Article Title: ARCHIVE | Criteria | Insurance | Life: Risk-Based Capital Model For British Life Assurers Data: (EDITOR'S NOTE: —This article is no longer current. It has been superseded by an article titled "Analysis Of Insurer Capital Adequacy," which was published on April 22, 2009.)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 risk-based capital adequacy models play a significant role in assessing the financial strength of insurers. A model for European property/casualty insurance is already well established, and Standard & Poor's has now developed a similar model for U.K. and Irish life insurers. As with all Standard & Poor's capital adequacy models, the U.K. life model produces a Capital Adequacy Ratio (CAR) that compares the available adjusted net assets to the capital required to support liabilities at a 'BBB' level of security. Standard & Poor's capital adequacy standards for various levels of differing financial strength are based on this ratio. To be at least secure (that is, at least a 'BBB' level) the CAR must be 100% or more. CAR LESS THAN 100% 100%-124% 125%-149% 150%-174% 175% AND ABOVE Assessment Weak Good Strong Very Strong Extremely Strong Although the U.K. life model is quite complex, it is not practical to address all possible features and variations of U.K. life offices within the base model: the analyst, therefore, plays a critical role in adjusting the model for quantitative and qualitative features unique to that company, while maintaining consistency with other companies. Standard & Poor's capital model compares an insurer's Total Adjusted Capital (TAC) with the aggregate risk requirements for its portfolio of business. These are obtained by applying risk factors to each type of asset and liability. The types of risks covered are: Asset risk (credit risk and volatility) (C1); Pricing risk (covering mortality, morbidity, persistency, and expense risks) (C2); Reserving risk (C3); and General business risk (C4). For most insurers, the C1 charges for asset risk are deducted from TAC, and the result is divided by the sum of charges C2, C3, and C4. This is because, in most insurance markets, asset risk is normally modest and is deducted from the numerator to provide a conservative evaluation of available capital. However, in the case of U.K. with-profit life business, the C1 charge generally dominates the other risk charges, due to: The propensity for with-profit funds to invest heavily in equities and real estate, which carry high volatility risk charges; and The valuation of bonds at market value. If such an insurer is to merit a CAR of, say, 150% then it would be inappropriate to deduct C1 charges from the numerator of the ratio, as this implies that the dominant part of the capital requirements is covered only 100% rather than 150%. Consequently for with-profit business, the CAR is modified such that the C1 charges for with-profit business are included with other risk charges in the denominator. Determining Total Adjusted Capital Standard & Poor's aims to assess the true economic capital available to an insurer. To determine this figure, Standard & Poor's starts from the Companies Act accounts and not the statutory solvency returns: under its group rating methodology, Standard & Poor's frequently needs to assess capital adequacy at the consolidated group level to determine the group's overall financial strength. Companies Act accounts are more practical to use when building up a consolidated capital model for composite insurers and consolidated groups. TAC includes shareholders' equity reported in the company accounts (paid-up share capital and retained earnings) plus any other provisions that can effectively be regarded as equity. If the insurer has nonlife insurance operations, then claims equalization provisions and any provable loss reserve redundancy can also be added. Any additional reserves required for solvency purposes by the regulators, such as resilience and closure reserves, which are treated as equity in U.K. modified statutory accounts, are deducted from capital. (Arguably the resilience reserve should form part of the company's asset risks rather than a deduction from capital. However, many U.K. life insurers do not show an explicit resilience reserve, but, instead, calculate their mathematical reserves on a more conservative basis. Since this results in a reduction in reported capital, it is more consistent to treat explicit resilience reserves in the same manner.) In fact, the resilience reserve is deducted from the Fund for Future Appropriations (FFA; see below) rather than from shareholders' equity since, in practice, this would normally be the first cushion to absorb volatility of equities and real estate. The Fund for Future Appropriations To a large extent, the FFA is also available capital. FFA is the amount of capital in the balance sheet that has yet to be distributed between shareholders and policyholders and/or between different generations of policyholders. Some or all of the FFA will be apportioned over time through the profit-participation mechanism of the insurer. Generally, the great majority of the FFA will be allocated to policyholders through bonus additions to the policy benefits, and, therefore, over time, will be added to mathematical reserves. Consequently, this portion of FFA is less permanent in nature than is the shareholders' share. In particular, any terminal

