

Article Title: ARCHIVE | Criteria | Insurance | Life: Updated U.S. Life Insurance Liquidity Model Reflects New Asset And Liability Classes Data: (EDITOR'S NOTE: —This article is no longer current. It has been superseded by "Life Insurance Criteria: Liquidity," published April 22, 2004.) Since the early 1990s, Standard & Poor's has utilized a liquidity model that compares a life insurer's liquid assets to a risk-adjusted calculation of its liabilities subject to scheduled and unscheduled withdrawals. The model examines a U.S. life insurer's liquidity under two stress scenarios: immediate and ongoing. The liquidity model has been updated several times since its inception reflecting new asset and liability classes as well as enhanced methodology. Revisions for 2002 For 2002, Standard & Poor's has instituted several modifications that further enhance the model: In giving liquidity credit for debt, Standard & Poor's has revised its criteria to include credit for state and municipal bonds, as well as government debt issued in developed markets outside the U.S. In the past, credit was given for MBS and ABS, U.S. Treasuries, and corporates, but all other government securities fell into the "other" category. Now credit for these instruments will be the same as for corporate debt, varying by the rating on the security. For disability income and long-term care insurance, the anticipated payment streams will be charged against the available assets as a certain obligation. These payments will be treated in the same manner as annuity and structured settlement payments. In the immediate scenario, one year of estimated payments will be deducted from available assets, while in the ongoing scenario, two years of estimated payments will be deducted. No redundancy factor will be applied to these obligations. In order to capture shorter-tail accident and health (A&H;) insurance obligations, the A&H; claim liability net of disability income and long-term care will be treated as an immediate obligation. This liability will be deducted as a certain obligation in both the immediate and ongoing scenarios. No redundancy factor will be applied. The changes are effective corresponding with 2001 statement year.

General Overview As some of the more notable insurer insolvencies of the early- to mid-90s demonstrated, it was the perceived lack of liquidity that was the key factor leading to regulatory intervention. In retrospect, many of those insurers ultimately had sufficient assets to satisfy most policyholder and creditor claims. Although liquidity has generally improved since then, Standard & Poor's believes the life insurance industry remains challenged as these turbulent times of global competition, consolidation, demutualization, and volatile investment result in a trickier balancing act, with costs associated with both liquidity and illiquidity. A company that makes a marked entry into less liquid assets for the accompanying improved spreads risks a downgrade should the liquid asset-to-risk-adjusted liabilities ratio decline below the minimum standards for the rating level. Policyholders are apt to surrender policies if they perceive their insurer is experiencing financial difficulty. However, despite its importance, liquidity has nowhere near the level of prominence of risk-based capital, a measure regarded by many, including the National Association of Insurance Commissioners (NAIC), as the prime measure of solvency. Having an appropriate level of liquidity means being able to meet maturing obligations promptly and to take advantage of market opportunities. As such, liquidity risk is most noticeable when a company's business position is under stress. In the widely publicized failures of MutualBenefit Life Insurance Co. and Executive Life Insurance Co. of California, policyholders were surprised by these companies' lack of liquidity. Standard & Poor's liquidity model measures an insurer's liquidity under both an immediate and ongoing "stress" scenario, with the lower of the two used for ratings purposes. As with Standard & Poor's capitalization model, however, this process may involve substantive analytic adjustment, reflecting that although liquidity might be heavily influenced by overall investment profile and product surrenderability characteristics, other factors, such as distribution channels and target markets, may also play key roles. The analysis of liquidity focuses on the relationship between an insurer's liquid assets and those liabilities that are subject to a sudden shortening of term, as opposed to focusing on an insurer's total liquid assets in isolation. Insufficient liquidity occurs only as the relationship between the two become unbalanced. In formulating its liquidity strategy, management faces a trade-off with respect to investment return, because maintaining a high level of liquidity typically necessitates investing in larger amounts of shorter-term and lower-yielding assets. In recent years, to mitigate liquidity requirements, insurers have attempted to build features into their policies such as market value adjustments and penalties to discourage surrender activity. However, this remains a challenge in today's very competitive business environment with the need to maintain high crediting rates and consumer pressures for surrenderability features. Standard & Poor's believes that, in general, the industry's

