noninvested assets and includes agents balances in the course of collection, accrued premiums, tax recoverables, and all other receivables. A charge is also assessed for any other credit risk not already captured above and will include other nonstandard items such as write-ins. EVALUATION OF UNDERWRITING AND RESERVE RISKS The fundamental risk associated with underwriting and reserving is that the actual cost of claims will vary from the expected cost on a by-line basis, both in setting premium levels and reserve levels. The risk exists not only on all present and future business but also on the portion of past business not already settled. While internal frequency and severity estimation account for a large part of the variability, changes in economic, legal, and social conditions can add further variability to claim costs. Standard & Poor's has opted to use the methodology employed by the American Academy of Actuaries P/C Risk-Based Capital Task Force (AAA) to derive underwriting and reserve charges. This study employs an expected policyholder deficit approach. This approach is a way to assess insolvency risk whereby, for each different risk, the net risk capital charges should be set high enough so that the expected cost of insolvency due to that risk is reduced to an acceptably low level. There are also some other benefits to the AAA's approach. Instead of reflecting the worst case scenario, the AAA methodology reflects the extent to which the industry's actual claim costs on a present value basis will typically vary from expected claim costs over time. In adjusting claim costs to a present value basis, the AAA approach varies the interest rate based on prevailing interest rates during the historical period. This reflects the fact that investment income levels play an important part in the considerations of where to set price levels. Underwriting and reserve risk factors LINE OF BUSINESS UNDERWRITING FACTOR RESERVE FACTOR Homeowners/farmowners 0.27 0.21 Private passenger auto liability 0.07 0.11 Combined two-year lines* 0.18 0.28 International 0.28 0.15 Commercial auto/truck liability 0.17 0.11 Medical malpractice--occurrence 0.40 0.07 Medical malpractice--claims made 0.25 0.06 Special liability¶ 0.17 0.16 Other liability--occurrence 0.33 0.13 Other liability--claims made 0.20 0.10 Products liability--occurrence 0.37 0.15 Products liability--claims made 0.22 0.11 Commercial multiple peril 0.14 0.14 Workers' compensation 0.15 0.09 Reinsurance A 0.45 0.28 Reinsurance B 0.29 0.10 Reinsurance C 0.45 0.28 Reinsurance D 0.29 0.10 *Includes special property auto physical damage fidelity,surety,credit,accident and health,financial/mortgage guarantee,and other.¶Includes ocean marine,aircraft boiler,and machinery. Underwriting risk--Underwriting risk is the risk that the company's present and future business will be unprofitable and that underwriting losses will need to be covered by capital. This is measured by the variability in the industry loss and loss adjustment expense ratio by line over the past 10 years. The underwriting risk charge is applied to the most recent year written premium by line of business as a proxy for both present and future writings. Reserve risk--The reserving risk is the risk that past business will be less profitable than expected. The reserve risk charge does not attempt to measure the adequacy of reserves. This is accounted for elsewhere in the formula. This reserving risk charge only measures the variability a company would expect to encounter in its reserve levels given the lines of business that it writes and ensures that capital is sufficient to cover this expected variability. This is measured by comparing the present value of the actual claim runoff that has emerged to the reserves that were originally established for those claims on an industry basis. This charge is applied to reserves by line of business adjusted to an adequate level. OTHER BUSINESS RISKS Guaranty fund assessments--The model incorporates a charge based on the company's exposure to guaranty fund assessments. Standard & Poor's measurement of this exposure is based on premiums by state and the assessment rate by state. ADJUSTMENTS TO THE MODEL The capital adequacy model is designed to be a reasonably conservative approach to measuring capital adequacy for insurers. Still, the results are intended to act as a benchmark for the analysis of capital adequacy. However, other factors, both qualitative and quantitative, are also important in assessing capital adequacy. These factors include, but are not limited to: The ability of a company to internally generate capital and self-fund growth through earnings. Standard & Poor's views companies with consistent records of good earnings as having a better capacity for surplus growth than companies with volatile results. Prospective growth plans and management's commitment are also taken into account. Capital needs of a parent, affiliate, or subsidiary. The ability of a parent, subsidiary, or affiliate to provide capital support may have a positive impact on Standard & Poor's views of an insurer's capital adequacy. Conversely, potential calls on capital by an affiliate, subsidiary, or a parent via dividends may adversely affect Standard & Poor's view of capital adequacy. While significant attention is focused on the model, Standard & Poor's capital adequacy model is only one of many factors assessed in arriving at a financial strength rating for a company. Strength or weakness in other key areas, such as company management and corporate strategy, business profile, operating performance, and financial flexibility can more than offset relative strength or weakness in capital adequacy. The rating process will continue to be based on the belief that capital adequacy ratios are not a substitute for broad-based analysis of insurer credit quality.