bonus to be paid during the forthcoming year will be paid from the policyholders' share of FFA. Standard & Poor's is prepared to give 50% credit for the next year's terminal bonus since, on average, the company would in a distress situation be able to reduce or waive the terminal bonus halfway through the year (and, therefore, it is assumed, after 50% of terminal bonus had already been paid out). Therefore, 50% of the terminal bonus amount is deducted from the FFA. Under U.K. legislation, the life company must meet policyholders' reasonable expectations (PRE) when distributing bonuses. Although referred to in U.K. legislation, PRE is not clearly defined in law or regulation, but the general market interpretation of PRE is that maturity payouts under with-profit contracts should be linked to the policy's smoothed 'asset share'; that is, the amount of the with-profits fund that has accumulated as a result of that policy. Although these asset shares (to the extent that they exceed the corresponding mathematical reserves) represent a PRE obligation, this is softer than the liability for contractual benefits, since most losses that might accrue to the with-profits fund can be largely absorbed by a reduction in asset shares. A large proportion of the FFA, therefore, represents the aggregate of policyholders' asset shares. Since these will, over time, be converted into bonuses, the asset share pool might be considered a wasting asset. For an expanding fund, however, such payouts will be more than offset by the buildup of future asset shares (from the policyholders' share of future profits). For this reason the asset share pool may normally be regarded as permanent capital. In cases where the asset share pool is diminishing, however, Standard & Poor's will make a deduction from the FFA to recognize the temporary nature of the asset share component. Whose Life Fund Is It Anyway? Although technically, the FFA has yet to be apportioned between policyholders and shareholders, a proprietary insurer's articles of association or other legal documents will specify what proportion of surplus is attributable to participating policyholders. In the U.K., 90% is the norm. Consequently, Standard & Poor's will assume that the corresponding proportion of the FFA is policyholders' FFA, the balance being attributable to shareholders. If the aggregate asset shares exceed the expected policyholders' proportion of FFA, then this larger amount is deemed to be policyholders' capital. More frequently the policyholders' 90% share of FFA exceeds the aggregate asset shares. This excess will have arisen over time as the maturity payments made to previous generations of policyholders were generally less than their theoretical asset shares. The resulting excess is known as the insurer's 'Estate' or the orphan or unattributed assets. Some U.K. insurers have gained the regulators' agreement that part of this Estate is attributable to shareholders. Where such agreement has been obtained, Standard & Poor's will recognize it, but otherwise the assumption is made that any orphan assets are apportioned, like the rest of the FFA, in accordance with the fund's legal framework. Part of the FFA is used to insulate maturing policyholders from excessive stockmarket volatility, by smoothing asset shares; that is, market volatility is compensated for by a reduction in asset shares only up to a point: the risk of greater volatility then falls back on the insurer. Consequently, the amount of FFA available within a particular fund is reduced further, to allow for this cost of smoothing investment returns on maturing with-profit policies. The cost of smoothing is set at 1% of with-profit asset shares, based on typical smoothing mechanisms in the U.K. market. However, a different charge may be applied if a company's smoothing policy is significantly different from the industry. Fungibility of the FFA Because of the regulatory protection afforded to the reasonable expectations of participating policyholders under U.K. legislation, policyholders' FFA is generally regarded as available to cover only those risks arising within the fund in which it resides (or subsidiaries of that fund); that is, it is not available across the whole company or group. In proprietary offices, the shareholders' proportion of FFA can be regarded as part of the shareholders' capital; that is, it is potentially available to absorb risks anywhere in the company or group. In the first instance, such capital is applied to cover risks within the fund in which it is situated, in which case 100% capital credit is given. If, however, it cannot be fully utilized in covering risks within that fund, then the shareholders' FFA may still be utilized elsewhere in the company or group, but is subject to a 20% discount to reflect the fact that it is not available immediately to shareholders, but will emerge over time (as annual bonuses are declared). The 20% discount also reflects the tax charge that arises when surplus is transferred to shareholders. Mutual life offices have no shareholders' equity, and, therefore, their reported capital is the FFA. Since all operations of a mutual, including any subsidiaries, belong to the with-profit policyholders, the FFA can be assumed to be usable for any risks that might arise in the consolidated group. Therefore, for mutuals the whole of the FFA normally gets