liabilities are far more liquid than many companies realize. In much of the 1980s, product structure basically ignored liquidity, because many companies wrongly assumed policyholders could not or would not leave their insurer. As the direct ties between consumers and insurers began to break down and a wide variety of savings alternatives, such as mutual funds, have become available, the policyholders' propensity to shift their policies to other carriers to achieve higher crediting rates, or in times of perceived insurer financial stress, has risen. Standard & Poor's review of a company's liquidity encompasses analysis of several factors: Reserves and deposit fund liabilities; Surrenderability provisions, and restrictions associated with these liabilities; Asset portfolio, to determine convertibility to cash under a variety of stress scenarios; Ongoing operational cash flow; and Other influences on a company's cash flow, such as any debt obligations, dividend needs of the parent, or potential contingent liabilities. In some cases, individual companies may be able to dispose of assets more quickly than is generally expected in a particular market. However, it has been Standard & Poor's experience that the potential for unscheduled withdrawals varies significantly, both by retail and especially wholesale classes of business, and by the importance of accumulated cash value relative to the premium or deposit paid in. In addition, this potential can be affected by surrender charges and adjustments for market value in differing degrees. Risk-Adjusted Liquidity of Liabilities Standard & Poor's liquidity model compares a life insurer's liquid assets to a risk-adjusted calculation of its liabilities subject to scheduled and unscheduled withdrawals. The model examines an insurer's liquidity under two stress scenarios: immediate and ongoing. Each establishes a base time frame in which a company must meet its obligations. In addition, each scenario assumes a company must hold acceptable liquid assets to meet potential and certain obligations for an additional year beyond the base time frame. The immediate scenario implies a "drop-dead" situation (similar to that experienced by Confederation Life Insurance Co.), in which a company experiences immediate and unforeseen stress in the form of withdrawals and surrenders within a month. The ongoing scenario implies a similarly stressful situation but is spread over the course of a year. When analyzing the model's results, Standard & Poor's focuses on the scenario that produces the ratio showing lower liquidity. In applying its model, Standard & Poor's receives a breakdown of a company's liabilities by product category, and for each applies various risk factors that reflect the potential for withdrawals. These risk factors represent Standard & Poor's estimate of the percentage of policyholders likely to remove funds under each scenario if such withdrawals were completely unrestricted. Standard & Poor's considers traditional life policyholders as slower to respond to company news and market conditions than other types of customers. Therefore, the related liabilities are given a 30% risk factor in the immediate scenario, meaning that only 30% of traditional life policyholders who can surrender freely would do so within one month. However, Standard & Poor's increases the factor to 50% in the ongoing scenario (with a one-year base time frame), similar to the factor for interest-sensitive life. Although traditional life policyholders are less likely than universal life policyholders to surrender or exchange their policies immediately, they have become more aware of the risks of potential insurance company vulnerability because of the several highly publicized failures of the past few years. In addition, the movement in the industry away from career agency forces might lead to less loyalty among policyholders in times of stress. Interest-sensitive life receives a higher risk factor of 50% in the immediate scenario because of the different profile of individuals who buy these products compared with traditional life. Some interest-sensitive life policyholders may not require the insurance feature and may buy these products for investment purposes. Therefore, they may be faster to react to adverse conditions than traditional life buyers. However, ultimately, those who buy traditional or universal life insurance for insurance purposes would be expected to behave in the same manner. Pension plans and GICs are likely to be the most vulnerable liabilities of a company if they are fully surrenderable, because they are purchased by sophisticated marketplace buyers purely for investment purposes. Investors in these products are the most financially aware of a life insurer's customers. Therefore, under a stress scenario of any sort, Standard & Poor's assumes that 100% of those contract holders who could surrender with little or no penalty would do so. Deferred annuities, held by individual contract holders, are assumed to be 100% liquid over the long term, thus the factor in the ongoing scenario is 100%. However, in the immediate scenario, the factor is 90%, reflecting the fact that not all contract holders will exit quickly. Variable products, as part of the insurer's separate accounts, are not charged with other general account

products. However, any funds invested in fixed buckets of variable products are captured in the above general account categories. For products that have no cash value accrual, such as term life, group life, accident and health, and disability insurance, Standard & Poor's applies only a 50% risk factor to any unearned premium reserve or premium stabilization reserve, which may need to be refunded. However, certain individual disability products are structured to accrue some cash value. For these products, a separate charge on any cash value involved, not on the entire reserve, is applied, similar to the charges on traditional life business. In addition, a 100% risk factor is applied to health claims reserves because these obligations mature within one year and represent a call on liquid assets.