capital credit. To determine the capital credit to be attributed to a proprietary insurer's FFA, Standard & Poor's will first assess the overall capital adequacy achievable across the company or group, assuming that all TAC is fully fungible. Each subfund that has any nonfungible capital is then considered. (Nonfungible capital is principally policyholders' FFA, although there may be certain other nonfungible items.) If the subfund's nonfungible capital alone provides it with a higher level of capital adequacy than that attainable overall by the whole group, then the excess nonfungible capital in that subfund is considered unusable. The actual capital adequacy achievable for the whole entity, therefore, is reduced. Standard & Poor's will then assess how much of the shareholders' FFA may be utilized in each subfund to bring its coverage up to the maximum achievable by the overall entity. That portion of shareholders' FFA then receives 100% capital credit, the balance receiving only 80% credit. An example follows: Capital Adequacy Calculation WITH PROFIT FUND 1 WITH PROFIT FUND 2 SHAREHOLDERS AND/OR NONPROFIT FUND TOTAL Policyholders' percentage 90 100 0 190 Policyholders' FFA 1,500 800 0 2,300 Shareholders' FFA 167 0 0 167 Fungible capital 35 0 698 733 Total available capital 1,702 800 598 3,200 Capital requirements 1,150 300 550 2,000 If all capital were given full credit, the overall adequacy would be 3200/2000=160% This is, therefore, the highest adequacy ratio attainable by the company. However, the Policyholders' FFA in Fund 2 provides coverage of 267% of the requirements in that fund. Since 160% is the highest ratio which Standard & Poor's will attribute, the usable FFA in Fund 2 is limited to 160% of 300; that is, to 480. The remaining 320 cannot be utilized to support risks in with-profits Fund 1 or in the Shareholders' Fund, since it belongs to the Fund 2 policyholders. The capital adequacy for the company, excluding with-profits Fund 2, is then recalculated as 2400/1700=141.2% The capital which can be utilized in with-profits Fund 1 is then 141.2% of 1,150; that is, 1,624.Since the Policyholders' FFA already provides 1,500 of this requirement, only 124 out of the Shareholders' FFA of 165 can be utilized in achieving 141.2% coverage of the capital requirements of Fund 1. Consequently the Shareholders' FFA receives 100% credit on this 124, but suffers a 20% haircut on the remaining 43. The final Capital Adequacy ratio is then (3,200-3,20-43)/2,000=141.8% In some circumstances an insurer may obtain the regulators' agreement to utilize excess strength in one with-profits fund to support another long-term fund through a contingent loan arrangement. In such a case, Standard & Poor's recognizes the utility of the relevant part of the FFA, which might otherwise have been unusable. In the absence of actual regulatory permission, however, Standard & Poor's will not assume that it might be obtained. To date, the only precedents in the U.K. have been to support closed mutual subfunds following the acquisition of a mutual life office. Credit for Future Surpluses Standard & Poor's is willing to give some credit for future profits under long-term business. However, there are various ways in which this asset can be captured, and care must be taken to avoid giving credit for future profits more than once. Generally, some credit can be given for the discounted value of future profits from the in-force portfolio (VIF), where this information is made available. (VIF represents the balance of the office's embedded value after deducting current net assets.) For nonprofit business, 50% of VIF is counted toward TAC. Although VIF is a genuine asset, it is not immediately realizable in its basic form. An insurer may be able to convert a proportion of VIF into current capital through reinsurance financing or by securitization. Standard & Poor's regards 50% as a prudent estimate of the proportion of VIF that could be monetized in this way. To the extent that the other 50% of VIF is not counted as capital, it is taken into account in Standard & Poor's qualitative assessment of financial flexibility. In the case of with-profits life business, the credit given for VIF depends on how that figure has been calculated. The majority of U.K. offices calculate VIF for with-profits business as the discounted value of one-ninth of expected future bonus declarations (assuming a 90/10 participation basis). Typically this is not based merely on future statutory profits, but also includes the release of the shareholders' share of current FFA over time, as policyholder bonuses are declared. Since the shareholders' FFA is already counted toward TAC, 50% credit for with-profits VIF in this case is only given for any excess over the credit already given for shareholders' FFA. If, however, the insurer computes VIF for with-profits business purely based on projected future surpluses, then 50% of this amount may be added directly to TAC, since no double-counting of shareholders' FFA arises. Standard & Poor's gives credit only for the shareholders' share of future profits. For participating classes of business, the policyholders' share of future profits will accrue only temporarily as surplus in the fund, before being converted into liabilities through bonus declarations. Any surplus that is not

distributed immediately effectively replenishes the aggregate asset share pool, thereby preventing the asset share pool from being a wasting asset (see above). In a mutual life insurer, therefore, (or a mutual subfund within a proprietary group), no credit is given for VIF of with-profits business. It is recognized that offices use different sets of actuarial assumptions in calculating VIF, and this can potentially lead to inconsistency in the credit given to TAC. Rather than ask all insurers to recalculate VIF on a standardized basis, Standard & Poor's will consider the economic assumptions used by the insurer and may make an adjustment to available capital if the basis used differs significantly from that of peers. However, there is one aspect of variation that is adjusted for: if, in calculating VIF, the insurer has deducted the cost of maintaining the required statutory solvency margin (or some other desired level of solvency capital), then Standard & Poor's will add this back to VIF. Although the required solvency capital cannot be distributed to shareholders, it is nevertheless available to cover any risks within the legal entity to which it relates. Deferred Acquisition Costs U.K. balance sheets include Deferred Acquisition Costs (DAC) as an asset for long-term contracts. DAC is an alternative quantification of a proportion of the future surpluses expected to emerge from the in-force portfolio. Consequently, if no VIF figure is available, Standard & Poor's will allow 50% credit for DAC (net of deferred tax) for life insurance. If both DAC and VIF are reported on the balance sheet, then Standard & Poor's will give 50% credit for both items since there is clearly no overlap. If only DAC exists on the balance sheet, but a figure for VIF has been obtained directly from the company, then Standard & Poor's will give 50% credit for VIF, but no allowance for DAC, since VIF implicitly contains the future margins that will be used to finance acquisition costs already incurred. Since in many cases, the treatment of VIF may vary between nonprofit and with-profit business (see above), it is normally necessary to split the DAC asset between nonprofit and with-profit lines before following this approach. Goodwill Goodwill in a life insurer's balance sheet may often be in respect of the VIF of an acquired life insurer, in which case the approach outlined above is taken. Any goodwill apart from VIF will normally be given no credit by Standard & Poor's. In cases where the acquired operation is not regarded as a core business to its owner, however, and where there is a likelihood of such goodwill being realized at some point, then Standard & Poor's is prepared to give up to 50% credit for non-VIF goodwill. If the subsidiary is regarded as a core business then no credit is given, since the goodwill will not be realized through a sale. It may well emerge through enhanced future earnings, but this benefit is already factored into other areas of Standard & Poor's analysis. Any credit given for goodwill is amortized over four years. Reserve Margins Some insurers, particularly in the mutual sector, may not calculate embedded values. In such cases Standard & Poor's will instead give capital credit for any reserve redundancy. In the U.K., Appointed Actuaries have discretion regarding the valuation basis they use, subject to a regulatory minimum level of stringency. The use of a more stringent basis will depress reported capital. Standard & Poor's will give 50% credit for any such reserve redundancy; that is, for the amount by which statutory surplus could be increased if the weakest permissible valuation basis were used. In calculating this figure, account must be taken of any resultant changes to the resilience reserve. Hybrid Debt and Reinsurance Financing Standard & Poor's normally gives credit for hybrid equity instruments, such as deeply subordinated debt, where these possess sufficient equity-like characteristics. Full credit may be given to the value of the subordinated debt, where the term to redemption is at least 10 years, and if it meets Standard & Poor's normal criteria for equity treatment. Partial credit is given for terms between five and 10 years; issues with less than five years to redemption being treated wholly as debt. However, in the case of life insurers, such debt is normally serviced (either implicitly or, in the case of securitized issues, explicitly) from the future surpluses emerging from the in-force portfolio. Therefore, Standard & Poor's will not normally give credit for both subordinated debt and VIF; credit is only given for the larger of the two. Standard & Poor's will also apply its usual tolerance limits for overall usage of hybrid equity. For most insurers, the tolerance limit is 15% of TAC, although the limit may be set at a higher percentage for mutual companies and other stand-alone insurers. As seen above, if VIF is ever to be monetized it will almost inevitably take the form of hybrid equity. Consequently, any credit given for VIF is also counted toward the hybrid equity tolerance limit. This restriction may be mitigated if Standard & Poor's obtains details of reserve margins (as described above). Such margins are a component of VIF, but could be converted into immediate capital by weakening the valuation basis. Therefore, that portion of VIF is not subject to the hybrid