**Table 1 Liability Risk Factors**

	LIABILITY IMMEDIATE SCENARIO (%)	ONGOING SCENARIO (%)
Traditional life	30	50
Term life	50%	50%
50% of Unearned Premium Reserve	50%	50%
Interest-sensitive life	50	50
Deferred annuities	90	100
Single-premium immediate annuities	100	100
Other individual annuities	100	100
Supplementary contracts	30	50
Individual accident and health	50%	50%
50% of unearned premium reserve	50%	50%
Individual disability	50%	50%
50% of any cash value	50%	50%
Structured settlements	100	100
Guaranteed investment contracts and funding agreements	100	100
Group annuities and other deposit funds	100	100
Group accident and health	50%	50%
50% of premium stabilization reserve and unearned premium reserve	50%	50%
50% of premium stabilization reserve and unearned premium reserve	50%	50%
Group life	50%	50%
50% of premium stabilization reserve and unearned premium reserve	50%	50%
50% of premium stabilization reserve and unearned premium reserve	50%	50%
Group long-term disability	50%	50%
50% of premium stabilization reserve and unearned premium reserve	50%	50%
Health claims reserves	100	100
Withdrawal Provisions and Restrictions	Standard & Poor's takes the withdrawal characteristics of the liability portfolio into account when applying the above risk factors.	

Unsurrenderable liabilities receive no liquidity charge because the risk factor is multiplied by zero. Conversely, a 100% surrenderability factor is applied to liabilities with little or no withdrawal restrictions, which as a result receive the full risk-factor charge. In cases where a product carries a market value adjustment of some sort, Standard & Poor's considers there to be some protection for the company, as certain provisions and market conditions can cause policyholders to bear a loss on their original investment. Policyholders who might sustain a loss would be less likely to surrender in these cases. Similarly, significant surrender charges (5% or greater) also provide protection to a company undergoing stress, because policyholders may decide to wait out such a situation rather than face a large penalty. Therefore, for liabilities with these provisions, the model reduces the company's risk by half. For example, a universal life policy with a market value adjustment provision would receive a 50% risk factor multiplied by a 50% surrenderability factor, resulting in an overall 25% charge. Smaller surrender charges are less likely to stem policyholder withdrawals and do not earn any such credit.

**Table 2 Surrenderability Factor**

	PROVISION FACTOR (%)
No surrenders allowed	0
Market-value adjustment	50
Surrender charges greater than or equal to 5%	50
Surrender charges less than 5%	100
No surrender charges	100

The application of the risk factors and surrenderability factors provides an indication of a company's potential obligations under the stress scenarios. These scenarios assume that almost everyone who could logically retrieve cash from the company would do so. However, recognizing that in reality some of the potential surrenders will not occur, Standard & Poor's has built a measure of covariance into the model by multiplying the potential obligations by 70%. This assumes that the other 30% of the company's potential obligations remain with the company through the stress period.

**Determination of Liquid Assets**

Standard & Poor's examines the liquidity of an insurer's investment portfolio to establish an estimate of its potential liability requirements. In this process, assumptions are made as to which assets can be counted on to be readily convertible to cash at all times. Cash and short-term securities receive full credit, as do U.S. government securities. Publicly traded, investment-grade corporate, and government bonds receive 100% credit in the ongoing scenario but have a 2% or 4% "haircut" in the immediate scenario based on credit quality. Standard & Poor's model gives little credit for below-investment-grade quality issues, because there may be credit- or market-driven factors that affect the liquidity of noninvestment-grade securities at any point in time. In the ongoing scenario only, public bonds rated 'BB' receive 25% credit and private 144A bonds rated 'BB' receive 20% credit.