tolerance limit. Reinsurance finance has some similarities to subordinated debt. It is a contingent loan repayable out of the future surplus streams arising from the existing block of business. Reinsurance finance, however, is normally repayable over a period shorter than 10 years (and before the majority of policy obligations fall due) in which case it does not qualify for equity-like treatment. Any reinsurance finance in place will have boosted the insurer's reported surplus, so Standard & Poor's requires TAC to be adjusted in this respect. For surplus relief transactions, involving no transfer of assets, the transfer of risk is typically minimal. Consequently, reported equity must be reduced by the impact of the surplus relief and, if necessary, the embedded value of the block of business involved is added back to VIF. In this way, the effect of the transaction is fully backed out. A slightly different approach is taken to 'deficit account' financing, where funds have actually been advanced and the degree of risk transfer tends to be more material. If the insurer has raised more than 50% of VIF of the financed block of business through such a transaction, then Standard & Poor's will give credit for the higher amount. If the reinsurer has recourse to the rest of the cedant's portfolio, however, then Standard & Poor's will treat this as if it were part of the financed VIF. In such cases, the impact of the financing is less likely to boost TAC. If the insurer has been able to raise less than 50% of VIF for the financed block then it places into question the original VIF figure. Therefore, Standard & Poor's will give credit for the actual amount of finance advanced, but will not augment this to 50% of the claimed VIF amount. Asset Risk (C-1 Charges) Standard & Poor's looks at the quality of an insurer's investment portfolio to make a reasonable estimate of the expected losses due to default over a period of several years. Therefore, credit risk charges are defined as the present value of expected losses from the portfolio. U.K. valuation regulations require that, when calculating technical reserves, the actuary's interest rate assumptions should be reduced to reflect the credit risk of the underlying assets. Therefore, Standard & Poor's does not levy credit-risk charges on fixed-interest assets that are backing the (nonlinked) mathematical reserves. In addition to analyzing credit risk, Standard & Poor's assesses the volatility risk, over a 12-month period, inherent within the investment portfolio, having regard to the insurer's asset/liability management. Charges for volatility risk also depend on whether the assets are part of the insurer's surplus or are effectively matching mathematical reserves. Since U.K. insurers report assets at market value, any volatility in the market values of surplus assets results in an immediate reduction in available capital. The market volatility of assets that are backing reserves, however, has a more limited impact. Under the U.K. resilience requirement, falls in equity and property values of up to 25% are already provided for. Therefore, on equities and property assets that are backing mathematical reserves, Standard & Poor's levies charges at a reduced level of only 25% of the full amount. (Such a charge is appropriate even though the resilience reserve has already been deducted, either explicitly or implicitly, from the FFA. This is because, following a moderate fall in equity values, the insurer would still have to satisfy the same resilience tests as before.) The dynamic and discretionary approach to valuation assumptions in the U.K. means that a fall in the values of bonds that are backing mathematical reserves can be offset by the insurer's actuary using a higher interest rate to value nonlinked liabilities. In the case of a perfectly-matched portfolio, such a fall in bond values, therefore, has zero impact on available capital. Although perfect matching may be rare, the standard of asset/liability management among U.K. life offices is generally good. Moreover, changes in fixed-interest yields are already provided for in the resilience tests. Consequently, Standard & Poor's applies a reduced volatility charge of 1% to bonds that are backing reserves. Because of these differential charges, it is necessary to hypothecate assets between surplus and reserves. Where possible, Standard & Poor's will follow the same asset hypothecation as used by the insurer to