**Table 3 Allowable Asset Factors**

	IMMEDIATE SCENARIO (%)	ONGOING SCENARIO (%)
Cash and short-term investments	100	100
U.S. government securities	100	100
Agency passthrough mortgage-backed securities	90	90
Collateralized		

mortgage obligations -- very accurately defined maturities, planned amortization classes, and targeted amortization classes 90 90 Collateralized mortgage obligations -- sequentials 80 80 Collateralized mortgage obligations -- Z tranches 0 50 NAIC '1' commercial mortgage-backed securities 90 90 NAIC '2' commercial mortgage-backed securities 75 90 NAIC '1' public bonds (other than mortgage-backed securities, Asset-backed securities, and U.S. Govt) 98 100 NAIC '2' public bonds (other than mortgage-backed securities, Asset-backed securities, and U.S. Govt) 96 100 NAIC '1' 144A private placements 80 90 NAIC '2' 144A private placements 65 75 NAIC '1' non-144A private placements 70 80 NAIC '2' non-144A private placements 40 50 NAIC '3' public bonds (other than mortgage-backed securities, asset-backed securities, and U.S. Govt) 0 25 NAIC '3' 144A private placements 0 20 Asset-backed securities 90 90 Unaffiliated public investment-grade preferred stock 100 100 Unaffiliated public common stock 70 85 Assets in securities lending programs -- fully collateralized 100 100 Assets in securities lending programs -- otherwise 70 100 Because MBS have become one of the most prominent classes of investments in the U.S. over the past several years and given the extremely diverse nature of this category, Standard & Poor's differentiates among them for liquidity purposes. Agency passthrough and government guaranteed securities receive 90% credit, as do the most tightly structured classes, while others receive varying degrees of credit, down to zero for those classes Standard & Poor's does not consider liquid. Although there is substantial liquidity in the private placement market because of the required rating of these instruments by the Securities Valuation Office of the NAIC, there is also a wide variation in the credit quality among investment-grade securities in this market. Standard & Poor's considers NAIC-'1' designated private placements to be more liquid, while those designated NAIC-'2' may include private placements with questionable investment-grade characteristics. Similarly, as it is easier to find buyers for securities with readily available information, issues registered under Rule 144A are also viewed as having higher liquidity. The model also gives more credit in the ongoing scenario, because a company might find buyers for some of its specialized private placements after potential buyers have the opportunity to perform a detailed credit analysis. Regarding equities, most insurance companies invest in preferred stocks as they would bonds. In general, Standard & Poor's treats publicly traded preferred stocks like corporate bonds. Preferred stocks that are investment grade and publicly traded are given 100% credit. Publicly traded common stocks are also fairly liquid, as companies could likely sell most of their portfolios if under pressure to raise cash. However, with the potential for market shocks, 30% declines in the stock market in short periods of time are not unheard of. Therefore, the model gives 70% credit to unaffiliated publicly traded common stocks in the immediate scenario, and allowing for some market recovery, 85% in the ongoing scenario. In giving liquidity credit for debt, Standard & Poor's differentiates between debt (government or corporate) issued in a jurisdiction widely accepted as a developed country or as an international financial center (see Table 4) from debt issued in other jurisdictions. Table 4 Developed or International Financial Centers Australia Channel Islands\* Italy Portugal Austria Denmark Japan Singapore Barbados Finland Liechtenstein Spain Belgium France Luxembourg Sweden Bermuda Germany The Netherlands Switzerland Canada Ireland New Zealand United Kingdom Cayman Islands Isle of Man Norway United States \*Jersey/Guernsey Bonds issued in emerging countries receive the following treatment in the liquidity model: if emerging market debt is less than 4% of total invested assets, liquidity credit is 10% of the value of the bonds in the immediate scenario and 20% in the ongoing scenario. If emerging market debt is greater than or equal to 4% of total invested assets, liquidity credit is based on the type of debt as follows: investment-grade: 25% (immediate scenario) or 50% (ongoing scenario); below-investment-grade: 0% (both immediate and ongoing scenarios). Assets involved in securities lending programs are generally allowable as liquid assets as these programs usually have very short terms. Funds withheld reinsurance assets that back liabilities reinsured with another company are excluded from the ceding company's allowable asset liquidity calculations because the related assets are no longer considered those of the ceding company. Certainty of Maturing Obligations The model is also designed to deal with maturing obligations. These include any outstanding debt at the insurance company, GIC and funding agreement maturities, annuity and structured settlement lump-sum payments, anticipated disability income and long-term care benefit payments, and any other scheduled lump-sum payments. These obligations do not receive the benefit of the 70% covariance factor because they are certain contractual payouts. It is assumed that a company holds acceptable