establish its reserves and in its resilience test. Where this is not possible, the model applies a notional hypothecation: fixed-interest bonds and cash are apportioned initially to mathematical reserves, any excess then being regarded as surplus assets. Conversely, equities and real estate investments are initially assumed to be part of surplus or the FFA, with any excess then allocated to the balance of the mathematical reserves. A summary of the C-1 charges is outlined below. Bonds: Charges for credit default vary with the bond's credit rating. Expected default losses are assumed to occur over a period of 10 years. All losses are discounted at a rate of 8% per year from year two onward. These gross charges are then adjusted for a 50% recovery rate. The net factors are set out in the table below. Analysts' judgment is used to determine appropriate charges for bonds of a parent or affiliated company. A volatility charge of 1% is levied on bonds backing the

mathematical reserves. The corresponding volatility charges on bonds that are part of surplus assets vary between 1% and 5%, depending on their outstanding term. Mortgages: Mortgages that are nonperforming (that is, in arrears or in default) carry a 14% charge. Mortgages that are performing carry the lower charge of 2%. Where there is no information on the quality of the mortgages, an aggregated rate of 4% is used over the whole portfolio. Equities: Standard & Poor's analysis of the U.K. stock market movements over the past 40 years indicates that a 20% risk factor is appropriate for unaffiliated common stock holdings (based on the standard deviation of 12-month changes in the U.K. equity index). As implied above, stocks backing the mathematical reserves attract only a 5% charge. Preference stock: Credit risk is regarded as similar to that of bonds, except that no recovery is expected in the event of default. Since this is normally a minor asset class in the U.K., Standard & Poor's applies an overall 6.5% charge for credit risk (implying an average 'BBB' credit quality) rather than capturing data by rating category. A 6% volatility charge is also applied to preference shares backing the FFA and surplus. Real estate: The 12% charge on investment property captures lack of liquidity and potential valuation errors, as well as underlying price volatility. The charge is reduced to 3% in respect of property backing mathematical reserves. Other assets: Standard & Poor's applies charges to loans, deposits with reassurers, and other nonlinked assets. Linked assets: A temporary fall in unit values does not affect the risk of meeting unit liabilities, assuming the insurer's unit creation/cancellation mechanism is efficient. A sustained drop in unit values, however, leads to lower management charges being received by the insurer. This, in turn, could impact on statutory reserves and on embedded values for unit-linked business. Therefore, a 0.5% charge is applied to unit-linked assets. A 0.5% charge is also used for index-linked assets and other derivatives, principally to capture credit risk. Concentration: Significant concentrations of assets exacerbates asset risk. Standard & Poor's analyzes holdings of assets associated with a single issuer. When single issuer concentrations exceed 10% of TAC, an additional charge is made on a sliding scale, increasing from 20% on the next 10%-25% layer of TAC, up to a 100% charge on any single concentrations above 100% of TAC. Size: Asset risk increases for smaller portfolios: less diversification can be achieved than in a large portfolio, leading to increased portfolio risk. Even if there are no significant asset concentrations currently, a small portfolio has the clear potential for such exposures. Therefore, Standard & Poor's determines a charge for the incremental risk inherent in a small portfolio. A 'size factor' is applied to the charges relating to nonlinked assets and the concentration risk. The table below sets out the calculation of the size factor used. Additional requirements: Explicit allowance can be made for additional capital requirements that are not otherwise captured in the model. Asset Default/Volatility Risk Factors (C-1) Noninvestment-linked assets (%) Ordinary shares backing mathematical reserves 5.0 Other ordinary shares 20.0 Property backing mathematical reserves 3.0 Other property 12.0 FIXED-INTEREST ASSETS NOT BACKING RESERVES (DEFAULT RISK) 'AAA' government bonds 0.0 Other government bonds or corporates rated 'A' or higher 0.4 Rated 'BBB' 3.3 Rated 'BB' 7.5 Rated 'B' 13.7 Rated 'CCC' 20.2 Not rated 3.0 In or near default 30.0 Preference shares 6.5 Mortgages: performing 2.0 Mortgages: nonperforming 14.0 Aggregate (if data not available) 4.0 Policy loans and other loans 1.0 Deposits with Reassurers 1.8 Other 5.0 INVESTMENT-LINKED ASSETS Unit-linked assets 0.5 Index-linked assets and other derivatives 0.5 BOND VOLATILITY RISKS Fixed-interest backing reserves 1.0 Fixed-interest securities backing FFA and surplus 1%:average term < two years.3%:average term between two and five years.5%:average term is > five years Preference shares backing FFA and surplus 6.0% Concentration Risk Any holding of a single issuer considered to be excessively concentrated is charged the full 100%.Charges apply to: Investment-grade bonds from a single issuer if the holding is greater than 15% TAC.Charges will apply if the following holdings exceed 10% TAC:Below investment-grade bonds , common stock, preferred stock and real estate Asset size factors The size factor is applied to the charges relating to nonlinked assets and concentration risk.The size factor is [(First £60 million nonlinked assets x 2.5)+(next £60 million non linked assets x 1.5)+(nonlinked assets more than £200 million x 0.8)]/ total non-linked assets. The size factor is subject to a minimum of 1.0 Pricing Risk (C-2 Charges) The C-2 charge measures the risk related to pricing mortality, morbidity, expenses, and persistency for securely rated companies. Factors are applied to the gross premiums written during the year and are dependent on the line of business written. Single premium contracts are generally less risky than their regular premium counterparts as reinvestment risk

is greatly reduced, and initial strain tends to be significantly lower than under regular premium policies, so that poor persistency is not such an issue. Nonprofit annuities, however, are regarded as carrying high pricing risks, as the insurer is providing very long-term guarantees against both interest rate movements and longevity improvements. In addition, since the backing assets are normally prepurchased, the insurer carries the risk of yield changes during the period before rates can be re-set. Single premium with-profit business normally comprises unitized with-profit bonds, for which the insurer is normally protected from investment volatility through a market value adjustment mechanism. Under unit-linked contracts, contrary to popular belief, not all risks can be passed to policyholders, so that a small charge is appropriate. Permanent health insurance is considered high-risk due to high claims volatility and a high degree of expense risk. Group protection business is very competitive, and insurers may lack sufficient diversification to stabilize their portfolio experience. "Corporate pensions" is essentially third-party fund management business. Although the asset risk is theoretically off the insurer's balance sheet, the insurer as fund manager bears a small fiduciary risk, as well as a risk of administration expenses exceeding margins. Additionally, charges are applied to sums at risk to measure the extent of morbidity and mortality risk. The model uses a sliding scale, reflecting the reduced claims volatility inherent in larger portfolios. Under linked contracts, in theory the insurer can generally adjust mortality charges in line with actual experience. However, adverse experience may not be fully compensated for in practice, either due to shortcomings in reporting of claims experience or because of competitive pressure. Therefore, a small charge is appropriate. For simplicity, a flat 33.3% charge is levied on small nonlife portfolios within a life insurance group. If the nonlife portfolio is significant then Standard & Poor's will apply the full range of charges from its European property/casualty capital model. Pricing risks charges (C-2) % OF GROSS PREMIUMS UNIT-LINKED Single premiums 1.5 Regular premiums 2.5 Nonprofit life and pensions Single premiums 4.0 Regular premiums 5.0 With-profit life and pensions Single premiums 1.5 Regular premiums 2.5 Index-linked life and pensions Single premiums 2.5 Regular premiums 2.5 Continuous disability (includes morbidity risk) 25.0 Corporate pensions 0.5 Group protection 10.0 Other 5.0 Nonlife personal lines (where not substantial) 33.3 Nonprofit immediate annuities 6.0 Deferred annuities 4.0 MORTALITY RISK Linked life sums at risk 0.1 Linked morbidity sums at risk 0.25 Nonlinked life sums at risk less than or equal to £300 million 0.20 £301 million-£3,000 million 0.13 £3,001 million-£15,000 million 0.10 greater than or equal to £15,000 million 0.08 Nonlinked morbidity sums at risk 0.25 Reserving Risk (C-3 Charges) Standard & Poor's also applies charges to reserves held (net of reassurance) for each line of business. Again, the charges applied are dependent on the type of business written. These charges are designed to capture a number of risks: For single premium business, the premium-based C-2 charges are levied only on new single premium business written during the year. A reserve-based charge is therefore necessary to cover expense, persistency, and mortality/longevity risks for single premium business already in force. Some contracts in force may no longer be written in the same form. Standard & Poor's premium-based charges are based on modern contracts, whereas some older policies still in force may carry significantly higher risks. For example, many deferred annuities written in the 1980s bore annuity rate guarantees that have proved very onerous. The corresponding contracts written today contain no such guarantees. Even though assets and liabilities may be well matched by duration, there is a reinvestment risk. Perfect cash flow matching can never be achieved with certainty, as the incidence of claims is variable. Standard & Poor's gives partial