liquid assets to meet potential and scheduled obligations for an additional year beyond the base time frame. Therefore, in the immediate scenario, a company should have ready liquidity for one full year of maturing obligations, while in the ongoing scenario, the requirement is for 100% of all obligations maturing in two years or less. Debt obligations include any publicly issued or private placement debt, bank debt, and commercial paper outstanding. Benefit obligations include payments anticipated under structured settlements, payout annuities, disability income and long-term care policies, and accident and health claim reserves related to shorter tail obligations. Secure companies, regardless of rating, need only small or no redundancy of liquid assets to cover fixed obligations because of the certainty of the liquidity needs associated with such obligations. This is not the case with other liability needs, such as surrenders, where disintermediation characteristics in the event of stress are unknown and therefore liquidity needs might be more severe. The need for redundancy of liquid assets for scheduled maturities takes into account such risks as market value/book value differences, asset deterioration, and potential losses stemming from asset/liability mismatches. Standard & Poor's liquidity model is calculated by subtracting from allowable assets the amount of liquid assets required to cover scheduled maturing obligations, and then comparing the adjusted potential obligations to allowable assets for each of the two scenarios. No redundancy is required for maturing SPIAs, structured settlements, A&H; benefit payments, debt, and non-benefit responsive GICs and funding agreements (FA). A 10% redundancy is required for GICs and FAs with put options of more than 60 days. A 15% redundancy is required for GICs and FAs with put options of 60 days or less, any benefit responsive GICs and FAs, and any other liabilities subject to downgrade triggers. Liquidity Standards by Rating Category The final calculation in the model compares the allowable assets under each of the two scenarios to the adjusted potential and maturing obligations under each scenario. However, a vital part of the assessment of an insurer's liquidity incorporates adjustments particular to individual companies, both qualitative and quantitative, which might stem from such instances as contingent noninsurance liabilities or concentrations among certain allowable assets. Using the scenario that produces the lower result, Standard & Poor's applies a rating scale based on the opinion that when a company's liquidity based on the model covers only potential obligations, the company might have adequate liquidity to cover the stress scenarios but might be susceptible to adverse economic, market, or company-related circumstances. Whereas based on the capital adequacy model it is unlikely that an insurer would be rated materially higher than its level of capitalization, based on the liquidity model all insurers in the "secure" range are expected to maintain at least 'BBB'-level liquidity, or 140%, while those rated 'AAA' must be at least 'A'-level, or 180%. It should be emphasized that while this model is used as a tool to help analyze a company's liquidity, Standard & Poor's recognizes there are other factors that need to be taken into account when analyzing liquidity, such as the quality of operating cash flow or the dividend needs of a holding company. Nevertheless, Standard & Poor's expects higher-rated companies to maintain higher levels of liquidity. Additional Measures Standard & Poor's also utilizes three additional ratios in our analysis of liquidity: (1) emerging markets debt as a percentage of total invested assets, (2) CBOs as a percentage of total invested assets, and (3) an immediate needs ratio (INR). The INR is the ratio of a company's funding agreements with put options of 60 days or less, plus commercial paper maturing within one year net of liquidity backup lines, plus any other liabilities maturing within one year that are subject to downgrade triggers, divided by the amount of liquid assets calculated for the immediate scenario. These ratios are meant to supplement Standard & Poor's analysis of liquidity. Although there are no predetermined expectations as to what any of the above three ratios should be for various rating categories, they are used to help identify companies which are industry outliers, as well as liquidity needs that might not otherwise be signaled by the liquidity model.

**Table 5 Rating Standards**

RATING LEVEL	LIQUIDITY RATIO (%)
AAA (Extremely Strong)	260 plus
AA (Very Strong)	220 to 259
A (Strong)	180 to 219
BBB (Good)	140 to 179
BB (Marginal)	100 to 139