credit for embedded value (VIF), but this value can be very volatile. Certain changes in investment conditions, expense ratios, and persistency may not impact on statutory surplus, but have a marked impact on embedded value. Under-reserving, for example: in relation to the valuation of policy options; data and calculation errors; and retrospective tax changes. The table below sets out the reserving risk charges applied. Unit-linked business. Standard & Poor's uses the EU required solvency margin for unit-linked business (taken from Form 60 of the FSA Returns) as a starting point for measuring reserve-based risks. (The required solvency margin for unitised with-profit business is excluded from this calculation, since the capital requirements for unitised with-profit business are captured separately.) An additional charge of 0.25% is then applied to cover the risks of mispricing units, as the statutory solvency margin for linked business is intended to cover only the risks of any expense and investment guarantees. Nonlinked business. Regular premium nonlinked business warrants a higher charge than single premium nonlinked business, to reflect the reinvestment

risk in respect of future premiums. Annuities. Longevity risk for immediate annuities is charged at 2.5% of statutory reserves (net of reassurance). The risk for deferred annuities is 4.5% of statutory reserves, assuming that the insurer has an exposure to guaranteed annuity rates. Reinsurance recoverables. No charge is made for credit risk in respect of reinsurance recoverables. In contrast to property/casualty business, U.K. life reinsurance is generally placed with reinsurers of very high credit quality, and the amounts involved are normally not substantial. However, in cases where an insurer places undue reliance on reinsurance and/or reinsurer quality is unusually low, than an appropriate charge may be imposed. Reserving Risk (C-3) LOW-RISK CATEGORY Unit-linked liabilities Unit-linked Solvency margin + 0.25% Nonprofit life: single premium and recurring single premium business 1.0% Accumulating with-profits 1.0% Traditional with-Profits 1.0% MEDIUM-RISK CATEGORY Nonprofit life: regular premium business 2.0% Equity index-linked 2.0% Immediate annuities 2.5% HIGH-RISK CATEGORY Nonunit reserves for linked business 3.0% Deferred annuity liabilities 4.5% PHI/continuous disability 7.5% PHI—Permanent Health Insurance. Business Risk (C-4 Charges) The C-4 charge aims to cover general business risks. These encompass mismanagement, fraud, ICS levies, and tax changes, but in the U.K. the dominant business risk is regulatory risk, as exemplified by the compensation costs of pensions misselling. All of these risks are, by their nature, impossible to quantify as the risks themselves are unforeseeable in nature, scale, or timing. However, Standard & Poor's considers it is reasonable to base the charge on gross premiums written in the past year. IFA business is considerably less exposed to regulatory risk than is business sold through tied channels. Consequently, an increased charge is levied on life and pensions business sold through tied channels. For this purpose Standard & Poor's uses the proportion of business sold via tied channels over the past three to five years, since regulatory problems tend primarily to affect business written in recent years. Higher regulatory risks are assumed to attach to pensions business than to life assurance. A charge is also applied to the risk-weighted assets of any related banking operations, and a charge is also applied to third-party funds under management that are not included in the annual accounts. The latter represents fiduciary risks resulting from extraordinarily poor performance or failure to fulfil contractual obligations. The risk is significantly lower in respect of index-linked funds. Business Risk C-4 % OF PREMIUMS Life and general annuities: nonregulatory risks 1.5% Life and general annuities: regulatory risk 3% x proportion sold via tied-channels Individual pensions: nonregulatory risks 3.0% Individual pensions: regulatory risk 6% x proportion sold via tied-channels Health/disability 2.0% Corporate pensions 1.5% Nonlife personal lines 2.0% Risk-weighted assets of banking operations 8.0% Third-party index-linked funds under management 0.2% Other third-party funds under management (off-balance sheet) 0.5% on first £10 billion, Conclusion Capitalization is only one of the areas analyzed by Standard & Poor's in assessing the financial strength of life insurers. Consequently, the result produced by the capital model does not determine the overall rating. The analyst will place at least as much emphasis on the company's projected future capital adequacy as on its current adequacy ratio. Other important factors are the insurer's financial flexibility, its operating performance, business position, investments, management, and strategy. Nevertheless, the risk-based capital adequacy model represents a valuable new tool enabling Standard & Poor's to enhance the quality of its analysis of British life insurers. The British life capital model will serve as the starting-point for developing capital models for other European life markets.